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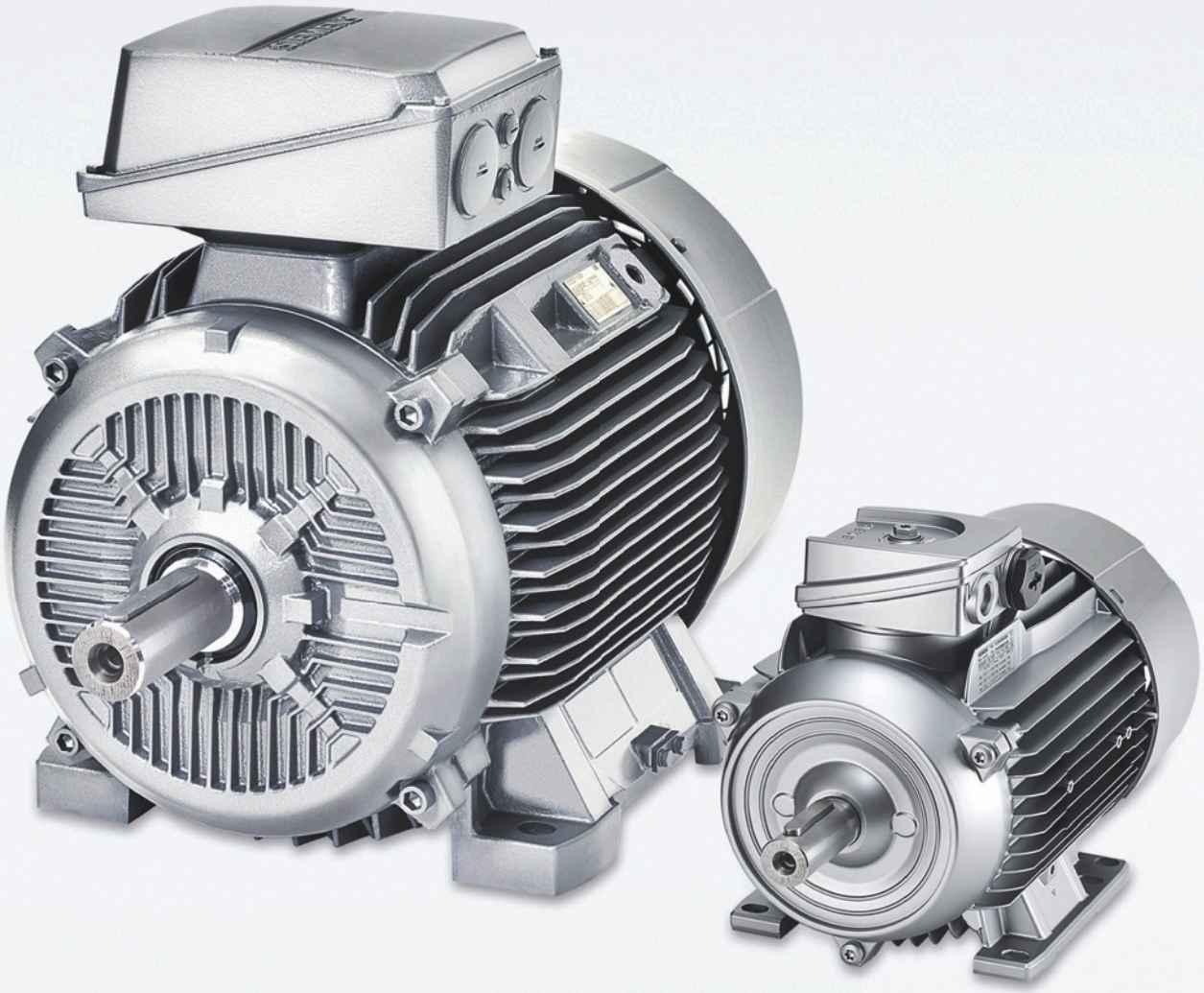

SIMOTICS Motors

SIMOTICS GP, SD, XP, DP Low-Voltage Motors

Type series 1FP1, 1LE1, 1LE5, 1MB1, 1MB5 and 1PC1

Frame sizes 63 to 450 · Power range 0.09 to 1000 kW

Catalog D 81.1

Edition 06/2020

siemens.com/drives

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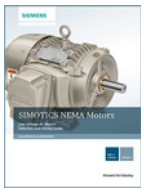
Related catalogs

SIMOTICS FD D 81.8
Low-Voltage Motors
Frame sizes 315 to 450
Power range 200 to 1800 kW

PDF (E86060-K5581-A181-A5-7600)

SIMOTICS NEMA Motors D 81.2
Low Voltage AC Motors
Selection and Pricing Guide

Further details available on the Internet at:
www.usa.siemens.com/motors



SINAMICS G130 D 11
Drive Converter Chassis Units
SINAMICS G150
Drive Converter Cabinet Units

E86060-K5511-A101-A6-7600

Motion Control Drives D 21.4
SINAMICS S120 and SIMOTICS

E86060-K5521-A141-A1-7600

SINAMICS S120 D 21.3
Chassis Format Converter Units
Chassis-2 Format Converter Units
Cabinet Modules, Cabinet Modules-2
SINAMICS S150
Converter Cabinet Units
E86060-K5521-A131-A7-7600

Motion Control Drives D 31.1
SINAMICS Inverters for Single-Axis Drives
Built-In Units

E86060-K5531-A111-A1-7600

Industry Mall
Information and Ordering Platform
on the Internet:

www.siemens.com/industrymall

Industrial Controls IC 10
SIRIUS

E86060-K1010-A101-B1-7600

All catalogs and other information material, such as brochures, manuals and operating instructions for standard drive systems are available up-to-date on the Internet at the following address:
www.siemens.com/drives/catalogs

The listed documentation can be ordered here or it is available in commonly used file formats (PDF, ZIP) for downloading.

SinaSave energy saving/energy efficiency tool

Further information on the subject of energy saving and the SinaSave energy efficiency tool is available at the following address:
www.sinasave.siemens.com

Drive Technology Configurator

The DT Configurator can be used on the Internet without requiring any installation.
The DT Configurator can be found in the Industry Mall at the following address:
www.siemens.com/dt-configurator

The Drive Technology Configurator for gear units, motors, mechanical components, converters, connection systems, control and licenses and system configuration can be found in the Industry Mall main menu, under drive systems, selection and engineering tools.

- Data sheets in up to 7 languages in PDF or RTF format
- 2D/3D dimensional drawings in various formats
- Terminal box drawing and terminal connection diagram
- Operating instructions
- Certificates
- Start-up calculation for SIMOTICS motors
- EPLAN macros

Copper surcharges

The metal factors that are applicable for the copper surcharges are specified in the headers of the current Price List D 81.1 P. Further information about "Metal surcharges" can be found in the appendix to this catalog.

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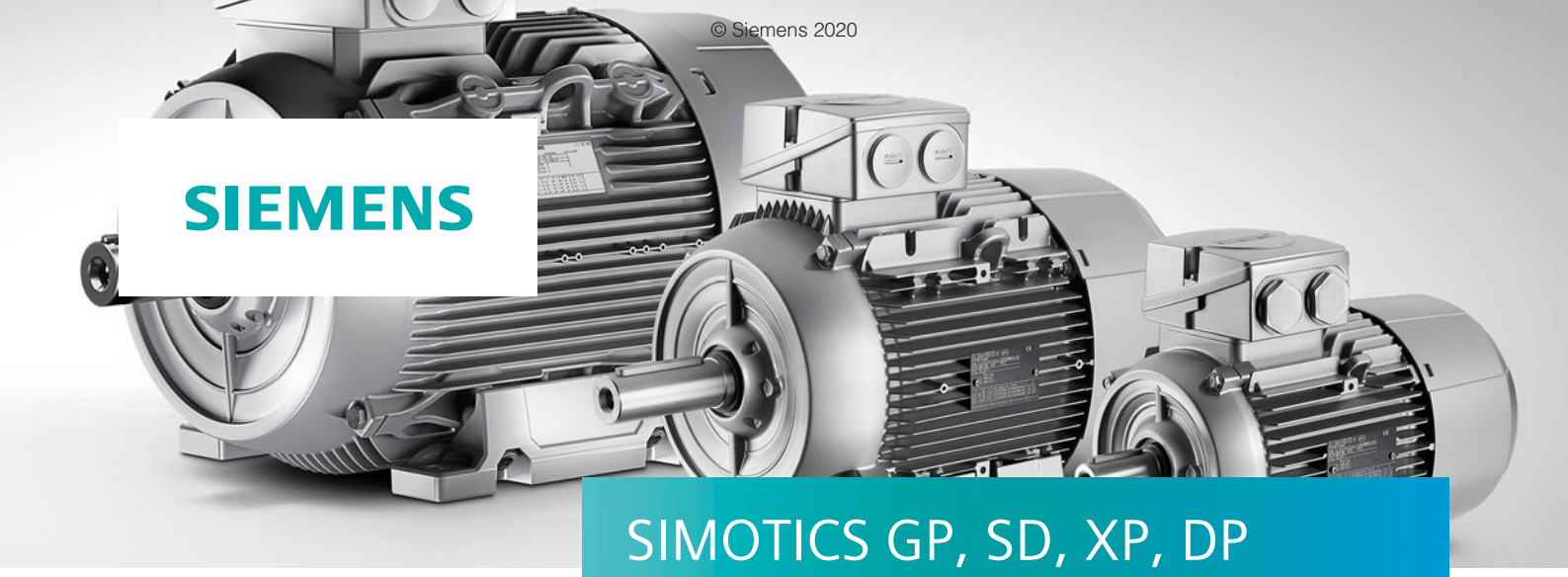

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SIMOTICS GP, SD, XP, DP
Low-Voltage Motors

Type series 1FP1, 1LE1, 1LE5, 1MB1, 1MB5 and 1PC1
Frame sizes 63 to 450, power range 0.09 to 1000 kW

Catalog D 81.1 · 06/2020

Dear Customer,

We are pleased to present you with the new Catalog D 81.1 · 06/2020.
The new catalog replaces the old Catalog D 81.1 · 07/2019:

In the catalog, numerous new products have been included, which are marked with "▲" to indicate a brand new listing.

- For the SIMOTICS GP/SD standard motors:
  - Inclusion of the new SIMOTICS GP 1LE1083 aluminum series with IE3 Premium Efficiency, 2- to 8-pole, frame sizes 100 to 200
  - Inclusion of the new SIMOTICS SD 1LE1583 cast-iron series with IE3 Premium Efficiency, 2- to 8-pole, frame sizes 100 to 315
- For the SIMOTICS XP explosion-protected motors:
  - Inclusion of the new 1MB55.4 cast-iron series with IE4 Super Premium Efficiency, 2- to 8-pole, frame sizes 400 and 450
  - Expansion of the 1MB55.3 cast-iron series with IE3 Premium Efficiency, 2- to 8-pole to include frame sizes 400 and 450
  - Inclusion of the new 1MB58.3 cast-iron series with IE3 Premium Efficiency, 2- to 8-pole, frame sizes 400 and 450

By clicking on the article numbers in each chapter of the catalog PDF, you can go directly to our "Industry Mall".

The products listed in this catalog are also included in the "Industry Mall".

The "Drive Technology Configurator" is updated daily in the Internet at
www.siemens.com/dt-configurator
Up-to-date information about low-voltage motors is available online at:
www.siemens.com/lowvoltagemotors

You can access our "Industry Mall" online at
www.siemens.com/industrymall

Your personal contact will be glad to receive your suggestions and recommendations for improvement. You can find your representative in our contact person database at www.siemens.com/automation-contact

We hope that you will often enjoy using Catalog D 81.1 · 06/2020 as a selection and ordering reference document and wish you every success with our products and solutions.

With kind regards,

Christoph Nöth
Head of Product Portfolio Management
Siemens AG, Motion Control, Low Voltage Motors, Europe

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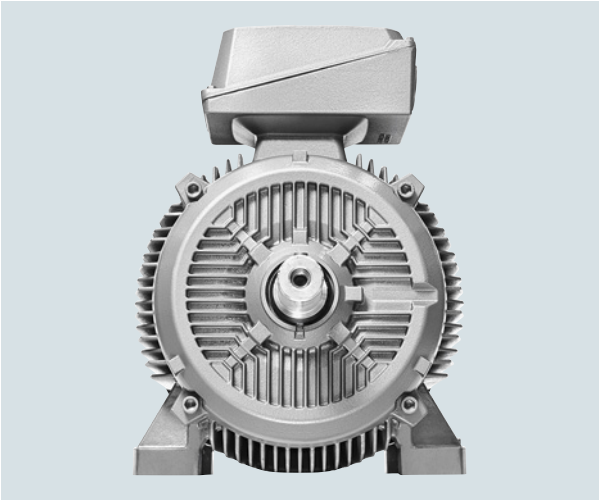
SIMOTICS GP, SD, XP, DP Low-Voltage Motors

Type series 1FP1, 1LE1, 1LE5, 1MB1, 1MB5 and 1PC1

Motors



Catalog D 81.1 · 06/2020

Supersedes:
Catalog D 81.1 · 07/2019

Refer to the Industry Mall for current updates of this catalog:
www.siemens.com/industrymall

Please contact your local Siemens branch.

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Introduction 1
Information regarding efficiency in accordance with International Efficiency,
Guide to selecting and ordering the motors,
General information, Electrical design, Mechanical version, Mounting technology

SIMOTICS GP and SIMOTICS SD standard motors 2

SIMOTICS SD standard motors next generation 3

SIMOTICS VSD motors for converter operation 4

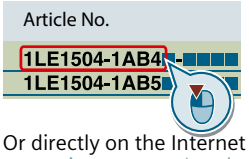
SIMOTICS XP explosion-protected motors 5

SIMOTICS DP application-specific motors 6
- Marine motors

Appendix 7
NEMA motors, Industry Services, Partner at Siemens, Tools and engineering, Index of order codes, Conversion tables, Metal surcharges, Conditions of sale and delivery

NEW

By clicking on an Article No., you can access the DT Configurator to complete the configuration and then you can get product information and order in the Industry Mall.



Or directly on the Internet in the Industry Mall, e.g. by entering
www.siemens.com/product?1LE1504-1AB4

The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with EN ISO 9001 (04-31-1267 Certified Registration No. DE-000357 QM). The certificate is recognized by all IQNet countries.

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Digital Enterprise

The building blocks that ensure everything works together perfectly in the digital enterprise

Digitalization is already changing all areas of life and existing business models. It is placing greater pressure on industry while at the same time creating new business opportunities. Today, thanks to scalable solutions from Siemens, companies can already become a digital enterprise and ensure their competitiveness.

Industry faces tremendous challenges

Reduce time-to-market

Today manufacturers have to bring products to market at an ever-increasing pace despite the growing complexity of these products. In the past, a major manufacturer would push aside a small one, but now it is a fast manufacturer that overtakes a slow one.

Boost flexibility

Consumers want customized products, but at a price they would pay for a mass-produced item. That only works if production is more flexible than ever before.

Improve quality

To ensure a high level of quality while meeting legal requirements, companies have to establish closed quality loops and enable the traceability of products.

Boost efficiency

Today the product itself needs to be sustainable and environmentally friendly, while energy efficiency in production has become a competitive advantage.

Increase security

Increasing networking escalates the threat to production facilities of cyberattacks. Today more than ever, companies need suitable security measures.

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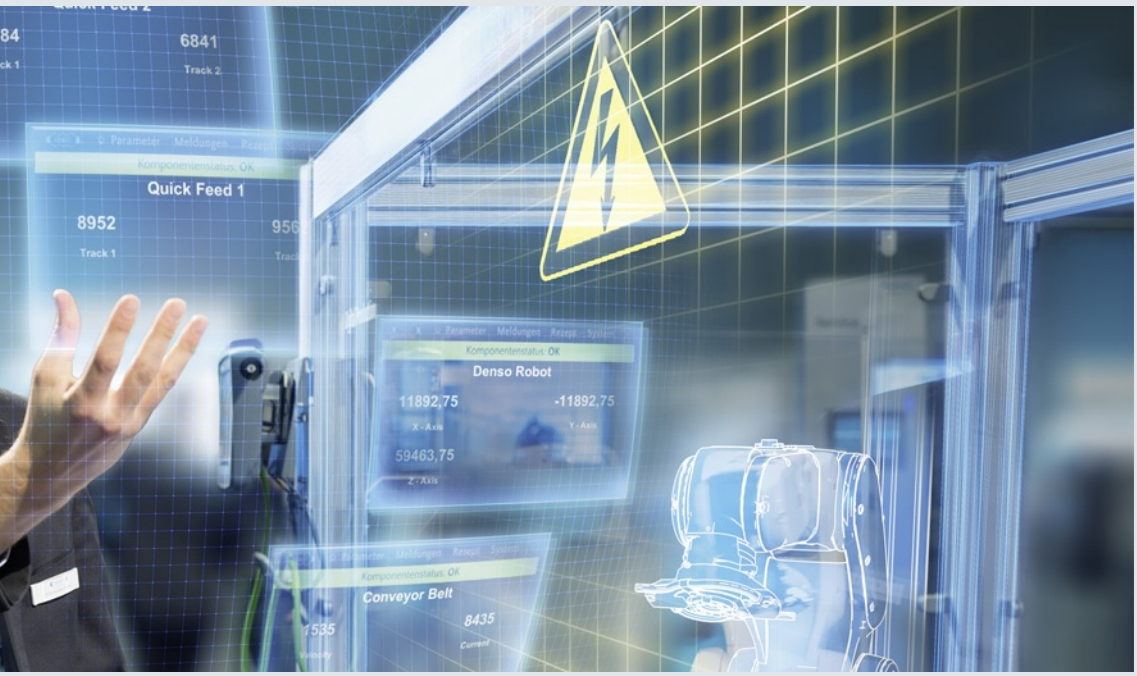

The digital enterprise has already become a reality

To fully benefit from all the advantages of digitalization, companies first have to achieve complete consistency of their data. Fully digitally integrated business processes, including those of suppliers, can help to create a digital representation of the entire value chain. This requires

- the integration of industrial software and automation,
- expansion of the communication networks,
- security in automation,
- and the use of business-specific industrial services.

MindSphere

The cloud-based open IoT operating system from Siemens

With MindSphere, Siemens offers a cost-effective and scalable cloud platform as a service (PaaS) for the development of applications. The platform, designed as an open operating system for the Internet of Things, makes it possible to improve the efficiency of plants by collecting and analyzing large volumes of production data.

Totally Integrated Automation (TIA)

Where digitalization becomes reality

Totally Integrated Automation (TIA) ensures the seamless transition from the virtual to the real world. It already encompasses all the necessary conditions for transforming the benefits of digitalization into true added value. The data that will form the digital twin for actual production is generated from a common base.

Digital Plant
Learn more about the digital enterprise for the process industry
www.siemens.com/digitalplant

Digital Enterprise Suite
Learn more about the digital enterprise for the discrete industry
www.siemens.com/digital-enterprise-suite

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Integrated Drive Systems

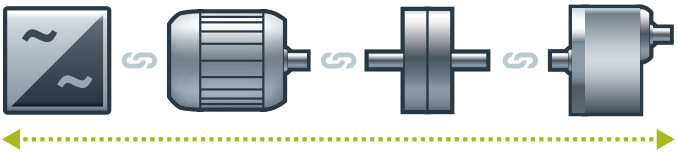
Faster on the market and in the black with Integrated Drive Systems

Integrated Drive Systems are Siemens' trendsetting answer to the high degree of complexity that characterizes drive and automation technology today. The world's only true one-stop solution for entire drive systems is characterized in particular by its threefold integration: Horizontal, vertical, and lifecycle integration ensure that every drive system component fits seamlessly into the whole system, into any automation environment, and even into the entire lifecycle of a plant.

The outcome is an optimal workflow – from engineering all the way to service that entails more productivity, increased efficiency, and better availability. That's how Integrated Drive Systems reduce time to market and time to profit.

Horizontal integration

Integrated drive portfolio: The core elements of a fully integrated drive portfolio are frequency converters, motors, couplings, and gear units. At Siemens, they're all available from a single source. Perfectly integrated, perfectly interacting. For all power and performance classes. As standard solutions or fully customized. No other player in the market can offer a comparable portfolio. Moreover, all Siemens drive components are perfectly matched, so they are optimally interacting.



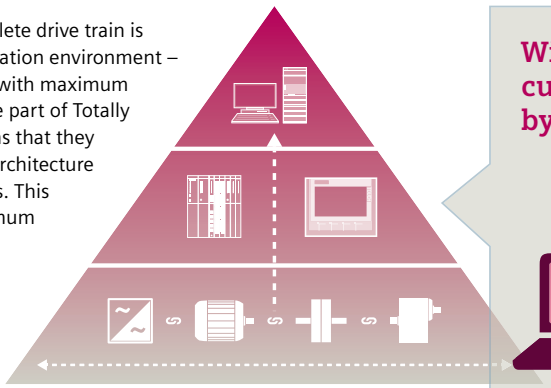
You can boost the availability of your application or plant to up to

99 %*

*e.g., conveyor application

Vertical integration

Thanks to **vertical integration**, the complete drive train is seamlessly integrated in the entire automation environment – an important prerequisite for production with maximum value added. Integrated Drive Systems are part of Totally Integrated Automation (TIA), which means that they are perfectly embedded into the system architecture of the entire industrial production process. This enables optimal processes through maximum communication and control.



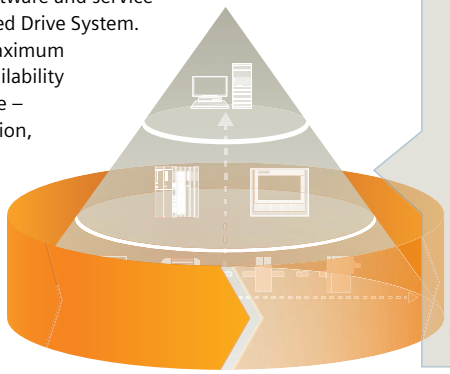
With TIA Portal you can cut your engineering time by up to

30 %

Lifecycle integration

Lifecycle integration adds the factor of time: Software and service are available for the entire lifecycle of an Integrated Drive System. That way, important optimization potential for maximum productivity, increased efficiency, and highest availability can be leveraged throughout the system's lifecycle – from planning, design, and engineering to operation, maintenance, and all the way even to modernization.

With Integrated Drive Systems, assets become important success factors. They ensure shorter time to market, maximum productivity and efficiency in operation, and shorter time to profit.



With Integrated Drive Systems you can reduce your maintenance costs by up to

15 %

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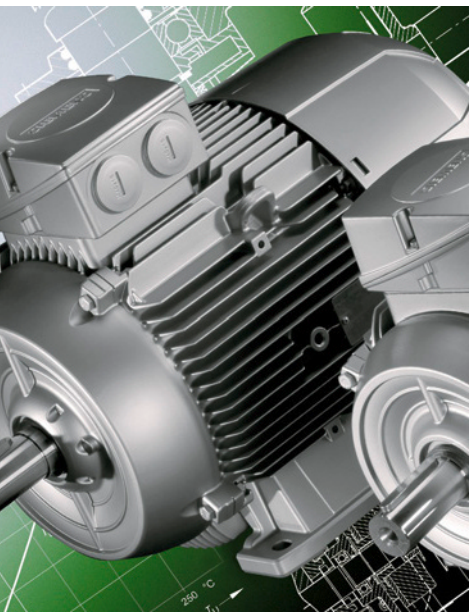
Introduction



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1/2 Innovative drive technology for all industries, applications and power classes
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1/5 Efficiency classes and efficiencies according to IEC 60034-30-1

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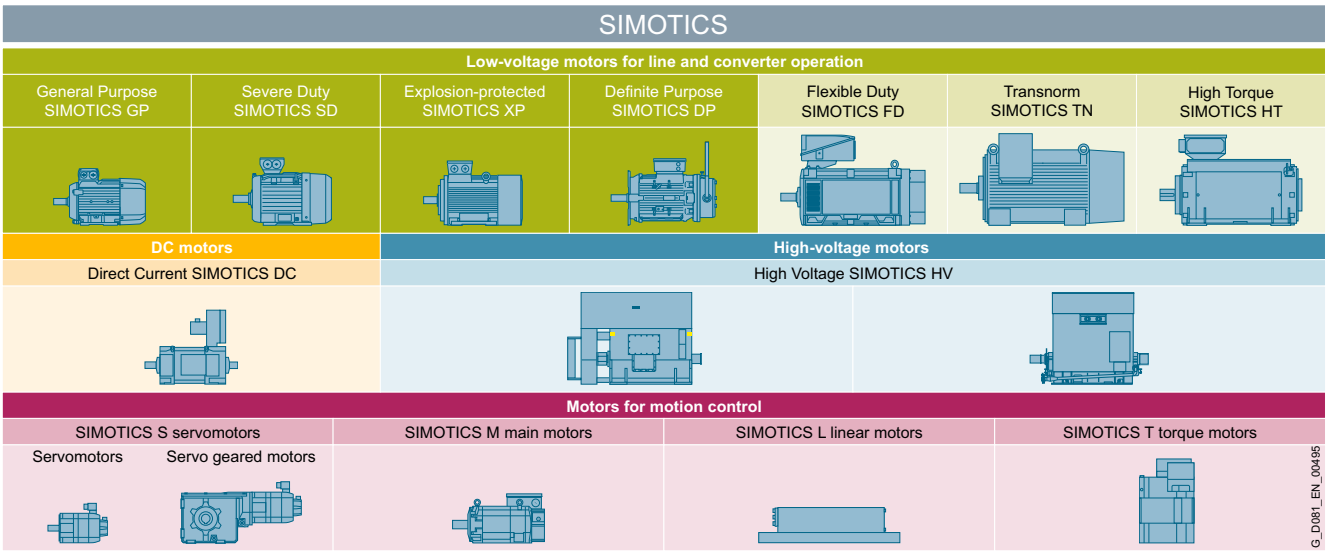
1

Innovative drive technology for all industries, applications and power classes

Overview



SIMOTICS motors

With SIMOTICS, Siemens has the most comprehensive portfolio of electric motors worldwide. From energy-efficient, low-voltage motors through servomotors with high dynamic performance up to well-proven DC motors and powerful high-voltage motors. Innovative drive technology for all industries, applications and power classes.

Outstanding performance, quality, efficiency, and compactness.

The SIMOTICS motor portfolio:

- SIMOTICS Low-Voltage Motors for line and converter operation:
  For standard applications with low to high motor power ratings
- SIMOTICS Motion Control motors:
  For highly dynamic and extremely precise applications in mechanical engineering
- SIMOTICS DC motors:
  For DC applications
- SIMOTICS High-Voltage Motors:
  For line and converter operation in standard applications with high to very high motor power ratings.

SIMOTICS Low-Voltage Motors for line and converter operation

SIMOTICS Low-Voltage Motors are the right choice for solving drive tasks efficiently and reliably. In contrast to Motion Control motors, which are additionally characterized by very high dynamic response and precision, the more favorably priced low-voltage motors are predestined for continuous or periodic, as well as powerful motions with fixed or variable speed, such as in pumps, fans, compressors, conveyor belts, lifts, hoisting and traversing gear, winders, mixers, kneaders and centrifuges.

SIMOTICS Low-Voltage Motors are characterized by very high reliability, ruggedness, and efficiency in operation.

They are available in diverse series and versions, which means that the appropriate motor can always be found for any application in an industrial or commercial environment, as well as in building management systems, shipbuilding and infrastructure.

SIMOTICS Low-Voltage Motors comply with the most important relevant standards and guidelines and are available in IEC, NEMA, and APAC versions. They can be used all over the world, and have a global, long-term spare parts service. For these reasons, they provide a sustainable basis for export-oriented, globally operating companies to enable them to conduct their international business efficiently.

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Overview

SIMOTICS GP – General Purpose motors are the most economical solution for use under standard environmental conditions. Typically, these motors have an aluminum housing and are characterized by their low weight. SIMOTICS GP motors are available in the power range from 0.09 to 45 kW.

Available motor variants:

- Induction motors, optimized for line operation
  - in efficiency classes IE4, IE3, IE2, IE1
  - as a standards-compliant version or compact version with increased power (IE3, IE2, IE1)
  - as a 2-, 4-, 6-, 8-pole version
  - as pole-changing motors
  - as an APAC version for use in the ASEAN Pacific region (IE3, IE2)
  - as a NEMA version for use in the NAFTA area
    - electrically (mechanically acc. to IEC): Eagle Line
    - electrically and mechanically
  - can optionally be run on a converter
- Motors optimized for operation on frequency converters
  - as a SIMOTICS GP – VSD10 line induction motor
  - as a SIMOTICS GP – VSD4000 line synchronous reluctance motor for particularly efficient operation in conjunction with SINAMICS converters.
- Different types of construction, voltage versions, and a wide variety of options/add-ons for precise adaptation of the motors to application and customer-specific requirements.

SIMOTICS SD – Severe Duty motors have a rugged cast-iron housing, which means that they are also suitable for use in harsh to very harsh environments. With a wide power range from 0.09 to 1000 kW, SIMOTICS SD motors are the basis for machine and plant builders and owners who require a universal motor for flexible requirements and conditions of use.

Available motor variants:

- Induction motors, optimized for line operation
  - in efficiency classes IE4, IE3, IE2, IE1
  - standards-compliant version or compact version with increased power (IE3, IE2, IE1)
  - as a 2-, 4-, 6-, 8-pole version
  - as an APAC version for use in the ASEAN Pacific region (IE3, IE2)
  - as a NEMA version for use in the NAFTA area
    - electrically (mechanically acc. to IEC): Eagle Line
    - electrically and mechanically
  - can optionally be run on a converter
- Motors optimized for operation on frequency converters
  - as a SIMOTICS SD – VSD10 line induction motor
  - as a SIMOTICS SD – VSD4000 line synchronous reluctance motor for particularly efficient operation in conjunction with SINAMICS converters.
- Basic Line and particularly rugged Performance Line
- Different types of construction, voltage versions, and a very wide variety of options/add-ons for precise adaptation of the motors to application and customer-specific requirements.

SIMOTICS – next generation is the next innovation step in low-voltage motors.
In particular, these motors offer the following advantages for customers:

- More efficiency in the engineering process due to the Digital Twin Concept.
- Further increase in availability due to the Smart Motor Concept.

SIMOTICS XP – Explosion Proof motors are designed for use in hazardous environments. For all conditions of use and hazard zones, e.g. in explosive gas atmospheres of the chemical/petrochemical sector or in explosive dust atmospheres in the mining or food and beverage sectors, there are suitable motor versions in aluminum and cast iron that ensure maximum safety and satisfy the relevant standards and regulations.

SIMOTICS XP motors are available in the power range from 0.09 to 460 kW.

Available motor variants:

- Motors for use in Zones 1, 2, 21 and 22
- Induction motors optimized for line operation
  - in efficiency classes IE3, IE2, IE1
  - as a 2-, 4-, 6-, 8-pole version
  - as a NEMA version for use in the NAFTA area
- For motors suitable for line and converter operation
- Basic Line and particularly rugged Performance Line in a cast-iron housing
- Different types of construction, voltage versions, and a wide variety of options/add-ons for precise adaptation of the motors to application and customer-specific requirements.

SIMOTICS DP – Definite Purpose motors are low-voltage motors for application-specific, customized and industry-specific use.

They have the required respective industry-specific properties and certificates.

SIMOTICS DP motors:

- Crane motors for use in cranes (primarily for hoisting gear)
- Marine motors for use on ships
- Steel plant motors for use in the steel industry
- Roller table motors for roller table applications in the steel industry

SIMOTICS FD – Flexible Duty motors have been optimized for converter operation to flexibly address applications in power ranges extending from 200 to over 1600 kW. These are available with various cooling methods (air cooling, water cooling).

SIMOTICS TN – Transnorm motors are low-voltage motors for line and converter operation in a cast-iron housing with higher power ratings up to 5000 kW from shaft height 315. In non-standard (Transnorm) motors, the assignment of the power rating and shaft extensions to frame size is not standardized.

SIMOTICS HT – High Torque motors are permanent-magnet synchronous motors and are used in applications that require extremely powerful drives without gear units, even at low speeds.

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SIMOTICS Digital Data App

Overview

The SIMOTICS Digital Data App provides access to technical data, spare part information, and operating instructions for SIMOTICS GP/SD motors any time any place. This gives our customers quick access to important contents of the digital twin. This simplifies our customers' processes.
By scanning the data matrix code on the additional rating plate of the motor, the relevant electrical and mechanical data can be displayed for this motor.

- Electronic and mechanical rating plate data
- Additional motor data
- Service information, e.g. display of the spare part list
- Display of the ordering options installed
- Documentation and manuals

The SIMOTICS Digital Data App is available for Apple and Android devices and can be installed from the respective stores. To do this, please scan the appropriate QR code.

Download on the App Store

Scan the QR code for the SIMOTICS Digital Data App.

GET IT ON Google Play

Scan the QR code for the SIMOTICS Digital Data App.

Benefits

- Shorter commissioning and service times
- Fast access to relevant service information
- Online availability of the motor data for integration into ERP systems

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Overview

Harmonization of the efficiency classes

Various energy efficiency standards exist worldwide for induction motors. To promote global standardization, the international standard IEC 60034-30-1:2014 (Rotating electrical machines – Part 30-1: Efficiency classes of single-speed, three-phase, cage-induction motors (IE code) were defined and are used as the basis for local standards in most countries. Only the NAFTA countries USA, Canada, and Mexico use the differing standards of NEMA MG1. Standard IEC 60034-30-1:2014 divides low-voltage induction motors into new efficiency classes IE1 to IE4, which supersede the efficiency classes EFF2 and EFF1 previously valid in the EU.

Applicability (excerpt)
- Low-voltage motors up to 1000 V (50/60 Hz in line operation)
- Power rating: 0.12 to 1000 kW; with 2, 4, 6, or 8 poles
- Operating mode: S1

The efficiencies in IEC 60034-30-1 are based on the method for determining losses according to IEC 60034-2-1:2014.

IE efficiency classes

The efficiency classes are grouped according to the following nomenclature (IE = International Efficiency):
- IE1 (Standard Efficiency)
- IE2 (High Efficiency)
- IE3 (Premium Efficiency)
- IE4 (Super Premium Efficiency)

IEC 60034-30-1 EU and other countries	NEMA MG1 NAFTA (USA, Canada, Mexico)	GB 18613-2012 China
IE4 [1]		**Grade 1 (IE4)**
IE3	**Premium Efficient (60 Hz)**	**Grade 2 (IE3)**
IE2	**Energy Efficient (60 Hz)**	**Grade 3 (IE2)**

Comparison of IE efficiency classes

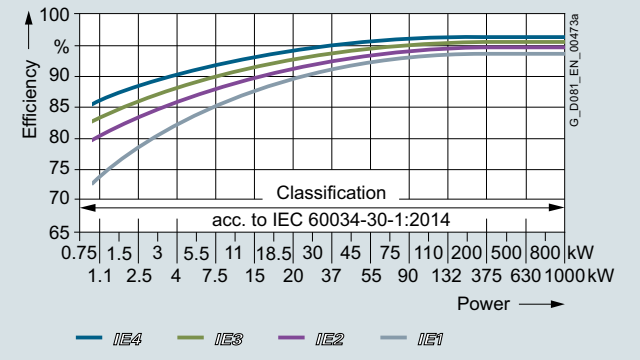
Note:
All efficiency classes are stated with reference to 50 Hz data (unless specified otherwise).

Measuring method according to IEC 60034-2-1:2014 for determining the efficiency

With this measuring method, motor losses are no longer applied as a percentage, but are determined by standard methods. The nominal efficiencies are therefore reduced from EFF1 to IE2 and from EFF2 to IE1, even though there have been no technical or physical changes to the motors.

Previously: P_{LL} = 0.5 % of P_1 (power drawn; IEC 60034-2)
Now: P_{LL} = individual measurement (IEC 60034-1)

P_{LL} = additional load losses



IE1-IE4 efficiencies, 4-pole, 50 Hz, depending on the power

Minimum efficiencies according to IEC 60034-30-1:2014

Rated power	Efficiency η in % IEC IE class							
$P_{rated, 50\ Hz}$	**IE1** – Standard Efficiency				**IE2** – High Efficiency			
kW	2-pole	4-pole	6-pole	8-pole	2-pole	4-pole	6-pole	8-pole
0.18	52.8	57.0	45.5	38.0	60.4	64.7	56.6	45.9
0.20	54.6	58.5	47.6	39.7	61.9	65.9	58.2	47.4
0.25	58.2	61.5	52.1	43.4	64.8	68.5	61.6	50.6
0.37	63.9	66.0	59.7	49.7	69.5	72.7	67.6	56.1
0.40	64.9	66.8	61.1	50.9	70.4	73.5	68.8	57.2
0.55	69.0	70.0	65.8	56.1	74.1	77.1	73.1	61.7
0.75	72.1	72.1	70.0	61.2	77.4	79.6	75.9	66.2
1.1	75.0	75.0	72.9	66.5	79.6	81.4	78.1	70.8
1.5	77.2	77.2	75.2	70.2	81.3	82.8	79.8	74.1
2.2	79.7	79.7	77.7	74.2	83.2	84.3	81.8	77.6
3	81.5	81.5	79.7	77.0	84.6	85.5	83.3	80.0
4	83.1	83.1	81.4	79.2	85.8	86.6	84.6	81.9
5.5	84.7	84.7	83.1	81.4	87.0	87.7	86.0	83.8
7.5	86.0	86.0	84.7	83.1	88.1	88.7	87.2	85.3
11	87.6	87.6	86.4	85.0	89.4	89.8	88.7	86.9
15	88.7	88.7	87.7	86.2	90.3	90.6	89.7	88.0
18.5	89.3	89.3	88.6	86.9	90.9	91.2	90.4	88.6
22	89.9	89.9	89.2	87.4	91.3	91.6	90.9	89.1
30	90.7	90.7	90.2	88.3	92.0	92.3	91.7	89.8
37	91.2	91.2	90.8	88.8	92.5	92.7	92.2	90.3
45	91.7	91.7	91.4	89.2	92.9	93.1	92.7	90.7
55	92.1	92.1	91.9	89.7	93.2	93.5	93.1	91.0
75	92.7	92.7	92.6	90.3	93.8	94.0	93.7	91.6
90	93.0	93.0	92.9	90.7	94.1	94.2	94.0	91.9
110	93.3	93.3	93.3	91.1	94.3	94.5	94.3	92.3
132	93.5	93.5	93.5	91.5	94.6	94.7	94.6	92.6
160	93.8	93.8	93.8	91.9	94.8	94.9	94.8	93.0
200 … 1000	94.0	94.0	94.0	92.5	95.0	95.1	95.0	93.5

Rated power	Efficiency η in % IEC IE class							
$P_{rated, 50\ Hz}$	**IE3** – Premium Efficiency				**IE4** – Super Premium Efficiency			
kW	2-pole	4-pole	6-pole	8-pole	2-pole	4-pole	6-pole	8-pole
0.18	65.9	69.9	63.9	58.7	70.8	74.7	70.1	67.2
0.20	67.2	71.1	65.4	60.6	71.9	75.8	71.4	68.4
0.25	69.7	73.5	68.6	64.1	74.3	77.9	74.1	70.8
0.37	73.8	77.3	73.5	69.3	78.1	81.1	78.0	74.3
0.40	74.6	78.0	74.4	70.1	78.9	81.7	78.7	74.9
0.55	77.8	80.8	77.2	73.0	81.5	83.9	80.9	77.0
0.75	80.7	82.5	78.9	75.0	83.5	85.7	82.7	78.4
1.1	82.7	84.1	81.0	77.7	85.2	87.2	84.5	80.8
1.5	84.2	85.3	82.5	79.7	86.5	88.2	85.9	82.6
2.2	85.9	86.7	84.3	81.9	88.0	89.5	87.4	84.5
3	87.1	87.7	85.6	83.5	89.1	90.4	88.6	85.9
4	88.1	88.6	86.8	84.8	90.0	91.1	89.5	87.1
5.5	89.2	89.6	88.0	86.2	90.9	91.9	90.5	88.3
7.5	90.1	90.4	89.1	87.3	91.7	92.6	91.3	89.3
11	91.2	91.4	90.3	88.6	92.6	93.3	92.3	90.4
15	91.9	92.1	91.2	89.6	93.3	93.9	92.9	91.2
18.5	92.4	92.6	91.7	90.1	93.7	94.2	93.4	91.7
22	92.7	93.0	92.2	90.6	94.0	94.5	93.7	92.1
30	93.3	93.6	92.9	91.3	94.5	94.9	94.2	92.7
37	93.7	93.9	93.3	91.8	94.8	95.2	94.5	93.1
45	94.0	94.2	93.7	92.2	95.0	95.4	94.8	93.4
55	94.3	94.6	94.1	92.5	95.3	95.7	95.1	93.7
75	94.7	95.0	94.6	93.1	95.6	96.0	95.4	94.2
90	95.0	95.2	94.9	93.4	95.8	96.1	95.6	94.4
110	95.2	95.4	95.1	93.7	96.0	96.3	95.8	94.7
132	95.4	95.6	95.4	94.0	96.2	96.4	96.0	94.9
160	95.6	95.8	95.6	94.3	96.3	96.6	96.2	95.1
200	95.8	96.0	95.8	94.6	96.5	96.7	96.3	95.4
250	95.8	96.0	95.8	94.6	96.5	96.7	96.5	95.4
315 … 1000	95.8	96.0	95.8	94.6	96.5	96.7	96.6	95.4

[1] Defined in IEC 60034-30-1.

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Overview

Background information

Comprehensive laws have been introduced in the European Union with the objective of reducing energy consumption and therefore CO_2 emissions. EU Regulations 640/209 and 2019/1781 concern the energy consumption or efficiency of induction motors in the industrial environment. This regulation is in force in every country of the European Economic Area until June 30, 2021.
Effective July 1, 2021, the new regulation (EU) 2019/1781 will come into force. The main contents of and exceptions to both regulations are explained below.

For more information on internationally applicable standards and legal requirements, visit:
www.siemens.com/international-efficiency

Regulation (EC) 640/2009

Exceptions

- Motors that are designed to be operated totally submerged in a liquid;
- Motors fully integrated into a product (e.g. a gear unit, pump, fan or compressor) whose energy efficiency cannot be measured independently of the product;
- Motors that are specially designed for operation under the following conditions:
  - At altitudes greater than 4000 meters above sea level;
  - At ambient temperatures above 60 °C;
  - At maximum operating temperatures above 400 °C;
  - At ambient temperatures below –30 °C
  - With cooling liquid temperatures at the product intake of below 0 °C or above 32 °C;
  - In hazardous areas in the context of Directive 2014/34/EU of the European Parliament and Council;
- Brake motors

The following motors are not affected:
- Pole-changing motors
- Synchronous motors
- Motors for intermittent duty S2 to S9
- Single-phase motors
- Motors specially developed for converter operation in accordance with IEC 60034-25

The following changes came into effect on the dates below:

From January 1, 2015:
Compliance with the legally required minimum efficiency class IE3 for a power range from 7.5 to 375 kW (2-, 4-, 6-pole) or, as an alternative, IE2 motor plus frequency converter.

From January 1, 2017:
Compliance with the legally required minimum efficiency class IE3 for a power range from 0.75 to 375 kW (2-, 4-, 6-pole) or, as an alternative, IE2 motor plus frequency converter.

From July 1, 2021:
Compliance with the legally required minimum efficiency class IE2 for a power range from 0.12 to 0.75 kW (2-, 4-, 6-, and 8-pole), exception: Ex eb motors

Compliance with the legally required minimum efficiency class IE3 for a power range from 0.75 to 1000 kW (2-, 4-, 6- and 8-pole), exception: Ex eb motors

From July 1, 2023:
Compliance with the legally required minimum efficiency class IE2 for a power range from 0.12 to 1000 kW (2-, 4-, 6- and 8-pole) of Ex eb motors with increased safety and of single-phase motors with a rated output power of at least 0.12 kW.

Compliance with the legally required minimum efficiency class IE4 for a power range of 75 kW to 200 kW (2-, 4-, 6-pole). Exception: Motors with a brake, Ex eb motors with increased safety or other explosion-protected motors.

Changes according to EU motor regulation 640/2009
Low-voltage motors with a power range from 0.75 kW to < 7.5 kW have been labeled as follows since January 1, 2017, and low-voltage motors with a power range from 7.5 kW to 375 kW with efficiency class IE2 have been labeled as follows since January 1, 2015:

This obligation applies only within the European Economic Area. Correct application is the sole responsibility of the customer.

Motor series SIMOTICS VSD10 (1LE1092/1LE1592), VSD4000 (1FP10/1FP15) and SIMOTICS FD (1LH1) are the preferred motor types for converter operation.

New regulation (EU) 2019/1781

Exceptions

- Motors that are designed to be operated totally submerged in a liquid
- Motors fully integrated into a product (e.g. a gear unit, pump, fan or compressor) whose energy efficiency cannot be measured independently of the product
- Motors that are specially designed for operation under the following conditions:
  - At altitudes greater than 4000 meters above sea level
  - Where ambient temperatures exceed 60 °C
  - At maximum operating temperatures above 400 °C
  - At ambient temperatures below -30 °C
  - With cooling liquid temperatures at the product intake of below 0 °C or above 32 °C
  - In hazardous areas as defined in Directive 2014/34/EU of the European Parliament and Council that are designed and certified for underground mining applications
  - Motors with an integrated brake that is an integral part of the interior motor structure and can neither be removed or powered from a separate source during motor efficiency testing.
  - Motors with an integrated speed control (compact drives), whose energy efficiency cannot be tested independently of the speed control

The following motors are not affected:
- Pole-changing motors
- Synchronous motors
- Totally enclosed, naturally ventilated motors (TENV motors);
- Motors specially developed for converter operation in accordance with IEC 60034-25

Other potential restrictions as described in the technical documentation may apply to converter operation and must be taken into account!
The following are generally recommended for converter operation:
- Motor temperature detection by embedded temperature sensor
- Bearing insulation with frame size 225 and larger

Note:
Different minimum efficiency class requirements apply in China, Korea, and Australia. Other countries will be available soon.

Motors for the North American market

The Energy Policy Act (EPAct) was superseded in December 2010 by the Energy Independence Security Act (EISA). The following motors must fulfill the NEMA Premium Efficient Level:
- 1 hp (0.75 kW) … 500 hp (373 kW): 2-, 4-pole
  1 hp (0.75 kW) … 350 hp (261 kW): 6-pole
  1 hp (0.75 kW) … 250 hp (186 kW): 8-pole
- 2-, 4-, 6- and 8-pole
- ≤ 600 V
- NEMA Design A, B, or C. IEC Design N or H

For details, see NEMA MG1, Table 12-11 and Table 12-12.

Abbreviations

NEMA: National Electrical Manufacturers Association
IEC: International Electrotechnical Commission
EEA: European Economic Area

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Overview

Steps for drive selection

Step 1	**Orientation and general technical information**		
Technical requirements for the motor	Rated frequency and rated voltage	3 AC 50/60 Hz, 400, 500 or 690 V	
	Operating mode	Standard duty (continuous duty S1 according to EN 60034-1)	
	Degree of protection or type of explosion protection required	IP..	
	Rated speed (No. of poles)	n = ... rpm	
	Rated power	P = ... kW	
	Rated torque	$T = P \cdot 9550/n$ = ... Nm	
	Type of construction	IM..	
Step 2	**Preselection in accordance with the application**		
Determination of the installation conditions and definition of the application, if necessary	Ambient temperature	≤ 40 °C	> 40 °C
	Installation altitude	≤ 1000 m	> 1000 m
	Factors for derating	None	Determine the factor for derating (for reduction factor, see "Coolant temperature and installation altitude" on page 1/29)
Cross-reference to other motors	These include motors for special requirements in the area of explosion protection and applications or motors according to the NEMA standard.		
Step 3	**Preliminary selection of the motor**		
Determination of the range of possible motors	Select the frame size and therefore the possible motors on the basis of the following parameters: efficiency class, cooling method, degree of protection, rated power, rated speed and rated torque range. Note: The standard temperature range of the motors is from -20 to +40 °C.		

Layout of the selection and ordering tables and description of the columns of the table headers

Power, frame size, temperature class				Operating values at rated power																Article No., add. data		
Table header – Meaning																						
P_{rated}, 50 Hz	P_{rated}, 60 Hz	P_{rated}, 60 Hz	Frame size	n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class	CC No. CC032A	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Article No.	m IM B3	J
kW	**kW**	**hp**	FS	rpm	Nm			%	%	%		A				dB (A)	dB (A)		kg	kgm^2

Rated power at 50 Hz | Rated power at 60 Hz | Rated power at 60 Hz | Frame size | Rated speed at 50 Hz | Rated torque at 50 Hz | Efficiency class according to IEC 60034-30-1 | CC No. CC032A | Efficiency at 50 Hz, 4/4-load | Efficiency at 50 Hz, 3/4-load | Efficiency at 50 Hz, 2/4-load | Power factor at 50 Hz, 4/4-load | Rated current at 400 V, 50 Hz | Locked-rotor torque on direct switch-on as a multiple of the rated torque | Locked-rotor current on direct switch-on as a multiple of the rated current | Breakdown torque on direct switch-on as a multiple of the rated torque | Measuring-surface sound pressure level at 50 Hz | Sound power level at 50 Hz | Article number | Weight for type of construction IM B3, approx. | Moment of inertia

Legend:

Primary key
Standard values for all motors
Specially for NEMA Energy Efficient MG1 motors, Table 12-11 or NEMA Premium Efficient MG1 motors, Table 12-12

Note on pole-changing motors:
The operating values are specified here for the rated power for the two different pole numbers.

Step 4	**Detailed selection of the motor in the selection and ordering data tables**	
Determination of the basic Article No. of the motor	Determine the motor Article No. according to the following parameters: rated power, rated speed, rated torque and rated current from the "Selection and ordering data" for the motors that have already been identified as possibilities.	
Step 5	**Selection of the special versions or options**	
Completing the motor Article No.	Determine special versions and the associated order codes (e.g. special voltages and types of construction, motor protection and degrees of protection, windings and insulation, colors and paint finish, mountings and mounting technology, etc.).	
Step 6	**Additional information for motor selection**	
Checking the required dimensions	The dimensions are specified in each catalog section under the heading of "Dimensions".	
Selection of the frequency converter, if required	Article No. of the converter as well as its selection, see Catalogs D 11, D 18.1, D 21.3, D 31.1, D 31.2 and D 31.5.	

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Overview

SIMOTICS GP/SD 1LE1 standard motors

Motor version	Efficiency class		Rated power at 50 Hz (values in kW) or 60 Hz (values in hp)	Frame size – motor type 63 71 80 90 100 112 132 160 180 200 225 250 280 315	Page
SIMOTICS GP aluminum housing					
IEC	IE4 Super Premium Efficiency		2.2 … 37 kW	1LE1004	2/8
	IE3 Premium Efficiency		0.37 … 45 kW	1LE1003	2/13
			2.2 … 37 kW	1LE1083	2/17
	IE2 High Efficiency		0.12 … 45 kW	1LE1001	2/30
	IE1 Standard Efficiency		0.09 … 37 kW	1LE1002	2/48
APAC Line	IE3 Premium Efficiency		0.75 … 45 kW	1LE1043	2/58
	IE2 High Efficiency		0.75 … 22 kW	1LE1041	2/69
ABNT Line	IR3 Rendimento Premium		0.25 … 22 kW	1LE1073	2/75
Eagle Line	NEMA Premium Efficient		0.37 … 37 kW 0.5 ... 50 hp	1LE1023	2/79
	NEMA Energy Efficient		0.37 … 0.55 kW 0.5 ... 0.75 hp	1LE1021	2/88
Pole-changing		– For a constant load torque	0.55 … 16 kW	1LE1011 4/2-pole, 8/4-pole	2/90
		– For square-law load torque	0.5 … 28 kW	1LE1011 4/2-pole, 8/4-pole	2/91
			0.6 … 26 kW	1LE1012 6/4-pole	2/91
SIMOTICS SD cast-iron housing					
IEC	IE4 Super Premium Efficiency	– Basic Line	2.2 … 200 kW	1LE1504	2/9
		– Performance Line	2.2 … 200 kW	1LE1604	2/11
	IE3 Premium Efficiency	– Basic Line	0.18 … 200 kW	1LE1503	2/18
		– Performance Line	1.5 … 200 kW	1LE1603	2/21
			2.2 … 200 kW	1LE1583	2/27
	IE2 High Efficiency	– Basic Line	0.09 … 200 kW	1LE1501	2/36
		– Performance Line	0.75 … 200 kW	1LE1601	2/40
	IE1 Standard Efficiency	– Basic Line	0.75 … 200 kW	1LE1502	2/52
APAC Line	IE3 Premium Efficiency	– Basic Line	0.75 … 200 kW	1LE1543	2/61
		– Performance Line	0.75 … 200 kW	1LE1643	2/64
	IE2 High Efficiency	– Basic Line	15 … 200 kW	1LE1541	2/72
ABNT Line	IR3 Rendimento Premium		9.2 ... 300 kW	1LE1573	2/74
Eagle Line	NEMA Premium Efficient	– Basic Line	0.18 … 185 kW 0.25 ... 250 hp	1LE1523	2/81
		– Performance Line	2.2 … 185 kW 3 … 250 hp	1LE1623	2/84
	NEMA Energy Efficient	– Basic Line	0.09 … 0.55 kW 0.12 ... 0.75 hp	1LE1521	2/89

SIMOTICS SD 1LE5 standard motors – *next generation*

Motor version	Efficiency class		Rated power at 50 Hz	Frame size – motor type 63 71 80 90 100 112 132 160 180 200 225 250 280 315 355 400 450	Page
SIMOTICS SD cast-iron housing					
IEC	IE4 Super Premium Efficiency	– Basic Line	160 … 315 kW	1LE5504	3/8
		– Performance Line	160 … 500 kW	1LE5604	3/9
	IE3 Premium Efficiency	– Basic Line	160 … 315 kW	1LE5503	3/13
		– Performance Line	160 … 500 kW	1LE5603	3/14
SIMOTICS SD Add cast-iron housing					
IEC	IE4 Super Premium Efficiency	– Basic Line	160 … 315 kW	1LE5534	3/10
		– Performance Line	160 … 500 kW	1LE5634	3/11
			355 … 1000 kW	1LE5534	3/12
	IE3 Premium Efficiency	– Basic Line	160 … 315 kW	1LE5533	3/15
		– Performance Line	160 … 500 kW	1LE5633	3/16
			355 … 1000 kW	1LE5533	3/17
SIMOTICS SD Pro cast iron housing					
IEC	IE3 Premium Efficiency	– Basic Line	200 … 315 kW	1LE5583	3/18
		– Performance Line	200 … 500 kW	1LE5683	3/19
			335 … 980 kW	1LE5583	3/20

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Overview

SIMOTICS VSD motors for converter operation

SIMOTICS GP/SD VSD4000 line reluctance motors for SINAMICS converters,
SIMOTICS GP/SD VSD10 line standard motors for converter operation

Motor version	Efficiency class	Rated power	Frame size – motor type	Page
			63 71 80 90 100 112 132 160 180 200 225 250 280 315	
SIMOTICS GP aluminum housing				
VSD4000 line	Super Premium Efficiency	0.55 … 30 kW	1FP1014	4/46
VSD10 line	Standard Efficiency	2.2 … 18.5 kW	1LE1092	4/92
SIMOTICS SD cast-iron housing				
VSD4000 line	Super Premium Efficiency	0.55 … 45 kW	1FP1514	4/48
VSD10 line	Standard Efficiency	2.2 … 200 kW	1LE1592	4/98

SIMOTICS XP explosion-protected motors

Motor version	Efficiency class		Rated power	Frame size – motor type	Page
				63 71 80 90 100 112 132 160 180 200 225 250 280 315 355 400 450	
Motors for Zones 21, 22, and 2 with types of protection Ex tb, Ex tc, Ex ec · aluminum housing SIMOTICS XP					
IEC	IE3 Premium Efficiency		0.37 … 18.5 kW	1MB10.3	5/27
	IE2 High Efficiency		0.37 … 18.5 kW	1MB10.1	5/33
	IE1 Standard Efficiency		0.75 … 18.5 kW	1MB10.2	5/39
Motors for Zones 21, 22, and 2 with types of protection Ex tb, Ex tc, Ex ec · cast-iron housing SIMOTICS XP					
IEC	IE4 Super Premium Efficiency		355 … 1000 kW	1MB55.4	5/26
	IE3 Premium Efficiency	– Basic Line	0.18 … 200 kW	1MB15.3	5/28
		– Performance Line	1.5 … 200 kW	1MB16.3	5/28
		– Advanced insulation system	355 … 1000 kW	1MB55.3	5/31
		– Premium insulation system	335 … 980 kW	1MB58.3	5/31
	IE2 High Efficiency	– Basic Line	0.09 … 200 kW	1MB15.1	5/35
		– Performance Line	0.75 … 200 kW	1MB16.1	5/35
Motors for Zone 1 with type of protection Ex eb · cast-iron housing SIMOTICS XP					
IEC	IE3 Premium Efficiency	– Basic Line	0.25 … 80 kW	1MB1543	5/41
		– Performance Line	1.3 … 80 kW	1MB1643	5/41
		– Basic Line	64 … 165 kW	1MB5543	5/41
		– Performance Line	64 … 165 kW	1MB5643	5/41
Motors for Zone 1 with types of protection Ex db, Ex db eb · cast-iron housing SIMOTICS XP					
IEC	IE3 Premium Efficiency		0.09 … 90 kW	1MB1553	5/47
			55 … 460 kW	1MB5553	5/47

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Overview

SIMOTICS DP application-specific motors

Motor version	Efficiency class		Rated power at 50 Hz (values in kW) or 60 Hz (values in hp)	Frame size – motor type	Page
				63 71 80 90 100 112 132 160 180 200 225 250 280 315 355	
Marine motors – aluminum housing					
IEC	IE4 Super Premium Efficiency		2.2 … 37 kW	1LE1004	6/9
	IE3 Premium Efficiency		0.37 … 45 kW	1LE1003	6/9
	IE2 High Efficiency		0.12 … 45 kW	1LE1001	6/9
	IE1 Standard Efficiency		0.09 … 37 kW	1LE1002	6/9
IEC – with explosion protection	IE3 Premium Efficiency		0.37 … 18.5 kW	1MB10.3	6/12
	IE2 High Efficiency		0.37 … 18.5 kW	1MB10.1	6/12
	IE1 Standard Efficiency		0.75 … 18.5 kW	1MB10.2	6/12
Eagle Line	NEMA Premium Efficient		0.37 … 37 kW 0.5 ... 50 hp	1LE1023	6/9
	NEMA Energy Efficient		0.37 … 0.55 kW 0.5 ... 0.75 hp	1LE1021	6/9
Pole-changing	–		0.5 … 28 kW	1LE1011	6/9
	–		0.6 … 26 kW	1LE1012	6/9
Marine motors – cast-iron housing					
IEC	IE4 Super Premium Efficiency	– Basic Line	2.2 … 200 kW	1LE1504	6/10
			160 … 315 kW	1LE55.4	6/11
		– Performance Line	2.2 … 200 kW	1LE1604	6/10
			160 … 500 kW	1LE56.4	6/11
	IE3 Premium Efficiency	– Basic Line	0.18 … 200 kW	1LE1503	6/10
			160 … 315 kW	1LE55.3	6/11
		– Performance Line	1.5 … 200 kW	1LE1603	6/10
			160 … 500 kW	1LE56.3	6/11
	IE2 High Efficiency	– Basic Line	0.09 … 200 kW	1LE1501	6/10
		– Performance Line	0.75 … 200 kW	1LE1601	6/10
IEC – with explosion protection	IE3 Premium Efficiency	– Basic Line	0.18 … 200 kW	1MB15.3	6/12
		– Performance Line	1.5 … 200 kW	1MB16.3	6/12
			0.09 … 90 kW	1MB1553	6/12
			55 … 460 kW	1LE5553	6/12
	IE2 High Efficiency	– Basic Line	0.09 … 200 kW	1MB15.1	6/12
		– Performance Line	0.75 … 200 kW	1MB16.1	6/12
Eagle Line	NEMA Premium Efficient	– Basic Line	0.18 … 185 kW 0.25 ... 250 hp	1LE1523	6/10
		– Performance Line	2.2 … 185 kW 3 … 250 hp	1LE1623	6/10
	NEMA Energy Efficient	– Basic Line	0.09 … 0.55 kW 0.12 ... 0.75 hp	1LE1521	6/10

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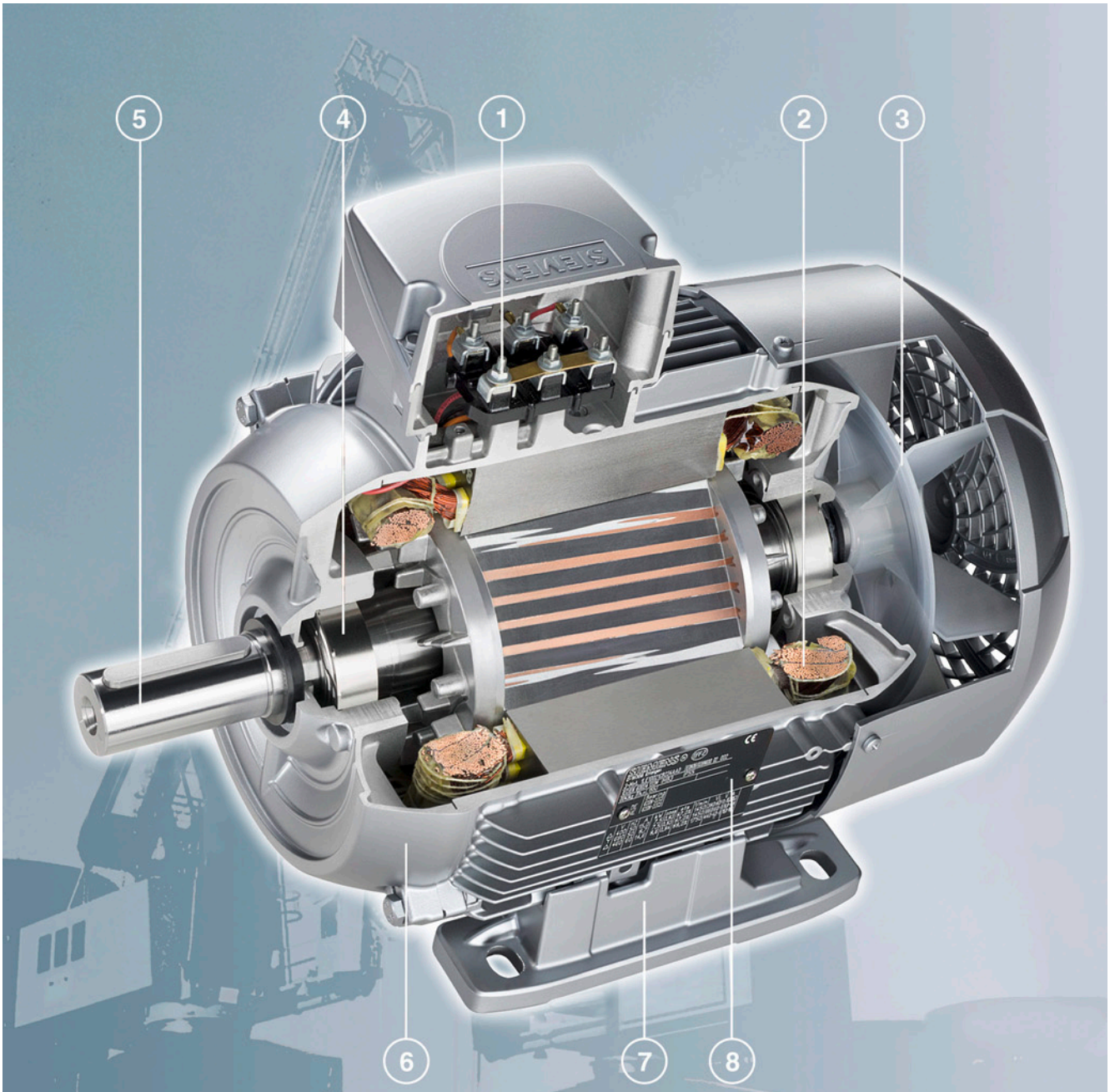
Overview



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Voltages, currents and frequencies page 1/23

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Colors and paint finish

Overview

To protect the drives against corrosion and external influences, high-quality paint systems are available in various colors.

Standard version [8]	Additional identification code **-Z** with order code **S00** [9]	**S01** [8]	**S02**	**S03** [8] [10]	**S04** [8]	**S05**	**S06** [8] [10] [11]
Paint finish, suitability of paint finish for climate group in accordance with IEC 60721-2-1							
Standard paint finish C2	Unpainted, but unfinished cast-iron surfaces are primed	Unpainted, motor primed	Special paint finish C3	Special paint finish system "sea air resistant" C4	Special paint finish system "offshore" C5	Interior paint finish, all bare internal components primed with rust inhibitor [1]	Polyurethane-based top coat, can only be ordered with **S03** or **S04**
Use							
Moderate (extended) for indoor and outdoor installation under a roof not directly exposed to weather conditions.	The motors can be supplied unpainted on request.	The motors can be supplied with just a primer coat on request.	Worldwide (global) for outdoor installation in direct sunlight and/or exposed to weather conditions.	Recommended for indoor or outdoor installation directly exposed to weather conditions, industrial climate with moderate SO_2 exposure, VIK requirements, inshore maritime climate, but not offshore maritime climate, e.g. for crane drives and in the paper industry.	Recommended for outdoor installations exposed to direct weather conditions, industrial climate with moderate SO_2 exposure, and offshore maritime climate, e.g. for crane drives.	The motors can be supplied with internal paint finish on request. Recommended when there is a risk of heavy condensate formation.	Exposure to direct sunlight (UV light) may cause a change in color. When color stability is a requirement, a polyurethane-based paint system is recommended for the top coat (RAL 7030). Colors other than RAL 7030 are available on request.
Test requirements according to EN ISO 12944-2 Corrosivity Category							
C2	–	–	C3	C4	C5	–	–
Total film thickness – nominal film thickness in µm [2] [3]							
Motors in aluminum version							
2-comp. epoxy resin							
30 [4] [5]	–	30	60	120	–	–	–
Polyurethane/**S06**							
–	–	–	–	120	–	–	Film thickness similar to S03/S04
Motors in cast-iron version							
2-comp. epoxy resin							
60	30	60	90	150	170 [6]	–	–
Polyurethane/**S06**							
–	–	–	–	150	170 [6]	–	Film thickness similar to S03/S04
Motors in cast-iron version 1LE5, 1MB5 (only valid for frame sizes 400 and 450)							
Water-based 2-comp. polyurethane	Synth. resin	Water-based 2-comp. polyurethane primer	Water-based 2-comp. polyurethane	Water-based 2-comp. polyurethane	Water-based 2-comp. polyurethane	2-comp. epoxy resin/ 2-comp. polyurethane primer	Water-based 2-comp. polyurethane
120	60	120	180	240	320	60	Film thickness similar to S03/S04
Resistance							
			For corrosive atmospheres up to 1 % acid and alkali concentration or permanent dampness in sheltered rooms.	Chemical exposure up to 5 % acid and alkali concentration.	Chemical exposure up to 5 % acid and alkali concentration.		Sunlight
Temperature range							
Up to 120 °C for brief periods Up to 100 °C continuously	–	–	Up to 140 °C for brief periods Up to 120 °C continuously	–40 … 140 °C	–40 … 140 °C		
Rel. air humidity at (temperature)							
60 % (40 °C)	–	–	100 % (40 °C)	75 % (50 °C)	75 % (60 °C)		

Table continues on the next page.

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Overview

Standard version [8]	Additional identification code **-Z** with order code **S00** [9]	**S01** [8]	**S02**	**S03** [8] [10]	**S04** [8]	**S05**	**S06** [8] [10] [11]
Suitability for recoating [7]							
	Can be recoated within 1 week						
Pre-treatment of parts							
	All parts cleaned and degreased, steel and cast-iron parts sandblasted						
Drying							
	All layers oven-dried						
Top coat colors							
Standard version	RAL 7030 (stone gray)						
Available colors	Alternative standard and special RAL colors must be ordered with order code **Y53** or **Y56** and specification in plain text of the required RAL number (see tables for order codes **Y53** and **Y56** on the following page for selection of available RAL numbers/RAL colors). **S06** is available only in standard RAL 7030						
Treatment of bare metal areas of shaft extensions and flanges							
	Coated with anti-corrosion agent that repels water and palm sweat						

Note:

For transport, the bare parts are coated with anti-corrosion paint which will last for a limited amount of time.

1) Machined laminated rotor core, shaft, inner diameter of cast-iron housing, interior surfaces of cast-iron bearing plates.

2) Total film thickness:
- The specified film thickness represents average values for the external motor surfaces
- Unpainted or one layer of paint (30 µm) less beneath the fan cover
- The film thickness may differ at inaccessible locations (pockets/recesses or bases of ribs)

The film thickness specified for aluminum/cast-iron versions refers not only to motors, but also to components such as the bearing plate and housing. Motors are also available in an aluminum/cast-iron composite design.

3) The paint coat can become electrostatically charged where there is a thick film. Electrostatic discharges can occur. There is a risk of explosion if potentially explosive mixtures are also present at this moment. This can result in death, serious injury or material damage. When painted surfaces are recoated, one of the following conditions must be fulfilled:
- Limit the total paint film thickness according to the explosion protection group:
  - IIA, IIB: Total paint film thickness ≤ 2 mm
  - IIC: Total paint film thickness ≤ 0.2 mm for motors of group II (gas)
- Limit the surface resistance of the paint used:
  - Surface resistance ≤ 1 GΩ for motors of groups II and III (gas and dust)
- Charge transfer limit:
  - 60 nC for Group I or Group IIA devices
  - 25 nC for Group IIB devices
  - 10 nC for Group IIC devices
  - 200 nC for Group III devices
- Breakdown voltage ≤ 4 kV for explosion group III (dust only)
  Note:
  Paints for IIC with film thickness exceeding 200 µm are optionally available. Paints with film thickness exceeding 200 µm have been tested for electrostatic charging. Motors with a coating thickness exceeding 200 µm may only be painted over if the conditions mentioned above are complied with.

4) Aluminum motors/components without a paint finish already meet the requirements for corrosivity class C2. It is not therefore necessary to apply paint to components that are not visible. The paint finish is therefore applied only for the purpose of coloring.

5) Aluminum motors with cast-iron components (e.g. DE bearing plate) have a primer coat of > 30 µm on cast-iron components.

6) 50 µm zinc galvanized layer + 120 µm paint film thickness.

7) Primers, water-based 2-K epoxy resin paints and polyurethane-based paints can be overpainted with paints of the same kind if the motors are in the original packaging and are still covered by the warranty. A suitability test should be conducted before any recoating work is undertaken if the customer intends to use a coating of a different kind to overpaint the motor. Alternatively, a test in accordance with EN ISO 16927 "Determination of the overcoatability and recoatability of a coating" can be requested and ordered.

8) For SIMOTICS XP cast-iron motors that are suitable for operation in dust hazardous areas, some color restrictions apply to conductive paints.

9) Not permitted for SIMOTICS XP cast-iron motors that are suitable for operation in dust hazardous areas.

10) For SIMOTICS XP aluminum motors that are suitable for operation in dust hazardous areas, some color restrictions apply to conductive paints.

11) For SIMOTICS XP cast-iron motors that are suitable for operation in gas hazardous areas, some color restrictions apply to conductive paints.

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Overview

Paint finish in other standard RAL colors – Order code Y53 (RAL number is required in plain text)

RAL No.	Color name	RAL No.	Color name
3007	Black red	7 000	Squirrel gray
5002	Ultramarine blue	7001	Silver gray
5007	Brilliant blue	7004	Signal gray
5009	Azure blue	7011	Iron gray
5010	Gentian blue	7016	Anthracite gray
5015	Sky blue	7022	Umbra gray
5017	Traffic blue	7031	Blue gray
5018	Turquoise blue	7032	Pebble gray
5019	Capri blue	7033	Cement gray
6011	Reseda green	7035	Light gray
6021	Pale green	9005	Jet black

The following paints must be applied at least twice owing to their poor opacity. The standard paint finish for these colors is not possible and must be ordered with **S02**, **S03**, or **S04**.

RAL No.	Color name
1002	Sand yellow
1013	Oyster white
1015	Light ivory
1019	Gray beige
2003	Pastel orange
2004	Pure orange
3000	Flame red
5012	Light blue
6019	Pastel green
9001	Cream white
9002	Gray white

The following colors are not permitted in combination with conductive paints that are suitable for hazardous areas.

RAL No.	Color name	RAL No.	Color name
1003	Signal yellow	2009	Traffic orange
1018	Zinc yellow	3002	Carmine red
1021	Rape yellow	3015	Light pink
1023	Traffic yellow	3020	Traffic red
1028	Melon yellow	6018	Yellow green
1033	Dahlia yellow	9003	Signal white
2003	Pastel orange	9010	Pure white
2004	Pure orange	9016	Traffic white
2008	Bright red orange		

Paint finish in special RAL colors – Order code Y56 (RAL number is required in plain text)

RAL No.	Color name	RAL No.	Color name
3004	Purple red	6034	Pastel turquoise
3011	Brown red	7005	Mouse gray
3015	Light pink	7009	Green gray
3020	Traffic red	7012	Basalt gray
4005	Blue lilac	7015	Slate gray
5000	Violet blue	7023	Concrete gray
5001	Green blue	7036	Platinum gray
5003	Sapphire blue	7037	Dusty gray
5005	Signal blue	7038	Agate gray
5011	Steel blue	7039	Quartz gray
5013	Cobalt blue	7040	Window gray
5014	Pigeon blue	7042	Traffic gray A
5020	Ocean blue	7044	Silk gray
5021	Water blue	7045	Telegray 1
5022	Night blue	7046	Telegray 2
5023	Distant blue	7047	Telegray 4
6000	Patina green	8012	Red brown
6001	Emerald green	8025	Pale brown
6002	Leaf green	8028	Terra brown
6005	Moss green	9003	Signal white
6009	Fir green	9004	Signal black
6010	Grass green	9006	White aluminum
6016	Turquoise green	9007	Gray aluminum
6017	May green	9010	Pure white
6018	Yellow green	9011	Graphite black
6024	Traffic green	9016	Traffic white
6026	Opal green	9017	Traffic black
6029	Mint green	9018	Papyrus white
6032	Signal green		

The following paints must be applied at least twice owing to their poor opacity. The standard paint finish for these colors is not possible and must be ordered with **S02**, **S03**, or **S04**.

RAL No.	Color name
1003	Signal yellow
1004	Golden yellow
1006	Maize yellow
1007	Daffodil yellow
1012	Lemon yellow
1014	Ivory
1018	Zinc yellow
1021	Rape yellow
1023	Traffic yellow
1028	Melon yellow
1032	Broom yellow
1033	Dahlia yellow
2008	Bright red orange
2009	Traffic orange
2010	Signal orange
3002	Carmine red
5024	Pastel blue
6027	Light green

Coating structure and colors not specified in the catalog are available on request.

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Overview

Connected in star for dispatch – Order code **M01**
The terminal board of the motor is connected in star for dispatch.

Connected in delta for dispatch – Order code **M02**
The terminal board of the motor is connected in delta for dispatch.

Packing weights

For motors		For land transport							
Frame size	Type	Type of construction IM B3				Types of construction IM B5, IM V1			
	1LE1...- 1PC1...- 1MB1...-	in box Tare	on ISPM wooden base board with telescopic box Tare	on pallet Tare	in crate Tare	in box Tare	on ISPM wooden base board with telescopic box Tare	on pallet Tare	in crate Tare
		kg	kg	kg	kg	kg	kg	kg	kg
63 M	**0B.2**	0.65	–	–	–	0.65	–	–	–
71 M	**0C.2**	0.65	–	–	–	0.65	–	–	–
80 M	**0D.2**	0.65	–	–	–	0.65	–	–	–
90 S	**0E.0**	0.65	–	–	–	0.65	–	–	–
100 L	**1A.4**	–	5.0	–	–	–	5.0	–	–
	1A.5	–	5.0	–	–	–	5.0	–	–
	1A.6	–	5.0	–	–	–	5.0	–	–
112 M	**1B.2**	–	5.0	–	–	–	5.0	–	–
	1B.6	–	5.0	–	–	–	5.0	–	–
132 S	**1C.0**	4.7	–	–	–	5.2	–	–	–
	1C.1	4.7	–	–	–	5.2	–	–	–
132 M	**1C.2**	4.7	–	–	–	5.2	–	–	–
	1C.3	4.7	–	–	–	5.2	–	–	–
	1C.6	8.7	–	–	–	9.2	–	–	–
160 M	**1D.2**	4.8	–	–	–	5.7	–	–	–
	1D.3	4.8	–	–	–	5.7	–	–	–
160 L	**1D.4**	4.8	–	–	–	5.7	–	–	–
	1D.6	8.8	–	–	–	9.7	–	–	–
180		–	–	8.0	–	–	–	10.0	–
200		–	–	11.0	–	–	–	13.0	–
225		–	–	14.0	–	–	–	17.0	–
250		–	–	22.0	–	–	–	25.0	–
280		–	–	24.0	–	–	–	27.0	–
315		–	–	28.0	–	–	–	32.0	–
315	**1LE5, 1MB5**	–	–	32.0	–	–	–	46.0	–
355	**1LE5, 1MB5**	–	–	58.0	–	–	–	78.0	–
315	**1LE5, 1MB5**	–	–	50.0	–	–	–	40.0	–
355	**1LE5, 1MB5**	–	–	60.0	–	–	–	50.0	–

Data apply for individual packaging. Wire-lattice pallets can be used, order code **B99**.

Safety notes

Printed safety notes in German/English and safety notes in the language of the country of use are supplied as standard with each motor

Operating instructions

Operating instructions for all official EU languages as well as Norwegian, Russian, Turkish, and Chinese are provided in PDF format only at
https://support.automation.siemens.com/WW/view/en/10803948/13330

Test certificates

Inspection certificate 3.1 in accordance with **EN 10204** – Order code **B02**

An inspection certificate 3.1 in accordance with EN 10204 can be supplied for most motors.

Type test with temperature-rise run for horizontal motors
- **With acceptance** – Order code **B83**
- **Without acceptance** – Order code **B82**

During the type test, a temperature-rise test is performed; no-load, short-circuit, and load characteristics are recorded; the iron losses and friction losses are determined and the efficiency is calculated from the summed losses. This option is only applicable to motors with a horizontal type of construction. Acceptance testing is performed by an external representative (e.g. customer, classification society). No acceptance test is performed when order code **B82** is stated.

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Period of liability for defects

Overview

Standard warranty and extension of liability for defects

The standard warranty period is quoted in the standard conditions of supply and delivery and is 12 months.
This is valid if nothing else is stated. It is possible to obtain an extension of the liability for defects beyond the standard liability period.

Motors	Series	Standard warranty	Extension of the liability for defects
SIMOTICS GP	1LE10	12 months	Not available
SIMOTICS SD	1LE15 / 1LE55 Basic Line	12 months	1LE1 see page 2/131 1LE5 see page 3/32
SIMOTICS SD	1LE16 / 1LE56 Performance Line	36 months	1LE1 not available 1LE5 see page 3/32
SIMOTICS GP VSD4000	1FP10	36 months	Not available
SIMOTICS SD VSD4000	1FP15	36 months	Not available
SIMOTICS GP VSD10	1LE109	12 months	Not available
SIMOTICS SD VSD10	1LE159	12 months	see page 4/129
SIMOTICS XP	1MB10	12 months	Not available
SIMOTICS XP	1MB151 / 1MB551 / 1MB581 Basic Line (Ex tb), 1MB152 / 1MB552 / 1MB582 Basic Line (Ex tc), 1MB153 / 1MB553 / 1MB583 Basic Line (Ex ec)	12 months	1MB1 not available 1MB5 see page 5/99
SIMOTICS XP	1MB161 / 1MB561 Performance Line (Ex tb), 1MB162 / 1MB562 Performance Line (Ex tc), 1MB163 / 1MB563 Performance Line (Ex ec)	36 months	1MB1 not available 1MB5 see page 5/99
SIMOTICS XP	1MB154 / 1MB554 Basic Line (Ex eb)	12 months	see page 5/89
SIMOTICS XP	1MB164 / 1MB564 Performance Line (Ex eb)	36 months	Not available
SIMOTICS XP	1MB155 / 1MB555 (Ex db, Ex db eb)	12 months	see page 5/94

For the case of a new product order

With the following optional order suffixes listed in the table, extension of the liability for defects beyond the standard liability period is possible in conjunction with a new order for a product.

The markup on the product price is graded according to the duration of the extension.

Extension of the liability for defects for 1LE15, 1MB15, 1LE5, and 1MB5 motors	
Additional identification code **-Z** with order code	Description
Q80	Extension of the liability for defects period by 12 months to a total of 24 months (2 years) from delivery
Q81	Extension of the liability for defects period by 18 months to a total of 30 months (2.5 years) from delivery
Q82	Extension of the liability for defects period by 24 months to a total of 36 months (3 years) from delivery
Q83	Extension of the liability for defects period by 30 months to a total of 42 months (3.5 years) from delivery
Q84	Extension of the liability for defects period by 36 months to a total of 48 months (4 years) from delivery
Q85	Extension of the liability for defects period by 48 months to a total of 60 months (5 years) from delivery

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Overview

Applicable standards and specifications

The 1LE. motors comply with the IEC 60034 series of international product standards for rotating electrical machines and, in particular, those parts that are listed in the table below.

Title	IEC/EN	DIN EN
General specifications for rotating electrical machines	IEC 60034-1, IEC 60085	EN 60034-1
Specification of the losses and efficiency of rotating electrical machines	IEC 60034-2-1	EN 60034-2-1
General-purpose three-phase induction motors having standard dimensions and powers	IEC 60072 Mounting dimensions and power series only (no assignment of frame size to power)	EN 50347 Mounting dimensions according to IEC 60072 and power assignment for Europe
Starting performance of rotating electrical machines	IEC 60034-12	EN 60034-12
Terminal designations and direction of rotation for electrical machines	IEC 60034-8	EN 60034-8
Designation for types of construction, mounting, and terminal box position (IM code)	IEC 60034-7	EN 60034-7
Terminal box cable entries	–	DIN 42925
Built-in thermal protection	IEC 60034-11	EN 60034-11
Noise limits of rotating electrical machines	IEC 60034-9	EN 60034-9
IEC standard voltages	IEC 60038	IEC 60038
Cooling methods of rotating electrical machines (IC code)	IEC 60034-6	EN 60034-6
Vibration severity of rotating electrical machines	IEC 60034-14	EN 60034-14
Vibration limits	–	ISO 10816
Degrees of protection for rotating electrical machines (IP code)	IEC 60034-5	EN 60034-5
International efficiency classes for rotating electrical machines (IE code)	IEC 60034-30-1	EN 60034-30
In addition, the following applies to Ex motors:		
General provisions	IEC/EN 60079-0	EN 60079-0
Flameproof enclosure "d"	IEC/EN 60079-1	EN 60079-1
Increased safety "e"	IEC/EN 60079-7	EN 60079-7
Type of protection "n" (non-sparking)	IEC/EN 60079-15	EN 60079-15
Areas containing flammable dust	IEC/EN 60079-31	EN 60079-31

The following applies to explosion-protected motors:

Since the requirements of explosion-protected motors comply with the European standards EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-15, EN 60079-31 and Directive 2014/34/EU (ATEX 95), the certificates issued by authorized testeing agencies (PTB, FTZU, etc.) are accepted by all member states of the EU. The remaining members of CENELEC, Switzerland in particular, also accept the certificates.

Tolerances for electrical data

According to EN 60034, the following tolerances are permitted: Motors that comply with EN 60034-1 must have a voltage tolerance according to Area A (see diagram on page 1/23). If this is fully utilized, the admissible limit temperature of the temperature class may be exceeded by 10 K.

Efficiency η at
$P_{rated} \leq 150$ kW: $-0.15 \cdot (1 - \eta)$
$P_{rated} > 150$ kW: $-0.1 \cdot (1 - \eta)$

Where η is a decimal number.

$$\text{Power factor} \quad - \frac{1 - \cos\varphi}{6}$$

- Minimum absolute value: 0.02
- Maximum absolute value: 0.07

Slip ±20 % (for motors < 1 kW ±30 % is admissible)
Locked-rotor current +20 %
Locked-rotor torque –15 % to +25 %
Breakdown torque –10 %
Moment of inertia ±10 %

For more details, see section "Voltages, currents and frequencies" on page 1/23.

Certifications

Product certifications are differentiated in terms of safety-related certificates and efficiency certificates.

Since 2011, it has been obligatory for low-voltage motors with power ratings in the range of 0.75 to 375 kW (2-, 4-, and 6-pole) to be classified in accordance with the IEC 60034-30-1 efficiency standard and to be marked with the corresponding IE code (International Efficiency IE1, IE2, or IE3). The efficiency is determined using the summed losses method in accordance with IEC 60034-2-1.

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Overview

Energy-saving motors for the European Economic Area in accordance with EU Regulation 640/2009 – valid until June 30, 2021 (from July 1, 2021, EU Regulation 2019/1781 comes into force)

Since January 2017, all low-voltage motors that fall within the scope of the EU Regulation must fulfill the specifications of international efficiency class IE3.

- Line voltage ≤ 1000 V
- Line frequency 50 or 50/60 Hz
- Power range 0.75 to 375 kW
- Pole number 2-, 4- and 6-pole
- Continuous duty S1

IE2 motors are only admissible if they are speed-controlled via converters.

Energy-saving motors for the North-American economic area in accordance with EISA

In accordance with EISA, modified conditions have been in effect since June 1, 2016.
This law stipulates that all motors must comply with the requirements stated in NEMA MG1 Table 12-12 (NPE = Nema Premium Efficient).
From this date onwards, therefore, motors previously covered by the EPAct must also comply with NPE. The NPE requirements apply to motors with the following characteristics / operating conditions:

- Line voltage ≤ 600 V
- Line frequency 60 Hz
- Power range 1 hp to 500 hp
- Number of poles: 2-, 4-, 6-, 8-pole motors and geared motors
- Continuous duty S1

Explosion-protected motors are also included.

Exclusions from the EISA efficiency requirements:

- Brake motors
- Converter motors

Note:

Option **D30**: el. acc. to NEMA
Option **D31**: UL version

These options can be ordered for motors that are not subject to the EISA specifications (e.g. for use outside North America).

Options **D30** and **D31** do not authorize operation within North America.

NEMA Premium®

The logo NEMA Premium is a registered trademark. It is only permitted to be used by companies that voluntarily submit to the control of the NEMA organization.

Approval for the USA: UL safety and DoE listing

For the USA, the motor series **1LE1.21** (NEE) and **1LE1.23** (NPE) are listed at the Department of Energy (DoE) and marked with the certification number **CC032A**.

Additional specifications to NEMA MG1: Nominal efficiency acc. to NEMA MG1 Table 12-11 or Table 12-12, design letter, code letter, CONT, CC No. CC 032A (Siemens) and service factor SF 1.15.

Motor series 1LE1.21 and 1LE1.23 remain certified up to a rated voltage of 600 V from Underwriters Laboratories Inc. and are marked accordingly ("Recognition Mark" = R/C).

CC032A

UL approval does not apply to motors for Zones 1, 2, 21, 22 or marine motors.

Approval for Canada: CSA safety and CSA Energy Efficiency Verification

In April 2012, the EISA requirements were implemented in Canada; in this case, all powers are subject to certification without the restrictions applicable to the NEMA frame sizes. Motor series 1LE1.21 and 1LE1.23 are certified for Canada through the Canadian Standard Association (CSA), listed by the Office of Energy Efficiency (OEE) and marked with both the CSA safety logo and the CSA efficiency label. These motors comply with the efficiency requirements of the new CSA standard C390-10. The efficiency is determined in the same manner as with IEC 60034-2-1.

Externally or internally mounted components which are used are listed by CSA or are used by manufacturers in accordance with regulations. Suitability in the final application must be verified. Approval does not apply to 1MB1 motors for Zones 1, 2, 21 and 22 or marine motors.

Approval for Mexico:

The EISA regulations are applicable for Mexico.

Korea certification – Order code **D33**

Minimum efficiencies required by law

According to a legislative amendment with reference to the MKE-2015-28 (Ministry of Knowledge Economy Korea) dated February 12, 2015, Minimum Efficiency IE3 became obligatory in Korea on the following dates:

- October 1, 2015 for motors ranging from 37 to 200 kW
- October 1, 2016 for motors ranging from 200 to 375 kW
- October 1, 2018 for motors ranging from 0.75 to 37 kW

For this reason, the SIMOTICS GP/SD APAC series (Asia/Pacific) with efficiency class IE3, which complies with the IE3 energy efficiency requirements for line frequencies 50 Hz and 60 Hz (P50), was launched onto the market:

- SIMOTICS GP,
  2-, 4-, and 6-pole motors of the 1LE1043 motor series
- SIMOTICS SD,
  2-, 4-, and 6-pole motors of the 1LE1543 and 1LE1643 motor series

Scope of Korean standard KS C 60034-2-1

This Korean standard is applicable to three-phase asynchronous motors with the following parameters:

- Voltage: ≤ 600 V
- Power supply: 60 Hz three-phase
- Rated power: 0.75 ... 375 kW
- Number of poles: 2, 4, 6 and 8
- Speed: Constant
- Coolant temperature: ≤ 40 °C
- Mounting method: Foot or flange-mounted

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Overview

Korea Energy Label

Option **D33** KEMCO (Korea Energy Management Cooperation KEMCO) Korea Energy Efficiency Label can be ordered only for those motors which comply with Korean efficiency requirements. Confirmation that the motor efficiency and power factor comply with KS C 60034-2-1 is provided by certification.

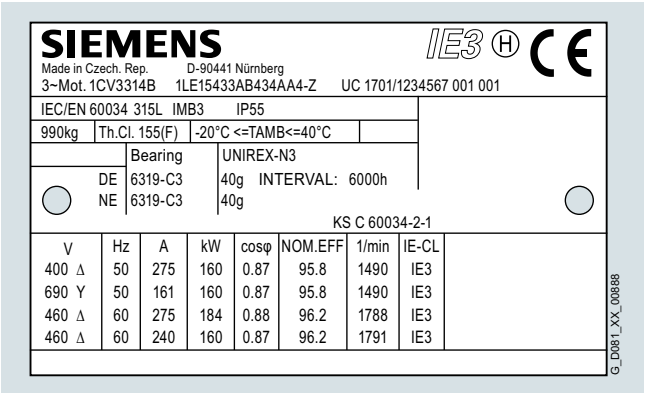
The Korea Energy Label includes the following information:

- Full-load efficiency
- Motor Type (MT)
- Rated output power
- No. of poles
- CO_2 emissions per hour
- Energy costs per annum

Rating plate

KEMCO-certified motors with option code **D33** are fitted with a modified rating plate that indicates the admissible minimum energy efficiency value (P50 for 60 Hz) in accordance with the Korean Energy Efficiency Ordinance with reference to Korean Standard KS C 60034-2-1.

The energy efficiency values stipulated by KS C 60034 are identical to the international efficiency values IE (IEC 60034-30).



You will find a complete list of KEMCO-certified motors (APAC Line) on the selection tables in Chapter 2.

1PC3 motors: 1PC3 motors are also covered by certification provided that the electrical design complies with local requirements as stipulated in standard KS C 60034-2-1. Please contact QC for further clarification if required.

Motors from the APAC Line can be ordered with or without option **D33** depending on the final destination region.

Energy-saving motors for China: China Energy Label

In 2012, the directive for the China Energy Label was redefined. Applicability was extended to explosion-protected motors.

- Line voltage ≤ 1000 V
- Line frequency 50 Hz
- Power range 0.75 kW to 375 kW
- Number of poles: 2-, 4-, 6-pole
- Continuous duty S1

The minimum requirements for the efficiency classes previously defined in the Chinese standard GB 18613-2006 were classified in the new standard GB 18613-2012 (Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Small and Medium Three-Phase Asynchronous Motors) in accordance with International Efficiency IE2-4.

IEC IE class	GB 18613-2012
IE4	Grade 1
IE3	Grade 2
IE2	Grade 3
IE1	

The 1LE1 motor series for IE2 and IE3, plus order code **D34** were previously certified for China Energy Label 2012.

CCC safety certification is also required for motors with lower powers.

CCC – China Compulsory Certification – Order code **D01**

Motors with small powers (small power motors) that are exported to China must be certified up to a rated power of:

- 2-pole: ≤ 2.2 kW
- 4-pole: ≤ 1.1 kW
- 6-pole: ≤ 0.75 kW
- 8-pole: ≤ 0.55 kW

Notes:

Chinese customs checks the need for certification of imported products by means of the commodity code.

The following do not need to be certified:

- Explosion-protected motors
- Multi-voltage motors
- Multi-speed motors with powers higher than those listed above
- Repair parts

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Versions in accordance with standards and specifications

Overview

VIK version
VIK = Verband der Industriellen Energie- und Kraftwirtschaft e.V. (German Association of the Energy and Power Supply Industry)

- **VIK standard version** – 1LE1, 1LE5 frame sizes 400 and 450 + order code **C02**
  "VIK" identification on rating plate.
  ➔ Product range in Catalog Section 2.
- **VIK-Ex ec version** – 1MB1.3, 1MB5.3 + order code **C02**
  "VIK" and "Ex ec IIC T3 Gc" marking on the rating plate according to Directive 2014/34/EU (ATEX).
  ➔ Product range in catalog section 5.

Both versions include technology for Zone 2 with type of protection Ex ec IIC T3 Gc. Motors up to frame size 355 can be supplied in accordance with the technical requirements of the VIK recommendation.

Minimum efficiency class:

- VIK standard version:
  IE3 in accordance with legal specifications.
- VIK-Ex ec version:
  At least IE3 according to the VIK recommendation of January 2018.

Notes:
- 8-pole motors or all motors < 0.75 kW are still possible as these motors are outside the power range specified for IE stamping.
- Motors in VIK version with mounted technology (brake, rotary pulse encoder and separately driven fan) are not compatible with Zone 2.
  Versions for Zone 21/22 are not possible.
- Motors in VIK standard version with externally mounted components (brake, rotary pulse encoder and separately driven fan) are not suitable for use in Zone 2. Versions for Zone 21/22 are not possible.

TR CU product safety certificate EAC for the Eurasian Customs Union (Russia, Belarus, Kazakhstan, Armenia, Kyrgyzstan)
TR CU = Technical Regulation Customs Union
EAC = Eurasian Conformity

The TR CU product safety certificate is required in order to import motors into the Eurasian Customs Union area.

"TR CU product safety certificate EAC for Eurasian Customs Union" – order code **D47**

When motors are ordered with order code **D47**, the motor rating plate and packaging are marked with the logo "EAC".

The motor must have a "TR CU product safety certificate EAC", although the certificate does not generally have to be shipped with the motor. The customs authorities use the motor article number to check the motor certification.

The following are available in the SIOS (Siemens Industry Online Support)
https://support.industry.siemens.com/cs/ww/en/
and the Drive Technology Configurator
www.siemens.com/dt-configurator

- TR CU product safety certificate in accordance with the Low-Voltage Directive
- Additional TR CU product certificate in accordance with the EMC Directive.

Train-compatible version

Train-compatible version IC418, EN IEC 60349, acc. to EN 45545, without external fan and without fan cover (1LE10 aluminum motors in frame sizes 80 to 200) – Order code **L92** for cooling method IC418

- Electrical design in accordance with EN IEC 60349; $U_{rated} \leq 500$ V AC.
- DC-link voltage: $U_{dc} \leq 700$ V; $du/dt \leq 5$ kV/µs
- Vibration resistance to Class 3M4 according to IEC 60721-3-3
- Metal cable gland
- Including external grounding depending on construction type (corresponds to order code **H04**).
- Standard paint finish certified according to EN 45545 (Polyurethane-based paint, order code **S06**, not possible as not certified)

Train-compatible version IC411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal – order code **L91** for cooling method IC411

- 1LE10 aluminum motors in frame sizes 80 to 200
- Electrical design in accordance with EN IEC 60349; $U_{rated} \leq 500$ V AC.
- DC-link voltage: $U_{dc} \leq 700$ V; $du/dt \leq 5$ kV/µs
- Vibration resistance to Class 3M4 according to IEC 60721-3-3
- Metal cable gland
- Including external grounding depending on construction type (corresponds to order code **H04**).
- Standard paint finish certified according to EN 45545 (Polyurethane-based paint, order code **S06**, not possible as not certified)
- Including metal fan cover

Train-compatible version IC411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic – Order code **L90** for cooling method IC411

- 1LE10 aluminum motors in frame sizes 80 to 200
- Electrical design in accordance with EN IEC 60349; $U_{rated} \leq 500$ V AC
- DC-link voltage: $U_{dc} \leq 700$ V; $du/dt \leq 5$ kV/µs
- Vibration resistance to Class 3M4 according to IEC 60721-3-3
- Metal cable gland
- Including external grounding depending on construction type (corresponds to order code **H04**).
- Standard paint finish, without EN 45545 (Polyurethane-based paint, order code **S06**, not possible as not certified)
- Including plastic fan cover

Recommended supplementary options:
- Located bearing DE (order code **L20**)
- Temperature class 155 (F), utilized according to 130 (B), coolant temperature 55 C, derating approx. 13 % (order code **N07**)
- Coolant temperature –30 to +40 °C (order code **D04**)
- Coolant temperature –40 to +40 °C (order code **D03**)

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Overview

Voltages, currents and frequencies

Standard voltages

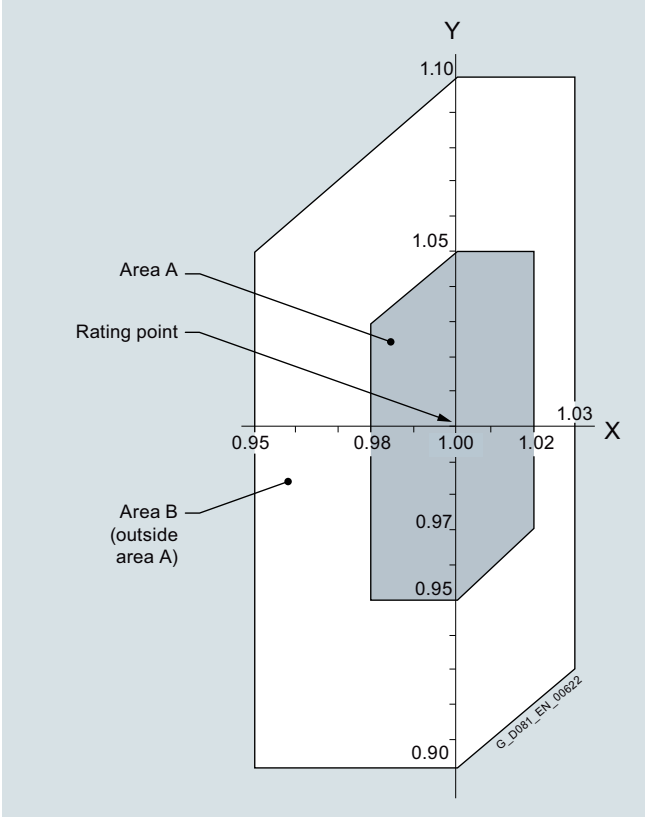
EN 60034-1 differentiates between Category A (combination of voltage deviation ±5 % and frequency deviation ±2 %) and Category B (combination of voltage deviation ±10 % and frequency deviation +3/–5 %) for voltage and frequency fluctuations. The motors can supply their rated torque in both Category A and Category B. In Category A, the temperature rise is approx. 10 K higher than during rated operation.

Standard	Category	Category
IEC 60034-1	A	B
Voltage deviation Frequency deviation	±5 % ±2 %	±10 % +3 %/–5 %
Rating plate data stamped with rated voltage a (e.g. a=400 V)	a ±5 % (e.g. 400 V ±5 %)	a ±10 % (e.g. 400 ±10 %)
Rating plate data stamped with rated voltage ranges b to c (e.g. b=380 V to c=420 V)	b –5 % to c +5 % (e.g. 380 –5 % to 420 +5 %)	b –10 % to c +10 % (e.g. 380 –10 % to 420 +10 %)

For further details, see EN 60034-1.

According to the standard, longer operation is not recommended for Category B. See "Rating plates and additional rating plates" for details of the rating plate inscriptions and corresponding examples. The selection and ordering data give the rated current at 460 V, 60 Hz. The IEC 60038 standard specifies a tolerance of ±10 % for line voltages of 230 V, 400 V, and 690 V.

Line voltages	Voltage code
1LE1 motors	
230 VΔ/400 VY, 50 Hz 460 VY, 60 Hz	22
400 VΔ/690 VY, 50 Hz 460 VΔ, 60 Hz	34
500 VY, 50 Hz 575 VY, 60 Hz	27
500 VΔ, 50 Hz 575 VΔ, 60 Hz	40



Y-axis: Voltage tolerance
X-axis: Frequency tolerance

Non-standard voltages and/or frequencies

The tolerance laid down by EN 60034-1 applies to all non-standard voltages.
For some non-standard voltages at 50 or 60 Hz, order codes are specified. They are ordered by specifying the code digit **9** for voltage in the 12th position of the Article No. as well as the code digit **0** in the 13th position of the Article No. and the corresponding order code.

The lowest rated voltage for **M1Y** that can be delivered depends on factors including the circuit (delta connection 200 V/star (wye) connection 250 V) and frame size. The defined order codes for further rated voltages provide an indication of the lowest rated voltage for **M1Y**.

Order codes for other rated voltages are listed under "Order suffixes" in the "Selection and ordering data" as well as "Special versions" under "Voltages".

Line voltages according to NEMA

Assignment of rated voltage of the motor to that of the line:

Line voltage	Motor voltage
208 V	200 V
240 V	230 V
480 V	460 V
600 V	575 V

Powers

The powers or rated powers are listed in the selection tables for both 50 Hz and 60 Hz. For 60 Hz, the rated power values must, in some cases, be increased, e.g. for pole-changing motors.

Assignment of standard powers kW-hp in accordance with IEC 60072-1

The values specified for kW and hp are not precise conversion values. They are the approximate relationship between the values generally applied in the countries in which both units are used.

P_{rated} kW	P_{rated} hp	P_{rated} kW	P_{rated} hp	P_{rated} kW	P_{rated} hp	P_{rated} kW	P_{rated} hp	P_{rated} kW	P_{rated} hp	P_{rated} kW	P_{rated} hp
0.06	0.08	2.2	3	37	50	200	270	450	603	800	1072
0.09	0.12	3	3.7	45	60	220	300	475	637	850	1139
0.12	0.16	4	5	55	75	250	350	500	670	900	1206
0.18	0.25	5.5	7.5	75	100	280	375	530	710	950	1273
0.25	0.33	7.5	10	90	125	300	402	560	750	1000	1340
0.37	0.5	11	15	110	150	315	422	600	804		
0.55	0.75	15	20	132	175	335	476	630	845		
0.75	1	18.5	25	150	200	375	503	670	898		
1.1	1.5	22	30	160	220	400	536	710	952		
1.5	2	30	40	185	250	425	570	750	1005		

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Overview

In accordance with EN 60034-1, the approximate total weight is specified on the rating plate for all motors.

Supplementary data (maximum of 20 characters) can be indicated on the rating plate or additional rating plate and on the packaging label.
Order code **Y84**

An additional rating plate for customer specifications is also possible, additional text: 9 lines of 40 characters each.
Order code **Y82**

An adhesive label can also be supplied loose.
Order code **Y85**

An additional rating plate for customer specifications is also possible, additional text: 9 lines of 40 characters each.
Order code **Y82**

An additional rating plate with deviating rating plate data can also be ordered (only for ratings such as voltage, power, speed).
Order code **Y80**.

An "additional rating plate for voltage tolerance" can also be ordered.
Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "22" or "34"). Not possible for pole-changing motors, naturally cooled 1PC1 motors, 8-pole motors and in combination with order code D34.
Order code **B07**
(voltage range plate is always provided in the form of an adhesive label)

The number of rating plates and/or the material quality of the rating plate including additional rating plates can be ordered using order codes Y82, Y84 and Y80. Does not apply to order code B07, rotational direction arrows, PTC thermistor plates, other notices.

- Extra (rating) plate(s) – Order code **M10**
- Plate(s) with resistance to scratches, heat, cold and acid – Order code **M11**

As standard, the normal version of the rating plate is international (in English).

Other languages on request.

Examples of rating plates

SIEMENS Made in Germany IEC/EN 60034 CE

3~MOT 1AV2092A 1LE10010EA422AA0 TH.CL.155(F) IP55

F no E1701/1234567 01 001 FS 90L IMB3 WT 13kg

V	Hz	kW	A	PF	RPM	EFF-CL	ETA %
230 Δ	50	2.2	7.8	0.85	2890	IE2	83.2
400 Y	50	2.2	4.50	0.85	2890	IE2	83.2
460 Y	60	2.55	4.35	0.86	3485	IE2	85.5

IE2 Ⓗ

G_D081_XX_00887

Adhesive rating plate up to frame size 90

SIEMENS IE3 Ⓗ CE

Made in Czech. Rep. D-90441 Nürnberg

3~Mot. 1CV3314B 1LE15433AB434AA4-Z UC 1701/1234567 001 001

IEC/EN 60034 315L IMB3 IP55

990kg | Th.Cl. 155(F) | -20°C <=TAMB<=40°C

Bearing UNIREX-N3

DE 6319-C3 40g INTERVAL: 6000h

NE 6319-C3 40g

KS C 60034-2-1

V	Hz	A	kW	cosφ	NOM.EFF	1/min	IE-CL
400 Δ	50	275	160	0.87	95.8	1490	IE3
690 Y	50	161	160	0.87	95.8	1490	IE3
460 Δ	60	275	184	0.88	96.2	1788	IE3
460 Δ	60	240	160	0.87	96.2	1791	IE3

G_D081_XX_00888

Rating plate for motor with KEMCO certification

SIEMENS ERICVIK IE3 Ⓗ CE

Made in Germany D-90441 Nürnberg

3~Mot. 1AV3164A 1LE10431DA434AA0-Z E 1701/1410842 001 001

IEC/EN 60034 160L IMB3 IP10=FAN COVER/IP55 Brake:

94kg | Th.Cl. 155(F) | -20°C <=TAMB<=45°C | 2000M 2LM8040-5NA10

RINA Bearing UNIREX-N3 230V AC 50/60Hz 1.25A

DE 6209-2ZC3 20g INTERVAL: 2000h TH.Cl. 155(F) 40Nm

NE 6209-2ZC3 20g

Vibration B SF 1.1 CONT KS C 60034-2-1

V	Hz	A	kW	cosφ	NOM.EFF	1/min	IE-CL
400 Δ	50	32.0	18.5	0.90	92.4	2955	IE3
690 Y	50	18.6	18.5	0.90	92.4	2955	IE3
460 Δ	60	32.0	21.3	0.91	91.7	3550	IE3
460 Δ	60	28.0	18.5	0.90	91.7	3560	IE3

KDNo. 12345678999111 MATNo. 12345678 Space Heater 230V

G_D081_XX_00889

Rating plate (metal) for IEC motors (APAC Line) – maximum characteristics

SIEMENS cULus CC 032A IE3 Ⓗ CE

Made in Germany D-90441 Nürnberg

3~Mot. 1AV3164A 1LE10231DA434AA0-Z E 1701/1410842 001 001

IEC/EN 60034 160L IMB3 IP55 Brake:

94kg | Th.Cl. 155(F) | -20°C <=TAMB<=45°C | 2000M 2LM8040-5NA10

RINA Bearing UNIREX-N3 230V AC 50/60Hz 1.25A

DE 6209-2ZC3 20g INTERVAL: 2000h TH.Cl. 155(F) 40Nm

NE 6209-2ZC3 20g

Vibration B 60Hz: SF 1.1 CONT NEMA MG1 12-12 TEFC DES A 25.0 HP

V	Hz	A	kW	PF	NOM.EFF	rpm	IE-CL		CL
400 Δ	50	32.0	18.5	0.90	92.4	2955	IE3		M
690 Y	50	18.6	18.5	0.90	92.4	2955	IE3		M
460 Δ	60	32.0	21.3	0.91	91.7	3550	IE3		M
460 Δ	60	28.0	18.5	0.90	91.7	3560	IE3		N

KDNo. 12345678999111 MATNo. 12345678 Space Heater 230V

G_D081_XX_00890

Standard rating plate (metal) for NEMA motors – maximum characteristics

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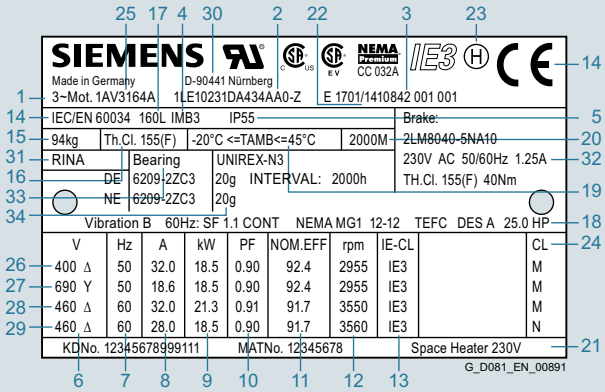
Overview



1 Machine type: Three-phase low-voltage motor
2 Article No.
3 Factory serial number (Ident.-no., serial number)
4 Type of construction
5 Degree of protection
6 Rated voltage [V] and winding connections
7 Frequency [Hz]
8 Rated current [A]
9 Rated power [kW]
10 Power factor (cos φ)
11 Efficiency
12 Rated speed [rpm]
13 IE efficiency class
14 Standards and specifications
15 Weight of machine [kg]
16 Temperature class
17 Frame size
18 Supplementary data (optional)
19 Operating temperature range (only if it deviates from standard)
20 Installation altitude (only when higher than 1000 m)
21 Customer data (optional)
22 Date of manufacture YYMM
23 Half-key balancing
24 Code letter "CL"
25 Motor type number (MT)
26 IEC standard series, power 50 Hz (P50/50 Hz) 400 Δ
27 IEC standard series, power 50 Hz (P50/50 Hz) 690 Δ
28 Equivalent power 60 Hz at the same utilization as IEC standard series 50 Hz
29 IEC standard series power 60 Hz (P50/60 Hz)
30 Manufacturer's address
31 Marine certificates
32 Optional information
33 Bearing size
34 Relubrication data optional

Explanation of the standard rating plate

Efficiency, power factor, rated speed, direction of rotation, rated torque

Overview

Efficiency and power factor

The efficiency η for 4/4, 3/4 and 1/2 load and the power factor cos φ for each rated power are listed in the selection tables in the individual sections of this catalog.
See page 1/5 for minimum efficiencies.

Rated speed and direction of rotation

The rated speeds are applicable for the rated data. The synchronous speed changes proportionally with the line frequency. The motors are suitable for clockwise and counterclockwise rotation.

When U1, V1, W1 are connected to L1, L2, L3 the motor rotates clockwise when viewing the drive shaft extension. Counterclockwise rotation is achieved by swapping two phases (see also "Heating and ventilation" on page 1/30).

Rated torque

The rated torque T in Nm delivered at the motor shaft is

$$T = \frac{9.55 \cdot P \cdot 1000}{n}$$

P Rated power in kW
n Speed in rpm

Note:
If the voltage deviates from its rated value within the admissible limits, the locked-rotor torque, the pull-up torque and the breakdown torque vary with the approximate square of the value, but the locked-rotor current varies approximately linearly.

In the case of squirrel-cage motors, the locked-rotor torque and breakdown torque are listed in the selection tables as multiples of the rated torque.
Preferred practice is to start squirrel-cage motors directly on line. The torque class indicates that with direct-on-line starting, even if there is an undervoltage of -5 %, it is possible to start up the motor against a load torque of

- 160 % for CL 16
- 130 % for CL 13
- 100 % for CL 10
- 70 % for CL 7
- 50 % for CL 5

of the rated torque.

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Overview

All motors in the SIMOTICS generation are equipped with innovative insulation systems, consisting of high-quality enamel wires and insulating sheet materials in conjunction with highly temperature-resistant impregnations.

The motors can be operated with SINAMICS G and SINAMICS S converters (controlled and uncontrolled infeed) while adhering to the admissible voltage peaks in accordance with the adjacent table.

Continuous operation while fully utilizing the admissible voltage tolerances must be avoided and is not recommended in accordance with IEC 60034-1 2011 Chapter 7.3.

The preferred supply system configurations are TT systems and TN systems with neutral-point grounding. We do not recommend operation in TN systems because of the higher voltage load.

Operation on non-grounded IT systems is also possible. However, in a ground fault, the insulation is excessively stressed. In the case of a ground fault, the process should be terminated as quickly as possible (t < 2 h), and the fault resolved.

For motors with protruding connection cables (order codes **R20, R21, R22, R23**, and **R24**), please inquire in the case of converter operation.

Impulse Voltage Insulation Class (IVIC) – category C (strong)

The insulation system of SIMOTICS motors significantly exceeds the requirements of stress category C (IVIC C = high stress). If voltage peaks higher than those specified according to IVIC C can occur, observe the data in the following table.

- For a line voltage (converter input voltage) up to max. 480 V and operation connected to a SINAMICS G/SINAMICS S converter with uncontrolled infeed (BLM, SLM), the relevant guidelines for the motor and converter configuration must be observed.
- For a line voltage (converter input voltage) up to max. 480 V and operation connected to a SINAMICS S converter with controlled infeed (ALM), the relevant guidelines for the motor and converter configuration must be observed.
- For line voltages (converter input voltages) higher than those stated above (max. 690 V), motors that are ordered for converter operation must have a suitable insulation system.
- For operation of a converter of another manufacturer, the permissible voltage peaks according to IEC 60034-18-41 in accordance with stress category C (see table below) must be observed, depending on the particular line voltage (converter input voltage) and the motor insulation system.

		Line voltage U_{rated} 400 V		480 V		500 V	
Standard		IVIC C	Siemens	IVIC C	Siemens	IVIC C	Siemens
$U_{phase}U_{phase\text{-}to\text{-}ground}$	$V_{pk/pk}$	1680	2200	2016	2200	2100	2200
$\hat{U}_{phase\text{-}to\text{-}ground}$	V_{pk}	840	1100	1008	1100	1050	1100
$U_{phase}U_{phase\text{-}to\text{-}phase}$	$V_{pk/pk}$	2360	3000	2832	3000	2950	3000
$\hat{U}_{phase\text{-}to\text{-}phase}$	V_{pk}	1180	1500	1416	1500	1475	1500

		Line voltage U_{rated} 500 V		690 V	
PREMIUM		IVIC C	Siemens	IVIV C	Siemens
$U_{phase}U_{phase\text{-}to\text{-}ground}$	$V_{pk/pk}$	2100	3000	2898	3000
$\hat{U}_{phase\text{-}to\text{-}ground}$	V_{pk}	1050	1500	1499	1500
$U_{phase}U_{phase\text{-}to\text{-}phase}$	$V_{pk/pk}$	2950	4400	4070	4400
$\hat{U}_{phase\text{-}to\text{-}phase}$	V_{pk}	1475	2200	2035	2200

The following applies for the voltage rise time: T_a > 0.3 µs.

The voltages according to EN 60034-18-41/IVIC C are specified as peak-to-peak values ($V_{pk}/_{pk}$). For information, the conventional peak values (V_{pk}) are also stated.

Insulation systems for converter operation > 480 V/500 V

The SIMOTICS motors can be operated in their standard version on SINAMICS converters without an additional filter up to a maximum converter input voltage of 480 V 3 AC on uncontrolled infeeds (SINAMICS G/S/V, BLM/SLM) and up to 480 V 3 AC on controlled infeeds (SINAMICS S, ALM). The specific configuration guidelines for motors and converters must be observed.

For higher converter input voltages, > 480 V/500 V 3 AC (max. 690 V), a special insulation system of the motor (PREMIUM) is required.
This is available for converter motors, such as SIMOTICS GP/SD VSD10, SIMOTICS DP crane motors, SIMOTICS FD, and the converter-capable SIMOTICS SD Pro motors.

For IE3 standard motors, the PREMIUM insulation system is available depending on the type.

Bearing insulation/shaft grounding brushes

To avoid damage to bearings due to bearing currents, we recommend bearing insulation at the non-drive end (NDE) for frame size 225 and larger (order code **L51**).

For converter operation and for frame size 315 and larger, bearing insulation at the non-drive end (NDE) is always provided (order code **L51**).

When rotary encoders are used, it must be ensured that these do not bypass the bearing insulation. The rotary encoders in this catalog meet this requirement except for type 1XP8.

In most cases, NDE bearing insulation provides sufficient protection against damage to bearings due to bearing currents.

In rare cases, depending on the application and system, it may be necessary to take further measures on the converter or motor. On the motor side, bearing insulation is provided on the drive end (DE) (order code **L50** on frame size 225 and larger) and shaft grounding brushes (order code **L52** as of frame size 280).

When NDE bearing insulation is used together with DE bearing insulation, the "shaft grounding brush" option (order code **L52**) must also be selected to maintain the shaft at a defined potential. In this constellation, to avoid damage to the bearings of the driven machine due to bearing currents, it is also necessary to insulate the coupling between the motor and the driven machine.

The EMC guidelines must always be complied with when the drive system is installed.

Thermal utilization of the motor

When motors are operated on a converter, additional losses occur due to the harmonics in the motor currents, which, depending on the permissible winding temperature, can make it necessary to reduce the torque. For operation on SINAMICS converters, the permissible torque values can be obtained from the SIZER engineering tool.

For operation on SINAMICS converters with the power ratings specified in the catalog, the motors are used according to temperature class 155 (F), i.e. in this case neither a service factor > 1 nor an increased coolant temperature is possible (order codes **N01**, **N02** and **N03** cannot be ordered).

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Overview

Explosion-protected motors

For converter operation of Ex motors, special measures must be considered, see Chapter 5.

DURIGNIT IR 2000 insulation system

The DURIGNIT IR 2000 insulation system consists of high-quality enamel wires and insulating sheet materials in conjunction with temperature-resistant resin impregnation.
This ensures that these motors will have a high mechanical and electrical strength, high service value, and a long lifetime. The insulation system protects the winding to a large degree against aggressive gases, vapors, dusts, oils and increased air humidity. It can withstand the usual vibration stressing. The insulation is suitable up to an absolute air humidity of 30 g water per m^3 of air. Moisture condensation should be prevented from forming on the winding. For higher values, the **N30** and **N31** options are available – see page 1/28.

Please inquire about extreme applications.

Restarting against residual field and opposite phase

All motors can be restarted against 100 % residual field after a line voltage failure.

Winding and insulation version with regard to temperature class

At rated power in line operation, the 1LE5/1MB5 motor series can be utilized in the following temperature class:

- For SIMOTICS SD Add [1]: Temperature class 130 (B)
- For SIMOTICS XP [1]: Temperature class 130 (B)
- For SIMOTICS SD Pro and SIMOTICS XP 1MB58: Temperature class 155 (F)

All motors are designed with temperature class 155 (F).
For details of derating for utilization in temperature class 155 (F), see "DURIGNIT IR 2000 insulation system".

Temperature class 155 (F), utilized according to 155 (F), with service factor (SF)

According to the selection table, at rated power and rated voltage, all 1LE./1PC1 motors in line operation have a service factor of 1.15. An exception are IE1 motors, which have a service factor of 1.1.
For the line operation, all motors with frame sizes 400 and 450 have a service factor of 1.05 at rated power.
Order code **N01**

Temperature class 155 (F), utilized according to 155 (F), for higher power

When utilized according to temperature class 155 (F), the rated power specified in the selection and ordering data can be increased by 15 %. Exception for IE1 motors – can be increased by 10 %. For motors of frame sizes 400 and 450, for line operation, when utilized according to temperature class 155 (F), the rated power listed in the selection and ordering data can be increased by 5 %. In this case, the service factor is 1.0.
Order code **N02**

Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature

With power as defined in the catalog and line operation, the coolant temperature is permitted to rise to 55 °C and, for motors of frame sizes 400 and 450, to 45 °C.
In this case, the service factor is 1.0.
Order code **N03**

The service factor (SF) is not indicated on the rating plate for order codes **N02** and **N03**.
For converter operation at the power specified in the catalog, the motors are utilized according to temperature class 155 (F). Order codes **N01**, **N02**, and **N03** are not possible.

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %

For motor series 1LE1, 1MB. [1], SIMOTICS SD Add [1], a version can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 45 °C with derating of 4 %.
Order code **N05**

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %

For motor series 1LE1, 1MB. [1], SIMOTICS SD Add [1] a version can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 50 °C with derating of 8 %.
Order code **N06**

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %

For motor series 1LE1, 1MB. [1], SIMOTICS SD Add [1] a version can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 55 °C with derating of 13 %.
Order code **N07**

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %

For motor series 1LE1, 1MB. [1], SIMOTICS SD Add [1] a version can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 60 °C with derating of 18 %.
Order code **N08**

Temperature class 180 (H)

With motor series 1LE., 1MB., and 1PC1, utilization according to temperature class 180 (H) is permitted.

For the SIMOTICS SD Add / SD Pro motor series, the rated power is increased by 5 %.
Rating plate data for SIMOTICS SD Add / SD Pro:

- Line operation (DOL): PN·1.05 + SF 1.05
- Converter operation (VSD): PN·1.05

Order code **N10** [2]

Temperature class 180 (H) at rated power and max. CT 60 °C

With motor series 1LE1, and 1PC1, utilization according to temperature class 180 (H) is permitted at rated power and a maximum coolant temperature of 60 °C (for the SIMOTICS SD Add / SD Pro motor series on request).
Order code **N11** [1] (not possible for 1LE15 and 1LE16 motors with increased power).

The grease lifetime specified is valid for a coolant temperature of 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

[1] Not applicable for 8-pole motors, frame size 450. Utilization in accordance with temperature class 130 (B) only possible on request, specifying order code Y50.

[2] Order code for Ex motors of the 1MB5, SIMOTICS XP motor series not available.

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Overview

Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude

The motors can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) with other customized requirements if they are specified in plain text in the order.
Order code **Y50**

Temperature class 155 (F), utilized according to 155 (F), other requirements

The motors can be ordered according to temperature class 155 (F) for utilization according to temperature class 155 (F) with other customized requirements if they are specified in plain text in the order.
Order code **Y52**

Temperature class 180 (H), utilized according to 155 (F)

The motors can be ordered according to temperature class 180 (H) for utilization according to temperature class 155 (F) with other customized requirements if they are specified in plain text in the order.
Order code **Y75** [1)]

Increased air humidity/temperature with 30 to 60 g water per m^3 of air

With motor series 1LE1, 1LE5, 1MB1, 1MB5 and 1PC1, motors are available in a version designed for increased air humidity in the range of 30 to 60 g water per m^3 of air, depending on the temperature, as shown in the table below. This version has condensation drainage holes (sealed). Not possible for 1MB..5 Ex db motors.
Order code **N30** (includes order code **H03** [2)], **M11**, stainless bolts in the terminal box cover, and **S02** standard/special paint finish for Performance Line cast-iron motors).
Please inquire before combining order code **N30** with mountings (e.g. rotary pulse encoder, brakes)!

Increased air humidity/temperature with over 60 to 100 g water per m^3 air

With motor series 1LE1, 1LE5, 1MB1, 1MB5 and 1PC1, motors are available in a version designed for increased air humidity of over 60 to 100 g water per m^3 of air, depending on the temperature, as shown in the table below. This version has condensation drainage holes. Not possible for 1MB...5 Ex db motors.
Order code **N31** (includes order code **H03** [2)], **M11**, stainless bolts in the terminal box cover, and either the **S02** special paint finish or the **S03** "sea air resistant" special paint finish for Performance Line cast-iron motors).
Please inquire before combining order code **N31** with mountings (e.g. rotary pulse encoder, brakes)!

Absolute/relative conversion of air humidity

Relative humidity	Temperature							
	up to 20 °C	up to 30 °C	up to 40 °C	up to 50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C
10 %	2	3	5	8	13	20	29	42
15 %	3	5	8	12	19	30	44	63
20 %	3	6	10	17	26	39	58	84
25 %	4	8	13	21	32	49	73	105
30 %	5	9	15	25	39	59	87	126
35 %	6	11	18	29	45	69	102	146
40 %	7	12	20	33	52	79	116	167
45 %	8	14	23	37	58	89	131	188
50 %	9	15	26	41	65	98	145	209
55 %	10	17	28	46	71	108	160	230
60 %	10	19	31	50	78	118	174	251
65 %	11	20	33	54	84	128	189	272
70 %	12	21	36	58	91	138	203	293
75 %	13	23	38	62	97	148	218	314
80 %	14	24	41	66	104	157	233	335
85 %	15	26	43	70	110	167	247	356
90 %	16	27	46	74	117	177	262	377
95 %	16	29	49	79	123	187	276	398
100 %	17	30	51	83	130	197	291	419

The values in the table with a blue background are covered by the standard version (up to < 30 g water per m^3 of air).
The values in the table with a light gray background are covered by order code **N30** (30 to < 60 g of water per m^3 of air).
The values in the table with a dark gray background are covered by order code **N31** (60 to < 100 g of water per m^3 of air).

Note:

- The coolant temperature and installation altitude can be found from page 1/29 onwards!
- The metal fan cover is available in combination with order code **F74** (not standard). For 1LE5/1MB5 motors with frame sizes 400 and 450 and for cast-iron motors of the Performance Line (1LE16), the metal fan cover is always standard.
- In case of increased thermal stress, please combine with the order codes **N05** to **N08**.
- In conjunction with more stringent requirements for the paint finish or corrosion protection stress (offshore, sea air, etc.), the corresponding order codes **S02**, **S03**, **S04**, and potentially **H07**, must be combined!
- Order code **N31** requires additional specifications for the ambient temperature CT 50 °C to CT 90 °C.

[1)] Order code for Ex motors of the 1MB5, SIMOTICS XP motor series not available.

[2)] Order code for Ex motors of the 1MB.553, SIMOTICS XP motor series not available.

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Overview

The specified rated power is applicable for continuous duty in accordance with IEC 60034-1 at the frequency of 50 Hz, a coolant temperature (CT) or ambient temperature of 40 °C and an installation altitude (IA) up to 1000 m above sea level. 1LE1, 1LE5, 1MB1, 1MB5 and 1PC1 motors for ambient temperatures exceeding 40 °C are equipped with various types of seal. Mountings such as brake, terminal box at NDE, flange-mounted motors can sometimes exceed utilization in accordance with temperature class 130 (B).

For higher coolant temperatures and/or installation altitudes greater than 1000 m above sea level, the specified motor power must be reduced using the factor k_{HT}.

Depending on the frame size of the motor or the number of poles, special windings may be added to the motors for the different operating conditions.

This results in an admissible motor power of:

$P_{adm} = P_{rated} \cdot k_{HT}$

If the admissible motor power is no longer adequate for the drive, it should be checked whether the motor with the next highest rated power fulfills the requirements.

Abbreviation	Description	Unit
P_{adm}	Admissible motor power	kW
P_{rated}	Rated power	kW
k_{HT}	Factor for abnormal coolant temperature and/or installation altitude	

The motors are designed for temperature class 155 (F) and utilized in temperature class 130 (B). Under non-standard operating conditions, if they are to be used in this class, the admissible power rating must be determined from the table below.

Reduction factor k_{HT} for different installation altitudes and/or coolant temperatures

Installation altitude **above sea level**	Coolant temperature					
m	< 30 °C	30 … 40 °C	45 °C	50 °C	55 °C	60 °C
1000	1.07	1.00	0.96	0.92	0.87	0.82
1500	1.04	0.97	0.93	0.89	0.84	0.79
2000	1.00	0.94	0.90	0.86	0.82	0.77
2500	0.96	0.90	0.86	0.83	0.78	0.74
3000	0.92	0.86	0.82	0.79	0.75	0.70
3500	0.88	0.82	0.79	0.75	0.71	0.67
4000	0.82	0.77	0.74	0.71	0.67	0.63

Coolant temperature and installation altitude are rounded to 5 °C and 500 m respectively.

Motors for coolant temperatures other than 40 °C or installation altitudes higher than 1000 m above sea level for utilization in temperature class 130 (B) must always be ordered with the additional identification code "–Z" and plain text. In the case of extreme derating, the operating data for the motors, i.e. efficiency and power factor, will also be less favorable due to partial utilization.

The following special versions are possible for 1LE1 and 1PC1 motors:

- Motors for coolant temperatures from –40 to +40 °C order code **D03**
- Motors for coolant temperatures from –30 to +40 °C order code **D04**

When ordering with order codes **D03** or **D04** in combination with mountings, the respective technical specifications have to be observed and it is necessary to inquire.

For details of order codes for use in temperature class 155 (F), see "DURIGNIT IR 2000 insulation system" under "Windings and insulation" on page 1/27.

Ambient temperature:
All motors can be used in the standard version at ambient temperatures between –20 and +40 °C. Exposure to direct sunlight can result in uncontrollable rises in motor temperature. To prevent this, appropriate shading measures such as a sun-protective cover are recommended.
Motors can be utilized in temperature class 155 (F)

- at 40 °C with service factor 1.1, i.e. the motor can be continuously overloaded with 10 % of the rated power in the case of IE1 motors
- at 40 °C with service factor 1.15, i.e. the motor can be continuously overloaded with 15 % of the rated power in the case of IE2 motors and higher efficiency classes
- above 40 °C at rated power.
- 1LE5/1MB5 motors are used in accordance with temperature class 155 (F) up to 40 °C occurs with a service factor of 1.05, i.e. the motor can be continuously overloaded with 5 % of the rated power.

When motors are used in temperature class 130 (B) for higher ambient temperatures and/or installation altitudes, derating occurs in accordance with the Table "Reduction factor k_{HT} for different installation altitudes and/or coolant temperatures".
For motors ex stock, the service factor is indicated on the rating plate.
For other temperatures, special measures are necessary.
When brakes are to be mounted on motors intended for operation at temperatures below freezing, please inquire.

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Overview

Anti-condensation heating

Supply voltage 230 V (1AC)
Order code **Q02**

Supply voltage 115 V (1AC)
Order code **Q03**

Supply voltage 400 V (1AC)
Order code **Q06**

For motors with windings at risk of condensation due to the climatic conditions, e.g. inactive motors in humid atmospheres or motors that are subjected to widely fluctuating temperatures, anti-condensation heaters must be used.
An additional cable entry is provided for the connecting cable in the terminal box.

Motor series	Frame size	Cable entry
Aluminum motors (GP)	≤ 200	1 × M16 × 1.5
Cast-iron motors (SD)	≤ 180	1 × M16 × 1.5
	200	1 × M20 × 1.5
	225 ... 315	2 × M20 × 1.5
	355 ... 450	2 × M20 × 1.5

Anti-condensation heating must not be switched on during operation.

Frame size	Heat power of the anti-condensation heating		
	Supply voltage at		
	230 V	115 V (110 V)	400 V (1AC)
	Order code **Q02**	Order code **Q03**	Order code **Q06**
	W	W	W
1LE1/1LE5/1PC1 motors			
63 … 80	12.5	12.5	–
90 … 112	25	25	–
132 … 200	50	50	–
225 … 250	92	92	–
280 … 315	109	109	–
315 … 355	218	218	200
400 ... 450	240	240	370
1MB1, 1MB5 motors			
80 … 112	7	7	–
132 … 160	12	12	–
180 … 200	57	57	–
225 … 250	92	92	–
280 … 315	109	109	–
355	218	218	200
400 ... 450	240	240	370

Instead of an anti-condensation heater, another possibility is to connect a voltage that is approximately 4 to 10 % of the rated motor voltage to stator terminals U1 and V1; 20 to 30 % of rated motor current is sufficient to heat the motor.

Fans/separately driven fans

1LE1 and 1MB1 motors of frame size 71 to 315 and 1LE5 and 1MB5 motors with 4 poles or more have radial-flow fans in the standard version (with the exception of option **F90** – version "Forced-air cooled motors without external fan and fan cover") that cool regardless of the direction of rotation of the motor (cooling method IC411 acc. to EN 60034-6). In the standard version, 1LE5 motors with 2 poles are cooled with unidirectional axial-flow fans. The air flow is forced from the non-drive-end (NDE) to the drive end (DE).
For details of separately driven fans for frame size 63 to 450, see also "Separately driven fans" on page 1/77.

Supply voltage of separately driven fan for 1LE1 motors:
The supply voltage tolerance of the separately driven fan is ±5 %. For voltage ranges, see page 1/77.

In confined spaces, it must be ensured that the minimum spacing is maintained between the fan cover and the wall. This also applies to adjacent parts, such as large handwheels and flywheels on the second shaft extension.

Clearance from wall/fan grilles	
Frame size	mm
63, 71	15
80, 90, 100	20
112	25
132	30
160	40
180, 200	90
225, 250	100
280, 315	110
355	140
400 ... 450	150

For version of the fan and the fan cover, see the table below.

Motor series	Frame size	Fan material	Fan cover material
1LE10	63 ... 71	Plastic	Metal
	80 … 200		Plastic [1]
1LE15	71 … 90	Plastic	Metal
	100 … 315		Plastic
1LE16	100 … 315	Plastic	Metal
1LE55	315	Metal	Plastic
1LE55	400 ... 450 2-pole	Metal	Metal
	400 ... 450 4-... 8-pole	Plastic	
1LE56	315 … 355	Metal	Metal

Metal external fan impeller

The standard fan impeller made of plastic can be replaced with a fan impeller made of metal. This version is available for the motors (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover").
In versions with a unidirectional axial-flow fan, the metal external fan is already included. Up to frame size 160 and for the 1LE5/1MB5 motor series, the metal external fan impeller is made of aluminum.
Order code **F76**

Fan cover for textile industry

For 1LE1 motors (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover") the standard version of the fan cover cannot be used in the textile industry.
For the motor series 1LE1 (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover") a special version of the fan cover is available for the textile industry. This has a protective cover and is made of non-corrosive sheet steel.

The motor length increases when the fan cover for the textile industry is mounted, see page 1/109, Figure 12.
Order code **F75**

[1] For the frame size codes **A**, **D**, **F**, **H**, **J**, **K**, **L**, **N**, **T**, **U**, and **V**, a screwed-on cover (plastic or metal) is used in conjunction with the option **H03** (condensation drainage holes). Mounted separately driven fans or brakes are only available in sheet metal version.

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Overview

Sheet metal fan cover

In place of the plastic fan cover, a sheet metal fan cover can be ordered for motor series 1LE1 (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover").
Order code **F74**

The sheet metal fan cover is supplied as standard with 1LE16 (Performance Line), 1LE5, and 1MB5 motors.

Necessary minimum cooling air flow for forced-air cooled motors in standard duty

The cooling air flow specified in the selection table applies to continuous duty according to EN 60034-1 at a coolant temperature (CT) or ambient temperature of 40 °C respectively and an installation altitude (IA) up to 1000 m above sea level.

In the 1LE1/1LE5 motor version without external fan and fan cover, order code **F90**, the motor is located in the air flow of the driven fan that must drive the minimum cooling air flow over the motor housing. The minimum air flow must pass closely over the housing (comparable to self-ventilation of the motor). Otherwise higher air flows are required to comply with admissible motor heating levels.

1LE1 motors

Frame size	Required cooling air flow for number of poles									
	2		4				6		8	
	IE2									
	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min		60 Hz m^3/min		50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min
63	0.83	1.02	0.41		0.48		0.27	0.32	–	–
71	1.49/1.73	1.81/2.08	0.75/0.86		0.87/1.02		0.49/0.58	0.58/0.71	0.36/0.42	0.43/0.54
80	1.82	2.18	0.9		1.1		0.6	0.73	0.44	0.53
90	3.3	4.03	1.64		2.01		1.11	1.31	0.76	0.94
	IE2/IE1		**IE2**		**IE1**		**IE2/IE1**		**IE2/IE1**	
	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min
100	3.8	4.4	2.1	2.6	2.3	2.8	1.5	1.8	1.2	1.3
112	5.0/5.4 [1]	5.7/6.1 [1]	2.9	3.5	2.9	3.5	1.9	2.3	1.4	1.6
132	6.3	7.2	4.6	5.7	4.6	5.7	3.1	3.8	2.4	2.9
160	10.9	13.3	6.7	8.1	7.6	9.1	5	6.1	3.8	4.5
180	12.4	14.8	7.8	9.4	7.8	9.4	5.2	6.2	4.8	5.8
200	14.3	17.2	10.4	12.5	10.4	12.5	7.9	9.5	6	7.2
	IE2									
	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min		60 Hz m^3/min		50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min
225	22	26	19		23		15	17.5	11.5	13.5
250	28	33	21		24.5		19	22.5	14.5	16.3
280	32	37.5	32.5		39		24	29.5	18	22
315	48	58	49		58		34	40	25	30.5
	IE4/IE3									
	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min		60 Hz m^3/min		50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min
180	10.3	12.3	7		8.3		5.2	6.2	–	–
200	10.4	12.5	7.6		9.1		6.5	7.8	–	–
225	14	17.5	12		15		15.5	18	11.5	12.5
250	18.5	22	12		15		16	20	12	13.5
280	26	30.5	27.5		32.5		22.5	26.5	18	21.5
315	40	48.5	32.5		39		31	37	25	30.5
	IE3/IE2									
	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min		60 Hz m^3/min		50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min
80	1.36	1.66	0.66		0.8		0.42	0.51	0.3	0.38
90	2.86	3.41	1.34		1.7		0.87	1.06	0.65	0.8

1LE5 motors

Frame size	Required cooling air flow for number of poles									
	2		4				6		8	
	IE3/IE4									
	50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min		60 Hz m^3/min		50 Hz m^3/min	60 Hz m^3/min	50 Hz m^3/min	60 Hz m^3/min
315	46/44	56/53	38.5/38		46/46		26.5/–	31/–	–	–
355	44/–	53/–	63/63		75/75		40.5/–	48.5/–	–	–
400	72	84	78		96		102	120	78	96
450	90	108	126		150		90	108	72	84

[1] Value: IE2/IE1

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Overview

The order variants for motor protection are coded with letters in the 15th position of the Article No. and, if necessary, using order codes.

In the standard version, the motor is designed without motor protection.
15th position of the Article No. letter **A.**

A distinction is made between current-dependent and motor-temperature-dependent protection devices.

The following applies to all motors:

The motors can withstand 1.5 times the rated current at rated voltage and frequency for two minutes (EN 60034).

Note:
Electrically protective separation of the built-in winding components for low-voltage motors is the insulation of the sensors for winding protection.
All sensors for winding protection, which can be selected under the Article No. supplements and options for motor protection meet the requirements of basic insulation.
The basic insulation is tested in accordance with Siemens Product Standard 60034-1 and 60034-18-41 and relates to all sensors and built-in components that are installed in the winding, such as PTC, NTC, KTY, Pt100 and bimetal switch.

For example, by ordering with letter **B** in the 15th position of the Article No or as an option with order code **Q11**
"1 or 3 PTC thermistors – for tripping".

The Pt1000 already meets the requirements for electrically protective separation according to IEC 61800-5-1.

Current dependent protection devices

Fuses are only used to protect power cables in the event of a short-circuit. They are not suitable for overload protection of the motor.

The motors are usually protected by thermally delayed overload protection devices (circuit breakers for motor protection or overload relays), e.g. with SIRIUS industrial controls and protection relays. For further details, see Catalog IC 10.

This protection is current-dependent and is particularly effective in the case of a locked rotor.

For standard duty with short start-up times and starting currents not too excessive and for low numbers of switching operations, motor protection switches provide adequate protection. Motor protection switches are not suitable for heavy starting duty or large numbers of switching operations. Differences in the thermal time constants for the protection equipment and the motor result in unnecessary early tripping when the protection switch is set to rated current.

Motor-temperature-dependent protective devices and motor temperature detection with converter operation

Depending on the specific requirements, various different components can be built into the motor winding for switching off the motor before it overheats and for monitoring the winding temperature and motor temperature.

Temperature detectors – Bimetal switches

Bimetal switches operate on the principle of mechanical deformation as a result of long-term heating. Bimetal strips bent as a result of such heating have a spring action that results in sudden reversal of the curvature (concave to convex or vice-versa).

When a limit temperature is reached, these temperature detectors (NC contacts) can deactivate an auxiliary circuit. The circuit can only be reclosed following a considerable fall in temperature. Bimetal switches are suitable protection devices in the case of slowly rising motor temperatures. When the motor current rises quickly (e.g. with a locked rotor), these switches are not suitable due to their large thermal time constants.

Temperature detectors for tripping:
15th position of the Article No. letter **Z** and order code **Q3A.**

The temperature detectors have the following current-carrying capacity and switching capacity:
230 V, AC: 2.5 A
24 V, DC: 1.6 A

PTC thermistors – Thermistor motor protection

PTC thermistors provide the most comprehensive protection against thermal overloading of the motor. A rise in the winding temperature over the admissible value can be accurately detected thanks to the low heat capacity of these PTC (Positive Temperature Coefficient) thermistors and their excellent heat contact with the winding. When the limit temperature is reached (rated tripping temperature), the PTC thermistors undergo a sudden change in resistance. This is evaluated by tripping units and can be used to open auxiliary circuits. PTC thermistors cannot themselves be subjected to high currents and voltages. This results in the destruction of the semiconductor. The switching hysteresis of the PTC thermistor and tripping unit is low, which supports fast restarting of the drive. Motor protection of this type is recommended for heavy duty starting, switching duty, extreme changes in load, high ambient temperatures or fluctuating supply systems.

Motor protection with PTC thermistor for tripping. In the terminal box, two auxiliary terminals are required.
15th position of the Article No. letter **B.**

Two temperature sensor circuits are used if a warning is required before the motor is shut down (tripped).
The warning is normally set to 10 K below the tripping temperature.

Motor protection with PTC thermistor for alarm and tripping.
In the terminal box, 4 auxiliary terminals are required.
15th position of the Article No. letter **C.**

The following applies to 1LE1 motors:

Motor protection for frame sizes 80 and 90 is implemented with the 15th position of the Article No. letter **B**, and with the order code **Q11** with a PTC thermistor.

Motor protection for frame sizes 80 and 90 is implemented with the 15th position of the Article No. letter **C**, and with the order code **Q12** with two PTC thermistors.

The following applies to 1MB1 motors:

The motor protection is implemented with the 15th position of the Article No. letter **B** with three PTC thermistors.

The motor protection is implemented with the 15th position of the Article No. letter **C** with six PTC thermistors.

In order to achieve full thermal protection, it is necessary to combine a thermally delayed overcurrent release and a PTC thermistor. For full motor protection implemented only with PTC thermistors, please inquire.

The SIRIUS 3RN2 thermistor motor protection device for protecting motors against overheating by means of direct temperature measurement, also for a hazardous area with ATEX approval, can be ordered separately. For further details, see Catalog IC 10 or www.siemens.com/product?3RN2.

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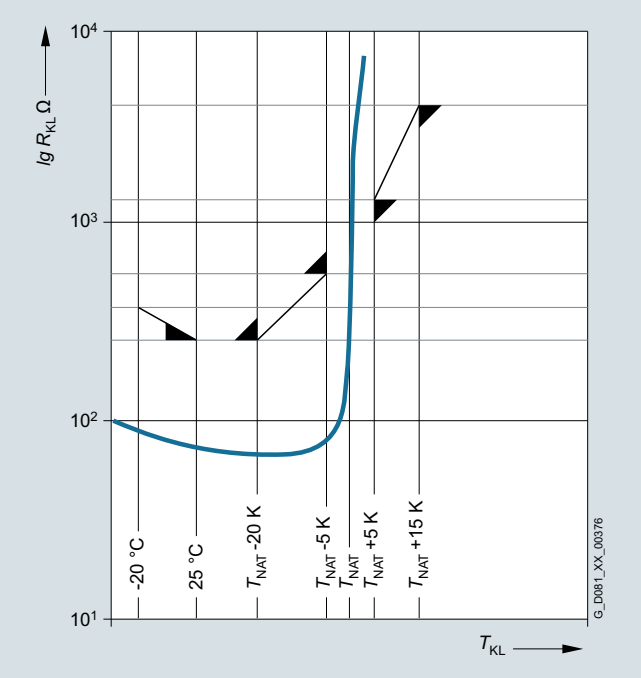
Overview

PTC thermistor characteristic

The PTC thermistor is a temperature-dependent component. At the smallest changes in temperature in the region of the rated shutdown temperature, the resistance of the PTC increases steeply.



PTC sensor characteristic

NTC thermistor

NTC thermistors have a negative temperature coefficient and conduct current at higher temperatures better than at lower temperatures.

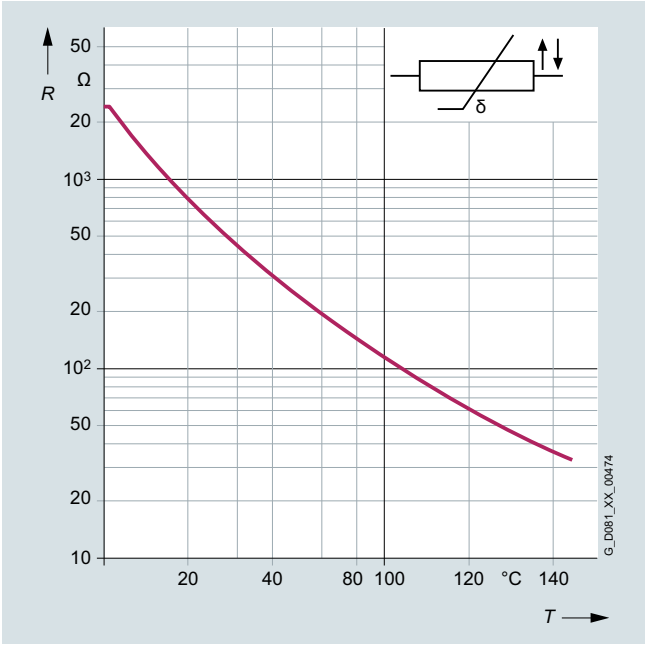
NTC thermistors are typically used for temperature compensation of electronic circuits, or to limit inrush currents, to achieve the soft starting of electrical machines, for example.

Motor temperature monitoring and shutdown using NTC thermistors is unusual, but it is technically possible. The tripping temperature can be set when using suitable tripping devices of this type.

NTC thermistors for tripping: 15th position of the Article No. letter **Z** and order code **Q2A.**

For line operation, the SIRIUS 3RS1, 3RS2 temperature monitoring relay, which forms part of the protection equipment, can be ordered separately.
For further details, see Catalog IC 10 or www.siemens.com/product?3RS1.

NTC thermistor characteristic



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Overview

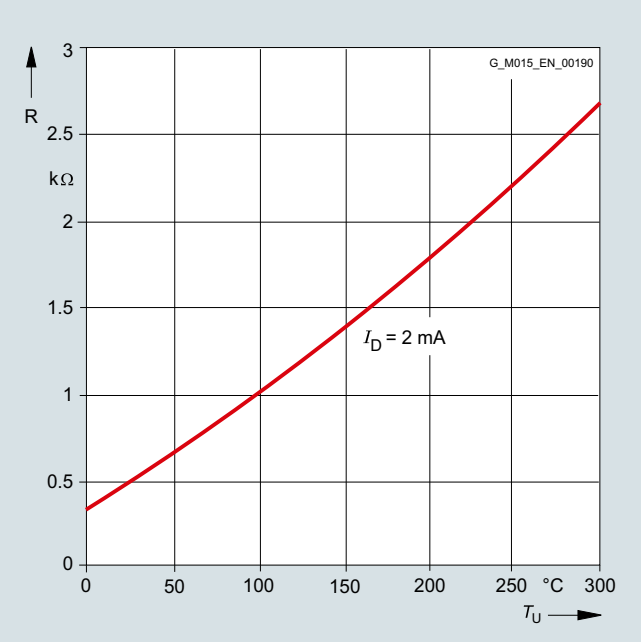
KTY 84-130 temperature sensor

This temperature sensor is a semiconductor which, in a similar manner to a PTC thermistor, changes its resistance as a function of its temperature at a defined rate. Within the measuring range, however, the KTY 84-130 characteristic rises almost linearly. The temperature sensor is embedded in the winding overhang of the motor in the same way as the components mentioned above. It is characterized by its outstanding precision, high reliability, and temperature stability, as well as a fast response time. Thanks to these properties, which permit the almost analog monitoring of winding temperature, the KTY 84-130 is preferred for converter operation.

Motor temperature detection with embedded KTY 84-130 temperature sensor: In the terminal box, two auxiliary terminals are required.
15th position of the Article No. letter **F.**

Temperatures for alarm and tripping can be set as required when using converters from Siemens that determine the motor temperature in accordance with the measuring principle described above. With these devices, the measured signal is evaluated directly in the converter.
For line operation, the SIRIUS 3RS1, 3RS2 temperature monitoring relay, which forms part of the protection equipment, can be ordered separately.
For further details, see Catalog IC 10 or
www.siemens.com/product?3RS1.

KTY 84-130 temperature sensor characteristic



Pt100/Pt1000 resistance thermometer

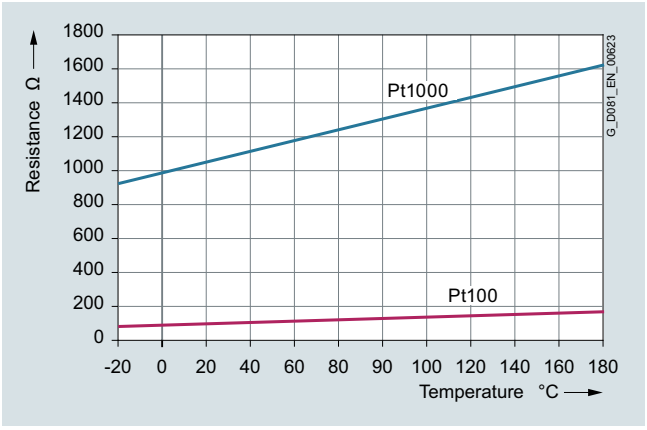
The resistance thermometer has a chip for a temperature sensor, the resistance of which changes in relation to temperature according to a series of reproducible basic values. The changes in resistance are transferred as changes in current. At 0 °C, the measurement resistances are adjusted to 100 Ω for the Pt100 and 1000 Ω for the Pt1000, and correspond to the accuracy class B (i.e. the relationship between resistance and temperature). The limit deviation is ±0.3 °C, and the admissible deviations are defined in EN 60751.

The Pt1000 resistance thermometer will, in the future, gradually replace the KTY84-130 temperature sensors available today. Similar to the method of operation of the Pt100, the relationship between the temperature and the electrical resistance of conductors is utilized in the Pt1000 to measure the temperature, just like with the additional resistance thermometers described above.
Pure metals undergo larger changes in resistance than alloys and have a relatively constant temperature coefficient.

The order options for the Pt100/Pt1000 temperature sensors are described in Chapter 2 (15th position of the Article No.: **H, J, K, L, P, Q**, or **R**, or order codes **Q35, Q36, Q60, Q61, Q62, Q63, Q64, Q72, Q78**, or **Q79**).

Temperatures for alarm and tripping can be set as required when using converters from Siemens that determine the motor temperature in accordance with the measuring principle described above. With these devices, the measured signal is evaluated directly in the converter.
In line operation, the SIRIUS 3RS1, 3RS2 temperature monitoring relay can be ordered separately for the protection equipment.
For further details, see Catalog IC 10 or
www.siemens.com/product?3RS1.

Pt100/Pt1000 resistance thermometer characteristics



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Overview

Location of the terminal box

The terminal box of the motor can be mounted in four different locations or positions. For the motors of the 1LE10 aluminum series, frame sizes 63 and 71, the terminal box can only be mounted on the top (16th position of the Article No. **4**).
The position of the terminal box is coded using the 16th position of the motor Article No.
When defining the position of the terminal box, please observe the following:

- Motors with feet must always be viewed looking onto the drive end with the shaft in the horizontal position. The feet are then always at "6 o'clock". This is especially important with construction types IM B6, IM B7, and IM B8, and also applies to combined construction types such as IM B35.
- Flange-mounted motors (e.g. IM B5) whose drive-end flange has a condensation drainage hole must always be viewed looking onto the drive end with the shaft in the horizontal position. The condensation drainage hole is then always at "6 o'clock".

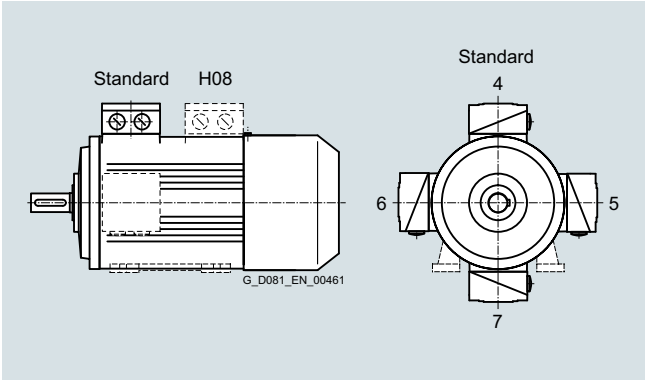
The aluminum series motors 1LE10 and 1PC10 with feet and standard power range have cast feet in the standard version in frame sizes up to 160, e.g. IM B3, IM B6, etc. (applies only to IE3 and IE4 motors with standard housing; IE3 and IE4 motors with long housing always have screwed-on feet). Motors from frame size 180 upwards have screwed-on feet. If rotation of the terminal box is to be possible in the future, the "Screwed-on feet" option, order code **H01**, must be ordered. In accordance with the type of construction, spare holes that are not used for mounting the feet can be used by the customer. If the customer would like this option, it is advisable to include order code **H10** "Housing with screw mounting" in the order – possible only for frame sizes 80, 90, 180 and 200. Responsibility for any strength calculations required for this type of customer mounting lies with the customer.

For all motors with increased power and with feet, the feet are screwed-on as standard. The terminal box can be rotated later. Motors with frame sizes 225 to 315 are supplied as standard with cast feet.

Terminal box on right-hand side:
16th position of the Article No. digit **5**

Terminal box on left-hand side:
16th position of the Article No. digit **6**

Terminal box below:
16th position of the Article No. digit **7**



Location of the terminal box with the corresponding digits in the 16th position of the Article No.

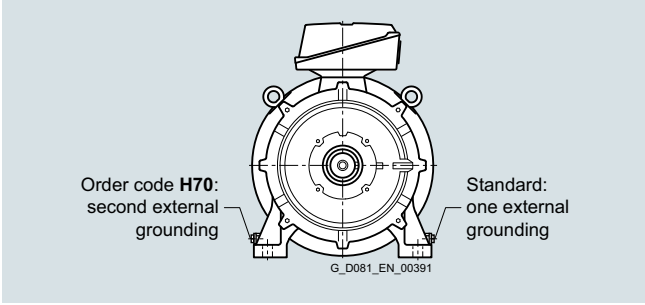
The number of winding ends depends on the winding design. Three-phase motors are connected to the three phase conductors L1, L2 and L3 of a three-phase system. The rated voltage of the motor in the running connection must match the phase conductor voltages of the network.

When the three phases are operating in a time sequence and are connected to the terminals of the motor in alphabetical order U1, V1 and W1, clockwise rotation of the motor shaft is established as viewed onto the drive end. The direction of rotation of the motor can be changed to counterclockwise if two connecting leads are interchanged.

Labeled terminals are provided to connect the protective conductor.
A PE terminal is provided in the terminal box for grounding. A grounding terminal is provided on the outside of the motor housing – special version for 1LE1/1PC1 motors.
Order code **H04**

External grounding terminal/external grounding is standard for 1LE15/16 motors from frame size 180 upwards and for 1LE5/1MB5 motors of frame sizes 400 and 450.

A second external grounding connection can also be ordered.
Order code **H70** (must be ordered in combination with option **H04**)



If a brake control system or thermal protection is installed, the connections will also be in the terminal box. The motors are suitable for direct connection to the line supply.

Design of the terminal box

The number of terminals and the size of the terminal box are designed for standard requirements.

For special requirements, or on customer request, a larger terminal box can be supplied.

For motors with frame sizes 71 up to 90, the following constraints apply:

For configuration, note that, when the terminal box is located on the left or right-hand sides, the customer must not align the cable entry towards the housing feet, because this can cause collisions between the motor connection cables and the foundations.

Larger terminal box
Order code **R50**

If the necessary installation angle of the motor would cause machine components to collide with the terminal box, the terminal box can be moved from the drive end (DE) to the non-drive end (NDE). Only use according to temperature class 155 (F). When the terminal box is rotated to the non-drive end (NDE) of the motor, it is important to note that dimensions "C" and "CA" will not comply with the values specified by EN 50347. Dimensional drawings can be requested via DT Configurator.
Order code **H08**

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Overview

Motor connection

Line feeder cables
The line feeder cables must be dimensioned acc. to DIN VDE 0298. The number of required feeder cables, if necessary in parallel, is defined by:
- The max. cable cross-section which can be connected,
- The cable type,
- The cable routing,
- The ambient temperature and the corresponding admissible current in accordance with DIN VDE 0298,
- The requirements according to IEC/EN 60204-1,
- The requirements according to IEC/EN 60079-14 for 1MB motors.

For motors with auxiliary terminals (e.g. 15th position of the Article No. letter **B**), additional cable entry holes are provided (M16 × 1.5 or M20 × 1.5 depending on frame size).
For further details, see the data sheet function in the DT Configurator.

The terminal box is located on the housing and bolted in place. The terminal box can be turned by 4 × 90° degrees on the terminal base of the machine housing in the case of a terminal board with 6 terminal studs (standard version).
Order code **R09**

Parallel feeders
Some motors must be fitted with parallel feeders due to the maximum permissible current per terminal. These motors are indicated in the selection and ordering data in the respective chapter.

The temperature rises in the terminal box must be taken into account when selecting the connection cable or individual connections. These approximate temperature rises are as follows:
- Range of ambient temperature (T_{amb}) +50 K for motors with temperature class Th.Cl.155 (F).
- Range of ambient temperature (T_{amb}) +60 K for motors with temperature class Th.Cl.180 (H).
- Without any specifications in field 19 (T_{amb}) on the rating plate, T_{amb} is equal to 40 °C.

Cable entry on the terminal box
With a view onto the drive end of the motor with the shaft in the horizontal position and the terminal box on the top, the cable entry is always on the right-hand side of the motor, as shown in the figure below – standard position 0°.
The terminal box can be rotated on the base of the motor housing such that the cable entry is located in the positions given below:
- Towards the drive end (DE)
  (rotation of terminal box by 90°,
  entry from DE) for B5 types of constructions only with order code **H08**!
  With B14 construction types, the customer must ensure that sufficient space is available for cable outlet.
  Order code **R10**
- Towards the fan end (NDE)
  (rotation of terminal box by 90°,
  entry from NDE)
  Order code **R11**
- Opposite the standard position 0°
  (rotation of terminal box by 180°,
  entry opposite the standard position 0°)
  Order code **R12**

The dimensions of the terminal box are listed in the section "Dimensions" on pages 2/142 to 2/181 in accordance with the frame size and the "Dimensional drawings".
If the position of the terminal box (right-hand side, left-hand side, or top) is changed, the position of the cable entry must be checked and, if necessary, ordered with the corresponding order codes (**R10**, **R11**, and **R12**).

Location of the cable entries with the corresponding order codes

Motor	Frame size	Terminal box	Terminal box position					Rotation of the terminal box and cable entry			
			Top	Right-hand side	Left-hand side	Bottom	Retrofitting possible	-90°	+90°	180°	Retrofitting possible
			16th position of the Article No.					Article No. with **-Z** and order code			
Type		Type	**4**	**5**	**6**	**7**	**4** **H01**	**R10**	**R11**	**R12**	
1FP10, 1LE10, 1MB10, 1PC10	63 … 71	TB1B00, TB1B10	✔	–	–	–	–	✔	✔	✔	Yes
	80 … 90	TB1E00, TB1E10	✔	✔	✔	–	–	✔	✔	✔	Yes
	100, 112	TB1F00, TB1F10	✔	✔	✔	✔	–	✔	✔	✔	Yes
	132	TB1H00, TB1H10	✔	✔	✔	✔	–	✔	✔	✔	Yes
	160	TB1J00, TB1J10	✔	✔	✔	✔	–	✔	✔	✔	Yes
	180		✔	✔	✔	–	–	✔	✔	✔	Yes
	200	TB1L00, TB1L10	✔	✔	✔	–	–	✔	✔	✔	Yes
1FP15, 1LE15, 1MB15 [6]	71	TB1D01	✔	✔	✔	–	–	✔	✔	✔	Yes
	80, 90		✔	✔	✔	–	–	✔	✔	✔	Yes
1FP15, 1LE15/6, 1MB15/6 [6]	100 … 160	TB1F01 … TB1R01	✔	✔	✔	✔	–	✔	✔	✔	Yes
	180 … 315		✔	✔	✔	–	–	✔	✔	✔	Yes
1PC13	80, 90	–	✔	✔	✔	–	✔	✔	✔	✔	Yes
	100 … 160	–	✔	✔	✔	✔	✔	✔	✔	✔	Yes
	180 … 315	–	✔	✔	✔	–	✔	✔	✔	✔	Yes

Motor	Frame size	Terminal box	Terminal box position							Rotation of the terminal box and cable entry			
			Top left	Top right	45° left	45° right	90° right	90° left	Bottom	-90°	+90°	180°	Retrofitting possible
			16th position of the Article No.							Article No. with **-Z** and order code			
Type		Type	**0**	**1**	**2**	**3**	**5**	**6**	**9** [1) 2)]	**R10**	**R11**	**R12**	
1LE5, 1MB5 [6]	315	TB3Q01	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	Yes
	355	TB3R01	✔	✔	✔	✔	✔	✔	✔	✔ [3)]	✔	✔	Yes
	400 ... 450	TB3R61	✔	✔	✔	✔	✔	✔	✔	✔ [5)]	✔	✔	No [4)]

1) Article No with the following order code:
R5L – terminal box on left-hand side (base below)
R6R – terminal box on right-hand side (base below)
R7L – terminal box bottom left
R7R – terminal box bottom right

2) Only possible in combination with type of construction IM B5.

3) Not possible together with terminal box code (16th position of the Article No.) **0**, **1**, **5**, **6** and flange A 900.

4) Only possible with order code **R09**.

5) With a flange, only possible with order code **H08**.

6) 1MB15/6 also applies to 1MB154, 1MB164, and 1MB155; 1MB5 also applies to 1MB554, 1MB555.

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Overview

Terminal box in standard position, detailed view

Ordering example:

Terminal box on right-hand side (16th position of the Article No. digit **5**):

Cable entry is from below unless another order code is specified.

Cable entry from drive end (DE) – Article No. with **-Z** and order code **R10**.

For cable entry to a standard terminal box, a metal cable gland can be ordered for motor connection.
One metal cable gland – Article No. with **-Z** and order code **R15**.

For special requirements for which standard holes for the cable entries are inadequate for the UK market, reduction pieces for M cable glands in accordance with British Standard that are mounted on both cable entries can be supplied (only up to frame size 160).
Order code **R30**

Frame size	Cable entry acc. to	
	IEC	British Standard
100	2 × M32	2 × M20
112/132	2 × M32	2 × M25
160	2 × M40	2 × M32

Motor connectors

Motors of frame sizes 63 to 132 can be supplied with a motor connector.
The motor connectors are mounted on the specially designed terminal box at the factory and are aligned towards NDE in the basic version. The terminal boxes can be rotated by 4 × 90° on the base of the motor housing (order codes **R10**, **R12**, and **R13**).

The following motor connector variants are available:

- Motor connector HAN10B-10E
  Order code **R70**
- Motor connector HAN10B-10E EMC
  Order code **R71**
- Motor connector HAN3A-Q12 EMC
  Order code **R72**
- Motor connector HAN3A-Q12
  Order code **R73**

Motor connector assignment

Motor Type	Frame size	Motor connectors Type	Size of the terminal box
1LE10	63 … 70	HAN10B-10E HAN10B-10E EMC	TB1B60
	80 … 90	HAN3A-Q12 HAN3A-Q12 EMC	TB1E00 with mounted brake TB1E10
	80 … 90	HAN10B-10E HAN10B-10E EMC	Only possible with TB1E10
1LE10, 1PC10	100 … 132	HAN10B-10E HAN10B-10E EMC	Currently only available with TB1F10 (frame sizes 100 and 112) or TB1H10 (frame size 132)

Technical characteristic values of motor connectors according to EN 60664-1 and EN 61984

Characteristic value	Motor connectors			
	HAN3A-Q12		**HAN10B-10E**	
	Degree of pollution			
	3	2	3	2
Rated current	10 A		16 A	
Rated voltage	400 V	400/690 V	500 V	400/690 V
Rated voltage acc. to UL/CSA	600 V		600 V	

For further technical specifications of the motor connectors, refer to the catalog of Harting Deutschland GmbH & Co. at www.harting.com
or
https://b2b.harting.com/ebusiness/de/industrie-steckverbinder-han/100382.

Protruding cable ends

For confined spaces, protruding cable ends can be ordered without a terminal box with cover plate.

The following lengths of protruding cables can be ordered as standard using order codes:

- 3 cables protruding, 0.5 m long [1)]
  Order code **R20**
- 3 cables protruding, 1.5 m long [1)]
  Order code **R21**
- 6 cables protruding, 0.5 m long
  Order code **R22**
- 6 cables protruding, 1.5 m long
  Order code **R23**
- 6 cables protruding, 3.0 m long
  Order code **R24**

The cross-section of the named cable refers to a coolant temperature of up to CT 40 °C.

[1)] For 3 protruding cables only, it must be specified in plain text whether star or delta connection is required (voltage code **90** and **M1Y**).

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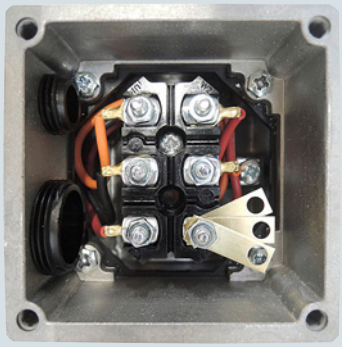
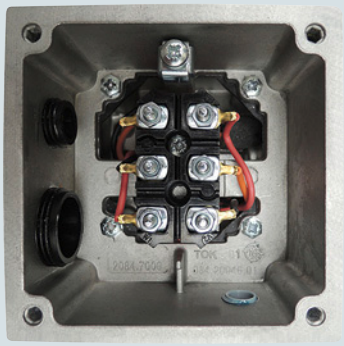
Overview

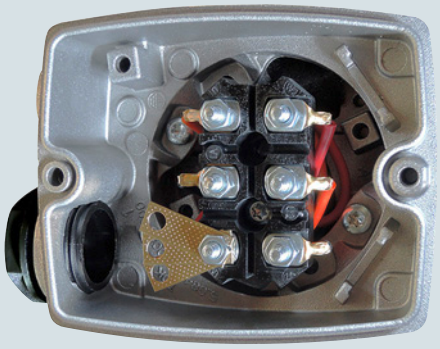
Terminal box type TB1B00



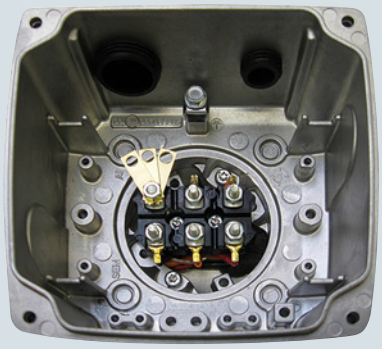
Terminal box type TB1B10



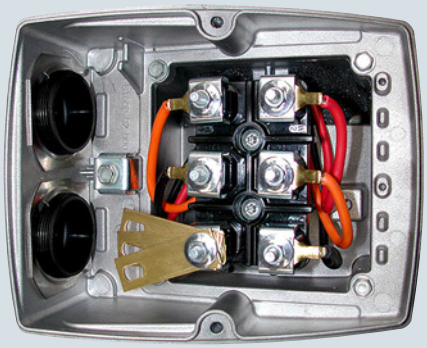
Terminal box type TB1E00



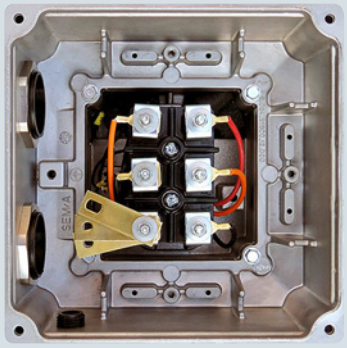
Terminal box type TB1E10 – order code **R50**



Terminal box types TB1F00, TB1H00, TB1J00

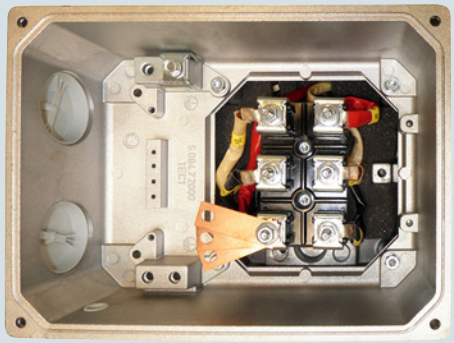


Terminal box types TB1F10, TB1H10, TB1J10 – order code **R50**



Terminal box type TB1L00

Terminal box type TB1L10 – order code **R50**



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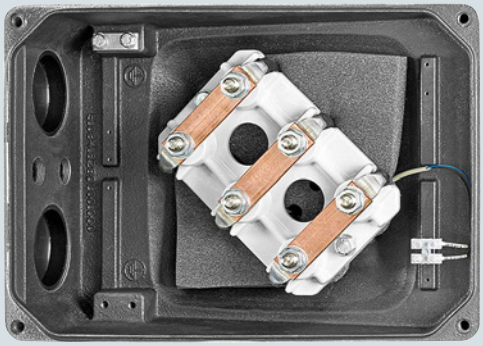
Overview

Terminal box type TB1J01

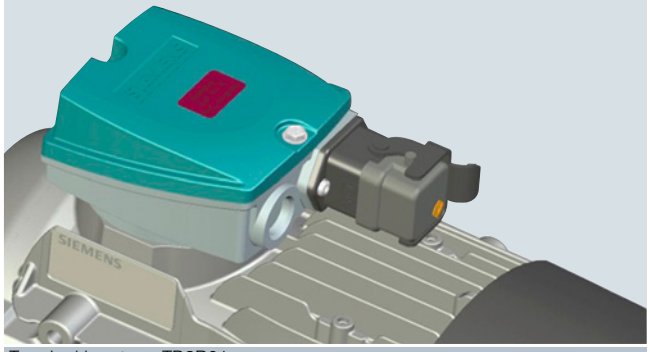
Terminal box type TB1L01

Terminal box type TB1N01

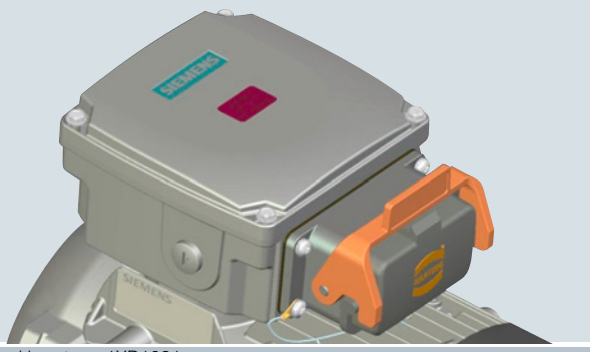


Terminal box type TB1Q01

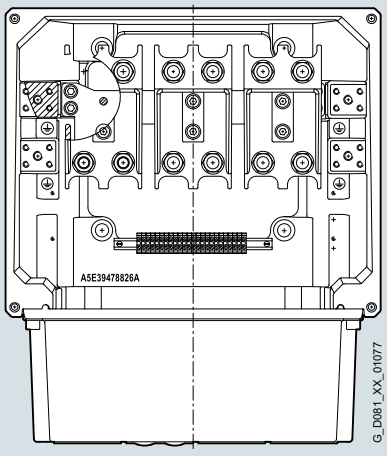
Motor connector type HAN3A-Q12



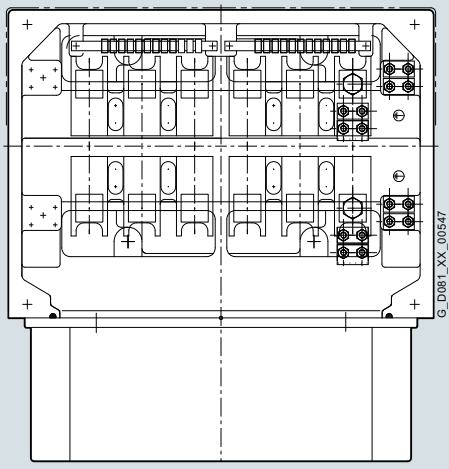
Motor connector type HAN10B-10E



Terminal box type TB3R61



Terminal box type 1XB1631



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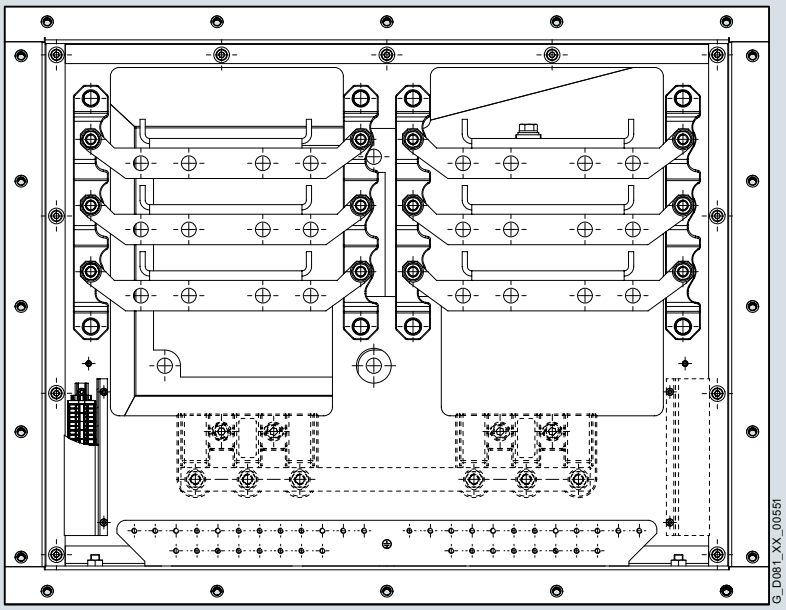
Overview

Terminal box type 1XB7750



Basic data for terminal boxes for 1LE1, 1MB1, 1PC1, 1LE5, and 1MB5 motors

Motor	Frame size	Terminal box	Cable entries/locking	Terminal box material	Feeder connection
1LE10/1MB10/1PC10					
1LE10	63 ... 71	TB1B00 TB1B10	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Aluminum alloy	• Cable lug • Rigid cable, no cable lug
1LE10	80 … 90	TB1E00	1 entry complete with sealing plugs, thread in terminal box (2 entries with additional mounting components in the winding), terminal box mounted and screwed in place	Aluminum alloy	• Cable lug • Rigid cable, no cable lug
1LE10/ 1MB10	80 … 90	TB1E10	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Aluminum alloy	• Cable lug • Rigid cable, no cable lug
1LE10 1MB10 [1] 1PC10	100 … 180 80 … 160 100 … 160	TB1F00 TB1H00 TB1J00 TB1F10 TB1H10 TB1J10	2 entries complete with sealing plugs and locknuts, terminal box mounted and screwed in place	Aluminum alloy	• Cable lug • Rigid cable, no cable lug
1LE10	200	TB1L00 TB1L10	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Aluminum alloy	• Cable lug • Rigid cable, no cable lug
1LE15/1LE16/1LE5/1MB15/1MB16/1MB5					
1LE15/ 1MB15 [1]	71 … 90	TB1D01	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	• Cable lug • Rigid cable, no cable lug
1LE15/ 1LE16/ 1MB15/ 1MB16 [1] [2]	100 … 315	TB1F01 … TB1R01	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	• Cable lug • Rigid cable, no cable lug
1LE5, 1MB5 [2]	315 … 355	TB3Q01 TB3R01	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	• Cable lug • Rigid cable, no cable lug
1LE5, 1MB5 [2]	355 (500 kW)	TB3R01	4 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	• Cable lug • Rigid cable, no cable lug
1LE5/ 1MB5	400 ... 450	TB3R61 1XB1631	4 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Sheet steel	• Cable lug • Rigid cable, no cable lug
		1XB7750	8 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place		

[1] The certified cable entries are supplied as standard for explosion-protected motors.
- Frame sizes 63 to 200: One certified metric cable gland and one certified metric sealing plug
- Frame sizes 225 to 315: Two certified metric cable glands

[2] 1MB15/1MB16 also applies to 1MB154, 1MB164, and 1MB155; 1MB5 also applies to 1MB554 and 1MB555.

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Overview

Technical specifications for terminal boxes for 1LE1, 1LE5, 1MB1, 1MB5, and 1PC1 motors

Frame size	Terminal box [1]	Number of terminals	Thread of the contact screw	Max. connectable cable	Outer cable diameter (sealing range)	Cable entry [2] [3]
	Standard/larger (order code **R50**)			mm^2	mm	
1LE10/1MB10/1PC1						
63 … 71	TB1B00/TB1B10	6	M4	1.5/2.5 with cable lug	M16 × 1.5: 4.5 … 10; M25 × 1.5: 9 … 17	1 × M25 × 1.5/ 1 × M16 × 1.5 + 1 × M25 × 1.5
80 and 90	TB1E00/TB1E10 [4]	6	M4	1.5/2.5 with cable lug	M16 × 1.5: 4.5 … 10; M25 × 1.5: 9 … 17	1 × M25 × 1.5/ 1 × M16 × 1.5 + 1 × M25 × 1.5
100	TB1F00/TB1F10	6	M4	4	11 … 21	2 × M32 × 1.5
112						
132	TB1H00/TB1H10	6	M4	6	11 … 21	2 × M32 × 1.5
160	TB1J00/TB1J10	6	M5	16	19 … 28	2 × M40 × 1.5
180						
200	TB1L00/TB1L10	6	M6	25	27 … 35	2 × M50 × 1.5
1LE15/1MB15						
71 … 90	TB1D01	6	M4	1.5/2.5 with cable lug	M16 × 1.5: 4.5 … 10 M25 × 1.5: 9 … 17	1 × M16 × 1.5 + 1 × M25 × 1.5
1LE15/1LE16/1MB15/1MB16						
100	TB1F01/TB1J01	6	M4	4	11 … 21	2 × M32 × 1.5/ 2 × M40 × 1.5
112						
132	TB1H01/TB1J01	6	M4	6	11 … 21	2 × M32 × 1.5
160	TB1J01/TB1K01	6	M5	16	19 … 28	2 × M40 × 1.5
180	TB1J01/TB1K01	6	M5/M6	16/25	19 … 28/ 27 … 35	2 × M40 × 1.5/ 2 × M50 × 1.5
200	TB1L01/TB1L01	6	M6/M8	25/35	27 … 35/ 27 … 35	2 × M50 × 1.5/ 2 × M50 × 1.5
225	TB1L01/TB1N01	6	M8/M10	35/120	27 … 35/ 34 … 42	2 × M50 × 1.5/ 2 × M63 × 1.5
250	TB1N01/TB1Q01	6	M10/M12	120/240	34 … 42/ 38 … 45	2 × M63 × 1.5
280						2 × M63 × 1.5
315	TB1Q01/TB1R01	6	M12/M16	240	38 … 45/ 44 … 54	2 × M63 × 1.5
						2 × M63 × 1.5
	TB3Q01	6	M12	185	38 … 45	2 × M63 × 1.5
	TB3Q61			240	42 … 54	2 × M63 × 1.5
355	TB1R01	6	M16	240	56 … 68.5	2 × M80 × 2
		12	2 × M16			4 × M80 × 2
1LE55/1LE56/1MB5						
315	TB3Q01/TB3R01	6	M12/M16	185/240	38 … 45/ 42 … 54	2 × M63 × 1.5
						4 × M80 × 2
355	TB3R01/TB3R61	12	M16/2 × M16	300	56 … 68.5/ 56 … 68.5	2 × M80 × 2
						4 × M80 × 2
400 ... 450	TB3R61/1XB7750	12	M16	240	56 ... 64.5	4 × M80 × 2
	1XB1631/1XB7750		M16	300	56 ... 64.5	4 × M80 × 2
	–/1XB7750	48	M12	300	41 ... 57	8 × M72 × 2

– not available

Terminal connection

The terminal board accommodates the terminals that are connected to the leads to the motor windings. The terminals are designed so that for frame sizes 71 to 315, the external (line) connections can be made without the need for cable lugs.

[1] In addition to the exact part designation, please specify the machine type and the serial number in all orders for spare parts and repair parts.

[2] Designed for cable glands with O-ring.

[3] NPT threads can be ordered with order code **Y61**.

[4] For 1LE1021, 1LE1023, and 1MB10, terminal box TB1E10 normal version.

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Overview

Maximum number of auxiliary terminal boxes for main terminal box

Maximum number of auxiliary terminal boxes TB2J01, **TB2N01** (order codes **R62**, **R63**) **in combination with standard terminal box**

		Frame size									
		100, 112	132	160	180	200	225	250	280	315	355
		Terminal box									
Auxiliary terminal box		Type									
Type	Order code	TB1F01	TB1H01	TB1J01		TB1L01		TB1N01		TB1Q01	TB3Q01	TB3R01
TB2J01	**R62**	–	–	2		2		2		2	4	4
TB2N01	**R63**	–	–	–		–		–		–	2	2

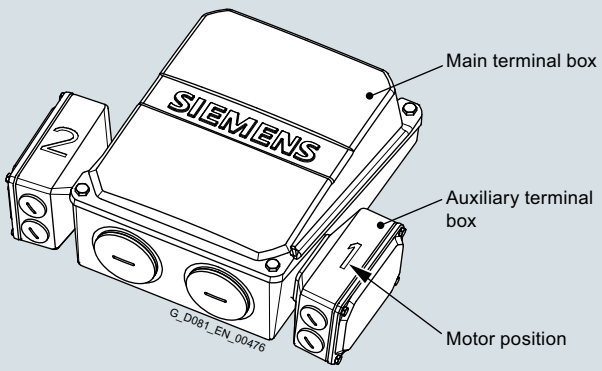
Maximum number of auxiliary terminal boxes TB2J01, **TB2N01** (order codes **R62**, **R63**) **in combination with large terminal box** (order code **R50**)

		Frame size									
		100, 112	132	160	180	200	225	250	280	315	355
		Terminal box									
Auxiliary terminal box		Type									
Type	Order code	TB1J01		TB1K01		TB1L01	TB1N01	TB1Q01		TB1R01	TB3R01	
TB2J01	**R62**	2	2	2		2	2	2		2 (3, 4 on requ.)	4	4
TB2N01	**R63**	–	–	–		–	–	–		–	2	2

Maximum number of auxiliary terminal boxes TB2J01, **TB2N01** (order codes **R62**, **R63**) **in combination with universal terminal box** (order code **R52** or **R53**)

		Frame size								
		100 … 160	180	200	225	250	280	315	355	
		Terminal box								
Auxiliary terminal box		Type								
Type	Order code		TB1J61	TB1L61		TB1N61		TB1Q61	TB3Q41	TB3R41
TB2J01	**R62**	Not available	2	2		2 (3, 4 on requ.)		2 (3, 4 on requ.)	4	4
TB2N01	**R63**	–	–	–		–		–	2	2

Position of auxiliary terminal box in relation to position of TB1J01, TB1L01, TB1N01, TB1Q01, TB1K01 main terminal box



Auxiliary terminal box TB2J01 (order code **R62**) **in combination with TB1J01, TB1L01, TB1N01, TB1Q01, TB1K01 main terminal box**

	Position of the main terminal box											
	Top				Right-hand side				Left-hand side			
	16th position of Article No. and when ordering with order code, Article No. with **-Z**											
	4				**5**				**6**			
	Rotation of terminal box											
	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°
	Order code											
Number of auxiliary terminal boxes	–	**R10**	**R11**	**R12**	–	**R10**	**R11**	**R12**	–	**R10**	**R11**	**R12**
	Positions of auxiliary terminal boxes – see Figure											
1	1	1	1	2	1	2	1	2	2	1	2	1
2	1 + 2	1 + 2	1 + 2	1 + 2	1 + 2	–	–	1 + 2	1 + 2	–	–	1 + 2

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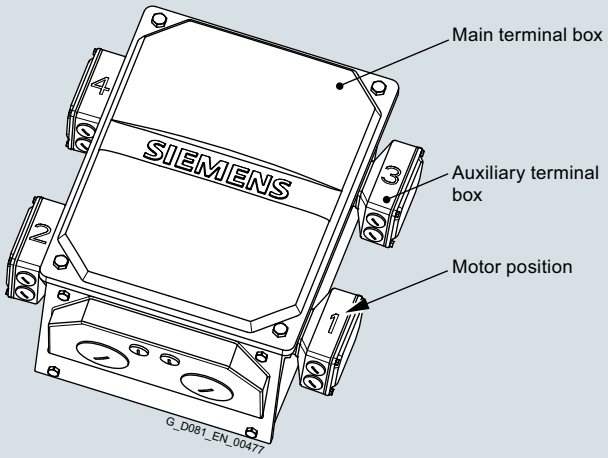
Overview

Position of auxiliary terminal box in relation to position of TB1R01, TB1J61, TB1L61, TB1N61, TB1Q61 main terminal box



Auxiliary terminal box TB2J01 (order code **R62**) **in combination with TB1R01, TB1J61, TB1L61, TB1N61, TB1Q61 main terminal box**

	Position of the main terminal box											
	Top				Right-hand side				Left-hand side			
	16th position of Article No. and when ordering with order code, Article No. with **-Z**											
	4				**5**				**6**			
	Rotation of terminal box											
	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°
	Order code											
Number of Auxiliary terminal boxes	–	**R10**	**R11**	**R12**	–	**R10**	**R11**	**R12**	–	**R10**	**R11**	**R12**
	Positions of auxiliary terminal boxes – see Figure											
1	1	1	1	2	1	2	1	2	2	1	2	1
2	1 + 3	1 + 3	1 + 3	2 + 4	1 + 3	2 + 4	1 + 3	2 + 4	2 + 4	1 + 3	2 + 4	1 + 3
(3 on requ.)	1 + 2 + 3	1 + 2 + 3	1 + 2 + 3	1 + 2 + 4	1 + 2 + 3	–	–	1 + 2 + 4	1 + 2 + 4	–	–	1 + 2 + 3
(4 on requ.)	1 + 2 + 3 + 4	1 + 2 + 3 + 4	1 + 2 + 3 + 4	1 + 2 + 3 + 4	1 + 2 + 3 + 4	–	–	1 + 2 + 3 + 4	1 + 2 + 3 + 4	–	–	1 + 2 + 3 + 4

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Overview

All motors are designed to IP55 degree of protection. They can be installed in dusty or humid environments. The motors are suitable for operation in tropical climates. Guide value < 60 % relative air humidity at CT 40 °C. Other requirements are available on request (see table on page 1/28).

Brief explanation of the degree of protection

IP54:
- Protection against harmful dust deposits
- Protected against spray water

IP55:
- Protection against harmful dust deposits
- Protection against water jets from any direction

IP56:
- Protection against harmful dust deposits
- Protection against powerful water jets from any direction

Order code **H22**
Important: Note that submersion by waves or total immersion, even temporarily, is not permitted especially in the case of motors with fans. This corresponds to IP67 or IP68 degree of protection (please inquire).
EN 60034-5 defines protection level 6 for water protection as: "Protection against water due to heavy seas or water in a powerful jet". IP56 degree of protection can only be used with the requirement "Protection against a powerful jet" and not for the requirement "Protection against heavy sea".
Not possible in combination with brake BFK458 (order code **F01**).

IP65:
- Complete protection against dust deposits
- Protection against water jets from any direction

Order code **H20**
In EN 60034-5, the code 6 for protection against the ingress of foreign bodies and touch hazard protection for electrical machines is not listed – Data for code 6 (protection against the ingress of dust) is given in EN 60529.
Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**) and/or paint finish, cast-iron parts primed (order code **S00**).

EN 60529 contains a comprehensive description of this degree of protection as well as test conditions.

With motors that have a vertical shaft extension, the end user must prevent an ingress of fluid along the shaft.

For motors with shaft extension pointing downwards, the version "Protective cover for types of construction" order code **H00** is urgently recommended, see also the explanations on "Types of construction" on page 1/45.

With flange-mounted motors, for IM V3 type of construction, collection of fluid in the flange basin can be prevented by drainage holes (on request).

The condensation drainage holes at the drive end (DE) and non-drive end (NDE) are sealed (IP55) on delivery. If the condensation drainage holes are ordered for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the position of the drainage holes will be in the correct position for the type of construction.
Order code **H03**

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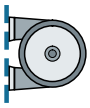
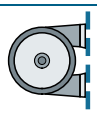
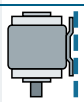
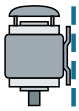
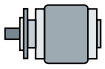
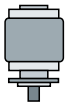
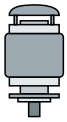
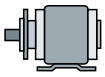
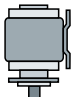
Overview

Standard types of construction and special types of construction

Type of construction acc. to EN 60034-7	Frame size	Letter of the 14th position of the Article No.	Additional identification code **–Z** with order code
Without flange			
IM B3/IM 1001	63 to 450	**A**	**–**
IM B6/IM 1051 	63 to 355	**T**	**–**
IM B7/IM 1061 	63 to 355	**U**	**–**
IM B8/IM 1071	63 to 355	**V**	**–**
IM V5/IM1011 without protective cover 	63 to 450	**C** [1]	**–**
IM V6/IM 1031	63 to 450	**D**	**–**
IM V5/IM 1011 with protective cover 	71 to 450	**C**	**+ H00** [2]
With flange			
IM B5/IM 3001 	63 to 450	**F**	**–**
IM V1/IM 3011 without protective cover 	63 to 450	**G** [1]	**–**
IM V1/IM 3011 with protective cover 	71 to 450	**G**	**+ H00** [2]
IM V3/IM 3031	63 to 355	**H**	**–**
IM B35/IM 2001 	63 to 450	**J**	**–**
IM V15/IM 2011 	71 to 315	**W**	**–**

In the EN 50347 standard, flanges FF with through holes and flanges FT with tapped holes are specified.

For footnotes, see next page.

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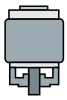
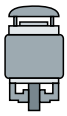
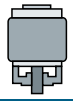
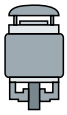
Types of construction

Overview

Type of construction acc. to EN 60034-7		Frame size	Letter of the 14th position of the Article No.	Additional identification code **–Z** with order code
With flange				
IM B14/IM 3601		63 to 160	**K**	**–**
IM V19/IM 3631		80 to 315	**L**	**–**
IM V18/IM 3611 without protective cover		80 to 315	**M** [1]	**–**
IM V 18/IM 3611 with protective cover		80 to 315	**M**	**+ H00** [2]
IM B34/IM 2101		80 to 315	**N**	**–**
With flange – next largest				
IM B14/IM 3601		80 to 315	**K**	**+ P01**
IM B34/IM 2101		80 to 315	**N**	**+ P01**
IM V18/IM 3611 without protective cover		80 to 315	**M** [1]	**+ P01**
IM V 18/IM 3611 with protective cover		80 to 315	**M**	**+ P01** **+ H00** [2]
IM V19/IM 3631		80 to 315	**L**	**+ P01**

In EN 50347, flanges are assigned to the frame sizes as FT with tapped holes. See the table on the next page for flange dimensions.

The dimensions of the following types of construction are identical:
IM B3, IM B6, IM B7, IM B8, IM V5 and IM V6
IM B5, IM V1 and IM V3
IM B14, IM V18 and IM V19

Motors in the standard power range can be ordered in basic types of construction IM B3, IM B5 or IM B14 and operated in mounting positions IM B6, IM B7, IM B8, IM V5, IM V6, IM V1, IM V3 (up to frame size 160 L) or IM V18 and IM V19.
Lifting eyes are available for transport and installation in a horizontal position. In conjunction with the lifting eyes, for the purpose of stabilizing the position when the motor is arranged vertically, additional slings (EN 1492-1) and/or lashings (EN 12195-2) must be used.

When a motor for mounting position IM V1 is ordered directly, the motor is supplied with lifting eyes for vertical mounting (up to frame size 90 and frame sizes 180 and 200 for aluminum motors without eyebolts).

The motors are designated in accordance with the types of construction on the rating plate.

With motors that have a vertical shaft extension, the end user must prevent an ingress of fluid along the shaft. In the case of all types of construction with shaft extension pointing downwards, the version "with protective cover" is urgently recommended, see section "Degrees of protection" on page 1/44 – housing version.

Motors with feet, in some cases, have two fixing holes at the non-drive end (NDE), see dimension tables on pages 2/142 to 2/181.

A screwed-on cover (made of sheet metal or plastic) is included as standard for horizontal types of construction and types of construction with shaft pointing upwards (14th position of the Article No. letter **A, T, U, V, D, F, H, J, K, L, N**) on motors up to FS 160 in combination with condensation drainage holes, order code **H03**.

[1] The following applies for explosion-protected motors:
In the case of the types of construction with shaft extension pointing downwards, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

[2] Standard cylindrical shaft extension (second shaft extension), order code **L05**, is not possible.

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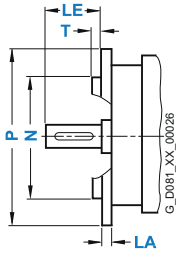
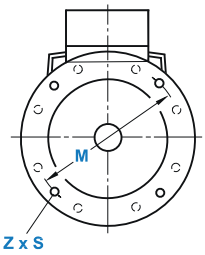
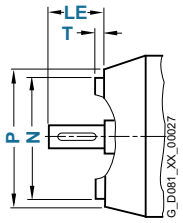
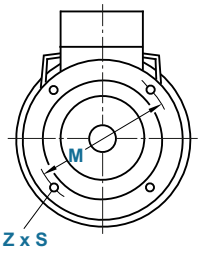
Overview









In EN 50347, the frame sizes are allocated flange FF with through holes and flange FT with tapped holes. The designation of flange A and C according to DIN 42948 (invalid since September 2003) are also listed for information purposes. See the table below.
(**Z** = the number of retaining holes)

Frame size	No. of poles	Type of construction	Flange type – possibly with order code	Flange with • Through holes (**FF**/A) • Tapped holes (**FT**/C)		Dimension designation acc. to **IEC**							
				Acc. to EN 50347	Acc. to DIN 42948	**LA**	**LE**	**M**	**N**	**P**	**S**	**T**	**Z**
63 M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF115**	A 140	–	23	115	95	140	10	3	4
			Next smallest flange – **P02**	**FF100**	A 120	–	23	100	80	120	7	3	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT75**	C 90	–	23	75	60	90	M6	2.5	4
			Next largest flange [1] – **P01**	**FT100**	C 120	–	23	100	80	120	M6	3	4
			Next smallest flange – **P02**	**FT65**	C 80	–	23	65	50	80	M5	2.5	4
71 M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF130**	A 160	5	30	130	110	160	10	3.5	4
			Next smallest flange – **P02**	**FF115**	A 140	–	30	115	95	140	10	3	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT85**	C 105	–	30	85	70	105	M6	2.5	4
			Next largest flange [1] – **P01**	**FT115**	C 140	–	30	115	95	140	M8	3	4
			Next smallest flange – **P02**	**FT75**	C 90	–	30	75	60	90	M5	2.5	4
80 M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF165**	A 200	10	40	165	130	200	12	3.5	4
			Next smallest flange – **P02**	**FF130**	A 160	–	40	130	110	160	10	3.5	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT100**	C 120	–	40	100	80	120	M6	3	4
			Next largest flange [1] – **P01**	**FT130**	C 160	–	40	130	110	160	M8	3.5	4
90 S/L	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF165**	A 200	10	50	165	130	200	12	3.5	4
			Next largest flange – **P01**	**FF215**	A 250	–	50	215	180	250	14.5	4	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT115**	C 140	–	50	115	95	140	M8	3	4
			Next largest flange – **P01**	**FT130**	C 160	–	50	130	110	160	M8	3.5	4
100 L	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF215**	A 250	11	60	215	180	250	14.5	4	4
			Next largest flange – **P01**	**FF265**	A 300	12	60	265	230	300	14.5	4	4
			Next smallest flange – **P02**	**FF165**	A 200	11	60	165	130	200	12	3.5	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT130**	C 160	–	60	130	110	160	M8	3.5	4
			Next largest flange – **P01**	**FT165**	C 200	–	60	165	130	200	M10	3.5	4
			Next smallest flange – **P02**	**FT115**	C 140	–	60	115	95	140	M8	3	4
112 M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF215**	A 250	11	60	215	180	250	14.5	4	4
			Next largest flange – **P01**	**FF265**	A 300	12	60	265	230	300	14.5	4	4
			Next smallest flange – **P02**	**FF165**	A 200	11	60	165	130	200	12	3.5	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT130**	C 160	–	60	130	110	160	M8	3.5	4
			Next largest flange – **P01**	**FT165**	C 200	–	60	165	130	200	M10	3.5	4
132 S/M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF265**	A 300	12	80	265	230	300	14.5	4	4
			Next largest flange – **P01**	**FF300**	A 350	13	80	300	250	350	18.5	5	4
			Next smallest flange – **P02**	**FF215**	A 250	11	80	215	180	250	14.5	4	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT165**	C 200	–	80	165	130	200	M10	3.5	4
			Next largest flange – **P01**	**FT215**	C 250	–	80	215	180	250	M12	4	4
160 M/L	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF300**	A 350	13	110	300	250	350	18.5	5	4
			Next smallest flange – **P02**	**FF265**	A 300	12	110	265	230	300	14.5	4	4
		IM B14, IM B34, IM V18, IM V19	Flange	**FT215**	C 250	–	110	215	180	250	M12	4	4
180 M/L	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF300**	A 350	13	110	300	250	350	18.5	5	4
			Next smallest flange – **P02**	**FF265**	A 300	12	110	265	230	300	14.5	4	4
200 L	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF350**	A 400	15	110	350	300	400	18.5	5	4
			Next smallest flange – **P02**	**FF300**	A 350	13	110	300	250	350	18.5	5	4
225 S/M	2	IM B5, IM B35, IM V1, IM V3	Flange	**FF400**	A 450	16	110	400	350	450	18.5	5	8
	4 … 8						140						
250 M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF500**	A 550	18	140	500	450	550	18.5	5	8
280 S/M	2 … 8	IM B5, IM B35, IM V1, IM V3	Flange	**FF500**	A 550	18	140	500	450	550	18.5	5	8
315 S/M/L	2	IM B5, IM B35, IM V1, IM V3	Flange	**FF600**	A 660	22	140	600	550	660	24	6	8
	4 … 8						170						
315 L for 1LE5	2	IM B5, IM B35, IM V1, IM V3	Flange	**FF740**	A 800	25	140	740	680	800	24	6	8
	4						170						
	2		Next smallest flange – **P02**	**FF600**	A 660	22	140	600	550	660	24	6	8
	4						170						
355 M/L for 1LE5	2	IM B5, IM B35, IM V1, IM V3	Flange	**FF840**	A 900	25	140	840	780	900	24	6	8
	4						170						
	2		Next smallest flange – **P02**	**FF740**	A 800	25	140	740	680	800	24	6	8
	4						170						
400 for 1LE5/1MB5	2	IM B5, IM B35, IM V1	Flange	**FF940**	A1000	28	170	940	880	1000	22	6	8
	4 … 8						210						
450 for 1LE5/1MB5	2	IM B5, IM B35, IM V1	Flange	**FF1080**	A1150	30	170	1080	1000	1150	26	6	8
	4 … 8						210						

[1] With reference to standard EN 50347, flanges that are 2 levels larger are used with option **P01** in the frame sizes 63 to 80.

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Overview

Shaft extension

60° center hole acc. to DIN 332, Part 2 with M3 to M24 tapped hole depending on the shaft diameter (see dimension tables in section 2 of the catalog).

DE (shaft extension)	
Diameter mm	Thread mm
7 ... 10	DR M3
> 10 ... 13	DR M4
> 13 ... 16	DR M5
> 16 ... 21	DR M6
> 21 ... 24	DR M8
> 24 ... 30	DR M10
> 30 ... 38	DR M12
> 38 ... 50	DR M16/DS M16
> 50 ... 85	DS M20
> 85 ... 130	DS M24

Shaft extension with standard dimensions, without feather keyway

For motor series 1LE1, 1LE5, 1MB1, 1MB5, and 1PC1, the standard shaft extension can be ordered with standard dimensions without a feather keyway. The key convention does not have to be stamped onto the rating plate for balancing.
Order code **L04**

Standard shaft made of stainless steel

A standard shaft made of stainless steel can be ordered for the 1LE1, 1LE5, 1MB1, 1MB5, and 1PC1 motor series (e.g. 1.4021). This is only possible for shaft extensions of standard dimensions.
Order code **L06**

Special non-rusting materials are only available on request.

Non-standard cylindrical shaft extension

The non-standard cylindrical shaft extension can be used on the drive end (DE) (with plain text according to table). The feather keys are supplied in every case.
Order code **Y58**

For order code **Y58** non-standard cylindrical shaft extension (DE):

- Dimension D: less than or equal to the inner diameter of the roller bearing, tolerance band less than tolerance band acc. to EN 50347.
- Dimension E: less than or equal to 2 × length E (standard) of the shaft extension.

See the table below "Admissible changes to the shaft extension DE" and the dimension tables in the relevant sections of the catalog.

Admissible changes to the shaft extension DE (**Y58**)

Motor series	Frame size	No. of poles	Shaft extension length E in mm		Shaft extension diameter D in mm		
			Standard	up to max.	minimum	Standard	up to max.[1]
1LE1	63	2 ... 6	23	46	11	11	12
1LE1, 1MB1	71	2 ... 8	30	60	14	14	15
	80	2 ... 8	40	80	19	19	20
	90		50	100	24	24	25
1LE1, 1MB1, 1PC1	100	2 ... 8	60	120	24	28	30
	112						
	132	2 ... 8	80	160	28	38	40
	160	2 ... 8	110	220	38	42	45
1LE15, 1LE16, 1MB1	180	2 ... 8	110	220	On request	48	48
	200	2 ... 8	110	220		55	55
	225	2	110	220		55	60
		4 ... 8	140	280		60	60
	250	2	140	280		60	70
		4 ... 8	140	280		65	70
	280	2	140	280		65	70
		4 ... 8	140	280		75	80
	315	2	140	280		65	75
		4 ... 8	170	280		80	90
1LE5, 1MB5	315	2	140	280		65	80
		4 ... 8	170	280		85	95
	355	2	140	280		75	85
		4 ... 8	170	340		95	100

Standard, cylindrical shaft extension NDE acc. to EN 50347 (second shaft extension)

Order code **L05** (on request)

For a coupling output, the standard, cylindrical shaft extension can transmit the full rated power.

Please also inquire about the transmitted power and admissible cantilever force if belt pulleys, chains or gear pinions are used on the standard, cylindrical shaft extension.

A standard, cylindrical shaft extension (second shaft extension) NDE is not available if a rotary pulse encoder and/or a separately driven fan has been mounted onto the motor. Please inquire for mounted brakes.

Dimensions and tolerances for keyways and keys are designed to EN 50347. The motors are always supplied with a key inserted in the shaft.

If the second shaft extension has non-standard dimensions, this must be ordered with order code **Y59** non-standard shaft dimensions NDE.

For the order code **Y59** (with plain text specifications according to the table).

- Dimension D: less than or equal to fan hub inner diameter, for frame size 160 tolerance band is less than tolerance band to EN 50347
- Dimension E: less than or equal to 2 × length E (standard) of the shaft extension

See the table below "Admissible changes to the shaft extension NDE" and the dimension tables in the relevant sections of the catalog.

Admissible changes to the shaft extension NDE (**Y59**)

Motor series	Frame size	No. of poles	Shaft extension length E in mm		Shaft extension diameter D in mm		
			Standard	up to max.	minimum	Standard	up to max.[1]
1LE1	63	2 ... 6	23	46	11	11	12
1LE1, 1MB1	71	2 ... 8	30	60	On request	14	15
1LE1, 1MB1	80/90	2 ... 8	40	80		19	20
1LE1, 1MB1, 1PC1	100	2 ... 8	50	100		24	25
	112						
	132	2 ... 8	60	120		28	35
	160	2 ... 8	110	220		42	45
1LE15, 1LE16, 1MB1	180	2 ... 8	110	220		48	48
	200	2 ... 8	110	220		55	55
	225	2	110	220		48	55
		4 ... 8	110	220		55	55
	250	2	110	220		55	70
		4 ... 8	140	280		60	70
	280	2	140	280		60	70
		4 ... 8	140	280		65	70
	315	2	140	280		60	75
		4 ... 8	140	280		70	75
1LE5, 1MB5	315	2	140	280		60	75
		4 ... 8	140	280		70	75
	355	2	140	280		60	75
		4 ... 8	170	280		80	90

Non-standard, cylindrical shaft extensions up to the specified lengths and diameters can be supplied for the motor series listed in the tables "Admissible changes to the shaft extension DE (**Y58**)" and "Admissible changes to the shaft extension NDE (**Y59**)". All other dimensions are available on request.

It is the responsibility of the customer to ensure that the admissible cantilever forces are reduced in accordance with the non-standard shaft extension.

[1] At maximum admissible diameter, a step increase in shaft diameter is not possible.

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Overview

Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors

In IEC 60072-1, normal class (normal) and precision class (reduced) are defined:

1. Circular run-out tolerances for the shaft extension
2. Concentricity tolerances for the shaft extension and flange centering
3. Perpendicularity tolerances for the shaft extension and flange surface

The shaft extension run-out, concentricity and perpendicularity according to IEC 60072-1 precision class for flange-mounted motors can be ordered using order code **L08**.
This order code can be combined for motors with deep-groove bearings of series 60.., 62.. and 63… This is not possible in combination with a mounted brake or encoder.

The shaft extension run-out can be ordered according to IEC 60072-1 precision class for types of construction without flange with order code **L07**.

Circular run-out tolerance for the shaft extension

Diameter of the cylindrical shaft extension	Circular run-out tolerance	
D	Normal class	Precision class (reduced)
mm	mm	mm
≤ 10	0.03	0.015
> 10 … 18	0.035	0.018
> 18 … 30	0.04	0.021
> 30 … 50	0.05	0.025
> 50 … 80	0.06	0.03
> 80 … 120	0.07	0.035

Concentricity tolerance of the centering spigot and linear movement tolerance of the flange surface to the shaft extension axis

Flange	Dimension designation acc. to IEC		Concentricity and perpendicularity tolerance	
FF/FT	N	P	Normal class	Precision class
	mm	mm	mm	mm
55	40	70	0.08	0.04
65	50	80	0.08	0.04
75	60	90	0.08	0.04
85	70	105	0.08	0.04
100	80	120	0.08	0.04
115	95	140	0.08	0.04
130	110	160	0.1	0.05
165	130	200	0.1	0.05
215	180	250	0.1	0.05
265	230	300	0.1	0.05
300	250	350	0.125	0.063
350	300	400	0.125	0.063
400	350	450	0.125	0.063
500	450	550	0.125	0.063
600	550	660	0.16	0.08
740	680	800	0.16	0.08
940	880	1000	0.2	0.1
1080	1000	1150	0.2	0.1

Measures for gear mounting

Overview

The flange-mounted motors can be equipped with a radial sealing ring in order to mount gearing.
Order code **H23**

It must be ensured that the sealing ring is lubricated using grease, oil mist, or oil spray. (It is not admissible to use pressurized oil > 0.1 bar.) We recommend that the admissible bearing loads are carefully checked.

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Overview

All rotors are dynamically balanced with an inserted half key. This corresponds to vibration severity grade A (normal or standard). DIN EN 60034-14 Aug. 2018 regulates the vibrational behavior of machinery. Based on ISO 21940-32, the key convention "half key (H)" must be used for balancing.

Note:

If there is a keyway, a full feather key is always inserted on delivery.

The type of key convention is stamped on the face of the shaft extension at the customer side DE/NDE:

F = Balancing with full key
(full-key convention)
H = Balancing with half key
(half-key convention) – standard
N = Balancing without key –
Plain text required (convention without key)

For motors up to frame size 112 the code is stamped on the rating plate.
Full-key balancing or balancing with full feather key (F) is possible by specifying order code **L02** (additional charge).

Balancing without feather key (N) is possible by specifying order code **L01** (additional charge).

Vibration severity grade A is the standard version and is valid up to a rated frequency of 60 Hz. If 2-pole motors of frame sizes 280 and 315 are to be rigidly installed, cast feet are necessary in order to comply with the vibration requirements of IEC 60034-14. IE4 2-pole motors in frame size 315 and pole-changing motors (4-pole/2-pole) fulfill the vibration requirements specified in IEC 60034-14 only when the motor is elastically suspended.

The low-vibration version B can be supplied to fulfill stricter requirements on smooth running
(additional charge).

Vibration severity grade B
Not possible with cylindrical roller bearings.
Order code **L00**

The order code **L00** vibration severity grade B is not possible in combination with order codes **G40**, **G41**, **G42**. 2-pole trans-standard aluminum motors in frame sizes 180 and 200
(14th position of the Article No. is A, C, D, J, T, U, V) and order code **L00** have cast-iron feet.

This vibration is assessed in accordance with vibration severity grade A or B according to EN 60034-14 (see table).

The limits stated in the table apply to uncoupled, freely suspended, idling motors.

For converter operation with frequencies higher than 60 Hz, special balancing is required for compliance with the specified limit values (plain text: maximum supply frequency/speed).

For further details, see the online help in the DT Configurator.

Limits (rms values) for max. vibration severity in terms of vibration displacement (s) and vibration velocity (v) for the shaft height H

Vibration severity grade	Machine installation	Shaft height H in mm			
		56 ≤ H ≤ 132		H > 132	
		s_{rms} µm	v_{rms} mm/s	s_{rms} µm	v_{rms} mm/s
A	Free suspension	45	2.8	45	2.8
	Rigid clamping	–	–	37	2.3
B	Free suspension	18	1.1	29	1.8
	Rigid clamping	–	–	24	1.5

For details, see standard EN 60034-14 Aug. 2018, EN 60034-14:2004 + A1:2007

If the type tests for machines with shaft height H > 132 mm demonstrate a determining component with twice the line frequency, the limit for maximum vibration severity in the Table (for grade A) can be increased from 2.3 mm/s (rms value) to 2.8 mm/s (rms value) or (for grade B) from 1.5 mm/s (rms value) to 1.8 mm/s (rms value). Higher values must be agreed beforehand. A component with twice the line frequency is regarded as dominant if the type test shows that it is greater than 70 % of 2.3 mm/s (rms value) (for grade A) or 70 % of 1.5 mm/s (rms value) (for grade B).

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Overview

The noise is measured in accordance with EN ISO 1680 in a dead room. It is specified as A-weighted enveloping surface sound pressure level L_{pfA} in dB (A).
This value is the spatial average value of the sound pressure levels measured at the measuring surface. The measuring surface is a cube 1 m away from the surface of the motor. The sound power level is also specified as L_{WA} in dB (A).
The specified values are valid at 50 Hz and rated power (see the selection and ordering data). The tolerance is +3 dB. Noise values for motors in converter operation on request.

To reduce noise levels, 2-pole motors from frame size 132 S to frame size 355 and higher can optionally be equipped with a unidirectional axial-flow fan.
For frame sizes 400 and 450, the axial-flow fan is standard.
The values are listed in the table "Low-noise version" below.

Clockwise rotation:
Order code **F77**

Counterclockwise rotation:
Order code **F78**

Second shaft extension and/or mountings (mounting of brake, separately driven fan or encoder) not possible except for 1MB.553 motors.

Low-noise version

Motor series	Frame size	2-pole motors	
		L_{pfA} dB (A)	L_{WA} dB (A)
1LE1 [1]	132	60	72
1MB1 [1]	160	60	72
1LE10, 1LE15/6, 1MB15/6 [2]	180	63	76
	200	64	77
1LE15/6, 1MB15/6 [2]	225	72	86
	250	73	87
	280	72	85
	315	76	90
1LE5, 1MB5	315	78.9	93.6
	355	79.2	94
	400	74	90
	450	75	91
1MB555	315	73.5	88.3
	355	79.6	94.9

[1] With the exception of 1LE1 and 1MB1 motors with option **F90** – version "Forced-air cooled motors without external fan and fan cover".

[2] 1MB15/6 also applies to 1MB154, 1MB164, and 1MB155.

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Overview

Bearing lifetime (nominal lifetime)

The nominal bearing lifetime is defined according to standardized calculation procedures (ISO 281) and is reached or even exceeded for 90 % of the bearings when the motors are operated in compliance with the data provided in the catalog.

Under average operating conditions, a lifetime (L_{10h}) of 100 000 hours can be achieved.

Generally, the bearing lifetime is defined by the bearing size, the bearing load, the operating conditions, the speed and the grease lifetime. A bearing lifetime calculation is possible on request.

Bearing system

The bearing lifetime of motors with horizontal mounting is 40 000 hours if there is no additional axial loading at the coupling output and 20 000 hours when utilized according to the maximum admissible load. This assumes that the motor is operated at 50 Hz. The nominal bearing lifetime is reduced for converter operation at higher frequencies.

In order to achieve the calculated lifetime in continuous operation, the admissible vibration values (measured at bearing plate) must be determined according to evaluation zones A and B stipulated in ISO 10816. If higher vibration velocities occur in operation (e.g. with option **H02**), special measures must be taken (please inquire).

Due to their physical characteristics, variable-speed motors have a different bearing lifetime under the same load conditions – this relationship is linear, i.e. if the frequency increases by 20 % from 50 Hz to 60 Hz, the lifetime decreases by 20 % from 20 000 to 16 000 hours under the load conditions specified in the catalog.
If the frequency falls by 20 % from 50 Hz to 40 Hz, under the load conditions specified in the catalog, the lifetime rises by 20 % from 20 000 to 24 000 hours.

It should be observed that, for types of construction IM B6, IM B7, IM B8, IM V5, and IM V6, the belt tension is only permitted to act parallel to the mounting plane or towards the mounting plane and the feet must be supported. Both feet must be secured for foot-mounting types of construction.

In the basic bearing system, the floating bearing is situated at the drive end (DE) and the located bearing is situated at the non-drive end (NDE). For motors of the 1MB.553 series, the located bearing DE is the standard version.

The bearing system is axially preloaded with a spring element at the drive end (DE) to ensure smooth running of the motor without play (see Fig. 1 in the diagrams of bearings on page 1/60).

From frame size 160 upwards, the located bearing is axially secured at the non-drive end (NDE).

For the 1LE5 and 1MB5 motors of frame sizes 400 and 450, the located bearing is situated at the drive end (DE) and the floating bearing is situated at the non-drive end (NDE).
The bearing system on these motors is axially preloaded with a spring element at the non-drive end (NDE) to ensure smooth running of the motor without any play (see Figs. 6 and 7 under the bearing diagrams on page 1/60).

Up to frame size 132, an additional axially-secured located bearing can be supplied on the non-drive end (NDE) complete with a retaining ring (see Fig. 2 under the diagrams of bearings on page 1/60) or, for frame sizes 400 and 450, the located bearing can be supplied at the non-drive end (NDE).
Order code **L21**

Depending on the specific installation conditions (axial forces, cantilever forces and type of construction), testing of additional measures for the bearing version is recommended. The located bearing can also be supplied at the drive end (DE) (see Fig. 3 under the diagrams of bearings on page 1/60). A located bearing at the drive end (DE) is recommended when gearing is installed, for a shaft extension pointing downwards, or pumps and fans are mounted directly on the motor shaft.
Order code **L20**

For increased cantilever forces (e.g. belt drives), reinforced bearings can be used at the drive end (DE).
Versions with cylindrical roller bearings are not axially preloaded, and must always operate under adequate radial loads (it is not permissible that motors are operated on a test stand without additional radial loads). The located bearing is at the non-drive end (NDE). For 1MB.553, the located bearing is at the drive-end (DE).
Not possible for motors of the 1MB.553 series.
Order code **L22**

1LE1, 1LE5, 1MB1, 1MB5, and 1PC1 motors can be supplied with reinforced bearings (size range 03) at both ends.
In this case, the bearing plates are made of cast iron (standard for series 1LE16 motors). Standard for motors of the 1MB.553 series from frame size 100 upwards.
Order code **L25**

A measuring nipple for SPM shock pulse measurement can be mounted to check bearing vibration. The motors have an M8 tapped hole for each bearing plate and a measuring nipple with a protective cap. If a second tapped hole is provided, it is fitted with a sealing plug. Not possible for frame sizes < 100.
Order code **Q01**
Bearing selection for increased cantilever forces (see the Table "Bearing selection for 1LE10, 1MB10, and 1PC10 motors – Bearings for increased cantilever forces" on page 1/55) – for the maximum axial load, see page 1/67 onwards.

Bearing insulation

To prevent damage caused by bearing currents, insulated bearings can be supplied for frame sizes 225 to 355 – they are recommended for motors from frame size 225 upwards. For frame sizes 400 and 450 (for converter operation), the bearing insulation is indispensable.

- **L50** (DE bearing insulation) means NDE located bearing as standard
- **L51** (NDE bearing insulation) means DE located bearing as standard
- **L50** + **L51** (insulated DE and NDE bearings) means NDE located bearing as standard
- Combination of order codes **L50** or **L51** or **L50** + **L51** with **L22** (bearing version for increased cantilever forces) means NDE located bearing as standard.

According to IEC 60034-1-11, it is up to the user in the case of DE bearing insulation (order code **L50**) + NDE bearing insulation (order code **L51**) to ensure grounding of the rotor.

The rotor grounding can be implemented either in the system via the coupled driven machine or in the motor via a grounding brush.

The grounding brush (order code **L52**) must always be provided when the driven machine is connected to the motor via an insulating coupling or an insulating belt output shaft.

Permanent lubrication

On motors equipped with permanent lubrication, the bearing grease lifetime is matched to the bearing lifetime. This can, however, only be achieved if the motor is operated in accordance with the catalog specifications.
In the basic version, the motors have permanent lubrication.

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Overview

Regreasing

For motors which can be regreased at defined regreasing intervals, the bearing lifetime can be extended and/or unfavorable factors such as temperature, mounting conditions, speed, bearing size, and mechanical load can be compensated.

This regreasing option is possible in the following frame sizes:

- Frame sizes 100 to 160: M8 × 1 acc. to DIN 71412-A (conical lubricating nipple)
- Frame sizes 180 to 315: M10 × 1 acc. to DIN 3404-A (flat lubricating nipple).
- Frame sizes 400 to 450: M10 × 1-5.8-A acc. to DIN 3404-A.- (flat lubricating nipple)

Order code **L23**
(frame sizes ≥ 280 basic version, for the Performance Line motors of frame sizes ≥ 160 basic version)

A regreasing device with M10 × 1 conical lubricating nipple to DIN 71412-A can be optionally provided for frame sizes 180 to 450.
Order code **L19**

In the case of motors equipped with regreasing device, information regarding regreasing intervals, quantity of grease, type of grease and any additional data is provided on the lubrication plate or rating plate. For regreasing intervals for the basic version, see the Table "Grease lifetime and regreasing intervals for horizontal installation". For motors with a mounted holding brake (order code **F01**) a regreasing device cannot be installed, including up to FS 160.

Mechanical stress and grease lifetime

High speeds that exceed the rated speed with converter operation and the resulting increased vibrations alter the mechanical running smoothness and the bearings are subjected to increased mechanical stress. This reduces the grease lifetime and the bearing lifetime (please inquire where applicable).

The use of rigid couplings should be avoided as far as possible. For converter operation in particular, compliance with the mechanical limit speeds n_{max} at maximum supply frequency f_{max} is essential, see the following table "Mechanical limit speeds n_{max} at maximum supply frequency f_{max}".

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Overview

Mechanical limit speeds n_{max} at maximum supply frequency f_{max} (standard values) for 1LE1, 1LE5, 1PC1 motors – basic version and 1LE15 and 1LE16 motors – basic version with order codes L22, L25, L28 – 1MB10/5/6 motors with order codes L22 and L25

Frame size	Type		2-pole		4-pole		6-pole		8-pole	
			n_{max} rpm	f_{max} Hz	n_{max} rpm	f_{max} Hz	n_{max} rpm	f_{max} Hz	n_{max} rpm	f_{max} Hz
1LE10 motors, basic version										
	1LE10..-									
63	**0B…**		6000	100	4200	140	3600	180	3000	200
71	**0C…**		6000	100	4200	140	3600	180	3000	200
80 M	**0D…**		6000	100	4200	140	3600	180	3000	200
90 S/L	**0E…**		6000	100	4200	140	3600	180	3000	200
1LE15 Basic Line motors – bearings for increased cantilever forces – order code L22 **1LE15 Basic Line motors – bearings reinforced at both ends – order code L25**										
	1LE15..-									
71 M	**0C…**		6000	100	4200	140	3600	180	3000	200
80 M	**0D…**		6000	100	4200	140	3600	180	3000	200
90 S/L	**0E…**		6000	100	4200	140	3600	180	3000	200
1LE10, 1PC1 motors, basic version **1LE15 Basic Line and 1LE16 Performance Line – bearings for increased cantilever forces – order code L22** **1LE15 Basic Line and 1LE16 Performance Line – bearings reinforced at both ends – order code L25**										
	1LE1...- **1PC1...-**									
100 L	**1A…**		6000	100	4200	140	3600	180	3000	200
112 M	**1B…**		6000	100	4200	140	3600	180	3000	200
132 S/M	**1C…**		5600	90	4200	140	3600	180	3000	200
160 M/L	**1D…**		4800	80	4200	140	3600	180	3000	200
180 M/L	**1E...**		4600	76	4200	140	3600	180	3000	200
200 L	**2A...**		4500	75	4200	140	3600	180	3000	200
1LE15 Basic Line and 1LE16 Performance Line – basic version **1LE15 Basic Line and 1LE16 Performance Line – bearings for increased cantilever forces – order code L22** **1LE15 Basic Line and 1LE16 Performance Line – bearings reinforced at both ends – order code L25** **1LE15 Basic Line and 1LE16 Performance Line – DE cylindrical roller bearings and NDE reinforced bearings – order code L28**										
	1LE15..- **1LE16..-**									
180 M/L	**1E…**		4600	76	4200	140	3600	180	3000	200
200 L	**2A…**		4500	75	4200	140	3600	180	3000	200
225 S/M	**2B…**		4500	75	4500	150	4400	220	4400	293
250 M	**2C…**		3900	65	3700	123	3700	185	3700	247
280 S/M	**2D…**		3600	60	3000	100	3000	150	3000	200
315 S/M/L	**3A…**		3600	60	2600	87	2600	130	2600	173
1LE55 Basic Line and 1LE56 Performance Line – basic version **1LE55 Basic Line and 1LE56 Performance Line – bearings for increased cantilever forces – order code L22**										
	1LE55..- **1LE56..-**									
315 L	**3A…**		5200	87	3400	113	3400	170	3400	227
355 M/L	**3B…**		5200	87	3800	93	2800	140	2800	187
400	**4A…**	IMB3	3600	60	2200	74	2200	110	2200	147
450	**4B…**	IMB3	3000/3600[1)]	50	2100	70	2100	105	2100	140
400	**4A…**	IMV1	–	–	2100	70	2100	105	2100	140
450	**4B…**	IMV1	–	–	1800	60	1800	90	1800	120

The specified limit speeds are applicable to motors without additional mountings, such as brakes or rotary encoders. In such applications, the characteristics of the respective mounting parts must be taken into account.

Note:
Mechanical limit speeds for SIMOTICS XP 1MB motors, see Chapter 5.

[1)] Order on request.

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Overview

Grease lifetime and regreasing intervals for horizontal installation

Motor series	Frame size	No. of poles				
Permanent lubrication [1]						
			Grease lifetime up to CT 40 °C [2]			
1LE1/1MB1/1PC1	63 … 250	2 ... 8	20000 h or 40000 h [3]			
Regreasing [1]						
			Lubrication interval ISO Cl F 155 °C		Lubrication interval ISO Cl H 180 °C	
			CT ≤ 40 °C	40 °C < CT ≤ 80 °C	40 °C < CT ≤ 60 °C	60 °C < CT ≤ 80 °C
1LE1/1MB1/1PC1	100 … 160	2 ... 8	8000 h	4000 h [2]	4000 h	2000 h [2]
	180 … 280	2	4000 h	2000 h [2]	1000 h	1000 h [2]
		4 ... 8	8000 h	4000 h [2]	2000 h	2000 h [2]
	315	2	3000 h	1500 h [2]	1000 h	1000 h [2]
		4 ... 8	6000 h	3000 h [2]	1500 h	1500 h [2]
			CT ≤ 40 °C	40 °C < CT ≤ 80 °C	CT ≤ 40 °C	40 °C < CT ≤ 80 °C
1LE5/1MB5	315, 355	2	3000 h	1500 h [2]	3000 h	1500 h [2]
		4, 6	6000 h	3000 h [2]	6000 h	3000 h [2]
	400	2	4000 h	2000 h	4000 h	2000 h
		4 ... 8	6000 h	3000 h	6000 h	3000 h
	450	2	3000 h	1500 h	3000 h	1500 h
		4 ... 8	6000 h	3000 h	6000 h	3000 h

Bearing selection table for 1LE10, 1MB10, and 1PC10 motors – basic version

The bearing selection tables are only intended for planning purposes. Authoritative information on the actual type of bearings fitted in motors already supplied can be obtained by the factory by quoting the serial number or can be read from the rating plate.

When deep-groove bearings with side plates are used, the side plate is on the inside. Located bearing at drive end (DE) for 1LE1, 1MB1 and 1PC1 motors, see special version Fig. 2 in the "Diagrams of bearings" on Page 1/60.

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical types of construction	Non-drive end (NDE) bearing Horizontal and vertical types of construction	Fig. No. on page 1/60
1LE10/1MB10				
63	2 … 6	6201 2ZC3	6201 2ZC3	–
71	2 … 8	6202 2ZC3	6202 2ZC3	–
80	2 … 8	6004 2ZC3	6004 2ZC3	**Fig. 1**
90	2 … 8	6205 2ZC3	6004 2ZC3	**Fig. 1**
1LE10/1MB10/1PC10				
100 L	2 … 8	6206 2ZC3	6206 2ZC3	**Fig. 1**
112 M	2 … 8	6206 2ZC3	6206 2ZC3	**Fig. 1**
132 S/M	2 … 8	6208 2ZC3 [4]	6208 2ZC3 [4]	**Fig. 1**
160 M/L	2 … 8	6209 2ZC3 [4]	6209 2ZC3 [4]	**Fig. 2**
1LE10				
180 M/L	2 … 8	6210 ZC3 [5]	6210 ZC3 [5]	**Fig. 4**
200 L	2 … 8	6212 ZC3 [5]	6212 ZC3 [5]	**Fig. 4**

Bearing selection table for 1LE10, 1MB10, and 1PC10 motors – bearings for increased cantilever forces – order code L22

Please inquire about noise and vibration data. The bearing selection tables are only intended for planning purposes. Authoritative information on the actual type of bearings fitted in motors already supplied can be obtained by the factory by quoting the serial number or can be read from the rating plate.
When deep-groove bearings with side plates are used, the side plate is on the inside.

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical types of construction	Non-drive end (NDE) bearing Horizontal and vertical types of construction	Fig. No. on page 1/60
1LE10/1MB10				
80	2 … 8	6304 2ZC3	6304 2ZC3	–
90	2 … 8	6305 2ZC3	6305 2ZC3	–
1LE10/1MB10/1PC10				
100 L	2 … 8	6306 2ZC3	6206 2ZC3	**Fig. 1**
112 M	2 … 8	6306 2ZC3	6206 2ZC3	
132 S/M	2 … 8	6308 2ZC3 [4]	6208 2ZC3 [4]	
160 M/L	2 … 8	6309 2ZC3 [4]	6209 2ZC3 [4]	**Fig. 2**
1LE10				
180 M/L	2 … 8	6310 ZC3 [5]	6210 ZC3 [5]	**Fig. 4**
200 L	2 … 8	6312 ZC3 [5]	6212 ZC3 [5]	**Fig. 4**

[1] For special uses and special greases, please inquire about grease lifetime and regreasing intervals.

[2] For every 10 K the coolant temperature is increased above 80 °C, the grease lifetime and regreasing interval are halved.

[3] 40 000 hours apply to horizontally installed motors with coupling output without additional axial loads.

[4] Deep-groove bearings with a side plate are used for regreasable versions (**L23**).

[5] Deep-groove bearings without a side plate are used for regreasable versions (**L23**).

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Overview

Bearing selection table for 1LE10, 1MB10, and 1PC10 motors – bearings reinforced at both ends – order code L25

Please inquire about noise and vibration data. The bearing selection tables are only intended for planning purposes. Authoritative information on the actual type of bearings fitted in motors already supplied can be obtained by the factory by quoting the serial number or can be read from the rating plate.
When deep-groove bearings with side plates are used, the side plate is on the inside.

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical types of construction	Non-drive end (NDE) bearing Horizontal and vertical types of construction	Fig. No. on page 1/60
1LE10/1MB10				
80	2 … 8	6304 2ZC3	6304 2ZC3	–
90	2 … 8	6305 2ZC3	6304 2ZC3	–
1LE10/1MB10/1PC10				
100 L	2 … 8	6306 2ZC3	6306 2ZC3	**Fig. 1**
112 M	2 … 8	6306 2ZC3	6306 2ZC3	
132 S/M	2 … 8	6308 2ZC3 [1]	6308 2ZC3 [1]	
160 M/L	2 … 8	6309 2ZC3 [1]	6309 2ZC3 [1]	**Fig. 2**
1LE10				
180 M/L	2 … 8	6310 ZC3 [2]	6310 ZC3 [2]	**Fig. 4**
200 L	2 … 8	6312 ZC3 [2]	6312 ZC3 [2]	**Fig. 4**

Bearing assignment for 1LE15/1MB15, 1LE16/1MB16, and 1LE5 motors (basic version)

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical type of construction	Non-drive end (NDE) bearing Horizontal and vertical type of construction	Fig. No. on page 1/60
1LE15, 1MB15 – Basic Line				
71 M	2 … 8	6202 2ZC3	6202 2ZC3	**Fig. 1**
80 M	2 … 8	6204 2ZC3	6204 2ZC3	**Fig. 1**
90 S/L	2 … 8	6205 2ZC3	6204 2ZC3	**Fig. 1**
100 L	2 … 8	6206 2ZC3 [1]	6206 2ZC3 [1]	**Fig. 1**
112 M	2 … 8	6206 2ZC3 [1]	6206 2ZC3 [1]	
132 S/M	2 … 8	6208 2ZC3 [1]	6208 2ZC3 [1]	
160 M/L	2 … 8	6209 2ZC3 [1]	6209 2ZC3 [1]	**Fig. 2**
180 M/L	2 … 8	6210 ZC3 [2]	6210 ZC3 [2]	**Fig. 4**
200 L	2 … 8	6212 ZC3 [2]	6212 ZC3 [2]	
225 S/M	2 … 8	6213 ZC3 [2]	6213 ZC3 [2]	**Fig. 1**
250 M	2 … 8	6215 ZC3 [2]	6215 ZC3 [2]	
280 S/M	2	6315 C3	6315 C3	**Fig. 2**
	4 … 8	6317 C3	6317 C3	
315 S/M/L	2	6316 C3	6316 C3	
	4 … 8	6319 C3	6319 C3	
1LE16, 1MB16 – Performance Line				
100 L	2 … 8	6306 2ZC3	6306 2ZC3	**Fig. 1**
112 M	2 … 8	6306 2ZC3	6306 2ZC3	
132 S/M	2 … 8	6308 2ZC3	6308 2ZC3	
160 M/L	2 … 8	6309 ZC3	6309 ZC3	**Fig. 2**
180 M/L	2 … 8	6310 C3	6310 C3	**Fig. 4**
200 L	2 … 8	6312 C3	6312 C3	
225 S/M	2 … 8	6313 C3	6313 C3	**Fig. 4**
250 M	2 … 8	6315 C3	6315 C3	
280 S/M	2	6315 C3	6315 C3	
	4 … 8	6317 C3	6317 C3	
315 S/M/L	2	6316 C3	6316 C3	
	4 … 8	6319 C3	6319 C3	

		Type of construction Horizontal	Vertical	Type of construction Horizontal	Vertical	
1LE5, 1MB5						
315 L	2	6316 C4	6316 C4	6316 C4	7316 B	–
	4, 6	6319 C4	6319 C4	6319 C4	7319 B	–
355 M/L	2	6317 C4	6317 C4	6317 C4	7317 B	–
	4, 6	6320 C4	6320 C4	6320 C4	7320 B	–
400	2	6318 C3	7218 B + 6218 C3	6218 C3	6218 C3	**Fig. 6, Fig. 7**
	4, 6, 8	6224 C3	7224 B + 6224 C3	6224 C3	6224 C3	**Fig. 6, Fig. 7**
450	2	6220 C3	–	6220 C3	–	**Fig. 6**
	4, 6, 8	6226 C3	7226 B + 6226 C3	6226 C3	6226 C3	**Fig. 6, Fig. 7**

[1] Deep-groove bearings with a side plate are used for regreasable versions (**L23**).

[2] Deep-groove bearings without a side plate are used for regreasable versions (**L23**).

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Overview

Bearing assignment for 1MB1/1MB5 motors with types of protection Ex db, Ex db eb (basic version)

Frame size	No. of poles	Drive end (DE) bearing Type of construction		Non-drive end (NDE) bearing Type of construction		Fig. No. on page 1/60
		Horizontal	Vertical	Horizontal	Vertical	
1MB1, 1MB5 with type of protection Ex db, Ex db eb						
71	2 … 8	6202-2Z C3	6202-2Z C3	6202-2Z C3	6202-2Z C3	–
80	2 … 8	6204-2Z C3	6204-2Z C3	6204-2Z C3	6204-2Z C3	–
90	2 … 8	6205-2Z C3	6205-2Z C3	6205-2Z C3	6205-2Z C3	–
100	2 … 8	6306-2Z C3	6306-2Z C3	6306-2Z C3	6306-2Z C3	–
112	2 … 8	6306-2Z C3	6306-2Z C3	6306-2Z C3	6306-2Z C3	–
132	2 … 8	6308-2Z C3	6308-2Z C3	6308-2Z C3	6308-2Z C3	–
160	2 … 8	6309 C3	6309 C3	6309 C3	6309 C3	–
180	2 … 8	6310 C3	6310 C3	6310 C3	6310 C3	–
200	2 … 8	6312 C3	6312 C3	6312 C3	6312 C3	–
225	2 … 8	6313 C3	6313 C3	6313 C3	6313 C3	–
250	2 … 8	6315 C3	6315 C3	6315 C3	6315 C3	–
280	2	6315 C3	6315 C3	6315 C3	6315 C3	–
280	4 … 8	6317 C3	6317 C3	6317 C3	6317 C3	–
315	2	6316 C3	6319 C3	6316 C3	6319 C3	–
315	4 … 8	6319 C3	6319 C3	6319 C3	6319 C3	–
355	2	6317 C4	6320 C4	6317 C4	6320 C4	–
355	4 … 8	6320 C4	6320 C4	6320 C4	6320 C4	–

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Overview

Bearing selection table for 1LE15, 1MB15, 1LE16, and 1MB16 motors (bearings for increased cantilever forces – order code L22)

For NU bearings (cylindrical roller bearings), in contrast to ball bearings, a minimum cantilever force is required. Cylindrical roller bearings are not suitable for coupling output.

$F_{min} \sim F_{max}/2$

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical type of construction	Non-drive end (NDE) bearing Horizontal and vertical type of construction	Fig. No. on page 1/60
1LE15/1MB15 – Basic Line				
71 M	2 … 8	6302 2ZC3	6202 2ZC3 [3]	
80 M	2 … 8	6304 2ZC3	6204 2ZC3 [3]	
90 S/L	2 … 8	6305 2ZC3	6204 2ZC3	
100 L	2 … 8	6306 2ZC3 [1]	6206 2ZC3 [1][3]	
112 M	2 … 8	6306 2ZC3 [1]	6206 2ZC3 [1][3]	
132 M	2 … 8	6308 2ZC3 [1]	6208 2ZC3 [1][3]	
160 M/L	2 … 8	6309 2ZC3 [1]	6209 2ZC3 [1][3]	
180 M/L	2 … 8	NU 210	6210 C3	**Fig. 5**
200 L	2 … 8	NU 212	6212 C3	
225 M	2 … 8	NU 213	6213 C3	
250 M	2 … 8	NU 215	6215 C3	
280 M	2	NU 315	6315 C3 [3]	
	4 … 8	NU 317	6317 C3 [3]	
315 M/L	2	NU 316	6316 C3 [3]	
	4 … 8	NU 319	6319 C3 [3]	
1LE16/1MB16 – Performance Line				
100 L	2 … 8	[2]		
112 M	2 … 8	[2]		
132 M	2 … 8	[2]		
160 M/L	2 … 8	[2]		
180 M/L	2 … 8	NU 310	6310 C3 [3]	
200 L	2 … 8	NU 312	6312 C3 [3]	
225 M	2 … 8	NU 313	6313 C3 [3]	**Fig. 5**
250 M	2 … 8	NU 315	6315 C3 [3]	
280 M	2	NU 315	6315 C3 [3]	
	4 … 8	NU 317	6317 C3 [3]	
315 M/L	2	NU 316	6316 C3 [3]	
	4 … 8	NU 319	6319 C3 [3]	

		Type of construction		Type of construction		
		Horizontal	Vertical	Horizontal	Vertical	
1LE5, 1MB5						
315 L	2	NU316	NU316	6316 C4	O. R.	–
	4, 6	NU319	NU319	6319 C4	O. R.	–
355 M/L	2	NU317	NU317	6317 C4	O. R.	–
	4, 6	NU320	NU320	6320 C4	O. R.	–
400	2	6218 C3	7218 B + 6218 C3	6218 C3	6218 C3	**Fig. 6, Fig. 7**
	4 … 8	6224 C3	7224 B + 6224 C3	6224 C3	6224 C3	
450	2	6220 C3	–	6220 C3	–	**Fig. 6**
	4 … 8	6226 C3	7226 B + 6226 C3	6226 C3	6226 C3	**Fig. 6, Fig. 7**

[1] Deep-groove bearings with a side plate are used for regreasable versions (**L23**).

[2] Not permitted.

[3] As for basic version.

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Overview

Bearing assignment for 1MB1/1MB5 motors with types of protection Ex db, Ex db eb (bearings for increased cantilever forces – order code L22)

For NU bearings (cylindrical roller bearings), in contrast to ball bearings, a minimum cantilever force is required. Cylindrical roller bearings are not suitable for coupling output.

$F_{min} \sim F_{max}/2$

Frame size	No. of poles	Drive end (DE) bearing Type of construction		Non-drive end (NDE) bearing Type of construction		Fig. No. on page 1/60
		Horizontal	Vertical	Horizontal	Vertical	
1MB1, 1MB5 with type of protection Ex db, Ex db eb						
160	2 … 8	NU309	NU309	6309 C3	6309 C3	–
180	2 … 8	NU310	NU310	6310 C3	6310 C3	–
200	2 … 8	NU312	NU312	6312 C3	6312 C3	–
225	2 … 8	NU313	NU313	6313 C3	6313 C3	–
250	2 … 8	NU315	NU315	6315 C3	6315 C3	–
280	2	NU315	NU315	6315 C3	6315 C3	–
280	4 … 8	NU317	NU317	6317 C3	6317 C3	–
315	2	NU316	NU316	6316 C3	6319 C3	–
315	4 … 8	NU319	NU319	6319 C3	6319 C3	–
355	2	NU317	NU317	6317 C4	6320 C4	–
355	4 … 8	NU320	NU320	6320 C4	6320 C4	–

Bearing assignment for 1LE15/1MB15 and 1LE16/1MB16 motors and 1LE5 motors (bearings reinforced at both ends – order code L25, for 1LE16 motors – standard)

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical type of construction	Non-drive end (NDE) bearing Horizontal and vertical type of construction	Fig. No. on page 1/60
1LE15, 1MB15 – Basic Line				
71 M	2 … 8	6302 2ZC3	6302 2ZC3	
80 M	2 … 8	6304 2ZC3	6304 2ZC3	
90 S/L	2 … 8	6305 2ZC3	6304 2ZC3	
100 L	2 … 8	6306 2ZC3 [1]	6306 2ZC3 [1]	
112 M	2 … 8	6306 2ZC3 [1]	6306 2ZC3 [1]	
132 M	2 … 8	6308 2ZC3 [1]	6308 2ZC3 [1]	
160 M/L	2 … 8	6309 2ZC3 [1]	6309 2ZC3 [1]	
180 M/L	2 … 8	6310 ZC3 [3]	6310 ZC3 [3]	
200 L	2 … 8	6312 ZC3 [3]	6312 ZC3 [3]	
225 M	2 … 8	6313 ZC3 [3]	6313 ZC3 [3]	**Fig. 4**
250 M	2 … 8	6315 ZC3 [3]	6315 ZC3 [3]	
280 M	2	6315 C3 [2]	6315 C3 [2]	
	4 … 8	6317 C3 [2]	6317 C3 [2]	
315 M/L	2	6316 C3 [2]	6316 C3 [2]	
	4 … 8	6319 C3 [2]	6319 C3 [2]	
1LE16, 1MB16 – Performance Line – bearing version as for Performance Line basic version				

		Type of construction		Type of construction		
		Horizontal	Vertical	Horizontal	Vertical	
1LE5						
315 L	2	6316 C4	6316 C4	6316 C4	7316 B	–
	4, 6	6319 C4	6319 C4	6319 C4	7319 B	–
355 M/L	2	6317 C4	6317 C4	6317 C4	7317 B	–
	4, 6	6320 C4	6320 C4	6320 C4	7320 B	–
400	2	O. R.	O. R.	O. R.	O. R.	**Fig. 6, Fig. 7**
	4,6,8	6326 C3	O. R.	6326 C3	O. R.	
450	2	O. R.	–	O. R.	–	**Fig. 6**
	4,6,8	6326 C3	O. R.	6326 C3	O. R.	**Fig. 6, Fig. 7**

[1] Deep-groove bearings with a side plate are used for regreasable versions (**L23**).

[2] As for basic version.

[3] Deep-groove bearings without a side plate are used for regreasable versions (**L23**).

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Overview

Diagrams of bearings

Fig. 1 Drive-end bearing Non-drive end bearing

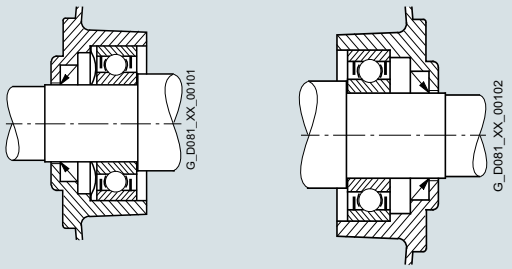


Fig. 2 Drive-end bearing Non-drive end bearing
Located bearings for 1LE1 and 1MB1 frame size 160

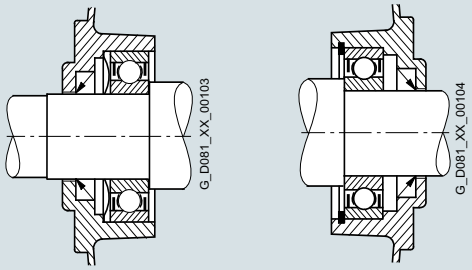


Fig. 3 Drive-end bearing Non-drive end bearing

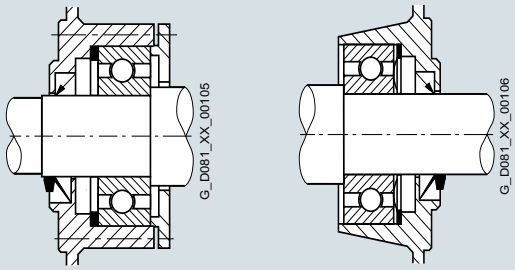


Fig. 4 Drive-end bearing Non-drive end bearing

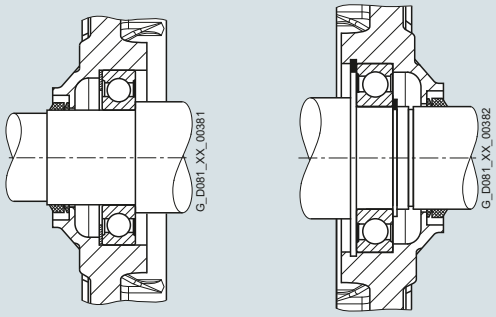


Fig. 5 Drive-end bearing Non-drive end bearing

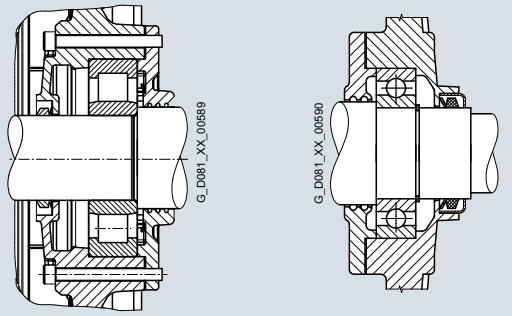


Fig. 6 Drive-end bearing Non-drive end bearing
Frame sizes 315 to 450, 2-pole to 8-pole, type of construction IM B3

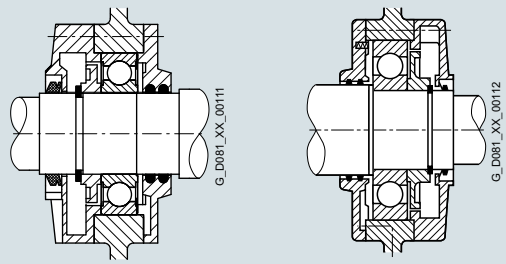
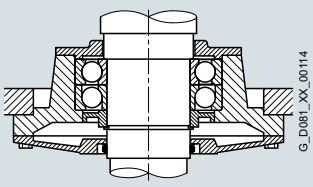
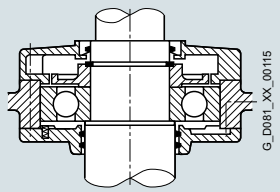


Fig. 7 Drive-end bearing
Frame sizes 355 and 450, 2-pole to 8-pole, type of construction IM V1



Non-drive end bearing
Frame sizes 355 to 450, 2-pole to 8-pole, type of construction IM V1



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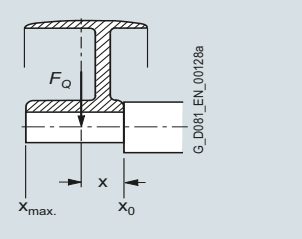
Overview

Admissible cantilever forces



In order to calculate the admissible cantilever forces for a radial load, the line of force (i.e. the centerline of the pulley) of the cantilever force F_Q (N) must be within the free shaft extension (dimension x).

Dimension x (mm) is the distance between the point of application of the force F_Q and the shaft shoulder. The dimension x_{max} corresponds to the length of the shaft extension.

Total cantilever force $F_Q = c \cdot F_u$

The pre-tension factor c is a value gained from experience from the belt manufacturer. The following approximate value can be assumed:

For normal flat leather belts with an idler pulley c = 2;
for V-belts c = 2 to 2.5;
for special synthetic belts (depending on the type of load and type of belt) c = 2 to 2.5.

The circumferential force F_u (N) is calculated using the following equation

$$F_u = 2 \cdot 10^7 \frac{P}{n \cdot D}$$

F_u circumferential force in N
P rated motor power (transmitted power) in kW
n rated motor speed in rpm
D belt pulley diameter in mm

Admissible cantilever forces – basic version

1LE10, 1MB10 motors (frame sizes 80 ... 160) and 1PC10 (frame sizes 100 ... 160) at 50 Hz

Valid are: x_0 values for x = 0 and $x_{max.}$ values for x = l (l = shaft extension)

For motors			Admissible cantilever force F_Q at x_0	at $x_{max.}$
Frame size	Type	No. of poles	N	N
1LE1 motors – values for motors with increased power [1]				
80	**1LE10..-0DA**	2	485	400
	1LE10..-0DB	4	625	515
	1LE10..-0DC	6	735	605
90	**1LE10..-0EA**	2	725	605
	1LE10..-0EB	4	920	775
	1LE10..-0EC	6	1090	910
100	**1LE10..-1AA**	2	1010	825
	1LE10..-1AB	4	1230	1010
	1LE10..-1AC	6	1440	1180
112	**1LE10..-1BA**	2	970	785
	1LE10..-1BB	4	1235	1000
	1LE10..-1BC	6	1440	1165
132	**1LE10..-1CA**	2	1470	1180
	1LE10..-1CB	4	1830	1470
	1LE10..-1CC	6	2150	1730
160	**1LE10..-1DA**	2	1550	1270
	1LE10..-1DB	4	1910	1550
	1LE10..-1DC	6	2230	1810
1LE1 motors – standard values [1] **1MB1 motors – standard values** [1] **1PC1 motors – standard values** [1]				
63	**1LE10..-0BA**	2	270	240
	1LE10..-0BB	4	350	305
71	**1LE10..-0CA**	2	415	355
	1LE10..-0CB	4	530	450
80	**1LE10..-0DA** **1MB10..-0DA** **1PC10..-0DA**	2	485	400
	1LE10..-0DB **1MB10..-0DB** **1PC10..-0DB**	4	625	515
	1LE10..-0DC **1MB10..-0DC** **1PC10..-0DC**	6	735	605
	1LE10..-0DD **1PC10..-0DD**	8	815	675
90	**1LE10..-0EA** **1MB10..-0EA** **1PC10..-0EA**	2	725	605
	1LE10..-0EB **1MB10..-0EB** **1PC10..-0EB**	4	920	775
	1LE10..-0EC **1MB10..-0EC** **1PC10..-0EC**	6	1090	910
	1LE10..-0ED **1PC10..-0ED**	8	1230	1030

Note:
1PC10 only for frame sizes 100 to 160.

In the case of cantilever forces that exceed this, see "Bearings for increased cantilever forces".

1LE10, 1MB10 motors (frame sizes 80 ... 160) and 1PC10 (frame sizes 100 ... 160) at 50 Hz

Valid are: x_0 values for x = 0 and $x_{max.}$ values for x = l (l = shaft extension)

For motors			Admissible cantilever force F_Q at x_0	at $x_{max.}$
Frame size	Type	No. of poles	N	N
1LE1 motors – standard values [1] **1MB1 motors – standard values** [1] **1PC1 motors – standard values** [1]				
100	**1LE10..-1AA** **1MB10..-1AA** **1PC10..-1AA**	2	1020	815
	1LE10..-1AB **1MB10..-1AB** **1PC10..-1AB**	4	1250	1000
	1LE10..-1AC **1MB10..-1AC** **1PC10..-1AC**	6	1450	1155
	1LE10..-1AD **1MB10..-1AD** **1PC10..-1AD**	8	1615	1290
112	**1LE10..-1BA** **1MB10..-1BA** **1PC10..-1BA**	2	1000	790
	1LE10..-1BB **1MB10..-1BB** **1PC10..-1BB**	4	1250	990
	1LE10..-1BC **1MB10..-1BC** **1PC10..-1BC**	6	1450	1150
	1LE10..-1BD **1MB10..-1BD** **1PC10..-1BD**	8	1610	1275
132	**1LE10..-1CA** **1MB10..-1CA** **1PC10..-1CA**	2	1505	1170
	1LE10..-1CB **1MB10..-1CB** **1PC10..-1CB**	4	1880	1460
	1LE10..-1CC **1MB10..-1CC** **1PC10..-1CC**	6	2170	1680
	1LE10..-1CD **1MB10..-1CD** **1PC10..-1CD**	8	2420	1880
160	**1LE10..-1DA** **1MB10..-1DA** **1PC10..-1DA**	2	1560	1240
	1LE10..-1DB **1MB10..-1DB** **1PC10..-1DB**	4	2040	1590
	1LE10..-1DC **1MB10..-1DC** **1PC10..-1DC**	6	2350	1820
	1LE10..-1DD **1MB10..-1DD** **1PC10..-1DD**	8	2610	2030
180	**1LE10..**	2 4 6	1670 2150 2500	1380 1740 2000
200	**1LE10..**	2 4 6	2460 3180 3600	2070 2630 2980

[1] For IE1 motors, the admissible cantilever force can be increased by up to 5 %.

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Overview

1LE15, 1MB15 [1], 1LE55, and 1MB55 motors [1] at 50 Hz
Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force at x_0	at x_{max}
Frame size	No. of poles	N	N
1LE1501/03/21/23, 1MB15 – Basic Line			
71	2	400	340
	4	500	420
	6	570	490
80	2	680	570
	4	860	720
	6	980	820
90	2	760	620
	4	950	790
	6	1090	900
100	2	1010	815
	4	1230	1000
	6	1440	1155
	8	1615	1290
112	2	970	785
	4	1235	990
	6	1440	1150
	8	1610	1275
132	2	1470	1170
	4	1830	1460
	6	2150	1680
	8	2420	1880
160	2	1550	1240
	4	1910	1550
	6	2230	1810
	8	2610	2030
180	2	1670	1380
	4	2150	1740
	6	2500	2000
200	2	2460	2070
	4	3180	2630
	6	3600	2980
225	2	2850	2300
	4	3550	2800
	6	4050	3240
	8	4500	3500
250	2	3250	2600
	4	4100	3400
	6	4800	4000
	8	5250	4450
280	2	5200	4200
	4	8500	7 000
	6	9800	8150
	8	10800	9000
315 S/M	2	5300	4500
	4	9150	7400
	6	10750	8750
	8	11600	9600
315 L	2	4900	4300
	4	8900	7700
	6	10100	9150
	8	11100	10200
1LE5504/34/03/33, 1MB55			
315 L	2	5800	5200
	4	9300	8 000
	6	10600	9200
	8	12000	9200
400	2	2910	2570
	4	6830	5870
	6	6520	5610
	8	7860	6760
450	2	3820	3410
	4	7130	6220
	6	6970	6080
	8	8110	7070

[1] Not valid for 1MB.55 motors with type of protection Ex db eb.

1LE16, 1MB16, 1LE56, and 1MB56 motors at 50 Hz
Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force at x_0	at x_{max}
Frame size	No. of poles	N	N
1LE1601/03/21/23, 1MB16 – Performance Line			
100	2	1585	1270
	4	1960	1575
	6	2270	1815
	8	2520	2015
112	2	1545	1240
	4	1960	1555
	6	2270	1800
	8	2510	1990
132	2	2285	1795
	4	2860	2250
	6	3320	2580
	8	3700	2870
160	2	2800	2170
	4	3450	2750
	6	4000	3160
	8	4510	3500
180	2	3250	2610
	4	4110	3270
	6	4720	3740
200	2	4320	3550
	4	5480	4500
	6	6220	5110
225	2	5000	4150
	4	6250	4900
	6	7200	5750
	8	7800	6200
250	2	6000	4800
	4	7600	6200
	6	8750	7350
	8	9500	8 000
280	2	5200	4200
	4	8500	7 000
	6	9800	8150
	8	10800	9000
315 S/M	2	5300	4500
	4	9150	7400
	6	10750	8750
	8	11600	9600
315 L	2	4900	4300
	4	8900	7700
	6	10100	9150
	8	11100	10200
1LE5604/34/03/33, 1MB56 – Performance line			
315 L	2	5800	5200
	4	9300	8 000
	6	10600	9200
	8	12000	9200
355 M/L	2	5800	5200
	4	9900	8700
	6	11200	9800
	8	11200	10000

In the case of cantilever forces that exceed this, see "Bearings for increased cantilever forces".

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Overview

1MB1, 1MB5 motors for types of protection Ex db and Ex db eb at 50 Hz
Valid are: x_0 values for x = 0, $x_{0.5}$ for x = 0.5 x l and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force		
		at x_0	at $x_{0.5}$	at x_{max}
Frame size	No. of poles	N	N	N
1MB1/1MB5 – for types of protection Ex db and Ex db eb				
71	2	360	340	300
	4	410	380	300
	6	490	390	300
	8	530	390	300
80	2	570	530	420
	4	700	570	430
	6	800	580	430
	8	810	560	420
90	2	520	480	440
	4	660	660	490
	6	850	690	510
	8	940	700	520
100	2	1340	1110	830
	4	1620	1110	820
	6	1690	1120	830
	8	1550	1030	760
112	2	1300	1150	860
	4	1630	1300	970
	6	1800	1190	880
	8	1820	1200	890
132	2	1980	1790	1420
	4	2460	1830	1290
	6	2810	1880	1330
	8	3050	2000	1420
160	2	2770	2510	1950
	4	3430	2850	1940
	6	3700	3290	2230
	8	4300	2570	1750
180	2	3070	2800	2570
	4	3780	3440	2880
	6	4380	3990	2940
	8	4860	4430	3700
200	2	3960	3640	3360
	4	5010	4610	4260
	6	5630	5170	4390
	8	6190	5690	5250
225	2	4500	4170	3890
	4	5590	5090	4660
	6	6260	5690	5220
	8	7230	6580	4770
250	2	5430	4930	4510
	4	6720	6100	5580
	6	7650	6950	6360
	8	8720	7920	6250
280	2	4690	4330	4000
	4	7430	6580	6330
	6	8940	8240	7070
	8	8860	8170	6790
315 S/M	2	5480	5210	4970
	4	8300	7360	5530
	6	9280	6910	4780
	8	9210	5700	4120
315 L	2	4050	3800	3580
	4	5350	4920	4030
	6	6830	5800	4210
	8	8600	5350	3880
355	2	3900	3700	3520
	4	3930	3570	2610
	6	O. R.	O. R.	O. R.
	8	O. R.	O. R.	O. R.

Admissible cantilever forces – bearings for increased cantilever forces – order code **L22**

1LE10, 1MB10 motors (frame sizes 80 ... 160) and 1PC10 (frame sizes 100 ... 160) at 50 Hz with reinforced deep-groove bearings at DE
Valid are: x_o values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors			Admissible cantilever force F_Q at x_0	at x_{max}
Frame size	Type	No. of poles	N	N
1LE1 motors – values for motors with increased power [1]				
100	**1LE10..-1AA**	2	1585	1300
	1LE10..-1AB	4	1960	1610
	1LE10..-1AC	6	2270	1865
112	**1LE10..-1BA**	2	1545	1250
	1LE10..-1BB	4	1960	1585
	1LE10..-1BC	6	2270	1835
132	**1LE10..-1CA**	2	2285	1840
	1LE10..-1CB	4	2860	2300
	1LE10..-1CC	6	3320	2670
160	**1LE10..-1DA**	2	2800	2240
	1LE10..-1DB	4	3450	2270
	1LE10..-1DC	6	4000	3200
1LE1 motors – standard values [1] **1MB1 motors – standard values** [1] **1PC1 motors – standard values** [1]				
100	**1LE10..-1AA** **1MB10..-1AA** **1PC10..-1AA**	2	1585	1270
	1LE10..-1AB **1MB10..-1AB** **1PC10..-1AB**	4	1960	1575
	1LE10..-1AC **1MB10..-1AC** **1PC10..-1AC**	6	2270	1815
	1LE10..-1AD **1MB10..-1AD** **1PC10..-1AD**	8	2520	2015
112	**1LE10..-1BA** **1MB10..-1BA** **1PC10..-1BA**	2	1545	1240
	1LE10..-1BB **1MB10..-1BB** **1PC10..-1BB**	4	1960	1555
	1LE10..-1BC **1MB10..-1BC** **1PC10..-1BC**	6	2270	1800
	1LE10..-1BD **1MB10..-1BD** **1PC10..-1BD**	8	2510	1990
132	**1LE10..-1CA** **1MB10..-1CA** **1PC10..-1CA**	2	2285	1795
	1LE10..-1CB **1MB10..-1CB** **1PC10..-1CB**	4	2860	2250
	1LE10..-1CC **1MB10..-1CC** **1PC10..-1CC**	6	3320	2580
	1LE10..-1CD **1MB10..-1CD** **1PC10..-1CD**	8	3700	2870
160	**1LE10..-1DA** **1MB10..-1DA** **1PC10..-1DA**	2	2800	2170
	1LE10..-1DB **1MB10..-1DB** **1PC10..-1DB**	4	3450	2750
	1LE10..-1DC **1MB10..-1DC** **1PC10..-1DC**	6	4000	3160
	1LE10..-1DD **1MB10..-1DD** **1PC10..-1DD**	8	4510	3500
180	**1LE10..-1EA**	2	3250	2610
		4	4110	3270
		6	4720	3740
		8	5130	4050
200	**1LE10..-2AA**	2	4320	3550
		4	5480	4500
		6	6220	5110
		8	6870	5640

[1] For IE1 motors, the admissible cantilever force can be increased by up to 5 %.

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Overview

1LE15 and 1MB15 [1] motors at 50 Hz with reinforced deep-groove bearings at DE up to frame size 160 with cylindrical roller bearings at DE in frame size 180 and above

Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors			Admissible cantilever force at x_0	at x_{max}
Frame size	Type	No. of poles	N	N
1LE1501/03/21/23, 1MB15 – Basic Line				
71	**1LE15..-0CA 1MB15..-0CA**	2	400	340
	1LE15..-0CB 1MB15..-0CB	4	490	420
	1LE15..-0CC 1MB15..-0CC	6	570	490
	LE15..-0CD 1MB15..-0CD	8	640	540
80	**1LE15..-0DA 1MB15..-0DA**	2	680	570
	1LE15..-0DB 1MB15..-0DB	4	840	720
	1LE15..-0DC 1MB15..-0DC	6	970	820
	1LE15..-0DD 1MB15..-0DD	8	1090	910
90	**1LE15..-0EA 1MB15..-0EA**	2	720	605
	1LE15..-0EB 1MB15..-0EB	4	920	775
	1LE15..-0EC 1MB15..-0EC	6	1060	910
	1LE15..-0ED 1MB15..-0ED	8	1200	1030
100	**1LE15..-1AA 1MB15..-1AA**	2	1585	1270
	1LE15..-1AB 1MB15..-1AB	4	1960	1575
	1LE15..-1AC 1MB15..-1AC	6	2270	1815
	1LE15..-1AD 1MB15..-1AD	8	2520	2015
112	**1LE15..-1BA 1MB15..-1BA**	2	1545	1240
	1LE15..-1BB 1MB15..-1BB	4	1960	1555
	1LE15..-1BC 1MB15..-1BC	6	2270	1800
	1LE15..-1BD 1MB15..-1BD	8	2510	1990
132	**1LE15..-1CA 1MB15..-1CA**	2	2285	1795
	1LE15..-1CB 1MB15..-1CB	4	2860	2250
	1LE15..-1CC 1MB15..-1CC	6	3320	2580
	1LE15..-1CD 1MB15..-1CD	8	3700	2870
160	**1LE15..-1DA 1MB15..-1DA**	2	2800	2170
	1LE15..-1DB 1MB15..-1DB	4	3450	2750
	1LE15..-1DC 1MB15..-1DC	6	4000	3160
	1LE15..-1DD 1MB15..-1DD	8	4510	3500
180	**1LE15..-1EA 1MB15..-1EA**	2	4520	3630
	1LE15..-1EB 1MB15..-1EB	4	5560	4050
	1LE15..-1EC 1MB15..-1EC	6	6280	4050
	1LE15..-1ED 1MB15..-1ED	8	6790	4050
200	**1LE15..-2AA 1MB15..-2AA**	2	6840	5610
	1LE15..-2AB 1MB15..-2AB	4	8440	6000
	1LE15..-2AC 1MB15..-2AC	6	9480	6000
	1LE15..-2AD 1MB15..-2AD	8	10100	6000

Note: 1PC10 and 1MB10 not for frame sizes 180 to 200.

[1] Not valid for 1MB155 motors with type of protection Ex db eb.

1LE15 and 1MB15 motors at 50 Hz with reinforced deep-groove bearings at DE up to frame size 160 with cylindrical roller bearings at DE in frame size 180 and above

Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors			Admissible cantilever force at x_0	at x_{max}
Frame size	Type	No. of poles	N	N
1LE1501/03/21/23, 1MB15 – Basic Line (continued)				
225	**1LE15..-2BA 1MB15..-2BA**	2	8 000	6800
	1LE15..-2BB 1MB15..-2BB	4	9800	7250
	1LE15..-2BC 1MB15..-2BC	6	11100	7300
	1LE15..-2BD 1MB15..-2BD	8	11300	7300
250	**1LE15..-2CA 1MB15..-2CA**	2	9500	7400
	1LE15..-2CB 1MB15..-2CB	4	12500	9400
	1LE15..-2CC 1MB15..-2CC	6	13500	9700
	1LE15..-2CD 1MB15..-2CD	8	14700	9700
280 [2]	**1LE15..-2DA 1MB15..-2DA**	2	16500	9800
315 [2]	**1LE15..-3AA 1MB15..-3AA**	2	18400	7600

1LE16 and 1MB16 motors at 50 Hz with reinforced cylindrical roller bearings DE

Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force at x_0	at x_{max}
Frame size	No. of poles	N	N
1LE1601/03/21/23, 1MB16 – Performance Line			
100, 112, 132, 160	2, 4, 6, 8	–	–
180	2	8150	4050
	4	9800	4050
	6	9800	4050
200	2	11200	6000
	4	13600	6000
	6	13600	6000
225	2	12700	7900
	4	15700	7250
	6	15700	7300
	8	15700	7300
250	2	17000	7750
	4	21000	9400
	6	21000	9700
	8	21000	9700
280 [2]	2	16500	9800
315 S, M [2]	2	18400	7600
315 L [2]	2	18400	7600

Admissible cantilever forces – Bearing for increased cantilever forces – For all motors of frame sizes 400 and 450 at 50 Hz in the horizontal and vertical types of construction (order code **L22**) on request.
Please specify cantilever force and lever arm.

[2] For admissible cantilever forces 4, 6, and 8-pole versions, see diagrams on this page.

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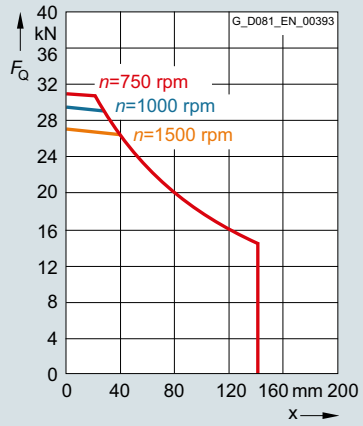
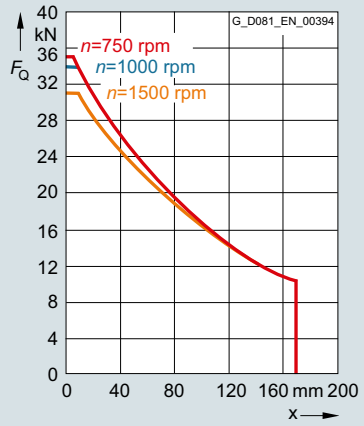
Overview

1LE15/6 and 1MB15/6 [1] motors for 50 Hz with cylindrical roller bearings DE for frame sizes 280 to 315 in 4 to 8-pole version

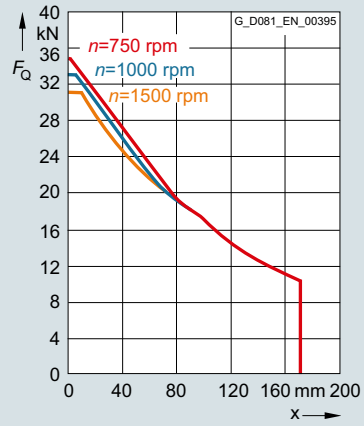
Frame size 280, 4 to 8-pole



Frame size 315 S/M, 4 to 8-pole

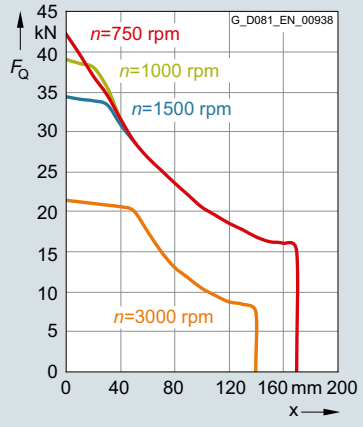


Frame size 315 L, 4 to 8-pole

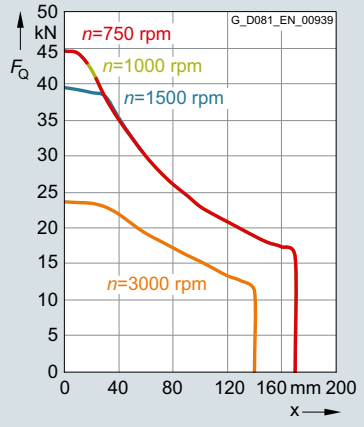


1LE55/6, 1MB55/6 motors for 50 Hz with cylindrical roller bearings DE for frame sizes 315 and 355 in 2 to 8-pole version

1LE55/6 motors of frame size 315, 2 to 8-pole



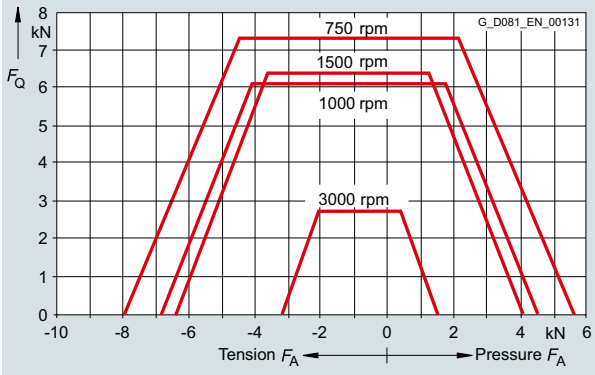
1LE56 motors of frame size 355, 2 to 8-pole



Admissible cantilever forces at 50 Hz – basic version

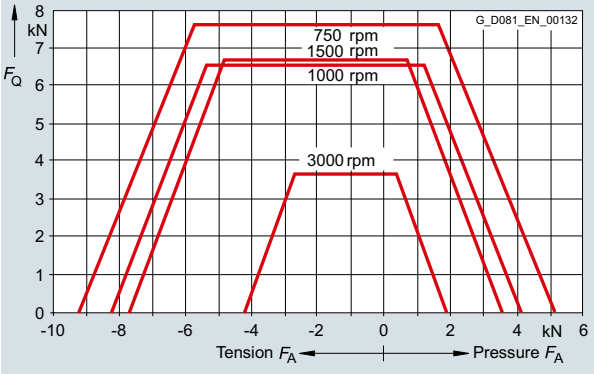
For motors in a horizontal type of construction, the maximum cantilever forces are specified as a function of the axial forces. See diagrams below.

1LE5, 1MB5 motors with frame size 400 – type of construction IM B3



Cantilever force F_Q at x = l (shaft extension) via axial force F_A at nominal bearing service life L_{h10} = 20000 h

1LE5, 1MB5 motors with frame size 450 – type of construction IM B3



Cantilever force F_Q at x = l (shaft extension) via axial force F_A at nominal bearing service life L_{h10} = 20000 h

[1] Not valid for 1MB155 motors with type of protection Ex db eb.

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Overview

Admissible cantilever forces – bearings reinforced at both ends – order code **L25**

1LE10, 1MB10 motors (frame sizes 80 ... 160) and 1PC10 (frame sizes 100 ... 160) for 50 Hz with deep-groove bearings reinforced at both ends

Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force at x_0	at x_{max}
Frame size	No. of poles	N	N
1LE1501/03/21/23, 1MB15 – Basic Line 1LE10, 1MB10, 1PC10			
71	2	610	510
	4	760	640
	6	880	740
	8	970	820
80	2	950	800
	4	1190	1000
	6	1370	1150
	8	1520	1270
90	2	1200	1000
	4	1530	1270
	6	1760	1450
	8	1950	1610
100	2	1585	1270
	4	1960	1575
	6	2270	1815
	8	2520	2015
112	2	1545	1240
	4	1960	1555
	6	2270	1800
	8	2510	1990
132	2	2285	1795
	4	2860	2250
	6	3320	2580
	8	3700	2870
160	2	2800	2170
	4	3450	2750
	6	4000	3160
	8	4510	3500
180	2	3250	2610
	4	4110	3270
	6	4720	3740
	8	5130	4050
200	2	4320	3550
	4	5480	4500
	6	6220	5110
	8	6870	5640
225	2	5000	4150
	4	6250	4900
	6	7200	5750
	8	7800	6200
250	2	6000	4800
	4	7600	6200
	6	8750	7350
	8	9500	8000
280 [1]	2, 4, 6, 8	–	–
315 [1]	2, 4, 6, 8	–	–

Note:

1PC10 only for frame sizes 100 to 160,
1MB10 only for frame sizes 80 to 160.

Admissible cantilever forces – bearings reinforced at both ends, DE bearings for increased cantilever forces – order code **L28**

1LE15 and 1MB15 motors for 50 Hz with cylindrical roller bearings DE and with deep-groove bearings NDE

Valid are: x_0 values for x = 0 and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force at x_0	at x_{max}
Frame size	No. of poles	N	N
1LE1501/03/21/23, 1MB15 – Basic Line			
100, 112, 132, 160	2, 4, 6, 8	–	–
180	2	8150	4050
	4	9800	4050
	6	9800	4050
200	2	11200	6000
	4, 6	13600	6000
225	2	12700	7900
	4	15700	7250
	6, 8	15700	7300
250	2	17000	7750
	4	21000	9400
	6, 8	21000	9700
280, 315 S, M, L [1]	2, 4, 6, 8	–	–

Admissible cantilever forces – bearings for increased cantilever forces – order code **L22**

1MB1 and 1MB5 motors at 50 Hz with reinforced deep-groove bearings DE

Valid are: x_0 values for x = 0; $x_{0.5}$ values for x = 0.5 × l and x_{max} values for x = l (l = shaft extension)

For motors		Admissible cantilever force at x_0	at $x_{0.5}$	at x_{max}
Frame size	No. of poles	N	N	N
1MB1/1MB5				
160	2	5380	2870	1950
	4	5340	2850	1940
	6	6150	3290	2230
	8	4820	2570	1750
180	2	8150	4370	2980
	4	8100	4340	2960
	6	7930	4440	3030
	8	9950	5570	3810
200	2	11030	6140	4240
	4	11410	6350	4390
	6	11010	6130	4230
	8	13450	7490	5180
225	2	14990	8530	5940
	4	14640	6730	4980
	6	16110	8200	5480
	8	14010	7130	4770
250	2	18190	9950	6830
	4	19210	10510	7220
	6	18710	10240	7030
	8	17340	9490	6510
280	2	16480	9640	6710
	4	18070	10480	7270
	6	16800	9740	6750
	8	16140	9350	6490
315 S/M	2	21250	12930	9270
	4	12970	6870	4980
	6	12100	6450	4810
	8	10590	5970	4170
315 L	2	15960	9820	7130
	4	10300	5560	4030
	6	10740	5800	4210
	8	9920	5350	3880
355	2	18700	11400	8200
	4, 6, 8	Values on request		

[1] For values for frame sizes 280 to 315, see page 1/62. For frame sizes 280 to 315, bearings of size 63 are standard.

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Overview

Admissible axial load

1LE10, 1MB10, [1] and 1PC10 [1] motors in vertical type of construction – basic version (with the exception of motors with increased power)

Frame size	3000 rpm				1500 rpm				1000 rpm				750 rpm			
	Shaft extension pointing down		**up**		**down**		**up**		**down**		**up**		**down**		**up**	
	Load down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
63	80	245	230	95	80	330	310	95	80	410	390	95	–	–	–	–
71	105	365	335	130	90	380	440	130	90	590	550	130	90	700	660	130
80	110	425	360	160	100	540	480	165	100	650	590	165	100	760	700	165
90	110	440	360	180	100	680	580	190	100	920	820	190	100	1150	1050	190
100	140	700	550	280	130	990	820	285	130	1280	1110	285	130	1560	1390	285
112	140	710	550	300	130	1000	820	310	130	1290	1110	310	130	1570	1390	310
132	200	1200	950	470	180	1680	1200	470	180	1900	1600	470	190	2200	1900	440
160	1500	1400	950	1900	1900	1800	1300	2200	2200	2200	1600	2700	2700	2700	1950	2900
180	1260	1230	500	1990	1600	1770	840	2530	1920	2150	1160	2900	2050	2500	1290	3260
200	1810	1720	660	2870	2410	2480	1260	3630	2700	3050	1550	4200	3060	3510	1910	4660

The values shown do not assume a cantilever force on the shaft extension.
The admissible loads are valid for operation at 50 Hz; for 60 Hz, please inquire.

The calculation of the admissible axial load was based on the drive with generally available coupling.
For suppliers, see section "Accessories" on page 2/139 in the respective section of the catalog.
Please inquire if the load direction alternates.

1LE10, 1MB10, [1] and 1PC10 [1] motors in horizontal type of construction – basic version (with the exception of motors with increased power)

Frame size	3000 rpm				1500 rpm				1000 rpm				750 rpm			
	Tensile load	Thrust load (N)			Tensile load	Thrust load (N)			Tensile load	Thrust load (N)			Tensile load	Thrust load (N)		
		with radial load at		without radial load		with radial load at		without radial load		with radial load at		without radial load		with radial load at		without radial load
		x_0	$x_{max.}$			x_0	$x_{max.}$			x_0	$x_{max.}$			x_0	$x_{max.}$	
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
63	90	120	90	240	90	140	110	320	90	170	120	400	–	–	–	–
71	120	150	120	350	120	210	150	460	120	260	180	570	120	300	210	680
80	140	190	150	400	140	300	260	510	140	330	280	620	140	340	290	730
90	150	300	280	400	150	400	360	630	150	480	430	870	150	550	500	1100
100	220	450	350	630	220	600	500	910	220	650	550	1200	220	750	650	1480
112	220	450	350	630	220	600	500	910	220	650	550	1200	220	750	650	1480
132	350	650	520	1200	350	850	700	1600	350	1020	890	1900	350	1150	1020	2200
160	1500	850	720	1500	1500	1050	920	1800	1500	1250	1120	2200	1500	1350	1220	2600
180	1630	–	–	870	2070	–	–	1310	2420	–	–	1660	2660	–	–	1900
200	2340	–	–	1190	3020	–	–	1870	3450	–	–	2300	3860	–	–	2710

The values shown do not assume a cantilever force on the shaft extension.
The admissible loads are valid for operation at 50 Hz; for 60 Hz, please inquire.

The calculation of the admissible axial load was based on the drive with generally available coupling.
For suppliers, see the section "Accessories" on page 2/139.
Please inquire if the load direction alternates.

1MB5 motors for Ex db, Ex db eb with a vertical type of construction – basic version

Frame size	3000 rpm		1500 rpm		1000 rpm		750 rpm	
	Shaft extension pointing down		**Shaft extension pointing down**		**Shaft extension pointing down**		**Shaft extension pointing down**	
	Load down	up	down	up	down	up	down	up
	N	N	N	N	N	N	N	N
160	1790	2390	2460	3170	2730	3730	3420	4260
180	2020	2780	2760	3760	3350	4410	3770	5050
200	2910	4150	4070	5370	4840	6360	5460	7200
225	2570	4230	3590	5740	4250	6690	6110	8190
250	3470	5530	4770	7410	5880	8700	7260	9760
280	2440	5520	4300	8570	5860	9680	6920	10740
315 S/M	1190	6350	4250	10130	5240	11980	6340	13080
315 L	970	7250	3150	11170	3730	13070	4570	14130
355	270	10510	Values on request		Values on request		Values on request	

[1] 1MB10 motors only available with frame sizes 80 to 160 and 1PC10 motors only available with frame sizes 100 to 160.

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Overview

1LE15, 1MB15, 1LE16, 1MB16, 1LE55, and 1LE56 motors in vertical type of construction – basic version

Frame size	Type	2-pole – 3000 rpm				4-pole – 1500 rpm				6-pole – 1000 rpm				8-pole – 750 rpm			
		Shaft extension pointing down		**up**		**down**		**up**		**down**		**up**		**down**		**up**	
		Load down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1LE15, 1MB15 – Basic Line																	
71	**1..1501-0C.2**	220	100	80	240	210	220	180	240	210	300	260	250	–	–	–	–
	1..1501-0C.3	220	90	70	240	210	210	170	250	210	300	260	250	–	–	–	–
	1..1503-0C.2	220	90	70	240	210	210	170	250	210	300	260	250	–	–	–	–
	1..1503-0C.3	210	100	60	250	200	200	150	260	200	290	230	260	–	–	–	–
80	**1..1501-0D.2**	240	280	240	280	230	460	400	290	230	600	540	290	–	–	–	–
	1..1501-0D.3	230	270	220	280	230	450	390	290	220	590	510	300	–	–	–	–
	1..1503-0D.2	230	270	220	280	230	450	390	290	220	590	510	300	–	–	–	–
	1..1503-0D.3	230	270	210	290	220	440	360	300	210	590	490	300	–	–	–	–
90	**1..1501-0E.0**	210	300	230	280	210	480	400	290	210	620	540	290	–	–	–	–
	1..1501-0E.4	210	300	220	290	200	480	380	300	200	620	520	300	–	–	–	–
	1..1503-0E.0	210	300	220	290	200	480	380	300	200	620	520	300	–	–	–	–
	1..1503-0E.4	210	290	210	290	200	460	360	300	200	610	510	300	–	–	–	–
100	**1..15.1-1A.4**	300	450	340	410	280	720	570	430	260	930	740	450	280	1100	940	440
	1..15.1-1A.5	–	–	–	–	270	710	540	440	–	–	–	–	260	1100	910	450
	1..15.1-1A.6	290	440	310	420	250	710	500	460	240	920	690	470	–	–	–	–
	1..15.3-1A.4	290	440	310	420	250	710	500	460	–	–	–	–	–	–	–	–
	1..15.3-1AB5	–	–	–	–	250	710	500	460	–	–	–	–	–	–	–	–
112	**1..15.1-1B.2**	280	460	310	430	260	730	540	450	250	940	730	460	250	1110	900	460
	1..15.1-1B.6	260	460	270	450	250	730	510	470	240	930	700	470	–	–	–	–
	1..15.3-1B.2	260	460	270	450	250	730	510	470	240	930	700	470	–	–	–	–
132	**1..15.1-1C.0**	510	600	370	740	490	1000	730	760	490	1310	1040	760	480	1570	1280	770
	1..15.1-1C.1	490	610	340	760	–	–	–	–	–	–	–	–	–	–	–	–
	1..15.1-1C.2	–	–	–	–	460	1000	670	790	470	1310	1000	780	450	1580	1220	810
	1..15.1-1C.3	–	–	–	–	–	–	–	–	440	1310	940	810	–	–	–	–
	1..15.1-1C.6	450	610	260	800	410	1010	580	840	390	1320	850	860	–	–	–	–
	1..15.3-1C.0	490	610	340	760	410	1010	580	840	440	1310	940	810	–	–	–	–
	1..15.3-1C.1	450	610	260	800	–	–	–	–	–	–	–	–	–	–	–	–
	1..15.3-1C.2	–	–	–	–	410	1010	580	840	440	1310	940	810	–	–	–	–
	1..15.3-1C.3	–	–	–	–	–	–	–	–	400	1320	850	860	–	–	–	–
160	**1..15.1-1D.2**	1560	890	500	1950	1930	1340	870	2400	2190	1700	1130	2760	2540	1990	1480	3050
	1..15.1-1D.3	1510	900	450	1960	–	–	–	–	–	–	–	–	2430	1980	1370	3040
	1..15.1-1D.4	1470	900	410	1960	1840	1350	780	2410	2070	1710	1010	2770	2350	2000	1290	3060
	1..15.1-1D.6	1370	900	310	1960	1760	1380	700	2440	1930	1720	870	2780	–	–	–	–
	1..15.1-1D.7	–	–	–	–	1640	1400	580	2460	–	–	–	–	–	–	–	–
	1..15.3-1D.2	1510	900	450	1960	1840	1350	780	2410	2070	1710	1010	2770	–	–	–	–
	1..15.3-1D.3	1470	900	410	1960	–	–	–	–	–	–	–	–	–	–	–	–
	1..15.3-1D.4	1370	900	310	1960	1760	1380	700	2440	1930	1720	870	2780	–	–	–	–
180	**1..15..-1E.2**	1290	1220	530	1980	1680	1750	920	2500	–	–	–	–	–	–	–	–
	1..15..-1E.4	–	–	–	–	1610	1760	850	2520	1920	2120	1160	2880	2270	2440	1510	3200
	1..15..-1E.6	1260	1230	500	1990	1600	1770	840	2530	1920	2150	1160	2900	2050	2500	1290	3260
200	**1..15..-2A.4**	1920	1680	760	2830	–	–	–	–	2880	2970	1720	4120	–	–	–	–
	1..15..-2A.5	1810	1700	660	2860	2410	2450	1260	3600	2770	3010	1620	4160	3240	3450	2090	4600
	1..15..-2A.6	1810	1720	660	2870	2410	2480	1260	3630	2700	3050	1550	4200	3060	3510	1910	4660
225	**1..15..-2B.0**	–	–	–	–	2200	2800	1180	3830	–	–	–	–	3200	3750	2180	4770
	1..15..-2B.2	1720	2000	630	3020	2100	2850	1070	3900	2340	3470	1300	4480	3090	3800	2070	4820
	1..15..-2B.6	1720	2000	630	3020	2100	2850	1070	3900	2300	3500	1280	4480	2780	3950	1770	4970
250	**1..15..-2C.2**	1630	2600	830	3400	1980	3580	1180	4390	2440	4210	1650	5020	3180	4760	2380	5560
	1..15..-2C.6	1630	2650	830	3450	1940	3740	1140	4530	2440	4320	1640	5120	2950	4850	2150	5650
280	**1..15..-2D.0**	3540	4280	1950	5850	5320	6930	3640	8500	6630	7990	5000	9570	7930	9030	6200	10500
	1..15..-2D.2	3250	4390	1650	5950	4790	6990	3170	8580	6350	8150	4700	9700	7690	9180	6000	10600
	1..15..-2D.6	3180	4540	1580	6100	4770	7170	3150	8750	6230	8400	4600	9900	7370	9300	5700	10700
315	**1..15..-3A.0**	3580	4710	1450	6850	5640	7790	3600	9850	6800	9100	4700	11100	8500	10150	6450	11800
	1..15..-3A.2	3180	4960	1050	7100	4780	7920	2700	9900	6080	9300	4000	11300	8150	10400	6100	11900
	1..15..-3A.4	2890	5080	770	7200	4820	7580	2750	9600	5400	9750	3350	11700	7250	10650	5200	12000
	1..15..-3A.5	2240	5480	100	7600	3720	7620	1650	9650	4800	10150	2750	11800	6500	10900	4450	12300
	1..15..-3A.6	–	–	–	–	–	–	–	–	4550	10000	2500	11800	5900	11000	3900	12500

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Overview

Frame size	Type	2-pole – 3000 rpm				4-pole – 1500 rpm				6-pole – 1000 rpm				8-pole – 750 rpm			
		Shaft extension pointing down		**up**		**down**		**up**		**down**		**up**		**down**		**up**	
		Load down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N
1LE55 – Basic Line																	
315	**1LE55..-3A.6**	10500	1800	10500	1800	17500	2500	17500	2500	–	–	–	–	–	–	–	–
	1LE55..-3A.7	10000	2300	10000	2300	17000	3000	17000	3000	20000	3000	20000	3000	22500	3400	22500	3400
	1LE55..-3A.8	–	–	–	–	–	–	–	–	19000	4000	19000	4000	21500	4400	21500	4400
355	**1LE55..-3B.3**	9700	2900	9700	2900	20000	3600	20000	3600	–	–	–	–	–	–	–	–
	1LE55..-3B.4	9300	3500	9300	3500	19500	3800	19500	3800	–	–	–	–	–	–	–	–
	1LE55..-3B.5	9000	3700	9000	3700	18500	4600	18500	4600	–	–	–	–	–	–	–	–
	1LE55..-3BC2	–	–	–	–	–	–	–	–	21500	5000	21500	5000	–	–	–	–
	1LE55..-3BC3	–	–	–	–	–	–	–	–	21000	5500	21000	5500	–	–	–	–
	1LE55..-3BC4	–	–	–	–	–	–	–	–	21000	5500	21000	5500	–	–	–	–
	1LE55..-3BD1	–	–	–	–	–	–	–	–	–	–	–	–	23000	5500	23000	5500
	1LE55..-3BD2	–	–	–	–	–	–	–	–	–	–	–	–	22000	5800	22000	5800
1LE16, 1MB16 – Performance Line																	
100	**1..16.1-1A.4**	220	930	820	330	200	1330	1180	350	180	1640	1450	370	200	1900	1740	360
	1..16.1-1A.5	–	–	–	–	190	1320	1150	360	–	–	–	–	–	–	–	–
	1..16.1-1A.6	210	930	800	340	170	1320	1110	380	160	1640	1410	390	180	1900	1710	370
	1..16.3-1A.4	210	930	800	340	170	1320	1110	380	–	–	–	–	–	–	–	–
	1..16.3-1A.5	–	–	–	–	170	1320	1110	380	–	–	–	–	–	–	–	–
112	**1..16.1-1B.2**	200	940	790	350	180	1340	1150	370	170	1650	1440	380	–	–	–	–
	1..16.1-1B.6	180	940	750	370	170	1340	1120	390	160	1640	1410	390	170	1910	1700	380
	1..16.3-1B.2	180	940	750	370	170	1340	1120	390	160	1640	1410	390	–	–	–	–
132	**1..16.1-1C.0**	540	1120	890	770	520	1700	1430	790	520	2150	1880	790	510	2530	2240	800
	1..16.1-1C.1	520	1130	860	790	–	–	–	–	–	–	–	–	–	–	–	–
	1..16.1-1C.2	–	–	–	–	490	1710	1380	820	500	2150	1840	810	480	2540	2180	840
	1..16.1-1C.3	–	–	–	–	–	–	–	–	470	2150	1780	840	–	–	–	–
	1..16.1-1C.6	480	1130	780	830	440	1710	1280	870	420	2160	1690	890	–	–	–	–
	1..16.3-1C.0	520	1130	860	790	440	1710	1280	870	470	2150	1780	840	–	–	–	–
	1..16.3-1C.1	480	1130	780	830	–	–	–	–	–	–	–	–	–	–	–	–
	1..16.3-1C.2	–	–	–	–	440	1710	1280	870	470	2150	1780	840	–	–	–	–
	1..16.3-1C.3	–	–	–	–	–	–	–	–	420	2160	1690	890	–	–	–	–
160	**1..16.1-1D.2**	2200	1870	1480	2590	2860	2610	2140	3330	3320	3170	2600	3890	3830	3620	3110	4340
	1..16.1-1D.3	2150	1880	1430	2600	–	–	–	–	–	–	–	–	3730	3620	3010	4340
	1..16.1-1D.4	2120	1890	1400	2610	2760	2610	2040	3330	3200	3180	2480	3900	3650	3640	2930	4360
	1..16.1-1D.6	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	–	–	–	–
	1..16.1-1D.7	–	–	–	–	2570	2670	1850	3390	–	–	–	–	–	–	–	–
	1..16.3-1D.2	2150	1880	1430	2600	2760	2610	2040	3330	3200	3180	2480	3900	–	–	–	–
	1..16.3-1D.3	2120	1890	1400	2610	–	–	–	–	–	–	–	–	–	–	–	–
	1..16.3-1D.4	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	–	–	–	–
180	**1..16..-1E.2**	2510	2050	1360	3200	3240	2920	2090	4070	–	–	–	–	–	–	–	–
	1..16..-1E.4	–	–	–	–	3180	2930	2020	4090	3740	3560	2580	4710	4300	4090	3150	5240
	1..16..-1E.6	2490	2060	1330	3220	3160	2950	2010	4100	3740	3570	2580	4730	4090	4140	2940	5290
200	**1..16..-2A.4**	2920	3030	2110	3840	–	–	–	–	4570	5010	3760	5820	–	–	–	–
	1..16..-2A.5	2810	3060	2000	3870	3820	4210	3010	5020	4470	5060	3660	5870	5200	5750	4390	6560
	1..16..-2A.6	2810	3060	2000	3870	3820	4230	3010	5040	4400	5090	3590	5900	5010	5800	4200	6610
225	**1..16..-2B.0**	–	–	–	–	4200	4750	3150	5800	–	–	–	–	5900	6400	4850	7650
	1..16..-2B.2	3100	3400	2050	4450	4100	4850	3000	5850	4700	5800	3650	6850	5800	6450	4700	7500
	1..16..-2B.6	3100	3400	2050	4450	4100	4850	3000	5850	4650	5850	3600	6900	5500	6600	4400	7650
250	**1..16..-2C.2**	3850	4100	2250	5600	4850	5650	3250	7250	5750	6750	4200	8350	6900	7700	5300	9200
	1..16..-2C.6	3850	4100	2250	5600	4800	5750	3200	7400	5750	6750	4200	8450	6700	7800	5000	9300
280	**1..16..-2D.0**	3540	4280	1950	5850	5320	6930	3640	8500	6630	7990	5000	9570	7930	9030	6200	10500
	1..16..-2D.2	3250	4390	1650	5950	4790	6990	3170	8580	6350	8150	4700	9700	7690	9180	6000	10600
	1..16..-2D.6	3180	4540	1580	6100	4770	7170	3150	8750	6230	8400	4600	9900	7370	9300	5700	10700
315	**1..16..-3A.0**	3580	4710	1450	6850	5640	7790	3600	9850	6800	9100	4700	11100	8500	10150	6450	11800
	1..16..-3A.2	3180	4960	1050	7100	4780	7920	2700	9900	6080	9300	4000	11300	8150	10400	6100	11900
	1..16..-3A.4	2890	5080	770	7200	4820	7580	2750	9600	5400	9750	3350	11700	7250	10650	5200	12000
	1..16..-3A.5	2240	5480	100	7600	3720	7620	1650	9650	4800	10150	2750	11800	6500	10900	4450	12300
	1..16..-3A.6	–	–	–	–	–	–	–	–	4550	10000	2500	11800	5900	11000	3900	12500

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Overview

Frame size	Type	2-pole – 3000 rpm				4-pole – 1500 rpm				6-pole – 1000 rpm				8-pole – 750 rpm			
		Shaft extension pointing down		**up**		**down**		**up**		**down**		**up**		**down**		**up**	
		Load down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up
		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
1LE56 – Performance Line																	
315	**1LE56..-3A.6**	10500	1800	10500	1800	17500	2500	17500	2500	–	–	–	–	–	–	–	–
	1LE56..-3A.7	10000	2300	10000	2300	17000	3000	17000	3000	20000	3000	20000	3000	22500	3400	22500	3400
	1LE56..-3A.8	–	–	–	–	–	–	–	–	19000	4000	19000	4000	21500	4400	21500	4400
355	**1LE56..-3B.3**	9700	2900	9700	2900	20000	3600	20000	3600	–	–	–	–	–	–	–	–
	1LE56..-3B.4	9300	3500	9300	3500	19500	3800	19500	3800	–	–	–	–	–	–	–	–
	1LE56..-3B.5	9000	3700	9000	3700	18500	4600	18500	4600	–	–	–	–	–	–	–	–
	1LE56..-3BC2	–	–	–	–	–	–	–	–	21500	5000	21500	5000	–	–	–	–
	1LE56..-3BC3	–	–	–	–	–	–	–	–	21000	5500	21000	5500	–	–	–	–
	1LE56..-3BC4	–	–	–	–	–	–	–	–	21000	5500	21000	5500	–	–	–	–
	1LE56..-3BD1	–	–	–	–	–	–	–	–	–	–	–	–	23000	5500	23000	5500
	1LE56..-3BD2	–	–	–	–	–	–	–	–	–	–	–	–	22000	5800	22000	5800

1MB15 and 1MB55 motors for Ex db, Ex db eb with a vertical type of construction – basic version

Frame size	2-pole – 3000 rpm				4-pole – 1500 rpm				6-pole – 1000 rpm				8-pole – 750 rpm			
	Shaft extension pointing up		**down**		**up**		**down**		**up**		**down**		**up**		**down**	
	Load down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up
	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
71	510	220	190	550	600	340	280	660	700	440	380	760	780	510	450	840
80	830	350	290	890	1000	540	460	1080	1130	690	590	1230	1220	780	680	1320
90	860	380	270	980	1050	590	450	1180	1210	760	610	1350	1310	860	720	1450
100	1660	1000	770	1890	2010	1380	1120	2270	2400	1740	1510	2630	2700	2020	1810	2910
112	1680	980	790	1860	2070	1430	1180	2320	2380	1760	1490	2640	2620	2030	1730	2920
132	2410	1480	1140	2750	2930	2100	4660	3370	3370	2580	2100	3850	3740	2970	2470	4240
160	2810	2310	1710	3420	3560	3170	2460	4270	3930	3820	2820	4920	4590	4320	3480	5430
180	2980	2620	1860	3740	3700	3580	2580	4700	4370	4310	3250	5430	4850	5010	3730	6130
200	3850	3380	2140	5080	4940	4540	3240	6250	5650	5460	3940	7160	6260	6300	4560	8010
225	4240	3950	2290	5900	5230	5430	3280	7380	5970	6460	4020	8400	7150	7280	5200	9230
250	5140	4820	2760	7200	6350	6610	3970	8990	7400	7840	5020	10220	8710	8830	6330	11210
280	4510	5210	2130	7590	6510	7980	3710	10780	8190	9210	5390	12010	8160	9180	5360	11980
315 S/M	4700	7260	2100	9860	7650	10350	4470	13530	8290	11850	5110	15030	9500	13060	6320	16240
315 L	4770	8450	2170	11050	6090	10930	2910	14110	6880	13040	3700	16220	7740	14120	4560	17300
355	5160	12600	2360	15400	6210	15170	2730	18650	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.

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Overview

1LE15 and 1MB15 motors in vertical type of construction – bearings reinforced at both ends – order code **L25**

Frame size	Type	2-pole – 3000 rpm				4-pole – 1500 rpm				6-pole – 1000 rpm				8-pole – 750 rpm			
		Shaft extension pointing down		**up**		**down**		**up**		**down**		**up**		**down**		**up**	
		Load down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N
1LE15, 1MB15 – Basic Line																	
71/80/90		Available soon															
100	**1..15.1-1A.4**	220	930	820	330	200	1330	1180	350	180	1640	1450	370	200	1900	1740	360
	1..15.1-1A.5	–	–	–	–	190	1320	1150	360	–	–	–	–	180	1900	1710	370
	1..15.1-1A.6	210	930	800	340	170	1320	1110	380	160	1640	1410	390	–	–	–	–
	1..15.3-1A.4	210	930	800	340	170	1320	1110	380	–	–	–	–	–	–	–	–
	1..15.3-1A.5	–	–	–	–	170	1320	1110	380	–	–	–	–	–	–	–	–
112	**1..15.1-1B.2**	200	940	790	350	180	1340	1150	370	170	1650	1440	380	170	1910	1700	380
	1..15.1-1B.6	180	940	750	370	170	1340	1120	390	160	1640	1410	390	–	–	–	–
	1..15.3-1B.2	180	940	750	370	170	1340	1120	390	160	1640	1410	390	–	–	–	–
132	**1..15.1-1C.0**	540	1120	890	770	520	1700	1430	790	520	2150	1880	790	510	2530	2240	800
	1..15.1-1C.1	520	1130	860	790	–	–	–	–	–	–	–	–	–	–	–	–
	1..15.1-1C.2	–	–	–	–	490	1710	1380	820	500	2150	1840	810	480	2540	2180	840
	1..15.1-1C.3	–	–	–	–	–	–	–	–	470	2150	1780	840	–	–	–	–
	1..15.1-1C.6	480	1130	780	830	440	1710	1280	870	420	2160	1690	890	–	–	–	–
	1..15.3-1C.0	520	1130	860	790	440	1710	1280	870	470	2150	1780	840	–	–	–	–
	1..15.3-1C.1	480	1130	780	830	–	–	–	–	–	–	–	–	–	–	–	–
	1..15.3-1C.2	–	–	–	–	440	1710	1280	870	470	2150	1780	840	–	–	–	–
	1..15.3-1C.3	–	–	–	–	–	–	–	–	420	2160	1690	890	–	–	–	–
160	**1..15.1-1D.2**	2200	1870	1480	2590	2860	2610	2140	3330	3320	3170	2600	3890	3830	3620	3110	4340
	1..15.1-1D.3	2150	1880	1430	2600	–	–	–	–	–	–	–	–	3730	3620	3010	4340
	1..15.1-1D.4	2120	1890	1400	2610	2760	2610	2040	3330	3200	3180	2480	3900	3650	3640	2930	4360
	1..15.1-1D.6	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	–	–	–	–
	1..15.1-1D.7	–	–	–	–	2570	2670	1850	3390	–	–	–	–	–	–	–	–
	1..15.3-1D.2	2150	1880	1430	2600	2760	2610	2040	3330	3200	3180	2480	3900	–	–	–	–
	1..15.3-1D.3	2120	1890	1400	2610	–	–	–	–	–	–	–	–	–	–	–	–
	1..15.3-1D.4	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	–	–	–	–
180	**1..15..-1E.2**	2510	2050	1360	3200	3240	2920	2090	4070	–	–	–	–	–	–	–	–
	1..15..-1E.4	–	–	–	–	3180	2930	2020	4090	3740	3560	2580	4710	4300	4090	3150	5240
	1..15..-1E.6	2490	2060	1330	3220	3160	2950	2010	4100	3740	3570	2580	4730	4090	4140	2940	5290
200	**1..15..-2A.4**	2920	3030	2110	3840	–	–	–	–	4570	5010	3760	5820	–	–	–	–
	1..15..-2A.5	2810	3060	2000	3870	3820	4210	3010	5020	4470	5060	3660	5870	5200	5750	4390	6560
	1..15..-2A.6	2810	3060	2000	3870	3820	4230	3010	5040	4400	5090	3590	5900	5010	5800	4200	6610
225	**1..15..-2B.0**	–	–	–	–	4200	4750	3150	5800	–	–	–	–	5900	6400	4850	7650
	1..15..-2B.2	3100	3400	2050	4450	4100	4850	3000	5850	4700	5800	3650	6850	5800	6450	4700	7500
	1..15..-2B.6	3100	3400	2050	4450	4100	4850	3000	5850	4650	5850	3600	6900	5500	6600	4400	7650
250	**1..15..-2C.2**	3850	4100	2250	5600	4850	5650	3250	7250	5750	6750	4200	8350	6900	7700	5300	9200
	1..15..-2C.6	3850	4100	2250	5600	4800	5750	3200	7400	5750	6750	4200	8450	6700	7800	5000	9300

For frame sizes > 250 standard version.

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Overview

1LE15, 1MB15, 1LE16, 1MB16, 1LE55, 1MB55, 1LE56, and 1MB56 motors in horizontal type of construction – basic version

Frame size	Type	2-pole – 3000 rpm		4-pole – 1500 rpm		6-pole – 1000 rpm		8-pole – 750 rpm		Type	2-pole – 3000 rpm		4-pole – 1500 rpm		6-pole – 1000 rpm		8-pole – 750 rpm	
		Load Tension	Thrust	Tension	Thrust	Tension	Thrust	Tension	Thrust		Load Tension	Thrust	Tension	Thrust	Tension	Thrust	Tension	Thrust
		N	N	N	N	N	N	N	N		N	N	N	N	N	N	N	N
1LE15, 1MB15 – Basic Line										**1LE16, 1MB16 – Performance Line**								
71	**1..1501-0C.2**	230	90	230	200	230	280	–	–	**–**	–	–	–	–	–	–	–	–
	1..1501-0C.3	230	80	230	190	230	280	–	–	**–**	–	–	–	–	–	–	–	–
	1..1503-0C.2	230	80	230	190	230	280	–	–	**–**	–	–	–	–	–	–	–	–
	1..1503-0C.3	230	80	230	180	230	260	–	–	**–**	–	–	–	–	–	–	–	–
80	**1..1501-0D.2**	260	260	260	430	260	570	–	–	**–**	–	–	–	–	–	–	–	–
	1..1501-0D.3	260	250	260	420	260	550	–	–	**–**	–	–	–	–	–	–	–	–
	1..1503-0D.2	260	250	260	420	260	550	–	–	**–**	–	–	–	–	–	–	–	–
	1..1503-0D.3	260	240	260	400	260	540	–	–	**–**	–	–	–	–	–	–	–	–
90	**1..1501-0E.0**	250	270	250	440	250	580	–	–	**–**	–	–	–	–	–	–	–	–
	1..1501-0E.4	250	260	250	430	250	570	–	–	**–**	–	–	–	–	–	–	–	–
	1..1503-0E.0	250	260	250	430	250	570	–	–	**–**	–	–	–	–	–	–	–	–
	1..1503-0E.4	250	250	250	410	250	560	–	–	**–**	–	–	–	–	–	–	–	–
100	**1..15.1-1A.4**	1120	400	1370	650	1560	840	1740	1020	**1..16.1-1A.4**	1440	880	1820	1260	2110	1550	2380	1820
	1..15.1-1A.5	–	–	1350	630	–	–	1730	1010	**1..16.1-1A.5**	–	–	1800	1240	–	–	2370	1810
	1..15.1-1A.6	1000	380	1330	610	1530	810	–	–	**1..16.1-1A.6**	1430	870	1780	1220	2090	1530	–	–
	1..15.3-1A.4	1000	380	1330	610	–	–	–	–	**1..16.3-1A.4**	1430	870	1780	1220	–	–	–	–
	1..15.3-1A.5	–	–	1330	610	–	–	–	–	**1..16.3-1A.5**	–	–	1780	1220	–	–	–	–
112	**1..15.1-1B.2**	1110	390	1360	640	1560	840	1730	1010	**1..16.1-1B.2**	1430	870	1810	1250	2110	1550	2370	1810
	1..15.1-1B.6	1090	370	1340	620	1540	820	–	–	**1..16.1-1B.6**	1410	850	1790	1230	2090	1530	–	–
	1..15.3-1B.2	1090	370	1340	620	1540	820	–	–	**1..16.3-1B.2**	1410	850	1790	1230	2090	1530	–	–
132	**1..15.1-1C.0**	1750	490	2130	870	2440	1180	2690	1430	**1..16.1-1C.0**	2330	1010	2890	1570	3340	2020	3710	2390
	1..15.1-1C.1	1740	480	–	–	–	–	–	–	**1..16.1-1C.1**	2320	1000	–	–	–	–	–	–
	1..15.1-1C.2	–	–	2100	840	2420	1160	2660	1400	**1..16.1-1C.2**	–	–	2870	1550	3320	2000	3680	2360
	1..15.1-1C.3	–	–	–	–	2390	1130	–	–	**1..16.1-1C.3**	–	–	–	–	3290	1970	–	–
	1..15.1-1C.6	1700	440	2060	800	2350	1090	–	–	**1..16.1-1C.6**	2280	960	2820	1500	3250	1930	–	–
	1..15.3-1C.0	1740	480	2060	800	2390	1130	–	–	**1..16.3-1C.0**	2320	1000	2820	1500	3290	1970	–	–
	1..15.3-1C.1	1700	440	–	–	–	–	–	–	**1..16.3-1C.1**	2280	960	–	–	–	–	–	–
	1..15.3-1C.2	–	–	2060	800	2390	1130	–	–	**1..16.3-1C.2**	–	–	2820	1500	3290	1970	–	–
	1..15.3-1C.3	–	–	–	–	2350	1090	–	–	**1..16.3-1C.3**	–	–	–	–	3250	1930	–	–
160	**1..15.1-1D.2**	1760	700	2170	1110	2480	1420	2800	1740	**1..16.1-1D.2**	2400	1680	3100	2380	3610	2890	4090	3370
	1..15.1-1D.3	1740	680	–	–	–	–	2740	1680	**1..16.1-1D.3**	2380	1660	–	–	–	–	4040	3320
	1..15.1-1D.4	1720	660	2130	1070	2420	1360	2710	1650	**1..16.1-1D.4**	2370	1650	3050	2330	3550	2830	4010	3290
	1..15.1-1D.6	1670	610	2100	1040	2360	1300	–	–	**1..16.1-1D.6**	2320	1600	3020	2300	3480	2760	–	–
	1..15.1-1D.7	–	–	2050	990	–	–	–	–	**1..16.1-1D.7**	–	–	2980	2260	–	–	–	–
	1..15.3-1D.2	1740	680	2130	1070	2420	1360	–	–	**1..16.3-1D.2**	2380	1660	3050	2330	3550	2830	–	–
	1..15.3-1D.3	1720	660	–	–	–	–	–	–	**1..16.3-1D.3**	2370	1650	–	–	–	–	–	–
	1..15.3-1D.4	1670	610	2100	1040	2360	1300	–	–	**1..16.3-1D.4**	2320	1600	3020	2300	3480	2760	–	–
180	**1..15..-1E.2**	1640	880	2100	1340	–	–			**1..16..-1E.2**	2860	1710	3660	2510	–	–	–	–
	1..15..-1E.4	–	–	2070	1310	2420	1660	2740	1980	**1..16..-1E.4**	–	–	3630	2480	4230	3080	4770	3620
	1..15..-1E.6	1630	870	2070	1310	2420	1660	2660	1900	**1..16..-1E.6**	2850	1700	3630	2480	4230	3080	4690	3540
200	**1..15..-2A.4**	2380	1230	–	–	3510	2360	–	–	**1..16..-2A.4**	3390	2580	–	–	5210	4400	–	–
	1..15..-2A.5	2340	1190	3020	1870	3470	2320	3920	2770	**1..16..-2A.5**	3340	2530	4430	3620	5170	4360	5880	5070
	1..15..-2A.6	2340	1190	3020	1870	3450	2300	3860	2710	**1..16..-2A.6**	3340	2530	4430	3620	5150	4340	5810	5000
225	**1..15..-2B.0**	–	–	3020	1980	–	–	3950	2950	**1..16..-2B.0**	–	–	4950	3900	–	–	6600	5550
	1..15..-2B.2	2350	1300	3020	1980	3400	2400	3900	2900	**1..16..-2B.2**	3800	2750	4950	3900	5750	4700	6550	5500
	1..15..-2B.6	2350	1300	3020	1980	3400	2400	3800	2800	**1..16..-2B.6**	3800	2750	4900	3850	5700	4650	6500	5450
250	**1..15..-2C.2**	2600	1750	3200	2400	3750	3000	4350	3550	**1..16..-2C.2**	4750	3150	6050	4450	7100	5500	8100	6500
	1..15..-2C.6	2550	1700	3200	2400	3750	3000	4300	3500	**1..16..-2C.6**	4750	3150	6050	4450	7100	5500	8 000	6400
280	**1..15..-2D.0**	4500	2900	6700	5100	7900	6350	8800	7200	**1..16..-2D.0**	4500	2900	6700	5100	7900	6350	8800	7200
	1..15..-2D.2	4450	2850	6600	5000	7850	6300	8800	7200	**1..16..-2D.2**	4450	2850	6600	5000	7850	6300	8800	7200
	1..15..-2D.6	4450	2850	6600	5000	7850	6300	8800	7200	**1..16..-2D.6**	4450	2850	6600	5000	7850	6300	8800	7200
315	**1..15..-3A.0**	5000	2900	7550	5500	8900	6850	9800	7800	**1..16..-3A.0**	5000	2900	7550	5500	8900	6850	9800	7800
	1..15..-3A.2	4800	2700	7300	5250	8900	6850	9800	7800	**1..16..-3A.2**	4800	2700	7300	5250	8900	6850	9800	7800
	1..15..-3A.4	4750	2650	7300	5250	8550	6500	9500	7500	**1..16..-3A.4**	4750	2650	7300	5250	8550	6500	9500	7500
	1..15..-3A.5	4700	2600	7050	5000	8250	6200	9300	7300	**1..16..-3A.5**	4700	2600	7050	5000	8250	6200	9300	7300
	1..15..-3A.6	–	–	–	–	8250	6200	9100	7100	**1..16..-3A.6**	–	–	–	–	8250	6200	9100	7100

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Overview

Frame size	Type	2-pole – 3000 rpm Load Tension N	Thrust N	4-pole – 1500 rpm Tension N	Thrust N	6-pole – 1000 rpm Tension N	Thrust N	8-pole – 750 rpm Tension N	Thrust N
1LE55 and 1MB55 – Basic Line									
315	**1LE55..-3A.6**	5400	3000	7750	5400	–	–	–	–
	1LE55..-3A.7	5200	2800	7750	5400	9100	6750	–	–
	1LE55..-3A.8	–	–	–	–	9000	6650	–	–
355	**–**	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–
400	**1LE55..-4A.3**	11600	8200	15900	5500	19200	3200	20400	4100
	1LE55..-4A.5	12000	7800	16300	5200	20000	2600	21200	3300
	1LE55..-4A.7	12400	7400	17100	4700	20900	2300	22100	2400
450	**1LE55..-4B.3**	13300	6500	20100	7400	23300	5200	24600	6200
	1LE55..-4B.5	13700	6200	20800	7 000	24300	4800	25500	5300
	1LE55..-4B.7	14200	5700	21600	6200	25400	4100	26600	4300

Type	2-pole – 3000 rpm Load Tension N	Thrust N	4-pole – 1500 rpm Tension N	Thrust N	6-pole – 1000 rpm Tension N	Thrust N	8-pole – 750 rpm Tension N	Thrust N
1LE56 and 1MB56 – Performance Line								
1LE56..-3A.6	5400	3000	7750	5400	–	–	–	–
1LE56..-3A.7	5200	2800	7750	5400	9100	6750	–	–
1LE56..-3A.8	–	–	–	–	9000	6650	–	–
1LE56..-3B.2	–	–	–	–	9900	6000	–	–
1LE56..-3B.3	5000	3200	8800	5000	9800	5900	–	–
1LE56..-3B.4	5000	3200	8750	4950	9800	5900	–	–
1LE56..-3B.5	5000	3200	8700	4900	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–

1LE15 and 1MB15 motors in horizontal type of construction – bearings reinforced at both ends – order code **L25**

Frame size	Type	2-pole – 3000 rpm Load Tension N	Thrust N	4-pole – 1500 rpm Tension N	Thrust N	6-pole – 1000 rpm Tension N	Thrust N	750 rpm Tension N	Thrust N
1LE15, 1MB15 – Basic Line									
71/80/90		Available soon							
100	**1..15.1-1A.4**	1440	880	1820	1260	2110	1550	2380	1820
	1..15.1-1A.5	–	–	1800	1240	–	–	2370	1810
	1..15.1-1A.6	1430	870	1780	1220	2090	1530	–	–
	1..15.3-1A.4	1430	870	1780	1220	–	–	–	–
	1..15.3-1A.5	–	–	1780	1220	–	–	–	–
112	**1..15.1-1B.2**	1430	870	1810	1250	2110	1550	2370	1810
	1..15.1-1B.6	1410	850	1790	1230	2090	1530	–	–
	1..15.3-1B.2	1410	850	1790	1230	2090	1530	–	–
132	**1..15.1-1C.0**	2330	1010	2890	1570	3340	2020	3710	2390
	1..15.1-1C.1	2320	1000	–	–	–	–	–	–
	1..15.1-1C.2	–	–	2870	1550	3320	2000	3680	2360
	1..15.1-1C.3	–	–	–	–	3290	1970	–	–
	1..15.1-1C.6	2280	960	2820	1500	3250	1930	–	–
	1..15.3-1C.0	2320	1000	2820	1500	3290	1970	–	–
	1..15.3-1C.1	2280	960	–	–	–	–	–	–
	1..15.3-1C.2	–	–	2820	1500	3290	1970	–	–
	1..15.3-1C.3	–	–	–	–	3250	1930	–	–

Frame size	Type	2-pole – 3000 rpm Load Tension N	Thrust N	4-pole – 1500 rpm Tension N	Thrust N	6-pole – 1000 rpm Tension N	Thrust N	8-pole – 750 rpm Tension N	Thrust N
1LE15, 1MB15 – Basic Line									
160	**1..15.1-1D.2**	2400	1680	3100	2380	3610	2890	4090	3370
	1..15.1-1D.3	2380	1660	–	–	–	–	4040	3320
	1..15.1-1D.4	2370	1650	3050	2330	3550	2830	4010	3290
	1..15.1-1D.6	2320	1600	3020	2300	3480	2760	–	–
	1..15.1-1D.7	–	–	2980	2260	–	–	–	–
	1..15.3-1D.2	2380	1660	3050	2330	3550	2830	–	–
	1..15.3-1D.3	2370	1650	–	–	–	–	–	–
	1..15.3-1D.4	2320	1600	3020	2300	3480	2760	–	–
180	**1..15..-1E.2**	2860	1710	3660	2510	–	–	–	–
	1..15..-1E.4	–	–	3630	2480	4230	3080	4770	3620
	1..15..-1E.6	2850	1700	3630	2480	4230	3080	4690	3540
200	**1..15..-2A.4**	3390	2580	–	–	5210	4400	–	–
	1..15..-2A.5	3340	2530	4430	3620	5170	4360	5880	5070
	1..15..-2A.6	3340	2530	4430	3620	5150	4340	5810	5000
225	**1..15..-2B.0**	–	–	4950	3900	–	–	6600	5550
	1..15..-2B.2	3800	2750	4950	3900	5750	4700	6550	5500
	1..15..-2B.6	3800	2750	4900	3850	5700	4650	6500	5450
250	**1..15..-2C.2**	4750	3150	6050	4450	7100	5500	8100	6500
	1..15..-2C.6	4750	3150	6050	4450	7100	5500	8 000	6400

For frame sizes > 250 standard version.

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T-Drain – adjustable drainage of condensed water

Overview

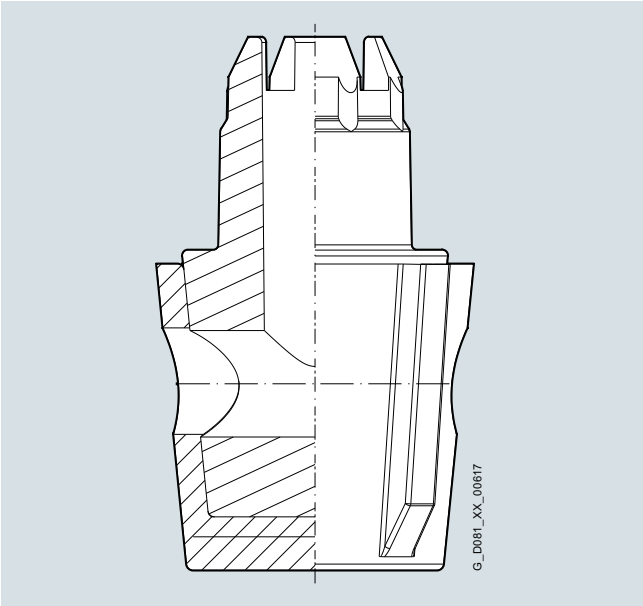
The drainage of condensed water is an important aspect of proper motor maintenance.

Drainage of condensed water is made easy by rotating the outer cap.

If there are condensation drain holes present, these must be opened at regular intervals, depending on climatic conditions and in accordance with the motor operating instructions.

"Modifiable T-Drain" is closed on delivery of the motor and corresponds to IP55/IP56 degree of protection.

When opened, it corresponds to IP45/IP46 degree of protection. The opened T-Drain can be used for continuous drainage of condensed water in environments with low amounts of dust.



Note:
Condensation drain holes are not possible in motors with the types of protection Ex db and Ex db eb.

A screwed-on cover (made of sheet metal or plastic depending on the shaft height) is included as standard for horizontal types of construction and types of construction with shaft pointing upwards (14th position of the Article No. letter **A**, **T**, **U**, **V**, **D**, **F**, **H**, **J**, **K**, **L**, **N**) in combination with condensation drainage holes, order code (**H03**) to facilitate assembly/disassembly.

When the motors are used or stored outdoors, we recommend that they be kept under some sort of additional cover so that they are not subjected to direct intensive solar radiation, rain, snow, ice or dust over a long period of time. In such cases, technical consultation may be appropriate.

When the motors are used outdoors or in a corrosive environment, it is recommended that non-rusting screws are used externally.
Order code **H07**

Vibration-proof version
Continuous vibration resistance to class 3M4 according to IEC 721-3-3:1994 (order code **H02** in combination with order code **G04**, **G05**, **G06**, **G11**, and **G12** or **F70** on request only).
Order code **H02**

For availability of individual options for the relevant motor series, see section "Special versions" in the respective sections of the catalog.

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Overview

1LE10, 1MB10 and 1PC10 motors without feet have four cast lifting eyes as standard, each offset by 90°; in the case of screwed-on feet, two lifting eyes are covered by the feet, so in this case only two lifting eyes are available for use. This data is only valid up to frame size 200.

Housing material

Motor series	Frame size	Housing material	Housing feet
1LE10, 1PC1 [2]	63 … 160	Aluminum alloy	cast [1]
	180 … 200	Aluminum alloy	screwed on [1]
1MB10	100 … 160	Aluminum alloy	cast [1]
1LE15 **1MB15** **1PC1301** [3]	71 … 315	Cast iron	cast [1]
1LE5 **1MB5**	315 … 450	Cast iron	cast
1LE16 **1MB16**	100 … 315	Cast iron	cast [1]

Arrangement of lifting eyes/eyebolts (standard)

Frame size	Terminal box position	Cast-iron motors	Aluminum motors	Arrangement of eyebolts	Thread size
63	–	–	None	–	–
71	–	None	None	–	M8
80	Short housing	None	None	–	M8
	Top (long housing)	Two eyebolts		Left/right center	
	Left/right (long housing)	One eyebolt		Top center	
90	Top	Two eyebolts	None	Left/right center	M8
	Left/right	One eyebolt		Top center	
100		Depending on type of construction [4]	Lifting eyes	Top;	M8
				Left DE side/	
112				Right NDE side [10]	
132					
160					M10
180		Two eyebolts [10]			M12
200					M16
225		Two eyebolts [11]	–	[5] [6] [7]	M16
250					M20
280					
315 S/M [12]					M24
315 L		Four eyebolts		Top; Left/right DE and NDE side [8] [9]	
315 L (1LE5)		Two eyebolts			M30
355 M/L (1LE5)					
400					
450					

[1] Basic version, cast feet: Special version "Screwed-on feet (instead of cast)" with digits **5**, **6**, and **7** in the 16th position of Article No. or digit **4** with order code **H01**. Screwed-on feet as standard for 1LE10 motors in frame sizes 180 and 200 and motors with increased power.

[2] Aluminum motors in frame sizes 80 and 90 and 1PC10 motors in frame sizes 100 to 160 without lifting eyes. Aluminum motors in frame sizes 100 to 200 with cast lifting eyes (does not apply to 1PC10 and 1MB10 motors in frame sizes 180 and 200).

[3] 1LE16 motors frame size 100 and above, 1PC1301 motors frame size 180 and above.

[4] Two eyebolts for
-IM B5, IM B14, IM V1 or
-IM B34, IM B35 with **H01** or left/right, side terminal box position.
Lifting eyes for
-IM B3 or
-IM B34, IM B35 without **H01** or non-side left/right terminal box position.

[5] For IM B3; IM B5: top; DE side left / NDE side right.
With rotation of the terminal box through 180° (R12): top; NDE side left / DE side right.

[6] For IM V1: top; NDE side right; down; NDE side left.

[7] For IM V3: top; DE side left; down; DE side right.

[8] For IM V1: NDE side, left/right; top/bottom.

[9] For IM V3: DE side, left/right; top/bottom.

[10] With rotation of the terminal box through 180° (R12): top; NDE side left / DE side right.

[11] Motors with brakes have four top eyebolts.
For IM V1: NDE side, left/right; top/bottom.
For IM V3: DE side, left/right; top/bottom.

[12] The assignment 315 L is used for 1000 kg and over.

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Overview

Brakes as well as rotary encoders of the "modular and special technology" can be retrofitted. The motor must be prepared for this. This is possible for all 1LE. motors (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover").

Preparation of the shaft extension at NDE can be ordered with the option "Prepared for mountings, only center hole", order code **G40** for the following frame sizes and mountings:

- Frame sizes 80 to 450: brakes with order code **F01**
- Frame sizes 71 and 90: only rotary encoders with order codes **G11** or **G12** from the "modular technology" range
- Frame sizes 100 to 450: all rotary encoders from the "modular and special technology" ranges

Dimensions of center holes

Frame size	∅	L (drilling depth)
100	16^{H7}	34
112	16^{H7}	34
132	22^{H8}	39
160	28^{H8}	42

The length of the motor does not change because the shaft extension is still under the fan cover.

For motors ordered with order code **G40**, the following conversion combinations are possible:

- Frame sizes 71 and 90:
  either brakes with order code **F01** or rotary encoders from the "modular technology" range. The combination of brake (**F01**) and rotary encoder is not possible.
- Frame sizes 100 to 450:
  Brakes with order code **F01** or rotary encoders from the "modular and special technology" range. The combination of brake (**F01**) and rotary encoder is possible.

Conversion is performed exclusively by the authorized contractual partners of Siemens.

For motors of series 1LE15, 1LE16, and 1LE5 frame sizes 100 to 450, grounding brushes are available for converter operation. Order code **L52**. Please contact your local Siemens office for advice.

For mountings, such as rotary encoders, supplied by the customer, the following applies:

For the Sendix 5020 rotary encoders, order code **G11** and **G12**

from the "modular technology" this preparation of the shaft extension on NDE can be ordered with the option "Prepared for mounting with shaft D12".
Order code **G41**
The length of the motor increases by ΔI due to option **G41**. For an explanation of the additional dimensions and weights, see "Modular technology" "Dimensions and weights".

For the rotary encoders:

- LL 861 900 220, order code **G04**
- HOG 9 DN 1024 I, order code **G05**
- HOG 10 D 1024 I, order code **G06**

from the "special technology" this preparation of the shaft extension on NDE can be ordered with the option "Prepared for mounting with shaft D16" for motors of frame sizes 100 to 160 only.
Order code **G42**
The length of the motor increases by ΔI due to option **G42**.
For an explanation of the additional dimensions and weights, see "Modular technology" "Dimensions and weights" from page 1/104.

Motors that are prepared for mountings supplied by the customer (order codes **G41**, **G42**) are supplied without a protective cover as standard. These mountings can be installed by the customer.

If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code **G43**.
This protective cover is designed and mounted differently as described below according to frame size:

Frame sizes 71 to 90 and 180 to 200:
Motors ordered with order code **G43** are fitted as standard with a screwed-on cover (made of sheet metal or plastic depending on shaft height). The protective cover is mounted in the factory. To install the mountings supplied by the customer, the protective cover must be removed beforehand by unscrewing the external fixing screws and reattached afterwards. Protective covers for motors of these frame sizes are not suitable for mountings that correspond to the shape and size of the rotary encoders of the "special technology" (**G04**, **G05**, **G06**, see above).

Frame sizes 100 to 450:
The protective cover must be installed by the customer in accordance with the assembly instructions supplied. It has supports of varying length that can be used for installation according to the height of the planned mountings.

The standard protective cover (order code **H00**) is not suitable for protection of additional mountings, such as rotary encoders.

Order codes **G40**, **G41**, **G42** are not possible in conjunction with order code **L00** – vibration severity grade B.

Order code **G43** is only appropriate in combination with order codes **G41** and **G42**, and not in combination with **G40**.

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Overview

The 1LE and 1FP motors (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover" and 1PC1) can be used in a much wider range of applications (e.g. as motors with brakes) if the following modules are mounted:

- Separately driven fan
- Brake
- Rotary pulse encoder

The brake must always be mounted in the factory for safety reasons. The rotary pulse encoder and/or the separately driven fan can also be retrofitted.

The degree of protection of the motors with modular technology is IP55. Higher degrees of protection on request.

Attaching rotary pulse encoder, brake, and separately driven fan increases the length of the motor by dimension ΔI. For explanations of the additional dimension and weights, see "Mounting technology" and "Dimensions and weights" from page 1/104.

Separately driven fan

The use of a separately driven fan is recommended to increase motor utilization at low speeds and to limit noise generation at speeds significantly higher than the synchronous speed. Both of these results can only be achieved with converter operation. Please inquire about traction and vibratory operation.

The separately driven fan can be supplied already fitted, order code **F70**. There is no automatic adjustment of the voltage for the separately driven fan when ordering a "special voltage" for the motor. This must be specified in addition using the **Y81** option. It can also be ordered separately and retrofitted. For selection information and article numbers, see the section "Accessories" (available soon). A rating plate listing all the important data is fitted to the separately driven fan. Please note the direction of rotation of the separately driven fan (axial-flow fan) when connecting it. Admissible coolant temperatures CT_{min} –25 °C, CT_{max} +65 °C [1], for frame sizes 400 and 450 coolant temperatures CT_{min} –20 °C, CT_{max} +40 °C, lower/higher coolant temperatures are available on request.

When the separately driven fan is mounted, the length of the motor increases by ΔI. For explanations of the additional dimension and weights, see "Mounting technology" and "Dimensions and weights" from page 1/104.

Technical specifications of separately driven fans (according to tolerances of EN 60034-1)

Frame size	Rated voltage range V		Frequency Hz	P_{max} kW	I_{max} A
63	1 AC	230 to 277	50	0.046	0.18
	3 AC	200 to 303 Δ	50	0.028	0.15
	3 AC	346 to 525 Y	50	0.028	0.09
	1 AC	230 to 277	60	0.054	0.21
	3 AC	220 to 332 Δ	60	0.029	0.14
	3 AC	380 to 575 Y	60	0.029	0.08
71	1 AC	230 to 277	50	0.048	0.18
	3 AC	200 to 303 Δ	50	0.029	0.15
	3 AC	346 to 525 Y	50	0.029	0.09
	1 AC	230 to 277	60	0.056	0.21
	3 AC	220 to 332 Δ	60	0.028	0.13
	3 AC	380 to 575 Y	60	0.028	0.07
80	1 AC	230 to 277	50	0.048	0.19
	3 AC	200 to 303 Δ	50	0.033	0.16
	3 AC	346 to 525 Y	50	0.033	0.09
	1 AC	230 to 277	60	0.059	0.22
	3 AC	220 to 332 Δ	60	0.036	0.13
	3 AC	380 to 575 Y	60	0.036	0.07
90	1 AC	220 to 277	50	0.059	0.29
	3 AC	200 to 303 Δ	50	0.078	0.39
	3 AC	346 to 525 Y	50	0.078	0.22
	1 AC	220 to 277	60	0.061	0.23
	3 AC	220 to 332 Δ	60	0.071	0.32
	3 AC	380 to 575 Y	60	0.071	0.18
100	1 AC	220 to 277	50	0.062	0.29
	3 AC	200 to 303 Δ	50	0.08	0.37
	3 AC	346 to 525 Y	50	0.08	0.21
	1 AC	220 to 277	60	0.073	0.28
	3 AC	220 to 332 Δ	60	0.08	0.3
	3 AC	380 to 575 Y	60	0.08	0.18
112	1 AC	220 to 277	50	0.064	0.27
	3 AC	200 to 303 Δ	50	0.087	0.35
	3 AC	346 to 525 Y	50	0.087	0.2
	1 AC	220 to 277	60	0.088	0.36
	3 AC	220 to 332 Δ	60	0.093	0.29
	3 AC	380 to 575 Y	60	0.093	0.17
132	1 AC	230 to 277	50	0.125	0.52
	3 AC	200 to 303 Δ	50	0.16	0.64
	3 AC	346 to 525 Y	50	0.16	0.37
	1 AC	230 to 277	60	0.163	0.61
	3 AC	220 to 332 Δ	60	0.18	0.55
	3 AC	380 to 575 Y	60	0.18	0.32

Technical specifications of separately driven fans (according to tolerances of EN 60034-1)

Frame size	Rated voltage range V		Frequency Hz	P_{max} kW	I_{max} A
160 to 200	1 AC	230 to 277	50	0.246	1.05
	3 AC	200 to 303 Δ	50	0.314	1.28
	3 AC	346 to 525 Y	50	0.314	0.74
	1 AC	230 to 277	60	0.39	1.52
	3 AC	220 to 332 Δ	60	0.391	1.08
	3 AC	380 to 575 Y	60	0.391	0.62
225 M to 280 M	3 AC	230 Δ	50	0.450	2.20
	3 AC	400 Y	50	0.450	1.27
	3 AC	460 Y	60	0.520	1.13
315 2-pole	3 AC	230 Δ	50	0.650	2.80
	3 AC	400 Y	50	0.650	1.61
	3 AC	460 Y	60	0.750	1.55
315 4-, 6-, 8-pole	3 AC	230 Δ	50	0.450	2.20
	3 AC	400 Y	50	0.450	1.27
	3 AC	460 Y	60	0.520	1.13
355 2- and 4-pole	3 AC	200 to 240 Δ	50	0.650	2.85
	3 AC	380 to 420 Y	50	0.650	1.64
	3 AC	440 to 480 Y	60	0.750	1.60
400 4-, 6-, 8-pole	3 AC	230 Δ	50	2.20	7.70
	3 AC	400 Y	50	2.20	4.45
	3 AC	460 Y	60	2.54	4.35
450 2- and 4-pole	3 AC	230 Δ	50	4.00	14.00
	3 AC	400 Y	50	4.00	8.00
	3 AC	460 Y	60	4.55	7.90

For article numbers and type details, see operating instructions.

Sound-pressure level of the motors under a load, 50 Hz

Frame size	2-pole L_{WA} dB (A)	4-pole L_{WA} dB (A)	6-pole L_{WA} dB (A)	8-pole L_{WA} dB (A)
63	70	70	70	70
71	72	72	72	72
80	79	79	79	79
90	79	79	79	79
100	84	84	84	84
112	84	84	84	84
132	84	84	84	84
160	87	87	87	87
180	87	87	87	87
200	87	87	87	87
225	90	87	87	87
250	90	87	87	87
280	90	87	87	87
315	92	92	95	95

[1] For single-phase variants (1 AC) of frame size 160, the admissible coolant temperature CT_{max} is +50 °C.

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Overview

Brakes

The brakes with order code **F01** (**F02** brake for increased frequency of operation for SIMOTICS GP motors on request) are designed to be spring-operated brakes. When the brake is ordered, the supply voltage must be specified. For an explanation of the supply voltage, see the descriptions of each brake model in "Modular technology".

For the design of the braking time, run-on revolutions, braking energy per braking procedure as well as the lifetime of the brake linings, see "Configuration of motors with brakes" on page 1/89.

When a brake is mounted, the length of the motor increases by ΔI. For explanations of the additional dimension and weights, see "Mounting technology" and "Dimensions and weights" from page 1/104.

*The brake can be retrofitted by authorized partners. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only" order code **G40** must be specified (see "Mechanical version and degrees of protection" on page 1/76).*

Ambient temperature

- –40 °C to +45 °C (with nominal excitation) for SFB-SH brake
- –40 °C to +75 °C (with double excitation) for SFB-SH brake
- –20 °C to +40 °C holding/operating brake (standard BFK458)
- up to +60 °C only as holding brake
- –20 °C to +60 °C holding/operating brake only for KFB and FDX brake

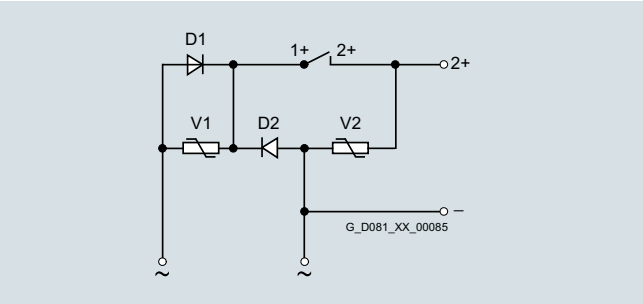
Definition of duty type

- Operating brake:
  The motor shaft can be braked from full operating speed down to zero speed of the motor. All the kinetic energy produced by the drive train is converted to heat by friction during braking. Braking energy is produced at $n > 0$ rpm. The maximum permissible switching frequency must be taken into account. When this brake is used, installation of a separately driven fan is recommended in order to ensure adequate cooling when the motor is at a standstill. The operating brake is also capable of functioning as a holding brake.
- Holding brake:
  The purpose of braking or "holding" the motor shaft is merely to suppress unintended rotation caused by externally applied torque forces, e.g. when a load is suspended from a crane rope drum. The holding brake is primarily deployed when the motor is at a standstill ($n = 0$ rpm) by holding the motor shaft or is close to $n = 0$ rpm and coasting down to a standstill. As a result, no additional braking energy or braking heat is transferred to the motor.

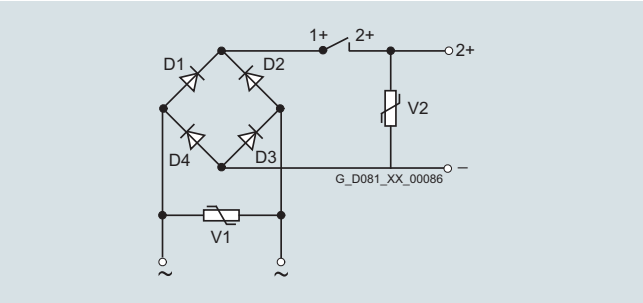
Note:
A holding brake must not be used as an operating brake as it could then cause danger to life and damage to property.

Bridge rectifier / half-wave rectifier

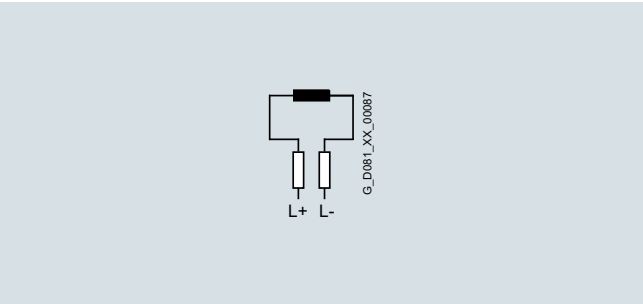
Brakes are connected through a standard bridge or half-wave rectifier or directly to the BFK458-/SFB-SH brake. See the circuit diagrams below.



Half-wave rectifier 400 V AC



Rectifier bridge 230 V AC



Brake connection for 24 V DC

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Overview

BFK458 spring-operated disk brake

Motor series

This brake is the standard brake for 1LE1/1FP1 motors in frame sizes 63 to 225 (except for 1LE1 with order code **F90** version "Forced-air cooled motors without external fan and fan cover").

Other characteristics of the BFK458 brake

The BFK458 brake has IP55 degree of protection.

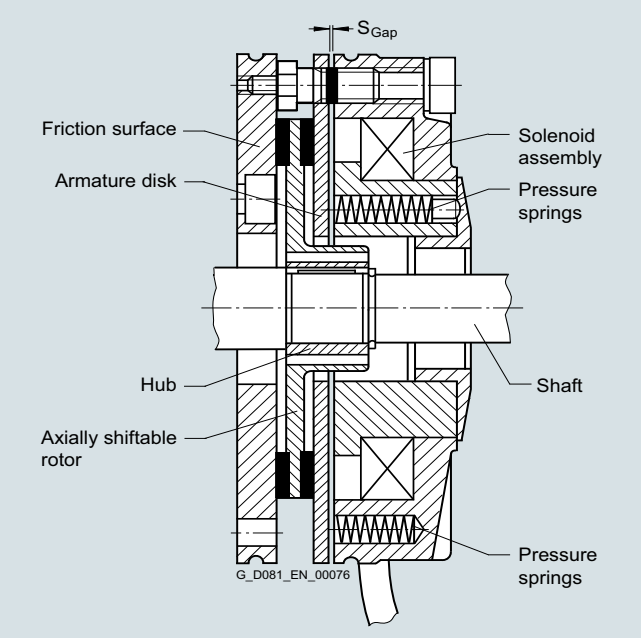
Please inquire if motors with brakes are to be operated below the freezing point or in conjunction with very humid environments (e.g. close to the sea) with long standstill times. Please also inquire if motors with brakes are to be used for low-speed converter operation.

Design and mode of operation

The brake takes the form of a single-disk brake with two friction surfaces.

The braking torque is generated by friction when pressure is applied by one or more pressure springs in the de-energized state. The brake is released electromagnetically.

When the motor brakes, the rotor which can be axially shifted on the hub or the shaft is pressed via the armature disk against the friction surface by means of the springs. In the braked state, there is a gap S_{Gap} between the armature disk and the solenoid component. To release the brake, the solenoid is energized with DC voltage. The resulting magnetic force pulls the armature disk against the spring force on to the solenoid component. The spring force is then no longer applied to the rotor, which can rotate freely.



Design of the BFK458 spring-operated disk brake

Rating plate

The following brake data is specified on the motor rating plate:

- Brake type
- Supply voltage
- Frequency
- Current
- Temperature class
- Braking torque

Voltage and frequency

The solenoids and the brake rectifier are designed for connection to the following voltages or can be supplied for the following voltages:

- Brake supply voltage 24 V DC
  Order code **F10**
- Brake supply voltage 230 V AC
  Order code **F11**
- Brake supply voltage 400 V AC
  (directly at the terminal strip)
  Order code **F12**
- Brake supply voltage 180 V DC
  Order code **F17**
- Brake supply voltage 205 V DC
  Order code **F18**

When 60 Hz is used, the voltage for the brake must not be increased!

Order codes **F10**, **F11**, **F12**, **F17,** and **F18** must only be used in conjunction with order code **F01**

Lifetime of the brake lining

The braking energy L_N until readjustment of the brake depends on various factors. The main influencing factors include the masses to be braked, the operating speed, the switching frequency, and therefore the temperature at the frictional surfaces. This means it is not possible to specify a value for the friction energy until readjustment that is valid for all operating conditions.

When used as an operating brake, the specific frictional surface wear (wear volume for the frictional work) is approximately 0.05 to 2 cm^3/kWh.

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Overview

Operating values for spring-operated brakes with standard excitation

For motor frame size	Brake type	Rated braking torque at 100 rpm	Rated braking torque at 100 rpm in % at the following speeds			Supply voltage	Current/ power input [1]		Brake application time t_2 [2]	Brake release time	Brake moment of inertia	Noise level L_p with rated air gap	**Service capability of the brake**	
			1500 rpm	3000 rpm	Max. speed								Lifetime L of the brake lining	Air gap S_{Gap} adjustment required after braking energy L_N
		Nm	%	%	%	V	A	W	ms	ms	kgm^2	dB (A)	Nm · 10^6	Nm · 10^6
63	**BFK458-06**	5	87	80	65	AC 230	0.1	20	25	56	0.000013	77	105	16
						AC 400	0.11							
						DC 24	0.83							
71	**BFK458-06**	5	87	80	65	AC 230	0.1	20	25	56	0.000013	77	105	16
						AC 400	0.11							
						DC 24	0.83							
80	**BFK458-08**	10	85	78	65	AC 230	0.12	25	26	70	0.000045	75	270	29
						AC 400	0.14							
						DC 24	1.04							
90	**BFK458-10**	20	83	76	66	AC 230	0.15	32	37	90	0.00016	75	740	79
						AC 400	0.17							
						DC 24	1.25							
100	**BFK458-12**	40	81	74	66	AC 230	0.2	40	43	140	0.00036	80	1350	115
						AC 400	0.22							
						DC 24	1.67							
112	**BFK458-14**	60	80	73	65	AC 230	0.25	53	60	210	0.00063	77	1600	215
						AC 400	0.28							
						DC 24	2.1							
132	**BFK458-16**	100	79	72	65	AC 230	0.27	55	50	270	0.0015	77	2450	325
						AC 400	0.31							
						DC 24	2.3							
160	**BFK458-20**	260	75	68	65	AC 230	0.5	100	165	340	0.0073	79	7300	935
						AC 400	0.47							
						DC 24	4.2							
180	**BFK458-20**	315	75	68	65	AC 230	0.5	100	152	410	0.0073	79	5500	470
						AC 400	0.56							
						DC 24	4.2							
200, 225	**BFK458-25**	400	73	68	65	AC 230	0.55	110	230	390	0.0200	93	9450	1260
						AC 400	0.61							
						DC 24	4.6							

[1] For 400 V AC and for 24 V DC, the power can deviate by up to +10 % as a function of the selected supply voltage.

[2] The specified switching times are valid for switching on the DC side with a rated release travel and with the coil already warm. They are average values, which may vary depending on factors such as the rectifier type and the release travel. The brake application time for switching on the AC side, for example, is approximately 6 times longer than for switching on the DC side.

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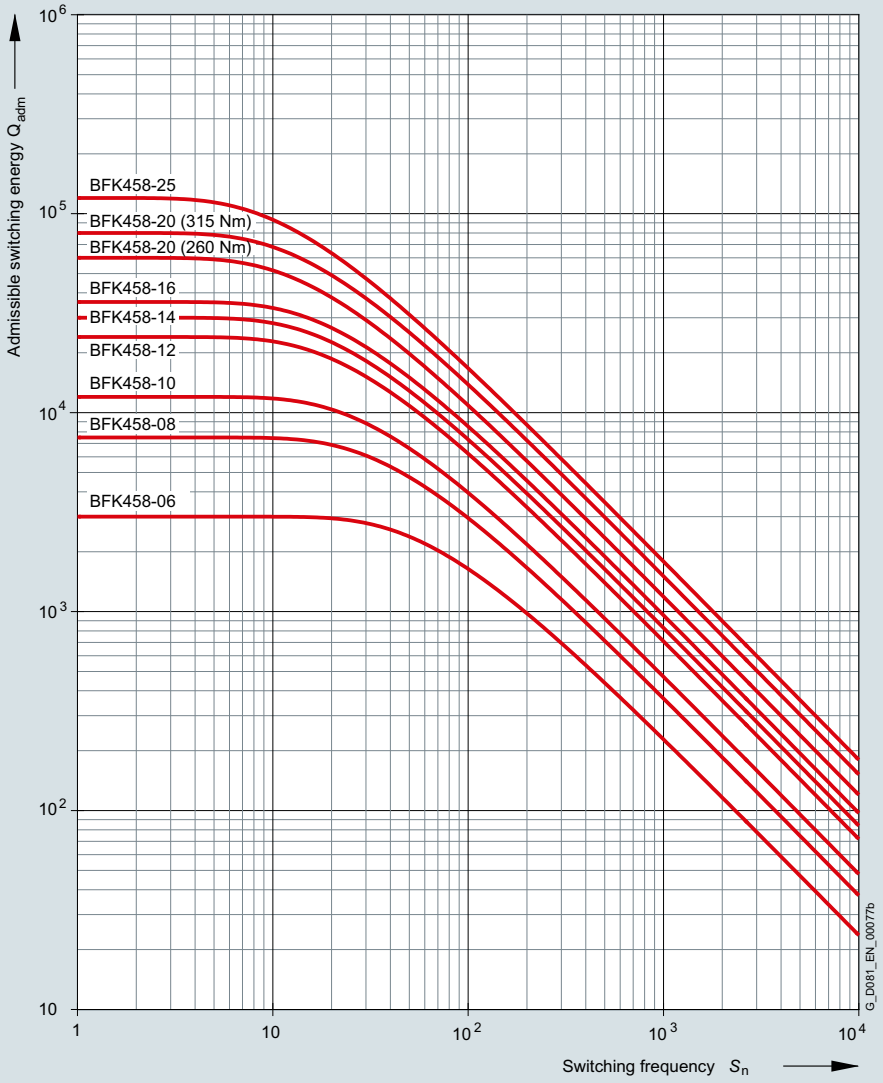
Overview

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



For motor frame size	Brake type	Maximum admissible speeds: Max. adm. operating rpm if max. operating energy utilized	Max. adm. no-load rpm with emergency stop function: for horizontal mounting position	Max. adm. no-load rpm with emergency stop function: for vertical mounting position	Changing the braking torque: Reduction per notch	Changing the braking torque: Dimension "O_1"	Changing the braking torque: Min. braking torque	Readjusting the air gap: Rated air gap $S_{Gap\ rated}$	Readjusting the air gap: Maximum air gap $S_{Gap\ max.}$	Readjusting the air gap: Minimum rotor thickness $h_{min.}$
		rpm	rpm	rpm	Nm	mm	Nm	mm	mm	mm
63	**BFK458-06**	3000	6000	6000	0.17	7	3.7	0.2	0.4	4.5
71	**BFK458-06**	3000	6000	6000	0.17	7	3.7	0.2	0.4	4.5
80	**BFK458-08**	3000	6000	6000	0.35	8.0	7.0	0.2	0.45	5.5
90	**BFK458-10**	3000	6000	6000	0.76	7.5	18.2	0.2	0.55	7.5
100	**BFK458-12**	3000	6000	6000	1.29	12.5	21.3	0.3	0.65	8.0
112	**BFK458-14**	3000	6000	6000	1.66	11.0	32.8	0.3	0.75	7.5
132	**BFK458-16**	3000	5300	5000	1.55	13.0	61.1	0.3	0.75	8.0
160	**BFK458-20**	1500	4400	3200	5.6	17.0	157.5	0.4	1.2	12.0
180	**BFK458-20**	1500	4400	3200	5.6	17.0	178.4	0.4	1.0	12.0
200, 225	**BFK458-25**	1500	3000	3000	6.15	21.0	248.7	0.5	1.5	15.5

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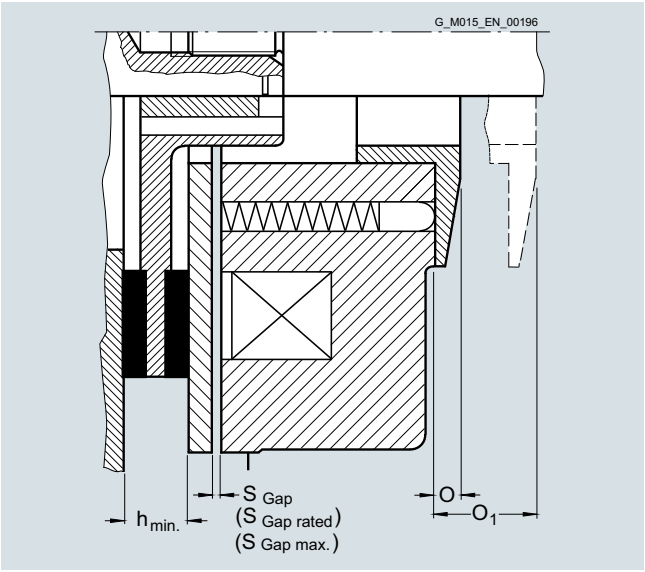
Overview

Changing the braking torque

The brake is supplied with the braking torque already set.
For BFK458 brakes, the torque can be reduced to dimension O_1 by unscrewing the adjusting ring with a hook wrench.
The braking torque changes by the values shown in the above table for each notch of the adjusting ring.

Readjusting the air gap

Under normal operating conditions, the brake is practically maintenance-free. The air gap S_{Gap} must only be checked at regular intervals if the application requires an extremely large amount of frictional energy and readjusted to the rated air gap $S_{Gap\ rated}$ at the latest when the maximum air gap $S_{Gap\ max}$ is reached.



Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

The AC voltage for the brake excitation winding is connected to the two free terminals of the rectifier block (~).

The brake can be released when the motor is at a standstill by separately exciting the solenoid. In this case, an AC voltage must be connected at the rectifier block terminals. The brake remains released as long as this voltage is present.

The rectifiers are protected against overvoltages by varistors in the input and output circuits.

For 24 V DC brakes, the brake terminals are directly connected to the DC voltage source.

For this purpose, see the circuit diagrams on page 1/78.

Fast brake application

If the brake is disconnected from the line supply, the brake is applied.
The application time for the brake disk is delayed as a result of the inductance of the solenoid (shutdown on the AC side). This results in a considerable delay before the brake is mechanically applied. In order to achieve short brake application times, the circuit must be interrupted on the DC side.
To realize this, the wire jumpers, located between contacts 1+ and 2+ at the rectifier, are removed and replaced by the contacts of an external switch.
For this purpose, see the circuit diagrams on page 1/78.

Mechanical manual brake release with lever

The brakes can be supplied with a mechanical manual release with lever.
Order code **F50**

The dimensions of the brake lever depend on the motor frame size and can be read from the dimensional drawing generator for motors in the DT Configurator tool for low-voltage motors.

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Overview

KFB spring-operated brake

KFB spring-operated brake

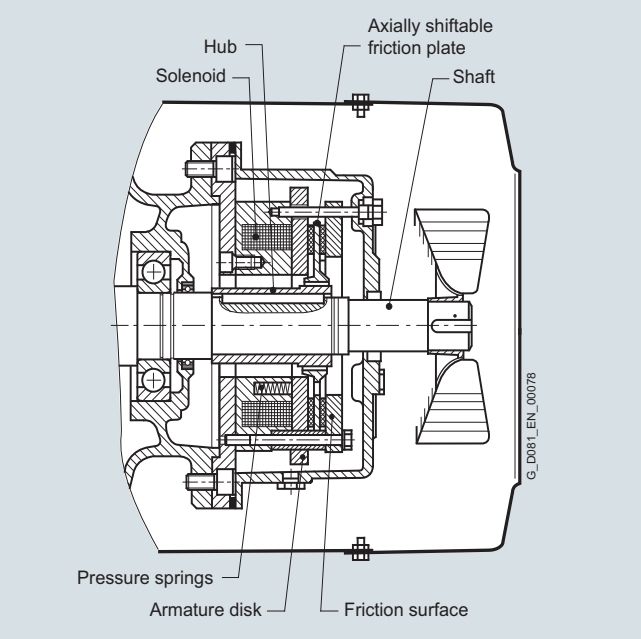
The KFB solenoid double-disk spring-operated brake is a safety brake that brakes the motor if the supply is disconnected (power failure, emergency stop). The KFB brake with IP67 degree of protection is mainly used for electric motors for traversing, cross-traversing and lifting gear in cranes as well as for special industrial applications.

Motor series

This brake is the standard brake for 1LE1 motors in frame sizes 250 to 315. For frame sizes 180 to 225, apart from the standard brake BFK458, KFB brakes can also be supplied. Special brake selections are available on request.

Design and mode of operation

When the brake current is switched on, an electromagnetic field develops which overcomes the spring force of the brake. The corresponding modules, including the motor shaft, can rotate freely. The brake is released. If the brake current is switched off or if there is a power failure, the electromagnetic field of the brake disappears. The mechanical braking energy is transferred to the motor shaft. The motor is braked.



Design of KFB spring-operated brakes

Other characteristics of the KFB brake

- High degree of protection IP67.
- Corrosion-resistant in seawater and in the tropics.
- The brake is a dynamic brake, not simply a holding brake. For this reason there is less wear, especially in the case of emergency stops (commissioning).
- High wear reserves – repeated stepless air gap readjustment is possible. This results in extremely long operating times and low service and operating costs.
- The function and wear can be monitored with microswitches and proximity switches. Microswitch On/Off is standard for 1LE motors, frame size 250 to 315. Microswitch On/Off is not standard for 1LE motors, frame size up to 225. Anti-condensation heating is possible as an option.
- Fully functional brake for housing acceptance test. Visual inspection of brake is possible during operation.
- The brake (air gap) can be adjusted in the factory, for example, and mounted on the drive motor without further adjustments.
- The wearing parts can be replaced without great effort. After the housing has been opened (three screws), it is easy to replace the friction plate. It is not necessary to disassemble the entire brake.

Voltage and frequency

The solenoids and the brake rectifier can be connected to the following voltages:
1 AC 50 Hz 230 V ±10 %

When 60 Hz is used, the voltage for the brake must not be increased!

The brake can also be supplied for other voltages:

- Brake supply voltage: 24 V DC
  Order code **F10**
- Brake supply voltage: 230 V AC
  Order code **F11**
- Brake supply voltage: 400 V AC
  (directly at the terminal strip)
  Order code **F12**

Order codes **F10** and **F12** may only be used in conjunction with order code **F01**.

Fast brake application

Not available for the KFB brake.

Mechanical manual brake release with lever

The brake can be released manually with screws as standard. Mechanical manual release with a lever can be ordered with order code **F50**.

The dimensions of the brake lever depend on the motor frame size and can be read from the dimension sheet generator for motors in the DT Configurator tool for low-voltage motors. Up-to-date data are available from the brake manufacturer.

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Overview

Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.
KFB brakes are connected through a standard bridge or half-wave rectifier.

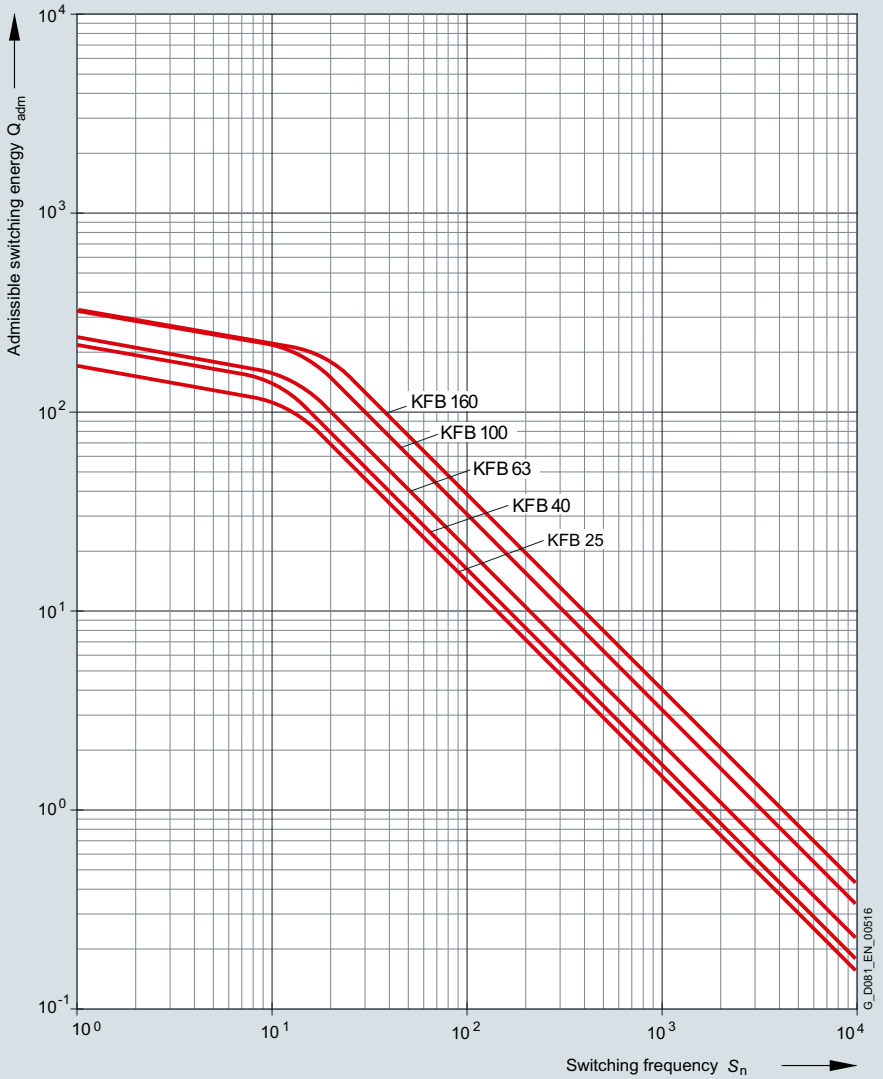
A special circuit is not required. Optimal switching times are achieved without the need to use special circuits.

For this purpose, see the circuit diagrams on page 1/78.

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



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Overview

Overview of brake selection for 1LE1 motors			For motor frame sizes					
			180 [1]	200 [1]	225 [1]	250 [2]	280 [2]	315 [2]
No. of poles			2 to 8	2 to 8	2 to 8	2 to 8	4 to 8	4 to 8
Flanged end shield NDE brake installation			A300	A350	A350	A400	A450	A550
Max. diameter of 2nd shaft extension		mm	48_{k6}	55_{m6}	55_{m6}	60_{m6}	65_{m6}	70_{m6}
Brake type			**KFB 25**	**KFB 40**	**KFB 40**	**KFB 63**	**KFB 100**	**KFB 160**
Braking torque		Nm	225	360	360	567	900	1440
Nominal dynamic braking torque according to VDE 0580		Nm/rpm	250/127	400/117	400/117	630/92	1000/78	1600/69
Dynamic braking torque [3]	at 750 rpm	Nm	207	332	332	504	780	1248
	at 1000 rpm	Nm	200	316	316	491	760	1200
	at 1500 rpm	Nm	192	304	304	466	720	1136
	at 3000 rpm	Nm	175	276	276	378	580	880
	at n_{max}	Nm	137	220	220	346	500	800
Maximum speed n_{max} – IM B3/V1		rpm	6000	5500	5500	4700	4000	3600
Power at 110 V DC		W	158	196	196	220	307	344
Power at 230 V AC		W	160	188	188	206	316	340
Current at 110 V DC		A	1.44	1.78	1.78	2	2.79	3.13
Current at 230 V AC (207 V DC coil voltage)		A	0.77	0.91	0.91	1	1.53	1.64
Current at 400 V AC (180 V DC coil voltage)		A	0.8	1.18	1.18	1.25	1.8	2.1
Current at 24 V DC		A	5.21	6.92	6.92	8.17	12.2	12.8
Weight, approx.		kg	42	55	55	74	106	168
Application time t_1		ms	70	80	80	112	126	183
Release time t_2		ms	240	250	250	342	375	500
Brake moment of inertia		kgm^2	0.0048	0.0068	0.0068	0.0175	0.036	0.05
Lifetime L of the brake lining		$Nm \cdot 10^6$	3600	3110	3110	4615	7375	10945
Air gap adjustment L_N required after braking energy		$Nm \cdot 10^6$	810	935	935	1185	2330	3485

[1] The standard brake for frame sizes 180 to 225 is the BFK458 brake. KFB brake on request.

[2] The standard brake for frame sizes 250 to 315 is the KFB brake.

[3] The dynamic braking torque also depends on the load data; temperatures in excess of the maximum admissible lining surface temperatures must be avoided.

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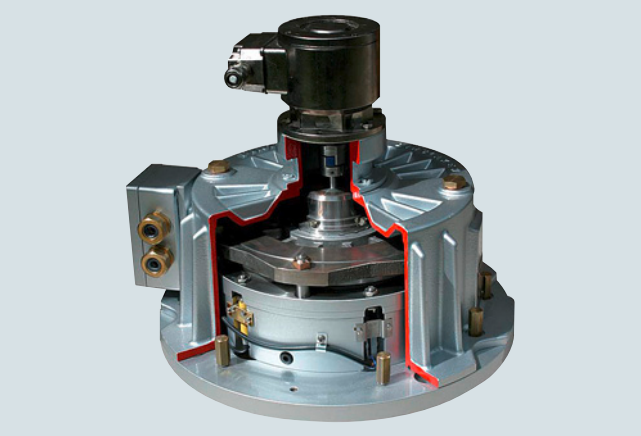
Overview

SFB-SH solenoid double-disk spring-operated brake

Motor series

This brake is the standard brake for 1LE5 motors in frame sizes 315 to 355.
Special brake selections are available on request.



SFB-SH solenoid double-disk spring-operated brake

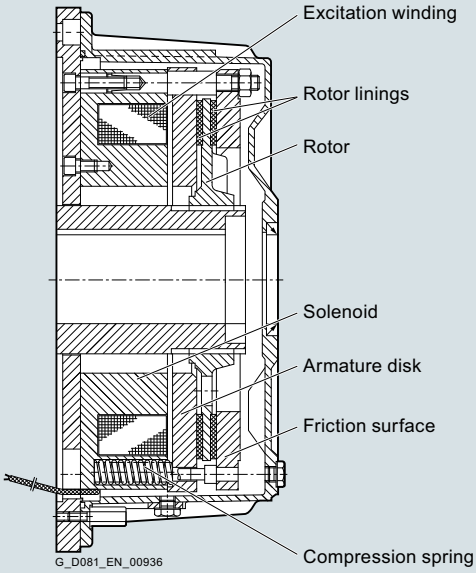
SFB-SH solenoid double-disk spring-operated brakes are safety brakes that are mechanically operated on a power failure. This ensures that the brake still works during a power failure. These brakes are designed for dry running, must only ever be operated in a safe state, and only installed, commissioned, operated, and maintained by specially trained installation personnel. The brakes of the SFB-SH type series have an increased braking torque due to use of a different friction material and are used for emergency stops as a dynamically loaded brake with a safety margin.

Other characteristics of the SFB-SH brake

- High degree of protection IP67.
- Corrosion-resistant in seawater and in the tropics.
- High wear margins - simple air-gap adjustment. This results in extremely long operating times and low service and operating costs.
- The function and wear can be monitored with microswitches and proximity switches. Microswitch On/Off is standard for 1LE5 motors. Anti-condensation heating is possible as an option.
- Fully functional brake for housing acceptance test. Visual inspection of brake is possible during operation.
- The brake (air gap) can be adjusted in the factory, for example, and mounted on the drive motor without further adjustments.
- The wearing parts can be replaced without great effort. After the housing has been opened (three acorn nuts), it is easy to replace the friction plate. It is not necessary to disassemble the entire brake.

Design and mode of operation

When the brake current is switched on, an electromagnetic field develops which overcomes the spring force of the brake. The corresponding modules, including the motor shaft, can rotate freely. The brake is released. If the brake current is switched off or if there is a power failure, the electromagnetic field of the brake disappears. The mechanical braking energy is transferred to the motor shaft. The motor is braked.



Design of the SFB-SH solenoid double-disk spring-operated brake

Voltage and frequency

The solenoids and the brake rectifier can be connected to the following voltages:
1 AC 50 Hz 230 V ±10 %

When 60 Hz is used, the voltage for the brake must not be increased!

The brake can also be supplied for other voltages:

- Brake supply voltage: 24 V DC
  Order code **F10**
- Brake supply voltage: 230 V AC
  Order code **F11**
- Brake supply voltage: 400 V AC
  (directly at the terminal strip)
  Order code **F12**

Order codes **F10** and **F12** may only be used in conjunction with order code **F01**.

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Overview

Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

The AC voltage for the brake excitation winding is connected to the two free terminals of the rectifier block (~). The rectifier is located in the main terminal box and must be connected in the customer's switchboard.

The brake can be released when the motor is at a standstill by separately exciting the solenoid. In this case, an AC voltage must be connected at the rectifier block terminals. The brake remains released as long as this voltage is present.

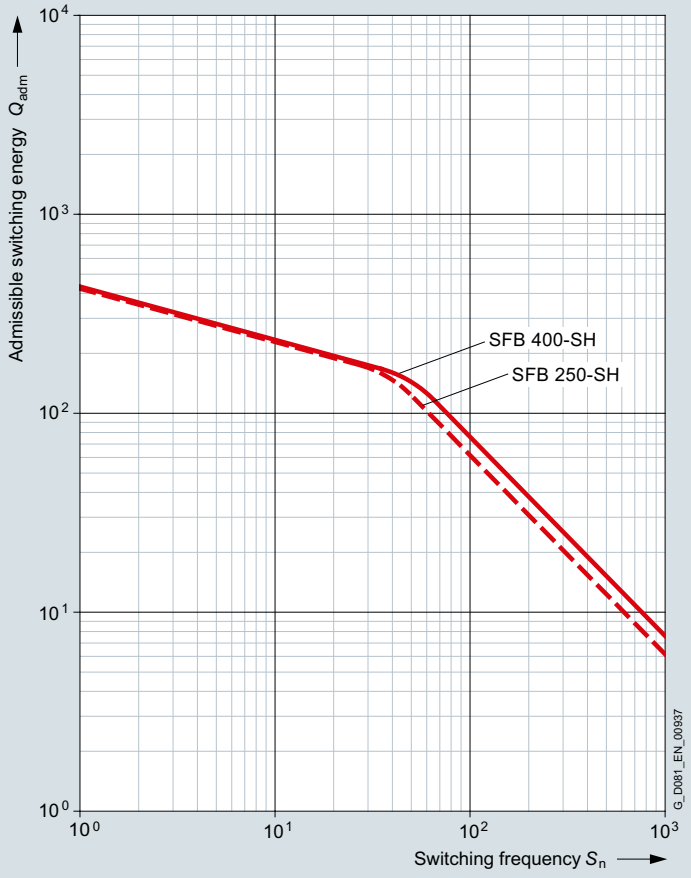
For 24 V DC brakes, the brake terminals are directly connected to the DC voltage source.

For this purpose, see the circuit diagrams on page 1/78.

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



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Overview

Overview of brake selection for 1LE5 motors			For motor frame sizes	
			315	355
No. of poles			4 to 8	4 to 8
Flanged end shield NDE brake installation			FF500 (A550) [1]	FF600 (A660) [2]
Max. diameter of 2nd shaft extension		mm	75_{m6}	90_{m6}
Brake type			**SFB 250-SH**	**SFB 400-SH**
Braking torque		Nm	2970	4680
Nominal dynamic braking torque according to VDE 0580		Nm/rpm	3300/54	5200/47
Dynamic braking torque [3]	at 750 rpm	Nm	2400	2100 [4]
	at 1000 rpm	Nm	2200	2300 [4]
	at 1500 rpm	Nm	1850	2100 [4]
	at n_{max}	Nm	1580	2100 [4]
Maximum speed n_{max} – IM B3/V1		rpm	2800	2500
Power at 110 V DC		W	495	553
Power at 230 V AC (207 V DC coil voltage)		W	511	–
Current at 110 V DC		A	4.5	5.03
Current at 230 V AC (207 V DC coil voltage)		A	2.79	3.14
Current at 400 V AC (180 V DC coil voltage)		A	2.98	3.36
Current at 24 V DC		A	19.93	–
Weight, approx.		kg	306	357
Application time t_1		ms	640	700
Release time t_2		ms	690	1100
Brake moment of inertia		kgm^2	0.14	0.325
Minimum air gap		mm	0.4	0.4
Maximum air gap		mm	2.5	2.5

[1] External dimension increases to 560 mm.

[2] External dimension decreases to 640 mm.

[3] The dynamic braking torque also depends on the load data, temperatures in excess of the maximum admissible lining surface temperatures must be avoided.

[4] Value is guaranteed by the brake manufacturer.
In practice, a higher braking torque can be expected.
Restrictions are determined at the test station of the brake manufacturer.
Information: www.pintschbubenzer.de

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Overview

Configuration of motors with brakes

Braking time

The time it takes the motor to come to a standstill comprises two components:
a.) The application time of the brake t_2
b.) The braking time t_{Br}

$$t_{Br} = \frac{J \cdot n_{rated}}{9.55 \cdot (T_B \pm T_L)}$$

t_{Br} Braking time in s
J Total moment of inertia in kgm^2
n_{rated} Rated speed of the motor with brake in rpm
T_B Rated braking torque in Nm
T_L Average load torque in Nm (If T_L supports the braking operation, T_L is positive)

Braking energy per braking operation Q_{adm}

The braking energy per braking operation in Nm comprises the energy of the moments of inertia to be braked Q_{Kin} and the energy Q, which must be applied in order to brake against a load torque:

$$Q_{adm} = Q_{Kin} + Q$$

a.) The energy of the moments of inertia in Nm

$$Q_{Kin} = \frac{J \cdot n^2_{rated}}{182.4}$$

n_{rated} Rated speed before braking in rpm
J Total moment of inertia in kgm^2. The mass moment of inertia J specified in the formula corresponds to the total moment of inertia of all braked masses referred to the motor/brake speed.

b.) Braking energy on emergency trip

The braking energy for occasional emergency trips must be checked to ensure that it does not cause the brake to overheat. Please refer to table "Technical specifications of brakes" for admissible values. The braking energy produced for traversing gear can be calculated approximately with the following equation:

$$Q = \frac{J_{tot} \cdot n^2_{Br}}{182.4 \cdot 10^3} \cdot \frac{T_{Br}}{T_{Br} \pm T_L}$$

Q Energy capability/braking energy in kJ
T_{Br} Braking torque in Nm
T_L Total of all load torques in Nm referred to the brake (motor) shaft
n_{Br} Speed of brake (motor) shaft in rpm
J_{tot} Total moment of inertia to be braked in kgm^2 reduced to the brake (motor) shaft
T_L is positive if it supports braking (e.g. hoisting a load)
T_L is negative if it counteracts braking (e.g. lowering a load)

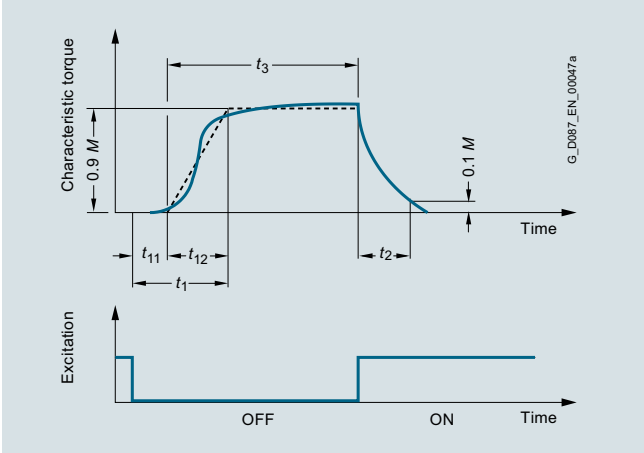
The total moment of inertia J_{tot} is the sum of the individual moments of inertia of the system components to be braked, reduced to the brake (motor) shaft, and the moments of inertia of the linear-motion masses. The equivalent mass inertia J_{Eqv} of a linear-motion mass m with velocity v, referred to the brake (motor) speed n_{Br}, is calculated as follows:

$$J_{Eqv} = 91.2 \cdot m \cdot \left(\frac{v}{n_{Br}}\right)^2$$

m Mass of the linear-motion load in kg
v Velocity of the linear-motion load in m/s
n_{Br} Speed of brake (motor) shaft in rpm

The velocity and/or speed to be entered here must equal the maximum values in normal operation. An increase in velocity resulting from wind forces may also need to be taken into account.

Definition of switching times (VDI 2241)



Brake switching times

Switching times:
t_1 Brake application time
t_2 Disconnection time
t_3 Slip time
t_{11} Response delay
t_{12} Rise time

Run-on revolutions U

The number of run-on revolutions U of the motor with brake can be calculated as follows:

$$U = \frac{n_{rated}}{60}\left(t_1 + \frac{t_{Br}}{2}\right)$$

t_1 Brake application time in ms

Lifetime of the brake lining L and readjustment of the air gap

The brake lining wears due to friction which increases the air gap and the release time for the brake at standard excitation.

In order to calculate the lifetime of the brake lining in terms of operations S_{max}, the lifetime of the brake lining L in Nm must be divided by the braking energy Q_{adm}:

$$S_{max} = \frac{L}{Q_{adm}}$$

The interval between adjustments N can be calculated in terms of operations by dividing the braking energy L_N that the brake can output until it is necessary to readjust the working air gap by Q_{adm}:

$$N = \frac{L_N}{Q_{adm}}$$

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Overview

FDX spring-operated brake

Motor series

This brake is provided for 1LE1 motors in frame sizes 225 to 315.

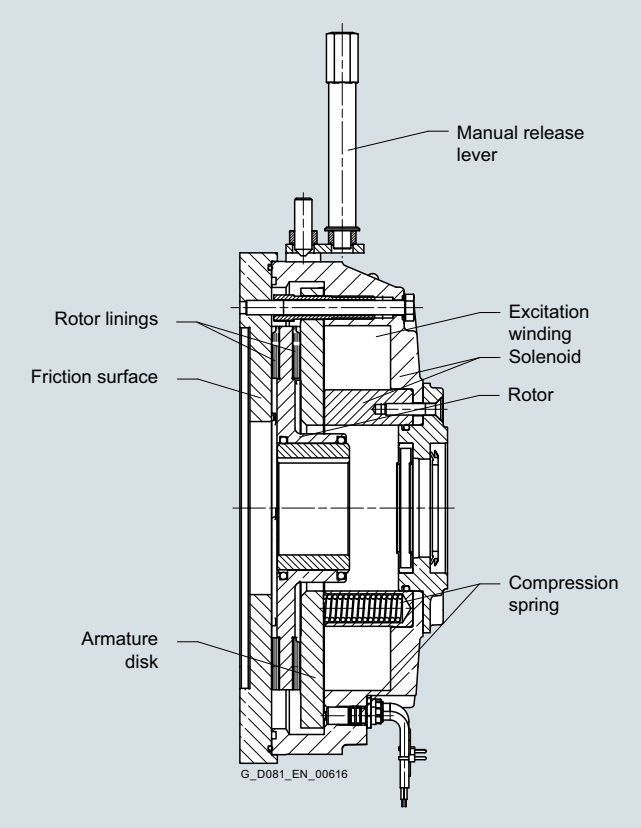
Mode of operation of FDX spring-operated brake (holding brake/operating brake)

The FDX solenoid spring-operated brakes (order code **F04**), with IP67 degree of protection, are quiescent current brakes, meaning that the braking torque is produced by spring force and increased by magnetic force in normal operation.

During the braking operation, the built-in compression springs apply pressure to the rotor that interlocks radially with the machine shaft using the axially moving armature disk. In turn, this applies pressure to the opposing side against the friction surface (→ motor label). The braking torque is produced from the linings of the rotor and the armature disk/friction surface being in contact.

During the brake release process, a magnetic force is produced by applying a direct current via the excitation winding in the solenoid. The armature disk is thereby pulled from the solenoid and the rotor is released.

During the manual brake release process (only available for the brake version with manual brake release), the armature disk is pressed mechanically against the solenoid by operating the manual release lever. The brake can therefore still be released in the event of a power failure, for example.



Voltage and frequency

The solenoids and the brake rectifier are designed for connection to the following voltages or can be supplied for the following voltages:

- Brake supply voltage 230 V AC
  Order code **F11**
- Brake supply voltage 400 V AC
  Order code **F12**

When 60 Hz is used, the voltage for the brake must not be increased!

Order codes **F11** and **F12** may only be used in conjunction with order code **F04**.

Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

The AC voltage for the brake excitation winding is connected to the two free terminals of the rectifier block (~).

The brake can be released when the motor is at a standstill by separately exciting the solenoid. In this case, an AC voltage must be connected at the rectifier block terminals. The brake remains released as long as this voltage is present.

The rectifiers are protected against overvoltages by varistors in the input and output circuits. The function and wear can be monitored with microswitches and proximity switches. Microswitch On/Off is standard for 1LE1 motors. Anti-condensation heating is possible as an option.

Mechanical manual brake release with lever

The brake can be supplied with a mechanical manual release with lever.
Order code **F50**

The dimensions of the brake lever depend on the motor frame size and can be read from the dimensional drawing generator for motors in the DT Configurator tool for low-voltage motors.
www.siemens.com/dt-configurator

Lifetime

The amount of frictional energy that can be transferred before the rotor must be replaced depends on various factors:

- Mass to be decelerated
- Switching frequency
- Speed
- Resulting temperature on the friction surfaces

As a result, only guide values can be specified for the frictional energy to be transferred until rotor replacement.

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Overview

Abbreviations and definitions used (with their units):

T_{LR} = Motor starting torque (Nm)

T_b = Braking torque (Nm)

T_{breq} = Required braking torque (Nm)

$T_{b,\,rated}$ = Rated torque of the spring-operated brake (Nm)

T_L = Load torque (Nm)

T_{tot} = Total torque (Nm)

F = Force (N)

r = Lever arm (m)

n = Speed (rpm)

K = Safety factor $K \geq 2$

P = Power (kW)

t = Overall braking time (ms)

t_{st} = Startup time (s)

t_B = Braking time (s)

t_2 = Disconnection time (ms)

t_1 = Application time (ms)

t_{11} = Response delay (ms)

P_R = Frictional power (J/s)

W_R = Friction energy (J)

S = Switching cycles (brake operations) per second (Hz)

J_E = Internal moment of inertia (kgm^2)

J_{add} = Additional moment of inertia (kgm^2)

$J_{2,3..}$ = Moment of inertia (kgm^2)

J_{tot} = Total moment of inertia (kgm^2)

n_1 = Motor speed (rpm)

$n_{2,3..}$ = Speeds (rpm)

Multiple moments of inertia with different speeds are converted into a moment of inertia relative to the motor shaft:

$$J_{add} = \frac{J_2 \cdot n_2^2 + J_3 \cdot n_3^2 \cdots}{n_1^2} \ (kgm^2)$$

Torque

A spring-operated brake is designed mainly in accordance with the required braking torque T_{breq}. If the moment of inertia, speed, and admissible braking time of the machine are known, the braking torque of the spring-operated brake can be calculated. If the masses that are to be decelerated by the spring-operated brake are running at a different speed from the shaft decelerated by the spring-operated brake, the moment of inertia of these masses (J_{add}) must be calculated relative to this shaft (see above). In addition, the moment of inertia of the rotor-hub system (J_E) must be taken into account.

Load torque (static loading)

Torque which is present when the system is at a standstill and must be held by the brake. The loading force is converted into the load torque via the relevant lever arm:

$T_L = F \cdot r$ (Nm)

Braking torque (dynamic loading)

A purely dynamic load is present when flywheels, rollers, etc., are to be delayed and the static load torque is negligibly small.

The required braking torque is calculated as follows:

$$T_b = 1.046 \cdot 10^2 \cdot J_{tot} \cdot \frac{n}{t - t_1} \ (Nm)$$

$T_{breq} = T_b \cdot K \leq T_{b,\,rated}$ (Nm)

Dynamic and static loading

Most applications involve dynamic loading as well as static load torque:

$$T_{breq} = (T_b \pm T_L) \cdot K \ (Nm)$$

$$T_{breq} = (1.046 \cdot 10^2 \cdot J_{tot} \cdot \frac{n}{t - t_1} \pm T_L) \cdot K \ (Nm)$$

$$T_{breq} \leq T_{b,\,rated} \ (Nm)$$

Sign for T_L:

+ T_L = Load torque is applying force (in the direction of motion)

– T_L = Load torque is applying a decelerating force (opposite to the direction of motion)

If both cases occur, the specific configuration is always adapted to the larger torque.

Approximate determination of T_{breq}

If the moment of inertia is not known and if the input power has been defined, the required braking torque is determined as follows:

$$T_{breq} = 9.55 \cdot 10^3 \cdot \frac{P}{n} \cdot K \leq T_{b,\,rated} \ (Nm)$$

$K \geq 2$

Braking time

General information

$$t = 1.046 \cdot 10^2 \cdot J_{tot} \cdot \frac{n}{T_{b,\,rated} \pm T_L} + t_1 \ (ms)$$

Sign for T_L:

– T_L = Load torque is applying force (in the direction of motion)

+ T_L = Load torque is applying a decelerating force (opposite to the direction of motion)

Calculation of the starting and braking time for motors

Startup time for motors with brakes

$$t_{st} = J_{tot} \cdot \frac{n_1}{9.55 \cdot (T_{LR} \pm T_L)} + \frac{t_2}{1000} \ (s)$$

$J_{tot} = J_E + J_{add}$ (kgm^2)

Sign for T_L:

+ T_L = Load torque is applying force (in the direction of motion)

– T_L = Load torque is applying a decelerating force (opposite to the direction of motion)

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Overview

Braking time for motors with brakes

$$t_B = J_{tot} \cdot \frac{n_1}{9.55 \cdot (T_{b,\,rated} \pm T_L)} + \frac{t_1}{1000} \quad (s)$$

Sign for T_L:

– T_L = Load torque is applying force (in the direction of motion)

+ T_L = Load torque is applying a decelerating force (opposite to the direction of motion)

Thermal load

When braking, friction energy is applied during the slip phase, which releases thermal energy.

Friction energy per braking operation

$$W_R = J_{tot} \cdot n^2 \cdot \frac{T_{b,\,rated}}{182.5 \cdot (T_{b,\,rated} \pm T_L)} \quad (J)$$

Sign for T_L:

– T_L = Load torque is applying force (in the direction of motion)

+ T_L = Load torque is applying a decelerating force (opposite to the direction of motion)

The friction energy per braking operation must be no greater than the admissible value W_{Rmax}

$W_R \leq W_{Rmax}$ (J)

Frictional power

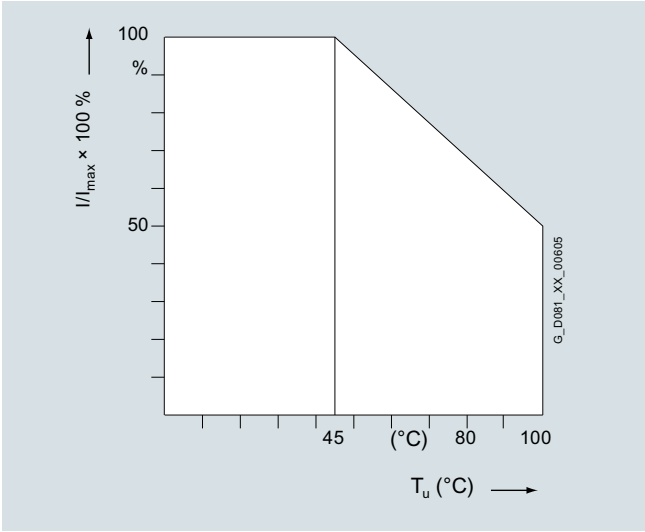
$P_R = W_R \cdot S$ (J/s)

The friction energy must be no greater than the admissible value P_{Rmax}

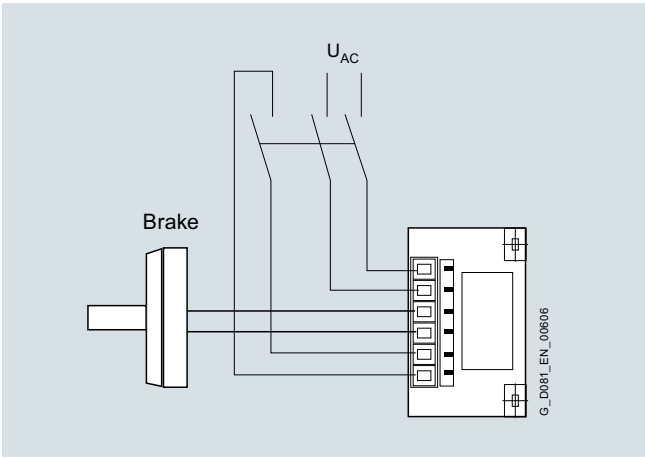
$P_R \leq P_{Rmax}$ (J/s)

Connection

Load rating of the rectifier diodes as a function of the ambient temperature:



Block diagram:



The high-speed rectifier performs the following functions:

- The coil is first supplied with a voltage $U_2 = 0.9 \times U_1$: Over-excitation of the brake
- After excitation time t_1 the voltage is reduced to $U_3 = 0.45 \times U_1$: Non-release voltage of the brake

Designation	Supply voltage (V AC)	Output voltage (V DC)		Ambient temperature
Article No.:	U_1 at 50/60 Hz	U_2	U_3	°C
PMG 480	215 … 500	0.9 × U_1	0.45 × U_1	–15 … +80

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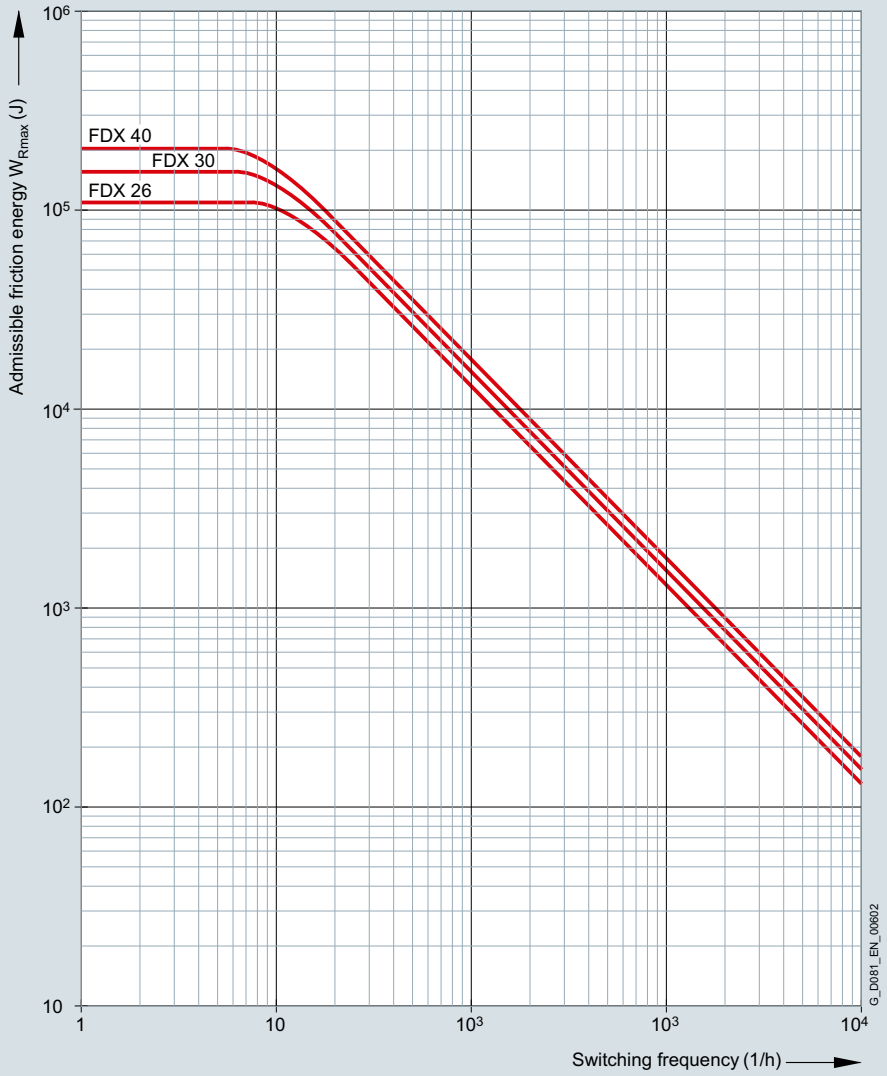
Overview

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



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Overview

Overview of brake selection for 1LE1 motors (option F04)			For motor frame sizes			
			225	250	280	315
No. of poles			2 to 8	2 to 8	2 to 8	2 to 8
Flange bearing plate for brake mounting on the NDE side			A350	A400	A450	A535
Max. diameter for the second shaft extensions		mm	55m6	48m6	65m6	48m6
Brake type			**FDX 30**	**FDX 30**	**FDX 40**	**FDX 40**
Static braking torque		Nm	450	567	900	1440[1]
Dynamic rated braking torque acc. to DIN VDE 0580		Nm/rpm	500/88	630/88	1000/65	1600[1]/65
	at 750 rpm	Nm	480	600	800	1200[1]
	at 1000 rpm	Nm	460	580	740	1150[1]
	at 1500 rpm	Nm	460	580	740	1150[1]
	at 3000 rpm	Nm	380	480	600	860[1]
Admissible speed n_{max}		rpm	3000[2]/6000[3]	3000[2]/6000[3]	3000[2]/6000[3]	3000[2]/6000[3]
Power at 180 V DC		W	880/220	880/220	1080/270	1080/270
Power at 103 V DC		W	560/140	560/140	560/140	560/140
Rated current at 230 V AC (103 V DC coil voltage)		A	2.72/1.36	2.72/1.36	2.72/1.36	2.72/1.36
Rated current at 400 V AC (180 V DC coil voltage)		A	2.44/1.22	2.44/1.22	3/1.5	3/1.5
Weight, approx.		kg	45	45	80	80
Closing time t_1 (switching on the DC side)		ms	60	60	160	160
Release time t_2 (switching on the DC side)		ms	140	140	320	320
Brake moment of inertia		kgm^2	0.0195	0.0195	0.0445	0.0445
Lifetime L of brake lining		$Nm \cdot 10^6$	3700	3700	4900	4900

1) Limit: ON time S3 -50 %
2) Operating brake
3) Holding brake

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Overview

"Special technology" comprises rotary pulse encoders of 1LE1 motors (with the exception of 1LE1 with order code **F90** – version "Forced-air cooled motors without external fan and fan cover" and 1PC1).
1LE1 motors with order codes **F70** (mounting of separately driven fan), **F01** (mounting of holding brake (standard arrangement)) and **F01** + **F70** (mounting of brake and separately driven fan) from the modular mounting concept can be combined with rotary pulse encoders LL 861 900 220, HOG 9 DN 1024 I and HOG 10 D 1024 I from the "Special technology" range.
The length of the motor increases by ΔI when the rotary pulse encoder is mounted. For an explanation of the additional dimensions and weights, please refer to "Mounting technology", "Dimensions and weights" from page 1/104.

The rotary pulse encoders of "Modular technology" and "Special technology" are fitted as standard with a protective cover made of non-corrosive sheet steel.

For mounting of rotary pulse encoders with order codes **G11** and **G12** for frame sizes 71 to 315 and with order codes **G04**, **G05**, and **G06** up to frame size 160, a protective cover (order code **G43**) is supplied as standard.

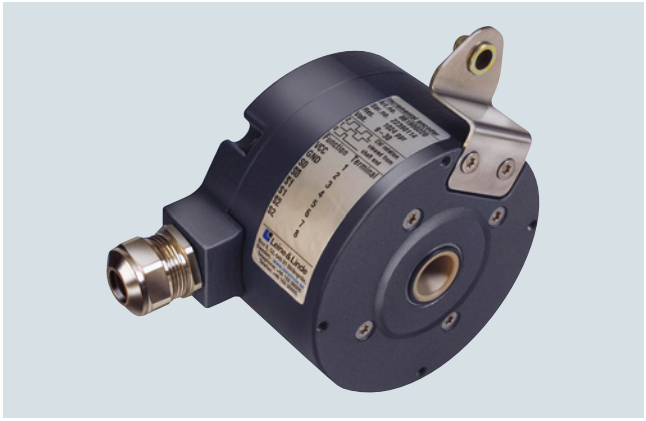
For frame size 180 and above, a protective cover is not supplied as standard when rotary pulse encoders are mounted for order codes **G04**, **G05**, **G06**, **G07** and **G08**.

For mounting of rotary pulse encoders with order codes **G11**, **G12** + **F70** (mounting of separately driven fan): The cable end is connected to a connector that is located outside the fan cover. The fan cover does not have to be removed to connect the rotary pulse encoder. The rotary pulse encoder can be connected to the main terminal box or an auxiliary terminal box where necessary.

For mounting of rotary pulse encoders with order codes **G04**, **G05**, **G06** + **F70** (mounting of separately driven fan):

- Up to frame size 200, the fan cover has to be removed to connect the rotary pulse encoder. The rotary pulse encoder can also be connected to the main terminal box or an auxiliary terminal box where necessary.
- As of frame size 225, the fan cover does not have to be removed to connect the rotary pulse encoder. The rotary pulse encoder can be connected to the main terminal box and can be connected to the auxiliary terminal box where necessary.

LL 861 900 220 rotary pulse encoder



With its rugged construction, this rotary pulse encoder is also suitable for difficult operating environments. It is resistant to shock and vibration and has insulated bearings.

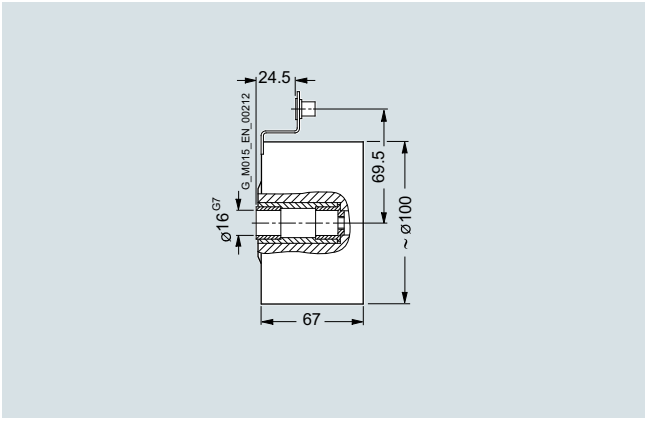
The LL 861 900 220 rotary pulse encoder can be supplied already mounted.
Order code **G04**

*The LL 861 900 220 rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/76). The rotary pulse encoder is not part of the scope of supply in this case.*

The version of the rotary pulse encoder with a diagnostics system (ADS) can be supplied by Leine and Linde.

Manufacturer:
Leine und Linde AG
Olivehällsvägen 8
SE-64542 Strängnäs
Phone +46 152 265 00
Fax +46 152 265 05

www.leinelinde.com
Email: info@leinelinde.de



Mounting dimensions of LL 861 900 220 rotary pulse encoder

Technical specifications for LL 861 900 220 (HTL version)

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

Supply voltage U_B	**+9 V to +30 V**
Current input without load	max. 80 mA
Admissible load current per output	40 mA
Pulses per revolution	1024
Outputs	6 short-circuit proof square-wave pulses A, A', B, B', 0, 0'
Pulse offset between the two outputs	90° ±25° el.
Output amplitude	U_{High} > 20 V U_{Low} < 2.5 V
Mark space ratio	1:1 ±10 %
Edge steepness	50 V/µs (without load)
Maximum frequency	100 kHz for 350 m cable
Maximum speed	4000 rpm
Temperature range	–20 to +80 °C
Degree of protection	IP65
Maximum adm. radial cantilever force	300 N
Maximum adm. axial force	100 N
Connection system	Terminal strips in encoder cable connection M20 × 1.5 radial
Weight	approx. 1.3 kg

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Overview

HOG 9 DN 1024 I rotary pulse encoder

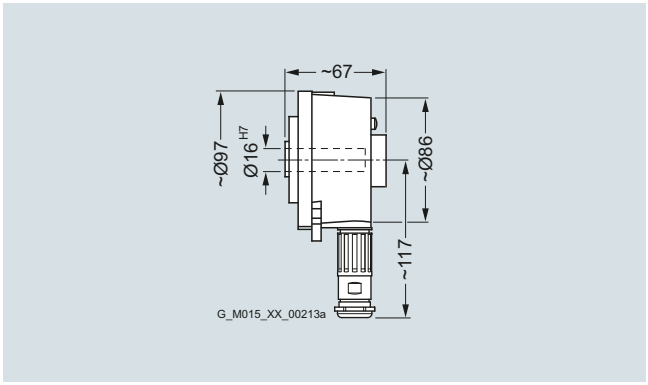
The encoder is fitted with insulated bearings.

The HOG 9 DN 1024 I rotary pulse encoder can be supplied already mounted.
Order code **G05**

*The HOG 9 DN 1024 I rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40,** or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/76). The rotary pulse encoder is not part of the scope of supply in this case.*

Manufacturer:
Baumer Hübner GmbH
Max-Dohrn-Str. 2+4
10589 Berlin, Germany
Phone +49 (30) 69003-0
Fax +49 (30) 69003-104

www.baumer.com
Email: sales@baumerhuebner.com



Mounting dimensions of HOG 9 DN 1024 I rotary pulse encoder

Technical specifications for HOG 9 DN 1024 I (HTL version)

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

Supply voltage U_B	**+9 V to +30 V**
Current input without load	50 to 100 mA
Admissible load current per output	150 mA, 800 mA peak
Pulses per revolution	1024
Outputs	6 short-circuit-proof square-wave pulses A+, A-, B+, B-, R+, R-
Pulse offset between the two outputs	90° ±20 %
Output amplitude	$U_{High} \geq U_B - 3.5$ V $U_{Low} \leq 1.5$ V
Mark space ratio	1:1 ±20 %
Edge steepness	10 V/µs
Maximum frequency	120 kHz
Maximum speed	7000 rpm
Temperature range	–30 to +100 °C
Degree of protection	IP56
Maximum adm. radial cantilever force	500 N
Maximum adm. axial force	400 N
Connection system	M23 flange socket, radial (mating connector is part of the scope of supply)
Mech. version acc. to Baumer Hübner Ident. No.	73 522 B
Weight	approx. 0.9 kg

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Overview

POG 9 rotary pulse encoder

The POG 9 rotary pulse encoder can be supplied already mounted.
Order code **G08**

*The POG 9 rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/76). The rotary pulse encoder is not part of the scope of supply in this case.*

Manufacturer:
Baumer Hübner GmbH
Max-Dohrn-Str. 2+4
10589 Berlin, Germany
Phone +49 (30) 69003-0
Fax +49 (30) 69003-104

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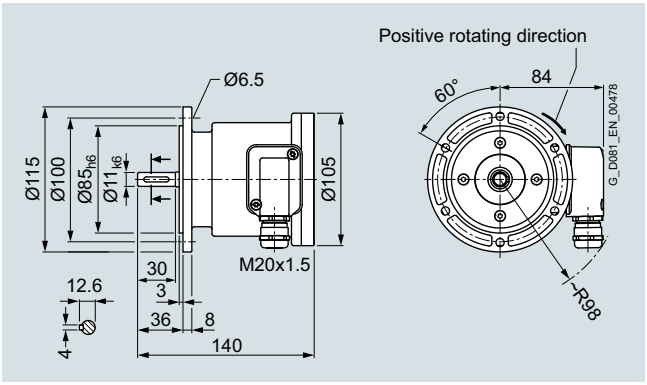
Email: sales@baumerhuebner.com



Mounting dimensions of POG 9 rotary pulse encoder

Technical specifications for POG 9

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

Supply voltage U_B	**+9 V to +30 V**	**+5 V ±5 %**
Current input without load	< 100 mA	
Admissible load current per output	60 mA average 300 mA peak	25 mA average 75 mA peak
Pulses per revolution	300 … 2500	
Output amplitude	$U_{High} \geq U_B - 3.5$ V $U_{Low} \leq 1.5$ V	$U_{High} \geq 2.5$ V $U_{Low} \leq 0.5$ V
Mark space ratio	1:1 ±20 %	
Operating speed	≤ 12000 rpm	
Switching rate	120 kHz	
Temperature range	–30 to +100 °C	
Degree of protection	IP56	
Maximum adm. radial cantilever force	150 N	
Maximum adm. axial force	80 N	
Connection system	Terminal box	
Weight	approx. 1.4 kg	

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Overview

POG 10 DN rotary pulse encoder

The POG 10 DN rotary pulse encoder can be supplied already mounted.
Order code **G07**

*The POG 10 DN rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/76). The rotary pulse encoder is not part of the scope of supply in this case.*

Manufacturer:
Baumer Hübner GmbH
Max-Dohrn-Str. 2+4
10589 Berlin, Germany
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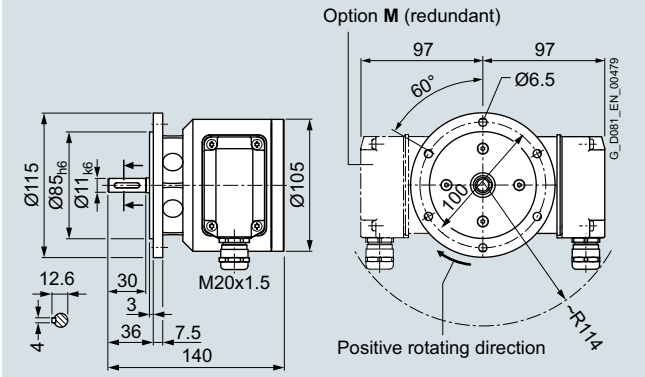
Email: sales@baumerhuebner.com



Mounting dimensions of POG 10 DN rotary pulse encoder

Technical specifications for POG 10 DN

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

Supply voltage U_B	**+9 V to +30 V**	
Current input without load	< 100 mA	
Admissible load current per output	60 mA average 300 mA peak	25 mA average 75 mA peak
Pulses per revolution	300 … 2500	
Mark space ratio	40:60 … 60:40	
Operating speed	≤ 12000 rpm	
Switching rate	120 kHz	
Temperature range	–40 to +100 °C	
Degree of protection	IP66	
Maximum adm. radial cantilever force	≤ 450 N	
Maximum adm. axial force	≤ 300 N	
Connection system	Terminal box	
Weight	approx. 1.9 kg	

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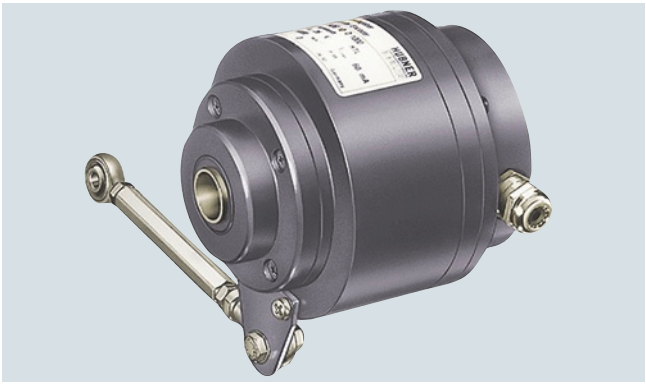
Overview

HOG 10 D 1024 I rotary pulse encoder



This encoder is extremely rugged and is therefore suitable for difficult operating conditions. It is fitted with insulated bearings.

The HOG 10 D 1024 I rotary pulse encoder can be supplied already mounted.
Order code **G06**

The HOG 10 D 1024 I rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code ***G40,*** *or the option "Prepared for mountings with shaft D16", order code* ***G42****, must be specified (see "Mechanical version and degrees of protection" on page 1/76). The rotary pulse encoder is not part of the scope of supply in this case. The letters FSL and ESL stand for the following terms:*
FSL: (mechanical) centrifugal switch
ESL: electronic speed switch
Both switch types are suitable for tripping the motor when a critical limit speed is reached, or for accelerating the motor along a control ramp into the permissible speed range again, or for shutting down the motor completely (depending on the customer application).
The electronic speed switch is particularly suitable for converter operation.
The critical limit rotational speed to be monitored for the customer's application must be specified in the order.
Further settings might also be necessary. These settings will be made at the Baumer & Hübner factory according to customer specifications.

Manufacturer:
Baumer Hübner GmbH
Max-Dohrn-Str. 2+4
10589 Berlin, Germany
Phone +49 (30) 69003-0
Fax +49 (30) 69003-104

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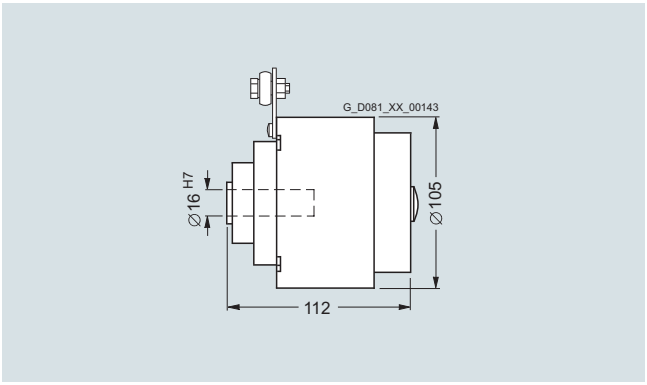
Email: sales@baumerhuebner.com



Mounting dimensions of HOG 10 D 1024 I rotary pulse encoder

Technical specifications for HOG 10 D 1024 I (HTL version)

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

Supply voltage U_B	**+9 V to +30 V**
Current input without load	approx. 100 mA
Admissible load current per output	600 mA, 300 mA peak
Pulses per revolution	1024
Outputs	4 short-circuit proof square-wave pulses A, B and A', B'
Pulse offset between the two outputs	90° ±20 %
Output amplitude	$U_{High} \geq U_B - 3.5$ V $U_{Low} \leq 1.5$ V
Mark space ratio	1:1 ±20 %
Edge steepness	10 V/µs
Maximum frequency	120 kHz
Maximum speed	7000 rpm
Temperature range	–40 to +100 °C
Degree of protection	IP66
Maximum adm. radial cantilever force	150 N
Maximum adm. axial force	80 N
Connection system	Terminals, cable connection M20 × 1.5
Mech. version acc. to Baumer Hübner Ident. No.	74 055 B
Weight	approx. 1.6 kg

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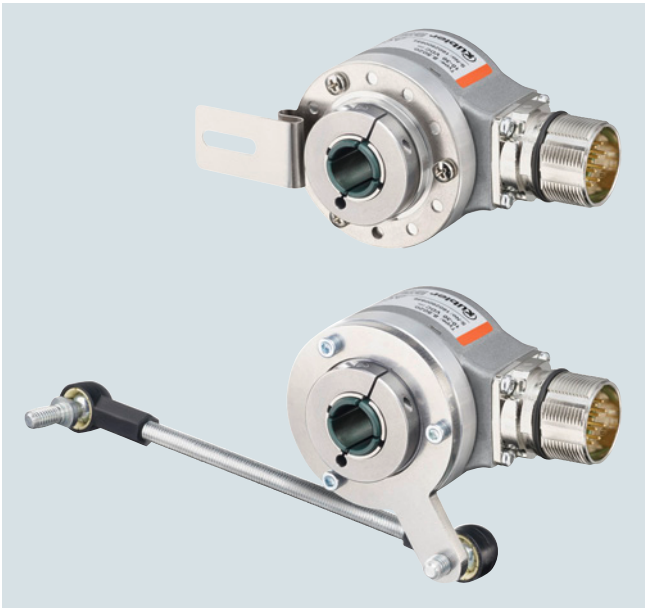
Overview

Sendix 5020 rotary pulse encoder



The Sendix 5020 rotary pulse encoder can be ordered completely assembled as an HTL version with order code **G11** or as a TTL version with order code **G12**.

Features of the **G11** and **G12** encoders:

- Use of insulation to avoid surge currents
- Safety-lock technology for high resistance to vibrations, shaft loads, and installation errors
- Cable lengths available up to 300 m

In combination with a separately driven fan, the rotary pulse encoders are supplied with an external plug connection. The rotary pulse encoder can only be attached to a standard NDE shaft extension, meaning that a second shaft extension will not be available.

*The encoder can be retrofitted. When the motor is ordered, the option "Prepared for mountings, center hole only" order code **G40** or the option "Prepared for mountings with D12 shaft" order code **G41** must be specified.*

The dimensions of the motor are increased by Δl by mounting the rotary pulse encoder. The "Modular technology" and "Special technology" rotary pulse encoders are fitted with a protective cover made from corrosion-resistant sheet metal as standard. Mounted encoders for temperatures below –20 °C and above +40 °C are available on request.

Technical specifications for Sendix 5020 (HTL/TTL version)

	Sendix 5020 (HTL version)	Sendix 5020 (TTL version)
Supply voltage	10 … 30 V DC	5 V DC ± 5 %
Energy consumption with inverted signal (no-load operation)	max. 100 mA	max. 90 mA
Admissible load/channel	max. ± 40 mA	max. ± 20 mA
Pulses per revolution	1024 (2048 and 512 on request)	
Outputs	2 square-wave pulses A, B – 2 inverted square-wave pulses A, B	
Pulse offset between the two outputs	90°	
Signal level	U_{High} = min. U_B – 1 V U_{Low} = max. 0.5 V	U_{High} = min. 2.5 V
Edge rise time t_r	max. 1 µs	max. 200 µs
Edge fall time t_f	max. 1 µs	max. 200 µs
Pulse frequency	max. 300 kHz	
Maximum speed	12000 rpm/6000 rpm (continuous)	
Operating temperature range	–40 [1] … +100 °C	
Degree of protection acc. to EN 60529	IP65	
Maximum admissible radial cantilever force	100 N	
Maximum admissible axial force	50 N	
Connection system	12-pin M23 connector (mating connectors are always supplied)	
Certificates	UL, CSA (ATEX on request)	
Weight	0.4 kg	
Explosion protection certificate for explosive areas	Available on request for Zones 2 and 22	
Shock resistance acc. to EN 60068-2-27	3000 m/s^2, 6 ms	
Vibration resistance acc. to EN 60068-2-6	300 m/s^2, 10 … 2000 Hz	

Manufacturer:
Fritz Kübler GmbH
Schubertstrasse 47
78054 Villingen-Schwenningen, Germany
Phone +49 (7720) 3903-0
Fax +49 (7720) 21564

www.kuebler.com/drehgeber
Email: info@kuebler.com

[1] With connector: –40 °C, permanently installed cable: –30 °C, moving cable: –20 °C.

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Overview

Rotary pulse encoders for SIL2, SIL3 safety applications

The rotary pulse encoders with order codes **G21**, **G22**, **G25**, and **G27** are suitable for SIL2 and SIL3 safety applications and can be used subject to consideration of the mechanical installation conditions. The rotary pulse encoders from Baumer, Leine&Linde, and Kübler are designed for the implementation of safety-related functions, such as speed, direction of rotation, and position.

Functional safety

The safety integrity level SIL2 or SIL3 of the rotary pulse encoders is certified by the manufacturers Baumer, Leine&Linde, and Kübler. To ensure correct functioning of the rotary pulse encoder, various mounting measures are defined that are certified by TÜV and must correspond to safety applications up to levels PLd, category 3, SIL2 and PL e, category 4, SIL3.

The EC Declaration of Conformity complies with the Machinery Directive 42/2006/EC with consideration of EN 61800-5-2.

- Functional safety can only be ensured with the use of a suitable control and evaluation unit. It is mandatory to perform a function test in the safety circuit after initial installation, conversion, repair or modification.
- Installation, first commissioning and service requiring replacement of a rotary encoder on the customer's site must only be performed by qualified persons. If this requirement is not observed, the manufacturer's warranty will be voided.
- Upgrading with the functional safety rotary encoder for the defined SIMOTICS products that were originally manufactured without it is permissible on request provided that the upgrade is performed only in lead repair centers.
- Before you commission the motor with the functional safety encoder, read the information in the operating instructions.

General technical features

- The standard version of the motor is supplied with the order code **G43** (mechanical protection for encoder) and with a torque arm fitted between the encoder and motor.
- The functional safety encoders cannot be combined with the order codes **G40**, **G41**, and **G42** (prepared for externally mounted components) and can only be mounted at the non-drive end (NDE), i.e. a second shaft extension cannot be supplied.
- The safety rotary encoders with order code **G21** or **G22** are mounted with their cable and connector.
- The overall length of the motor and weight of the motor must be considered, see "Dimensions and weights".

Sendix 5834FS2/FS3 rotary pulse encoder

The Sendix 5834 rotary pulse encoder from Kübler in the version SinCos can be used in compliance with safety integrity level SIL2 when mounted complete on motors with the order code **G21** or SIL3 with the order code **G22** for frame sizes 71 to 315.

Technical specifications for Sendix 5834FS2/FS3

	Sendix 5834FS2/FS3
Supply voltage	5 V DC ± 5 %
Current input without load	max. 70 mA
Pulses per revolution	1024
Outputs	Sine signal: B, B_inv Cosine signal: A, A_inv
Maximum frequency	400 kHz
Signal level	1 Vpp
Maximum speed	9000 rpm/6000 rpm (continuous)
Operating temperature range	–40 … +90 °C
Degree of protection acc. to EN 60529	IP65
Maximum admissible axial force	40 N
Maximum admissible radial cantilever force	80 N
Connection system	12-pin connector M23 with 1 m cable
Certificates	PLD/SIL2 – SIL 3/PLe
Weight	0.45 kg
Shock resistance acc. to EN 60068-2-27	500 m/s^2, 11 ms
Vibration resistance acc. to EN 60068-2-6	200 m/s^2, 10 … 150 Hz

Manufacturer:
Fritz Kübler GmbH
Schubertstrasse 47
78054 Villingen-Schwenningen, Germany
Phone +49 (7720) 3903-0
Fax +49 (7720) 21564

www.kuebler.com/drehgeber
Email: info@kuebler.com

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Overview

HOGS 100 S rotary pulse encoder

The HOGS 100 S rotary pulse encoder from Baumer in the version SinCos can be used in compliance with safety integrity level SIL2 when mounted complete on motors with order code **G25** for frame sizes 180 to 450.

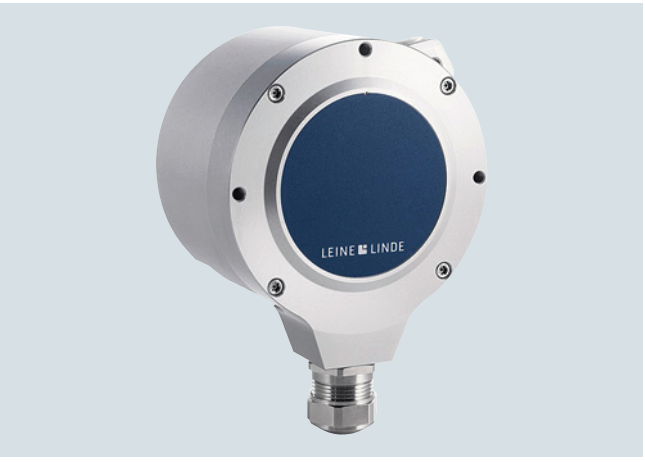
Technical specifications for HOGS 100 S

	HOGS 100 S
Supply voltage	5 V DC ± 10 %
Current input under load	≤ 150 mA
Sine cycles per revolution	1024
Operating speed	≤ 10000 rpm
Signal frequency	≤ 250 kHz
Temperature range	–20 … +85 °C
Degree of protection	IP66
Maximum adm. axial force	250 N
Maximum adm. radial cantilever force	400 N
Connection system	Terminal box
Anti-corrosion protection	Complies with corrosivity category C4 acc. to ISO 12944-2
Explosion protection (gas)	II 3G Ex nA IIC T4 Gc
Explosion protection (dust)	II 3D Ex tc IIIC T135°C Dc
Functional safety	PL d / SIL2
Weight	1.8 kg

Manufacturer:
Baumer Hübner GmbH
Max-Dohrn-Str. 2+4
10589 Berlin, Germany
Phone +49 (30) 69003-0
Fax +49 (30) 69003-104

www.baumer.com
Email: sales@baumerhuebner.com

FSI 862 rotary pulse encoder



This FSI 862 rotary pulse encoder is extremely rugged and is therefore suitable for difficult operating conditions.
This rotary pulse encoder in a HC HTL (High Current HTL) version can be used in compliance with safety integrity level SIL2 when mounted complete on motors with order code **G27** for frame sizes 180 to 450.

Technical specifications for FSI 862

	FSI 862
Supply voltage	9 ... 30 V DC
Current input	60 mA at 24 V DC (max. 80 mA)
Output current	± 40 mA
Pulses per revolution	1024 or 2048
Outputs	HCHTL
Pulse offset between the two outputs	90° el ± 25° el
Pitch error	± 50 el
Cable length	max. 350 m at 100 kHz
Maximum speed	6000 rpm
Temperature range	–40 … +85 °C
Degree of protection	IP66 (IP67)
Maximum adm. radial cantilever force	100 N
Maximum adm. axial force	300 N
Connection system	Cable gland M20
Weight	approx. 1.3 kg
Shock resistance acc. to	≤ 400 g, 3.5 ms EN 60068-2-27
Vibration resistance acc. to	≤ 20 g, 55 ... 2000 Hz EN 60068-2-6

Manufacturer:
Leine und Linde AG
Olivehällsvägen 8
SE-64542 Strängnäs
Phone +46 152 265 00
Fax +46 152 265 05

www.leinelinde.com
Email: info@leinelinde.de

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Overview

Backstop, counterclockwise/clockwise motion blocked

The backstop (order code **F40**/**F41**) prevents the motor from moving while in de-energized state against its direction of rotation in the energized state.

The backstop is only available for SIMOTICS SD – 1LE15/1LE16, 1LE55/1LE56, VSD10, VSD4000 motors.

- Counterclockwise motion blocked: Option **F40**
- Clockwise motion blocked: Option **F41**

Motor series	Frame size	No. of poles	Backstop Type	Rated torque, theoretical	Start speed	Maximum speed	Order code **F40** Δl	Order code **F41** Δl
				Nm	rpm	rpm	mm	mm
1LE15/1LE16 1FP15	132	2, 4, 6, 8	FXM 66-25 NX	950	700	5000	114	114
	160	2, 4, 6, 8	FXM 76-25 NX	1200	670	5000	130	130
	180	2, 4, 6, 8	FXM 76-25 NX	1200	670	5000	126	126
	200	2, 4, 6, 8	FXM 86-25 NX	1600	630	5000	137	137
	225	2, 4, 6, 8	FXM 86-25 NX	1600	630	5000	183	183
	250	2, 4, 6, 8	FXM 86-25 NX	1600	630	5000	106	106
	280	2, 4, 6, 8	FXM 100-40 MX	3700	400	4500	112	112
	315	2, 4, 6, 8	FXM 120-50 MX	7700	320	4000	115	115
1LE55/1LE56	315	2	FXM 120-50 MX	7700	320	4000	115	115
		4, 6, 8	FXM 140-50 MX	10100	320	3000	115	115
	355	2	FXM 120-50 MX	7700	320	4000	155	155
		4	FXM 140-50 MX	10100	320	3000	155	155
		6, 8	FXM 170-63 MX	20500	250	2700	155	155

Protective cover diameter

Frame size	Protective cover for separately driven fan	Protective cover	Protective cover for encoder		Protective cover for encoder adapter	Protective cover
		H00	**G11/G12**	**G04** … **G06**	**G41/G42**	**F75**
	mm	mm	mm	mm	mm	mm
71	140	125	125	–	–	–
80	157	155	155	–	155	160
90	177	155	155	–	155	180
100	210	195	195	195	195	195
112	249	195	195	195	195	195
132	300	260	260	260	260	260
160	338	260	260	260	260	260
180	340	340	165	340	340	340
200	338	340	165	340	340	340
225	470	425	165	250	165	–
250	470	470	165	250	165	–
280	525	525	165	250	165	–
315	590	525	165	250	165	–
355	On request	On request	On request	On request	On request	On request
400	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request

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Dimensions and weights of the mountings

Overview

Dimensions and weights

Fig. 1 Brake,
order codes **F01/F04**
[optionally with manual release, order code **F50**]

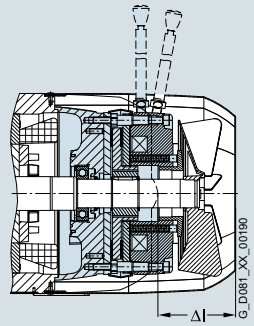
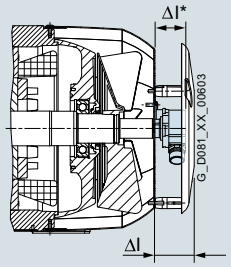


Fig. 2 Rotary pulse encoder (on cover)
Order codes **G04/G05/G06/G11/G12**
[**G11, G12** protective cover as standard]



Frame size	Assignment Fig. 1 Brake Order codes F01/F04 ΔI mm	Weight, approx. kg	Fig. 2 Rotary pulse encoder including protective cover (G43) LL 861 900 220 Order code G04 ΔI mm	Weight, approx. kg	HOG 9 DN 1024 I Order code G05 ΔI mm	Weight, approx. kg	HOG 10 D 1024 I Order code G06 ΔI mm	Weight, approx. kg	Sendix 5020 Order codes G11/G12 ΔI mm	Weight, approx. kg
1LE1										
80	60	3.5	–	–	–	–	–	–	68.5	0.8
90	77.5	5.3	–	–	–	–	–	–	68.5	0.8
100	81	5.9	83	1.9	83	1.5	126	2.2	56	1.0
112	88	7.8	83	1.9	83	1.5	126	2.2	56	0.9
132	114	11.9	87	2.4	87	2	130	2.7	60	1.4
160	130	30.7	87	2.7	87	2.3	130	3	60	1.6
180	126	28	136.5	2.3	136.5	1.9	136.5	2.6	87	2.2
200	137	38	136.5	2.5	136.5	2.1	136.5	2.8	87	2.4
225	135/199	63/49	135	2	135	1.6	135	2.3	87	1
250	225/185	83/54	135	2	135	1.6	135	2.3	87	1
280	297/192	118/92	135	2	135	1.6	135	2.3	87	1
315	308/188	256/167	135	2	135	1.6	135	2.3	87	1
1LE5										
315	309	355	135	2	135	1.6	135	2.3	87	1
355	324	425	135	2	135	1.6	135	2.3	87	1
400	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request

Frame size	Assignment Fig. 2 Rotary pulse encoder without protective cover LL 861 900 220 Order code G04 ΔI* mm	Weight, approx. kg	HOG 9 DN 1024 I Order code G05 ΔI* mm	Weight, approx. kg	HOG 10 D 1024 I Order code G06 ΔI* mm	Weight, approx. kg	Sendix 5020 Order codes G11/G12 ΔI* mm	Weight, approx. kg
1LE1								
225	75	1.3	72	0.9	116	1.6	65	0.4
250	75	1.3	72	0.9	116	1.6	65	0.4
280	75	1.3	72	0.9	116	1.6	65	0.4
315	75	1.3	72	0.9	116	1.6	65	0.4
1LE5								
355	On request	On request	On request	On request	On request	On request	On request	On request
400	On request	On request	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request	On request	On request

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Overview

Fig. 3 Brake and rotary pulse encoder (on cover), order codes **F01/F04 + G04/G05/G06/G11/G12** [optionally with manual release, order code **F50**; **G11, G12** protective cover as standard]

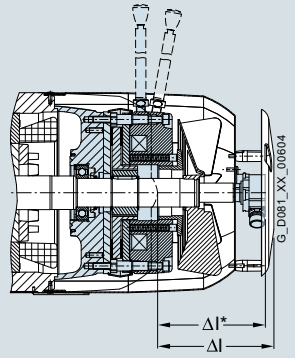
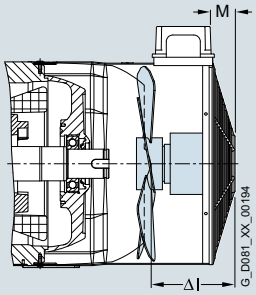
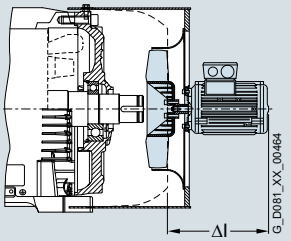


Fig. 4 Separately driven fan, order code **F70**



Frame sizes 100 to 200



Frame sizes 225 to 315

Frame size	Assignment Fig. 3 Brake and rotary pulse encoder (on cover) LL 861 900 220 Order codes F01 + G04 ΔI*	Weight, approx.	HOG 9 D 1024 I Order codes F01 + G05 ΔI*	Weight, approx.	HOG 10 D 1024 I Order codes F01 + G06 ΔI*	Weight, approx.	Sendix 5020 Order codes F01 + G11/G12 ΔI	Weight, approx.	Fig. 4 Separately driven fan Order code F70 ΔI	M	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg	mm	mm	kg
1LE1											
71	–	–	–	–	–	–	–	–	75	20	1.9
80	–	–	–	–	–	–	128.5	4.3	88	20	1.9
90	–	–	–	–	–	–	146	6.1	104	30	2.5
100	164	7.8	164	7.4	207	8.1	137	6.9	86.5	30	2.6
112	171	9.7	171	9.3	214	10	144	8.7	81.5	30	2.9
132	201	14.3	201	13.9	244	14.6	174	13.3	116	40	3.9
160	217	33.4	217	33	260	33.7	190	32.3	135.5	40	5.6
180	216	30.3	216	29.9	252	30.6	216	30.2	257	40	8.3
200	228	40.5	228	40.1	264	40.8	228	40.4	262	40	9.3
225	210	64.3	207	64.2	251	63.9	186	63.4	221	–	22
250	300	84.3	297	84.2	341	83.9	276	83.4	226	–	25
280	372	119.3	369	119.2	413	118.9	348	118.4	222	–	28
315	383	256.3	380	256.2	424	255.9	359	256.4	236[1]	–	36[1]
315	–	–	–	–	–	–	–	–	276[2]	–	38.8[2]
1LE5											
315 2-pole 4-pole	444	357	444	356.6	444	357.3	396	356	275 235	– –	37.6 35.3
355	459	427	459	426.6	459	427.3	411	426	248	–	27.5
400	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request

Frame size	Assignment Fig. 3 Brake and rotary pulse encoder (on cover) LL 861 900 220 Order codes F04 + G04 ΔI	Weight, approx.	HOG 9 D 1024 I Order codes F04 + G05 ΔI	Weight, approx.	HOG 10 D 1024 I Order codes F04 + G06 ΔI	Weight, approx.	Sendix 5020 Order codes F04 + G11/G12 ΔI	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg
1LE1								
225	274	50.3	271	49.9	315	50.6	285.5	49.4
250	260	55.3	257	54.9	301	55.6	271.5	54.4
280	267	93.3	264	92.9	308	93.6	278.5	92.4
315	263	168.3	260	167.9	304	168.6	274.5	167.4

[1] Valid for 4-pole, 6-pole, and 8-pole motors

[2] Valid for 2-pole motors

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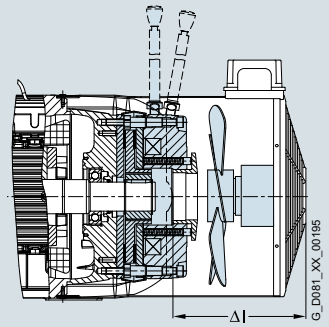
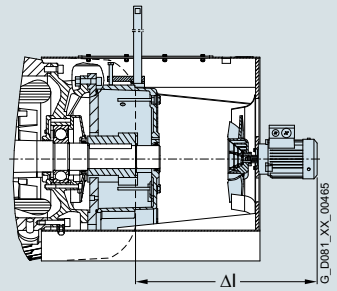
Overview

Fig. 5 Brake and separately driven fan, order codes **F01/F04 + F70** [optionally with manual release, order code **F50**]

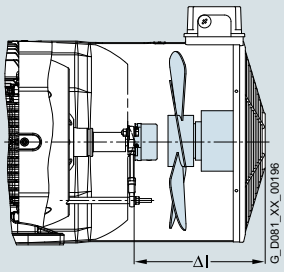


Frame sizes 100 to 200

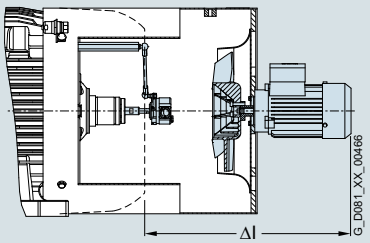


Frame sizes 225 to 355

Fig. 6 Rotary pulse encoder (under cover) and separately driven fan, order codes **F70 + G04/G05/G06/G11/G12**



Frame sizes 100 to 200



Frame sizes 225 to 355

Assignment

Frame size	**Fig. 5** Brake and separately driven fan				**Fig. 6** Separately driven fan and rotary pulse encoder (under cover)							
	Order codes **F01 + F70**		Order codes **F04 + F70**		Order codes **F70 + G04**		Order codes **F70 + G05**		Order codes **F70 + G06**		Order codes **F70 + G11/G12**	
	ΔI	Weight, approx.	ΔI	Weight, approx.	ΔI	Weight, approx.	ΔI	Weight, approx.	ΔI	Weight, approx.	ΔI	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
1LE1												
71	–	–	–	–	–	–	–	–	–	–	165	2.7
80	161.5	5.4	–	–	–	–	–	–	–	–	161.5	3
90	174	7.7	–	–	–	–	–	–	–	–	174	3.6
100	161.5	8.3	–	–	161.5	4.8	161.5	4.4	246.5	5.3	161.5	3.9
112	156.5	10.4	–	–	156.5	5.1	156.5	4.7	241.5	5.6	156.5	4.1
132	186	15.7	–	–	186	6.8	186	6.4	291	7.4	186	5.8
160	205.5	37.2	–	–	205.5	9.8	205.5	9.4	320.5	10.5	205.5	8.7
180	257	40	–	–	257	10.6	257	10.2	400	10.9	257	10.5
200	262	53	–	–	262	11.8	262	11.4	397	12.1	262	11.7
225	563	87	440.5	60	410	26	410	26	410	26	410	25
250	609	110	409	79	425	28	425	28	425	28	425	27
280	571	149	402	120	429	31	429	31	429	31	429	30
315 (4,- 6-, and 8-pole)	540	296	432	203	432	42	432	42	432	42	432	41
315 (2-pole)	588	299	–	–	472	45	472	45	472	45	472	44
1LE5												
315 2-pole 4-pole	633 593	415.7 413.7	– –	– –	633 593	39.6 37.3	633 593	39.2 36.9	633 593	39.9 37.6	633 593	38.6 36.3
355	628	471.7	–	–	381	29.5	381	29.1	381	29.8	381	28.5
400	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request

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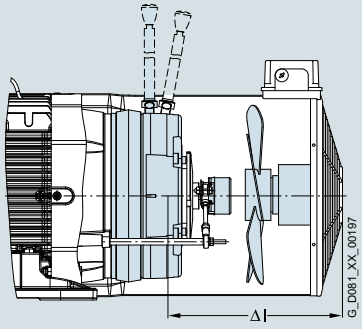
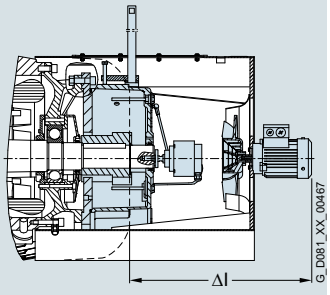
Overview

Fig. 7 Brake, rotary pulse encoder (under cover) and separately driven fan, order codes **F01/F04 + F70 + G04/G05/G06/G11/G12** [optionally with manual release, order code **F50**]

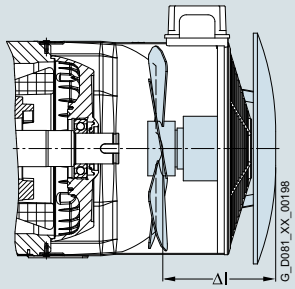


Frame sizes 100 to 200

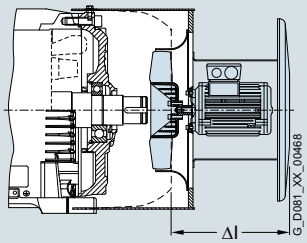


Frame sizes 225 to 355

Fig. 8 Protective cover for separately driven fan, order code **H00**



Frame sizes 100 to 200



Frame sizes 225 to 355

Frame size	Assignment Fig. 7 Brake, separately driven fan, and rotary pulse encoder (under cover) Order codes F01 + F70 + G04		Order codes F01 + F70 + G05		Order codes F01 + F70 + G06		Sendix 5020 Order codes F01 + F70 + G11/G12		Fig. 8 Protective cover for separately driven fan Order code F70+H00		
	Δl	Weight, approx.	Δl	Weight, approx.	Δl	Weight, approx.	Δl	Weight, approx.	Δl	Weight, approx.	Diameter of the separately-driven-fan cover
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm
1LE1											
80	–	–	–	–	–	–	186.5	6.7	124.5	0.2	157
90	–	–	–	–	–	–	199	9	141.5	0.2	177
100	196.5	10.9	196.5	10.5	246.5	11.5	196.5	10	124	1.4	210
112	191.5	13.1	191.5	12.7	241.5	13.6	191.5	12.1	122	1.8	249
132	241	19	241	18.6	291	19.6	241	18	149	2.4	300
160	270.5	40.9	270.5	40.5	320.5	41.6	270.5	39.8	177	3	338
180	257	38.6	257	38.2	400	40.6	257	38.5	288	1.7	338
200	262	49.9	262	49.1	397	51.5	262	49.7	293	1.7	338
225	563	88.3	563	88.2	563	88.9	563	87.4	305	2.5	210
250	609	111.3	609	111.2	609	111.9	609	110.4	311	2.5	249
280	571	150.3	571	150.2	571	150.9	571	149.4	307	2.5	300
315 (4-, 6-, 8-pole)	540	297.3	540	297.2	540	297.9	540	296.4	321[1]	2.5[1]	338[1]
315 (2-pole)	580	300.3	580	300.2	580	300.9	580	300.9	–	–	–
1LE5											
315 2-pole	–	–	–	–	–	–	–	–	402	46.1	690
4-pole	–	–	–	–	–	–	–	–	317	43.5	690
355	–	–	–	–	–	–	–	–	330	36	690
400	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request	On request

Frame size	Assignment Fig. 7 Brake, separately driven fan, and rotary pulse encoder (under cover) Order codes F04 + F70 + G04		Order codes F04 + F70 + G05		Order codes F04 + F70 + G06		Sendix 5020 Order codes F04+ F70 + G11/G12	
	Δl	Weight, approx.	Δl	Weight, approx.	Δl	Weight, approx.	Δl	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg
1LE1								
225	593.5	67.3	593.5	66.9	593.5	67.6	593.5	66.4
250	609	80.3	609	79.9	609	80.6	609	79.4
280	572	121.3	572	120.9	572	121.6	572	120.4
315	540	204.3	540	203.9	540	204.6	540	203.4
1LE5								
315 2-pole	633	417.7	633	417.3	633	418	633	416.7
4-pole	593	415.7	593	415.6	593	416	593	414.7
355	628	473.7	628	473.3	628	474	628	472.7

[1] Valid for FS 315 (2, 4, 6, and 8-pole)

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Dimensions and weights of the mountings

Overview

Fig. 9 Prepared for mountings, center hole only (for BFK458 brake, order code **F01** and/or encoder order code **G04/G05/G06/G11/G12**), order code **G40** (up to frame size 160, standard with frame size 180 and above)

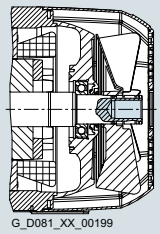
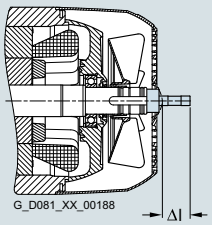


Fig. 10 Prepared for mountings with shaft D12/D16, order code **G41**/**G42**



Frame size	Assignment **Fig. 9** Prepared for mountings, center hole only (for BFK458 brake, order code **F01** and/or encoder order codes **G04**/**G05**/**G06**/**G11**/**G12**) order code **G40**		**Fig. 10** Prepared for mountings with shaft D12/D16, order code **G41**/**G42**			
	Order code **G40**		Order code **G41**		Order code **G42**	
	Δl	Weight, approx.	Δl	Weight, approx.	Δl	Weight, approx.
	mm	kg	mm	kg	mm	kg
1LE1						
71	–	–	–	–	–	–
80	–	–	22	0.1	52	0.1
90	–	–	22	0.1	52	0.1
100	–	–	18.3	0.15	54.3	0.2
112	–	–	14.5	0.15	54.3	0.2
132	–	0.1	18.8	0.3	58.8	0.4
160	–	0.2	18.6	0.4	55.6	0.7
180	–	–	18	0.27	57	0.33
200	–	–	17	0.27	56	0.27
225	–	–	23	0.27	58	0.33
250	–	–	23	0.27	58	0.33
280	–	–	23	0.27	58	0.33
315	–	–	23	0.27	58	0.33
1LE5						
315	–	–	23	0.27	58	0.33
355	–	–	23	0.27	58	0.33
400	On request	On request	On request	On request	On request	On request
450	On request	On request	On request	On request	On request	On request

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Overview

Fig. 11 Standard protective cover for types of construction, order code **H00**

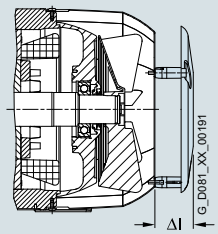
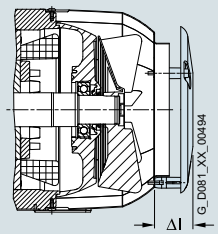


Fig. 12 Protective cover for textile industry, order code **F75**



Frame size	Assignment **Fig. 11** Protective cover Order code **H00**		**Fig. 12** Protective cover Order code **F75**	
	Δl	Weight, approx.	Δl	Weight, approx.
	mm	kg	mm	kg
71	29	0.15	–	–
80	128	0.3	17	0.3
90	144	0.4	15	0.4
100	137	0.5	64	0.7
112	122	0.7	64	0.9
132	156	1.3	71	1.3
160	182.5	1.7	71	1.9
180	285	1.7	90	3.2
200	297	1.7	90	3.4
225	100	2.2	On request	On request
250	100	2.4	On request	On request
280	110	3.4	On request	On request
315	110	4	On request	On request
1LE5				
315	110	8	–	–
355	140	8.5	–	–
400	On request	On request	–	–
450	On request	On request	–	–

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Notes

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2/2 Orientation
2/6 Converter operation
2/7 Article number code

2/8 IE4 Super Premium Efficiency
2/8 Aluminum series SIMOTICS GP 1LE1004
Cast-iron series SIMOTICS SD
2/9 • 1LE1504 Basic Line
2/11 • 1LE1604 Performance Line

2/13 IE3 Premium Efficiency
Aluminum series SIMOTICS GP
2/13 • 1LE1003
2/16 • 1LE1003 with increased power
2/17 • 1LE1083
Cast-iron series SIMOTICS SD
2/18 • 1LE1503 Basic Line
2/21 • 1LE1603 Performance Line
2/25 • 1LE1503 Basic Line with increased power
2/26 • 1LE1603 Performance Line with increased power
2/27 • 1LE1583

2/30 IE2 High Efficiency
Aluminum series SIMOTICS GP
2/30 • 1LE1001
2/34 • 1LE1001 with increased power
Cast-iron series SIMOTICS SD
2/36 • 1LE1501 Basic Line
2/40 • 1LE1601 Performance Line
2/44 • 1LE1501 Basic Line with increased power
2/46 • 1LE1601 Performance Line with increased power

2/48 IE1 Standard Efficiency
Aluminum series SIMOTICS GP
2/48 • 1LE1002
2/51 • 1LE1002 with increased power
Cast-iron series SIMOTICS SD
2/52 • 1LE1502 Basic Line
2/56 • 1LE1502 Basic Line with increased power

2/58 APAC Line · IE3 Premium Efficiency
Aluminum series SIMOTICS GP
2/58 • 1LE1043
2/60 • 1LE1043 with increased power
Cast-iron series SIMOTICS SD
2/61 • 1LE1543 Basic Line
2/64 • 1LE1643 Performance Line
2/67 • 1LE1543 Basic Line with increased power
2/68 • 1LE1643 Performance Line with increased power

2/69 APAC Line · IE2 High Efficiency
Aluminum series SIMOTICS GP
2/69 • 1LE1041
2/71 • 1LE1041 with increased power
Cast-iron series SIMOTICS SD
2/72 • 1LE1541 Basic Line
2/74 • 1LE1541 Basic Line with increased power

2/75 ABNT Line · IR3 Rendimento Premium
2/75 Aluminum series SIMOTICS GP 1E1073
2/77 Cast-iron series SIMOTICS SD 1LE1573, 1LE5773

2/79 Eagle Line · NEMA Premium Efficient MG1 Table 12-12
2/79 Aluminum series SIMOTICS GP 1LE1023
Cast-iron series SIMOTICS SD
2/81 • 1LE1523 Basic Line
2/84 • 1LE1623 Performance Line

2/88 Eagle Line · NEMA Energy Efficient MG1 Table 12-11
2/88 Aluminum series SIMOTICS GP 1LE1021
2/89 Cast-iron series SIMOTICS SD 1LE1521 Basic Line

2/90 Pole-changing
Aluminum series SIMOTICS GP
2/90 • 1LE1011 for constant load torque
2/91 • 1LE1011/1LE1012 for square-law load torque

2/93 Article No. supplements and special versions
2/93 Voltages
2/99 Types of construction
2/112 Motor protection
2/115 Terminal box position
2/118 Options
2/139 Accessories

2/141 Dimensions
2/141 Notes on the dimensions
2/141 Dimension sheet generator
2/142 Dimensions · Aluminum series SIMOTICS GP
IE1, IE2, NEMA Energy Efficient, pole-changing
2/142 • Frame sizes 63 M to 200
IE1, IE2 with increased power
2/144 • Frame sizes 80 M to 200 L
IE1, IE2
2/146 • Frame sizes 80 M to 200 L
IE3, NEMA Premium Efficient
2/148 • Frame sizes 80 M to 90 L
2/150 • Frame sizes 100 L to 200 L
IE3 with increased power
2/154 • Frame sizes 100 L to 200 L
IE3
2/156 • Frame sizes 80 M to 90 L
2/158 • Frame sizes 100 L to 200 L
IE4
2/160 • Frame sizes 100 L to 200 L
IR3 Rendimento Premium
2/162 • Frame sizes 80 M to 160 L
2/164 Dimensions · Cast-iron series SIMOTICS SD
IE1, IE2, NEMA Energy Efficient
2/164 • Frame sizes 71 M to 160 L
2/166 • Frame sizes 180 M to 250 M
2/168 • Frame sizes 280 S to 315 L
IE3, NEMA Premium Efficient
2/170 • Frame sizes 71 M to 160 L
2/172 • Frame sizes 180 M to 315 L
IE3 1LE1583
2/174 • Frame sizes 100 L to 200 L
2/176 • Frame sizes 225 S to 315 L
IE4
2/178 • Frame sizes 100 L to 160 L
2/180 • Frame sizes 180 M to 315 L
IR3 Rendimento Premium
2/182 • Frame sizes 180 M to 280 M
2/184 • Frame sizes 315 S to 315 L

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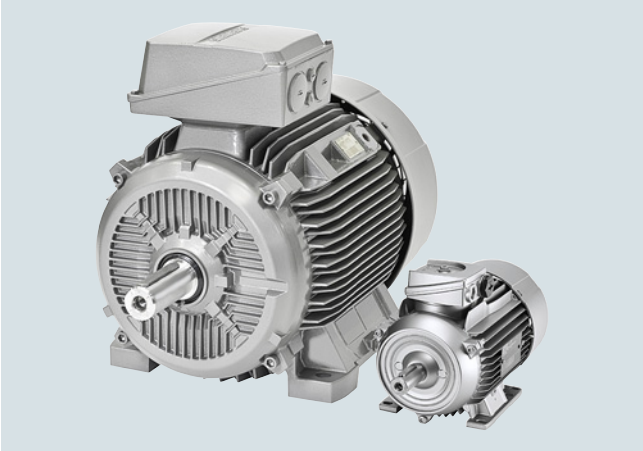
Overview



Increasing energy costs have resulted in greater emphasis on the power consumption of drive systems. It is extremely important to utilize the full potential for minimizing energy consumption here to secure competitiveness today and in the future. The environment will also profit from reduced energy consumption.

This is the reason why we have already developed a new generation of low-voltage motors. Innovative rotors create the best requisites for motors with a high degree of efficiency. IE1 and IE2 motors with the same power have the same dimensions. The new motors for IE2, IE3 and IE4 offer considerable energy savings and protect our environment. We also consider environmental compatibility and sustainable use of resources during production. Potting compounds and coatings are, for example, solvent-free.

The modular mounting concept provides total flexibility. Each motor is based on a uniform concept for all markets worldwide. Our motors are manufactured according to the most advanced ecological standards.

The new 1LE1 motor family is therefore one of the most compact in the world, because it is manufactured using innovative technology. For an optimized design, a compound of highly conductive materials is used in the rotor (up to frame size 200). This results in minimum rotor losses and an excellent starting and switching response.

The design of the 1LE1 motors ensures maximum flexibility and minimum installation costs. Users benefit from integral lifting eyes, screw-on feet, reinforced bearing plates with optimum mechanical properties and easily accessible terminal boxes. Encoders, brakes and separately driven fans can also be added without any problems. Smaller inventories make stockkeeping easier, so motor suppliers can respond to customer requirements more quickly.

The 1LE1/1LE5/1PC1 motor family comprises two main series:

- SIMOTICS GP for general purpose applications:
  Motors with an aluminum housing

  SIMOTICS GP 1LE1/1LE5/1PC1 motors with an aluminum housing are suitable for a wide range of standard drive tasks in the industrial environment. Thanks to their particular low weight, they are predestined for applications in pumps, fans and compressors. But they also reliably fulfill their tasks in conveyor systems and lifting gear.

Brief overview	
Power and voltage range:	0.09 ... 45 kW for all commonly used voltages
Frame sizes and types of construction:	63 ... 200 in all common types of construction
Rated speed:	750 ... 3600 rpm
Number of poles:	2, 4, 6, 8
Efficiency classes:	• IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency) • IR3 (Rendimento Premium) • NEE (NEMA Energy Efficient, acc. to NEMA MG, Table 12-11) • NPE (NEMA Premium Efficient, acc. to NEMA MG, Table 12-12)

- SIMOTICS SD for severe duty applications:
  Motors with cast-iron housing

  SIMOTICS SD 1LE1/1LE5 motors with a cast-iron housing are extremely rugged and are therefore the first choice for applications under harsh environmental conditions.
  They master dust or vibration in mills and mixers as well as the corrosive atmosphere in the petrochemical industry.

Brief overview	
Power and voltage range:	0.09 ... 300 kW for all commonly used voltages
Frame sizes and types of construction:	71 ... 315 in all common types of construction
Rated speed:	750 ... 3600 rpm
Number of poles:	2, 4, 6, 8
Efficiency classes:	• IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency) • IR3 (Rendimento Premium) • NEE (NEMA Energy Efficient, acc. to NEMA MG, Table 12-11) • NPE (NEMA Premium Efficient, acc. to NEMA MG, Table 12-12)

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Overview

High efficiency energy-saving motors for a positive energy balance

Depending on requirements, energy-saving motors for a positive energy balance are available that are compliant with the legal requirements applicable in the European economic area in accordance with EU Directive 640/2009 as well as for the North American market in accordance with US federal law EISA (Energy Independence Security Act).

Motors with increased power and compact construction (1LE1)

Motors with increased power and compact construction can be used to advantage in confined spaces. For a slightly longer overall length, the power is at least as high as that of the next largest frame size. These compact motors are also optimized for efficiency. They are offered in IE2 and IE3 and therefore reduce operating costs.

Motors without fan cover and without external fan (1LE1 with order code F90)

Forced-air cooled motors with surface cooling without fan cover and without external fan are mainly used for driving fans.

Motors with reduced power without fan cover and without external fan (1PC1 motors on request)

Naturally cooled motors with surface cooling without fan cover and without external fan are suitable for the following operating conditions:

- Types of duty with adequate cooling times (e.g. temporary duty for positioning drives)
- Environmental conditions that demand compact installation space (e.g. in motors with a stopping function)

Requirements that make an external fan disadvantageous, e.g. simple cleaning in the food industry, textile industry.

Benefits

There is considerable potential in the new 1LE1/1PC1 series of low-voltage motors. As a consistent further development of existing motors, the 1LE1/1PC1 motors offer numerous advantages.

Greater efficiency

Innovative rotor technology and manufacturing technology has been implemented for the IE3 and IE4 high efficiency motor variants. The energy-efficient motors are therefore considerably more compact.

The SinaSave Webtool can be used to calculate the energy saving potential and life cycle costs of all motors. SinaSave can be downloaded free of charge from the following website:
www.sinasave.siemens.com

The 1LE1 motors also impress customers with their extremely long life and their weight-optimized design has a positive effect on the stability of the equipment unit.

A wider range of applications

The motors are certified for worldwide use and satisfy high standards of quality (confirmed, for example, by CSA [1], UL [2], CQC [3]).

Improved design

The rugged housing in modern EMC design has an attractive appearance and enhances functionality. The rotatable, accessible terminal boxes, integral lifting eyes, screw-on feet and reinforced bearing plates ensure this.

Greater power

For the same frame size, the high-performance motors offer one complete rated power level more. We are also consistently implementing energy efficiency improvements here, too. The motors are offered (based on the categories of IEC 60034-30-1) in various efficiency classes.

More flexibility

The optimized design of the motors makes installation easier in general. Encoders, brakes and separately driven fans can be retrofitted easily. Terminal boxes and feet for flexible mounting can be selected. Smaller inventories make stockkeeping easier and motor suppliers can respond to customer requirements more quickly. Optimized manufacturing processes support fast availability. All motors up to 480 V can be operated either directly on the line or on a converter.

For general purpose applications: SIMOTICS GP motors with an aluminum housing

Particularly user friendly

The previously introduced, well-proven, obliquely partitioned terminal box is being implemented consistently throughout the entire motor series.

Special export line

For exporting to NAFTA, the Eagle Line is available. The motors are supplied with the electrical values stamped on the rating plate in accordance with EISA requirements.

1) Canadian Standard Association
2) Underwriters Laboratories Inc.
3) China Quality Certification

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Benefits

For severe duty applications:
SIMOTICS SD motors with a cast-iron housing

The right motor for various challenges

The following lines are available for severe duty applications:

- Basic Line (1LE15): rugged, reliable motors for machine construction
- Performance Line (1LE16): Motors for the process industry with reinforced bearings and a more rugged coating – for requirements that extend beyond the Basic Line
- "Eagle Line": Motors for exporting to the NAFTA zone; they fulfill the requirements of UL and CSA and are supplied with the electrical values stamped on the rating plate in accordance with EISA requirements

Comparison: Basic Line versus Performance Line

Function	Basic Line	Performance Line
Bearing size	62 (63 from frame size 280 upwards)	63
Relubrication	Optional (standard from frame size 280 upwards)	Standard from frame size 160 upwards (optional for frame size 100 to 132)
Paint system	Standard paint finish, corrosivity category C2 [1)]	Special paint finish, corrosivity category C3 [1)]
Drainage	Drain plugs	T drains
Rating plate	Aluminum, plastic	Steel
Motor protection	Optional	PTC
Fan cover	Plastic	Steel
Warranty	Optionally 12 or 36 months for frame sizes 180 to 315	Standard 36 months for frame sizes 180 to 315

Compact design

The size of a motor is often an important aspect in the case of machines. For this reason, the 1LE1 motors in IE2 and IE3 are not any longer than their predecessors in the 1LG series in IE2.

Another highlight: some of the IE3 motors fit in the same housing as the IE2 motors. The efficiency classes naturally do not differ with regard to shaft height, so that the mechanical interface to the equipment unit remains the same. This also supports a largely problem-free efficiency upgrade to IE3 – without the need to adapt the mechanical design of a machine.

Greater power

In severe duty applications, motors with increased power can also be the right solution if sufficient space is not available for a standard motor. Because these motors offer the same power range in the next smallest frame size.

Application

As soon as the range of motors and options is complete, it will be possible to use the 1LE1/1PC1 motors from Siemens in all areas and sectors of industry due to their numerous options. They are suitable both for special environmental conditions such as those that predominate in the chemical or petrochemical industry as well as for most climatic requirements such as those of offshore applications.

Their large range of line voltages enables them to be used all over the world.

The wide field of implementation includes the following applications:

- Pumps
- Fan
- Compressors
- Conveyor systems such as cranes, belts and lifting gear
- High-bay warehouses
- Packaging machines
- Automation and drives
- Manufacturing industry
- General machine construction

Motors with a cast-iron housing are particularly suitable for the following severe duty applications:

- Petrochemical industry
- Pharmaceuticals
- Chemical industry
- Printing industry
- Process industry

[1)] See also Chapter 1, pages 1/14 and 1/15.

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Technical specifications

Overview of technical specifications

This table lists the most important technical specifications. For more information and details, see Catalog Section 1 "Introduction".

Type of motor	SIMOTICS GP/SD 1LE1/1LE5/1PC1 IEC Low-Voltage Motors
Connection types	Star/delta connection The connection type to be used can be established from the Article No. supplements for the required motor.
Number of poles	2, 4, 6, 8
Frame sizes	63 M ... 315 L
Rated power	0.09 ... 300 kW (1LE1/1LE5 motor series)/0.3 ... 9 kW (1PC1 motor series)
Frequencies	50 Hz and 60 Hz
Versions	Self-ventilated 1LE1 energy-saving motors with: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency) • IR3 (Rendimento Premium) • NEE (NEMA Energy Efficient, acc. to NEMA MG, Table 12-11) • NPE (NEMA Premium Efficient, acc. to NEMA MG, Table 12-12) Self-ventilated 1LE1 motors with increased power with: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) Forced-air cooled 1LE1 motors without external fan and fan cover with: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency) • IR3 (Rendimento Premium) Naturally cooled 1PC1 motors without external fan and fan cover with: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency)
Marking	IEC 60034-30-1 IE1, IE2, IE3, IE4: 2, 4, 6 and 8-pole; NBR 17094-1: IR3 Rendimento Premium: 2, 4, 6, and 8-pole US Energy Independence Security Act EISA: 2, 4, 6 and 8-pole
Rated speed (synchronous speed)	750 … 3000 rpm
Rated torque	0.6 ... 1978 Nm (1LE1/1LE5 motor series)
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class 155 (F), utilized acc. to temperature class 130 (B) (also for motors with increased power) DURIGNIT IR 2000 insulation system
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP55 as standard
Cooling according to EN 60034-6 (IEC 60034-6)	• Self-ventilated (IC411) (1LE1/1LE5 motor series) frame size 80 M to 315 L • Forced-air cooled (IC418) (1LE1/1LE5 motor series with order code **F90**), frame size 80 M to 200 L • Naturally cooled (IC410) (1PC1 motor series) frame size 100 L to 160 L
Permissible coolant temperature and installation altitude	–20 ... +40 °C as standard, installation altitude up to 1000 m above sea level. See "Coolant temperature and installation altitude" in Catalog Section 1 "Introduction".
Standard voltages according to EN 60038 (IEC 60038)	50 Hz: 230 V, 400 V, 500 V, 690 V The voltage to be used can be found in the "Selection and ordering data" for the required motor.
Type of construction according to EN 60034-7 (IEC 60034-7)	• Without flange: IM B3, IM B6, IM B7, IM B8, IM V5 without protective cover, IM V6, IM V5 with protective cover • With flange: IM B5, IM V1, IM V3, IM B35 • With flange (next largest): IM B14, IM V19, IM V18, IM B34
Paint finish Suitability of paint finish for climate group according to IEC 60721, Part 2-1	Standard: Color RAL 7030 stone gray See "Paint finish" in Catalog Section 1 "Introduction".
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal – without special vibration requirements) Optionally: Grade B (with special vibration requirements) See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: half-key balancing as standard See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The corresponding sound pressure level is listed in the selection and ordering data for the required motor.
Weights	The corresponding weight is listed in the selection and ordering data for the required motor.
Modular mounting concept	Rotary pulse encoder, brake, separately driven fan or prepared for mountings
Consistent series concept	• Cast housing feet, screwed-on feet available as an option and retrofittable • Terminal box obliquely partitioned and rotatable through 4 × 90° • Bearings at DE and NDE are of identical design, reinforced bearings available as an option
Options	See "Article No. supplements and special versions"

More information

For further information, please get in touch with your local Siemens contact and use the DT Configurator.

Contacts: www.siemens.com/automation/partner
DT Configurator: www.siemens.com/dt-configurator

Wherever possible, you will find a local contact for:
- Technical support
- Spare parts/repairs
- Service
- Training
- Sales
- Technical consultation/engineering

You start by selecting a:
- country,
- product or
- sector.

By further specifying the remaining criteria you will find exactly the right contact partner with his/her respective expertise.

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Overview

Converter operation up to 480 V +10 % line voltage

See Chapter 1, page 1/26.

During installation, the EMC guidelines must be complied with

Note:

When motors are operated on SINAMICS converters additional losses occur which, depending on the admissible winding temperature, can make it necessary to reduce the torque. The admissible torque values can be obtained from the SIZER (www.siemens.com/sizer) configuring tool. The lowest frequency specified there is 5 Hz. For stationary converter operation at lower frequencies, particularly in the case of frame sizes < 100, it is necessary to inquire at the Quotation Center.

Benefits

Motors operating with frequency converters offer the user numerous advantages.

The motors feature the future-oriented insulation system DURIGNIT IR 2000 (IR = Inverter Resistant). The DURIGNIT IR 2000 insulation system consists of high-quality enamel wires and insulating sheet materials in conjunction with temperature-resistant resin impregnation.

Application

The wide field of implementation includes the following applications:

- Conveyor systems such as cranes, belts and lifting gear
- High-bay warehouses
- Packaging machines
- Automation and drives

Their large range of line voltages enables them to be used all over the world.

Technical specifications

General note

All the data listed in the catalog is applicable for a 50 Hz line supply. With converter operation, the torque reduction factors for constant torque and drives for fans, pumps and compressors must be configured using the "SIZER for Siemens Drives" engineering tool. Higher noise levels must be expected at frequencies other than 50 Hz for motors operating with converters due to the harmonic content of the supply.

Mechanical limit speeds

When the motor is operated above its rated frequency, it is important to note that the maximum speeds are limited by the limits for the roller bearings, critical rotor speed and rigidity of the rotating parts (see page 1/54).

Motor protection

A motor protection function can be implemented using the I^2t sensing capability implemented in the converter software.

If required, more precise motor protection can be afforded by direct temperature measurement using KTY84 sensors, PTC thermistors, or Pt1000 resistance thermometers in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping.

Insulation

The insulation of 1LE motors is designed such that converter operation is possible at voltages up to 480 V[1)].
$\hat{U}_{\text{phase-to-phase}} \leq 1500$ V, $\hat{U}_{\text{phase-to-ground}} \leq 1100$ V, voltage rise times of $t_s > 0.1$ µs.

For converter operation with the power ratings specified in the catalog, the motors are used according to temperature class 155 (F), i.e. in this case neither a service factor > 1 nor an increased coolant temperature is possible (order codes N01, N02 and N03 cannot be ordered).

1) See also IEC 60034-1 Edition 13.0

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Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:
1LE1001-1DB22-2CB5-Z
H00

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and power and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.

Structure of the Article No.:	Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	
1st to 4th position: Digit, letter, letter, digit	• Self-ventilated by fan mounted on and driven by the rotor	**1**	**L**	**E**	**1**															
	• Forced-air cooled by air flow from the fan to be driven with option extension **F90**																			
	• ABNT Line – self-ventilated or forced-air cooled as for **1LE1**	**1**	**L**	**E**	**5**															
	• Naturally cooled without external fan and fan cover	**1**	**P**	**C**	**1**															
5th position: Digit	Aluminum housing					**0**														
	Cast-iron housing Basic Line					**5**														
	Cast-iron housing Performance Line					**6**														
	Cast-iron housing ABNT Line IR3 (IE3)					**7**														
6th to 7th position: 2 digits	Motors with IE2 High Efficiency						**0**	**1**												
	APAC Line motors with IE2 High Efficiency						**4**	**1**												
	Motors with IE1 Standard Efficiency						**0**	**2**												
	Motors with IE3 Premium Efficiency						**0**	**3**												
	Motors with IE3 Premium Efficiency (converter operation)						**8**	**3**												
	APAC Line motors with IE3 Premium Efficiency						**4**	**3**												
	Motors with IE4 Super Premium Efficiency						**0**	**4**												
	Pole-changing motors with one winding connected in Dahlander circuit						**1**	**1**												
	Pole-changing motors with two windings						**1**	**2**												
	NEMA Energy Efficient MG1 motors, Table 12-11 – Eagle Line						**2**	**1**												
	NEMA Premium Efficient MG1 motors, Table 12-12 – Eagle Line						**2**	**3**												
	ABNT Line IR3 (IE3) motors						**7**	**3**												
8th, 9th and 11th position: Digit, letter, digit	**Motor frame size** (frame size as a combination of shaft height and overall length, encoded)									**0** ... **3**	**A** ... **E**		**0** ... **6**							
10th position: Letter	**No. of poles** A: 2-pole, B: 4-pole, C: 6-pole, D: 8-pole, J: 4/2-pole const. load torque, L: 8/4-pole const. load torque, P: 4/2-pole square-law load torque, Q: 6/4-pole square-law load torque, R: 8/4-pole square-law load torque											**A** ... **R**								
12th and 13th position: 2 digits	**Voltage, circuit and frequency** (encoded with two digits, 9-0 requires order code M.. (e.g. M1Y))													**0** ... **9**		**0** ... **8**				
14th position: Letter	**Type of construction** (encoded with A ... Z; Z requires order code Q.. (e.g. H00))																**A** ... **V**			
15th position: Letter	**Motor protection** (encoded with A ... Z; Z requires order code Q.. (e.g. Q2A))																	**A** ... **Z**		
16th position: Digit	**Terminal box position** 4: Terminal box top, 5: Terminal box right, 6: Terminal box left, 7: Terminal box bottom																		**4** ... **7**	
	Special order versions: encoded – additional order code required not encoded – additional plain text required																			**- Z**

Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type 1LE1	Standard motor with IE3 High Efficiency, IP55 degree of protection, aluminum housing	1LE1003-■■■■■-■■■■
Motor frame size/No. of poles/Speed	160 M/4-pole/1500 rpm	1LE1003-1DB2■-■■■■
Rated power	11 kW	
Voltage and frequency	230 VΔ/400 VY, 50 Hz	1LE1003-1DB22-2■■■
Type of construction with special version	IM V5 with protective cover [1]	1LE1003-1DB22-2C■■-Z H00
Motor protection	1 or 3 PTC thermistors – for tripping (2 terminals)	1LE1003-1DB22-2CB■-Z H00
Terminal box position	Terminal box right (viewed from DE)	1LE1003-1DB22-2CB5-Z H00

[1] Standard without protective cover – the protective cover is defined with order code **H00** and must be ordered in addition to the Article No. with **-Z** and this order code.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1004 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE4 Super Premium Efficiency, service factor (SF) 1.15																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
3	**3.45**	**100 L**	2920	9.8	89.1	89.8	89.4	0.86	5.7	3.7	9	4.9	62	74	**1LE1004-1AA4■-■■■■**	27	0.0054
4	**4.55**	**112 M**	2950	13	90	90.4	89.7	0.89	7.2	2.6	8.8	4.1	68	80	**1LE1004-1BA2■-■■■■**	34	0.012
5.5	**6.3**	**132 S**	2960	18	90.9	90.9	89.8	0.84	10.4	2.1	8.6	4.6	67	84	**1LE1004-1CA0■-■■■■**	44	0.024
7.5	**8.6**	**132 S**	2955	24	91.7	92.4	92.3	0.91	13	2.2	8.6	4.3	67	80	**1LE1004-1CA1■-■■■■**	56	0.031
11	**12.6**	**160 M**	2955	36	92.6	92.8	92	0.9	19.1	2.8	8.6	4.2	74	87	**1LE1004-1DA2■-■■■■**	84	0.061
15	**17.3**	**160 M**	2955	48	93.3	93.5	92.9	0.9	26	3.1	9	4.5	74	87	**1LE1004-1DA3■-■■■■**	98	0.068
18.5	**21.3**	**160 L**	2955	60	93.7	94.1	93.8	0.91	31.5	3.1	8.9	4.3	74	87	**1LE1004-1DA4■-■■■■**	112	0.074
22	**24.5**	**180 M**	2950	71	94	94.4	94.1	0.89	38	2.8	8.9	4.3	71	84	**1LE1004-1EA2■-■■■■**	139	0.091
30	**33.5**	**200 L**	2955	97	94.5	94.8	94.4	0.85	54	2.8	7.9	4	69	83	**1LE1004-2AA4■-■■■■**	173	0.13
37	**41.5**	**200 L**	2955	120	94.8	95.1	94.9	0.88	64	2.9	7.8	4	69	83	**1LE1004-2AA5■-■■■■**	214	0.20
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
2.2	**2.55**	**100 L**	1465	14	89.5	89.6	88.3	0.79	4.5	3.3	8.5	4.7	59	71	**1LE1004-1AB4■-■■■■**	30	0.014
3	**3.45**	**100 L**	1460	20	90.4	91	90.5	0.81	5.9	3.5	8.8	4.2	59	71	**1LE1004-1AB5■-■■■■**	38	0.016
4	**4.55**	**112 M**	1465	26	91.1	91.6	91	0.81	7.8	3.1	8.3	4.3	63	75	**1LE1004-1BB2■-■■■■**	46	0.020
5.5	**6.3**	**132 S**	1470	36	91.9	92.5	92.3	0.83	10.4	2.6	8.3	3.5	56	68	**1LE1004-1CB0■-■■■■**	59	0.039
7.5	**8.6**	**132 M**	1470	49	92.6	93.1	92.7	0.81	14.4	3	7.7	4	56	68	**1LE1004-1CB2■-■■■■**	62	0.046
11	**12.6**	**160 M**	1475	71	93.3	93.5	92.9	0.82	21	2.9	8.1	4.1	63	76	**1LE1004-1DB2■-■■■■**	98	0.099
15	**17.3**	**160 L**	1480	97	93.9	94	93.3	0.8	29	3.7	7.8	4.3	63	76	**1LE1004-1DB4■-■■■■**	109	0.11
18.5	**21.3**	**180 M**	1470	120	94.2	94.7	94.5	0.81	35	2.7	7.9	3.6	59	72	**1LE1004-1EB2■-■■■■**	153	0.17
22	**25.3**	**180 L**	1475	142	94.5	95	94.8	0.81	41.5	2.9	7.7	3.8	59	72	**1LE1004-1EB4■-■■■■**	158	0.18
30	**34.5**	**200 L**	1475	194	94.9	95.2	94.9	0.81	56	3.2	7.3	3.6	60	73	**1LE1004-2AB5■-■■■■**	205	0.27

Voltages		Version					Order code
Frame sizes 100 L to 200 L: Use of the 4 x 90° rotatable terminal box							
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
For other voltages [1] and more information, see from page 2/93			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Frame sizes 100 L to 200 L: Use of the 4 x 90° rotatable terminal box							
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)							**1LE1004-. . . .■-■■■■-Z** **F90 +. . .+. . .+. . .**
For options, see from page 2/118							**1LE1004-. . . .■-■■■■-Z** **. . .+. . .+. . .+. . .**

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1504 – Basic Line Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE4 Super Premium Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																	
3	3.45	100 L	2920	9.8	89.1	89.8	89.4	0.86	5.7	3.7	9	4.9	62	74	1LE1504-1AA4■-■■■■	38	0.0054
4	4.55	112 M	2950	13	90	90.4	89.7	0.89	7.2	2.6	8.8	4.1	68	80	1LE1504-1BA2■-■■■■	45	0.012
5.5	6.3	132 S	2960	18	90.9	90.9	89.8	0.84	10.4	2.1	8.6	4.6	67	84	1LE1504-1CA0■-■■■■	62	0.024
7.5	8.6	132 S	2955	24	91.7	92.4	92.3	0.91	13	2.2	8.6	4.3	67	80	1LE1504-1CA1■-■■■■	74	0.031
11	12.6	160 M	2955	36	92.6	92.8	92	0.9	19.1	2.8	8.6	4.2	74	87	1LE1504-1DA2■-■■■■	113	0.061
15	17.3	160 M	2955	48	93.3	93.5	92.9	0.9	26	3.1	9	4.5	74	87	1LE1504-1DA3■-■■■■	130	0.068
18.5	21.3	160 L	2955	60	93.7	94.1	93.8	0.91	31.5	3.1	8.9	4.3	74	87	1LE1504-1DA4■-■■■■	147	0.074
22	24.5	180 M	2950	71	94	94.4	94.1	0.89	38	2.8	8.9	4.3	71	84	1LE1504-1EA2■-■■■■	175	0.091
30	33.5	200 L	2955	97	94.5	94.8	94.4	0.85	54	2.8	7.9	4	69	83	1LE1504-2AA4■-■■■■	222	0.13
37	41.5	200 L	2955	120	94.8	95.1	94.9	0.88	64	2.9	7.8	4	69	83	1LE1504-2AA5■-■■■■	263	0.20
45	51	225 M	2970	145	95	95	94.4	0.85	80	3.1	8.8	4.1	73	86	1LE1504-2BA2■-■■■■	330	0.26
55	62	250 M	2978	176	95.3	95.2	94.5	0.88	95	2.5	7.5	3.2	73	86	1LE1504-2CA2■-■■■■	430	0.48
75	84	280 S	2980	240	95.6	95.6	95	0.89	127	2.7	8.4	3.5	73	87	1LE1504-2DA0■-■■■■	610	0.94
90	101	280 M	2978	289	95.8	95.9	95.4	0.89	152	2.7	8.4	3.5	77	91	1LE1504-2DA2■-■■■■	610	1.0
110	123	315 S	2985	352	96	96	95.3	0.89	186	2.6	8.8	3.4	77	91	1LE1504-3AA0■-■■■■	750	1.4
132	148	315 M	2988	422	96.2	96.2	95.6	0.9	220	3.1	10.5	4	77	91	1LE1504-3AA2■-■■■■	980	1.9
160	180	315 L	2988	511	96.3	96.3	95.8	0.92	260	3.2	10.3	3.9	78	91	1LE1504-3AA4■-■■■■	1060	2.1
200	224	315 L	2986	640	96.5	96.5	96.1	0.92	325	3.5	10	3.9	78	93	1LE1504-3AA5■-■■■■	1180	2.4

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
For other voltages and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
With flange	IM B5 [3]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**				4	
For other terminal box positions and more information, see from page 2/116						■	
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1504-. . . . ■-■■■■-Z					F90 +. . .+. . .+. . .
For options, see from page 2/125		1LE1504-. . . . ■-■■■■-Z					. . .+. . .+. . .+. . .

Note: IE4 motors (2-pole) in frame size 315 do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/50).

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1504 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE4 Super Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
2.2	**2.55**	**100 L**	1465	14		89.5	89.6	88.3	0.79	4.5	3.3	8.5	4.7	59	71	**1LE1504-1AB4**■-■■■■	41	0.014
3	**3.45**	**100 L**	1460	20		90.4	91	90.5	0.81	5.9	3.5	8.8	4.2	59	71	**1LE1504-1AB5**■-■■■■	50	0.016
4	**4.55**	**112 M**	1465	26		91.1	91.6	91	0.81	7.8	3.1	8.3	4.3	63	75	**1LE1504-1BB2**■-■■■■	58	0.020
5.5	**6.3**	**132 S**	1470	36		91.9	92.5	92.3	0.83	10.4	2.6	8.3	3.5	56	68	**1LE1504-1CB0**■-■■■■	77	0.039
7.5	**8.6**	**132 M**	1470	49		92.6	93.1	92.7	0.81	14.4	3	7.7	4	56	68	**1LE1504-1CB2**■-■■■■	80	0.046
11	**12.6**	**160 M**	1475	71		93.3	93.5	92.9	0.82	21	2.9	8.1	4.1	63	76	**1LE1504-1DB2**■-■■■■	127	0.099
15	**17.3**	**160 L**	1480	97		93.9	94	93.3	0.8	29	3.7	7.8	4.3	63	76	**1LE1504-1DB4**■-■■■■	138	0.11
18.5	**21.3**	**180 M**	1470	120		94.2	94.7	94.5	0.81	35	2.7	7.9	3.6	59	72	**1LE1504-1EB2**■-■■■■	187	0.17
22	**25.3**	**180 L**	1475	142		94.5	95	94.8	0.81	41.5	2.9	7.7	3.8	59	72	**1LE1504-1EB4**■-■■■■	192	0.18
30	**34.5**	**200 L**	1475	194		94.9	95.2	94.9	0.81	56	3.2	7.3	3.6	60	73	**1LE1504-2AB5**■-■■■■	258	0.27
37	**42.5**	**225 S**	1485	238		95.2	95.5	95.2	0.84	67	3.2	8.4	3.2	69	83	**1LE1504-2BB0**■-■■■■	345	0.52
45	**52**	**225 M**	1485	289	IE3	95.4	95.7	95.4	0.84	81	3.4	8	3.3	69	83	**1LE1504-2BB2**■-■■■■	415	0.66
55	**63**	**250 M**	1486	353		95.7	95.8	95.4	0.86	96	3	8.2	3.3	68	82	**1LE1504-2CB2**■-■■■■	490	1.1
75	**86**	**280 S**	1490	481		96	96.1	95.6	0.85	133	3.4	9.2	3.8	69	83	**1LE1504-2DB0**■-■■■■	670	1.7
90	**104**	**280 M**	1488	578		96.1	96.3	96.1	0.86	157	3.2	9	3.4	70	84	**1LE1504-2DB2**■-■■■■	730	2.0
110	**127**	**315 M** [4]	1491	705		96.3	96.4	95.9	0.86	192	3.2	8.6	3.3	73	87	**1LE1504-3AB0**■-■■■■	910	2.7
132	**152**	**315 M**	1491	845		96.4	96.6	96.2	0.87	225	3.3	8.7	3.3	73	87	**1LE1504-3AB2**■-■■■■	990	3.1
160	**184**	**315 L**	1490	1025		96.6	96.7	96.5	0.86	280	3.6	9	3.2	76	90	**1LE1504-3AB4**■-■■■■	1180	3.7
200	**230**	**315 L**	1490	1282		96.7	96.9	96.6	0.86	345	3.8	9.2	3.4	76	90	**1LE1504-3AB5**■-■■■■	1300	4.4

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B5 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1504-**. . . . ■-■■■■	**-Z F90** +. . .+. . .+. . .
For options, see from page 2/125	**1LE1504-**. . . . ■-■■■■	**-Z** . . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

4) As 315 M version (not the same as 315 S according to EN 50347).

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1604 – Performance Line Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE4 Super Premium Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																	
3	**3.45**	**100 L**	2920	9.8	89.1	89.8	89.4	0.86	5.7	3.7	9	4.9	62	74	**1LE1604-1AA4■-■■■■**	38	0.0054
4	**4.55**	**112 M**	2950	13	90	90.4	89.7	0.89	7.2	2.6	8.8	4.1	68	80	**1LE1604-1BA2■-■■■■**	45	0.012
5.5	**6.3**	**132 S**	2960	18	90.9	90.9	89.8	0.84	10.4	2.1	8.6	4.6	67	84	**1LE1604-1CA0■-■■■■**	62	0.024
7.5	**8.6**	**132 S**	2955	24	91.7	92.4	92.3	0.91	13	2.2	8.6	4.3	67	80	**1LE1604-1CA1■-■■■■**	74	0.031
11	**12.6**	**160 M**	2955	36	92.6	92.8	92	0.9	19.1	2.8	8.6	4.2	74	87	**1LE1604-1DA2■-■■■■**	113	0.061
15	**17.3**	**160 M**	2955	48	93.3	93.5	92.9	0.9	26	3.1	9	4.5	74	87	**1LE1604-1DA3■-■■■■**	130	0.068
18.5	**21.3**	**160 L**	2955	60	93.7	94.1	93.8	0.91	31.5	3.1	8.9	4.3	74	87	**1LE1604-1DA4■-■■■■**	147	0.074
22	**24.5**	**180 M**	2950	71	94	94.4	94.1	0.89	38	2.8	8.9	4.3	71	84	**1LE1604-1EA2■-■■■■**	175	0.091
30	**33.5**	**200 L**	2955	97	94.5	94.8	94.4	0.85	54	2.8	7.9	4	69	83	**1LE1604-2AA4■-■■■■**	222	0.13
37	**41.5**	**200 L**	2955	120	94.8	95.1	94.9	0.88	64	2.9	7.8	4	69	83	**1LE1604-2AA5■-■■■■**	263	0.20
45	**51**	**225 M**	2970	145	95	95	94.4	0.85	80	3.1	8.8	4.1	73	86	**1LE1604-2BA2■-■■■■**	330	0.26
55	**62**	**250 M**	2978	176	95.3	95.2	94.5	0.88	95	2.5	7.5	3.2	73	86	**1LE1604-2CA2■-■■■■**	430	0.48
75	**84**	**280 S**	2980	240	95.6	95.6	95	0.89	127	2.7	8.4	3.5	73	87	**1LE1604-2DA0■-■■■■**	610	0.94
90	**101**	**280 M**	2978	289	95.8	95.9	95.4	0.89	152	2.7	8.4	3.5	77	91	**1LE1604-2DA2■-■■■■**	610	1.0
110	**123**	**315 S**	2985	352	96	96	95.3	0.89	186	2.6	8.8	3.4	77	91	**1LE1604-3AA0■-■■■■**	750	1.4
132	**148**	**315 M**	2988	422	96.2	96.2	95.6	0.9	220	3.1	10.5	4	77	91	**1LE1604-3AA2■-■■■■**	980	1.9
160	**180**	**315 L**	2988	511	96.3	96.3	95.8	0.92	260	3.2	10.3	3.9	78	91	**1LE1604-3AA4■-■■■■**	1060	2.1
200	**224**	**315 L**	2986	640	96.5	96.5	96.1	0.92	325	3.5	10	3.9	78	93	**1LE1604-3AA5■-■■■■**	1180	2.4

Voltages [2]		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**		–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**		–
For other voltages and more information, see from page 2/96			**9**	**0**		. . .
Types of construction		Version				Order code
Without flange	IM B3 [3]	**Standard**			**A**	–
With flange	IM B5 [3]	With additional charge			**F**	–
With flange	IM B5 [3]	With additional charge			**K**	–
For other types of construction and more information, see from page 2/103					■	. . .
Motor protection		Version				Order code
PTC thermistor with 3 temperature sensors		**Standard**			**B**	–
For other motor protection and more information, see from page 2/113					■	. . .
Terminal box position		Version				
Terminal box at top		**Standard**			**4**	
For other terminal box positions and more information, see from page 2/116					■	
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1604-. . . . ■-■■■■**			**-Z**	**F90** +. . .+. . .+. . .
For options, see from page 2/125		**1LE1604-. . . . ■-■■■■**			**-Z**	. . .+. . .+. . .+. . .

Note: IE4 motors (2-pole) in frame size 315 do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/50).

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1604 – Performance Line Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE4 Super Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
2.2	**2.55**	**100 L**	1465	14		89.5	89.6	88.3	0.79	4.5	3.3	8.5	4.7	59	71	**1LE1604-1AB4■-■■■■**	41	0.014
3	**3.45**	**100 L**	1460	20		90.4	91	90.5	0.81	5.9	3.5	8.8	4.2	59	71	**1LE1604-1AB5■-■■■■**	50	0.016
4	**4.55**	**112 M**	1465	26		91.1	91.6	91	0.81	7.8	3.1	8.3	4.3	63	75	**1LE1604-1BB2■-■■■■**	58	0.020
5.5	**6.3**	**132 S**	1470	36		91.9	92.5	92.3	0.83	10.4	2.6	8.3	3.5	56	68	**1LE1604-1CB0■-■■■■**	77	0.039
7.5	**8.6**	**132 M**	1470	49		92.6	93.1	92.7	0.81	14.4	3	7.7	4	56	68	**1LE1604-1CB2■-■■■■**	80	0.046
11	**12.6**	**160 M**	1475	71		93.3	93.5	92.9	0.82	21	2.9	8.1	4.1	63	76	**1LE1604-1DB2■-■■■■**	127	0.099
15	**17.3**	**160 L**	1480	97		93.9	94	93.3	0.8	29	3.7	7.8	4.3	63	76	**1LE1604-1DB4■-■■■■**	138	0.11
18.5	**21.3**	**180 M**	1470	120		94.2	94.7	94.5	0.81	35	2.7	7.9	3.6	59	72	**1LE1604-1EB2■-■■■■**	187	0.17
22	**25.3**	**180 L**	1475	142		94.5	95	94.8	0.81	41.5	2.9	7.7	3.8	59	72	**1LE1604-1EB4■-■■■■**	192	0.18
30	**34.5**	**200 L**	1475	194		94.9	95.2	94.9	0.81	56	3.2	7.3	3.6	60	73	**1LE1604-2AB5■-■■■■**	258	0.27
37	**42.5**	**225 S**	1485	238		95.2	95.5	95.2	0.84	67	3.2	8.4	3.2	69	83	**1LE1604-2BB0■-■■■■**	345	0.52
45	**52**	**225 M**	1485	289	IE3	95.4	95.7	95.4	0.84	81	3.4	8	3.3	69	83	**1LE1604-2BB2■-■■■■**	415	0.66
55	**63**	**250 M**	1486	353		95.7	95.8	95.4	0.86	96	3	8.2	3.3	68	82	**1LE1604-2CB2■-■■■■**	490	1.1
75	**86**	**280 S**	1490	481		96	96.1	95.6	0.85	133	3.4	9.2	3.8	69	83	**1LE1604-2DB0■-■■■■**	670	1.7
90	**104**	**280 M**	1488	578		96.1	96.3	96.1	0.86	157	3.2	9	3.4	70	84	**1LE1604-2DB2■-■■■■**	730	2.0
110	**127**	**315 M** [4]	1491	705		96.3	96.4	95.9	0.86	192	3.2	8.6	3.3	73	87	**1LE1604-3AB0■-■■■■**	910	2.7
132	**152**	**315 M**	1491	845		96.4	96.6	96.2	0.87	225	3.3	8.7	3.3	73	87	**1LE1604-3AB2■-■■■■**	990	3.1
160	**184**	**315 L**	1490	1025		96.6	96.7	96.5	0.86	280	3.6	9	3.2	76	90	**1LE1604-3AB4■-■■■■**	1180	3.7
200	**230**	**315 L**	1490	1282		96.7	96.9	96.6	0.86	345	3.8	9.2	3.4	76	90	**1LE1604-3AB5■-■■■■**	1300	4.4

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B5 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1604-. . . . ■-■■■■-Z**					**F90** +. . .+. . .+. . .
For options, see from page 2/125		**1LE1604-. . . . ■-■■■■-Z**					. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

4) As 315 M version (not the same as 315 S according to EN 50347).

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1003 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
0.75	**0.86**	**80 M**	2850	2.5		80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	**1LE1003-0DA2■-■■■■**	11	0.0011
1.1	**1.27**	**80 M**	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	**1LE1003-0DA3■-■■■■**	12	0.0013
1.5	**1.75**	**90 S**	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	**1LE1003-0EA0■-■■■■**	15	0.0021
2.2	**2.55**	**90 L**	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	**1LE1003-0EA4■-■■■■**	19	0.0031
3	**3.45**	**100 L**	2920	9.8		87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	71	79	**1LE1003-1AA4■-■■■■**	26	0.0054
4	**4.55**	**112 M**	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	73	81	**1LE1003-1BA2■-■■■■**	34	0.012
5.5	**6.3**	**132 S**	2950	18		89.2	90.1	89.7	0.9	9.9	1.9	7.3	3.7	72	80	**1LE1003-1CA0■-■■■■**	43	0.024
7.5	**8.6**	**132 S**	2950	24.5		90.1	91	91	0.92	13.1	1.9	8.3	3.9	68	80	**1LE1003-1CA1■-■■■■**	57	0.031
11	**12.6**	**160 M**	2955	35.5		91.2	91	89.5	0.89	19.6	2.4	7.9	3.8	70	82	**1LE1003-1DA2■-■■■■**	75	0.053
15	**17.3**	**160 M**	2960	48		91.9	91.9	91	0.87	27	2.8	8.8	4.3	74	82	**1LE1003-1DA3■-■■■■**	84	0.061
18.5	**21.3**	**160 L**	2955	60		92.4	92.8	92.4	0.9	32	2.8	9	4.2	70	82	**1LE1003-1DA4■-■■■■**	94	0.068
22	**24.5**	**180 M**	2950	71		92.7	93.2	92.9	0.89	38.5	2.3	7.5	3.5	67	80	**1LE1003-1EA2■-■■■■**	122	0.08
30	**33.5**	**200 L**	2955	97		93.3	93.5	92.9	0.87	53	2.5	7	3.3	67	80	**1LE1003-2AA4■-■■■■**	173	0.134
37	**41.5**	**200 L**	2955	120		93.7	94.2	94	0.88	65	2.5	7.1	3.2	67	80	**1LE1003-2AA5■-■■■■**	194	0.158

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/93			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
With flange	IM B14 [2]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
For options, see from page 2/118		**1LE1003-. . . . ■-■■■■**					**-Z** . . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1003 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
0.55	**0.63**	**80 M**	1440	3.6		80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	**1LE1003-0DB2■-■■■■**	11	0.0021
0.75	**0.86**	**80 M**	1450	4.9		82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	**1LE1003-0DB3■-■■■■**	14	0.0029
1.1	**1.27**	**90 S**	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68	**1LE1003-0EB0■-■■■■**	16	0.0036
1.5	**1.75**	**90 L**	1445	9.9		85.3	86.0	85.2	0.8	3.15	2.9	7.3	3.5	60	68	**1LE1003-0EB4■-■■■■**	19	0.0049
2.2	**2.55**	**100 L**	1465	14.3	IE2	86.7	87.3	86.4	0.83	4.4	2.1	7.6	3.6	60	72	**1LE1003-1AB4■-■■■■**	30	0.014
3	**3.45**	**100 L**	1460	20		87.7	88.4	88.2	0.83	5.9	2.3	7.3	3.7	60	72	**1LE1003-1AB5■-■■■■**	30	0.014
4	**4.55**	**112 M**	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	**1LE1003-1BB2■-■■■■**	34	0.017
5.5	**6.3**	**132 S**	1470	36	IE2	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	**1LE1003-1CB0■-■■■■**	64	0.046
7.5	**8.6**	**132 M**	1470	49	IE2	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	**1LE1003-1CB2■-■■■■**	64	0.046
11	**12.6**	**160 M**	1475	71		91.4	91.9	91.4	0.84	20.5	2.2	6.8	3.2	65	77	**1LE1003-1DB2■-■■■■**	83	0.083
15	**17.3**	**160 L**	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	**1LE1003-1DB4■-■■■■**	100	0.099
18.5	**21.3**	**180 L**	1470	143		93	93.6	93.6	0.83	41	2.3	6.8	3.3	68	75	**1LE1003-1EB2■-■■■■**	142	0.14
22	**25.3**	**180 L**	1470	195		93.6	94.0	93.8	0.79	59	3	8.2	3.8	67	74	**1LE1003-1EB4■-■■■■**	154	0.17
30	**34.5**	**200 L**	1470	195	IE2	93.6	94	93.7	0.84	55	2.6	7.3	3.1	65	72	**1LE1003-2AB5■-■■■■**	189	0.22

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VY		Without additional charge	**2**	**7**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
For other voltages [1] and more information, see from page 2/93			**9**	**0**	. . .
Types of construction		Version			Order code
Without flange	IM B3 [2]	**Standard**		**A**	–
With flange	IM B5 [2]	With additional charge		**F**	–
With flange	IM B14 [2]	With additional charge		**K**	–
For other types of construction and more information, see from page 2/99				■	. . .
Motor protection		Version			Order code
Without		**Standard**		**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge		**B**	–
For other motor protection and more information, see from page 2/112				■	. . .
Terminal box position		Version			
Terminal box at top		**Standard**			**4**
For other terminal box positions and more information, see from page 2/115					■
Special versions					Order code(s)
For options, see from page 2/118			**1LE1003-. . . . ■-■■■■**		**-Z** . . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1003 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.37	0.43	80 M	940	3.8		73.5	73.1	69.4	0.66	1.1	2.3	4.2	2.7	42	53	1LE1003-0DC2■-■■■■	12	0.0025
0.55	0.63	80 M	935	5.6		77.2	77	73.9	0.67	1.53	2.5	4.5	2.8	42	53	1LE1003-0DC3■-■■■■	14	0.0031
0.75	0.86	90 S	945	7.6		78.9	80	78.8	0.7	1.96	2.2	4.6	2.6	43	55	1LE1003-0EC0■-■■■■	16	0.004
1.1	1.27	90 L	950	11	IE1	81.0	81.4	79.3	0.66	2.95	2.8	5.0	3	60	68	1LE1003-0EC4■-■■■■	19	0.0052
1.5	1.75	100 L	970	14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	1LE1003-1AC4■-■■■■	25	0.011
2.2	2.55	112 M	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	1LE1003-1BC2■-■■■■	34	0.017
3	3.45	132 S	975	29		85.6	86.1	84.9	0.73	6.9	2.3	6.6	3.2	56	66	1LE1003-1CC0■-■■■■	42	0.034
4	4.55	132 M	975	39		86.8	87.1	86.2	0.73	9.1	2.2	6.2	3	67	75	1LE1003-1CC2■-■■■■	46	0.039
5.5	6.3	132 M	975	54		88.0	88.3	87.2	0.72	12.5	2.7	6.8	3.4	64	72	1LE1003-1CC3■-■■■■	58	0.050
7.5	8.6	160 M	985	73		89.1	89.5	88.6	0.81	15	2.3	7.9	3.2	71	79	1LE1003-1DC2■-■■■■	95	0.132
11	12.6	160 L	980	107		90.3	90.8	90.2	0.80	22	2.9	6.8	2.8	66	74	1LE1003-1DC4■-■■■■	106	0.164
15	18	180 L	975	147	IE2	91.2	92	91.9	0.8	29.5	2.3	5.9	2.8	61	68	1LE1003-1EC4■-■■■■	130	0.19
18.5	22	200 L	978	181	IE2	91.7	92.5	92.4	0.79	37	2.5	5.6	2.6	64	71	1LE1003-2AC4■-■■■■	166	0.28
22	26.5	200 L	978	215	IE2	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	61	68	1LE1003-2AC5■-■■■■	179	0.32
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
2.2	2.55	132 S	725	29		81.9	82.9	81.8	0.63	6.2	1.4	3.6	1.8	64	77	1LE1003-1CD0■-■■■■	56	0.038
3	3.45	132 M	725	40		83.5	84.2	82.7	0.61	8.5	1.5	3.8	2	64	77	1LE1003-1CD2■-■■■■	65	0.048
4	4.55	160 M	730	52		84.8	85.6	84.5	0.66	10.3	1.6	3.6	1.8	65	78	1LE1003-1DD2■-■■■■	72	0.065
5.5	6.3	160 M	730	72		86.2	86.9	85.7	0.66	14	1.6	3.8	1.9	65	78	1LE1003-1DD3■-■■■■	86	0.083
7.5	8.6	160 L	728	98		87.3	88.2	87.7	0.65	19.1	1.6	3.8	1.9	65	78	1LE1003-1DD4■-■■■■	110	0.116
11	13.2	180 L	725	145		88.6	89.7	89.6	0.74	24	2.1	5.1	2.4	61	74	1LE1003-1ED4■-■■■■	161	0.267
15	18	200 L	730	196		89.6	90.1	89.4	0.73	33.5	3	6.8	3.7	57	70	1LE1003-2AD5■-■■■■	212	0.420

Voltages		Version							Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2					–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4					–
50 Hz 500 VY		Without additional charge	2	7					–
50 Hz 500 VΔ		Without additional charge	4	0					–
For other voltages [1] and more information, see from page 2/93			9	0					. . .
Types of construction		Version							Order code
Without flange	IM B3 [2]	**Standard**			A				–
With flange	IM B5 [2]	With additional charge			F				–
With flange	IM B14 [2]	With additional charge			K				–
For other types of construction and more information, see from page 2/99					■				. . .
Motor protection		Version							Order code
Without		**Standard**				A			–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge				B			–
For other motor protection and more information, see from page 2/112						■			. . .
Terminal box position		Version							
Terminal box at top		**Standard**					4		
For other terminal box positions and more information, see from page 2/115							■		
Special versions									Order code(s)
For options, see from page 2/118								1LE1003-. . . . ■-■■■■	-Z . . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1003 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
11	**12.6**	**132 M**	2955	36		91.2	91.7	91.8	0.86	20	2.5	9.4	4.1	71	80	**1LE1003-1CA6■-■■■■**	57	0.031
22	**25.3**	**160 L**	2950	71		92.7	93.4	93.3	0.91	37.5	2.8	8.7	4	70	82	**1LE1003-1DA6■-■■■■**	105	0.077
30	**33.5**	**180 L**	2950	97		93.3	93.9	93.9	0.88	53	2.6	8.6	3.9	67	80	**1LE1003-1EA6■-■■■■**	140	0.094
45	**51**	**200 L**	2950	146		94	94.3	94	0.87	79	2.5	7.1	3.2	77	84	**1LE1003-2AA6■-■■■■**	194	0.16
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
11	**12.6**	**132 M**	1470	71		91.4	91.9	91.5	0.8	21.5	2.6	7.7	3.6	64	76	**1LE1003-1CB6■-■■■■**	81	0.049
18.5	**21.3**	**160 L**	1470	195	IE2	93.6	94.2	94.1	0.79	59	2.8	7.8	3.7	68	75	**1LE1003-1DB6■-■■■■**	110	0.101
30	**34.5**	**180 L**	1470	195		93.6	94	93.8	0.79	59	3	8.2	3.8	66	74	**1LE1003-1EB6■-■■■■**	154	0.173
37	**42.5**	**200 L**	1475	240		93.9	94.3	94.2	0.81	70	3.1	8.1	3.5	65	72	**1LE1003-2AB6■-■■■■**	154	0.173
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
18.5	**22**	**180 L**	975	181		91.7	92.3	91.9	0.77	38	2.6	6.9	3.3	68	80	**1LE1003-1EC6■-■■■■**	150	0.247
30	**36**	**200 L**	978	293	IE2	92.9	93.7	93.7	0.79	59	2.8	6.5	2.8	61	68	**1LE1003-2AC6■-■■■■**	220	0.434

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/93			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	A	–
With flange	IM B5 [2]	With additional charge	F	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 3 temperature sensors	With additional charge	B	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/115		■	

Special versions		Order code(s)
For options, see from page 2/118	**1LE1003- . . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1083 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.0																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
3	3.45	100 L	2920	9.8		87.1	87.8	87.4	0.88	5.6	3.2	8.1	4.6	67	79	▲ 1LE1083-1AA4■-■■■■	26	0.0054
4	4.55	112 M	2920	10		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4.0	69	81	▲ 1LE1083-1BA2■-■■■■	34	0.012
5.5	6.3	132 S	2950	13		89.2	89.6	88.9	0.91	9.8	2.1	9.7	3.6	72	79	▲ 1LE1083-1CA0■-■■■■	57	0.024
7.5	8.6	132 S	2960	18		90.1	90.9	90.7	0.92	13.1	2.1	8.3	4.0	68	80	▲ 1LE1083-1CA1■-■■■■	57	0.031
11	12.6	160 M	2950	24		91.2	91.5	90.7	0.90	19.3	2.5	8.5	3.4	79	86	▲ 1LE1083-1DA2■-■■■■	84	0.053
15	17.3	160 M	2955	36		91.9	91.9	91.0	0.87	27	2.8	8.8	4.3	70	82	▲ 1LE1083-1DA3■-■■■■	84	0.061
18.5	21.3	160 L	2960	48		92.4	92.9	92.6	0.92	32	2.8	9.7	3.8	78	85	▲ 1LE1083-1DA4■-■■■■	109	0.068
22	24.5	180 M	2960	60		92.7	93	92.4	0.89	39	2.3	7.5	3.5	67	80	▲ 1LE1083-1EA2■-■■■■	129	0.08
30	33.5	200 L	2950	71		93.3	93.6	93.3	0.87	53	2.5	7.0	3.3	68	81	▲ 1LE1083-2AA4■-■■■■	173	0.134
37	41.5	200 L	2955	97		93.7	93.9	93.5	0.88	65	2.5	7.1	3.2	68	81	▲ 1LE1083-2AA5■-■■■■	194	0.158
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
2.2	2.55	100 L	1465	14		86.7	87	85.9	0.83	4.4	3.2	8.4	4.4	60	72	▲ 1LE1083-1AB4■-■■■■	30	0.014
3	3.45	100 L	1460	19.6		87.7	88.4	87.8	0.84	5.9	2.4	8.5	3.4	68	75	▲ 1LE1083-1AB5■-■■■■	42	0.016
4	4.55	112 M	1460	26		88.6	89.6	89.4	0.85	7.7	2.1	7.5	3.0	67	74	▲ 1LE1083-1BB2■-■■■■	49	0.017
5.5	6.3	132 S	1470	36		89.6	90.1	89.7	0.82	10.8	2.9	8.5	3.7	64	76	▲ 1LE1083-1CB0■-■■■■	64	0.046
7.5	8.6	132 M	1465	49		90.4	91.1	90.8	0.84	14.3	2.6	8.2	3.7	64	76	▲ 1LE1083-1CB2■-■■■■	61	0.046
11	12.6	160 M	1475	71		91.4	91.8	91.2	0.84	21	2.6	7.6	3.4	65	77	▲ 1LE1083-1DB2■-■■■■	83	0.083
15	17.3	160 L	1480	97		92.1	92.4	92.0	0.85	28	2.9	8.1	3.3	67	74	▲ 1LE1083-1DB4■-■■■■	111	0.099
18.5	21.3	180 M	1470	120		92.6	93.1	93.0	0.82	35	2.5	7.2	3.3	66	73	▲ 1LE1083-1EB2■-■■■■	134	0.13
22	25.3	180 L	1470	143		93.0	93.4	93.1	0.83	41	2.3	6.8	3.3	62	75	▲ 1LE1083-1EB4■-■■■■	142	0.14
30	34.5	200 L	1470	195		93.6	94.3	94.5	0.84	55	2.6	7.3	3.1	59	72	▲ 1LE1083-2AB5■-■■■■	189	0.22
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
15	18	180 L	975	147		91.2	91.6	91.2	0.80	30	2.3	5.9	2.8	55	68	▲ 1LE1083-1EC4■-■■■■	130	0.19
18.5	22	200 L	978	181		91.7	92.1	91.9	0.79	37	2.5	5.6	2.6	58	71	▲ 1LE1083-2AC4■-■■■■	166	0.28
22	26.5	200 L	978	215		92.2	93.3	93.5	0.79	44	2.5	5.6	2.6	55	68	▲ 1LE1083-2AC5■-■■■■	179	0.32
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
11	13.2	180 L	725	145		88.6	89.5	89.2	0.74	24	2.1	5.1	2.4	62	75	▲ 1LE1083-1ED4■-■■■■	161	0.267
15	18	200 L	730	196		89.6	89.8	89.1	0.73	33	3.0	6.8	3.7	57	70	▲ 1LE1083-2AD5■-■■■■	212	0.420

Voltages		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages [1] and more information, see from page 2/93			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			A			–
With flange	IM B5 [2]	With additional charge			F			–
With flange	IM B14 [2]	With additional charge			K			–
For other types of construction and more information, see from page 2/99					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 1 or 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 2/112						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/115							■	
Special versions								Order code(s)
For options, see from page 2/118			1LE1083- . . . . ■-■■■■				-Z	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1503 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
0.37	**0.43**	**71 M**	2850	1.2		73.8	73.3	69.7	0.76	0.95	3.5	5.8	3.5	52	63	**1LE1503-0CA2■-■■■■**	13	0.00045
0.55	**0.63**	**71 M**	2850	1.8		77.8	77.5	74.5	0.76	1.34	3.7	6.1	3.7	57	68	**1LE1503-0CA3■-■■■■**	15	0.00056
0.75	**0.86**	**80 M**	2850	2.5		80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	**1LE1503-0DA2■-■■■■**	18	0.0011
1.1	**1.27**	**80 M**	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	**1LE1503-0DA3■-■■■■**	21	0.0013
1.5	**1.75**	**90 S**	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	**1LE1503-0EA0■-■■■■**	26	0.0021
2.2	**2.55**	**90 L**	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	**1LE1503-0EA4■-■■■■**	32	0.0031
3	**3.45**	**100 L**	2920	9.8		87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	71	79	**1LE1503-1AA4■-■■■■**	36	0.0054
4	**4.55**	**112 M**	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	73	81	**1LE1503-1BA2■-■■■■**	45	0.012
5.5	**6.3**	**132 S**	2950	18		89.2	90.1	89.7	0.9	9.9	1.9	7.3	3.7	72	80	**1LE1503-1CA0■-■■■■**	58	0.024
7.5	**8.6**	**132 S**	2950	24.5		90.1	91	91	0.92	13.1	1.9	8.3	3.9	68	80	**1LE1503-1CA1■-■■■■**	73	0.031
11	**12.6**	**160 M**	2955	35.5		91.2	91	89.5	0.89	19.6	2.4	7.9	3.8	70	82	**1LE1503-1DA2■-■■■■**	100	0.053
15	**17.3**	**160 M**	2960	48		91.9	91.9	91	0.87	27	2.8	8.8	4.3	74	82	**1LE1503-1DA3■-■■■■**	110	0.061
18.5	**21.3**	**160 L**	2955	60		92.4	92.8	92.4	0.9	32	2.8	9	4.2	70	82	**1LE1503-1DA4■-■■■■**	127	0.068
22	**24.5**	**180 M**	2950	71		92.7	93.2	92.9	0.89	38.5	2.3	7.5	3.5	67	80	**1LE1503-1EA2■-■■■■**	160	0.08
30	**33.5**	**200 L**	2955	97		93.3	93.5	92.9	0.87	53	2.5	7	3.3	67	80	**1LE1503-2AA4■-■■■■**	225	0.134
37	**41.5**	**200 L**	2955	120		93.7	94.2	94	0.88	65	2.5	7.1	3.2	67	80	**1LE1503-2AA5■-■■■■**	250	0.158
45	**51**	**225 M**	2960	145		94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	**1LE1503-2BA2■-■■■■**	315	0.26
55	**62**	**250 M**	2975	177		94.3	94.5	93.9	0.89	95	2.3	6.7	3.1	73	87	**1LE1503-2CA2■-■■■■**	385	0.46
75	**84**	**280 S**	2975	241	IE2	94.7	94.8	94.1	0.89	128	2.4	6.8	3	74	88	**1LE1503-2DA0■-■■■■**	510	0.77
90	**101**	**280 M**	2975	289	IE2	95	95.1	94.6	0.9	152	2.4	7.2	3.1	74	88	**1LE1503-2DA2■-■■■■**	590	0.94
110	**123**	**315 S**	2982	352		95.2	95.4	94.9	0.91	183	2.4	7.1	3.1	75	89	**1LE1503-3AA0■-■■■■**	750	1.4
132	**148**	**315 M**	2982	423		95.4	95.5	95.2	0.91	220	2.5	7.2	3.1	75	89	**1LE1503-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	2982	512	IE2	95.6	95.7	95.2	0.92	265	2.8	7.8	3.3	77	91	**1LE1503-3AA4■-■■■■**	980	1.9
200	**224**	**315 L**	2982	640		95.8	95.9	95.5	0.92	330	2.5	7.2	3	77	91	**1LE1503-3AA5■-■■■■**	1150	2.3

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 3 temperature sensors	With additional charge	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1503- . . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125	**1LE1503- . . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1503 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
0.25	**0.29**	**71 M**	1395	1.7		73.5	73.7	70.4	0.72	0.68	2.5	4.2	2.6	44	55	**1LE1503-0CB2■-■■■■**	13	0.00095
0.37	**0.43**	**71 M**	1410	2.5		77.3	76.8	73.2	0.7	0.99	3.1	4.8	3.1	56	67	**1LE1503-0CB3■-■■■■**	16	0.0014
0.55	**0.63**	**80 M**	1440	3.6		80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	**1LE1503-0DB2■-■■■■**	18	0.0021
0.75	**0.86**	**80 M**	1450	4.9		82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	**1LE1503-0DB3■-■■■■**	22	0.0029
1.1	**1.27**	**90 S**	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68	**1LE1503-0EB0■-■■■■**	25	0.0036
1.5	**1.75**	**90 L**	1445	9.9		85.3	86.0	85.2	0.80	3.15	2.9	7.3	3.5	60	68	**1LE1503-0EB4■-■■■■**	31	0.0049
2.2	**2.55**	**100 L**	1465	14.3	IE2	86.7	87.3	86.4	0.83	4.4	2.1	7.6	3.6	60	72	**1LE1503-1AB4■-■■■■**	40	0.014
3	**3.45**	**100 L**	1460	20		87.7	88.4	88.2	0.83	5.9	2.3	7.3	3.7	60	72	**1LE1503-1AB5■-■■■■**	40	0.014
4	**4.55**	**112 M**	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	**1LE1503-1BB2■-■■■■**	46	0.017
5.5	**6.3**	**132 S**	1470	36	IE2	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	**1LE1503-1CB0■-■■■■**	74	0.046
7.5	**8.6**	**132 M**	1470	49	IE2	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	**1LE1503-1CB2■-■■■■**	80	0.046
11	**12.6**	**160 M**	1475	71		91.4	91.9	91.4	0.84	20.5	2.2	6.8	3.2	65	77	**1LE1503-1DB2■-■■■■**	109	0.083
15	**17.3**	**160 L**	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	**1LE1503-1DB4■-■■■■**	127	0.099
18.5	**21.3**	**180 M**	1470	120		92.6	93.1	92.9	0.82	35	2.5	7.2	3.3	66	73	**1LE1503-1EB2■-■■■■**	165	0.13
22	**25.3**	**180 L**	1470	143		93	93.6	93.6	0.83	41	2.3	6.8	3.3	67	75	**1LE1503-1EB4■-■■■■**	170	0.14
30	**34.5**	**200 L**	1470	195	IE2	93.6	94	93.7	0.84	55	2.6	7.3	3.1	65	72	**1LE1503-2AB5■-■■■■**	240	0.22
37	**42.5**	**225 S**	1478	239	IE2	93.9	94.5	94.4	0.86	66	2.5	6.4	2.7	65	78	**1LE1503-2BB0■-■■■■**	285	0.42
45	**52**	**225 M**	1478	291	IE2	94.2	94.9	95	0.86	80	2.6	6.6	2.6	66	79	**1LE1503-2BB2■-■■■■**	340	0.52
55	**63**	**250 M**	1482	354	IE2	94.6	95.1	95	0.87	96	2.5	6.8	2.9	66	79	**1LE1503-2CB2■-■■■■**	420	0.85
75	**86**	**280 S**	1485	482	IE2	95	95.3	95	0.86	133	2.5	6.9	3	69	83	**1LE1503-2DB0■-■■■■**	570	1.4
90	**104**	**280 M**	1485	579	IE2	95.2	95.5	95.3	0.87	157	2.6	7.2	3	70	84	**1LE1503-2DB2■-■■■■**	670	1.7
110	**127**	**315 S**	1488	706		95.4	95.8	95.5	0.87	191	2.6	6.8	2.9	70	84	**1LE1503-3AB0■-■■■■**	760	2.2
132	**152**	**315 M**	1490	846		95.6	95.9	95.9	0.87	230	2.8	7.3	3	73	87	**1LE1503-3AB2■-■■■■**	960	2.9
160	**184**	**315 L**	1490	1025		95.8	96.1	96.1	0.87	275	2.9	7.3	3.1	73	87	**1LE1503-3AB4■-■■■■**	990	3.1
200	**230**	**315 L**	1488	1284	IE2	96	96.3	96.1	0.88	340	3.2	7.4	3	73	87	**1LE1503-3AB5■-■■■■**	1190	3.7

Voltages [2]		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**		–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**		–
50 Hz 500 VY		Without additional charge	**2**	**7**		–
50 Hz 500 VΔ		Without additional charge	**4**	**0**		–
For other voltages [1] and more information, see from page 2/96			**9**	**0**		. . .
Types of construction		Version				Order code
Without flange	IM B3 [3]	**Standard**			**A**	–
With flange	IM B5 [3]	With additional charge			**F**	–
For other types of construction and more information, see from page 2/103					■	. . .
Motor protection		Version				Order code
Without		**Standard**			**A**	–
PTC thermistor with 3 temperature sensors		With additional charge			**B**	–
For other motor protection and more information, see from page 2/113					■	. . .
Terminal box position		Version				
Terminal box at top		**Standard**			**4**	
For other terminal box positions and more information, see from page 2/116					■	
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1503-. . . . ■-■■■■-Z**				**F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1503-. . . . ■-■■■■-Z**				**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1503 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.18	**0.21**	**71 M**	885	1.9		63.9	64.8	60.8	0.69	0.59	2.3	2.8	2.3	39	50	**1LE1503-0CC2■-■■■■**	13	0.0010
0.25	**0.29**	**71 M**	885	2.7		68.6	69.5	66.2	0.69	0.76	2.6	3.2	2.6	46	57	**1LE1503-0CC3■-■■■■**	16	0.0015
0.37	**0.43**	**80 M**	940	3.8		73.5	73.1	69.4	0.66	1.1	2.3	4.2	2.7	42	53	**1LE1503-0DC2■-■■■■**	19	0.0025
0.55	**0.63**	**80 M**	935	5.6		77.2	77	73.9	0.67	1.53	2.5	4.5	2.8	42	53	**1LE1503-0DC3■-■■■■**	22	0.0031
0.75	**0.86**	**90 S**	945	7.6		78.9	80	78.8	0.7	1.96	2.2	4.6	2.6	43	55	**1LE1503-0EC0■-■■■■**	26	0.0040
1.1	**1.27**	**90 L**	950	11	IE1	81.0	81.4	79.3	0.66	2.95	2.8	5	3	60	68	**1LE1503-0EC4■-■■■■**	32	0.0052
1.5	**1.75**	**100 L**	970	14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	**1LE1503-1AC4■-■■■■**	36	0.011
2.2	**2.55**	**112 M**	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	**1LE1503-1BC2■-■■■■**	53	0.017
3	**3.45**	**132 S**	975	29		85.6	86.1	84.9	0.73	6.9	2.3	6.6	3.2	56	66	**1LE1503-1CC0■-■■■■**	60	0.034
4	**4.55**	**132 M**	975	39		86.8	87.1	86.2	0.73	9.1	2.2	6.2	3	67	75	**1LE1503-1CC2■-■■■■**	64	0.039
5.5	**6.3**	**132 M**	975	54		88.0	88.3	87.2	0.72	12.5	2.7	6.8	3.4	64	72	**1LE1503-1CC3■-■■■■**	76	0.050
7.5	**8.6**	**160 M**	985	73		89.1	89.5	88.6	0.81	15	2.3	7.9	3.2	71	79	**1LE1503-1DC2■-■■■■**	124	0.132
11	**12.6**	**160 L**	980	107		90.3	90.8	90.2	0.80	22	2.9	6.8	2.8	66	74	**1LE1503-1DC4■-■■■■**	138	0.164
15	**18**	**180 L**	975	147	IE2	91.2	92	91.9	0.8	29.5	2.3	5.9	2.8	61	68	**1LE1503-1EC4■-■■■■**	180	0.19
18.5	**22**	**200 L**	978	181	IE2	91.7	92.5	92.4	0.79	37	2.5	5.6	2.6	64	71	**1LE1503-2AC4■-■■■■**	215	0.28
22	**26.5**	**200 L**	978	215	IE2	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	61	68	**1LE1503-2AC5■-■■■■**	230	0.32
30	**36**	**225 M**	982	292	IE2	92.9	93.6	93.5	0.83	56	2.6	6.6	3	64	77	**1LE1503-2BC2■-■■■■**	325	0.67
37	**44.5**	**250 M**	985	359	IE2	93.3	94	94	0.85	67	2.7	7	2.9	62	75	**1LE1503-2CC2■-■■■■**	405	1
45	**54**	**280 S**	988	435	IE2	93.7	94.3	94.2	0.85	82	3	6.8	2.8	60	74	**1LE1503-2DC0■-■■■■**	510	1.4
55	**66**	**280 M**	988	532	IE2	94.1	94.5	94.4	0.85	99	3.3	7.2	3	65	79	**1LE1503-2DC2■-■■■■**	560	1.64
75	**90**	**315 S**	990	723		94.6	94.9	94.4	0.84	136	2.6	7.5	3.1	63	78	**1LE1503-3AC0■-■■■■**	750	2.6
90	**108**	**315 M**	991	867	IE2	94.9	95.2	94.9	0.85	161	2.5	6.7	2.8	63	78	**1LE1503-3AC2■-■■■■**	890	3.1
110	**132**	**315 L**	991	1060		95.1	95.5	95.3	0.84	199	2.8	7.2	3	63	78	**1LE1503-3AC4■-■■■■**	990	3.9
132	**158**	**315 L**	992	1271	IE2	95.4	95.7	95.4	0.82	245	3.3	8	3.3	66	81	**1LE1503-3AC5■-■■■■**	1130	4.48
160	**192**	**315 L**	992	1540	IE2	95.6	95.8	95.5	0.82	295	3.5	8.5	3.6	66	81	**1LE1503-3AC6■-■■■■**	1260	5.41

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 3 temperature sensors	With additional charge	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions			Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1503-. . . . ■-■■■■**	-Z	F90+. . .+. . .+. . .
For options, see from page 2/125	**1LE1503-. . . . ■-■■■■**	-Z	. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1603 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
3	**3.45**	**100 L**	2920	9.8		87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	67	79	**1LE1603-1AA4■-■■■■**	36	0.0054
4	**4.55**	**112 M**	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	69	81	**1LE1603-1BA2■-■■■■**	45	0.012
5.5	**6.3**	**132 S**	2950	18		89.2	90.1	89.7	0.9	9.9	1.9	7.3	3.7	68	80	**1LE1603-1CA0■-■■■■**	58	0.024
7.5	**8.6**	**132 S**	2950	24.5		90.1	91	91	0.92	13.1	1.9	8.3	3.9	68	80	**1LE1603-1CA1■-■■■■**	73	0.031
11	**12.6**	**160 M**	2955	35.5		91.2	91	89.5	0.89	19.6	2.4	7.9	3.8	70	82	**1LE1603-1DA2■-■■■■**	100	0.053
15	**17.3**	**160 M**	2960	48		91.9	91.9	91	0.87	27	2.8	8.8	4.3	74	82	**1LE1603-1DA3■-■■■■**	110	0.061
18.5	**21.3**	**160 L**	2955	60		92.4	92.8	92.4	0.9	32	2.8	9	4.2	70	82	**1LE1603-1DA4■-■■■■**	127	0.068
22	**24.5**	**180 M**	2950	71		92.7	93.2	92.9	0.89	38.5	2.3	7.5	3.5	67	80	**1LE1603-1EA2■-■■■■**	160	0.08
30	**33.5**	**200 L**	2955	97		93.3	93.5	92.9	0.87	53	2.5	7	3.3	67	80	**1LE1603-2AA4■-■■■■**	225	0.134
37	**41.5**	**200 L**	2955	120		93.7	94.2	94	0.88	65	2.5	7.1	3.2	67	80	**1LE1603-2AA5■-■■■■**	250	0.158
45	**51**	**225 M**	2960	145		94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	**1LE1603-2BA2■-■■■■**	315	0.26
55	**62**	**250 M**	2975	177		94.3	94.5	93.9	0.89	95	2.3	6.7	3.1	73	87	**1LE1603-2CA2■-■■■■**	385	0.46
75	**84**	**280 S**	2975	241	IE2	94.7	94.8	94.1	0.89	128	2.4	6.8	3	74	88	**1LE1603-2DA0■-■■■■**	510	0.77
90	**101**	**280 M**	2975	289	IE2	95	95.1	94.6	0.9	152	2.4	7.2	3.1	74	88	**1LE1603-2DA2■-■■■■**	590	0.94
110	**123**	**315 S**	2982	352		95.2	95.4	94.9	0.91	183	2.4	7.1	3.1	75	89	**1LE1603-3AA0■-■■■■**	750	1.4
132	**148**	**315 M**	2982	423		95.4	95.5	95.2	0.91	220	2.5	7.2	3.1	75	89	**1LE1603-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	2982	512	IE2	95.6	95.7	95.2	0.92	265	2.8	7.8	3.3	77	91	**1LE1603-3AA4■-■■■■**	980	1.9
200	**224**	**315 L**	2982	640		95.8	95.9	95.5	0.92	330	2.5	7.2	3	77	91	**1LE1603-3AA5■-■■■■**	1150	2.3

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Line	Version		Order code
PTC thermistor with 3 temperature sensors		**Standard**	B	–
For other motor protection and more information, see from page 2/113			■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1603-. . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125	**1LE1603-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1603 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
2.2	**2.55**	**100 L**	1465	14.3	IE2	86.7	87.3	86.4	0.83	4.4	2.1	7.6	3.6	60	72	**1LE1603-1AB4■-■■■■**	40	0.014
3	**3.45**	**100 L**	1460	20		87.7	88.4	88.2	0.83	5.9	2.3	7.3	3.7	60	72	**1LE1603-1AB5■-■■■■**	40	0.014
4	**4.55**	**112 M**	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	**1LE1603-1BB2■-■■■■**	46	0.017
5.5	**6.3**	**132 S**	1470	36	IE2	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	**1LE1603-1CB0■-■■■■**	74	0.046
7.5	**8.6**	**132 M**	1470	49	IE2	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	**1LE1603-1CB2■-■■■■**	80	0.046
11	**12.6**	**160 M**	1475	71		91.4	91.9	91.4	0.84	20.5	2.2	6.8	3.2	65	77	**1LE1603-1DB2■-■■■■**	109	0.083
15	**17.3**	**160 L**	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	**1LE1603-1DB4■-■■■■**	127	0.099
18.5	**21.3**	**180 M**	1470	120		92.6	93.1	92.9	0.82	35	2.5	7.2	3.3	66	73	**1LE1603-1EB2■-■■■■**	165	0.13
22	**25.3**	**180 L**	1470	143		93	93.6	93.6	0.83	41	2.3	6.8	3.3	67	75	**1LE1603-1EB4■-■■■■**	170	0.14
30	**34.5**	**200 L**	1470	195	IE2	93.6	94	93.7	0.84	55	2.6	7.3	3.1	65	72	**1LE1603-2AB5■-■■■■**	240	0.22
37	**42.5**	**225 S**	1478	239	IE2	93.9	94.5	94.4	0.86	66	2.5	6.4	2.7	65	78	**1LE1603-2BB0■-■■■■**	285	0.42
45	**52**	**225 M**	1470	143		93	93.6	93.6	0.83	41	2.3	6.8	3.3	67	75	**1LE1603-2BB2■-■■■■**	340	0.52
55	**63**	**250 M**	1482	354	IE2	94.6	95.1	95	0.87	96	2.5	6.8	2.9	66	79	**1LE1603-2CB2■-■■■■**	420	0.85
75	**86**	**280 S**	1485	482	IE2	95	95.3	95	0.86	133	2.5	6.9	3	69	83	**1LE1603-2DB0■-■■■■**	570	1.4
90	**104**	**280 M**	1485	579	IE2	95.2	95.5	95.3	0.87	157	2.6	7.2	3	70	84	**1LE1603-2DB2■-■■■■**	670	1.7
110	**127**	**315 S**	1488	706		95.4	95.8	95.5	0.87	191	2.6	6.8	2.9	70	84	**1LE1603-3AB0■-■■■■**	760	2.2
132	**152**	**315 M**	1490	846		95.6	95.9	95.9	0.87	230	2.8	7.3	3	73	87	**1LE1603-3AB2■-■■■■**	960	2.9
160	**184**	**315 L**	1490	1025		95.8	96.1	96.1	0.87	275	2.9	7.3	3.1	73	87	**1LE1603-3AB4■-■■■■**	990	3.1
200	**230**	**315 L**	1488	1284	IE2	96	96.3	96.1	0.88	340	3.2	7.4	3	73	87	**1LE1603-3AB5■-■■■■**	1190	3.7

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VY		Without additional charge	**2**	**7**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
For other voltages [1] and more information, see from page 2/96			**9**	**0**	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	**A**	–
With flange	IM B5 [3]	With additional charge	**F**	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Line	Version		Order code
PTC thermistor with 3 temperature sensors		**Standard**	**A**	–
For other motor protection and more information, see from page 2/113			■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	**4**	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1603-. . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125	**1LE1603-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1603 – Performance Line Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
1.5	**1.75**	**100 L**	970	14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	**1LE1603-1AC4■-■■■■**	36	0.011
2.2	**2.55**	**112 M**	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	**1LE1603-1BC2■-■■■■**	53	0.017
3	**3.45**	**132 S**	975	29		85.6	86.1	84.9	0.73	6.9	2.3	6.6	3.2	53	66	**1LE1603-1CC0■-■■■■**	60	0.034
4	**4.55**	**132 M**	975	39		86.8	87.1	86.2	0.73	9.1	2.2	6.2	3	62	75	**1LE1603-1CC2■-■■■■**	64	0.039
5.5	**6.3**	**132 M**	975	54		88.0	88.3	87.2	0.72	12.5	2.7	6.8	3.4	59	72	**1LE1603-1CC3■-■■■■**	76	0.050
7.5	**8.6**	**160 M**	985	73		89.1	89.5	88.6	0.81	15	2.3	7.9	3.2	66	79	**1LE1603-1DC2■-■■■■**	124	0.132
11	**12.6**	**160 L**	980	107		90.3	90.8	90.2	0.80	22	2.9	6.8	2.8	61	74	**1LE1603-1DC4■-■■■■**	138	0.164
15	**18**	**180 L**	975	147	IE2	91.2	92	91.9	0.8	29.5	2.3	5.9	2.8	61	68	**1LE1603-1EC4■-■■■■**	180	0.19
18.5	**22**	**200 L**	978	181	IE2	91.7	92.5	92.4	0.79	37	2.5	5.6	2.6	64	71	**1LE1603-2AC4■-■■■■**	215	0.28
22	**26.5**	**200 L**	978	215	IE2	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	61	68	**1LE1603-2AC5■-■■■■**	230	0.32
30	**36**	**225 M**	982	292	IE2	92.9	93.6	93.5	0.83	56	2.6	6.6	3	64	77	**1LE1603-2BC2■-■■■■**	325	0.67
37	**44.5**	**250 M**	985	359	IE2	93.3	94	94	0.85	67	2.7	7	2.9	62	75	**1LE1603-2CC2■-■■■■**	405	1
45	**54**	**280 S**	988	435	IE2	93.7	94.3	94.2	0.85	82	3	6.8	2.8	60	74	**1LE1603-2DC0■-■■■■**	510	1.4
55	**66**	**280 M**	988	532	IE2	94.1	94.5	94.4	0.85	99	3.3	7.2	3	65	79	**1LE1603-2DC2■-■■■■**	560	1.64
75	**90**	**315 S**	990	723		94.6	94.9	94.4	0.84	136	2.6	7.5	3.1	63	78	**1LE1603-3AC0■-■■■■**	750	2.6
90	**108**	**315 M**	991	867	IE2	94.9	95.2	94.9	0.85	161	2.5	6.7	2.8	63	78	**1LE1603-3AC2■-■■■■**	890	3.1
110	**132**	**315 L**	991	1060		95.1	95.5	95.3	0.84	199	2.8	7.2	3	63	78	**1LE1603-3AC4■-■■■■**	990	3.9
132	**158**	**315 L**	992	1271	IE2	95.4	95.7	95.4	0.82	245	3.3	8	3.3	66	81	**1LE1603-3AC5■-■■■■**	1130	4.48
160	**192**	**315 L**	992	1540	IE2	95.6	95.8	95.5	0.82	295	3.5	8.5	3.6	66	81	**1LE1603-3AC6■-■■■■**	1260	5.41

Voltages [2]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages [1] and more information, see from page 2/96			**9**	**0**				. . .
Types of construction		Version						Order code
Without flange	IM B3 [3]	**Standard**			**A**			–
With flange	IM B5 [3]	With additional charge			**F**			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1603-. . . . ■-■■■■-Z**						**F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1603-. . . . ■-■■■■-Z**						**. . .+. . .+. . .+. . .**

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1603 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
2.2	**2.55**	**132 S**	725	29		81.9	82.9	81.8	0.63	6.2	1.4	3.6	1.8	64	77	**1LE1603-1CD0■-■■■■**	66	0.038
3	**3.45**	**132 M**	725	40		83.5	84.2	82.7	0.61	8.5	1.5	3.8	2	64	77	**1LE1603-1CD2■-■■■■**	78	0.048
4	**4.55**	**160 M**	730	52		84.8	85.6	84.5	0.66	10.3	1.6	3.6	1.8	65	78	**1LE1603-1DD2■-■■■■**	98	0.065
5.5	**6.3**	**160 M**	730	72		86.2	86.9	85.7	0.66	14	1.6	3.8	1.9	65	78	**1LE1603-1DD3■-■■■■**	110	0.083
7.5	**8.6**	**160 L**	728	98		87.3	88.2	87.7	0.65	19.1	1.6	3.8	1.9	65	78	**1LE1603-1DD4■-■■■■**	135	0.116
11	**13.2**	**180 L**	725	145		88.6	89.7	89.6	0.74	24	2.1	5.1	2.4	61	74	**1LE1603-1ED4■-■■■■**	190	0.267
15	**18**	**200 L**	730	196		89.6	90.1	89.4	0.73	33.5	3	6.8	3.7	57	70	**1LE1603-2AD5■-■■■■**	255	0.420
18.5	**22**	**225 S**	732	241		90.1	90.6	90	0.75	39.5	2.5	5.9	3	56	70	**1LE1603-2BD0■-■■■■**	270	0.50
22	**26.5**	**225 M**	732	287		90.6	91.4	91.2	0.77	45.5	2.6	5.9	2.9	56	70	**1LE1603-2BD2■-■■■■**	280	0.55
30	**36**	**250 M**	735	390		91.3	91.8	91.5	0.79	60	2.6	6.1	3	60	74	**1LE1603-2CD2■-■■■■**	370	0.86
37	**44.5**	**280 S**	736	480		91.8	92.5	92.4	0.78	75	2.3	5.4	2.4	63	77	**1LE1603-2DD0■-■■■■**	460	1.1
45	**54**	**280 M**	738	582	IE2	92.2	92.8	92.6	0.8	88	2.5	5.9	2.5	65	79	**1LE1603-2DD2■-■■■■**	550	1.6
55	**66**	**315 S**	740	710		92.5	92.9	92.6	0.81	106	2.3	6	2.7	66	81	**1LE1603-3AD0■-■■■■**	650	2.0
75	**90**	**315 M**	738	970		93.1	93.5	93.3	0.81	144	2.3	5.9	2.7	69	84	**1LE1603-3AD2■-■■■■**	720	2.5
90	**108**	**315 L**	740	1161		93.4	94.2	94.3	0.83	168	2.2	5.8	2.5	71	85	**1LE1603-3AD4■-■■■■**	860	3.1
110	**132**	**315 L**	740	1419		93.7	94.2	94.1	0.82	205	2.7	6.7	2.9	74	88	**1LE1603-3AD5■-■■■■**	980	3.9
132	**158**	**315 L**	740	1703		94	94.4	94.1	0.81	250	2.9	7.2	3.3	76	90	**1LE1603-3AD6■-■■■■**	1160	4.6

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1603-. . . . ■-■■■■**					**-Z F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1603-. . . . ■-■■■■**					**-Z** . . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1503 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
11	**12.6**	**132 M**	2955	36		91.2	91.7	91.8	0.86	20	2.5	9.4	4.1	72	80	**1LE1503-1CA6■-■■■■**	80	0.031
22	**25.3**	**160 L**	2950	71		92.7	93.4	93.3	0.91	37.5	2.8	8.7	4	70	82	**1LE1503-1DA6■-■■■■**	137	0.077
30	**33.5**	**180 L**	2950	97		93.3	93.9	93.9	0.88	53	2.6	8.6	3.9	67	80	**1LE1503-1EA6■-■■■■**	173	0.094
45	**51**	**200 L**	2950	146		94	94.3	94	0.87	79	2.5	7.1	3.2	77	84	**1LE1503-2AA6■-■■■■**	245	0.16
55	**62**	**225 M**	2965	177		94.3	94.6	94.4	0.88	96	2.8	8	3.7	76	89	**1LE1503-2BA6■-■■■■**	370	0.31
75	**84**	**250 M**	2970	241		94.7	94.9	94.5	0.9	127	2.2	6.8	2.9	78	92	**1LE1503-2CA6■-■■■■**	455	0.56
110	**123**	**280 M**	2975	353		95.2	95.4	95.1	0.91	183	2.5	7.7	3.2	78	92	**1LE1503-2DA6■-■■■■**	660	1.1
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
11	**12.6**	**132 M**	1470	71		91.4	91.9	91.5	0.8	21.5	2.6	7.7	3.6	64	76	**1LE1503-1CB6■-■■■■**	97	0.049
18.5	**21.3**	**160 L**	1475	120		92.6	92.4	91.1	0.76	38	2.8	8.3	4	65	74	**1LE1503-1DB6■-■■■■**	126	0.101
30	**34.5**	**180 L**	1470	195		93.6	94	93.8	0.79	59	3	8.2	3.8	66	74	**1LE1503-1EB6■-■■■■**	193	0.173
37	**42.5**	**200 L**	1475	240		93.9	94.3	94.2	0.81	70	3.1	8.1	3.5	65	72	**1LE1503-2AB6■-■■■■**	260	0.275
55	**63**	**225 M**	1478	355	IE2	94.6	95.3	95.5	0.86	98	2.8	6.5	2.7	70	83	**1LE1503-2BB6■-■■■■**	405	0.65
75	**86**	**250 M**	1486	482		95	95.2	94.8	0.85	134	3	7.9	3.4	70	83	**1LE1503-2CB6■-■■■■**	510	1.1
110	**127**	**280 M**	1486	707	IE2	95.4	95.5	95	0.85	196	3	8.3	3.4	73	87	**1LE1503-2DB6■-■■■■**	710	1.8
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
18.5	**22**	**180 L**	975	181		91.7	92.3	91.9	0.77	38	2.6	6.9	3.3	68	80	**1LE1503-1EC6■-■■■■**	185	0.247
30	**36**	**200 L**	978	293	IE2	92.9	93.7	93.7	0.79	59	2.8	6.5	2.8	61	68	**1LE1503-2AC6■-■■■■**	264	0.434
37	**44.5**	**225 M**	982	360	IE2	93.3	93.9	93.7	0.81	71	3	7.1	3.2	65	79	**1LE1503-2BC6■-■■■■**	395	0.84
45	**54**	**250 M**	986	436	IE2	93.7	94.3	94.2	0.84	83	2.8	7	2.9	68	81	**1LE1503-2CC6■-■■■■**	480	1.3
75	**90**	**280 M**	988	725		94.6	95	94.8	0.83	138	3.7	8.6	3.3	68	81	**1LE1503-2DC6■-■■■■**	630	1.9

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VY		Without additional charge	**2**	**7**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
For other voltages [1] and more information, see from page 2/96			**9**	**0**	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	**A**	–
With flange	IM B5 [3]	With additional charge	**F**	–
With flange	IM B14 [3]	With additional charge	**K**	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 3 temperature sensors	With additional charge	**B**	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version	
Terminal box at top	**Standard**	**4**
For other terminal box positions and more information, see from page 2/116		■

Special versions		Order code(s)
For options, see from page 2/125	**1LE1503- . . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1603 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
11	**12.6**	**132 M**	2955	36		91.2	91.7	91.8	0.86	20	2.5	9.4	4.1	72	80	**1LE1603-1CA6■-■■■■**	80	0.031
22	**25.3**	**160 L**	2950	71		92.7	93.4	93.3	0.91	37.5	2.8	8.7	4	70	82	**1LE1603-1DA6■-■■■■**	137	0.077
30	**33.5**	**180 L**	2950	97		93.3	93.9	93.9	0.88	53	2.6	8.6	3.9	67	80	**1LE1603-1EA6■-■■■■**	173	0.094
45	**51**	**200 L**	2950	146		94	94.3	94	0.87	79	2.5	7.1	3.2	77	84	**1LE1603-2AA6■-■■■■**	245	0.16
55	**62**	**225 M**	2965	177		94.3	94.6	94.4	0.88	96	2.8	8	3.7	76	89	**1LE1603-2BA6■-■■■■**	370	0.31
75	**84**	**250 M**	2970	241		94.7	94.9	94.5	0.9	127	2.2	6.8	2.9	78	92	**1LE1603-2CA6■-■■■■**	455	0.56
110	**123**	**280 M**	2975	353		95.2	95.4	95.1	0.91	183	2.5	7.7	3.2	78	92	**1LE1603-2DA6■-■■■■**	660	1.1
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
11	**12.6**	**132 M**	1470	71		91.4	91.9	91.5	0.8	21.5	2.6	7.7	3.6	64	76	**1LE1603-1CB6■-■■■■**	97	0.049
18.5	**21.3**	**160 L**	1475	120		92.6	92.4	91.1	0.76	38	2.8	8.3	4	65	74	**1LE1603-1DB6■-■■■■**	126	0.101
30	**34.5**	**180 L**	1470	195		93.6	94	93.8	0.79	59	3	8.2	3.8	66	74	**1LE1603-1EB6■-■■■■**	193	0.173
37	**42.5**	**200 L**	1475	240		93.9	94.3	94.2	0.81	70	3.1	8.1	3.5	65	72	**1LE1603-2AB6■-■■■■**	260	0.275
55	**63**	**225 M**	1478	355	IE2	94.6	95.3	95.5	0.86	98	2.8	6.5	2.7	70	83	**1LE1603-2BB6■-■■■■**	405	0.65
75	**86**	**250 M**	1486	482		95	95.2	94.8	0.85	134	3	7.9	3.4	70	83	**1LE1603-2CB6■-■■■■**	510	1.1
110	**127**	**280 M**	1486	707	IE2	95.4	95.5	95	0.85	196	3	8.3	3.4	73	87	**1LE1603-2DB6■-■■■■**	710	1.8
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
18.5	**22**	**180 L**	975	181		91.7	92.3	91.9	0.77	38	2.6	6.9	3.3	68	80	**1LE1603-1EC6■-■■■■**	185	0.247
30	**36**	**200 L**	978	293	IE2	92.9	93.7	93.7	0.79	59	2.8	6.5	2.8	61	68	**1LE1603-2AC6■-■■■■**	264	0.434
37	**44.5**	**225 M**	982	360	IE2	93.3	93.9	93.7	0.81	71	3	7.1	3.2	65	79	**1LE1603-2BC6■-■■■■**	395	0.84
45	**54**	**250 M**	986	436	IE2	93.7	94.3	94.2	0.84	83	2.8	7	2.9	68	81	**1LE1603-2CC6■-■■■■**	480	1.3
75	**90**	**280 M**	988	725		94.6	95	94.8	0.83	138	3.7	8.6	3.3	68	81	**1LE1603-2DC6■-■■■■**	630	1.9

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
With flange	IM B14 [3]	With additional charge	K	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
PTC thermistor with 3 temperature sensors	**Standard**	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
For options, see from page 2/125	**1LE1603- . . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1583 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.0																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
3	3.45	100 L	2920	9.8		87.1	87.8	87.4	0.88	5.6	3.2	8.1	4.6	67	79	▲ 1LE1583-1AA4■-■■■■	37	0.0054
4	4.55	112 M	2920	10		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4.0	69	81	▲ 1LE1583-1BA2■-■■■■	43	0.012
5.5	6.3	132 S	2950	13		89.2	89.6	88.9	0.91	9.8	2.1	9.7	3.6	72	79	▲ 1LE1583-1CA0■-■■■■	75	0.024
7.5	8.6	132 S	2960	18		90.1	90.9	90.7	0.92	13.1	2.1	8.3	4.0	68	80	▲ 1LE1583-1CA1■-■■■■	75	0.031
11	12.6	160 M	2950	24		91.2	91.5	90.7	0.90	19.3	2.5	8.5	3.4	79	86	▲ 1LE1583-1DA2■-■■■■	111	0.053
15	17.3	160 M	2955	36		91.9	91.9	91.0	0.87	27	2.8	8.8	4.3	70	82	▲ 1LE1583-1DA3■-■■■■	111	0.061
18.5	21.3	160 L	2960	48		92.4	92.9	92.6	0.92	32	2.8	9.7	3.8	78	85	▲ 1LE1583-1DA4■-■■■■	131	0.068
22	24.5	180 M	2960	60		92.7	93	92.4	0.89	39	2.3	7.5	3.5	67	80	▲ 1LE1583-1EA2■-■■■■	160	0.08
30	33.5	200 L	2950	71		93.3	93.6	93.3	0.87	53	2.5	7.0	3.3	68	81	▲ 1LE1583-2AA4■-■■■■	225	0.134
37	41.5	200 L	2955	97		93.7	93.9	93.5	0.88	65	2.5	7.1	3.2	68	81	▲ 1LE1583-2AA5■-■■■■	250	0.158
45	51	225 M	2960	145		94.0	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	▲ 1LE1583-2BA2■-■■■■	315	0.26
55	62	250 M	2975	177		94.3	94.5	94	0.89	95	2.1	7.0	3.0	73	87	▲ 1LE1583-2CA2■-■■■■	385	0.46
75	84	280 S	2980	241		94.7	94.8	94.1	0.89	128	2.6	8.7	3.5	73	87	▲ 1LE1583-2DA0■-■■■■	610	0.94
90	101	280 M	2980	289		95.0	95.2	94.8	0.90	152	2.7	8.4	3.2	77	91	▲ 1LE1583-2DA2■-■■■■	620	1.0
110	123	315 S	2982	352		95.2	95.4	95	0.91	183	2.2	7.5	2.9	75	89	▲ 1LE1583-3AA0■-■■■■	750	1.4
132	148	315 M	2984	423		95.4	95.6	95.3	0.9	220	2.7	8.4	3.3	77	91	▲ 1LE1583-3AA2■-■■■■	980	1.9
160	180	315 L	2982	512		95.6	95.7	95.1	0.91	265	2.6	8.5	3.3	77	91	▲ 1LE1583-3AA4■-■■■■	980	1.9
200	225	315 L	2986	640		95.8	95.9	95.5	0.92	330	3.9	10.1	3.6	78	93	▲ 1LE1583-3AA5■-■■■■	1180	2.4

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 3 temperature sensors	With additional charge	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1583- . . . . ■-■■■■-Z	F90+. . .+. . .+. . .
For options, see from page 2/125	1LE1583- . . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1583 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.0																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
2.2	**2.55**	**100 L**	1465	14		86.7	87	85.9	0.83	4.4	3.2	8.4	4.4	60	72	▲ **1LE1583-1AB4■-■■■■**	40	0.014
3	**3.45**	**100 L**	1460	19.6		87.7	88.4	87.8	0.84	5.9	2.4	8.5	3.4	68	75	▲ **1LE1583-1AB5■-■■■■**	52	0.016
4	**4.55**	**112 M**	1460	26		88.6	89.6	89.4	0.85	7.7	2.1	7.5	3.0	67	74	▲ **1LE1583-1BB2■-■■■■**	60	0.017
5.5	**6.3**	**132 S**	1470	36		89.6	90.1	89.7	0.82	10.8	2.9	8.5	3.7	64	76	▲ **1LE1583-1CB0■-■■■■**	67	0.046
7.5	**8.6**	**132 M**	1465	49		90.4	91.1	90.8	0.84	14.3	2.6	8.2	3.7	64	76	▲ **1LE1583-1CB2■-■■■■**	82	0.046
11	**12.6**	**160 M**	1475	71		91.4	91.8	91.2	0.84	21	2.6	7.6	3.4	65	77	▲ **1LE1583-1DB2■-■■■■**	110	0.083
15	**17.3**	**160 L**	1480	97		92.1	92.4	92.0	0.85	28	2.9	8.1	3.3	67	74	▲ **1LE1583-1DB4■-■■■■**	137	0.099
18.5	**21.3**	**180 M**	1470	120		92.6	93.1	93.0	0.82	35	2.5	7.2	3.3	66	73	▲ **1LE1583-1EB2■-■■■■**	165	0.13
22	**25.3**	**180 L**	1470	143		93.0	93.4	93.1	0.83	41	2.3	6.8	3.3	62	75	▲ **1LE1583-1EB4■-■■■■**	170	0.14
30	**34.5**	**200 L**	1470	195		93.6	94.3	94.5	0.84	55	2.6	7.3	3.1	59	72	▲ **1LE1583-2AB5■-■■■■**	240	0.22
37	**42.5**	**225 S**	1482	238		93.9	94.3	94	0.84	68	3.2	8.3	3.1	69	83	▲ **1LE1583-2BB0■-■■■■**	380	0.52
45	**52**	**225 M**	1484	290		94.2	94.6	94.4	0.84	82	3.4	8.3	3.2	69	83	▲ **1LE1583-2BB2■-■■■■**	450	0.65
55	**63**	**250 M**	1486	353		94.6	94.9	94.4	0.86	98	3.0	8.3	3.3	68	82	▲ **1LE1583-2CB2■-■■■■**	525	1.1
75	**86**	**280 S**	1488	481		95.0	95.1	94.5	0.85	134	3.4	9.6	3.7	69	83	▲ **1LE1583-2DB0■-■■■■**	670	1.7
90	**104**	**280 M**	1486	578		95.2	95.5	95.3	0.86	159	2.5	7.5	3.0	70	84	▲ **1LE1583-2DB2■-■■■■**	705	1.7
110	**127**	**315 M [4]**	1491	705		95.4	95.6	95.3	0.86	194	3.3	9.0	3.2	73	87	▲ **1LE1583-3AB0■-■■■■**	950	2.7
132	**152**	**315 M**	1491	845		95.6	95.9	95.8	0.86	230	3.3	8.6	3.3	73	87	▲ **1LE1583-3AB2■-■■■■**	990	3.1
160	**184**	**315 L**	1490	1025		95.8	96.2	96.1	0.86	280	3.3	8.3	3.0	73	87	▲ **1LE1583-3AB4■-■■■■**	990	3.1
200	**230**	**315 L**	1490	1282		96.0	96.2	96	0.87	345	3.8	9.0	3.5	76	90	▲ **1LE1583-3AB5■-■■■■**	1300	4.4

Voltages [2]		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2		–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4		–
50 Hz 500 VY		Without additional charge	2	7		–
50 Hz 500 VΔ		Without additional charge	4	0		–
For other voltages [1] and more information, see from page 2/96			9	0		. . .
Types of construction		Version				Order code
Without flange	IM B3 [3]	**Standard**			A	–
With flange	IM B5 [3]	With additional charge			F	–
For other types of construction and more information, see from page 2/103					■	. . .
Motor protection		Version				Order code
Without		**Standard**				A –
PTC thermistor with 3 temperature sensors		With additional charge				B –
For other motor protection and more information, see from page 2/113						■ . . .
Terminal box position		Version				
Terminal box at top		**Standard**				4
For other terminal box positions and more information, see from page 2/116						■
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1583-. . . . ■-■■■■-Z**				**F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1583-. . . . ■-■■■■-Z**				. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

4) Version as 315 M (different from 315 S according to DIN EN 50347).

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1583 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency, service factor (SF) 1.0																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
15	**18**	**180 L**	975	147		91.2	91.6	91.2	0.80	30	2.3	5.9	2.8	55	68	▲ **1LE1583-1EC4■-■■■■**	180	0.19
18.5	**22**	**200 L**	978	181		91.7	92.1	91.9	0.79	37	2.5	5.6	2.6	58	71	▲ **1LE1583-2AC4■-■■■■**	215	0.28
22	**26.5**	**200 L**	978	215		92.2	93.3	93.5	0.79	44	2.5	5.6	2.6	55	68	▲ **1LE1583-2AC5■-■■■■**	230	0.32
30	**36**	**225 M**	982	292		92.9	93.7	93.7	0.81	58	2.6	7.0	2.9	65	79	▲ **1LE1583-2BC2■-■■■■**	435	0.82
37	**44.5**	**250 M**	986	358		93.3	94	94	0.84	68	2.8	7.5	2.9	68	81	▲ **1LE1583-2CC2■-■■■■**	520	1.3
45	**54**	**280 S**	990	434		93.7	94.2	94.1	0.84	83	3.1	8.0	3.0	60	74	▲ **1LE1583-2DC0■-■■■■**	600	1.6
55	**66**	**280 M**	988	532		94.1	94.8	94.9	0.84	100	3.2	8.6	3.0	68	81	▲ **1LE1583-2DC2■-■■■■**	670	1.9
75	**90**	**315 S**	992	722		94.6	95.0	94.7	0.84	136	2.4	7.5	2.8	63	78	▲ **1LE1583-3AC0■-■■■■**	930	3.1
90	**108**	**315 M**	992	866		94.9	95.3	95.1	0.84	163	2.8	7.9	3.0	63	78	▲ **1LE1583-3AC2■-■■■■**	990	3.9
110	**132**	**315 L**	993	1058		95.1	95.4	95.2	0.84	199	2.8	8.3	3.2	67	82	▲ **1LE1583-3AC4■-■■■■**	1160	4.3
132	**158**	**315 L**	993	1269		95.4	95.6	95.3	0.80	250	3.2	8.8	3.6	67	82	▲ **1LE1583-3AC5■-■■■■**	1160	4.6
160	**192**	**315 L**	992	1540		95.6	95.9	95.7	0.82	295	3.5	9.0	3.6	67	82	▲ **1LE1583-3AC6■-■■■■**	1270	5.4
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
11	**13.2**	**180 L**	725	145		88.6	89.5	89.2	0.74	24	2.1	5.1	2.4	62	75	▲ **1LE1583-1ED4■-■■■■**	190	0.19
15	**18**	**200 L**	730	196		89.6	89.8	89.1	0.73	33	3.0	6.8	3.7	57	70	▲ **1LE1583-2AD ■-■■■■**	255	0.28
18.5	**22**	**225 S**	732	241		90.1	91.3	91.3	0.74	40	2.4	5.9	2.9	56	70	▲ **1LE1583-2BD0■-■■■■**	270	0.50
22	**26.5**	**225 M**	732	287		90.6	91.8	92	0.77	45.5	2.4	6.0	2.8	56	70	▲ **1LE1583-2BD2■-■■■■**	280	0.55
30	**36**	**250 M**	734	390		91.3	92	91.8	0.78	61	2.5	6.4	2.9	60	74	▲ **1LE1583-2CD2■-■■■■**	370	0.86
37	**44.5**	**280 S**	736	480		91.8	93	93.3	0.78	75	2.2	5.6	2.3	63	77	▲ **1LE1583-2DD0■-■■■■**	460	1.1
45	**54**	**280 M**	738	582		92.2	93.2	93.5	0.81	87	2.4	6.2	2.4	65	79	▲ **1LE1583-2DD2■-■■■■**	550	1.6
55	**66**	**315 S**	740	710		92.5	93.5	93.7	0.80	107	2.2	6.2	2.6	66	81	▲ **1LE1583-3AD0■-■■■■**	650	2.0
75	**90**	**315 M**	738	971		93.1	94.1	94.4	0.80	145	2.2	6.0	2.6	69	84	▲ **1LE1583-3AD2■-■■■■**	720	2.5
90	**108**	**315 L**	738	1161		93.4	94.4	94.9	0.83	168	2.1	6.0	2.5	71	85	▲ **1LE1583-3AD4■-■■■■**	860	3.1
110	**132**	**315 L**	740	1419		93.7	94.5	94.9	0.80	210	2.5	6.7	2.9	74	88	▲ **1LE1583-3AD5■-■■■■**	960	3.9
132	**158**	**315 L**	741	1701		94.0	94.6	94.8	0.79	255	3.0	8.0	3.3	76	90	▲ **1LE1583-3AD6■-■■■■**	1250	5.5

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .
Types of construction		Version			Order code
Without flange	IM B3 [3]	**Standard**		A	–
With flange	IM B5 [3]	With additional charge		F	–
For other types of construction and more information, see from page 2/103				■	. . .
Motor protection		Version			Order code
Without		**Standard**		A	–
PTC thermistor with 3 temperature sensors		With additional charge		B	–
For other motor protection and more information, see from page 2/113				■	. . .
Terminal box position		Version			
Terminal box at top		**Standard**		4	
For other terminal box positions and more information, see from page 2/116				■	
Special versions					Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1583- . . . . ■-■■■■**		-Z	F90+. . .+. . .+. . .
For options, see from page 2/125		**1LE1583- . . . . ■-■■■■**		-Z	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1001 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
0.18	**0.21**	**63 M**	2850	0.6		60.4	59.4	53.7	0.78	0.55	2.2	4.5	2.7	57	64	**1LE1001-0BA2■-■■■■**	4	0.00022
0.25	**0.29**	**63 M**	2835	0.84		64.8	63.5	57.3	0.81	0.69	1.9	4.1	2.5	57	64	**1LE1001-0BA3■-■■■■**	5	0.00026
0.37	**0.43**	**71 M**	2770	1.3		69.5	70.5	67.9	0.81	0.95	2.5	4.1	2.5	58	69	**1LE1001-0CA2■-■■■■**	6	0.00035
0.55	**0.63**	**71 M**	2780	1.9		74.1	75.2	72.9	0.80	1.34	2.6	4.6	2.6	58	69	**1LE1001-0CA3■-■■■■**	7	0.00045
0.75	**0.86**	**80 M**	2805	2.6		77.4	80	80.1	0.84	1.67	1.9	4.9	2.3	60	71	**1LE1001-0DA2■-■■■■**	9	0.0008
1.1	**1.27**	**80 M**	2835	3.7		79.6	81.3	80.9	0.83	2.4	2.7	6	3.1	60	71	**1LE1001-0DA3■-■■■■**	11	0.0011
1.5	**1.75**	**90 S**	2885	4.9		81.3	81.7	79.8	0.84	3.15	2.7	6.9	3.6	65	77	**1LE1001-0EA0■-■■■■**	13	0.0017
2.2	**2.55**	**90 L**	2890	7.3		83.2	83.7	82	0.85	4.5	2.5	7.1	3.7	65	77	**1LE1001-0EA4■-■■■■**	15	0.0021
3	**3.45**	**100 L**	2905	9.9		84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	**1LE1001-1AA4■-■■■■**	21	0.0044
4	**4.55**	**112 M**	2945	13		85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	**1LE1001-1BA2■-■■■■**	27	0.0092
5.5	**6.3**	**132 S**	2950	18		87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	**1LE1001-1CA0■-■■■■**	39	0.02
7.5	**8.6**	**132 S**	2950	24		88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	**1LE1001-1CA1■-■■■■**	43	0.024
11	**12.6**	**160 M**	2955	36		89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	**1LE1001-1DA2■-■■■■**	67	0.045
15	**17.3**	**160 M**	2955	48		90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	**1LE1001-1DA3■-■■■■**	75	0.053
18.5	**21.3**	**160 L**	2955	60		90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	**1LE1001-1DA4■-■■■■**	84	0.061
22	**24.5**	**180 M**	2940	71		91.3	91.8	91.3	0.87	40	2.7	7.4	3.6	77	84	**1LE1001-1EA2■-■■■■**	123	0.069
30	**33.5**	**200 L**	2960	97		92	92.3	91.8	0.87	54	2.5	6.9	3.3	78	85	**1LE1001-2AA4■-■■■■**	158	0.13
37	**41.5**	**200 L**	2960	119		92.5	93	92.7	0.88	66	2.7	7.4	3.5	78	85	**1LE1001-2AA5■-■■■■**	178	0.15

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/93			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
With flange	IM B14 [3]	With additional charge	K	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 63 to 90 or 100 to 200)	With additional charge	B	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/115		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1001-. . . . ■-■■■■-Z	F90 +. . .+. . .+. . .
For options, see from page 2/118	1LE1001-. . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) For converter operation of shaft heights 63 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

3) Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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IE2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1001 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
0.12	**0.14**	**63 M**	1390	0.82		59.1	56.4	49.0	0.66	0.44	2.4	3.1	2.5	50	58	**1LE1001-0BB2■-■■■■**	5	0.00037
0.18	**0.21**	**63 M**	1385	1.2		64.7	62.4	55.7	0.65	0.62	2.6	3.3	2.6	57	64	**1LE1001-0BB3■-■■■■**	5	0.00045
0.25	**0.29**	**71 M**	1395	1.7		68.5	68.4	64.2	0.69	0.76	2.4	3.7	2.5	50	61	**1LE1001-0CB2■-■■■■**	6	0.00076
0.37	**0.43**	**71 M**	1380	2.6		72.7	73.2	69.9	0.72	1.02	2.3	3.8	2.4	50	61	**1LE1001-0CB3■-■■■■**	7	0.00095
0.55	**0.63**	**80 M**	1440	3.6		77.1	76.8	73.7	0.74	1.39	2.2	5.3	3.1	53	64	**1LE1001-0DB2■-■■■■**	10	0.0017
0.75	**0.86**	**80 M**	1440	5		79.6	79.9	77.5	0.76	1.79	2.2	5.6	3.1	53	64	**1LE1001-0DB3■-■■■■**	11	0.0021
1.1	**1.27**	**90 S**	1425	7.4		81.4	81.8	80	0.78	2.5	2.3	5.6	2.9	56	68	**1LE1001-0EB0■-■■■■**	13	0.0028
1.5	**1.75**	**90 L**	1435	10		82.8	83.5	82.2	0.79	3.3	2.6	6.4	3.4	56	68	**1LE1001-0EB4■-■■■■**	16	0.0036
2.2	**2.55**	**100 L**	1455	14		84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	**1LE1001-1AB4■-■■■■**	21	0.0086
3	**3.45**	**100 L**	1455	20		85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	**1LE1001-1AB5■-■■■■**	25	0.011
4	**4.55**	**112 M**	1460	26		86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	**1LE1001-1BB2■-■■■■**	29	0.014
5.5	**6.3**	**132 S**	1465	36		87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	**1LE1001-1CB0■-■■■■**	42	0.027
7.5	**8.6**	**132 M**	1465	49		88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	**1LE1001-1CB2■-■■■■**	49	0.034
11	**12.6**	**160 M**	1470	71		89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	**1LE1001-1DB2■-■■■■**	71	0.065
15	**17.3**	**160 L**	1475	97		90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	**1LE1001-1DB4■-■■■■**	83	0.083
18.5	**21.3**	**180 M**	1465	121		91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	**1LE1001-1EB2■-■■■■**	128	0.12
22	**25.3**	**180 L**	1465	143		91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	**1LE1001-1EB4■-■■■■**	132	0.13
30	**34.5**	**200 L**	1470	195		92.3	92.9	92.6	0.84	56	2.5	6.7	3.3	70	77	**1LE1001-2AB5■-■■■■**	173	0.2

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/93			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	A	–
With flange	IM B5 [3]	With additional charge	F	–
With flange	IM B14 [3]	With additional charge	K	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 63 to 90 or 100 to 200)	With additional charge	B	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/115		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1001-. . . . ■-■■■■-Z**	**F90** +. . .+. . .+. . .
For options, see from page 2/118	**1LE1001-. . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) For converter operation of shaft heights 63 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

3) Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

			Operating values at rated power												Aluminum series 1LE1001		
P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.37	**0.43**	**80 M**	925	3.8		67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	**1LE1001-0DC2■-■■■■**	9	0.0017
0.55	**0.63**	**80 M**	935	5.6		73.1	73.8	70.8	0.66	1.65	2.5	4.4	2.9	42	53	**1LE1001-0DC3■-■■■■**	12	0.0025
0.75	**0.86**	**90 S**	935	7.7		75.9	76.8	74.5	0.7	2.05	2	4.1	2.5	43	55	**1LE1001-0EC0■-■■■■**	13	0.003
1.1	**1.27**	**90 L**	935	11	IE1	78.1	79.3	77.7	0.7	2.9	2.2	4.4	2.6	43	55	**1LE1001-0EC4■-■■■■**	16	0.004
1.5	**1.75**	**100 L**	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	**1LE1001-1AC4■-■■■■**	25	0.011
2.2	**2.55**	**112 M**	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	**1LE1001-1BC2■-■■■■**	29	0.014
3	**3.45**	**132 S**	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	**1LE1001-1CC0■-■■■■**	38	0.024
4	**4.55**	**132 M**	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	**1LE1001-1CC2■-■■■■**	43	0.029
5.5	**6.3**	**132 M**	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	**1LE1001-1CC3■-■■■■**	52	0.037
7.5	**8.6**	**160 M**	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	**1LE1001-1DC2■-■■■■**	77	0.075
11	**12.6**	**160 L**	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	**1LE1001-1DC4■-■■■■**	93	0.098
15	**18**	**180 L**	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	**1LE1001-1EC4■-■■■■**	121	0.17
18.5	**22**	**200 L**	978	181	IE1	90.4	91.4	91.3	0.82	36	2.4	5.8	2.6	63	76	**1LE1001-2AC4■-■■■■**	151	0.25
22	**26.5**	**200 L**	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	**1LE1001-2AC5■-■■■■**	173	0.3

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VY		Without additional charge	**2**	**7**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
For other voltages [1] and more information, see from page 2/93			**9**	**0**	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	**A**	–
With flange	IM B5 [3]	With additional charge	**F**	–
With flange	IM B14 [3]	With additional charge	**K**	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)	With additional charge	**B**	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version	
Terminal box at top	**Standard**	**4**
For other terminal box positions and more information, see from page 2/115		■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1001-. . . . ■-■■■■-Z**	**F90 +. . .+. . .+. . .**
For options, see from page 2/118	**1LE1001-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) For converter operation of shaft heights 63 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

3) Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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IE2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1001 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
0.75	**0.86**	**100 L**	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	**1LE1001-1AD4■-■■■■**	21	0.0086
1.1	**1.27**	**100 L**	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	**1LE1001-1AD5■-■■■■**	25	0.011
1.5	**1.75**	**112 M**	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	75	**1LE1001-1BD2■-■■■■**	34	0.017
2.2	**2.55**	**132 S**	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	**1LE1001-1CD0■-■■■■**	46	0.034
3	**3.45**	**132 M**	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	**1LE1001-1CD2■-■■■■**	52	0.037
4	**4.55**	**160 M**	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	**1LE1001-1DD2■-■■■■**	69	0.065
5.5	**6.3**	**160 M**	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	**1LE1001-1DD3■-■■■■**	82	0.083
7.5	**8.6**	**160 L**	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	**1LE1001-1DD4■-■■■■**	94	0.098
11	**13.2**	**180 L**	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	80	**1LE1001-1ED4■-■■■■**	122	0.195
15	**18**	**200 L**	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	65	**1LE1001-2AD5■-■■■■**	172	0.344

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/93			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
With flange	IM B14 [2]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1001-. . . . ■-■■■■-Z**					**F90 +. . .+. . .+. . .**
For options, see from page 2/118		**1LE1001-. . . . ■-■■■■-Z**					**. . .+. . .+. . .+. . .**

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1001 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
1.5	**1.75**	**80 M**	2830	5.1		81.3	83.4	83.6	0.85	3.15	2.6	6.1	2.8	60	71	**1LE1001-0DA6■-■■■■**	11	0.0013
3	**3.45**	**90 L**	2895	9.9		84.6	85.5	84.5	0.86	6	3.4	7.9	3.6	65	77	**1LE1001-0EA6■-■■■■**	15	0.0031
4	**4.55**	**100 L**	2905	13		85.8	86.9	86.5	0.86	7.8	2.5	7.6	3.5	67	79	**1LE1001-1AA6■-■■■■**	26	0.0054
5.5	**6.3**	**112 M**	2945	18		87	87.8	87.4	0.88	10.4	2.3	8.5	3.8	69	81	**1LE1001-1BA6■-■■■■**	34	0.012
11	**12.6**	**132 M**	2950	36		89.4	90.1	89.9	0.89	20	2.3	7.9	3.2	68	80	**1LE1001-1CA6■-■■■■**	57	0.031
22	**25.3**	**160 L**	2955	71		91.3	91.8	91.4	0.89	39	3.1	8.4	3.7	70	82	**1LE1001-1DA6■-■■■■**	94	0.068
30	**33.5**	**180 L**	2940	97		92	92.6	92.3	0.89	53	2.3	7.8	3.4	76	83	**1LE1001-1EA6■-■■■■**	139	0.094
45	**51**	**200 L**	2950	146		92.9	93.2	92.9	0.87	81	2.5	7.1	3.2	77	84	**1LE1001-2AA6■-■■■■**	194	0.176
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
1.1	**1.27**	**80 M**	1440	7.3		81.4	82.1	80.7	0.78	2.5	2.4	6.1	3	53	64	**1LE1001-0DB6■-■■■■**	11	0.0029
2.2	**2.55**	**90 L**	1425	15	IE1	84.3	85.6	85	0.81	4.65	2.8	6.1	3.1	56	68	**1LE1001-0EB6■-■■■■**	16	0.0049
4	**4.55**	**100 L**	1460	26		86.6	88	87.5	0.8	8.3	2.2	7.5	3.5	60	72	**1LE1001-1AB6■-■■■■**	30	0.014
5.5	**6.3**	**112 M**	1460	36		87.7	88.2	87.2	0.81	11.2	2.5	7.1	3.2	58	70	**1LE1001-1BB6■-■■■■**	34	0.017
11	**12.6**	**132 M**	1465	72		89.8	90.9	90.9	0.84	21	2.6	7.7	3.1	64	76	**1LE1001-1CB6■-■■■■**	64	0.046
18.5	**21.3**	**160 L**	1475	120		91.2	91.8	91.3	0.85	34.5	2.5	7.7	3.3	65	77	**1LE1001-1DB6■-■■■■**	100	0.099
30	**34.5**	**180 L**	1465	196		92.3	93	92.9	0.81	58	2.5	7.3	3.3	70	77	**1LE1001-1EB6■-■■■■**	148	0.159
37	**42.5**	**200 L**	1470	240		92.7	93.5	93.6	0.84	69	2.4	7	3	68	75	**1LE1001-2AB6■-■■■■**	189	0.246

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VY		Without additional charge	**2**	**7**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
For other voltages [1] and more information, see from page 2/93			**9**	**0**	. . .

Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	**A**	–
With flange	IM B5 [2]	With additional charge	**F**	–
With flange	IM B14 [2]	With additional charge	**K**	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)	With additional charge	**B**	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version	
Terminal box at top	**Standard**	**4**
For other terminal box positions and more information, see from page 2/115		■

Special versions		Order code(s)
For options, see from page 2/118	**1LE1001- . . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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IE2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1001 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
2.2	2.55	100 L	965	22	IE1	81.8	83.3	82.7	0.76	5.1	1.7	4.9	2.5	59	71	1LE1001-1AC6■-■■■■	30	0.014
3	3.45	112 M	965	30		83.3	84	82.7	0.74	7	2.1	5.4	2.7	62	74	1LE1001-1BC6■-■■■■	34	0.017
7.5	8.6	132 M	970	74		87.2	88.1	87.1	0.75	16.6	2	5.6	2.6	63	75	1LE1001-1CC6■-■■■■	64	0.046
15	17.3	160 L	975	147	IE1	89.7	90.4	89.7	0.75	32	2	5.2	2.4	67	79	1LE1001-1DC6■-■■■■	115	0.12
18.5	22	180 L	975	181		90.4	90.9	90.5	0.77	38.5	2.3	6	2.9	67	80	1LE1001-1EC6■-■■■■	130	0.206
30	34.5	200 L	975	294		91.7	92.5	92.4	0.77	61	2.6	6.3	2.7	68	75	1LE1001-2AC6■-■■■■	192	0.381
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
15	18	180 L	720	199	IE1	88	89.2	89	0.73	33.5	2.2	4.9	2.5	67	75	1LE1001-1ED6■-■■■■	151	0.263
18.5	22	200 L	720	245	IE1	88.6	89.9	90.2	0.78	38.5	2.6	5.8	3	65	72	1LE1001-2AD6■-■■■■	198	0.416

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/93			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
For options, see from page 2/118			1LE1001-. . . . ■-■■■■-Z				. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1501 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
0.37	**0.43**	**71 M**	2770	1.3	69.5	70.5	67.9	0.81	0.95	2.5	4.1	2.5	58	69	**1LE1501-0CA2■-■■■■**	11	0.00035
0.55	**0.63**	**71 M**	2780	1.9	74.1	75.2	72.9	0.8	1.34	2.6	4.6	2.6	58	69	**1LE1501-0CA3■-■■■■**	13	0.00045
0.75	**0.86**	**80 M**	2805	2.6	77.4	80	80.1	0.84	1.67	1.9	4.9	2.3	60	71	**1LE1501-0DA2■-■■■■**	16	0.0008
1.1	**1.27**	**80 M**	2835	3.7	79.6	81.3	80.9	0.83	2.4	2.7	6	3.1	60	71	**1LE1501-0DA3■-■■■■**	18	0.0011
1.5	**1.75**	**90 S**	2885	4.9	81.3	81.7	79.8	0.84	3.15	2.7	6.9	3.6	65	77	**1LE1501-0EA0■-■■■■**	23	0.0017
2.2	**2.55**	**90 L**	2890	7.3	83.2	83.7	82	0.85	4.5	2.5	7.1	3.7	65	77	**1LE1501-0EA4■-■■■■**	25	0.0021
3	**3.45**	**100 L**	2905	9.9	84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	**1LE1501-1AA4■-■■■■**	32	0.0044
4	**4.55**	**112 M**	2945	13	85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	**1LE1501-1BA2■-■■■■**	39	0.0092
5.5	**6.3**	**132 S**	2950	18	87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	**1LE1501-1CA0■-■■■■**	57	0.02
7.5	**8.6**	**132 S**	2950	24	88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	**1LE1501-1CA1■-■■■■**	61	0.024
11	**12.6**	**160 M**	2955	36	89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	**1LE1501-1DA2■-■■■■**	96	0.045
15	**17.3**	**160 M**	2955	48	90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	**1LE1501-1DA3■-■■■■**	104	0.053
18.5	**21.3**	**160 L**	2955	60	90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	**1LE1501-1DA4■-■■■■**	113	0.061
22	**24.5**	**180 M**	2940	71	91.3	91.8	91.3	0.87	40	2.7	7.4	3.6	77	84	**1LE1501-1EA2■-■■■■**	145	0.069
30	**33.5**	**200 L**	2960	97	92	92.3	91.8	0.87	54	2.5	6.9	3.3	78	85	**1LE1501-2AA4■-■■■■**	200	0.13
37	**41.5**	**200 L**	2960	119	92.5	93	92.7	0.88	66	2.7	7.4	3.5	78	85	**1LE1501-2AA5■-■■■■**	225	0.15
45	**51**	**225 M**	2965	145	92.9	93.1	92.5	0.88	79	2.7	7.8	3.7	76	89	**1LE1501-2BA2■-■■■■**	295	0.23
55	**62**	**250 M**	2970	177	93.2	93.3	92.4	0.88	97	2.3	6.8	3.1	76	89	**1LE1501-2CA2■-■■■■**	360	0.4
75	**84**	**280 S**	2978	240	93.8	93.6	92.4	0.86	134	2.5	7.2	3.2	76	89	**1LE1501-2DA0■-■■■■**	490	0.71
90	**101**	**280 M**	2975	289	94.1	94.2	93.5	0.88	157	2.5	7.1	3.1	76	89	**1LE1501-2DA2■-■■■■**	530	0.83
110	**123**	**315 S**	2982	352	94.3	94.2	93.3	0.9	187	2.4	7.3	3	77	91	**1LE1501-3AA0■-■■■■**	720	1.3
132	**148**	**315 M**	2982	423	94.6	94.7	94.1	0.91	220	2.4	7.2	3.1	77	91	**1LE1501-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	2982	512	94.8	94.9	94.3	0.92	265	2.3	7	3.1	80	95	**1LE1501-3AA4■-■■■■**	930	1.8
200	**224**	**315 L**	2982	640	95	95.2	94.8	0.92	330	2.5	7.3	3	80	95	**1LE1501-3AA5■-■■■■**	1130	2.2

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VY		Without additional charge	**2**	**7**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
For other voltages [1] and more information, see from page 2/96			**9**	**0**	. . .

Types of construction		Version		Order code
Without flange	IM B3 [3]	**Standard**	**A**	–
With flange	IM B5 [3]	With additional charge	**F**	–
With flange	IM B14 [3]	With additional charge	**K**	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 3 temperature sensors	With additional charge	**B**	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	**4**	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1501-. . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125	**1LE1501-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1501 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
0.25	**0.29**	**71 M**	1395	1.7	68.5	68.4	64.2	0.69	0.76	2.4	3.7	2.5	50	61	**1LE1501-0CB2■-■■■■**	12	0.00076
0.37	**0.43**	**71 M**	1380	2.6	72.7	73.2	69.9	0.72	1.02	2.3	3.8	2.4	50	61	**1LE1501-0CB3■-■■■■**	13	0.00095
0.55	**0.63**	**80 M**	1440	3.6	77.1	76.8	73.7	0.74	1.39	2.2	5.3	3.1	53	64	**1LE1501-0DB2■-■■■■**	17	0.0017
0.75	**0.86**	**80 M**	1440	5	79.6	79.9	77.5	0.76	1.79	2.2	5.6	3.1	53	64	**1LE1501-0DB3■-■■■■**	18	0.0021
1.1	**1.27**	**90 S**	1425	7.4	81.4	81.8	80	0.78	2.5	2.3	5.6	2.9	56	68	**1LE1501-0EB0■-■■■■**	23	0.0028
1.5	**1.75**	**90 L**	1435	10	82.8	83.5	82.2	0.79	3.3	2.6	6.4	3.4	56	68	**1LE1501-0EB4■-■■■■**	25	0.0036
2.2	**2.55**	**100 L**	1455	14	84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	**1LE1501-1AB4■-■■■■**	32	0.0086
3	**3.45**	**100 L**	1455	20	85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	**1LE1501-1AB5■-■■■■**	37	0.011
4	**4.55**	**112 M**	1460	26	86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	**1LE1501-1BB2■-■■■■**	46	0.014
5.5	**6.3**	**132 S**	1465	36	87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	**1LE1501-1CB0■-■■■■**	61	0.027
7.5	**8.6**	**132 M**	1465	49	88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	**1LE1501-1CB2■-■■■■**	75	0.034
11	**12.6**	**160 M**	1470	71	89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	**1LE1501-1DB2■-■■■■**	96	0.065
15	**17.3**	**160 L**	1475	97	90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	**1LE1501-1DB4■-■■■■**	104	0.083
18.5	**21.3**	**180 M**	1465	121	91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	**1LE1501-1EB2■-■■■■**	160	0.12
22	**25.3**	**180 L**	1465	143	91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	**1LE1501-1EB4■-■■■■**	170	0.13
30	**34.5**	**200 L**	1470	195	92.3	92.9	92.6	0.84	56	2.5	6.7	3.3	70	77	**1LE1501-2AB5■-■■■■**	230	0.2
37	**42.5**	**225 S**	1470	240	92.7	93.5	93.5	0.88	65	2.3	6.6	2.9	66	79	**1LE1501-2BB0■-■■■■**	280	0.42
45	**52**	**225 M**	1475	291	93.1	93.8	93.7	0.87	80	2.5	6.9	3.1	66	79	**1LE1501-2BB2■-■■■■**	305	0.46
55	**63**	**250 M**	1480	355	93.5	93.9	93.5	0.85	100	2.7	6.8	3	66	79	**1LE1501-2CB2■-■■■■**	385	0.75
75	**86**	**280 S**	1485	482	94	94.2	93.8	0.87	132	2.5	6.8	3	71	85	**1LE1501-2DB0■-■■■■**	550	1.3
90	**104**	**280 M**	1486	578	94.2	94.3	93.6	0.87	159	2.6	7.3	3.1	71	85	**1LE1501-2DB2■-■■■■**	570	1.4
110	**127**	**315 S**	1490	705	94.5	94.6	94	0.86	195	2.7	7.4	3	72	86	**1LE1501-3AB0■-■■■■**	740	2
132	**152**	**315 M**	1490	846	94.7	94.9	94.6	0.87	230	2.7	7.1	2.9	75	89	**1LE1501-3AB2■-■■■■**	870	2.3
160	**184**	**315 L**	1490	1025	94.9	95	94.5	0.87	280	2.8	7.2	3.1	76	91	**1LE1501-3AB4■-■■■■**	940	2.8
200	**230**	**315 L**	1490	1282	95.1	95.3	94.7	0.87	350	3.1	7.5	3.2	77	92	**1LE1501-3AB5■-■■■■**	1140	3.5

Voltages [2]		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**		–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**		–
50 Hz 500 VY		Without additional charge	**2**	**7**		–
50 Hz 500 VΔ		Without additional charge	**4**	**0**		–
For other voltages [1] and more information, see from page 2/96			**9**	**0**		. . .
Types of construction		Version				Order code
Without flange	IM B3 [3]	**Standard**			**A**	–
With flange	IM B5 [3]	With additional charge			**F**	–
With flange	IM B14 [3]	With additional charge			**K**	–
For other types of construction and more information, see from page 2/103					■	. . .
Motor protection		Version				Order code
Without		**Standard**			**A**	–
PTC thermistor with 3 temperature sensors		With additional charge			**B**	–
For other motor protection and more information, see from page 2/113					■	. . .
Terminal box position		Version				
Terminal box at top		**Standard**			**4**	
For other terminal box positions and more information, see from page 2/116					■	
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)			**1LE1501-. . . . ■-■■■■**		**-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125			**1LE1501-. . . . ■-■■■■**		**-Z**	**. . .+. . .+. . .+. . .**

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1501 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.18	0.21	71 M	875	2		56.6	56.9	52.7	0.68	0.68	2.2	2.5	2.3	46	57	1LE1501-0CC2■-■■■■	12	0.0008
0.25	0.29	71 M	870	2.7		61.6	62.7	59.2	0.7	0.84	2.3	2.6	2.3	46	57	1LE1501-0CC3■-■■■■	13	0.001
0.37	0.43	80 M	925	3.8		67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	1LE1501-0DC2■-■■■■	17	0.0017
0.55	0.63	80 M	935	5.6		73.1	73.8	70.8	0.66	1.65	2.5	4.4	2.9	42	53	1LE1501-0DC3■-■■■■	19	0.0025
0.75	0.86	90 S	935	7.7		75.9	76.8	74.5	0.7	2.05	2	4.1	2.5	43	55	1LE1501-0EC0■-■■■■	23	0.003
1.1	1.27	90 L	935	11	IE1	78.1	79.3	77.7	0.7	2.9	2.2	4.4	2.6	43	55	1LE1501-0EC4■-■■■■	26	0.004
1.5	1.75	100 L	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1LE1501-1AC4■-■■■■	36	0.011
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1LE1501-1BC2■-■■■■	41	0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1LE1501-1CC0■-■■■■	56	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1LE1501-1CC2■-■■■■	61	0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1LE1501-1CC3■-■■■■	70	0.037
7.5	8.6	160 M	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1LE1501-1DC2■-■■■■	106	0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1LE1501-1DC4■-■■■■	122	0.098
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1LE1501-1EC4■-■■■■	155	0.17
18.5	22	200 L	978	181	IE1	90.4	91.4	91.3	0.82	36	2.4	5.8	2.6	63	76	1LE1501-2AC4■-■■■■	200	0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	1LE1501-2AC5■-■■■■	220	0.3
30	36	225 M	980	292	IE1	91.7	92.5	92.3	0.83	57	2.5	5.6	2.7	65	78	1LE1501-2BC2■-■■■■	300	0.58
37	44.5	250 M	982	360	IE1	92.2	93.1	93.1	0.83	70	2.8	6	2.5	62	77	1LE1501-2CC2■-■■■■	370	0.86
45	54	280 S	985	436	IE1	92.7	93.4	93.2	0.84	83	2.7	6.3	2.6	65	79	1LE1501-2DC0■-■■■■	460	1.1
55	66	280 M	985	533	IE1	93.1	93.9	94	0.86	99	2.5	6.4	2.6	65	79	1LE1501-2DC2■-■■■■	510	1.4
75	90	315 S	988	725	IE1	93.7	94	93.6	0.84	138	2.5	6.7	2.8	65	79	1LE1501-3AC0■-■■■■	660	2.1
90	108	315 M	988	870	IE1	94	94.3	93.6	0.84	165	2.6	6.9	2.8	65	79	1LE1501-3AC2■-■■■■	730	2.5
110	132	315 L	988	1063	IE1	94.3	94.6	94.5	0.86	196	2.7	7	2.8	68	82	1LE1501-3AC4■-■■■■	940	3.6
132	158	315 L	988	1276		94.6	94.9	94.7	0.86	235	3	7.5	2.9	69	84	1LE1501-3AC5■-■■■■	990	4
160	192	315 L	988	1546		94.8	94.7	94.4	0.86	285	3.1	7.7	3.3	69	84	1LE1501-3AC6■-■■■■	1160	4.7

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
With flange	IM B14 [3]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1501-. . . . ■-■■■■-Z	F90+. . .+. . .+. . .
For options, see from page 2/125	1LE1501-. . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1501 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
0.09	0.11	71 M	630	1.4	[4]	40.1	40.6	35.8	0.67	0.5	1.7	1.6	1.7	59	63	1LE1501-0CD2■-■■■■	12	0.00077
0.12	0.14	71 M	640	1.8		40.1	39.6	34.7	0.66	0.65	1.8	1.8	1.8	48	59	1LE1501-0CD3■-■■■■	13	0.00100
0.18	0.21	80 M	690	2.5		45.9	43.6	37.8	0.6	0.93	1.7	2.2	2.1	51	62	1LE1501-0DD2■-■■■■	17	0.00175
0.25	0.29	80 M	705	3.4		50.6	48.1	41.9	0.55	1.3	2	2.5	2.5	51	62	1LE1501-0DD3■-■■■■	19	0.00246
0.37	0.43	90 S	675	5.2		56.1	55.6	49.6	0.71	1.34	1.4	2.6	1.7	53	65	1LE1501-0ED0■-■■■■	23	0.00225
0.55	0.63	90 L	665	7.9		61.7	63.4	59.8	0.74	1.74	1.5	2.7	1.7	53	65	1LE1501-0ED4■-■■■■	26	0.00305
0.75	0.86	100 L	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	1LE1501-1AD4■-■■■■	32	0.0086
1.1	1.27	100 L	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	1LE1501-1AD5■-■■■■	36	0.011
1.5	1.75	112 M	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	75	1LE1501-1BD2■-■■■■	53	0.017
2.2	2.55	132 S	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	1LE1501-1CD0■-■■■■	64	0.034
3	3.45	132 M	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	1LE1501-1CD2■-■■■■	67	0.037
4	4.55	160 M	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	1LE1501-1DD2■-■■■■	98	0.065
5.5	6.3	160 M	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	1LE1501-1DD3■-■■■■	111	0.083
7.5	8.6	160 L	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	1LE1501-1DD4■-■■■■	123	0.098
11	13.2	180 L	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	80	1LE1501-1ED4■-■■■■	155	0.195
15	18	200 L	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	65	1LE1501-2AD5■-■■■■	220	0.344
18.5	22	225 S	730	242	IE1	89	89.9	89.5	0.78	38.5	2.2	5.4	2.7	59	72	1LE1501-2BD0■-■■■■	250	0.43
22	26.5	225 M	730	288		90.3	91.3	91.1	0.8	44	2.3	5.5	2.7	58	71	1LE1501-2BD2■-■■■■	270	0.5
30	36	250 M	732	391		91.3	92.2	92	0.8	59	2.4	5.6	2.7	60	73	1LE1501-2CD2■-■■■■	370	0.86
37	44.5	280 S	736	480		91.9	92.5	92.1	0.78	75	2.3	5.4	2.4	63	77	1LE1501-2DD0■-■■■■	460	1.1
45	54	280 M	738	582		92.4	92.8	92.4	0.79	89	2.5	5.7	2.5	66	80	1LE1501-2DD2■-■■■■	510	1.4
55	66	315 S	740	710		92.9	93.3	92.9	0.8	107	2.2	5.8	2.6	69	83	1LE1501-3AD0■-■■■■	640	2
75	90	315 M	738	970		93.5	94.4	94.5	0.81	143	2.3	5.9	2.7	69	84	1LE1501-3AD2■-■■■■	720	2.5
90	108	315 L	740	1161		93.5	94.3	94.4	0.83	167	2.2	5.8	2.5	69	84	1LE1501-3AD4■-■■■■	860	3.1
110	132	315 L	740	1419		92.3	95	95.1	0.82	205	2.7	6.7	2.9	74	88	1LE1501-3AD5■-■■■■	980	3.9

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
With flange	IM B14 [3]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**				4	
For other terminal box positions and more information, see from page 2/116						■	
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)			1LE1501-. . . . ■-■■■■-Z				F90+. . .+. . .+. . .
For options, see from page 2/125			1LE1501-. . . . ■-■■■■-Z				. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

4) No IE class for 50 and 60 Hz because the motor is outside the validity for the efficiency classes according to IEC 60034-30-1:2014.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1601 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
3	**3.45**	**100 L**	2905	9.9	84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	**1LE1601-1AA4■-■■■■**	32	0.0044
4	**4.55**	**112 M**	2945	13	85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	**1LE1601-1BA2■-■■■■**	39	0.0092
5.5	**6.3**	**132 S**	2950	18	87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	**1LE1601-1CA0■-■■■■**	57	0.02
7.5	**8.6**	**132 S**	2950	24	88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	**1LE1601-1CA1■-■■■■**	61	0.024
11	**12.6**	**160 M**	2955	36	89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	**1LE1601-1DA2■-■■■■**	96	0.045
15	**17.3**	**160 M**	2955	48	90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	**1LE1601-1DA3■-■■■■**	104	0.053
18.5	**21.3**	**160 L**	2955	60	90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	**1LE1601-1DA4■-■■■■**	113	0.061
22	**24.5**	**180 M**	2940	71	91.3	91.8	91.3	0.87	40	2.7	7.4	3.6	77	84	**1LE1601-1EA2■-■■■■**	145	0.069
30	**33.5**	**200 L**	2960	97	92	92.3	91.8	0.87	54	2.5	6.9	3.3	78	85	**1LE1601-2AA4■-■■■■**	200	0.13
37	**41.5**	**200 L**	2960	119	92.5	93	92.7	0.88	66	2.7	7.4	3.5	78	85	**1LE1601-2AA5■-■■■■**	225	0.15
45	**51**	**225 M**	2965	145	92.9	93.1	92.5	0.88	79	2.7	7.8	3.7	76	89	**1LE1601-2BA2■-■■■■**	295	0.23
55	**62**	**250 M**	2970	177	93.2	93.3	92.4	0.88	97	2.3	6.8	3.1	76	89	**1LE1601-2CA2■-■■■■**	360	0.4
75	**84**	**280 S**	2978	240	93.8	93.6	92.4	0.86	134	2.5	7.2	3.2	76	89	**1LE1601-2DA0■-■■■■**	490	0.71
90	**101**	**280 M**	2975	289	94.1	94.2	93.5	0.88	157	2.5	7.1	3.1	76	89	**1LE1601-2DA2■-■■■■**	530	0.83
110	**123**	**315 S**	2982	352	94.3	94.2	93.3	0.9	187	2.4	7.3	3	77	91	**1LE1601-3AA0■-■■■■**	720	1.3
132	**148**	**315 M**	2982	423	94.6	94.7	94.1	0.91	220	2.4	7.2	3.1	77	91	**1LE1601-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	2982	512	94.8	94.9	94.3	0.92	265	2.3	7	3.1	80	95	**1LE1601-3AA4■-■■■■**	930	1.8
200	**224**	**315 L**	2982	640	95	95.2	94.8	0.92	330	2.5	7.3	3	80	95	**1LE1601-3AA5■-■■■■**	1130	2.2

Voltages [2]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages [1] and more information, see from page 2/96			**9**	**0**				. . .
Types of construction		Version						Order code
Without flange	IM B3 [3]	**Standard**			**A**			–
With flange	IM B5 [3]	With additional charge			**F**			–
With flange	IM B14 [3]	With additional charge			**K**			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1601-. . . . ■-■■■■**					**-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1601-. . . . ■-■■■■**					**-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Please note minimum legal efficiencies in the European Economic Area!

IE2

Cast-iron series SIMOTICS SD 1LE1601 Performance Line – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1601 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
2.2	**2.55**	**100 L**	1455	14	84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	**1LE1601-1AB4■-■■■■**	32	0.0086
3	**3.45**	**100 L**	1455	20	85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	**1LE1601-1AB5■-■■■■**	37	0.011
4	**4.55**	**112 M**	1460	26	86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	**1LE1601-1BB2■-■■■■**	46	0.014
5.5	**6.3**	**132 S**	1465	36	87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	**1LE1601-1CB0■-■■■■**	61	0.027
7.5	**8.6**	**132 M**	1465	49	88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	**1LE1601-1CB2■-■■■■**	75	0.034
11	**12.6**	**160 M**	1470	71	89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	**1LE1601-1DB2■-■■■■**	96	0.065
15	**17.3**	**160 L**	1475	97	90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	**1LE1601-1DB4■-■■■■**	104	0.083
18.5	**21.3**	**180 M**	1465	121	91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	**1LE1601-1EB2■-■■■■**	160	0.12
22	**25.3**	**180 L**	1465	143	91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	**1LE1601-1EB4■-■■■■**	170	0.13
30	**34.5**	**200 L**	1470	195	92.3	92.9	92.6	0.84	56	2.5	6.7	3.3	70	77	**1LE1601-2AB5■-■■■■**	230	0.2
37	**42.5**	**225 S**	1470	240	92.7	93.5	93.5	0.88	65	2.3	6.6	2.9	66	79	**1LE1601-2BB0■-■■■■**	280	0.42
45	**52**	**225 M**	1475	291	93.1	93.8	93.7	0.87	80	2.5	6.9	3.1	66	79	**1LE1601-2BB2■-■■■■**	305	0.46
55	**63**	**250 M**	1480	355	93.5	93.9	93.5	0.85	100	2.7	6.8	3	66	79	**1LE1601-2CB2■-■■■■**	385	0.75
75	**86**	**280 S**	1485	482	94	94.2	93.8	0.87	132	2.5	6.8	3	71	85	**1LE1601-2DB0■-■■■■**	550	1.3
90	**104**	**280 M**	1486	578	94.2	94.3	93.6	0.87	159	2.6	7.3	3.1	71	85	**1LE1601-2DB2■-■■■■**	570	1.4
110	**127**	**315 S**	1490	705	94.5	94.6	94	0.86	195	2.7	7.4	3	72	86	**1LE1601-3AB0■-■■■■**	740	2
132	**152**	**315 M**	1490	846	94.7	94.9	94.6	0.87	230	2.7	7.1	2.9	75	89	**1LE1601-3AB2■-■■■■**	870	2.3
160	**184**	**315 L**	1490	1025	94.9	95	94.5	0.87	280	2.8	7.2	3.1	76	91	**1LE1601-3AB4■-■■■■**	940	2.8
200	**230**	**315 L**	1490	1282	95.1	95.3	94.7	0.87	350	3.1	7.5	3.2	77	92	**1LE1601-3AB5■-■■■■**	1140	3.5

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1601-. . . . ■-■■■■-Z**					**F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1601-. . . . ■-■■■■-Z**					**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1601 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
1.5	1.75	100 L	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1LE1601-1AC4■-■■■■	36	0.011
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1LE1601-1BC2■-■■■■	41	0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1LE1601-1CC0■-■■■■	56	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1LE1601-1CC2■-■■■■	61	0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1LE1601-1CC3■-■■■■	70	0.037
7.5	8.6	160 M	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1LE1601-1DC2■-■■■■	106	0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1LE1601-1DC4■-■■■■	122	0.098
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1LE1601-1EC4■-■■■■	155	0.17
18.5	22	200 L	978	181	IE1	90.4	91.4	91.3	0.82	36	2.4	5.8	2.6	63	76	1LE1601-2AC4■-■■■■	200	0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	1LE1601-2AC5■-■■■■	220	0.3
30	36	225 M	980	292	IE1	91.7	92.5	92.3	0.83	57	2.5	5.6	2.7	65	78	1LE1601-2BC2■-■■■■	300	0.58
37	44.5	250 M	982	360	IE1	92.2	93.1	93.1	0.83	70	2.8	6	2.5	62	77	1LE1601-2CC2■-■■■■	370	0.86
45	54	280 S	985	436	IE1	92.7	93.4	93.2	0.84	83	2.7	6.3	2.6	65	79	1LE1601-2DC0■-■■■■	460	1.1
55	66	280 M	985	533	IE1	93.1	93.9	94	0.86	99	2.5	6.4	2.6	65	79	1LE1601-2DC2■-■■■■	510	1.4
75	90	315 S	988	725	IE1	93.7	94	93.6	0.84	138	2.5	6.7	2.8	65	79	1LE1601-3AC0■-■■■■	660	2.1
90	108	315 M	988	870	IE1	94	94.3	93.6	0.84	165	2.6	6.9	2.8	65	79	1LE1601-3AC2■-■■■■	730	2.5
110	132	315 L	988	1063	IE1	94.3	94.6	94.5	0.86	196	2.7	7	2.8	68	82	1LE1601-3AC4■-■■■■	940	3.6
132	158	315 L	988	1276		94.6	94.9	94.7	0.86	235	3	7.5	2.9	69	84	1LE1601-3AC5■-■■■■	990	4
160	192	315 L	988	1546		94.8	94.7	94.4	0.86	285	3.1	7.7	3.3	69	84	1LE1601-3AC6■-■■■■	1160	4.7

Voltages [2]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages [1] and more information, see from page 2/96			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [3]	**Standard**			A			–
With flange	IM B5 [3]	With additional charge			F			–
With flange	IM B14 [3]	With additional charge			K			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
PTC thermistor with 3 temperature sensors		**Standard**				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1601-. . . . ■-■■■■-Z						F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1601-. . . . ■-■■■■-Z						. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE2

Cast-iron series SIMOTICS SD 1LE1601 Performance Line – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1601 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
0.75	0.86	100 L	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	1LE1601-1AD4■-■■■■	32	0.0086
1.1	1.27	100 L	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	1LE1601-1AD5■-■■■■	36	0.011
1.5	1.75	112 M	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	75	1LE1601-1BD2■-■■■■	53	0.017
2.2	2.55	132 S	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	1LE1601-1CD0■-■■■■	64	0.034
3	3.45	132 M	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	1LE1601-1CD2■-■■■■	67	0.037
4	4.55	160 M	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	1LE1601-1DD2■-■■■■	98	0.065
5.5	6.3	160 M	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	1LE1601-1DD3■-■■■■	111	0.083
7.5	8.6	160 L	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	1LE1601-1DD4■-■■■■	123	0.098
11	13.2	180 L	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	80	1LE1601-1ED4■-■■■■	155	0.195
15	18	200 L	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	65	1LE1601-2AD5■-■■■■	220	0.344
18.5	22	225 S	730	242	IE1	89	89.9	89.5	0.78	38.5	2.2	5.4	2.7	59	72	1LE1601-2BD0■-■■■■	250	0.43
22	26.5	225 M	730	288		90.3	91.3	91.1	0.8	44	2.3	5.5	2.7	58	71	1LE1601-2BD2■-■■■■	270	0.5
30	36	250 M	732	391		91.3	92.2	92	0.8	59	2.4	5.6	2.7	60	73	1LE1601-2CD2■-■■■■	370	0.86
37	44.5	280 S	736	480		91.9	92.5	92.1	0.78	75	2.3	5.4	2.4	63	77	1LE1601-2DD0■-■■■■	460	1.1
45	54	280 M	738	582		92.4	92.8	92.4	0.79	89	2.5	5.7	2.5	66	80	1LE1601-2DD2■-■■■■	510	1.4
55	66	315 S	740	710		92.9	93.3	92.9	0.8	107	2.2	5.8	2.6	69	83	1LE1601-3AD0■-■■■■	640	2
75	90	315 M	738	970		93.5	94.4	94.5	0.81	143	2.3	5.9	2.7	69	84	1LE1601-3AD2■-■■■■	720	2.5
90	108	315 L	740	1161		93.5	94.3	94.4	0.83	167	2.2	5.8	2.5	69	84	1LE1601-3AD4■-■■■■	860	3.1
110	132	315 L	740	1419		94.2	95	95.1	0.82	205	2.7	6.7	2.9	74	88	1LE1601-3AD5■-■■■■	980	3.9

Voltages [2]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/96			9	0	. . .
Types of construction		Version			Order code
Without flange	IM B3 [3]	**Standard**		A	–
With flange	IM B5 [3]	With additional charge		F	–
With flange	IM B14 [3]	With additional charge		K	–
For other types of construction and more information, see from page 2/103				■	. . .
Motor protection		Version			Order code
PTC thermistor with 3 temperature sensors		**Standard**		B	–
For other motor protection and more information, see from page 2/113				■	. . .
Terminal box position		Version			
Terminal box at top		**Standard**			4
For other terminal box positions and more information, see from page 2/116					■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1601-. . . . ■-■■■■-Z	F90+. . .+. . .+. . .
For options, see from page 2/125	1LE1601-. . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

4) No IE class for 50 and 60 Hz because the motor is outside the validity for the efficiency classes according to IEC 60034-30-1:2014.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1501 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
4	**4.55**	**100 L**	2905	13		85.8	86.9	86.5	0.86	7.8	2.5	7.6	3.5	67	79	**1LE1501-1AA6■-■■■■**	45	0.0054
5.5	**6.3**	**112 M**	2945	18		87	87.8	87.4	0.88	10.4	2.3	8.5	3.8	69	81	**1LE1501-1BA6■-■■■■**	53	0.012
11	**12.6**	**132 M**	2950	36		89.4	90.1	89.9	0.89	20	2.3	7.9	3.2	68	80	**1LE1501-1CA6■-■■■■**	80	0.031
22	**25.3**	**160 L**	2955	71		91.3	91.8	91.4	0.89	39	3.1	8.4	3.7	70	82	**1LE1501-1DA6■-■■■■**	126	0.068
30	**33.5**	**180 L**	2940	97		92	92.6	92.3	0.89	53	2.3	7.8	3.4	76	83	**1LE1501-1EA6■-■■■■**	180	0.094
45	**51**	**200 L**	2950	146		92.9	93.2	92.9	0.87	81	2.5	7.1	3.2	77	84	**1LE1501-2AA6■-■■■■**	245	0.176
55	**62**	**225 M**	2960	177		93.2	93.6	93.2	0.88	97	2.5	7	3.3	76	89	**1LE1501-2BA6■-■■■■**	320	0.26
75	**84**	**250 M**	2970	241		93.8	93.6	92.6	0.84	137	2.2	7	3.3	75	89	**1LE1501-2CA6■-■■■■**	390	0.46
110	**123**	**280 M**	2978	353		94.3	94.5	94.1	0.9	187	2.9	8.5	3.6	80	91	**1LE1501-2DA6■-■■■■**	650	1.2
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
4	**4.55**	**100 L**	1460	26		86.6	88	87.5	0.8	8.3	2.2	7.5	3.5	60	72	**1LE1501-1AB6■-■■■■**	46	0.014
5.5	**6.3**	**112 M**	1460	36		87.7	88.2	87.2	0.81	11.2	2.5	7.1	3.2	58	70	**1LE1501-1BB6■-■■■■**	58	0.017
11	**12.6**	**132 M**	1465	72		89.8	90.9	90.9	0.84	21	2.6	7.7	3.1	64	76	**1LE1501-1CB6■-■■■■**	80	0.046
18.5	**21.3**	**160 L**	1475	120		91.2	91.8	91.3	0.85	34.5	2.5	7.7	3.3	65	77	**1LE1501-1DB6■-■■■■**	116	0.099
30	**34.5**	**180 L**	1465	196		92.3	93	92.9	0.81	58	2.5	7.3	3.3	70	77	**1LE1501-1EB6■-■■■■**	185	0.159
37	**42.5**	**200 L**	1470	240		92.7	93.5	93.6	0.84	69	2.4	7	3	68	75	**1LE1501-2AB6■-■■■■**	240	0.246
55	**63**	**225 M**	1475	356		93.5	94.2	94.1	0.84	101	2.5	5.8	2.7	69	82	**1LE1501-2BB6■-■■■■**	320	0.47
75	**86**	**250 M**	1480	484		94	94.5	94.3	0.86	134	2.3	6.2	2.8	74	87	**1LE1501-2CB6■-■■■■**	440	0.85
110	**127**	**280 M**	1485	707		94.5	94.9	94.8	0.87	193	2.5	6.9	3	73	87	**1LE1501-2DB6■-■■■■**	680	1.7

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
With flange	IM B14 [3]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
For options, see from page 2/125		**1LE1501-. . . . ■-■■■■-Z**					. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE2

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1501 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
2.2	**2.55**	**100 L**	965	22	IE1	81.8	83.3	82.7	0.76	5.1	1.7	4.9	2.5	59	71	**1LE1501-1AC6■-■■■■**	49	0.014
3	**3.45**	**112 M**	965	30		83.3	84	82.7	0.74	7	2.1	5.4	2.7	62	74	**1LE1501-1BC6■-■■■■**	53	0.017
7.5	**8.6**	**132 M**	970	74		87.2	88.1	87.1	0.75	16.6	2	5.6	2.6	63	75	**1LE1501-1CC6■-■■■■**	83	0.046
15	**17.3**	**160 L**	975	147	IE1	89.7	90.4	89.7	0.75	32	2	5.2	2.4	67	79	**1LE1501-1DC6■-■■■■**	147	0.12
18.5	**22**	**180 L**	975	181		90.4	90.9	90.5	0.77	38.5	2.3	6	2.9	67	80	**1LE1501-1EC6■-■■■■**	165	0.206
30	**34.5**	**200 L**	975	294		91.7	92.5	92.4	0.77	61	2.6	6.3	2.7	68	75	**1LE1501-2AC6■-■■■■**	240	0.381
37	**44.5**	**225 M**	978	361	IE1	92.2	93	92.9	0.83	70	2.5	6.3	2.9	64	77	**1LE1501-2BC6■-■■■■**	325	0.67
45	**54**	**250 M**	985	436	IE1	92.7	93.4	93.4	0.84	83	2.4	6.6	2.7	67	81	**1LE1501-2CC6■-■■■■**	410	1
75	**90**	**280 M**	986	726		93.7	94.3	94.4	0.85	136	3.2	7	2.9	66	80	**1LE1501-2DC6■-■■■■**	570	1.8
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
15	**18**	**180 L**	720	199	IE1	88	89.2	89	0.73	33.5	2.2	4.9	2.5	67	75	**1LE1501-1ED6■-■■■■**	190	0.263
18.5	**22**	**200 L**	720	245	IE1	88.6	89.9	90.2	0.78	38.5	2.6	5.8	3	65	72	**1LE1501-2AD6■-■■■■**	250	0.416
30	**36**	**225 M**	732	391		90.8	92	92.1	0.76	63	2.8	6.1	3.2	62	76	**1LE1501-2BD6■-■■■■**	325	0.67
37	**44.5**	**250 M**	730	484		91.6	92.6	92.7	0.83	70	2.3	5.5	2.6	63	77	**1LE1501-2CD6■-■■■■**	405	1
55	**66**	**280 M**	736	714		92.9	93.4	93	0.8	107	2.5	5.9	2.5	70	81	**1LE1501-2DD6■-■■■■**	550	1.6

Voltages [2]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages [1] and more information, see from page 2/96			**9**	**0**				. . .
Types of construction		Version						Order code
Without flange	IM B3 [3]	**Standard**			**A**			–
With flange	IM B5 [3]	With additional charge			**F**			–
With flange	IM B14 [3]	With additional charge			**K**			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 1 or 3 temperature sensors		With additional charge				**B**		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
For options, see from page 2/125			**1LE1501-. . . . ■-■■■■**					**-Z** . . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1601 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
4	**4.55**	**100 L**	2905	13		85.8	86.9	86.5	0.86	7.8	2.5	7.6	3.5	67	79	**1LE1601-1AA6■-■■■■**	45	0.0054
5.5	**6.3**	**112 M**	2945	18		87	87.8	87.4	0.88	10.4	2.3	8.5	3.8	69	81	**1LE1601-1BA6■-■■■■**	53	0.012
11	**12.6**	**132 M**	2950	36		89.4	90.1	89.9	0.89	20	2.3	7.9	3.2	68	80	**1LE1601-1CA6■-■■■■**	80	0.031
22	**25.3**	**160 L**	2955	71		91.3	91.8	91.4	0.89	39	3.1	8.4	3.7	70	82	**1LE1601-1DA6■-■■■■**	126	0.068
30	**33.5**	**180 L**	2940	97		92	92.6	92.3	0.89	53	2.3	7.8	3.4	76	83	**1LE1601-1EA6■-■■■■**	180	0.094
45	**51**	**200 L**	2950	146		92.9	93.2	92.9	0.87	81	2.5	7.1	3.2	77	84	**1LE1601-2AA6■-■■■■**	245	0.176
55	**62**	**225 M**	2960	177		93.2	93.6	93.2	0.88	97	2.5	7	3.3	76	89	**1LE1601-2BA6■-■■■■**	320	0.26
75	**84**	**250 M**	2970	241		93.8	93.6	92.6	0.84	137	2.2	7	3.3	75	89	**1LE1601-2CA6■-■■■■**	390	0.46
110	**123**	**280 M**	2978	353		94.3	94.5	94.1	0.9	187	2.9	8.5	3.6	80	91	**1LE1601-2DA6■-■■■■**	650	1.2
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
4	**4.55**	**100 L**	1460	26		86.6	88	87.5	0.8	8.3	2.2	7.5	3.5	60	72	**1LE1601-1AB6■-■■■■**	46	0.014
5.5	**6.3**	**112 M**	1460	36		87.7	88.2	87.2	0.81	11.2	2.5	7.1	3.2	58	70	**1LE1601-1BB6■-■■■■**	58	0.017
11	**12.6**	**132 M**	1465	72		89.8	90.9	90.9	0.84	21	2.6	7.7	3.1	64	76	**1LE1601-1CB6■-■■■■**	80	0.046
18.5	**21.3**	**160 L**	1475	120		91.2	91.8	91.3	0.85	34.5	2.5	7.7	3.3	65	77	**1LE1601-1DB6■-■■■■**	116	0.099
30	**34.5**	**180 L**	1465	196		92.3	93	92.9	0.81	58	2.5	7.3	3.3	70	77	**1LE1601-1EB6■-■■■■**	185	0.159
37	**42.5**	**200 L**	1470	240		92.7	93.5	93.6	0.84	69	2.4	7	3	68	75	**1LE1601-2AB6■-■■■■**	240	0.246
55	**63**	**225 M**	1475	356		93.5	94.2	94.1	0.84	101	2.5	5.8	2.7	69	82	**1LE1601-2BB6■-■■■■**	320	0.47
75	**86**	**250 M**	1480	484		94	94.5	94.3	0.86	134	2.3	6.2	2.8	74	87	**1LE1601-2CB6■-■■■■**	440	0.85
110	**127**	**280 M**	1485	707		94.5	94.9	94.8	0.87	193	2.5	6.9	3	73	87	**1LE1601-2DB6■-■■■■**	680	1.7

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
For options, see from page 2/125		**1LE1601-. . . . ■-■■■■-Z**					. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE2

Cast-iron series SIMOTICS SD 1LE1601 Performance Line with increased power – self-ventilated

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1601 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency, service factor (SF) 1.15																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
2.2	**2.55**	**100 L**	965	22	IE1	81.8	83.3	82.7	0.76	5.1	1.7	4.9	2.5	59	71	**1LE1601-1AC6■-■■■■**	49	0.014
3	**3.45**	**112 M**	965	30		83.3	84	82.7	0.74	7	2.1	5.4	2.7	62	74	**1LE1601-1BC6■-■■■■**	53	0.017
7.5	**8.6**	**132 M**	970	74		87.2	88.1	87.1	0.75	16.6	2	5.6	2.6	63	75	**1LE1601-1CC6■-■■■■**	83	0.046
15	**17.3**	**160 L**	975	147	IE1	89.7	90.4	89.7	0.75	32	2	5.2	2.4	67	79	**1LE1601-1DC6■-■■■■**	147	0.12
18.5	**22**	**180 L**	975	181		90.4	90.9	90.5	0.77	38.5	2.3	6	2.9	67	80	**1LE1601-1EC6■-■■■■**	165	0.206
30	**34.5**	**200 L**	975	294		91.7	92.5	92.4	0.77	61	2.6	6.3	2.7	68	75	**1LE1601-2AC6■-■■■■**	240	0.381
37	**44.5**	**225 M**	978	361	IE1	92.2	93	92.9	0.83	70	2.5	6.3	2.9	64	77	**1LE1601-2BC6■-■■■■**	325	0.67
45	**54**	**250 M**	985	436	IE1	92.7	93.4	93.4	0.84	83	2.4	6.6	2.7	67	81	**1LE1601-2CC6■-■■■■**	410	1
75	**90**	**280 M**	986	726		93.7	94.3	94.4	0.85	136	3.2	7	2.9	66	80	**1LE1601-2DC6■-■■■■**	570	1.8
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
15	**18**	**180 L**	720	199	IE1	88	89.2	89	0.73	33.5	2.2	4.9	2.5	67	75	**1LE1601-1ED6■-■■■■**	190	0.263
18.5	**22**	**200 L**	720	245	IE1	88.6	89.9	90.2	0.78	38.5	2.6	5.8	3	65	72	**1LE1601-2AD6■-■■■■**	250	0.416
30	**36**	**225 M**	732	391		90.8	92	92.1	0.76	63	2.8	6.1	3.2	62	76	**1LE1601-2BD6■-■■■■**	325	0.67
37	**44.5**	**250 M**	730	484		91.6	92.6	92.7	0.83	70	2.3	5.5	2.6	63	77	**1LE1601-2CD6■-■■■■**	405	1
55	**66**	**280 M**	736	714		92.9	93.4	93	0.8	107	2.5	5.9	2.5	70	81	**1LE1601-2DD6■-■■■■**	550	1.6

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 1 or 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
For options, see from page 2/125		**1LE1601-. . . . ■-■■■■-Z**					. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1002 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
0.18	**0.21**	**63 M**	2805	0.61	52.8	50.1	44.2	0.79	1.08	1.7	3.4	2.2	55	62	**1LE1002-0BA2■-■■■■**	4	0.00018
0.25	**0.29**	**63 M**	2835	0.84	58.2	55.5	48.6	0.75	1.44	1.9	3.6	2.6	56	63	**1LE1002-0BA3■-■■■■**	4	0.00022
0.37	**0.43**	**71 M**	2755	1.3	63.9	64.5	61.1	0.79	1.06	2.2	3.4	2.2	62	73	**1LE1002-0CA2■-■■■■**	5	0.00029
0.55	**0.63**	**71 M**	2750	1.9	69.0	69.9	66.5	0.79	1.46	2.2	3.7	2.2	62	73	**1LE1002-0CA3■-■■■■**	6	0.00041
0.75	**0.86**	**80 M**	2835	2.5	72.1	72.6	69.9	0.86	1.75	2.1	5.2	2.3	64	71	**1LE1002-0DA2■-■■■■**	9	0.00079
1.1	**1.27**	**80 M**	2840	3.7	75.0	75.7	73.4	0.86	2.45	2.5	5.7	2.5	64	71	**1LE1002-0DA3■-■■■■**	12	0.0010
1.5	**1.75**	**90 S**	2835	5.1	77.2	78.2	76.8	0.85	3.3	2.6	5.5	2.9	71	78	**1LE1002-0EA0■-■■■■**	13	0.0014
2.2	**2.55**	**90 L**	2855	7.4	79.7	80.9	81.3	0.85	4.7	2.8	6.5	3.2	71	78	**1LE1002-0EA4■-■■■■**	14	0.0018
3	**3.45**	**100 L**	2835	10	81.5	83.2	82.8	0.87	6.1	3.2	6.4	3.5	67	79	**1LE1002-1AA4■-■■■■**	20	0.0034
4	**4.55**	**112 M**	2935	13	83.1	83.0	80.8	0.85	8.2	3.3	8.3	4.2	69	81	**1LE1002-1BA2■-■■■■**	25	0.0067
5.5	**6.3**	**132 S**	2910	18	84.7	85.9	85.7	0.88	10.7	1.8	5.7	2.6	68	80	**1LE1002-1CA0■-■■■■**	35	0.013
7.5	**8.6**	**132 S**	2925	24	86.0	86.7	86.1	0.88	14.3	2.2	6.8	3.1	68	80	**1LE1002-1CA1■-■■■■**	40	0.016
11	**12.6**	**160 M**	2925	36	87.6	88.0	87.1	0.86	21.0	2.0	5.7	2.7	70	82	**1LE1002-1DA2■-■■■■**	60	0.030
15	**17.3**	**160 M**	2935	49	88.7	88.9	87.7	0.85	28.5	2.4	6.8	3.2	70	82	**1LE1002-1DA3■-■■■■**	68	0.036
18.5	**21.3**	**160 L**	2935	60	89.3	89.7	89.3	0.87	34.5	2.7	7.6	3.4	70	82	**1LE1002-1DA4■-■■■■**	78	0.044
22	**24.5**	**180 M**	2945	71	89.9	90.6	90.4	0.87	40.5	2.5	7.7	3.5	72	85	**1LE1002-1EA2■-■■■■**	112	0.069
30	**33.5**	**200 L**	2960	97	90.7	90.9	90.2	0.79	60	2.5	7.3	3.6	72	85	**1LE1002-2AA4■-■■■■**	149	0.124
37	**41.5**	**200 L**	2955	120	91.2	91.6	91.2	0.88	67	2.7	8.2	3.5	72	85	**1LE1002-2AA5■-■■■■**	169	0.15

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/93			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	A	–
With flange	IM B5 [2]	With additional charge	F	–
With flange	IM B14 [2]	With additional charge	K	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 63 to 90 or 100 to 200)	With additional charge	B	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version	
Terminal box at top	**Standard**	4
For other terminal box positions and more information, see from page 2/115		■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1002-. . . . ■-■■■■-Z**	**F90** +. . .+. . .+. . .
For options, see from page 2/118	**1LE1002-. . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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IE1

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1002 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
0.12	0.14	63 M	1360	0.84	50.0	47.3	39.1	0.71	0.85	1.6	2.5	1.8	48	55	1LE1002-0BB2■-■■■■	4	0.00029
0.18	0.21	63 M	1360	1.3	57.0	55.1	47.8	0.71	1.12	1.9	2.8	2.1	55	62	1LE1002-0BB3■-■■■■	4	0.00037
0.25	0.29	71 M	1365	1.8	61.5	61.4	56.1	0.73	0.80	1.8	3.0	2.0	54	65	1LE1002-0CB2■-■■■■	5	0.00052
0.37	0.43	71 M	1350	2.7	66.0	67.7	65.0	0.75	1.08	2.0	3.2	2.0	54	65	1LE1002-0CB3■-■■■■	6	0.00077
0.55	0.63	80 M	1385	3.8	70.0	70.7	67.7	0.79	1.44	2.1	3.7	2.2	59	66	1LE1002-0DB2■-■■■■	9	0.0014
0.75	0.86	80 M	1385	5.2	72.1	72.0	67.0	0.76	1.85	2.1	3.6	2.3	59	66	1LE1002-0DB3■-■■■■	11	0.0017
1.1	1.27	90 S	1405	7.5	75.0	75.9	73.6	0.81	2.5	2.1	4.5	2.3	61	68	1LE1002-0EB0■-■■■■	12	0.0024
1.5	1.75	90 L	1410	10	77.2	77.8	75.1	0.80	3.35	2.4	4.7	2.6	61	68	1LE1002-0EB4■-■■■■	15	0.0033
2.2	2.55	100 L	1425	15	79.7	80.5	78.5	0.81	4.9	2.2	5.1	2.3	60	72	1LE1002-1AB4■-■■■■	18	0.0059
3	3.45	100 L	1425	20	81.5	83.0	82.3	0.85	6.3	2.4	5.4	2.6	60	72	1LE1002-1AB5■-■■■■	22	0.0078
4	4.55	112 M	1435	27	83.1	84.3	83.7	0.83	8.4	2.5	6.1	2.9	58	70	1LE1002-1BB2■-■■■■	27	0.010
5.5	6.3	132 S	1450	36	84.7	85.7	84.9	0.82	11.2	2.3	5.7	2.7	64	76	1LE1002-1CB0■-■■■■	38	0.019
7.5	8.6	132 M	1450	49	86.0	86.9	86.3	0.82	15.2	2.6	6.6	3.1	64	76	1LE1002-1CB2■-■■■■	44	0.024
11	12.6	160 M	1460	72	87.6	87.9	86.7	0.81	22.5	2.7	6.9	3.3	65	77	1LE1002-1DB2■-■■■■	62	0.044
15	17.3	160 L	1460	98	88.7	89.1	88.0	0.82	30.0	3.0	7.5	3.6	65	77	1LE1002-1DB4■-■■■■	73	0.056
18.5	21.3	180 M	1468	120	89.3	90.2	90.2	0.85	35	2.2	7.3	3.1	63	76	1LE1002-1EB2■-■■■■	131	0.13
22	25.3	180 L	1465	143	89.9	90.8	90.7	0.83	42.5	2.7	8	3.6	63	76	1LE1002-1EB4■-■■■■	132	0.13
30	34.5	200 L	1472	195	90.7	91.5	91.4	0.83	58	2.3	6.9	3.1	64	78	1LE1002-2AB5■-■■■■	169	0.2

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/93			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 63 to 90 or 100 to 200)		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**				4	
For other terminal box positions and more information, see from page 2/115						■	
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1002-. . . . ■-■■■■-Z					F90 +. . .+. . .+. . .
For options, see from page 2/118		1LE1002-. . . . ■-■■■■-Z					. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1002 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																	
0.09	0.11	63 M	895	1.3	42.7	38.5	30.4	0.63	0.84	1.8	2.0	1.9	56	62	1LE1002-0BC2■-■■■■	4	0.00037
0.18	0.21	71 M	800	2.2	45.5	44.4	38.3	0.67	0.84	1.9	2.0	2.0	51	62	1LE1002-0CC2■-■■■■	5	0.00055
0.25	0.29	71 M	860	2.8	52.1	52.8	48.4	0.71	0.98	2.0	2.2	2.0	51	62	1LE1002-0CC3■-■■■■	6	0.00080
0.37	0.43	80 M	915	3.9	57.9	56.9	51.1	0.70	1.23	1.6	2.7	1.8	56	64	1LE1002-0DC2■-■■■■	9	0.0014
0.55	0.63	80 M	900	5.8	65.8	66.6	62.6	0.72	1.68	1.7	2.7	1.9	56	64	1LE1002-0DC3■-■■■■	12	0.0017
0.75	0.86	90 S	940	7.6	70.0	70.0	66.0	0.67	2.30	2.0	3.8	2.2	59	70	1LE1002-0EC0■-■■■■	13	0.0033
1.1	1.27	90 L	925	11	72.9	73.8	71.2	0.69	3.15	2.2	3.8	2.4	59	70	1LE1002-0EC4■-■■■■	15	0.004
1.5	1.75	100 L	940	15	75.2	76.0	72.4	0.74	3.9	2.0	4.0	2.2	59	71	1LE1002-1AC4■-■■■■	19	0.0065
2.2	2.55	112 M	940	22	77.7	78.5	76.3	0.72	5.7	2.6	4.6	2.7	57	69	1LE1002-1BC2■-■■■■	25	0.0092
3	3.45	132 S	955	30	79.7	80.2	77.7	0.74	7.3	2.0	4.6	2.6	63	75	1LE1002-1CC0■-■■■■	34	0.017
4	4.55	132 M	955	40	81.4	82.6	81.9	0.76	9.3	2.3	5.2	2.6	63	75	1LE1002-1CC2■-■■■■	39	0.021
5.5	6.3	132 M	955	55	83.1	84.0	83.0	0.75	12.7	2.7	5.7	3.0	63	75	1LE1002-1CC3■-■■■■	48	0.027
7.5	8.6	160 M	970	74	84.7	85.4	85.0	0.73	17.5	2.1	5.5	2.9	67	79	1LE1002-1DC2■-■■■■	72	0.056
11	12.6	160 L	965	109	86.4	86.4	85.4	0.77	24	1.9	5.9	2.7	67	79	1LE1002-1DC4■-■■■■	92	0.078
15	18	180 L	975	147	87.7	88.5	87.9	0.77	32	2.3	6.1	3	56	69	1LE1002-1EC4■-■■■■	119	0.17
18.5	22	200 L	980	214	89.2	90	89.6	0.79	45	2.8	6.8	2.9	59	72	1LE1002-2AC4■-■■■■	149	0.25
22	26.5	200 L	980	214	89.2	90	89.6	0.79	45	2.8	6.8	2.9	59	72	1LE1002-2AC5■-■■■■	166	0.3
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																	
0.09	0.11	71 M	635	1.4	39	35.7	28.6	0.63	0.53	1.8	1.8	2	49	56	1LE1002-0CD2■-■■■■	6	0.00080
0.12	0.14	71 M	625	1.8	31	30.5	27.1	0.68	0.82	1.7	2	1.7	49	56	1LE1002-0CD3■-■■■■	6	0.00080
0.75	0.86	100 L	705	10	61.2	58.1	50.5	0.62	2.85	1.9	3	2.2	60	72	1LE1002-1AD4■-■■■■	17	0.0056
1.1	1.27	100 L	690	15	66.5	66.0	61.8	0.61	3.90	2.0	3.2	2.3	60	72	1LE1002-1AD5■-■■■■	22	0.0078
1.5	1.75	112 M	700	20	70.2	71.1	68.7	0.66	4.65	1.9	3.5	2.1	63	75	1LE1002-1BD2■-■■■■	29	0.0094
2.2	2.55	132 S	715	29	74.2	74.1	71.4	0.66	6.5	1.7	3.9	2.4	63	75	1LE1002-1CD0■-■■■■	37	0.019
3	3.45	132 M	715	40	77.0	77.4	75.2	0.68	8.3	1.8	3.9	2.2	63	75	1LE1002-1CD2■-■■■■	44	0.024
4	4.55	160 M	720	53	79.2	79.3	76.3	0.67	10.9	1.6	4.1	2.3	63	75	1LE1002-1DD2■-■■■■	60	0.044
5.5	6.3	160 M	720	73	81.4	81.9	80.3	0.68	14.3	1.6	4	2.2	63	75	1LE1002-1DD3■-■■■■	72	0.056
7.5	8.6	160 L	715	100	83.1	83.7	82.4	0.69	18.9	1.7	3.8	2.2	63	75	1LE1002-1DD4■-■■■■	91	0.077
11	13.2	180 L	720	146	85	86.2	86	0.7	26.5	1.9	5	2.5	65	78	1LE1002-1ED4■-■■■■	122	0.2
15	18	200 L	718	199	86.2	87.9	88.4	0.75	33.5	2.5	5.5	2.9	55	69	1LE1002-2AD5■-■■■■	170	0.3

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/93			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 63 to 90 or 100 to 200)		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)			1LE1002-. . . . ■-■■■■				-Z F90 +. . .+. . .+. . .
For options, see from page 2/118			1LE1002-. . . . ■-■■■■				-Z . . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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IE1

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1LE1002 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, (SF) 1.1 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
0.37	**0.43**	**63 M**	2795	1.3	63.9	60.3	51.9	0.71	1.18	2.4	3.5	2.6	58	65	**1LE1002-0BA6■-■■■■**	5	0.00018
0.75	**0.86**	**71 M**	2780	2.6	72.1	72.5	70.2	0.83	1.81	2.2	4.5	2.2	65	72	**1LE1002-0CA6■-■■■■**	5	0.00029
4	**4.55**	**100 L**	2850	13	83.1	83.9	83	0.85	8.2	4.5	7	4.1	67	79	**1LE1002-1AA6■-■■■■**	25	0.0044
5.5	**6.3**	**112 L**	2935	18	84.7	84.7	82.7	0.86	10.9	2.9	7.5	3.8	69	81	**1LE1002-1BA6■-■■■■**	31	0.0085
11	**12.6**	**132 M**	2920	36	87.6	88.3	87.8	0.9	20	2.8	7.5	3.7	68	80	**1LE1002-1CA6■-■■■■**	53	0.022
22	**24.5**	**160 L**	2935	72	89.9	90.2	89.5	0.9	39	2.6	7.5	3.4	70	82	**1LE1002-1DA6■-■■■■**	85	0.049
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
0.25	**0.29**	**63 M**	1365	1.7	61.5	59.6	53.5	0.68	0.86	2.3	2.9	2.3	52	59	**1LE1002-0BB6■-■■■■**	5	0.00029
0.55	**0.63**	**71 M**	1365	3.8	70	70.5	67.4	0.7	1.62	2.5	3.6	2.5	59	66	**1LE1002-0CB6■-■■■■**	7	0.00077
4	**4.55**	**100 L**	1435	27	83.1	83.8	82.3	0.81	8.6	2.9	5.8	3.1	60	72	**1LE1002-1AB6■-■■■■**	27	0.010
5.5	**6.3**	**112 M**	1420	37	84.7	85.9	85.3	0.81	11.6	3	5.8	3.1	58	70	**1LE1002-1BB6■-■■■■**	33	0.012
11	**12.6**	**132 M**	1450	72	87.6	88.2	87.6	0.84	21.5	2.5	7.2	3	64	76	**1LE1002-1CB6■-■■■■**	58	0.033
18.5	**21.3**	**160M**	1460	121	89.3	89.8	89.2	0.85	35	2.7	7.2	3.2	65	77	**1LE1002-1DB6■-■■■■**	85	0.068
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																	
2.2	**2.55**	**100 L**	930	23	77.7	79.5	78.1	0.78	5.2	2	4	2.2	59	71	**1LE1002-1AC6■-■■■■**	24	0.0084
3	**3.45**	**112 M**	945	30	79.7	79.5	76.3	0.72	7.5	2.9	4.6	3	57	69	**1LE1002-1BC6■-■■■■**	32	0.013
7.5	**8.6**	**132 M**	950	75	84.7	85.3	84.1	0.74	17.3	2.4	5.3	3	63	75	**1LE1002-1CC6■-■■■■**	54	0.032
15	**17.3**	**160 M**	965	148	87.7	87.9	86.5	0.75	33	2.9	6	3.4	67	79	**1LE1002-1DC6■-■■■■**	109	0.094

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 2/93			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	A	–
With flange	IM B5 [2]	With additional charge	F	–
With flange	IM B14 [2]	With additional charge	K	–
For other types of construction and more information, see from page 2/99			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 63 to 90 or 100 to 200)	With additional charge	B	–
For other motor protection and more information, see from page 2/112		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/115		■	

Special versions		Order code(s)
For options, see from page 2/118	**1LE1002-. . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1502 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
3	**3.45**	**100 L**	2835	10	81.5	83.2	82.8	0.87	6.1	3.2	6.4	3.5	66	80	**1LE1502-1AA4■-■■■■**	31	0.0034
4	**4.55**	**112 M**	2935	13	83.1	83.0	80.8	0.85	8.2	3.3	8.3	4.2	70	83	**1LE1502-1BA2■-■■■■**	36	0.0067
5.5	**6.3**	**132 S**	2910	18	84.7	85.9	85.7	0.88	10.7	1.8	5.7	2.6	68	82	**1LE1502-1CA0■-■■■■**	53	0.013
7.5	**8.6**	**132 S**	2925	24	86.0	86.7	86.1	0.88	14.3	2.2	6.8	3.1	68	82	**1LE1502-1CA1■-■■■■**	58	0.016
11	**12.6**	**160 M**	2925	36	87.6	88.0	87.1	0.86	21.0	2.0	5.7	2.7	73	86	**1LE1502-1DA2■-■■■■**	87	0.030
15	**18**	**160 M**	2935	49	88.7	88.9	87.7	0.85	28.5	2.4	6.8	3.2	73	86	**1LE1502-1DA3■-■■■■**	95	0.036
18.5	**22**	**160 L**	2935	60	89.3	89.7	89.3	0.87	34.5	2.7	7.6	3.4	73	86	**1LE1502-1DA4■-■■■■**	105	0.044
22	**24.5**	**180 M**	2945	71	89.9	90.6	90.4	0.87	40.5	2.5	7.7	3.5	72	85	**1LE1502-1EA2■-■■■■**	150	0.069
30	**33.5**	**200 L**	2960	97	90.7	90.9	90.2	0.79	60	2.5	7.3	3.6	72	85	**1LE1502-2AA4■-■■■■**	195	0.124
37	**41.5**	**200 L**	2955	120	91.2	91.6	91.2	0.88	67	2.7	8.2	3.5	72	85	**1LE1502-2AA5■-■■■■**	230	0.15
45	**51**	**225 M**	2960	145	91.7	92	91.6	0.88	80	2.3	6.7	3	73	86	**1LE1502-2BA2■-■■■■**	280	0.22
55	**62**	**250 M**	2970	177	92.1	92.3	91.4	0.88	98	2	6.7	2.9	77	91	**1LE1502-2CA2■-■■■■**	360	0.4
75	**84**	**280 S**	2975	241	92.7	92.5	91.3	0.86	136	2.2	6.8	3	78	92	**1LE1502-2DA0■-■■■■**	470	0.72
90	**101**	**280 M**	2975	289	93	93.1	92.4	0.88	159	2.5	7.1	3.1	76	89	**1LE1502-2DA2■-■■■■**	530	0.83
110	**123**	**315 S**	2982	352	93.3	92.9	91.5	0.86	198	2.3	7.5	3.3	80	94	**1LE1502-3AA0■-■■■■**	680	1.2
132	**148**	**315 M**	2982	423	93.5	93.2	92.5	0.89	230	2.3	7.6	3	80	94	**1LE1502-3AA2■-■■■■**	740	1.4
160	**180**	**315 L**	2982	512	93.8	93.6	93.1	0.91	270	2.3	7.4	2.9	80	94	**1LE1502-3AA4■-■■■■**	880	1.6
200	**224**	**315 L**	2982	640	94	93.9	93.5	0.92	335	2.2	7.1	2.8	80	94	**1LE1502-3AA5■-■■■■**	1000	2.1

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1502-. . . . ■-■■■■-Z**					**F90 +. . .+. . .+. . .**
For options, see from page 2/125		**1LE1502-. . . . ■-■■■■-Z**					**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE1

Cast-iron series SIMOTICS SD 1LE1502 Basic Line – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1502 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
2.2	**2.55**	**100 L**	1425	15	79.7	80.3	78.1	0.81	4.9	2.3	5.1	2.7	60	72	**1LE1502-1AB4■-■■■■**	29	0.0059
3	**3.45**	**100 L**	1425	20	81.5	82.6	81.5	0.85	6.3	2.4	5.4	2.6	60	72	**1LE1502-1AB5■-■■■■**	33	0.0078
4	**4.55**	**112 M**	1435	27	83.1	84.3	83.7	0.83	8.4	2.5	6.1	2.9	57	70	**1LE1502-1BB2■-■■■■**	38	0.010
5.5	**56.3**	**132 S**	1450	36	84.7	85.3	84.2	0.82	11.4	2.3	5.7	2.7	64	76	**1LE1502-1CB0■-■■■■**	56	0.019
7.5	**8.6**	**132 M**	1450	49	86.0	86.5	85.4	0.82	15.4	2.6	6.6	3.1	64	76	**1LE1502-1CB2■-■■■■**	59	0.024
11	**12.6**	**160 M**	1460	72	87.6	87.9	86.7	0.81	22.5	2.7	6.9	3.3	70	82	**1LE1502-1DB2■-■■■■**	89	0.044
15	**17.3**	**160 L**	1460	98	88.7	89.1	88.0	0.82	30.0	3.0	7.5	3.6	70	82	**1LE1502-1DB4■-■■■■**	105	0.056
18.5	**21.3**	**180 M**	1468	120	89.3	90.2	90.2	0.85	35	2.2	7.3	3.1	63	76	**1LE1502-1EB2■-■■■■**	170	0.13
22	**25.3**	**180 L**	1465	143	89.9	90.8	90.7	0.83	42.5	2.7	8	3.6	63	76	**1LE1502-1EB4■-■■■■**	170	0.13
30	**34.5**	**200 L**	1472	195	90.7	91.5	91.4	0.83	58	2.3	6.9	3.1	64	78	**1LE1502-2AB5■-■■■■**	220	0.2
37	**42.5**	**225 S**	1475	240	91.2	91.6	91.1	0.85	69	2.3	7	3.2	69	83	**1LE1502-2BB0■-■■■■**	260	0.37
45	**52**	**225 M**	1475	291	91.7	92.1	91.7	0.86	82	2.6	7.2	3.2	69	82	**1LE1502-2BB2■-■■■■**	290	0.45
55	**63**	**250 M**	1475	356	92.1	92.5	92.1	0.85	101	2.4	6.1	2.6	69	83	**1LE1502-2CB2■-■■■■**	370	0.69
75	**86**	**280 S**	1485	482	92.7	92.9	92.2	0.85	137	2.3	7	2.8	75	89	**1LE1502-2DB0■-■■■■**	500	1.2
90	**104**	**280 M**	1482	580	93	93.4	93.1	0.87	161	2.2	6.5	2.8	73	87	**1LE1502-2DB2■-■■■■**	560	1.4
110	**127**	**315 S**	1488	706	93.3	93.4	92.8	0.84	205	2.3	6.5	2.7	76	90	**1LE1502-3AB0■-■■■■**	690	1.9
132	**152**	**315 M**	1488	847	93.5	93.7	93.3	0.85	240	2.5	6.8	2.7	76	91	**1LE1502-3AB2■-■■■■**	760	2.2
160	**184**	**315 L**	1486	1028	93.8	93.9	93.5	0.86	285	2.7	7.2	2.7	76	90	**1LE1502-3AB4■-■■■■**	940	2.9
200	**230**	**315 L**	1486	1285	94	94.2	94	0.87	355	2.5	6.9	2.7	76	91	**1LE1502-3AB5■-■■■■**	1140	3.5

Voltages [2]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages [1] and more information, see from page 2/96			**9**	**0**				. . .
Types of construction		Version						Order code
Without flange	IM B3 [3]	**Standard**			**A**			–
With flange	IM B5 [3]	With additional charge			**F**			–
With flange	IM B14 [3]	With additional charge			**K**			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 3 temperature sensors		With additional charge				**B**		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/116							■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1502-. . . . ■-■■■■-Z**	**F90 +. . .+. . .+. . .**
For options, see from page 2/125	**1LE1502-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1502 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																	
1.5	**1.75**	**100 L**	940	15	75.2	75.6	72.3	0.74	3.9	2	4	2.2	59	71	**1LE1502-1AC4■-■■■■**	30	0.0065
2.2	**2.55**	**112 M**	940	22	77.7	78.5	76.3	0.72	5.7	2.6	4.6	2.7	59	71	**1LE1502-1BC2■-■■■■**	37	0.0092
3	**3.45**	**132 S**	955	30	79.7	79.9	77.1	0.74	7.3	2	4.6	2.6	65	78	**1LE1502-1CC0■-■■■■**	52	0.017
4	**4.55**	**132 M**	955	40	81.4	82.6	81.9	0.76	9.3	2.3	5.2	2.6	65	78	**1LE1502-1CC2■-■■■■**	57	0.021
5.5	**6.3**	**132 M**	955	55	83.1	84.0	83.0	0.75	12.7	2.7	5.7	3.0	65	78	**1LE1502-1CC3■-■■■■**	66	0.027
7.5	**8.6**	**160 M**	970	74	84.7	85.4	85.0	0.73	17.5	2.1	5.5	2.9	67	79	**1LE1502-1DC2■-■■■■**	100	0.056
11	**12.6**	**160 L**	965	109	86.4	86.8	85.9	0.77	24	1.9	5.9	2.7	67	79	**1LE1502-1DC4■-■■■■**	120	0.078
15	**18**	**180 L**	975	147	87.7	88.5	87.9	0.77	32	2.3	6.1	3	56	69	**1LE1502-1EC4■-■■■■**	155	0.17
18.5	**22**	**200 L**	978	181	88.6	89.8	89.8	0.79	38	2.5	6.3	2.6	59	72	**1LE1502-2AC4■-■■■■**	200	0.25
22	**26.5**	**200 L**	980	214	89.2	90	89.6	0.79	45	2.8	6.8	2.9	59	72	**1LE1502-2AC5■-■■■■**	220	0.3
30	**36**	**225 M**	978	293	90.2	91	90.7	0.82	59	2.7	6	2.5	65	77	**1LE1502-2BC2■-■■■■**	270	0.49
37	**44.5**	**250 M**	980	361	90.8	91.5	91.3	0.82	72	2.7	6	2.4	63	77	**1LE1502-2CC2■-■■■■**	330	0.76
45	**54**	**280 S**	986	436	91.4	92	91.6	0.84	85	2.6	7	2.6	63	77	**1LE1502-2DC0■-■■■■**	440	1.1
55	**66**	**280 M**	986	533	91.9	92.5	92.6	0.85	102	2.6	6.7	2.6	63	77	**1LE1502-2DC2■-■■■■**	500	1.3
75	**90**	**315 S**	988	725	92.6	92.8	92.1	0.83	141	2.5	7.1	2.7	62	77	**1LE1502-3AC0■-■■■■**	660	2.1
90	**108**	**315 M**	988	870	92.9	93.2	92.8	0.83	168	2.6	7.3	2.6	61	77	**1LE1502-3AC2■-■■■■**	740	2.5
110	**132**	**315 L**	988	1063	93.3	93.6	93.4	0.86	198	2.6	6.8	2.8	61	78	**1LE1502-3AC4■-■■■■**	880	3.2
132	**158**	**315 L**	988	1276	93.5	93.7	93.4	0.86	235	3	7.5	2.9	61	78	**1LE1502-3AC5■-■■■■**	1030	4
160	**192**	**315 L**	988	1546	93.8	93.9	93.6	0.86	285	3.1	7.7	3	64	79	**1LE1502-3AC6■-■■■■**	1160	4.7

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
With flange	IM B14 [3]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)							**1LE1502-. . . . ■-■■■■-Z** **F90** +. . .+. . .+. . .
For options, see from page 2/125							**1LE1502-. . . . ■-■■■■-Z** . . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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IE1

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1502 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																	
0.75	**0.86**	**100 L**	705	10	61.2	58.1	50.5	0.62	2.85	1.9	3	2.2	64	72 [4]	**1LE1502-1AD4■-■■■■**	28	0.0056
1.1	**1.27**	**100 L**	690	15	66.5	66.0	61.8	0.61	3.90	2.0	3.2	2.3	64	72 [4]	**1LE1502-1AD5■-■■■■**	33	0.0078
1.5	**1.75**	**112 M**	700	20	70.2	71.1	68.7	0.66	4.65	1.9	3.5	2.1	67	78 [4]	**1LE1502-1BD2■-■■■■**	42	0.0094
2.2	**2.55**	**132 S**	715	29	74.2	74.1	71.4	0.66	6.5	1.7	3.9	2.4	63	75	**1LE1502-1CD0■-■■■■**	60	0.019
3	**3.45**	**132 M**	715	40	77	77.4	75.2	0.68	8.3	1.8	3.9	2.2	63	75	**1LE1502-1CD2■-■■■■**	62	0.024
4	**4.55**	**160 M**	720	53	79.2	79.3	76.3	0.67	10.9	1.6	4.1	2.3	63	75	**1LE1502-1DD2■-■■■■**	89	0.044
5.5	**6.3**	**160 M**	720	73	81.4	81.9	80.3	0.68	14.3	1.6	4	2.2	63	75	**1LE1502-1DD3■-■■■■**	96	0.056
7.5	**8.6**	**160 L**	715	100	83.1	83.7	82.4	0.69	18.9	1.7	3.8	2.2	63	75	**1LE1502-1DD4■-■■■■**	120	0.077
11	**13.2**	**180 L**	720	146	85	86.2	86	0.7	26.5	1.9	5	2.5	65	78	**1LE1502-1ED4■-■■■■**	160	0.20
15	**18**	**200 L**	718	199	86.2	87.9	88.4	0.75	33.5	2.5	5.5	2.9	55	69	**1LE1502-2AD5■-■■■■**	220	0.3
18.5	**22**	**225 S**	730	242	86.9	87.8	87.4	0.78	39.5	2.2	5.5	2.7	59	72	**1LE1502-2BD0■-■■■■**	250	0.43
22	**26.5**	**225 M**	730	288	87.4	88.3	88.1	0.79	46	2.3	5.5	2.7	60	73	**1LE1502-2BD2■-■■■■**	270	0.5
30	**36**	**250 M**	732	391	88.3	89.2	89.2	0.81	61	2.3	5.5	2.6	54	68	**1LE1502-2CD2■-■■■■**	370	0.84
37	**44.5**	**280 S**	735	481	88.8	89.7	89.7	0.81	74	2.1	5	2.1	54	68	**1LE1502-2DD0■-■■■■**	460	1.22
45	**54**	**280 M**	735	585	89.2	90.3	90.4	0.81	90	2.1	5.3	2.1	58	71	**1LE1502-2DD2■-■■■■**	500	1.42
55	**66**	**315 S**	740	710	89.7	90.1	89.7	0.8	111	2.1	5.7	2.6	69	83	**1LE1502-3AD0■-■■■■**	640	2
75	**90**	**315 M**	738	970	90.3	90.7	90.5	0.81	148	2.3	5.9	2.7	69	84	**1LE1502-3AD2■-■■■■**	720	2.5
90	**108**	**315 L**	738	1165	90.7	91.2	91.2	0.84	171	2.2	5.9	2.6	68	83	**1LE1502-3AD4■-■■■■**	840	3.1
110	**132**	**315 L**	740	1419	91.1	91.6	91.5	0.82	215	2.7	6.7	2.9	73	87	**1LE1502-3AD5■-■■■■**	1000	3.9
132	**158**	**315 L**	740	1703	91.5	91.9	91.6	0.81	255	2.9	7.2	3.3	75	89	**1LE1502-3AD6■-■■■■**	1080	4.5

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages [1] and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1502-. . . . ■-■■■■-Z**	**F90 +. . .+. . .+. . .**
For options, see from page 2/125	**1LE1502-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[3] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

[4] The noise limit values specified as permissible in IEC 60034-9 under load can be exceeded.

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Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1502 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
4	**4.6**	**100 L**	2850	13	83.1	83.9	83	0.85	8.2	4.5	7	4.1	67	79	**1LE1502-1AA6■-■■■■**	33	0.0044
5.5	**6.3**	**112 M**	2935	18	84.7	84.7	82.7	0.86	10.9	2.9	7.5	3.8	69	81	**1LE1502-1BA6■-■■■■**	40	0.0085
11	**12.6**	**132 M**	2920	36	87.6	88.3	87.8	0.9	20	2.8	7.5	3.7	68	80	**1LE1502-1CA6■-■■■■**	76	0.022
22	**24.5**	**160 L**	2935	72	89.9	90.2	89.5	0.9	39	2.6	7.5	3.4	70	82	**1LE1502-1DA6■-■■■■**	125	0.049
30	**33.5**	**180 L**	2940	97	90.7	91.5	91.5	0.89	54	2.4	8.1	3.5	72	85	**1LE1502-1EA6■-■■■■**	180	0.094
45	**51**	**200 L**	2955	145	91.7	92.3	92.4	0.85	83	2.5	8.1	3.6	71	85	**1LE1502-2AA6■-■■■■**	245	0.176
55	**62**	**225 M**	2960	177	92.1	92.4	92	0.88	98	2.5	7.3	3.2	76	89	**1LE1502-2BA6■-■■■■**	330	0.27
75	**84**	**250 M**	2970	241	92.7	92.8	92.1	0.87	134	2.4	7.3	3.1	76	89	**1LE1502-2CA6■-■■■■**	420	0.48
110	**123**	**280 M**	2975	353	93.3	93.5	93.1	0.9	189	2.4	7.3	3.1	77	90	**1LE1502-2DA6■-■■■■**	620	1
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
4	**4.6**	**100 L**	1435	27	83.1	83.8	82.3	0.81	8.6	2.9	5.8	3.1	60	72	**1LE1502-1AB6■-■■■■**	36	0.01
5.5	**6.3**	**112 M**	1420	37	84.7	85.9	85.3	0.81	11.6	3	5.8	3.1	58	70	**1LE1502-1BB6■-■■■■**	43	0.012
11	**12.6**	**132 M**	1450	72	87.6	88.2	87.6	0.84	21.5	2.5	7.2	3	64	76	**1LE1502-1CB6■-■■■■**	76	0.033
18.5	**21.3**	**160 L**	1460	121	89.3	89.8	89.2	0.85	35	2.7	7.2	3.2	65	77	**1LE1502-1DB6■-■■■■**	125	0.068
30	**34.5**	**180 L**	1465	196	90.7	91.7	91.9	0.79	60	2.6	7.2	3.4	64	77	**1LE1502-1EB6■-■■■■**	185	0.159
37	**42.5**	**200 L**	1470	240	91.2	92	92.1	0.82	71	2.4	6.8	2.9	64	78	**1LE1502-2AB6■-■■■■**	240	0.246
55	**63**	**225 M**	1475	356	92.1	92.8	92.6	0.86	100	2.5	6.7	2.6	70	83	**1LE1502-2BB6■-■■■■**	320	0.49
75	**86**	**250 M**	1482	483	92.7	93.1	92.6	0.84	139	2.5	7.4	3	73	87	**1LE1502-2CB6■-■■■■**	440	0.86
110	**127**	**280 M**	1486	707	93.3	93.5	93	0.85	200	2.6	8	3.3	75	89	**1LE1502-2DB6■-■■■■**	670	1.7

Voltages [2]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages [1] and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [3]	**Standard**			A		–
With flange	IM B5 [3]	With additional charge			F		–
With flange	IM B14 [3]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1502-. . . . ■-■■■■-Z**	**F90 +. . .+. . .+. . .**
For options, see from page 2/125	**1LE1502-. . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Please note minimum legal efficiencies in the European Economic Area!

IE1

Cast-iron series SIMOTICS SD 1LE1502 Basic Line with increased power – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 50 Hz/ P50	P_{rated}, 60 Hz/ P60 [1]	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1LE1502 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE1 Standard Efficiency, service factor (SF) 1.1 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																	
2.2	**2.55**	**100 L**	930	23	77.7	79.5	78.1	0.78	5.2	2	4	2.2	59	71	**1LE1502-1AC6■-■■■■**	35	0.0084
3	**3.45**	**112 M**	945	30	79.7	79.5	76.3	0.72	7.5	2.9	4.6	3	57	69	**1LE1502-1BC6■-■■■■**	45	0.013
7.5	**8.6**	**132 M**	950	75	84.7	85.3	84.1	0.74	17.3	2.4	5.3	3	63	75	**1LE1502-1CC6■-■■■■**	78	0.032
15	**17.3**	**160 L**	965	148	87.7	87.9	86.5	0.75	33	2.9	6	3.4	67	79	**1LE1502-1DC6■-■■■■**	140	0.094
18.5	**22**	**180 L**	970	182	88.6	89.4	89.1	0.77	39	2.2	5.9	2.9	56	69	**1LE1502-1EC6■-■■■■**	165	0.206
30	**34.5**	**200 L**	975	294	90.2	91.4	91.7	0.78	62	2.6	6	2.7	61	75	**1LE1502-2AC6■-■■■■**	245	0.381
37	**44.5**	**225 M**	978	361	90.8	91.5	91.5	0.82	72	2.5	6.1	2.8	76	93	**1LE1502-2BC6■-■■■■**	310	0.62
45	**54**	**250 M**	982	438	91.4	92.2	92.1	0.83	86	2.7	6.6	2.3	76	95	**1LE1502-2CC6■-■■■■**	390	0.93
75	**90**	**280 M**	985	727	92.6	93.3	93.2	0.84	139	2.9	7	2.7	61	75	**1LE1502-2DC6■-■■■■**	560	1.7
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																	
15	**18**	**180 L**	718	199	86.2	87.5	87.2	0.74	34	2.1	4.7	2.3	64	78	**1LE1502-1ED6■-■■■■**	190	0.263
18.5	**22**	**200 L**	720	245	86.9	88.2	88.4	0.76	40	2.7	6.1	3.2	59	72	**1LE1502-2AD6■-■■■■**	250	0.416
30	**36**	**225 M**	730	392	88.3	89.1	89.1	0.79	62	2.6	5.6	2.8	57	70	**1LE1502-2BD6■-■■■■**	320	0.73
37	**44.5**	**250 M**	730	484	88.8	89.8	89.9	0.83	72	2.3	5.7	2.6	63	77	**1LE1502-2CD6■-■■■■**	405	1
55	**66**	**280 M**	736	714	89.7	90.4	90.5	0.8	111	2.5	5.7	2.5	70	81	**1LE1502-2DD6■-■■■■**	550	1.6

Voltages [2]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages [1] and more information, see from page 2/96			**9**	**0**				. . .
Types of construction		Version						Order code
Without flange	IM B3 [3]	**Standard**			**A**			–
With flange	IM B5 [3]	With additional charge			**F**			–
With flange	IM B14 [3]	With additional charge			**K**			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 3 temperature sensors		With additional charge				**B**		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1502-. . . . ■-■■■■**					**-Z**	**F90 +. . .+. . .+. . .**
For options, see from page 2/125		**1LE1502-. . . . ■-■■■■**					**-Z**	**. . .+. . .+. . .+. . .**

1) Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

2) Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\eta_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1043 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
0.75	**0.86**	**80 M**	3480	2.1		77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	**1LE1043-0DA2■-■■■■**	11	0.0011
1.1	**1.27**	**80 M**	3500	3		84	84	82	0.83	1.98	3.3	8.4	4	64	75	**1LE1043-0DA3■-■■■■**	12	0.0013
1.5	**1.75**	**90 S**	3525	4.1		85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	**1LE1043-0EA0■-■■■■**	15	0.0021
2.2	**2.55**	**90 L**	3530	6		86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	**1LE1043-0EA4■-■■■■**	19	0.0031
3	**3.45**	**100 L**	3525	8.1		88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	**1LE1043-1AA4■-■■■■**	26	0.0054
4	**4.55**	**112 M**	3560	10		88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	**1LE1043-1BA2■-■■■■**	34	0.012
5.5	**6.3**	**132 S**	3555	15		89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	**1LE1043-1CA0■-■■■■**	43	0.024
7.5	**8.6**	**132 S**	3555	20		90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	**1LE1043-1CA1■-■■■■**	57	0.031
11	**12.6**	**160 M**	3560	30		91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	**1LE1043-1DA2■-■■■■**	75	0.053
15	**17.3**	**160 M**	3565	40		91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	**1LE1043-1DA3■-■■■■**	84	0.061
18.5	**21.3**	**160 L**	3560	50		91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	**1LE1043-1DA4■-■■■■**	94	0.068
22	**24.5**	**180 M**	3560	59		91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	**1LE1043-1EA2■-■■■■**	129	0.08
30	**33.5**	**200 L**	3560	80		92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	**1LE1043-2AA4■-■■■■**	173	0.134
37	**41.5**	**200 L**	3560	99		93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	**1LE1043-2AA5■-■■■■**	194	0.158
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
0.75	**0.86**	**80 M**	1760	4.1		83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	**1LE1043-0DB3■-■■■■**	14	0.0021
1.1	**1.27**	**90 S**	1750	6		86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	**1LE1043-0EB0■-■■■■**	16	0.0029
1.5	**1.75**	**90 L**	1755	8.2		86.5	86.2	84.5	0.77	2.85	3.4	8.6	4.3	62	70	**1LE1043-0EB4■-■■■■**	19	0.0049
2.2	**2.55**	**100 L**	1770	11.9		89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	**1LE1043-1AB4■-■■■■**	30	0.014
3	**3.45**	**100 L**	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	**1LE1043-1AB5■-■■■■**	30	0.014
4	**4.55**	**112 M**	1770	19		89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	**1LE1043-1BB2■-■■■■**	34	0.017
5.5	**6.3**	**132 S**	1775	30		91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	**1LE1043-1CB0■-■■■■**	64	0.046
7.5	**8.6**	**132 M**	1770	40		91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	**1LE1043-1CB2■-■■■■**	64	0.046
11	**12.6**	**160 M**	1775	59		92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	**1LE1043-1DB2■-■■■■**	83	0.083
15	**17.3**	**160 L**	1780	80		93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	**1LE1043-1DB4■-■■■■**	100	0.099
18.5	**21.3**	**180 M**	1775	100		93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	**1LE1043-1EB2■-■■■■**	134	0.13
22	**25.3**	**180 L**	1775	118		93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	**1LE1043-1EB4■-■■■■**	142	0.14
30	**34.5**	**200 L**	1778	161	IE2	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	**1LE1043-2AB5■-■■■■**	189	0.22

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/93			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [1]	**Standard**			**A**		–
With flange	IM B5 [1]	With additional charge			**F**		–
With flange	IM B14 [1]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC416)		**1LE1043-. . . . ■–■■■■**					**-Z F90 +. . .+. . .+. . .**
For options and information, see from page 2/118		**1LE1043-. . . . ■–■■■■**					**-Z . . .+. . .+. . .+. . .**

[1] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power													Aluminum series 1LE1043		
P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\eta_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
0.75	**0.86**	**90 S**	1155	6.2		82.5	82.4	79.9	0.65	1.76	2.4	5.3	3.1	46	58	**1LE1043-0EC0■-■■■■**	16	0.004
1.1	**1.27**	**100 L**	1180	8.9		87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	**1LE1043-1AC3■-■■■■**	30	0.014
1.5	**1.75**	**112 S**	1170	14		88.5	88.7	87.3	0.76	3.25	2	6.2	2.8	65	77	**1LE1043-1BC1■-■■■■**	34	0.017
2.2	**2.55**	**132 S**	1180	21		89.5	89.2	87.7	0.72	4.3	2.4	7.3	3.5	63	71	**1LE1043-1CC1■-■■■■**	42	0.033
3	**3.45**	**132 S**	1180	24		89.5	89.5	87.9	0.70	6	2.6	7.6	3.8	61	69	**1LE1043-1CC0■-■■■■**	42	0.034
4	**4.55**	**132 M**	1180	30		89.5	89.9	88.2	0.69	7.1	2.8	7.5	3.8	62	70	**1LE1043-1CC2■-■■■■**	46	0.039
5.5	**6.3**	**132 M**	1180	45		91.0	90.8	89.2	0.69	11	3	7.8	4	67	75	**1LE1043-1CC3■-■■■■**	58	0.050
7.5	**8.6**	**160 M**	1185	60		91.0	90.8	89.3	0.80	12	2.7	9.3	3.7	73	81	**1LE1043-1DC2■-■■■■**	95	0.132
11	**12.6**	**160 L**	1185	89		91.7	91.7	90.5	0.78	19	3.4	8	3.2	72	80	**1LE1043-1DC4■-■■■■**	106	0.164
15	**18**	**180 L**	1178	122	IE2	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	**1LE1043-1EC4■-■■■■**	130	0.19
18.5	**22**	**200 L**	1180	150	IE2	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	**1LE1043-2AC4■-■■■■**	166	0.28
22	**26.5**	**200 L**	1180	178	IE2	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	**1LE1043-2AC5■-■■■■**	179	0.32

Voltages		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**		–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**		–
50 Hz 500 VY		Without additional charge	**2**	**7**		–
50 Hz 500 VΔ		Without additional charge	**4**	**0**		–
For other voltages and more information, see from page 2/93			**9**	**0**		. . .
Types of construction		Version				Order code
Without flange	IM B3 [1]	**Standard**			**A**	–
With flange	IM B5 [1]	With additional charge			**F**	–
With flange	IM B14 [1]	With additional charge			**K**	–
For other types of construction and more information, see from page 2/99					■	. . .
Motor protection		Version				Order code
Without		**Standard**			**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 90 or 100 to 200)		With additional charge			**B**	–
For other motor protection and more information, see from page 2/112					■	. . .
Terminal box position		Version				
Terminal box at top		**Standard**				**4**
For other terminal box positions and more information, see from page 2/115						■
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC416)		**1LE1043-. . . . ■–■■■■**				**-Z F90** +. . .+. . .+. . .
For options and information, see from page 2/118		**1LE1043-. . . . ■–■■■■**				**-Z** . . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power													Aluminum series 1LE1043 Article No.		
P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz		$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
4	4.55	100 L	3500	12		88.5	89.6	89.5	0.89	7.3	3	8.4	4	75	83	1LE1043-1AA6■-■■■■	26	0.0054
11	12.6	132 M	3565	29		91	91.1	90.3	0.86	17.6	2.5	9.6	5.2	72	84	1LE1043-1CA6■-■■■■	57	0.031
15	17.3	132 L	3555	46		91.7	92.1	91.7	0.89	26.5	2.4	8.7	4.8	72	84	1LE1043-1CA7■-■■■■	65	0.035
22	25.3	160 L	3560	59		91.7	91.8	90.9	0.9	33.5	3.1	9.7	4.5	77	89	1LE1043-1DA6■-■■■■	105	0.073
30	33.5	180 L	3560	80		92.4	92.6	92.1	0.87	47	2.9	8.8	4.5	77	89	1LE1043-1EA6■-■■■■	140	0.094
45	51	200 L	3560	121		93.6	93.7	93	0.86	70	3	8.4	3.7	77	84	1LE1043-2AA6■-■■■■	194	0.170
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
11	12.6	132 M	1775	59		92.4	92.6	91.8	0.79	19	3.1	8.7	4.1	68	80	1LE1043-1CB6■-■■■■	62	0.046
18.5	21.3	160 L	1780	99		93.6	93.3	91.9	0.75	33	3.9	9.6	4.5	69	81	1LE1043-1DB6■-■■■■	110	0.099
30	34.5	180 L	1775	160		94.1	94.2	93.5	0.78	51	3.3	9.5	4.3	79	86	1LE1043-1EB6■-■■■■	154	0.173
37	42.5	200 L	1780	198		94.5	94.7	94.2	0.8	61	3.3	9	4	70	77	1LE1043-2AB6■-■■■■	205	0.275

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages and more information, see from page 2/93			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [1]	**Standard**			A		–
With flange	IM B5 [1]	With additional charge			F		–
With flange	IM B14 [1]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/115							■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC416)	1LE1043-. . . . ■–■■■■	-Z F90 +. . .+. . .+. . .
For options and information, see from page 2/118	1LE1043-. . . . ■–■■■■	-Z . . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1543 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
0.75	0.86	80 M	3480	2.1		77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1543-0DA2■-■■■■	18	0.0011
1.1	1.27	80 M	3500	3		84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1543-0DA3■-■■■■	21	0.0013
1.5	1.75	90 S	3525	4.1		85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1543-0EA0■-■■■■	26	0.0021
2.2	2.55	90 L	3530	6		86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1543-0EA4■-■■■■	32	0.0031
3	3.45	100 L	3525	8.1		88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1543-1AA4■-■■■■	36	0.0054
3.7	4.55	112 M	3560	10		88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1543-1BA2■-■■■■	45	0.012
5.5	6.3	132 S	3555	15		89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1543-1CA0■-■■■■	58	0.024
7.5	8.6	132 S	3555	20		90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1543-1CA1■-■■■■	73	0.031
11	12.6	160 M	3560	30		91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1543-1DA2■-■■■■	100	0.053
15	17.3	160 M	3565	40		91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1543-1DA3■-■■■■	110	0.061
18.5	21.3	160 L	3560	50		91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1543-1DA4■-■■■■	127	0.068
22	24.5	180 M	3560	59		91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1543-1EA2■-■■■■	160	0.08
30	33.5	200 L	3560	80		92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1543-2AA4■-■■■■	225	0.134
37	41.5	200 L	3560	99		93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1543-2AA5■-■■■■	250	0.158
45	51	225 M	3570	120		93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1543-2BA2■-■■■■	315	0.26
55	62	250 M	3578	147		93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1543-2CA2■-■■■■	385	0.46
75	84	280 S	3578	200	IE2	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1543-2DA0■-■■■■	510	0.77
90	101	280 M	3578	240	IE2	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92	1LE1543-2DA2■-■■■■	590	0.94
110	123	315 S	3585	293		95	94.8	93.8	0.91	160	2.6	8	3.3	79	93	1LE1543-3AA0■-■■■■	750	1.4
132	148	315 M	3585	352		95.4	95.1	94	0.91	191	2.8	8	3.4	79	93	1LE1543-3AA2■-■■■■	880	1.6
160	180	315 L	3588	426	IE2	95.4	95.1	93.9	0.91	230	3.2	8.8	3.5	82	96	1LE1543-3AA4■-■■■■	980	1.9
200	224	315 L	3586	533		95.8	95.7	94.8	0.92	285	3.2	8.3	3.3	82	96	1LE1543-3AA5■-■■■■	1150	2.3

Voltages		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages and more information, see from page 2/96			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [1]	**Standard**			A			–
With flange	IM B5 [1]	With additional charge			F			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1543-. . . . ■-■■■■	-Z F90+. . .+. . .+. . .
For options, see from page 2/125	1LE1543-. . . . ■-■■■■	-Z . . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1543 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
0.75	**0.86**	**80 M**	1760	4.1		83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	**1LE1543-0DB3■-■■■■**	22	0.0029
1.1	**1.27**	**90 S**	1750	6		86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	**1LE1543-0EB0■-■■■■**	25	0.0036
1.5	**1.75**	**90 L**	1755	8.2		86.5	86.2	84.5	0.77	2.85	3.4	8.6	4.3	62	70	**1LE1543-0EB4■-■■■■**	31	0.0049
2.2	**2.55**	**100 L**	1770	11.9		89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	**1LE1543-1AB4■-■■■■**	40	0.014
3	**3.45**	**100 L**	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	**1LE1543-1AB5■-■■■■**	40	0.014
4	**4.55**	**112 M**	1770	19		89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	**1LE1543-1BB2■-■■■■**	46	0.017
5.5	**6.3**	**132 S**	1775	30		91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	**1LE1543-1CB0■-■■■■**	74	0.046
7.5	**8.6**	**132 M**	1770	40		91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	**1LE1543-1CB2■-■■■■**	80	0.046
11	**12.6**	**160 M**	1775	59		92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	**1LE1543-1DB2■-■■■■**	109	0.083
15	**17.3**	**160 L**	1780	80		93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	**1LE1543-1DB4■-■■■■**	127	0.099
18.5	**21.3**	**180 M**	1775	100		93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	**1LE1543-1EB2■-■■■■**	165	0.13
22	**25.3**	**180 L**	1775	118		93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	**1LE1543-1EB4■-■■■■**	170	0.14
30	**34.5**	**200 L**	1778	161	IE2	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	**1LE1543-2AB5■-■■■■**	240	0.22
37	**42.5**	**225 S**	1782	198	IE2	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	**1LE1543-2BB0■-■■■■**	285	0.42
45	**52**	**225 M**	1782	241	IE2	95.0	95.3	95.1	0.85	70	3	7.7	3.3	66	80	**1LE1543-2BB2■-■■■■**	340	0.52
55	**63**	**250 M**	1786	294	IE2	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	**1LE1543-2CB2■-■■■■**	420	0.85
75	**86**	**280 S**	1785	460	IE2	94.5	94.7	94.2	0.87	131	2.5	6.8	2.9	77	91	**1LE1543-2DB0■-■■■■**	570	1.39
90	**104**	**280 M**	1788	481	IE2	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	**1LE1543-2DB2■-■■■■**	670	1.7
110	**127**	**315 S**	1790	587		95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	**1LE1543-3AB0■-■■■■**	760	2.2
132	**152**	**315 M**	1790	704		96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	**1LE1543-3AB2■-■■■■**	960	2.9
160	**184**	**315 L**	1791	853		96.2	96.2	95.7	0.87	240	3.3	8.4	3.3	76	90	**1LE1543-3AB4■-■■■■**	990	3.1
200	**230**	**315 L**	1791	1066	IE2	96.2	96.2	95.5	0.87	300	3.5	8.7	3.2	78	93	**1LE1543-3AB5■-■■■■**	1190	3.7

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [1]	**Standard**			**A**		–
With flange	IM B5 [1]	With additional charge			**F**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**				**4**	
For other terminal box positions and more information, see from page 2/116						■	
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1543-. . . . ■-■■■■**					**-Z F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1543-. . . . ■-■■■■**					**-Z . . .+. . .+. . .+. . .**

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power													Cast-iron series 1LE1543 – Basic Line		
P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
0.75	0.86	90 S	1155	6.2		82.5	82.4	79.9	0.65	3.05	2.4	5.3	3.1	46	58	1LE1543-0EC0■-■■■■	27	0.004
1.1	1.27	100 L	1180	8.9		87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	1LE1543-1AC3■-■■■■	25	0.011
1.5	1.75	112 M	1175	12		88.5	88.3	86.2	0.73	2.9	2.2	6.9	3.2	65	77	1LE1543-1BC1■-■■■■	53	0.017
2.2	2.55	132 S	1180	21		89.5	89.2	87.7	0.72	4.3	2.4	7.3	3.5	63	71	1LE1543-1CC1■-■■■■	60	0.033
3	3.45	132 S	1180	24		89.5	89.5	87.9	0.70	6.	2.6	7.6	3.8	61	69	1LE1543-1CC0■-■■■■	60	0.034
4	4.55	132 M	1180	30		89.5	89.9	88.2	0.69	7.1	2.8	7.5	3.8	62	70	1LE1543-1CC2■-■■■■	64	0.039
5.5	6.3	132 M	1180	45		91.0	90.8	89.2	0.69	11	3	7.8	4	67	75	1LE1543-1CC3■-■■■■	76	0.050
7.5	8.6	160 M	1185	60		91.0	90.8	89.3	0.80	12.9	2.7	9.3	3.7	73	81	1LE1543-1DC2■-■■■■	124	0.132
11	12.6	160 L	1185	89		91.7	91.7	90.5	0.78	19.3	3.4	8	3.2	72	80	1LE1543-1DC4■-■■■■	138	0.164
15	18	180 L	1178	122	IE2	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1543-1EC4■-■■■■	180	0.19
18.5	22	200 L	1180	150	IE2	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1543-2AC4■-■■■■	215	0.28
22	26.5	200 L	1180	178	IE2	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1543-2AC5■-■■■■	230	0.32
37	44.5	250 M	1188	297	IE2	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1543-2CC2■-■■■■	405	1
45	54	280 S	1190	361	IE2	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	1LE1543-2DC0■-■■■■	510	1.4
55	66	280 M	1190	441	IE2	94.5	94.6	93.9	0.84	87	3.6	9.2	3.3	66	80	1LE1543-2DC2■-■■■■	560	1.64
75	90	315 S	1192	601		95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1543-3AC0■-■■■■	750	2.6
90	108	315 M	1192	721	IE2	95	95	94.4	0.84	142	2.7	7.7	3	64	79	1LE1543-3AC2■-■■■■	890	3.1
110	132	315 L	1192	881	IE2	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1543-3AC4■-■■■■	990	3.9
132	158	315 L	1193	1057	IE2	95.8	95.9	95.4	0.81	215	3.7	9.6	3.7	65	80	1LE1543-3AC5■-■■■■	1130	4.48

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [1]	**Standard**			A		–
With flange	IM B5 [1]	With additional charge			F		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1543-. . . . ■-■■■■-Z					F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1543-. . . . ■-■■■■-Z					. . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1643 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
0.75	0.86	80 M	3480	2.1		77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1643-0DA2■-■■■■	18	0.0011
1.1	1.27	80 M	3500	3		84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1643-0DA3■-■■■■	21	0.0013
1.5	1.75	90 S	3525	4.1		85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1643-0EA0■-■■■■	26	0.0021
2.2	2.55	90 L	3530	6		86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1643-0EA4■-■■■■	32	0.0031
3	3.45	100 L	3525	8.1		88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1643-1AA4■-■■■■	36	0.0054
3.7	4.55	112 M	3560	10		88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1643-1BA2■-■■■■	45	0.012
5.5	6.3	132 S	3555	15		89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1643-1CA0■-■■■■	58	0.024
7.5	8.6	132 S	3555	20		90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1643-1CA1■-■■■■	73	0.031
11	12.6	160 M	3560	30		91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1643-1DA2■-■■■■	100	0.053
15	17.3	160 M	3565	40		91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1643-1DA3■-■■■■	110	0.061
18.5	21.3	160 L	3560	50		91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1643-1DA4■-■■■■	127	0.068
22	24.5	180 M	3560	59		91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1643-1EA2■-■■■■	160	0.08
30	33.5	200 L	3560	80		92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1643-2AA4■-■■■■	225	0.134
37	41.5	200 L	3560	99		93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1643-2AA5■-■■■■	250	0.158
45	51	225 M	3570	120		93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1643-2BA2■-■■■■	315	0.26
55	62	250 M	3578	147		93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1643-2CA2■-■■■■	385	0.46
75	84	280 S	3578	200	IE2	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1643-2DA0■-■■■■	510	0.77
90	101	280 M	3578	240	IE2	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92	1LE1643-2DA2■-■■■■	590	0.94
110	123	315 S	3585	293		95	94.8	93.8	0.91	160	2.6	8	3.3	79	93	1LE1643-3AA0■-■■■■	750	1.4
132	148	315 M	3585	352		95.4	95.1	94	0.91	191	2.8	8	3.4	79	93	1LE1643-3AA2■-■■■■	880	1.6
160	180	315 L	3588	426	IE2	95.4	95.1	93.9	0.91	230	3.2	8.8	3.5	82	96	1LE1643-3AA4■-■■■■	980	1.9
200	224	315 L	3586	533		95.8	95.7	94.8	0.92	285	3.2	8.3	3.3	82	96	1LE1643-3AA5■-■■■■	1150	2.3

Voltages		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages and more information, see from page 2/96			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [1]	**Standard**			A			–
With flange	IM B5 [1]	With additional charge			F			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
PTC thermistor with 3 temperature sensors		**Standard**				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1643- . . . . ■-■■■■ -Z						F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1643- . . . . ■-■■■■ -Z						. . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power													Cast-iron series 1LE1643 – *Performance Line* Article No.		
P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz		$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
3	3.45	100 L	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1643-1AB5■-■■■■	40	0.014
4	4.55	112 M	1770	19		89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	1LE1643-1BB2■-■■■■	46	0.017
5.5	6.3	132 S	1775	30		91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	1LE1643-1CB0■-■■■■	74	0.046
7.5	8.6	132 M	1770	40		91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	1LE1643-1CB2■-■■■■	80	0.046
11	12.6	160 M	1775	59		92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	1LE1643-1DB2■-■■■■	109	0.083
15	17.3	160 L	1780	80		93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	1LE1643-1DB4■-■■■■	127	0.099
18.5	21.3	180 M	1775	100		93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	1LE1643-1EB2■-■■■■	165	0.13
22	25.3	180 L	1775	118		93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	1LE1643-1EB4■-■■■■	170	0.14
30	34.5	200 L	1778	161	IE2	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	1LE1643-2AB5■-■■■■	240	0.22
37	42.5	225 S	1782	198	IE2	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	1LE1643-2BB0■-■■■■	285	0.42
45	52	225 M	1782	241	IE2	95.0	95.3	95.1	0.85	70	3	7.7	3.3	66	80	1LE1643-2BB2■-■■■■	340	0.52
55	63	250 M	1786	294	IE2	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	1LE1643-2CB2■-■■■■	420	0.85
75	86	280 S	1785	460	IE2	94.5	94.7	94.2	0.87	131	2.5	6.8	2.9	77	91	1LE1643-2DB0■-■■■■	570	1.39
90	104	280 M	1788	481	IE2	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	1LE1643-2DB2■-■■■■	670	1.7
110	127	315 S	1790	587		95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	1LE1643-3AB0■-■■■■	760	2.2
132	152	315 M	1790	704		96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	1LE1643-3AB2■-■■■■	960	2.9
160	184	315 L	1791	853		96.2	96.2	95.7	0.87	240	3.3	8.4	3.3	76	90	1LE1643-3AB4■-■■■■	990	3.1
200	230	315 L	1791	1066	IE2	96.2	96.2	95.5	0.87	300	3.5	8.7	3.2	78	93	1LE1643-3AB5■-■■■■	1190	3.7

Voltages		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages and more information, see from page 2/96			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [1]	**Standard**			A			–
With flange	IM B5 [1]	With additional charge			F			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
PTC thermistor with 3 temperature sensors		**Standard**				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1643-. . . . ■-■■■■					-Z	F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1643-. . . . ■-■■■■					-Z	. . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1643 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
1.1	1.27	100 L	1180	8.9		87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	1LE1643-1AC3■-■■■■	25	0.011
1.5	1.75	112 M	1175	12		88.5	88.3	86.2	0.73	2.9	2.2	6.9	3.2	65	77	1LE1643-1BC1■-■■■■	53	0.017
2.2	2.55	132 S	1180	21		89.5	89.2	87.7	0.72	4.3	2.4	7.3	3.5	58	71	1LE1643-1CC1■-■■■■	60	0.033
3	3.45	132 S	1180	24		89.5	89.5	87.9	0.70	6.	2.6	7.6	3.8	55	69	1LE1643-1CC0■-■■■■	60	0.034
4	4.55	132 M	1180	30		89.5	89.9	88.2	0.69	7.1	2.8	7.5	3.8	57	70	1LE1643-1CC2■-■■■■	64	0.039
5.5	6.3	132 M	1180	45		91.0	90.8	89.2	0.69	11	3	7.8	4	61	75	1LE1643-1CC3■-■■■■	76	0.050
7.5	8.6	160 M	1185	60		91.0	90.8	89.3	0.80	12.9	2.7	9.3	3.7	68	81	1LE1643-1DC2■-■■■■	124	0.132
11	12.6	160 L	1185	89		91.7	91.7	90.5	0.78	19.3	3.4	8	3.2	67	80	1LE1643-1DC4■-■■■■	138	0.164
15	18	180 L	1178	122	IE2	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1643-1EC4■-■■■■	180	0.19
18.5	22	200 L	1180	150	IE2	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1643-2AC4■-■■■■	215	0.28
22	26.5	200 L	1180	178	IE2	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1643-2AC5■-■■■■	230	0.32
37	44.5	250 M	1188	297	IE2	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1643-2CC2■-■■■■	405	1
45	54	280 S	1190	361	IE2	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	1LE1643-2DC0■-■■■■	510	1.4
55	66	280 M	1190	441	IE2	94.5	94.6	94	0.83	88	3.6	7.9	3.3	66	80	1LE1643-2DC2■-■■■■	560	1.64
75	90	315 S	1192	601		95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1643-3AC0■-■■■■	750	2.6
90	108	315 M	1192	721	IE2	95	95	94.4	0.84	142	2.7	7.7	3	64	79	1LE1643-3AC2■-■■■■	890	3.1
110	132	315 L	1192	881	IE2	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1643-3AC4■-■■■■	990	3.9
132	158	315 L	1193	1057	IE2	95.8	95.9	95.4	0.81	215	3.7	9.6	3.7	65	80	1LE1643-3AC5■-■■■■	1130	4.48

Voltages		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages and more information, see from page 2/96			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [1]	**Standard**			A			–
With flange	IM B5 [1]	With additional charge			F			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
PTC thermistor with 3 temperature sensors		**Standard**				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1643-. . . . ■-■■■■ -Z						F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1643-. . . . ■-■■■■ -Z						. . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power													Cast-iron series 1LE1543 – Basic Line		
P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
4	4.55	100 L	3530	10		88.5	88.0	86.4	0.80	6.6	4.5	12.4	5.8	75	83	1LE1543-1AA6■-■■■■	37	0.0054
11	12.6	132 M	3565	29		91.0	91.3	90.4	0.86	17.6	2.9	10.9	4.7	75	83	1LE1543-1CA6■-■■■■	75	0.031
15	17.3	132 M	3570	40		91.0	90.9	90.1	0.83	24	3.4	11.1	5.4	78	86	1LE1543-1CA7■-■■■■	85	0.035
22	25.3	160 L	3560	59		91.7	91.8	90.9	0.9	33.5	3.1	9.7	4.5	77	89	1LE1543-1DA6■-■■■■	148	0.073
30	33.5	180 L	3560	80		92.4	92.6	92.1	0.87	47	2.9	8.8	4.5	77	89	1LE1543-1EA6■-■■■■	180	0.094
45	51	200 L	3560	121		93.6	93.7	93	0.86	70	3	8.4	3.7	77	84	1LE1543-2AA6■-■■■■	245	0.17
55	62	225 M	3570	147		93.6	93.6	92.8	0.88	84	3.2	8.9	4	76	89	1LE1543-2BA6■-■■■■	370	0.31
75	84	250 M	3575	200		94.1	93.9	92.9	0.9	111	2.5	7.5	3.2	82	96	1LE1543-2CA6■-■■■■	455	0.56
110	123	280 M	3578	294		95	94.8	94	0.91	160	2.9	8.5	3.5	82	96	1LE1543-2DA6■-■■■■	660	1.1
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
11	12.6	132 M	1775	59		92.4	92.6	91.8	0.79	19	3.1	8.7	4.1	68	80	1LE1543-1CB6■-■■■■	82	0.046
18.5	21.3	160 L	1780	99		93.6	93.3	91.9	0.75	33	3.9	9.6	4.5	69	81	1LE1543-1DB6■-■■■■	140	0.099
30	34.5	180 L	1775	160		94.1	94.2	93.5	0.78	51	3.3	9.5	4.3	79	86	1LE1543-1EB6■-■■■■	193	0.173
37	42.5	200 L	1780	198		94.5	94.7	94.2	0.8	61	3.3	9	4	70	77	1LE1543-2AB6■-■■■■	258	0.275
55	63	225 M	1782	295	IE2	95.4	95.7	95.4	0.85	85	3.1	7.4	3	75	89	1LE1543-2BB6■-■■■■	405	0.65
75	86	250 M	1788	401		95.4	95.4	94.8	0.84	117	3.4	8.8	3.8	75	89	1LE1543-2CB6■-■■■■	510	1.1
110	127	280 M	1788	587	IE2	95.8	95.7	94.9	0.85	170	3.4	9.2	3.7	82	96	1LE1543-2DB6■-■■■■	710	1.8
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
18.5	22	180 L	1180	150		93	93.2	92.6	0.75	33.5	2.9	7.9	3.7	69	81	1LE1543-1EC6■-■■■■	185	0.247
30	36	200 L	1182	242	IE2	94.1	94.5	94.2	0.77	52	3.2	7.6	3.2	63	70	1LE1543-2AC6■-■■■■	270	0.434
37	44.5	225 M	1186	298	IE2	94.1	94.3	93.7	0.8	62	3.3	8.2	3.5	71	85	1LE1543-2BC6■-■■■■	395	0.84
45	54	250 M	1188	362	IE2	94.5	94.7	94.2	0.83	72	2.8	8.1	3.2	69	83	1LE1543-2CC6■-■■■■	480	1.3
75	90	280 M	1190	602		95	95.1	94.6	0.82	121	4.2	9.5	3.6	70	84	1LE1543-2DC6■-■■■■	630	1.9
160	192	315 L	1193	1281	IE2	95.8	95.8	95.2	0.81	260	4	9.8	4	68	82	1LE1543-3AC6■-■■■■	1260	5.4

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages and more information, see from page 2/96			9	0	. . .
Types of construction		Version			Order code
Without flange	IM B3 [1]	**Standard**		A	–
With flange	IM B5 [1]	With additional charge		F	–
For other types of construction and more information, see from page 2/103				■	. . .
Motor protection		Version			Order code
Without		**Standard**			A –
PTC thermistor with 3 temperature sensors		With additional charge			B –
For other motor protection and more information, see from page 2/113					■ . . .
Terminal box position		Version			
Terminal box at top		**Standard**			4
For other terminal box positions and more information, see from page 2/116					■
Special versions					Order code(s)
For options, see from page 2/125					1LE1543- . . . . ■-■■■■ -Z . . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class 60 Hz/P60	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1643 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
4	**4.55**	**100 L**	3530	10		88.5	88.0	86.4	0.80	6.6	4.5	12.4	5.8	75	83	**1LE1643-1AA6■-■■■■**	37	0.0054
11	**12.6**	**132 M**	3565	29		91.0	91.3	90.4	0.86	17.6	2.9	10.9	4.7	75	83	**1LE1643-1CA6■-■■■■**	75	0.031
15	**17.3**	**132 M**	3570	40		91.0	90.9	90.1	0.83	24	3.4	11.1	5.4	78	86	**1LE1643-1CA7■-■■■■**	85	0.035
22	**25.3**	**160 L**	3560	59		91.7	91.8	90.9	0.9	33.5	3.1	9.7	4.5	77	89	**1LE1643-1DA6■-■■■■**	148	0.073
30	**33.5**	**180 L**	3560	80		92.4	92.6	92.1	0.87	47	2.9	8.8	4.5	77	89	**1LE1643-1EA6■-■■■■**	180	0.094
45	**51**	**200 L**	3560	121		93.6	93.7	93	0.86	70	3	8.4	3.7	77	84	**1LE1643-2AA6■-■■■■**	245	0.17
55	**62**	**225 M**	3570	147		93.6	93.6	92.8	0.88	84	3.2	8.9	4	76	89	**1LE1643-2BA6■-■■■■**	370	0.31
75	**84**	**250 M**	3575	200		94.1	93.9	92.9	0.9	111	2.5	7.5	3.2	82	96	**1LE1643-2CA6■-■■■■**	455	0.56
110	**123**	**280 M**	3578	294		95	94.8	94	0.91	160	2.9	8.5	3.5	82	96	**1LE1643-2DA6■-■■■■**	660	1.1
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
11	**12.6**	**132 M**	1775	59		92.4	92.6	91.8	0.79	19	3.1	8.7	4.1	68	80	**1LE1643-1CB6■-■■■■**	82	0.046
18.5	**21.3**	**160 L**	1780	99		93.6	93.3	91.9	0.75	33	3.9	9.6	4.5	69	81	**1LE1643-1DB6■-■■■■**	140	0.099
30	**34.5**	**180 L**	1775	160		94.1	94.2	93.5	0.78	51	3.3	9.5	4.3	79	86	**1LE1643-1EB6■-■■■■**	193	0.173
37	**42.5**	**200 L**	1780	198		94.5	94.7	94.2	0.8	61	3.3	9	4	70	77	**1LE1643-2AB6■-■■■■**	258	0.275
55	**63**	**225 M**	1782	295	IE2	95.4	95.7	95.4	0.85	85	3.1	7.4	3	75	89	**1LE1643-2BB6■-■■■■**	405	0.65
75	**86**	**250 M**	1788	401		95.4	95.4	94.8	0.84	117	3.4	8.8	3.8	75	89	**1LE1643-2CB6■-■■■■**	510	1.1
110	**127**	**280 M**	1788	587	IE2	95.8	95.7	94.9	0.85	170	3.4	9.2	3.7	82	96	**1LE1643-2DB6■-■■■■**	710	1.8
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
18.5	**22**	**180 L**	1180	150		93	93.2	92.6	0.75	33.5	2.9	7.9	3.7	69	81	**1LE1643-1EC6■-■■■■**	185	0.247
30	**36**	**200 L**	1182	242	IE2	94.1	94.5	94.2	0.77	52	3.2	7.6	3.2	63	70	**1LE1643-2AC6■-■■■■**	270	0.434
37	**44.5**	**225 M**	1186	298	IE2	94.1	94.3	93.7	0.8	62	3.3	8.2	3.5	71	85	**1LE1643-2BC6■-■■■■**	395	0.84
45	**54**	**250 M**	1188	362	IE2	94.5	94.7	94.2	0.83	72	2.8	8.1	3.2	69	83	**1LE1643-2CC6■-■■■■**	480	1.3
75	**90**	**280 M**	1190	602		95	95.1	94.6	0.82	121	4.2	9.5	3.6	70	84	**1LE1643-2DC6■-■■■■**	630	1.9
160	**192**	**315 L**	1193	1281	IE2	95.8	95.8	95.2	0.81	260	4	9.8	4	68	82	**1LE1643-3AC6■-■■■■**	1260	5.4

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [1]	**Standard**	A	–
With flange	IM B5 [1]	With additional charge	F	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
PTC thermistor with 3 temperature sensors	**Standard**	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
For options, see from page 2/125	**1LE1643- . . . . ■-■■■■**	**-Z** . . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1041 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)			
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																	
0.75	**0.86**	**80 M**	3445	2.1	75.5	76.2	74.8	0.83	1.5	2.1	6	3	64	75	**1LE1041-0DA2** ■-■■■■	9	0.0008
1.5	**1.75**	**90 S**	3505	4.1	84	83.5	80.7	0.82	2.75	3.1	8.5	4.5	69	81	**1LE1041-0EA0** ■-■■■■	13	0.0017
2.2	**2.55**	**90 L**	3510	6	85.5	85.2	82.6	0.83	3.9	3	8.7	4.6	69	81	**1LE1041-0EA4** ■-■■■■	15	0.0021
4	**4.55**	**112 M**	3555	10	87.5	86.9	84.6	0.83	6.4	2.7	9.9	4.5	73	85	**1LE1041-1BA2** ■-■■■■	27	0.0092
5.5	**6.3**	**132 S**	3555	15	88.5	88.4	87	0.86	9.1	2	7.6	3.3	72	84	**1LE1041-1CA0** ■-■■■■	39	0.02
7.5	**8.6**	**132 S**	3560	20	89.5	89.7	88.7	0.87	12.1	2.3	8.2	3.6	72	84	**1LE1041-1CA1** ■-■■■■	43	0.024
11	**12.6**	**160 M**	3560	30	90.2	89.6	87.4	0.86	17.8	2.4	8.2	3.6	77	89	**1LE1041-1DA2** ■-■■■■	67	0.045
15	**17.3**	**160 M**	3565	40	90.2	90	88.6	0.87	24	2.8	8.4	3.9	77	89	**1LE1041-1DA3** ■-■■■■	75	0.053
18.5	**21.3**	**160 L**	3565	50	91	90.8	89.5	0.87	29.5	3.3	8.9	4.1	77	89	**1LE1041-1DA4** ■-■■■■	84	0.061
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																	
0.75	**0.86**	**80 M**	1750	4.1	78	77.4	74.6	0.72	1.68	2.5	6.8	3.8	55	66	**1LE1041-0DB3** ■-■■■■	11	0.0021
1.5	**1.75**	**90 L**	1745	8.2	84	84	81.9	0.75	3	2.9	7.5	4	58	70	**1LE1041-0EB4** ■-■■■■	16	0.0036
2.2	**2.55**	**100 L**	1760	12	87.5	88.3	87.4	0.78	4.05	2.5	8.1	3.9	62	74	**1LE1041-1AB4** ■-■■■■	21	0.0086
4	**4.55**	**112 M**	1770	20	87.5	87.2	85.1	0.77	6.9	3	8.7	4	62	74	**1LE1041-1BB2** ■-■■■■	29	0.014
5.5	**6.3**	**132 S**	1770	30	89.5	89.6	88.1	0.78	9.9	2.6	8	3.3	68	80	**1LE1041-1CB0** ■-■■■■	42	0.027
7.5	**8.6**	**132 M**	1770	40	89.5	90	89.3	0.82	12.8	2.7	8	3.4	68	80	**1LE1041-1CB2** ■-■■■■	49	0.034
11	**12.6**	**160 M**	1775	59	91	91.2	90.1	0.84	18.1	2.5	7.7	3.2	69	81	**1LE1041-1DB2** ■-■■■■	71	0.065
15	**17.3**	**160 L**	1780	80	91	91.1	90.1	0.84	24.5	2.6	8.5	3.4	69	81	**1LE1041-1DB4** ■-■■■■	83	0.083

Voltages (≤ 600 V)		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/93			**9**	**0**			. . .
Types of construction		Version					Order code
With flange	IM B5 [1]	With additional charge			**F**		–
With flange	IM B14 [1]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1041-. . . .** ■-■■■■					**-Z F90+. . .+. . .+. . .**
For options, see from page 2/118		**1LE1041-. . . .** ■-■■■■					**-Z . . .+. . .+. . .+. . .**

[1] Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1041 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)			
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to IEC 60034-30-1: IE2 High Efficiency																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																	
0.75	**0.86**	**90 S**	1145	6.3	73	72.7	69.7	0.65	1.98	2.2	4.5	3	46	58	**1LE1041-0EC0** ■-■■■■	13	0.003
1.5	**1.75**	**100 L**	1175	12	86.5	86.3	84.2	0.69	3.15	2.2	6.4	3.2	62	74	**1LE1041-1AC4** ■-■■■■	25	0.011
2.2	**2.55**	**112 M**	1170	18	87.5	87.6	86	0.73	4.3	2.1	6.3	3.2	65	77	**1LE1041-1BC2** ■-■■■■	29	0.014
4	**4.55**	**132 M**	1180	30	87.5	87.5	85.7	0.71	7.5	1.9	6.2	3	67	79	**1LE1041-1CC2** ■-■■■■	43	0.029
5.5	**6.3**	**132 M**	1175	45	89.5	89.9	88.9	0.73	10.6	2.1	6.5	2.9	67	79	**1LE1041-1CC3** ■-■■■■	52	0.037
7.5	**8.6**	**160 M**	1180	61	89.5	89.6	88.4	0.73	14.4	2.1	5.4	2.5	70	82	**1LE1041-1DC2** ■-■■■■	77	0.075
11	**12.6**	**160 L**	1180	89	90.2	90.5	89.5	0.74	20.5	2.2	5.5	2.5	70	82	**1LE1041-1DC4** ■-■■■■	93	0.098

Voltages (≤ 600 V)		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages and more information, see from page 2/93			**9**	**0**				. . .
Types of construction		Version						Order code
With flange	IM B5 [1]	With additional charge			**F**			–
With flange	IM B14 [1]	With additional charge			**K**			–
For other types of construction and more information, see from page 2/99					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 90 or 100 to 200)		With additional charge				**B**		–
For other motor protection and more information, see from page 2/112						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/115							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1041-**. . . . ■-■■■■ **-Z**						**F90+**. . .+. . .+. . .
For options, see from page 2/118		**1LE1041-**. . . . ■-■■■■ **-Z**						. . .+. . .+. . .+. . .

[1] Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Aluminum series SIMOTICS GP 1LE1041 with increased power – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1041 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
4	**4.55**	**100 L**	3530	10		87.5	87.5	85.9	0.84	6.3	3.3	9.6	4.6	71	83	**1LE1041-1AA6** ■-■■■■	26	0.0054
5.5	**6.3**	**112 M**	3550	15		88.5	88.6	87.4	0.87	9	2.8	9.9	4.5	73	85	**1LE1041-1BA6** ■-■■■■	34	0.012
11	**12.6**	**132 M**	3555	30		90.2	90.5	89.8	0.9	17	2.7	9.3	3.6	72	84	**1LE1041-1CA6** ■-■■■■	57	0.031
15	**17.3**	**132 L**	3555	40		90.2	90.6	90.3	0.91	23	2.5	10	4.7	72	84	**1LE1041-1CA7** ■-■■■■	65	0.035
22	**25.3**	**160 L**	3565	59		91	91	89.9	0.89	34	3.6	9.6	4.3	77	89	**1LE1041-1DA6** ■-■■■■	94	0.068
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
4	**4.55**	**100 L**	1770	20		87.5	87.7	86.3	0.76	7	2.8	9.2	4.3	62	74	**1LE1041-1AB6** ■-■■■■	30	0.014
5.5	**6.3**	**112 M**	1765	30		89.5	89.3	87.4	0.8	9.6	2.8	8.3	3.6	62	74	**1LE1041-1BB6** ■-■■■■	34	0.017
11	**12.6**	**132 M**	1770	59		91	91.5	90.8	0.82	18.5	2.9	8.5	3.6	68	80	**1LE1041-1CB6** ■-■■■■	64	0.046
18.5	**21.3**	**160 L**	1780	99		92.4	92.4	91.3	0.84	30	2.9	8.8	3.6	69	81	**1LE1041-1DB6** ■-■■■■	100	0.099
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
7.5	**8.6**	**132 M**	1175	61		89.5	89.8	88.7	0.72	14.6	2.2	6.4	3	67	79	**1LE1041-1CC6** ■-■■■■	64	0.046
15	**17.3**	**160 L**	1180	121	IE1	90.2	90.4	89.3	0.73	28.5	2.3	5.8	2.6	70	82	**1LE1041-1DC6** ■-■■■■	115	0.12

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/93			**9**	**0**			. . .
Types of construction [2]		Version					Order code
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1041-. . . .** ■-■■■■ **-Z**					**F90+. . .+. . .+. . .**
For options, see from page 2/118		**1LE1041-. . . .** ■-■■■■ **-Z**					**. . .+. . .+. . .+. . .**

1) Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-11.

2) Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

3) Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1541 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm			%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
22	**24.5**	**180 M**	3550	59		91	90.8	89.5	0.86	35.5	3	8.4	4.1	81	84	**1LE1541-1EA2■-■■■■**	145	0.069
30	**33.5**	**200 L**	3565	80		91.7	91.2	89.6	0.86	47.5	2.9	7.7	3.8	82	89	**1LE1541-2AA4■-■■■■**	200	0.13
37	**41.5**	**200 L**	3565	99		92.4	92.2	91	0.87	58	3.3	8.1	3.8	82	89	**1LE1541-2AA5■-■■■■**	225	0.15
45	**51**	**225 M**	3570	120		93	92.7	91.3	0.88	69	3.1	8.7	3.8	77	90	**1LE1541-2BA2■-■■■■**	295	0.23
55	**62**	**250 M**	3575	147		93	92.5	91	0.89	83	2.4	7.4	3.5	80	94	**1LE1541-2CA2■-■■■■**	360	0.4
75	**84**	**280 S**	3580	200		93.6	92.9	91.1	0.87	116	2.8	7.7	3.5	81	95	**1LE1541-2DA0■-■■■■**	490	0.71
90	**101**	**280 M**	3578	240		94.5	94.2	93.1	0.88	136	2.7	7.9	3.4	81	95	**1LE1541-2DA2■-■■■■**	530	0.83
110	**123**	**315 S**	3585	293		94.5	94	92.5	0.9	162	2.6	7.9	3.3	82	96	**1LE1541-3AA0■-■■■■**	720	1.3
132	**148**	**315 M**	3585	352		95	94.7	93.6	0.91	192	2.7	8.1	3.4	82	96	**1LE1541-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	3585	426		95	94.6	93.3	0.92	230	2.7	8	3.2	84	99	**1LE1541-3AA4■-■■■■**	930	1.8
200	**224**	**315 L**	3585	533		95.4	95.2	94.2	0.92	285	3.1	8.3	3.2	84	99	**1LE1541-3AA5■-■■■■**	1130	2.2
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
18.5	**21.3**	**180 M**	1770	100		92.4	92.6	91.9	0.83	30.5	2.8	7.7	3.9	64	77	**1LE1541-1EB2■-■■■■**	160	0.12
22	**25.3**	**180 L**	1770	119		92.4	92.5	91.8	0.83	36	3	8.4	3.9	72	79	**1LE1541-1EB4■-■■■■**	170	0.13
30	**34.5**	**200 L**	1778	161		93	93.1	92.2	0.84	48	3.2	8.2	3.7	72	79	**1LE1541-2AB5■-■■■■**	230	0.2
37	**42.5**	**225 S**	1778	199		93	93.2	92.5	0.87	57	2.7	7.2	3.3	69	82	**1LE1541-2BB0■-■■■■**	280	0.42
45	**52**	**225 M**	1778	242		93.6	93.8	93.1	0.86	70	3	7.6	3.5	69	83	**1LE1541-2BB2■-■■■■**	305	0.46
55	**63**	**250 M**	1785	294		94.1	94.1	93.3	0.84	87	3.1	7.3	3.3	69	83	**1LE1541-2CB2■-■■■■**	385	0.75
75	**86**	**280 S**	1788	401		94.5	94.3	93.2	0.87	114	2.7	7.6	3.2	79	92	**1LE1541-2DB0■-■■■■**	550	1.3
90	**104**	**280 M**	1788	481		94.5	94.3	93.3	0.87	137	2.9	8.1	3.4	78	92	**1LE1541-2DB2■-■■■■**	570	1.4
110	**127**	**315 S**	1790	587		95	94.8	93.8	0.86	169	3.1	8	3.3	79	93	**1LE1541-3AB0■-■■■■**	740	2
132	**152**	**315 M**	1790	704		95	94.8	94	0.86	205	3.1	7.8	3.2	79	93	**1LE1541-3AB2■-■■■■**	870	2.3
160	**184**	**315 L**	1790	854		95	94.7	93.5	0.87	245	3.1	8.3	3.2	80	95	**1LE1541-3AB4■-■■■■**	940	2.8
200	**230**	**315 L**	1792	1066		95.4	94.7	93.6	0.86	305	3.8	9	3.2	84	98	**1LE1541-3AB5■-■■■■**	1140	3.5

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
With flange	IM B5 [1]	With additional charge			**F**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1541-. . . . ■-■■■■**					**-Z F90**
For options, see from page 2/125		**1LE1541-. . . . ■-■■■■**					**-Z** . . .+. . .+. . .+. . .

[1] Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1541 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm			%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
15	18	180 L	1178	122		90.2	90.2	89	0.77	27	2.8	6.9	3.4	60	73	1LE1541-1EC4■-■■■■	155	0.17
18.5	22	200 L	1182	149	IE1	91.7	92	91.5	0.81	31.5	2.6	6.7	3	66	79	1LE1541-2AC4■-■■■■	200	0.25
22	26.5	200 L	1182	178	IE1	91.7	92.1	91.6	0.81	37	3	7.4	3	66	79	1LE1541-2AC5■-■■■■	220	0.3
30	36	225 M	1182	242	IE1	93	93.3	92.6	0.83	49	2.9	7	3.1	66	79	1LE1541-2BC2■-■■■■	300	0.58
37	44.5	250 M	1185	298	IE1	93	93.3	92.6	0.83	60	3.3	7.3	2.8	66	79	1LE1541-2CC2■-■■■■	370	0.86
45	54	280 S	1188	362	IE1	93.6	93.8	93.1	0.84	72	3.1	7.4	3	67	81	1LE1541-2DC0■-■■■■	460	1.1
55	66	280 M	1188	442	IE1	93.6	93.9	93.4	0.85	87	3.1	7.2	2.9	67	81	1LE1541-2DC2■-■■■■	510	1.4
75	90	315 S	1190	602	IE1	94.1	94.1	93.2	0.83	121	2.7	7.5	3	67	82	1LE1541-3AC0■-■■■■	660	2.1
90	108	315 M	1190	722	IE1	94.1	94.4	93.5	0.84	143	2.9	7.6	3.1	68	83	1LE1541-3AC2■-■■■■	730	2.5
110	132	315 L	1190	883	IE1	95	95	94.6	0.85	171	3.3	8.1	3.2	69	84	1LE1541-3AC4■-■■■■	940	3.6
132	158	315 L	1190	1059		95	95	94.4	0.85	205	3.7	9.2	3.6	69	84	1LE1541-3AC5■-■■■■	990	4
160	192	315 L	1192	1282		95	94.9	94.2	0.85	250	3.8	9.3	3.4	72	87	1LE1541-3AC6■-■■■■	1160	4.7

Voltages		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages and more information, see from page 2/96			9	0				. . .
Types of construction [1]		Version						Order code
With flange	IM B5 [2]	With additional charge			F			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1541-. . . . ■-■■■■-Z	F90 +. . .+. . .+. . .
For options, see from page 2/125	1LE1541-. . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

[1] Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

[2] Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

			Operating values at rated power												Cast-iron series 1LE1541 – *Basic Line* Article No.		
P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	Different IE class	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz		$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm			%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to IEC 60034-30-1: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
30	**33.5**	**180 L**	3550	81		91.7	91.8	90.6	0.89	46	2.5	8.5	3.7	81	83	**1LE1541-1EA6■-■■■■**	180	0.094
45	**51**	**200 L**	3560	121		93	93.1	92.4	0.86	71	3	8.4	3.7	82	89	**1LE1541-2AA6■-■■■■**	245	0.176
55	**62**	**225 M**	3565	147		93	92.8	91.8	0.88	84	2.8	7.9	3.6	77	91	**1LE1541-2BA6■-■■■■**	320	0.26
75	**84**	**250 M**	3578	200		93.6	93.1	91.6	0.85	118	2.4	7.7	3.5	80	94	**1LE1541-2CA6■-■■■■**	390	0.46
110	**123**	**280 M**	3582	293		94.5	94.4	93.5	0.9	162	3.5	9.6	3.9	82	96	**1LE1541-2DA6■-■■■■**	650	1.2
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
30	**34.5**	**180 L**	1770	162		93	93.2	92.7	0.8	51	2.6	8.7	3.9	71	78	**1LE1541-1EB6■-■■■■**	185	0.159
37	**42.5**	**200 L**	1775	199		93	93.4	93.1	0.84	59	2.6	8.4	3.3	71	78	**1LE1541-2AB6■-■■■■**	240	0.246
55	**63**	**225 M**	1780	295		94.1	94.4	94	0.84	87	2.8	7.1	3	72	85	**1LE1541-2BB6■-■■■■**	320	0.47
75	**86**	**250 M**	1785	401		94.5	94.6	94	0.85	117	2.6	7.1	3.1	76	89	**1LE1541-2CB6■-■■■■**	440	0.85
110	**127**	**280 M**	1786	588		95	95.1	94.5	0.86	169	2.9	7.9	3.3	80	94	**1LE1541-2DB6■-■■■■**	680	1.7
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
18.5	**22**	**180 L**	1180	150		91.7	91.8	90.9	0.75	34	2.6	7	3.4	70	83	**1LE1541-1EC6■-■■■■**	165	0.206
30	**34.5**	**200 L**	1180	243		93	93.4	93	0.77	53	2.9	7.4	3.1	71	78	**1LE1541-2AC6■-■■■■**	240	0.381
37	**44.5**	**225 M**	1182	299	IE1	93	93.3	92.8	0.82	61	2.8	7.3	3.2	66	79	**1LE1541-2BC6■-■■■■**	325	0.67
45	**54**	**250 M**	1186	362	IE1	93.6	93.9	93.4	0.84	72	2.7	7.8	3	70	84	**1LE1541-2CC6■-■■■■**	410	1
75	**90**	**280 M**	1188	603		94.1	94.3	93.9	0.84	119	3.7	8	3.2	69	83	**1LE1541-2DC6■-■■■■**	570	1.8

Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages and more information, see from page 2/96			9	0	. . .

Types of construction [1]		Version		Order code
With flange	IM B5 [2]	With additional charge	F	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 3 temperature sensors	With additional charge	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions			Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1541-....**	■-■■■■ -Z	**F90** +. . .+. . .+. . .
For options, see from page 2/125	**1LE1541-....**	■-■■■■ -Z	. . .+. . .+. . .+. . .

[1] Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

[2] Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power												Aluminum series 1LE1073		
P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P50	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 440 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Article No.	$m_{IM\ B3}$	J
kW	CV (hp)	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to NBR 17094-1: IR3 Rendimento Premium • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																	
1.1	1.5	80 M	3485	3	84.0	84.3	82.5	0.84	2.05	3.5	8.5	3.6	69	77	▲ 1LE1073-0DA3■-■■■■	12	0.0013
1.5	2	80 M	3470	4.15	85.5	85.7	85.0	0.85	2.7	4.2	9.2	4.2	74	82	▲ 1LE1073-0DA6■-■■■■	18	0.0014
2.2	3	90 S	3515	6	86.5	86.5	84.2	0.88	3.8	2.7	9.1	4.6	74	82	▲ 1LE1073-0EA4■-■■■■	20	0.0031
3	4	100 L	3520	8.1	88.5	88.9	88.0	0.90	4.95	3.2	9.4	4.6	75	83	▲ 1LE1073-1AA4■-■■■■	26	0.0054
3.7	5	100 L	3515	10.1	88.5	89.1	88.4	0.87	6.3	3.7	9.6	4.1	75	83	▲ 1LE1073-1AA6■-■■■■	26	0.0054
4.5	6	112 M	3550	12.1	88.5	89.2	87.9	0.90	7.4	2.4	9.6	3.9	79	87	▲ 1LE1073-1BA5■-■■■■	36	0.012
5.5	7.5	112 M	3545	14.8	89.5	90.6	90.6	0.88	9.2	2.4	9.7	3.7	79	87	▲ 1LE1073-1BA6■-■■■■	36	0.012
7.5	10	132 S	3560	20	90.2	90.3	89.7	0.92	11.9	2.3	10	3.8	75	83	▲ 1LE1073-1CA1■-■■■■	57	0.0031
9.2	12.5	132 M	3550	24.5	91.0	91.5	91.5	0.82	14.4	2.0	8.8	3.3	76	84	▲ 1LE1073-1CA5■-■■■■	62	0.0031
11	15	132 M	3555	29.5	91.0	91.8	91.8	0.90	17.6	2.1	9.6	4.5	76	84	▲ 1LE1073-1CA6■-■■■■	62	0.0031
15	20	160 M	3560	40	91.0	90.9	89.6	0.90	24	2.3	9.2	3.9	81	89	▲ 1LE1073-1DA3■-■■■■	84	0.0061
18.5	25	160 M	3555	49.5	91.7	91.8	90.8	0.91	29	2.6	9.0	3.8	81	89	▲ 1LE1073-1DA4■-■■■■	94	0.0068
22	30	160 L	3550	59	91.7	92.1	91.5	0.92	34	2.7	9.1	3.8	81	89	▲ 1LE1073-1DA6■-■■■■	120	0.077
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																	
0.75	1	80 M	1760	4.05	83.0	81.6	77.8	0.70	1.69	3.2	7.8	4.2	58	66	▲ 1LE1073-0DB3■-■■■■	13	0.0029
1.1	1.5	80 M	1750	6	84.0	84.4	83.1	0.78	2.2	3.1	8.0	3.9	58	66	▲ 1LE1073-0DB6■-■■■■	14	0.0032
1.5	2	90 S	1750	8.2	86.5	86.7	85.1	0.79	2.9	2.8	8.0	4.1	62	70	▲ 1LE1073-0EB4■-■■■■	20	0.0049
2.2	3	90 L	1745	12	87.5	87.3	85.7	0.79	4.2	3.1	8.5	4.2	65	73	▲ 1LE1073-0EB6■-■■■■	25	0.0057
3	4	100 L	1760	16.3	89.5	90.8	89.7	0.84	5.2	2.8	8.9	4.2	66	74	▲ 1LE1073-1AB5■-■■■■	30	0.014
3.7	5	100 L	1760	20	89.5	90.4	90.2	0.82	6.6	2.7	8.6	3.7	66	74	▲ 1LE1073-1AB6■-■■■■	42	0.016
4.5	6	112 M	1765	24.5	89.5	89.8	88.9	0.83	7.9	2.3	8.5	3.6	68	76	▲ 1LE1073-1BB5■-■■■■	34	0.017
5.5	7.5	112 M	1765	30	91.0	91.2	90.5	0.80	9.9	3.0	9.8	4.2	71	79	▲ 1LE1073-1BB6■-■■■■	39	0.020
7.5	10	132 S	1770	40.5	91.7	92.2	91.6	0.85	12.6	2.4	8.9	3.8	72	80	▲ 1LE1073-1CB2■-■■■■	61	0.046
9.2	12.5	132 M	1770	49.5	92.4	92.8	93.1	0.84	15.6	2.5	8.2	3.2	70	78	▲ 1LE1073-1CB5■-■■■■	80	0.049
11	15	132 M	1765	60	92.4	92.9	92.3	0.84	18.6	2.5	8.2	3.4	68	76	▲ 1LE1073-1CB6■-■■■■	80	0.049
15	20	160 M	1780	80	93.0	93.3	92.5	0.84	25	2.5	7.6	3.7	69	77	▲ 1LE1073-1DB4■-■■■■	100	0.099
18.5	25	160 L	1780	99	93.6	93.7	93.1	0.81	32	2.5	8.5	3.6	69	77	▲ 1LE1073-1DB6■-■■■■	110	0.101

Voltages		Version						Order code
50 Hz 220 VΔΔ/380 VYY/440 VΔ		**Standard**	6	4				–
For other voltages and more information, see from page 2/98			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [1]	**Standard**			A			–
With flange	IM B5 [1]	With additional charge			F			–
For other types of construction and more information, see from page 2/108					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 2/114						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/117							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1073-. . . . ■-■■■■					-Z	F90 +. . .+. . .+. . .
For options, see from page 2/133		1LE1073-. . . . ■-■■■■					-Z	. . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P50	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 440 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1073 Article No.	$m_{IM\ B3}$	J
kW	CV (hp)	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to NBR 17094-1: IR3 Rendimento Premium • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																	
0.37	**0.5**	**80 M**	1150	3.05	75.3	73.8	68.7	0.59	1.09	3.2	4.8	3.5	55	63	▲ **1LE1073-0DC2■-■■■■**	12	0.0025
0.55	**0.75**	**80 M**	1135	4.65	79.5	79.3	76.3	0.66	1.38	2.8	4.9	3.1	58	66	▲ **1LE1073-0DC3■-■■■■**	13	0.0031
0.75	**1**	**90 S**	1150	6.2	82.5	83.3	81.8	0.70	1.78	2.2	5.2	2.8	61	69	▲ **1LE1073-0EC0■-■■■■**	16	0.004
1.1	**1.5**	**100 L**	1170	9	87.5	87.2	87.2	0.66	2.5	3.0	7.0	3.9	62	70	▲ **1LE1073-1AC3■-■■■■**	28	0.014
1.5	**2**	**112 M**	1175	12.2	88.5	88.2	86.2	0.70	3.2	3.5	9.0	4.3	62	70	▲ **1LE1073-1BC1■-■■■■**	32	0.017
2.2	**3**	**132 S**	1175	17.9	89.5	89.5	88.2	0.74	4.35	2.1	6.8	3.2	63	71	▲ **1LE1073-1CC1■-■■■■**	43	0.037
3	**4**	**132 S**	1178	24.5	89.5	89.5	88.0	0.70	6.3	2.5	7.2	3.6	63	71	▲ **1LE1073-1CC0■-■■■■**	43	0.037
3.7	**5**	**132 S**	1180	30	89.5	89.3	88.0	0.71	7.6	2.7	7.6	3.7	65	73	▲ **1LE1073-1CC2■-■■■■**	47	0.037
4.5	**6**	**132 S**	1175	36.5	89.5	89.7	88.2	0.70	9	2.7	7.1	3.6	67	75	▲ **1LE1073-1CC4■-■■■■**	47	0.037
5.5	**7.5**	**132 M**	1175	44.5	91.0	91.0	89.8	0.73	10.9	2.7	7.3	3.6	67	75	▲ **1LE1073-1CC3■-■■■■**	58	0.046
7.5	**10**	**132 M**	1180	61	91.0	91.5	91.2	0.69	15.7	3.2	7.7	4.0	67	75	▲ **1LE1073-1CC6■-■■■■**	58	0.046
9.2	**12.5**	**160 M**	1185	74	91.7	91.9	90.5	0.78	16.9	3.1	7.8	3.1	71	79	▲ **1LE1073-1DC3■-■■■■**	105	0.12
11	**15**	**160 M**	1180	89	91.7	91.9	91.1	0.80	19.7	3.1	7.3	2.9	72	80	▲ **1LE1073-1DC4■-■■■■**	105	0.12
15	**20**	**160 L**	1185	121	91.7	91.7	90.5	0.74	29	3.8	8.1	3.5	73	81	▲ **1LE1073-1DC6■-■■■■**	105	0.12
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz																	
0.25	**0.33**	**80 M**	855	2.8	68.0	66.6	61.0	0.54	0.89	1.9	3.3	2.5	56	64	▲ **1LE1073-0DD3■-■■■■**	13	0.003
0.37	**0.5**	**90 S**	840	4.2	72.0	72.1	68.8	0.67	1.01	1.6	3.2	2.1	64	72	▲ **1LE1073-0ED0■-■■■■**	16	0.004
0.55	**0.75**	**90 L**	850	6.2	74.0	73.9	70.9	0.66	1.48	2.1	3.9	2.6	63	71	▲ **1LE1073-0ED4■-■■■■**	19	0.0048
0.75	**1**	**100 L**	855	8.4	75.5	76.6	74.4	0.70	1.86	1.6	4.0	2.2	65	73	▲ **1LE1073-1AD4■-■■■■**	21	0.0089
2.2	**3**	**132 S**	880	24	85.5	84.9	82.3	0.68	4.95	2.2	6.1	3.1	62	70	▲ **1LE1073-1CD0■-■■■■**	42	0.048
3.7	**5**	**132 M**	875	40.5	86.5	86.2	83.8	0.66	7.9	2.5	6.1	3.2	67	75	▲ **1LE1073-1CD6■-■■■■**	58	0.069
4.5	**6**	**160 M**	875	49	86.5	86.5	85.3	0.72	9.5	1.9	6.1	2.8	74	82	▲ **1LE1073-1DD1■-■■■■**	60	0.078
5.5	**7.5**	**160 M**	880	60	86.5	88.5	89.9	0.73	11.4	1.8	5.1	2.1	73	81	▲ **1LE1073-1DD3■-■■■■**	60	0.078
7.5	**10**	**160 L**	885	81	89.5	90.0	88.8	0.72	15.3	2.4	6.3	2.8	70	78	▲ **1LE1073-1DD4■-■■■■**	78	0.131

Voltages	Version						Order code
50 Hz 220 VΔΔ/380 VYY/440 VΔ	**Standard**	**6**	**4**				–
For other voltages and more information, see from page 2/98		**9**	**0**				. . .
Types of construction	Version						Order code
Without flange IM B3 [1]	**Standard**			**A**			–
With flange IM B5 [1]	With additional charge			**F**			–
For other types of construction and more information, see from page 2/108				■			. . .
Motor protection	Version						Order code
Without	**Standard**				**A**		–
PTC thermistor with 3 temperature sensors	With additional charge				**B**		–
For other motor protection and more information, see from page 2/114					■		. . .
Terminal box position	Version						
Terminal box at top	**Standard**					**4**	
For other terminal box positions and more information, see from page 2/117						■	
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)							**1LE1073-. . . . ■-■■■■ -Z F90 +. . .+. . .+. . .**
For options, see from page 2/133							**1LE1073-. . . . ■-■■■■ -Z** . . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P50	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 440 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1573/1LE5773 Article No.	$m_{IM\ B3}$	J
kW	CV (hp)	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency according to NBR 17094-1: IR3 Rendimento Premium • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																	
30	**40**	**200 L**	3565	80	92.4	92.6	92.1	0.86	49.5	2.9	8.2	3.7	78	86	▲ **1LE1573-2AA4■-■■■■**	220	0.134
37	**50**	**200 L**	3560	99	93.0	93.4	92.3	0.87	60	3.1	8.5	3.7	78	86	▲ **1LE1573-2AA5■-■■■■**	245	0.158
45	**60**	**225 S**	3565	121	93.6	93.7	92.9	0.89	71	2.7	7.2	3.1	75	89	▲ **1LE1573-2BA2■-■■■■**	325	0.265
55	**75**	**225 M**	3555	148	93.6	94.0	93.8	0.88	88	2.2	6.6	2.8	76	89	▲ **1LE1573-2BA6■-■■■■**	385	0.315
75	**100**	**250 M**	3570	201	94.1	94.1	93.3	0.90	116	2.1	6.6	2.7	82	96	▲ **1LE1573-2CA6■-■■■■**	475	0.564
90	**125**	**280 S**	3575	240	95.0	95.0	94.2	0.90	138	2.2	7.0	2.7	78	92	▲ **1LE1573-2DA2■-■■■■**	610	0.934
110	**150**	**280 M**	3570	294	95.0	95.0	94.3	0.91	167	2.3	7.0	2.8	82	96	▲ **1LE1573-2DA6■-■■■■**	680	1.08
132	**175**	**315 S**	3575	353	95.4	95.3	94.3	0.88	205	1.7	6.1	2.3	84	99	▲ **1LE5773-3AA2■-■■■■**	1030	2.0
150	**200**	**315 M**	3582	400	95.4	95.1	94.0	0.90	230	2.4	8.0	3.1	84	99	▲ **1LE5773-3AA4■-■■■■**	1190	2.0
185	**250**	**315 M**	3578	394	95.8	95.9	95.4	0.90	280	1.5	6.1	2.2	82	96	▲ **1LE5773-3AA5■-■■■■**	1280	2.38
220	**300**	**315 L**	3582	587	95.8	95.8	95.2	0.91	330	2.2	8.0	2.9	84	99	▲ **1LE5773-3AA6■-■■■■**	1340	2.73
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																	
22	**30**	**180 M**	1775	118	93.6	93.9	93.4	0.81	38	2.7	8.3	3.7	69	77	▲ **1LE1573-1EB4■-■■■■**	178	0.14
30	**40**	**200 L**	1775	161	94.1	94.6	94.5	0.84	50	2.7	7.9	3.1	66	74	▲ **1LE1573-2AB5■-■■■■**	240	0.22
37	**50**	**200 L**	1775	199	94.5	94.7	94.6	0.83	62	2.9	8.4	3.3	66	74	▲ **1LE1573-2AB6■-■■■■**	258	0.275
45	**60**	**225 S**	1782	241	95.0	95.3	94.9	0.84	74	2.9	7.6	2.9	69	82	▲ **1LE1573-2BB2■-■■■■**	315	0.47
55	**75**	**225 M**	1782	295	95.4	95.8	95.6	0.85	89	3.0	7.8	2.9	75	89	▲ **1LE1573-2BB6■-■■■■**	420	0.655
75	**100**	**250 M**	1780	403	95.4	95.6	95.4	0.85	121	2.1	6.2	2.5	75	89	▲ **1LE1573-2CB6■-■■■■**	530	1.07
90	**125**	**280 S**	1782	482	95.4	95.7	95.4	0.88	141	2.2	6.6	2.5	79	93	▲ **1LE1573-2DB2■-■■■■**	690	1.56
110	**150**	**280 M**	1785	589	95.8	96.0	95.7	0.90	167	2.5	7.2	2.7	82	96	▲ **1LE1573-2DB6■-■■■■**	740	1.67
132	**175**	**315 S**	1790	704	96.2	96.3	95.7	0.86	210	2.1	7.5	2.6	79	93	▲ **1LE5773-3AB2■-■■■■**	1350	2.8
150	**200**	**315 M**	1790	800	96.2	96.3	95.7	0.85	240	1.9	6.9	2.6	81	96	▲ **1LE5773-3AB4■-■■■■**	1110	3.13
185	**250**	**315 M**	1790	987	96.2	96.3	95.8	0.90	280	2.3	8	2.8	82	96	▲ **1LE5773-3AB5■-■■■■**	1210	3.64
220	**300**	**315 L**	1790	1174	96.2	96.3	95.8	0.87	345	2.3	7.2	2.7	81	96	▲ **1LE5773-3AB6■-■■■■**	1400	4.53
300	**400**	**315 L**	1788	1602	96.2	96.5	96.4	0.86	475	2.3	6.8	2.7	81	95	▲ **1LE5773-3AB7■-■■■■**	1560	5.28

Voltages	Version						Order code
50 Hz 220 VΔΔ/380 VYY/440 VΔ	**Standard**	**6**	**4**				–
For other voltages and more information, see from page 2/98		**9**	**0**				. . .
Types of construction	Version						Order code
Without flange IM B3 [1]	**Standard**			**A**			–
With flange IM B5 [1]	With additional charge			**F**			–
For other types of construction and more information, see from page 2/108				■			. . .
Motor protection	Version						Order code
Without	**Standard**				**A**		–
PTC thermistor with 3 temperature sensors	With additional charge				**B**		–
For other motor protection and more information, see from page 2/114					■		. . .
Terminal box position	Version						
Terminal box at top	**Standard**					**4**	
For other terminal box positions and more information, see from page 2/117						■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE . . 73- . . . . ■-■■■■ -Z**	**F90** +. . .+. . .+. . .
For options, see from page 2/133	**1LE . . 73- . . . . ■-■■■■ -Z**	. . .+. . .+. . .+. . .

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Cast-iron series SIMOTICS SD 1LE1573, 1LE5773 – self-ventilated or forced-air cooled

Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Operating values at rated power												Cast-iron series 1LE1573/1LE5773		
P_{rated}, 60 Hz/P50	P_{rated}, 60 Hz/P50	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 440 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Article No.	$m_{IM\ B3}$	J
kW	CV (hp)	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																	
• Efficiency according to NBR 17094-1: IR3 Rendimento Premium																	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																	
18.5	**25**	**180 L**	1180	150	93.0	93.3	92.8	0.75	35	2.9	7.9	3.7	73	81	▲ **1LE1573-1EC6■-■■■■**	185	0.247
22	**30**	**200 L**	1180	178	93.0	93.4	93.3	0.78	40	2.6	6.5	2.8	62	70	▲ **1LE1573-2AC5■-■■■■**	230	0.32
30	**40**	**200 L**	1182	240	94.1	94.3	93.7	0.75	56	3.2	7.8	3.3	66	74	▲ **1LE1573-2AC6■-■■■■**	264	0.434
37	**50**	**225 M**	1186	298	94.1	94.5	94.2	0.81	64	3.0	7.7	3.1	71	85	▲ **1LE1573-2BC6■-■■■■**	320	0.815
45	**60**	**250 S**	1186	363	94.5	95.0	94.7	0.84	74	2.8	7.7	2.9	69	83	▲ **1LE1573-2CC6■-■■■■**	500	1.27
55	**75**	**280 S**	1186	443	94.5	95.0	94.8	0.85	90	2.5	6.8	2.3	66	80	▲ **1LE1573-2DC2■-■■■■**	580	1.64
75	**100**	**280 S**	1186	604	95.0	95.7	95.9	0.84	123	3.2	7.4	2.7	70	84	▲ **1LE1573-2DC6■-■■■■**	650	1.93
90	**125**	**280 M**	1186	725	95.0	95.7	95.8	0.85	146	3.2	7.9	2.7	71	85	▲ **1LE1573-2DC7■-■■■■**	760	2.41
110	**150**	**315 M**	1190	883	95.8	96.3	96.3	0.86	175	2.2	7.3	2.8	67	82	▲ **1LE5773-3AC4■-■■■■**	1080	4.36
132	**175**	**315 M**	1188	1061	95.8	96.5	96.6	0.85	215	2.0	6.5	2.6	68	82	▲ **1LE5773-3AC5■-■■■■**	1160	4.99
150	**200**	**315 M**	1191	1203	95.8	96.1	96.0	0.83	250	2.3	7.3	2.8	69	83	▲ **1LE5773-3AC6■-■■■■**	1250	5.56
185	**250**	**315 L**	1191	1483	95.8	96.2	96.2	0.83	305	2.3	7.0	2.6	71	86	▲ **1LE5773-3AC7■-■■■■**	1410	6.06
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz																	
9.2	**12.5**	**180 M**	875	100	89.5	90.2	89.9	0.72	18.7	2.1	5.2	2.5	75	83	▲ **1LE1573-1ED3■-■■■■**	153	0.195
11	**15**	**180 L**	875	120	89.5	90.1	89.7	0.74	22.0	2.3	5.8	2.7	68	76	▲ **1LE1573-1ED4■-■■■■**	190	0.267
15	**20**	**180 L**	875	164	90.2	91.4	91.6	0.75	29.0	2.1	5.4	2.5	69	77	▲ **1LE1573-1ED6■-■■■■**	187	0.267
18.5	**25**	**200 L**	880	200	90.2	90.3	89.2	0.68	39.5	3.3	7.2	4.1	62	76	▲ **1LE1573-2AD6■-■■■■**	255	0.420
22	**30**	**225 S**	882	238.2	91.7	92.2	91.8	0.78	40.5	2.6	6.4	3.0	60	74	▲ **1LE1573-2BD2■-■■■■**	315	0.549
30	**40**	**225 M**	886	323.3	91.7	92.4	92.1	0.76	56.0	2.8	6.4	3.2	66	79	▲ **1LE1573-2BD6■-■■■■**	335	0.672
37	**50**	**250 M**	886	398.8	92.4	92.5	91.6	0.78	67.0	2.8	7.0	3.0	65	79	▲ **1LE1573-2CD6■-■■■■**	425	1.02
45	**60**	**250 M**	882	487.2	92.4	93.2	93.2	0.82	78.0	2.4	6.3	2.7	66	80	▲ **1LE1573-2CD7■-■■■■**	435	1.02
55	**75**	**280 S**	888	591.5	93.6	94.1	93.8	0.79	98.0	2.5	6.1	2.5	70	81	▲ **1LE1573-2DD6■-■■■■**	580	1.62
75	**100**	**280 M**	888	806.5	93.6	94.1	93.8	0.79	133	2.8	6.8	2.7	69	80	▲ **1LE1573-2DD7■-■■■■**	680	1.89
90	**125**	**315 M**	893	962.4	94.1	94.4	94.0	0.82	153	2.5	7.0	2.6	74	88	▲ **1LE5773-3AD4■-■■■■**	1000	3.74
110	**150**	**315 M**	891	1179	94.1	94.5	94.4	0.83	185	2.2	6.5	2.4	79	93	▲ **1LE5773-3AD5■-■■■■**	1100	4.48
132	**175**	**315 L**	890	1416	94.5	95.0	94.9	0.84	220	2.1	6.0	2.3	82	97	▲ **1LE5773-3AD6■-■■■■**	1150	5.36
150	**200**	**315 L**	890	1609	94.5	95.3	95.5	0.80	260	2.1	5.9	2.1	76	90	▲ **1LE5773-3AD7■-■■■■**	1420	6.76
185	**250**	**315 L**	893	1978	95.0	95.3	95.0	0.78	330	2.7	7.3	2.9	76	90	▲ **1LE5773-3AD8■-■■■■**	1660	8.4

Voltages	Version		Order code
50 Hz 220 VΔΔ/380 VYY/440 VΔ	**Standard**	**6 4**	–
For other voltages and more information, see from page 2/98		**9 0**	. . .
Types of construction	Version		Order code
Without flange IM B3 [1]	**Standard**	**A**	–
With flange IM B5 [1]	With additional charge	**F**	–
For other types of construction and more information, see from page 2/108		■	. . .
Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 3 temperature sensors	With additional charge	**B**	–
For other motor protection and more information, see from page 2/114		■	. . .
Terminal box position	Version		
Terminal box at top	**Standard**	**4**	
For other terminal box positions and more information, see from page 2/117		■	
Special versions			Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE . . 73- . . . . ■-■■■■-Z**	**F90 +. . .+. . .+. . .**
For options, see from page 2/133		**1LE . . 73- . . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

[1] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

			Operating values at rated power													Aluminum series 1LE1023 Article No.		
P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz		$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
0.75	**1**	**80 M**	3480	2.1	✓	77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	**1LE1023-0DA2■-■■■■**	11	0.0011
1.1	**1.5**	**80 M**	3500	3	✓	84	84	82	0.83	1.98	3.3	8.4	4	64	75	**1LE1023-0DA3■-■■■■**	12	0.0013
1.5	**2**	**90 S**	3525	4.1	✓	85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	**1LE1023-0EA0■-■■■■**	15	0.0021
2.2	**3**	**90 L**	3530	6	✓	86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	**1LE1023-0EA4■-■■■■**	19	0.0031
3	**4**	**100 L**	3525	8.1	✓	88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	**1LE1023-1AA4■-■■■■**	26	0.0054
3.7	**5**	**112 M**	3560	10	✓	88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	**1LE1023-1BA2■-■■■■**	34	0.012
5.5	**7.5**	**132 S**	3555	15	✓	89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	**1LE1023-1CA0■-■■■■**	43	0.024
7.5	**10**	**132 S**	3555	20	✓	90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	**1LE1023-1CA1■-■■■■**	57	0.031
11	**15**	**160 M**	3560	30	✓	91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	**1LE1023-1DA2■-■■■■**	75	0.053
15	**20**	**160 M**	3565	40	✓	91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	**1LE1023-1DA3■-■■■■**	84	0.061
18.5	**25**	**160 L**	3560	50	✓	91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	**1LE1023-1DA4■-■■■■**	94	0.068
22	**30**	**180 M**	3560	59	✓	91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	**1LE1023-1EA2■-■■■■**	129	0.08
30	**40**	**200 L**	3560	80	✓	92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	**1LE1023-2AA4■-■■■■**	173	0.134
37	**50**	**200 L**	3560	99	✓	93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	**1LE1023-2AA5■-■■■■**	194	0.158
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
0.55	**0.75**	**80 M**	1750	3	–	81.1	80.8	78.2	0.74	1.15	2.7	6.9	3.8	55	66	**1LE1023-0DB2■-■■■■**	11	0.0021
0.75	**1**	**80 M**	1760	4.1	✓	83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	**1LE1023-0DB3■-■■■■**	14	0.0029
1.1	**1.5**	**90 S**	1750	6	✓	86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	**1LE1023-0EB0■-■■■■**	16	0.0036
1.5	**2**	**90 L**	1755	8.2	✓	86.5	86.2	84.5	0.77	2.85	3.4	8.6	4.3	62	70	**1LE1023-0EB4■-■■■■**	19	0.0049
2.2	**3**	**100 L**	1770	11.9	✓	89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	**1LE1023-1AB4■-■■■■**	30	0.014
3	**4**	**100 L**	1760	16.3	✓	89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	**1LE1023-1AB5■-■■■■**	30	0.014
3.7	**5**	**112 M**	1770	19	✓	89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	**1LE1023-1BB2■-■■■■**	34	0.017
5.5	**7.5**	**132 S**	1775	30	✓	91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	**1LE1023-1CB0■-■■■■**	64	0.046
7.5	**10**	**132 M**	1770	40	✓	91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	**1LE1023-1CB2■-■■■■**	64	0.046
11	**15**	**160 M**	1775	59	✓	92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	**1LE1023-1DB2■-■■■■**	83	0.083
15	**20**	**160 L**	1780	80	✓	93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	**1LE1023-1DB4■-■■■■**	100	0.099
18.5	**25**	**180 M**	1775	100	✓	93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	**1LE1023-1EB2■-■■■■**	134	0.13
22	**30**	**180 L**	1775	118	✓	93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	**1LE1023-1EB4■-■■■■**	142	0.14
30	**40**	**200 L**	1778	161	✓	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	**1LE1023-2AB5■-■■■■**	189	0.22

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/93			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
With flange	IM B14 [2]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1023-. . . . ■–■■■■**					**-Z F90** +. . .+. . .+. . .
For options, see from page 2/118		**1LE1023-. . . . ■–■■■■**					**-Z** . . .+. . .+. . .+. . .

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Aluminum series SIMOTICS GP 1LE1023 – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1023 Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
0.37	**0.5**	**80 M**	1150	3.1	–	75.3	74.3	70	0.61	1.01	2.7	5	3.3	45	56	**1LE1023-0DC2■-■■■■**	12	0.0025
0.55	**0.75**	**80 M**	1145	4.6	–	81.7	80.5	76.4	0.63	1.34	2.8	5.3	3.4	45	56	**1LE1023-0DC3■-■■■■**	14	0.0031
0.75	**1**	**90 S**	1155	6.2	✓	82.5	82.4	79.9	0.65	1.76	2.4	5.3	3.1	46	58	**1LE1023-0EC0■-■■■■**	16	0.004
1.1	**1.5**	**100 L**	1180	8.9	✓	87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	**1LE1023-1AC3■-■■■■**	30	0.014
3	**4**	**132 S**	1180	24	✓	89.5	89.5	87.9	0.70	6	2.6	7.6	3.8	61	69	**1LE1023-1CC0■-■■■■**	42	0.034
3.7	**5**	**132 M**	1180	30	✓	89.5	89.9	88.2	0.69	7.1	2.8	7.5	3.8	62	70	**1LE1023-1CC2■-■■■■**	46	0.039
5.5	**7.5**	**132 M**	1180	45	✓	91.0	90.8	89.2	0.69	11	3	7.8	4	67	75	**1LE1023-1CC3■-■■■■**	58	0.05
7.5	**10**	**160 M**	1185	60	✓	91.0	90.8	89.3	0.80	12.9	2.7	9.3	3.7	73	81	**1LE1023-1DC2■-■■■■**	95	0.132
11	**15**	**160 L**	1185	89	✓	91.7	91.7	90.5	0.78	19.3	3.4	8	3.2	72	80	**1LE1023-1DC4■-■■■■**	106	0.164
15	**20**	**180 L**	1178	122	✓	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	**1LE1023-1EC4■-■■■■**	130	0.19
18.5	**25**	**200 L**	1180	150	✓	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	**1LE1023-2AC4■-■■■■**	166	0.28
22	**30**	**200 L**	1180	178	✓	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	**1LE1023-2AC5■-■■■■**	179	0.32
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz																		
2.2	**3**	**132 S**	880	24	✓	85.5	85.6	83.6	0.6	5.4	1.5	4	2.1	67	80	**1LE1023-1CD0■-■■■■**	56	0.038
3	**4**	**132 M**	880	33	✓	86.5	86.7	84.9	0.6	7.3	1.7	4.3	2.3	67	80	**1LE1023-1CD2■-■■■■**	65	0.048
3.7	**5**	**160 M**	885	40	✓	86.5	86.2	84	0.62	8.7	2	4.4	2.2	66	79	**1LE1023-1DD2■-■■■■**	72	0.065
5.5	**7.5**	**160 M**	884	59	✓	86.5	86.5	85	0.64	12.5	1.9	4.4	2.2	66	79	**1LE1023-1DD3■-■■■■**	86	0.083
7.5	**10**	**160 L**	882	81	✓	89.5	89.8	88.9	0.64	16.4	2	4.3	2.2	66	79	**1LE1023-1DD4■-■■■■**	110	0.116
11	**15**	**180 L**	880	119	✓	89.5	89.9	89.3	0.72	21.5	2.3	5.8	2.7	65	78	**1LE1023-1ED4■-■■■■**	161	0.267
15	**20**	**200 L**	882	162	✓	90.2	90.2	89.2	0.7	30	3.4	7.7	4.2	60	73	**1LE1023-2AD5■-■■■■**	212	0.420

Voltages (≤ 600 V) [1]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**				–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VY		Without additional charge	**2**	**7**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
For other voltages and more information, see from page 2/93			**9**	**0**				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			**A**			–
With flange	IM B5 [2]	With additional charge			**F**			–
With flange	IM B14 [2]	With additional charge			**K**			–
For other types of construction and more information, see from page 2/99					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge				**B**		–
For other motor protection and more information, see from page 2/112						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					**4**	
For other terminal box positions and more information, see from page 2/115							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1023-. . . . ■–■■■■**						**-Z F90** +. . .+. . .+. . .
For options, see from page 2/118		**1LE1023-. . . . ■–■■■■**						**-Z** . . .+. . .+. . .+. . .

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1523 – Basic Line Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
0.37	0.5	71 M	3470	1	–	73.4	71.7	67	0.73	0.87	4.2	6.8	4.2	57	68	1LE1523-0CA2■-■■■■	13	0.00045
0.55	0.75	71 M	3470	1.5	–	76.8	75.3	71	0.73	1.23	4.5	7.2	4.5	62	73	1LE1523-0CA3■-■■■■	15	0.00056
0.75	1	80 M	3480	2.1	✓	77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1523-0DA2■-■■■■	18	0.0011
1.1	1.5	80 M	3500	3	✓	84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1523-0DA3■-■■■■	21	0.0013
1.5	2	90 S	3525	4.1	✓	85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1523-0EA0■-■■■■	26	0.0021
2.2	3	90 L	3530	6	✓	86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1523-0EA4■-■■■■	32	0.0031
3	4	100 L	3525	8.1	✓	88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1523-1AA4■-■■■■	36	0.0054
3.7	5	112 M	3560	10	✓	88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1523-1BA2■-■■■■	45	0.012
5.5	7.5	132 S	3555	15	✓	89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1523-1CA0■-■■■■	58	0.024
7.5	10	132 S	3555	20	✓	90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1523-1CA1■-■■■■	73	0.031
11	15	160 M	3560	30	✓	91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1523-1DA2■-■■■■	100	0.053
15	20	160 M	3565	40	✓	91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1523-1DA3■-■■■■	110	0.061
18.5	25	160 L	3560	50	✓	91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1523-1DA4■-■■■■	127	0.068
22	30	180 M	3560	59	✓	91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1523-1EA2■-■■■■	160	0.08
30	40	200 L	3560	80	✓	92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1523-2AA4■-■■■■	225	0.134
37	50	200 L	3560	99	✓	93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1523-2AA5■-■■■■	250	0.158
45	60	225 M	3570	120	✓	93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1523-2BA2■-■■■■	315	0.26
55	75	250 M	3578	147	✓	93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1523-2CA2■-■■■■	385	0.46
75	100	280 S	3578	200	✓	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1523-2DA0■-■■■■	510	0.77
90	125	280 M	3578	240	✓	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92	1LE1523-2DA2■-■■■■	590	0.94
110	150	315 S	3585	293	✓	95	94.8	93.8	0.91	160	2.6	8	3.3	79	93	1LE1523-3AA0■-■■■■	750	1.4
132	175	315 M	3585	352	✓	95.4	95.1	94	0.91	191	2.8	8	3.4	79	93	1LE1523-3AA2■-■■■■	880	1.6
150	200	315 L	3588	399	✓	95.4	95.1	93.9	0.91	215	3.3	9.1	3.7	82	96	1LE1523-3AA4■-■■■■	980	1.9
185	250	315 L	3586	493	✓	95.8	95.7	94.8	0.92	265	3.5	8.5	3.5	82	96	1LE1523-3AA5■-■■■■	1150	2.3

Voltages (≤ 600 V) [1]		Version						Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2				–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	3	4				–
50 Hz 500 VY		Without additional charge	2	7				–
50 Hz 500 VΔ		Without additional charge	4	0				–
For other voltages and more information, see from page 2/96			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			A			–
With flange	IM B5 [2]	With additional charge			F			–
With flange	IM B14 [2]	With additional charge			K			–
For other types of construction and more information, see from page 2/103					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 2/113						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/116							■	
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1523-. . . . ■-■■■■						-Z F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1523-. . . . ■-■■■■						-Z . . .+. . .+. . .+. . .

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Cast-iron series SIMOTICS SD 1LE1523 Basic Line – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1523 – *Basic Line* Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
0.25	**0.33**	**71 M**	1715	1.4	–	73.4	72.3	68	0.68	0.63	2.9	4.9	3.1	47	58	**1LE1523-0CB2■-■■■■**	13	0.00095
0.37	**0.5**	**71 M**	1720	2.1	–	78.2	76.9	72.5	0.66	0.9	3.6	5.7	3.8	62	73	**1LE1523-0CB3■-■■■■**	16	0.0014
0.55	**0.75**	**80 M**	1750	3	–	81.1	80.8	78.2	0.74	1.15	2.7	6.9	3.8	55	66	**1LE1523-0DB2■-■■■■**	19	0.0021
0.75	**1**	**80 M**	1760	4.1	✓	83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	**1LE1523-0DB3■-■■■■**	23	0.0029
1.1	**1.5**	**90 S**	1750	6	✓	86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	**1LE1523-0EB0■-■■■■**	25	0.0036
1.5	**2**	**90 L**	1755	8.2	✓	86.5	86.2	84.5	0.77	2.85	3.4	8.6	4.3	62	70	**1LE1523-0EB4■-■■■■**	31	0.0049
2.2	**3**	**100 L**	1770	11.9	✓	89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	**1LE1523-1AB4■-■■■■**	40	0.014
3	**4**	**100 L**	1760	16.3	✓	89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	**1LE1523-1AB5■-■■■■**	40	0.014
3.7	**5**	**112 M**	1770	19	✓	89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	**1LE1523-1BB2■-■■■■**	46	0.017
5.5	**7.5**	**132 S**	1775	30	✓	91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	**1LE1523-1CB0■-■■■■**	74	0.046
7.5	**10**	**132 M**	1770	40	✓	91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	**1LE1523-1CB2■-■■■■**	80	0.046
11	**15**	**160 M**	1775	59	✓	92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	**1LE1523-1DB2■-■■■■**	109	0.083
15	**20**	**160 L**	1780	80	✓	93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	**1LE1523-1DB4■-■■■■**	127	0.099
18.5	**25**	**180 M**	1775	100	✓	93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	**1LE1523-1EB2■-■■■■**	165	0.13
22	**30**	**180 L**	1775	118	✓	93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	**1LE1523-1EB4■-■■■■**	170	0.14
30	**40**	**200 L**	1778	161	✓	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	**1LE1523-2AB5■-■■■■**	240	0.22
37	**50**	**225 S**	1782	198	✓	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	**1LE1523-2BB0■-■■■■**	285	0.42
45	**60**	**225 M**	1782	241	✓	95	95.3	95.1	0.85	70	3	7.7	3	66	80	**1LE1523-2BB2■-■■■■**	340	0.52
55	**75**	**250 M**	1786	294	✓	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	**1LE1523-2CB2■-■■■■**	420	0.85
75	**100**	**280 S**	1788	401	✓	95.4	95.3	94.5	0.85	116	2.8	7.7	3.3	77	91	**1LE1523-2DB0■-■■■■**	570	1.4
90	**125**	**280 M**	1788	481	✓	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	**1LE1523-2DB2■-■■■■**	670	1.7
110	**150**	**315 S**	1790	587	✓	95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	**1LE1523-3AB0■-■■■■**	760	2.2
132	**175**	**315 M**	1790	704	✓	96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	**1LE1523-3AB2■-■■■■**	960	2.9
150	**200**	**315 L**	1791	800	✓	96.2	96.2	95.7	0.87	225	3.5	8.8	3.6	76	90	**1LE1523-3AB4■-■■■■**	990	3.1
185	**250**	**315 L**	1791	986	✓	96.2	96.2	95.5	0.87	275	3.9	9	3.6	78	93	**1LE1523-3AB5■-■■■■**	1190	3.7

Voltages (≤ 600 V) [1]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	A	–
With flange	IM B5 [2]	With additional charge	F	–
With flange	IM B14 [2]	With additional charge	K	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
Without	**Standard**	A	–
PTC thermistor with 3 temperature sensors	With additional charge	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE1523-. . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options, see from page 2/125	**1LE1523-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1523 – Basic Line Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
0.18	0.25	71 M	1110	1.5	–	67.5	66.3	61	0.63	0.53	2.8	3.5	2.9	42	53	1LE1523-0CC2■-■■■■	13	0.001
0.25	0.33	71 M	1110	2.2	–	71.4	70.6	66.4	0.64	0.69	3.2	3.9	3.2	48	59	1LE1523-0CC3■-■■■■	16	0.015
0.37	0.5	80 M	1150	3.1	–	75.3	74.3	70	0.61	1.01	2.7	5	3.3	45	56	1LE1523-0DC2■-■■■■	19	0.0025
0.55	0.75	80 M	1145	4.6	–	81.7	80.5	76.4	0.63	1.34	2.8	5.3	3.4	45	56	1LE1523-0DC3■-■■■■	23	0.0031
0.75	1	90 S	1155	6.2	✓	82.5	82.4	79.9	0.65	1.76	2.4	5.3	3.1	46	58	1LE1523-0EC0■-■■■■	27	0.0040
3	4	132 S	1180	24	✓	89.5	89.5	87.9	0.70	6	2.6	7.6	3.8	61	69	1LE1523-1CC0■-■■■■	60	0.034
3.7	5	132 M	1180	30	✓	89.5	89.9	88.2	0.69	7.1	2.8	7.5	3.8	62	70	1LE1523-1CC2■-■■■■	64	0.039
5.5	7.5	132 M	1180	45	✓	91.0	90.8	89.2	0.69	11	3	7.8	4	67	75	1LE1523-1CC3■-■■■■	76	0.05
7.5	10	160 M	1185	60	✓	91.0	90.8	89.3	0.80	12.9	2.7	9.3	3.7	73	81	1LE1523-1DC2■-■■■■	124	0.132
11	15	160 L	1185	89	✓	91.7	91.7	90.5	0.78	19.3	3.4	8	3.2	72	80	1LE1523-1DC4■-■■■■	138	0.164
15	20	180 L	1178	122	✓	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1523-1EC4■-■■■■	180	0.19
18.5	25	200 L	1180	150	✓	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1523-2AC4■-■■■■	215	0.28
22	30	200 L	1180	178	✓	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1523-2AC5■-■■■■	230	0.32
30	40	225 M	1185	242	✓	94.1	94.4	94.1	0.82	49	2.9	7.6	3.3	66	79	1LE1523-2BC2■-■■■■	325	0.67
37	50	250 M	1188	297	✓	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1523-2CC2■-■■■■	405	1
45	60	280 S	1190	361	✓	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	1LE1523-2DC0■-■■■■	510	1.4
55	75	280 M	1190	441	✓	94.5	94.6	93.9	0.84	87	3.6	9.2	3.3	66	80	1LE1523-2DC2■-■■■■	560	1.64
75	100	315 S	1192	601	✓	95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1523-3AC0■-■■■■	750	2.6
90	125	315 M	1192	721	✓	95	95	94.4	0.84	142	2.7	7.7	3	64	79	1LE1523-3AC2■-■■■■	890	3.1
110	150	315 L	1192	881	✓	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1523-3AC4■-■■■■	990	3.9
132	175	315 L	1193	1057	✓	95.8	95.9	95.4	0.81	215	3.7	9.6	3.7	65	80	1LE1523-3AC5■-■■■■	1130	4.48
150	200	315 L	1194	1200	✓	95.8	95.7	95.0	0.80	245	4.3	11	4.3	69	83	1LE1523-3AC6■-■■■■	1260	5.41

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages and more information, see from page 2/96			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/116							■

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1523- . . . . ■-■■■■	-Z F90+. . .+. . .+. . .
For options, see from page 2/125	1LE1523- . . . . ■-■■■■	-Z . . .+. . .+. . .+. . .

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Cast-iron series SIMOTICS SD 1LE1623 Performance Line – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1623 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
3	4	100 L	3525	8.1	✓	88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1623-1AA4■-■■■■	36	0.0054
3.7	5	112 M	3560	10	✓	88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1623-1BA2■-■■■■	45	0.012
5.5	7.5	132 S	3555	15	✓	89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1623-1CA0■-■■■■	58	0.024
7.5	10	132 S	3555	20	✓	90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1623-1CA1■-■■■■	73	0.031
11	15	160 M	3560	30	✓	91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1623-1DA2■-■■■■	100	0.053
15	20	160 M	3565	40	✓	91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1623-1DA3■-■■■■	110	0.061
18.5	25	160 L	3560	50	✓	91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1623-1DA4■-■■■■	127	0.068
22	30	180 M	3560	59	✓	91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1623-1EA2■-■■■■	160	0.08
30	40	200 L	3560	80	✓	92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1623-2AA4■-■■■■	225	0.134
37	50	200 L	3560	99	✓	93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1623-2AA5■-■■■■	250	0.158
45	60	225 M	3570	120	✓	93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1623-2BA2■-■■■■	315	0.26
55	75	250 M	3578	147	✓	93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1623-2CA2■-■■■■	385	0.46
75	100	280 S	3578	200	✓	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1623-2DA0■-■■■■	510	0.77
90	125	280 M	3578	240	✓	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92	1LE1623-2DA2■-■■■■	590	0.94
110	150	315 S	3585	293	✓	95	94.8	93.8	0.91	160	2.6	8	3.3	79	93	1LE1623-3AA0■-■■■■	750	1.4
132	175	315 M	3585	352	✓	95.4	95.1	94	0.91	191	2.8	8	3.4	79	93	1LE1623-3AA2■-■■■■	880	1.6
150	200	315 L	3588	399	✓	95.4	95.1	93.9	0.91	215	3.3	9.1	3.7	82	96	1LE1623-3AA4■-■■■■	980	1.9
185	250	315 L	3586	493	✓	95.8	95.7	94.8	0.92	265	3.5	8.5	3.5	82	96	1LE1623-3AA5■-■■■■	1150	2.3

Voltages (≤ 600 V) [1]		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2		–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	3	4		–
50 Hz 500 VY		Without additional charge	2	7		–
50 Hz 500 VΔ		Without additional charge	4	0		–
For other voltages and more information, see from page 2/96			9	0		. . .
Types of construction		Version				Order code
Without flange	IM B3 [2]	**Standard**			A	–
With flange	IM B5 [2]	With additional charge			F	–
With flange	IM B14 [2]	With additional charge			K	–
For other types of construction and more information, see from page 2/103					■	. . .
Motor protection		Version				Order code
PTC thermistor with 3 temperature sensors		**Standard**			B	–
For other motor protection and more information, see from page 2/113					■	. . .
Terminal box position		Version				
Terminal box at top		**Standard**			4	
For other terminal box positions and more information, see from page 2/116					■	
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		1LE1623-. . . . ■-■■■■-Z				F90+. . .+. . .+. . .
For options, see from page 2/125		1LE1623-. . . . ■-■■■■-Z				. . .+. . .+. . .+. . .

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1623 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
2.2	**3**	**100 L**	1770	11.9	✓	89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	**1LE1623-1AB4■-■■■■**	40	0.014
3	**4**	**100 L**	1760	16.3	✓	89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	**1LE1623-1AB5■-■■■■**	40	0.014
3.7	**5**	**112 M**	1770	19	✓	89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	**1LE1623-1BB2■-■■■■**	46	0.017
5.5	**7.5**	**132 S**	1775	30	✓	91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	**1LE1623-1CB0■-■■■■**	74	0.046
7.5	**10**	**132 M**	1770	40	✓	91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	**1LE1623-1CB2■-■■■■**	80	0.046
11	**15**	**160 M**	1775	59	✓	92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	**1LE1623-1DB2■-■■■■**	109	0.083
15	**20**	**160 L**	1780	80	✓	93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	**1LE1623-1DB4■-■■■■**	127	0.099
18.5	**25**	**180 M**	1775	100	✓	93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	**1LE1623-1EB2■-■■■■**	165	0.13
22	**30**	**180 L**	1775	118	✓	93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	**1LE1623-1EB4■-■■■■**	170	0.14
30	**40**	**200 L**	1778	161	✓	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	**1LE1623-2AB5■-■■■■**	240	0.22
37	**50**	**225 S**	1782	198	✓	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	**1LE1623-2BB0■-■■■■**	285	0.42
45	**60**	**225 M**	1782	241	✓	95	95.3	95.1	0.85	70	3	7.7	3	66	80	**1LE1623-2BB2■-■■■■**	340	0.52
55	**75**	**250 M**	1786	294	✓	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	**1LE1623-2CB2■-■■■■**	420	0.85
75	**100**	**280 S**	1788	401	✓	95.4	95.3	94.5	0.85	116	2.8	7.7	3.3	77	91	**1LE1623-2DB0■-■■■■**	570	1.4
90	**125**	**280 M**	1788	481	✓	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	**1LE1623-2DB2■-■■■■**	670	1.7
110	**150**	**315 S**	1790	587	✓	95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	**1LE1623-3AB0■-■■■■**	760	2.2
132	**175**	**315 M**	1790	704	✓	96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	**1LE1623-3AB2■-■■■■**	960	2.9
150	**200**	**315 L**	1791	800	✓	96.2	96.2	95.7	0.87	225	3.5	8.8	3.6	76	90	**1LE1623-3AB4■-■■■■**	990	3.1
185	**250**	**315 L**	1791	986	✓	96.2	96.2	95.5	0.87	275	3.9	9	3.6	78	93	**1LE1623-3AB5■-■■■■**	1190	3.7

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
With flange	IM B14 [2]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1623-. . . . ■-■■■■**					**-Z F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1623-. . . . ■-■■■■**					**-Z . . .+. . .+. . .+. . .**

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Cast-iron series SIMOTICS SD 1LE1623 Performance Line – self-ventilated or forced-air cooled

Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1623 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
3	**4**	**132 S**	1180	24	✓	89.5	89.5	87.9	0.70	6	2.6	7.6	3.8	61	69	**1LE1623-1CC0■-■■■■**	60	0.034
3.7	**5**	**132 M**	1180	30	✓	89.5	89.9	88.2	0.69	7.1	2.8	7.5	3.8	62	70	**1LE1623-1CC2■-■■■■**	64	0.039
5.5	**7.5**	**132 M**	1180	45	✓	91.0	90.8	89.2	0.69	11	3	7.8	4	67	75	**1LE1623-1CC3■-■■■■**	76	0.05
7.5	**10**	**160 M**	1185	60	✓	91.0	90.8	89.3	0.80	12.9	2.7	9.3	3.7	73	81	**1LE1623-1DC2■-■■■■**	124	0.132
11	**15**	**160 L**	1185	89	✓	91.7	91.7	90.5	0.78	19.3	3.4	8	3.2	72	80	**1LE1623-1DC4■-■■■■**	138	0.164
15	**20**	**180 L**	1178	122	✓	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	**1LE1623-1EC4■-■■■■**	180	0.19
18.5	**25**	**200 L**	1180	150	✓	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	**1LE1623-2AC4■-■■■■**	215	0.28
22	**30**	**200 L**	1180	178	✓	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	**1LE1623-2AC5■-■■■■**	230	0.32
30	**40**	**225 M**	1185	242	✓	94.1	94.4	94.1	0.82	49	2.9	7.6	3.3	66	79	**1LE1623-2BC2■-■■■■**	325	0.67
37	**50**	**250 M**	1188	297	✓	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	**1LE1623-2CC2■-■■■■**	405	1
45	**60**	**280 S**	1190	361	✓	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	**1LE1623-2DC0■-■■■■**	510	1.4
55	**75**	**280 M**	1190	441	✓	94.5	94.6	93.9	0.84	87	3.6	9.2	3.3	66	80	**1LE1623-2DC2■-■■■■**	560	1.64
75	**100**	**315 S**	1192	601	✓	95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	**1LE1623-3AC0■-■■■■**	750	2.6
90	**125**	**315 M**	1192	721	✓	95	95	94.4	0.84	142	2.7	7.7	3	64	79	**1LE1623-3AC2■-■■■■**	890	3.1
110	**150**	**315 L**	1192	881	✓	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	**1LE1623-3AC4■-■■■■**	990	3.9
132	**175**	**315 L**	1193	1057	✓	95.8	95.9	95.4	0.81	215	3.7	9.6	3.7	65	80	**1LE1623-3AC5■-■■■■**	1130	4.48
150	**200**	**315 L**	1194	1200	✓	95.8	95.7	95.0	0.80	245	4.3	11	4.3	69	83	**1LE1623-3AC6■-■■■■**	1260	5.41

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
With flange	IM B14 [2]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1623-. . . . ■-■■■■**					**-Z F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1623-. . . . ■-■■■■**					**-Z . . .+. . .+. . .+. . .**

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Cast-iron series 1LE1623 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) • Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz																		
2.2	3	132 S	880	24	✓	85.5	85.6	83.6	0.6	5.4	1.5	4	2.1	67	80	1LE1623-1CD0■-■■■■	66	0.038
3	4	132 M	880	33	✓	86.5	86.7	84.9	0.6	7.3	1.7	4.3	2.3	67	80	1LE1623-1CD2■-■■■■	78	0.048
3.7	5	160 M	885	40	✓	86.5	86.2	84	0.62	8.7	2	4.4	2.2	66	79	1LE1623-1DD2■-■■■■	98	0.065
5.5	7.5	160 M	884	59	✓	86.5	86.5	85	0.64	12.5	1.9	4.4	2.2	66	79	1LE1623-1DD3■-■■■■	110	0.083
7.5	10	160 L	882	81	✓	89.5	89.8	88.9	0.64	16.4	2	4.3	2.2	66	79	1LE1623-1DD4■-■■■■	135	0.116
11	15	180 L	880	119	✓	89.5	89.9	89.3	0.72	21.5	2.3	5.8	2.7	65	78	1LE1623-1ED4■-■■■■	190	0.267
15	20	200 L	882	162	✓	90.2	90.2	89.2	0.7	30	3.4	7.7	4.2	60	73	1LE1623-2AD5■-■■■■	255	0.420
18.5	25	225 S	886	199	✓	90.2	90.2	89	0.73	35.5	2.9	6.6	3.4	58	72	1LE1623-2BD0■-■■■■	270	0.50
22	30	225 M	886	237	✓	91.7	91.8	90.8	0.76	39.5	2.9	6.8	3.3	60	74	1LE1623-2BD2■-■■■■	280	0.55
30	40	250 M	888	323	✓	91.7	91.9	91.1	0.77	53	2.9	7	3.3	63	77	1LE1623-2CD2■-■■■■	370	0.86
37	50	280 S	890	397	✓	92.4	92.6	91.9	0.77	65	2.5	6.1	2.6	64	78	1LE1623-2DD0■-■■■■	460	1.1
45	60	280 M	890	483	✓	92.4	92.5	91.9	0.79	77	2.7	6.8	2.7	65	79	1LE1623-2DD2■-■■■■	550	1.6
55	75	315 S	891	589	✓	93.6	93.6	92.9	0.79	93	2.6	6.8	3	68	82	1LE1623-3AD0■-■■■■	650	2.0
75	100	315 M	890	805	✓	93.6	93.7	93	0.8	126	2.5	6.7	3	73	87	1LE1623-3AD2■-■■■■	720	2.5
90	125	315 L	890	966	✓	94.1	94.4	94.1	0.81	148	2.4	6.5	2.8	74	88	1LE1623-3AD4■-■■■■	860	3.1
110	150	315 L	891	1179	✓	94.1	94.2	93.7	0.81	181	2.8	7.2	3.2	74	88	1LE1623-3AD5■-■■■■	980	3.9
132	175	315 L	892	1413	✓	94.5	94.5	93.9	0.8	220	3.2	7.9	3.7	78	92	1LE1623-3AD6■-■■■■	1070	4.5

Voltages (≤ 600 V) [1]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages and more information, see from page 2/96			9	0	. . .

Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	A	–
With flange	IM B5 [2]	With additional charge	F	–
With flange	IM B14 [2]	With additional charge	K	–
For other types of construction and more information, see from page 2/103			■	. . .

Motor protection	Version		Order code
PTC thermistor with 3 temperature sensors	**Standard**	B	–
For other motor protection and more information, see from page 2/113		■	. . .

Terminal box position	Version		
Terminal box at top	**Standard**	4	
For other terminal box positions and more information, see from page 2/116		■	

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	1LE1623- . . . . ■-■■■■ -Z	F90+. . .+. . .+. . .
For options, see from page 2/125	1LE1623- . . . . ■-■■■■ -Z	. . .+. . .+. . .+. . .

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Selection and ordering data

P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	Operating values at rated power: n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Aluminum series 1LE1021 Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)			
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency: NEMA Energy Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA and Canada, not admissible for exporting to Mexico																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
0.55	**0.75**	**80 M**	1750	3	–	75.5	74.6	71.1	0.71	1.29	2.7	6.4	3.8	55	66	**1LE1021-0DB2■-■■■■**	10	0.0017
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
0.37	**0.5**	**80 M**	1140	3.1	–	64	63	59.1	0.63	1.15	2.3	4.6	2.9	45	56	**1LE1021-0DC2■-■■■■**	9	0.0017
0.55	**0.75**	**80 M**	1135	4.6	–	68	67.4	63.7	0.61	1.66	2.9	5.2	3.6	45	56	**1LE1021-0DC3■-■■■■**	12	0.0025

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/93			**9**	**0**			. . .
Types of construction [2]		Version					Order code
With flange	IM B5 [3]	With additional charge			**F**		–
With flange	IM B14 [3]	With additional charge			**K**		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 1 temperature sensor		With additional charge				**B**	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1021-. . . . ■-■■■■-Z**					**F90 +. . .+. . .+. . .**
For options, see from page 2/118		**1LE1021-. . . . ■-■■■■-Z**					**. . .+. . .+. . .+. . .**

– Not required
✓ Available

1) Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-11.

2) Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

3) Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

			Operating values at rated power													Cast-iron series 1LE1521 – *Basic Line*		
P_{rated}, 60 Hz/ P50	P_{rated}, 60 Hz/ P60	Frame size	n_{rated}, 60 Hz	T_{rated}, 60 Hz	EISA CC No. CC032A	η_{rated}, 60 Hz, 4/4	η_{rated}, 60 Hz, 3/4	η_{rated}, 60 Hz, 2/4	$\cos\varphi_{rated}$, 60 Hz, 4/4	I_{rated}, 60 Hz, 460 V	T_{LR}/T_{rated}, 60 Hz	I_{LR}/I_{rated}, 60 Hz	T_B/T_{rated}, 60 Hz	L_{pfA}, 60 Hz	L_{WA}, 60 Hz	Article No.	$m_{IM\ B3}$	J
kW	hp	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418)																		
• Efficiency: NEMA Energy Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA and Canada, not admissible for exporting to Mexico																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz																		
0.37	**0.5**	**71 M**	3410	1.0	–	72	71.4	67.8	0.77	0.84	2.9	5.1	3	63	74	**1LE1521-0CA2■-■■■■**	12	0.00035
0.55	**0.75**	**71 M**	3420	1.5	–	74	73.4	69.6	0.76	1.23	3.4	5.4	3.4	63	74	**1LE1521-0CA3■-■■■■**	13	0.00045
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz																		
0.25	**0.33**	**71 M**	1715	1.4	–	70	68.5	63.6	0.64	0.7	2.8	4.4	3.1	53	64	**1LE1521-0CB2■-■■■■**	12	0.00076
0.37	**0.5**	**71 M**	1705	2.1	–	72	71.2	66.9	0.67	0.96	2.8	4.4	2.8	53	64	**1LE1521-0CB3■-■■■■**	13	0.00095
0.55	**0.75**	**80 M**	1750	3.0	–	75.5	74.6	71.1	0.71	1.29	2.7	6.4	3.8	55	66	**1LE1521-0DB2■-■■■■**	17	0.0017
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz																		
0.18	**0.25**	**71 M**	1105	1.6	–	55	53.6	48.8	0.61	0.67	2.9	2.7	2.9	49	60	**1LE1521-0CC2■-■■■■**	12	0.00080
0.25	**0.33**	**71 M**	1100	2.4	–	59.5	58.9	54.7	0.64	0.82	2.7	3	2.7	49	60	**1LE1521-0CC3■-■■■■**	13	0.00100
0.37	**0.5**	**80 M**	1140	3.1	–	64	63	59.1	0.63	1.15	2.3	4.6	2.9	45	56	**1LE1521-0DC2■-■■■■**	17	0.0017
0.55	**0.75**	**80 M**	1135	4.6	–	68	67.4	63.7	0.61	1.66	2.9	5.2	3.6	45	56	**1LE1521-0DC3■-■■■■**	19	0.0025
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz																		
0.09	**0.12**	**71 M**	815	1.1	-	40	38	33	0.59	0.5	2.1	1.8	2.1	59	63	**1LE1521-0CD2■-■■■■**	12	0.00077
0.12	**0.16**	**71 M**	815	1.4	-	40	38	33	0.57	0.7	2.3	2.1	2.4	52	63	**1LE1521-0CD3■-■■■■**	13	0.00100
0.18	**0.25**	**80 M**	855	2.1	-	46	43.5	37	0.53	0.93	2	2.5	2.6	55	66	**1LE1521-0DD2■-■■■■**	17	0.00175
0.25	**0.33**	**80 M**	860	2.8	-	52	49	43	0.51	1.21	2.2	2.9	3	55	66	**1LE1521-0DD3■-■■■■**	19	0.00246
0.37	**0.5**	**90 S**	845	4.2	-	58	55.8	49.5	0.64	1.25	1.6	3	2.1	57	69	**1LE1521-0ED0■-■■■■**	23	0.00225
0.55	**0.75**	**90 L**	840	6.3	-	62	61.2	56.5	0.66	1.69	1.8	3.1	2.1	57	69	**1LE1521-0ED4■-■■■■**	26	0.00305

Voltages (≤ 600 V) [1]		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 2/96			**9**	**0**			. . .
Types of construction [2]		Version					Order code
Without flange	IM B3 [3]	**Standard**			**A**		–
With flange	IM B5 [3]	With additional charge			**F**		–
For other types of construction and more information, see from page 2/103					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 1 temperature sensor		With additional charge				**B**	–
For other motor protection and more information, see from page 2/113						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 2/116							■
Special versions							Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE1521-. . . . ■-■■■■-Z**					**F90+. . .+. . .+. . .**
For options, see from page 2/125		**1LE1521-. . . . ■-■■■■-Z**					**. . .+. . .+. . .+. . .**

– Not required
✓ Available

[1] Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-11.
Parallel supply lines are required in the case of connection to ≤ 240 V.
For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[2] Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

[3] Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

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Aluminum series SIMOTICS GP 1LE1011 for constant load torque – self-ventilated

Selection and ordering data

P_{rated1}, 50 Hz	P_{rated2}, 50 Hz	Frame size	Operating values at rated power for N1: n_{rated1}, 50 Hz	T_{rated1}, 50 Hz	η_{rated1}, 50 Hz, 4/4	$\cos\varphi_{rated1}$, 50 Hz, 4/4	I_{rated1}, 50 Hz, 400 V	T_{LR}/T_{rated1}, 50 Hz	I_{LR}/I_{rated1}, 50 Hz	T_B/T_{rated1}, 50 Hz	Operating values at rated power for N2: n_{rated2}, 50 Hz	T_{rated2}, 50 Hz	η_{rated2}, 50 Hz, 4/4	cos φ_{rated2}, 50 Hz, 4/4	I_{rated2}, 50 Hz, 400 V	T_{LR}/T_{rated2}, 50 Hz	I_{LR}/I_{rated2}, 50 Hz	T_B/T_{rated2}, 50 Hz	**Aluminum series 1LE1011 – *one winding*** Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%		A				rpm	Nm	%		A					kg	kgm²
• **Cooling: Self-ventilated (IC411)** • **Line operation: Double pole-changing for constant load torque** • **Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)**																					
4/2-pole: 1500/3000 rpm at 50 Hz with one winding connected in Dahlander circuit																					
1500 rpm	*3000 rpm*		*1500 rpm*								*3000 rpm*										
1.9	**2.4**	**100 L**	1390	13.1	72	0.87	4.40	1.7	4.1	1.8	2800	8.2	70	0.88	5.6	1.8	4.2	1.8	**1LE1011-1AJ4 ■-■■■■**	18	0.0059
2.5	**3.1**	**100 L**	1440	16.6	76.3	0.87	5.4	1.9	5.2	2.8	2840	10.4	77.3	0.9	6.4	2.1	5.2	2.9	**1LE1011-1AJ5 ■-■■■■**	22	0.0078
3.7	**4.4**	**112 M**	1420	24.9	79.9	0.86	7.8	1.8	4.9	2.3	2885	14.6	80.8	0.92	8.5	2.1	6.4	2.6	**1LE1011-1BJ2 ■-■■■■**	27	0.01
4.7	**5.9**	**132 S**	1440	31.2	82	0.84	9.8	1.6	5.6	2.7	2875	19.6	80	0.89	12.0	1.8	5.6	2.8	**1LE1011-1CJ0 ■-■■■■**	38	0.019
6.5	**8.0**	**132 M**	1435	43.3	82	0.86	13.3	1.7	5.4	2.6	2880	26.5	82	0.92	15.3	1.8	6.3	2.8	**1LE1011-1CJ2 ■-■■■■**	44	0.024
9.3	**11.5**	**160 M**	1440	61.7	84.5	0.87	18.3	1.7	5.7	2.8	2870	38.3	82	0.92	22.0	1.8	6	2.9	**1LE1011-1DJ2 ■-■■■■**	62	0.044
13.0	**16**	**160 L**	1450	85.6	87	0.85	25.5	1.6	6	2.3	2920	52.3	86	0.94	35.5	1.9	7.1	2.8	**1LE1011-1DJ6 ■-■■■■**	85	0.068
8/4-pole: 750/1500 rpm at 50 Hz with one winding connected in Dahlander circuit																					
750 rpm	*1500 rpm*		*750 rpm*								*1500 rpm*										
0.55	**1.1**	**100 L**	715	7.3	57	0.53	2.65	2	3	2.7	1425	7.4	77.7	0.87	2.35	1.7	4.6	2.1	**1LE1011-1AL4 ■-■■■■**	18	0.0059
0.9	**1.5**	**100 L**	700	12.3	64.2	0.64	3.15	1.5	2.9	2	1415	10.1	77.7	0.89	3.15	1.5	4.5	1.9	**1LE1011-1AL5 ■-■■■■**	22	0.0078
1.1	**1.9**	**112 M**	715	14.7	66.5	0.6	4.00	1.6	3.2	2.3	1440	12.6	80.9	0.87	3.90	1.6	5.4	2.3	**1LE1011-1BL2 ■-■■■■**	27	0.01
1.6	**3.2**	**132 S**	730	20.9	61.5	0.53	7.1	1.6	3.3	2.6	1450	21.1	82.3	0.87	6.5	1.4	5	2.1	**1LE1011-1CL0 ■-■■■■**	38	0.019
2.2	**4.4**	**132 M**	730	28.8	68	0.52	9.0	2	3.8	3	1450	29	84.5	0.88	8.5	1.5	5.5	2.3	**1LE1011-1CL2 ■-■■■■**	44	0.024
3.5	**7**	**160 M**	730	45.8	77.5	0.57	11.4	2	4.2	2.8	1450	46.1	84	0.9	13.4	1.6	5.2	2.2	**1LE1011-1DL2 ■-■■■■**	62	0.044
5.6	**11**	**160 L**	725	73.8	80.2	0.6	16.8	1.9	4	2.7	1445	72.7	84.4	0.9	21.0	1.5	5.1	2.2	**1LE1011-1DL4 ■-■■■■**	73	0.056

Voltages		Version						Order code
50 Hz 230 V		**Standard**	2	2				–
50 Hz 400 V		**Standard**	3	4				–
50 Hz 500 V		Without additional charge	4	0				–
50 Hz 690 V		Without additional charge	4	7				–
For other voltages [1] and more information, see from page 2/95			9	0				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			A			–
With flange	IM B5 [2]	With additional charge			F			–
With flange	IM B14 [2]	With additional charge			K			–
For other types of construction and more information, see from page 2/99					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 2/112						■		. . .
Terminal box position		Version						
Terminal box at top		**Standard**					4	
For other terminal box positions and more information, see from page 2/115							■	
Special versions								Order code(s)
For options, see from page 2/118								**1LE1011-. . . . ■-■■■■-Z** . . .+. . .+. . .+. . .

Note: Pole-changing motors (4/2-pole) do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/50).

[1] Operating values for 60 Hz are available on request.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

P_{rated1}, 50 Hz	P_{rated2}, 50 Hz	Frame size	Operating values at rated power for N1: n_{rated1}, 50 Hz	T_{rated1}, 50 Hz	η_{rated1}, 50 Hz, 4/4	cos φ_{rated1}, 50 Hz, 4/4	I_{rated1}, 50 Hz, 400 V	T_{LR}/T_{rated1}, 50 Hz	I_{LR}/I_{rated1}, 50 Hz	T_B/T_{rated1}, 50 Hz	Operating values at rated power for N2: n_{rated2}, 50 Hz	T_{rated2}, 50 Hz	η_{rated2}, 50 Hz, 4/4	cos φ_{rated2}, 50 Hz, 4/4	I_{rated2}, 50 Hz, 400 V	T_{LR}/T_{rated2}, 50 Hz	I_{LR}/I_{rated2}, 50 Hz	T_B/T_{rated2}, 50 Hz	**Aluminum series** **1LE1011** – *one winding* **1LE1012** – *two windings* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%		A				rpm	Nm	%		A					
• Cooling: Self-ventilated (IC411) • Line operation: Double pole-changing for square-law load torque, e.g. for driving fans • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																				
4/2-pole: 1500/3000 rpm at 50 Hz with one winding connected in Dahlander circuit																				
1500 rpm	*3000 rpm*		*1500 rpm*								*3000 rpm*									
0.65	**2.4**	**100 L**	1415	4.4	75	0.86	1.45	1.6	4.1	1.8	2800	8.2	70	0.88	5.6	1.8	4.2	1.8	**1LE1011-1AP4■-■■■■**	18	0.0059
0.8	**3.1**	**100 L**	1435	5.3	79	0.85	1.72	1.9	5.2	2.8	2840	10.4	77.3	0.9	6.4	2.1	5.2	2.8	**1LE1011-1AP5■-■■■■**	22	0.0078
1.1	**4.4**	**112 M**	1455	7.2	83.4	0.85	2.25	2.2	6.1	2.5	2885	14.6	80.8	0.92	8.5	2.1	6.4	2.5	**1LE1011-1BP2■-■■■■**	27	0.01
1.45	**5.9**	**132 S**	1460	9.5	84	0.84	2.95	1.6	5.8	2.8	2875	19.6	80	0.89	12.0	1.8	5.6	2.8	**1LE1011-1CP0■-■■■■**	38	0.019
2.0	**8.0**	**132 M**	1455	13.1	85	0.85	4.00	1.8	5.6	2.8	2880	26.5	82	0.92	15.3	1.8	6.3	2.8	**1LE1011-1CP2■-■■■■**	44	0.024
2.9	**11.5**	**160 M**	1465	18.9	86.5	0.86	5.6	1.8	5.9	2.9	2870	38.3	82	0.92	22.0	1.8	6	2.9	**1LE1011-1DP2■-■■■■**	62	0.044
4.3	**16**	**160 L**	1455	28.2	87	0.85	8.4	1.6	6	2.3	2920	52.3	86	0.94	28.5	1.9	7.1	2.3	**1LE1011-1DP6■-■■■■**	85	0.068
6/4-pole: 1000/1500 rpm at 50 Hz with two windings																				
1000 rpm	*1500 rpm*		*1000 rpm*								*1500 rpm*									
0.6	**1.7**	**100 L**	970	5.9	55.5	0.62	2.50	1.7	3.4	2.7	1435	11.3	76.2	0.83	3.90	1.8	4.6	2.7	**1LE1012-1AQ4■-■■■■**	18	0.0059
0.75	**2.1**	**100 L**	955	8	64.2	0.77	2.20	1.2	3.4	2	1435	14	78.4	0.84	4.60	2	5.4	2	**1LE1012-1AQ5■-■■■■**	22	0.0078
0.9	**3.0**	**112 M**	975	8.8	64.7	0.66	3.05	1.6	3.9	2.5	1455	19.7	81.4	0.78	6.8	2.1	6.4	2.5	**1LE1012-1BQ2■-■■■■**	27	0.01
1.2	**3.9**	**132 S**	980	11.7	72.3	0.7	3.40	1.4	4.6	2.5	1455	25.6	83.1	0.83	8.2	1.5	5.7	2.5	**1LE1012-1CQ0■-■■■■**	38	0.019
1.7	**5.4**	**132 M**	980	16.6	74.1	0.71	4.65	1.7	5	2.5	1465	35.2	85.9	0.82	11.1	2	6.9	2.5	**1LE1012-1CQ2■-■■■■**	44	0.024
2.5	**7.2**	**160 M**	985	24.2	77.7	0.71	6.5	1.5	4.7	2.6	1470	46.8	86.9	0.85	14.1	1.8	6.3	2.6	**1LE1012-1DQ2■-■■■■**	62	0.044
3.7	**12.0**	**160 L**	985	35.9	82.4	0.69	9.4	2.3	6.2	3.5	1475	77.7	87.9	0.8	24.5	2.1	7.5	3.5	**1LE1012-1DQ4■-■■■■**	73	0.059
6.5	**19**	**180 L**	985	63	81.0	0.7	16.5	1.8	5.5	2.7	1475	123	0.9	0.8	38.0	2.5	8.1	3.7	**1LE1012-1EQ4■-■■■■**	132	0.13
9.5	**26**	**200 L**	985	92	84.5	0.7	23.0	2.3	6.5	2.8	1475	168	0.91	0.8	52	2.3	7.5	3.4	**1LE1012-2AQ5■-■■■■**	173	0.20

Voltages		Version					Order code
50 Hz 230 V		**Standard**	2	2			–
50 Hz 400 V		**Standard**	3	4			–
50 Hz 500 V		Without additional charge	4	0			–
50 Hz 690 V		Without additional charge	4	7			–
For other voltages [1] and more information, see from page 2/95			9	0			...
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		...
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	...
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
For options, see from page 2/118							**1LE101■-.... ■-■■■■-Z** ...+...+...

Note: Pole-changing motors (4/2-pole) do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/50).

[1] Operating values for 60 Hz are available on request.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Aluminum series SIMOTICS GP 1LE1011/1LE1012 for square-law load torque – self-ventilated

Selection and ordering data

			Operating values at rated power for N1								Operating values at rated power for N2								Aluminum series 1LE1011 – one winding		
P_{rated1}, 50 Hz	P_{rated2}, 50 Hz	Frame size	n_{rated1}, 50 Hz	T_{rated1}, 50 Hz	η_{rated1}, 50 Hz, 4/4	cos φ_{rated1}, 50 Hz, 4/4	I_{rated1}, 50 Hz, 400 V	T_{LR}/T_{rated1}, 50 Hz	I_{LR}/I_{rated1}, 50 Hz	T_B/T_{rated1}, 50 Hz	n_{rated2}, 50 Hz	T_{rated2}, 50 Hz	η_{rated2}, 50 Hz, 4/4	cos φ_{rated2}, 50 Hz, 4/4	I_{rated2}, 50 Hz, 400 V	T_{LR}/T_{rated2}, 50 Hz	I_{LR}/I_{rated2}, 50 Hz	T_B/T_{rated2}, 50 Hz	Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%		A				rpm	Nm	%		A						
• Cooling: Self-ventilated (IC411) • Line operation: Double pole-changing for square-law load torque, e.g. for driving fans • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																					
8/4-pole: 750/1500 rpm at 50 Hz with one winding connected in Dahlander circuit																					
750 rpm	*1500 rpm*		*750 rpm*								*1500 rpm*										
0.5	**2.0**	**100 L**	720	6.6	52	0.5	2.80	1.3	3.3	3.4	1440	13.3	82	0.79	4.45	3	7.5	3.4	**1LE1011-1AR4■-■■■■**	22	0.0078
0.65	**2.5**	**100 L**	715	8.7	56	0.58	2.90	1	3.2	2.6	1425	16.8	81	0.84	5.3	2.3	6.3	2.6	**1LE1011-1AR5■-■■■■**	22	0.0078
0.9	**3.6**	**112 M**	715	12	56	0.57	4.05	1	2.8	2.1	1430	24	82	0.84	7.5	1.9	5.6	2.1	**1LE1011-1BR2■-■■■■**	27	0.01
1.1	**4.7**	**132 S**	730	14.4	62	0.54	4.75	1	3.2	2.2	1430	31.4	82	0.86	9.6	1.7	5.2	2.2	**1LE1011-1CR0■-■■■■**	38	0.019
1.4	**6.4**	**132 M**	730	18.3	67.5	0.52	5.8	1.1	3.5	2.3	1440	42.4	84.5	0.87	12.6	1.9	5.7	2.3	**1LE1011-1CR2■-■■■■**	44	0.024
2.2	**9.5**	**160 M**	730	28.8	80.6	0.63	6.3	1.5	4	2.5	1465	61.9	86.1	0.84	19.0	2	6.3	2.5	**1LE1011-1DR2■-■■■■**	62	0.044
3.3	**14**	**160 L**	735	42.9	81.4	0.56	10.4	2.5	4.8	3.3	1475	90.6	85.8	0.73	32.5	2.5	7.2	3.3	**1LE1011-1DR4■-■■■■**	73	0.056
4.5	**16**	**180 M**	730	59	79.3	0.59	13.9	1.4	3.8	2.3	1470	104	84.6	0.83	33.0	1.4	7	2.9	**1LE1011-1ER2■-■■■■**	128	0.12
5	**18.5**	**180 L**	730	65	78.3	0.6	15.4	1.5	3.8	2.1	1470	120	86.6	0.83	37.0	2.3	7	2.7	**1LE1011-1ER4■-■■■■**	132	0.13
7.5	**28**	**200 L**	735	97	85.0	0.6	21.0	1.7	4	2.1	1475	181	90.5	0.85	53	2.7	7.4	3.1	**1LE1011-2AR5■-■■■■**	173	0.20

Voltages		Version					Order code
50 Hz 230 V		**Standard**	2	2			–
50 Hz 400 V		**Standard**	3	4			–
50 Hz 500 V		Without additional charge	4	0			–
50 Hz 690 V		Without additional charge	4	7			–
For other voltages [1] and more information, see from page 2/95			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 2/99					■		. . .
Motor protection		Version					Order code
Without		**Standard**				A	–
PTC thermistor with 3 temperature sensors		With additional charge				B	–
For other motor protection and more information, see from page 2/112						■	. . .
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 2/115							■
Special versions							Order code(s)
For options, see from page 2/118							**1LE101■-. . . . ■-■■■■-Z** . . .+. . .+. . .

Note: Pole-changing motors (4/2-pole) do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/50).

[1] Operating values for 60 Hz are available on request.

[2] Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

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Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size: 63	71	80	90	100	112	132	160	180	200	Motor version		
								1LE1004						IEC	IE4	①
						1LE1003									IE3	②
								1LE1083								③
				1LE1001											IE2	④
				1LE1002											IE1	⑤
						1LE1043								APAC Line	IE3	⑥
						1LE1041									IE2	⑦
						1LE1023								Eagle Line	NPE (NEMA)	⑧
1LE10 . . - . . . . ■ - ■ . . .			Order code				1LE1021								NEE (NEMA)	⑨
Voltage at 50 Hz or 60 Hz – Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DTC)																
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	**2**	**2**	**–**	□	□	□	□	□	□	□	□	□	□			
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ [1]	**3**	**4**	**–**	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line Eagle Line	⑥, ⑦ ⑧, ⑨
50 Hz 400 VΔ, 60 Hz 460 VΔ [1]				–	–	□	□	□	□	□	□	□	□	Only for:	APAC Line Eagle Line	⑥, ⑦ ⑧, ⑨
50 Hz 400 VY, 60 Hz 460 VY [2] [3]	**0**	**2**	**–**	–	–	□	□	□	□	□	□	□	□	Not for:	IEC IE3	③
50 Hz 400 VΔ, 60 Hz 460 VΔ [4]	**0**	**4**	**–**	–	–	□	□	□	□	□	□	□	□	Not for:	IEC IE3	③
50 Hz 500 VY 60 Hz 575 VY [7]	**2**	**7**	**–**	○	○	○	○	○	○	○	○	○	○	Not for:	IEC IE4	①
50 Hz 500 VΔ 60 Hz 575 VΔ	**4**	**0**	**–**	○	○	–	–	○	○	○	○	○	○	Not for:	IEC IE4	①
50 Hz 690 VY	**0**	**6**	**–**	–	–	–	○	○	○	○	○	○	○	Only for:	IEC IE3	③
50 Hz 690 VΔ	**4**	**7**	**–**	–	–	–	○	○	○	○	○	○	○	Only for:	IEC IE3	③
50 Hz 220 VΔ/380 VY 60 Hz 440 VY	**2**	**1**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
50 Hz 380 VΔ/660 VY [1], 60 Hz 440 VΔ	**3**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
50 Hz 380 VΔ [1]				–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	**2**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
60 Hz 220 VΔ/380 VY	**1**	**7**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 IEC IE3	⑤ ③
60 Hz 230 VΔ/400 VY	**1**	**8**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 IEC IE3	⑤ ③
60 Hz 380 VΔ/660 VY [1]	**3**	**0**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
60 Hz 380 VΔ [1]			**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Eagle Line	⑧, ⑨
60 Hz 400 VΔ/690 VY [1]	**3**	**1**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 Eagle Line IEC IE3	⑤ ⑧, ⑨ ③
60 Hz 400 VΔ [1]			**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Eagle Line	⑧, ⑨
Multi-voltage at 60 Hz and required power at 60 Hz																
60 Hz 230 VYY/460 VY; 50 Hz power, 9 main terminals and electrical version according to NEMA	**6**	**0**	**–**	–	–	–	–	–	–	–	–	✓	✓	Not for:	IEC IE1 APAC Line IE2 IEC IE3	⑤ ⑦ ③
60 Hz 230 VYY/460 VY; 60 Hz power, 9 main terminals and electrical version according to NEMA	**6**	**1**	**–**	–	–	–	–	–	–	–	–	✓	✓	Not for:	IEC IE1 APAC Line IE2 IEC IE3	⑤ ⑦ ③
60 Hz 230 VΔΔ/460 VΔ; 50 Hz power, 12 main terminals and electrical version according to NEMA	**6**	**2**	**–**	–	–	–	–	–	–	–	–	✓	✓	Not for:	IEC IE1 APAC Line IE2 IEC IE3	⑤ ⑦ ③
60 Hz 230 VΔΔ/460 VΔ; 60 Hz power, 12 main terminals and electrical version according to NEMA	**6**	**3**	**–**	–	–	–	–	–	–	–	–	✓	✓	Not for:	IEC/IE1 APAC Line IE2 IEC IE3	⑤ ⑦ ③
Voltage at 60 Hz and required power at 60 Hz																
220 VΔ/380 VY; 50 Hz power	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
220 VΔ/380 VY; 60 Hz power	**9**	**0**	**M1A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
380 VΔ/660 VY; 50 Hz power [1]	**9**	**0**	**M2B**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
380 VΔ; 50 Hz power [1]				–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	APAC Line Eagle Line	⑥, ⑦ ⑧, ⑨

For legends and footnotes, see page 2/94.

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Aluminum series SIMOTICS GP 1LE10

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size: 63	71	80	90	100	112	132	160	180	200	Motor version		
								1LE1004						IEC	IE4	①
						1LE1003									IE3	②
								1LE1083								③
				1LE1001											IE2	④
				1LE1002											IE1	⑤
						1LE1043								APAC Line	IE3	⑥
						1LE1041									IE2	⑦
						1LE1023								Eagle Line	NPE (NEMA)	⑧
1LE10 . . - . . . . ■ - ■ . . .			Order code				1LE1021								NEE (NEMA)	⑨
Voltage at 60 Hz and required power at 60 Hz (continued)																
380 VΔ/660 VY; 60 Hz power [1) 5)]	9	0	**M1B**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
440 VY; 50 Hz power	9	0	**M2C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
440 VY; 60 Hz power	9	0	**M1C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
440 VΔ; 50 Hz power	9	0	**M2D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
440 VΔ; 60 Hz power	9	0	**M1D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
460 VY; 50 Hz power	9	0	**M2E**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
460 VY; 60 Hz power	9	0	**M1E**	○	○	○	○	○	○	○	○	○	○	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
460 VΔ; 50 Hz power	9	0	**M2F**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
460 VΔ; 60 Hz power	9	0	**M1F**	○	○	○	○	○	○	○	○	○	○	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
575 VY; 50 Hz power [7)]	9	0	**M2G**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE4 IEC IE3	① ③
575 VY; 60 Hz power [7)]	9	0	**M1G**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
575 VΔ; 50 Hz power [7)]	9	0	**M2H**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE4 IEC IE3	① ③
575 VΔ; 60 Hz power [7)]	9	0	**M1H**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line Eagle Line IEC IE3	⑥, ⑦ ⑧, ⑨ ③
400 VΔ/690 VY; 50 Hz power [1)]	9	0	**M2J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Eagle Line IEC IE3	⑧, ⑨ ③
400 VΔ; 50 Hz power				–	–	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Eagle Line IEC IE3	⑧, ⑨ ③
400 VΔ/690 VY; 60 Hz power	9	0	**M1J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Eagle Line IEC IE3	⑧, ⑨ ③
480 VY; 50 Hz power	9	0	**M2K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
480 VY; 60 Hz power	9	0	**M1K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Eagle Line IEC IE3	⑧, ⑨ ③
480 VΔ; 50 Hz power	9	0	**M2L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
480 VΔ; 60 Hz power	9	0	**M1L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Eagle Line IEC IE3	⑧, ⑨ ③
230 VΔ/400 VY; 50 Hz power	9	0	**M2M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
230 VΔ/400 VY; 60 Hz power	9	0	**M1M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Eagle Line IEC IE3	⑧, ⑨ ③
Voltage at 87 Hz and 87 Hz power																
400 VΔ [5)]	9	0	**M3A**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	③
Non-standard voltage and/or frequencies																
Non-standard winding [6)]	9	0	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
– Not possible

1) For North America export versions Eagle Line 1LE1021 NEMA Energy Efficient, 1LE1023 NEMA Premium Efficient and 1LE1083, voltages above 600 V will not be stamped.

2) Frame sizes 80 and 90 with voltage code 02 can only be supplied without motor protection (motor protection code letter A).

3) Delta connection is not possible.

4) Star connection is not possible.

5) Only possible for 4-pole, 6-pole and 8-pole motors. The operating data for converter operation is also provided in a table on the rating plate.

6) Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

7) Not possible for 2-pole and 4-pole motors with increased power (11th position of the Article No.: 6) in frame sizes 80 and 90.

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Selection and ordering data

Voltages	Article No. supplement			Frame size						Motor version
	Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	100	112	132	160	180	200	
				1LE1011						Pole-changing
				1LE1012						
1LE10 . . - . . . . ■ - ■ . . .			Order code							
Voltage at 50 Hz and 50 Hz power										
230 V	**2**	**2**	**–**	□	□	□	□	□	□	
400 V	**3**	**4**	**–**	□	□	□	□	□	□	
500 V	**4**	**0**	**–**	○	○	○	○	○	○	
690 V	**4**	**7**	**–**	○	○	○	○	○	○	
Voltage at 60 Hz and required power										
220 V; 50 Hz power	**9**	**0**	**M5K**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
220 V; 60 Hz power	**9**	**0**	**M5C**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
380 V; 50 Hz power	**9**	**0**	**M5L**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
380 V; 60 Hz power	**9**	**0**	**M5D**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
440 V; 50 Hz power	**9**	**0**	**M5M**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
440 V; 60 Hz power	**9**	**0**	**M5E**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
460 V; 50 Hz power	**9**	**0**	**M5N**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
460 V; 60 Hz power	**9**	**0**	**M5F**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
575 V; 50 Hz power	**9**	**0**	**M5P**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
575 V; 60 Hz power	**9**	**0**	**M5G**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
Non-standard voltage and/or frequencies										
Non-standard winding [1]	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O. R. Possible on request

[1] Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
							1LE1504 Basic Line										IEC	IE4	①
							1LE1604 Performance Line												②
				1LE1503 Basic Line														IE3	③
							1LE1603 Performance Line												④
							1LE1583												⑤
				1LE1501 Basic Line														IE2	⑥
							1LE1601 Performance Line												⑦
							1LE1502 Basic Line											IE1	⑧
					1LE1543 Basic Line												APAC Line	IE3	⑨
							1LE1643 Performance Line												⑩
											1LE1541 Basic Line							IE2	⑪
				1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
			Order code				1LE1623 Performance Line												⑬
1LE1 . . . - . . . . ■ - ■ . . .							1LE1521 Basic Line											NEE (NEMA)	⑭
Voltage at 50 Hz or 60 Hz																			
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	**2**	**2**	–	□	□	□	□	□	□	□	□	□	□	□	□	□			
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ [1]	**3**	**4**	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭	
50 Hz 400 VΔ, 60 Hz 460 VΔ [1]				□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭	
50 Hz 400 VY, 60 Hz 460 VY [2] [3]	**0**	**2**	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	IEC IE3	⑤
50 Hz 400 VΔ, 60 Hz 460 VΔ [4]	**0**	**4**	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	IEC IE3	⑤
50 Hz 500 VY/575 VY	**2**	**7**	–	○	○	○	○	○	○	○	○	○	○	○	○	○	Not for:	IEC IE4 ①, ② frame sizes 100 … 160	
50 Hz 500 VΔ, 60 Hz 575 VΔ	**4**	**0**	–	–	–	–	○	○	○	○	○	○	○	○	○	○	Not for:	IEC IE4 ①, ② frame sizes 100 … 160	
50 Hz 690 VY	**0**	**6**	–	–	–	–	○	○	○	○	○	○	○	○	○	○	Only for:	IEC IE3	⑤
50 Hz 690 VΔ	**4**	**7**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	IEC IE3	⑤
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	**2**	**1**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ [1]	**3**	**3**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
50 Hz 380 VΔ [1]				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭	
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	**2**	**3**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
60 Hz 220 VΔ/380 VY	**1**	**7**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
60 Hz 230 VΔ/400 VY	**1**	**8**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
60 Hz 380 VΔ/660 VY [1]	**3**	**0**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3 ⑤ IEC IE1 ⑧ Eagle Line ⑫, ⑬	
60 Hz 380 VΔ [1]				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
60 Hz 400 VΔ/690 VY [1]	**3**	**1**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3 ⑤ IEC IE1 ⑧ Eagle Line ⑫, ⑬	
60 Hz 400 VΔ [1]				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
Voltage at 60 Hz and required power																			
220 VΔ/380 VY; 50 Hz power	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
220 VΔ/380 VY; 60 Hz power [2]	**9**	**0**	**M1A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
380 VΔ/660 VY; 50 Hz power [1]	**9**	**0**	**M2B**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
380 VΔ; 50 Hz power [1]				–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭	
380 VΔ/660 VY; 60 Hz power [1] [2]	**9**	**0**	**M1B**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
440 VY; 50 Hz power	**9**	**0**	**M2C**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
440 VY; 60 Hz power [2]	**9**	**0**	**M1C**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line ⑧, ⑨, ⑩ Eagle Line ⑪, ⑫, ⑬	

For legends and footnotes, see page 2/97.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size												Motor version		
				71	80	90	100	112	132	160	180	200	225	250	280	315			
							1LE1504 Basic Line										IEC	IE4	①
							1LE1604 Performance Line												②
				1LE1503 Basic Line														IE3	③
							1LE1603 Performance Line												④
							1LE1583												⑤
				1LE1501 Basic Line														IE2	⑥
							1LE1601 Performance Line												⑦
							1LE1502 Basic Line											IE1	⑧
					1LE1543 Basic Line												APAC Line	IE3	⑨
							1LE1643 Performance Line												⑩
											1LE1541 Basic Line							IE2	⑪
				1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
							1LE1623 Performance Line												⑬
1LE1 . . . -. . . . ■ - ■ . . .			Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Voltage at 60 Hz and required power (continued)																			
440 VΔ; 50 Hz power	**9**	**0**	**M2D**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
440 VΔ; 60 Hz power [2]	**9**	**0**	**M1D**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
460 VY; 50 Hz power	**9**	**0**	**M2E**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
460 VY; 60 Hz power [2]	**9**	**0**	**M1E**	–	–	–	○	○	○	○	○	○	○	○	○	○	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
460 VΔ; 50 Hz power	**9**	**0**	**M2F**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
460 VΔ; 60 Hz power [2]	**9**	**0**	**M1F**	–	–	–	○	○	○	○	○	○	○	○	○	○	Not for:	APAC Line ⑨, ⑩, ⑪ Eagle Line ⑫, ⑬, ⑭ IEC IE3 ⑤	
575 VY; 50 Hz power	**9**	**0**	**M2G**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE4 ①, ② frame sizes 100 … 160 IEC IE3 ⑤	
575 VY; 60 Hz power [2]	**9**	**0**	**M1G**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑪, ⑫, ⑬, ⑭ and ①, ② frame sizes 100 … 160	
575 VΔ; 50 Hz power	**9**	**0**	**M2H**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE4 ①, ② frame sizes 100 … 160 IEC IE3 ⑤	
575 VΔ; 60 Hz power [2]	**9**	**0**	**M1H**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑪, ⑫, ⑬, ⑭ and ①, ② frame sizes 100 … 160	
400 VΔ/690 VY; 50 Hz power [1]	**9**	**0**	**M2J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
400 VΔ; 50 Hz power [1]				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
400 VΔ/690 VY; 60 Hz power	**9**	**0**	**M1J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
480 VY; 50 Hz power	**9**	**0**	**M2K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
480 VY; 60 Hz power	**9**	**0**	**M1K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
480 VΔ; 50 Hz power	**9**	**0**	**M2L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
480 VΔ; 60 Hz power	**9**	**0**	**M1L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
230 VΔ/400 VY; 50 Hz power	**9**	**0**	**M2M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
230 VΔ/400 VY; 60 Hz power	**9**	**0**	**M1M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE1 ⑧ Eagle Line ⑫, ⑬	
Voltage at 87 Hz and 87 Hz power																			
400 VΔ [5]	**9**	**0**	**M3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	IEC IE3	⑤
Non-standard voltage and/or frequencies																			
Non-standard winding [6]	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge
O. R. Possible on request
– Not possible
• This order code only determines the price of the version – Additional plain text is required.

1) For North America export versions Eagle Line 1LE1521 NEMA Energy Efficient, 1LE1523/1LE1623 NEMA Premium Efficient and 1LE583, voltages above 600 V will not be stamped.

2) Not admissible for North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient.

3) Delta connection is not possible.

4) Star connection is not possible.

5) Only possible for 4-pole, 6-pole and 8-pole motors. The operating data for converter operation is also provided in a table on the rating plate.

6) Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

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Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size: 80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	IE3
				1LE1073													
										1LE1573							
													1LE5773				
1LE . . . . - . . . . ■ - ■ . . .			Order code														
Voltage at 60 Hz and 50 Hz power																	
220 VΔΔ/380 VYY, 440 VΔ 50 Hz power	**6**	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□		
220 VΔ/380 VY; 50 Hz power	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
380 VΔ/660 VY; 50 Hz power	**9**	**0**	**M2B**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
440 VY; 50 Hz power	**9**	**0**	**M2C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
440 VΔ; 50 Hz power	**9**	**0**	**M2D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
460 VY; 50 Hz power	**9**	**0**	**M2E**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
460 VΔ; 50 Hz power	**9**	**0**	**M2F**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
575 VY; 50 Hz power	**9**	**0**	**M2G**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
575 VΔ; 50 Hz power	**9**	**0**	**M2H**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
400 VΔ/690 VY; 50 Hz power	**9**	**0**	**M2J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
480 VY; 50 Hz power	**9**	**0**	**M2K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
480 VΔ; 50 Hz power	**9**	**0**	**M2L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
230 VΔ/400 VY; 50 Hz power	**9**	**0**	**M2M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
Non-standard voltage and/or frequencies																	
Non-standard winding [1]	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

□ Standard version
✓ With additional charge
• This order code only determines the price of the version – Additional plain text is required.
– Not possible

[1] Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

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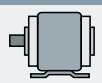
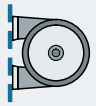
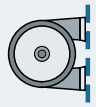
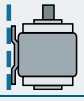
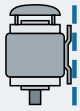
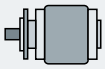
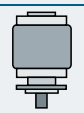
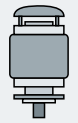
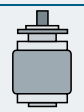
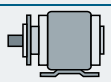
Selection and ordering data

Types of construction		Article No. supplement		Frame size										Motor version		
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**63**	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**			
								1LE1004						IEC	IE4	①
						1LE1003									IE3	②
								1LE1083								③
				1LE1001											IE2	④
				1LE1002											IE1	⑤
						1LE1043								APAC Line	IE3	⑥
						1LE1041									IE2	⑦
						1LE1023								Eagle Line	NPE (NEMA)	⑧
							1LE1021								NEE (NEMA)	⑨
								1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - .	■ **. . (-Z)**		Order code					**1LE1012**								⑪
Without flange																
IM B3 [1) 2) 3)]		**A**	–	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
IM B6 [2) 3)]		**T**	–	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
IM B7 [2) 3) 9)]		**U**	–	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
IM B8 [2) 3)]		**V**	–	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
IM V6 [2) 3)]		**D**	–	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
IM V5 without protective cover [2) 3)]		**C**	–	□	□	□	□	□	□	□	□	□	□	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
IM V5 with protective cover [2) 3) 4) 5) 6)]		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨ Combination with order code F90	
With flange		**EN 50347 DIN 42948**		**FF115 A 140**	**FF130 A 160**	**FF165 A 200**	**FF165 A 200**	**FF215 A 250**	**FF215 A 250**	**FF265 A 300**	**FF300 A 350**	**FF300 A 350**	**FF350 A 400**			
IM B5 [2) 7)]		**F**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V1 without protective cover [2)]		**G**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V1 with protective cover [2) 4) 5) 6)]		**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Combination with order code F90	
IM V3 [4)]		**H**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM B35 [3)]		**J**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	

For legends and footnotes, see page 2/102.

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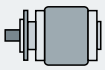
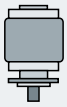
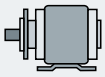
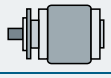
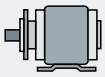
Aluminum series SIMOTICS GP 1LE10

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code -Z	Frame size: 63	71	80	90	100	112	132	160	180	200	Motor version		
							1LE1004						IEC	IE4	①
					1LE1003									IE3	②
							1LE1083								③
			1LE1001											IE2	④
			1LE1002											IE1	⑤
					1LE1043								APAC Line	IE3	⑥
					1LE1041									IE2	⑦
					1LE1023								Eagle Line	NPE (NEMA)	⑧
						1LE1021								NEE (NEMA)	⑨
							1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . ■ . . (-Z)		Order code					1LE1012								⑪
With flange next largest	**EN 50347 DIN 42948**		– –	– –	– –	FF215 A 250	FF265 A 300	FF265 A 300	FF300 A 350	– –	– –	– –			
IM B5 [2) 7)] 	F	P01	–	–	–	✓	✓	✓	✓	–	–	–			
IM V1 without protective cover [2)] 	G	P01	–	–	–	✓	✓	✓	✓	–	–	–			
IM V1 with protective cover [2) 4) 5) 6)]	G	P01+H00	–	–	–	✓	✓	✓	✓	–	–	–	Not for:	Combination with order code F90	
IM V3 [4)]	H	P01	–	–	–	✓	✓	✓	✓	–	–	–			
IM B35 [3)] 	J	P01	–	–	–	✓	✓	✓	✓	–	–	–	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	
With flange next smallest	**EN 50347 DIN 42948**		FF100 A 120	FF115 A 140	FF130 A 160	FF165 A 200	FF165 A 200	FF165 A 200	FF215 A 250	FF265 A 300	FF265 A 300	FF300 A 350			
IM B5 [2) 7)] 	F	P02	✓	✓	✓	–	✓	✓	✓	✓	✓	✓			
IM V1 without protective cover [2)]	G	P02	✓	✓	✓	–	✓	✓	✓	✓	✓	✓			
IM V1 with protective cover [2) 4) 5) 6)]	G	P02+H00	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	Not for:	Combination with order code F90	
IM V3 [4)]	H	P02	✓	✓	✓	–	✓	✓	✓	✓	✓	✓			
IM B35 [3)] 	J	P02	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	Not for:	APAC Line IE2 ⑦ Eagle Line NEE ⑨	

For legends and footnotes, see page 2/102.

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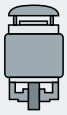
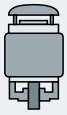
Types of construction	Article No. supplement		Frame size										Motor version		
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**63**	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**			
							1LE1004						IEC	IE4	①
					1LE1003									IE3	②
							1LE1083								③
			1LE1001											IE2	④
			1LE1002											IE1	⑤
					1LE1043								APAC Line	IE3	⑥
					1LE1041									IE2	⑦
					1LE1023								Eagle Line	NPE (NEMA)	⑧
						1LE1021								NEE (NEMA)	⑨
							1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . ■ **. . (-Z)**		Order code					**1LE1012**								⑪

With flange		**EN 50347** / **DIN 42948**		**FT75** / **C 90**	**FT85** / **C 105**	**FT100** / **C 120**	**FT115** / **C 140**	**FT130** / **C 160**	**FT130** / **C 160**	**FT165** / **C 200**	**FT215** / **C 250**	**–** / **–**	**–** / **–**	
IM B14 [2) 8)]		**K**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	
IM V19 [2)]		**L**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	
IM V18 without protective cover [2)]		**M**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	
IM V18 with protective cover [2) 4) 5) 6)]		**M**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	Not for: Combination with order code F90
IM B34 [3)]		**N**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	Not for: Eagle Line NEE ⑨
With flange next largest [10)]		**EN 50347** / **DIN 42948**		**FT100** / **C 120**	**FT115** / **C 140**	**FT130** / **C 160**	**FT130** / **C 160**	**FT165** / **C 200**	**FT165** / **C 200**	**FT215** / **C 250**	**–** / **–**	**–** / **–**	**–** / **–**	
IM B14 [2) 8)]		**K**	**P01**	✓	✓	✓	✓	✓	✓	✓	–	–	–	
IM V19 [2)]		**L**	**P01**	✓	✓	✓	✓	✓	✓	✓	–	–	–	
IM V18 without protective cover [2)]		**M**	**P01**	✓	✓	✓	✓	✓	✓	✓	–	–	–	
IM V18 with protective cover [2) 4) 5) 6)]		**M**	**P01+H00**	✓	✓	✓	✓	✓	✓	✓	–	–	–	Not for: Combination with order code F90
IM B34 [3)]		**N**	**P01**	✓	✓	✓	✓	✓	✓	✓	–	–	–	Not for: APAC Line IE2 ⑦ Eagle Line NEE ⑨

For legends and footnotes, see page 2/102.

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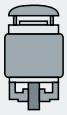
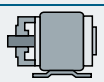
Aluminum series SIMOTICS GP 1LE10

Types of construction	Article No. supplement		Frame size										Motor version		
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**63**	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**			
							1LE1004						IEC	IE4	①
					1LE1003									IE3	②
							1LE1083								③
			1LE1001											IE2	④
			1LE1002											IE1	⑤
					1LE1043								APAC Line	IE3	⑥
					1LE1041									IE2	⑦
					1LE1023								Eagle Line	NPE (NEMA)	⑧
						1LE1021								NEE (NEMA)	⑨
							1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . ■ **. . (-Z)**		Order code					**1LE1012**								⑪
With flange next smallest	**EN 50347 DIN 42948**		**FT65 C 80**	**FT75 C 90**	– –	– –	**FT115 C 140**	– –	– –	– –	– –	– –			
IM B14 [2) 8)]	**K**	**P02**	✓	✓	–	–	✓	–	–	–	–	–	Not for:	EC IE4 ① IEC IE3 ③	
IM V19 [2)]	**L**	**P02**	✓	✓	–	–	✓	–	–	–	–	–	Not for:	IEC IE4 ① IEC IE3 ③	
IM V18 without protective cover [2)]	**M**	**P02**	✓	✓	–	–	✓	–	–	–	–	–	Not for:	IEC IE4 ① IEC IE3 ③	
IM V18 with protective cover [2) 4) 5) 6)] 	**M**	**P02+H00**	✓	✓	–	–	✓	–	–	–	–	–	Not for:	IEC IE4 ① Combination with order code F90 IEC IE3 ③	
IM B34 [3)] 	**N**	**P02**	✓	✓	–	–	✓	–	–	–	–	–	Not for:	IEC IE4 ① IEC IE3 ③ APAC Line IE2 ⑦ Eagle Line NEE ⑨	

□ Standard version
✓ With additional charge
– Not possible

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code **H03**), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) For North America export version Eagle Line 1LE1021 NEMA Energy Efficient, types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with NEMA MG1 Table 12-11.

4) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

5) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

6) Not possible for forced-air cooled 1LE1 motors with order code **F90** without external fan and fan cover.

7) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

8) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

9) When ordering frame size B7 and the required cable outlet below, option **R12** must also be ordered.

10) For the standard EN 50347, flanges which are 2 levels larger are used in frame size 80 with option **P01**.

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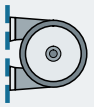
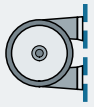
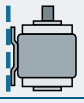
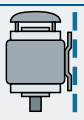
Selection and ordering data

Types of construction		Article No. supplement		Frame size														Motor version		
				71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L 2-pole	315 L 4- to 8-pole		
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s)				1LE1504 Basic Line												IEC	IE4 ①
							1LE1604 Performance Line													②
				1LE1503 Basic Line																IE3 ③
							1LE1603 Performance Line													④
							1LE1583													⑤
				1LE1501 Basic Line																IE2 ⑥
							1LE1601 Performance Line													⑦
							1LE1502 Basic Line													IE1 ⑧
					1LE1543 Basic Line														APAC Line	IE3 ⑨
							1LE1643 Performance Line													⑩
			Article No. with additional identification code **-Z**								1LE1541 Basic Line									IE2 ⑪
				1LE1523 Basic Line															Eagle Line	NPE (NEMA) ⑫
							1LE1623 Performance Line													⑬
1LE1 . . . - . . . . . - . ■ . . (-Z)			Order code				1LE1521 Basic Line													NEE (NEMA) ⑭
Without flange																				
IM B3 1) 2) 3)		**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp
IM B6 2) 3)		**T**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp
IM B7 2) 3) 9)		**U**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp
IM B8 2) 3)		**V**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp
IM V6 2) 3)		**D**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	✓	□	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp
IM V5 without protective cover 2) 3)		**C**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	✓	□	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp
IM V5 with protective cover 2) 3) 4) 5)		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp

For legends and footnotes, see page 2/107.

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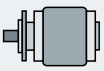
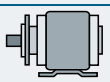
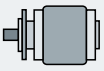
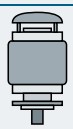
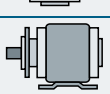
Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

2

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code -Z	Frame size															Motor version		
			71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L 2-pole	315 L 4- to 8-pole			
						1LE1504 Basic Line												IEC	IE4	①
						1LE1604 Performance Line														②
			1LE1503 Basic Line																IE3	③
						1LE1603 Performance Line														④
						1LE1583														⑤
			1LE1501 Basic Line																IE2	⑥
						1LE1601 Performance Line														⑦
						1LE1502 Basic Line													IE1	⑧
				1LE1543 Basic Line														APAC Line	IE3	⑨
						1LE1643 Performance Line														⑩
										1LE1541 Basic Line									IE2	⑪
			1LE1523 Basic Line															Eagle Line	NPE (NEMA)	⑫
						1LE1623 Performance Line														⑬
1LE1 . . . - . . . . . - . ■ . . (-Z)		Order code				1LE1521 Basic Line													NEE (NEMA)	⑭
With flange	**EN 50347**		FF130	FF165	FF165	FF215	FF215	FF265	FF300	FF300	FF350	FF400	FF500	FF500	FF600	FF600	FF600			
	DIN 42948		A 160	A 200	A 200	A 250	A 250	A 300	A 350	A 350	A 400	A 450	A 550	A 550	A 660	A 660	A 660			
IM B5 2) 6) 	F	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
IM V1 without protective cover 2)	G	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V1 with protective cover 2) 4) 5)	G	H00	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V3 5)	H	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
IM B35 3) 	J	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp	
With flange next largest	**EN 50347**		–	–	FF215	FF265	FF265	FF300	–	–	–	–	–	–	–	–	–			
	DIN 42948		–	–	A 250	A 300	A 300	A 350	–	–	–	–	–	–	–	–	–			
IM B5 2) 6) 	F	P01	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM V1 without protective cover 2)	G	P01	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM V1 with protective cover 2) 4) 5) 	G	P01+ H00	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM V3 5)	H	P01	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM B35 3) 	J	P01	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp	

For legends and footnotes, see page 2/107.

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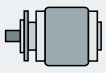
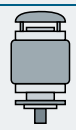
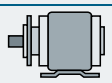
Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Types of construction	Article No. supplement		Frame size														Motor version	
			71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L 2-pole	315 L 4- to 8-pole	
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s)				1LE1504 Basic Line												IEC IE4 ①
						1LE1604 Performance Line												②
			1LE1503 Basic Line															IE3 ③
						1LE1603 Performance Line												④
						1LE1583												⑤
			1LE1501 Basic Line															IE2 ⑥
						1LE1601 Performance Line												⑦
						1LE1502 Basic Line												IE1 ⑧
				1LE1543 Basic Line														APAC Line IE3 ⑨
						1LE1643 Performance Line												⑩
										1LE1541 Basic Line								IE2 ⑪
			1LE1523 Basic Line															Eagle Line NPE (NEMA) ⑫
						1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . ■ . . (-Z)		Order code				1LE1521 Basic Line												NEE (NEMA) ⑭
With flange next smallest	**EN 50347 DIN 42948**		– –	FF130 A 160	– –	FF165 A 200	FF165 A 200	FF215 A 250	FF265 A 300	FF265 A 300	FF300 A 350	– –	– –	– –	– –	– –	– –	
IM B5 [2) 6)] 	**F**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM V1 without protective cover [2)]	**G**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM V1 with protective cover [2) 4) 5)] 	**G**	**P02+ H00**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM V3 [5)]	**H**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM B35 [3)] 	**J**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	Not for: ⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp

For legends and footnotes, see page 2/107.

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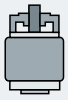
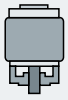
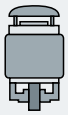
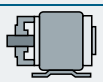
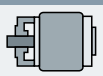
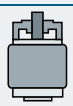
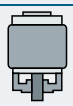
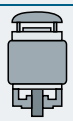
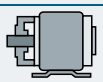
Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

2

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code -Z	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L 2-pole	315 L 4- to 8-pole	Motor version		
							1LE1504 Basic Line												IEC	IE4	①
							1LE1604 Performance Line														②
				1LE1503 Basic Line																IE3	③
							1LE1603 Performance Line														④
							1LE1583														⑤
				1LE1501 Basic Line																IE2	⑥
							1LE1601 Performance Line														⑦
							1LE1502 Basic Line													IE1	⑧
					1LE1543 Basic Line														APAC Line	IE3	⑨
							1LE1643 Performance Line														⑩
											1LE1541 Basic Line									IE2	⑪
				1LE1523 Basic Line															Eagle Line	NPE (NEMA)	⑫
							1LE1623 Performance Line														⑬
1LE1 . . . - . . . . . - .	■ . . (-Z)		Order code				1LE1521 Basic Line													NEE (NEMA)	⑭
With flange		EN 50347		FT85	FT100	FT115	FT130	FT130	FT165	FT215	–	–	–	–	–	–	–	–			
		DIN 42948		C 105	C 120	C 140	C 160	C 160	C 200	C 250	–	–	–	–	–	–	–	–			
IM B14 2) 7)		K	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–			
IM V19 2)		L	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–			
IM V18 without protective cover 2)		M	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–			
IM V18 with protective cover 2) 4) 5)		M	H00	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–			
IM B34 3)		N	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp	
With flange next largest		EN 50347		FT115	FT130	FT130	FT165	FT165	FT215	–	–	–	–	–	–	–	–	–			
		DIN 42948		C 140	C 160	C 160	C 200	C 200	C 250	–	–	–	–	–	–	–	–	–			
IM B14 2) 7) 8)		K	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM V19 2) 8)		L	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM V18 without protective cover 2) 8)		M	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM V18 with protective cover 2) 4) 5) 8)		M	P01+ H00	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–			
IM B34 3) 8)		N	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	–	Not for:	⑪, ⑭ 2, 4, 6-pole ≤ 200 hp; ⑫, ⑬ 8-pole ≤ 200 hp	

For legends and footnotes, see page 2/107.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Types of construction	Article No. supplement		Frame size														Motor version		
			71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L 2-pole	315 L 4- to 8-pole			
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s)				1LE1504 Basic Line												IEC	IE4	①
						1LE1604 Performance Line														②
			1LE1503 Basic Line																IE3	③
						1LE1603 Performance Line														④
						1LE1583														⑤
			1LE1501 Basic Line																IE2	⑥
						1LE1601 Performance Line														⑦
						1LE1502 Basic Line													IE1	⑧
				1LE1543 Basic Line														APAC Line	IE3	⑨
						1LE1643 Performance Line														⑩
										1LE1541 Basic Line									IE2	⑪
			1LE1523 Basic Line															Eagle Line	NPE (NEMA)	⑫
						1LE1623 Performance Line														⑬
1LE1 . . . -. . . . . -. . ■ . . (-Z)		Order code				1LE1521 Basic Line													NEE (NEMA)	⑭
With flange next smallest	**EN 50347**		–	–	–	FT115	–	–	–	–	–	–	–	–	–	–	–			
	DIN 42948		–	–	–	C 140	–	–	–	–	–	–	–	–	–	–	–			
IM B14 2) 7)	**K**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	–	Not for:	IEC IE3	⑤
IM V19 2)	**L**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	–	Not for:	IEC IE3	⑤
IM V18 without protective cover 2)	**M**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	–	Not for:	IEC IE3	⑤
IM V18 with protective cover 2) 4) 5)	**M**	**P02+ H00**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	–	Not for:	IEC IE3	⑤
IM B34 3)	**N**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	–	Not for:	IEC IE3	⑤

■ Standard version
✓ With additional charge
O. R. Possible on request
– Not possible

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) For North America export version Eagle Line 1LE1521
NEMA Energy Efficient, types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with NEMA MG1 Table 12-11.

4) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

5) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

6) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

7) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

8) With reference to standard EN 50347, flanges that are 2 levels larger are used with option **P01** in the frame sizes 71 and 80.

9) When ordering frame size B7 and the required cable outlet below, option **R12** must also be ordered.

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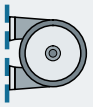
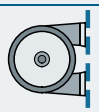
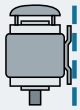
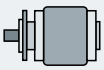
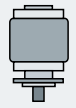
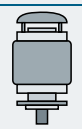
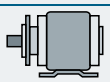
Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

2

Selection and ordering data

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code -Z	Frame size: 80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	IE3
				1LE1073													
										1LE1573							
													1LE5773				
1LE . . . . - . . . . . - . ■ . . (-Z)			Order code														
Without flange																	
IM B3 [1] [2]		**A**	–	□	□	□	□	□	□	□	□	□	□	□	□		
IM B6 [2]		**T**	–	□	□	□	□	□	□	□	□	□	□	□	□		
IM B7 [2] [8]		**U**	–	□	□	□	□	□	□	□	□	□	□	□	□		
IM B8 [2]		**V**	–	□	□	□	□	□	□	□	□	□	□	□	□		
IM V6 [2]		**D**	–	□	□	□	□	□	□	□	□	□	□	□	□		
IM V5 without protective cover [2]		**C**	–	□	□	□	□	□	□	□	□	□	□	□	□		
IM V5 with protective cover [2] [3] [4] [5]		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With flange		**EN 50347 DIN 42948**		**FF165 A 200**	**FF165 A 200**	**FF215 A 250**	**FF215 A 250**	**FF265 A 300**	**FF300 A 350**	**FF300 A 350**	**FF350 A 400**	**FF400 A 450**	**FF500 A 550**	**FF500 A 550**	**FF600 A 660**		
IM B5 [2] [6]		**F**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IM V1 without protective cover [2]		**G**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IM V1 with protective cover [2] [3] [4] [5]		**G**	**H00**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IM V3 [3]		**H**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IM B35		**J**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

For legends and footnotes, see page 2/111.

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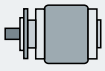
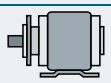
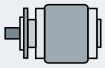
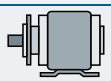
Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	IE3
				1LE1073													
										1LE1573							
													1LE5773				
1LE . . . . - . . . . . - . ■ **. . (-Z)**			Order code														
With flange next largest		**EN 50347**		–	FF215	FF265	FF265	FF300	–	–	–	–	–	–	–		
		DIN 42948		–	A 250	A 300	A 300	A 350	–	–	–	–	–	–	–		
IM B5 [2) 6)]		**F**	**P01**	–	✓	✓	✓	✓	–	–	–	–	–	–	–		
IM V1 without protective cover [2)]		**G**	**P01**	–	✓	✓	✓	✓	–	–	–	–	–	–	–		
IM V1 with protective cover [2) 3) 4) 5)]		**G**	**P01+H00**	–	✓	✓	✓	✓	–	–	–	–	–	–	–		
IM V3 [3)]		**H**	**P01**	–	✓	✓	✓	✓	–	–	–	–	–	–	–		
IM B35		**J**	**P01**	–	✓	✓	✓	✓	–	–	–	–	–	–	–		
With flange next smallest		**EN 50347**		FF130	–	FF165	FF165	FF215	FF265	FF265	FF300	–	–	–	–		
		DIN 42948		A 160	–	A 200	A 200	A 250	A 300	A 300	A 350	–	–	–	–		
IM B5 [2) 6)]		**F**	**P02**	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–		
IM V1 without protective cover [2)]		**G**	**P02**	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–		
IM V1 with protective cover [2) 3) 4) 5)]		**G**	**P02+H00**	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–		
IM V3 [3)]		**H**	**P02**	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–		
IM B35		**J**	**P02**	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–		

For legends and footnotes, see page 2/111.

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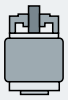
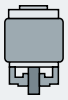
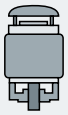
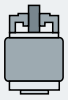
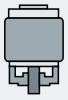
Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code -Z	Frame size: 80	90	100	112	132	160	180	200	225	250	280	315	Motor version
			1LE1073												IEC IE3
									1LE1573						
													1LE5773		
1LE . . . . - . . . . . - .	■ . . (-Z)	Order code													
With flange	**EN 50347**		FT100	FT115	FT130	FT130	FT165	FT215	–	–	–	–	–	–	
	DIN 42948		C 120	C 140	C 160	C 160	C 200	C 250	–	–	–	–	–	–	
IM B14 [2) 7)]	**K**	**–**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM V19 [2)] 	**L**	**–**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM V18 without protective cover [2)] 	**M**	**–**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM V18 with protective cover [2) 3) 4) 5)] 	**M**	**H00**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
IM B34	**N**	**–**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	
With flange next largest [9)]	**EN 50347**		FT130	FT130	FT165	FT165	FT215	–	–	–	–	–	–	–	
	DIN 42948		C 160	C 160	C 200	C 200	C 250	–	–	–	–	–	–	–	
IM B14 [2) 7)]	**K**	**P01**	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V19 [2)] 	**L**	**P01**	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 without protective cover [2)] 	**M**	**P01**	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 with protective cover [2) 3) 4) 5)]	**M**	**P01+H00**	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM B34	**N**	**P01**	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	

For legends and footnotes, see page 2/111.

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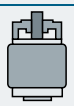
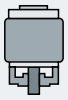
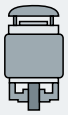
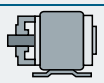
Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	IE3
			1LE1073													
									1LE1573							
													1LE5773			
1LE . . . . - . . . . . - . ■ . . (-Z)	■ . . (-Z)	Order code														
With flange next smallest	**EN 50347 DIN 42948**		– –	– –	FT115 C 140	FT115 C 140	FT130 C 160	FT165 C 200	– –	– –	– –	– –				
IM B14 [2) 7)]	**K**	**P02**	–	–	✓	O. R.	O. R.	O. R.	–	–	–	–	–	–		
IM V19 [2)] 	**L**	**P02**	–	–	✓	O. R.	O. R.	O. R.	–	–	–	–	–	–		
IM V18 without protective cover [2)] 	**M**	**P02**	–	–	✓	O. R.	O. R.	O. R.	–	–	–	–	–	–		
IM V18 with protective cover [2) 3) 4) 5)] 	**M**	**P02+H00**	–	–	✓	O. R.	O. R.	O. R.	–	–	–	–	–	–		
IM B34 	**N**	**P02**	–	–	✓	O. R.	O. R.	O. R.	–	–	–	–	–	–		

■ Standard version
✓ With additional charge
– Not possible
O. R. Possible on request

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code **H03**), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

4) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

5) Not possible for forced-air cooled 1LE1 motors with order code **F90** without external fan and fan cover.

6) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

7) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

8) When ordering frame size B7 and the required cable outlet below, option **R12** must also be ordered.

9) For the standard EN 50347, flanges which are 2 levels larger are used in frame size 80 with option **P01**.

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Selection and ordering data

Motor protection	Article No. supplement		Frame size										Motor version		
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text if required	63	71	80	90	100	112	132	160	180	200			
							1LE1004						IEC	IE4	①
					1LE1003									IE3	②
							1LE1083								③
			1LE1001											IE2	④
			1LE1002											IE1	⑤
					1LE1043								APAC Line	IE3	⑥
					1LE1041									IE2	⑦
					1LE1023								Eagle Line	NPE (NEMA)	⑧
						1LE1021								NEE (NEMA)	⑨
							1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . ■ .		Order code					1LE1012								⑪
Motor protection															
None (standard)	**A**	**–**	□	□	□	□	□	□	□	□	□	□			
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [1]	**H**	**–**	–	–	–	–	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**J**		–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	IEC IE3	③
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**P**	**–**	–	–	–	–	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q**	**–**	–	–	–	–	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**R**	**–**	–	–	–	–	✓	✓	✓	✓	✓	✓			
3 NTC thermistors – for tripping (6 terminals) [1]	**Z**	**Q2A**	–	–	–	–	✓	✓	✓	✓	–	–			
3 bimetal sensors (NC contacts) – for tripping (2 terminals) [1]	**Z**	**Q3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
✓ With additional charge
– Not possible

[1] Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended. For pole-changing motors with two separate windings, double the number of temperature sensors or temperature detectors is required. This also results in a double additional charge.

[2] Not UL-certified. Not in combination with option **D31**.

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Selection and ordering data

Motor protection	Article No. supplement: Motor protection code letter 15th position of the Article No.	Article No. supplement: Additional identification code with order code and plain text if required	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version	
						1LE1504 Basic Line										IEC	IE4 ①
						1LE1604 Performance Line											②
			1LE1503 Basic Line														IE3 ③
						1LE1603 Performance Line											④
						1LE1583											⑤
			1LE1501 Basic Line														IE2 ⑥
						1LE1601 Performance Line											⑦
						1LE1502 Basic Line											IE1 ⑧
				1LE1543 Basic Line												APAC Line	IE3 ⑨
						1LE1643 Performance Line											⑩
										1LE1541 Basic Line							IE2 ⑪
			1LE1523 Basic Line													Eagle Line	NPE (NEMA) ⑫
						1LE1623 Performance Line											⑬
1LE1 . . . - . . . . . - . .	■ .	Order code				1LE1521 Basic Line											NEE (NEMA) ⑭
Motor protection																	
Without (standard) [1]	**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	Basic Line ①, ③, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭
1 or 3 PTC thermistors – for tripping (2 terminals) [1] [2]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Basic Line ①, ③, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭
			□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	Performance Line ②, ④, ⑦, ⑩, ⑬
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [2]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 KTY84-130 temperature sensor (2 terminals) [2]	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 KTY84-130 temperature sensors (4 terminals) [2]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**J**	**–**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
1 Pt1000 resistance thermometers (2 terminals) [3]	**K**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 Pt1000 resistance thermometers (4 terminals) [3]	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**P**	**–**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q**	**–**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**R**	**–**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 NTC thermistors – for tripping (6 terminals)	**Z**	**Q2A**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–		
3 bimetal sensors (NC contacts) – for tripping (2 terminals) [2]	**Z**	**Q3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals) [2]	**Z**	**Q9A**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

□ Standard version
✓ With additional charge
– Not possible

Note:

Options are available specifically for bearing protection – for order codes and descriptions, see from page 2/125.

1) For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code letter B) is already included in the basic price. For the Performance Line, the option "Without motor protection" (motor protection code letter A) is not possible.

2) Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended.

3) Not UL-certified. Not in combination with option **D31**.

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Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Selection and ordering data

Motor protection	Article No. supplement: Motor protection code letter 15th position of the Article No.	Article No. supplement: Additional identification code with order code and plain text if required	Frame size: 80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	IE3
			1LE1073													
									1LE1573							
												1LE5773				
1LE . . . . - . . . . . - . . ■ .		Order code														
Motor protection																
None (standard)	**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□		
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**H**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**J**	**–**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**P**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**R**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 NTC thermistors – for tripping (6 terminals)	**Z**	**Q2A**	–	–	✓	✓	✓	✓	–	–	–	–	–	–		
3 bimetal sensors (NC contacts) – for tripping (2 terminals) [1]	**Z**	**Q3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals) [1]	**Z**	**Q9A**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

□ Standard version
✓ With additional charge
– Not possible

Note:

Options are available specifically for bearing protection – for order codes and descriptions, see from page 2/125.

[1] Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended.

[2] Not UL-certified. Not in combination with option **D31**.

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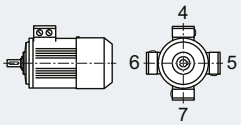
Selection and ordering data

Terminal box position	Article No. supplement		Frame size										Motor version		
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	63	71	80	90	100	112	132	160	180	200			
							1LE1004						IEC	IE4	①
					1LE1003									IE3	②
							1LE1083								③
			1LE1001											IE2	④
			1LE1002											IE1	⑤
					1LE1043								APAC Line	IE3	⑥
					1LE1041									IE2	⑦
					1LE1023								Eagle Line	NPE (NEMA)	⑧
						1LE1021								NEE (NEMA)	⑨
							1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . ■		Order code					1LE1012								⑪
Terminal box position															
Terminal box top [1]	**4**	–	□	□	□	□	□	□	□	□	□	□			
Terminal box right-hand side [2]	**5**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box left-hand side [2]	**6**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box at bottom [2] [3]	**7**	–	–	–	–	–	✓	✓	✓	✓	–	–			

□ Standard version
✓ With additional charge
– Not possible

[1] For types of construction with feet up to and including frame size 160, cast feet are standard. Screwed-on feet are available with order code **H01**. Frame sizes 180 and 200 are fitted as standard with screwed-on feet.

[2] For types of construction with feet, screwed-on feet are standard.

[3] Not generally possible for motors with feet.

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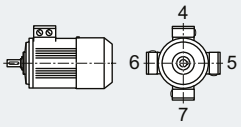
Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Selection and ordering data

Terminal box position	Article No. supplement		Frame size													Motor version		
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	71	80	90	100	112	132	160	180	200	225	250	280	315			
						1LE1504 Basic Line										IEC	IE4	①
						1LE1604 Performance Line												②
			1LE1503 Basic Line														IE3	③
						1LE1603 Performance Line												④
						1LE1583												⑤
			1LE1501 Basic Line														IE2	⑥
						1LE1601 Performance Line												⑦
						1LE1502 Basic Line											IE1	⑧
				1LE1543 Basic Line												APAC Line	IE3	⑨
						1LE1643 Performance Line												⑩
										1LE1541 Basic Line							IE2	⑪
			1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
						1LE1623 Performance Line												⑬
1LE1 . . . - . . . . . - . . . ■		Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Terminal box position																		
Terminal box top [1]	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□			
Terminal box right-hand side [2]	**5**	**–**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box left-hand side [2]	**6**	**–**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box bottom [3]	**7**	**–**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–			

□ Standard version
✓ With additional charge
– Not possible

1) For types of construction with feet and flange-mounted with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

2) For types of construction with feet and flange-mounted with feet, screwed-on feet are standard. Except for frame sizes 225, 250, 280 and 315: in which case for types of construction with feet and flange-mounted with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

3) Not generally possible for motors with feet.

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Selection and ordering data

Terminal box position	Article No. supplement		Frame size												Motor version	
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	80	90	100	112	132	160	180	200	225	250	280	315	IEC	IE3
			1LE1073													
									1LE1573							
												1LE5773				
1LE . . . . - . . . . . - . . . ■		Order code														
Terminal box position																
Terminal box base left with terminal box at the top	**0**	**–**	–	–	–	–	–	–	–	–	–	–	–	✓		
Terminal box base right with terminal box at the top	**1**	**–**	–	–	–	–	–	–	–	–	–	–	–	✓		
Terminal box base left with oblique terminal box 45°	**2**	**–**	–	–	–	–	–	–	–	–	–	–	–	○		
Terminal box base right with oblique terminal box 45°	**3**	**–**	–	–	–	–	–	–	–	–	–	–	–	□		
Terminal box at top	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	–		
Terminal box on right-hand side	**5**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Terminal box on left-hand side	**6**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Terminal box bottom [1]	**7**	**–**	–	–	✓	✓	✓	✓	–	–	–	–	–	–		
Terminal box left-hand side (base below) [1]	**9**	**R5L**	–	–	–	–	–	–	–	–	–	–	–	✓		
Terminal box right-hand side (base below) [1]	**9**	**R6R**	–	–	–	–	–	–	–	–	–	–	–	✓		
Terminal box bottom left [1]	**9**	**R7L**	–	–	–	–	–	–	–	–	–	–	–	✓		
Terminal box bottom right [1]	**9**	**R7R**	–	–	–	–	–	–	–	–	–	–	–	✓		

□ Standard version
○ Without additional charge
✓ With additional charge
– Not possible

[1] Not generally possible for motors with feet.

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version		
						1LE1004						IEC	IE4	①
				1LE1003									IE3	②
						1LE1083								③
		1LE1001											IE2	④
		1LE1002											IE1	⑤
				1LE1043								APAC Line	IE3	⑥
				1LE1041									IE2	⑦
				1LE1023								Eagle Line	NPE (NEMA)	⑧
					1LE1021								NEE (NEMA)	⑨
						1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . . -Z	Order code					1LE1012								⑪
Motor protection														
1 or 3 PTC thermistors – for tripping (2 terminals)	**Q11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	**Q12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 KTY84-130 temperature sensor (2 terminals)	**Q23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 KTY84-130 temperature sensors (4 terminals)	**Q25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 bimetal sensors (NC contacts) for tripping (2 terminals)	**Q31**	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	–	–	–	–	–	–	–	–	✓	✓			
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	**Q34**	–	–	–	–	–	–	–	–	✓	✓			
1 Pt1000 resistance thermometer (2 terminals) [40]	**Q35**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals) [40]	**Q36**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	–	–	–	–	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**Q61**	–	–	–	–	✓	✓	✓	✓	✓	✓			
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	–	–	–	–	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	–	–	–	–	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals)	**Q72**	–	–	–	–	O. R.	O. R.	O. R.	O. R.	✓	✓			
2 Pt100 resistance thermometers in 3-wire input for bearing (6 terminals)	**Q78**	–	–	–	–	O. R.	O. R.	O. R.	O. R.	✓	✓			
2 Pt100 double resistance thermometers in 3-wire input for bearing (12 terminals)	**Q79**	–	–	–	–	O. R.	O. R.	O. R.	O. R.	✓	✓			
Motor connection and terminal box														
External grounding	**H04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box on NDE [3]	**H08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from DE [1]	**R10**	O	O	O	O	O	O	O	O	✓	✓			
Rotation of the terminal box through 90°, entry from NDE	**R11**	O	O	O	O	O	O	O	O	✓	✓			
Rotation of the terminal box through 180°	**R12**	O	O	O	O	O	O	O	O	✓	✓			
Terminal box in position 0°, connection from right [41]	**R13**	O	O	O	O	O	O	O	–	–	–	Not for:		③
One metal cable gland	**R15**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 cables protruding, 0.5 m long [4][5]	**R20**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	Not for:		⑩, ⑪
3 cables protruding, 1.5 m long [4][5]	**R21**	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	Not for:		⑩, ⑪
6 cables protruding, 0.5 m long [4]	**R22**	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.			
6 cables protruding, 1.5 m long [4]	**R23**	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.			

For legends and footnotes, see page 2/124.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version		
						1LE1004						IEC	IE4	①
				1LE1003									IE3	②
						1LE1083								③
		1LE1001											IE2	④
		1LE1002											IE1	⑤
				1LE1043								APAC Line	IE3	⑥
				1LE1041									IE2	⑦
				1LE1023								Eagle Line	NPE (NEMA)	⑧
					1LE1021								NEE (NEMA)	⑨
						1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . . -Z	Order code					1LE1012								⑪
Motor connection and terminal box (continued)														
6 cables protruding, 3 m long [4]	**R24**	✓	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.			
Reduction piece for M cable gland in accordance with British Standard, mounted on both cable entries [2]	**R30**	–	–	–	–	✓	✓	✓	✓	–	–			
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑧, ⑨ < frame size 100	
	–	–	–	□	□	□	□	□	□	□	□	Only for:	⑧, ⑨ < frame size 100	
Auxiliary terminal box, aluminum	**R60**	–	–	–	–	–	–	–	–	✓	✓			
Motor connector Han-Drive 10e for 230 VΔ/400 VY [30]	**R70**	✓	✓	✓	✓	✓	✓	✓	–	–	–			
Motor connector Han-Drive 10e EMC for 230 VΔ/400 VY [30]	**R71**	✓	✓	✓	✓	✓	✓	✓	–	–	–			
Small motor connector CQ12 with EMC	**R72**	–	–	✓	✓	–	–	–	–	–	–	Not for:	③	
Small motor connector CQ12 without EMC	**R73**	–	–	✓	✓	–	–	–	–	–	–	Not for:	③	
Windings and insulation														
Temperature class 155 (F), utilized acc. to 155 (F), with service factor	**N01**	–	–	–	–	✓	✓	✓	✓	✓	✓	Not for:	③	
Temperature class 155 (F), utilized acc. to 155 (F), with increased power	**N02**	–	–	–	–	✓	✓	✓	✓	✓	✓	Not for:	③	
Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	**N03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	③	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	**N05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	**N06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	**N07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	**N08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 180 (H) [31]	**N10**	✓	✓	✓	✓	–	–	–	–	–	–	Not for:	①, ③, ⑥, ⑦, ⑨, ⑪	
Temperature class 180 (H) at rated power and max. CT 60 °C [6] [31]	**N11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ③	
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	**Y50 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 155 (F), other requirements	**Y52 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	③	
Temperature class 180 (H), utilized according to 155 (F)	**Y75 •** and spec. power, CT .. °C or IA …. m above sea level	–	–	–	–	O. R.	O. R.	O. R.	O. R.	–	–	Not for:	①, ③	

For legends and footnotes, see page 2/124.

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Aluminum series SIMOTICS GP 1LE10

2

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version		
						1LE1004						IEC	IE4	①
				1LE1003									IE3	②
						1LE1083								③
		1LE1001											IE2	④
		1LE1002											IE1	⑤
				1LE1043								APAC Line	IE3	⑥
				1LE1041									IE2	⑦
				1LE1023								Eagle Line	NPE (NEMA)	⑧
					1LE1021								NEE (NEMA)	⑨
						1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . . -Z	Order code					1LE1012								⑪
Colors and paint finish														
Standard paint finish C2 in RAL 7030 stone gray		□	□	□	□	□	□	□	□	□	□			
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○			
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Internal coating	**S05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Top coat polyurethane [34]	**S06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Modular technology – Basic versions [7]														
Mounting of holding brake (standard assignment) [8] [28]	**F01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of brake for higher switching frequency (operating brake)	**F02**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	–	–			
Mounting of separately driven fan [29]	**F70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Modular technology – Additional versions														
Brake supply voltage 24 V DC	**F10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	✓	✓	✓	✓	○	○	○	○	○	○			
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Brake supply voltage 180 V DC	**F17**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Motors in combination with order code F01	
Brake supply voltage 205 V DC	**F18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Motors in combination with order code F01	
Mechanical manual brake release with lever (no locking)	**F50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special technology [7]														
Mounting of LL 861 900 220 rotary pulse encoder [9]	**G04**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of HOG 9 DN 1024 I rotary pulse encoder [9]	**G05**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of HOG 10 D 1024 I rotary pulse encoder [9]	**G06**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder	**G25**	–	–	–	–		–	–	–	✓	✓	Only for:	③	
Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder	**G27**	–	–	–	–	–	–	–	–	✓	✓	Only for:	③	

For legends and footnotes, see page 2/124.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version		
						1LE1004						IEC	IE4	①
				1LE1003									IE3	②
						1LE1083								③
		1LE1001											IE2	④
		1LE1002											IE1	⑤
				1LE1043								APAC Line	IE3	⑥
				1LE1041									IE2	⑦
				1LE1023								Eagle Line	NPE (NEMA)	⑧
					1LE1021								NEE (NEMA)	⑨
						1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . . -Z	Order code					1LE1012								⑪
Mechanical version and degrees of protection														
Low-noise version for 2-pole motors with clockwise direction of rotation	**F77**	–	–	–	–	–	–	✓	✓	✓	✓			
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	–	–	–	–	–	–	✓	✓	✓	✓			
Prepared for mountings, centering hole only [10]	**G40**	–	–	✓	✓	✓	✓	✓	✓	□	□			
Prepared for mountings with shaft D12 [15]	**G41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Prepared for mountings with shaft D16 [15]	**G42**	–	–	O. R.	O. R.	✓	✓	✓	✓	✓	✓			
Mechanical protection for encoder	**G43**	O. R.	O. R.	✓	✓	✓	✓	✓	✓	✓	✓			
Protective cover [9] [11]	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Screwed-on (instead of cast) feet	**H01**	–	–	✓	✓	✓	✓	✓	✓	□	□			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994 [39]	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Condensation drainage holes [14]	**H03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Housing with screw mounting [32]	**H10**	–	–	✓	✓	–	–	–	–	✓	✓	Only for:	②, ④, ⑥, ⑦ (frame sizes 80, 90), ⑧, ⑨	
Degree of protection IP65 [13]	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Degree of protection IP56 [12]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar [16]	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Coolant temperature and installation altitude														
Coolant temperature –40 to +40 °C [16] [28]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Coolant temperature –30 to +40 °C [16] [28]	**D04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Versions in accordance with standards and specifications														
VIK version	**C02**	–	–	✓	✓	✓	✓	✓	✓	–	–	Only for:	②	
CCC China Compulsory Certification [17]	**D01**	✓	✓	✓	✓	–	–	–	–	–	–	Only for:	Voltage code 21st or 22nd	
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	**D22**	–	○	○	○	○	○	○	○	○	○	Only for:	④	
Electrical according to NEMA MG1-12 [18]	**D30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑧, ⑨	
	–	–	–	□	□	□	□	□	□	□	□	Only for:	⑧, ⑨	
Design according to UL with "Recognition Mark" [19]	**D31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑧, ⑨	
	–	–	–	□	□	□	□	□	□	□	□	Only for:	⑧, ⑨	
KEMCO Korea Energy Efficiency Label	**D33**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	⑥, ⑦	
		–	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	③ (2-pole to 6-pole)	
China Energy Efficiency Label [38]	**D34**	–	–	○	○	○	○	○	○	○	○	Not for:	①, ⑤, ⑩, ⑪	
		–	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	③	
Canadian regulations (CSA) [33] [37]	**D40**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑤, ⑧, ⑨, ⑩, ⑪	
	–	–	–	□	□	□	□	□	□	□	□	Only for:	⑧, ⑨	
NEMA Premium Efficient, North America version acc. to NEMA MG1, Table 12-11, incl. UL and CSA	**D41**	–	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	③	
TR CU product safety certificate EAC for Eurasian Customs Union [35]	**D47**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
MEPS Australia	**D70**	–	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	③	
Version suitable for railways IC411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic	**L90**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ③	
Version suitable for railways IC411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal	**L91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ③	
Version suitable for railways IC418, EN IEC 60349, without EN 45545, without external fan and fan cover	**L92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ③	

For legends and footnotes, see page 2/124.

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Aluminum series SIMOTICS GP 1LE10

2

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version		
						1LE1004						IEC	IE4	①
				1LE1003									IE3	②
						1LE1083								③
		1LE1001											IE2	④
		1LE1002											IE1	⑤
				1LE1043								APAC Line	IE3	⑥
				1LE1041									IE2	⑦
				1LE1023								Eagle Line	NPE (NEMA)	⑧
					1LE1021								NEE (NEMA)	⑨
						1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . . -Z	Order code					1LE1012								⑪
Bearings and lubrication														
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A [20]	**L19**	–	–	–	–	–	–	–	–	✓	✓			
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	✓	✓	□	□	□			
Bearing design for increased cantilever forces [36]	**L22**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors of frame sizes 80 and 90 in combination with order code F01	
Regreasing device [20]	**L23**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors of frame sizes 80 and 90 in combination with order code F01	
Bearing insulation NDE	**L51**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Measuring nipple for SPM shock pulse measurement for bearing inspection [20]	**Q01**	–	–	–	–	✓	✓	✓	✓	✓	✓			
Balance and vibration severity														
Vibration severity grade A		□	□	□	□	□	□	□	□	□	□			
Vibration severity grade B	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Half-key balancing (standard)		□	□	□	□	□	□	□	□	□	□			
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Full-key balancing	**L02**	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft and rotor														
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, DE [21]	**Y58** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, NDE [21]	**Y59** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Heating and ventilation														
Sheet metal fan cover	**F74**	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Fan cover for textile industry [22]	**F75**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Metal external fan [23] [29]	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Without external fan and without fan cover	**F90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑩, ⑪	
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/124.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version		
						1LE1004						IEC	IE4	①
				1LE1003									IE3	②
						1LE1083								③
		1LE1001											IE2	④
		1LE1002											IE1	⑤
				1LE1043								APAC Line	IE3	⑥
				1LE1041									IE2	⑦
				1LE1023								Eagle Line	NPE (NEMA)	⑧
					1LE1021								NEE (NEMA)	⑨
						1LE1011						Pole-changing		⑩
1LE10 . . - . . . . . - . . . . -Z	Order code					**1LE1012**								⑪
Rating plate and additional rating plates														
Additional rating plate for voltage tolerance [24]	**B07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for: ⑩, ⑪, 8-pole motors		
Second rating plate, loose [25]	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional rating plate with deviating rating plate data	**Y80** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85** • and customer specifications	–	–	–	–	✓	✓	✓	✓	✓	✓			
Packaging, safety notes, documentation and test certificates														
A printed version of the safety notes in German/English and safety notes in the language of the country of use is supplied in each wire-lattice pallet [27]	**B01**	○	○	○	○	○	○	○	○	○	○			
Inspection certificate 3.1 according to EN 10204 [26]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Wire-lattice pallet packaging	**B99**	✓	✓	○	○	○	○	○	○	○	○			
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/124.

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Aluminum series SIMOTICS GP 1LE10

- ◘ Standard version
- ○ Without additional charge
- • This order code only determines the price of the version – Additional plain text is required.
- ✓ With additional charge
- O. R. Possible on request
- – Not possible

1) With IM B5 flange, only possible in combination with **H08**.

2) Not possible in combination with order code **R15** "One metal cable gland".

3) With **H08**, feet dimensions C and CA differ from EN 50347! Further information is available in the DT Configurator (see Appendix, "Tools and engineering").

4) In conjunction with motor protection (15th position of the Article No.) or anti-condensation heating option, please inquire before ordering.

5) Not possible in combination with voltage code **22** or **34**.

6) Cannot be used for motors in UL version (order code **D31**). The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

7) A second shaft extension is not possible. Please inquire for mounted brakes.

8) For order codes **F10**, **F11**, **F12**, **F17**, and **F18**, the brake supply voltage must be specified or ordered.

9) All encoders are supplied with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover. In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

10) As standard, motors that are prepared for additional mountings (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code **G43**. Not possible in combination with order code **L00** vibration severity grade B. In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

11) Order code **H00** provides mechanical protection for encoders.

12) Not possible in combination with brake BFK458 – order code **F01**.

13) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**).

14) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

15) As standard, motors that are prepared for additional mountings (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code **G43**. Not possible in combination with order code **L00** vibration severity grade B.

16) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

17) CCC mandatory certification, see Chapter 1 Page 1/21.

18) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range. Order codes **D30** and **D31** do not authorize importing into USA and Mexico. The North America export versions Eagle Line 1LE1021 NEMA Energy Efficient and 1LE1023 NEMA Premium Efficient are available for this purpose.

19) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

20) Not possible when brake is mounted.

21) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347, Form A are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.

22) The special requirements of the textile industry regarding the sheet metal cover open up the possibility that a finger may be inserted between the cover and housing. The customer must implement appropriate measures to ensure that the installed system is "finger-safe".

23) Converter operation is permitted for 1LE1 motors with metal external fans. The metal external fan is not possible in combination with the low-noise version – order code **F77** or **F78**.

24) Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "**22**" or "**34**"). Not possible in combination with order code **D34**.

25) As adhesive label for frame sizes 80 and 90.

26) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor and will be dispatched by e-mail.

27) The manual "Low-Voltage motors SIMOTICS GP, SD, DP Safety instructions SH 63 ... 355" is available in the Internet as PDF in all official languages of the EU:
https://support.industry.siemens.com/cs/ww/en/view/109756537

28) Not possible in combination with order codes **N05**, **N06**, **N07**, **N08**, and **N11**.

29) Order codes **F70** and **F76** cannot be combined.

30) When ordering with order code **R70** and **R71**, order code **R50** is included.

31) Not possible for 2-pole and 4-pole motors with increased power (11th position of the Article No.: 6) in frame sizes 80 and 90.

32) Possible with frame sizes 180 and 200 with screw-mounted fan cover.

33) For frame sizes 180 and 200, constructed with metric entry thread.

34) Order code **S06** cannot be combined with order code **S00** and **S01**. It can be combined with **Y53** and **Y56** on request.

35) Please note the additional use of order code **D22** "Motor without CE marking for export outside EEA (see EU Directive 640/2009)".

36) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

37) The rated voltage is indicated on the rating plate without voltage range. Order code **D40** does not authorize importing into Canada. The North America export versions Eagle Line 1LE1021 NEMA Energy Efficient and 1LE1023 NEMA Premium Efficient are available for this purpose.

38) Not possible in combination with voltage code (12th or 13th position of the Article No.) 17, 18, 30, 31, 60, 61, 62, 63 and 90 with the additional order codes **M1A; M2A; M2B; M1B; M1C; M2C; M1D; M2D; M1E; M2E; M1F; M2F; M1G; M2G; M1H; M2H; 1K; M2K; M1J; M2J; M1L; M2L; M1M; M2M** and **M3A**.

39) Not possible in combination with order code **R50**.

40) Not UL-certified. Not in combination with option **D31**.

41) Only possible in combination with order codes **R70**, **R71**, **R72**, and **R73**.

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Motor protection																	
1 or 3 PTC thermistors – for tripping (2 terminals)	**Q11**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	**Q12**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 KTY84-130 temperature sensor (2 terminals)	**Q23**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 KTY84-130 temperature sensors (4 terminals)	**Q25**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 bimetal sensors (NC contacts) for tripping (2 terminals)	**Q31**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	**Q34**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 Pt1000 resistance thermometer (2 terminals) [40]	**Q35**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals) [40]	**Q36**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 2-wire input (12 terminals) [27]	**Q61**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 3-wire input (9 terminals) [30]	**Q63**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 3-wire input (18 terminals) [30]	**Q64**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in basic configuration for bearing (2 terminals) [2]	**Q72**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in 3-wire input for bearing (6 terminals)	**Q78**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 double resistance thermometers in 3-wire input for bearing (12 terminals)	**Q79**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Motor connection and terminal box																	
External grounding	**H04**	✓	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□			
Terminal box on NDE [27]	**H08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Second external grounding	**H70**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from DE [41]	**R10**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
One EMC cable gland	**R14**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
One metal cable gland	**R15**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
EMC cable gland, maximum configuration	**R16**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Stud terminal for cable connection, accessories pack (3 items)	**R17**	–	–	–	–	–	–	–	–	–	–	✓	✓	✓			
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/132.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Motor connection and terminal box (continued)																	
Saddle terminal for connection without cable lug, accessories pack	**R19**	–	–	–	–	–	–	–	–	–	–	✓	✓	✓			
3 cables protruding, 0.5 m long	**R20**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–			
3 cables protruding, 1.5 m long	**R21**	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.			
6 cables protruding, 0.5 m long	**R22**	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–			
6 cables protruding, 1.5 m long	**R23**	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.			
6 cables protruding, 3 m long	**R24**	✓	✓	✓	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.			
Reduction piece for M cable gland in accordance with British Standard, mounted on both cable entries	**R30**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–			
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box without cable entry opening	**R51**	–	–	–	○	○	○	○	○	○	○	○	○	○			
Drilled removable entry plate	**R52**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Undrilled removable entry plate	**R53**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Cast-iron auxiliary terminal box (small) [30]	**R62**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓			
		–	–	–	✓	✓	✓	–	–	–	–	–	–	–	Only for:	Motors with order code R50 possible	
Silicone-free version	**R74**	–	–	–	□	□	□	□	□	□	□	✓	✓	✓			
Non-standard threaded through hole (NPT or G thread)	**Y61** • and customer specifications	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Windings and insulation																	
Temperature class 155 (F), utilized according to 155 (F), with service factor	**N01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑤	
Temperature class 155 (F), utilized acc. to 155 (F), with increased power	**N02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑤	
Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	**N03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑤	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	**N05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	**N06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	**N07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	**N08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 180 (H)	**N10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ②, ⑤, ⑨, ⑩, ⑪, ⑫, ⑬, ⑭	
Temperature class 180 (H) at rated power and max. CT 60 °C [4) 5)]	**N11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ②, ⑤	
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/132.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Windings and insulation (continued)																	
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	**Y50** • and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 155 (F), other requirements [5]	**Y52** • and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑤	
Temperature class 180 (H), utilized according to 155 (F)	**Y75** • and spec. power, CT .. °C or IA …. m above sea level	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	①, ②, ⑤	
Colors and paint finish																	
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for:	①, ③, ⑤, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭	
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○	○	○	○			
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	②, ④, ⑦, ⑩, ⑬	
	–	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for:	②, ④, ⑦, ⑩, ⑬	
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special paint finish for use offshore C5	**S04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Internal coating	**S05**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Top coat polyurethane [33]	**S06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53** • and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	①, ③, ⑤, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56** • and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Modular technology – Basic versions [6]																	
Mounting of holding brake (standard assignment) [7] [31] [32]	**F01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of PRECIMA brake	**F04**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
Mounting of separately driven fan [28] [34]	**F70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/132.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Modular technology – Additional versions																	
Brake supply voltage 24 V DC	**F10**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	–	–	–	○	○	○	○	○	○	○	○	○	○			
Brake supply voltage 400 V AC, 50/60 Hz [32]	**F12**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Brake supply voltage 180 V DC	**F17**	–	–	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	Only for:	Motors in combination with order code F01	
Brake supply voltage 205 V DC	**F18**	–	–	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	Only for:	Motors in combination with order code F01	
Backstop, counterclockwise motion blocked, clockwise direction of rotation	**F40**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code Q79	
Backstop, clockwise motion blocked, counterclockwise direction of rotation	**F41**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code Q79	
Mechanical manual brake release with lever (no locking)	**F50**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special technology [6]																	
Mounting of LL 861 900 220 rotary pulse encoder [10]	**G04**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of HOG 9 DN 1024 I rotary pulse encoder [10]	**G05**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of HOG 10 D 1024 I rotary pulse encoder [10]	**G06**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of POG 10 DN rotary pulse encoder (only in combination with separately driven fan or brake) [11]	**G07**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake) [11]	**G08**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box moisture protection	**G15**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection	**G16**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	⑤	
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	⑤	
Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder	**G25**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	⑤	
Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder	**G27**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	⑤	
Mounting of a special type of rotary pulse encoder	**Y70** • and customer specifications	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	⑤	
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed ... rpm), terminal box moisture protection	**Y74** • and spec. speed .... rpm	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed .... rpm), terminal box dust protection	**Y76** • and spec. speed .... rpm	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed .... rpm), terminal box dust protection	**Y79** • and spec. speed (max 3) .... rpm	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/132.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Mechanical version and degrees of protection																	
Low-noise version for 2-pole motors with clockwise direction of rotation	**F77**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code F90	
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code F90	
Prepared for mounted components, centering hole only	**G40**	–	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□	Not for:	Motors in combination with order code F90	
Prepared for mountings with D12 shaft	**G41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code F90	
Prepared for mountings with D16 shaft	**G42**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code F90	
Mechanical protection for encoder	**G43**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code F90	
Protective cover [8) 10) 12)]	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order code F90	
Screwed-on (instead of cast) feet	**H01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994 [39)]	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Condensation drainage holes [38)]	**H03**	✓	✓	✓	□	□	□	□	□	□	□	□	□	□			
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Degree of protection IP65 [14)]	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Degree of protection IP54	**H21**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
Degree of protection IP56 [15)]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar [13) 29)]	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Grounding brush for converter operation	**L52**	–	–	–	–	–	–	–	–	–	–	–	✓	✓			
Coolant temperature and installation altitude																	
Coolant temperature –50 to +40 °C	**D02**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Coolant temperature –40 to +40 °C [16)]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Coolant temperature –30 to +40 °C [17)]	**D04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Versions in accordance with standards and specifications																	
VIK version	**C02**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: Not for:	③, ④ ⑤	
CCC China Compulsory Certification	**D01**	✓	✓	✓	–	–	–	–	–	–	–	–	–	–	Only for: Not for:	Voltage code 21 or 22 ⑤	
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	**D22**	○	○	○	○	○	○	○	○	○	○	○	○	○	Not for:	①, ②	
Electrical according to NEMA MG1-12 [18)]	**D30**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑫, ⑬, ⑭	
	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	⑫, ⑬, ⑭	
Design according to UL with "Recognition Mark" [18)]	**D31**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑫, ⑬, ⑭	
	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	⑫, ⑬, ⑭	
KEMCO Korea Energy Efficiency Label	**D33**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	⑨, ⑩, ⑪	
		–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	⑤	
China Energy Efficiency Label [42)]	**D34**	○	○	○	○	○	○	○	○	○	○	○	○	○	Not for:	①, ②, ⑧, motors with increased power	
		–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	⑤	
Canadian regulations (CSA) [17)]	**D40**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	⑫, ⑬, ⑭	
	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	⑫, ⑬, ⑭	

For legends and footnotes, see page 2/132.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				1LE1521 Basic Line											NEE (NEMA)	⑭
Versions in accordance with standards and specifications (continued)																	
NEMA Premium Efficient, North America version acc. to NEMA MG1, Table 12-11, incl. UL and CSA	**D41**	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	⑤	
TR CU product safety certificate EAC for Eurasian Customs Union [35]	**D47**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
MEPS Australia	**D70**	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	Only for:	⑤	
Bearings and lubrication																	
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A [1]	**L19**	–	–	–	–	–	–	–	✓	✓	✓	✓	○	○	Only for:	①, ③, ⑤, ⑤, ⑥, ⑧, ⑨, ⑫, ⑭	
		–	–	–	–	–	–	–	○	○	○	○	○	○	Only for:	②, ④, ⑦, ⑩, ⑬	
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□	□			
Bearing design for increased cantilever forces [36]	**L22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	②, ④, ⑦, ⑩, ⑬	
		✓	✓	✓	□	□	□	□	✓	✓	✓	✓	✓	✓	Only for:	②, ④, ⑦, ⑩, ⑬	
Regreasing device [1]	**L23**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	□	□	Not for:	②, ④, ⑦, ⑩, ⑬	
		–	–	–	✓	✓	✓	□	□	□	□	□	□	□	Only for:	②, ④, ⑦, ⑩, ⑬	
Bearings reinforced at both ends for DE and NDE, bearing size 63 [19]	**L25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	Not for:	②, ④, ⑦, ⑩, ⑬	
	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	②, ④, ⑦, ⑩, ⑬	
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	**L28**	–	–	–	–	–	–	–	✓	✓	✓	✓	–	–			
Bearing insulation DE	**L50**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
Bearing insulation NDE	**L51**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Measuring nipple for SPM shock pulse measurement for bearing inspection [1]	**Q01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Balance and vibration severity																	
Vibration severity grade A		□	□	□	□	□	□	□	□	□	□	□	□	□			
Vibration severity grade B [20]	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Half-key balancing (standard)		□	□	□	□	□	□	□	□	□	□	□	□	□			
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft and rotor																	
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, DE [21]	**Y58** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, NDE [21]	**Y59** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special shaft steel	**Y60** • and customer specifications	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.			

For legends and footnotes, see page 2/132.

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Cast-iron series SIMOTICS SD 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version		
					1LE1504 Basic Line										IEC	IE4	①
					1LE1604 Performance Line												②
		1LE1503 Basic Line														IE3	③
					1LE1603 Performance Line												④
					1LE1583												⑤
		1LE1501 Basic Line														IE2	⑥
					1LE1601 Performance Line												⑦
					1LE1502 Basic Line											IE1	⑧
			1LE1543 Basic Line												APAC Line	IE3	⑨
					1LE1643 Performance Line												⑩
									1LE1541 Basic Line							IE2	⑪
		1LE1523 Basic Line													Eagle Line	NPE (NEMA)	⑫
					1LE1623 Performance Line												⑬
1LE1 . . . -. . . . . -. . . . -Z	Order code				**1LE1521 Basic Line**											NEE (NEMA)	⑭
Heating and ventilation																	
Sheet metal fan cover	**F74**	□	□	□	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	①, ③, ⑤, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭	
	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	②, ④, ⑦, ⑩, ⑬	
Metal external fan [22) 28)]	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Without external fan and without fan cover	**F90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Separately driven fan with non-standard voltage and/or frequency	**Y81** • and customer specifications	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
Rating plate and additional rating plates																	
Additional rating plate for voltage tolerance [23)]	**B07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	8-pole motors	
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	①, ③, ⑤, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭	
		–	–	–	○	○	○	○	○	○	○	○	○	○	Only for:	④, ⑦, ⑩, ⑬	
	–	–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	②	
Additional rating plate with deviating rating plate data	**Y80** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85** • and customer specifications	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Extension of the liability for defects																	
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery [24)]	**Q80**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	①, ③, ⑤, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭	
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [24)]	**Q82**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	①, ③, ⑤, ⑥, ⑧, ⑨, ⑪, ⑫, ⑭	
	–	–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	②, ④, ⑦, ⑩, ⑬ 36 months	
Packaging, safety notes, documentation and test certificates																	
Inspection certificate 3.1 according to EN 10204 [25)]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard test (routine test) with acceptance	**B65**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, without acceptance	**B82**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 2/132.

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- ◘ Standard version
- ○ Without additional charge
- • This order code only determines the price of the version – Additional plain text is required.
- ✓ With additional charge
- O. R. Possible on request
- – Not possible

1) Up to frame size 160 not possible when brake is mounted.

2) Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended.

3) Parallel Whitworth threaded pipe DIN ISO 228 (DIN 259) BSPP (British Standard Pipe Parallel) threaded pipe for connections not sealed in the thread (cylindrical), external = G.

4) Cannot be used for motors in UL version (order code **D31**). The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

5) Not possible for 1LE15 and 1LE16 motors with increased power.

6) A second shaft extension is not possible. Please inquire for mounted brakes.

7) For order codes **F10**, **F11**, **F12**, **F17**, and **F18**, the brake supply voltage must be specified or ordered.

8) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.

9) In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

10) LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.

11) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB! This option cannot be used in combination with brakes of type BFK458!

12) Order code **H00** provides mechanical protection for encoders.

13) Not possible for type of construction IM V3.

14) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**).

15) Not possible in combination with brake BFK458 – order code **F01**.

16) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

17) The rated voltage is indicated on the rating plate without voltage range. Order code **D40** does not authorize importing into Canada. The North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient are available for this purpose.

18) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range. Order codes **D30** and **D31** do not authorize importing into USA and Mexico. The North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient are available for this purpose.

19) For Performance Line motors (all frame sizes) and Basic Line motors (from frame size 280) in the standard version.

20) On request for 2-pole motors (concerns frame sizes 225 to 315).

21) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347, Form A are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.

22) Converter operation is permitted for 1LE1 motors with metal external fans.

23) Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "**22**" or "**34**"). Not possible for 8-pole motors and in combination with order code **D34**.

24) Wearing parts (bearings) are excluded from the warranty extension.

25) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

26) The Operating Instructions (compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976.

27) With **H08**, feet dimensions C and CA differ from EN 50347! Further information is available in the DT Configurator (see Appendix, "Tools and engineering").

28) Order codes **F70** and **F76** cannot be combined.

29) Not possible in combination with order codes **Q72** and **Q78**.

30) For frame sizes 100 to 132 only possible in combination with order code **R50**.

31) Not possible in combination with order codes **N05**, **N06**, **N07**, **N08**, and **N11**.

32) For frame size 315, when combining order codes **F01** and **F12**, the rectifier for the brake will be supplied separately as a single part.

33) Order code **S06** cannot be combined with order codes **S00**, **S01**, and **S02**. It can be combined with **Y53** and **Y56** on request.

34) Order codes **F70** (separately driven fan) and **H02** (vibration-proof version) cannot be combined for motors in frame sizes 71, 80, and 90.

35) Please note the additional use of order code **D22** "Motor without CE marking for export outside EEA (see EU Directive 640/2009)".

36) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

37) Order code **R62** only possible in combination with **R50**.

38) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

39) Not possible in combination with order code **R50**.

40) Not UL-certified. Not in combination with option **D31**.

41) With IM B5 flange, only possible in combination with **H08**.

42) Not possible in combination with voltage code (12th or 13th position of the Article No.) 17, 18, 30, 31 and 90 with the additional order codes M1E; M2E; M1F; M2F; M1G; M2G; M1H; M2H; M1J; M2J; M1K; M2K; M1L; M2L; M1M; M2M and M3A.

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	IE3
		1LE1073													
								1LE1573							
											1LE5773				
1LE1 . . . - . . . . . - . . . . -Z	Order code														
Motor protection															
1 or 3 PTC thermistors – for tripping (2 terminals)	**Q11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	**Q12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 KTY84-130 temperature sensor (2 terminals)	**Q23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 KTY84-130 temperature sensors (4 terminals)	**Q25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (2 terminals)	**Q31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	**Q34**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
1 Pt1000 resistance thermometer (2 terminals)	**Q35**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 Pt1000 resistance thermometer (4 terminals)	**Q36**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 2-wire input (12 terminals) [19]	**Q61**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals) [22]	**Q63**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals) [22]	**Q64**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
2 Pt100 resistance thermometers in basic configuration for bearing (2 terminals) [2]	**Q72**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
2 Pt100 resistance thermometers in 3-wire input for bearing (6 terminals)	**Q78**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
2 Pt100 double resistance thermometers in 3-wire input for bearing (12 terminals)	**Q79**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Not for:	Motors in combination with order codes F40 and F41 (frame sizes 225 to 315)
Motor connection and terminal box															
External grounding	**H04**	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□		
Terminal box on NDE [19]	**H08**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	✓	✓	✓	✓		
Second external grounding	**H70**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Rotation of the terminal box through 90°, entry from DE [30]	**R10**	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓		
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓		
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓		
One EMC cable gland	**R14**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
One metal cable gland	**R15**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
EMC cable gland, maximum configuration	**R16**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Stud terminal for cable connection, accessories pack (3 items)	**R17**	–	–	–	–	–	–	–	–	–	✓	✓	✓		
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Saddle terminal for connection without cable lug, accessories pack	**R19**	–	–	–	–	–	–	–	–	–	✓	✓	✓		
3 cables protruding, 0.5 m long	**R20**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–		
3 cables protruding, 1.5 m long	**R21**	✓	✓	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.		
6 cables protruding, 0.5 m long	**R22**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–		
6 cables protruding, 1.5 m long	**R23**	✓	✓	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.		
6 cables protruding, 3 m long	**R24**	✓	✓	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.		

For legends and footnotes, see page 2/138.

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Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	IE3
		1LE1073													
								1LE1573							
											1LE5773				
1LE1 . . . -. . . . . -. . . . -Z	Order code														
Motor connection and terminal box (continued)															
12 cables protruding with cable lugs	**R31**	□	□	□	□	□	□	□	□	□	□	□	□		
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Terminal box without cable entry opening	**R51**	–	–	–	–	–	–	○	○	○	○	○	○		
Drilled removable entry plate	**R52**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Undrilled removable entry plate	**R53**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Cast-iron auxiliary terminal box (small) [22]	**R62**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓		
Cast-iron auxiliary terminal box (large)	**R63**	–	–	–	–	–	–	–	–	–	–	–	✓		
Silicone-free version	**R74**	–	–	□	□	□	□	□	□	□	✓	✓	✓		
Non-standard threaded through hole (NPT or G thread)	**Y61** • and customer specifications	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Windings and insulation															
Temperature class 155 (F), utilized according to 155 (F), with service factor	**N01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 155 (F), with increased power	**N02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	**N03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	**N05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	**N06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	**N07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	**N08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 180 (H)	**N10**	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	✓	✓	✓	✓		
Temperature class 180 (H) at rated power and max. CT 60 °C [4]	**N11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	**Y50** • and spec. power, CT .. °C or IA .... m above sea level	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 155 (F), other requirements	**Y52** • and spec. power, CT .. °C or IA .... m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Temperature class 180 (H), utilized according to 155 (F)	**Y75** • and spec. power, CT .. °C or IA .... m above sea level	–	–	O. R.	O. R.	O. R.	O. R.	✓	✓	✓	✓	✓	✓		
Colors and paint finish															
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○	○	○		
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Special paint finish C3	**S02**	□	□	□	□	□	□	□	□	□	□	□	□		
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Special paint finish for use offshore C5	**S04**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		

For legends and footnotes, see page 2/138.

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Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	IE3
		1LE1073													
								1LE1573							
											1LE5773				
1LE1 . . . -. . . . . -. . . . -Z	Order code														
Colors and paint finish (continued)															
Internal coating	**S05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Top coat polyurethane [25]	**S06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL....	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL....	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Modular technology – Basic versions [5]															
Mounting of holding brake (standard assignment) [6] [23] [24]	**F01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of PRECIMA brake	**F04**	–	–	–	–	–	–	–	–	✓	✓	✓	–		
Mounting of separately driven fan [20] [26]	**F70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Modular technology – Additional versions															
Brake supply voltage 24 V DC	**F10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	✓	✓	○	○	○	○	○	○	○	○	○	○		
Brake supply voltage 400 V AC, 50/60 Hz [24]	**F12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Brake supply voltage 180 V DC	**F17**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–		
Brake supply voltage 205 V DC	**F18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–		
Backstop, counterclockwise motion blocked, clockwise direction of rotation	**F40**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓		
Backstop, clockwise motion blocked, counterclockwise direction of rotation	**F41**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mechanical manual brake release with lever (no locking)	**F50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–		
Special technology [5]															
Mounting of LL 861 900 220 rotary pulse encoder [7]	**G04**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of HOG 9 DN 1024 I rotary pulse encoder [7]	**G05**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of HOG 10 D 1024 I rotary pulse encoder [7]	**G06**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of POG 10 DN rotary pulse encoder (only in combination with separately driven fan or brake) [7]	**G07**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake) [8]	**G08**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box moisture protection	**G15**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection	**G16**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder	**G25**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder	**G27**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed ... rpm), terminal box moisture protection	**Y74 •** and spec. speed .... rpm	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		

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Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	IE3
		1LE1073						1LE1573							
											1LE5773				
1LE1 . . . -. . . . . -. . . . -Z	Order code														
Special technology [5] (continued)															
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed .... rpm), terminal box dust protection	**Y76** • and spec. speed .... rpm	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed .... rpm), terminal box dust protection	**Y79** • and spec. speed (max 3) .... rpm	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Mechanical version and degrees of protection															
Low-noise version for 2-pole motors with clockwise direction of rotation	**F77**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓		
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓		
Prepared for mounted components, centering hole only	**G40**	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□		
Prepared for mountings with D12 shaft	**G41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Prepared for mountings with D16 shaft	**G42**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mechanical protection for encoder	**G43**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Protective cover [7] [9]	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Screwed-on (instead of cast) feet	**H01**	□	□	□	□	□	□	□	□	□	□	□	–		
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994 [29]	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Condensation drainage holes [28]	**H03**	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□		
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Degree of protection IP56 [12]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar [10] [21]	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Grounding brush for converter operation	**L52**	–	–	–	–	–	–	–	–	–	–	✓	✓		
Coolant temperature and installation altitude															
Coolant temperature –50 to +40 °C	**D02**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Coolant temperature –40 to +40 °C [13]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Coolant temperature –30 to +40 °C	**D04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Versions in accordance with standards and specifications															
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	**D22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Bearings and lubrication															
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A [1]	**L19**	–	–	–	–	–	–	✓	✓	✓	✓	○	○		
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	□	□	□	□	□	□	□		
Bearing design for increased cantilever forces [27]	**L22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Regreasing device [1]	**L23**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	□	□		
Bearings reinforced at both ends for DE and NDE, bearing size 63 [14]	**L25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□		
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	**L28**	–	–	–	–	–	–	✓	✓	✓	✓	–	–		
Bearing insulation DE	**L50**	–	–	–	–	–	–	–	–	✓	✓	✓	✓		
Bearing insulation NDE	**L51**	–	–	–	–	–	–	–	–	✓	✓	✓	✓		
Measuring nipple for SPM shock pulse measurement for bearing inspection [1]	**Q01**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Balance and vibration severity															
Vibration severity grade A		□	□	□	□	□	□	□	□	□	□	□	□		
Vibration severity grade B [15]	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Half-key balancing (standard)		□	□	□	□	□	□	□	□	□	□	□	□		
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

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Aluminum series SIMOTICS GP 1LE1073 and cast-iron series SIMOTICS SD 1LE1573, 1LE5773

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	IE3
		1LE1073													
								1LE1573							
											1LE5773				
1LE1 . . . -. . . . . -. . . . -Z	Order code														
Shaft and rotor															
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Non-standard cylindrical shaft extension, DE [16]	**Y58** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Non-standard cylindrical shaft extension, NDE [16]	**Y59** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Special shaft steel	**Y60** • and customer specifications	–	–	–	–	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.		
Heating and ventilation															
Sheet metal fan cover	**F74**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Metal external fan [17) 29)]	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Without external fan and without fan cover	**F90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Separately driven fan with non-standard voltage and/or frequency	**Y81** • and customer specifications	–	–	–	–	–	–	–	–	✓	✓	✓	✓		
Rating plate and additional rating plates															
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Rating plate, stainless steel	**M11**	□	□	□	□	□	□	□	□	□	□	□	□		
Additional rating plate with deviating rating plate data	**Y80** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Additional rating plate with customer specifications	**Y82** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Additional information on rating plate and on package label (max. 20 characters)	**Y84** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85** • and customer specifications	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Packaging, safety notes, documentation and test certificates															
Inspection certificate 3.1 according to EN 10204 [18]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Standard test (routine test) with acceptance	**B65**	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Type test with heat run for horizontal motors, without acceptance	**B82**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

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- ◘ Standard version
- ○ Without additional charge
- • This order code only determines the price of the version – Additional plain text is required.
- ✓ With additional charge
- O. R. Possible on request
- – Not possible

1) Up to frame size 160 not possible when brake is mounted.

2) Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended.

3) Parallel Whitworth threaded pipe DIN ISO 228 (DIN 259) BSPP (British Standard Pipe Parallel) threaded pipe for connections not sealed in the thread (cylindrical), external = G.

4) Cannot be used for motors in UL version (order code **D31**). The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

5) A second shaft extension is not possible. Please inquire for mounted brakes.

6) For order codes **F10**, **F11**, **F12**, **F17**, and **F18**, the brake supply voltage must be specified or ordered.

7) LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.

8) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB! This option cannot be used in combination with brakes of type 2LM8!

9) Order code **H00** provides mechanical protection for encoders.

10) Not possible for type of construction IM V3.

11) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake 2LM8 (order code **F01**).

12) Not possible in combination with 2LM8 brake – order code **F01**.

13) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

14) From frame size 280 standard version.

15) On request for 2-pole motors (concerns frame sizes 225 to 315).

16) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347, Form A are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.

17) Converter operation is permitted for 1LE1 motors with metal external fans.

18) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

19) With **H08**, feet dimensions C and CA differ from EN 50347! Further information is available in the DT Configurator (see Appendix, "Tools and engineering").

20) Order codes **F70** and **F76** cannot be combined.

21) Not possible in combination with order codes **Q72** and **Q78**.

22) For frame sizes 100 to 132 only possible in combination with order code **R50**.

23) Not possible in combination with order codes **N05**, **N06**, **N07**, **N08**, and **N11**.

24) For frame size 315, when combining order codes **F01** and **F12**, the rectifier for the brake will be supplied separately as a single part.

25) Order code **S06** cannot be combined with order codes **S00**, **S01**, and **S02**. It can be combined with **Y53** and **Y56** on request.

26) Order codes **F70** (separately driven fan) and **H02** (vibration-proof version) cannot be combined for motors in frame sizes 71, 80, and 90.

27) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

28) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

29) Not possible in combination with order code **R50**.

30) With IM B5 flange, only possible in combination with **H08**.

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Overview

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Flender is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner – ordering from catalog
Siemens MD 10.1 "FLENDER Standard Couplings"

or

Flender GmbH
Kupplungswerk Mussum
Industriepark Bocholt
Schlavenhorst 100
46395 Bocholt, Germany
Phone +49 (2871) 922185
Fax +49 (2871) 922579

www.flender.com
Email: flender-kupplungen-2.pd.de@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG
Rutesheimer Strasse 22
70499 Stuttgart, Germany
Phone +49 (711) 1388-0
Fax +49 (711) 1388-233

www.ottoroth.de
Email: info@ottoroth.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without washers) and fitted with taper pins is not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923.
For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

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More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
  - For up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable replacement motor with regard to the mounting dimensions and functions (the type series may vary).
  - If a replacement motor is supplied within the 3-year period, this does not mean that the warranty restarts.
  - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
  - Spare parts are offered only for these spare motors on-request; repair and replacement are not possible.
  - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
  - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
  - Designation and part number
  - Article No. and factory number of the motor.

  Example for ordering a fan cover 1LE1003, frame size 112 M, 4-pole:

  Fan cover No. 7.40,
  1LE1003-1BB23-4AA4-Z, part No. E1001/5236197_01_001
- For bearing types, see Catalog Section 1 "Introduction".
- Repair parts for 1MJ6, 1MJ7, 1MJ8, 1MJ1, 1ME8, 1ML8 motors are available on request.
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline
  In Germany
  Phone +49 (180) 5050448

You will find telephone numbers for other countries on our Internet site:
www.siemens.com/automation/service&support

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Overview

- Dimension designations according to EN 50347 and IEC 60072.
- Fits
  The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	flange (FF)	H17

  The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

- Dimensional tolerances
  For the following dimensions, the admissible deviations are given below:

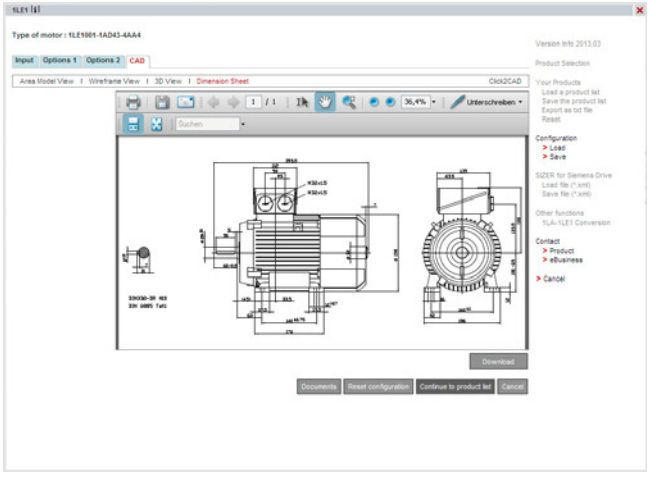
Dimension designation	Dimension	Admissible deviation
H	to 250	– 0.5
	over 250	– 1.0
E, EA		– 0.5

  Keyways and feather keyways (dimensions GA, GC, F, and FA) are made in compliance with DIN 6885 Part 1.
- All dimensions are specified in mm.

Dimension sheet generator (within the DT Configurator)

Overview

A dimensional drawing can be created in the "Drive Technology Configurator" (DT Configurator) for every configurable motor.
A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.
These dimensional drawings can be presented in different views and sections and printed.
The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated into the Siemens Industry Mall and can be used on the Internet without installation.
German: www.siemens.de/dt-konfigurator
English: www.siemens.com/dt-configurator

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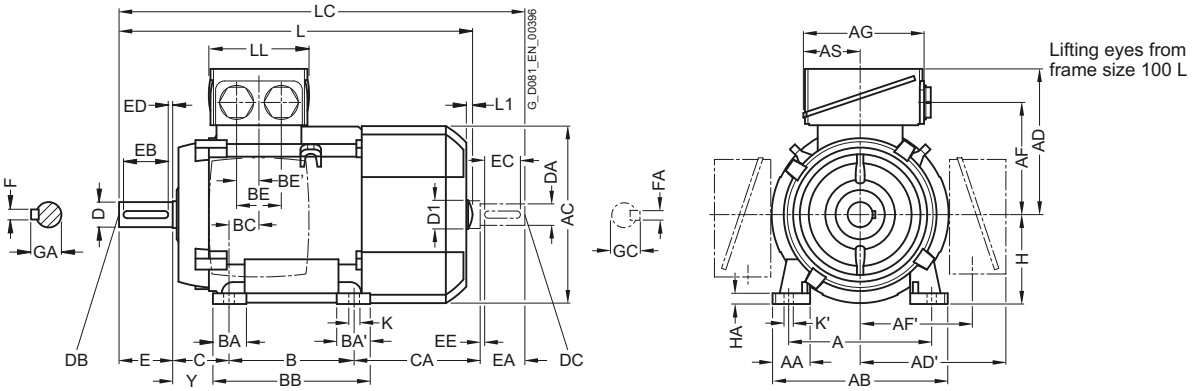
2

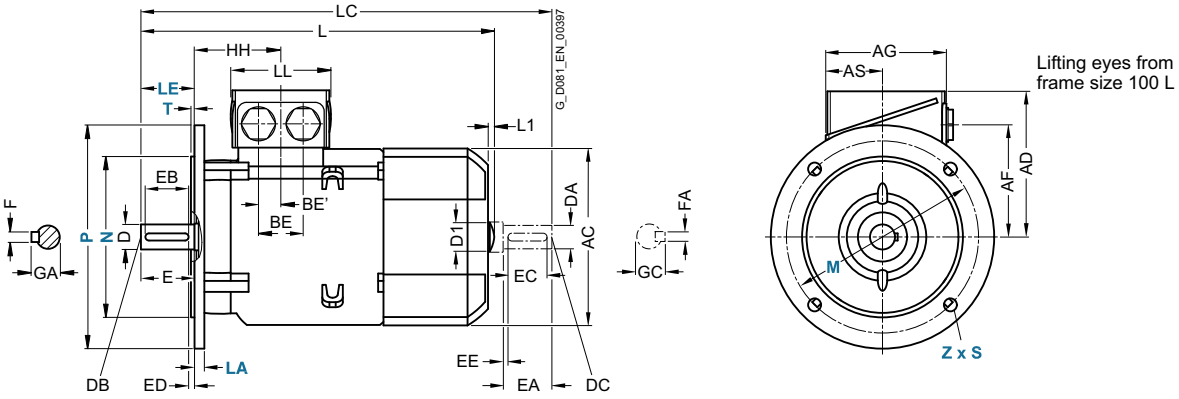
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE100. 1LE101. 1LE1021	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
63 M	1LE100.-0B.2 1LE1002-0B.3	2, 4, 6	100	27	**120**	124	**101**	–	78	–	75	37.5	80	27	–	96	30	32	18	40	66	**63**	7	26.5
	1LE1001-0B.3 1LE1002-0B.6	2, 4																			92			
71 M	1LE1001, 1LE1002	2, 4, 6, 8	112	30.5	**132**	145	**111**	–	88	–	75	37.5	90	27	–	106	18	32	18	45	83	**71**	7	31.5
80 M	1LE1001 1LE1041	2, 4, 6	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	32	118	23	–	18[1]	50	113	**80**	8	41
90 S		2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	100	33	54	143	22.5	–	18[1]	56	174	**90**	10	47
90 L		2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	125	33	54	143	22.5	–	18[1]	56	174	**90**	10	47
100 L	All	2, 4, 6, 8	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	141	**100**	12	45
112 M	All	2, 4, 6, 8	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	130	**112**	12	52
132 S	All	2, 4, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76[3]	218[4]	26.5	48	24	89	167	**132**	15	69
132 M	All	2, 4, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	179	**132**	15	69
160 M	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[5]	300[6]	47	57	28.5	108	192	**160**	18	85
160 L	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	148[2]	**160**	18	85
180 M	All	2, 4, 6, 8	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	**180**	20	95
180 L	All	2, 4, 6, 8	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	All	2, 4, 6, 8	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

[1] Only one termination hole available.
[2] Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension CA* is 208 mm.
[3] With screwed-on feet, dimension BA' is 38 mm.
[4] With screwed-on feet, dimension BB is 180 mm.
[5] With screwed-on feet, dimension BA' is 44 mm.
[6] With screwed-on feet, dimension BB is 256 mm.

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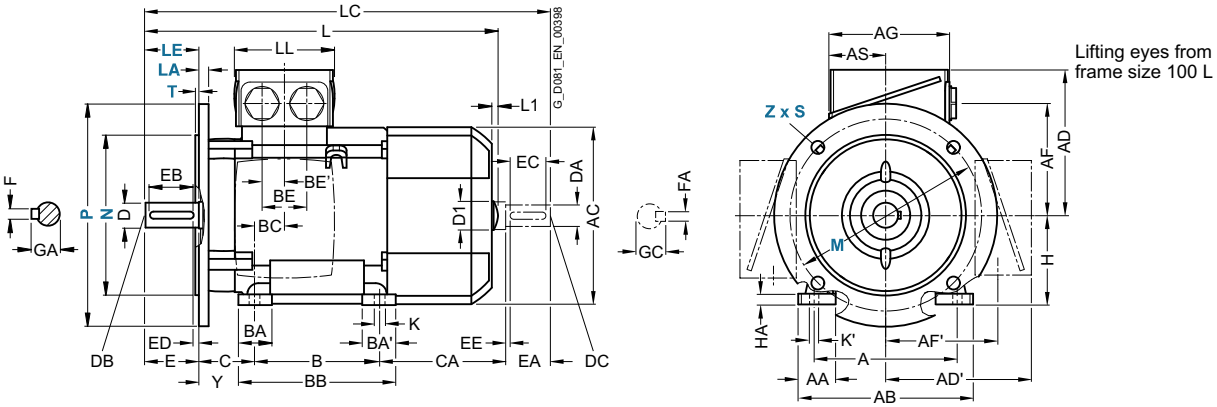
Dimensional drawings

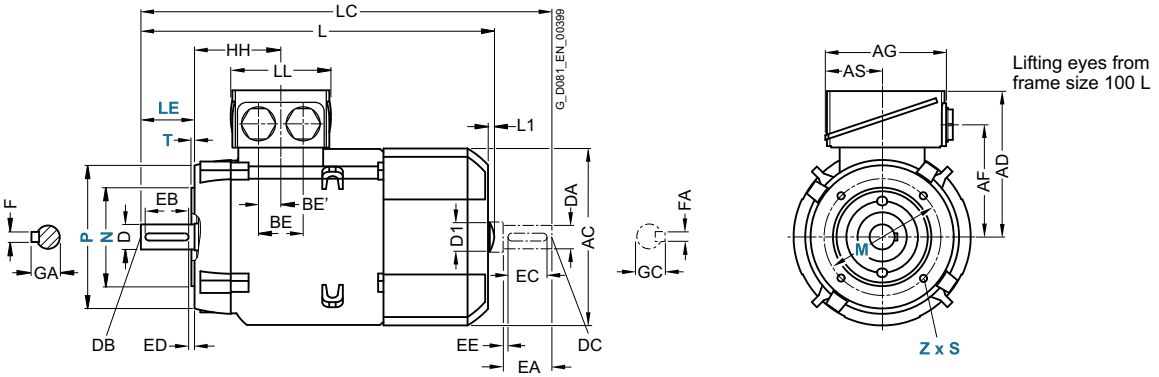
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE100. 1LE101. 1LE1021	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
63 M	1LE100.-0B.2 1LE1002-0B.3	2, 4, 6	69.5	7	10	**202.5**[4]	–	–	232[4]	75	11	M4	23	16	3.5	4	12.5	11	M4	23	16	3.5	4	12.5
	1LE1001-0B.3 1LE1002-0B.6	2, 4				**228.5**			258															
71 M	1LE1001, 1LE1002	2, 4, 6, 8	63.5	7	10	**240**	–	–	278	75	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	1LE1001 1LE1041	2, 4, 6	73	9.5	13.5	**292**	–	–	342.5	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S		2, 4, 6	78.5	10	14	**347**	–	–	405	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L		2, 4, 6	78.5	10	14	**347**	–	–	405	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	**395.5**	7	32	454	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	96	12	16	**389** **414**	7	32	450 475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	155	15	19	**604**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	155	15	19	**604**[2]	10	45	730[3]	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	All	2, 4, 6, 8	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	All	2, 4, 6, 8	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	All	2, 4, 6, 8	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] The length is specified as far as the tip of the fan cover.

[2] Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension L is 664 mm.

[3] Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension LC is 790 mm.

[4] For 1LE1002-0B.3 with the type of construction code letters (14th position of the article number) **F**, **G**, **H** (IM B5, IM V1 without protective cover, IM V3) is dimension L 228.5 mm. Dimension LC is 258 mm.

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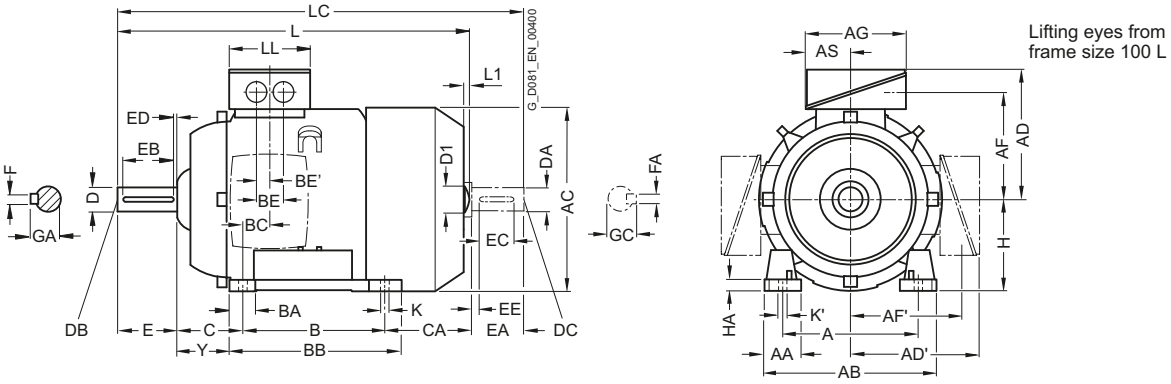
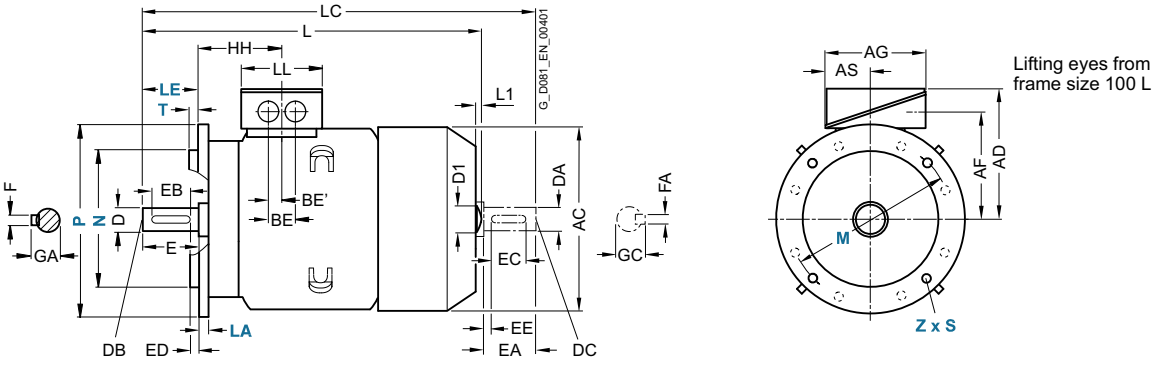
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1LE1001 1LE1002 1LE1041	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	All	2, 4	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	32	118	23	–	18[1]	50	148	**80**	8	41
90 L	All	2, 4	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	125	33	54	143	22.5	–	18[1]	56	174	**90**	10	47
100 L	All	2, 4, 6, 8	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	**100**	12	45
112 M	All	2, 4, 6, 8	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	**112**	12	52
132 M	All	2, 4, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	179	**132**	15	69
160 L	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	**160**	18	85
180 L	1LE1001 1LE1002	2, 4, 6, 8	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	1LE1001 1LE1002	2, 4, 6, 8	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

[1] Only one termination hole available.

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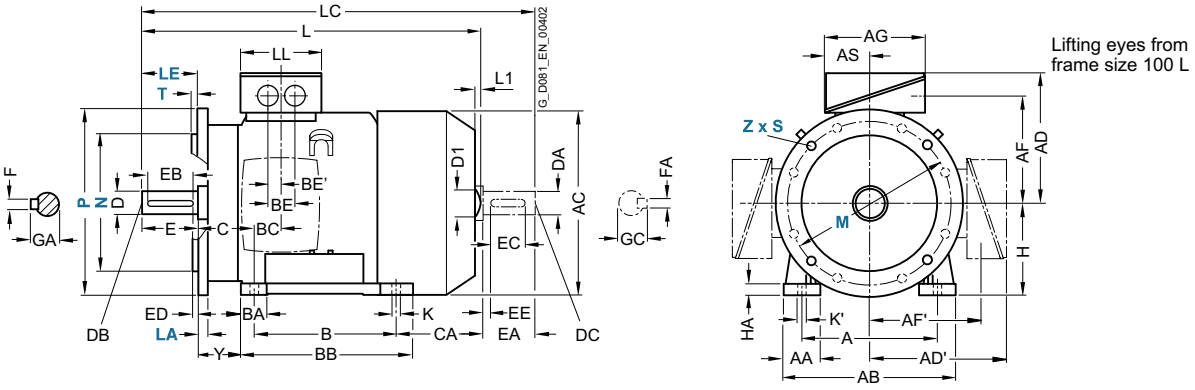
Dimensional drawings

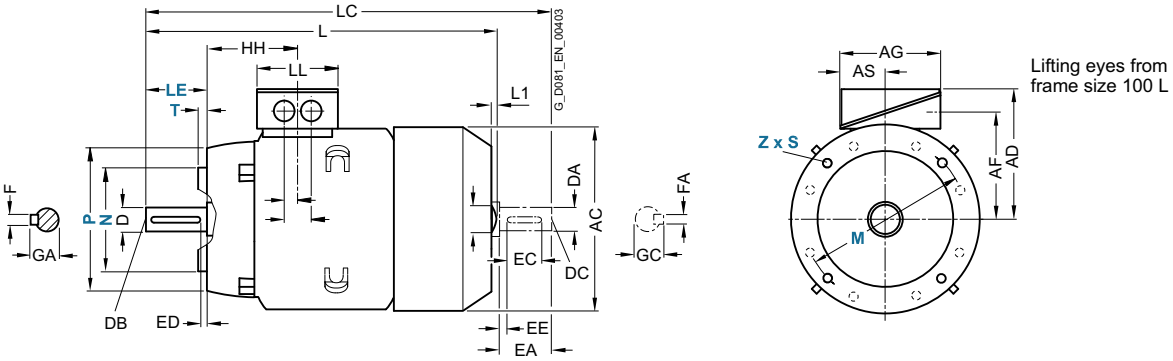
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1001 1LE1002 1LE1041	No. of poles	HH	K	K'	**L** [1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	All	2, 4	73	9.5	13.5	**327**	327	–	378	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 L	All	2, 4	78.5	10	14	**387**	–	–	445	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	**430.5**	7	32	489	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	96	12	16	**414**	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 M	All	2, 4, 6, 8	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 L	All	2, 4, 6, 8	155	15	19	**664**	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 L	1LE1001 1LE1002	2, 4, 6	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	1LE1001 1LE1002	2, 4, 6	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] The length is specified as far as the tip of the fan cover.

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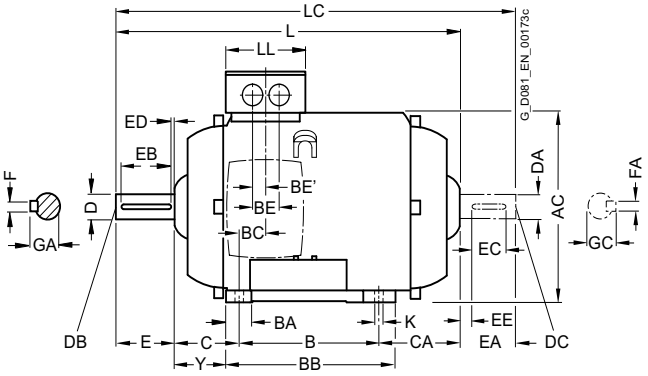
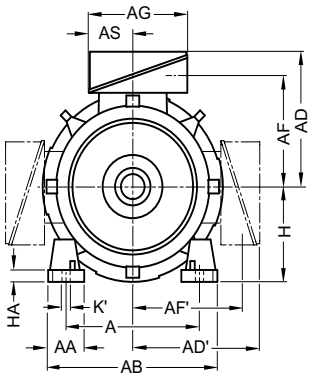
2

Dimensional drawings

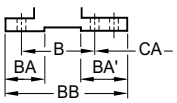
Type of construction IM B3





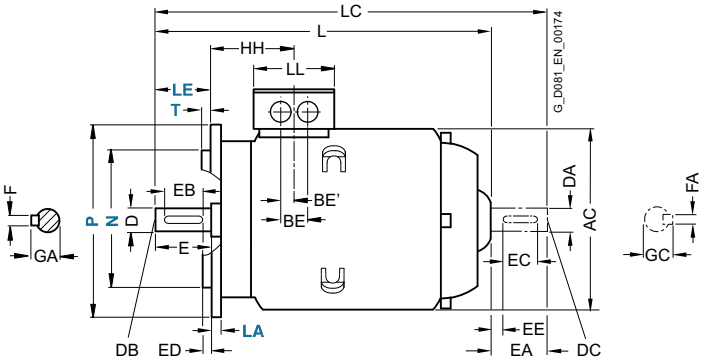
Lifting eyes from frame size 100 L

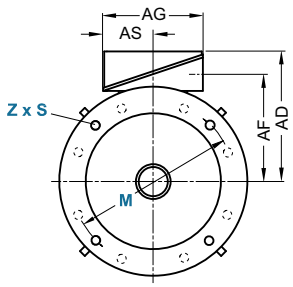
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1LE100. 1PC100. 1LE1021	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	1LE1001	2, 4, 6	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	32	118	23	–	18[5]	50	70.5	**80**	8	41
	1LE1021	2, 4, 6					**149.5**	149.5	112.5	112.5	119.5	61.5												
90 S	1LE1001	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	100	33	54	143	22.5	–[5]	18[5]	56	103	**90**	10	47
	1LE1021	2, 4, 6					**154.5**	154.5	117.5	117.5	119.5	61.5												
90 L	1LE1001	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	125	33	54	143	22.5	–[5]	18[5]	56	78	**90**	10	47
	1LE1021	2, 4, 6					**154.5**	154.5	117.5	117.5	119.5	61.5												
100 L	All	2, 4, 6, 8	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	63	**100**	12	45
112 M	All	2, 4 6, 8	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	45 70	**112**	12	52
132 S	All	2, 4, 6, 8	216	53	**256**	261	**202**	202	159.5	159.5	155	70.5	140	38	76[1]	218[2]	26.5	48	24	89	77	**132**	15	69
132 M	All	2, 4, 6, 8	216	53	**256**	261	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	39	**132**	15	69
160 M	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[3]	300[4]	47	57	28.5	108	92	**160**	18	85
160 L	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	48	**160**	18	85
180 M	1LE1001 1LE1021	2, 4, 6, 8	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	124	**180**	20	95
200 L	1LE1001 1LE1021	2, 4, 6, 8	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	101	**200**	25	108

[1] With screwed-on feet, dimension BA' is 38 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 44 mm.
[4] With screwed-on feet, dimension BB is 256 mm.
[5] Only one termination hole available, except for 1LE1021. In this case, dimension BE is 32 mm.

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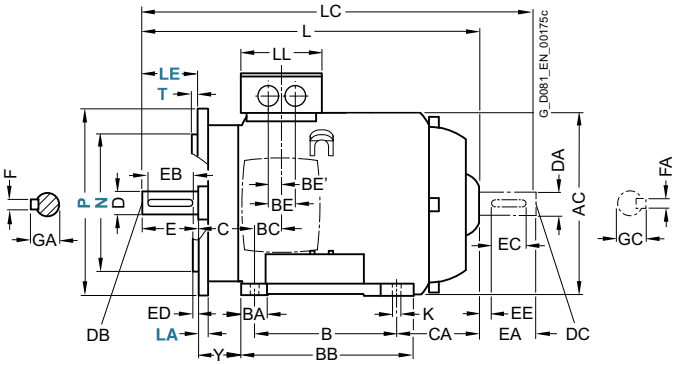
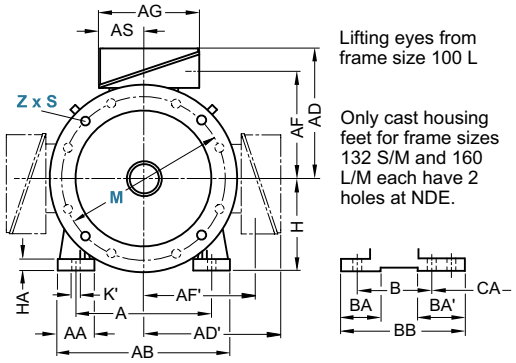
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



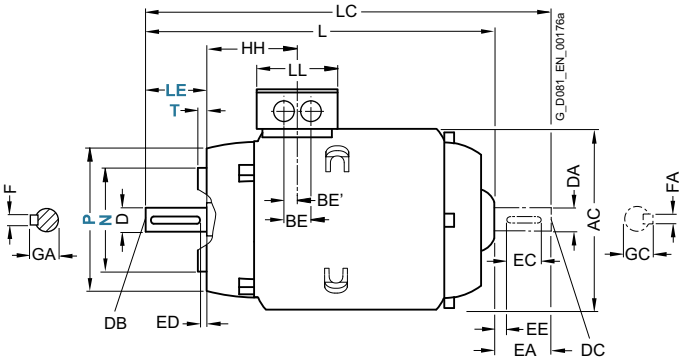


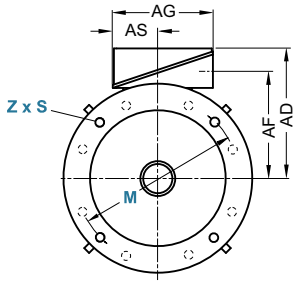
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**						DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE100. 1PC100. 1LE1021	No. of poles	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1LE1001	2, 4, 6	73	9.5	13.5	**253**	300.5	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	1LE1021	2, 4, 6						123														
90 S	1LE1021	2, 4, 6	78.5	10	14	**294.5**	349	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
	1LE1021	2, 4, 6						123														
90 L	1LE1021	2, 4, 6	78.5	10	14	**294.5**	349	123	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
	1LE1021	2, 4, 6						123														
100 L	All	2, 4, 6, 8	96.5	12	16	**324**	376	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4 6, 8	96	12	16	**311 336**	365 390	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	**380.5**	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	**380.5**	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	155	15	19	**510**	630	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	155	15	19	**510**	630	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1LE1001 1LE1021	2, 4, 6, 8	151	14.5	19	**698**	706	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
200 L	1LE1001 1LE1021	2, 4, 6, 8	178	18.5	25	**746**	759	185	55	M20	110	100	5	16	59	55	M20	110	100	100	16	59

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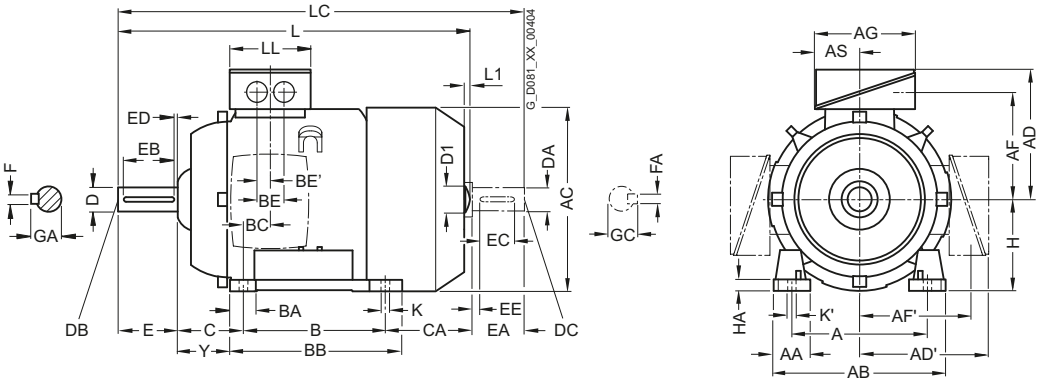
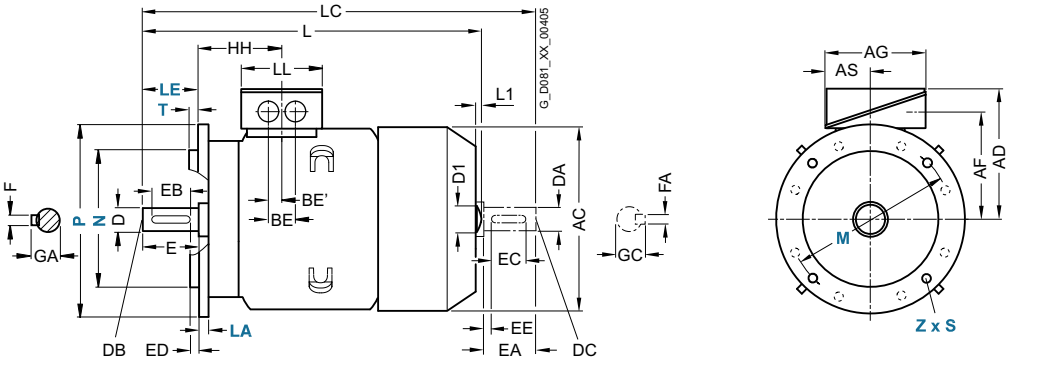
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	1LE1003-0DA2, -0DB2, -0DC2 -0DA3, -0DB3, -0DC3	2, 4, 6	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	118	23	–[1]	18[1]	50	113 148	**80**	8	41
	1LE1043-0DA2,	2																					
	1LE1023-0DA2, -0DB2, -0DC2 -0DA3, -0DB3, -0DC3	2, 4, 6					**149.5**	149.5	112	112	119.5	61.5								113 148			
90 S	1LE1003-0EA0, -0EB0, -0EC0	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	100	33	143	22.5	–[1]	18[1]	56	159	**90**	10	47
	1LE1043-0EA0,	2																					
	1LE1023-0EA0, -0EB0, -0EC0	2, 4, 6					**154.5**		117.5	117	119.5	61.5											
90 L	1LE1003-0EA4, -0EB4, -0EC4	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	125	33	143	22.5	–[1]	18[1]	56	154	**90**	10	47
	1LE1043-0EA4, -0EB4	2, 4																					
	1LE1023-0EA4, -0EB4, -0EC4	2, 4, 6					**154.5**		117.5	117.5	119.5	61.5											

[1] Only one termination hole available, except for 1LE1023.
In this case, dimension BE is 32 mm.

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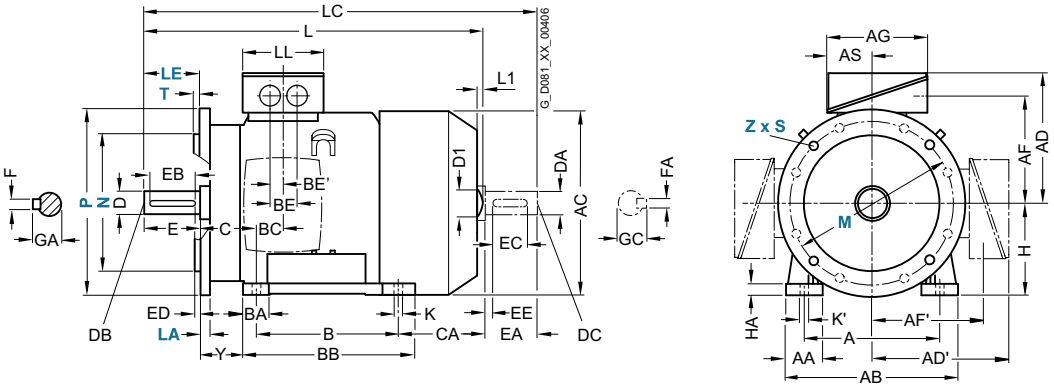
Dimensional drawings

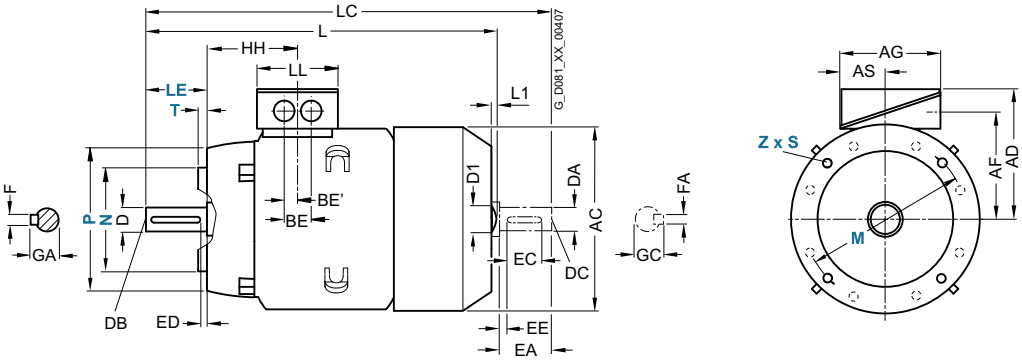
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1LE1003-0DA2, -0DB2, -0DC2, -0DA3, -0DB3, -0DC3	2, 4, 6	73	9.5	13.5	**292**	–	–	343	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
						327			378															
	1LE1043-0DA2,	2				**292**																		
	1LE1023-0DA2, -0DB2, -0DC2, -0DA3, -0DB3, -0DC3	2, 4, 6				**292**			343	123														
						327			378															
90 S	1LE1003-0EA0, -0EB0, -0EC0	2, 4, 6	78.5	10	14	**347**	–	–	405	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
	1LE1043-0EA0,	2																						
	1LE1023-0EA0, -0EB0, -0EC0	2, 4, 6								123														
90 L	1LE1003-0EA4, -0EB4, -0EC4	2, 4, 6	78.5	10	14	**387**	–	–	445	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
	1LE1043-0EA4, -0EB4	2, 4																						
	1LE1023-0EA4, -0EB4, -0EC4	2, 4, 6								123														

[1] The length is specified as far as the tip of the fan cover.

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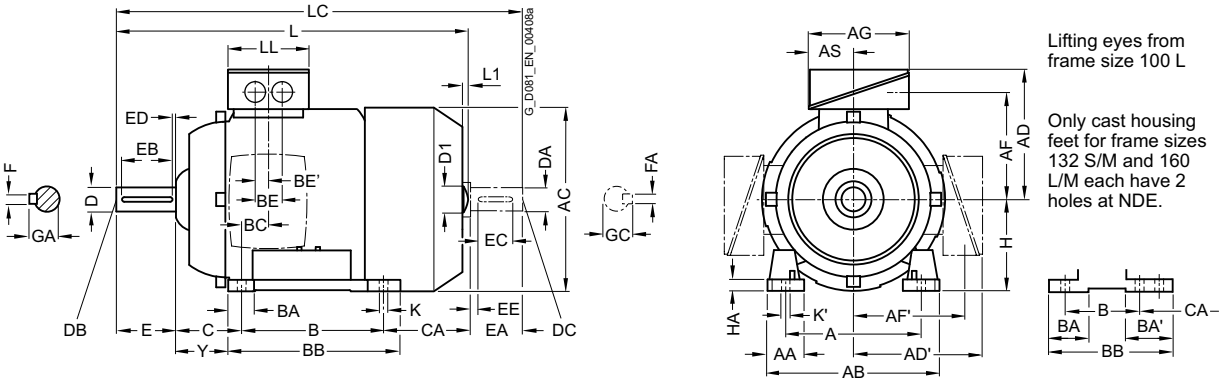
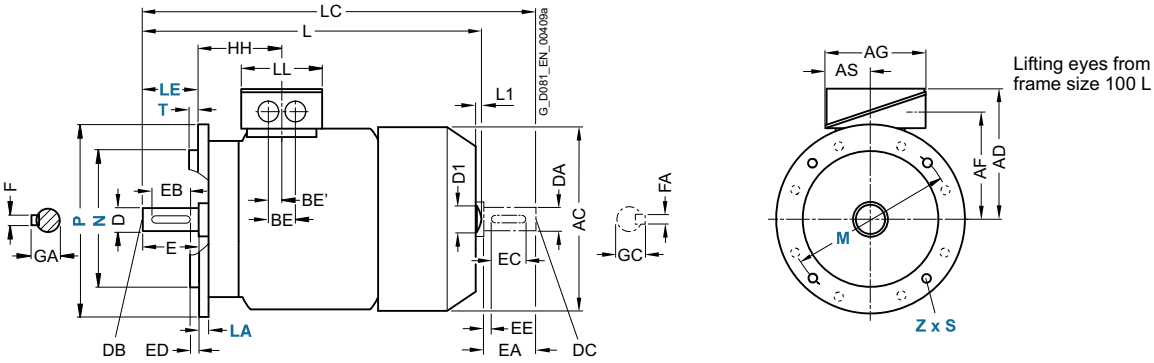
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1003- 1LE1023- 1LE1043-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	1AA4, 1AB4, 1AB5, 1AC4	2, 4, 6	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	**100**	12	45
112 M	1BA2, 1BB2, 1BC2	2, 4, 6	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	**112**	12	52
132 S	1CA0, 1CC0, 1CD0	2, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76[1]	218[2]	26.5	48	24	89	167	**132**	15	69
	1CA1, 1CB0	2, 4													38	180					217			
132 M	1CC2	6	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	129	**132**	15	69
	1CB2, 1CC3, 1CD2	4, 6, 8													38						179			
160 M	1DA2, 1DA3, 1DB2, 1DC2, 1DD2, 1DD3	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[3]	300[4]	47	57	28.5	108	192	**160**	18	85
160 L	1DA4, 1DB4, 1DC4, 1DD4	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	**160**	18	85
180 M	1EA2 1EB2	2, 4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	**180**	20	95
180 L	1EB4, 1EC4, 1ED4	4, 6, 8	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

[1] With screwed-on feet, dimension BA' is 38 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 44 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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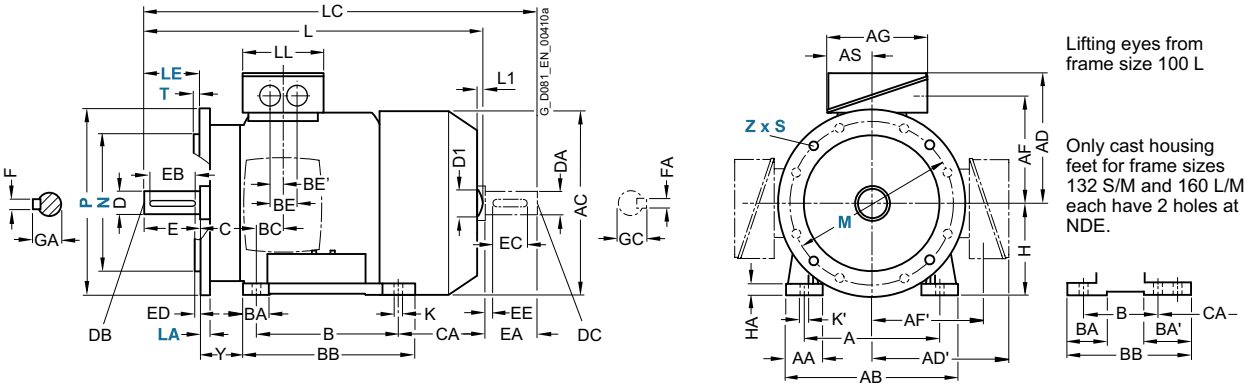
Dimensional drawings

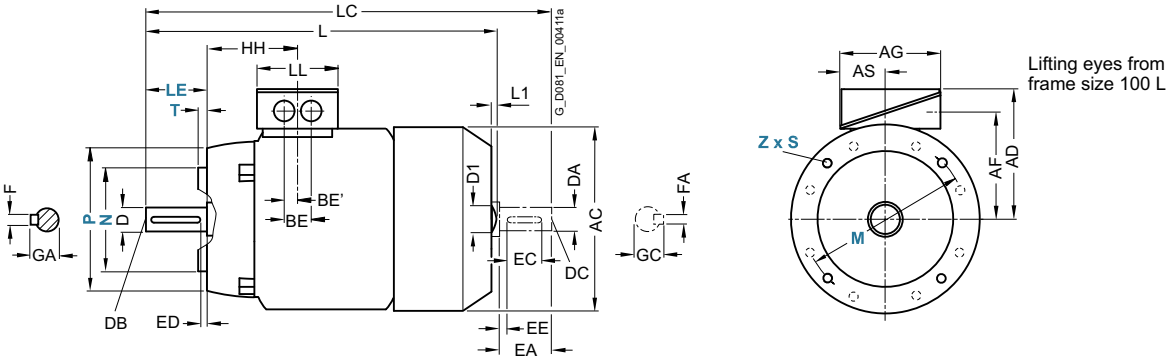
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1003-1LE1023-1LE1043	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4, 1AB4, 1AB5, 1AC4	2, 4, 6	96.5	12	16	**430.5**	7	32	489	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2, 1BC2	2, 4, 6	96	12	16	**414**	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0, 1CD0	2, 6, 8	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				**515**			585.5															
132 M	1CC2	6	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3, 1CD2	4, 6, 8				**515**			585.5															
160 M	1DA2, 1DA3, 1DB2, 1DC2, 1DD2, 1DD3	2, 4, 6, 8	155	15	19	**604**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4, 1DB4, 1DC4, 1DD4	2, 4, 6, 8	155	15	19	**664**	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EA2 1EB2	2, 4	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4, 1EC4, 1ED4	4, 6, 8	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] The length is specified as far as the tip of the fan cover.

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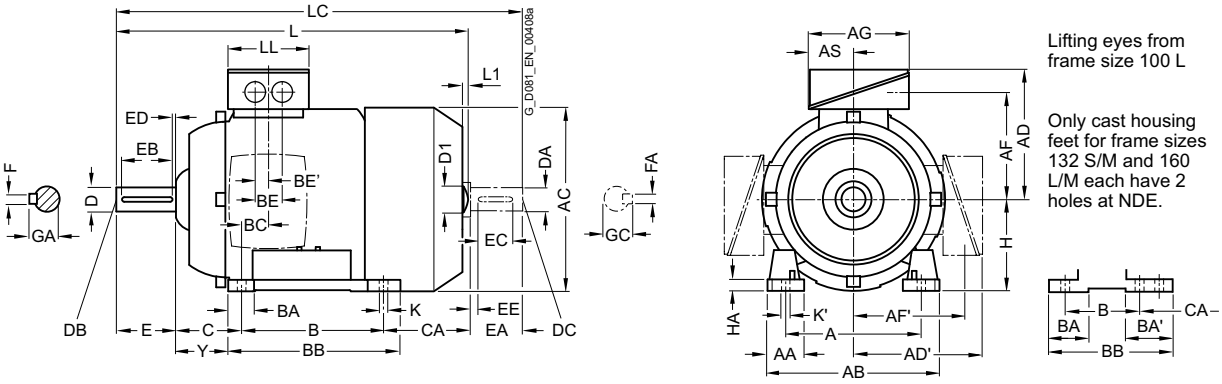
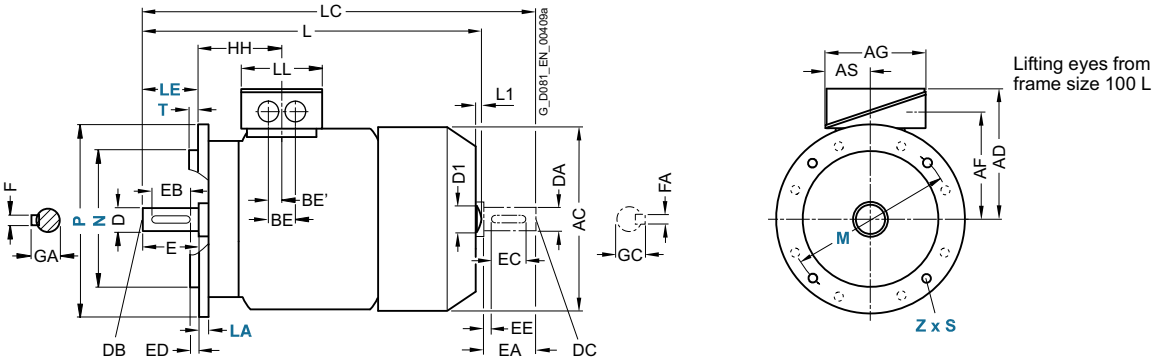
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1LE1083-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	1AA4, 1AB4	2, 4	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	**100**	12	45
	1AB5	4																			216			
112 M	1BA2	2	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	**112**	12	52
	1BB2	4																			200			
132 S	1CA0, 1CA1, 1CB0	2, 4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76[1]	218[2]	26.5	48	24	89	167	**132**	15	69
132 M	1CB2	4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	179	**132**	15	69
160 M	1DA2, 1DA3, 1DB2	2, 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[3]	300[4]	47	57	28.5	108	192	**160**	18	85
160 L	1DA4, 1DB4	2, 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	**160**	18	85
180 M	1EA2 1EB2	2, 4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	**180**	20	95
180 L	1EB4, 1EC4, 1ED4	4, 6, 8	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

[1] With screwed-on feet, dimension BA' is 38 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 44 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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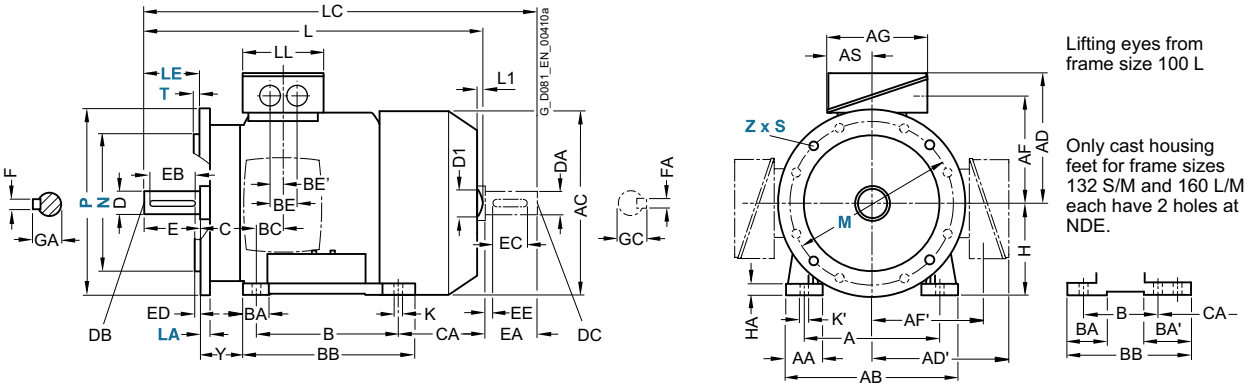
Dimensional drawings

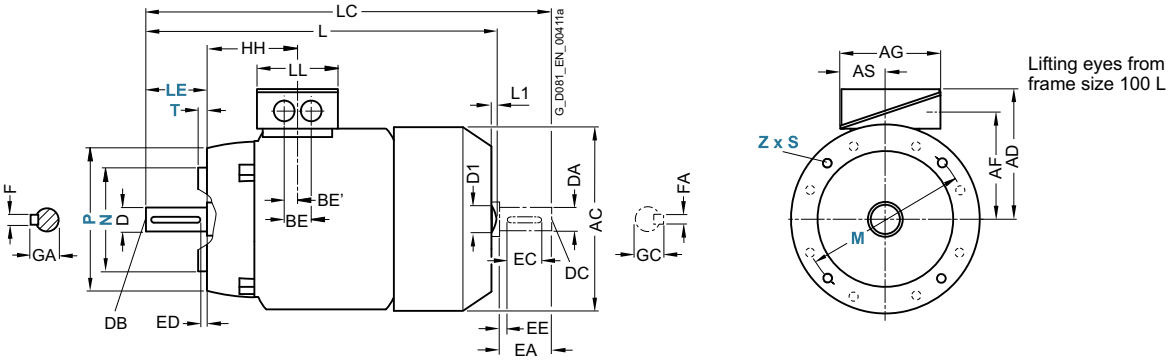
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1083	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4, 1AB4	2, 4	96.5	12	16	**430.5**	7	32	489	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1 AB5	4				**470.5**			529															
112 M	1BA2	2	96	12	16	**414**	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1BB2	4				**459**			520															
132 S	1CA0, 1CA1, 1CB0	2, 4	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DA2, 1DA3, 1DB2	2, 4	155	15	19	**604**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4, 1DB4	2, 4	155	15	19	**664**	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EA2 1EB2	2, 4	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4, 1EC4, 1ED4	4, 6, 8	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] The length is specified as far as the tip of the fan cover.

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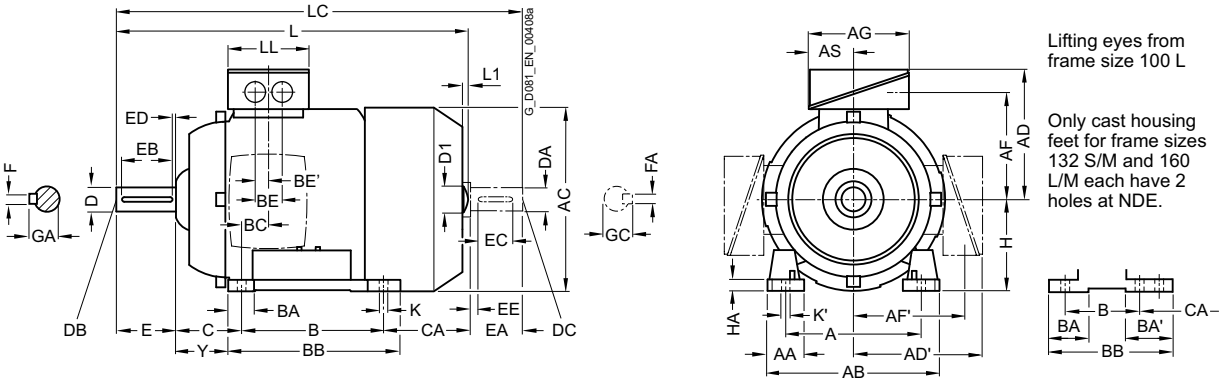
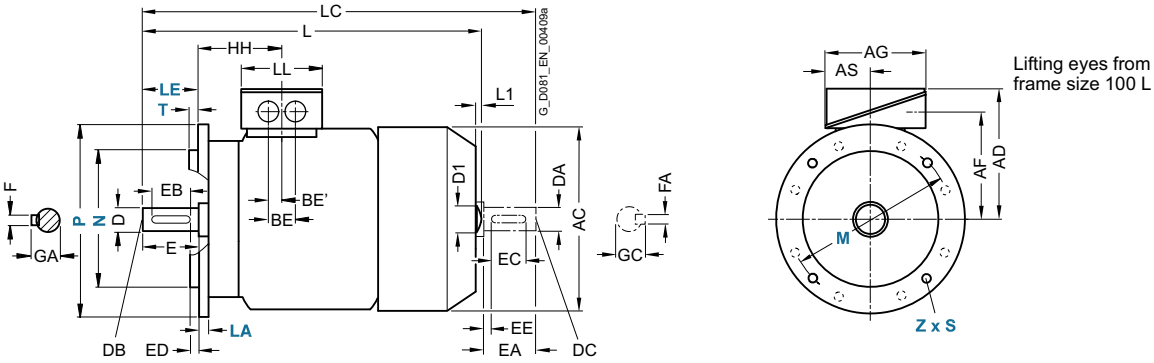
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
132 M	1LE1003-1CA6 1LE1043-1CA6	2	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	38	218	26.5	48	24	89	179	**132**	15	69
160 L	1LE1003-1DA6 -1DB6 1LE1043-1DA6	2, 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	44	300	47	57	28.5	108	268	**160**	18	85
180 L	1LE1003-1EA6 -1EB6 -1EC6	2, 4, 6	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	1LE1003-2AA6 -2AB6 -2AC6	2, 4, 6	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

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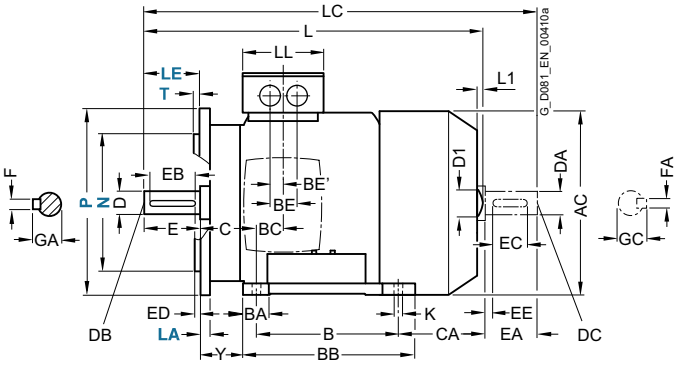
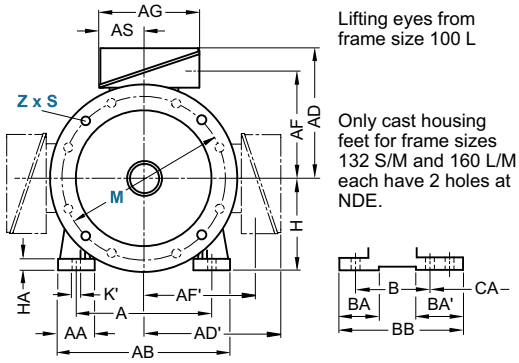
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



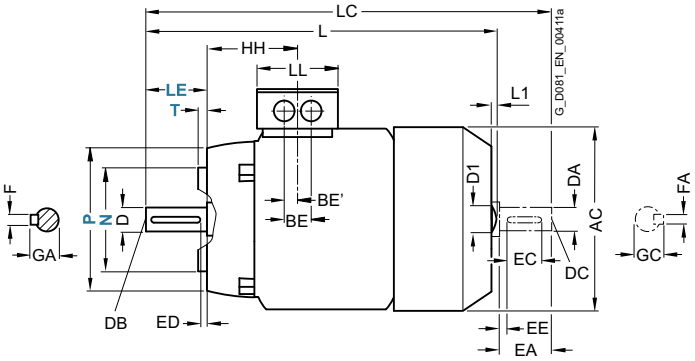


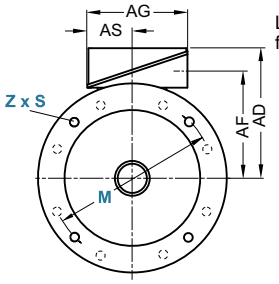
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type	No. of poles	HH	K	K'	**L**[1)]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
132 M	1LE1003-1CA6 1LE1043-1CA6	2	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 L	1LE1003-1DA6 -1DB6 1LE1043-1DA6	2, 4	155	15	19	**664**	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 L	1LE1003-1EA6 -1EB6 -1EC6	2, 4, 6	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	1LE1003-2AA6 -2AB6 -2AC6	2, 4, 6	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1)] The length is specified as far as the tip of the fan cover.

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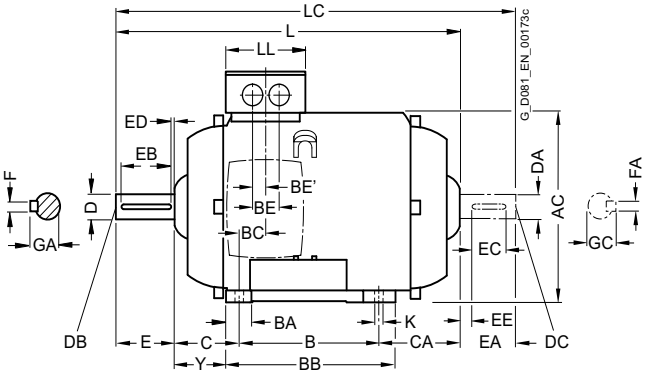
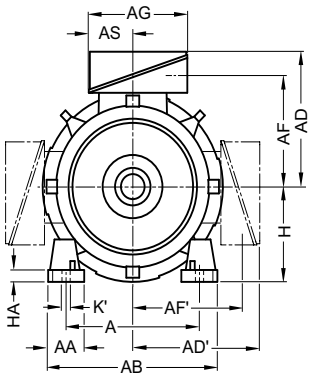
2

Dimensional drawings

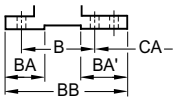
Type of construction IM B3





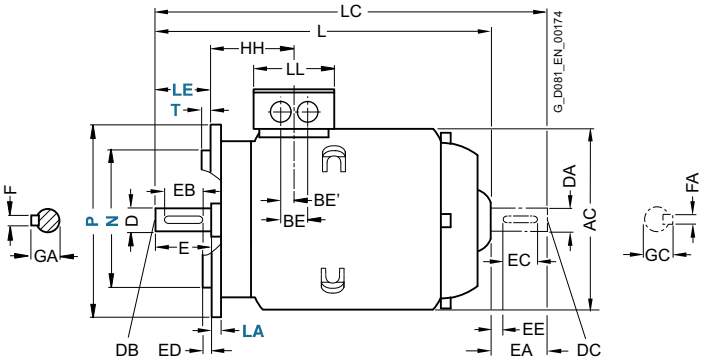
Lifting eyes from frame size 100 L

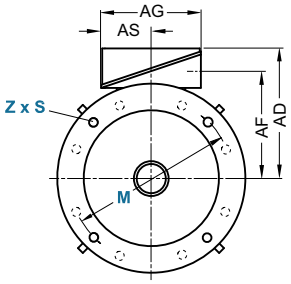
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1023-1LE1043-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	32	118	23	–	18[1]	50	70	**80**	8	41
	0DA3, 0DB3, 0DC3	2, 4, 6																			105.5			
90 S	0EA0, 0EB0, 0EC0	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	100	33	54	143	22.5	–	18[1]	56	113	**90**	10	47
90 L	0EA4, 0EB4, 0EC4	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	100	33	54	143	22.5	–	18[1]	56	153	**90**	10	47

[1] Only one termination hole available.

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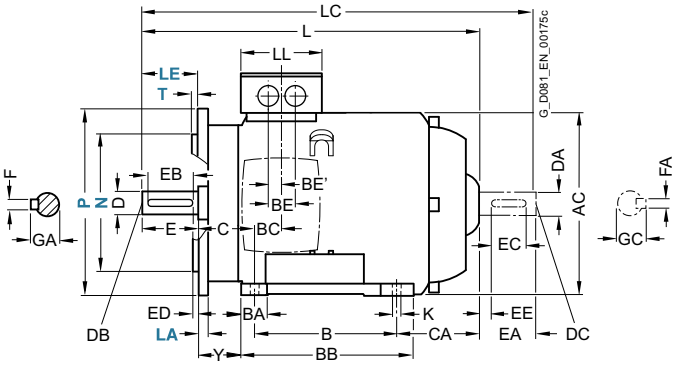
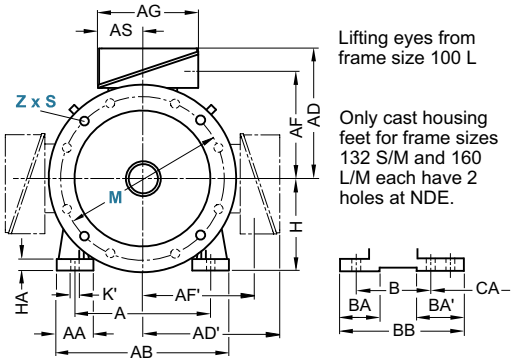
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



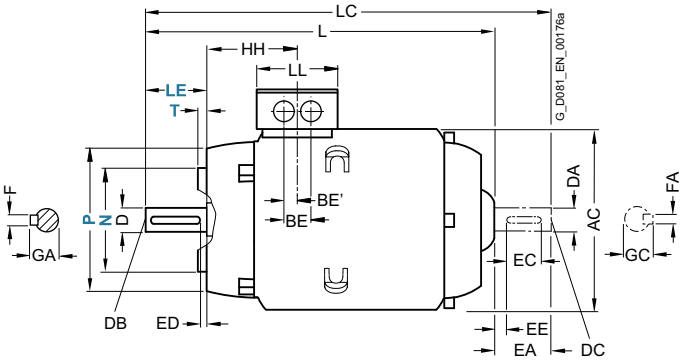


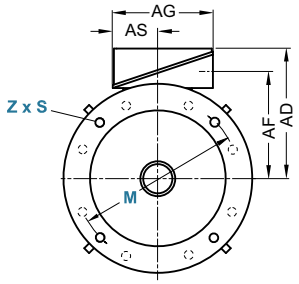
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**						DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1023-1LE1043-	No. of poles	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	73	9.5	13.5	**253.5**	300.5	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3, 0DC3	2, 4, 6				**288**	335.5															
90 S	0EA0, 0EB0, 0EC0	2, 4, 6	78.5	10	14	**294.5**	349	79	19	M6	40	32	5	8	27	19	M6	40	32	4	6	21.5
90 L	0EA4, 0EB4, 0EC4	2, 4, 6	78.5	10	14	**334.5**	389	79	19	M6	40	32	5	8	27	19	M6	40	32	4	6	21.5

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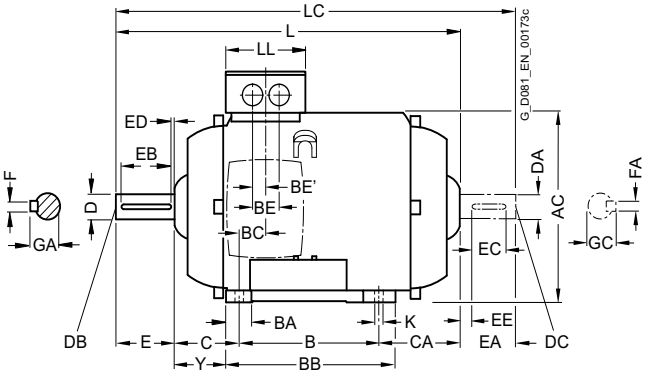
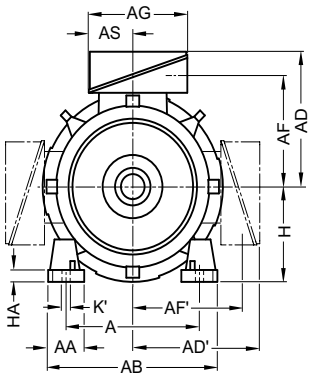
2

Dimensional drawings

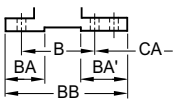
Type of construction IM B3





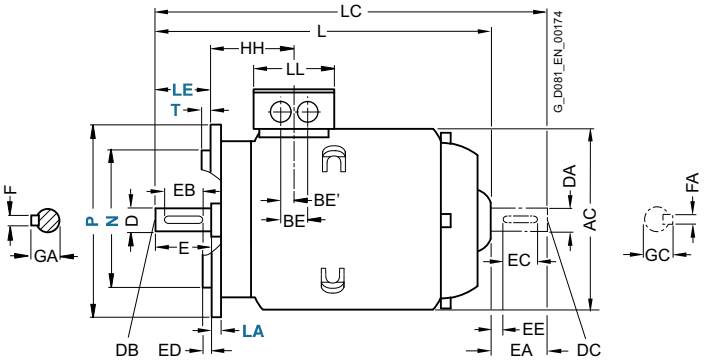
Lifting eyes from frame size 100 L

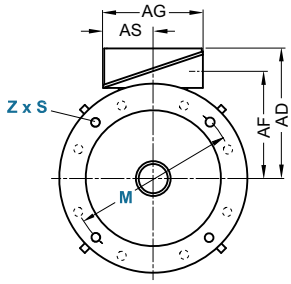
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1023-1LE1043-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	1AA4, 1AB4, 1AB5 1AC3	2, 4 6	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	–	**100**	12	45
112 M	1BA2, 1BB2	2, 4	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	–	**112**	12	52
132 S	1CA0, 1CC0	2, 6	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76[1]	218[2]	26.5	48	24	89	–	**132**	15	69
	1CA1, 1CB0	2, 4													38	180								
132 M	1CC2	6	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	–	**132**	15	69
	1CB2, 1CC3	4, 6													38									
160 M	1DA2, 1DA3, 1DB2, 1DC2	2, 4, 6	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[3]	300[4]	47	57	28.5	108	–	**160**	18	85
160 L	1DA4, 1DB4, 1DC4	2, 4, 6	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	44	300	47	57	28.5	108	–	**160**	18	85
180 M	1EA2, 1EB2,	2, 4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	–	**180**	20	95
180 L	1EB4, 1EC4	4, 6	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	–	**180**	20	95
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	2, 4, 6	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	–	**200**	25	108

[1] With screwed-on feet, dimension BA' is 38 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 44 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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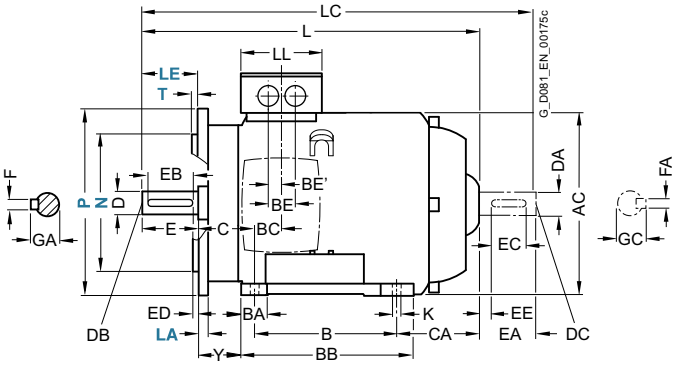
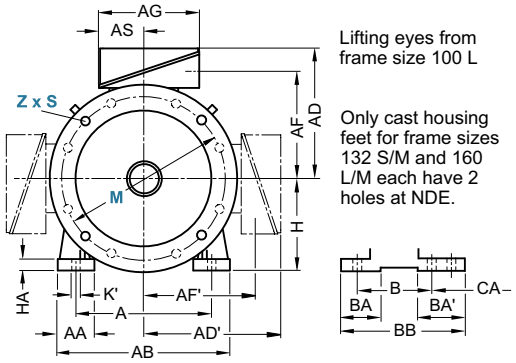
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



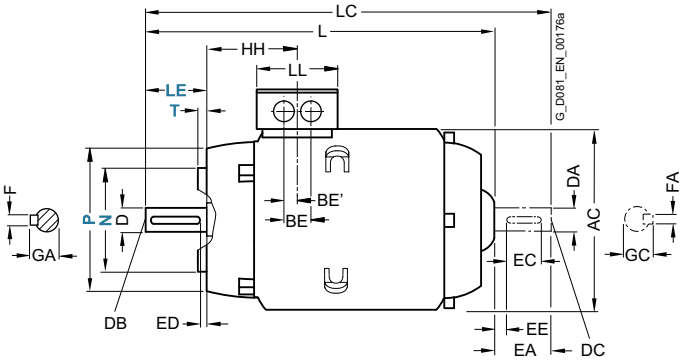


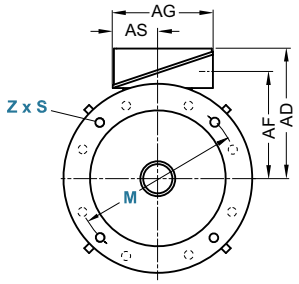
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**						DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1023-1LE1043-	No. of poles	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4, 1AB4, 1AB5 1AC3	2, 4 6	96.5	12	16	**356.5**	411	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2	2, 4	96	12	16	**336**	390	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	**380.5**	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				**430.5**	496									–	–	–	–	–	–	–
132 M	1CC2	6	115.5	12	16	**380.5**	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				**430.5**	496									–	–	–	–	–	–	–
160 M	1DA2, 1DA3, 1DB2, 1DC2	2, 4, 6	155	15	19	**510**	630	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4, 1DB4, 1DC4	2, 4, 6	155	15	19	**570**	690	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EA2, 1EB2	2, 4	151	14.5	19	**698**	706	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4, 1EC4	4, 6	151	14.5	19	**698**	706	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	2, 4, 6	178	18.5	25	**746**	759	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

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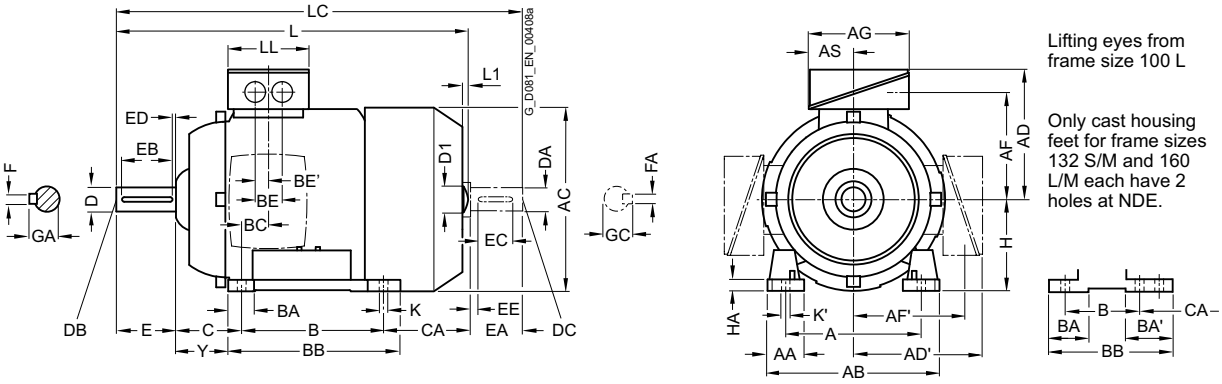
Dimensional drawings

Type of construction IM B3

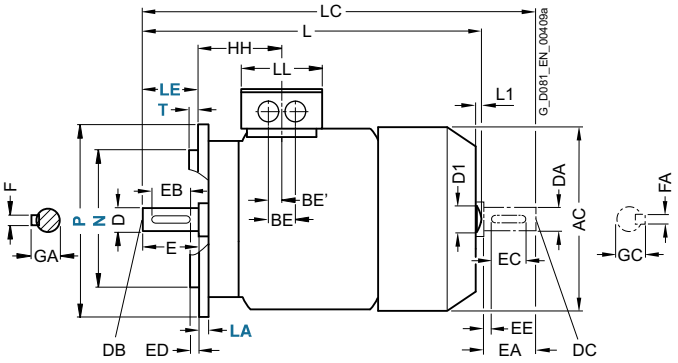


Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1LE1004-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	1AA4 1AB4 1AB5	2 4 4	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	**100**	12	45
112 M	1BA2 1BB2	2 4	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	**112**	12	52
132 S	1CA0 1CA1 1CB0	2 2 4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76[1] 38	218[2] 180	26.5	48	24	89	128.5 178.5	**132**	15	69
132 M	1CB2	4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	178.5	**132**	15	69
160 M	1DA2 1DA3 1DB2	2 2 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[3] 44	300[4] 256	47	57	28.5	108	148[5]	**160**	18	85
160 L	1DA4 1DB4	2 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	44	300	47	57	28.5	108	208	**160**	18	85
180 M	1EA2 1EB2	2 4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	**180**	20	95
180 L	1EB4	4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	2AA4 2AA5 2AB5	2 2 4	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

[1] With screwed-on feet, dimension BA' is 38 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 44 mm.
[4] With screwed-on feet, dimension BB is 256 mm.
[5] With screwed-on feet, dimension CA is 192 mm.

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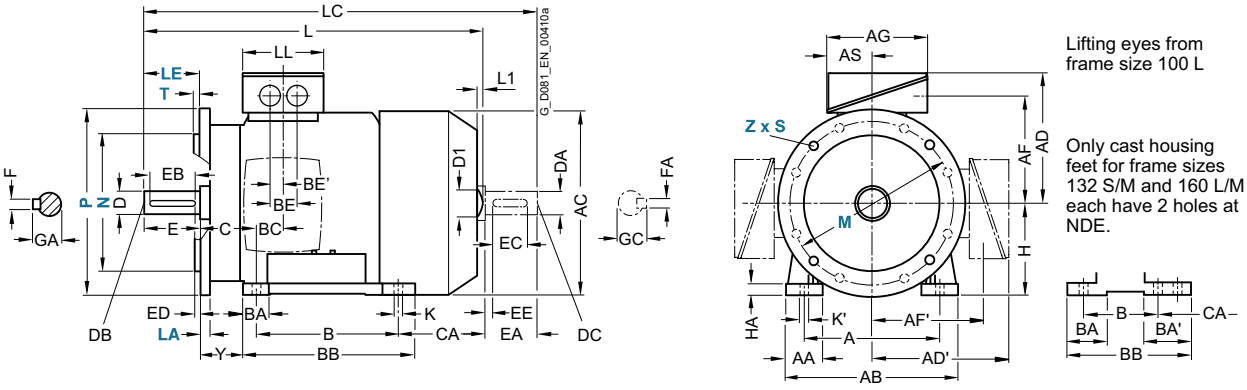
Dimensional drawings

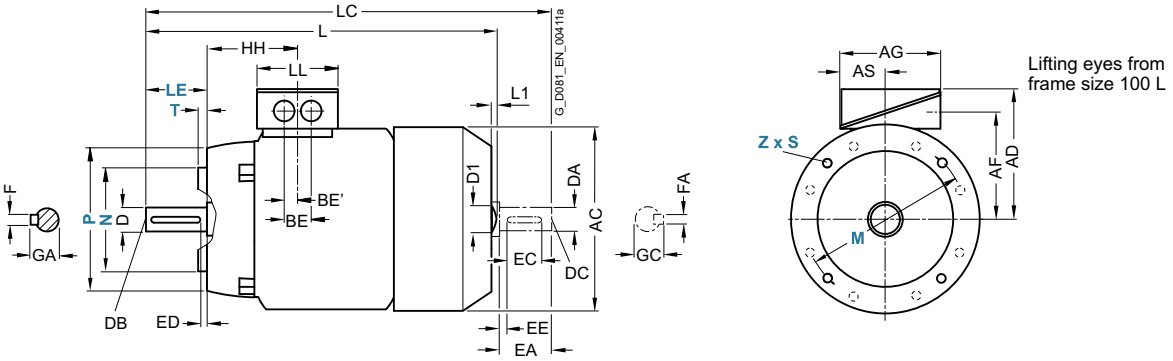
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1004-	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4 1AB4 1AB5	2 4 4	96.5	12	16	**430.5** **480.5**	7	32	489 529	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2 1BB2	2 4	96	12	16	**414** **464**	7	32	475 520	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0 1CA1 1CB0	2 2 4	115.5	12	16	**465** **515**	8.5	39	535.5 585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DA2 1DA3 1DB2	2 2 4	155	15	19	**604** **664**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4 1DB4	2 4	155	15	19	**664**	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EA2 1EB2	2 4	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4	4	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AA4 2AA5 2AB5	2 2 4	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] The length is specified as far as the tip of the fan cover.

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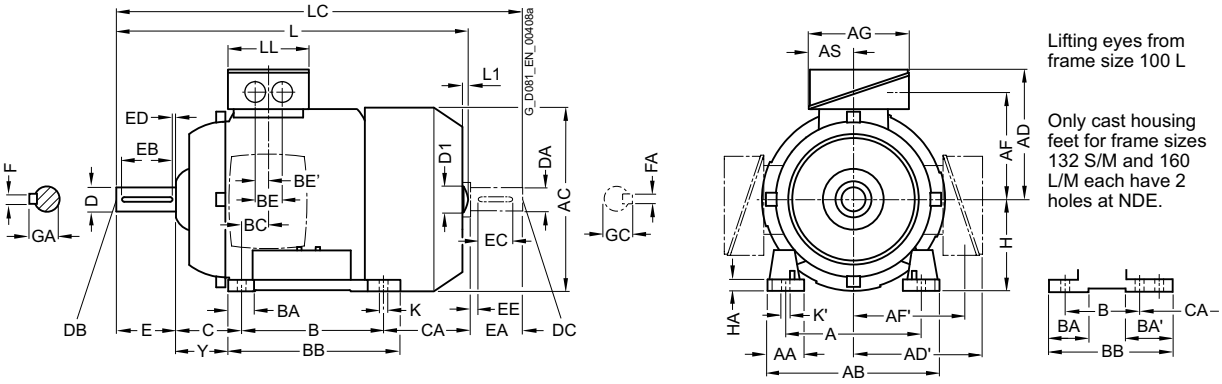
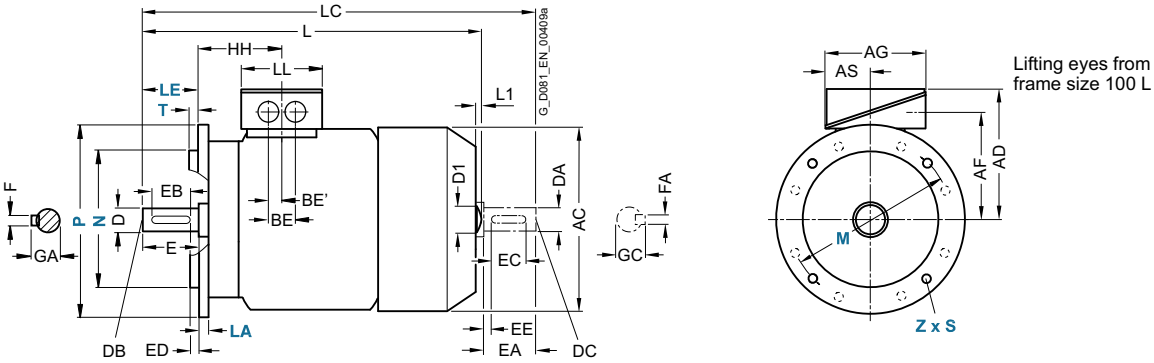
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1073-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA	**H**	HA	Y
80 M	0DA3, 0DA6, 0DB3, 0DB6, 0DC3, 0DD3	2, 4, 6, 8	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	-	118	23	–	18	50	113	**80**	8	41
	0DC2	6, 8																						
90 S	0EA4, 0EB4	2, 4	140	305	**165**	178	**126**	126	101.5	101.5	93	43	100	33	-	143	22.5	–	18	56	159	**90**	10	47
	0EC0, 0ED0	6, 8																						
90 L	0EB6	4	140	305	**165**	178	**126**	126	101.5	101.5	93	43	125	33	-	143	22.5	–	18	56	154	**90**	10	47
	0ED4	8																						
100 L	1AA4, 1AA6, 1AB5, 1AC3	2, 4, 6, 8	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	**100**	12	45
	1AB6	4																						
	1AD4	8																						
112 M	1BA5, 1BA6, 1BB5, 1BC1,	2, 4, 6, 8	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37	176	26	50	25	70	155	**112**	12	52
	1BB6	4																						
132 S	1CA1, 1CB2	2, 4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76	218	26.5	48	24	89	178.5	**132**	15	69
	1CC0, 1CC1, 1CC2, 1CC4, 1CD0	6, 8													38	180					128.5			
132 M	1CA5, 1CA6, 1CC3, 1CC6,	2, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	178.5	**132**	15	69
	1CB5, 1CB6	4																						
160 M	1DA4, 1DB4, 1DC3, 1DC4	2, 4, 6	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	44	256	47	57	28.5	108	192	**160**	18	85
	1DA3, 1DD1, 1DD3	2, 8																						
160 L	1DA6, 1DB6, 1DC6, 1DD4	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	**160**	18	85

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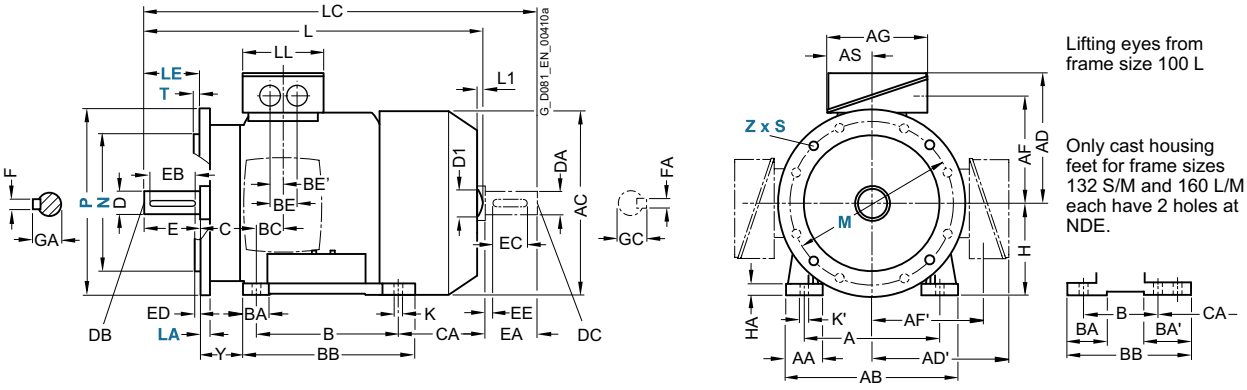
Dimensional drawings

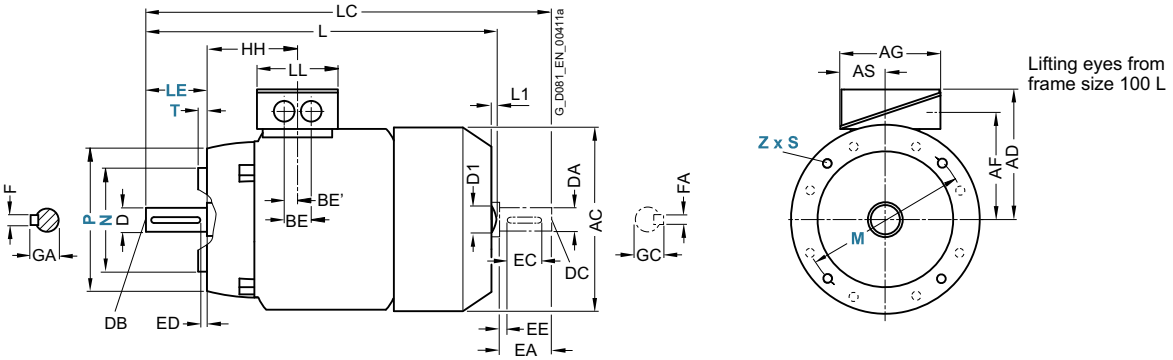
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1073-	No. of poles	HH	K	K´	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DA3, 0DA6, 0DB3, 0DB6, 0DC3, 0DD3	2, 4, 6, 8	73	9.5	13.5	**327**	–	–	378	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DC2	6, 8				**292**			343															
90 S	0EA4, 0EB4	2, 4	78.5	10	14	**387**	–	–	445	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
	0EC0, 0ED0	6, 8				**347**			405															
90 L	0EB6	4	78.5	10	14	**433**	–	–	491	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
	0ED4	8				**347**			405															
100 L	1AA4, 1AA6, 1AB5, 1AC3	2, 4, 6, 8	96.5	12	16	**430.5**	7	32	489	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1AB6	4				**480.5**			529															
	1AD4	8				**395.5**			454															
112 M	1BA5, 1BA6, 1BB5, 1BC1,	2, 4, 6, 8	96	12	16	**414**	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1BB6	4				**464**			520															
132 S	1CA1, 1CB2	2, 4	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CC0, 1CC1, 1CC2, 1CC4, 1CD0	6, 8				**465**			535.5															
132 M	1CA5, 1CA6, 1CC3, 1CC6,	2, 6, 8	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB5, 1CB6	4				**574**			644.5															
160 M	1DA4, 1DB4, 1DC3, 1DC4	2, 4, 6	155	15	19	**664**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
	1DA3, 1DD1, 1DD3	2, 8				**604**																		
160 L	1DA6, 1DB6, 1DC6, 1DD4	2, 4, 6, 8	155	15	19	**664**	10	54	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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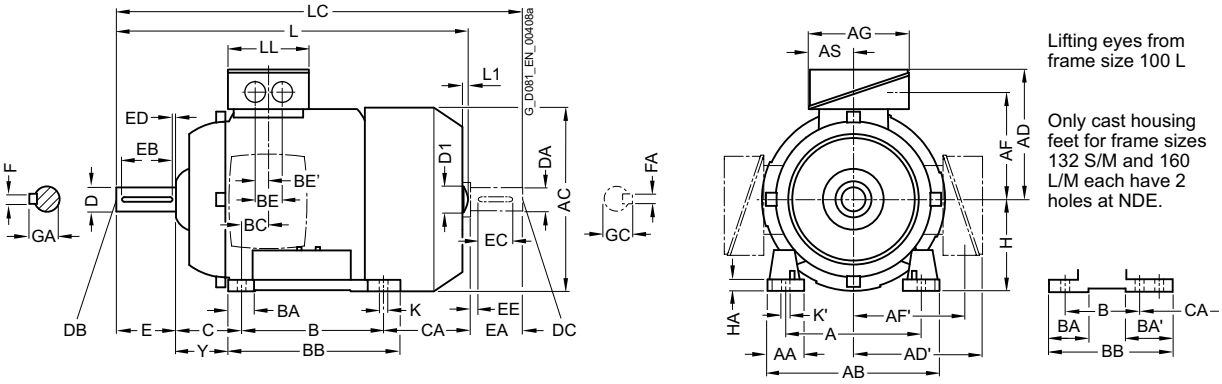
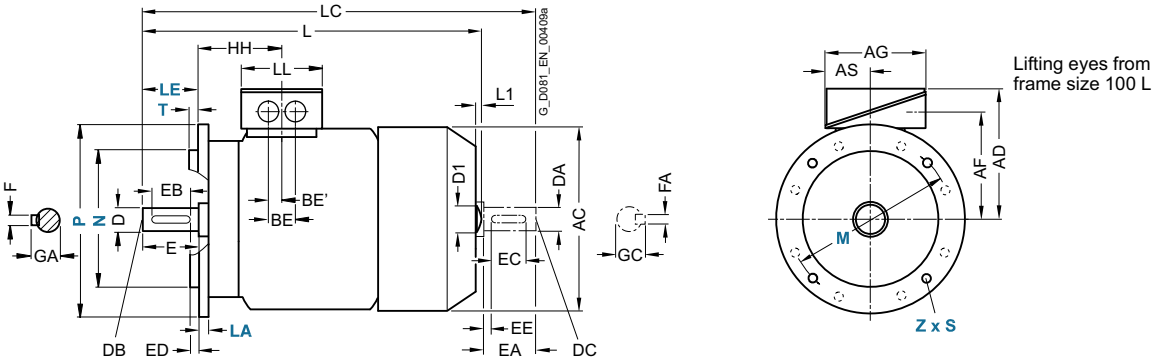
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1LE15.1, 1LE16.1 1LE1502	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
71 M	1LE15.1	2, 4, 6	112	30.5	**132**	145	**149**	149	112	112	126	62	90	32	32	106	21	36	18	45	83	**71**	7	37
80 M	1LE15.1	2, 4, 6	125	30.5	**150**	162	**159**	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	**80**	8	41
90 S	1LE15.1	2, 4, 6	140	30.5	**165**	180	**164**	164	127	127	126	62	100	33	54	143	24.5	36	18	56	159	**90**	11	47
90 L	1LE15.1	2, 4, 6	140	30.5	**165**	180	**164**	164	127	127	126	62	125	33	54	143	24.5	36	18	56	134	**90**	11	47
100 L	All	2, 4, 6, 8	160	42	**196**	217	**193**	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	**100**	12	45
112 M	All	2, 4, 6 8	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130 155	**112**	12	52
132 S	All	2, 4, 6, 8	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[5]	89[1]	218[3]	26.5	48	24	89	166.5	**132**	15	69
132 M	All	2, 4, 6, 8	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	178	52[5]	89[1]	218	26.5	48	24	89	128.5	**132**	15	69
160 M	All	2, 4, 6, 8	254	60	**300**	333.5	**265**	265	213	213	190	92	210	73[6]	117[2]	300[4]	37	60	30	108	192	**160**	18	85
160 L	All	2, 4, 6, 8	254	60	**300**	333.5	**265**	265	213	213	190	92	254	73[6]	117[2]	300	37	60	30	108	148	**160**	18	85

[1] With screwed-on feet, dimension BA' is 41 mm.
[2] With screwed-on feet, dimension BA' is 51 mm.
[3] With screwed-on feet, dimension BB is 180 mm.
[4] With screwed-on feet, dimension BB is 256 mm.
[5] With screwed-on feet, dimension BA is 41 mm.
[6] With screwed-on feet, dimension BA is 51 mm.

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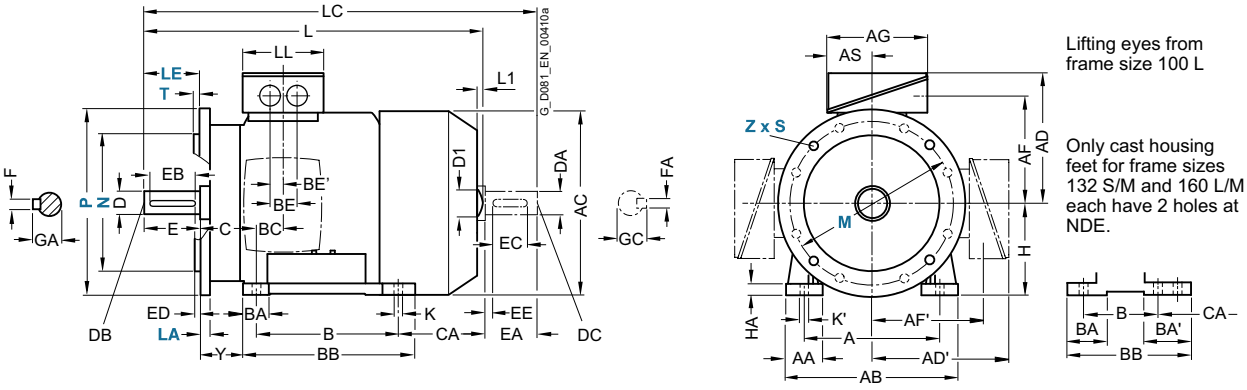
Dimensional drawings

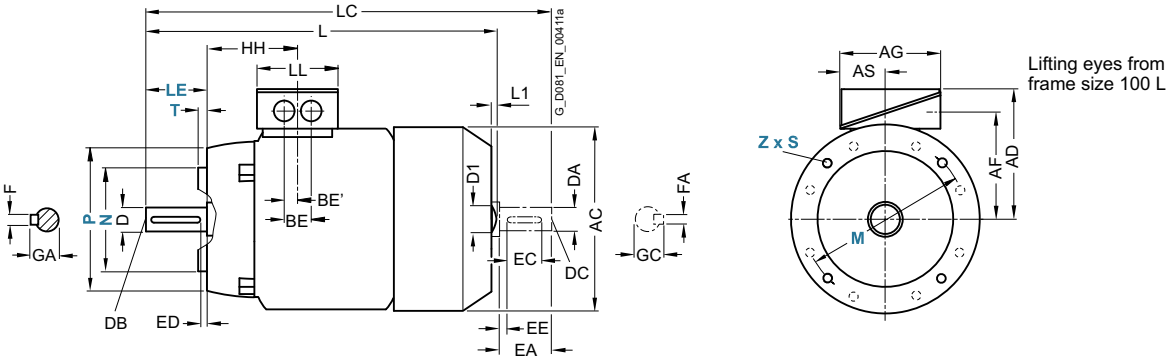
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE15.1, 1LE16.1 1LE1502	No. of poles	HH	K	K'	**L**[1]	L1[2]	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	1LE15.1	2, 4, 6	64.5	7.5	7.5	**240**	–	–	278	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	1LE15.1	2, 4, 6	71.5	10	10	**292**	–	–	342.5	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	1LE15.1	2, 4, 6	79.5	10	10	**347**	–	–	405	102	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	1LE15.1	2, 4, 6	79.5	10	10	**347**	–	–	405	102	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	100.5	12	16	**397.5**	7	32	454	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6 8	100.5	12	16	**390.5** **415.5**	7	32	450 475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

[1] For 1LE16 motors less dimension L1.

[2] Only for 1LE15 motors.

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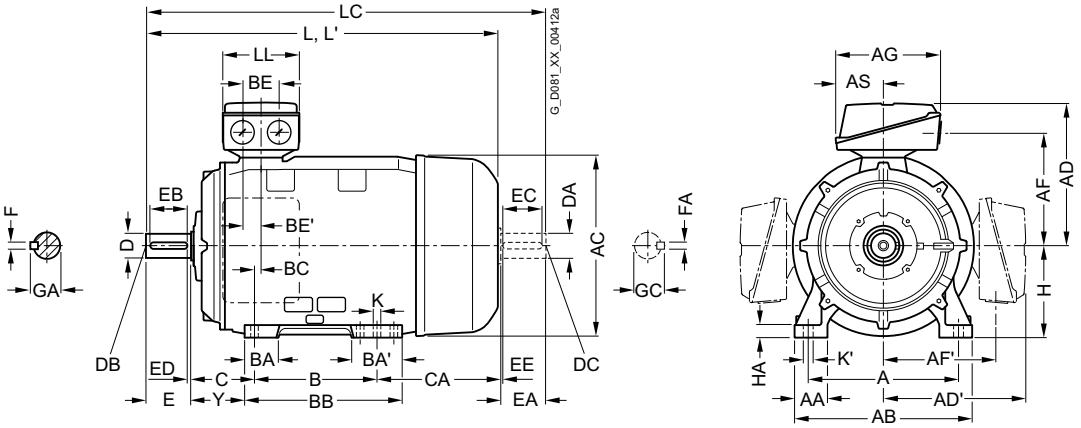
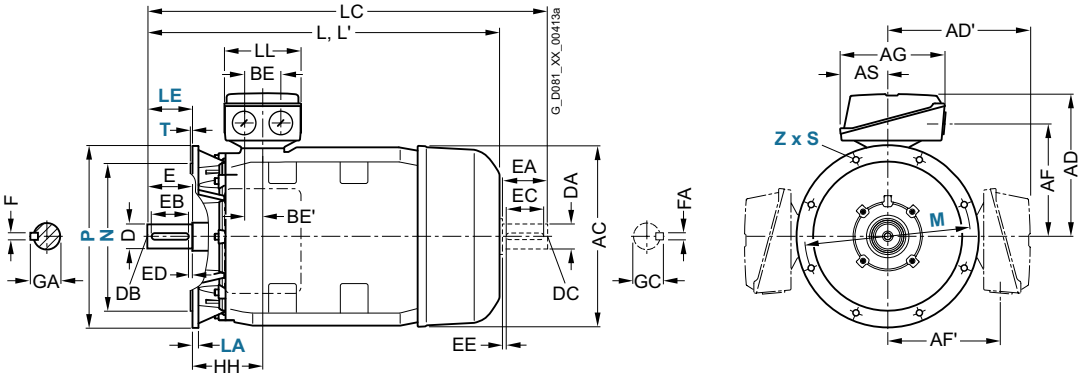
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1LE1501-, 1LE1521-, 1LE1541-1LE1601-1LE1502-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
180 M/ 180 L	1EB2[1],1EA2, 1EB2, 1EC4	2, 4, 6	279	65	**339**	356	**286**	286	234	234	189	91	241	85	120	328	34	60	30	121	202
	1EB4, 1EA6, 1EB6, 1EC6	2, 4, 6											279								
200 L	2AA4,2AA5, 2AB5, 2AC4,2AC5, 2AD5	2, 4, 6, 8	318	70	**378**	396	**315**	315	258.5	258.5	265	112	305	104	104	355	31	85	42.5	133	177
	2AA6, 2AB6, 2AC6, 2AD6	2, 4, 6, 8																			
225 S/ 225 M	2BB0, 2BD0,	4, 8	356	80	**436**	449	**338**	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
	2BB2, 2BC2, 2BD2, 2BB6, 2BC6, 2BD6	4, 6, 8											286[1]								
	2BA2, 2BA6	2											286[1]								
250 M	2CA2, 2CA6	2	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24	110	55	168	230
	2CB2, 2CC2, 2CD2, 2CC6, 2CD6,	4, 6, 8																			
	2CB6	4																			300

[1] Only applicable for 1LE1502.

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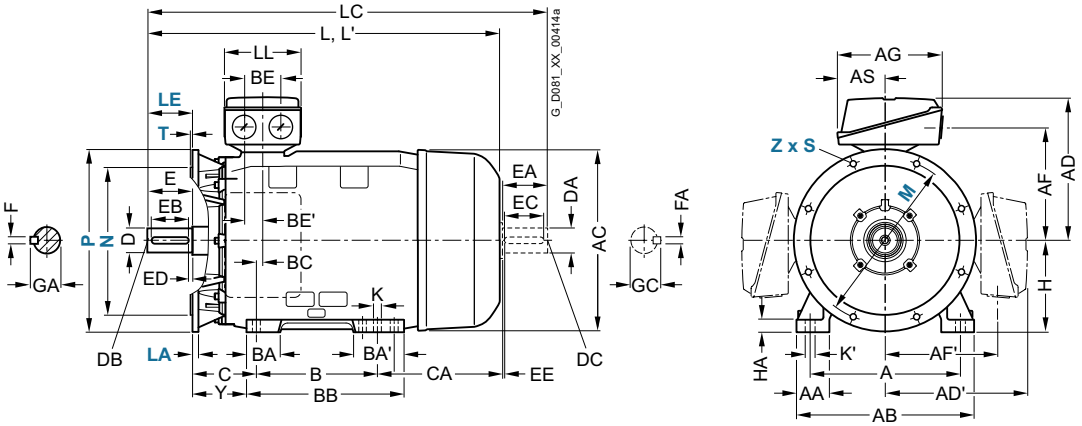
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor	Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension							
Motor type 1LE1501-, 1LE1521-, 1LE1541-1LE1601-1LE1502-	**H**	HA	Y	HH	K	K'	**L**	LC[1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
1EB2[2],1EA2, 1EB2, 1EC4	**180**	20	95	155	15	19	**668**	784	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
1EB4, 1EA6, 1EB6, 1EC6							**698**	814															
2AA4,2AA5, 2AB5, 2AC4,2AC5, 2AD5	**200**	25	108	164	19	25	**721**	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
2AA6, 2AB6, 2AC6, 2AD6							**746**	860															
2BB0, 2BD0	**225**	34	124	164	19	25	**788**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BB2, 2BC2, 2BD2, 2BB6, 2BC6, 2BD6							**848**	963															
2BA2, 2BA6							**818**	933		55		110	100	5	16	59	48	M16				14	51.5
2CA2, 2CA6	**250**	40	138	192	24	30	**887**	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2CB2, 2CC2, 2CD2, 2CC6, 2CD6								1032		65						69	60		140	125	10	18	64
2CB6							**957**	1072															

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

[2] Only applicable for 1LE1502.

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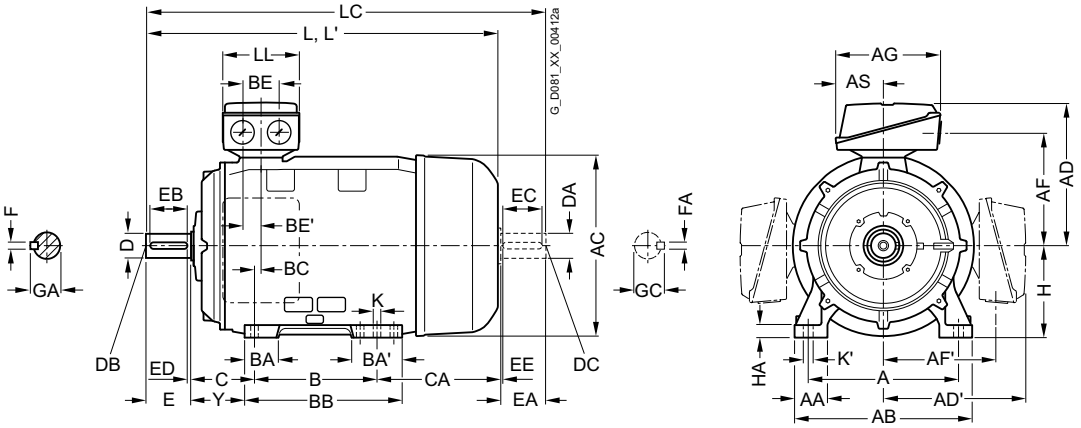
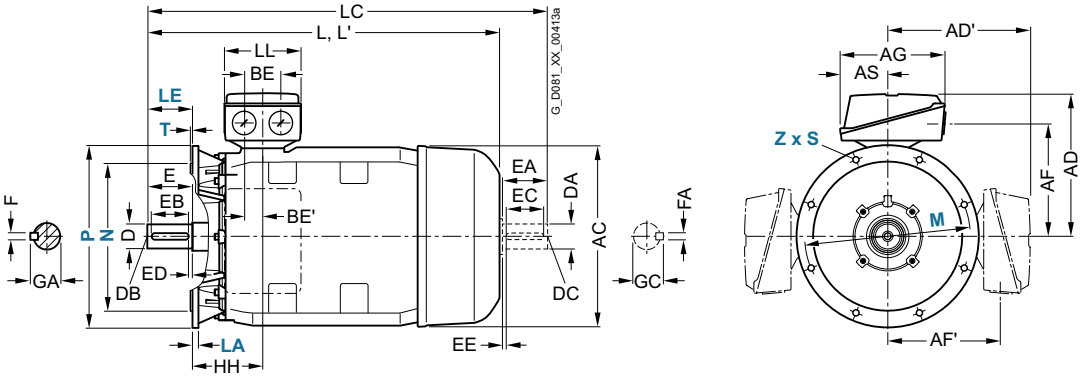
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1LE1501-, 1LE1521-, 1LE1541- 1LE1601- 1LE1502-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
280 S	2DA0	2	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0, 2DD0	4, 6, 8																			267
280 M	2DA6	2											419								326
	2DA2																				216
	2DB2, 2DC2, 2DD2, 2DC6, 2DD6	4, 6, 8																			
	2DB6	4																			326
315 S	3AA0, 3AA2[2]	2	508	120	**610**	616	**515**	515	404	404	374	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0, 3AD0	4, 6, 8																			
315 M	3AA2[1], 3AA5[2]	2											457			578					409
	3AB2[1]	4																			
	3AC2, 3AD2	6, 8																			
315 L[1]	3AA4	2											508			578					358
	3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6	4, 6, 8																			
	3AA5, 3AA6	2											508	176	227	648					
	3AB5, 3AC6	4, 6																			

[1] For orders with screwed-on feet (order code **H01**), these screwed-on feet have 3 drilled holes on the NDE side with the dimension B 406 mm, 457 mm, and 508 mm respectively; the dimension BB is 666 mm.

[2] Only applicable for 1LE1502.

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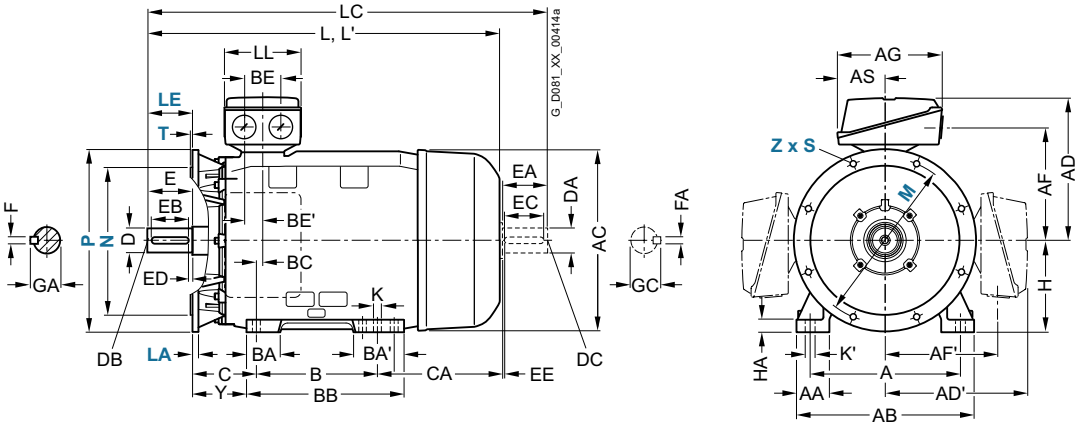
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor	Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Motor type 1LE1501-, 1LE1521-, 1LE1541-1LE1601-1LE1502-	**H**	HA	Y	HH	K	K'	**L**	LC[1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
2DA0	**280**	40	160	210	24	30	**960**	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DB0, 2DC0, 2DD0										75					20	79.5	65						69
2DA6							**1070**	1215		65					18	69	60						64
2DA2							**960**	1105															
2DB2, 2DC2, 2DD2, 2DC6, 2DD6										75					20	79.5	65						69
2DB6							**1070**	1215															
3AA0, 3AA2[2]	**315**	50	181	238	28	35	**1052**	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB0, 3AC0, 3AD0							**1082**	1227		80		170	140	25	22	85	70					20	74.5
3AA2, 3AA5[2]							**1217**	1362		65		140	125	10	18	69	60					18	64
3AB2							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AC2, 3AD2							**1082**	1227															
3AA4							**1217**	1362		65		140	125	10	18	69	60					18	64
3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AA5, 3AA6			146				**1372**	1517		65		140	125	10	18	69	60					18	64
3AB5, 3AC6							**1402**	1547		80		170	140	25	22	85	70					20	74.5

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

[2] Only applicable for 1LE1502.

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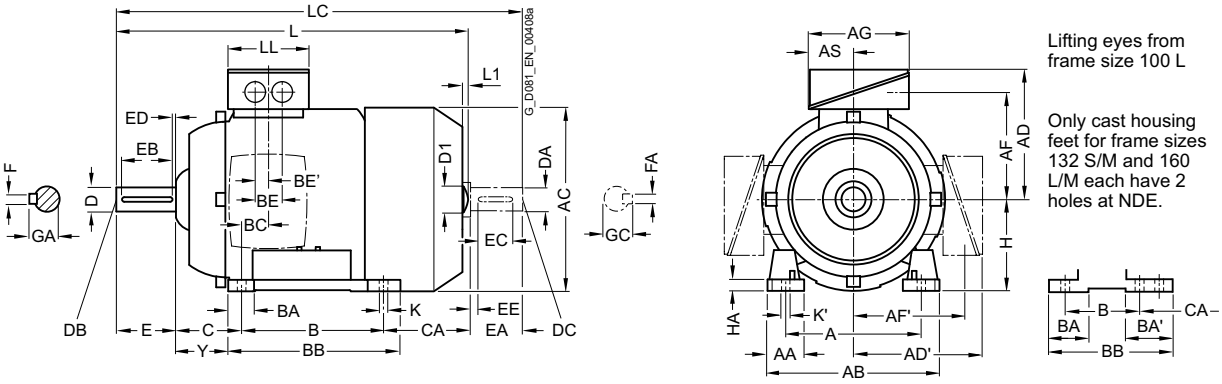
Dimensional drawings

Type of construction IM B3

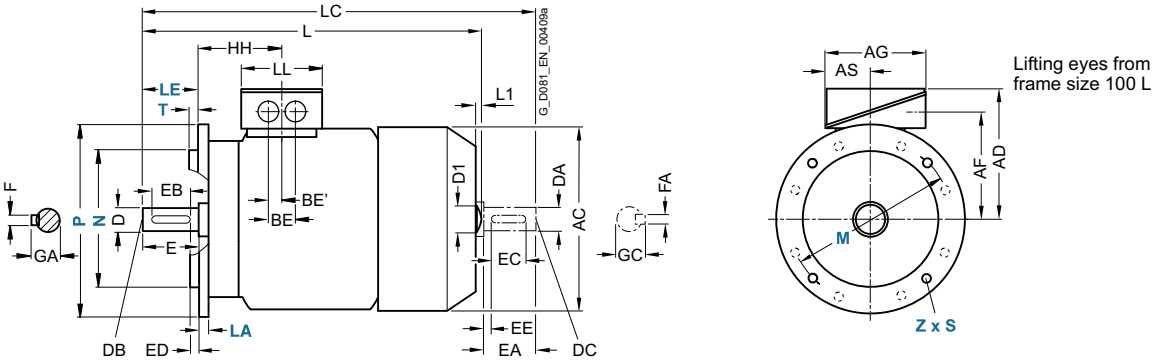


Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE15.3- 1LE16.3-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
71 M	1LE15.3- 0..0, 0..2 0..3	2, 4, 6	112	30.5	**132**	145	**149**	149	112	112	126	62	90	32	32	106	21	36	18	45	83	**71**	7	37
80 M	1LE15.3- 0..0, 0..2 0..3	2, 4, 6	125	30.5	**150**	162	**159**	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	**80**	8	41
90 S	1LE15.3- 0..0, 0..2 0..3	2, 4, 6	140	30.5	**165**	180	**164**	164	127	127	126	62	100	33	54	143	24.5	36	18	56	159	**90**	11	47
90 L	1LE15.3	2, 4, 6	140	30.5	**165**	180	**164**	164	127	127	126	62	125	33	54	143	24.5	36	18	56	134	**90**	11	47
100 L	1AA4, 1AB4, 1AB5 1AC4	2, 4 6	160	42	**196**	217	**193**	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	**100**	12	45
112 M	All	2, 4, 6	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130	**112**	12	52
132 S	1CA0, 1CC0, 1CD0	2, 6, 8	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[5]	89[1]	218[2]	26.5	48	24	89	166.5	**132**	15	69
	1CA1, 1CB0	2, 4													–						178.5			
132 M	1CC2	6	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	178	52[5]	89[1]	218	26.5	48	24	89	128.5	**132**	15	69
	1CB2, 1CC3, 1CD2	4, 6, 8													–						178.5			
	1CB6	4																						
160 M	All	2, 4, 6, 8	254	60	**300**	333.5	**261**	261	213	213	190	92	210	73[6]	117[3]	300[4]	37	60	30	108	192	**160**	18	85
160 L	All	2, 4, 6, 8	254	60	**300**	333.5	**261**	261	213	213	190	92	254	73[6]	117[3]	300	37	60	30	108	148	**160**	18	85

[1] With screwed-on feet, dimension BA' is 41 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 51 mm.
[4] With screwed-on feet, dimension BB is 256 mm.
[5] With screwed-on feet, dimension BA is 41 mm.
[6] With screwed-on feet, dimension BA is 51 mm.

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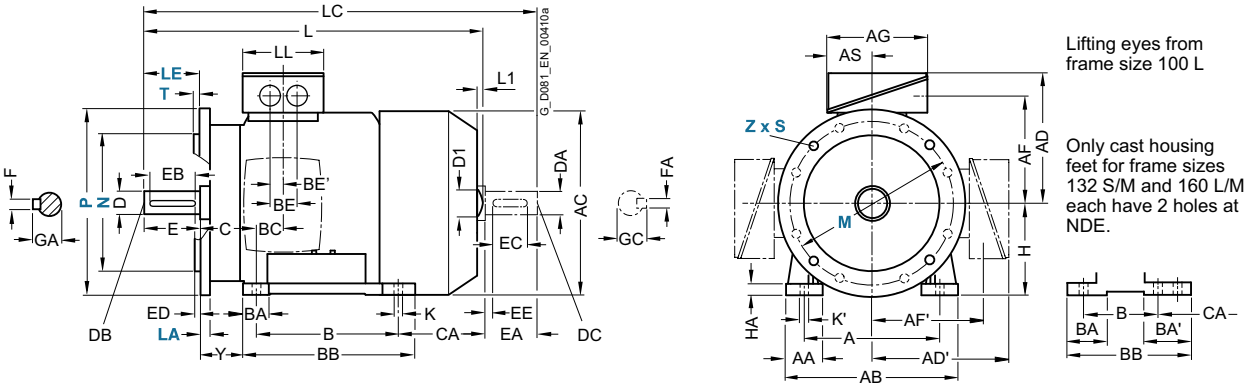
Dimensional drawings

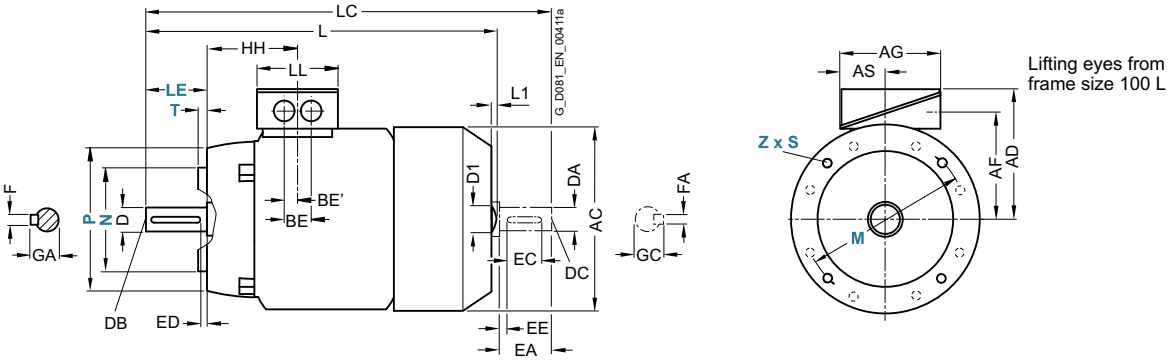
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE15.3- 1LE16.3-	No. of poles	HH	K	K'	**L**[1]	L1[2]	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	1LE15.3- 0..0, 0..2 0..3	2, 4, 6	64.5	7.5	7.5	**240** **280**	–	–	278 318	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	1LE15.3- 0..0, 0..2 0..3	2, 4, 6	71.5	10	10	**292** **327**	–	–	343 378	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	1LE15.3- 0..0, 0..2 0..3	2, 4, 6	79.5	10	10	**347**	–	–	405	102	24	M8	50	40	5	8	27	19	M6	40	27	4	6	21.5
90 L	1LE15.3	2, 4, 6	79.5	10	10	**387**	–	–	445	102	24	M8	50	40	5	8	27	19	M6	40	27	4	6	21.5
100 L	1AA4, 1AB4, 1AB5	2, 4	100.5	12	16	**432.5**	7	32	489	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1AC4	6				**397**			342.5															
112 M	All	2, 4, 6	100.5	12	16	**415.5**	7	32	475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0, 1CD0	2, 6, 8	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				**516.5**			585.5															
132 M	1CC2	6	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3, 1CD2	4, 6, 8				**516.5**			585.5															
	1CB6	4				**567.5**	–		630.5															
160 M	All	2, 4, 6, 8	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	145	14.5	18	**666**	10	45	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

[1] For 1LE16 motors less dimension L1.

[2] Only for 1LE15 motors.

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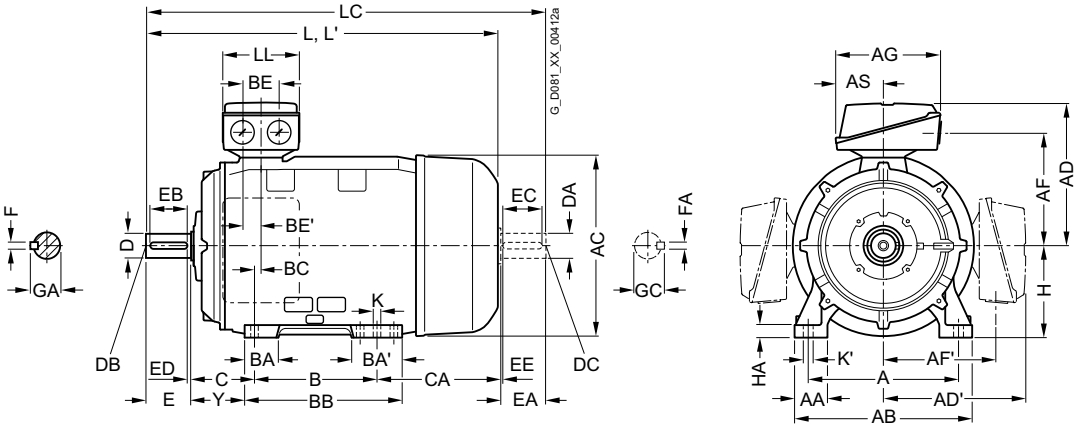
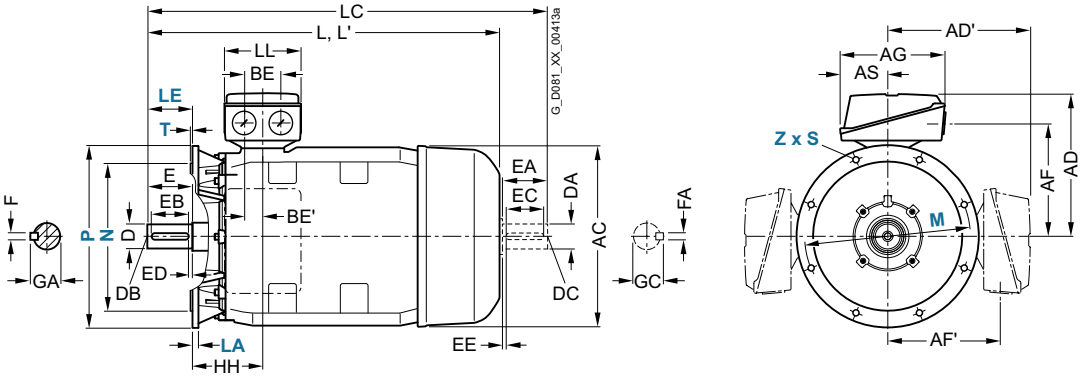
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1LE1503-, 1LE1523-, 1LE1543- 1LE1603-, 1LE1623-, 1LE1643-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
180 M/ 180 L	1EB2, 1EC4 1EA2, 1EB4, 1ED4	4, 6 2, 4, 8	279	65	**339**	356	**286**	286	234	234	190	92	241	85	120	328	34	60	30	121	202
200 L	2AA4, 2AC4 2AA5, 2AB5,2AC5, 2AD5	2, 6 2, 4, 6, 8	318	70	**378**	396	**315**	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177
225 S	2BB0, 2BD0	4, 8	356	80	**436**	449	**338**	338	282	282	266	112	286	92	117	361	15	85	42.5	149	218
225 M	2BA2	2	356	80	**436**	449	**338**	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
	2BB2, 2BC2, 2BD2	4, 6, 8																			
250 M	2CA2 2CB2, 2CC2, 2CD2	2 4, 6, 8	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24	110	55	168	230
280 S	2DA0	2	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0, 2DD0	4, 6, 8																			
280 M	2DC2, 2DD2	6, 8	457	100	**540**	551	**433**	433	345	345	319	145	419	101	152	479	20	110	55	190	267
	2DA2	2																			
	2DB2	4																			
315 S	3AA0	2	508	120	**610**	616	**515**	515	404	404	374	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0, 3AD0	4, 6, 8																			
315 M[1)]	3AA2	2	508	120	**610**	616	**515**	515	404	404	374	164	457	113	170	578	22	110	55	216	409
	3AB2, 3AC2, 3AD2	4, 6, 8																			
315 L[1)]	3AA4	2	508	120	**610**	616	**515**	515	404	404	374	164	508	113	170	578	22	110	55	216	358
	3AB4, 3AC4, 3AD4	4, 6, 8																			
	3AA5	2												176	227	648					513
	3AB5, 3AC5, 3AC6, 3AD5, 3AD6	4, 6, 8																			

[1)] With terminal box position right, terminal box left, and with order code **H01** only screwed-on feet with 3 drilled holes with dimension "B" (406, 457, and 508 mm). The dimension "BB" will then be 666 mm.

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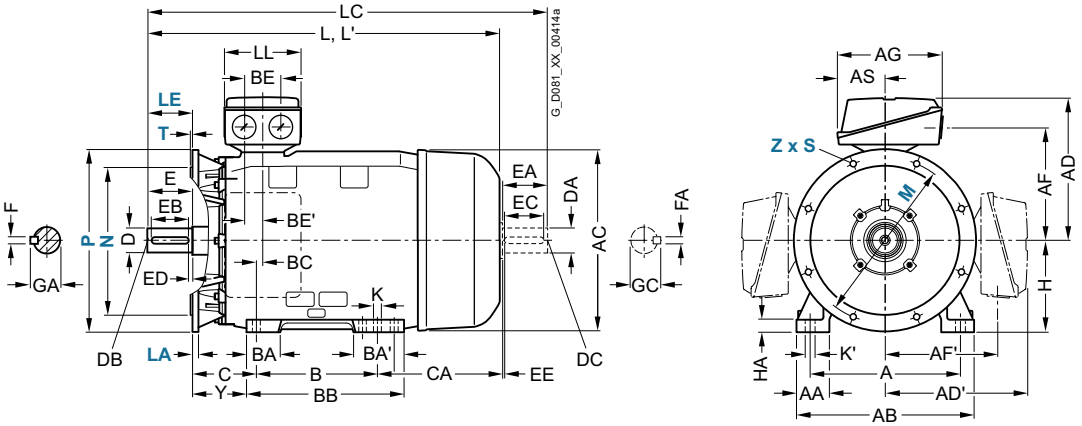
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor	Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Motor type 1LE1503-, 1LE1523-, 1LE1543- 1LE1603-, 1LE1623-, 1LE1643-	**H**	HA	Y	HH	K	K'	**L**	LC[1)]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
1EB2, 1EC4	**180**	20	95	155	15	19	**668**	784	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
1EA2, 1EB4, 1ED4							**698**	814															
2AA4, 2AC4	**200**	25	108	164	19	25	**721**	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
2AA5, 2AB5,2AC5, 2AD5							**746**	860															
2BB0, 2BD0	**225**	34	124	164	19	25	**788**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BA2							**818**	933	197	55		110	100	5	16	59	48	M16				14	51.5
2BB2, 2BC2, 2BD2							**848**	963		60		140	125	10	18	64	55	M20				16	59
2CA2	**250**	40	138	192	24	30	**887**	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2CB2, 2CC2, 2CD2								1032		65						69	60		140	125	10	18	64
2DA0	**280**	40	160	210	24	30	**960**	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DB0, 2DC0, 2DD0										75					20	79.5	65						69
2DC2, 2DD2							**960**	1105	233	75		140	125	10	20	79.5	65				10	18	69
2DA2							**1070**	1215		65					18	69	60						64
2DB2										75					20	79.5	65						69
3AA0	**315**	50	181	238	28	35	**1052**	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB0, 3AC0, 3AD0							**1082**	1227		80		170	140	25	22	85	70					20	74.5
3AA2							**1217**	1362	299	65		140	125	10	18	69	60				10	18	64
3AB2, 3AC2, 3AD2							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AA4							**1217**	1362	299	65		140	125	10	18	69	60				10	18	64
3AB4, 3AC4, 3AD4							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AA5			146				**1372**	1517		65		140	125	10	18	69	60					18	64
3AB5, 3AC5, 3AC6, 3AD5, 3AD6							**1402**	1547		80		170	140	25	22	85	70					20	74.5

[1)] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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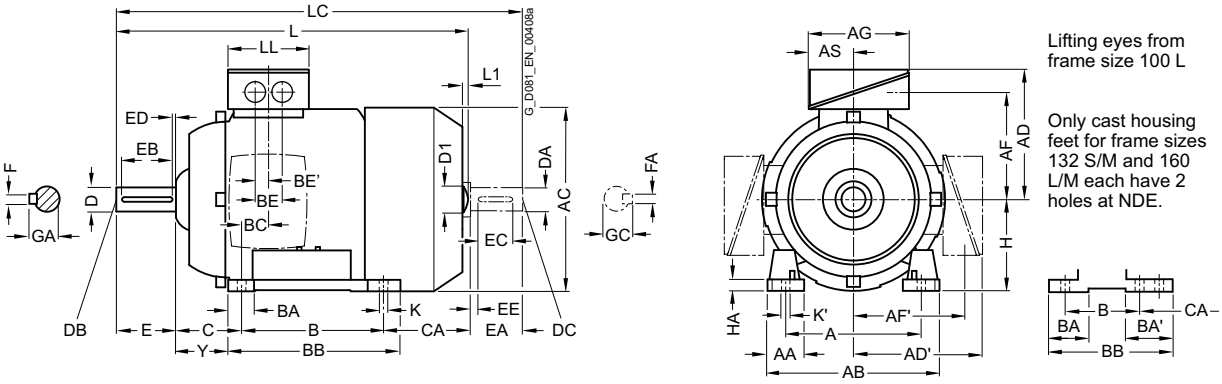
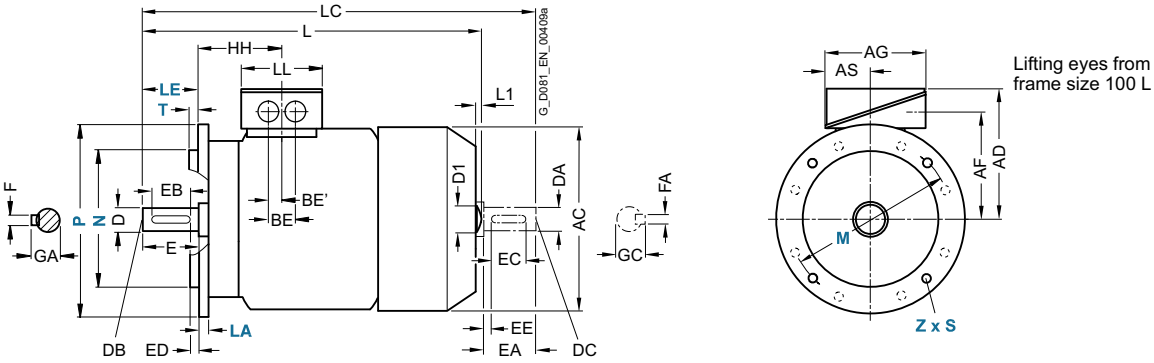
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1583-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	1AA4, 1AB4, 1AB5	2, 4	160	42	**196**	217	**193**	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141 181	**100**	12	45
112 M	1BA2, 1BB2	2 4	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130 175	**112**	12	52
132 S	1CA0, 1CA1 1CB0	2, 4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[5]	89[1]	218[2]	26.5	48	24	89	178.5	**132**	15	69
132 M	1CB2		216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	178	52[5]	89[1]	218	26.5	48	24	89	128.5	**132**	15	69
160 M	1DA2, 1DA3 1DB2	2, 4	254	60	**300**	333.5	**261**	261	213	213	190	92	210	73[6]	117[3]	300[4]	37	60	30	108	192	**160**	18	85
160 L	1DA4, 1DB4	2, 4	254	60	**300**	333.5	**261**	261	213	213	190	92	254	73[6]	117[3]	300	37	60	30	108	208	**160**	18	85
180 M/ 180 L	1EB2, 1EC4 1EA2, 1EB4	4, 6 2, 4	279	65	**339**	356	**286**	286	234	234	190	92	241	85	120	328	34	60	30	121	164 194	**180**	20	95
200 L	2AA4, 2AC4, 2AA5, 2AB5, 2AC5	2, 6 2, 4, 6	318	70	**378**	396	**315**	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177 202	**200**	25	108

[1] With screwed-on feet, dimension BA' is 41 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 51 mm.
[4] With screwed-on feet, dimension BB is 256 mm.
[5] With screwed-on feet, dimension BA is 41 mm.
[6] With screwed-on feet, dimension BA is 51 mm.

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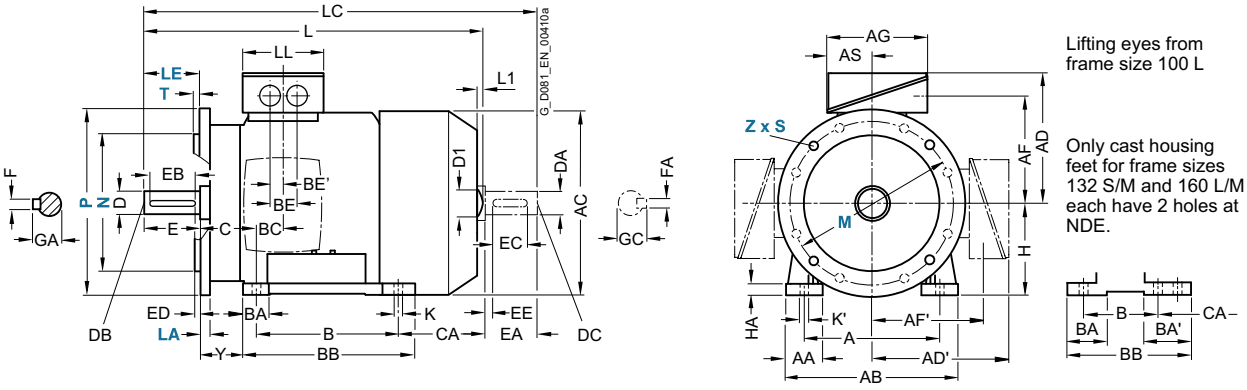
Dimensional drawings

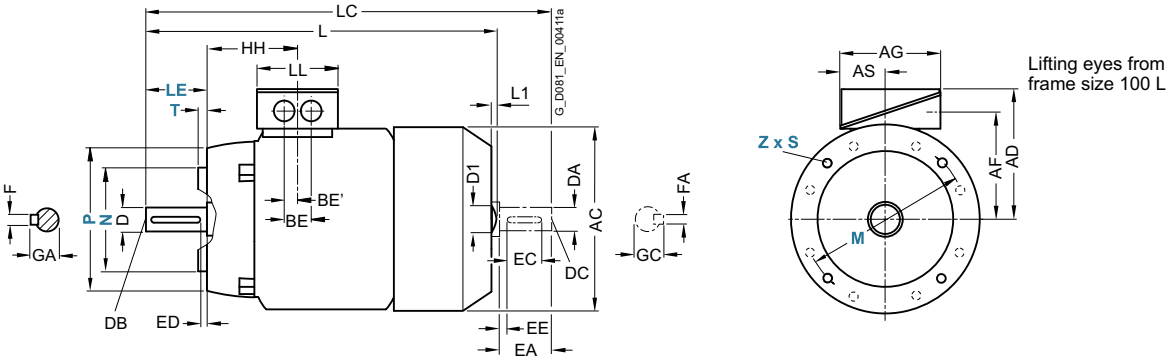
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1583	No. of poles	HH	K	K'	**L**	L1 [1]	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4,1AB4, 1AB5	2 4	100.5	12	16	**432.5** **472.5**	7	32	489 529	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2	2 4	100.5	12	16	**415.5** **450.5**	7	32	475 520	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CA1, 1CB0	2, 4	115.5	12	16	**516.5**	8.5	39	585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	**516.5**	8.5	39	585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DA2, 1DA3, 1DB2	2, 4	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4, 1DB4	2, 4	145	14.5	18	**666**	10	45	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M/ 180 L	180 M/ 180 L	4, 6 2, 4	155	15	19	**668** **698**	–	–	784 814	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
200 L	2A4, 2AC4, 2AA5, 2AB5, 2AC5	2, 6 2, 4, 6	164	19	25	**721** **746**	–	–	835 860	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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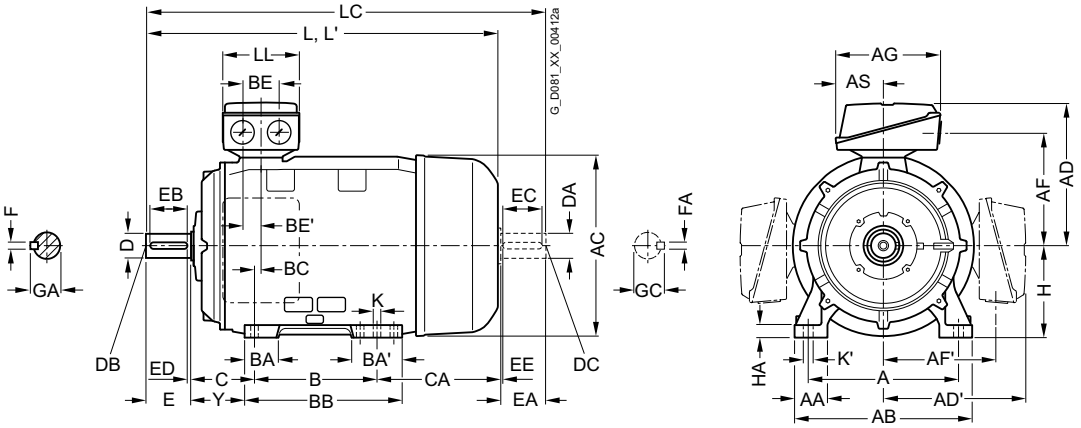
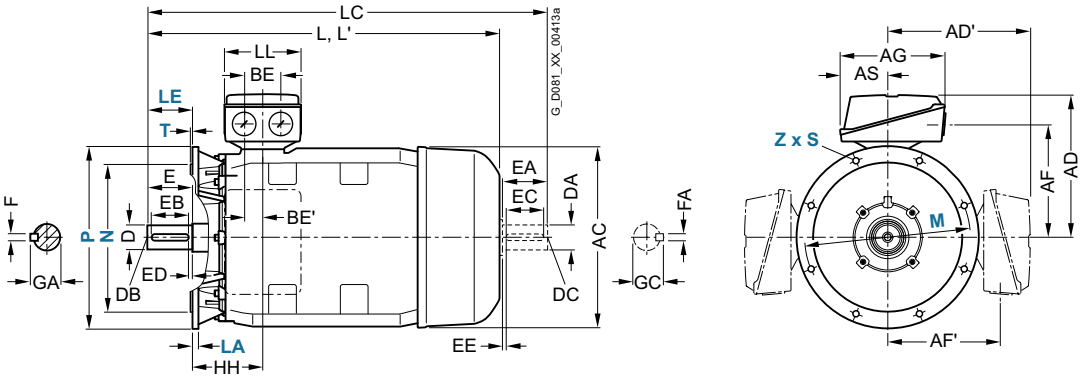
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1LE1583-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
225 S	2BB0	4	356	80	**436**	449	**338**	338	282	282	266	112	286	92	117	361	15	85	42.5	149	278
	2BD0	8													118						218
225 M	2BB2, 2BC2	4, 6	356	80	**436**	449	**338**	338	282	282	266	112	311	92	117	361	15	85	42.5	149	333
	2BA2	2																			253
	2BD2	8													118						193
250 M	2CA2, 2CD2	2, 8	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24	110	55	168	235
	2CB2, 2CC2	4, 6																			305
280 S	2DA0, 2DB0	2, 4	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20	110	55	190	377
	2DC0, 2DD0	6, 8																			267
280 M	2DA2, 2DB2, 2DC2	2, 4, 6	457	100	**540**	551	**433**	433	345	345	319	145	419	101	152	479	20	110	55	190	326
	2DD2	8																			216
315 S	3AA0, 3AD0	2, 8	508	120	**610**	616	**515**	515	404	404	374	164	406	113	170	527	22	110	55	216	295
	3AC0	6											457			578					409
315 M	3AA2[1], 3AB0, 3AB2[1]	2, 4	508	120	**610**	616	**515**	515	404	404	374	164	457	113	170	578	22	110	55	216	409
	3AD2[1]	8														527					244
315 L[1]	3AA4, 3AB4, 3AC2, 3AD4, 3AD5, 3AD6	2, 4, 6, 8	508	120	**610**	616	**515**	515	404	404	374	164	508	113	170	578	22	110	55	216	358
	3AA5, 3AC4, 3AC5, 3AC6	2, 6												176	227	648					513
	3AB5	4																			

[1] With terminal box position right, terminal box left, and with order code **H01** only screwed-on feet with 3 drilled holes with dimension "B" (406, 457, and 508 mm). The dimension "BB" will then be 666 mm.

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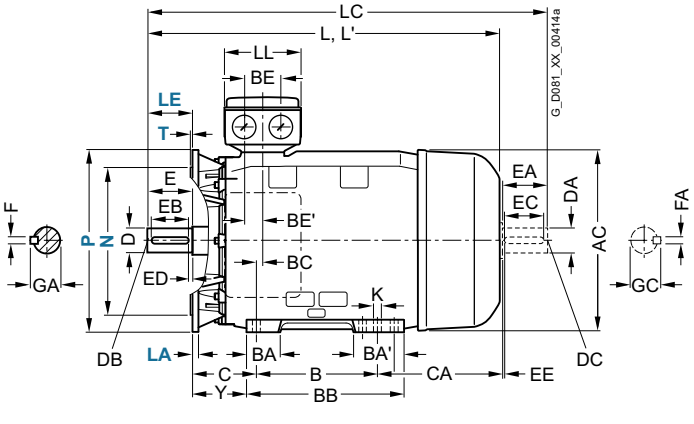
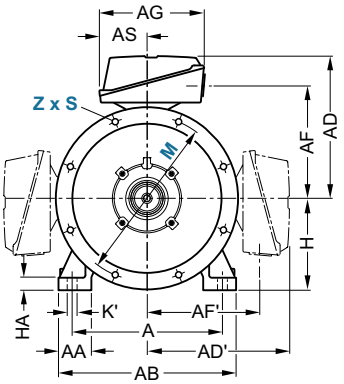
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





For motor	Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Motor type 1LE1583-	**H**	HA	Y	HH	K	K'	**L**	LC [1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
2BB0	**225**	34	124	164	19	25	**848**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BD0							**788**																
2BB2, 2BC2	**225**	34	124	164	19	25	**928**	963	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BA2							**818**	933		55		110	100	5	16	59	48	M16				14	51.5
2BD2							**788**	903		60		140	125	10	18	64	55	M20				16	59
2CA2,	**250**	40	138	192	24	30	**887**	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2CD2								1032		65						69	60		140	125	10	18	64
2CB2,							**957**	1032															
2CC2								1072								64							
2DA0,	**280**	40	160	210	24	30	**1070**	1215	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DB0										75					20	79.5	65						69
2DC0, 2DD0							**960**	1105															
2DA2, 2DB2,	**280**	40	160	210	24	30	**1070**	1215	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DC2										75					20	79.5	65						69
2DD2							**960**	1105															
3AA0,	**315**	50	181	238	28	35	**1052**	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AD0							**1082**	1227		80		170	140	25	22	85	70					20	74.5
3AC0							**1247**	1392															
3AA2,	**315**	50	181	238	28	35	**1217**	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB0, 3AB2							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AD2							**1082**	1227															
3AA4,	**315**	50	181	238	28	35	**1217**	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB4, 3AC2, 3AD4, 3AD5, 3AD6							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AA5,			146				**1372**	1517		65		140	125	10	18	69	60					18	64
3AC4, 3AC5, 3AC6							**1402**	1547		80		170	140	25	22	85	70					20	74.5
3AB5					22																		

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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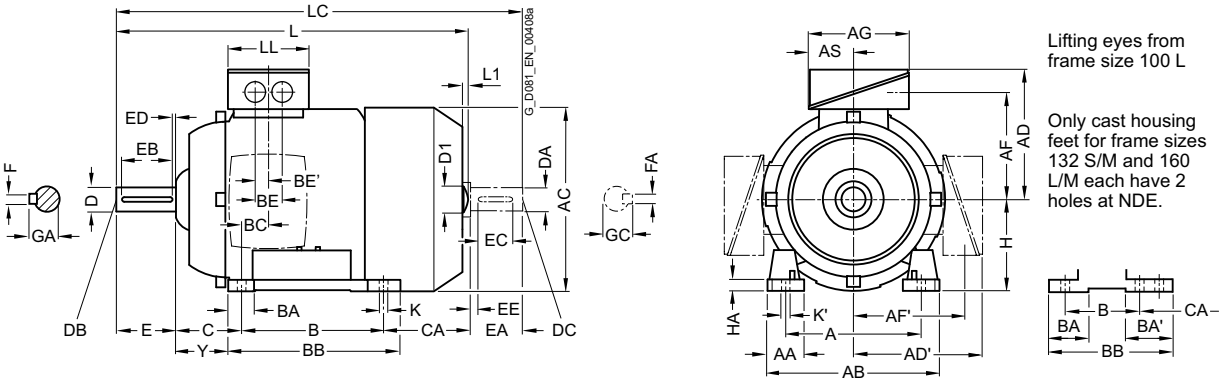
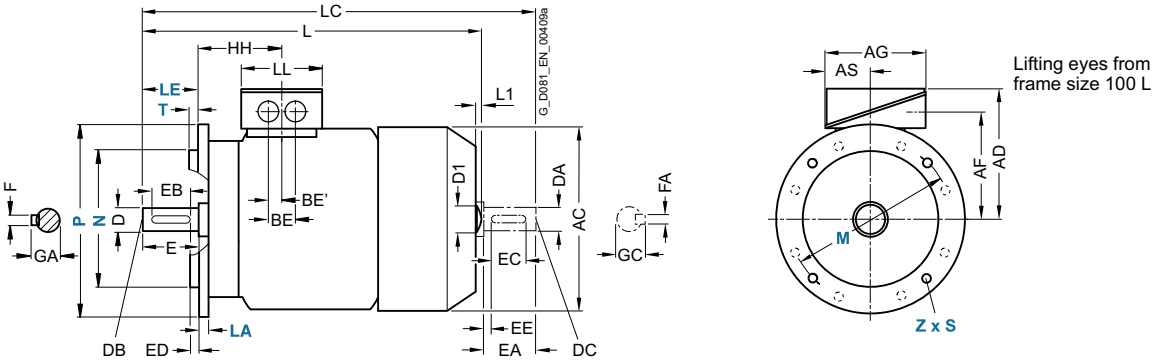
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1504- 1LE1604-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	1AA4 1AB4 1AB5	2 4 4	160	42	**196**	217	**193**	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	176	**100**	12	45
112 M	1BA2 1BB2	2 4	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	155	**112**	12	52
132 S	1CA0 1CA1, 1CB0	2 2, 4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[1]	89[5]	218[2]	26.5	48	24	89	130 178.5	**132**	15	69
132 M	1CB2	4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	178	52[1]	89[6]	218	26.5	48	24	89	178.5	**132**	15	69
160 M	1DA2 1DA3,1DB2	2 2, 4	254	60	**300**	333.5	**261**	261	213	213	190	92	210	73[3]	117[7]	300[4]	37	60	30	108	148	**160**	18	85
160 L	1DA4 1DB4	2 4	254	60	**300**	333.5	**261**	261	213	213	190	92	254	73[3]	117[8]	300	37	60	30	108	208	**160**	18	85

[1] With screwed-on feet, dimension BA is 41 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA is 51 mm.
[4] With screwed-on feet, dimension BB is 256 mm.
[5] With screwed-on feet, dimension BA' is 41 mm.
[6] With screwed-on feet, dimension BA' is 79 mm.
[7] With screwed-on feet, dimension BA' is 51 mm.
[8] With screwed-on feet, dimension BA' is 95 mm.

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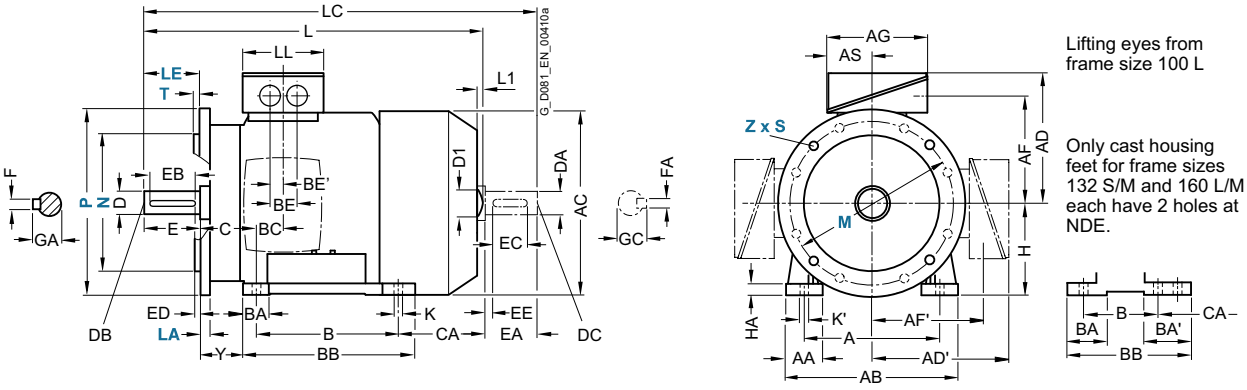
Dimensional drawings

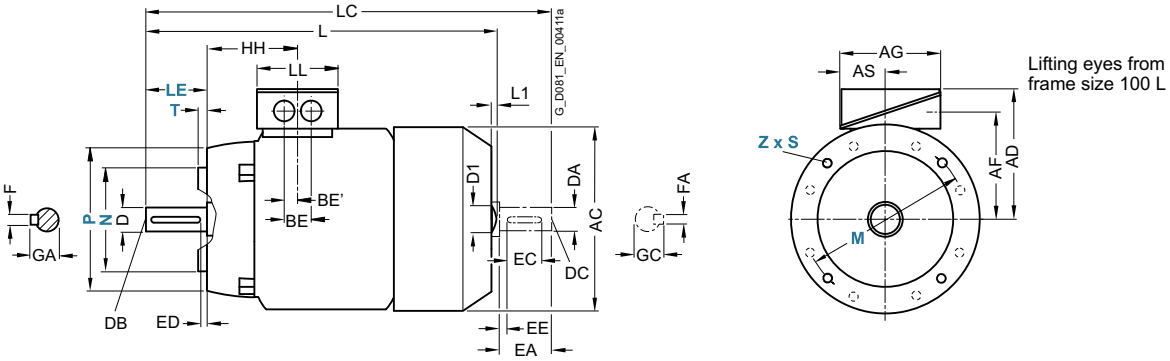
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1504- 1LE1604-	No. of poles	HH	K	K'	**L**[1]	L1[2]	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4 1AB4 1AB5	2 4 4	100.5	12	16	**432.5** **482.5**	7 7	32	489 529	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2 1BB2	2 4	100.5	12	16	**415.5** **465.5**	7	32	475 515	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0 1CA1, 1CB0	2 2, 4	115.5	12	16	**466.5** **516.5**	8.5	39	535.5 585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	**516.5**	8.5	39	585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DA2 1DA3, 1DB2	2 2, 4	145	15	19	**606** **666**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4 1DB4	2 4	145	15	19	**666**	10	45	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

[1] For 1LE16 motors less dimension L1.

[2] Only for 1LE15 motors.

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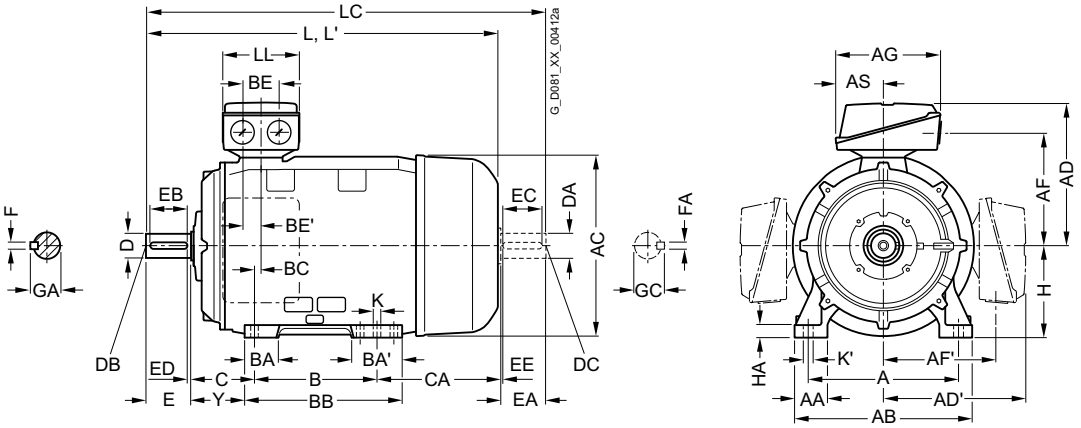
2

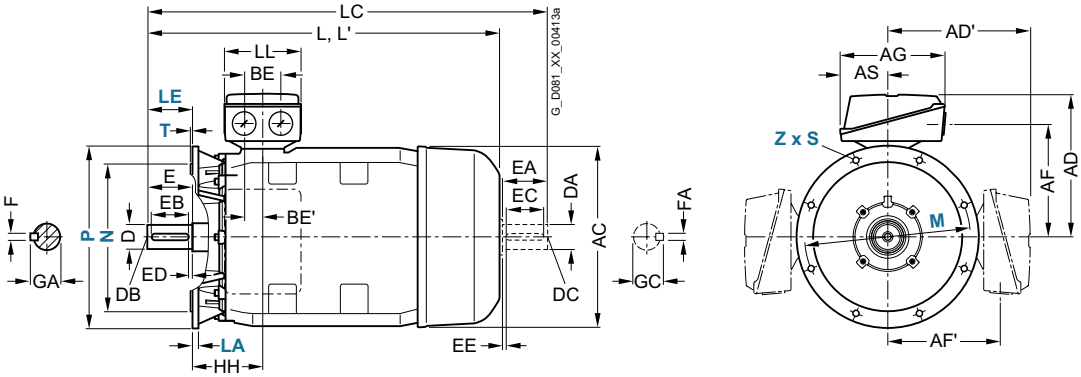
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1LE1504- 1LE1604-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B*	BA	BA'	BB	BC	BE	BE'	C	CA*
180 M 180 M 180 L	1EA2 1EB2 1EB4	2 4 4	279	65	**339**	356	**286**	286	234	234	189	92	241/ 279	85	120	328	34	60	30	121	202
200 L	2AA4 2AA5, 2AB5	2 2, 4	318	70	**378**	396	**315**	315	258.5	258.5	265	112	305	104	104	355	31	85	42.5	133	177
225 S	2BB0	4	356	80	**436**	449	**338**	338	282	282	266	112	286	92	117	361	15	85	42.5	149	218
225 M	2BA2 2BB2	2 4	356	80	**436**	449	**338**	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
250 M	2CA2 2CB2	2 4	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24	110	55	168	230
280 S	2DA0 2DB0	2 4	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20	110	55	190	267
280 M	2DA2 2DB2	2 4	457	100	**540**	551	**433**	433	345	345	319	145	419	101	152	479	20	110	55	190	216 326
315 S	3AA0	2	508	120	**610**	616	**515**	515	404	404	374	164	406	113	170	527	22	110	55	216	295
315 M[2)]	3AB0	4	508	120	**610**	616	**515**	515	404	404	374	164	457	113	170	578	22	110	55	216	295
315 M[1)]	3AA2 3AB2	2 4																			409
315 L[1)]	3AA4 3AB4 3AA5 3AB5	2 4 2 4	508	120	**610**	616	**515**	515	404	404	374	164	508	113 176	170 227	578 648	22	110	55	216	358 513

* Please note that version 3AB0 does not comply with EN 50347 with respect to assignment of this dimension to the frame size.

[1)] With terminal box position right, terminal box left, and with order code **H01** only screwed-on feet with 3 drilled holes with dimension "B" (406, 457, and 508 mm). The dimension "BB" will then be 666 mm.

[2)] 1LE1504-3AB0 and 1LE1604-3AB0 4-pole motors cannot be constructed in standard frame size 315 S because they require the longer housing of frame size 315 M in order to achieve the requisite efficiency levels. The foot clearance dimension "B" therefore changes from 406 to 457 mm. The motors comply with standard IEC 60034, but not with standard EN 50347 in this respect.

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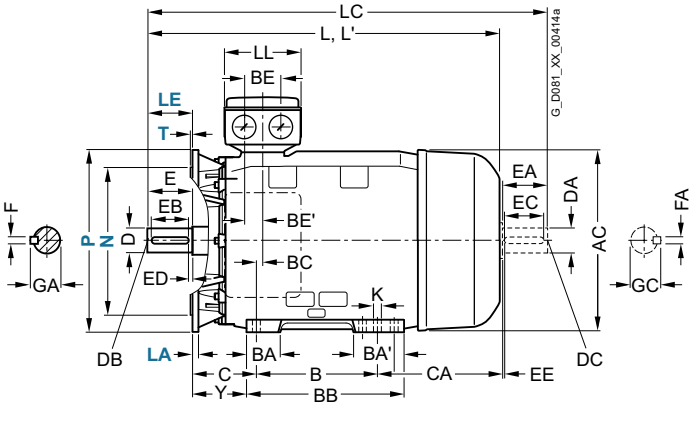
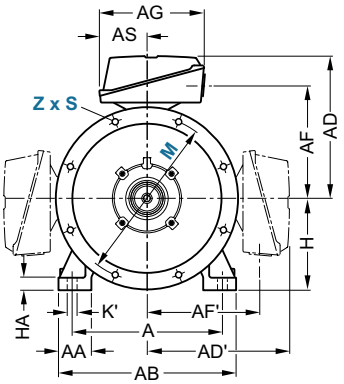
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





For motor		Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Motor type 1LE1504- 1LE1604-	No. of poles	**H**	HA	Y	HH	K	K'	**L**	LC[1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
1EA2	2	**180**	20	95	155	15	19	**698**	814	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
1EB2	4							**668**	784															
1EB4	4							**698**	814															
2AA4	2	**200**	25	108	164	19	25	**746**	860	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
2AA5, 2AB5	2, 4							**746**																
2BB0	4	**225**	34	124	164	19	25	**848**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BA2	2	**225**	34	124	164	19	25	**818**	933	197	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
2BB2	4							**928**	963		60		140	125	10	18	64	55	M20				16	59
2CA2	2	**250**	40	138	192	24	30	**887**	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2CB2	4							**957**	1032		65						69	60		140	125	10	18	64
2DA0	2	**280**	40	160	210	24	30	**1070**	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DB0	4										75					20	79.5	65						69
2DA2	2	**280**	40	160	210	24	30	**1070**	1215	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DB2	4										75					20	79.5	65						69
3AA0	2	**315**	50	181	238	28	35	**1052**	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB0	4	**315**	50	181	238	28	35	**1247**	1392	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
3AA2	2							**1217**	1362		65		140	125	10	18	69	60					18	64
3AB2	4							**1247**	1392		80		170	140	25	22	85	70					20	74.5
3AA4	2	**315**	50	181	238	28	35	**1217**	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB4	4							**1402**	1392		80		170	140	25	22	85	70					20	74.5
3AA5	2			146				**1372**	1517		65		140	125	10	18	69	60					18	64
3AB5	4							**1402**	1547		80		170	140	25	22	85	70					20	74.5

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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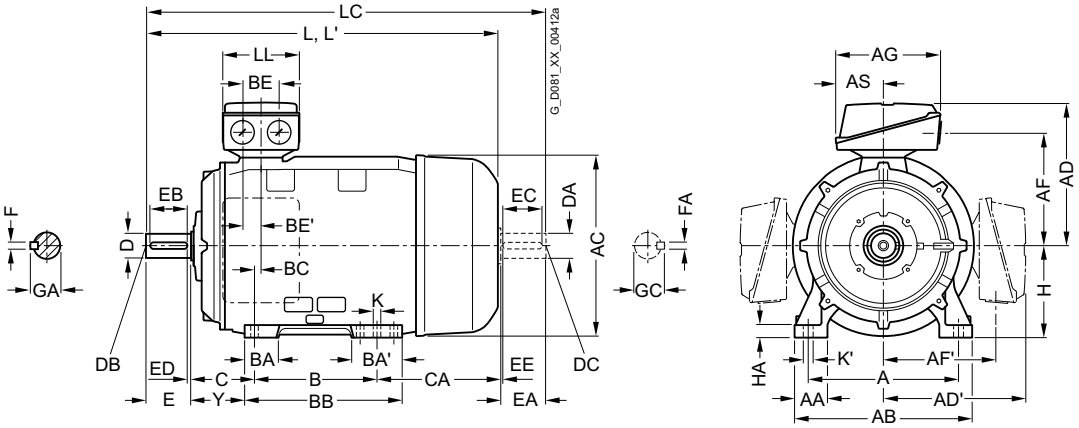
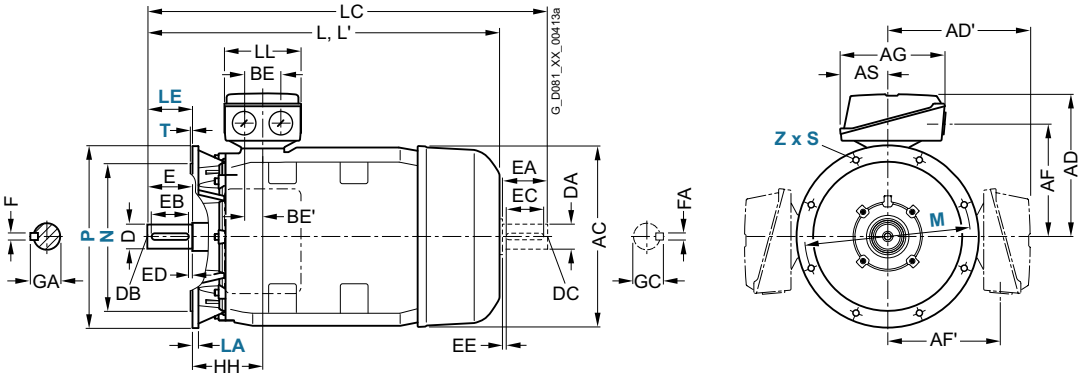
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1LE1573-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA
180 M	1EB4	4	279	65	**339**	356	**286**	286	234	234	190	92	241	85	120	328	34	60	30	121	202
	1ED3	8																			
180 L	1EC6, 1ED4, 1ED6	6, 8	279	65	**339**	356	**286**	286	234	234	190	92	279	85	120	328	34	60	30	121	202
200 L	2AA5, 2AB5, 2AB6, 2AC5, 2AC6, 2AD6	2, 4, 6, 8	318	70	**378**	396	**315**	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177
	2AA4	2																			
225 S	2BA2	2	356	80	**436**	449	**338**	338	282	282	266	112	286	92	115	361	15	85	42.5	149	278
	2BB2	4																			
225 M	2BD2	8	356	80	**436**	449	**338**	338	282	282	266	112	286	92	118	361	15	85	42.5	149	218
	2BA6	2											311		117						253
	2BB6, 2BC6	4, 6																			
	2BD6	8													115						
250 M	2CA6	2	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24	110	55	168	305
	2CB6, 2CC6	4, 6																			
	2CD6, 2CD7	8																			235
280 S	2DA2	2	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20	110	55	190	377
	2DB2	4																			
	2DC2	6																			267
	2DC6	6																			377
	2DD6	8																			267
280 M	2DA6	2	457	100	**540**	551	**433**	433	345	345	319	145	419	101	152	479	20	110	55	190	326
	2DB6	4																			
	2DC7, 2DD7	6, 8											368								377

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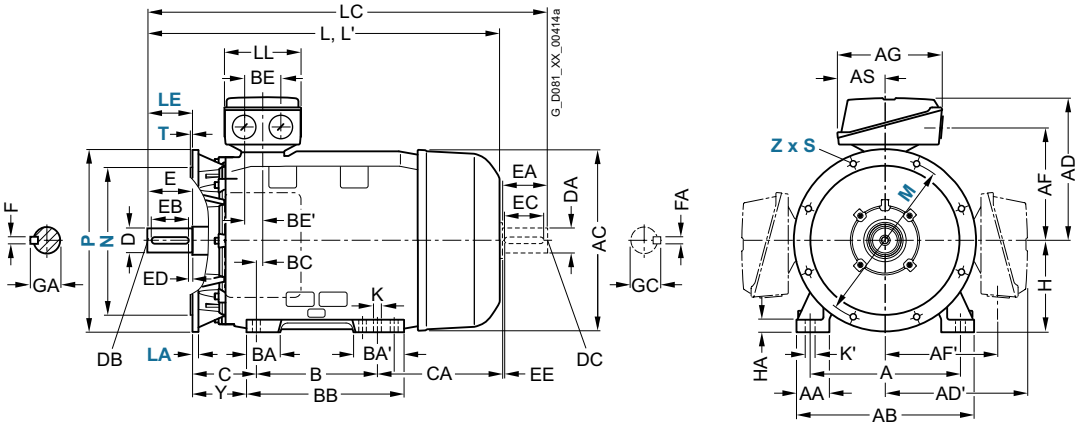
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1573-	No. of poles	**H**	HA	Y	HH	K	K´	**L**	LC[1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1EB4	4	**180**	20	95	155	15	19	**698**	814	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
	1ED3	8							**668**	784															
180 L	1EC6, 1ED4, 1ED6	6, 8	**180**	20	95	155	15	19	**698**	814	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
200 L	2AA5, 2AB5, 2AB6, 2AC5, 2AC6, 2AD6	2, 4, 6, 8	**200**	25	108	164	19	25	**746**	860	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	2AA4	2							**721**	835															
225 S	2BA2	2	**225**	34	124	164	19	25	**818**	933	197	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
	2BB2	4							**848**	963		60		140	125	10	18	64	55	M20				16	59
225 M	2BD2	8	**225**	34	124	164	19	25	**788**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2BA6	2							**898**	933		55		110	100	5	16	59	48					14	51.5
	2BB6, 2BC6	4, 6							**928**	963		60		140	125	10	18	64	55					16	59
	2BD6	8							**848**																
250 M	2CA6	2	**250**	40	138	192	24	30	**957**	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB6, 2CC6	4, 6								1072		65						69	60		140	125	10	18	64
	2CD6, 2CD7	8							**887**	1032															
280 S	2DA2	2	**280**	40	160	210	24	30	**1070**	1215	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB2	4															20	79.5	65						69
	2DC2	6							**960**	1105															
	2DC6	6							**1070**																
	2DD6	8							**960**						124										
280 M	2DA6	2	**280**	40	160	210	24	30	**1070**	1215	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB6	4															20	79.5	65						69
	2DC7, 2DD7	6, 8								1105															

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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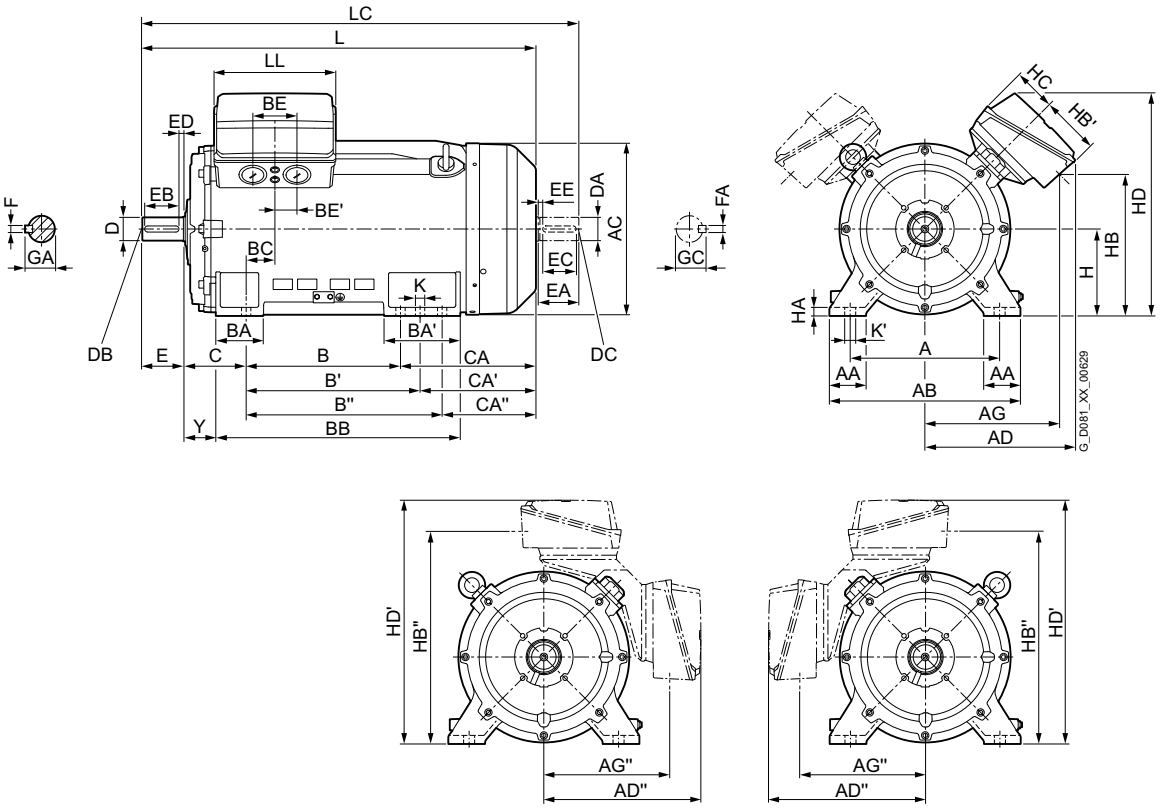
2

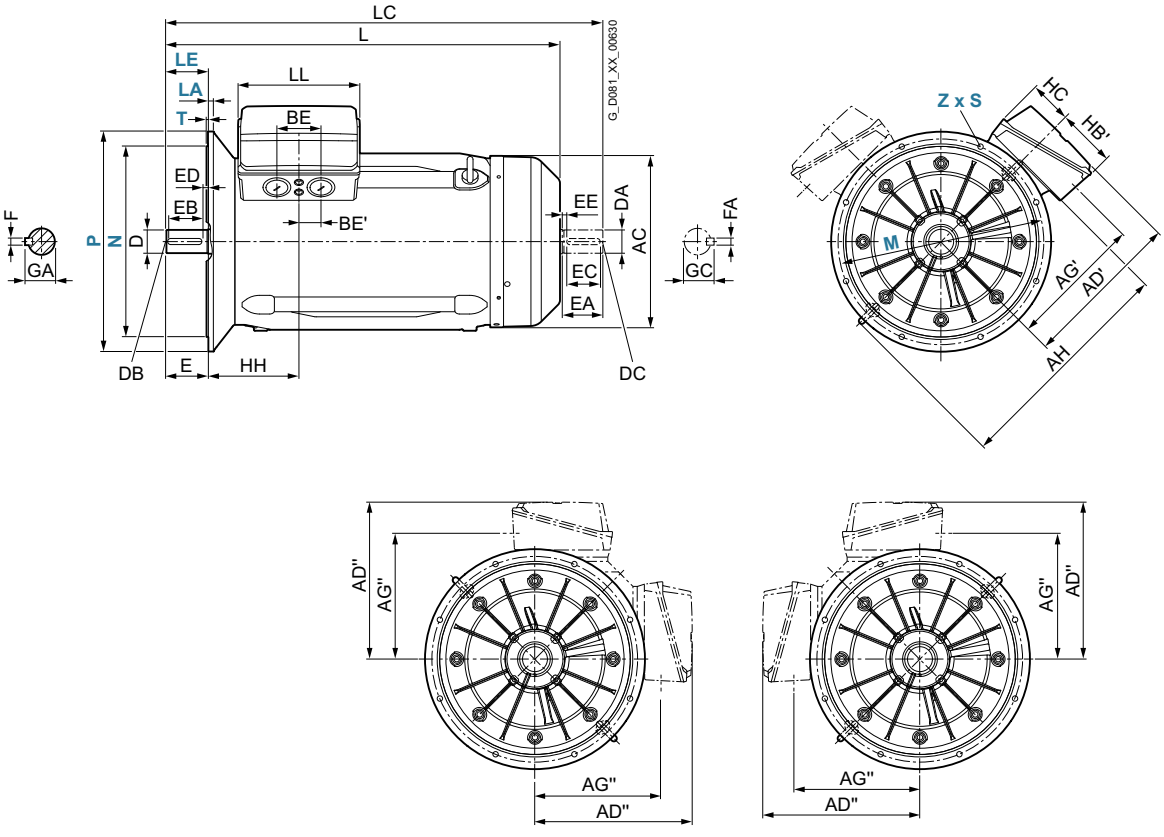
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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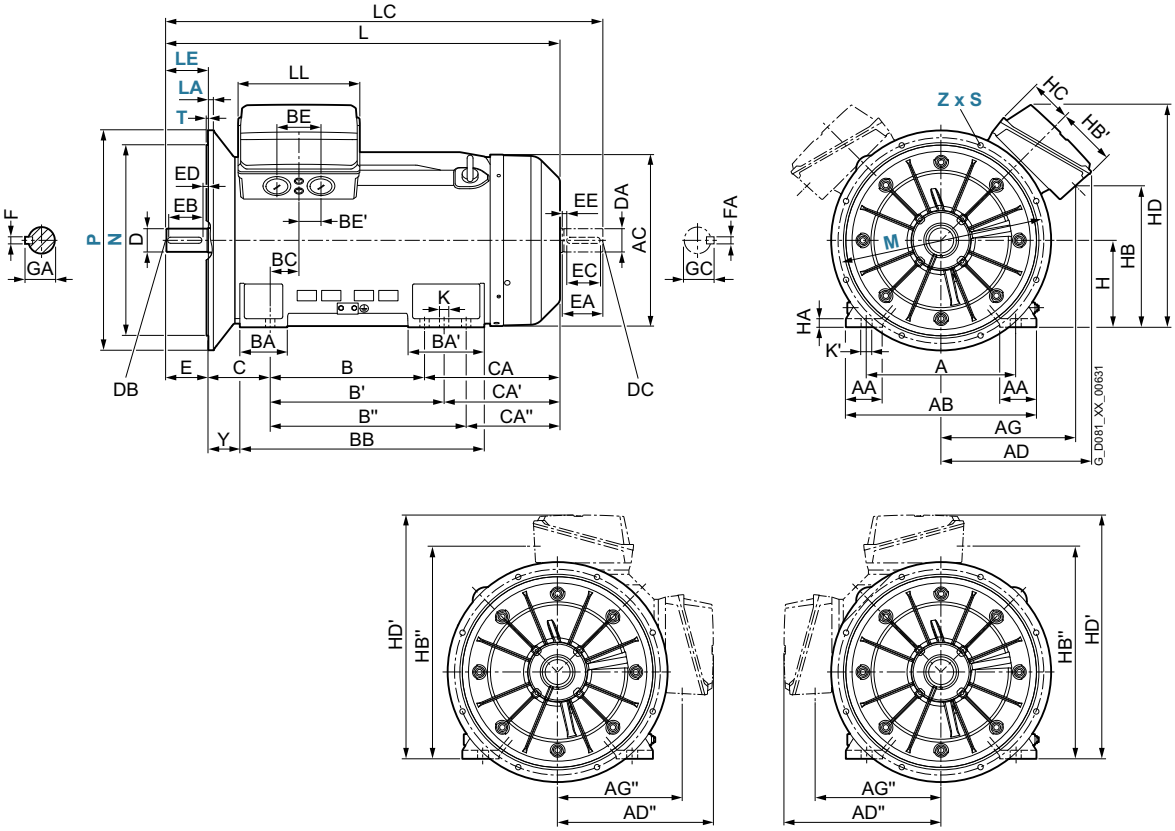
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																										
Frame size	Motor type 1LE5773-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AD´´	AG	AG´	AG´´	AH	B	B´	B´´	BA	BA´	BB	BC	BE	BE´	C	CA	CA´	CA´´	**H**	HA	HB
315 S	3AA2	2	508	120	**610**	624	**544**	565	540	554	459	444	680	457	508	–	176	227	648	139	120	60	216	469	418	–	**315**	50	413
	3AB2	4								491	480	434									135	67.5							491
315 M	3AA4	2	508	120	**610**	624	**544**	565	540	554	459	444	680	457	508	–	176	227	648	139	120	60	216	469	418	–	**315**	50	413
	3AA5	2																											
	3AB4, 3AB5, 3AC4, 3AC5, 3AC6, 3AD4, 3AD5	4, 6, 8								491	480	434									135	67.5							491
315 L	3AB6	4	508	120	**610**	624	**544**	565	540	553	459	434	805	508	560	630	176	299	770	139	120	60	216	528	476	406	**315**	50	413
	3AB7	4								554		446												618	566	496			497
	3AC7, 3AD7	6, 8								491	470	421									135	67.5		528	476	406			491
	3AD8	8								554	459	446												618	566	496			497
	3AA6	2										434	805	457	508	–	176	227	648	139	120	60		469	418	-			413
	3AD6	8								491	480		680			–					135	67.5							491

For motor			Dimension designation acc. to **IEC**										DE shaft extension								NDE shaft extension							
Frame size	Motor type 1LE5773-	No. of poles	HB´	HB´´	HC	HD	HD´	HH	Y	K	K´	**L**	LC[1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 S	3AA2	2	336	759	167	800	855	355	146	28	35	**1132**	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB2	4	226	761								**1312**	1457		85		170	140	25	22	90	70					20	74.5
315 M	3AA4	2	336	759	167	800	855	355	146	28	35	**1132**	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AA5	2		749								**1282**																
	3AB4, 3AB5, 3AC4, 3AC5, 3AC6, 3AD4, 3AD5	4, 6, 8	226	761	167	800	855	355	146	28	35	**1312**	1457	327	85	M20	170	140	25	22	90	70	M20	140	125	10	20	74.5
315 L	3AB6	4	336	749	167	800	855	355	146	28	35	**1422**	1567	327	85	M20	170	140	25	22	90	70	M20	140	125	10	20	74.5
	3AB7	4	336	749		885						**1512**	1657															
	3AC7, 3AD7	6, 8	226	763		800						**1422**	1567															
	3AD8	8	336	749								**1512**	1657															
	3AA6	2										**1282**	1427		65		140	125	10	18	69	60					18	64
	3AD6	8	226	761								**1312**	1457		85		170	140	25	22	90	70					20	74.5

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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Notes

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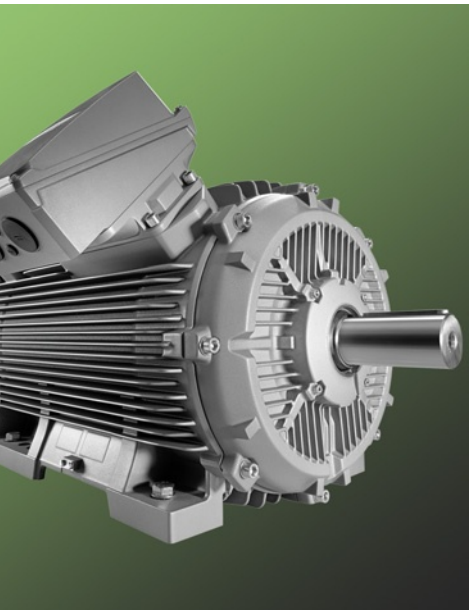

3/2 **Orientation**
3/7 Article number code

3/8 **IE4 Super Premium Efficiency**
Cast-iron series SIMOTICS SD
3/8 • 1LE5504 Basic Line
3/9 • 1LE5604 Performance Line
Cast-iron series SIMOTICS SD Add
3/10 • 1LE5534 Basic Line
3/11 • 1LE5634 Performance Line
3/12 • 1LE5534 (frame sizes 400 and 450)

3/13 **IE3 Premium Efficiency**
Cast-iron series SIMOTICS SD
3/13 • 1LE5503 Basic Line
3/14 • 1LE5603 Performance Line
Cast-iron series SIMOTICS SD Add
3/15 • 1LE5533 Basic Line
3/16 • 1LE5633 Performance Line
3/17 • 1LE5533 (frame sizes 400 and 450)
Cast-iron series SIMOTICS SD Pro
3/18 • 1LE5583 Basic Line
3/19 • 1LE5683 Performance Line
3/20 • 1LE5583 (frame sizes 400 and 450)

3/21 **Article No. supplements and special versions**
Voltages
3/21 • Cast-iron series SIMOTICS SD 1LE55, 1LE56
Types of construction
3/22 • Cast-iron series SIMOTICS SD 1LE55, 1LE56
Motor protection
3/24 • Cast-iron series SIMOTICS SD 1LE55, 1LE56
Terminal box position
3/25 • Cast-iron series SIMOTICS SD 1LE55, 1LE56
Options
3/26 • Cast-iron series SIMOTICS SD 1LE55, 1LE56
3/34 Accessories

3/36 **Dimensions**
3/36 Notes on the dimensions
3/37 Dimension sheet generator
Cast-iron series SIMOTICS SD
3/38 • IE4, IE3 – Frame sizes 315 L to 355 L
Cast-iron series SIMOTICS SD Add
3/40 • IE4, IE3 – Frame sizes 315 L to 355 L
Cast-iron series SIMOTICS SD Pro
3/42 • IE3 – Frame sizes 315 L to 355 L
3/44 • IE3 – Frame sizes 400 and 450

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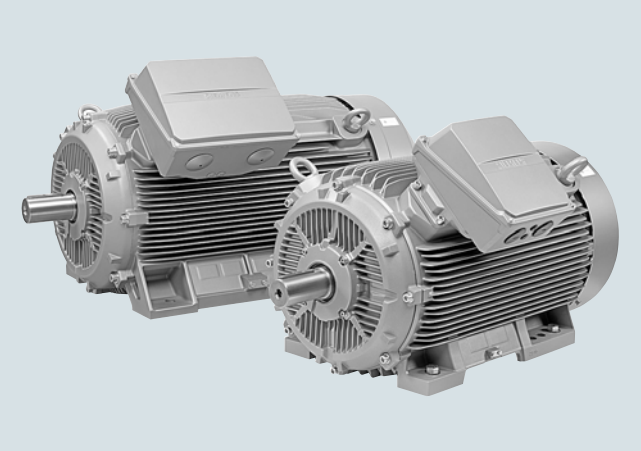
Overview



The SIMOTICS SD next generation is a new scalable generation of low-voltage motors. With their impressive performance and the additional versatility in their range of applications, this new motor series offers entry into a future-proof drive technology.

In addition to the future topics of digitalization and energy efficiency, this motor generation was developed with the focus on design optimization, which has resulted in a very compact motor design with a high power density. A standardized option range and the variable terminal box concept also enable flexible use of the motors in different system configurations and applications. The fact that the motors can either be operated on the line supply or with a converter is part of their versatility.

The following versions are available in the new 1LE5 motor series, differentiated by their performance features and functionality:

- **SIMOTICS SD**
  These motors are characterized by reliable and powerful performance even in the toughest environmental conditions. The characteristics with higher torques ensure that higher starting and breakaway torques are available.
- **SIMOTICS SD Add**
  The characteristic product feature of the SIMOTICS SD Add are the low starting currents. These not only meet industry-specific specifications, above all, in process industries, but also have a positive impact on the operating quality (higher power system stability, lower thermal load, increased motor lifetime). Through the availability of country-specific certificates, these motors can be used in all the important global regions and markets.
- **SIMOTICS SD Pro**
  The SIMOTICS SD Pro range is characterized by its extremely flexible concept, which makes it universally deployable, in any plant, in any country in the world. Line and converter operation are generally possible up to 690 V and all important global, country and sector-specific certificates are available. Depending on the frame size - additional combinations of features are possible that further increase the flexibility. For SIMOTICS SD Pro frame sizes 315 and 355, which are above all used in the series business and are characterized by high starting and breakaway torques, this flexibility is manifested particularly through multi-voltage capability and efficiency stability irrespective of the line frequency 50 Hz/60 Hz. SIMOTICS SD Pro, frame sizes 400 to 450, have low starting currents. This version is aimed more at project business and is primarily used when converter operation up to 690 V is required in this power range.

One decisive advantage of these SIMOTICS SD next generation motors is the possibility of digital communication. This results in many advantages not just for engineering but throughout the product lifecycle.

SIMOTICS Digital Data App – Access to motor data at any time

The freely available SIMOTICS Digital Data App enables access to all motor-specific data and documents (electrical and mechanical data, dimensional drawings, operating instructions, spare part information, etc.) by reading in the data matrix codes present on every motor as standard. This increases transparency and makes commissioning and servicing easier.

SIMOTICS SD Next Generation – The first motors to have an interface with the digital world

The SIMOTICS SD next generation motors will be the first low-voltage motors to support cloud-based condition data analysis via MindSphere and MindApp with SIMOTICS CONNECT 400 in the near future. The motors are therefore ready for preventive maintenance and fast service, which further increases the availability and productivity of your system.

Benefits

- Rugged design in the cast-iron housing increases reliability and availability.
- Compact dimensions/high power density enable use even in confined space conditions.
- High energy efficiency in line (IE3, IE4) and converter operation (IES2) enable energy-saving operation.
- A standardized range of options and a variable terminal box concept increase the flexible adaptation to the requirements of the application.
- Support of line and converter operation reduces the variety.
- Provision of comprehensive CAD data simplifies the design and engineering phase.
- Digital features, such as the data matrix code and support by the cloud-based condition data analysis via MindSphere as part of SIMOTICS IQ permit efficient service and preventive maintenance.

Application

SIMOTICS SD 1LE5 motors are ideal for use in a large number of standard applications, such as

- Pumps, fans, compressors
- Conveyors
- Winders
- Mixers
- Extruders
- Cranes

They are preferably used in industries such as

- Mining, cement
- Chemical industry
- Oil and gas
- Steel industry
- Water, waste water
- Heating, ventilation and air conditioning (HVAC)
- Pulp and paper industry
- Marine engineering

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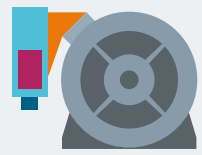
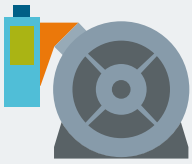
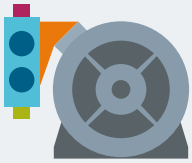
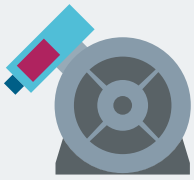
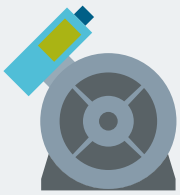
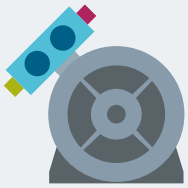
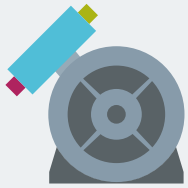
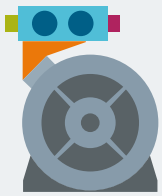
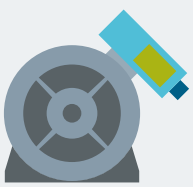
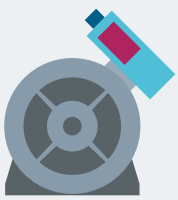
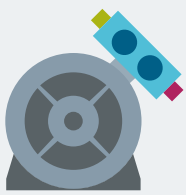
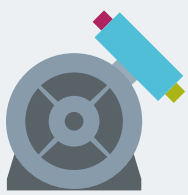
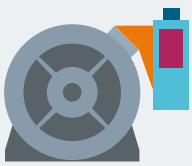
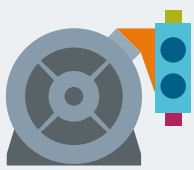
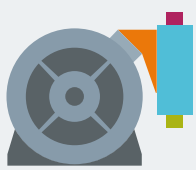
Configuration

Terminal box positions

Standard 1LE5...-.....-... ■	Rotated 180° 1LE5...-.....-... ■ -Z ■■■	Rotated 90°, cable entry DE 1LE5...-.....-... ■ -Z ■■■	Rotated 90°, cable entry NDE 1LE5...-.....-... ■ -Z ■■■
 6	 6 R12	 6 R10	6 R11
 2	 2 R12	 2 R10	 2 R11
0	0 R12	 0 R10	0 R11
1	1 R12	1 R10	1 R11
 3	 3 R12	 3 R10	 3 R11
5	 5 R12	 5 R10	 5 R11

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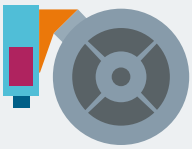
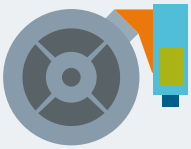
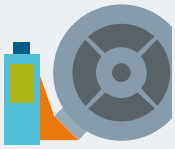
Configuration

Terminal box positions for flanged types of construction only

Standard			Rotated 180°				
1LE5...-.....-... ■			1LE5...-.....-... ■	■■■	1LE5...-.....-... ■	■■■	1LE5...-.....-... ■	■■■
								
Terminal box left	6	→	Terminal box right	9	R6R	Terminal box bottom	9	R7L	Terminal box bottom	9	R7R
											
Terminal box right	5	→	Terminal box left	9	R5L						

Types of construction

IM B3	IM B5

Legend

- Auxiliary terminal box 1 (3)
- Auxiliary terminal box 2 (4)
- Terminal box
- Adapter
- Cable entry

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Technical specifications

Overview of technical specifications

This table lists the most important technical specifications. For more information and details, see Catalog Section 1 "Introduction".

Type of motor	SIMOTICS SD 1LE5 IEC Low-Voltage Motors
Connection types	Star/delta connection The connection type to be used can be taken from the Article No. supplements for the required motor.
Number of poles	2, 4, 6, 8
Frame sizes	315 L ... 450
Rated power	200 ... 1000 kW
Frequencies	50 Hz and 60 Hz
Versions	• IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency)
Marking	IEC 60034-30-1 IE3, IE4: 2, 4, 6 and 8-pole
Rated speed (synchronous speed)	1000 … 3600 rpm
Rated torque	670 ... 8100 Nm
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	• SD and SD Add: Temperature class 155 (F), utilized to temperature class 130 (B) DURIGNIT IR 2000 insulation system • SD Pro: Temperature class 155 (F), utilized to temperature class 155 (F) DURIGNIT IR 2000 insulation system
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP55 as standard
Cooling in accordance with EN 60034-6 (IEC 60034-6)	• Self-ventilated (IC411) • Forced-air cooled motors w/o ext. fan/fan cover (IC418) • Forced-air cooled (IC416)
Permissible coolant temperature and installation altitude	–20 ... +40 °C as standard, installation altitude up to 1000 m above sea level. See "Coolant temperature and installation altitude" in Catalog Section 1 "Introduction".
Standard voltages according to EN 60038 (IEC 60038)	50 Hz: 400 V, 500 V, 690 V The voltage used can be found in the "Selection and ordering data" for the required motor.
Type of construction according to EN 60034-7 (IEC 60034-7)	• Without flange: IM B3, IM B6, IM B7, IM B8, IM V5, IM V6 • With flange: IM B5, IM V1, IM V3, IM B35
Paint finish	Standard: color RAL 7030 stone gray
Suitability of paint finish for climate group according to IEC 60721, Part 2-1	See "Paint finish" in Catalog Section 1 "Introduction".
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal – without special vibration requirements) Optionally: Grade B (with special vibration requirements) See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: Half-key balancing as standard See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The sound pressure level is listed in the selection and ordering data for the required motor.
Weights	The weight is listed in the selection and ordering data for the required motor.
Modular mounting concept	Rotary pulse encoder, brake, separately driven fan or prepared for mountings
Consistent series concept	• Terminal box diagonally split - and can be optionally rotated through 4 x 90° • Bearings at DE and NDE are of identical design, reinforced bearings available as an option
Options	See "Article No. supplements and special versions"

Converter operation

The motors are suitable for line operation and optionally for converter operation (bearing insulation NDE, order code **L51**). The values specified in the selection tables apply for pure sinusoidal supplies.

Rated voltage

The tolerance for the rated voltage is in accordance with EN 60034-1 in all cases, a rated voltage range is not specified.

Motor protection

A motor protection function can be implemented using the I2t sensing circuit implemented in the converter software.

If required, more precise motor protection can be provided by directly measuring the temperature using KTY84 sensors, Pt100 / Pt1000 resistance thermometers or PTC thermistors in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping.

Bearings

To avoid damage caused by bearing currents, insulated bearings (L51) must be ordered.

When operating multiphase induction motors with a converter, the bearings are electrically stressed as a result of a capacitively induced voltage across the bearing lubricating film (as a result of the inherent principle of operation). The physical cause of this is the common-mode voltage at the converter output that is inherent in the control method for a converter: The sum of the three phase voltages is – in contrast to pure line operation – not equal to zero at every point in time. The high-frequency, pulsed common-mode voltage results in a residual current that flows back to the converter DC link via the internal capacitances of the motor, the motor housing and the grounding circuit. The machine's internal capacitances include the main insulation winding capacitance, the geometric capacitance between the rotor and stator, the lubricating film capacitance and the capacitance of any bearing insulation that may be present. The current flowing through the internal capacitances is proportional to the gradient, i.e. the voltage change of the common-mode voltage ($i(t) = C \cdot du/dt$).

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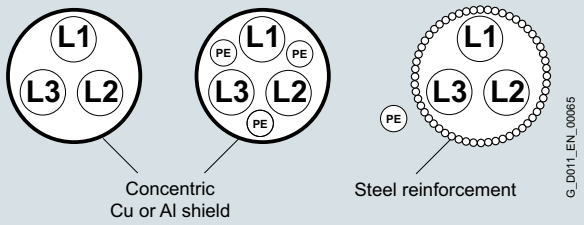
Technical specifications

In order to apply currents to the motor which are sinusoidal as far as possible (smooth running, oscillation torques, stray losses), a high clock frequency is required for the converter's output voltage. The related (very steep) switching edges of the converter output voltage (and also, therefore, of the common-mode voltage) cause correspondingly high capacitive currents and voltages on the machine's internal capacitances.

In the worst-case scenario, the capacitive voltage induced via the bearing can lead to random arcing through the bearing lubricating film, thus causing premature bearing aging or damage. (The current pulses caused by the arcing across the lubricating film are referred to as EDM (Electrostatic Discharge Machining) currents in the literature.)

This physical effect, which occurs in isolated cases, has mostly been observed in connection with larger motors. EMC-compliant installation of the drive system is a basic prerequisite for preventing premature bearing damage via bearing currents. The most important measures for reducing damage to bearings.

- Insulated bearing at the non-drive end (NDE) (order code **L51**)
- Use cables with a symmetrical cable cross-section

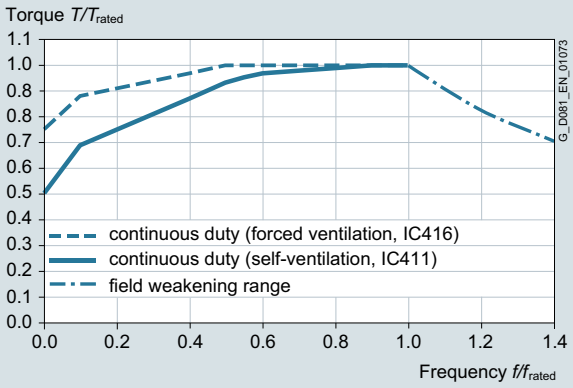


- Preference given to a supply with insulated neutral point (IT system)
- Using grounding cables with low impedance over a wide frequency range (DC up to approximately 70 MHz): for example, plaited copper ribbon cables, HF litz wires
- Separate HF equipotential-bonding cable between motor housing and driven machine
- Separate HF equipotential-bonding cable between motor housing and converter PE busbar
- 360° HF contacting of the cable shield on the motor housing and the converter PE busbar. This can be achieved using EMC screwed glands on the motor end and EMC shield clips at the converter, for example
- Using motor reactors at the converter
- Common-mode filters at the converter output.

Thermal torque limits

In the case of self-ventilated motors, the thermally admissible load torques are reduced for continuous operation for speeds below the rated speed. This must be taken into account for applications, especially those that do not have a square law load torque. Also in the case of forced-air cooled motors (order code F70), the maximum load torques are reduced slightly for high speed ranges.

When motors are operated at speeds above their rated speed (in the field-weakening range), the maximum load torque is also reduced.



More information

For further information, please get in touch with your local Siemens contact and use the DT Configurator.

Contacts: www.siemens.com/automation/partner

DT Configurator: www.siemens.com/dt-configurator

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- product or
- sector.

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Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:
1LE5504-3AA63-4AA2-Z
H00

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and power and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.

Structure of the Article No.:		Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	
1st to 4th position: Digit, letter, letter, digit	• Self-ventilated by fan mounted on and driven by the rotor • Forced-air cooled by air flow from the fan to be driven with option extension **F90**		**1**	**L**	**E**	**5**															
5th position: Digit	Cast-iron housing Basic Line Cast-iron housing Performance Line						**5** **6**														
6th to 7th position: 2 digits	SIMOTICS SD motors with IE3 Premium Efficiency SIMOTICS SD Add motors with IE3 Premium Efficiency SIMOTICS SD motors with IE4 Super Premium Efficiency SIMOTICS SD Add motors with IE4 Super Premium Efficiency SIMOTICS SD Pro motors with IE3 Premium Efficiency							**0** **3** **3** **3** **0** **4** **3** **4** **8** **3**													
8th, 9th and 11th position: Digit, letter, digit	**Motor frame size** (frame size as a combination of shaft height and overall length, encoded)										**3** ... **4** **A** ... **B**			**3** ... **8**							
10th position: Letter	**No. of poles** A: 2-pole B: 4-pole C: 6-pole D: 8-pole												**A** **B** **C** **D**								
12th and 13th position: 2 digits	**Voltage, circuit and frequency** (encoded with two digits, 9-0 requires order code M.. (e.g. M1Y))														**0** ... **9**		**0** ... **7**				
14th position: Letter	**Type of construction** (encoded with A ... V)																	**A** ... **V**			
15th position: Letter	**Motor protection** (encoded with A ... Z; Z requires order code Q.. (e.g. Q3A))																		**A** ... **Z**		
16th position: Digit	**Terminal box position** Terminal box base left with terminal box at the top Terminal box base right with terminal box at the top Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Terminal box on right-hand side Terminal box on left-hand side																			**0** **1** **2** **3** **5** **6**	
	Special order versions: encoded – additional order code required not encoded – additional plain text required																				- **Z**

Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type 1LE5	Standard motor with IE4 Super Premium Efficiency, self-ventilated, IP55 degree of protection, cast-iron version, Performance Line	**1LE5604-■■■■■-■■■■**
Motor frame size/No. of poles/Speed	315 L/2-pole/3000 rpm	**1LE5604-3AA6■-■■■■**
Rated power	250 kW	
Voltage and frequency	400 VΔ/690 VY, 50 Hz	**1LE5604-3AA63-4■■■**
Type of construction with special version	IM V5 with protective cover [1]	**1LE5604-3AA63-4C■■-Z** **H00**
Motor protection	1 or 3 PTC thermistors – for tripping (2 terminals)	**1LE5604-3AA63-4CB■-Z** **H00**
Terminal box position	Terminal box base left with terminal box 45°	**1LE5604-3AA63-4CB2-Z** **H00**

[1] Standard without protective cover – the protective cover is defined with order code **H00** and must be ordered in addition to the Article No. with **-Z** and this order code.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5504 Basic Line Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE4 Super Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2986	800	96.5	96.4	95.7	0.88	425	3	9.3	4.2	80	94	**1LE5504-3AA6■-■■■■**	1340	2.82
315	**315 L**	2986	1007	96.5	96.3	95.5	0.87	540	3.5	9.9	4.2	81	96	**1LE5504-3AA7■-■■■■**	1520	3.27
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1490	1602	96.7	96.8	96.5	0.86	435	2.8	7.9	3.2	75	90	**1LE5504-3AB6■-■■■■**	1500	4.98
315	**315 L**	1490	2019	96.7	96.7	96.3	0.83	570	3.2	8.5	3.5	75	90	**1LE5504-3AB7■-■■■■**	1560	5.39
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	96.3	96.4	96.1	0.82	365	3	7.5	3.2	68	83	**1LE5504-3AC7■-■■■■**	1410	6.28
250	**315 L**	992	2407	96.5	96.6	96.3	0.81	460	3.2	8.2	3.3	69	84	**1LE5504-3AC8■-■■■■**	1700	8.00
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	95.1	95.5	95.5	0.79	305	2.5	6.3	2.5	67	82	**1LE5504-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	95.4	95.6	95.3	0.78	390	2.7	6.7	2.9	72	87	**1LE5504-3AD8■-■■■■**	1660	8.60

Voltages [1]		Version					Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
50 Hz 690 VΔ		With additional charge	**4**	**7**			–
For other voltages [1] and more information, see from page 3/21			■	■			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
For other types of construction and more information, see from page 3/22					■		. . .
Motor protection		Version					Order code
Without		**Standard**				**A**	–
PTC thermistor with 3 temperature sensors		With additional charge				**B**	–
For other motor protection and more information, see from page 3/24						■	. . .
Terminal box position		Version					Order code
Terminal box base left with terminal box 45°		Without additional charge					**2** –
Terminal box base right with terminal box 45°		**Standard**					**3** –
For other terminal box positions and more information, see from page 3/25							■ . . .

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5504-. . . .** ■-■■■■ **-Z**	**F90+. . .+. . .+. . .**
For options, see from page 3/26	**1LE5504-. . . .** ■-■■■■ **-Z**	**. . .+. . .+. . .+. . .**

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	**Cast-iron series 1LE5604 Performance Line Article No.**	$m_{IM\ B3}$	J
kW	**FS**	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE4 Super Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2986	800	96.5	96.4	95.7	0.88	425	3	9.3	4.2	80	94	**1LE5604-3AA6■-■■■■**	1340	2.82
315	**315 L**	2986	1007	96.5	96.3	95.5	0.87	540	3.5	9.9	4.2	81	96	**1LE5604-3AA7■-■■■■**	1520	3.27
355	**355 L**	2988	1135	96.5	96.3	95.5	0.89	600	2.6	8.9	4	84	99	**1LE5604-3BA3■-■■■■**	2100	4.74
400	**355 L**	2986	1279	96.5	96.4	95.9	0.92	650	2.6	8.5	3.4	83	98	**1LE5604-3BA4■-■■■■**	2240	5.36
500	**355 L**	2988	1598	96.5	96.4	95.8	0.89	840	3	8.9	3.8	84	98	**1LE5604-3BA5■-■■■■**	2340	5.76
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1490	1602	96.7	96.8	96.5	0.86	435	2.8	7.9	3.2	75	90	**1LE5604-3AB6■-■■■■**	1500	4.98
315	**315 L**	1490	2019	96.7	96.7	96.3	0.83	570	3.2	8.5	3.5	75	90	**1LE5604-3AB7■-■■■■**	1560	5.39
355	**355 L**	1492	2272	96.7	96.7	96.2	0.83	640	2.8	7.9	2.8	81	96	**1LE5604-3BB3■-■■■■**	2050	6.76
400	**355 L**	1492	2560	96.7	96.7	96.2	0.82	730	3.2	7.9	2.9	81	96	**1LE5604-3BB4■-■■■■**	2080	7.16
500	**355 L**	1491	3202	96.7	96.8	96.6	0.86	870	3.1	8.1	3.3	80	96	**1LE5604-3BB5■-■■■■**	2290	8.36
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	96.3	96.4	96.1	0.82	365	3	7.5	3.2	68	83	**1LE5604-3AC7■-■■■■**	1410	6.28
250	**315 L**	992	2407	96.5	96.6	96.3	0.81	460	3.2	8.2	3.3	69	84	**1LE5604-3AC8■-■■■■**	1700	8.00
315	**355 L**	993	3029	96.6	96.6	96.1	0.82	570	2.9	7.8	3.2	75	90	**1LE5604-3BC2■-■■■■**	2040	11.6
355	**355 L**	993	3414	96.6	96.7	96.3	0.83	640	2.9	8.4	3.3	74	89	**1LE5604-3BC3■-■■■■**	2250	13.7
400	**355 L**	993	3847	96.6	96.7	96.5	0.84	710	2.8	8.1	3	75	90	**1LE5604-3BC4■-■■■■**	2240	13.4
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	95.1	95.5	95.5	0.79	305	2.5	6.3	2.5	67	82	**1LE5604-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	95.4	95.6	95.3	0.78	390	2.7	6.7	2.9	72	87	**1LE5604-3AD8■-■■■■**	1660	8.60
250	**355 L**	744	3209	95.4	95.8	95.8	0.80	475	2.4	7.1	2.7	68	83	**1LE5604-3BD1■-■■■■**	2280	13.3
315	**355 L**	744	4043	95.4	95.7	95.4	0.80	600	2.5	7.3	3.0	68	83	**1LE5604-3BD2■-■■■■**	2360	14

Voltages [1]	Version				Order code
50 Hz 400 VΔ/690 VY 60 Hz [1] 460 VΔ	**Standard**	3	4		–
50 Hz 500 VΔ	Without additional charge	4	0		–
50 Hz 690 VΔ	With additional charge	4	7		–
For other voltages [1] and more information, see from page 3/21		■	■		. . .
Types of construction	Version				Order code
Without flange IM B3 [2]	**Standard**			A	–
With flange IM B5 [2]	With additional charge			F	–
For other types of construction and more information, see from page 3/22				■	. . .
Motor protection	Version				Order code
PTC thermistor with 3 temperature sensors	**Standard**			B	–
For other motor protection and more information, see from page 3/24				■	. . .
Terminal box position	Version				Order code
Terminal box base left with terminal box 45°	Without additional charge			2	–
Terminal box base right with terminal box 45°	**Standard**			3	–
For other terminal box positions and more information, see from page 3/25				■	. . .
Special versions					Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5604-. . . .■-■■■■-Z**				**F90+. . .+. . .+. . .**
For options, see from page 3/26	**1LE5604-. . . .■-■■■■-Z**				. . .+. . .+. . .+. . .

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5534 Basic Line Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency: IE4 Super Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2982	801	96.5	96.6	96.4	0.91	410	2.6	7.5	3	80	95	**1LE5534-3AA6■-■■■■**	1340	2.82
315	**315 L**	2980	1009	96.5	96.7	96.5	0.91	520	2.4	7.5	2.9	81	96	**1LE5534-3AA7■-■■■■**	1490	3.11
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1488	1604	96.7	97	97	0.86	435	2.3	6.5	2.6	75	90	**1LE5534-3AB6■-■■■■**	1520	5.09
315	**315 L**	1488	2022	96.7	96.9	96.8	0.85	550	2.2	7.2	2.8	75	90	**1LE5534-3AB7■-■■■■**	1530	5.28
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	96.3	96.5	96.3	0.81	370	2.8	7	3	68	83	**1LE5534-3AC7■-■■■■**	1410	6.28
250	**315 L**	992	2407	96.5	96.6	96.3	0.81	460	2.9	7.3	3	68	83	**1LE5534-3AC8■-■■■■**	1640	8.10
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	95.1	95.5	95.5	0.79	305	2.4	6.2	2.4	67	82	**1LE5534-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	95.4	95.6	95.3	0.78	390	2.7	6.7	2.9	72	87	**1LE5534-3AD8■-■■■■**	1660	8.60

Voltages [1]		Version						Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
50 Hz 690 VΔ		With additional charge	**4**	**7**				–
For other voltages [1] and more information, see from page 3/21			■	■				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			**A**			–
With flange	IM B5 [2]	With additional charge			**F**			–
For other types of construction and more information, see from page 3/22					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 3 temperature sensors		With additional charge				**B**		–
For other motor protection and more information, see from page 3/24						■		. . .
Terminal box position		Version						Order code
Terminal box base left with terminal box 45°		Without additional charge					**2**	–
Terminal box base right with terminal box 45°		**Standard**					**3**	–
For other terminal box positions and more information, see from page 3/25							■	. . .
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE5534-. . . .** ■-■■■■					**-Z**	**F90+. . .+. . .+. . .**
For options and information, see from page 3/26		**1LE5534-. . . .** ■-■■■■					**-Z**	**. . .+. . .+. . .+. . .**

[1] For frame size 315, parallel supply lines are required, except in the case of connection to 690 V.

[2] For frame size 315 with power rating 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	**Cast-iron series 1LE5634 Performance Line Article No.**	$m_{IM\ B3}$	J
kW	**FS**	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) • Efficiency: IE4 Super Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2982	801	96.5	96.6	96.4	0.91	410	2.6	7.5	3	80	95	**1LE5634-3AA6■-■■■■**	1340	2.82
315	**315 L**	2980	1009	96.5	96.7	96.5	0.91	520	2.4	7.5	2.9	81	96	**1LE5634-3AA7■-■■■■**	1490	3.11
355	**355 L**	2984	1136	96.5	96.4	95.9	0.9	590	2.3	8.4	3.1	83	98	**1LE5634-3BA3■-■■■■**	2170	5.09
400	**355 L**	2986	1279	96.5	96.5	96	0.91	660	2.3	7.7	3.1	83	98	**1LE5634-3BA4■-■■■■**	2240	5.46
500	**355 L**	2988	1598	96.5	96.4	95.8	0.89	840	2.8	8.5	3.7	83	98	**1LE5634-3BA5■-■■■■**	2340	5.76
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1488	1604	96.7	97	97	0.86	435	2.3	6.5	2.6	75	90	**1LE5634-3AB6■-■■■■**	1520	5.09
315	**315 L**	1488	2022	96.7	96.9	96.8	0.85	550	2.2	7.2	2.8	75	90	**1LE5634-3AB7■-■■■■**	1530	5.28
355	**355 L**	1491	2274	96.7	96.8	96.5	0.85	620	2.2	7.5	3.2	78	93	**1LE5634-3BB3■-■■■■**	1960	6.26
400	**355 L**	1491	2562	96.7	96.9	96.6	0.85	700	2.3	7.3	3.2	79	95	**1LE5634-3BB4■-■■■■**	2080	7.06
500	**355 L**	1491	3202	96.7	96.8	96.6	0.86	870	3.1	7.9	3.3	80	96	**1LE5634-3BB5■-■■■■**	2290	8.36
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	96.3	96.5	96.3	0.81	370	2.8	7	3	68	83	**1LE5634-3AC7■-■■■■**	1410	6.39
250	**315 L**	992	2407	96.5	96.6	96.3	0.81	460	2.9	7.3	3	68	83	**1LE5634-3AC8■-■■■■**	1640	8.10
315	**355 L**	992	3032	96.6	96.9	96.9	0.86	550	2.4	6.8	2.8	75	90	**1LE5634-3BC2■-■■■■**	2150	12.9
355	**355 L**	993	3414	96.6	96.7	96.4	0.84	630	2.6	7.4	3.2	76	91	**1LE5634-3BC3■-■■■■**	2250	13.8
400	**355 L**	994	3843	96.6	96.7	96.5	0.84	710	2.7	7.7	2.9	75	90	**1LE5634-3BC4■-■■■■**	2240	13.4
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	95.1	95.5	95.5	0.79	305	2.4	6.2	2.4	67	82	**1LE5634-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	95.4	95.6	95.3	0.78	390	2.7	6.7	2.9	72	87	**1LE5634-3AD8■-■■■■**	1660	8.60
250	**355 L**	744	3200	95.4	95.8	95.8	0.80	475	2.4	7.1	2.7	68	83	**1LE5634-3BD1■-■■■■**	2280	13.3
315	**355 L**	744	4050	95.4	95.7	95.4	0.80	600	2.4	7.0	2.9E	68	83	**1LE5634-3BD2■-■■■■**	2310	14

Voltages [1]	Version				Order code
50 Hz 400 VΔ/690 VY 60 Hz [1] 460 VΔ	**Standard**	**3**	**4**		–
50 Hz 500 VΔ	Without additional charge	**4**	**0**		–
50 Hz 690 VΔ	With additional charge	**4**	**7**		–
For other voltages [1] and more information, see from page 3/21		■	■		. . .
Types of construction	Version				Order code
Without flange IM B3 [2]	**Standard**			**A**	–
With flange IM B5 [2]	With additional charge			**F**	–
For other types of construction and more information, see from page 3/22				■	. . .
Motor protection	Version				Order code
PTC thermistor with 3 temperature sensors	**Standard**			**B**	–
For other motor protection and more information, see from page 3/24				■	. . .
Terminal box position	Version				Order code
Terminal box base left with terminal box 45°	Without additional charge			**2**	–
Terminal box base right with terminal box 45°	**Standard**			**3**	–
For other terminal box positions and more information, see from page 3/25				■	. . .
Special versions					Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5634-. . . .** ■-■■■■			**-Z**	**F90+. . .+. . .+. . .**
For options and information, see from page 3/26	**1LE5634-. . . .** ■-■■■■			**-Z**	**. . .+. . .+. . .+. . .**

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power: n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5534 Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency: IE4 Super Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
560 [1) 2)]	**400**	2988	1790	97.0	96.9	96.5	0.89	940	1.6	7.3	3.1	74	90	**1LE5534-4AA3■-■■■■**	2850	8.9
630 [1) 2)]	**400**	2988	2000	97.0	97.1	96.8	0.90	1040	1.6	7.3	3.0	74	90	**1LE5534-4AA5■-■■■■**	3000	9.8
710 [3)]	**400**	2988	2250	97.1	97.2	96.9	0.90	680	1.7	7.3	2.9	74	90	**1LE5534-4AA7■-■■■■**	3200	10.8
800 [1) 2) 3) 4)]	**450**	2990	2550	97.4	97.4	97.1	0.87	790	1.2	7.7	3.3	75	91	**1LE5534-4BA3■-■■■■**	4000	12.3
900 [1) 2) 3) 4)]	**450**	2988	2900	97.4	97.5	97.4	0.89	870	1.2	7.2	3.0	75	91	**1LE5534-4BA5■-■■■■**	4250	13.5
1000 [1) 2) 3) 4)]	**450**	2988	3200	97.4	97.6	97.6	0.90	950	1.2	7.0	2.7	75	91	**1LE5534-4BA7■-■■■■**	4450	14.7
4-pole: 1500 rpm at 50 Hz																
560 [1) 2)]	**400**	1493	3600	96.9	97.0	96.6	0.86	970	2.2	7.5	3.1	72	88	**1LE5534-4AB3■-■■■■**	3050	14.9
630 [1) 2)]	**400**	1492	4050	96.8	96.9	96.6	0.87	1080	2.2	6.9	2.8	74	90	**1LE5534-4AB5■-■■■■**	3150	15.6
710 [3)]	**400**	1492	4550	97.0	97.0	96.8	0.87	700	2.2	7.2	2.9	74	90	**1LE5534-4AB7■-■■■■**	3250	16.9
800 [3)]	**450**	1492	5100	96.9	97.1	96.9	0.87	790	1.4	6.5	2.4	79	95	**1LE5534-4BB3■-■■■■**	4000	24.0
900 [3)]	**450**	1492	5800	97.0	97.2	97.0	0.88	880	1.4	6.5	2.5	79	95	**1LE5534-4BB5■-■■■■**	4150	25.4
1000 [1) 3)]	**450**	1492	6400	97.1	97.2	97.1	0.88	980	1.5	6.8	2.6	79	95	**1LE5534-4BB7■-■■■■**	4350	28.0
6-pole: 1000 rpm at 50 Hz																
450	**400**	994	4300	96.6	96.8	96.4	0.85	790	2.2	7.2	2.7	70	86	**1LE5534-4AC3■-■■■■**	3100	25.5
500 [1)]	**400**	994	4800	96.7	96.8	96.5	0.85	880	2.3	7.3	2.8	70	86	**1LE5534-4AC5■-■■■■**	3250	27.4
560	**400**	994	5400	96.7	96.8	96.4	0.84	1000	2.4	7.5	2.9	70	86	**1LE5534-4AC7■-■■■■**	3300	28.6
630 [1) 2)]	**450**	995	6000	96.8	97.0	96.7	0.83	1130	2.0	7.0	2.8	72	88	**1LE5534-4BC3■-■■■■**	4050	38.6
710 [3)]	**450**	994	6800	96.8	97.0	96.9	0.84	730	1.8	6.6	2.5	72	88	**1LE5534-4BC5■-■■■■**	4200	41.0
800 [1) 3)]	**450**	994	7700	96.8	97.0	96.8	0.84	820	1.8	6.6	2.4	74	90	**1LE5534-4BC7■-■■■■**	4300	43.3
8-pole: 750 rpm at 50 Hz																
355	**400**	744	4550	95.8	96.1	95.8	0.80	670	2.0	6.5	2.6	64	80	**1LE5534-4AD3■-■■■■**	2850	21.9
400	**400**	744	5100	96.0	96.2	95.9	0.80	750	2.1	6.8	2.7	64	80	**1LE5534-4AD5■-■■■■**	3050	24.5
450	**400**	744	5800	96.0	96.3	96.0	0.80	850	2.1	6.8	2.7	64	80	**1LE5534-4AD7■-■■■■**	3250	27.5
500 [5)]	**450**	745	6400	96.2	96.4	96.1	0.79	950	2.0	6.8	2.5	67	83	**1LE5534-4BD3■-■■■■**	3800	34.0
560 [5)]	**450**	745	7200	96.3	96.5	96.1	0.79	1060	2.0	6.9	2.6	67	83	**1LE5534-4BD5■-■■■■**	4000	38.0
630 [1) 5)]	**450**	745	8100	96.4	96.6	96.3	0.80	1180	2.0	6.9	2.5	67	83	**1LE5534-4BD7■-■■■■**	4250	42.5

Voltages		Version			Order code
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
50 Hz 690 VΔ		With additional charge	**4**	**7**	–
For other voltages and more information, see from page 3/21			■	■	. . .

Types of construction		Version		Order code
Without flange	IM B3	**Standard**	**A**	–
With flange	IM B5	With additional charge	**F**	–
For other types of construction and more information, see from page 3/22			■	. . .

Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 3 temperature sensors	With additional charge	**B**	–
For other motor protection and more information, see from page 3/24		■	. . .

Terminal box position	Version		Order code
Terminal box base left with terminal box 45°	Without additional charge	**2**	–
Terminal box base right with terminal box 45°	**Standard**	**3**	–
For other terminal box positions and more information, see from page 3/25		■	. . .

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5534-. . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options and information, see from page 3/26	**1LE5534-. . . . ■-■■■■-Z**	**. . .+. . .+. . .+. . .**

1) Terminal box 1XB1631.

2) Terminal box position NDE can only be ordered using order code **H09** (2 × terminal box TB3R61). Order code **H08** not available.

3) The standard version is 50 Hz 690 VΔ (voltage code **4**-**7**) or 60 Hz 575 VΔ (voltage code **4**-**0**).

4) In the series version, the maximum speed is n_{max} = 3000 rpm. Operation up to 3600 rpm at higher speeds on request for an additional charge.

5) Utilization with sinusoidal supply in accordance with thermal class 155 (temperature class F).

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Selection and ordering data

		Operating values at rated power												Cast-iron series 1LE5503 Basic Line Article No.		
P_{rated}	Frame size	n_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$	$\eta_{rated,\ 3/4}$	$\eta_{rated,\ 2/4}$	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}		$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2986	800	95.8	95.7	95	0.88	430	3	9.3	4.2	80	94	**1LE5503-3AA6■-■■■■**	1340	2.82
315	**315 L**	2986	1007	95.8	95.6	94.8	0.87	550	3.5	9.9	4.2	81	96	**1LE5503-3AA7■-■■■■**	1520	3.27
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1490	1602	96	96.1	95.7	0.85	440	2.8	7.9	3.2	75	91	**1LE5503-3AB6■-■■■■**	1290	4.27
315	**315 L**	1490	2019	96	96	95.6	0.83	570	3.2	8.5	3.5	75	90	**1LE5503-3AB7■-■■■■**	1560	5.39
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	95.8	95.9	95.6	0.82	365	3	7.5	3.2	68	83	**1LE5503-3AC7■-■■■■**	1410	6.28
250	**315 L**	992	2407	95.8	95.9	95.6	0.81	465	3.2	8.2	3.3	69	84	**1LE5503-3AC8■-■■■■**	1700	8.00
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	94.3	94.7	94.7	0.79	310	2.5	6.3	2.5	67	82	**1LE5503-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	94.6	94.8	94.5	0.78	390	2.7	6.7	2.9	72	87	**1LE5503-3AD8■-■■■■**	1660	8.60

Voltages [1]		Version						Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
50 Hz 690 VΔ		With additional charge	**4**	**7**				–
For other voltages [1] and more information, see from page 3/21			■	■				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			**A**			–
With flange	IM B5 [2]	With additional charge			**F**			–
For other types of construction and more information, see from page 3/22					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 3 temperature sensors		With additional charge				**B**		–
For other motor protection and more information, see from page 3/24						■		. . .
Terminal box position		Version						Order code
Terminal box base left with terminal box 45°		Without additional charge					**2**	–
Terminal box base right with terminal box 45°		**Standard**					**3**	–
For other terminal box positions and more information, see from page 3/25							■	. . .
Special versions								Order code(s)
For options, see from page 3/26		**1LE5503-. . . .**	■	■	■	■	**-Z**	. . .+. . .+. . .+. . .

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5603 Performance Line Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2986	800	95.8	95.6	95.0	0.88	430	3.0	9,	4.2	80	94	**1LE5603-3AA6■-■■■■**	1340	2.82
315	**315 L**	2986	1007	95.8	95.6	94.8	0.87	550	3.5	9.9	4.2	81	96	**1LE5603-3AA7■-■■■■**	1520	3.27
355	**355 L**	2988	1135	95.8	95.6	94.8	0.89	600	2.6	8.9	4.0	84	99	**1LE5603-3BA3■-■■■■**	2100	4.74
400	**355 L**	2986	1279	95.8	95.7	95.2	0.92	660	2.6	8.5	3.4	83	98	**1LE5603-3BA4■-■■■■**	2240	5.36
500	**355 L**	2988	1598	95.8	95.7	95.1	0.89	850	3.0	8.9	3.8	84	98	**1LE5603-3BA5■-■■■■**	2340	5.76
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1490	1602	96.0	96.1	95.7	0.85	440	2.8	7.9	3.2	75	91	**1LE5603-3AB6■-■■■■**	1290	4.27
315	**315 L**	1490	2019	96.0	96.0	95.6	0.83	570	3.2	8.5	3.5	75	90	**1LE5603-3AB7■-■■■■**	1560	5.39
355	**355 L**	1492	2272	96.0	96.0	95.4	0.86	620	2.9	7.9	2.8	81	96	**1LE5603-3BB3■-■■■■**	2290	6.76
400	**355 L**	1492	2560	96.0	96.0	95.5	0.84	720	3.4	8.4	3.0	81	96	**1LE5603-3BB4■-■■■■**	2110	7.16
500	**355 L**	1491	3202	96.0	96.1	95.9	0.86	870	3.0	8.1	3.3	82	96	**1LE5603-3BB5■-■■■■**	2290	8.36
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	95.8	95.9	95.6	0.82	365	3	7.5	3.2	68	83	**1LE5603-3AC7■-■■■■**	1410	6.28
250	**315 L**	992	2407	95.8	95.9	95.6	0.81	465	3.2	8.2	3.3	69	84	**1LE5603-3AC8■-■■■■**	1700	8.00
315	**355 L**	993	3029	95.8	95.8	95.3	0.82	580	2.9	7.8	3.2	75	90	**1LE5603-3BC2■-■■■■**	2040	11.6
355	**355 L**	993	3414	95.8	95.9	95.5	0.83	640	2.9	8.4	3.3	74	89	**1LE5603-3BC3■-■■■■**	2250	13.7
400	**355 L**	994	3843	95.8	96	95.8	0.84	720	2.8	8.1	3	75	90	**1LE5603-3BC4■-■■■■**	2240	13.4
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	94.3	94.7	94.7	0.79	310	2.5	6.3	2.5	67	82	**1LE5603-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	94.6	94.8	94.5	0.78	390	2.7	6.7	2.9	72	87	**1LE5603-3AD8■-■■■■**	1660	8.60
250	**355 L**	744	3209	94.6	95.0	95.0	0.80	475	2.4	7.1	2.7	73	88	**1LE5603-3BD1■-■■■■**	2280	13.3
315	**355 L**	744	4043	94.6	94.9	94.6	0.80	600	2.5	7.3	3.0	68	83	**1LE5603-3BD2■-■■■■**	2360	14

Voltages [1]		Version			Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VΔ		Without additional charge	4	0	–
50 Hz 690 VΔ		With additional charge	4	7	–
For other voltages [1] and more information, see from page 3/21			■	■	. . .

Types of construction		Version			Order code
Without flange	IM B3 [2]	**Standard**		A	–
With flange	IM B5 [2]	With additional charge		F	–
For other types of construction and more information, see from page 3/22				■	. . .

Motor protection	Version		Order code
PTC thermistor with 3 temperature sensors	**Standard**	B	–
For other motor protection and more information, see from page 3/24		■	. . .

Terminal box position	Version		Order code
Terminal box base left with terminal box 45°	Without additional charge	2	–
Terminal box base right with terminal box 45°	**Standard**	3	–
For other terminal box positions and more information, see from page 3/25		■	. . .

Special versions		Order code(s)
For options, see from page 3/26	**1LE5603-. . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5533 Basic Line Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	315 L	2982	801	95.8	95.9	95.6	0.91	415	2.8	7.2	3	80	94	1LE5533-3AA6■-■■■■	1340	2.82
315	315 L	2980	1009	95.8	96	95.8	0.91	520	2.4	7.5	2.9	81	96	1LE5533-3AA7■-■■■■	1490	3.11
4-pole: 1500 rpm at 50 Hz																
250	315 L	1490	1602	96	96.2	95.9	0.87	430	2.1	7.2	2.8	75	91	1LE5533-3AB6■-■■■■	1400	4.55
315	315 L	1488	2022	96	96.2	96.1	0.85	560	2.2	7.2	2.8	75	90	1LE5533-3AB7■-■■■■	1530	5.28
6-pole: 1000 rpm at 50 Hz																
200	315 L	992	1925	95.8	96	95.8	0.81	370	2.8	7	3	68	83	1LE5533-3AC7■-■■■■	1410	6.39
250	315 L	992	2407	95.8	95.9	95.6	0.81	465	2.9	7.2	3	68	83	1LE5533-3AC8■-■■■■	1640	8.10
8-pole: 750 rpm at 50 Hz																
160	315 L	741	2062	94.3	94.7	94.7	0.79	310	2.4	6.2	2.4	67	82	1LE5533-3AD7■-■■■■	1420	6.78
200	315 L	742	2574	94.6	94.8	94.5	0.78	390	2.7	6.7	2.9	72	87	1LE5533-3AD8■-■■■■	1660	8.60

Voltages [1]		Version						Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4				–
50 Hz 500 VΔ		Without additional charge	4	0				–
50 Hz 690 VΔ		With additional charge	4	7				–
For other voltages [1] and more information, see from page 3/21			■	■				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			A			–
With flange	IM B5 [2]	With additional charge			F			–
For other types of construction and more information, see from page 3/22					■			. . .
Motor protection		Version						Order code
Without		**Standard**				A		–
PTC thermistor with 3 temperature sensors		With additional charge				B		–
For other motor protection and more information, see from page 3/24						■		. . .
Terminal box position		Version						Order code
Terminal box base left with terminal box 45°		Without additional charge					2	–
Terminal box base right with terminal box 45°		**Standard**					3	–
For other terminal box positions and more information, see from page 3/25							■	. . .
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)			1LE5533-. . . . ■-■■■■				-Z	F90+. . .+. . .+. . .
For options and information, see from page 3/26			1LE5533-. . . . ■-■■■■				-Z	. . .+. . .+. . .+. . .

[1] For frame size 315, parallel supply lines are required, except in the case of connection to 690 V.

[2] For frame size 315 with power rating 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5633 Performance Line Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2982	801	95.8	95.9	95.6	0.91	415	2.8	7.2	3	80	94	**1LE5633-3AA6■-■■■■**	1340	2.82
315	**315 L**	2980	1009	95.8	96	95.8	0.91	520	2.4	7.5	2.9	81	96	**1LE5633-3AA7■-■■■■**	1490	3.11
355	**355 L**	2984	1136	95.8	95.7	95.2	0.9	590	2.3	8.4	3.1	83	98	**1LE5633-3BA3■-■■■■**	2170	5.07
400	**355 L**	2986	1279	95.8	95.8	95.3	0.91	660	2.3	7.7	3.1	83	98	**1LE5633-3BA4■-■■■■**	2240	5.46
500	**355 L**	2988	1598	95.8	95.7	95.1	0.89	850	2.8	8.5	3.7	83	98	**1LE5633-3BA5■-■■■■**	2340	5.76
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1490	1602	96	96.2	95.9	0.87	430	2.1	7.2	2.8	75	91	**1LE5633-3AB6■-■■■■**	1400	4.55
315	**315 L**	1488	2022	96	96.2	96.1	0.85	560	2.2	7.2	2.8	75	90	**1LE5633-3AB7■-■■■■**	1530	5.28
355	**355 L**	1491	2274	96	96.1	95.8	0.88	610	2.2	7.5	3.1	81	95	**1LE5633-3BB3■-■■■■**	2070	6.36
400	**355 L**	1491	2562	96	96.1	95.9	0.87	690	2.1	7.3	3	80	95	**1LE5633-3BB4■-■■■■**	2100	7.06
500	**355 L**	1491	3202	96	96.1	95.9	0.86	870	3.1	7.9	3.3	80	96	**1LE5633-3BB5■-■■■■**	2290	8.36
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	992	1925	95.8	96	95.8	0.81	370	2.8	7	3	68	83	**1LE5633-3AC7■-■■■■**	1410	6.39
250	**315 L**	992	2407	95.8	95.9	95.6	0.81	465	2.9	7.2	3	68	83	**1LE5633-3AC8■-■■■■**	1640	8.10
315	**355 L**	992	3032	95.8	96.1	96.1	0.86	550	2.4	6.8	2.8	75	90	**1LE5633-3BC2■-■■■■**	2150	12.9
355	**355 L**	993	3414	95.8	95.9	95.6	0.84	640	2.6	7.4	3.2	76	91	**1LE5633-3BC3■-■■■■**	2250	13.8
400	**355 L**	994	3843	95.8	96	95.8	0.84	720	2.7	7.7	2.9	75	90	**1LE5633-3BC4■-■■■■**	2240	13.4
8-pole: 750 rpm at 50 Hz																
160	**315 L**	741	2062	94.3	94.7	94.7	0.79	310	2.4	6.2	2.4	67	82	**1LE5633-3AD7■-■■■■**	1420	6.78
200	**315 L**	742	2574	94.6	94.8	94.5	0.78	390	2.7	6.7	2.9	72	87	**1LE5633-3AD8■-■■■■**	1660	8.60
250	**355 L**	744	3200	94.6	95.0	95.0	0.80	475	2.4	7.1	2.7	68	83	**1LE5633-3BD1■-■■■■**	2280	13.3
315	**355 L**	744	4050	94.6	94.9	94.6	0.80	600	2.4	7.0	2.9	68	83	**1LE5633-3BD2■-■■■■**	2310	14

Voltages [1]	Version			Order code
50 Hz 400 VΔ/690 VY 60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VΔ	Without additional charge	4	0	–
50 Hz 690 VΔ	With additional charge	4	7	–
For other voltages [1] and more information, see from page 3/21		■	■	. . .

Types of construction	Version			Order code
Without flange IM B3 [2]	**Standard**	A		–
With flange IM B5 [2]	With additional charge	F		–
For other types of construction and more information, see from page 3/22		■		. . .

Motor protection	Version		Order code
PTC thermistor with 3 temperature sensors	**Standard**	B	–
For other motor protection and more information, see from page 3/24		■	. . .

Terminal box position	Version		Order code
Terminal box base left with terminal box 45°	Without additional charge	2	–
Terminal box base right with terminal box 45°	**Standard**	3	–
For other terminal box positions and more information, see from page 3/25		■	. . .

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5633-. . . . ■-■■■■-Z**	**F90+. . .+. . .+. . .**
For options and information, see from page 3/26	**1LE5633-. . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power: n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5533 Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: Self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																
2-pole: 3000 rpm at 50 Hz																
560 1) 2)	**400**	2986	1790	96.6	96.7	96.3	0.90	930	1.6	7.0	2.8	74	90	**1LE5533-4AA3**■-■■■■	2850	8.9
630 1) 2)	**400**	2986	2000	96.6	96.7	96.6	0.91	1030	1.6	7.0	2.8	74	90	**1LE5533-4AA5**■-■■■■	3000	9.8
710 3)	**400**	2986	2250	96.8	96.9	96.7	0.91	670	1.7	7.0	2.8	74	90	**1LE5533-4AA7**■-■■■■	3200	10.8
800 1) 2) 3) 4)	**450**	2988	2550	97.0	97.0	96.6	0.88	780	1.1	7.5	3.1	75	91	**1LE5533-4BA3**■-■■■■	4000	12.3
900 1) 2) 3) 4)	**450**	2986	2900	97.0	97.1	96.9	0.90	860	1.1	7.0	2.8	75	91	**1LE5533-4BA5**■-■■■■	4250	13.5
1000 1) 2) 3) 4)	**450**	2984	3200	97.0	97.1	97.0	0.91	950	1.1	6.8	2.6	75	91	**1LE5533-4BA7**■-■■■■	4450	14.7
4-pole: 1500 rpm at 50 Hz																
560	**400**	1492	3600	96.2	96.3	95.8	0.87	970	1.8	6.5	2.7	78	94	**1LE5533-4AB3**■-■■■■	2800	12.8
630 1) 2)	**400**	1492	4050	96.4	96.5	95.9	0.87	1080	1.9	6.8	2.7	78	94	**1LE5533-4AB5**■-■■■■	3000	14.4
710 3)	**400**	1492	4550	96.5	96.6	96.2	0.88	700	1.9	6.8	2.7	78	94	**1LE5533-4AB7**■-■■■■	3200	16.5
800 3)	**450**	1492	5100	96.5	96.6	96.1	0.88	790	1.6	7.0	2.6	81	97	**1LE5533-4BB3**■-■■■■	3850	22.2
900 3)	**450**	1492	5800	96.6	96.7	96.2	0.87	900	1.5	7.0	2.6	81	97	**1LE5533-4BB5**■-■■■■	4100	24.8
1000 1) 3)	**450**	1492	6400	96.6	96.7	96.3	0.89	970	1.7	7.0	2.6	81	97	**1LE5533-4BB7**■-■■■■	4300	27.4
6-pole: 1000 rpm at 50 Hz																
450	**400**	992	4350	96.0	96.1	95.8	0.86	790	2.1	6.5	2.7	72	88	**1LE5533-4AC3**■-■■■■	2900	22.0
500	**400**	992	4800	96.0	96.1	95.8	0.86	870	2.2	6.5	2.7	72	88	**1LE5533-4AC5**■-■■■■	3050	24.7
560 1)	**400**	992	5400	96.2	96.3	96.0	0.86	980	2.2	6.5	2.7	72	88	**1LE5533-4AC7**■-■■■■	3250	27.8
630 1)	**450**	993	6100	96.3	96.4	96.2	0.85	1110	2.0	6.5	2.6	74	90	**1LE5533-4BC3**■-■■■■	3800	34.4
710 3)	**450**	993	6800	96.3	96.4	96.4	0.85	730	2.0	6.5	2.5	74	90	**1LE5533-4BC5**■-■■■■	4050	38.5
800 1) 3)	**450**	993	7700	96.5	96.7	96.5	0.85	820	2.0	6.5	2.5	74	90	**1LE5533-4BC7**■-■■■■	4300	43.1
8-pole: 750 rpm at 50 Hz																
355	**400**	742	4550	95.6	95.7	95.5	0.81	660	1.9	6.2	2.5	64	80	**1LE5533-4AD3**■-■■■■	2850	21.9
400	**400**	742	5100	95.7	95.8	95.5	0.81	740	2.0	6.5	2.6	64	80	**1LE5533-4AD5**■-■■■■	3050	24.5
450	**400**	742	5800	95.8	95.9	95.8	0.81	840	2.0	6.5	2.6	64	80	**1LE5533-4AD7**■-■■■■	3250	27.5
500 5)	**450**	744	6400	95.9	96.0	95.7	0.80	940	1.9	6.5	2.4	67	83	**1LE5533-4BD3**■-■■■■	3800	34.0
560 5)	**450**	744	7200	96.0	96.1	95.8	0.80	1050	1.9	6.5	2.4	67	83	**1LE5533-4BD5**■-■■■■	4000	38.0
630 1) 5)	**450**	744	8100	96.1	96.2	95.9	0.81	1170	1.9	6.5	2.4	67	83	**1LE5533-4BD7**■-■■■■	4250	42.5

Voltages		Version			Order code
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**	–
50 Hz 500 VΔ		Without additional charge	**4**	**0**	–
50 Hz 690 VΔ		With additional charge	**4**	**7**	–
For other voltages and more information, see from page 3/21			■	■	. . .

Types of construction		Version		Order code
Without flange	IM B3	**Standard**	**A**	–
With flange	IM B5	With additional charge	**F**	–
For other types of construction and more information, see from page 3/22			■	. . .

Motor protection	Version		Order code
Without	**Standard**	**A**	–
PTC thermistor with 3 temperature sensors	With additional charge	**B**	–
For other motor protection and more information, see from page 3/24		■	. . .

Terminal box position	Version		Order code
Terminal box base left with terminal box 45°	Without additional charge	**2**	–
Terminal box base right with terminal box 45°	**Standard**	**3**	–
For other terminal box positions and more information, see from page 3/25		■	. . .

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5533-. . . .** ■-■■■■**-Z**	**F90+. . .+. . .+. . .**
For options and information, see from page 3/26	**1LE5533-. . . .** ■-■■■■**-Z**	**. . .+. . .+. . .+. . .**

1) Terminal box 1XB1631.

2) Terminal box position NDE can only be ordered using order code **H09** (2 × terminal box TB3R61). Order code **H08** not available.

3) The standard version is 50 Hz 690 VΔ (voltage code **4**-**7**) or 60 Hz 575 VΔ (voltage code **4**-**0**).

4) In the series version, the maximum speed is n_{max} = 3000 rpm. Operation up to 3600 rpm on request for an additional charge.

5) Utilization with sinusoidal supply in accordance with thermal class 155 (temperature class F).

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5583 Basic Line Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2986	800	95.8	95.7	95	0.88	430	3	9.4	3.8	81	94	**1LE5583-3AA6■-■■■■**	1340	2.82
315	**315 L**	2988	1007	95.8	95.6	94.7	0.87	550	3.7	10	4.3	82	96	**1LE5583-3AA7■-■■■■**	1510	3.27
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1491	1601	96	96	95.6	0.84	445	3.2	8.1	3	75	90	**1LE5583-3AB6■-■■■■**	1450	4.6
315	**315 L**	1490	2019	96	96.1	95.8	0.82	580	3	8.4	3.1	80	95	**1LE5583-3AB7■-■■■■**	1600	5.39
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	993	1923	95.8	95.9	95.5	0.83	365	3.1	8.9	3.3	70	85	**1LE5583-3AC7■-■■■■**	1500	6.89
250	**315 L**	993	2404	95.8	95.9	95.6	0.81	465	3.4	8.8	3.3	70	84	**1LE5583-3AC8■-■■■■**	1630	8.0

Voltages [1]		Version						Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**				–
50 Hz 500 VΔ		Without additional charge	**4**	**0**				–
50 Hz 690 VΔ		With additional charge	**4**	**7**				–
For other voltages [1] and more information, see from page 3/21			■	■				. . .
Types of construction		Version						Order code
Without flange	IM B3 [2]	**Standard**			**A**			–
With flange	IM B5 [2]	With additional charge			**F**			–
For other types of construction and more information, see from page 3/22					■			. . .
Motor protection		Version						Order code
Without		**Standard**				**A**		–
PTC thermistor with 3 temperature sensors		With additional charge				**B**		–
For other motor protection and more information, see from page 3/24						■		. . .
Terminal box position		Version						Order code
Terminal box base left with terminal box 45°		Without additional charge					**2**	–
Terminal box base right with terminal box 45°		**Standard**					**3**	–
For other terminal box positions and more information, see from page 3/25							■	. . .
Special versions								Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE5583-. . . . ■-■■■■-Z**						**F90+. . .+. . .+. . .**
For options and information, see from page 3/26		**1LE5583-. . . . ■-■■■■-Z**						**. . .+. . .+. . .+. . .**

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For frame size 315 with power rating 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

		Operating values at rated power												Cast-iron series 1LE5683 Performance Line Article No.		
P_{rated}	Frame size	n_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$	$\eta_{rated,\ 3/4}$	$\eta_{rated,\ 2/4}$	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}		$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• **Cooling: Self-ventilated (IC411)** • **Efficiency: IE3 Premium Efficiency** • **Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)**																
2-pole: 3000 rpm at 50 Hz																
250	**315 L**	2986	800	95.8	95.7	95	0.88	430	3	9.4	3.8	81	94	**1LE5683-3AA6■-■■■■**	1340	2.82
315	**315 L**	2988	1007	95.8	95.6	94.7	0.87	550	3.7	10	4.3	82	96	**1LE5683-3AA7■-■■■■**	1510	3.27
355	**355 L**	2988	1135	95.8	95.6	94.8	0.89	600	2.5	10	3.8	83	99	**1LE5683-3BA3■-■■■■**	2070	4.74
400	**355 L**	2986	1279	95.8	95.7	95.2	0.92	660	2.6	8.7	3.3	83	98	**1LE5683-3BA4■-■■■■**	2220	5.36
500	**355 L**	2988	1598	95.8	95.8	95.3	0.89	850	2.8	9.1	3.8	81	96	**1LE5683-3BA5■-■■■■**	2330	5.76
4-pole: 1500 rpm at 50 Hz																
250	**315 L**	1491	1601	96	96	95.6	0.84	445	3.2	8.1	3	75	90	**1LE5683-3AB6■-■■■■**	1450	4.6
315	**315 L**	1490	2019	96	96.1	95.8	0.82	580	3	8.4	3.1	80	95	**1LE5683-3AB7■-■■■■**	1600	5.39
355	**355 L**	1492	2272	96	96	95.5	0.86	620	2.7	8.8	3.4	80	95	**1LE5683-3BB3■-■■■■**	2010	6.76
400	**355 L**	1490	2564	96	96.2	95.9	0.87	690	2.5	7.7	2.9	80	95	**1LE5683-3BB4■-■■■■**	2080	7.06
500	**355 L**	1491	3202	96	96.1	95.8	0.85	880	2.9	8.2	3.2	81	96	**1LE5683-3BB5■-■■■■**	2310	8.36
6-pole: 1000 rpm at 50 Hz																
200	**315 L**	993	1923	95.8	95.9	95.5	0.83	365	3.1	8.9	3.3	70	85	**1LE5683-3AC7■-■■■■**	1500	6.89
250	**315 L**	993	2404	95.8	95.9	95.6	0.81	465	3.4	8.8	3.3	70	84	**1LE5683-3AC8■-■■■■**	1630	8.0
315	**355 L**	994	3026	95.8	95.8	95.1	0.81	590	2.9	8.2	3.2	75	90	**1LE5683-3BC2■-■■■■**	2020	11.4
355	**355 L**	994	3410	95.8	96	95.7	0.85	630	2.5	8.2	3.1	75	90	**1LE5683-3BC3■-■■■■**	2230	13.4
400	**355 L**	993	3847	95.8	96	95.7	0.84	720	2.7	8	2.9	77	92	**1LE5683-3BC4■-■■■■**	2260	13.4

Voltages [1]		Version					Order code
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
50 Hz 690 VΔ		With additional charge	**4**	**7**			–
For other voltages [1] and more information, see from page 3/21			■	■			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			**A**		–
With flange	IM B5 [2]	With additional charge			**F**		–
For other types of construction and more information, see from page 3/22					■		. . .
Motor protection		Version					Order code
PTC thermistor with 3 temperature sensors		**Standard**				**B**	–
For other motor protection and more information, see from page 3/24						■	. . .
Terminal box position		Version					Order code
Terminal box base left with terminal box 45°		Without additional charge				**2**	–
Terminal box base right with terminal box 45°		**Standard**				**3**	–
For other terminal box positions and more information, see from page 3/25						■	. . .

Special versions		Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)	**1LE5683-. . . .** ■-■■■■ **-Z**	**F90+. . .+. . .+. . .**
For options and information, see from page 3/26	**1LE5683-. . . .** ■-■■■■ **-Z**	**. . .+. . .+. . .+. . .**

[1] Parallel supply lines are required, except in the case of connection to 690 V.

[2] For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

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Selection and ordering data

P_{rated}	Frame size	Operating values at rated power: n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1LE5583 Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: Self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency, service factor with sinusoidal supply (SF) 1.05 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F) • Optional and suitable for converter operation with insulated bearing (L51) up to $U_{line} \leq 690$ V - IVIC-C premium insulation system																
2-pole: 3000 rpm at 50 Hz																
545 [1]	**400**	2988	1740	96.9	96.9	96.4	0.90	900	1.6	7.3	3.1	74	90	**1LE5583-4AA3■-■■■■**	2850	8.9
610 [1]	**400**	2988	1950	97.0	97.0	96.7	0.91	1000	1.6	7.3	3.1	74	90	**1LE5583-4AA5■-■■■■**	3000	9.8
680 [2]	**400**	2988	2150	97.0	97.1	96.8	0.91	640	1.7	7.3	3	74	90	**1LE5583-4AA7■-■■■■**	3200	10.8
775 [1] [2] [3]	**450**	2990	2500	97.4	97.4	97.0	0.88	760	1.2	7.7	3.4	75	91	**1LE5583-4BA3■-■■■■**	4000	12.3
875 [1] [2] [3]	**450**	2988	2800	97.4	97.5	97.3	0.90	840	1.2	7.2	3	75	91	**1LE5583-4BA5■-■■■■**	4250	13.5
970 [1] [2] [3]	**450**	2986	3100	97.4	97.5	97.4	0.91	920	1.2	7.0	2.8	75	91	**1LE5583-4BA7■-■■■■**	4450	14.7
4-pole: 1500 rpm at 50 Hz																
545	**400**	1492	3500	96.4	96.4	96.0	0.87	940	1.8	6.7	2.7	78	94	**1LE5583-4AB3■-■■■■**	2800	12.8
615	**400**	1492	3950	96.6	96.6	96.2	0.87	1060	1.9	6.9	2.8	78	94	**1LE5583-4AB5■-■■■■**	3000	14.4
690 [2]	**400**	1492	4400	96.6	96.7	96.4	0.88	680	2.0	7.0	2.7	78	94	**1LE5583-4AB7■-■■■■**	3200	16.5
785 [2]	**450**	1492	5000	96.6	96.6	96.1	0.88	770	1.6	7.2	2.7	81	97	**1LE5583-4BB3■-■■■■**	3850	22.2
880 [2]	**450**	1492	5600	96.8	96.8	96.3	0.87	870	1.5	7.2	2.6	81	97	**1LE5583-4BB5■-■■■■**	4100	24.8
980 [2]	**450**	1492	6300	96.9	96.9	96.5	0.89	950	1.7	7.1	2.6	81	97	**1LE5583-4BB7■-■■■■**	4300	27.4
6-pole: 1000 rpm at 50 Hz																
435	**400**	993	4200	96.2	96.3	96.0	0.85	770	2.1	6.7	2.8	72	88	**1LE5583-4AC3■-■■■■**	2900	22.0
485	**400**	993	4650	96.2	96.4	96.1	0.86	850	2.2	6.7	2.8	72	88	**1LE5583-4AC5■-■■■■**	3050	24.7
545 [1]	**400**	993	5200	96.3	96.5	96.2	0.86	950	2.2	6.7	2.7	72	88	**1LE5583-4AC7■-■■■■**	3250	27.8
615 [1]	**450**	993	5900	96.5	96.7	96.4	0.84	1100	2.1	6.6	2.7	74	90	**1LE5583-4BC3■-■■■■**	3800	34.4
690 [2]	**450**	993	6600	96.6	96.8	96.6	0.85	700	2.0	6.8	2.5	74	90	**1LE5583-4BC5■-■■■■**	4050	38.5
780 [2]	**450**	993	7500	96.7	96.9	96.7	0.85	790	2.0	6.7	2.6	74	90	**1LE5583-4BC7■-■■■■**	4300	43.1
8-pole: 750 rpm at 50 Hz																
335	**400**	744	4300	95.8	96.0	95.6	0.80	630	2.0	6.9	2.6	64	80	**1LE5583-4AD3■-■■■■**	2850	21.9
375	**400**	744	4800	95.9	96.1	95.7	0.80	710	2.1	7.2	2.8	64	80	**1LE5583-4AD5■-■■■■**	3050	24.5
425	**400**	744	5500	96.1	96.2	95.8	0.80	800	2.1	7.2	2.7	64	80	**1LE5583-4AD7■-■■■■**	3250	27.5
485	**450**	745	6200	96.1	96.2	95.9	0.79	920	2.0	7.0	2.6	67	83	**1LE5583-4BD3■-■■■■**	3800	34.0
545	**450**	745	7000	96.2	96.4	96.0	0.79	1040	2.0	7.0	2.6	67	83	**1LE5583-4BD5■-■■■■**	4000	38.0
600 [1]	**450**	745	7700	96.3	96.5	96.1	0.80	1120	2.1	7.3	2.6	67	83	**1LE5583-4BD7■-■■■■**	4250	42.5

Voltages		Version				Order code
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**		–
50 Hz 500 VΔ		Without additional charge	**4**	**0**		–
50 Hz 690 VΔ		Without additional charge	**4**	**7**		–
For other voltages and more information, see from page 3/21			■	■		. . .
Types of construction		Version				Order code
Without flange	IM B3	**Standard**			**A**	–
With flange	IM B5	With additional charge			**F**	–
For other types of construction and more information, see from page 3/22					■	. . .
Motor protection		Version				Order code
Without		**Standard**				**A** –
PTC thermistor with 3 temperature sensors		With additional charge				**B** –
For other motor protection and more information, see from page 3/24						■ . . .
Terminal box position		Version				Order code
Terminal box base left with terminal box 45°		Without additional charge				**2** –
Terminal box base right with terminal box 45°		**Standard**				**3** –
For other terminal box positions and more information, see from page 3/25						■ . . .
Special versions						Order code(s)
Forced-air cooled motors w/o ext. fan/fan cover (IC418)		**1LE5683- . . . . ■-■■■■**				**-Z F90+. . .+. . .+. . .**
Forced-air cooled motors w/o ext. fan/fan cover (IC416)		**1LE5683- . . . . ■-■■■■**				**-Z F70+. . .+. . .+. . .**
For options and information, see from page 3/26		**1LE5683- . . . . ■-■■■■**				**-Z . . .+. . .+. . .+. . .**

1) Terminal box 1XB1631.

2) The standard version is 50 Hz 690 VΔ (voltage code **4**-**7**) or 60 Hz 575 VΔ (voltage code **4**-**0**).

3) In the series version, the maximum speed is n_{max} = 3000 rpm. Operation up to 3600 rpm on request.

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Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text, if required	Frame size: 315	355	400		450					Motor version
				1LE55.4 Basic Line		1LE5534							IEC IE4
						-4AA3 -4AA5	-4AB3 -4AB5 -4AC3 -4AC5 -4AC7 -4AD3 -4AD5 -4AD7	-4AA7	-4AB7	-4BA3 -4BA5 -4BA7	-4BB3 -4BB5 -4BB7 -4BC5 -4BC7	-4BC3 -4BD3 -4BD5 -4BD7	
				1LE56.4 Performance Line									
				1LE55.3 Basic Line		1LE55.3							IE3
						-4AA3 -4AA5	-4AB3 -4AB5 -4AC3 -4AC5 -4AC7 -4AD3 -4AD5 -4AD7	-4AA7	-4AB7	-4BA3 -4BA5 -4BA7	-4BB3 -4BB5 -4BB7 -4BC5 -4BC7	-4BC3 -4BD3 -4BD5 -4BD7	
1LE5 . . . - . . . . ■ - ■ . . .			Order code	1LE56.3 Performance Line									
Voltage at 50 Hz or 60 Hz													
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ [1]	**3**	**4**	**–**	□	□	□	□	O. R.	O. R.	O. R.	○	□	
50 Hz 500 VΔ	**4**	**0**	**–**	○	○	○	○	○	○	○	○	○	
60 Hz 575 VΔ				–	–	○	○	□	□	O. R.	□	○	
50 Hz 690 VΔ	**4**	**7**	**–**	✓	✓	○	○	□	□	□	□	○	
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ [1]	**3**	**3**	**–**	✓	✓	O. R.	✓	O. R.	O. R.	O. R.	O. R.	✓	
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	**–**	✓	✓	O. R.	✓	O. R.	O. R.	O. R.	O. R.	✓	
60 Hz 380 VΔ/660 VY [1]	**3**	**0**	**–**	✓	✓	–	–	–	–	–	–	–	
60 Hz 400 VΔ/690 VY [1]	**3**	**1**	**–**	✓	✓	–	–	–	–	–	–	–	
50 Hz 600 VΔ, 60 Hz 690 VΔ	**4**	**4**	**–**	–	–	O. R.	✓	O. R.	✓	O. R.	✓	✓	
50 Hz 660 VΔ	**4**	**6**	**–**	–	–	✓	✓	✓	✓	✓	✓	✓	
Voltage at 60 Hz and required power													
380 VΔ/660 VY; 50 Hz power	**9**	**0**	**M2B**	✓	✓	–	–	–	–	–	–	–	
380 VΔ; 50 Hz power				✓	✓	–	–	–	–	–	–	–	
440 VΔ; 50 Hz power	**9**	**0**	**M2D**	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	✓	
440 VΔ; 60 Hz power	**9**	**0**	**M1D**	–	–	✓	✓	O. R.	O. R.	O. R.	O. R.	✓	
460 VΔ; 50 Hz power	**9**	**0**	**M2F**	✓	✓	✓	✓	O. R.	O. R.	O. R.	✓	✓	
460 VΔ; 60 Hz power	**9**	**0**	**M1F**	–	–	✓	✓	O. R.	O. R.	O. R.	✓	✓	
575 VΔ; 50 Hz power	**9**	**0**	**M2H**	✓	✓	✓	✓	✓	✓	✓	✓	✓	
575 VΔ; 60 Hz power	**9**	**0**	**M1H**	–	–	✓	✓	✓	✓	O. R.	✓	✓	
400 VΔ/690 VY; 50 Hz power	**9**	**0**	**M2J**	✓	✓	O. R.	✓	O. R.	O. R.	O. R.	✓	✓	
400 VΔ; 50 Hz power				✓	✓	–	–	–	–	–	–	–	
400 VΔ/690 VY; 60 Hz power	**9**	**0**	**M1J**	–	–	O. R.	✓	O. R.	O. R.	O. R.	✓	✓	
480 VΔ; 50 Hz power	**9**	**0**	**M2L**	✓	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	✓	
480 VΔ; 60 Hz power	**9**	**0**	**M1L**	–	–	✓	✓	O. R.	O. R.	O. R.	O. R.	✓	
Non-standard voltage and/or frequencies													
Non-standard winding [2] [3]	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
O. R. Possible on request
✓ With additional charge

[1] Without additional measures not possible for converter operation at 690 VY and 660 VΔ (valid for 1LE5504, 1LE5604, 1LE5534, 1LE5634, 1LE5503, 1LE5603, 1LE5533 and 1LE5633).

[2] Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside the range are available on request), frequency, circuit, rated power.

[3] 2-pole version, frame size 450 for 60 Hz operation on request.

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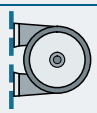
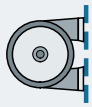
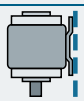
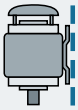
Cast-iron series SIMOTICS SD 1LE55, 1LE56

Selection and ordering data

Types of construction		Article No. supplement		Frame size				Motor version	
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**315**	**355**	**400**	**450**		
				1LE55.4 Basic Line		**1LE5534**		IEC	IE4
				1LE56.4 Performance Line					
				1LE55.3 Basic Line		**1LE55.3**			IE3
				1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . .		■ **. . (-Z)**	Order code						
Without flange									
IM B3 [1) 2)]		**A**	**–**	□	□	□	□		
IM B6 [2)]		**T**	**–**	○	○	–	–		
IM B7 [2)]		**U**	**–**	○	○	–	–		
IM B8 [2)]		**V**	**–**	○	○	–	–		
IM V6 [2)]		**D**	**–**	○	○	O. R. [7)]	O. R. [7)]		
IM V5 without protective cover [2)]		**C**	**–**	○	○	O. R. [7)]	O. R. [7)]		
IM V5 with protective cover [2) 3) 4)]		**C**	**H00**	✓	✓	O. R. [7)]	O. R. [7)]		

For legends and footnotes, see page 3/23.

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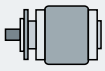
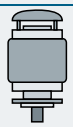
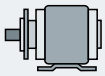
Types of construction	Article No. supplement		Frame size				Motor version	
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**315**	**355**	**400**	**450**		
			1LE55.4 Basic Line		**1LE5534**		IEC	IE4
			1LE56.4 Performance Line					
			1LE55.3 Basic Line		**1LE55.3**			IE3
			1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . .	■ **. . (-Z)**	Order code						

With flange		**EN 50347 DIN 42948**		**FF740 A 800**	**FF840 A 900**	**FF940 A 1000**	**FF1080 A 1150**
IM B5 [2) 5) 6)]		**F**	–	✓	✓	✓ [6)]	✓ [6)]
IM V1 without protective cover [2)]		**G**	–	✓	✓	✓ [7)]	✓ [7)]
IM V1 with protective cover [2) 3) 4)]		**G**	**H00**	✓	✓	✓ [7)]	✓ [7)]
IM V3 [4)]		**H**	–	✓	✓	–	–
IM B35 [3)]		**J**	–	✓	✓	✓	✓

□ Standard version
○ Without additional charge
✓ With additional charge

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

4) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

5) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

6) For machines, type of construction IM B5, provide an additional support foot at the NDE. The support foot is not included in the scope of supply. Use an appropriately sized support foot with the appropriate rigidity. The support foot must be able to support the total weight of the machine.

7) Not possible for 2-pole 1LE55..-4BA motors.

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Selection and ordering data

Motor protection	Article No. supplement: Motor protection code letter 15th position of the Article No.	Article No. supplement: Additional identification code with order code and plain text, if required	Frame size 315	355	400	450	Motor version IEC	IE4	IE3
			1LE55.4 Basic Line		1LE5534				
			1LE56.4 Performance Line						
			1LE55.3 Basic Line		1LE55.3				
			1LE56.3 Performance Line						
1LE5 . . . - . . . . . - . . .	■ .	Order code							
Motor protection									
Without (standard) [1]	**A**	–	□	□	□	□	Only for: 1LE55.4, 1LE55.3		
1 or 3 PTC thermistors – for tripping (2 terminals) [1] [2]	**B**	–	✓	✓	✓	✓	Only for: 1LE55.4, 1LE55.3		
			□	□			Only for: 1LE56.4, 1LE56.3		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [2]	**C**	–	✓	✓	✓	✓			
1 KTY84-130 temperature sensor (2 terminals) [2]	**F**	–	✓	✓	✓	✓			
2 KTY84-130 temperature sensor (4 terminals) [2]	**G**	–	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**H**	–	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**J**	–	✓	✓	✓	✓			
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	–	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	–	✓	✓	✓	✓			
1 Pt100 resistance thermometer – 2-wire input (2 terminals) [2]	**P**	–	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 3-wire input (9 terminals) [2]	**Q**	–	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 3-wire input (18 terminals) [2]	**R**	–	✓	✓	✓	✓			
3 bimetal sensors (NC contacts) for tripping (2 terminals) [2]	**Z**	**Q3A**	✓	✓	✓	✓			
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals) [2]	**Z**	**Q9A**	✓	✓	✓	✓			

□ Standard version
✓ With additional charge

Note:

Options are available specifically for bearing protection – for order codes and descriptions, see from page 3/26.

[1] For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code letter B) is already included in the basic price. For the Performance Line, the option "without motor protection" (motor protection code A) is not possible.

[2] Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

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Selection and ordering data

Terminal box position	Article No. supplement		Frame size				Motor version	
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text, if required	**315**	**355**	**400**	**450**		
			1LE55.4 Basic Line		**1LE5534**		IEC	IE4
			1LE56.4 Performance Line					
			1LE55.3 Basic Line		**1LE55.3**			IE3
			1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . . . ■		Order code						
Terminal box position								
Terminal box base left with terminal box at the top	**0**	**–**	✓	✓	✓	✓		
Terminal box base right with terminal box at the top	**1**	**–**	✓	✓	✓	✓		
Terminal box base left with oblique terminal box 45°	**2**	**–**	○	○	○	○		
Terminal box base right with oblique terminal box 45°	**3**	**–**	□	□	□	□		
Terminal box right-hand side [1]	**5**	**–**	✓	✓	✓	✓		
Terminal box left-hand side [1]	**6**	**–**	✓	✓	✓	✓		
Terminal box left-hand side (base below) [2]	**9**	**R5L**	✓	✓	✓	✓		
Terminal box right-hand side (base below) [2]	**9**	**R6R**	✓	✓	✓	✓		
Terminal box bottom left [2]	**9**	**R7L**	✓	✓	✓	✓		
Terminal box bottom right [2]	**9**	**R7R**	✓	✓	✓	✓		

□ Standard version
○ Without additional charge
✓ With additional charge

Note:
On the motors
1LE5583-4AA3,
1LE5583-4AA5,
1LE5583-4BA3,
1LE5583-4BA5,
1LE5583-4BA7,
1LE5583-4AC7,
1LE5583-4BC3,
1LE5583-4BD7,
terminal box type 1XB1631 is mounted.

[1] For types of construction with feet and flange-mounted with feet, cast feet are standard. Screwed-on feet are available on request.

[2] Only possible in combination with type of construction IM B5.

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 315	355	400	450	Motor version	
		1LE55.4 Basic Line		**1LE5534**		IEC	IE4
		1LE56.4 Performance Line					
		1LE55.3 Basic Line		**1LE55.3**			IE3
		1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . . . . -Z	Order code						
Motor protection							
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**Q11**	✓	✓	✓	✓	Not for:	Combination with motor protection code letter B (15th position of the Article No.)
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**Q12**	✓	✓	✓	✓	Not for:	Combination with motor protection code letter C (15th position of the Article No.)
1 KTY84-130 temperature sensor (2 terminals) [1]	**Q23**	✓	✓	✓	✓	Not for:	Combination with motor protection code letter F (15th position of the Article No.)
2 KTY84-130 temperature sensors (4 terminals) [1]	**Q25**	✓	✓	✓	✓	Not for:	Combination with motor protection code letter G (15th position of the Article No.)
3 bimetal sensors (NC contacts) for tripping (2 terminals)	**Q31**	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	**Q34**	✓	✓	✓	✓		
1 Pt1000 resistance thermometer (2 terminals)	**Q35**	✓	✓	✓	✓		
2 Pt1000 resistance thermometers (4 terminals)	**Q36**	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [1]	**Q60**	✓	✓	✓	✓	Not for:	Combination with motor protection code letter H (15th position of the Article No.)
6 Pt100 resistance thermometers – 2-wire input (12 terminals) [1]	**Q61**	✓	✓	✓	✓	Not for:	Combination with motor protection code letter J (15th position of the Article No.)
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	✓	✓	✓	✓		
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals)	**Q72**	✓	✓	✓	✓		
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)	**Q78**	✓	✓	✓	✓		
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)	**Q79**	✓	✓	✓	✓	Not for:	Motors in combination with order codes F40 and F41
Motor connection and terminal box							
External grounding		–	–	□	□		
Terminal box at NDE	**H08**	✓	✓	✓	✓		
Two terminal boxes at NDE [42]	**H09**	–	–	✓	✓		
Second external grounding	**H70**	✓	✓	✓	✓		
Subsequently rotatable main terminal box	**R09**	–	–	✓	✓		
Rotation of the terminal box through 90°, entry from DE [35]	**R10**	✓	✓	✓	✓	Not for:	Combination with type of construction code letters F, G, H, J (14th position of the Article No.)
Rotation of the terminal box through 90°, entry from NDE	**R11**	✓	✓	✓	✓		
Rotation of the terminal box through 180°	**R12**	✓	✓	✓	✓		

For legends and footnotes, see page 3/33.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size **315**	**355**	**400**	**450**	Motor version	
		1LE55.4 Basic Line		**1LE5534**		IEC	IE4
		1LE56.4 Performance Line					
		1LE55.3 Basic Line		**1LE55.3**			IE3
		1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . . . . -Z	Order code						
Motor connection and terminal box (continued)							
One EMC cable gland	**R14**	✓	✓	–	–	Not for:	Combination with order codes R51, R53
One metal cable gland	**R15**	✓	✓	–	–	Not for:	Combination with order codes R51, R53
EMC cable gland, maximum configuration	**R16**	✓	✓	✓	✓	Not for:	Combination with order codes R51, R53 (frame sizes 315 and 355)
Stud terminal for cable connection, accessories pack (3 items)	**R17**	✓	✓	–	–	Not for:	Combination with order codes R51, R53
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	Not for:	Combination with order codes R51, R53 (frame sizes 315 and 355)
Saddle terminal for connection without cable lug, accessories pack	**R19**	✓	✓	✓	✓	Not for:	Combination with order codes R21, R23, R24 (frame sizes 315 and 355)
3 cables protruding, 1.5 m long	**R21**	O. R.	O. R.	O. R.	O. R.	Not for:	Combination with order codes R17, R19, R50 (frame sizes 315 and 355)
6 cables protruding, 1.5 m long	**R23**	O. R.	O. R.	O. R.	O. R.	Not for:	Combination with order codes R17, R19, R50 (frame sizes 315 and 355)
6 cables protruding, 3 m long	**R24**	O. R.	O. R.	O. R.	O. R.	Not for:	Combination with order codes R17, R19, R50 (frame sizes 315 and 355)
Larger terminal box [36]	**R50**	✓	–	✓	✓	Not for:	Combination with order codes R21, R23, R24 (frame sizes 315 and 355)
Terminal box without cable entry opening	**R51**	○	○	–	–	Not for:	Combination with order code R14, R15, R16, R18
Drilled removable entry plate	**R52**	✓	✓	□	□		
Undrilled removable entry plate	**R53**	✓	✓	○	○	Not for:	Combination with order codes R14, R15, R16, R18 (frame sizes 315 and 355)
Cast-iron auxiliary terminal box (small)	**R62**	✓	✓	✓	✓		
Cast-iron auxiliary terminal box (large)	**R63**	✓	✓	✓	✓		
Stainless steel auxiliary terminal box (large)	**R65**	–	–	✓	✓		
Silicone-free version [28]	**R74**	✓	✓	✓	✓		
Non-standard threaded through hole (NPT or G thread) [2] [28]	**Y61** • and customer specifications	✓	✓	✓	✓		
Windings and insulation							
Temperature class 155 (F), utilized acc. to 155 (F), with service factor [37]	**N01**	✓	✓	□	□	Not for:	1LE5583, 1LE5683 (frame sizes 315 and 355)
Temperature class 155 (F), utilized acc. to 155 (F), with increased power [37]	**N02**	✓	✓	✓	✓	Not for:	1LE5583, 1LE5683 (frame sizes 315 and 355)
Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature [37]	**N03**	✓	✓	✓	✓	Not for:	1LE5583, 1LE5683 (frame sizes 315 and 355)
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % [37] [40]	**N05**	✓	✓	✓	✓		
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % [37] [40]	**N06**	✓	✓	✓	✓		
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % [37] [40]	**N07**	✓	✓	✓	✓		
Temperature class 155 (F), used acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 % [37] [40]	**N08**	✓	✓	✓	✓		
Temperature class 180 (H) [38]	**N10**	✓	✓	✓	✓		
Temperature class 180 (H) at rated power and max. CT 60 °C [4]	**N11**	✓	✓	O. R.	O. R.		
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓		

For legends and footnotes, see page 3/33.

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Cast-iron series SIMOTICS SD 1LE55, 1LE56

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 315	355	400	450	Motor version	
		1LE55.4 Basic Line		**1LE5534**		IEC	IE4
		1LE56.4 Performance Line					
		1LE55.3 Basic Line		**1LE55.3**			IE3
		1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . . . . -Z	Order code						
Windings and insulation (continued)							
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude [30]	**Y50 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	Not for:	1LE5583, 1LE5683 (frame sizes 315 and 355)
Temperature class 155 (F), utilized acc. to 155 (F), other requirements [4] [30]	**Y52 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓		
Temperature class 180 (H), utilized acc. to 155 (F) [30]	**Y75 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	O. R.	O. R.		
Colors and paint finish							
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	Only for:	Frame sizes 315 and 355 – Basic Line
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○		
Unpainted, only primed	**S01**	✓	✓	✓	✓		
Special paint finish C3		◘	◘	✓	✓	Only for:	Frame sizes 315 and 355 – Performance Line
	S02	✓	–			Only for:	Frame sizes 315 and 355 – Basic Line
Special paint finish sea air resistant C4 [39]	**S03**	✓	✓	✓	✓		
Special paint finish for use offshore C5 [39]	**S04**	✓	✓	✓	✓		
Internal coating	**S05**	✓	✓	✓	✓		
Top coat polyurethane [25]	**S06**	✓	✓	◘	◘	Only for:	Combination with order codes S03 or S04
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL….	✓	✓	✓	✓		
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL….	✓	✓	✓	✓		
Modular technology – Basic versions [5]							
Mounting of holding brake (standard assignment) [5] [6] [23] [24] [28]	**F01**	✓	✓	✓	✓	Only for:	4-pole motors for frame sizes 315 and 355
		–	–			Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Mounting of separately driven fan [31]	**F70**	✓	✓	✓	✓	Not for:	Combination with order codes L05, Y59 (frame sizes 315 and 355)
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder [5]	**G11**	✓	✓	–	–	Not for:	Combination with order codes D02, L05
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder [5]	**G12**	✓	✓	–	–		
Modular technology – Additional versions							
Brake supply voltage 24 V DC	**F10**	✓	✓	–	–	Only for:	4-pole motors for frame sizes 315 and 355
		–	–			Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	○	○	○	○	Only for:	4-pole motors for frame sizes 315 and 355
		–	–			Only for:	Combination with order codes D02, F40, F41, L05, L30, L52

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 315	355	400	450	Motor version	
		1LE55.4 Basic Line		**1LE5534**		IEC	IE4
		1LE56.4 Performance Line					
		1LE55.3 Basic Line		**1LE55.3**			IE3
		1LE56.3 Performance Line					
1LE5 . . . -. . . . . -. . . . -Z	Order code						
Modular technology – Additional versions (continued)							
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	✓	✓	✓	✓	Only for:	4-pole motors for frame sizes 315 and 355
		–	–			Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Backstop, counterclockwise motion blocked, clockwise direction of rotation	**F40**	✓	✓	–	–	Not for:	Combination with order codes F01, F10, F11, F12
Backstop, clockwise motion blocked, counterclockwise direction of rotation	**F41**	✓	✓	–	–		
Special technology [5]							
Mounting of LL 861 900 220 rotary pulse encoder [5] [9]	**G04**	✓	✓	✓	✓	Not for:	Combination with order codes D02, L05 (frame sizes 315 and 355)
Mounting of HOG 9 DN 1024 I rotary pulse encoder [5] [9]	**G05**	✓	✓	✓	✓		
Mounting of HOG 10 D 1024 I rotary pulse encoder [5] [9]	**G06**	✓	✓	✓	✓		
Mounting of POG 10 DN rotary pulse encoder (only in combination with separately driven fan or brake) [5] [10]	**G07**	✓	✓	–	–	Not for:	Combination with order codes D02, L05
Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake) [5] [10]	**G08**	✓	✓	–	–		
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box moisture protection [5]	**G15**	✓	✓	✓	✓	Not for:	Combination with order codes D02, L05 (frame sizes 315 and 355)
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection [5]	**G16**	✓	✓	✓	✓	Not for:	Combination with order codes D02, L04, L05 (frame sizes 315 and 355)
Mounting of a special type of rotary pulse encoder	**Y70 •** and customer specifications	–	–	O. R.	O. R.		
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed ... rpm), terminal box moisture protection [5]	**Y74 •** and spec. speed .... rpm	✓	✓	✓	✓	Not for:	Combination with order codes D02, L05 (frame sizes 315 and 355)
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed .... rpm), terminal box dust protection [5]	**Y76 •** and spec. speed .... rpm	✓	✓	✓	✓		
Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed .... rpm), terminal box dust protection [5]	**Y79 •** and spec. speed (max 3) .... rpm	✓	✓	✓	✓		
Mechanical version and degrees of protection							
Low-noise version for 2-pole motors with clockwise direction of rotation	**F77**	✓	✓	□	□	Only for:	2-pole motors for frame sizes 315 and 355
		–	–			Not for:	Combination with order codes L05, F90
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	✓	✓	O	O	Only for:	2-pole motors for frame sizes 315 and 355
		–	–			Not for:	Combination with order codes L05, F90
Prepared for mounted components, centering hole only	**G40**	–	–	□	□		
Prepared for mountings with D12 shaft	**G41**	✓	✓	–	–	Not for:	Combination with order codes D02, L05
Prepared for mountings with D16 shaft	**G42**	✓	✓	✓	✓	Not for:	Combination with order code L05 (frame sizes 315 and 355)
Mechanical protection for encoder [7] [9]	**G43**	✓	✓	✓	✓	Not for:	Combination with order code L05 (frame sizes 315 and 355)
Protective cover [7] [9] [11]	**H00**	✓	✓	✓	✓		

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Cast-iron series SIMOTICS SD 1LE55, 1LE56

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 315	355	400	450	Motor version	
		1LE55.4 Basic Line		**1LE5534**		IEC	IE4
		1LE56.4 Performance Line					
		1LE55.3 Basic Line		**1LE55.3**			IE3
		1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . . . . -Z	Order code						
Mechanical design and degrees of protection (continued)							
Vibration-proof version; vibration resistance to Class 3M4 acc. to IEC 60721-3-3:1994	**H02**	✓	✓	–	–		
Condensation drainage holes		□	□	□	□		
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓		
Degree of protection IP65 [13]	**H20**	✓	✓	✓	✓		
Degree of protection IP54 [33]	**H21**	✓	✓	–	–		
Degree of protection IP56 [14]	**H22**	✓	✓	✓	✓		
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar [12] [22]	**H23**	✓	✓	–	–	Not for:	Combination with type of construction code letters T, U, V (14th position of the Article No.)
Sealing ring made of fluoroelastomer (FKM)	**H25**	✓	✓	✓	✓	Not for:	Combination with order codes D02, D03, D04 (frame sizes 315 and 355)
Increased corrosion protection for external components [28]	**H90**	–	–	✓	✓		
Grounding brush for converter operation [29] [44]	**L52**	✓	✓	✓	✓	Not for:	Combination with order codes F01, F10, F11, F12 (frame sizes 315 and 355)
Coolant temperature and installation altitude							
Coolant temperature –50 to +40 °C [15] [32]	**D02**	✓	✓	✓	✓	Not for:	Combination with order codes F01, F10, F11, F12, G04, G05, G06, G07, G11, G12, G15, G16; H25, Y74, Y76, Y79 (frame sizes 315 and 355)
Coolant temperature –40 to +40 °C [15]	**D03**	✓	✓	✓	✓	Not for:	Combination with order code H25 (frame sizes 315 and 355)
Coolant temperature –30 to +40 °C [15]	**D04**	✓	✓	✓	✓		
Versions in accordance with standards and specifications							
VIK version [44]	**C02**	–	–	✓	✓	In combination with order codes F01, F10, F11, F12, G01, G02, G11 or G12 on request	
Motor without CE marking for export outside EEA (see EU Regulation 640/2009)	**D22**	○	○	–	–		
Motor exclusively for use in transportation equipment for passenger and freight transportation corresponding to EVPG §1 dated February 27, 2008	**D23**	○	○	–	–		
Electrical acc. to NEMA MG1-12 [17]	**D30**	✓	✓	□	□	Only for:	1LE5504, 1LE5604, 1LE5503, 1LE5603 for frame sizes 315 and 355
Design acc. to UL with "Recognition Mark" [17]	**D31**	✓	✓	□	□		
China Energy Efficiency Label	**D34**	○	○	–	–	Not for:	8-pole motors
Canadian regulations (CSA) [16]	**D40**	✓	✓	□	□	Only for:	1LE5504, 1LE5604, 1LE5503, 1LE5603 for frame sizes 315 and 355
TR CU product safety certificate EAC for Eurasian Customs Union	**D47**	✓	✓	✓	✓		
Bearings and lubrication							
Regreasing device with M10 × 1 grease nipple acc. to DIN 71412-A	**L19**	○	○	○	○		
Located bearing DE	**L20**	✓	✓	□	□		
Located bearing NDE [34]	**L21**	–	–	✓	✓		
Bearing design for increased cantilever forces [26] [27]	**L22**	✓	✓	O. R.	O. R.		
Regreasing device		–	–	□	□		
Hot bearing grease	**L24**	O. R.	O. R.	–	–		
Drainage for used grease		□	□	O. R.	O. R.	Only for:	Frame sizes 315 and 355 – Performance Line
	L30	✓	–			Only for:	Frame sizes 315 and 355 – Basic Line

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 315	355	400	450	Motor version	
		1LE55.4 Basic Line		**1LE5534**		IEC	IE4
		1LE56.4 Performance Line					
		1LE55.3 Basic Line		**1LE55.3**			IE3
		1LE56.3 Performance Line					
1LE5 . . . - . . . . . - . . . . -Z	Order code						
Bearings and lubrication (continued)							
Special version with higher speeds	**L37**	O. R.	O. R.	O. R.	O. R.		
Bearing insulation DE [44]	**L50**	✓	✓	✓	✓		
Bearing insulation NDE [29) 44)]	**L51**	✓	✓	✓	✓		
Measuring nipple for SPM shock pulse measurement for bearing inspection	**Q01**	✓	✓	✓	✓		
Balance and vibration severity							
Vibration severity grade A		◘	◘	◘	◘		
Vibration severity grade B [18)]	**L00**	✓	✓	✓	✓	Only for:	4-pole motors for frame sizes 315 and 355
Half-key balancing (standard)		◘	◘	◘	◘		
Balancing without feather key [41)]	**L01**	✓	✓	✓	✓	Not for:	Combination with order code L04 (frame sizes 315 and 355)
Full-key balancing [41)]	**L02**	✓	✓	✓	✓		
Shaft and rotor							
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	Not for:	Combination with order codes L01, L02 (frame sizes 315 and 355)
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	Not for:	Combination with order codes F01, F10, F11, F12, F70, F77, F78, G04, G05, G06, G07, G15, G16, G41, G42, G43, H00, Y74, Y76, Y79 (frame sizes 315 and 355)
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	–	–		
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓		
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	Not for:	Combination with type of construction code letters A, T, U, V (14th position of the Article No.) for frame sizes 315 and 355
Non-standard cylindrical shaft extension, DE [19)]	**Y58 •** and customer specifications	✓	✓	✓	✓		
Non-standard cylindrical shaft extension, NDE [19)]	**Y59 •** and customer specifications	✓	✓	✓	✓	Not for:	Combination with order code F70 (frame sizes 315 and 355)
Special shaft steel	**Y60 •** and customer specifications	O. R.	O. R.	O. R.	O. R.		
Heating and ventilation							
Sheet metal fan cover	**F74**	◘	◘	◘	◘	Only for:	Frame sizes 315 and 355 – Performance Line
		✓	–			Only for:	Frame sizes 315 and 355 – Basic Line
Metal external fan	**F76**	–	–	✓	✓		
Without external fan and without fan cover	**F90**	✓	✓	✓	✓	Not for:	Combination with order codes F74, F77, F78 (frame sizes 315 and 355)
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	Not for:	Combination with order codes Q03, Q06
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	Not for:	Combination with order codes Q02, Q06
Anti-condensation heating for 400 V (2 terminals)	**Q06**	✓	✓	✓	✓	Not for:	Combination with order codes Q02, Q03
Separately driven fan with non-standard voltage and/or frequency	**Y81 •** and customer specifications	✓	✓	✓	✓		

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Cast-iron series SIMOTICS SD 1LE55, 1LE56

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 315	355	400	450	Motor version IEC	IE4	IE3
		1LE55.4 Basic Line		**1LE5534**				
		1LE56.4 Performance Line						
		1LE55.3 Basic Line		**1LE55.3**				
		1LE56.3 Performance Line						
1LE5 . . . - . . . . . - . . . . -Z	Order code							
Rating plate and additional rating plates								
Additional rating plate for voltage tolerance	**B07**	✓	✓	✓	✓			
Second rating plate, loose	**M10**	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	✓	✓	□	□			
Additional rating plate with deviating rating plate data [43)]	**Y80 •** and customer specifications	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓	✓	✓			
Adhesive label, supplied loose (printed with: Article No., Serial No.: 2 lines of text)	**Y85 •** and customer specifications	✓	✓	–	–			
Extension of the liability for defects								
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery [20)]	**Q80**	✓	✓	✓	✓			
Extension of the liability for defects by 18 months to a total of 30 months (2.5 years) from delivery [20)]	**Q81**	✓	✓	✓	✓			
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [20)]	**Q82**	✓	□	✓	✓			
Extension of the liability for defects by 30 months to a total of 42 months (3.5 years) from delivery [20)]	**Q83**	✓	✓	✓	✓			
Extension of the liability for defects by 36 months to a total of 48 months (4 years) from delivery [20)]	**Q84**	✓	✓	✓	✓			
Extension of the liability for defects by 48 months to a total of 60 months (5 years) from delivery [20)]	**Q85**	✓	✓	✓	✓			
Packaging, safety notes, documentation and test certificates								
Inspection certificate 3.1 acc. to EN 10204 [20)]	**B02**	✓	✓	✓	✓			
Printed German/English Operating Instructions enclosed [21)]	**B04**	✓	✓	✓	✓			
Without "Made in manufacturing country" marking	**B13**	○	○	–	–			
Equivalent circuit diagram	**B51**	✓	✓	✓	✓			
Starting diagram (torque vs. speed and current vs. speed)	**B52**	✓	✓	✓	✓			
Document - Electrical datasheet	**B60**	✓	✓	✓	✓			
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓			
Standard test (routine test) with acceptance	**B65**	✓	✓	✓	✓			
Temperature test without acceptance	**B67**	✓	✓	✓	✓			
Temperature test with acceptance	**B68**	✓	✓	✓	✓			
Type test with heat run for vertical motors, without acceptance	**B80**	✓	✓	✓	✓			
Type test with heat run for vertical motors, with acceptance	**B81**	✓	✓	✓	✓			
Type test with heat run for horizontal motors, without acceptance	**B82**	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓			
"Basic" documentation package	**B90**	✓	✓	✓	✓			
"Advanced" documentation package	**B91**	✓	✓	✓	✓			
"Projects" documentation package	**B92**	✓	✓	✓	✓			
Connected in star for dispatch	**M01**	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓			

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- ◘ Standard version
- ○ Without additional charge
- • This order code only determines the price of the version – Additional plain text is required.
- ✓ With additional charge
- O. R. Possible on request
- – Not possible

1) Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

2) Parallel Whitworth threaded pipe DIN ISO 228 (DIN 259) BSPP (British Standard Pipe Parallel), threaded pipe for connections not sealed in the thread (cylindrical), external = G.

3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

4) Not possible for 1LE5 motors with increased power.

5) A second shaft extension is not possible. Please inquire for mounted brakes.

6) For order codes **F10**, **F11**, and **F12**, the brake supply voltage must be specified or ordered.

7) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.

8) In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

9) For frame sizes 315 and 355, LL and HOG rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover. Protective cover (order code **G43**) possible.

10) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB and SFB. This option cannot be used in combination with brakes of type BFK458!

11) Order code **H00** provides mechanical protection for encoders.

12) Not possible for type of construction IM V3.

13) Not possible in combination with HOG 9 D 1024I rotary pulse encoder (order code **G05**) and/or BFK458 brake (order code **F01**).

14) Not possible in combination with brake BFK458 (order code **F01**).

15) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

16) The rated voltage is indicated on the rating plate without voltage range.

17) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range. Order codes D30 does not authorize importing into USA and Mexico.

18) On request for 2-pole motors

19) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347 are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.

20) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

21) The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300

22) Not possible in combination with order codes **Q72** and **Q78**.

23) Not possible in combination with order codes **N05**, **N06**, **N07**, **N08** and **N11**.

24) When order codes **F01** and **F12** are combined, the rectifier for the brake will be supplied separately as a single part.

25) Order code **S06** cannot be combined with order code **S00** and **S01**. It can be combined with **Y53** on request.

26) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

27) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

28) For frame sizes 400 and 450, permissible cantilever forces for motors with reinforced bearings are available on request. Please specify cantilever force and lever arm.

29) For insulated bearings at the DE, and non-insulated bearings at the NDE, the motor coupling must be insulated.

30) For insulated bearings at the DE and NDE, a grounding brush (**L52**) is essential if no grounding is provided in the drive train. Otherwise, it should be omitted.

31) Only possible for line operation.

32) The separately driven fan motor is implemented with voltage code **34** (400 V/50 Hz; 460 V/60 Hz).

33) For frame sizes 400 to 450, the degree of protection changes to IP54.

34) For frame size 450, not possible in the vertical type of construction.

35) For motors with flange (IM B5, IM B35, IM V1), only possible in conjunction with order code **H08**.

36) Restrictions can apply when mounting the terminal box.

37) Only possible in conjunction with SIMOTICS SD Add motors (6th position of the Article No.: **3**).

38) When compared to utilization, temperature class 155 (F), the power is increased by 5 %.

39) Only available for 1LE5 and 1MB551 (Ex tc for Zone 21) and 1MB552 (Ex tc for Zone 22). Not available for 1MB553 (Ex ec for Zone 2).

40) Not available for 8-pole motors, frame size 450.

41) Not possible in combination with order code **C02**.

42) Not possible in combination with order code **R50**.

43) Customer specifications: Voltage between 380 and 690 V (voltages outside this range are available on request), frequency, circuit, required rated power in kW.

44) For 1LE5, only available for line operation (DOL).
For 1LE5 in combination with order code **L50** or **L51** on request (converter operation).

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Overview

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Flender is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner - ordering from catalog
Siemens MD 10.1 "FLENDER Standard Couplings"

or

Flender GmbH
Kupplungswerk Mussum
Industriepark Bocholt
Schlavenhorst 100
46395 Bocholt, Germany
Phone +49 (2871) 922185
Fax +49 (2871) 922579

www.flender.com
Email: flender-kupplungen-2.pd.de@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG
Rutesheimer Strasse 22
70499 Stuttgart, Germany
Phone +49 (711) 1388-0
Fax. +49 (711) 1388-233

www.ottoroth.de
Email: info@ottoroth.de

Foundation blocks according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation blocks that are bolted to the machine (without washers) and fitted with taper pins are not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

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More information

Spare motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
  - For up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable replacement motor with regard to the mounting dimensions and functions (the type series may vary).
  - If a replacement motor is supplied within the 3-year period, this does not mean that the warranty restarts.
  - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
  - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
  - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
  - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
  - Designation and part number
  - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline
  In Germany
  Phone +49 (180) 5050448

You will find telephone numbers for other countries on our Internet site:
www.siemens.com/automation/service&support

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Notes on the dimensions

Overview

- Dimension designations according to EN 50347 and IEC 60072.
- Fits
  The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	flange (FF)	H17

  The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

- Dimensional tolerances
  For the following dimensions, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
H	to 250	– 0.5
	over 250	– 1.0
E, EA		– 0.5

  Keyways and feather keyways (dimensions GA, GC, F, and FA) are made in compliance with DIN 6885 Part 1.
- All dimensions are specified in mm.

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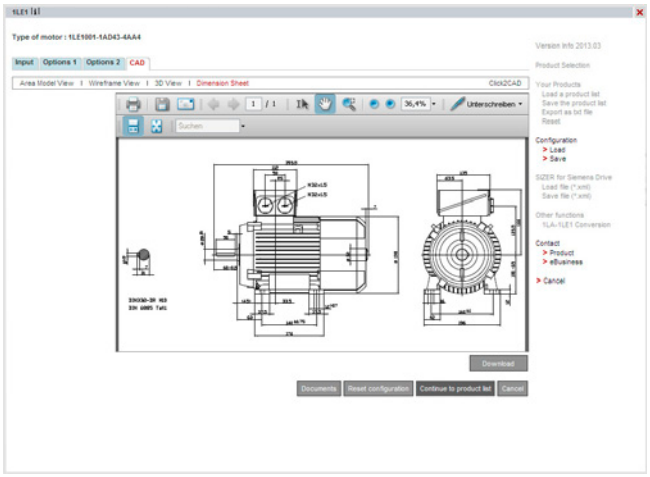
Overview

A dimensional drawing can be created in the "Drive Technology Configurator" (DT Configurator) for every configurable motor.
A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.
These dimensional drawings can be presented in different views and sections and printed.
The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated into the Siemens Industry Mall and can be used on the Internet without installation.
German: www.siemens.de/dt-konfigurator
English: www.siemens.com/dt-configurator

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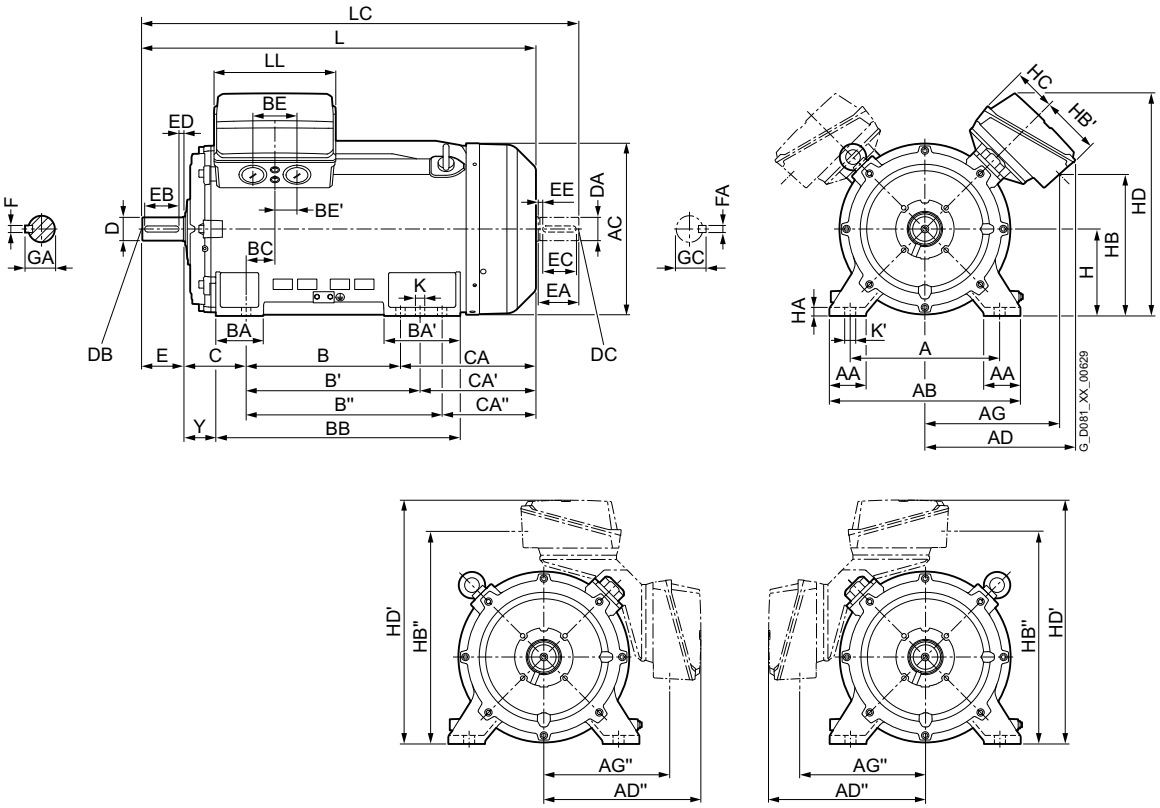
3

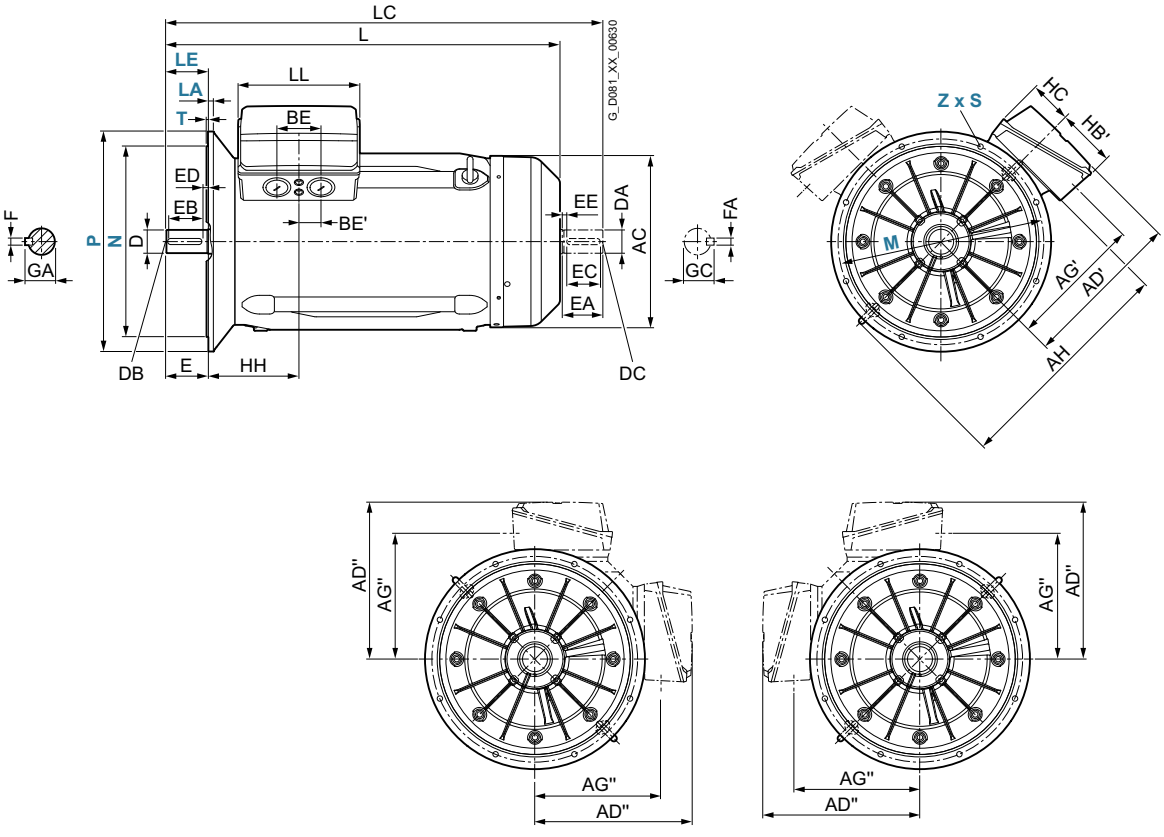
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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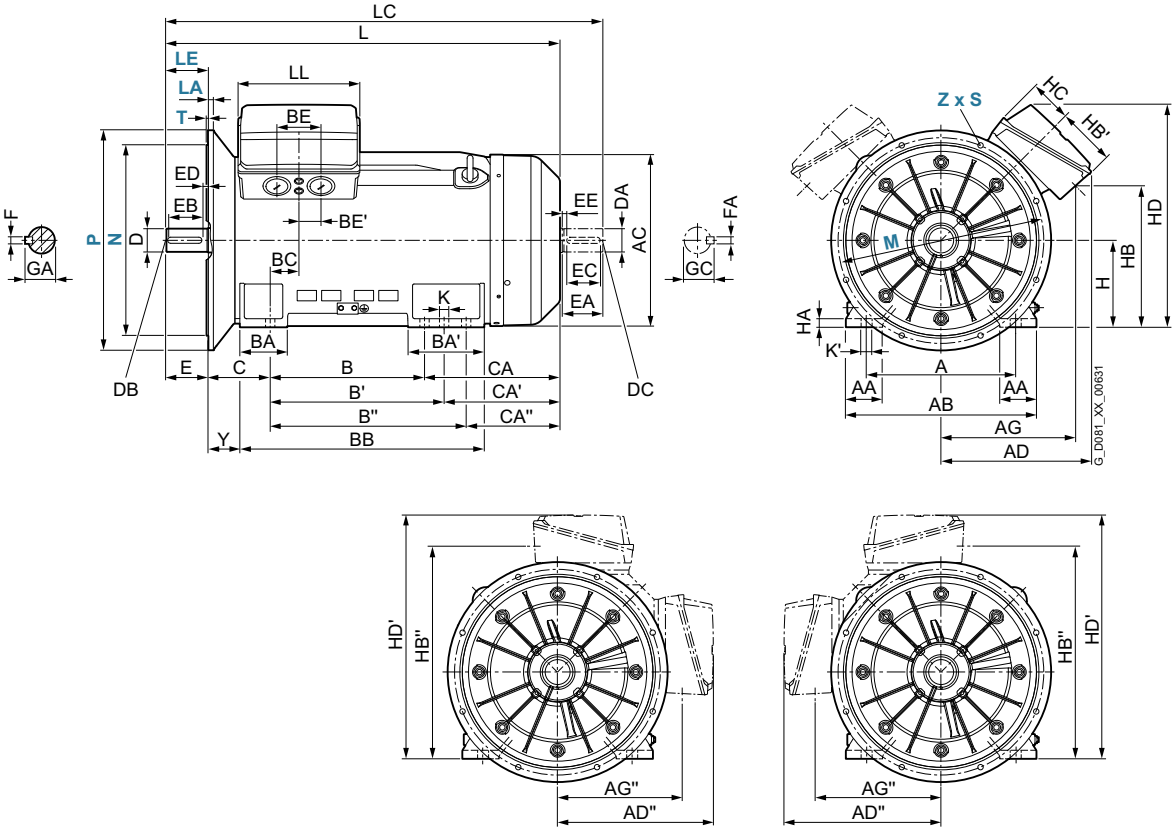
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor		Dimension designation acc. to **IEC**																									
Frame size	Motor type 1LE5.0.-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AD"	AG	AG'	AG"	AH	B	B'	B"	BA	BA'	BB	BC	BE	BE'	C	CA	CA'	CA"	**H**	HA	HB
315 L	3AA6	2	508	120	**610**	641	**590**	565	540	553	459	434	890	457	508	–	176	227	648	139	120	60	216	469	418	–	**315**	50	412
	3AB6	4														–									–			
	3AA7	2												508	560	630		298	770					498	446	376			
	3AB7	4																						528	476	406			
	3AC7	6					**542**			491	473	448									135	67.5							491
	3AC8	6					**590**			553	459	434									120	60		618	566	496			412
	3AD7	8					**543**			491	473	448									135	67.5		528	476	406			491
	3AD8	8																						618	566	496			
355 L	3BA3, 3BA4, 3BA5	2	610	150	**780**	718	**620**	657	644	550	542	530	940	630	710	800	198	315	998	116	240	120	254	553	473	383	**355**	49	574
	3BB., 3BC., 3BD.	4, 6, 8															194	311										35	

For motor		Dimension designation acc. to **IEC**													DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE5.0.-	No. of poles	HB'	HB"	HC	HD	HD'	HH	Y	K	K'	**L**	LC [1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 L	3AA6	2	336	749	167	800	855	355	146	28	35	**1282**	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB6	4										**1312**	1457		85		170	140	25	22	90	70					20	74.5
	3AA7	2										**1362**	1507		65		140	125	10	18	69	60					18	64
	3AB7	4										**1422**	1567		85		170	140	25	22	90	70					20	74.5
	3AC7	6	225	763																								
	3AC8	6	336	749								**1512**	1657															
	3AD7	8	225	763								**1422**	1567															
	3AD8	8										**1512**	1657															
355 L	3BA3, 3BA4, 3BA5	2	247	885	188	911	999	370	130	35	42	**1577**	1722	519	75	M20	140	125	10	20	79.5	60	M20	140	125	10	18	64
	3BB., 3BC., 3BD.	4, 6, 8										**1607**	1782		95	M24	170	140	25	25	100	80		170	140	25	22	85.5

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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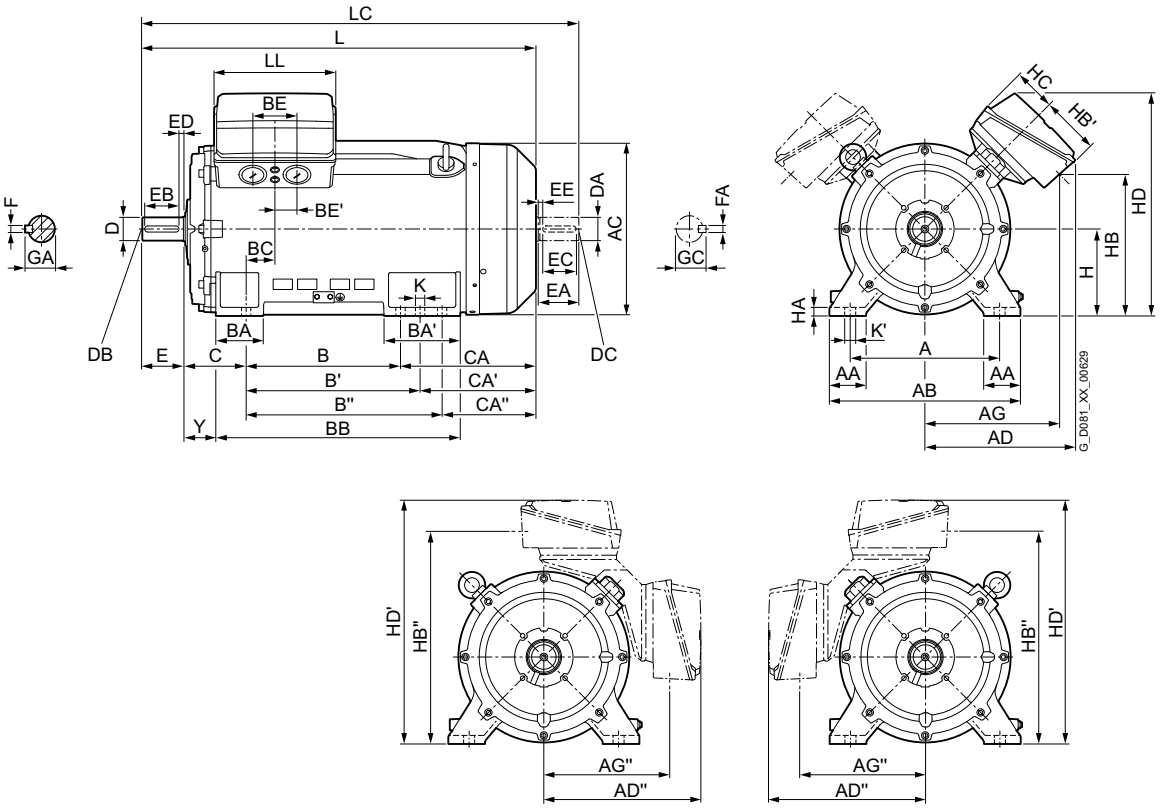
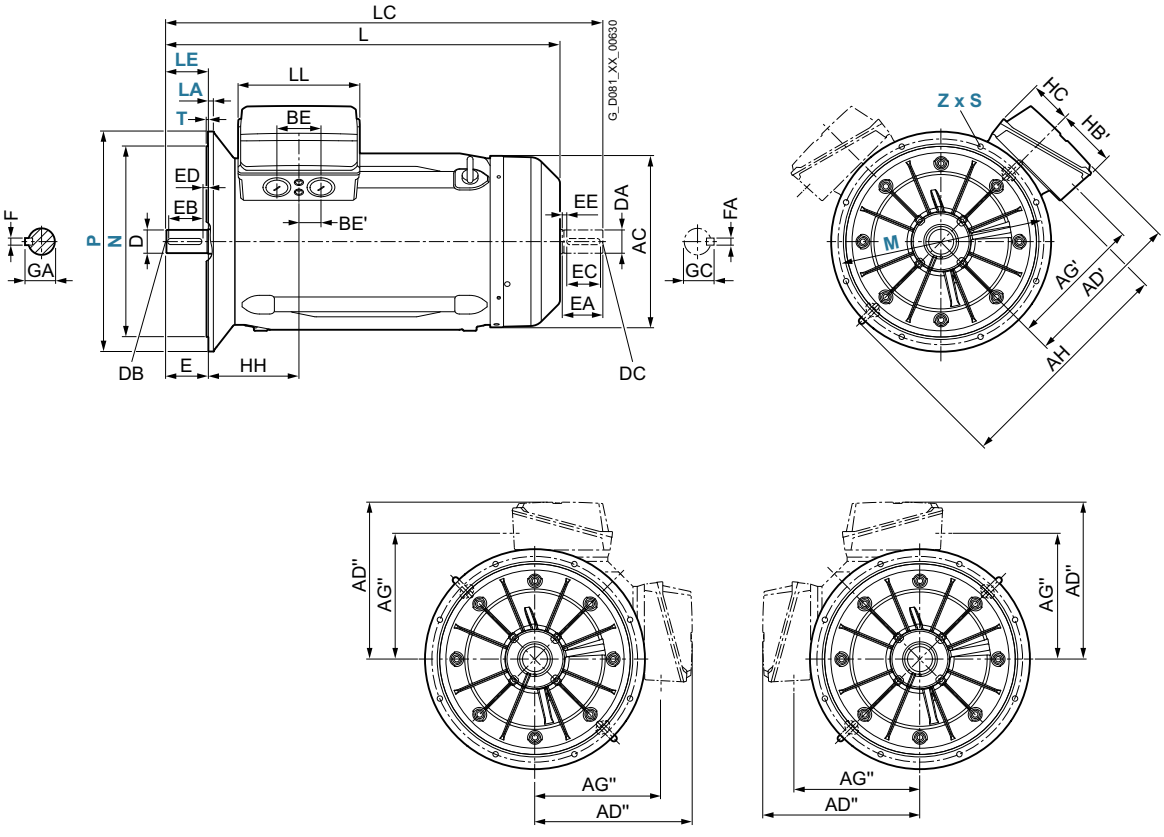
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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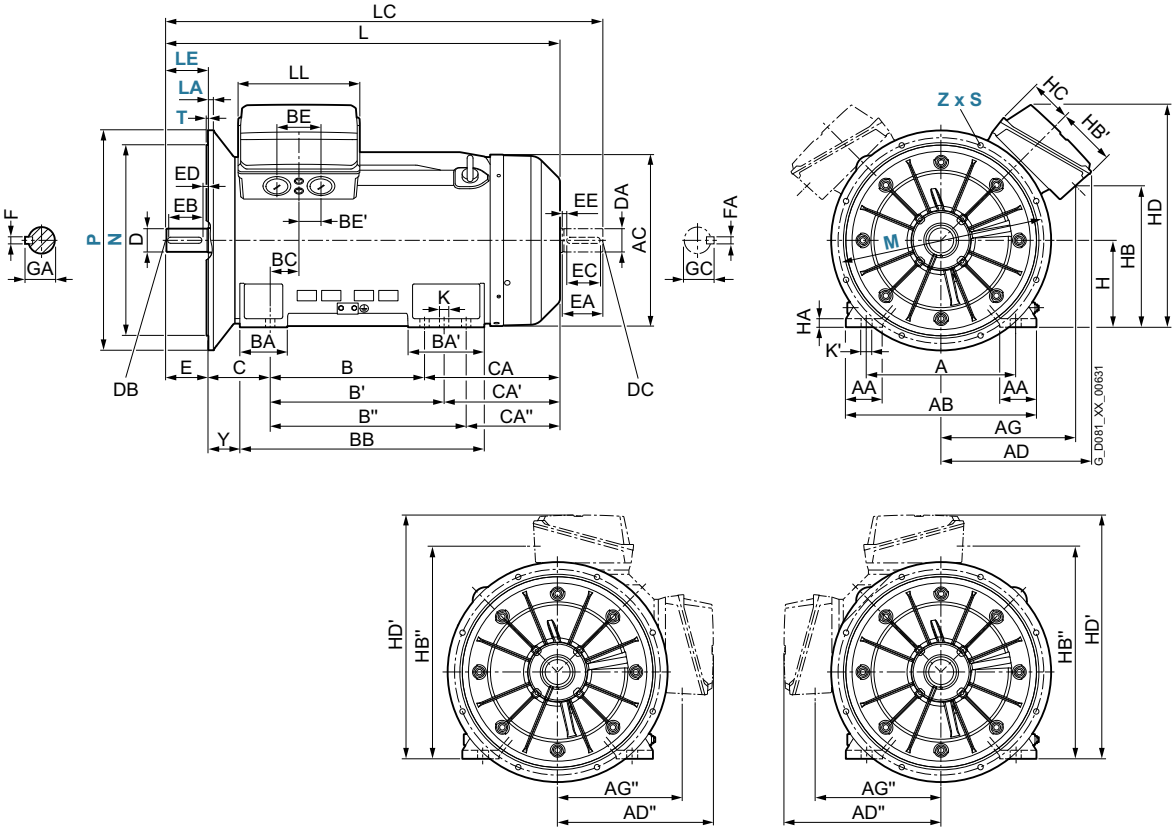
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor		Dimension designation acc. to **IEC**																									
Frame size	Motor type 1LE5.3.-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AD"	AG	AG'	AG"	AH	B	B'	B"	BA	BA'	BB	BC	BE	BE'	C	CA	CA'	CA"	**H**	HA	HB
315 L	3AA6	2	508	120	**610**	641	**590**	565	540	553	459	434	890	457	508	–	176	227	648	139	120	60	216	469	418	–	**315**	50	412
	3AB6, 3AB7	4												508	560	630		298	770					528	476	406			
	3AA7	2																						498	446	376			
	3AC8	6																						618	566	496			
	3AC7, 3AD7	6					**543**			491	473	448									135	67.5		528	476	406			491
	3AD8	8																						618	566	496			
355 L	3BA3, 3BA4, 3BA5	2	610	150	**780**	718	**620**	657	644	550	542	530	940	630	710	800	198	315	998	116	240	120	254	553	473	383	**355**	49	574
	3BB., 3BC., 3BD.	4, 6, 8															194	311										35	

For motor		Dimension designation acc. to **IEC**													DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE5.3.-	No. of poles	HB'	HB"	HC	HD	HD'	HH	Y	K	K'	**L**	LC [1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 L	3AA6	2	336	749	167	800	855	355	146	28	35	**1282**	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB6, 3AB7	4										**1422**	1567		85		170	140	25	22	90	70					20	74.5
	3AA7	2										**1362**	1507		65		140	125	10	18	69	60					18	64
	3AC8	6										**1512**	1657		85		170	140	25	22	90	70					20	74.5
	3AC7, 3AD7	6, 8	225	763								**1422**	1567															
	3AD8	8										**1512**	1657															
355 L	3BA3, 3BA4, 3BA5	2	247	885	188	911	999	370	130	35	42	**1577**	1722	519	75	M20	140	125	10	20	79.5	60	M20	140	125	10	18	64
	3BB., 3BC., 3BD.	4, 6, 8										**1607**	1782		95	M24	170	140	25	25	100	80		170	140	25	22	85.5

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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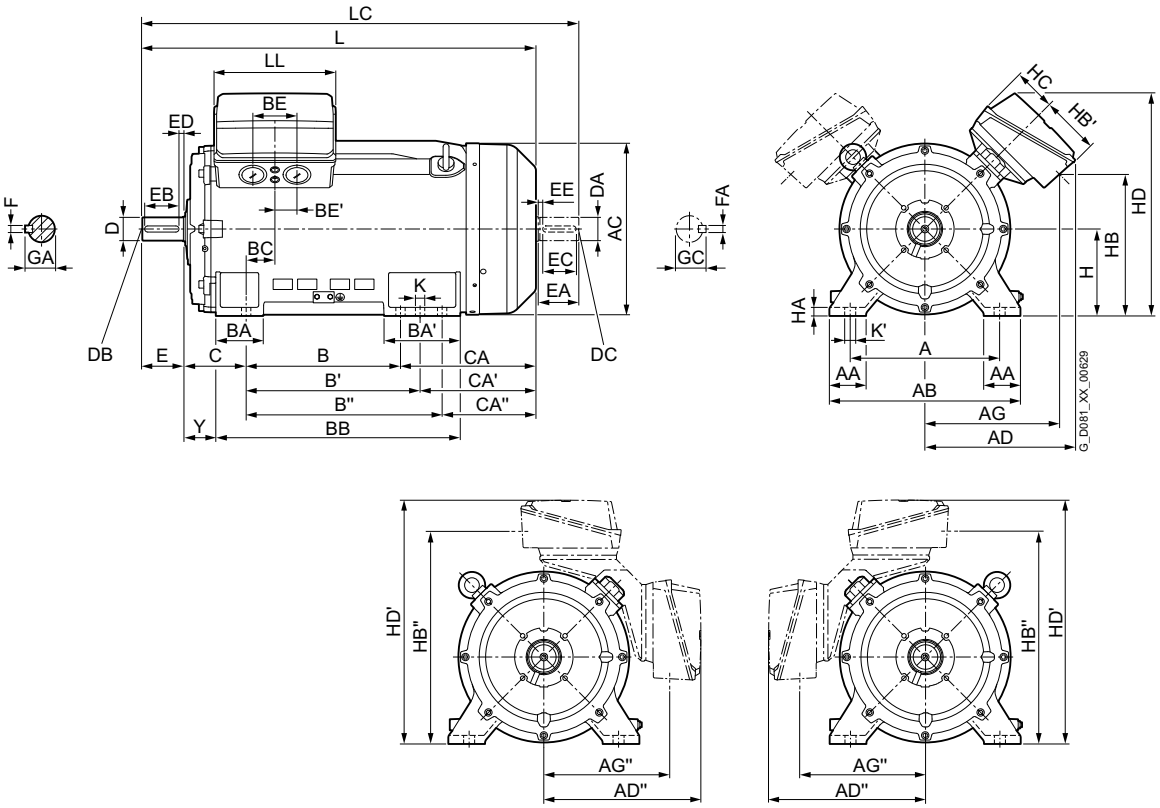
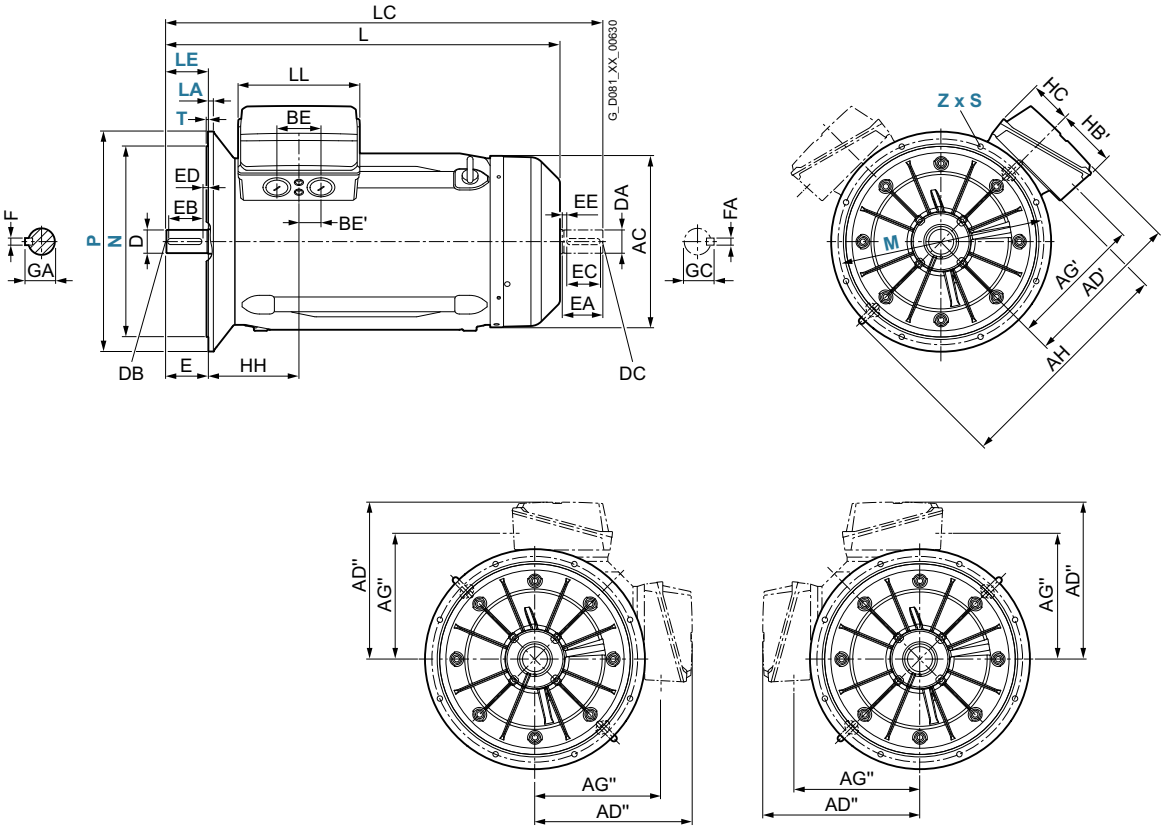
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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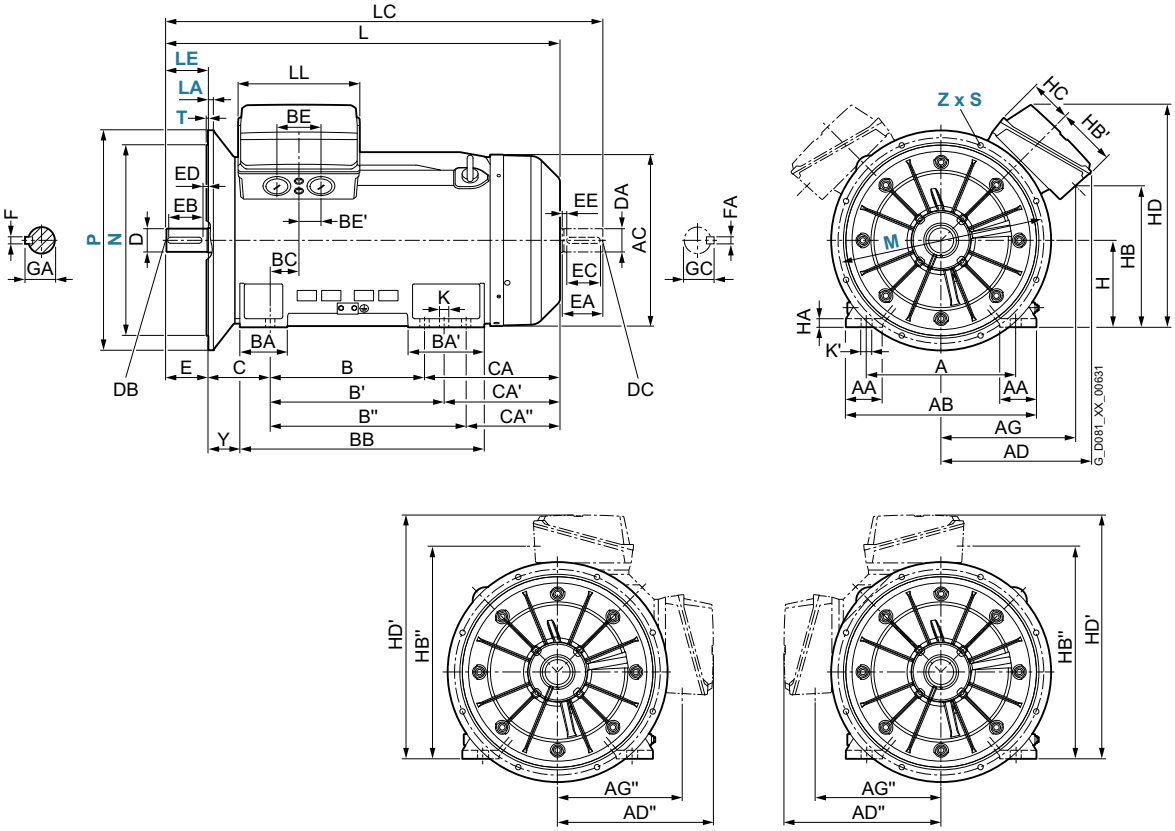
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor		Dimension designation acc. to **IEC**																										
Frame size	Motor type 1LE5.83-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AD"	AG	AG'	AG"	AH	B	B'	B"	BA	BA'	BB	BC	BE	BE'	C	CA	CA'	CA"	**H**	HA	HB
315 L	3AA6	2	508	120	**610**	641	**590**	565	540	553	459	434	890	457	508	-	176	227	648	139	120	60	216	469	418	-	**315**	50	412
	3AB6	4												508	560	630		298	770					498	446	376			
	3AA7	2																						528	476	406			
	3AB8	6																											
	3AC7	6					**543**			491	473	448									135	67.5							491
	3AC8	6					**590**			553	459	434									120	60		618	566	496			412
355 L	3BA.	2	610	150	**780**	718	**620**	657	644	550	542	530	940	630	710	800	198	315	998	116	240	120	254	553	473	383	**355**	49	574
	3BB3, 3BB4	4															194	311										35	
	3BB5	4																							568	478			
	3BC2, 3BC3	6																							473	383			
	3BC4	6																						648	568	478			

For motor		Dimension designation acc. to **IEC**													DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE5.83-	No. of poles	HB'	HB"	HC	HD	HD'	HH	Y	K	K'	**L**	LC [1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 L	3AA6	2	336	749	167	800	855	355	146	28	35	**1282**	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB6	4										**1362**	1507															
	3AA7	2										**1422**	1567		85		170	140	25	22	90	70					20	74.5
	3AB8	6										**1512**	1657															
	3AC7	6, 8	225	763								**1422**	1567															
	3AC8	8	336	749								**1512**	1657															
355 L	3BA.	2	247	247	188	911	999	370	130	35	42	**1577**	1722	519	75	M20	140	125	10	20	79.5	60	M20	140	125	10	18	64
	3BB3, 3BB4	4										**1607**	1782		95	M24	170	140	25	25	100	80		170	140	25	22	85.5
	3BB5	4										**1702**	1877															
	3BC2, 3BC3	6										**1607**	1782															
	3BC4	6										**1702**	1877															

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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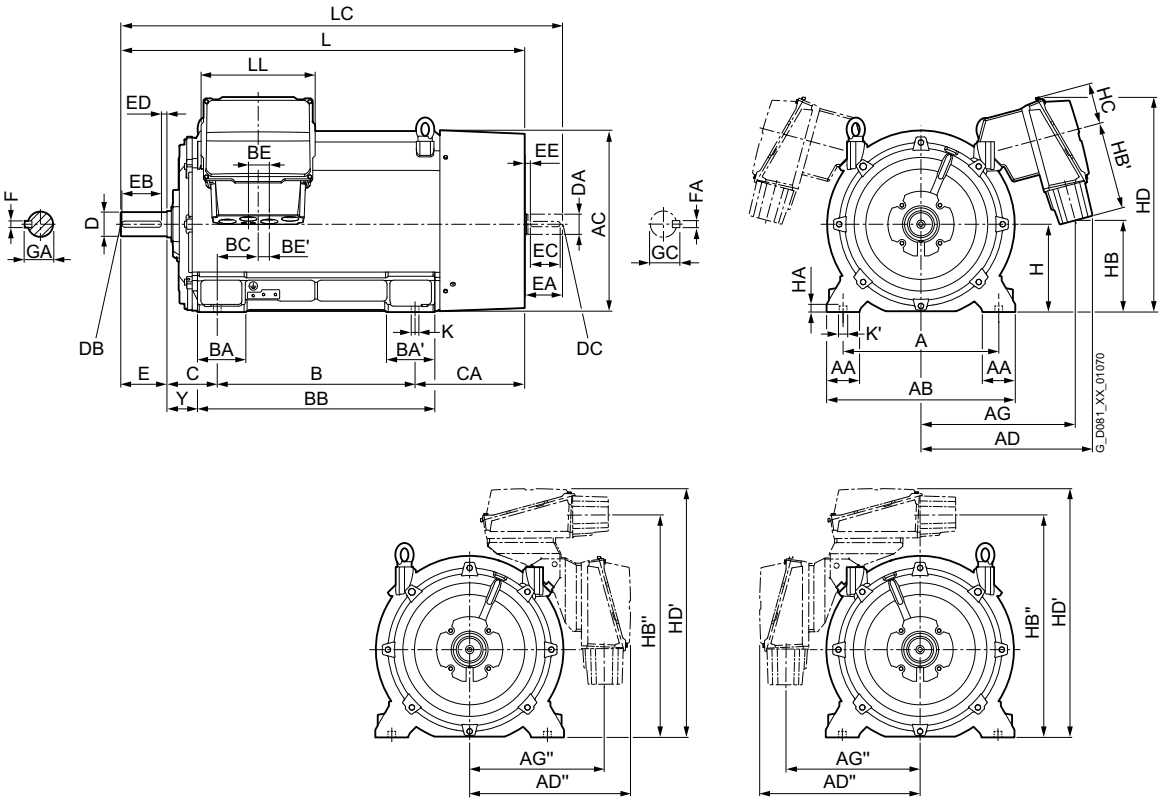
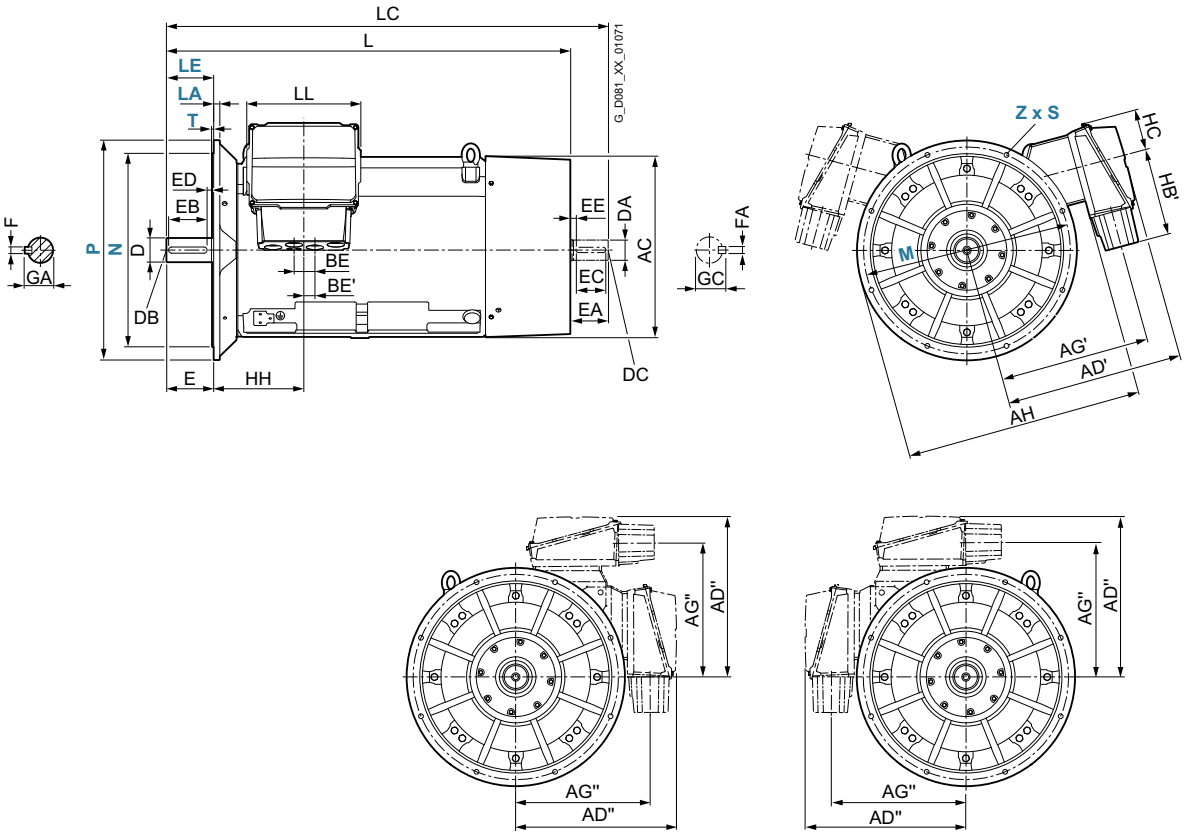
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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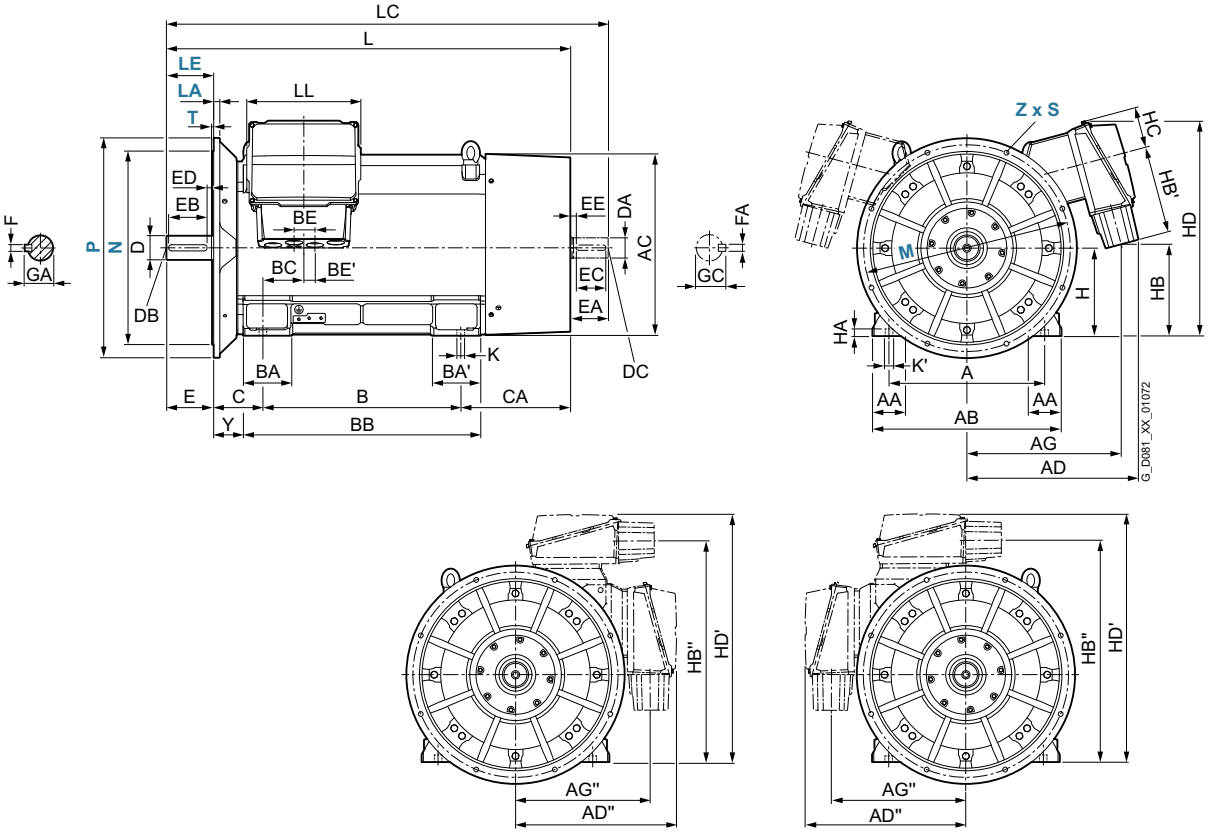
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor		Dimension designation acc. to **IEC**																									
Frame size	Motor type 1LE5583-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AD''	AG	AG'	AG''	AH	B	B'	B''	BA	BA'	BB	BC	BE	BE'	C	CA	C A'	C A''	**H**	H A	HB
400	4AA	2	710	150	**860**	880	**785**	845	740	705	720	620	1110	900	–	–	220	220	1080	186	87.5	43.5	224	501	–	–	**400**	35	420
	4AB	4																											
	4AC	6																											
	4AD	8																											
450	4BA	2	800	180	**980**	970	**820**	895	775	740	770	655	1235	1000	–	–	260	260	1220	170	87.5	43.5	250	535	–	–	**450**	42	505
	4BB	4																											
	4BC	6																											
	4BD	8																											

For motor		Dimension designation acc. to **IEC**													DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE5583-	No. of poles	HB'	HB''	HC	HD	HD'	HH	Y	K	K'	**L**	LC [1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
400	4AA	2	400	1020	190	980	1140	410	134	35	42	**1795**	1940	519	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
	4AB	4										**1835**	2010		110	M24	210	180		28	116	90	M24	170	140	25	25	95
	4AC	6																										
	4AD	8																										
450	4BA	2	400	1105	190	1065	1225	420	140	42	50	**1955**	2100	519	90	M24	170	140	25	25	95	75	M20	140	125	10	20	79.5
	4BB	4										**1995**	2210		120		210	180		32	127	100	M24	210	180	25	28	106
	4BC	6																										
	4BD	8																										

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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Notes

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4/2 Introduction
4/2 Overview
4/2 Application
4/2 Design
4/3 Technical specifications

4/4 Synchronous reluctance motors for SINAMICS converters – VSD4000 line

4/4 Orientation
4/44 Article number code

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4/92 Standard Efficiency
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4/94 • Line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated, enclosed
4/96 • Line voltage 690 V, 50 Hz/690 V, 87 Hz – self-ventilated, enclosed
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4/138 • Standard Efficiency – self-ventilated · Frame sizes 180 M to 250 M – self-ventilated
4/140 • Standard Efficiency – self-ventilated · Frame sizes 280 S to 315 L – self-ventilated

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Overview

SIMOTICS GP/SD VSD motors optimized for converter operation *(VSD = **V**ariable **S**peed **D**rive)*

In addition to the standard motors optimized for line operation, Siemens also offers two motor lines optimized for converters for variable-speed operation on a frequency converter:

- SIMOTICS VSD10 line – induction motors for converter operation
- SIMOTICS VSD4000 line – reluctance motors for operation with SINAMICS G120/S120 converters

The motors are optionally available with an aluminum housing (SIMOTICS GP) or with a rugged cast-iron housing (SIMOTICS SD).

SIMOTICS VSD motors are characterized by the following features:

- High energy efficiency:
  Because the SIMOTICS VSD motors are optimized for operation with SINAMICS converters, the system power losses are low and the energy efficiency therefore high.
  In particular, the SIMOTICS VSD4000 line synchronous reluctance motors in conjunction with optimized control algorithms result in excellent loss-optimized operation in the speed setting range with a full and partial load, and are superior to an induction motor system that has comparable nominal efficiency, especially in the partial-load range.
- Optimized investment costs:
  The optimized motor active part/power module allocation results in low capital investment costs. The motors and frequency converters are optimally harmonized and coordinated with one another. No power unit upgrade is therefore required. This applies in particular to the SIMOTICS VSD10 line motors on account of their optimized motor design.
- Low space requirement, low weight:
  The high power density and compact design ensure low space requirements combined with low weight.
- Very rugged and reliable:
  High availability using the standard protection functions for converter operation (KTY84-130 temperature sensors).
  As a result of the optimized insulation system, a high degree of reliability is obtained for four-quadrant operation with SINAMICS converters. SIMOTICS VSD10 motors also have insulated bearings at the non-drive end (NDE) in frame sizes 280 and 315.
- Fast and simple commissioning by transferring a motor code on the frequency converter.
- Flexible in use:
  SIMOTICS VSD line motors are designed as standard for operation with a 50 Hz, 60 Hz and 87 Hz characteristic.
- Wide range of options:
  By consistently utilizing the 1LE1 standard motor platform, almost all options of the 1LE1 line motors can also be used for the SIMOTICS VSD line motors.
- High level of compatibility:
  Line and converter motors can be easily interchanged due to their identical dimensions and customer interfaces. The connection and operating philosophy is exactly the same as for 1LE1 line motors.
- International applicability:
  The motors are not subject to any minimum efficiency requirements for specific countries.

Application

The SIMOTICS GP/SD VSD motors can be deployed in all industries and sectors, e.g. paper, steel, energy, chemistry, water/waste water.

The wide field of applications that can be addressed includes, for example, the following:

- Pumps
- Fans
- Compressors
- Cranes
- Conveyor belts

Design

The SIMOTICS GP/SD VSD motors are based on the platform of the SIMOTICS 1LE1 motor type series. For this reason, the principal design is the same as for the 1LE1 line motors – the mechanical parts are identical.
The motors are adapted to the converter by appropriately dimensioning the active part and VSD-specific rating plate data.

Moreover, a large number of the variations available in the SIMOTICS 1LE1 motors (types of construction, motor protection, terminal box position, and options) are also available for the VSD motors.

SIMOTICS VSD4000 line	SIMOTICS VSD10 line
Use in VSD applications with high dynamic requirements	Use in VSD applications
Focus on low operating costs	Focus on low investment costs
Very low system power losses due to the reluctance principle and optimum coordination of the motor with the converter	Low system power losses due to optimum coordination of the motor with the converter
Optimized for operation with SINAMICS G120 and S120	Optimized for use with SINAMICS G120, G130, G150
36 month warranty	• 12 month warranty for SIMOTICS GP • 24 month warranty for SIMOTICS SD (optionally expandable)

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Technical specifications

Brief overview of the general technical specifications for SIMOTICS VSD4000 line reluctance motors

Air-cooled, enclosed version with self-ventilation [1]	
Operation	Converter operation – VSD
Power at 50 Hz [2]	0.55 … 45 kW
Rated speed	1500 rpm, 1800 rpm and 2610 rpm 3000 rpm, 3600 rpm
Voltages	50 Hz line supplies: 400 V 60 Hz line supplies: 460 V
Cooling method	IC411, self-ventilated
Frame size	SIMOTICS GP: 80/112 … 200 SIMOTICS SD: 80/112 … 225
Degree of protection [3]	IP55
Housing	Aluminum or cast-iron version
Load characteristic	$T \sim n^2$, T = const.
Motor type	SIMOTICS GP: 1FP10.4 SIMOTICS SD: 1FP15.4

Brief overview of the general technical specifications for SIMOTICS VSD10 line standard motors for converter operation

Air-cooled, enclosed version with self-ventilation [1]	
Operation	Converter operation – VSD
Power at 50 Hz	2.2 ... 200 kW (1500 rpm) 3 ... 90 kW (3000 rpm)
Rated speed	1500 rpm, 1800 rpm and 2610 rpm [4] 3000 rpm, 3600 rpm and 5220 rpm [4]
Voltages	50 Hz line supplies: 400 V, 500 V, 690 V 60 Hz line supplies: 460 V, 600 V
Cooling method	IC411, self-ventilated
Frame size	SIMOTICS GP: 100 … 160 SIMOTICS SD: 100 … 315
Degree of protection [3]	IP55
Housing	Aluminum or cast-iron version
Load characteristic	$T \sim n^2$, T = const.
Motor type	SIMOTICS GP: 1LE1092 SIMOTICS SD: 1LE1592

[1] Forced ventilation optionally available.
[2] Rated speed 1500 rpm.
[3] Other degrees of protection optionally available.
[4] 87 Hz characteristic not available for all frame sizes.

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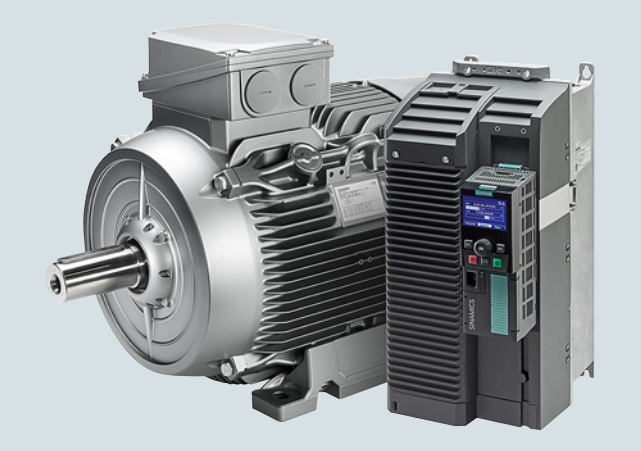
Overview

SIMOTICS GP/SD VSD4000 line motor series: 1FP10, 1FP15



As a result of their flexibility and the wide range of versions, SIMOTICS GP/SD VSD4000 line motors are especially suitable for sectors and industries, where the focus is on minimum lifecycle costs (TCO) and/or operation with a high dynamic performance.

Versions of the SIMOTICS GP/SD VSD4000 line motor series: 1FP10, 1FP15

The motors have compact dimensions in a surface-cooled, enclosed version with self-ventilation. They have been specifically designed for converter operation.

1FP10 General Purpose for converter operation

- Four-quadrant converter operation, optimally harmonized with the SINAMICS G120, PM240-2 and S120 (ALM, BLM) drive system.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Aluminum
- Frame sizes: 80/112 to 200 [1]

1FP15 Severe Duty for converter operation

- Four-quadrant converter operation, optimally harmonized with the SINAMICS G120, PM240-2 and S120 (ALM, BLM) drive system.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Cast iron
- Frame sizes: 80/112 to 200

4

Benefits

The SIMOTICS GP/SD VSD4000 line motor series has been specifically developed for operation with SINAMICS G120 converters.

- The synchronous-reluctance motors in conjunction with optimized closed-loop control algorithms result in an excellent, loss-optimized operating behavior in the speed control range at full and partial load. This system is superior to an induction motor-based system with comparable nominal efficiencies, especially in the partial load range.
- As a result of their low intrinsic moment of inertia, synchronous-reluctance motors are also especially suitable for operating modes demanding a high dynamic performance.
- The optimized motor active part/power module allocation results in low capital investment costs.
- The high power density and compact design ensure low space requirements combined with low weight.
- The motors and converters are optimally harmonized and coordinated with one another. It is not therefore necessary to upgrade the power unit.
- SIMOTICS GP motors with aluminum housing or SIMOTICS SD motors with rugged cast-iron housing are available.
- High availability using the standard protection functions for converter operation (KTY84-130 temperature sensors, Pt100/Pt1000 resistance thermometers).
- As a result of the optimized insulation system, a high degree of reliability is obtained for four-quadrant operation with SINAMICS converters.
- Fast and simple commissioning by transferring a motor code into the converter.
- Standard warranty period for synchronous-reluctance motors 36 months.

More power ratings

SIMOTICS GP/SD VSD4000 line motors are designed as standard for operation with a 50 Hz, 60 Hz, and 87 Hz characteristic [2]. No special ordering option is required.

Optimized for converter operation

The new motor series has been optimized for operation with SINAMICS G120 converters with regard to converter output currents and voltage utilization. Four-quadrant operation is possible with the SINAMICS G120, PM240-2, and S120 (ALM, BLM) converter families (for line voltages up to 480 V 3 AC).

High degree of flexibility

By consistently utilizing the 1LE1 standard motor platform, almost all options of the 1LE1 line motors can also be used for the SIMOTICS GP/SD VSD4000 line series.

Known and established design

Line and converter motors can be easily interchanged due to their identical dimensions and customer interfaces. The connection and operating philosophy is exactly the same as for 1LE1 line motors.

International applications

The motors are not subject to any minimum efficiency requirements for specific countries. As a consequence, they can be operated without additional MEPS certificates, also in the USA, for example.

System components

System components required:

- SIMOTICS 1FP1 synchronous-reluctance motor
- SINAMICS G120 converter PM240-2 Power Module or SINAMICS S120 (ALM, BLM) converter

[1] For the motor type 1FP10 of the SIMOTICS GP series, frame sizes 180 and 200 on request.

[2] With firmware V4.7 SP3, only 1500 rpm can be programmed.

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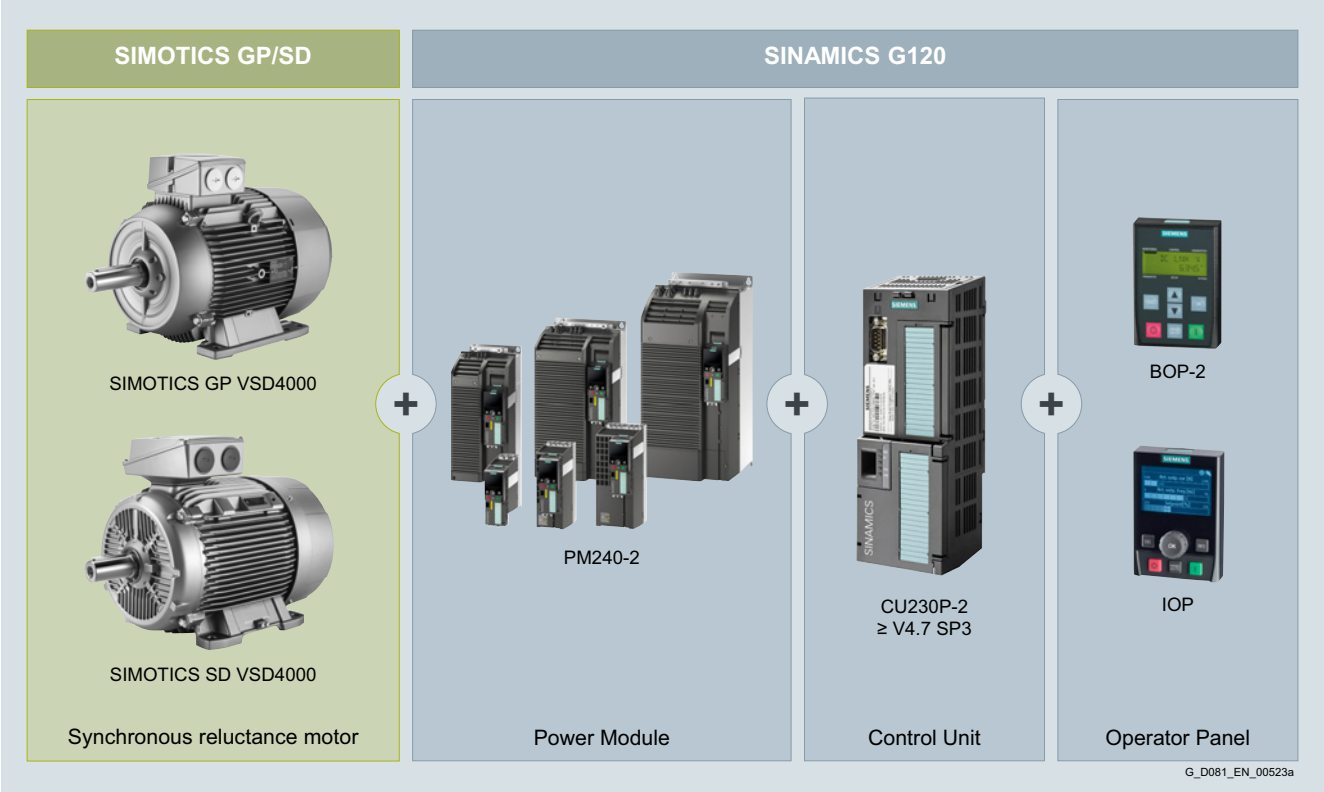
Benefits



Example configuration SIMOTICS GP/SD VSD4000 with SINAMICS G120

Application

As a result of the wide range of options, the SIMOTICS GP/SD VSD4000 line motor series can be used in all industrial areas and sectors. Paper, steel, energy, chemical, water/waste water are examples of some typical sectors.

Various flange and foot-mounted designs according to EN 60034-7 are available. IP55 is the standard degree of protection (other degrees of protection optionally available).

The wide field of applications that can be addressed includes, for example, the following:

- Pumps
- Fans
- Compressors
- Cranes
- Conveyor belts
- Processing machines that require synchronous operation (e.g. in the textile industry)

Design

The SIMOTICS GP/SD VSD4000 line motors are based on the 1LE1 platform. The basic design of the SIMOTICS GP/SD VSD4000 line motors therefore corresponds to the 1LE1 line motors. The mechanical parts are identical. The motors are adapted to the converter by appropriately dimensioning the active part.

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Technical specifications

Overview of technical specifications

This table lists the most important technical specifications.

Type of motor	IEC low-voltage three-phase synchronous-reluctance motors
Connection types	Star/delta connection The connection used depends on the particular load characteristic.
No. of poles	4
Frame sizes	80/112 … 225
Rated power	4-pole: 0.55 … 45 kW (50 Hz characteristic); 0.63 … 52 kW (60 Hz characteristic), 0.9 … 78 kW (87 Hz characteristic)
Frequencies	Characteristics for 50 Hz, 60 Hz and 87 Hz
Versions	Air-cooled, enclosed version: • with self ventilation • with forced ventilation (optional) SIMOTICS GP motors in an aluminum version, frame sizes 80/112 … 200 SIMOTICS SD motors in a cast-iron version, frame sizes 80/112 … 225
System efficiency	IES2 in accordance with EN 50598 (system with SINAMICS G120 converter, PM240-2)
Marking	Only permitted for converter operation. As converter motors, IE classification according to IEC 60034-30-1 is not required.
Rated speed	1500 rpm, 1800 rpm and 2610 rpm (up to frame size 200) 3000 rpm, 3600 rpm (frame sizes 180 and 200)
Rated torque	3.5 … 191 Nm (50 Hz characteristic); 3.3 … 183 Nm (60 Hz characteristic), 3.3 … 176 Nm (87 Hz characteristic)
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class F, utilized acc. to B Reinforced insulation system (Advanced)
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP55 as standard Air-cooled, enclosed version
Cooling according to EN 60034-6 (IEC 60034-6)	• Standard: Self-ventilated (IC411) • Optional: Forced-air cooled (IC416) (132 ... 200)
Permissible coolant temperature and installation altitude	–20 ... +40 °C as standard, installation altitude up to 1000 m above sea level
Standard voltages according to EN 60038 (IEC 60038)	50 Hz line supplies: 400 V, 60 Hz line supplies: 480 V The rated motor voltage required is listed in the "Selection and ordering data" for the required motor.
Type of construction according to EN 60034-7 (IEC 60034-7)	• Without flange: IM B3, IM B6, IM B7, IM B8, IM V5, IM V6 • With flange: IM B35, IM V1, IM V3
Paint finish Suitability of paint finish for climate group according to IEC 60721, Part 2-1	As standard: color RAL 7030 stone gray
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal)
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: half-key balancing as standard
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The corresponding sound pressure level is listed in the "Selection and ordering data" for the required motor.
Weights	The corresponding weight is listed in the "Selection and ordering data" for the required motor.
Modular mounting concept	Optional brake and separately driven fan according to ordering data
Options	See "Article No. supplements and special versions"

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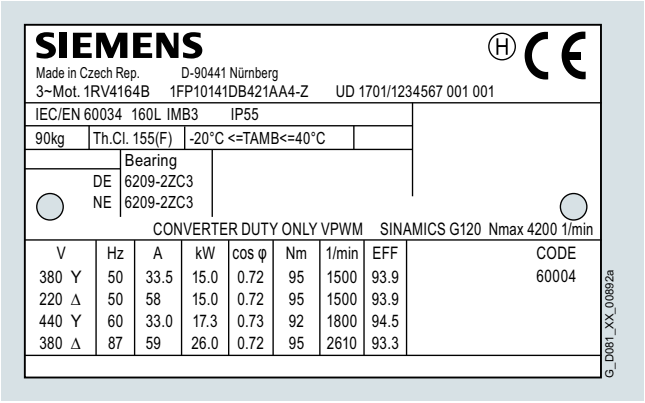
Technical specifications

Rating plate

In accordance with EN 60034-1, the approximate total weight is specified on the rating plate. The standard version of the rating plate is the international version in English.

For straightforward and fast commissioning with SINAMICS G converters, a motor code number is stamped on the rating plate (CODE).



Example of a SIMOTICS GP VSD4000 line rating plate, 1FP10

Motors specially designed for converter operation

These motors have been specifically designed for converter operation. The catalog data is applicable for operation on the converter of the SINAMICS G120 series (PM240-2/PM240P-2) and SINAMICS S120 (PM240-2 and Booksize Motor Modules).

SINAMICS G120 system requirements:

- SINAMICS G120, PM240-2/PM240P-2 Power Module, CU230P-2 Control Unit
- V4.7.6 and higher
- The converter is operated with a rated pulse frequency of at least 4 kHz.
- The converter can provide the rated voltage as listed in the catalog.

For SINAMICS G120 converters (from firmware version 4.7) the SIMOTICS GP/SD VSD4000 line series can be selected in the SINAMICS converter via the STARTER software or the operator panel at the converter (Basic Operator Panel (BOP), Intelligent Operator Panel (IOP)) as motor category and can be addressed using the motor code number.

SINAMICS S120 system requirements:

- SINAMICS S120, PM240-2 Power Module and CU310
- SINAMICS S120 Booksize Motor Module and CU320-2
- FW 4.8 and higher

Rated voltage

The tolerance for the rated voltage is in accordance with EN 60034-1. A rated voltage range is not specified. The rated motor voltages are selected so that when operated with a SINAMICS G120 converter, the available voltage is optimally utilized.

Insulation

The motors can be operated with SINAMICS G/S converters up to line voltages of 480 V when the permissible voltage peaks are complied with ($\hat{U}_{LL} \leq 3200$ V, $\hat{U}_{LE} \leq 2800$ V).

For converter operation with the power ratings specified in the catalog, the motors can be utilized corresponding to thermal class 155 (F) (service factor 1.2).

Preferred supply system configurations are TT systems and TN systems with neutral-point grounding. In the case of a fault when connected to an IT system (ground fault), the insulation is excessively stressed. In this case, the process should be terminated as quickly as possible ($t < 2$ h), and the fault resolved. We do not recommend operation in corner-grounded TN systems.

Noise

The maximum sound pressure levels should be taken from the "Selection and ordering data".

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Technical specifications

Separately driven fan

For the technical specifications of the separately driven fans, see page 1/77 "Technical specifications of separately driven fans".

Bearings

For converter operation, as a result of the basic principle employed, electrical bearing stress is created through the bearing lubricant film due to a voltage that is capacitively coupled in.

The physical cause of this is the common-mode voltage at the converter output that is inherent in the control method for a converter:
The sum of the three phase voltages is – in contrast to pure line operation – not equal to zero at every point in time.

In order to apply currents to the motor which are sinusoidal as far as possible (resulting in smoother running, lower oscillation torques, and lower stray losses), a high pulse frequency is required for the converter's output voltage. The related (very steep) switching edges of the converter output voltage (and also, therefore, of the common-mode voltage) cause correspondingly high capacitive currents and voltages on the machine's internal capacitances.

In the worst-case scenario, the capacitive voltage induced via the bearing can lead to random arcing through the bearing lubricating film, thus causing premature bearing aging or damage.

This physical effect, which occurs in isolated cases, has mostly been observed in connection with larger motors.

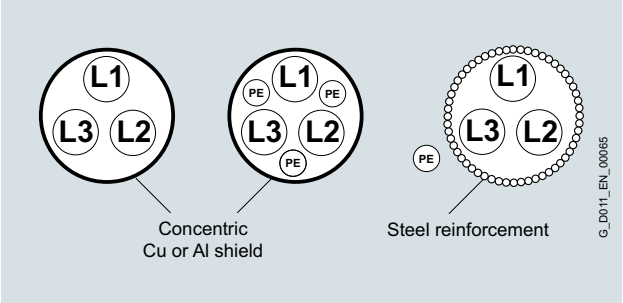
EMC-compliant installation of the drive system is a basic prerequisite for preventing premature bearing damage via bearing currents.

The most important measures for reducing bearing currents are:

- Insulated motor bearing at the NDE.

Recommended from frame size 225 and higher:

- Use cables with a symmetrical cable cross-section:



- Preference given to a line supply with isolated neutral point (IT system).
- Using grounding cables with low impedance over a wide frequency range (DC up to approximately 70 MHz): for example, braided copper ribbon cables, HF finely stranded wires.
- Separate HF equipotential-bonding cable between motor housing and driven machine.
- Separate HF equipotential-bonding cable between motor housing and converter PE busbar.
- 360° HF contacting of the cable shield on the motor housing and the converter PE busbar. This can be achieved using EMC screwed glands on the motor side and EMC shield clips on the converter side, for example.

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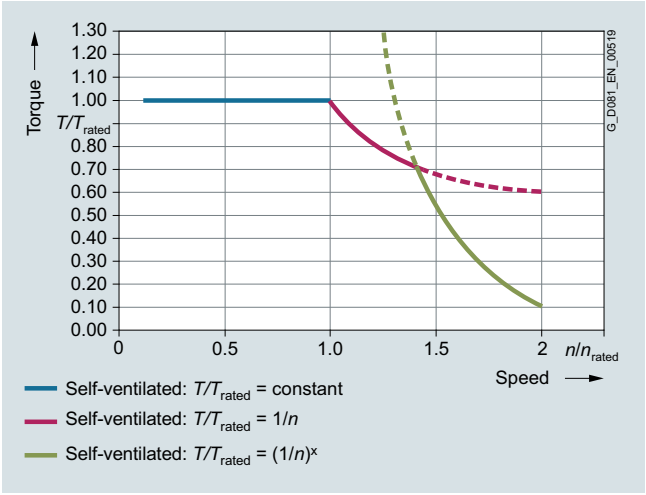
Technical specifications

Torque limits (continuous duty)

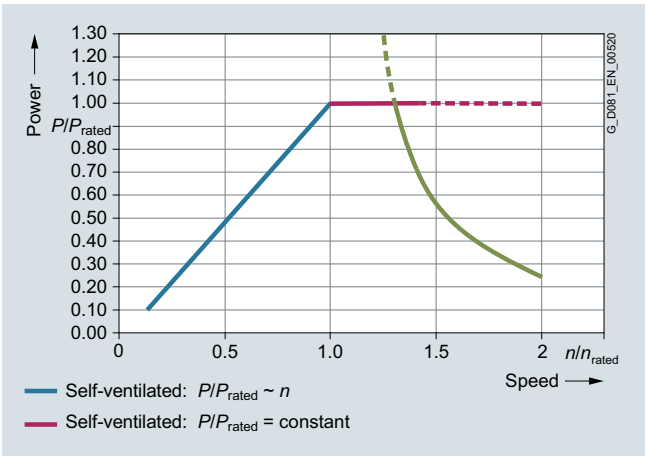
The thermal torque limit characteristics of the SIMOTICS GP/SD VSD4000 line define the maximum load torque for uninterrupted duty (S1) over the complete speed control range. The characteristics are different for all of the cooling methods. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.

The following statements are valid for the following diagrams:

- Thermally, from $^1/_{10}$ of the rated speed up to the full rated speed, the rated torque and the curve of the suitable power unit are possible, utilizing the thermal class 155 (temperature class F).
- At rated speed, SF 1.2 is possible.
- The curves of the next largest power unit and the maximum power curve can be achieved in continuous-operation periodic duty (S6 - x %), and briefly in S9 duty, provided that $P_{2\,(S9)} = P_{2\,N}$ is not exceeded.



Torque limit for SIMOTICS GP/SD VSD4000 line self-ventilated

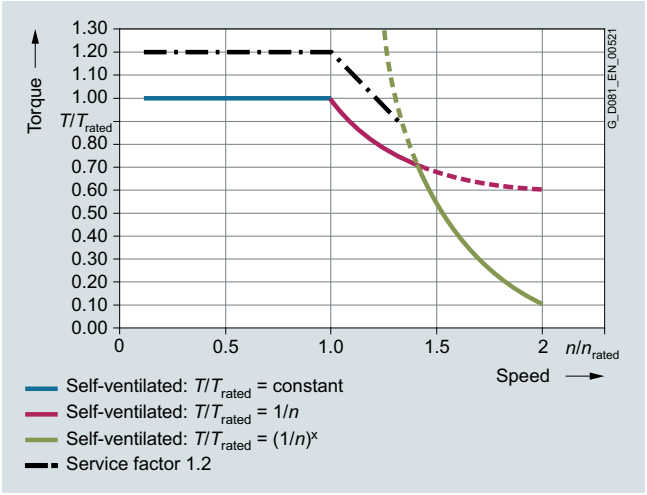


Power limit for SIMOTICS GP/SD VSD4000 line self-ventilated

Maximum overload torques/thermal limit characteristic

The maximum overload torque output from the motor is defined by the limit characteristic and the available converter output current.

Thermally, the motors can have a continuous overload with service factor 1.2 (SF 1.2). However, in this case, the limit torque characteristic must be observed. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.



Overload torque characteristic SIMOTICS GP/SD VSD4000 line

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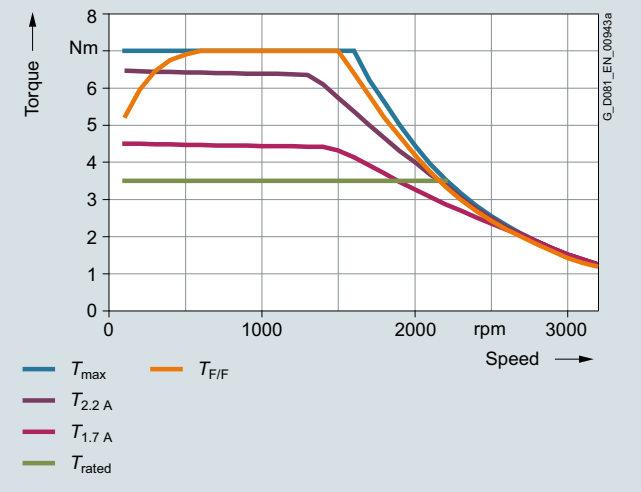
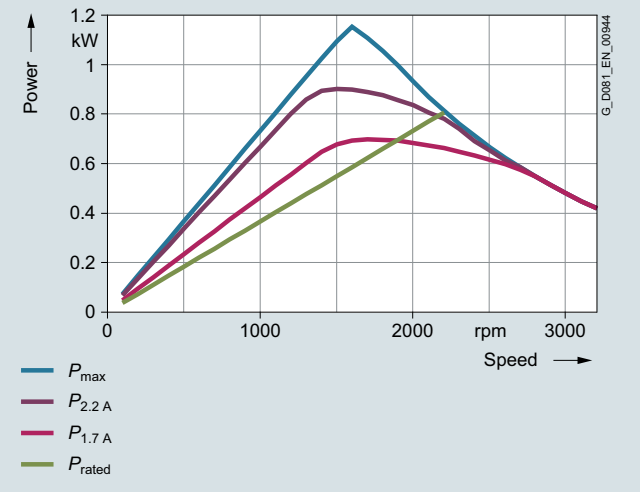
Technical specifications

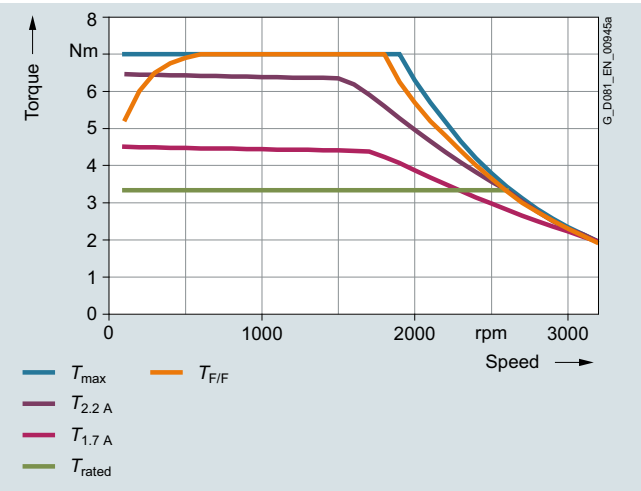
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0DB2 motor, frame size 80 with the particular motor voltage and circuit:



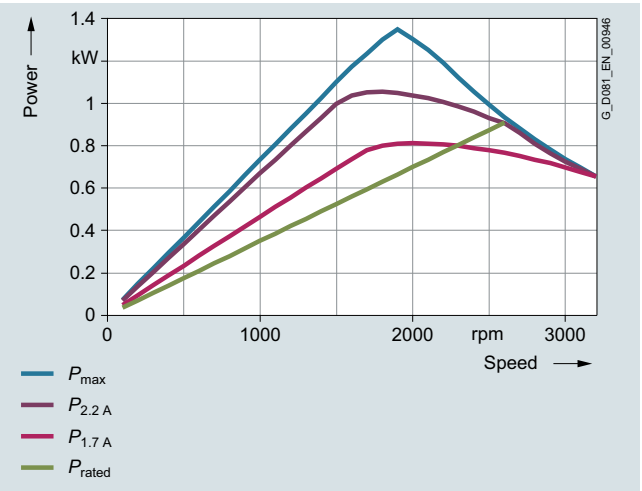
Torque limit for 380 VY (50 Hz characteristic)



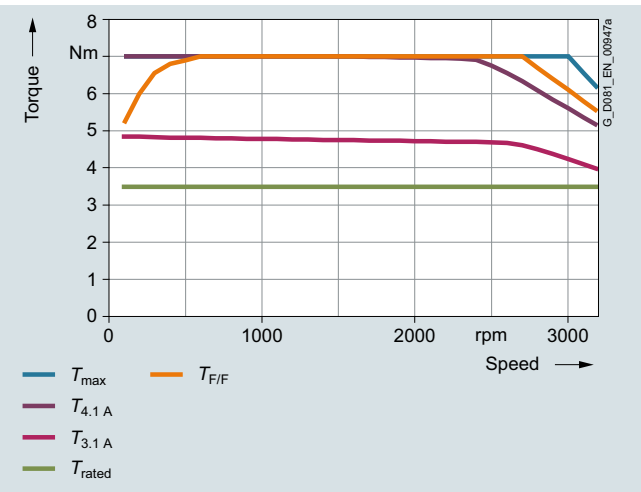
Power limit for 380 VY (50 Hz characteristic)



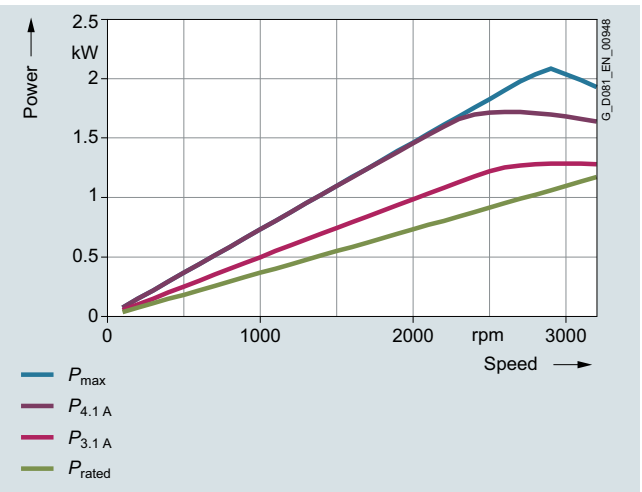
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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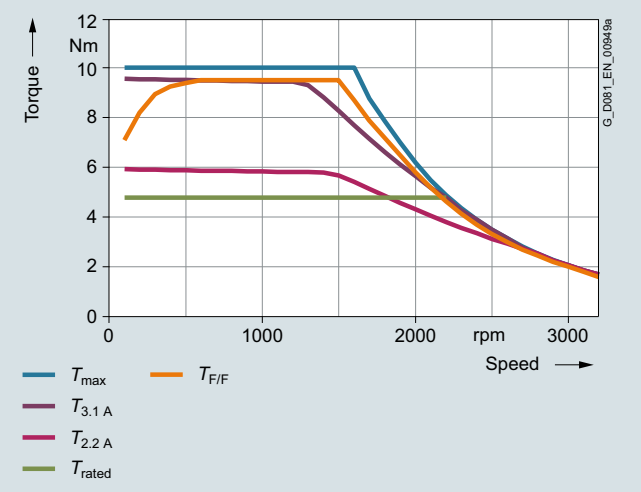
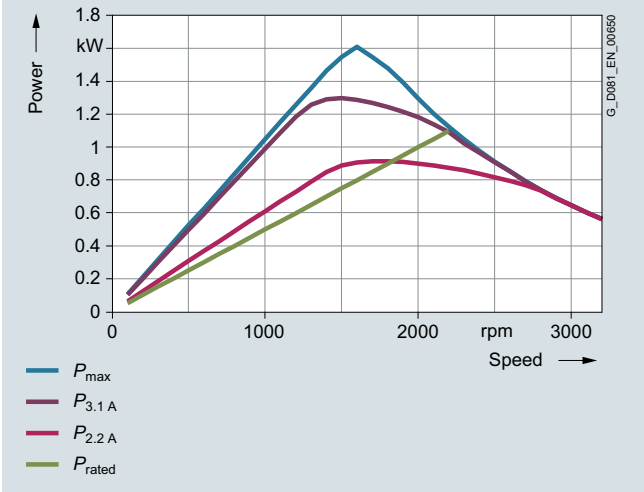
Technical specifications

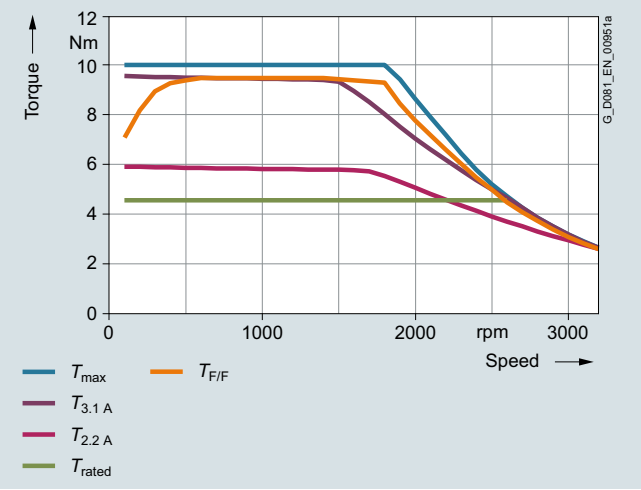
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0DB3 motor, frame size 80 with the particular motor voltage and circuit:



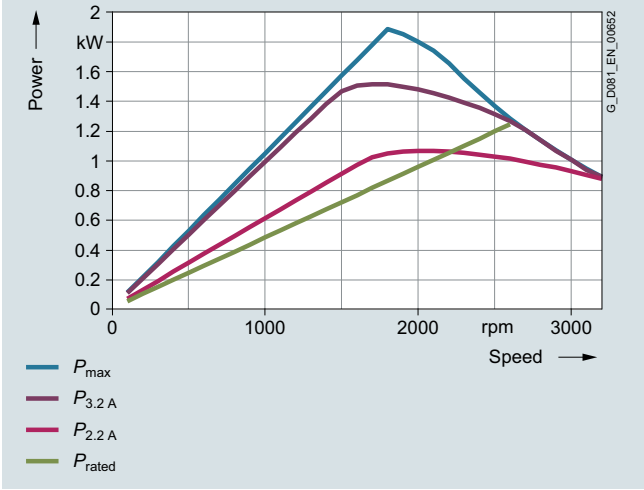
Torque limit for 380 VY (50 Hz characteristic)



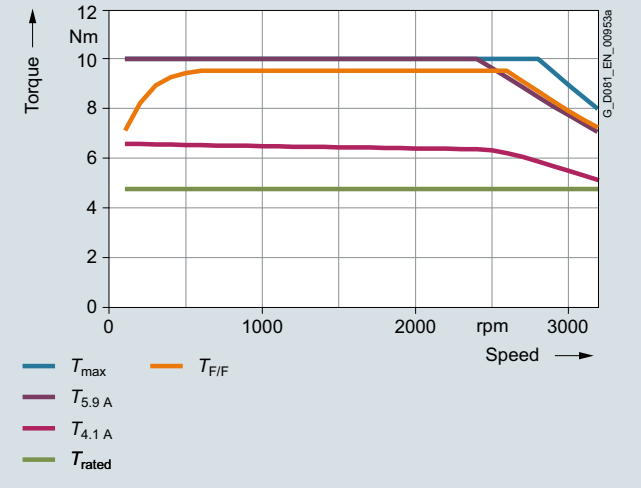
Power limit for 380 VY (50 Hz characteristic)



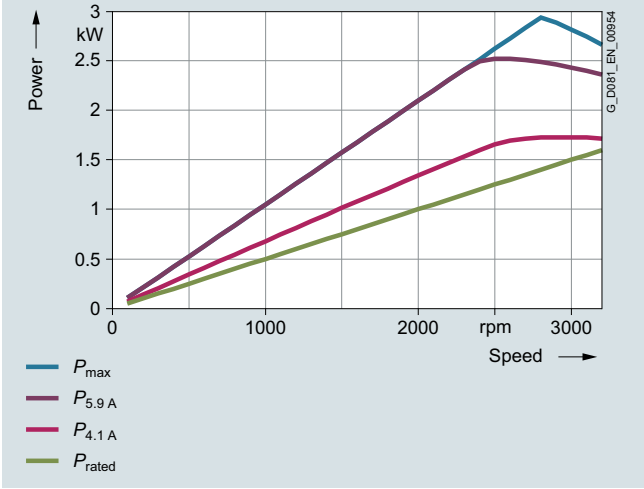
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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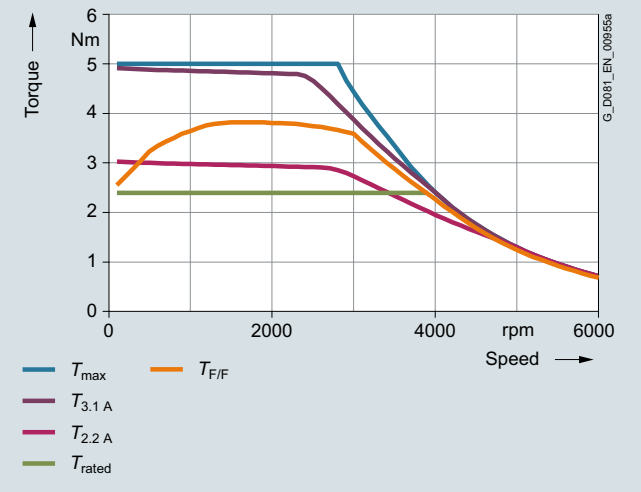
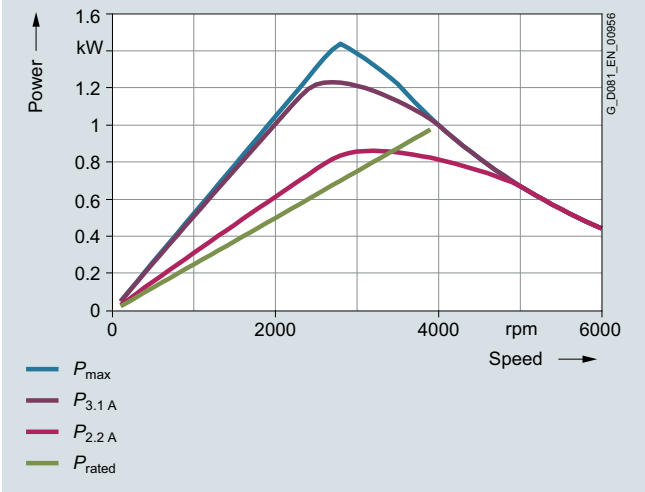
Technical specifications

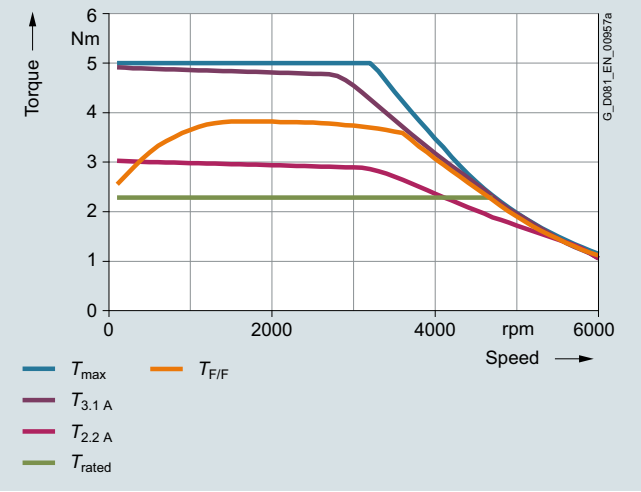
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0DF2 motor, frame size 80 with the particular motor voltage and circuit:



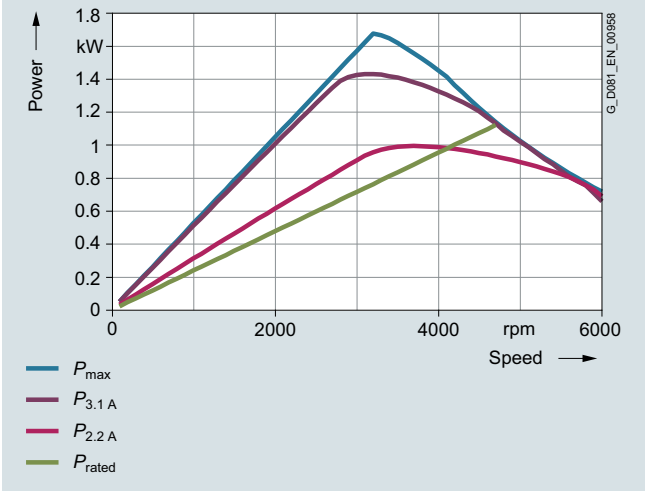
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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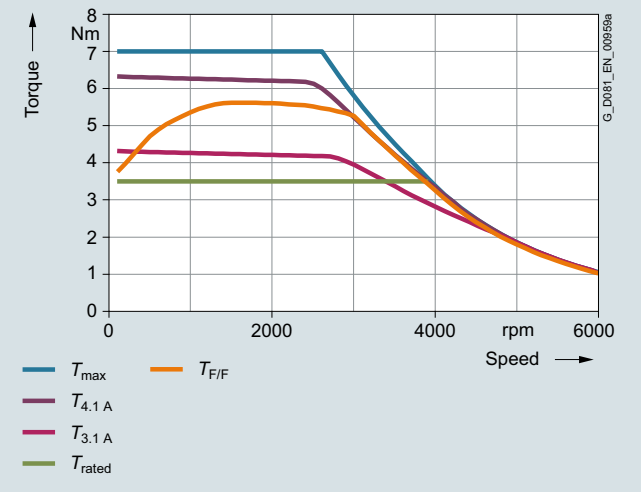
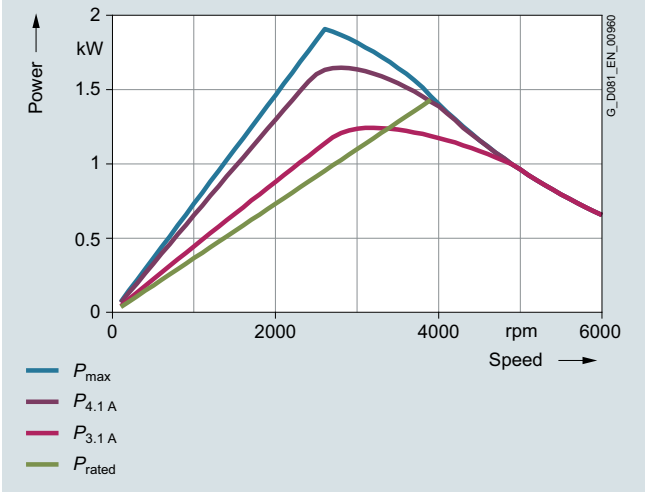
Technical specifications

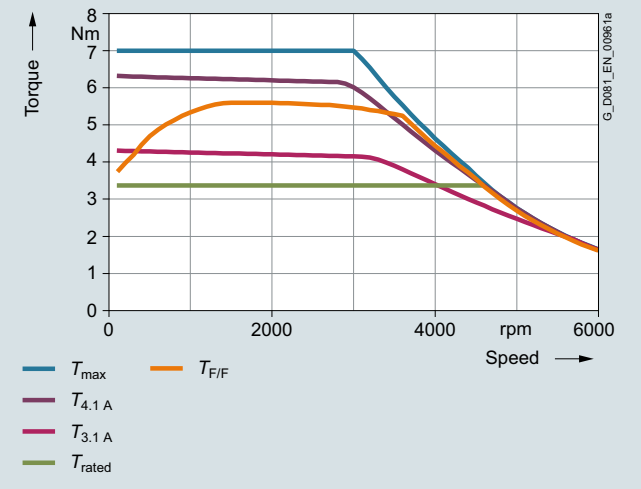
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0DF3 motor, frame size 80 with the particular motor voltage and circuit:



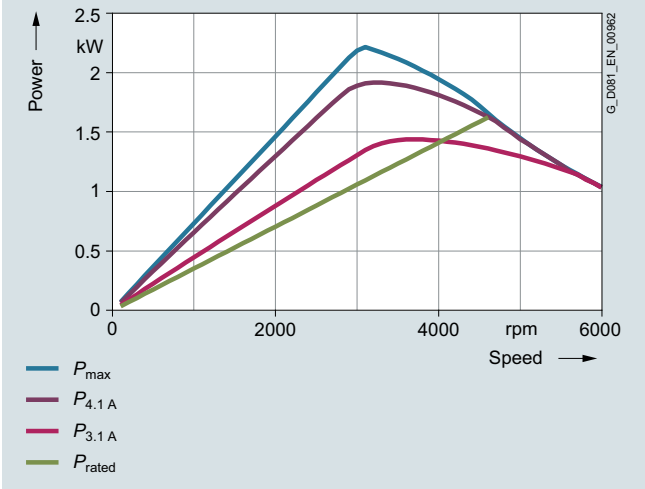
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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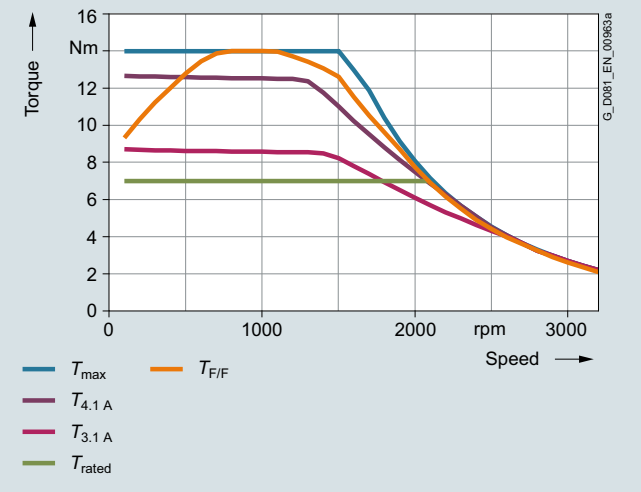
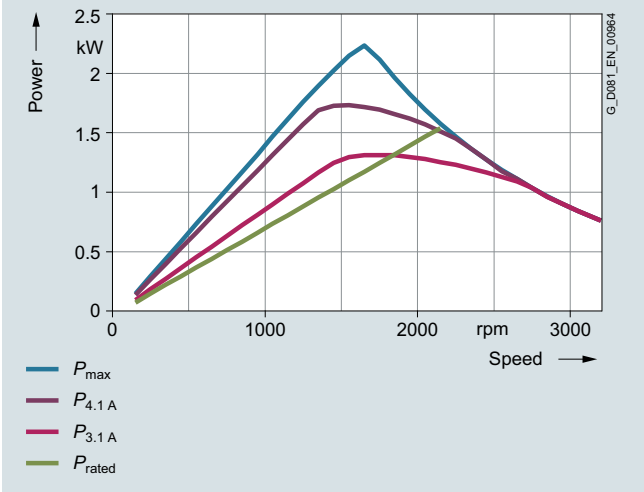
Technical specifications

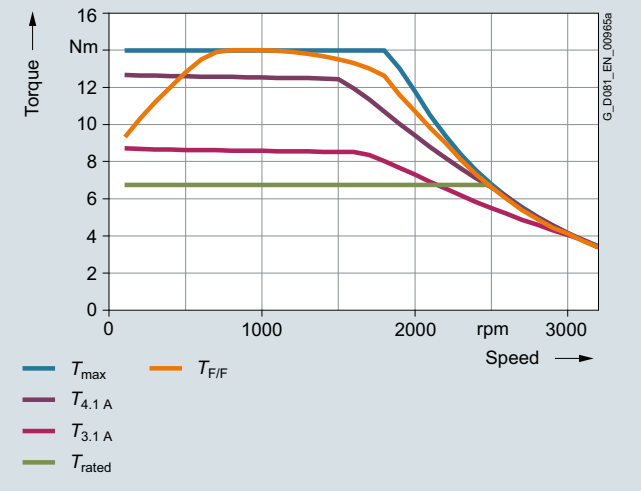
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0EB0 motor, frame size 90 with the particular motor voltage and circuit:



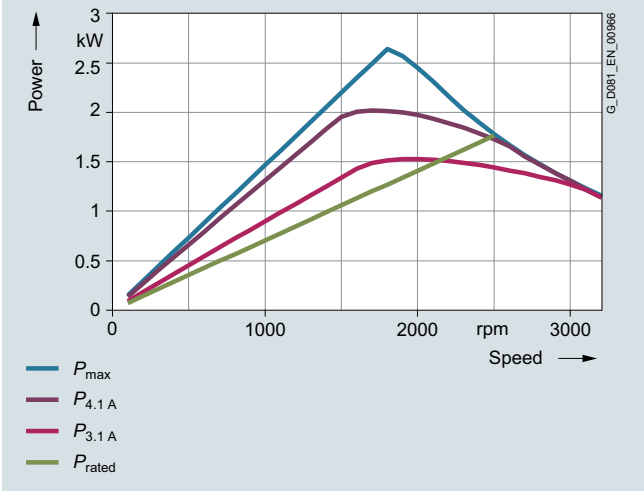
Torque limit for 380 VY (50 Hz characteristic)



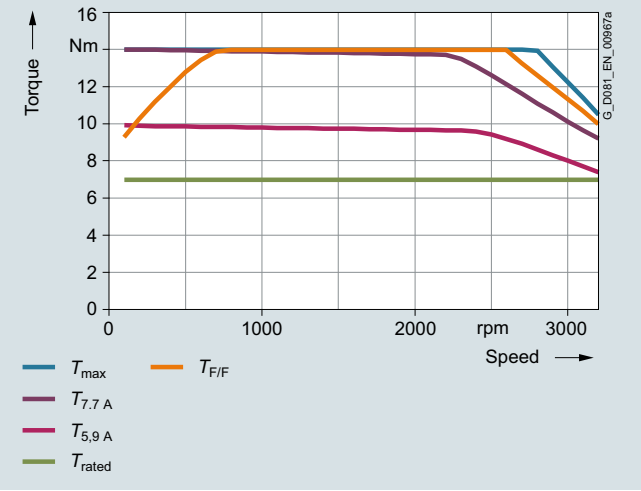
Power limit for 380 VY (50 Hz characteristic)



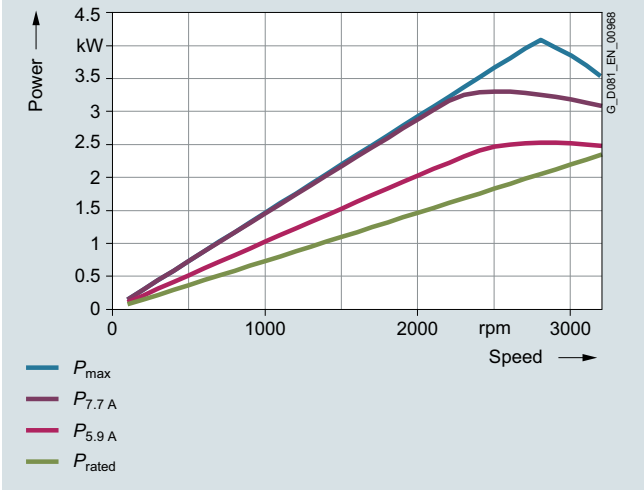
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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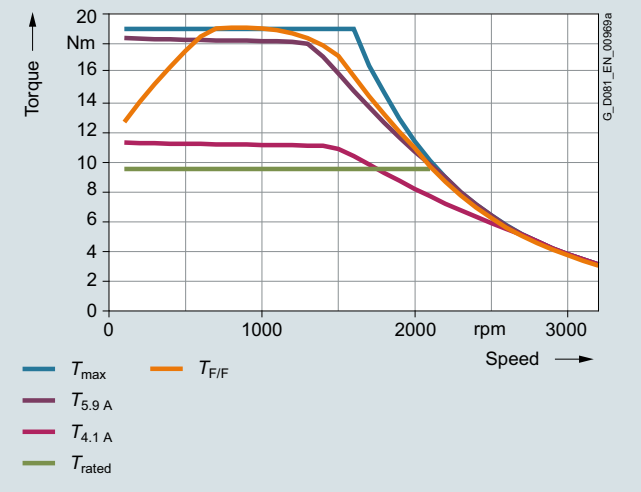
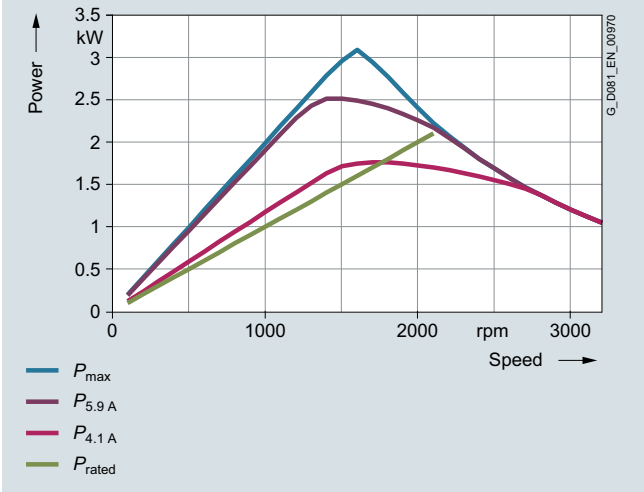
Technical specifications

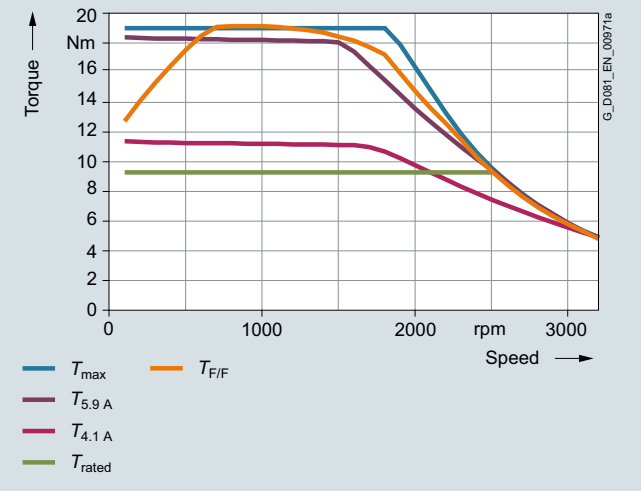
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0EB4 motor, frame size 90 with the particular motor voltage and circuit:



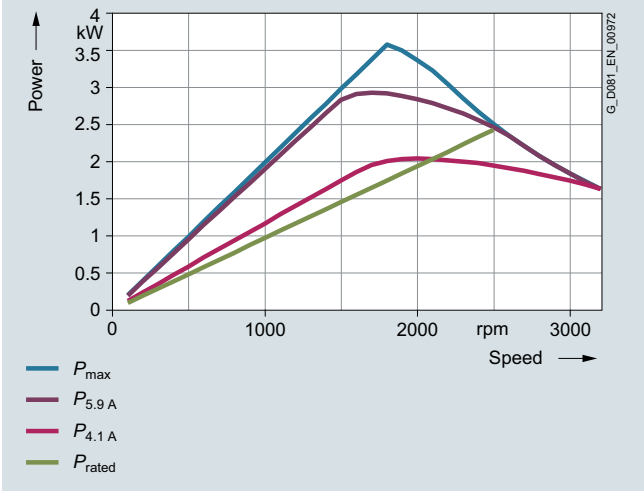
Torque limit for 380 VY (50 Hz characteristic)



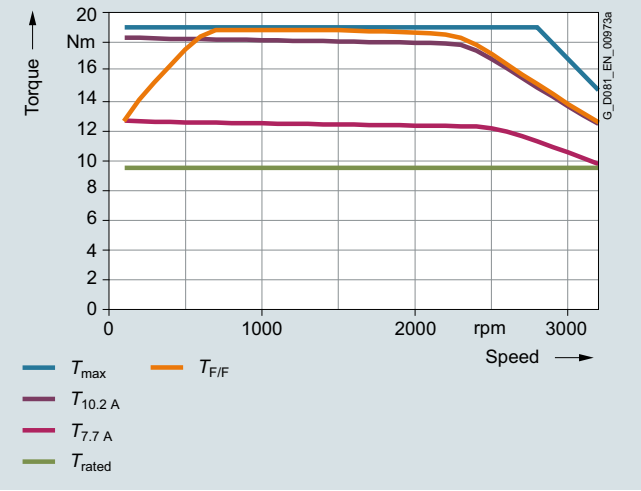
Power limit for 380 VY (50 Hz characteristic)



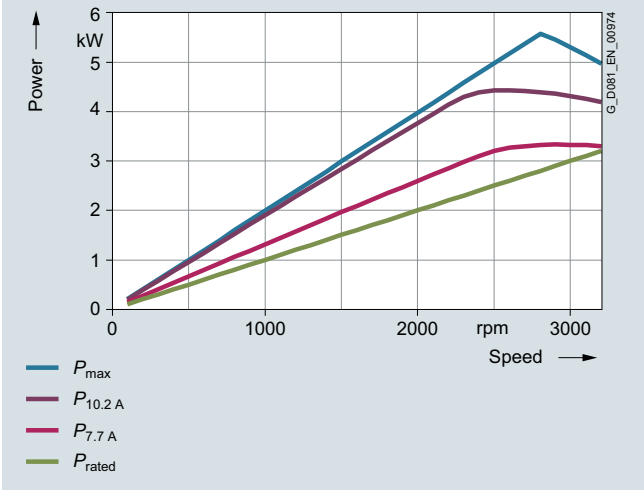
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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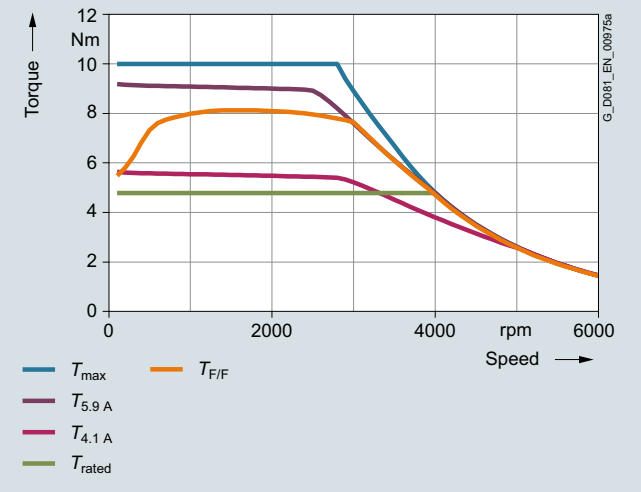
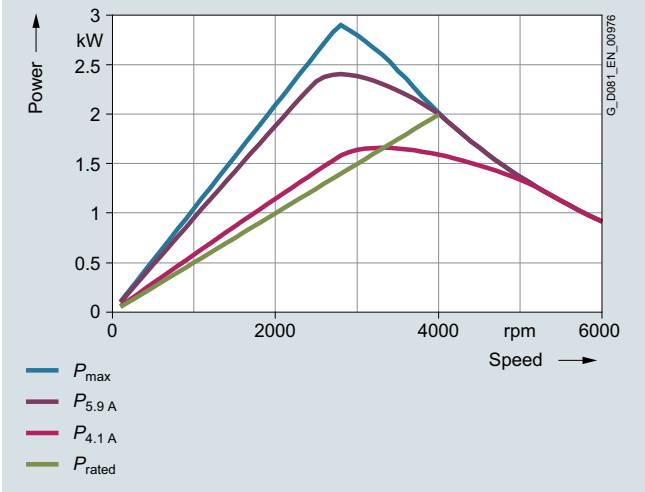
Technical specifications

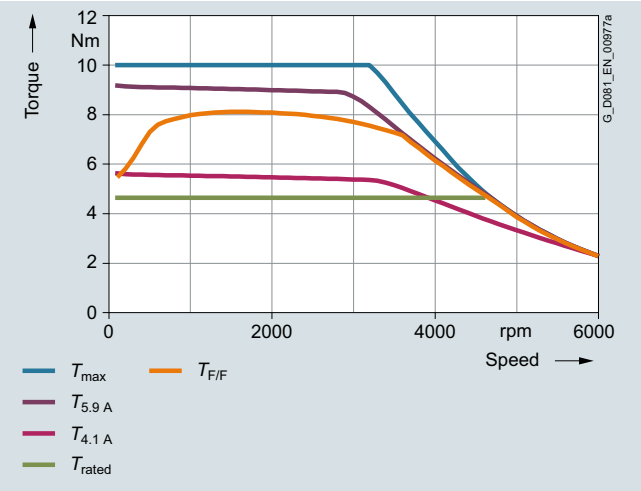
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0EF0 motor, frame size 90 with the particular motor voltage and circuit:



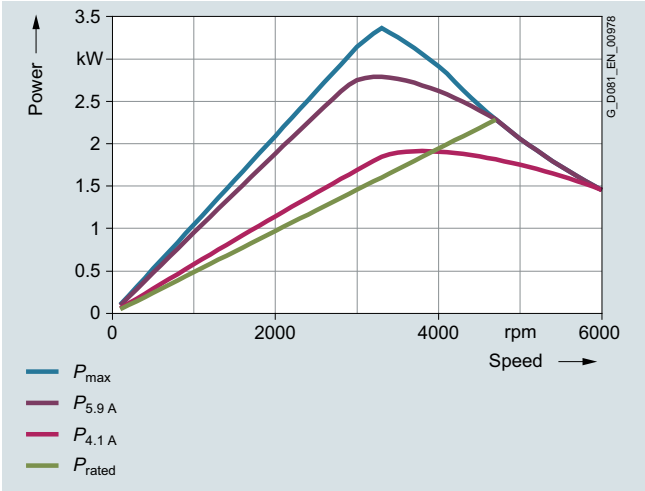
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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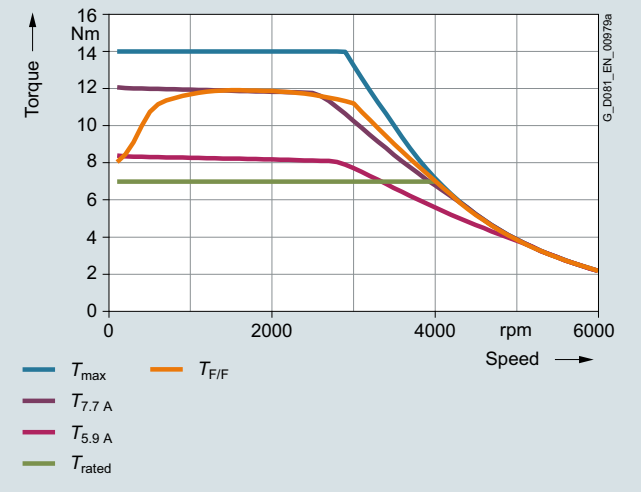
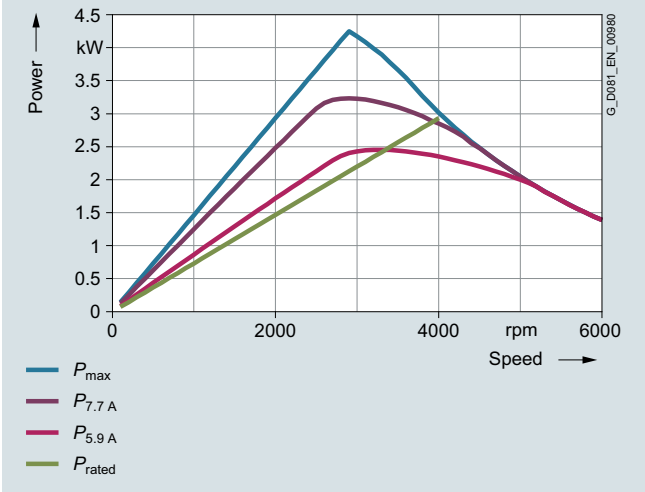
Technical specifications

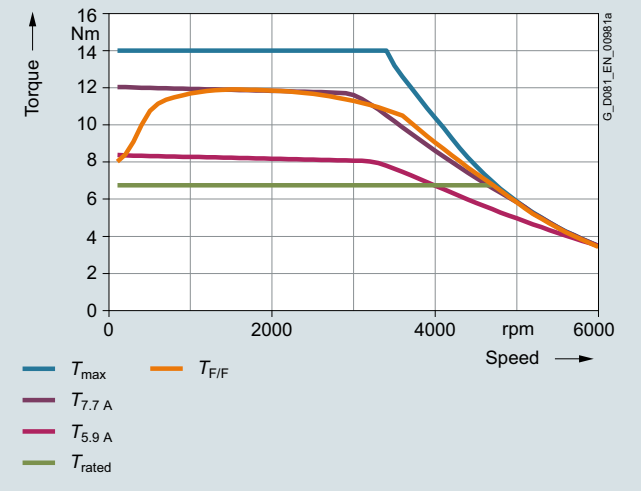
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-0EF4 motor, frame size 90 with the particular motor voltage and circuit:



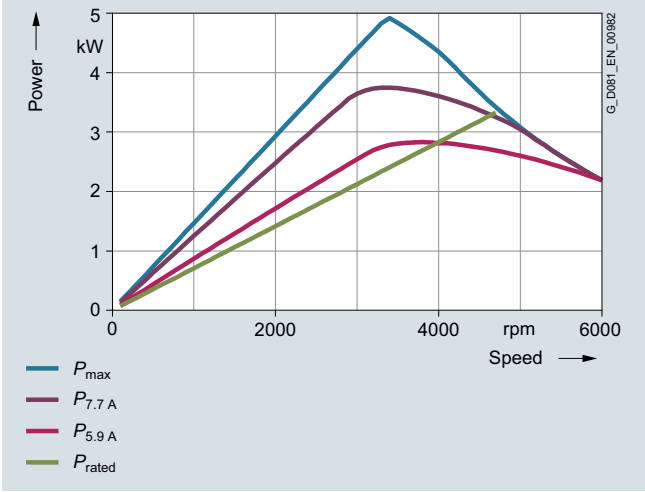
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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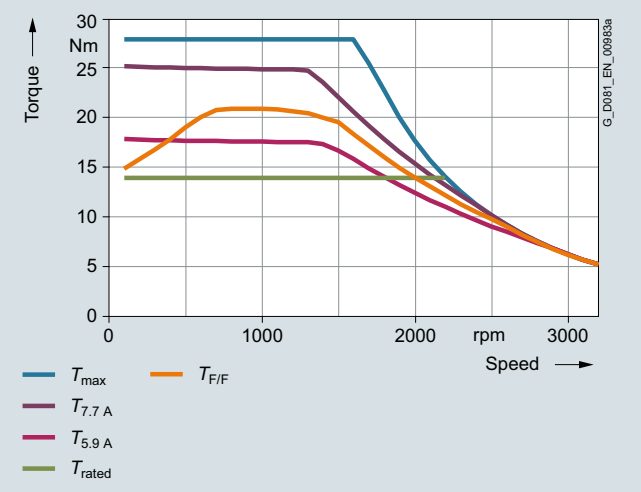
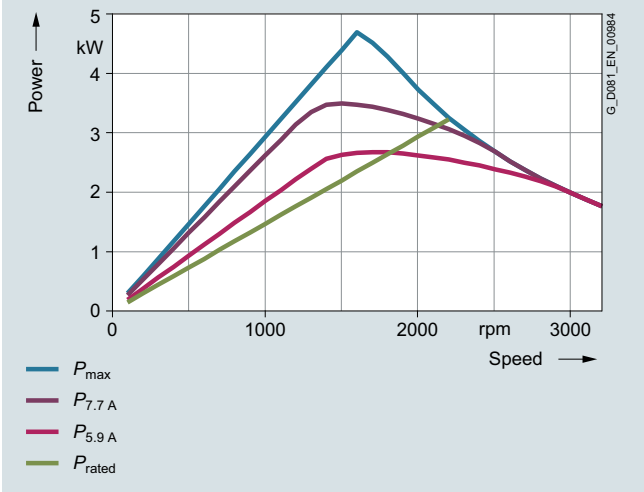
Technical specifications

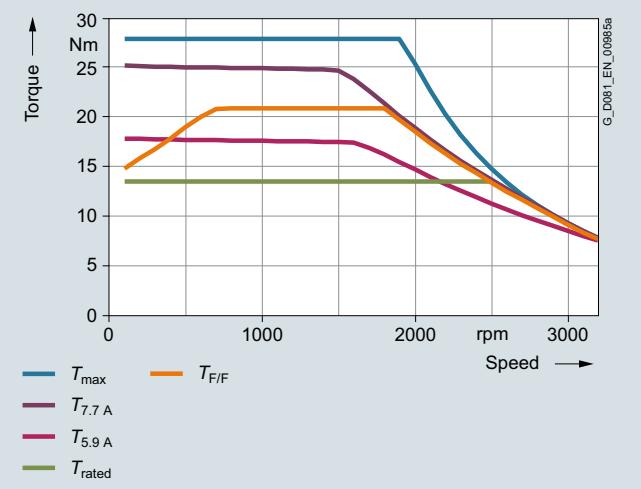
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1BB0 motor, frame size 112 with the particular motor voltage and circuit:



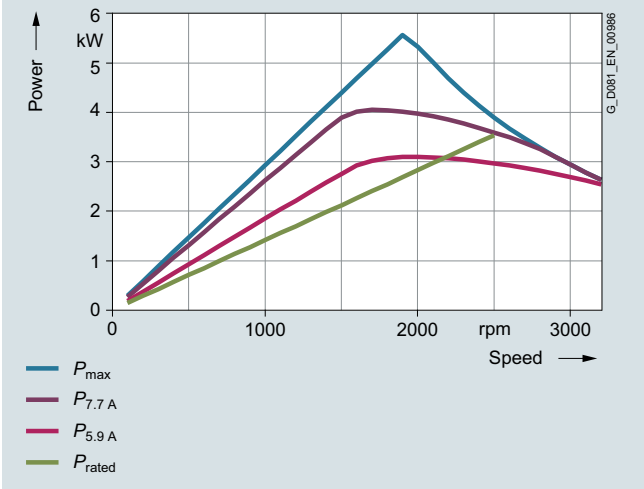
Torque limit for 380 VY (50 Hz characteristic)



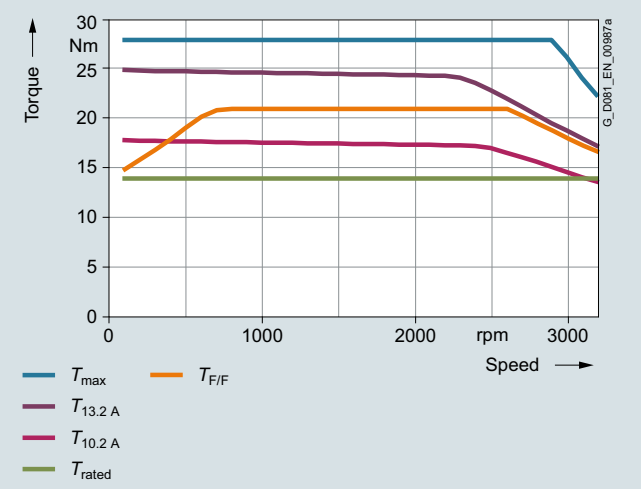
Power limit for 380 VY (50 Hz characteristic)



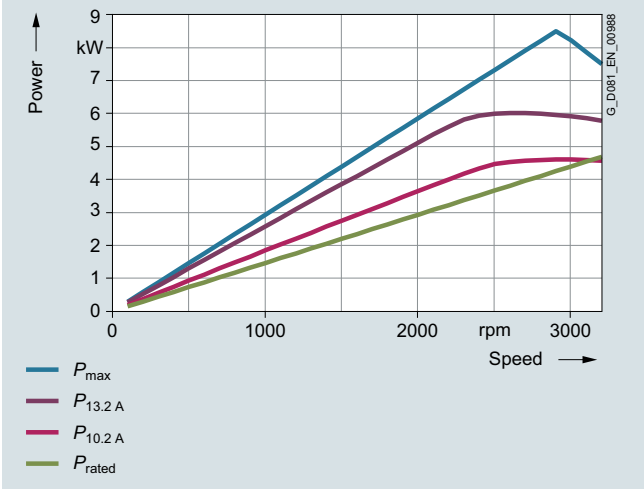
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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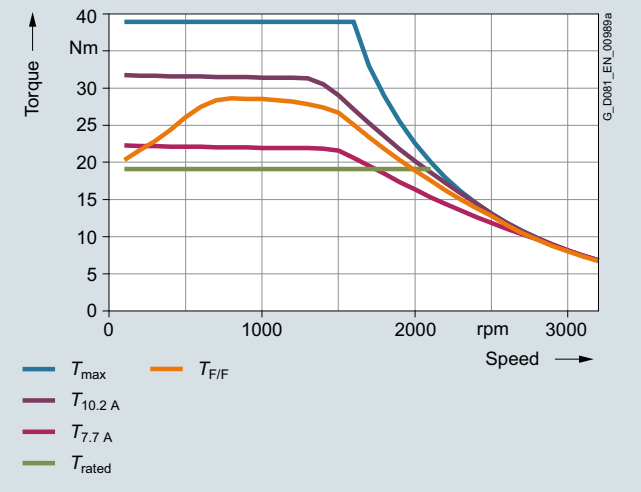
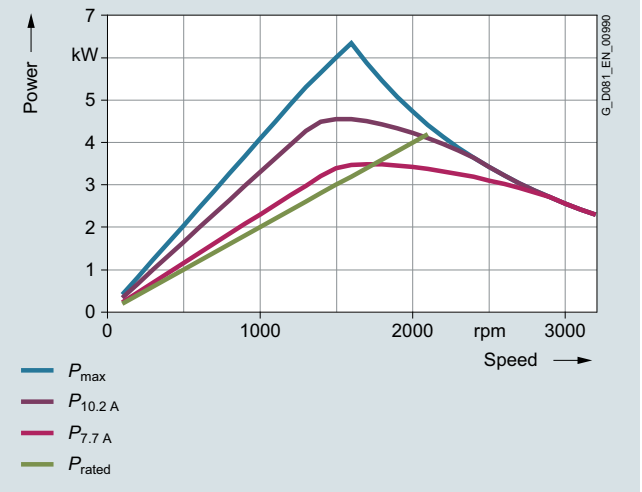
Technical specifications

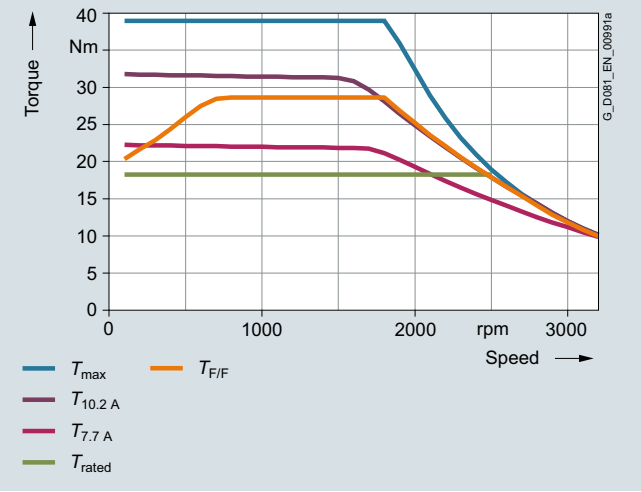
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1BB1 motor, frame size 112 with the particular motor voltage and circuit:



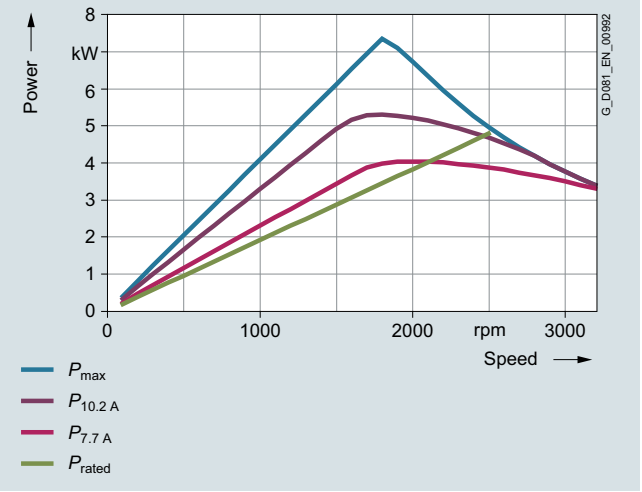
Torque limit for 380 VY (50 Hz characteristic)



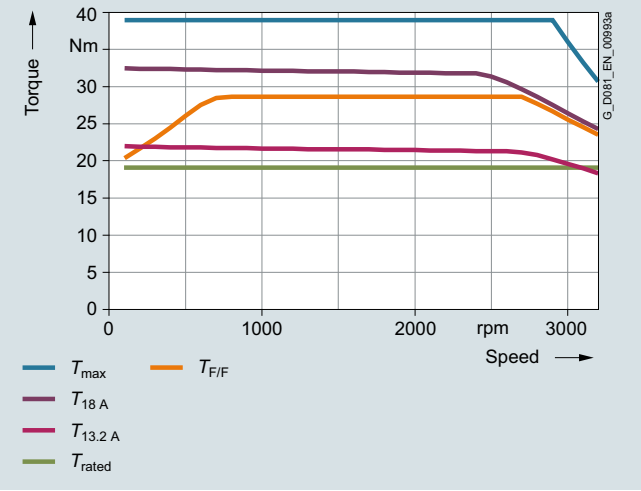
Power limit for 380 VY (50 Hz characteristic)



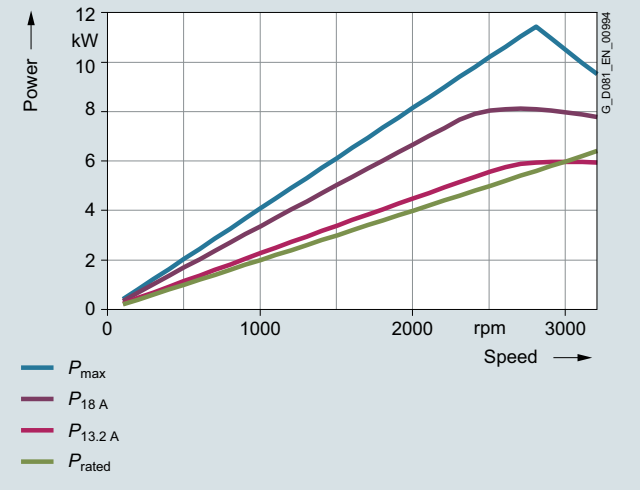
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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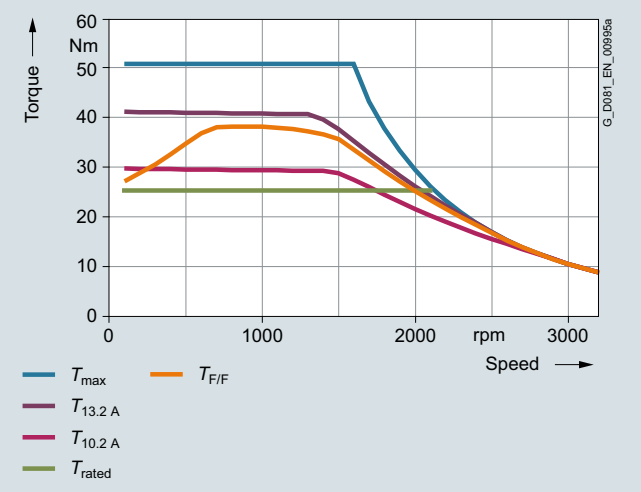
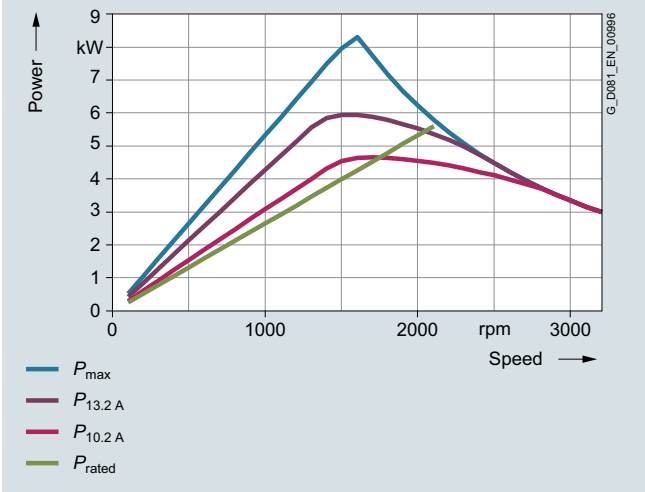
Technical specifications

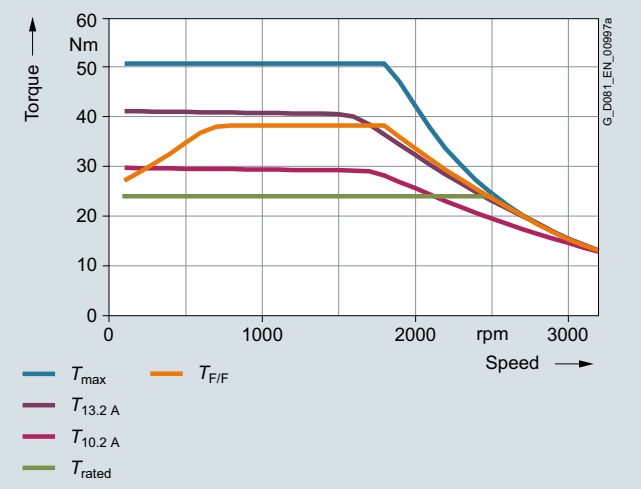
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1BB2 motor, frame size 112 with the particular motor voltage and circuit:



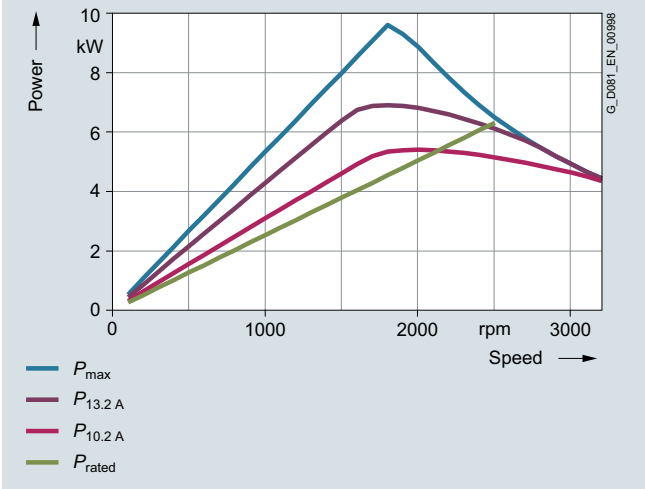
Torque limit for 380 VY (50 Hz characteristic)



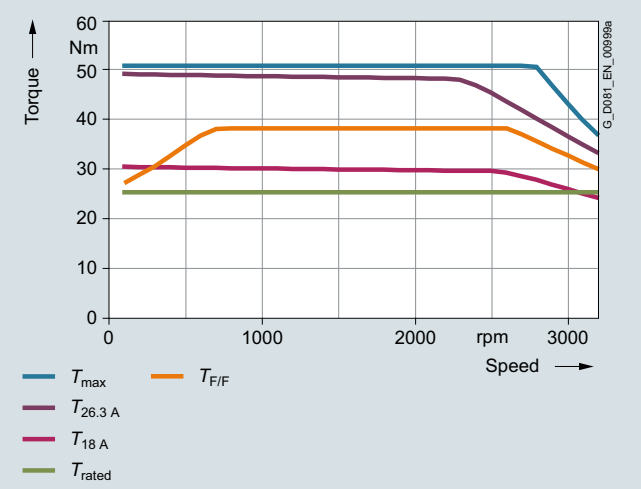
Power limit for 380 VY (50 Hz characteristic)



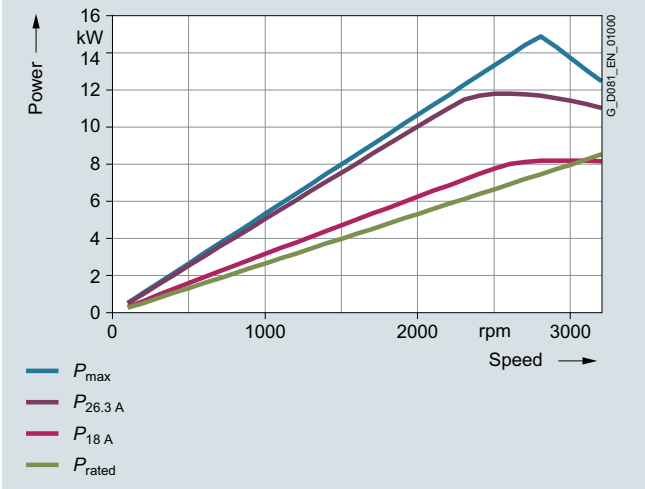
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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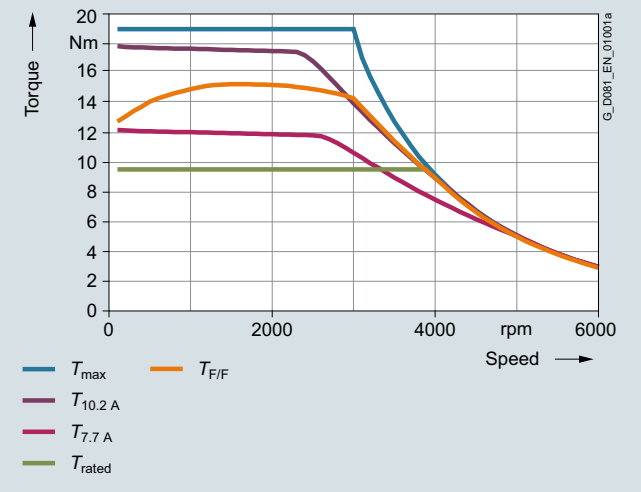
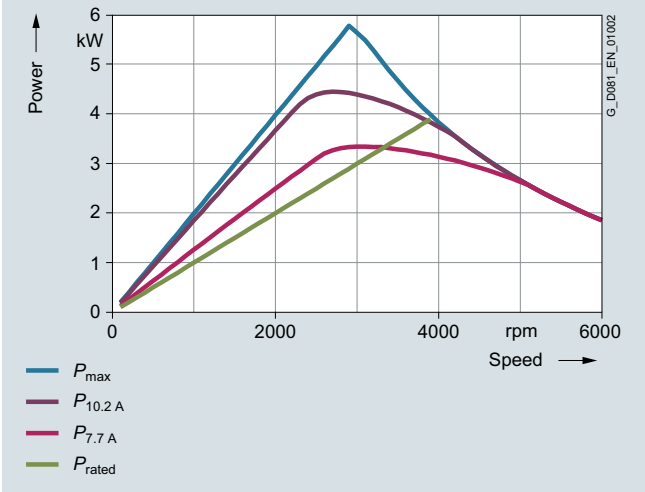
Technical specifications

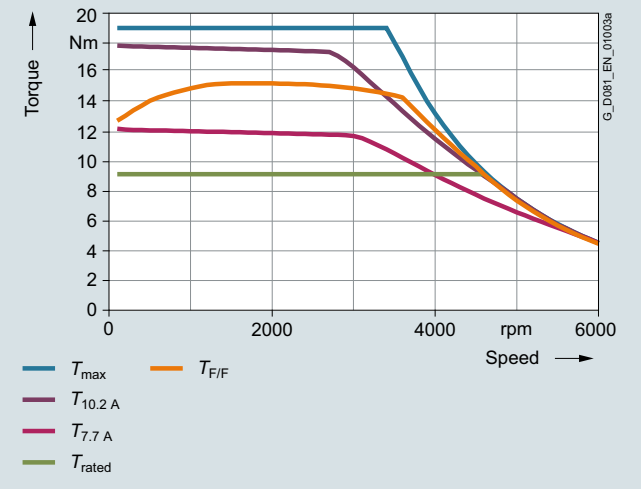
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-1BF1 motor, frame size 112 with the particular motor voltage and circuit:



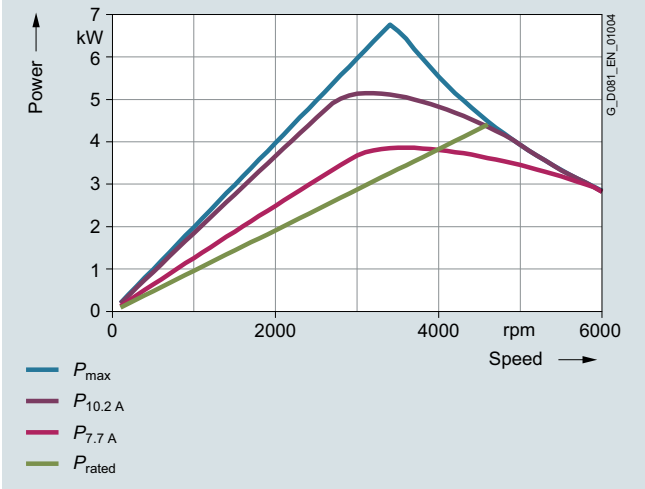
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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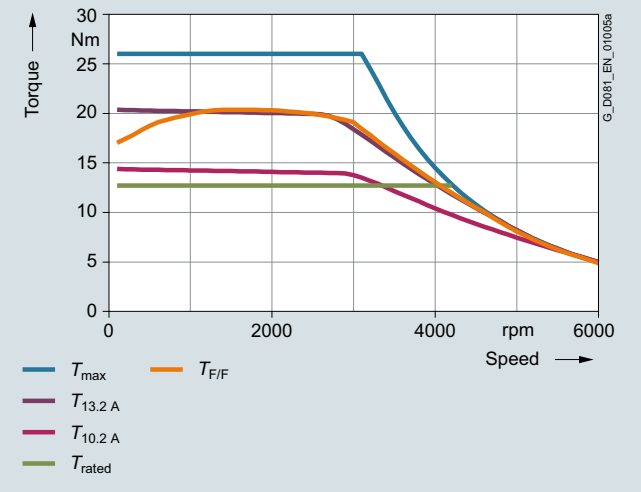
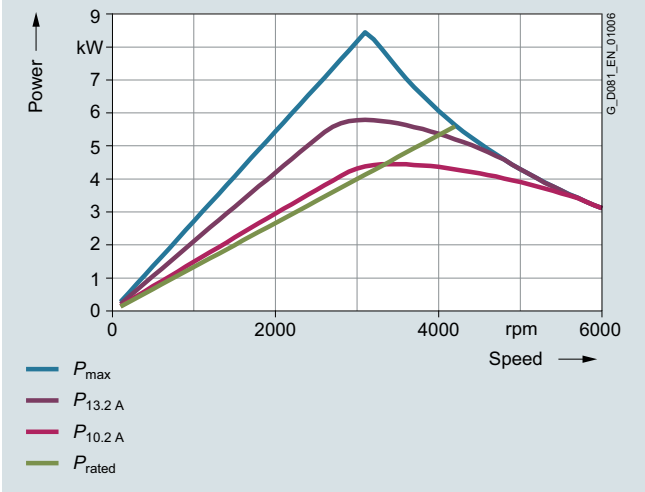
Technical specifications

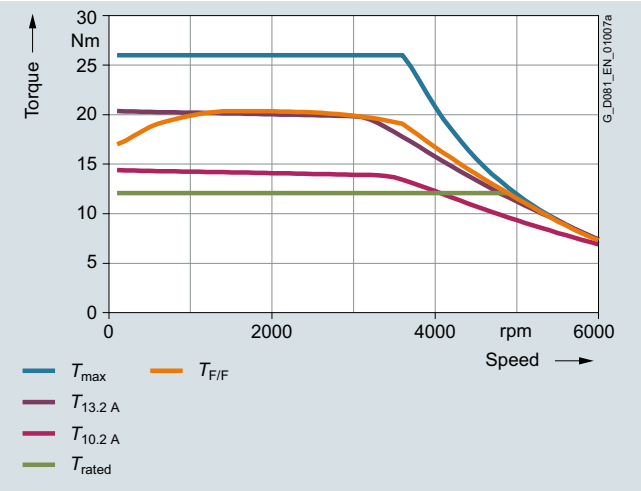
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1BF2 motor, frame size 112 with the particular motor voltage and circuit:



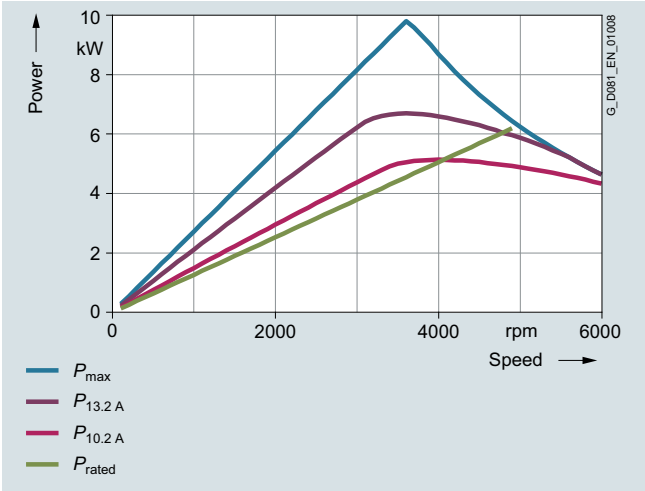
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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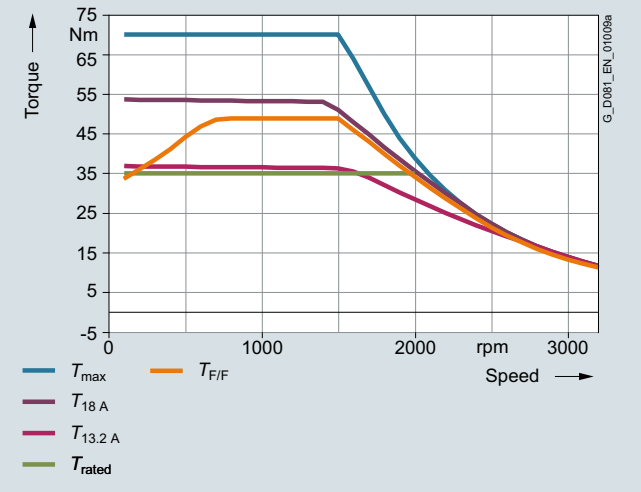
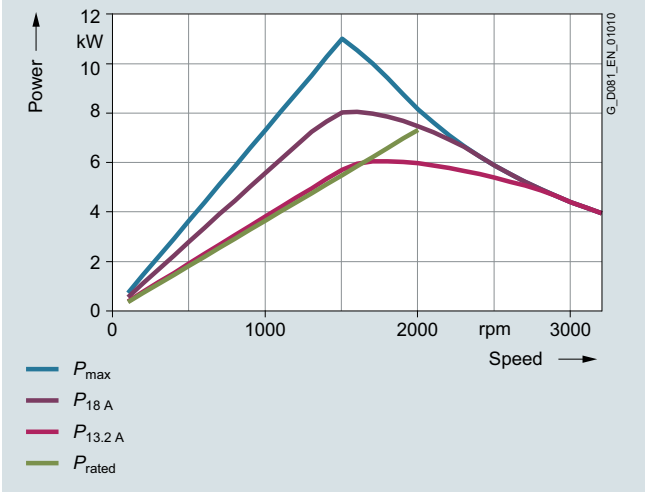
Technical specifications

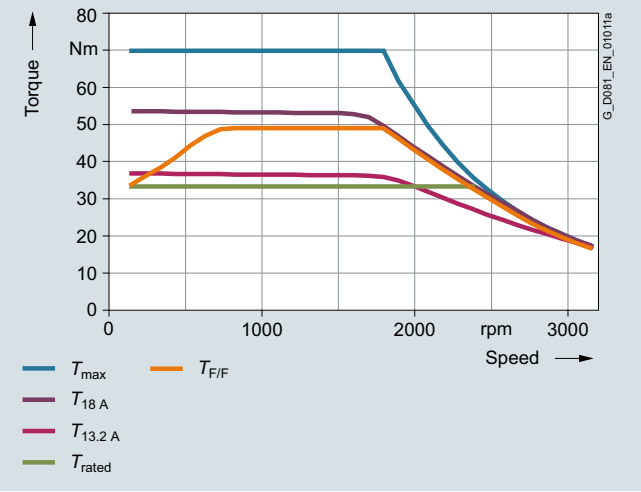
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1CB0 motor, frame size 132 with the particular motor voltage and circuit:



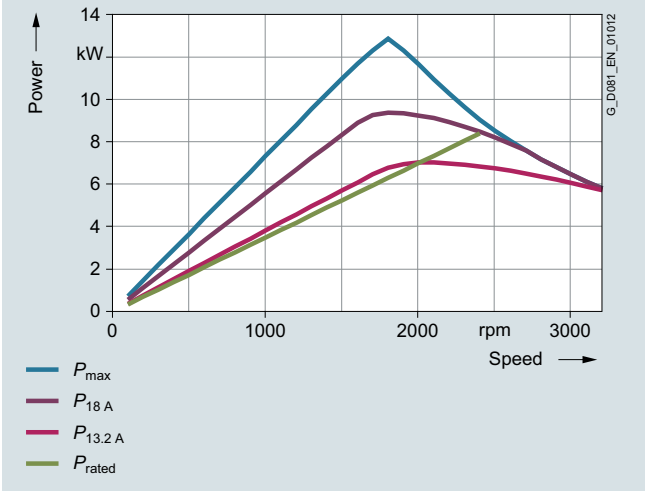
Torque limit for 380 VY (50 Hz characteristic)



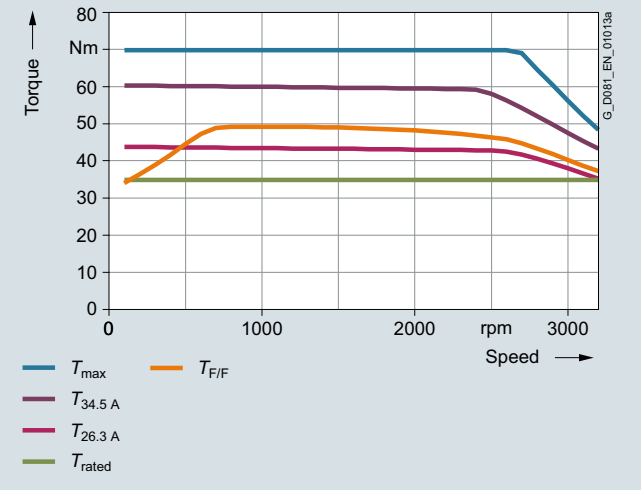
Power limit for 380 VY (50 Hz characteristic)



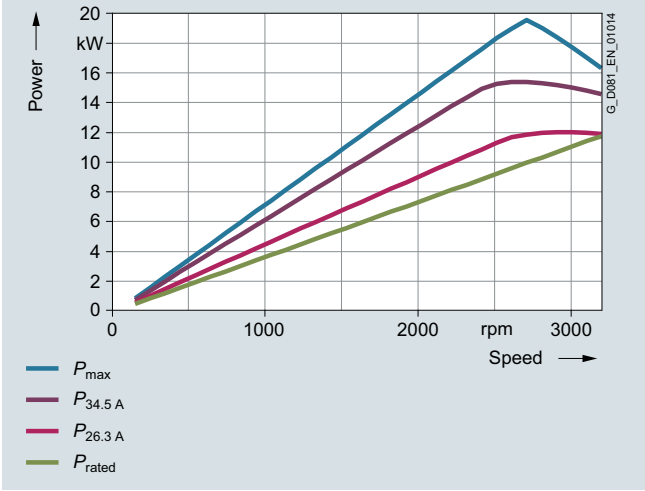
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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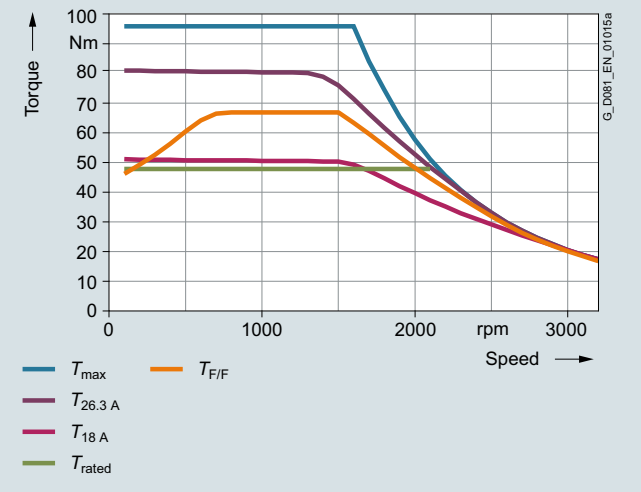
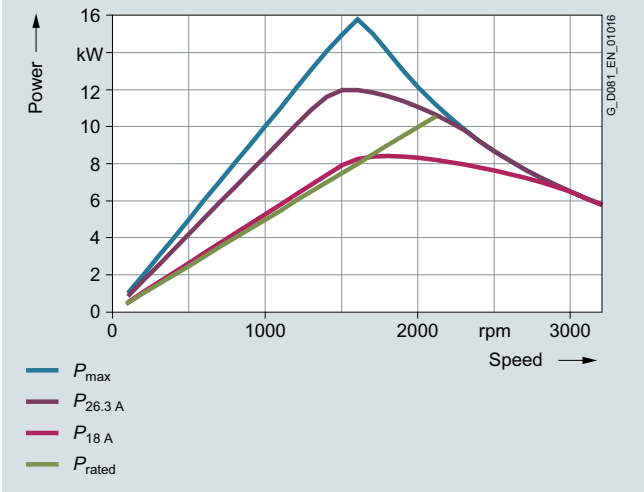
Technical specifications

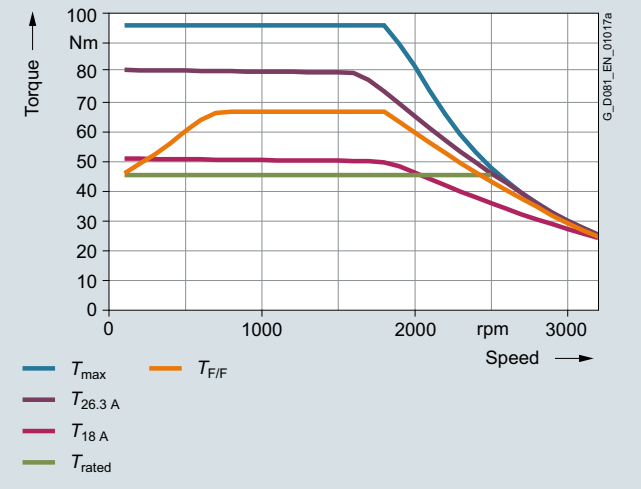
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1CB2 motor, frame size 132 with the particular motor voltage and circuit:



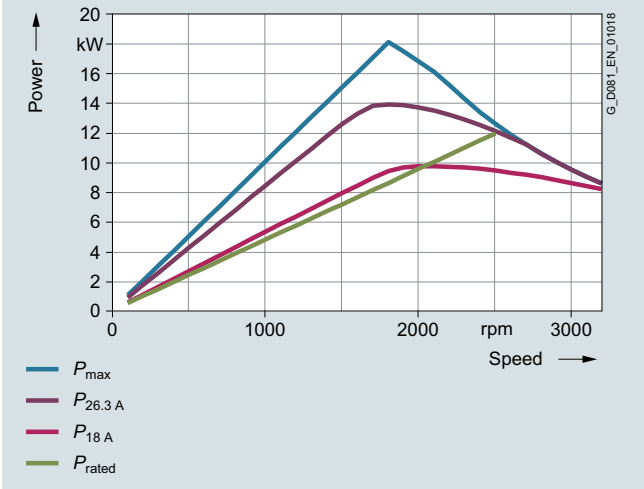
Torque limit for 380 VY (50 Hz characteristic)



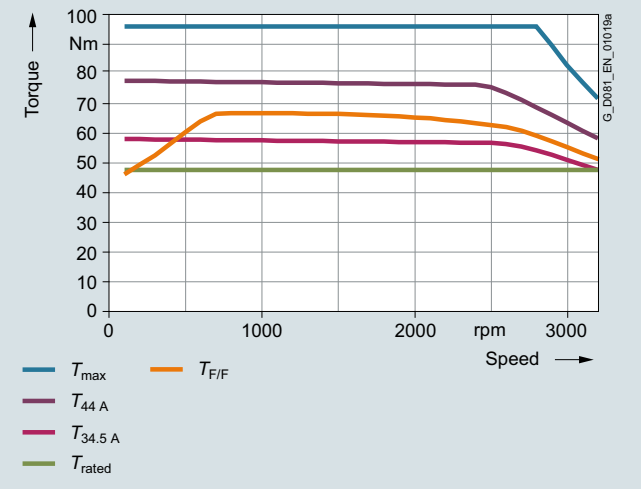
Power limit for 380 VY (50 Hz characteristic)



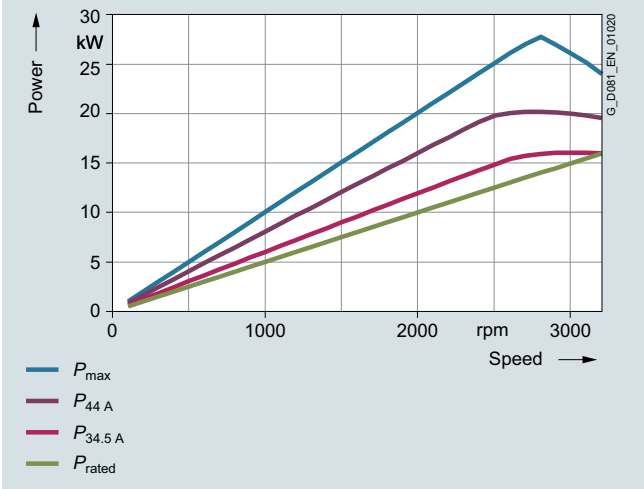
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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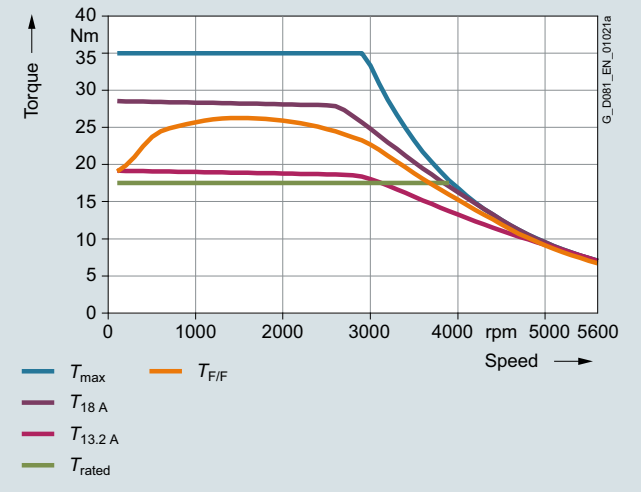
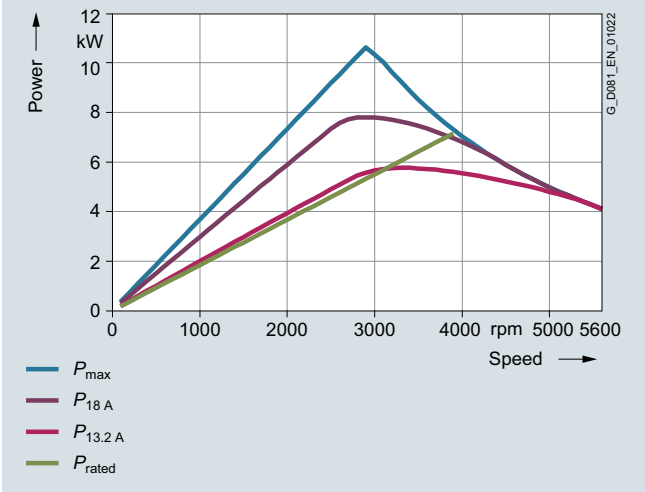
Technical specifications

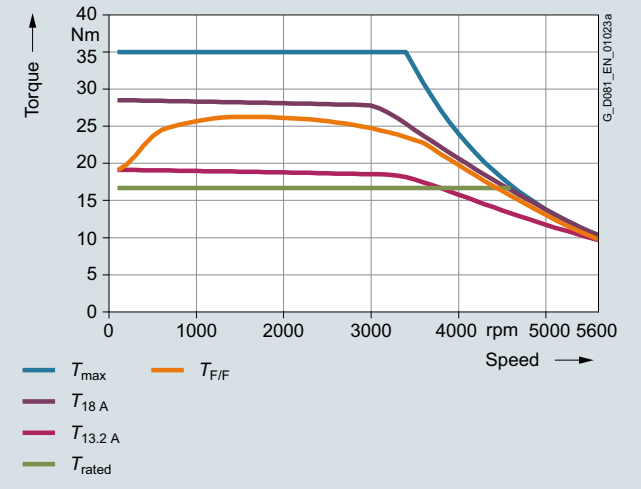
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1CF0 motor, frame size 132 with the particular motor voltage and circuit:



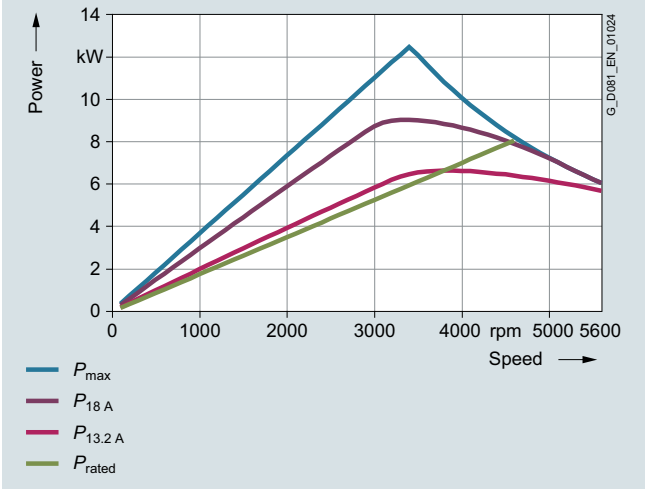
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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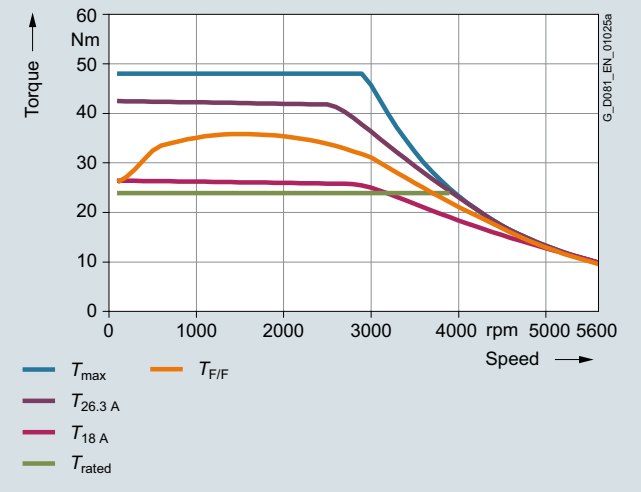
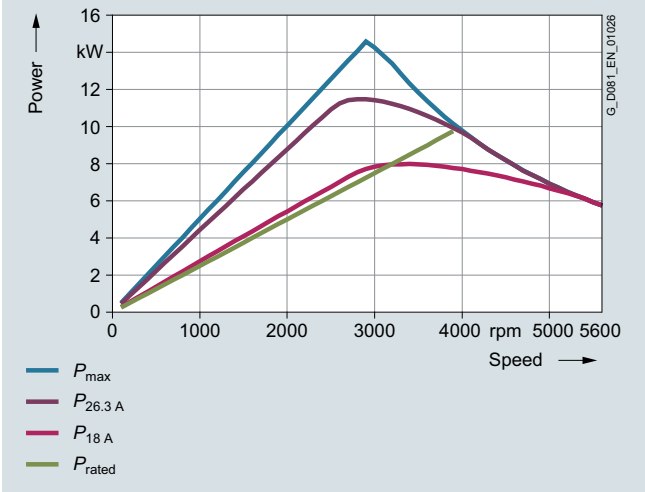
Technical specifications

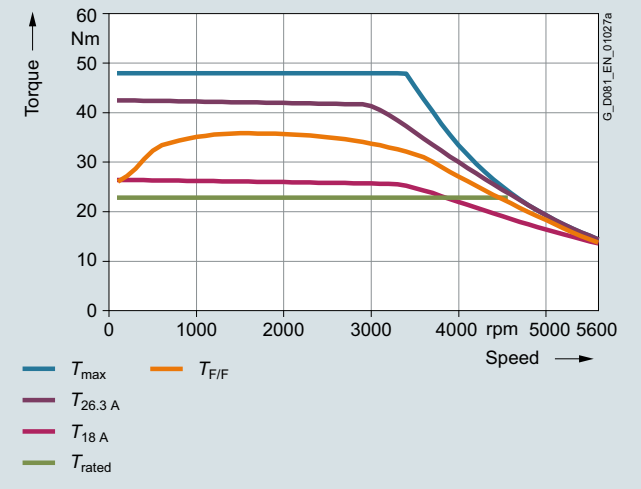
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1CF1 motor, frame size 132 with the particular motor voltage and circuit:



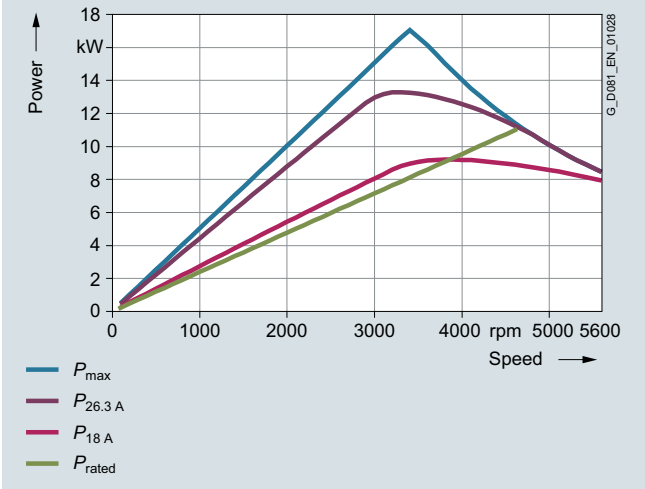
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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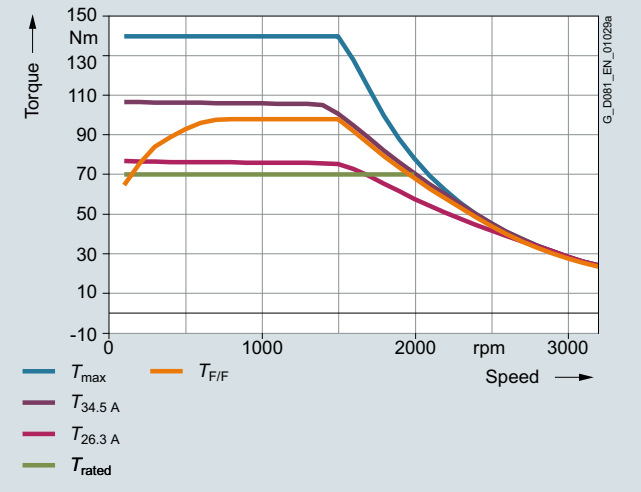
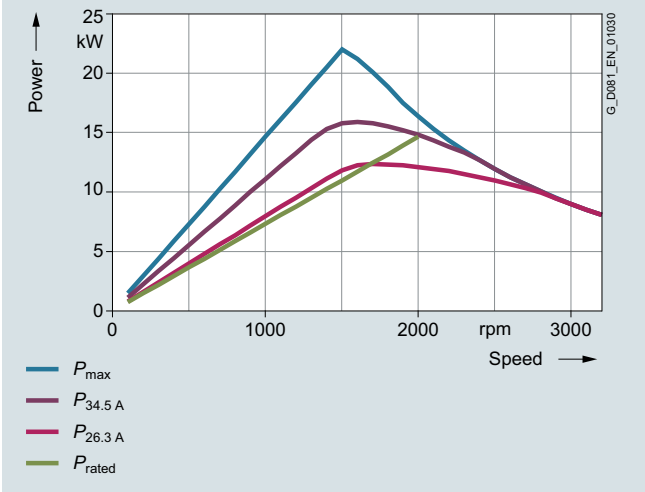
Technical specifications

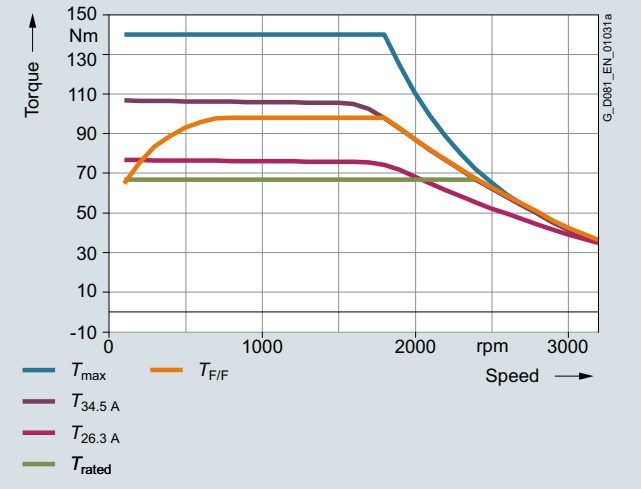
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1DB2 motor, frame size 160 with the particular motor voltage and circuit:



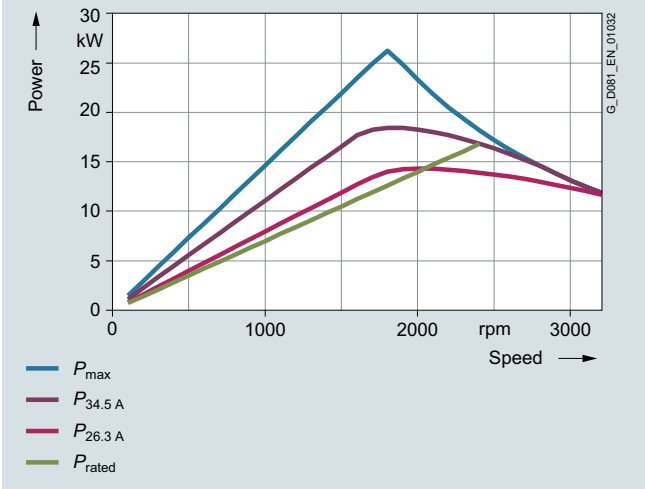
Torque limit for 380 VY (50 Hz characteristic)



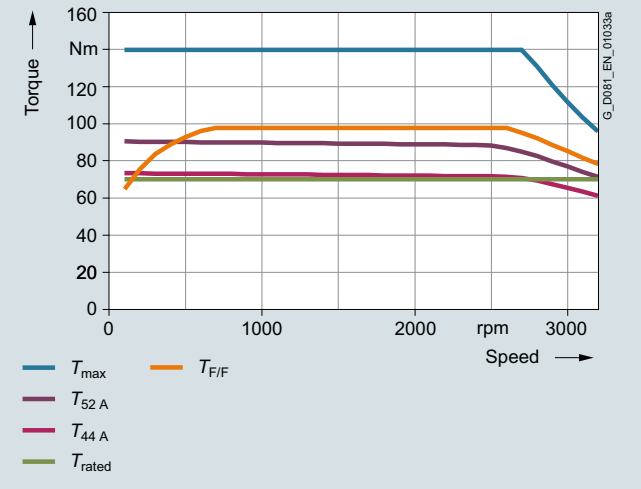
Power limit for 380 VY (50 Hz characteristic)



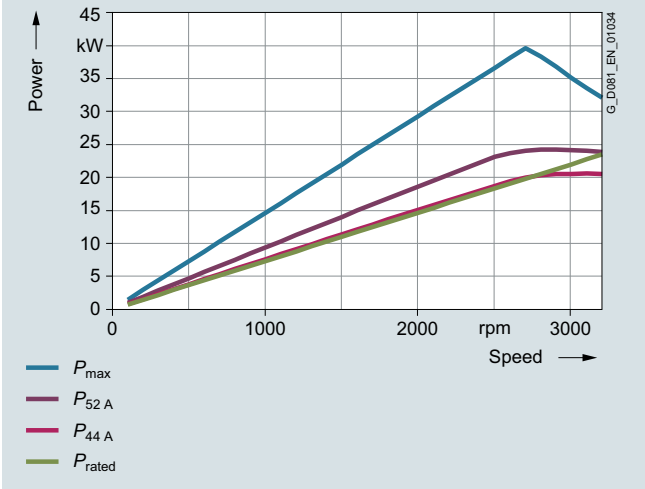
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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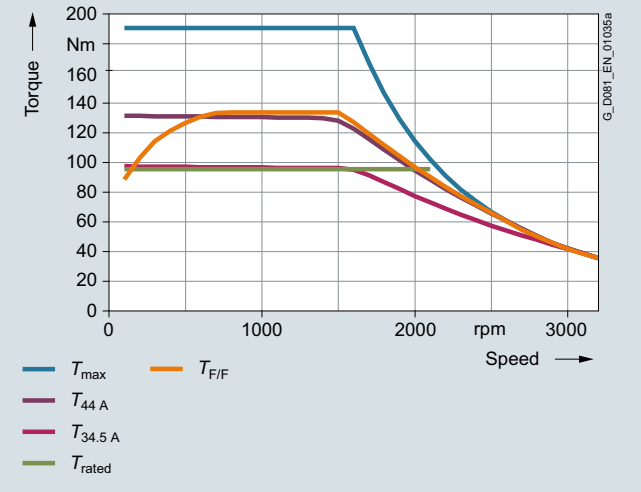
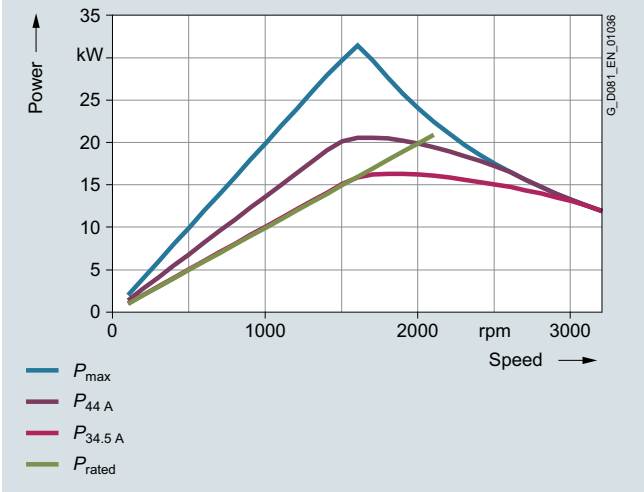
Technical specifications

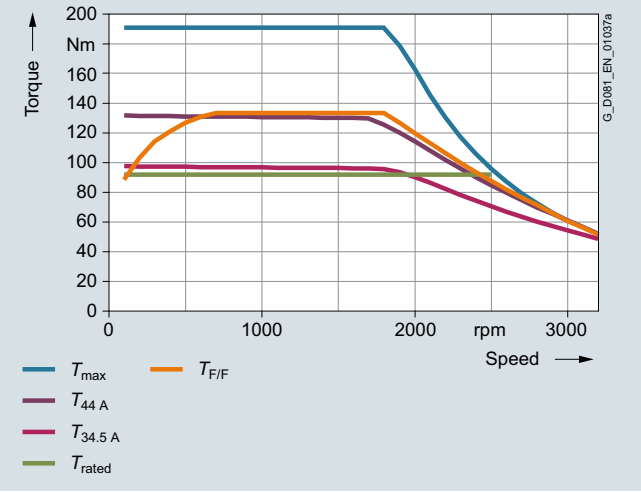
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1DB4 motor, frame size 160 with the particular motor voltage and circuit:



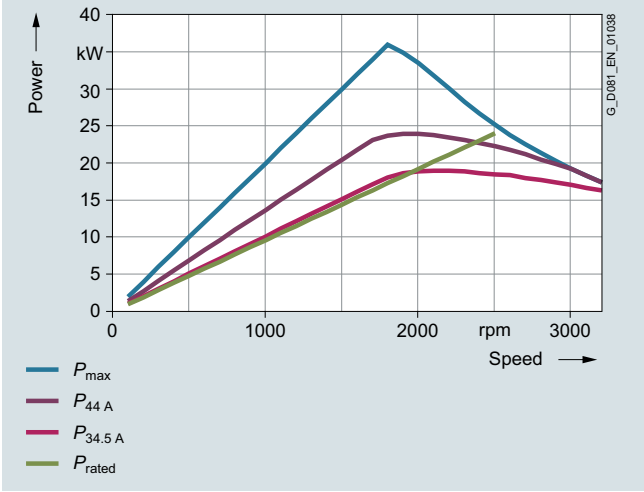
Torque limit for 380 VY (50 Hz characteristic)



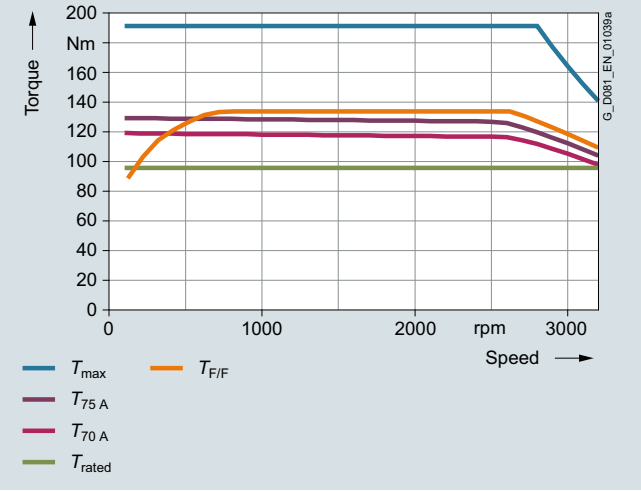
Power limit for 380 VY (50 Hz characteristic)



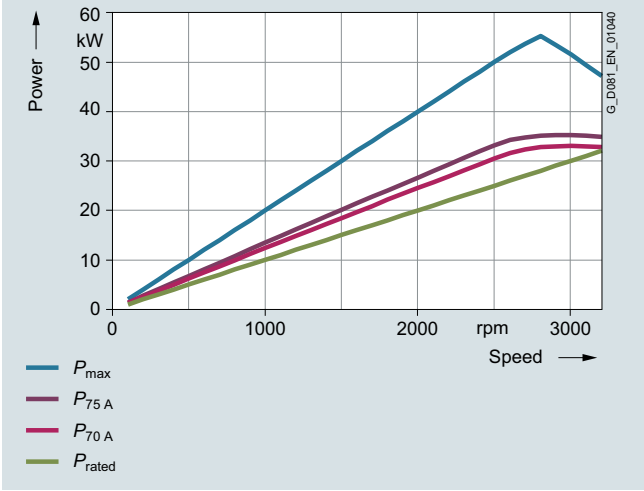
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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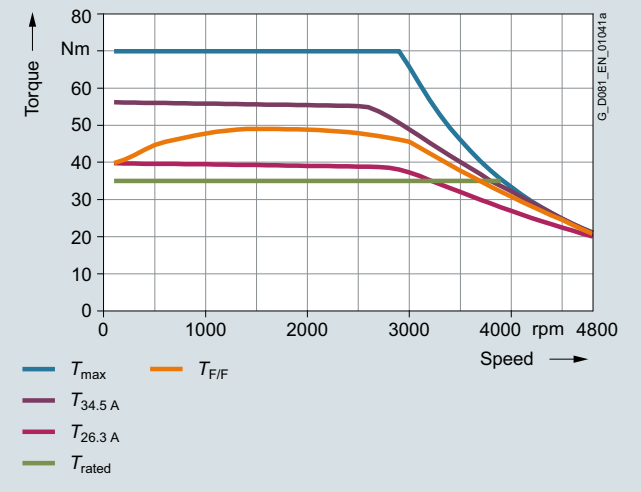
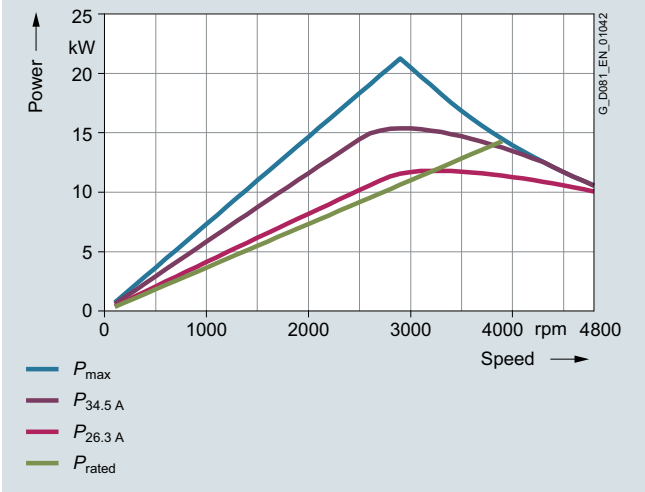
Technical specifications

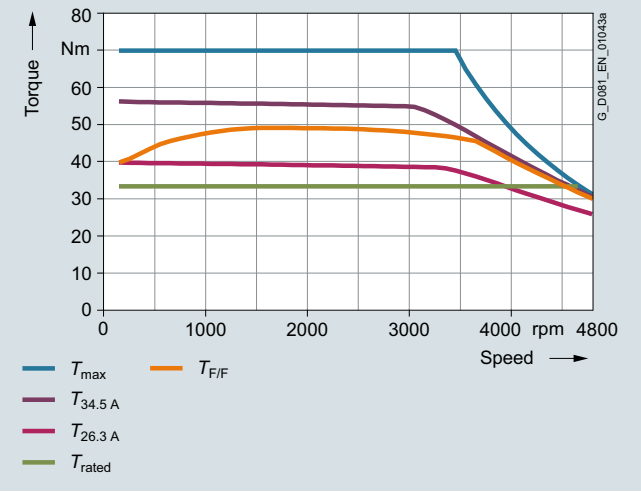
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1DF2 motor, frame size 160 with the particular motor voltage and circuit:



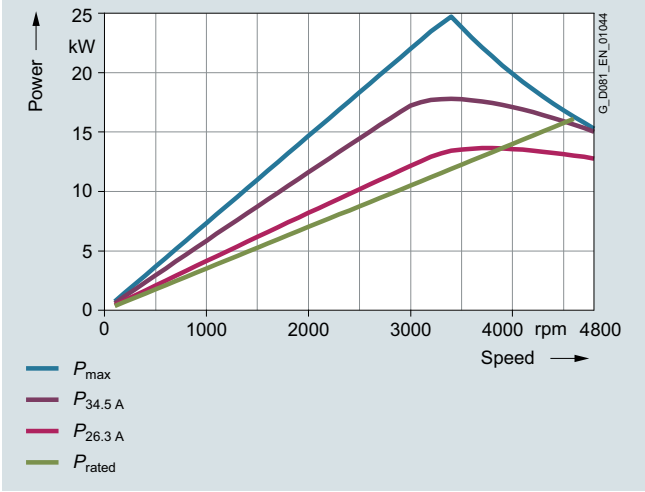
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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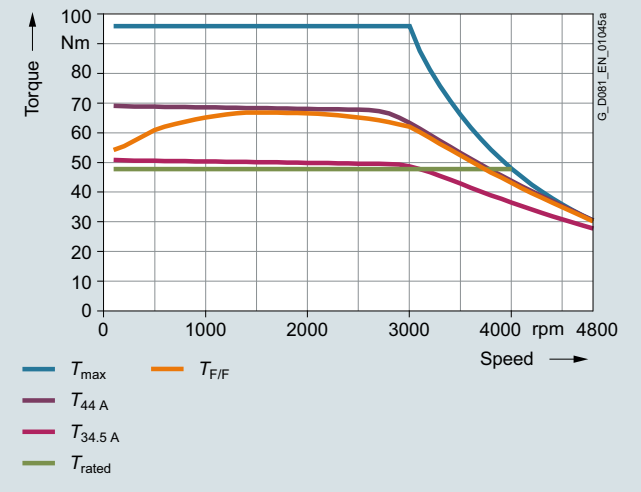
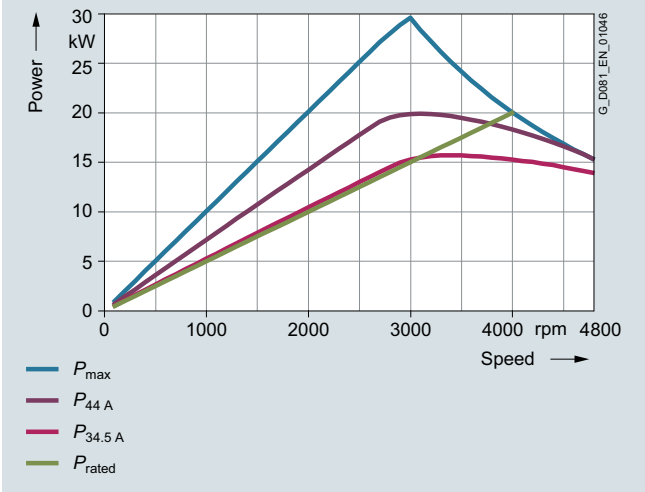
Technical specifications

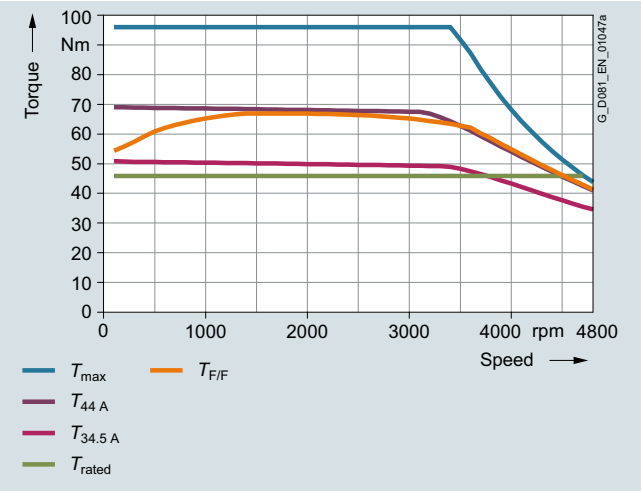
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1DF3 motor, frame size 160 with the particular motor voltage and circuit:



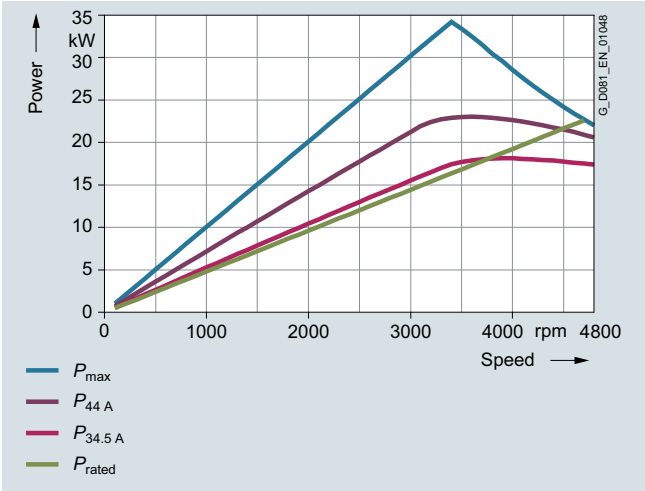
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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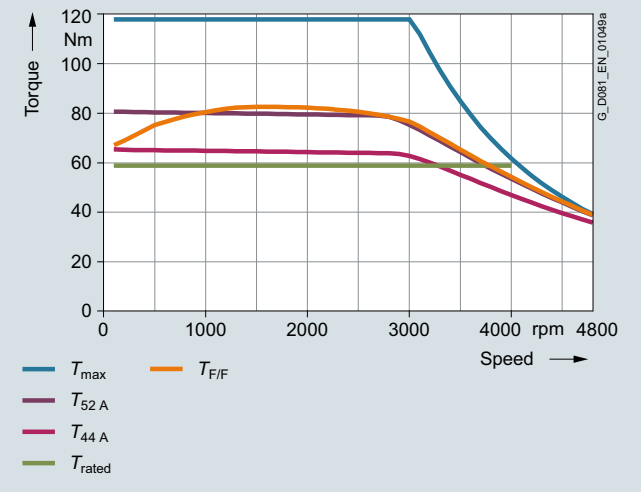
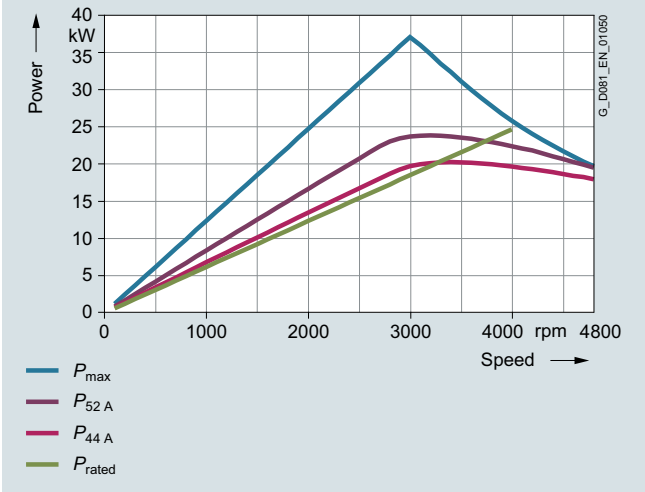
Technical specifications

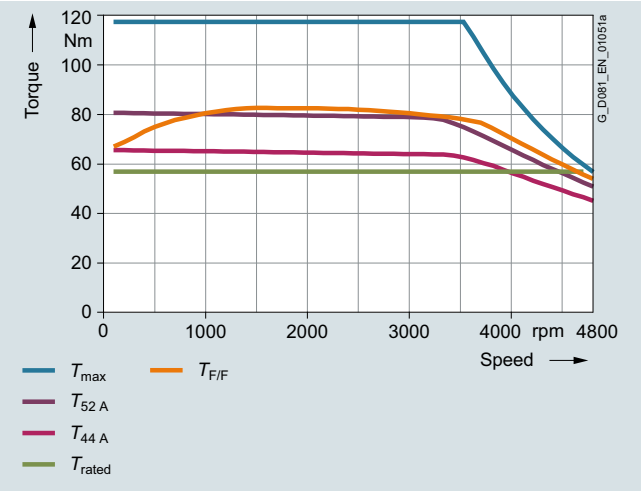
The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.14-1DF4 motor, frame size 160 with the particular motor voltage and circuit:



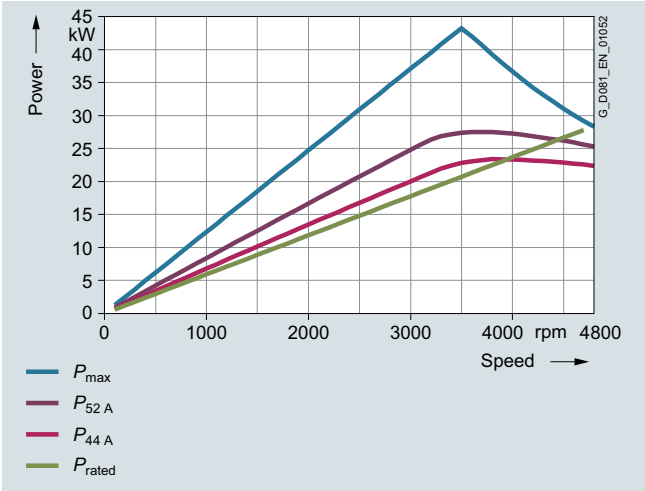
Torque limit for 380 VY (100 Hz characteristic)



Power limit for 380 VY (100 Hz characteristic)



Torque limit for 440 VY (120 Hz characteristic)



Power limit for 440 VY (120 Hz characteristic)

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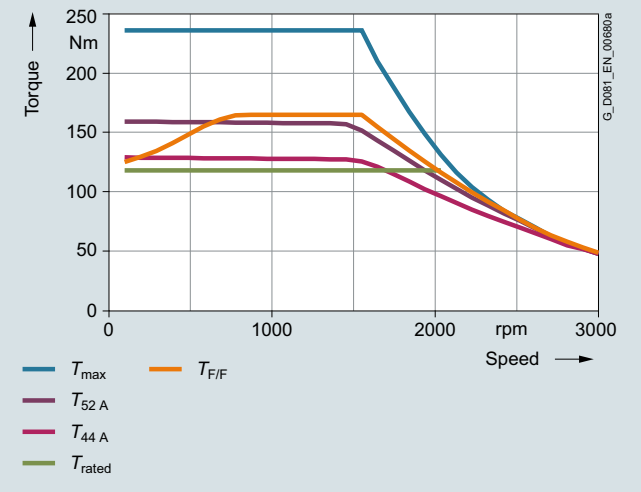
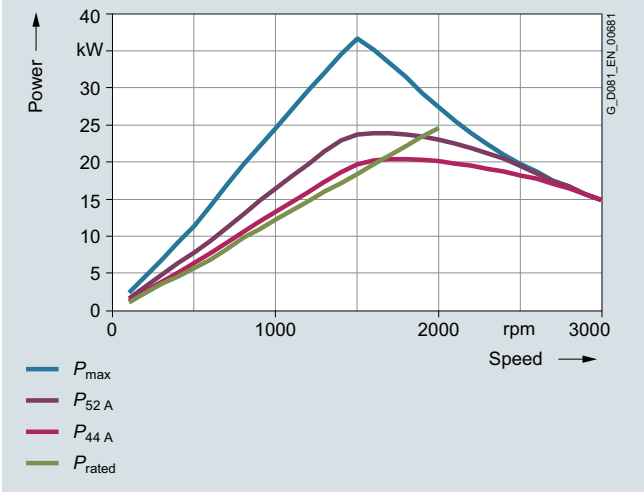
Technical specifications

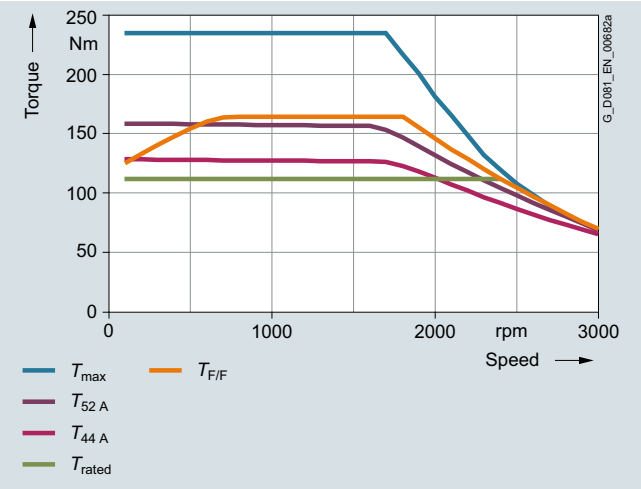
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-1EB2 motor, frame size 180 with the particular motor voltage and circuit:



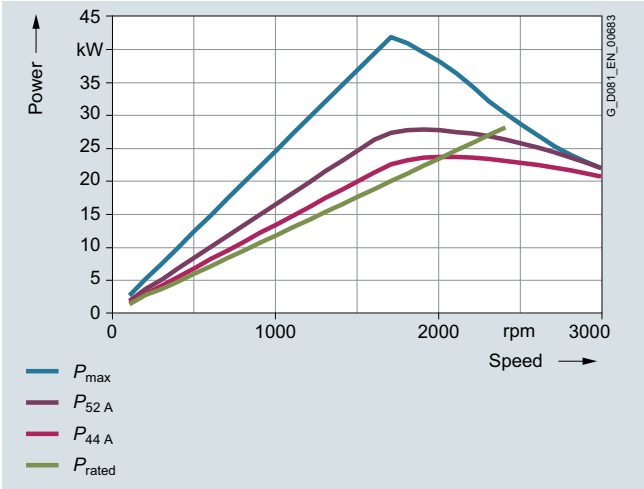
Torque limit for 380 VY (50 Hz characteristic)



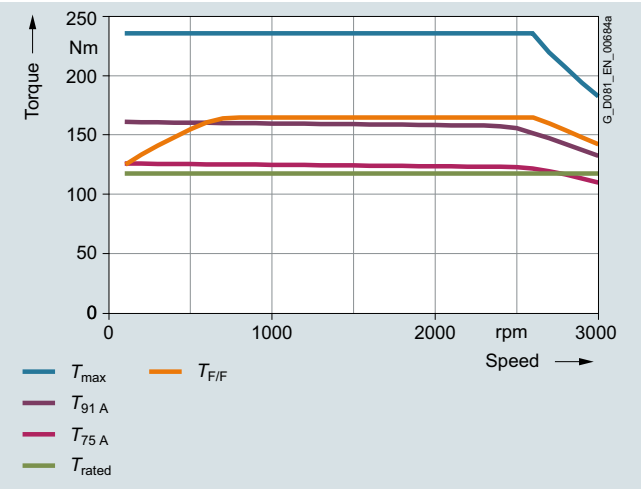
Power limit for 380 VY (50 Hz characteristic)



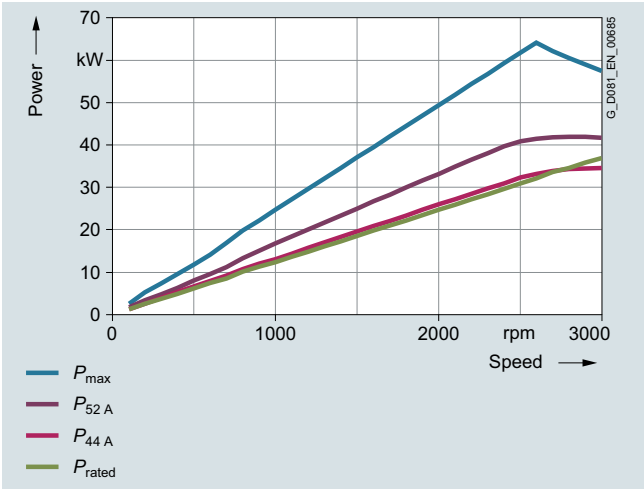
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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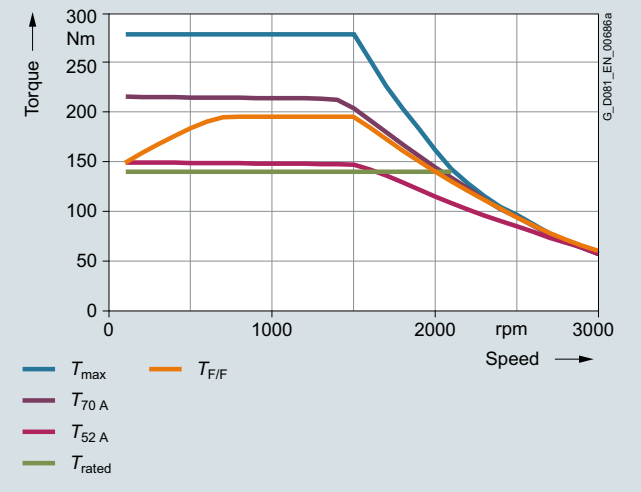
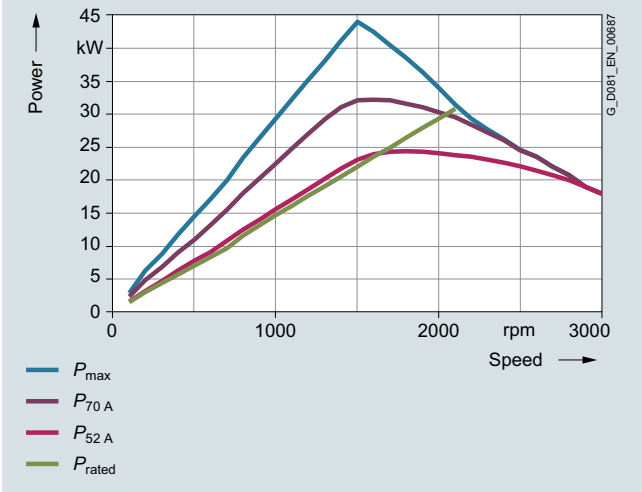
Technical specifications

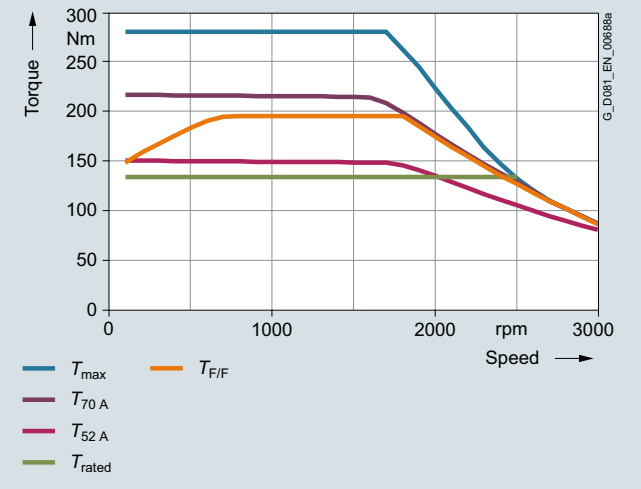
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-1EB4 motor, frame size 180 with the particular motor voltage and circuit:



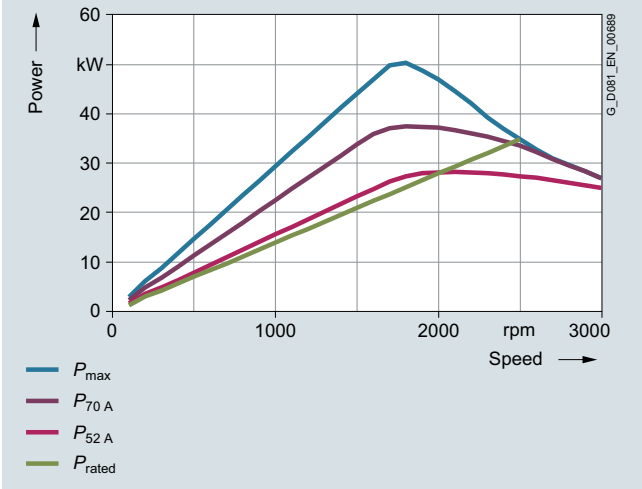
Torque limit for 380 VY (50 Hz characteristic)



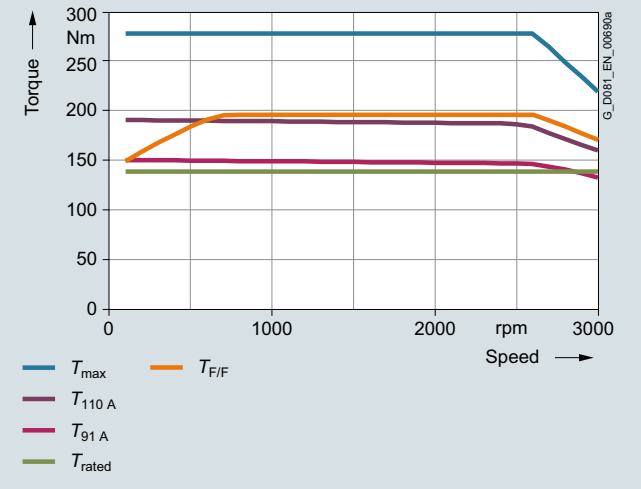
Power limit for 380 VY (50 Hz characteristic)



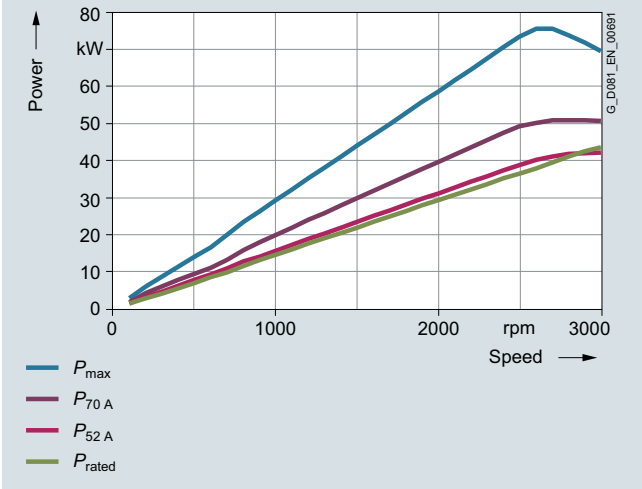
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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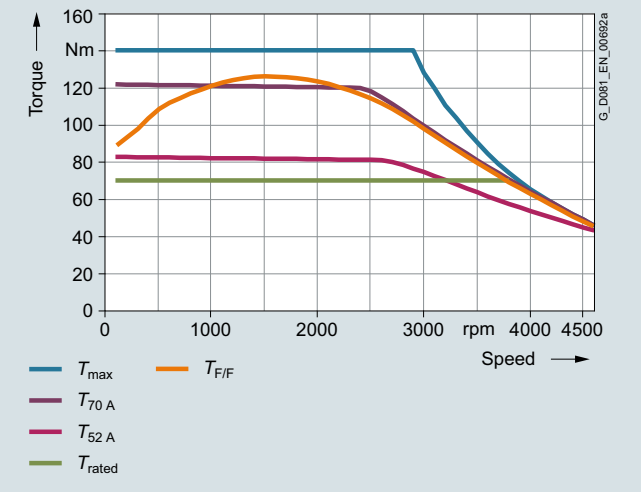
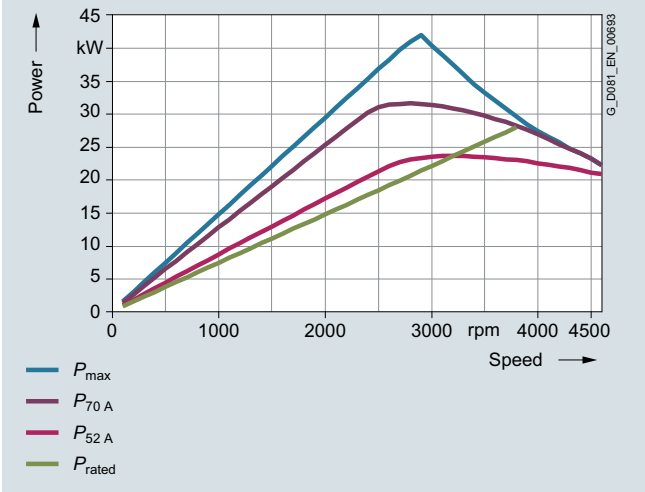
Technical specifications

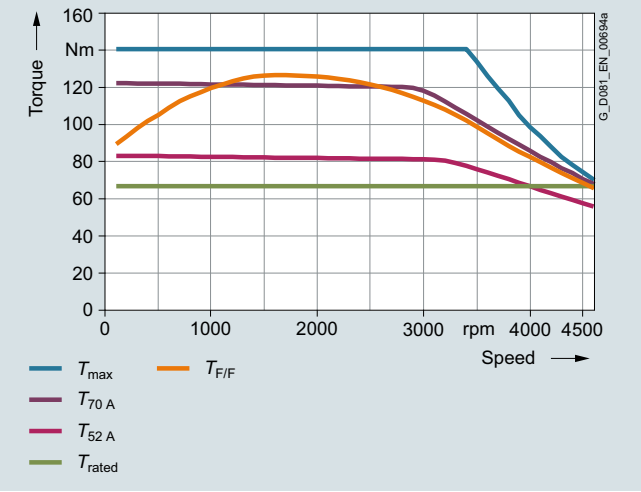
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-1EF2 motor, frame size 180 with the particular motor voltage and circuit:



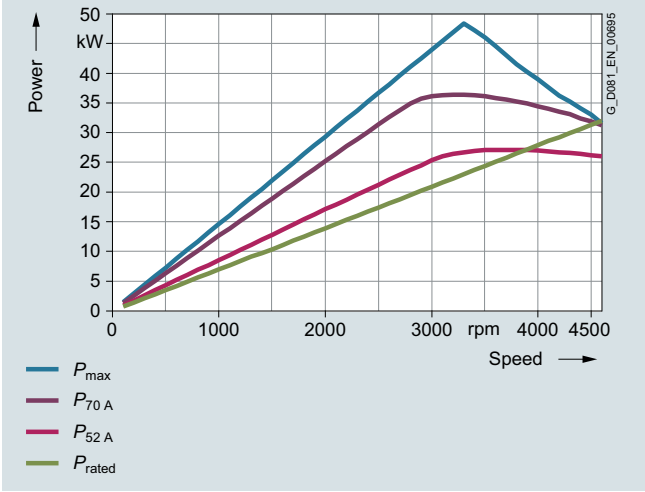
Torque limit for 380 VY (50 Hz characteristic)



Power limit for 380 VY (50 Hz characteristic)



Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)

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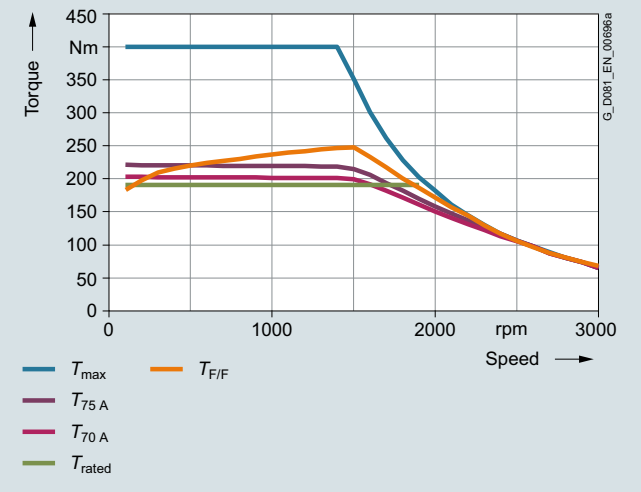
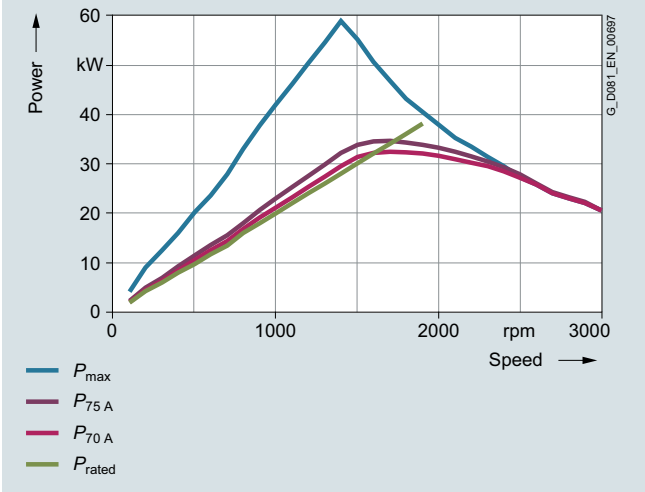
Technical specifications

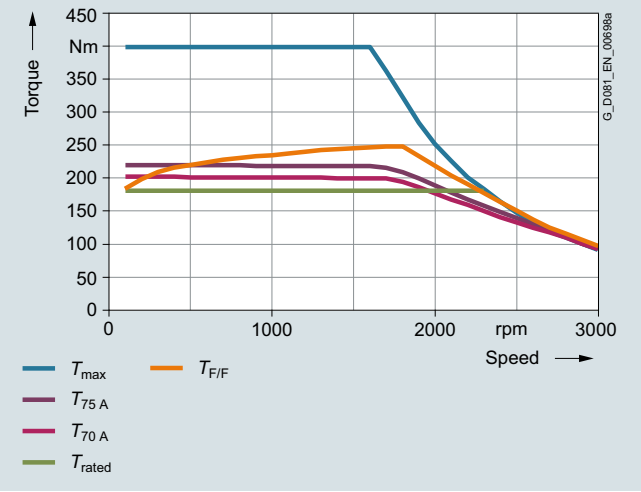
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-2AB5 motor, frame size 200 with the particular motor voltage and circuit:



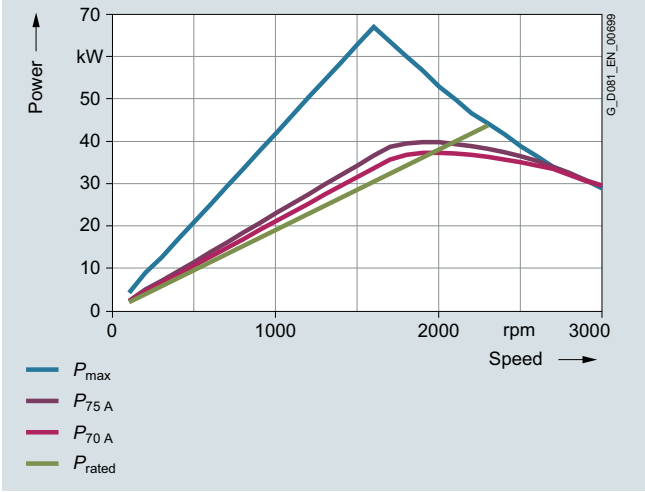
Torque limit for 380 VY (50 Hz characteristic)



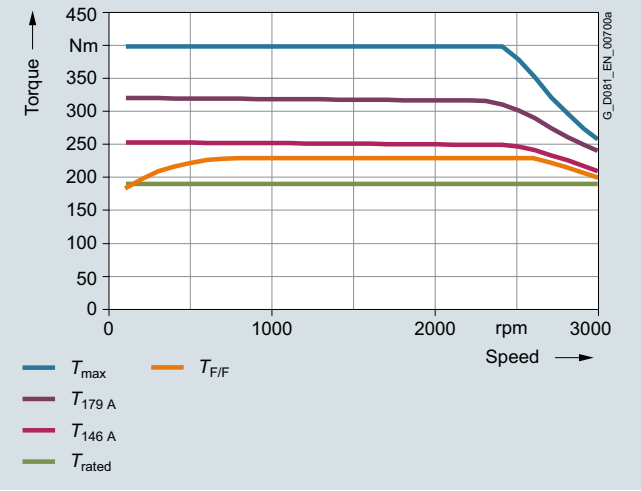
Power limit for 380 VY (50 Hz characteristic)



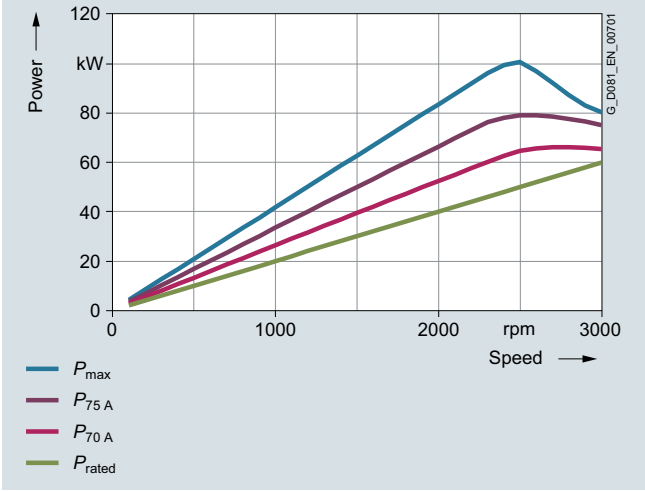
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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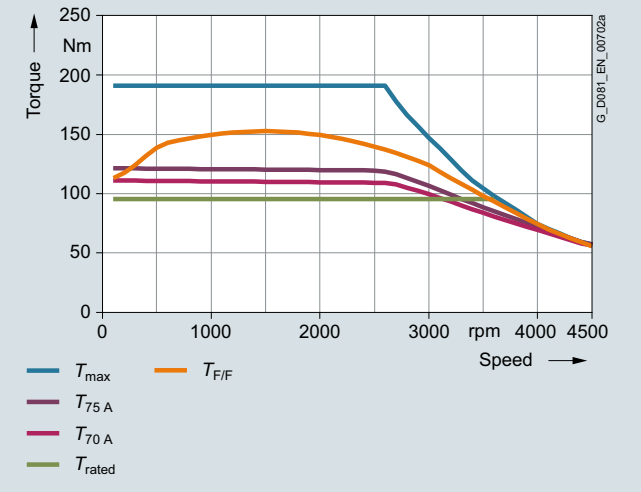
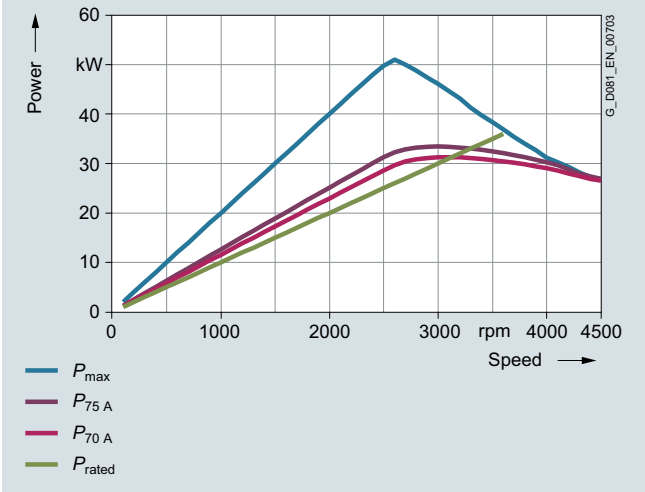
Technical specifications

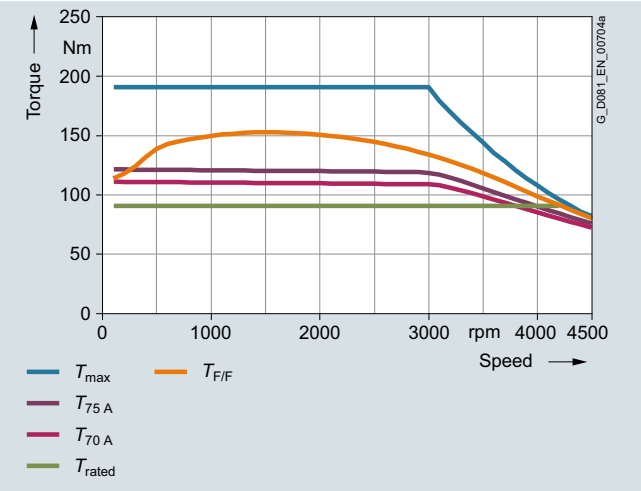
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-2AF4 motor, frame size 200 with the particular motor voltage and circuit:



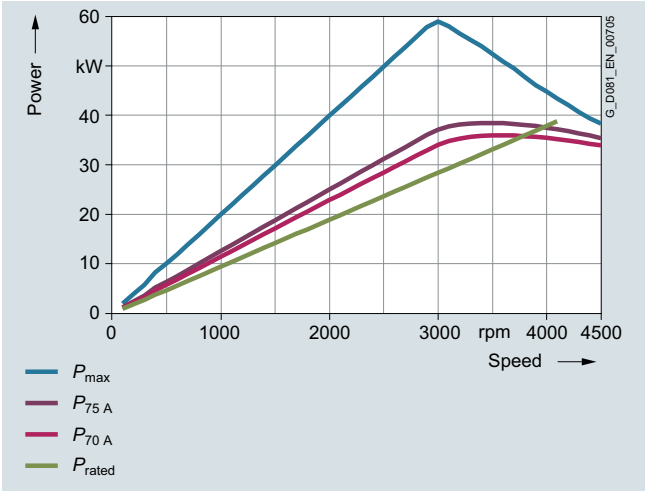
Torque limit for 380 VY (50 Hz characteristic)



Power limit for 380 VY (50 Hz characteristic)



Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)

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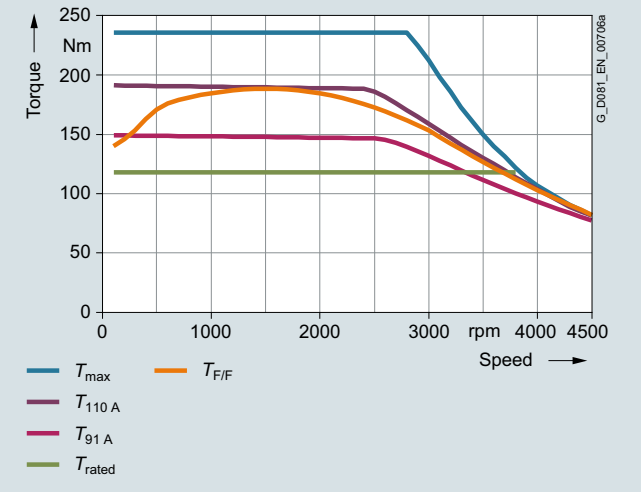
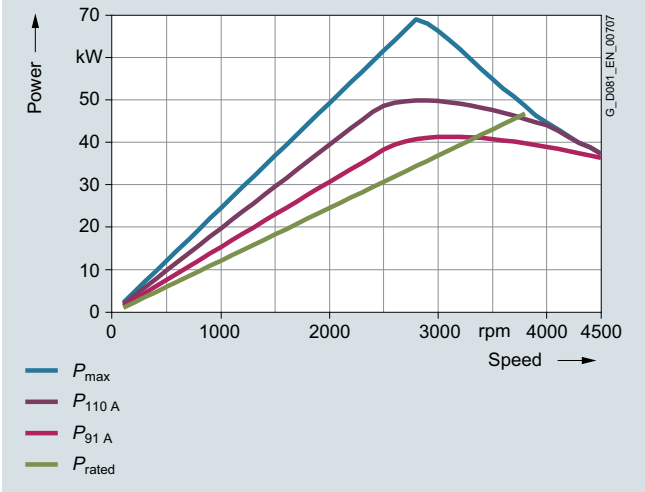
Technical specifications

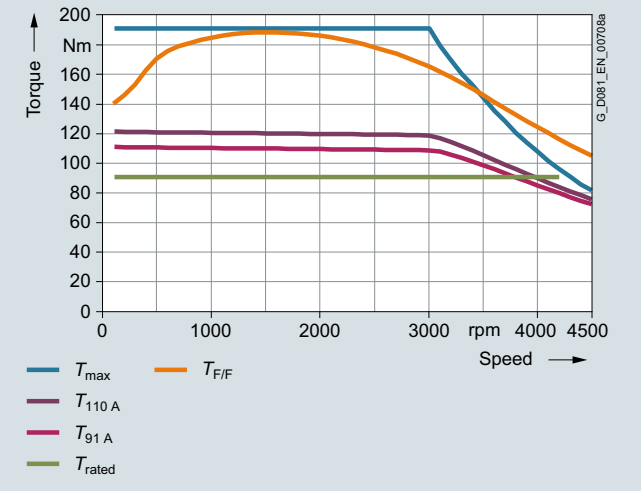
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-2AF5 motor, frame size 200 with the particular motor voltage and circuit:



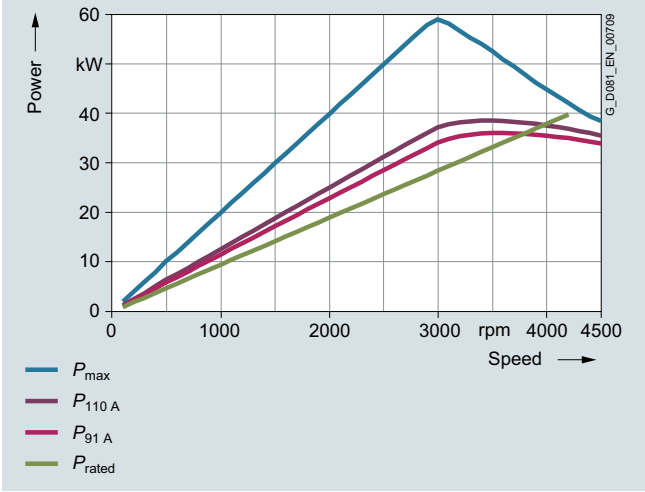
Torque limit for 380 VY (50 Hz characteristic)



Power limit for 380 VY (50 Hz characteristic)



Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)

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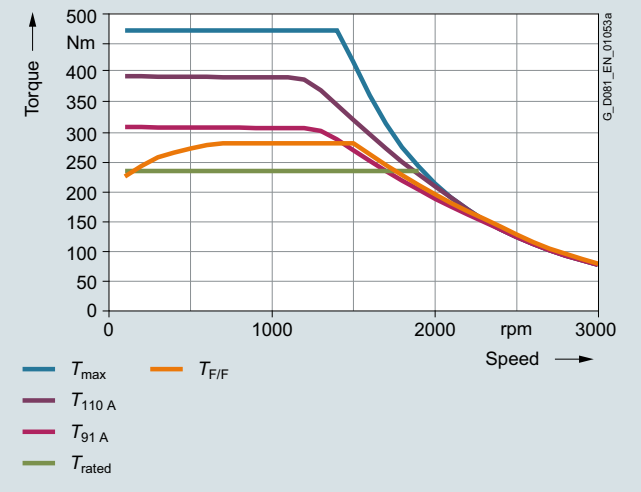
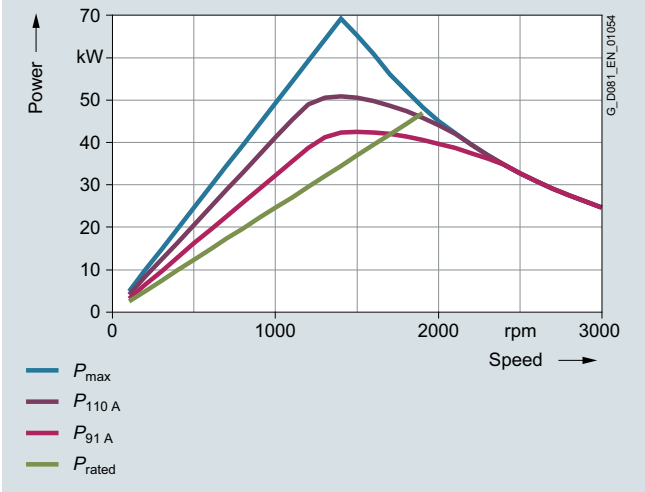
Technical specifications

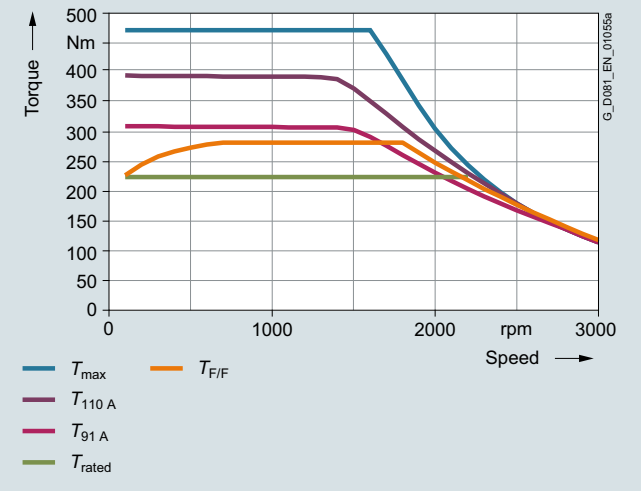
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-2BB0 motor, frame size 225 with the particular motor voltage and circuit:



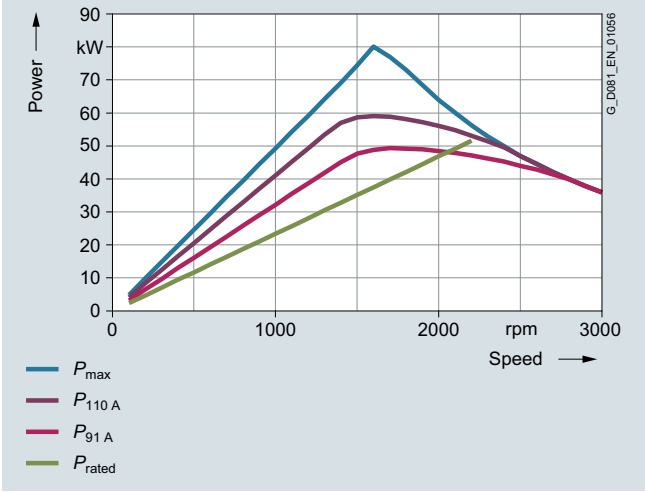
Torque limit for 380 VY (50 Hz characteristic)



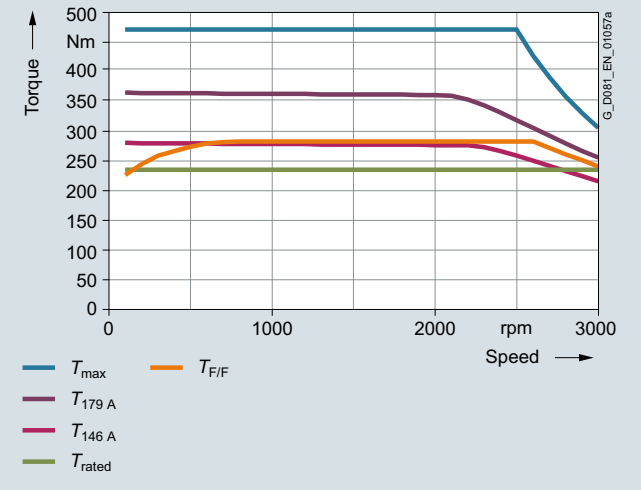
Power limit for 380 VY (50 Hz characteristic)



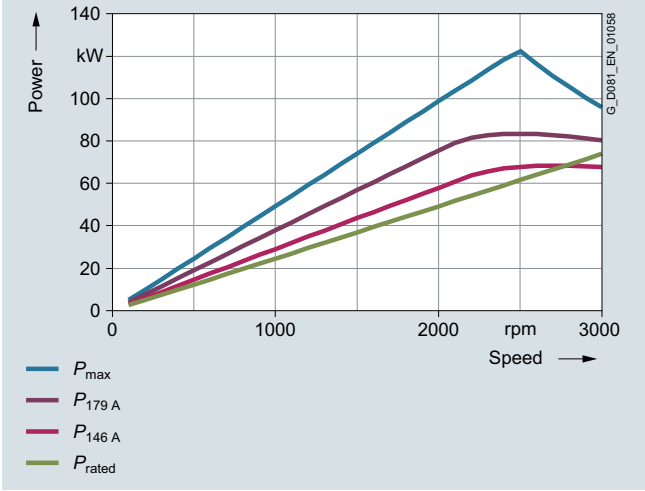
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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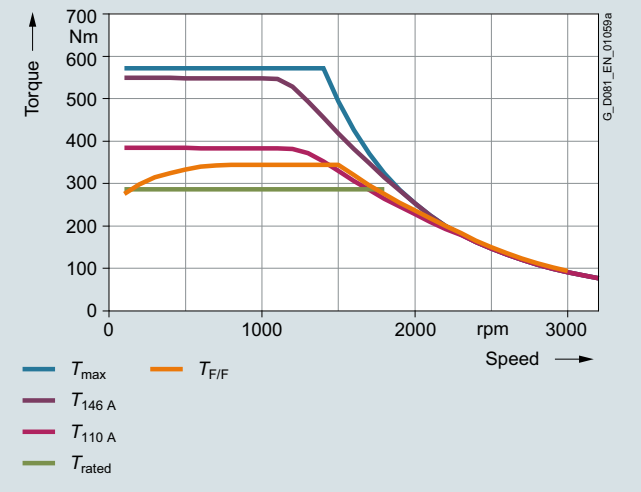
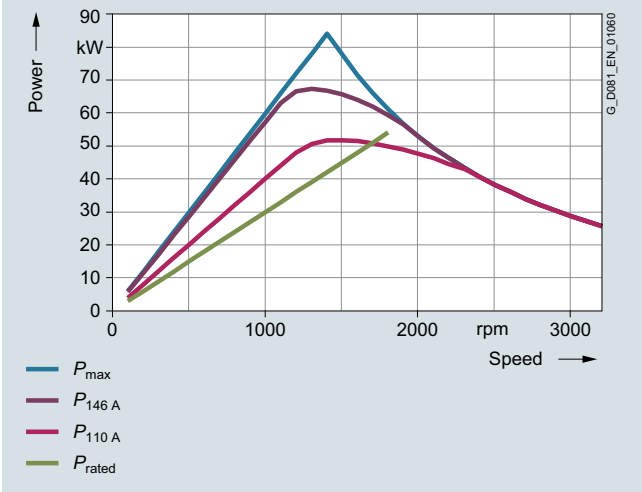
Technical specifications

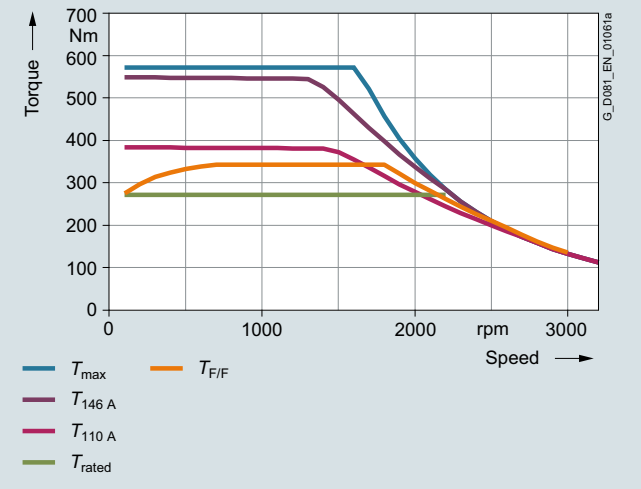
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-2BB2 motor, frame size 225 with the particular motor voltage and circuit:



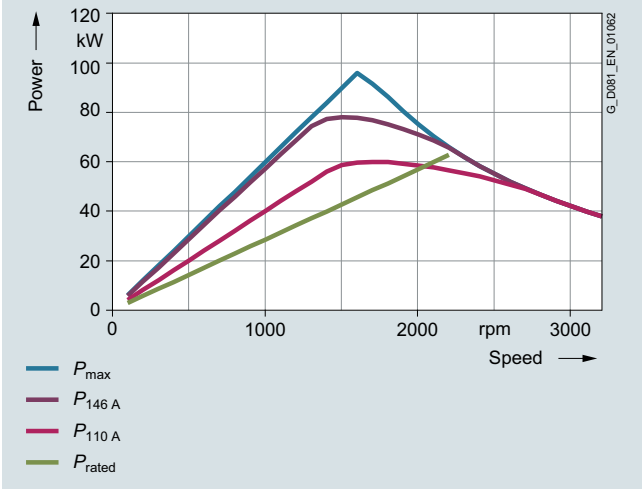
Torque limit for 380 VY (50 Hz characteristic)



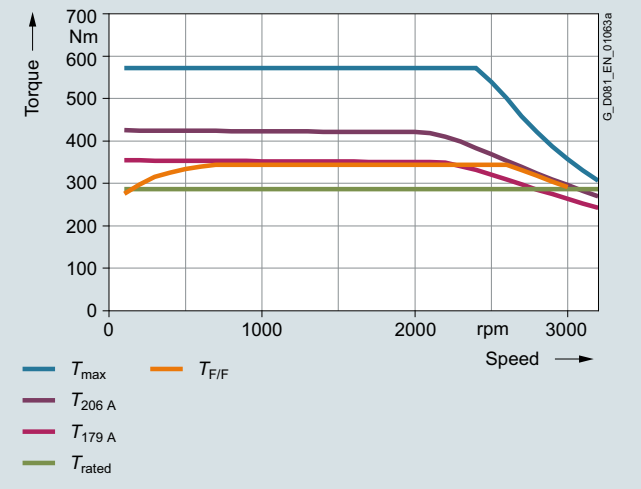
Power limit for 380 VY (50 Hz characteristic)



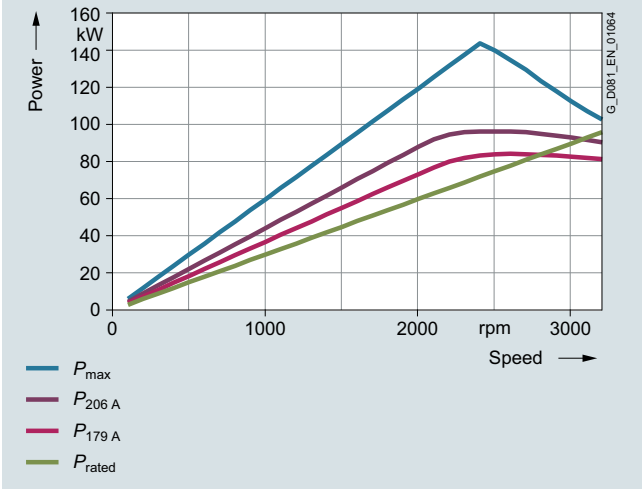
Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)



Torque limit for 380 VΔ (87 Hz characteristic)



Power limit for 380 VΔ (87 Hz characteristic)

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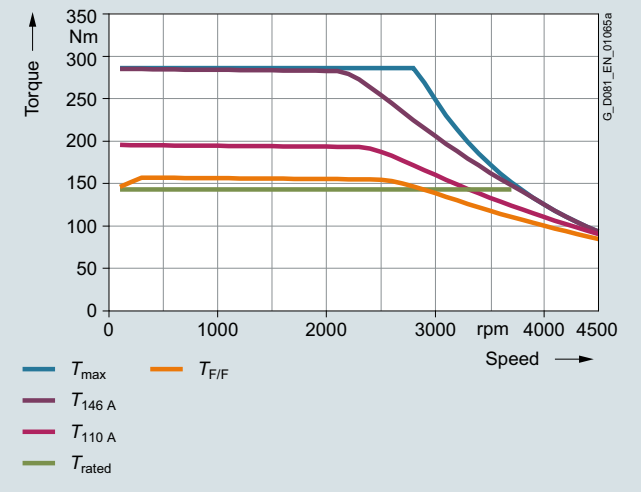
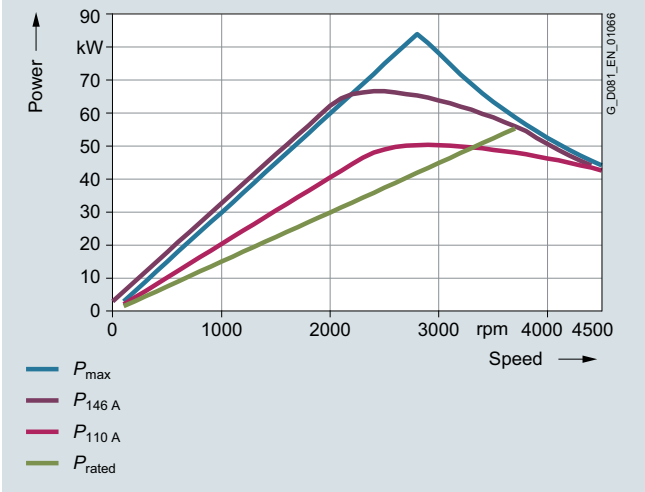
Technical specifications

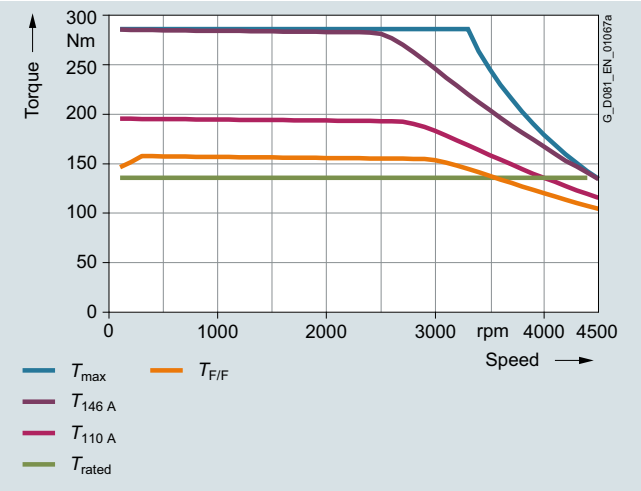
The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1514-2BF2 motor, frame size 225 with the particular motor voltage and circuit:



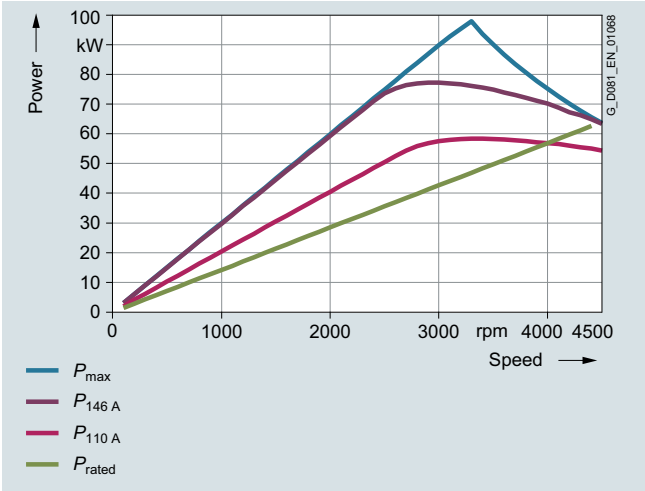
Torque limit for 380 VY (50 Hz characteristic)



Power limit for 380 VY (50 Hz characteristic)



Torque limit for 440 VY (60 Hz characteristic)



Power limit for 440 VY (60 Hz characteristic)

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Technical specifications

Additional information

Mechanical stress and grease lifetime

When motors are operated at speeds above the rated speed, the mechanical smooth running operation and the bearings are subjected to greater mechanical stress. This reduces the grease lifetime and the bearing lifetime.

Above 100 Hz, the motors must be balanced for twice the rated frequency; it can be expected that the lubrication intervals and bearing lifetime are significantly reduced.

Motor protection

A motor protection function can be implemented using the I^2t sensing function implemented in the converter software. If required, more precise motor protection can be afforded by direct temperature measurement using KTY84 sensors (standard scope of delivery) or PTC thermistors in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping. When ordering PTC thermistors or other temperature sensors to monitor the cooling temperature, the KTY84 sensors, otherwise provided as standard, are eliminated. As described above, KTY84 sensors are evaluated in the SINAMICS converters.

Motor connection

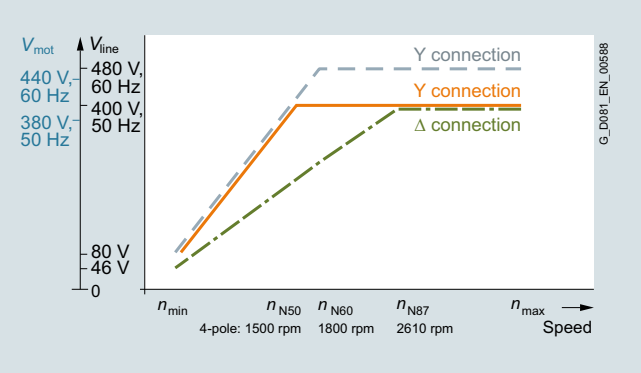
When connecting the motors, it is important to consider the restrictions for 1LE1 line motors as well as the maximum conductor cross-sections permitted for the converter.

Operating data for 50 Hz/60 Hz/87 Hz characteristics

SIMOTICS GP/SD VSD4000 line motors are designed for operation with 50 Hz, 60 Hz and 87 Hz characteristics (87 Hz characteristic up to frame size 200).

Operation with the 50/60 Hz characteristic requires Y (star or wye) connection; operation with the 87 Hz characteristic requires Δ connection.

The corresponding performance data are stamped on the rating plate as standard. An ordering option is not required.



Operating characteristics of SIMOTICS GP/SD VSD4000 line motors [1)]

Maximum operating speed

The maximum operating speed is limited by the mechanical speed limit of the motors as well as the available converter output frequency.

A significant increase in the sound pressure level can be expected when operating the motor above its rated speed (field weakening range).

Mechanical speed limits SIMOTICS GP/SD VSD4000 line:

Frame size	Mechanical speed limit		
	50 Hz		100 Hz
	SIMOTICS		SIMOTICS
	GP	SD	SD
	n_{max}	n_{max}	n_{max}
	rpm	rpm	rpm
80	3200	3200	6000
90	3200	3200	6000
112	3200	3200	6000
132	3200	3200	5600
160	3000	3200	4800
180	2610	3000	4600
200	2610	3000	4500
225		3000	4500

International use

As special converter motors, SIMOTICS GP/SD VSD4000 line motors are presently not subject to any minimum efficiency requirements in the EU and USA/Canada. However, other national certificates may be required (e.g. CSA-S safety in Canada).

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[1)] With V4.7 SP3, only a 50 Hz characteristic is possible.

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Technical specifications

Load characteristics for the line supply voltage: 400 V 3 AC, 50 Hz

Load characteristic $T \sim n^2$	T = const. Speed control range 1:2		1:4		1:10		SIMOTICS GP/SD VSD4000 line motors	SINAMICS G120 converters Operating mode: Low overload
P	P	T	P	T	P	T		
kW	kW	kW	kW	kW	kW	kW	Motor type	Converter type
Rated speed 1500 rpm								
at 1500 rpm	from 750 rpm	from 750 rpm to 1500 rpm	from 375 rpm	from 375 rpm to 1500 rpm	from 150 rpm	from 150 rpm to 1500 rpm		
0.55	0.28	3.5	0.14	3.5	0.06	3.5	1FP1.14-0DB2.-....	6SL3210-1PE11-8.L0
0.75	0.38	4.8	0.19	4.8	0.08	4.8	1FP1.14-0DB3.-....	6SL3210-1PE12-3.L0
1.1	0.55	7	0.28	7	0.11	7	1FP1.14-0EB0.-....	6SL3210-1PE13-2.L1
1.5	0.75	9.5	0.38	9.5	0.15	9.5	1FP1.14-0EB4.-....	6SL3210-1PE14-3.L1
2.2	1.1	14	0.55	14	0.22	14	1FP1.14-1BB0.-....	6SL3210-1PE16-1.L1
3	1.5	19.1	0.75	19.1	0.3	19.1	1FP1.14-1BB1.-....	6SL3210-1PE18-0.L1
4	2	25.5	1	25.5	0.4	25.5	1FP1.14-1BB2.-....	6SL3210-1PE21-1.L0
5.5	2.75	35	1.38	35	0.55	35	1FP1.14-1CB0.-....	6SL3210-1PE21-4.L0
7.5	3.75	47.5	1.88	47.5	0.75	47.5	1FP1.14-1CB2.-....	6SL3210-1PE21-8.L0
11	5.5	70	2.75	70	1.1	70	1FP1.14-1DB2.-....	6SL3210-1PE22-7.L0
15	7.5	95	3.75	95	1.5	95	1FP1.14-1DB4.-....	6SL3210-1PE23-3.L0
18.5	9.25	118	4.63	118	1.85	118	1FP1.14-1EB2.-....	6SL3210-1PE23-8.L0
22	11	140	5.5	140	2.2	140	1FP1.14-1EB4.-....	6SL3210-1PE24-5.L0
30	15	191	7.5	191	3	191	1FP1.14-2AB5.-....	6SL3210-1PE26-0.L0
37	18.5	236	9.25	236	3.7	236	1FP1514-2BB0.-....	6SL3210-1PE28-8.L0
45	22.5	286	11.25	286	4.5	286	1FP1514-2BB2.-....	6SL3210-1PE31-1.L0
Rated speed 3000 rpm								
at 3000 rpm	from 1500 rpm	from 1500 rpm to 3000 rpm	from 750 rpm	from 750 rpm to 3000 rpm	from 300 rpm	from 300 rpm to 3000 rpm		
0.75	0.38	2.4	0.19	2.4	0.08	2.4	1FP1514-0DF2.-....	6SL3210-1PE12-3.L0
1.1	0.55	3.5	0.28	3.5	0.11	3.5	1FP1514-0DF3.-....	6SL3210-1PE13-2.L1
1.5	0.75	4.8	0.38	4.8	0.15	4.8	1FP1514-0EF0.-....	6SL3210-1PE14-3.L1
2.2	1.1	7	0.55	7	0.22	7	1FP1514-0EF4.-....	6SL3210-1PE16-1.L1
3	1.5	9.5	0.75	9.5	0.3	9.5	1FP1514-1BF1.-....	6SL3210-1PE18-0.L1
4	2	12.7	1	12.7	0.4	12.7	1FP1514-1BF2.-....	6SL3210-1PE21-1.L0
5.5	2.75	17.5	1.38	17.5	0.55	17.5	1FP1514-1CF0.-....	6SL3210-1PE21-4.L0
7.5	3.75	24	1.88	24	0.75	24	1FP1514-1CF1.-....	6SL3210-1PE21-8.L0
11	5.5	35	2.75	35	1.1	35	1FP1514-1DF2.-....	6SL3210-1PE22-7.L0
15	7.5	48	3.75	48	1.5	48	1FP1514-1DF3.-....	6SL3210-1PE23-3.L0
18.5	9.25	58	4.63	58	1.85	58	1FP1514-1DF4.-....	6SL3210-1PE23-8.L0
22	11	70	5.5	70	2.2	70	1FP1514-1EF2.-....	6SL3210-1PE24-5.L0
30	15	96	7.5	96	3	96	1FP1514-2AF4.-....	6SL3210-1PE26-0.L0
37	18.5	118	9.25	118	3.7	118	1FP1514-2AF5.-....	6SL3210-1PE28-8.L0
45	22.5	143	11.25	143	4.5	143	1FP1514-2BF2.-....	6SL3210-1PE31-1.L0

Note:

The converter recommendation applies to standard ambient conditions (40 °C; 1000 m above sea level).

If, as a result of different ambient conditions, the rated motor power is significantly reduced, under certain circumstances, another converter is the optimum solution. Here, please use the configuration options for converters in the DT Configurator.

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Technical specifications

System power loss acc. to IEC 61800-9-2: 2017

The drive system comprising SIMOTICS GP/SD VSD4000 line synchronous-reluctance motors and SINAMICS G120 converters is, as a result of the minimal system power losses, especially suitable for applications in the full and partial load range that are optimized to achieve minimum lifecycle costs.

General conditions:

- CU230P-2 Control Unit
- Line voltage: 400 V 3 AC 50/60 Hz
- Output voltage: Up to 0.95 x line supply input voltage
- Inverter pulse frequency:
  4 kHz to 90 kW; 2 kHz from 110 kW
- In the standby mode, the converter does not supply any power to the motor (the inverter pulses are inhibited)
- In the standby operating mode, the Control Unit is operated from the internal or external 24 V DC electronics power supply
- Converters with vector control for synchronous-reluctance motors and flux reduction
- The operating points defined in the subsequent table already take into account the standby portions

SIMOTICS GP/SD VSD4000 line synchronous-reluctance motors with SINAMICS G120 PM240-2 Power Modules

Rated power	SIMOTICS GP/SD VSD4000 1FP10/1FP15	Frame size	PM240-2 Power Module	Frame size	System power loss, relative $P_{V,rel}$ as a % referred to P_{rated} Operating points								IES class acc. to IEC 61800-9-2: 2017
					at partial load [1]							at rated load [1]	
					0/25	0/50	0/100	50/25	50/50	50/100	100/50	100/100	
kW	Type		Type		%	%	%	%	%	%	%	%	
Line voltage 400 V 3 AC, 50/60 Hz, rated speed 1500 rpm													
0.55	1FP1.14-0DB2.-....	80 M	6SL3210-1PE11-8.L0	FSA	10.62	12.52	19.12	10.38	13.76	21.42	15.05	23.16	IES2
0.75	1FP1.14-0DB3.-....	80 M	6SL3210-1PE12-3.L1	FSA	8.59	10.28	15.78	8.38	11.32	17.78	12.64	19.59	IES2
1.1	1FP1.14-0EB0.-....	90 S	6SL3210-1PE13-2.L1	FSA	6.45	8.14	13.66	6.47	9.23	15.40	10.58	17.13	IES2
1.5	1FP1.14-0EB4.-....	90 L	6SL3210-1PE14-3.L1	FSA	5.72	7.31	12.70	5.55	8.21	14.26	9.61	16.03	IES2
2.2	1FP1.14-1BB0.-....	112 M	6SL3210-1PE16-1.L1	FSA	3.91	5.01	8.71	4.17	6.10	10.45	7.62	12.43	IES2
3	1FP1.14-1BB1.-....	112 M	6SL3210-1PE18-0.L1	FSA	3.63	4.90	9.45	3.81	5.84	11.09	7.36	12.99	IES2
4	1FP1.14-1BB2.-....	112 M	6SL3210-1PE21-1.L0	FSA	3.21	4.41	8.65	3.31	5.21	10.04	6.45	11.75	IES2
5.5	1FP1.14-1CB0.-....	132 S	6SL3210-1PE21-4.L0	FSB	2.68	3.85	7.61	2.91	4.61	9.40	5.97	10.87	IES2
7.5	1FP1.14-1CB2.-....	132 M	6SL3210-1PE21-8.L0	FSB	2.42	3.43	6.71	2.62	4.13	8.22	5.33	9.68	IES2
11	1FP1.14-1DB2.-....	160 M	6SL3210-1PE22-7.L0	FSC	2.26	3.17	6.20	2.25	3.64	7.55	4.75	9.14	IES2
15	1FP1.14-1DB4.-....	160 L	6SL3210-1PE23-3.L0	FSC	2.09	2.89	5.73	2.08	3.42	6.89	4.31	8.13	IES2
18.5	1FP1.14-1EB2.-....	180 M	6SL3210-1PE23-8.L0	FSD	1.76	2.42	4.65	1.86	3.01	6.00	3.99	7.56	IES2
22	1FP1.14-1EB4.-....	180 L	6SL3210-1PE24-5.L0	FSD	1.67	2.34	4.46	1.74	2.84	5.73	3.82	7.15	IES2
30	1FP1.14-2AB5.-....	200 L	6SL3210-1PE26-0.L0	FSD	1.65	2.41	4.82	1.53	2.60	5.58	3.36	6.80	IES2
37	1FP1514-2BB0.-....	225 S	6SL3210-1PE28-8.L0	FSE	1.29	2.02	4.49	1.64	2.73	5.54	3.49	6.74	IES2
45	1FP1514-2BB2.-....	225 M	6SL3210-1PE31-1.L0	FSE	1.18	1.91	4.41	1.51	2.63	5.38	3.34	6.72	IES2
Line voltage 400 V 3 AC, 50/60 Hz, rated speed 3000 rpm													
0.75	1FP1514-0DF2.-....	80 M	6SL3210-1PE12-3.L1	FSA	8.28	10.08	15.81	8.93	11.98	18.36	14.49	21.79	IES2
1.1	1FP1514-0DF3.-....	80 M	6SL3210-1PE13-2.L1	FSA	6.39	8.17	13.83	7.08	9.91	16.17	12.44	19.32	IES2
1.5	1FP1514-0EF0.-....	90 S	6SL3210-1PE14-3.L1	FSA	5.73	7.05	11.43	5.99	8.45	13.83	11.44	17.34	IES2
2.2	1FP1514-0EF4.-....	90 L	6SL3210-1PE16-1.L1	FSA	4.72	5.79	9.34	4.99	7.10	11.51	9.81	14.67	IES2
3	1FP1514-1BF1.-....	112 M	6SL3210-1PE18-0.L1	FSA	3.00	4.06	6.11	3.74	5.51	9.51	7.79	12.49	IES2
4	1FP1514-1BF2.-....	112 M	6SL3210-1PE21-1.L0	FSA	3.04	3.91	6.86	3.53	5.16	8.74	7.56	11.62	IES2
5.5	1FP1514-1CF0.-....	132 S	6SL3210-1PE21-4.L0	FSB	2.72	3.55	6.82	3.19	4.71	8.48	7.21	11.67	IES2
7.5	1FP1514-1CF1.-....	132 S	6SL3210-1PE21-8.L0	FSB	2.21	3.07	6.27	2.72	4.20	8.00	6.21	10.71	IES2
11	1FP1514-1DF2.-....	160 M	6SL3210-1PE22-7.L0	FSC	1.83	2.58	5.12	2.40	3.66	6.74	5.79	9.53	IES2
15	1FP1514-1DF3.-....	160 M	6SL3210-1PE23-3.L0	FSC	1.84	2.58	5.18	2.32	3.54	6.77	5.43	9.10	IES2
18.5	1FP1514-1DF4.-....	160 L	6SL3210-1PE23-8.L0	FSD	1.76	2.49	4.99	2.20	3.48	6.66	5.21	9.06	IES2
22	1FP1514-1EF2.-....	180 M	6SL3210-1PE24-5.L0	FSD	1.39	1.93	3.72	1.90	2.95	5.24	4.69	7.67	IES2
30	1FP1514-2AF4.-....	200 L	6SL3210-1PE26-0.L0	FSD	1.25	1.78	3.78	1.80	2.81	5.28	4.28	7.58	IES2
37	1FP1514-2AF5.-....	200 L	6SL3210-1PE28-8.L0	FSD	1.26	1.69	3.09	1.71	2.58	4.38	3.82	6.17	IES2
45	1FP1514-2BF2.-....	225 M	6SL3210-1PE31-1.L0	FSD	1.16	1.70	3.46	1.63	2.55	4.59	3.66	6.29	IES2

[1] Output frequency, rel. [%] referred to the rated speed/ torque, rel. [%] referred to the rated torque T_{rated}.

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Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:
1FP1504-1DB42-1GF4-Z
H00

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and power and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.

Structure of the Article No.:	Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	
1st to 4th position: Digit, letter, letter, digit	**Three-phase synchronous-reluctance motor** Self-ventilated by fan mounted on and driven by the rotor	**1**	**F**	**P**	**1**															
5th position: Digit	SIMOTICS GP – aluminum housing SIMOTICS SD – cast-iron housing					**0** **5**														
6th position: Digit	Standard version Gen 2						**1**													
7th position: Digit	**Efficiency class** Super Premium Efficiency							**4**												
8th and 9th position: Digit, letter	**Motor frame size** (frame size as a combination of shaft height and overall length, encoded)									**0** **...** **2**	**A** **...** **E**									
10th position: Letter	**No. of poles** B, F: 4-pole											**B** **F**								
11th position: Digit	**Laminated core length**												**0** **2** **4** **5**							
12th and 13th position: 2 digits	**Motor voltage and frequency** 380 V 3 AC, 50 Hz/440 V 3 AC, 60 Hz/380 V 3 AC, 87 Hz													**2**		**1**				
14th position: Letter	**Type of construction** (encoded with A ... V)																**A** **...** **V**			
15th position: Letter	**Motor protection** (encoded with B ... Z; Z requires order code Q.. (e.g. Q3A); F = standard version with integrated KTY84 temperature sensor)																	**B** **...** **Z**		
16th position: Digit	**Terminal box position** 4: Terminal box top (normal version), 5: Terminal box right, 6: Terminal box left																		**4** **...** **6**	
	Special order versions: encoded – additional order code required not encoded – additional plain text required																			**-** **Z**

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Selection and ordering data

Ordering example:

Selection criteria	Requirement	Structure of the Article No.
1FP10 motor type	Standard motor for converter operation SIMOTICS GP VSD4000 line, aluminum version, rated power at $P_{rated\ 50}$ with 15 kW, $P_{rated\ 60}$ with 17.3 kW or $P_{rated\ 87}$ with 23.5 kW	**1FP1014-■■■■■-■■■■**
Motor frame size	160 L	**1FP1014-1D■4■-■■■■**
No. of poles	4-pole	**1FP1014-1DB4■-■■■■**
Motor voltage and frequency	380 V 3 AC, 50 Hz/440 V 3 AC, 60 Hz/380 V 3 AC, 87 Hz	**1FP1014-1DB42-1■■■**
Type of construction with special version	IM V5 with protective cover [1]	**1FP1014-1DB42-1C■■-Z** **H00**
Motor protection	Motor protection with PTC thermistors with 1 or 3 embedded temperature sensors for tripping	**1FP1014-1DB42-1CB■-Z** **H00**
Terminal box position	Terminal box right (viewed from DE)	**1FP1014-1DB42-1CB5-Z** **H00**

[1] Standard without protective cover – the protective cover is defined with order code **H00** and must be ordered in addition to the Article No. with **-Z** and this order code.

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Aluminum series SIMOTICS GP 1FP1014, line voltage 400 V, 50 Hz/480 V, 60 Hz/400 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 400\ V}$	$P_{rated,\ 60\ Hz,\ 480\ V}$	$P_{rated,\ 87\ Hz,\ 400\ V}$	Frame size	Connection	Operating values at rated power f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	Aluminum series 1FP1014 Version specifically for converter operation Article No.
kW	kW	kW			Hz	Nm	%		A	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class F according to B • Operation with a SINAMICS G120 converter with uncontrolled infeed – rated voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz										
1500 rpm	1800 rpm	2610 rpm	4-pole							
0.55			80 M	Y	50	3.5	83.9	0.67	1.49	1FP1014-0DB2 ■-■■■■
	0.63			Y	60	3.4	84.0	0.66	1.49	
		0.95		Δ	87	3.5	87.5	0.65	2.55	
0.75			80 M	Y	50	4.8	85.7	0.67	1.98	1FP1014-0DB3 ■-■■■■
	0.86			Y	60	4.6	85.5	0.66	2.0	
		1.3		Δ	87	4.8	89.0	0.64	3.45	
1.1			90 S	Y	50	7.0	87.2	0.69	2.8	1FP1014-0EB0 ■-■■■■
	1.27			Y	60	6.7	87.5	0.69	2.75	
		1.9		Δ	87	7.0	89.0	0.68	4.8	
1.5			90 M	Y	50	9.5	88.2	0.69	3.75	1FP1014-0EB4 ■-■■■■
	1.75			Y	60	9.0	88.5	0.68	3.8	
		2.6		Δ	87	9.5	90.5	0.67	6.5	
2.2			112 M	Y	50	14	89.5	0.71	5.3	1FP1014-1BB0 ■-■■■■
	2.55			Y	60	13.3	91.0	0.71	5.2	
		3.85		Δ	87	14	92.0	0.69	9.2	
3			112 M	Y	50	19.1	90.4	0.71	7.1	1FP1014-1BB1 ■-■■■■
	3.45			Y	60	18.1	91.0	0.72	6.9	
		5.2		Δ	87	19.1	91.8	0.70	12.3	
4			112 M	Y	50	25.5	91.1	0.72	9.3	1FP1014-1BB2 ■-■■■■
	4.55			Y	60	24.0	91.0	0.73	9.0	
		6.9		Δ	87	25.5	92.3	0.71	16.0	
5.5			132 S	Y	50	35	91.9	0.72	12.6	1FP1014-1CB0 ■-■■■■
	6.3			Y	60	33.5	92.4	0.73	12.3	
		9.6		Δ	87	35	92.8	0.71	22	
7.5			132 M	Y	50	47.5	92.6	0.72	17.1	1FP1014-1CB2 ■-■■■■
	8.6			Y	60	45.5	92.4	0.73	16.7	
		13.1		Δ	87	47.5	93.3	0.70	30.5	
11			160 M	Y	50	70	93.3	0.72	25.0	1FP1014-1DB2 ■-■■■■
	12.6			Y	60	67	93.6	0.73	24.0	
		19.1		Δ	87	70	93.6	0.71	43.5	
15			160 L	Y	50	95	93.9	0.71	34.0	1FP1014-1DB4 ■-■■■■
	17.3			Y	60	90	94.5	0.72	33.5	
		26		Δ	87	95	94.1	0.71	59.0	
18.5			180 M	Y	50	118.0	94.2	0.71	42.0	1FP1014-1EB2 ■-■■■■
	21.3			Y	60	113.0	94.5	0.72	41.0	
		32		Δ	87	118.0	95.0	0.71	73.0	
22			180 L	Y	50	140.0	94.5	0.71	50.0	1FP1014-1EB4 ■-■■■■
	25.3			Y	60	134.0	94.5	0.72	49.0	
		38.1		Δ	87	140.0	93.9	0.70	87.0	
30			200 L	Y	50	191.0	95.2	0.71	68.0	1FP1014-2AB5 ■-■■■■
	34.5			Y	60	183.0	95.4	0.72	66.0	
		52		Δ	87	191.0	94.4	0.71	118.0	
For versions, see Article No. supplements and special versions.										■-■■■■

All technical specifications refer to converter operation.

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Aluminum series SIMOTICS GP 1FP1014, line voltage 400 V, 50 Hz/480 V, 60 Hz/400 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Converter SINAMICS G120 – PM240-2** Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm	Type	Type [1]		
1FP1014-0DB2.-....	12	0.0019	66.0	78.0	3200	TB1D00	6SL3210-1PE11-8.L0	FSA	IES 2
			67.0	79.0			6SL3210-1PE11-8.L0	FSA	IES 2
			69.0	81.0			6SL3210-1PE13-2.L0	FSA	IES 2
1FP1014-0DB3.-....	15	0.0025	66.0	78.0	3200	TB1D00	6SL3210-1PE12-3.L0	FSA	IES 2
			67.0	79.0			6SL3210-1PE12-3.L0	FSA	IES 2
			69.0	81.0			6SL3210-1PE14-3.L0	FSA	IES 2
1FP1014-0EB0.-....	18	0.0034	58.0	70.0	3200	TB1D00	6SL3210-1PE13-2.L1	FSA	IES 2
			59.0	71.0			6SL3210-1PE13-2.L1	FSA	IES 2
			69.0	81.0			6SL3210-1PE16-1.L1	FSA	IES 2
1FP1014-0EB4.-....	22	0.0043	58.0	70.0	3200	TB1D00	6SL3210-1PE14-3.L1	FSA	IES 2
			59.0	71.0			6SL3210-1PE14-3.L1	FSA	IES 2
			69.0	81.0			6SL3210-1PE18-0.L1	FSA	IES 2
1FP1014-1BB0.-....	34	0.0092	58.0	70.0	3200	TB1F00	6SL3210-1PE16-1.L1	FSA	IES 2
			58.0	70.0			6SL3210-1PE16-1.L1	FSA	IES 2
			65.0	77.0			6SL3210-1PE21-1.L0	FSA	IES 2
1FP1014-1BB1.-....	34	0.0092	59.0	71.0	3200	TB1F00	6SL3210-1PE18-0.L1	FSA	IES 2
			59.0	71.0			6SL3210-1PE18-0.L1	FSA	IES 2
			65.0	77.0			6SL3210-1PE21-4.L0	FSA	IES 2
1FP1014-1BB2.-....	39	0.0114	59.0	71.0	3200	TB1F00	6SL3210-1PE21-1.L0	FSA	IES 2
			60.0	72.0			6SL3210-1PE21-1.L0	FSA	IES 2
			69.0	81.0			6SL3210-1PE21-8.L0	FSB	IES 2
1FP1014-1CB0.-....	52	0.0200	69.0	81.0	3200	TB1H00	6SL3210-1PE21-4.L0	FSB	IES 2
			68.0	80.0			6SL3210-1PE21-4.L0	FSB	IES 2
			69.0	81.0			6SL3210-1PE22-7.L0	FSC	IES 2
1FP1014-1CB2.-....	66	0.0277	62.0	74.0	3200	TB1H00	6SL3210-1PE21-8.L0	FSB	IES 2
			64.0	76.0			6SL3210-1PE21-8.L0	FSB	IES 2
			68.0	80.0			6SL3210-1PE23-3.L0	FSC	IES 2
1FP1014-1DB2.-....	86	0.0485	69.0	81.0	3000	TB1J00	6SL3210-1PE22-7.L0	FSC	IES 2
			70.0	82.0			6SL3210-1PE22-7.L0	FSC	IES 2
			75.0	87.0			6SL3210-1PE23-8.L0	FSD	IES 2
1FP1014-1DB4.-....	104	0.0624	71.0	83.0	3000	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 2
			72.0	84.0			6SL3210-1PE23-3.L0	FSC	IES 2
			76.0	88.0			6SL3210-1PE26-0.L0	FSD	IES 2
1FP1014-1EB2.-....	132	0.1155	69.0	82.0	2610	TB1J00	6SL3210-1PE23-8.L0	FSD	IES 2
			70.0	83.0			6SL3210-1PE24-5.L0	FSD	IES 2
			76.0	89.0			6SL3210-1PE27-5.L0	FSE	IES 2
1FP1014-1EB4.-....	144	0.1315	69.0	82.0	2610	TB1J00	6SL3210-1PE24-5.L0	FSD	IES 2
			70.0	83.0			6SL3210-1PE26-0.L0	FSD	IES 2
			76.0	89.0			6SL3210-1PE28-8.L0	FSE	IES 2
1FP1014-2AB5.-....	171	0.1884	68.0	81.0	2610	TB1L00	6SL3210-1PE26-0.L0	FSE	IES 2
			70.0	83.0			6SL3210-1PE27-5.L0	FSD	IES 2
			73.0	86.0			6SL3210-1PE31-5.L0	FSF	IES 2

[1] In addition to the Power Module, a CU230P-2 Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1FP1514, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 400\ V}$	$P_{rated,\ 60\ Hz,\ 480\ V}$	$P_{rated,\ 87\ Hz,\ 400\ V}$	Frame size	Connection	Operating values at rated power f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	Cast-iron series 1FP1514 Version specifically for converter operation Article No.
kW	kW	kW			Hz	Nm	%		A	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class F according to B • Operation with a SINAMICS G120 converter with uncontrolled infeed – rated voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz										
3000 rpm	3600 rpm		4-pole							
0.75			80 M	Y	100	2.4	0.65	83.5	2.1	1FP1514-0DF2 ■-■■■■
	0.86			Y	120	2.3	0.65	82.5	2.1	
1.1			80 M	Y	100	3.5	0.66	85.2	2.95	1FP1514-0DF3 ■-■■■■
	1.27			Y	120	6.7	0.66	85.5	2.95	
1.5			90 S	Y	100	4.8	0.66	86.5	4	1FP1514-0EF0 ■-■■■■
	1.75			Y	120	4.6	0.67	86.5	3.95	
2.2			90 L	Y	100	7	0.66	88	5.8	1FP1514-0EF4 ■-■■■■
	2.55			Y	120	13.5	0.68	88.5	5.6	
3.0			112 M	Y	100	9.5	0.71	89.1	7.2	1FP1514-1BF1 ■-■■■■
	3.45			Y	120	9.2	0.71	89.5	7.1	
4.0			112 M	Y	100	12.7	0.69	90	9.8	1FP1514-1BF2 ■-■■■■
	4.55			Y	120	12.1	0.7	89.5	9.5	
5.5			132 S	Y	100	17.5	90.9	0.71	12.9	1FP1514-1CF0 ■-■■■■
	6.3			Y	120	16.7	90.2	0.72	12.7	
7.5			132 S	Y	100	24.0	91.7	0.72	17.3	1FP1514-1CF1 ■-■■■■
	8.6			Y	120	23.0	91.7	0.72	17.1	
11			160 M	Y	100	35	92.6	0.73	24.5	1FP1514-1DF2 ■-■■■■
	12.6			Y	120	33.5	91.4	0.73	24.5	
15			160 M	Y	100	48.0	93.3	0.72	34	1FP1514-1DF3 ■-■■■■
	17.3			Y	120	46.0	93.0	0.73	33.5	
18.5			160 L	Y	100	58	93.7	0.72	41.5	1FP1514-1DF4 ■-■■■■
	21.3			Y	120	56.5	93.0	0.73	41.0	
22			180 M	Y	100	70	94.0	0.71	50	1FP1514-1EF2 ■-■■■■
	25.3			Y	120	67	93.0	0.71	50	
30			200 L	Y	100	96	94.5	0.72	67	1FP1514-2AF4 ■-■■■■
	34.5			Y	120	91	94.1	0.72	67	
37			200 L	Y	100	118	94.8	0.72	82	1FP1514-2AF5 ■-■■■■
	42.5			Y	120	112	94.5	0.73	81	
45			225 M	Y	100	143	95.0	0.73	99	1FP1514-2BF2 ■-■■■■
	52			Y	120	136	94.4	0.73	99	
For versions, see Article No. supplements and special versions.										■-■■■■

All technical specifications refer to converter operation.

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Cast-iron series SIMOTICS SD 1FP1514, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Converter SINAMICS G120 – PM240-2** Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm	Type	Type [1]		
1FP1514-0DF2.-....	17	0.0013	68.0	80.0	6000	TB1D00	6SL3210-1PE12-3.L0	FSA	IES 2
							6SL3210-1PE12-3.L0	FSA	IES 2
1FP1514-0DF3.-....	18	0.0015	68.0	80.0	6000	TB1D00	6SL3210-1PE13-2.L1	FSA	IES 2
							6SL3210-1PE13-2.L1	FSA	IES 2
1FP1514-0EF0.-....	24	0.0022	66.0	78.0	6000	TB1D00	6SL3210-1PE14-3.L1	FSA	IES 2
			70.0	82.0			6SL3210-1PE14-3.L1	FSA	IES 2
1FP1514-0EF4.-....	27	0.0031	66.0	78.0	6000	TB1D00	6SL3210-1PE16-1.L1	FSA	IES 2
			70.0	82.0			6SL3210-1PE16-1.L1	FSA	IES 2
1FP1514-1BF1.-....	39	0.0064	63.0	75.0	6000	TB1F00	6SL3210-1PE18-0.L1	FSA	IES 2
			67.0	79.0			6SL3210-1PE18-0.L1	FSA	IES 2
1FP1514-1BF2.-....	41	0.0071	69.0	81.0	6000	TB1F00	6SL3210-1PE21-1.L0	FSA	IES 2
							6SL3210-1PE21-1.L0	FSA	IES 2
1FP1514-1CF0.-....	53	0.0133	70.0	82.0	5600	TB1H01	6SL3210-1PE21-4.L0	FSB	IES 2
			72.0	84.0			6SL3210-1PE21-4.L0	FSB	IES 2
1FP1514-1CF1.-....	56	0.0160	70.0	82.0	5600	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 2
			72.0	84.0			6SL3210-1PE21-8.L0	FSB	IES 2
1FP1514-1DF2.-....	89	0.0323	72.0	84.0	4800	TB1J01	6SL3210-1PE22-7.L0	FSC	IES 2
			76.0	88.0			6SL3210-1PE22-7.L0	FSC	IES 2
1FP1514-1DF3.-....	96	0.0377	72.0	84.0	4800	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 2
			76.0	88.0			6SL3210-1PE23-3.L0	FSC	IES 2
1FP1514-1DF4.-....	102	0.0444	75.0	87.0	4800	TB1J01	6SL3210-1PE23-8.L0	FSC	IES 2
			76.0	88.0			6SL3210-1PE24-5.L0	FSC	IES 2
1FP1514-1EF2.-....	144	0.087	73.0	86.0	4600	TB1J00	6SL3210-1PE24-5.L0		IES 2
			75.0	88.0			6SL3210-1PE26-0.L0		IES 2
1FP1514-2AF4.-....	187	0.1277	73.0	86.0	4500	TB1L01	6SL3210-1PE26-0.L0		IES 2
			76.0	89.0			6SL3210-1PE27-5.L0		IES 2
1FP1514-2AF5.-....	222	0.1884	73.0	86.0	4500	TB1L01	6SL3210-1PE28-8.L0		IES 2
			76.0	89.0			6SL3210-1PE28-8.L0		IES 2
1FP1514-2BF2.-....	286	0.3599	78.0	92.0	4500	TB1L01	6SL3210-1PE31-1.L0		IES 2
			81.0	95.0			6SL3210-1PE31-1.L0		IES 2

[1] In addition to the Power Module, a CU230P-2 Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1FP1514, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 400\ V}$	$P_{rated,\ 60\ Hz,\ 480\ V}$	$P_{rated,\ 87\ Hz,\ 400\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	Cast-iron series 1FP1514 Version specifically for converter operation Article No.
kW	kW	kW			Hz	Nm	%		A	
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class F according to B • Operation with a SINAMICS G120 converter with uncontrolled infeed – rated voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz										
1500 rpm	1800 rpm	2610 rpm	4-pole							
0.55			80 M	Y	50	3.5	83.9	0.67	1.49	1FP1514-0DB2■-■■■■
	0.63			Y	60	3.4	84.0	0.66	1.49	
		0.95		Δ	87	3.5	87.5	0.65	2.55	
0.75			80 M	Y	50	4.8	85.7	0.67	1.98	1FP1514-0DB3■-■■■■
	0.86			Y	60	4.6	85.5	0.66	2.0	
		1.3		Δ	87	4.8	89.0	0.64	3.45	
1.1			90 S	Y	50	7.0	87.2	0.69	2.8	1FP1514-0EB0■-■■■■
	1.27			Y	60	6.7	87.5	0.69	2.75	
		1.9		Δ	87	7.0	89.0	0.68	4.8	
1.5			90 M	Y	50	9.5	88.2	0.69	3.75	1FP1514-0EB4■-■■■■
	1.75			Y	60	9.0	88.5	0.68	3.8	
		2.6		Δ	87	9.5	90.5	0.67	6.5	
2.2			112 M	Y	50	14	89.5	0.71	5.3	1FP1514-1BB0■-■■■■
	2.55			Y	60	13.3	91.0	0.71	5.2	
		3.85		Δ	87	14	92.0	0.69	9.2	
3			112 M	Y	50	19.1	90.4	0.71	7.1	1FP1514-1BB1■-■■■■
	3.45			Y	60	18.1	91.0	0.72	6.9	
		5.2		Δ	87	19.1	91.8	0.70	12.3	
4			112 M	Y	50	25.5	91.1	0.72	9.3	1FP1514-1BB2■-■■■■
	4.55			Y	60	24.0	91.0	0.73	9.0	
		6.9		Δ	87	25.5	92.3	0.71	16.2	
5.5			132 S	Y	50	35	91.9	0.72	12.6	1FP1514-1CB0■-■■■■
	6.3			Y	60	33.5	92.4	0.73	12.3	
		9.6		Δ	87	35	92.8	0.71	22	
7.5			132 M	Y	50	47.5	92.6	0.72	17.1	1FP1514-1CB2■-■■■■
	8.6			Y	60	45.5	92.4	0.73	16.7	
		13.1		Δ	87	47.5	93.3	0.70	30.5	
11			160 M	Y	50	70	93.3	0.72	25.0	1FP1514-1DB2■-■■■■
	12.6			Y	60	67	93.6	0.73	24.0	
		19.1		Δ	87	70	93.6	0.71	43.5	
15			160 L	Y	50	95	93.9	0.71	34.0	1FP1514-1DB4■-■■■■
	17.3			Y	60	90	94.5	0.72	33.5	
		26		Δ	87	95	94.1	0.71	59.0	
18.5			180 M	Y	50	118.0	94.2	0.71	42.0	1FP1514-1EB2■-■■■■
	21.3			Y	60	113.0	94.5	0.72	41.0	
		32		Δ	87	118.0	95.0	0.71	73.0	
22			180 L	Y	50	140.0	94.5	0.71	50.0	1FP1514-1EB4■-■■■■
	25.3			Y	60	134.0	94.5	0.72	49.0	
		38.1		Δ	87	140.0	93.9	0.70	87.0	
30			200 L	Y	50	191.0	95.2	0.71	68.0	1FP1514-2AB5■-■■■■
	34.5			Y	60	183.0	95.4	0.72	66.0	
		52		Δ	87	191.0	94.4	0.71	118.0	
37			225 S	Y	50	236	95.2	0.75	79	1FP1514-2BB0■-■■■■
	42.5			Y	60	225	95.4	0.75	78	
		64		Δ	87	236	95.4	0.75	136	
45			225 M	Y	50	286	95.4	0.75	96	1FP1514-2BB2■-■■■■
	52			Y	60	276	95.8	0.75	95	
		78		Δ	87	286	95.6	0.75	165	
For versions, see Article No. supplements and special versions.										■-■■■■

All technical specifications refer to converter operation.

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Cast-iron series SIMOTICS SD 1FP1514, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Converter SINAMICS G120 – PM240-2** Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm	Type	Type [1]		
1FP1514-0DB2.-....	19	0.0019	66.0	78.0	3200	TB1D01	6SL3210-1PE11-8.L0	FSA	IES 2
			67.0	79.0			6SL3210-1PE11-8.L0	FSA	IES 2
			69.0	81.0			6SL3210-1PE13-2.L0	FSA	IES 2
1FP1514-0DB3.-....	22.5	0.0025	66.0	78.0	3200	TB1D01	6SL3210-1PE12-3.L0	FSA	IES 2
			67.0	79.0			6SL3210-1PE12-3.L0	FSA	IES 2
			69.0	81.0			6SL3210-1PE14-3.L0	FSA	IES 2
1FP1514-0EB0.-....	18	0.0034	58.0	70.0	3200	TB1D01	6SL3210-1PE13-2.L1	FSA	IES 2
			59.0	71.0			6SL3210-1PE13-2.L1	FSA	IES 2
			69.0	81.0			6SL3210-1PE16-1.L1	FSA	IES 2
1FP1514-0EB4.-....	26	0.0043	58.0	70.0	3200	TB1D01	6SL3210-1PE14-3.L1	FSA	IES 2
			59.0	71.0			6SL3210-1PE14-3.L1	FSA	IES 2
			69.0	81.0			6SL3210-1PE18-0.L1	FSA	IES 2
1FP1514-1BB0.-....	46	0.0092	58.0	70.0	3200	TB1F01	6SL3210-1PE16-1.L1	FSA	IES 2
			58.0				6SL3210-1PE16-1.L1	FSA	IES 2
			65.0	77.0			6SL3210-1PE21-1.L0	FSA	IES 2
1FP1514-1BB1.-....	46	0.0092	59.0	71.0	3200	TB1F01	6SL3210-1PE18-0.L1	FSA	IES 2
			59.0				6SL3210-1PE18-0.L1	FSA	IES 2
			65.0	77.0			6SL3210-1PE21-4.L0	FSA	IES 2
1FP1514-1BB2.-....	51	0.0114	59.0	71.0	3200	TB1F01	6SL3210-1PE21-1.L0	FSA	IES 2
			60.0	72.0			6SL3210-1PE21-1.L0	FSA	IES 2
			69.0	81.0			6SL3210-1PE21-8.L0	FSB	IES 2
1FP1514-1CB0.-....	68	0.0200	69.0	81.0	3200	TB1H01	6SL3210-1PE21-4.L0	FSB	IES 2
			68.0	80.0			6SL3210-1PE21-4.L0	FSB	IES 2
			69.0	81.0			6SL3210-1PE22-7.L0	FSC	IES 2
1FP1514-1CB2.-....	80	0.0277	62.0	74.0	3200	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 2
			64.0	76.0			6SL3210-1PE21-8.L0	FSB	IES 2
			68.0	80.0			6SL3210-1PE23-3.L0	FSC	IES 2
1FP1514-1DB2.-....	105	0.0485	69.0	81.0	3200	TB1J01	6SL3210-1PE22-7.L0	FSC	IES 2
			70.0	82.0			6SL3210-1PE22-7.L0	FSC	IES 2
			75.0	87.0			6SL3210-1PE23-8.L0	FSD	IES 2
1FP1514-1DB4.-....	120	0.0624	71.0	83.0	3200	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 2
			72.0	84.0			6SL3210-1PE23-3.L0	FSC	IES 2
			76.0	88.0			6SL3210-1PE26-0.L0	FSD	IES 2
1FP1514-1EB2.-....	166	0.1155	69.0	82.0	3000	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 2
			70.0	83.0			6SL3210-1PE24-5.L0	FSD	IES 2
			76.0	89.0			6SL3210-1PE27-5.L0	FSE	IES 2
1FP1514-1EB4.-....	182	0.1315	69.0	82.0	3000	TB1J01	6SL3210-1PE24-5.L0	FSD	IES 2
			70.0	83.0			6SL3210-1PE26-0.L0	FSD	IES 2
			76.0	89.0			6SL3210-1PE28-8.L0	FSE	IES 2
1FP1514-2AB5.-....	220	0.1884	68.0	81.0	3000	TB1L01	6SL3210-1PE26-0.L0	FSE	IES 2
			70.0	83.0			6SL3210-1PE27-5.L0	FSD	IES 2
			73.0	86.0			6SL3210-1PE31-5.L0	FSF	IES 2
1FP1514-2BB0.-....	320	0.442	70.0	84.0	3000	TB1L01	6SL3210-1PE28-8.L0	FSE	IES 2
			71.0	85.0			6SL3210-1PE28-8.L0	FSE	IES 2
			77.0	91.0			6SL3210-1PE31-5.L0	FSF	IES 2
1FP1514-2BB2.-....	365	0.518	70.0	84.0	3000	TB1L01	6SL3210-1PE31-1.L0	FSE	IES 2
			71.0	85.0			6SL3210-1PE31-1.L0	FSE	IES 2
			77.0	91.0			6SL3210-1PE31-8.L0	FSF	IES 2

[1] In addition to the Power Module, a CU230P-2 Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Selection and ordering data

Voltages	Article No. supplement		Frame size							Motor version
	Voltage code 12th and 13th position of the Article No.	Additional identification code with order code and plain text if required	80	90	112	132	160	180	200	
			1FP1014							Super Premium Efficiency
1FP1014- . . . . ■ - ■ . . .		Order code								
Voltage at 50 Hz or 60 Hz										
Line voltage: 50 Hz, 400 V 60 Hz, 480 V	**2 1**	**–**	□	□	□	□	□	□	□	

□ Standard version

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Selection and ordering data

Voltages	Article No. supplement		Frame size								Motor version
	Voltage code 12th and 13th position of the Article No.	Additional identification code with order code and plain text if required	**80**	**90**	**112**	**132**	**160**	**180**	**200**	**225**	
			1FP1514								Super Premium Efficiency
1FP1514- . . . . ■ - ■ . . .		Order code									
Voltage at 50 Hz or 60 Hz											
Line voltage:	**2** **1**	**–**	□	□	□	□	□	□	□	□	
50 Hz, 400 V 60 Hz, 480 V											

□ Standard version

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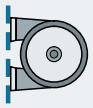
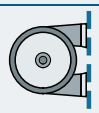
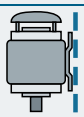
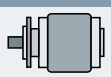
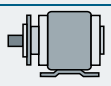
Aluminum series SIMOTICS GP 1FP1014

Selection and ordering data

Types of construction		Article No. supplement		Frame size							Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**80**	**90**	**112**	**132**	**160**	**180**	**200**	
				1FP1014							Super Premium Efficiency
1FP1014- . . . . . - . ■ . . (-Z)			Order code								
Without flange											
IM B3 [1] [2]		**A**	–	□	□	□	□	□	□	□	
IM B6 [2]		**T**	–	□	□	□	□	□	□	□	
IM B7 [2]		**U**	–	□	□	□	□	□	□	□	
IM B8 [2]		**V**	–	□	□	□	□	□	□	□	
IM V6 [2]		**D**	–	□	□	□	□	□	□	□	
IM V5 without protective cover [2]		**C**	–	□	□	□	□	□	□	□	
IM V5 with protective cover [2] [3] [4]		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	
With flange		**Acc. to EN 50347 Acc. to DIN 42948**		**FF165 A 200**	**FF165 A 200**	**FF215 A 250**	**FF265 A 300**	**FF300 A 350**	**FF300 A 350**	**FF350 A 400**	
IM B5 [2] [5]		**F**	–	✓	✓	✓	✓	✓	✓	✓	
IM V1 without protective cover [2]		**G**	–	✓	✓	✓	✓	✓	✓	✓	
IM V1 with protective cover [2] [4]		**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	
IM V3 [3]		**H**	–	✓	✓	✓	✓	✓	✓	✓	
IM B35		**J**	–	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 4/56.

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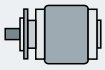
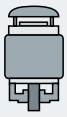
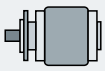
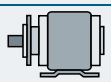
Types of construction		Article No. supplement		Frame size							Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**80**	**90**	**112**	**132**	**160**	**180**	**200**	
				1FP1014							Super Premium Efficiency
1FP1014-. . . . . - . ■ . . (-Z)			Order code								
With flange next largest		**Acc. to EN 50347**		–	FF215	FF265	FF300	–	–	–	
		Acc. to DIN 42948		–	A 250	A 300	A 350	–	–	–	
IM B5 [2) 5)]		**F**	**P01**	–	✓	✓	✓	–	–	–	
IM V1 without protective cover [2)]		**G**	**P01**	–	✓	✓	✓	–	–	–	
IM V1 with protective cover [2) 4) 5) 6)]		**G**	**P01+H00**	–	✓	✓	✓	–	–	–	
IM V3 [4)]		**H**	**P01**	–	✓	✓	✓	–	–	–	
IM V18 with protective cover [2) 3) 4) 5)]		**M**	**H00**	–	✓	✓	✓	–	–	–	
With flange next smallest		**Acc. to EN 50347**		FF130	–	FF165	FF215	FF265	FF265	FF300	
		Acc. to DIN 42948		A 160	–	A 200	A 250	A 300	A 300	A 350	
IM B5 [2) 6)]		**F**	**P02**	✓	–	✓	✓	✓	✓	✓	
IM V1 without protective cover [2)]		**G**	**P02**	✓	–	✓	✓	✓	✓	✓	
IM V1 with protective cover [2) 4) 5) 6)]		**G**	**P02+H00**	✓	–	✓	✓	✓	✓	✓	
IM V3 [4)]		**H**	**P02**	✓	–	✓	✓	✓	✓	✓	
IM B35 [3)]		**J**	**P02**	✓	–	✓	✓	✓	✓	✓	

For legends and footnotes, see page 4/56.

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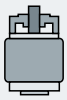
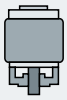
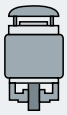
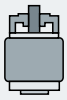
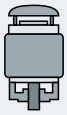
Aluminum series SIMOTICS GP 1FP1014

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: **80**	**90**	**112**	**132**	**160**	**180**	**200**	Motor version
				1FP1014							Super Premium Efficiency
1FP1014-. . . . . - . ■ . . (-Z)			Order code								
With flange		**Acc. to EN 50347**		**FT100**	**FT115**	**FT130**	**FT165**	**FT215**	**–**	**–**	
		Acc. to DIN 42948		**C 120**	**C 140**	**C 160**	**C 200**	**C 250**	**–**	**–**	
IM B14 [2) 6)]		**K**	**–**	✓	✓	✓	✓	✓	–	–	
IM V19 [2)]		**L**	**–**	✓	✓	✓	✓	✓	–	–	
IM V18 without protective cover [2)]		**M**	**–**	✓	✓	✓	✓	✓	–	–	
IM V18 with protective cover [2) 4) 5) 6)]		**M**	**H00**	✓	✓	✓	✓	✓	–	–	
IM B34 [3)]		**N**	**–**	✓	✓	✓	✓	✓	–	–	
With flange next largest		**Acc. to EN 50347**		**FT130**	**FT130**	**FT165**	**FT215**	**–**	**–**	**–**	
		Acc. to DIN 42948		**C 160**	**C 160**	**C 200**	**C 250**	**–**	**–**	**–**	
IM B14 [2) 6)]		**K**	**P01**	✓	✓	✓	✓	–	–	–	
IM V19 [2)]		**L**	**P01**	✓	✓	✓	✓	–	–	–	
IM V18 without protective cover [2)]		**M**	**P01**	✓	✓	✓	✓	–	–	–	
IM V18 with protective cover [2) 4) 5) 6)]		**M**	**P01+H00**	✓	✓	✓	✓	–	–	–	
IM B34 [3)]		**N**	**P01**	✓	✓	✓	✓	–	–	–	

□ Standard version
✓ With additional charge
O. R. Possible on request
– Not possible

1) The types of construction IM B6/7/8, IM V6, and IM V5 with/without protective cover are also possible as long as no condensation drainage holes (order code **H03**) and no stamping of these types of construction on the rating plate are required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code **H03**), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) The "Second shaft extension" option (order code **L05**) is not possible.

4) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

5) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no condensation drainage holes (order code **H03**) and no stamping of these types of construction on the rating plate are required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

6) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no condensation drainage holes (order code **H03**) and no stamping of these types of construction on the rating plate are required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

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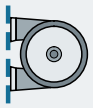
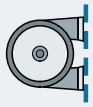
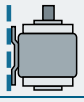
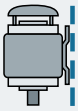
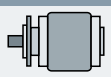
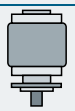
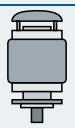
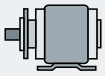
Selection and ordering data

Types of construction		Article No. supplement		Frame size								Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**80**	**90**	**112**	**132**	**160**	**180**	**200**	**225**	
				1FP1514								Super Premium Efficiency
1FP1514-. . . . . - . ■ . . (-Z)			Order code									
Without flange												
IM B3 [1] [2]		**A**	**–**	□	□	□	□	□	□	□	□	
IM B6 [2]		**T**	**–**	□	□	□	□	□	□	□	□	
IM B7 [2]		**U**	**–**	□	□	□	□	□	□	□	□	
IM B8 [2]		**V**	**–**	□	□	□	□	□	□	□	□	
IM V6 [2]		**D**	**–**	□	□	□	□	□	□	□	□	
IM V5 without protective cover [2]		**C**	**–**	□	□	□	□	□	□	□	□	
IM V5 with protective cover [2] [3] [4]		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	
With flange		**Acc. to EN 50347** **Acc. to DIN 42948**		**FF165** **A 200**	**FF165** **A 200**	**FF215** **A 250**	**FF265** **A 300**	**FF300** **A 350**	**FF300** **A 350**	**FF350** **A 400**	**FF400** **A 450**	
IM B5 [2] [5]		**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
IM V1 without protective cover [2]		**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
IM V1 with protective cover [2] [3] [4]		**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	
IM V3 [4]		**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
IM B35		**J**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 4/59.

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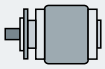
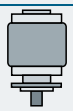
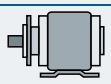
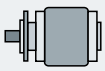
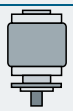
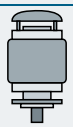
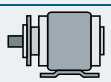
Cast-iron series SIMOTICS SD 1FP1514

Types of construction		Article No. supplement		Frame size								Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**80**	**90**	**112**	**132**	**160**	**180**	**200**	**225**	
				1FP1514								Super Premium Efficiency
1FP1514-. . . . . - . ■ . . (-Z)			Order code									
With flange next largest		**Acc. to EN 50347**		–	FF215	FF265	FF300	–	–	–	–	
		Acc. to DIN 42948		–	A 250	A 300	A 350	–	–	–	–	
IM B5 [2) 6)]		**F**	**P01**	–	✓	✓	✓	–	–	–	–	
IM V1 without protective cover [2)]		**G**	**P01**	–	✓	✓	✓	–	–	–	–	
IM V1 with protective cover [2) 4) 5)]		**G**	**P01+H00**	–	✓	✓	✓	–	–	–	–	
IM V3 [3)]		**H**	**P01**	–	✓	✓	✓	–	–	–	–	
IM B35 [3)]		**J**	**P01**	–	✓	✓	✓	–	–	–	–	
With flange next smallest		**Acc. to EN 50347**		FF130	–	FF165	FF215	FF265	FF265	FF300	–	
		Acc. to DIN 42948		A 160	–	A 200	A 250	A 300	A 300	A 350	–	
IM B5 [2) 6)]		**F**	**P02**	✓	–	✓	✓	✓	✓	✓	–	
IM V1 without protective cover [2)]		**G**	**P02**	✓	–	✓	✓	✓	✓	✓	–	
IM V1 with protective cover [2) 4) 5)]		**G**	**P02+H00**	✓	–	✓	✓	✓	✓	✓	–	
IM V3 [4)]		**H**	**P02**	✓	–	✓	✓	✓	✓	✓	–	
IM B35 [3)]		**J**	**P02**	✓	–	✓	✓	✓	✓	✓	–	

For legends and footnotes, see page 4/59.

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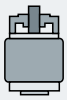
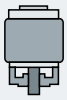
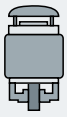
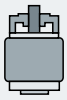
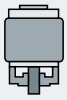
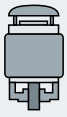
Types of construction		Article No. supplement		Frame size								Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**80**	**90**	**112**	**132**	**160**	**180**	**200**	**225**	
				1FP1514								Super Premium Efficiency
1FP1514-. . . . . - . ■ . . (-Z)			Order code									
With flange		**Acc. to EN 50347**		**FT100**		**FT130**	**FT165**	**FT215**	**–**	**–**		
		Acc. to DIN 42948		**C 120**		**C 160**	**C 200**	**C 250**	**–**	**–**		
IM B14 [2) 6)]		**K**	**–**	–	–	✓	✓	✓	–	–		
IM V19 [2)]		**L**	**–**	–	–	✓	✓	✓	–	–		
IM V18 without protective cover [2)]		**M**	**–**	–	–	✓	✓	✓	–	–		
IM V18 with protective cover [2) 3) 4)]		**M**	**H00**	–	–	✓	✓	✓	–	–		
IM B34		**N**	**–**	✓	✓	✓	✓	✓	–	–		
With flange next largest		**Acc. to EN 50347**		**FT130**	**FT130**	**FT165**	**FT215**	**–**	**–**	**–**		
		Acc. to DIN 42948		**C 160**	**C 160**	**C 200**	**C 250**	**–**	**–**	**–**		
IM B14 [2) 6)]		**K**	**P01**	✓	✓	✓	✓	–	–	–		
IM V19 [2)]		**L**	**P01**	✓	✓	✓	✓	–	–	–		
IM V18 without protective cover [2)]		**M**	**P01**	✓	✓	✓	✓	–	–	–		
IM V18 with protective cover [2) 3) 4)]		**M**	**P01+H00**	✓	✓	✓	✓	–	–	–		
IM B34		**N**	**P01**	✓	✓	✓	✓	–	–	–		

□ Standard version
✓ With additional charge
O. R. Possible on request
– Not possible

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

4) The "Second shaft extension" option (order code **L05**) is not possible.

5) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

6) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

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Aluminum series SIMOTICS GP 1FP1014

Selection and ordering data

Motor protection	Article No. supplement		Frame size							Motor version
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text if required	80	90	112	132	160	180	200	
			1FP1014							Super Premium Efficiency
1FP1014- . . . . . - . . ■ .		Order code								
Motor protection										
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers 2-wire input (6 terminals) [1]	**H**	**–**	–	–	✓	✓	✓	✓	✓	
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	**–**	○	○	○	○	○	○	○	
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	
1 Pt100 resistance thermometer 2-wire input (2 terminals)	**P**	**–**	–	–	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers 3-wire input (9 terminals)	**Q**	**–**	–	–	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers 3-wire input (18 terminals) [1]	**R**	**–**	–	–	✓	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) [1]	**Z**	**Q3A**	✓	✓	✓	✓	✓	✓	✓	

○ Without additional charge
✓ With additional charge
– Not possible

[1] Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

[2] Not UL-certified. Not in combination with option **D39**.

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Selection and ordering data

Motor protection	Article No. supplement		Frame size								Motor version
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text if required	**80**	**90**	**112**	**132**	**160**	**180**	**200**	**225**	
			1FP1514								Super Premium Efficiency
1FP1514-. . . . . - . . ■ .		Order code									
Motor protection											
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers 2-wire input (6 terminals) [1]	**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	**–**	○	○	○	○	○	○	○	✓	
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	**–**	–	–	✓	✓	✓	✓	✓	✓	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**P**	**–**	–	–	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q**	**–**	–	–	✓	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**R**	**–**	–	–	✓	✓	✓	✓	✓	✓	
3 NTC thermistors – for tripping (6 terminals) [2]	**Z**	**Q2A**	✓	✓	✓	✓	✓	–	–	–	
3 bimetal sensors (NC contacts) for tripping (2 terminals) [1]	**Z**	**Q3A**	✓	✓	✓	✓	✓	✓	✓	✓	
6 × bimetal sensors (NC contacts) for alarm and tripping (4 terminals) [1]	**Z**	**Q9A**	–	–	✓	✓	✓	✓	✓	✓	

○ Without additional charge
✓ With additional charge
– Not possible

[1] Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

[2] Not UL-certified. Not in combination with option **D39**.

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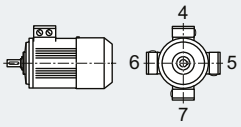
Aluminum series SIMOTICS GP 1FP1014

Selection and ordering data

Terminal box position	Article No. supplement		Frame size							Motor version
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	**80**	**90**	**112**	**132**	**160**	**180**	**200**	
			1FP1014							Super Premium Efficiency
1FP1014-. . . . . -. . . ■		Order code								
Terminal box position										
Terminal box top [1]	**4**	–	□	□	□	□	□	□	□	
Terminal box right-hand side [2]	**5**	–	✓	✓	✓	✓	✓	✓	✓	
Terminal box left-hand side [2]	**6**	–	✓	✓	✓	✓	✓	✓	✓	
Terminal box bottom [2]	**7**	–	–	–	✓	✓	–	–	–	

□ Standard version
✓ With additional charge

[1] For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

[2] For types of construction with feet, screwed-on feet are standard.

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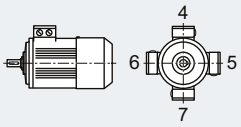
Selection and ordering data

Terminal box position	Article No. supplement		Frame size								Motor version
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	**80**	**90**	**112**	**132**	**160**	**180**	**200**	**225**	
			1FP1514								Super Premium Efficiency
1FP1514-. . . . . -. . . ■		Order code									
Terminal box position											
Terminal box top [1]	**4**	**–**	□	□	□	□	□	□	□	□	
Terminal box right-hand side [2]	**5**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
Terminal box left-hand side [2]	**6**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	
Terminal box bottom [2]	**7**	**–**	–	–	✓	✓	✓	–	–	–	

□ Standard version
✓ With additional charge

[1] For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

[2] For types of construction with feet, screwed-on feet are standard.

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Aluminum series SIMOTICS GP 1FP1014

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	Motor version
		1FP1014							Super Premium Efficiency
1FP1014-. . . . . -. . . . -Z	Order code								
Motor protection									
1 or 3 PTC thermistors – for tripping (2 terminals) [2) 3)]	**Q11**	✓	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [3)]	**Q12**	✓	✓	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) [3)]	**Q23**	✓	✓	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensor (4 terminals) [3)]	**Q25**	✓	✓	✓	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) [3)]	**Q31**	✓	✓	✓	✓	✓	✓	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	✓	✓	✓	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	–	–	–	–	–	✓	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	**Q34**	–	–	–	–	–	✓	✓	
1 Pt1000 resistance thermometer (2 terminals) [19)]	**Q35**	○	○	○	○	○	○	○	
2 Pt1000 resistance thermometers (4 terminals) [19)]	**Q36**	✓	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	–	–	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**Q61**	–	–	✓	✓	✓	✓	✓	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	–	–	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	–	–	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	–	–	✓	✓	✓	✓	–	
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals)	**Q72**	–	–	O. R.	O. R.	O. R.	✓	✓	
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)	**Q78**	–	–	O. R.	O. R.	O. R.	✓	✓	
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)	**Q79**	–	–	O. R.	O. R.	O. R.	✓	✓	
Motor connection and terminal box									
External grounding	**H04**	✓	✓	✓	✓	✓	✓	✓	
Terminal box on NDE [1)]	**H08**	✓	✓	✓	✓	✓	✓	✓	
Rotation of the terminal box through 90°, entry from DE [2)]	**R10**	○	○	○	○	○	✓	✓	
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	✓	✓	
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	✓	✓	
Terminal box in position 0°; connection from right [20)]	**R13**	○	○	○	○	–	–	–	
One metal cable gland	**R15**	✓	✓	✓	✓	✓	✓	✓	
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓	✓	
3 cables protruding, 0.5 m long	**R20**	✓	✓	✓	✓	✓	–	–	
3 cables protruding, 1.5 m long	**R21**	✓	✓	✓	✓	✓	O. R.	O. R.	
6 cables protruding, 0.5 m long	**R22**	✓	✓	✓	O. R.	O. R.	O. R.	O. R.	
6 cables protruding, 1.5 m long	**R23**	✓	✓	✓	✓	✓	O. R.	O. R.	
6 cables protruding, 3 m long	**R24**	✓	✓	✓	✓	✓	O. R.	O. R.	
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	
Motor connector Han-Drive 10e for 230 VΔ/400 VY	**R70**	✓	✓	✓	✓	–	–	–	
Motor connector EMC Han-Drive 10e for 230 VΔ/400 VY	**R71**	✓	✓	✓	✓	–	–	–	

For legends and footnotes, see page 4/67.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	Motor version
		1FP1014							Super Premium Efficiency
1FP1014-. . . . . -. . . . -Z	Order code								
Windings and insulation									
Temperature class 180 (H) at rated power and max. CT 60 °C [3]	**N11**	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	
Colors and paint finish									
Standard paint finish C2 in RAL 7030 stone gray		□	□	□	□	□	□	□	
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	
Internal coating	**S05**	✓	✓	✓	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53** • and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56** • and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	
Modular technology – Basic versions [4]									
Mounting of holding brake (standard assignment) [5]	**F01**	✓	✓	✓	✓	✓	✓	✓	
Mounting of brake for higher switching frequency (operating brake)	**F02**	O. R.	O. R.	O. R.	O. R.	O. R.	–	–	
Mounted separately driven fan	**F70**	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	✓	✓	✓	
Modular technology – Additional versions									
Brake supply voltage 24 V DC	**F10**	✓	✓	✓	✓	✓	✓	✓	
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	✓	✓	○	○	○	○	○	
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	✓	✓	✓	✓	✓	✓	✓	
Brake supply voltage 180 V DC	**F17**	✓	✓	✓	✓	✓	✓	✓	Only for: Combination with F01
Brake supply voltage 205 V DC	**F18**	✓	✓	✓	✓	✓	✓	✓	Only for: Combination with F01
Mechanical manual brake release with lever (no locking)	**F50**	✓	✓	✓	✓	✓	✓	✓	
Special technology [3]									
Mounting of LL 861 900 220 rotary pulse encoder [6]	**G04**	–	–	✓	✓	✓	✓	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder [6]	**G05**	–	–	✓	✓	✓	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder [6]	**G06**	–	–	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	–	–	–	–	–	✓	✓	
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	–	–	–	–	–	✓	✓	
Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder	**G25**	–	–	–	–	–	✓	✓	
Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder	**G27**	–	–	–	–	–	✓	✓	
Mechanical version and degrees of protection									
Prepared for mountings, centering hole only [7]	**G40**	✓	✓	✓	✓	✓	□	□	
Prepared for mountings with D12 shaft [12]	**G41**	✓	✓	✓	✓	✓	✓	✓	
Prepared for mountings with D16 shaft [12]	**G42**	O. R.	O. R.	✓	✓	✓	✓	✓	
Mechanical protection for encoder	**G43**	✓	✓	✓	✓	✓	✓	✓	
Protective cover [6] [8]	**H00**	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 4/67.

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Aluminum series SIMOTICS GP 1FP1014

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	Motor version
		1FP1014							Super Premium Efficiency
1FP1014-. . . . . -. . . . -Z	Order code								
Mechanical design and degrees of protection (continued)									
Screwed-on (instead of cast) feet	**H01**	✓	✓	✓	✓	✓	□	□	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	✓	✓	✓	
Condensation drainage holes [9]	**H03**	✓	✓	✓	✓	✓	✓	✓	
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	
Housing with screw mounting	**H10**	✓	✓	–	–	–	✓	✓	
IP65 degree of protection [10]	**H20**	✓	✓	✓	✓	✓	✓	✓	
IP56 degree of protection [11]	**H22**	✓	✓	✓	✓	✓	✓	✓	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar [8]	**H23**	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature and installation altitude									
Coolant temperature –40 to +40 °C [13]	**D03**	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature –30 to +40 °C [13]	**D04**	✓	✓	✓	✓	✓	✓	✓	
Versions in accordance with standards and specifications									
Version according to UL and CSA (Canadian regulation)	**D39**	✓	✓	✓	✓	✓	✓	✓	
TR CU product safety certificate EAC for Eurasian Customs Union	**D47**	✓	✓	✓	✓	✓	✓	✓	
Bearings and lubrication									
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	
Located bearing NDE	**L21**	✓	✓	✓	✓	□	□	□	
Bearing design for increased cantilever forces	**L22**	✓	✓	✓	✓	✓	✓	✓	
Regreasing device [14]	**L23**	–	–	✓	✓	✓	✓	✓	
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	✓	✓	✓	✓	✓	✓	✓	
Bearing insulation NDE	**L51**	–	–	✓	✓	✓	✓	✓	
Measuring nipple for SPM shock pulse measurement for bearing inspection [14]	**Q01**	–	–	✓	✓	✓	✓	✓	
Balance and vibration severity									
Half-key balancing (standard)		□	□	□	□	□	□	□	
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	
Shaft and rotor									
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	–	✓	✓	✓	✓	
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	
Non-standard cylindrical shaft extension, DE [15]	**Y58** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	
Non-standard cylindrical shaft extension, NDE [15]	**Y59** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	
Heating and ventilation									
Sheet metal fan cover	**F74**	✓	✓	✓	✓	✓	✓	✓	
Fan cover for textile industry [16]	**F75**	✓	✓	✓	✓	✓	✓	✓	
Metal external fan	**F76**	✓	✓	✓	✓	✓	✓	✓	
Without external fan and without fan cover	**F90**	✓	✓	✓	✓	✓	✓	✓	
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	✓	✓	✓	
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	✓	✓	✓	
Rating plate and additional rating plates									
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 4/67.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	Motor version
		1FP1014							Super Premium Efficiency
1FP1014-. . . . . -. . . . -Z	Order code								
Rating plate and additional rating plates (continued)									
Additional rating plate with customer specifications	**Y82** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	
Additional information on rating plate and on package label (max. 20 characters)	**Y84** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85** • and customer specifications	–	–	✓	✓	✓	✓	✓	
Extension of the liability for defects									
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [20]		◘	◘	◘	◘	◘	◘	◘	
Packaging, safety notes, documentation and test certificates									
A printed version of the safety notes in German/English and safety notes in the language of the country of use is supplied in each wire-lattice pallet [17]	**B01**	○	○	○	○	○	○	○	
Inspection certificate 3.1 according to EN 10204 [18]	**B02**	✓	✓	✓	✓	✓	✓	✓	
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	
Wire-lattice pallet packaging	**B99**	○	○	○	○	○	○	○	
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	

◘ Standard version
○ Without additional charge
✓ With additional charge
O. R. Possible on request
– Not possible
• This order code only determines the price of the version – Additional plain text is required.

1) For order code **H08**, feet dimensions differing from EN 50347 Further information is available in the DT Configurator (see Appendix, "Tools and engineering").

2) With IM B5 flange, only possible in combination with order code **H08**.

3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

4) A second shaft extension is not possible. Please inquire for mounted brakes.

5) The brake supply voltage must be specified or ordered with order codes **F10**, **F11**, **F12**, **F17**, and **F18**.

6) In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

7) As standard, motors that are prepared for additional mounted components (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mounted components provided by the customer, this can be ordered with order code **G43**. Not possible in combination with order code **L00** vibration severity grade B. In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

8) Order code **H00** provides mechanical protection for encoders.

9) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

10) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**).

11) Not possible in combination with brake BFK458 (order code **F01**).

12) As standard, motors that are prepared for additional mounted components (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mounted components provided by the customer, this can be ordered with order code **G43**. Not possible in combination with order code **L00** vibration severity grade B.

13) Not possible for type of construction IM V3.

14) Not possible when brake is mounted.

15) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
- Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
- Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.
For an explanation of the order codes, see Catalog Section 1 "Introduction".

16) The special requirements of the textile industry regarding the sheet metal cover open up the possibility that a finger may be inserted between the cover and housing. The customer must implement appropriate measures to ensure that the installed system is "finger-safe".

17) The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976

18) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor and will be dispatched by e-mail.

19) Not UL-certified. Not in combination with option **D31**.

20) Only possible in combination with order codes **R70** and **R71**.

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Cast-iron series SIMOTICS SD 1FP1514

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	225	Motor version
		1FP15.4								Super Premium Efficiency
1FP15.4- . . . . . -. . . . -Z	Order code									
Motor protection										
1 or 3 PTC thermistors – for tripping (2 terminals) [2) 3)]	**Q11**	–	–	–	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [3)]	**Q12**	–	–	–	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) [3)]	**Q23**	–	–	–	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensor (4 terminals) [3)]	**Q25**	–	–	–	✓	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) [3)]	**Q31**	–	–	–	✓	✓	✓	✓	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	–	–	–	–	–	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	–	–	–	✓	✓	✓	✓	✓	
6 bimetal sensors (NC contacts) thermostat for alarm and tripping (12 terminals)	**Q34**	–	–	–	✓	✓	✓	✓	✓	
1 Pt1000 resistance thermometer (2 terminals) [19)]	**Q35**	○	○	○	○	○	○	○	○	
2 Pt1000 resistance thermometers (4 terminals) [19)]	**Q36**	–	–	–	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	–	–	–	✓	✓	✓	✓	✓	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	–	–	–	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	–	–	–	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	–	–	–	✓	✓	✓	✓	✓	
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals) [1)]	**Q72**	–	–	–	–	–	✓	✓	✓	
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)	**Q78**	–	–	–	–	–	✓	✓	✓	
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)	**Q79**	–	–	–	–	–	✓	✓	✓	Not for: Motors in combination with order codes F40 and F41 (frame size 225)
Motor connection and terminal box										
External grounding	**H04**	✓	✓	✓	✓	✓	□	□	□	
Terminal box on NDE [2)]	**H08**	✓	✓	✓	✓	✓	✓	✓	✓	
Second external grounding	**H70**	–	–	✓	✓	✓	✓	✓	✓	
Rotation of the terminal box through 90°, entry from DE	**R10**	○	○	○	○	○	✓	✓	✓	
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	✓	✓	✓	
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	✓	✓	✓	
One EMC cable gland	**R14**	✓	✓	✓	✓	✓	✓	✓	✓	
One metal cable gland	**R15**	✓	✓	✓	✓	✓	✓	✓	✓	
EMC cable gland, maximum configuration	**R16**	✓	✓	✓	✓	✓	✓	✓	✓	
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	
Terminal box without cable entry opening	**R51**	–	–	○	○	○	○	○	○	
Drilled removable entry plate	**R52**	–	–	–	–	–	✓	✓	✓	
Undrilled removable entry plate	**R53**	–	–	–	–	–	✓	✓	✓	
Cast-iron auxiliary terminal box (small)	**R62**	–	–	✓	✓	✓	✓	✓	✓	
Silicone-free version		–	–	□	□	□	□	□	□	
Non-standard threaded through hole (NPT or G thread)	**Y61** • and customer specifications	–	–	✓	✓	✓	✓	✓	✓	

For legend, see page 4/71 and for footnotes, see page 4/72.

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Cast-iron series SIMOTICS SD 1FP1514

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	225	Motor version
		1FP15.4								Super Premium Efficiency
1FP15.4- . . . . . -. . . . -Z	Order code									
Windings and insulation										
Temperature class 180 (H) at rated power and max. CT 60 °C [3]	**N11**	✓	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	
Colors and paint finish										
Standard paint finish C2 in RAL 7030 stone gray		□	□	□	□	□	□	□	□	
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish for use offshore C5	**S04**	✓	✓	✓	✓	✓	✓	✓	✓	
Internal coating	**S05**	–	–	–	✓	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53** • and paint finish RAL….	✓	✓	✓	–	✓	✓	✓	✓	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56** • and paint finish RAL….	✓	✓	✓	✓	✓	✓	✓	✓	
Modular technology – Basic versions [4]										
Mounting of holding brake (standard assignment) [5]	**F01**	–	–	✓	✓	✓	✓	✓	✓	
Mounted separately driven fan	**F70**	–	–	–	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	✓	✓	✓	✓	
Modular technology – Additional versions										
Brake supply voltage 24 V DC	**F10**	–	–	✓	✓	✓	✓	✓	✓	
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	–	–	○	○	○	○	○	○	
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	–	–	✓	✓	✓	✓	✓	✓	
Brake supply voltage 180 V DC	**F17**	–	–	✓	✓	✓	✓	✓	✓	Only for: Combination with F01
Brake supply voltage 205 V DC	**F18**	–	–	✓	✓	✓	✓	✓	✓	Only for: Combination with F01
Backstop, counterclockwise motion blocked, clockwise direction of rotation	**F40**	–	–	–	✓	✓	✓	✓	✓	
Backstop, clockwise motion blocked, counterclockwise direction of rotation	**F41**	–	–	–	✓	✓	✓	✓	✓	
Mechanical manual brake release with lever (no locking)	**F50**	–	–	✓	✓	✓	✓	✓	✓	
Special technology [5]										
Mounting of LL 861 900 220 rotary pulse encoder [8]	**G04**	–	–	✓	✓	✓	✓	✓	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder [8]	**G05**	–	–	✓	✓	✓	✓	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder [8]	**G06**	–	–	✓	✓	✓	✓	✓	✓	
Mounting of POG 10 DN rotary pulse encoder (only in combination with separately driven fan or brake) [18]	**G07**	–	–	–	–	–	✓	✓	✓	
Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake) [18]	**G08**	–	–	–	–	–	✓	✓	✓	
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder	**G25**	–	–	–	–	–	✓	✓	✓	
Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder	**G27**	–	–	–	–	–	✓	✓	✓	

For legend, see page 4/71 and for footnotes, see page 4/72.

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Cast-iron series SIMOTICS SD 1FP1514

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	225	Motor version
		1FP15.4								Super Premium Efficiency
1FP15.4- . . . . . -. . . . -Z	Order code									
Special technology [5] (continued)										
Mounting of a special type of rotary pulse encoder	**Y70** • and customer specifications	–	–	–	–	–	O. R.	O. R.	O. R.	
Mechanical version and degrees of protection										
Prepared for mountings, centering hole only	**G40**	✓	✓	✓	✓	✓	□	□	□	
Prepared for mountings with D12 shaft	**G41**	✓	✓	✓	✓	✓	✓	✓	✓	
Prepared for mountings with D16 shaft	**G42**	✓	✓	✓	✓	✓	✓	✓	✓	
Mechanical protection for encoder	**G43**	✓	✓	✓	✓	✓	✓	✓	✓	
Protective cover [6] [8] [9]	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	**H01**	–	–	✓	✓	✓	✓	✓	✓	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	
Condensation drainage holes		✓	✓	□	□	□	□	□	□	
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	
Housing with screw mounting	**H10**	✓	✓	✓	✓	✓	✓	✓	✓	
IP65 degree of protection [10]	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	
IP54 degree of protection	**H21**	–	–	–	–	–	✓	✓	✓	
IP56 degree of protection [11]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar [12]	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature and installation altitude										
Coolant temperature –50 to +40 °C	**D02**	–	–	✓	✓	✓	✓	✓	✓	
Coolant temperature –40 to +40 °C [13]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature –30 to +40 °C	**D04**	✓	✓	✓	✓	✓	✓	✓	✓	
Versions in accordance with standards and specifications										
Version according to UL and CSA (Canadian regulation)	**D39**	✓	✓	✓	✓	✓	✓	✓	✓	
TR CU product safety certificate EAC for Eurasian Customs Union	**D47**	✓	✓	✓	✓	✓	✓	✓	✓	
Bearings and lubrication										
Regreasing device with M10 × 1 grease nipple according to DIN 71412 A [14]	**L19**	–	–	–	–	–	✓	✓	✓	
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	
Located bearing NDE	**L21**	✓	✓	✓	✓	□	□	□	□	
Bearing design for increased cantilever forces	**L22**	✓	✓	✓	✓	✓	✓	✓	✓	
Regreasing device [14]	**L23**	–	–	✓	✓	✓	✓	✓	✓	
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	✓	✓	✓	✓	✓	✓	✓	✓	
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	**L28**	–	–	–	–	–	✓	✓	✓	
Bearing insulation NDE	**L51**	–	–	✓	✓	✓	✓	✓	✓	
Measuring nipple for SPM shock pulse measurement for bearing inspection [14]	**Q01**	–	–	✓	✓	✓	✓	✓	✓	
Balance and vibration severity										
Half-key balancing (standard)		□	□	□	□	□	□	□	□	
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	
Shaft and rotor										
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	

For legend, see page 4/71 and for footnotes, see page 4/72.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	112	132	160	180	200	225	Motor version
		1FP15.4								Super Premium Efficiency
1FP15.4- . . . . . -Z	Order code									
Shaft and rotor (continued)										
Non-standard cylindrical shaft extension, DE [15]	**Y58** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	
Non-standard cylindrical shaft extension, NDE [15]	**Y59** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	
Special shaft steel	**Y60** • and customer specifications	–	–	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
Heating and ventilation										
Sheet metal fan cover	**F74**	□	□	✓	✓	✓	✓	✓	✓	
Metal external fan	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	
Rating plate and additional rating plates										
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	✓	
Additional rating plate with customer specifications	**Y82** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	
Additional information on rating plate and on package label (max. 20 characters)	**Y84** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85** • and customer specifications	–	–	✓	✓	✓	✓	✓	✓	
Extension of the liability for defects										
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [16]		□	□	□	□	□	□	□	□	
Packaging, safety notes, documentation and test certificates										
Inspection certificate 3.1 according to EN 10204 [17]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	
Standard test (routine test) with acceptance	**B65**	–	–	✓	✓	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O. R. Possible on request
– Not possible

For footnotes, see page 4/72.

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1) Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

2) For order code **H08**, feet dimensions differing from EN 50347 Further information is available in the DT Configurator (see Appendix, "Tools and engineering").

3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

4) A second shaft extension is not possible. Please inquire for mounted brakes.

5) The brake supply voltage must be specified or ordered with order codes **F10**, **F11**, **F12**, **F17**, and **F18**.

6) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.

7) In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

8) LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.

9) Order code **H00** provides mechanical protection for encoders.

10) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**).

11) Not possible in combination with brake BFK458 – order code **F01**.

12) Not possible for type of construction IM V3.

13) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

14) Up to frame size 160 not possible when brake is mounted.

15) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
- Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
- Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.
For an explanation of the order codes, see Catalog Section 1 "Introduction".

16) Wearing parts (bearings) are excluded from the warranty extension.

17) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

18) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB. This option cannot be used in combination with brakes of type BFK458!

19) Not UL and CSA certified. Not available in combination with order code **D31**.

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Overview

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG
Rutesheimer Strasse 22
70499 Stuttgart, Germany
Phone +49 711 1388-0
Fax +49 711 1388-233

www.ottoroth.de
Email: info@ottoroth.de

Foundation blocks according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation blocks that are bolted to the machine (without washers) and fitted with taper pins are not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
  - for up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable spare motor with regard to the mounting dimensions and functions (the type series may vary).
  - if a spare motor is provided within the 3-year period, this will not mean that the warranty restarts.
  - Replacement motors delivered after the active production of the motor series are also identified as spare motors on the rating plate.
  - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
  - after a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
  - for up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
  - Designation and part number
  - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline
  In Germany
  Phone +49 911 895 7 222

You will find telephone numbers for other countries on our Internet site:
www.siemens.com/automation/service&support

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Notes on the dimensions

Overview

- Dimension designations according to EN 50347 and IEC 60072.
- Fits
  The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit EN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	flange (FF)	H17

  The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

- Dimensional tolerances
  For the following dimensions, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
H	to 250	– 0.5
	over 250	– 1.0
E, EA		– 0.5

  Keyways and feather keyways (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.
- All dimensions are specified in mm.

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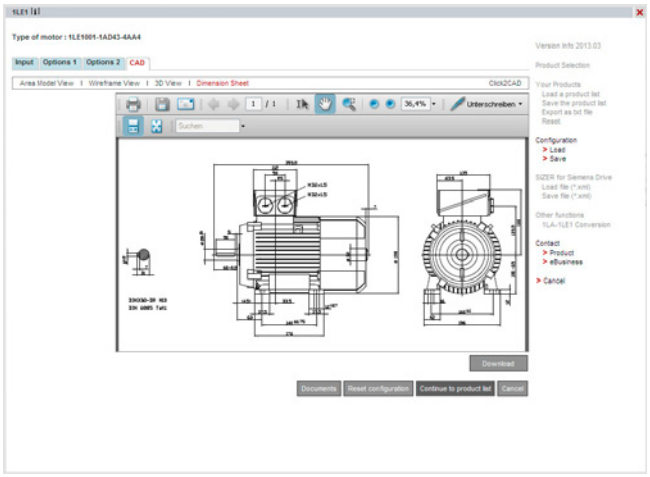
Overview

A dimensional drawing can be created in the "Drive Technology Configurator" (DT Configurator) for every configurable motor.
A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.
The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated in the Siemens Industry Mall and can be used on the Internet without installation.
German: www.siemens.de/dt-konfigurator
English: www.siemens.com/dt-configurator

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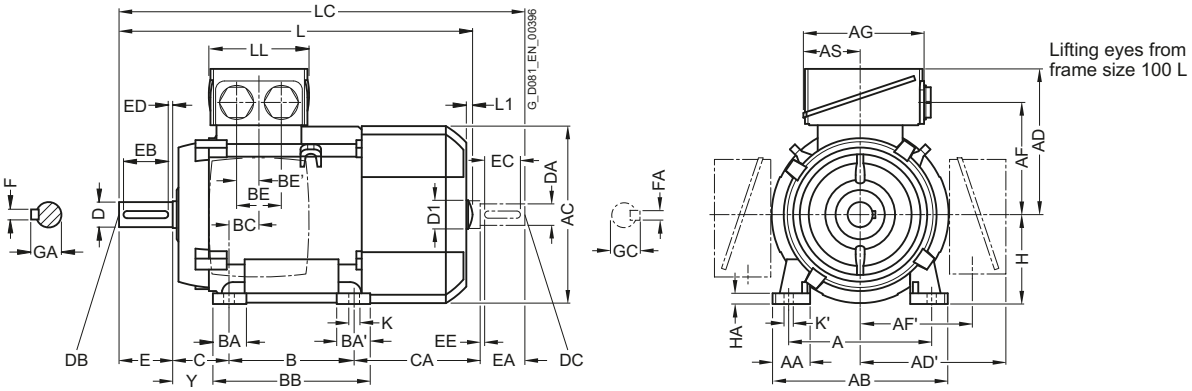
4

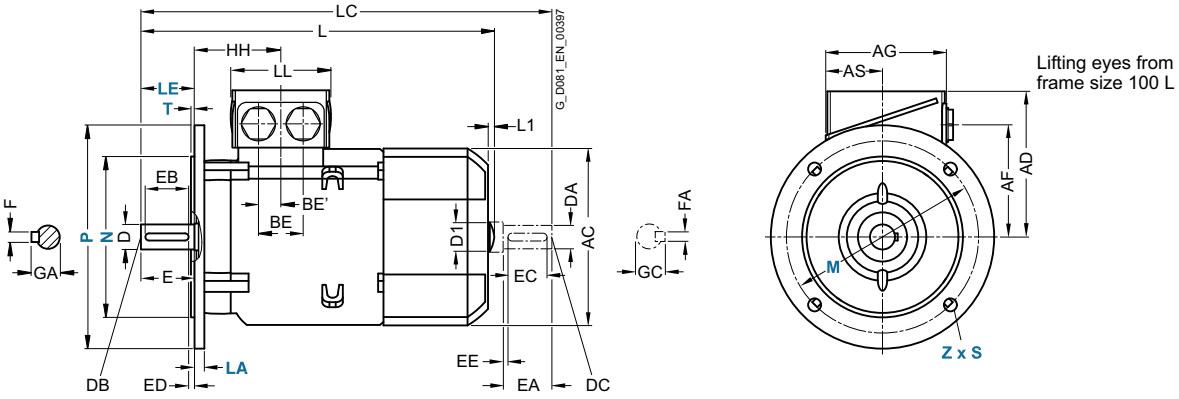
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1FP1014-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	0DB2, 0DB3	4	125	30.5	**150**	159	**121.5**	121.5	96.5	96.5	93	43	100	32	32	118	23	–	18[1]	50	113 148	**80**	8	41
90 S	0EB0	4	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	100	33	–	143	22.5	–[1]	18[1]	56	159	**90**	10	47
90 L	0EB4	4	140	30.5	**165**	178	**126**	126	101.5	101.5	93	43	125	33	–	143	22.5	–[1]	18[1]	56	154	**90**	10	47
112 M	1BB0, 1BB1, 1BB2	4	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	**112**	12	52
132 S	1CB0	4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76[2]	218[4]	26.5	48	24	89	166.5	**132**	15	69
132 M	1CB2	4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	178.5	**132**	15	69
160 M	1DB2	4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89[3]	300[5]	47	57	28.5	108	192	**160**	18	85
160 L	1DB4	4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	**160**	18	85
180 M	1EB2	4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	**180**	20	95
180 L	1EB4	4	279	65	**339**	356	**259**	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	**180**	20	95
200 L	2AB5	4	318	70	**378**	396	**296**	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	**200**	25	108

[1] Connecting hole for terminal box is on the side at the rear of the terminal box.

[2] With screwed-on feet, dimension BA' is 38 mm.

[3] With screwed-on feet, dimension BA' is 44 mm.

[4] With screwed-on feet, dimension BB is 180 mm.

[5] With screwed-on feet, dimension BB is 256 mm.

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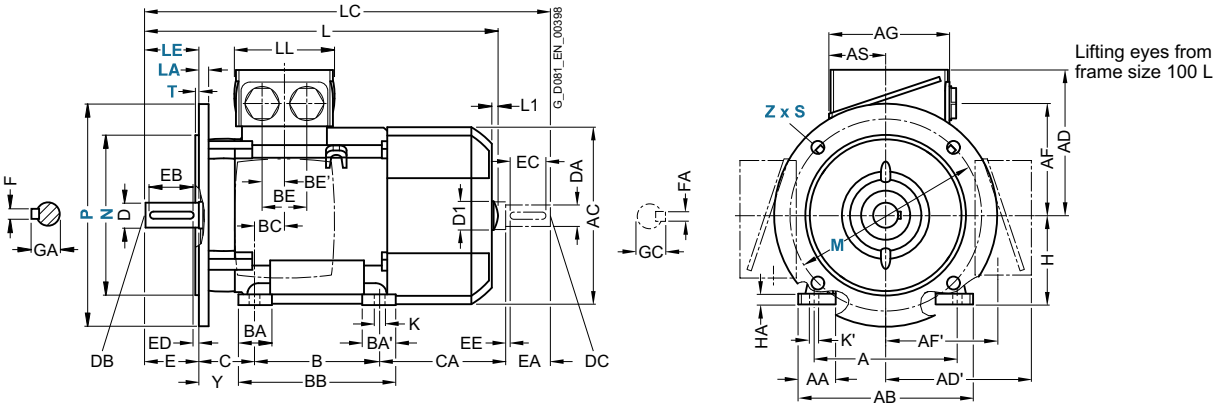
Dimensional drawings

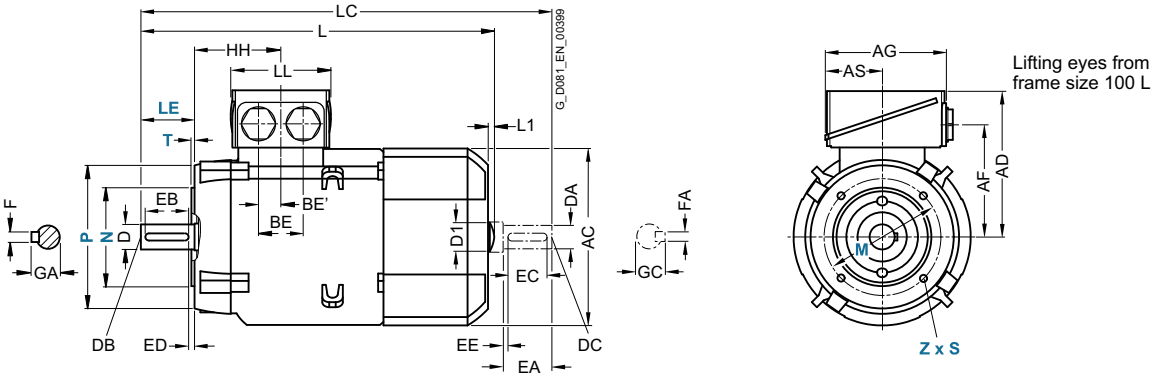
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1FP10.4-	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DB2, 0DB3	4	73	9.5	13.5	**292 327**	–	–	343 378	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	0EB0	4	78.5	10	14	**347**	–	–	405	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	0EB4	4	78.5	10	14	**387**	–	–	445	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
112 M	1BB0, 1BB1, 1BB2	4	96	12	16	**389**	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CB0	4	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	**515**	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DB2	4	155	15	19	**606**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DB4	4	155	15	19	**666**	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EB2	4	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4	4	151	14.5	19	**698**	–	–	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AB5	4	178	18.5	25	**746**	–	–	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

[1] The length is specified as far as the tip of the fan cover.

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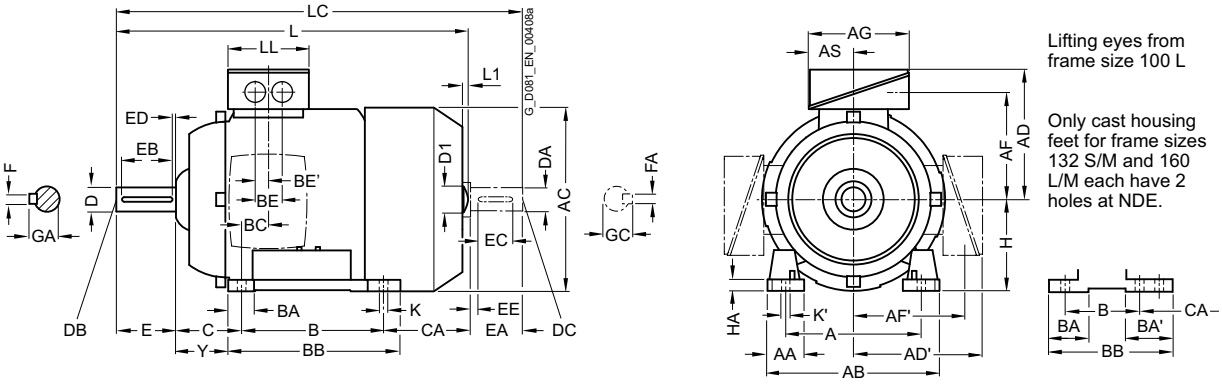
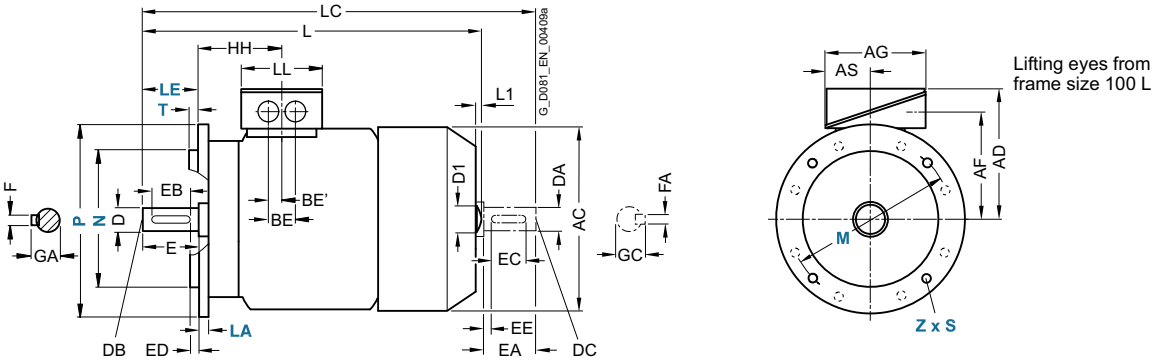
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1FP15.4-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	0DB2, 0DF2, 0DF3, 0DB3	4	125	30.5	**150**	162	**159**	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	**80**	8	41
90 S	0EB0, 0EF0,	4	140	30.5	**165**	180	**164**	164	127	127	126	62	100	33	54	143	24.5	36	18	56	159	**90**	11	47
90 L	0EF4, 0EB4	4	140	30.5	**165**	180	**164**	164	127	127	126	62	125	33	54	143	24.5	36	18	56	159 134	**90**	11	47
112 M	1BB0, 1BB1, 1BF1, 1BF2 1BB2	4	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130	**112**	12	52
132 S	1CB0, 1CF0, 1CF1	4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[1]	89[3]	218[5]	26.5	48	24	89	166.5	**132**	15	69
132 M	1CB2	4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[1]	–	218[5]	26.5	48	24	89	178.5	**132**	15	69
160 M	1DB2, 1DF2, 1DF3	4	254	60	**300**	333.5	**261**	261	213	213	190	92	210	73[2]	117[4]	300[6]	37	60	30	108	192	**160**	18	85
160 L	1DF4, 1DB4	4	254	60	**300**	333.5	**261**	261	213	213	190	92	254	73[2]	117[4]	300[6]	37	60	30	108	192 208	**160**	18	85

[1] With screwed-on feet, dimension BA is 41 mm.
[2] With screwed-on feet, dimension BA is 51 mm.
[3] With screwed-on feet, dimension BA' is 41 mm.
[4] With screwed-on feet, dimension BA' is 51 mm.
[5] With screwed-on feet, dimension BB is 180 mm.
[6] With screwed-on feet, dimension BB is 256 mm.

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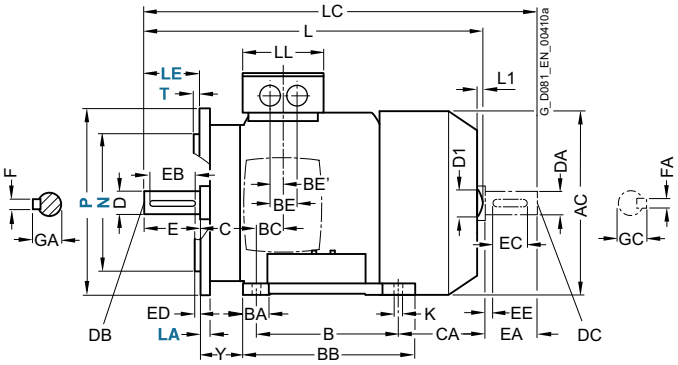
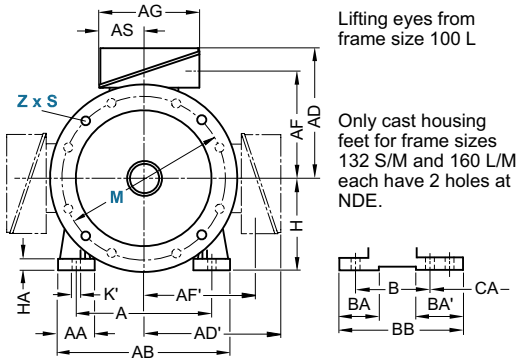
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



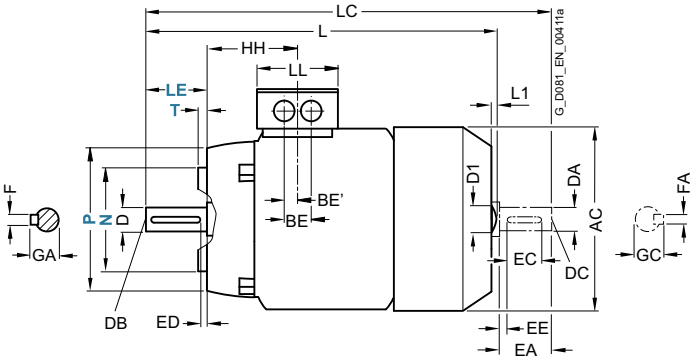


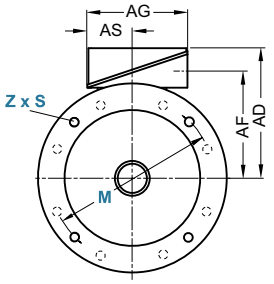
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





Lifting eyes from frame size 100 L

For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1FP15.4-	No. of poles	HH	K	K'	**L**	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DB2, 0DF2, 0DF3, 0DB3	4	71.5	10	10	**292** **327**	–	–	343 378	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	0EB0, 0EF0,	4	79.5	10	10	**347**	–	–	405	102	24	M8	50	40	5	8	27	19	M6	40	27	4	6	21.5
90 L	0EF4, 0EB4	4	79.5	10	10	**347** **387**	–	–	445	102	24	M8	50	40	5	8	27	19	M6	40	27	4	6	21.5
112 M	1BB0, 1BB1, 1BF1, 1BF2 1BB2	4	100.5	12	16	**415.5** **465.5**	7	32	475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CB0,1CF0 1CF1	4	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	**516.5**	8.5	39	585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DB2, 1DF2, 1DF3	4	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DF4, 1DB4	4	145	14.5	18	**606** **666**	10	45	730 790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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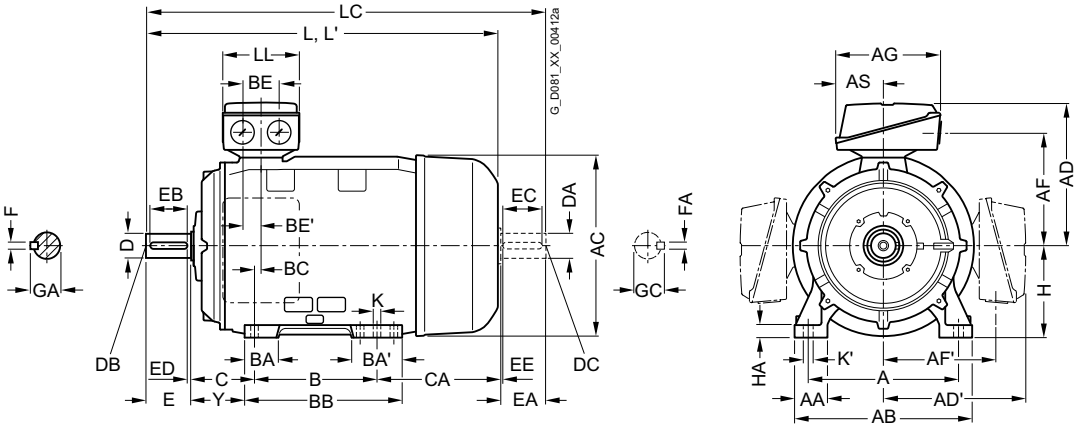
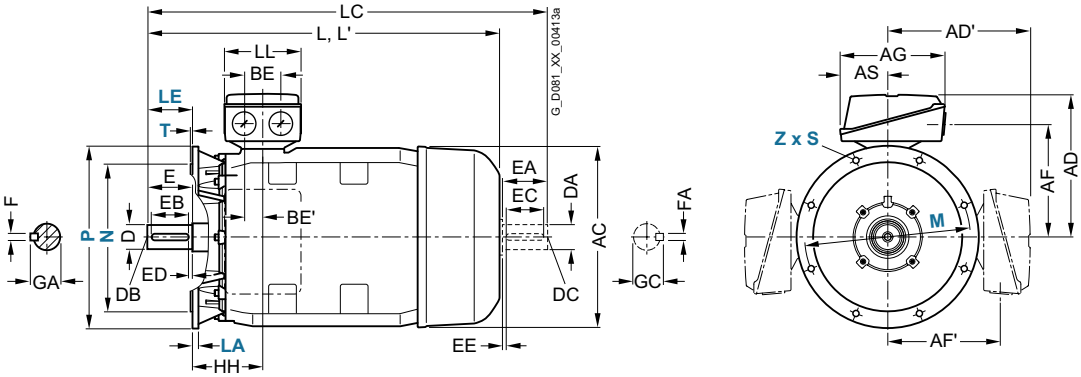
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																	
Frame size	Motor type 1FP15.4-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA
180 M/ 180 L	1EB2, 1EF2 1EB4	4	279	65	**339**	356	**286**	286	234	234	190	92	241	85	120	328	34	60	30	121	202
200 L	2AF4, 2AF5, 2AB5	4	318	70	**378**	396	**315**	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177
225 S	2BB0	4	356	80	**436**	449	**338**	338	282	282	266	112	286	92	117	361	15	85	42.5	149	273
225 M	2BF2 2BB2	4	356	80	**436**	449	**338**	338	282	282	266	112	311	92	117	361	15	85	42.5	149	248

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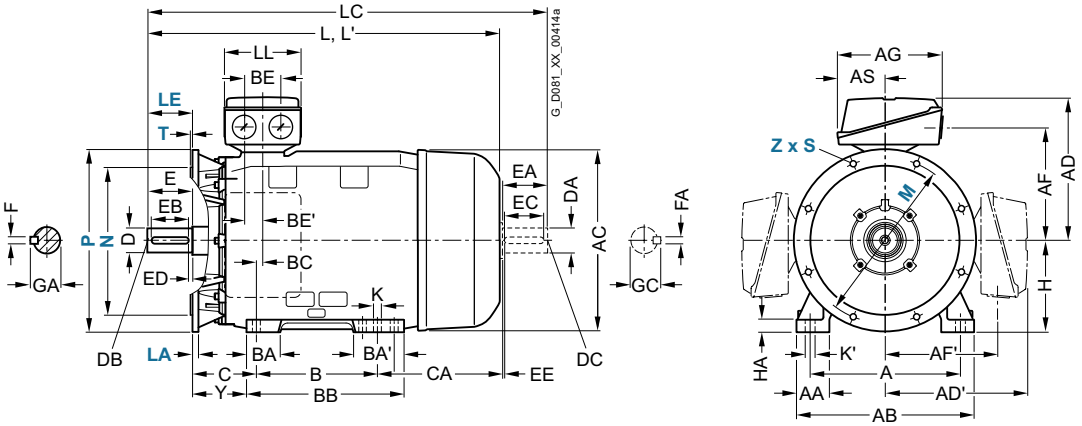
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Frame size	Motor type 1FP15.4-	No. of poles	**H**	HA	Y	HH	K	K´	**L**	LC[1)]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M/ 180 L	1EB2, 1EF2 1EB4	4	**180**	20	95	155	15	19	**668** **698**	784 814	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
200 L	2AF4, 2AF5, 2AB5	4	**200**	25	108	164	19	25	**721**	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S	2BB0	4	**225**	34	124	164	19	25	**848**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	2BF2 2BB2	4	**225**	34	124	164	19	25	**848** **928**	903 963	197	55 60	M20	110 140	100 125	5 10	16 18	59 64	48 55	M16 M20	110	100	5	14 16	51.5 59

[1)] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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Overview

SIMOTICS GP/SD VSD10 line motor series: 1LE109, 1LE159

SIMOTICS GP/SD VSD10 line motors are suitable for all sectors of industry as a result of their flexibility and the wide range of versions available.

Versions of the SIMOTICS GP/SD VSD10 line motor series: 1LE109, 1LE159

The motors are squirrel-cage induction motors with compact dimensions in a surface-cooled, enclosed version with self-ventilation. They have been specifically designed for converter operation.

1LE109 General Purpose for converter operation

- Four-quadrant operation with a converter, optimally coordinated to the SINAMICS G drive system. Can be operated with SINAMICS S (ALM, SLM) in four-quadrant operation.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Aluminum
- Frame sizes 100 to 160

1LE159 Severe Duty for converter operation

- Four-quadrant operation with a converter, optimally coordinated to the SINAMICS G drive system. Can be operated with SINAMICS S (ALM, SLM) in four-quadrant operation.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Cast iron
- Frame sizes 100 to 315

4

Benefits

The SIMOTICS GP/SD VSD10 line motor series has been specifically developed for operation with SINAMICS G converters.

- Optimizing the assignment of the motor active part to the Power Module results in low capital investment costs.
- The high power density and compact design ensure low space requirements combined with low weight.
- An optimally harmonized drive system is created as the motor is optimally coordinated and harmonized with the converter. For instance, the converter does not have to be derated or there is low temperature rise.
- Optionally, SIMOTICS GP motors with an aluminum housing (frame sizes 100 to 160) or SIMOTICS SD motors with a rugged cast-iron housing (frame sizes 100 to 315) are available.
- High degree of availability based on standard protection functions for converter operation – KTY 84-130 temperature sensors, Pt1000 resistance thermometers (all frame sizes) and NDE insulated bearings (frame sizes 280 and 315).
- As a result of the optimized insulation system, a high degree of reliability is obtained for four-quadrant operation with SINAMICS converters.
- Fast and simple commissioning by transferring a motor code into the converter.

More power ratings

SIMOTICS GP/SD VSD10 line motors are designed as standard for operation with a 50 Hz, 60 Hz, and 87 Hz characteristic (up to frame size 200). No special ordering option is required.

Optimized for converter operation

The new motor series has been optimized for operation with SINAMICS G120, G130, and G150 converters with regard to converter output currents and voltage utilization. Four-quadrant operation is possible without restrictions with the SINAMICS G120 and SINAMICS S120 converter families. The motors can also be operated on other SINAMICS converters (SINAMICS G120P, SINAMICS G120C, SINAMICS G120D).

High degree of flexibility

By consistently utilizing the 1LE1 standard motor platform, almost all options of the 1LE1 line motors can also be used for the SIMOTICS GP/SD VSD10 line series.

Known and established design

Line and converter motors can be easily interchanged due to their identical dimensions and customer interfaces. The connection and operating philosophy is exactly the same as for 1LE1 line motors.

International applications

The motors are not subject to any minimum efficiency requirements for specific countries. As a consequence, they can be operated without additional MEPS certificates, also in the USA, for example.

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Application

As a result of the wide range of options, the SIMOTICS GP/SD VSD10 line motor series can be deployed in all industrial areas and sectors. Paper, steel, energy, chemical, water/waste water are examples of some typical sectors.

Various flange and foot-mounted designs according to EN 60034-7 are available. IP55 is the standard degree of protection (other degrees of protection optionally available).

The wide field of applications that can be addressed includes, for example, the following:

- Pumps
- Fans
- Compressors
- Cranes
- Conveyor belts

Design

The SIMOTICS GP/SD VSD10 line motors are based on the 1LE1 platform. The principle design of the SIMOTICS GP/SD VSD10 line motors therefore corresponds to the 1LE1 line motors.

The mechanical parts are identical. The motors are adapted to the converter by appropriately dimensioning the active part and VSD-specific rating plate data.

Technical specifications

Overview of technical specifications

This table lists the most important technical specifications.

Type of motor	SIMOTICS GP/SD VSD10 line IEC Low-Voltage Motors; three-phase induction motors
Connection types	Star/delta connection The connection used depends on the particular load characteristic.
No. of poles	2, 4
Frame sizes	100 ... 315
Rated power	• 2-pole: 3 … 90 kW (50 Hz characteristic); 3.45 … 101 kW (60 Hz characteristic), 4.5 … 12.5 kW (87 Hz characteristic) • 4-pole: 2.2 … 200 kW (50 Hz characteristic); 2.55 … 230 kW (60 Hz characteristic), 3.7 … 48 kW (87 Hz characteristic)
Frequencies	Characteristics for 50 Hz, 60 Hz and 87 Hz
Versions	Air-cooled, enclosed version: • with self ventilation • with forced ventilation (optional) SIMOTICS GP motors in an aluminum version, frame sizes 100 … 160 SIMOTICS SD motors in a cast-iron version, frame sizes 100 … 315
Marking	Only permitted for converter operation. As converter motors, IE classification according to IEC 60034-30-1 is not required.
Rated speed	• 1500 rpm, 1800 rpm (up to frame size 315), and 2610 rpm (up to frame size 200) • 3000 rpm, 3600 rpm (up to frame size 280), and 5220 rpm (up to frame size 112)
Rated torque	9.6 … 1273 Nm (50 Hz characteristic); 9.2 … 1220 Nm (60 Hz characteristic), 8.2 … 176 Nm (87 Hz characteristic)
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class F Reinforced insulation system (Advanced) up to 440 V motor connection voltage Special insulation system (Premium) up to 480 V motor connection voltage
Degree of protection acc. to EN 60034-5 (IEC 60034-5)	Standard IP55 optionally IP56 and IP65 Air-cooled, enclosed version
Cooling acc. to EN 60034-6 (IEC 60034-6)	• Standard: Self-ventilated (IC411) • Optional: Forced-air cooled (IC416)
Permissible coolant temperature and installation altitude	–20 ... +40 °C as standard, installation altitude up to 1000 m above sea level
Standard voltages acc. to EN 60038 (IEC 60038)	50 Hz line supplies: 400 V, 500 V, 690 V 60 Hz line supplies: 460 V, 600 V The rated motor voltage required is listed in the "Selection and ordering data" for the required motor.
Type of construction acc. to EN 60034-7 (IEC 60034-7)	• Without flange: IM B3, IM B6, IM B7, IM B8, IM V5, IM V6 • With flange: IM B5, IM B35, IM V1, IM V3
Paint finish Suitability of paint finish for climate group acc. to IEC 60721, Part 2-1	As standard: color RAL 7030 stone gray
Vibration severity grade acc. to EN 60034-14 (IEC 60034-14)	Grade A (normal)
Shaft extension acc. to DIN 748 (IEC 60072)	Balancing type: half-key balancing as standard
Sound pressure level acc. to EN ISO 1680 (tolerance +3 dB)	The corresponding sound pressure level is listed in the "Selection and ordering data" for the required motor.
Weights	The corresponding weight is listed in the "Selection and ordering data" for the required motor.
Modular mounting concept	Optional pulse encoder, brake, and separately driven fan according to ordering data
Options	See "Article No. supplements and special versions"

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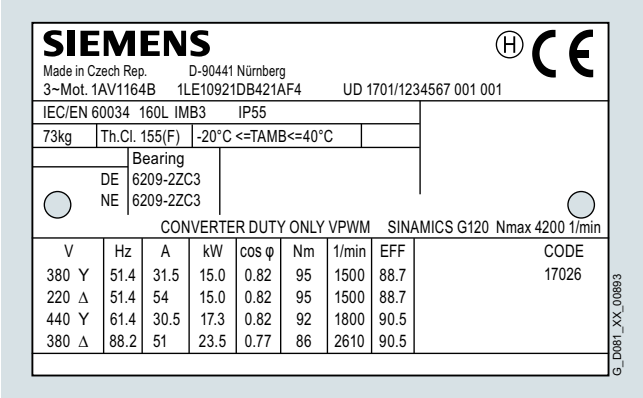
Technical specifications

Rating plate

In accordance with EN 60034-1, the approximate total weight is specified on the rating plate. The standard version of the rating plate is the international version in English.

For straightforward and fast commissioning with SINAMICS G converters, a motor code number is stamped on the rating plate (CODE). The rated frequencies deviate, depending on the slip, from 50 Hz, 60 Hz, and 87 Hz.



Example of a rating plate for SIMOTICS GP VSD10 line

Motors specially designed for converter operation

These motors have been specifically designed for converter operation. The catalog data apply for operation with Siemens SINAMICS G and SINAMICS S converters.

When operated with an alternative converter, the catalog data apply (thermal torque limits, maximum overload torques), approximately for the following general conditions:

- Minimum rated pulse frequencies:
  - 4 kHz at 400 V, up to 90 kW
  - 2 kHz at 500 V to 690 V, up to 132 kW
  - 1.25 kHz at 500 V to 690 V, 160 and 200 kW
- The converter can provide the rated voltage as listed in the catalog.
- Permissible voltage peaks for reinforced insulation system (Advanced):
  $\hat{U}_{\text{phase-to-phase}} \leq 1600$ V, $\hat{U}_{\text{phase-to-ground}} \leq 1400$ V, $t_s > 0.1$ µs
- Permissible voltage peaks for special insulation system (Premium):
  $\hat{U}_{\text{phase-to-phase}} \leq 2200$ V, $\hat{U}_{\text{phase-to-ground}} \leq 1500$ V, $t_s > 0.1$ µs

For SINAMICS G120 converters (from firmware version 4.7 and higher), the SIMOTICS GP/SD VSD10 line can be selected as the motor category and addressed using the motor code No. in the SINAMICS converter using the STARTER software or at the converter operator panel (Advanced Operator Panel (AOP), Basic Operator Panel (BOP)).

Rated voltage

The tolerance for the rated voltage is in accordance with EN 60034-1. A rated voltage range is not specified. The rated motor voltages are selected so that when operated with a SINAMICS G120 converter, the available voltage is optimally utilized.

Insulation

The motors can be operated with line voltages up to 690 V 3 AC with SINAMICS G converters and SINAMICS S converters (uncontrolled and controlled infeed) when maintaining the permissible peak voltages specified above.

Depending on the selected motor connection voltage, a special insulation system is used for converter operation.

- Up to 440 V motor voltage (480 V line voltage) reinforced insulation system (Advanced)
- From 480 V motor voltage (500 V line voltage) special insulation system (Premium)

For converter operation with the power ratings specified in the catalog, the motors can be utilized corresponding to thermal class 155 (F) (service factor 1.0).

Preferred supply system configurations are TT systems and TN systems with neutral-point grounding. In the case of a fault when connected to an IT system (ground fault), the insulation is excessively stressed. In this case, the process should be terminated as quickly as possible ($t < 2$ h), and the fault resolved. We do not recommend operation in corner-grounded TN systems.

Noise

The maximum sound pressure levels should be taken from the selection and ordering data.

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Technical specifications

Separately driven fan

For the technical specifications of the separately driven fans, see page 1/77 "Technical specifications of separately driven fans".

Bearings

To prevent bearing current damage, converter motors are equipped with insulated bearing cartridges at the NDE, available as standard for frame sizes 280 and 315.

Insulated NDE bearings are optionally available for frame sizes 100 to 250. We recommend their use depending on the particular plant or system.

For converter operation, as a result of the basic principle employed, electrical bearing stress is created through the bearing lubricant film due to a voltage that is capacitively coupled in.

The physical cause of this is the common-mode voltage at the converter output that is inherent in the control method for a converter:
The sum of the three phase voltages is – in contrast to pure line operation – not equal to zero at every point in time.

In order to apply currents to the motor which are sinusoidal as far as possible (resulting in smoother running, lower oscillation torques, and lower stray losses), a high pulse frequency is required for the converter's output voltage. The related (very steep) switching edges of the converter output voltage (and also, therefore, of the common-mode voltage) cause correspondingly high capacitive currents and voltages on the machine's internal capacitances.

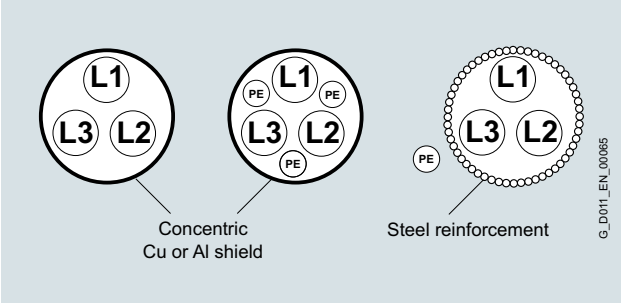
In the worst-case scenario, the capacitive voltage induced via the bearing can lead to random arcing through the bearing lubricating film, thus causing premature bearing aging or damage.

This physical effect, which occurs in isolated cases, has mostly been observed in connection with larger motors.

EMC-compliant installation of the drive system is a basic prerequisite for preventing premature bearing damage via bearing currents.

The most important measures for reducing bearing currents are:

- Insulated motor bearing at the NDE.
- Use cables with a symmetrical cable cross-section:



- Preference given to a line supply with isolated neutral point (IT system).
- Using grounding cables with low impedance over a wide frequency range (DC up to approximately 70 MHz):
for example, braided copper ribbon cables, HF finely stranded wires.
- Separate HF equipotential-bonding cable between motor housing and driven machine.
- Separate HF equipotential-bonding cable between motor housing and converter PE busbar.
- 360° HF contacting of the cable shield on the motor housing and the converter PE busbar. This can be achieved using EMC screwed glands on the motor side and EMC shield clips on the converter side, for example.

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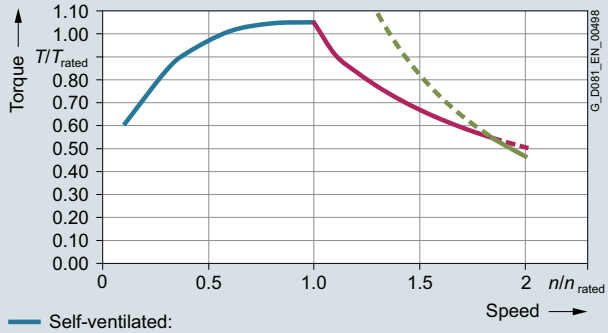
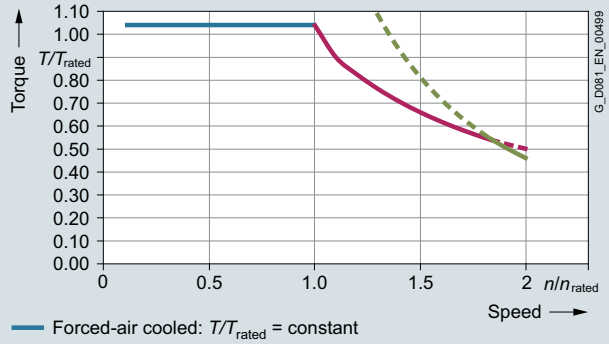
Technical specifications

Torque limits (continuous duty)

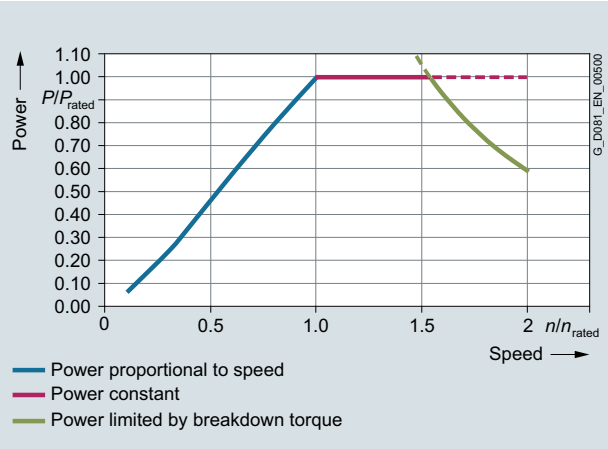
The thermal torque limit characteristics of the SIMOTICS GP/SD VSD10 line define the maximum load torque for uninterrupted duty (S1) over the complete speed control range. The characteristics are different for all of the cooling methods. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.



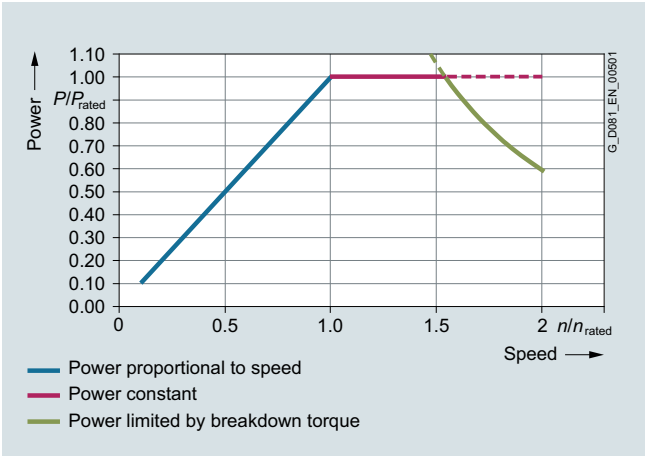
Torque limit characteristic for SIMOTICS GP/SD VSD10 line, self-ventilated



Torque limit characteristic for SIMOTICS GP/SD VSD10 line, forced-air cooled



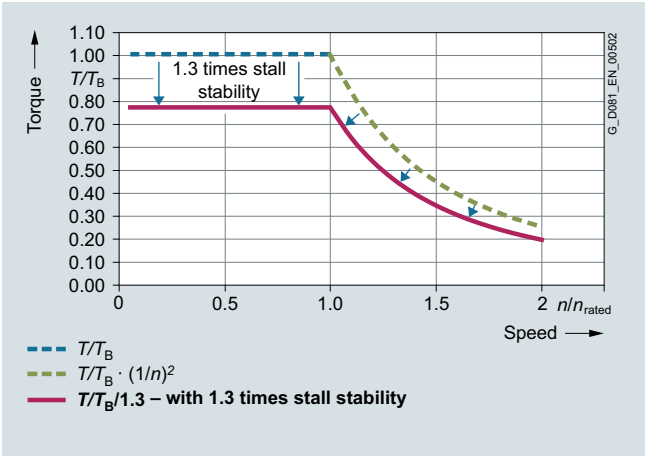
Power limit for SIMOTICS GP/SD VSD10 line, self-ventilated



Power limit for SIMOTICS GP/SD VSD10 line, forced-air cooled

Maximum overload torques

The maximum overload torque output from the motor is defined by the overload torque characteristic over the complete speed control range. The reference variable is the breakdown torque at rated speed. The breakdown torque is calculated from the breakdown torque ratio and the rated torque. Operation at the maximum overload torque is only briefly permissible, for instance, when accelerating. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.



Overload torque characteristic for SIMOTICS GP/SD VSD10 line

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Technical specifications

Additional information

Mechanical stress and grease lifetime

When motors are operated at speeds above the rated speed, the mechanical smooth running operation and the bearings are subjected to greater mechanical stress. This reduces the grease lifetime and the bearing lifetime.

Above 100 Hz, the motors must be balanced for twice the rated frequency.

Motor protection

A motor protection function can be implemented using the I^2t sensing function implemented in the converter software. If required, more precise motor protection can be afforded by direct temperature measurement using KTY84 sensors, PTC thermistors, or Pt100/1000 resistance thermometers in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping. When ordering PTC thermistors, Pt100 resistance thermistors or other temperature sensors to monitor the cooling temperature, the KTY84 sensors, otherwise provided as standard, are omitted. As described above, KTY84 sensors are evaluated in the SINAMICS converters.

Motor connection

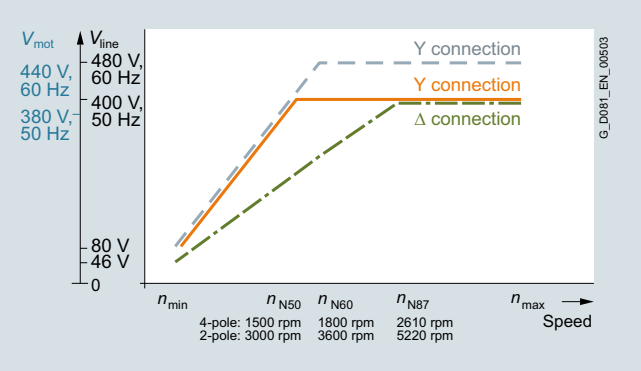
When connecting the motors, it is important to consider the restrictions for 1LE1 line motors as well as the maximum conductor cross-sections permitted for the converter.

Operating data for 50 Hz/60 Hz/87 Hz characteristics

SIMOTICS GP/SD VSD10 line motors are designed for operation with 50 Hz, 60 Hz and 87 Hz characteristics (87 Hz characteristic up to frame size 200).

Operation with the 50/60 Hz characteristic requires Y (star or wye) connection; operation with the 87 Hz characteristic requires Δ connection.

The corresponding power data are stamped on the rating plate as standard. An ordering option is not required.



Operating characteristics of SIMOTICS GP/SD VSD10 line motors

Maximum operating speed

The maximum operating speed is limited by the mechanical speed limit of the motors as well as the available converter output frequency.

A significant increase in the sound pressure level can be expected when operating the motor above its rated speed (field weakening range).

Mechanical speed limits SIMOTICS GP/SD VSD10 line:

Frame size	Mechanical speed limits for 1LE1.92 motors	
	2-pole	4-pole
	n_{max} rpm	n_{max} rpm
100	5500	4200
112	5500	4200
132	4500	4200
160	4500	4200
180	4500	4200
200	4500	4200
225	4500	4500
250	3900	3700
280	3600	3000
315	–	2600

International use:

As special converter motors, SIMOTICS GP/SD VSD10 line motors are presently not subject to any minimum efficiency requirements in the EU and USA/Canada. However, other national certificates may be required (e.g. CSA-S safety in Canada).

Therefore, for use in USA, Canada and Mexico, we recommend:

Ordering with order code **D39** (version according to UL and CSA-S).

Note:

At the present time, national Chinese regulations regarding converter motors are being revised. A conclusive interpretation relating to the design still cannot be made. As a consequence, until further notice, for China we recommend that line motors suitable for converter operation are used with CEL (China Energy Label) (e.g. 1LE100. with order code **D34**).

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Technical specifications

Load characteristics for the line supply voltage: 400 V 3 AC, 50 Hz

Rated speed 3000 rpm

Load characteristic $T \sim n^2$	T = const. Speed control range from 1500 rpm 1 : 2	from 750 rpm 1 : 4	from 300 rpm 1 : 10	SIMOTICS GP/SD VSD10 line motors	SINAMICS G120 converters
P_{max}	P_{max}	P_{max}	P_{max}		
kW	kW	kW	kW	Motor type	Converter type
3	1.47	0.63	0.21	1LE1.92-1AA42-1...	6SL3210-1PE18-0.L1
4	1.97	0.84	0.27	1LE1.92-1BA22-1...	6SL3210-1PE21-1.L0
5.5	2.69	1.17	0.39	1LE1.92-1CA02-1...	6SL3210-1PE21-4.L0
7.5	3.64	1.59	0.54	1LE1.92-1CA12-1...	6SL3210-1PE21-8.L0
11	5.38	2.34	0.79	1LE1.92-1DA22-1...	6SL3210-1PE22-7.L0
15	7.33	3.19	1.08	1LE1.92-1DA32-1...	6SL3210-1PE23-3.L0
18.5	9.05	3.93	1.32	1LE1.92-1DA42-1...	6SL3210-1PE23-8.L0
22	10.77	4.69	1.59	1LE1592-1EA22-1...	6SL3210-1PE24-5.L0
30	14.64	6.37	2.13	1LE1592-2AA42-1...	6SL3210-1PE26-0.L0
37	18.08	7.86	2.66	1LE1592-2AA52-1...	6SL3210-1PE27-5.L0
45	21.99	9.54	3.21	1LE1592-2BA22-1...	6SL3210-1PE28-8.L0
55	26.86	11.65	3.91	1LE1592-2CA22-1...	6SL3210-1PE31-1.L0
75	36.63	15.85	5.33	1LE1592-2DA02-1...	6SL3210-1PE31-5.L0
90	43.91	19.00	6.38	1LE1592-2DA22-1...	6SL3210-1PE31-8.L0

Rated speed 1500 rpm

Load characteristic $T \sim n^2$	T = const. Speed control range from 750 rpm 1:2	from 375 rpm 1:4	from 150 rpm 1:10	SIMOTICS GP/SD VSD10 line motors	SINAMICS converters
P_{max}	P_{max}	P_{max}	P_{max}		
kW	kW	kW	kW	Motor type	Converter type
2.2	1.06	0.43	0.13	1LE1.92-1AB42-1...	6SL3210-1PE16-1.L1
3	1.45	0.59	0.18	1LE1.92-1AB52-1...	6SL3210-1PE18-0.L1
4	1.93	0.78	0.24	1LE1.92-1BB22-1...	6SL3210-1PE21-1.L0
5.5	2.65	1.07	0.33	1LE1.92-1CB02-1...	6SL3210-1PE21-4.L0
7.5	3.60	1.45	0.45	1LE1.92-1CB22-1...	6SL3210-1PE21-8.L0
11	5.31	2.14	0.66	1LE1.92-1DB22-1...	6SL3210-1PE22-7.L0
15	7.20	2.91	0.90	1LE1.92-1DB42-1...	6SL3210-1PE23-3.L0
18.5	8.94	3.61	1.11	1LE1592-1EB22-1...	6SL3210-1PE23-8.L0
22	10.61	4.29	1.32	1LE1592-1EB42-1...	6SL3210-1PE24-5.L0
30	14.48	5.85	1.80	1LE1592-2AB52-1...	6SL3210-1PE26-0.L0
37	17.89	7.23	2.22	1LE1592-2BB02-1...	6SL3210-1PE27-5.L0
45	21.68	8.76	2.70	1LE1592-2BB22-1...	6SL3210-1PE28-8.L0
55	26.53	10.72	3.30	1LE1592-2CB22-1...	6SL3210-1PE31-1.L0
75	36.15	14.61	4.50	1LE1592-2DB02-1...	6SL3210-1PE31-5.L0
90	43.43	17.55	5.40	1LE1592-2DB22-1...	6SL3210-1PE31-8.L0
106	53.05	21.44	6.60	1LE1592-3AB02-1...	6SL3210-1PE32-1.L0
130	63.66	25.73	7.92	1LE1592-3AB22-1...	6SL3210-1PE32-5.L0
160	77.23	31.21	9.60	1LE1592-3AB42-1...	6SL3224-0XE41-3.A0
200	96.48	38.99	12.00	1LE1592-3AB52-1...	6SL3224-0XE41-6.A0

Note:

The converter recommendation applies to standard ambient conditions (40 °C; 1000 m above sea level).

If, as a result of different ambient conditions, the rated motor power is significantly reduced, under certain circumstances, another converter is the optimum solution. Here, please use the configuration options for converters in the DT Configurator.

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Technical specifications

SIMOTICS GP/SD VSD10 line standard motors for converter operation with converter SINAMICS G120 Power Modules PM240-2

Rated power	SIMOTICS GP/SD VSD10 1LE109/1LE159	Frame size	SINAMICS G120 Power Module PM240-2	Pulse frequency	Frame size	System power loss, relative $P_{V,rel}$ as a % referred to P_{rated} Operating points at partial load [1]							at rated load [1]	IES class acc. to EN 50598-2
						0/25	0/50	0/100	50/25	50/50	50/100	100/50	100/100	
kW	Type		Type	kHz		%	%	%	%	%	%	%	%	
Line voltage 400 V 3 AC, 50/60 Hz, rated speed 3000 rpm														
3	1LE1.92-1AA42-1...	100 L	6SL3210-1PE18-0.L1	4	FSA	3.433	6.367	17.333	5.4	8.533	21.433	13.567	27.833	IES 1
4	1LE1.92-1BA22-1...	112 M	6SL3210-1PE21-1.L0	4	FSB	3.775	5.8	14.35	5.65	8.025	17.6	13.375	24.45	IES 1
5.5	1LE1.92-1CA02-1...	132 S	6SL3210-1PE21-4.L0	4	FSB	3.109	5.218	13.836	4.109	6.564	16.6	10.309	21.6	IES 1
7.5	1LE1.92-1CA12-1...	132 S	6SL3210-1PE21-8.L0	4	FSB	2.56	4.333	11.587	3.653	5.693	13.84	9.093	18.533	IES 2
11	1LE1.92-1DA22-1...	160 M	6SL3210-1PE22-7.L0	4	FSC	2.664	4.364	11.2	3.973	5.936	13.845	10.255	19.555	IES 1
15	1LE1.92-1DA32-1...	160 M	6SL3210-1PE23-3.L0	4	FSC	1.96	3.68	10.227	3.153	5.04	12.693	8.547	17.4	IES 1
18.5	1LE1592-1DA42-1...	160 L	6SL3210-1PE23-8.L0	4	FSD	2.308	3.649	8.854	3.53	5.022	10.865	8.059	15.07	IES 2
22	1LE1592-1EA22-1...	180 M	6SL3210-1PE24-5.L0	4	FSD	1.695	3.027	8.345	2.586	4.073	9.741	6.482	13.255	IES 2
30	1LE1592-2AA42-1...	200 L	6SL3210-1PE26-0.L0	4	FSD	1.33	2.703	7.327	2.233	3.737	8.88	6.233	12.797	IES 2
37	1LE1592-2AA52-1...	200 L	6SL3210-1PE27-5.L0	4	FSD	1.276	2.3	6.238	2.108	3.276	7.611	5.257	10.678	IES 2
45	1LE1592-2BA22-1...	225 M	6SL3210-1PE28-8.L0	4	FSE	1.127	2.093	5.749	2.044	3.144	7.016	5.538	10.471	IES 2
55	1LE1592-2CA22-1...	250 M	6SL3210-1PE31-1.L0	4	FSE	1.056	1.991	5.467	1.869	2.945	6.771	5.396	10.253	IES 2
75	1LE1592-2DA02-1...	280 S	6SL3210-1PE31-5.L0	4	FSF	1.064	1.847	4.784	2.064	2.971	6.207	5.564	9.799	IES 2
90	1LE1592-2DA22-1...	280 M	6SL3210-1PE31-8.L0	4	FSF	0.932	1.643	4.241	1.696	2.527	5.473	4.523	8.412	IES 2
Line voltage 400 V 3 AC, 50/60 Hz, rated speed 1500 rpm														
2.2	1LE1.92-1AB42-1...	100 L	6SL3210-1PE16-1.L1	4	FSA	5.273	8.273	19.273	6.682	10.364	27.682	14.364	32.091	IES 1
3	1LE1.92-1AB52-1...	100 L	6SL3210-1PE18-0.L1	4	FSA	4.433	7.233	16.4	5.867	9	22.367	12.433	27	IES 1
4	1LE1.92-1BB22-1...	112 M	6SL3210-1PE21-1.L0	4	FSB	4.45	6.9	16.1	5.675	8.425	20.025	11.5	24.3	IES 1
5.5	1LE1.92-1CB02-1...	132 S	6SL3210-1PE21-4.L0	4	FSB	3.618	6	15.618	4.764	7.455	18.818	10.545	23.036	IES 1
7.5	1LE1.92-1CB22-1...	132 M	6SL3210-1PE21-8.L0	4	FSB	3.413	5.24	12.533	4.787	6.84	15.24	10.013	19.733	IES 1
11	1LE1.92-1DB22-1...	160 M	6SL3210-1PE22-7.L0	4	FSC	3.255	4.918	11.445	4.482	6.355	13.936	9.418	18.336	IES 1
15	1LE1.92-1DB42-1...	160 L	6SL3210-1PE23-3.L0	4	FSC	2.94	4.387	10.073	4.013	5.627	12.06	8.14	15.8	IES 2
18.5	1LE1592-1EB22-1...	180 M	6SL3210-1PE23-8.L0	4	FSD	2.205	3.665	9.092	3.465	5.076	11.292	7.514	14.843	IES 2
22	1LE1592-1EB42-1...	180 L	6SL3210-1PE24-5.L0	4	FSD	2.232	3.527	8.5	3.1	4.545	10.145	6.15	12.841	IES 2
30	1LE1592-2AB52-1...	200 L	6SL3210-1PE26-0.L0	4	FSD	1.99	3.167	7.903	2.877	4.197	9.32	6.06	12.26	IES 2
37	1LE1592-2BB02-1...	225 S	6SL3210-1PE27-5.L0	4	FSD	1.53	2.635	6.938	2.551	3.797	8.568	6.051	11.924	IES 2
45	1LE1592-2BB22-1...	225 M	6SL3210-1PE28-8.L0	4	FSE	1.413	2.493	6.644	2.291	3.504	8.053	5.447	10.982	IES 2
55	1LE1592-2CB22-1...	250 M	6SL3210-1PE31-1.L0	4	FSE	1.298	2.427	7.129	2.104	3.36	8.082	5.3	11.051	IES 2
75	1LE1592-2DB02-1...	280 S	6SL3210-1PE31-5.L0	4	FSF	1.317	2.135	5.216	2.441	3.373	6.811	5.909	10.315	IES 2
90	1LE1592-2DB22-1...	280 M	6SL3210-1PE31-8.L0	4	FSF	1.224	2.033	5.132	2.002	2.92	6.357	4.579	8.95	IES 2
106	1LE1592-3AB02-1...	315 S	6SL3210-1PE32-1.L0	2	FSF	1.021	1.711	4.398	1.959	2.765	5.781	4.811	8.863	IES 2
130	1LE1592-3AB22-1...	315 M	6SL3210-1PE32-5.L0	2	FSF	0.947	1.543	3.828	1.754	2.468	5.094	4.256	7.9	IES 2
160	1LE1592-3AB42-1...	315 L	6SL3224-0XE41-3.A0	2	FSGX	1.343	1.981	4.441	2.224	2.974	5.771	4.762	8.614	IES 2
200	1LE1592-3AB52-1...	315 L	6SL3224-0XE41-6.A0	2	FSGX	1.149	1.879	4.737	1.871	2.703	5.838	4.154	8.251	IES 2

[1] Output frequency, rel. [%] referred to the rated speed/
Torque, rel. [%] referred to the rated torque T_{rated}.

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Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:
1LE1592-1DB42-1GF4-Z
H00

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and power and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.

Structure of the Article No.:		Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	
1st to 4th position: Digit, letter, letter, digit	Self-ventilated by fan mounted on and driven by the rotor		**1**	**L**	**E**	**1**															
5th position: Digit	SIMOTICS GP – aluminum housing SIMOTICS SD – cast-iron housing						**0** **5**														
6th position: Digit	VSD10 line motor (motor for converter operation)							**9**													
7th position: Digit	Standard efficiency class								**2**												
8th and 9th position: Digit, letter	**Motor frame size** (frame size as a combination of shaft height and overall length, encoded)										**1** **...** **3**	**A** **...** **D**									
10th position: Letter	**No. of poles** A: 2-pole B: 4-pole												**A** **B**								
11th position: Digit	**Laminated core length**													**0** **1** **2** **3** **4** **5**							
12th and 13th position: 2 digits	**Voltage and frequency** [1] 380 V 3 AC, 50 Hz/440 V 3 AC, 60 Hz/380 V 3 AC, 87Hz 480 V 3 AC, 50 Hz/550 V 3 AC, 60 Hz/480 V 3 AC, 87Hz 660 V 3 AC, 50 Hz/660 V 3 AC, 87 Hz Non-standard winding, requires order code M.. (e.g. M1Y)														**2** **2** **3** **9**		**1** **6** **3** **0**				
14th position: Letter	**Type of construction** (encoded with A ... V)																	**A** **...** **V**			
15th position: Letter	**Motor protection** (encoded with B ... Z; Z requires order code Q.. (e.g. Q3A); F = standard version with integrated KTY 84 temperature sensor)																		**B** **...** **Z**		
16th position: Digit	**Terminal box position** 4: Terminal box top (normal version), 5: Terminal box right, 6: Terminal box left																			**4** **...** **6**	
	Special order versions: encoded – additional order code required not encoded – additional plain text required																				**-** **Z**

[1] Depending on slip, the rated frequency is above 50 Hz, 60 Hz, or 87 Hz (see Technical specifications).

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Selection and ordering data

Ordering example:

Selection criteria	Requirement	Structure of the Article No.
Motor type 1LE1	Standard motor for converter operation SIMOTICS GP VSD10 line, aluminum version	**1LE1092-■■■■■-■■■■**
Motor frame size	160 L	**1LE1092-1DB■■-■■■■**
No. of poles	4-pole	**1LE1092-1DB4■-■■■■**
Rated power	$P_{rated\ 50}$: 15 kW $P_{rated\ 60}$: 17.3 kW $P_{rated\ 87}$: 23.5 kW	
Voltage and frequency	380 V 3 AC, 50 Hz/440 V 3 AC, 60 Hz/380 V 3 AC, 87 Hz	**1LE1092-1DB42-1■■■**
Type of construction with special version	IM V5 with protective cover [1]	**1LE1092-1DB42-1C■■-Z H00**
Motor protection	Motor protection with PTC thermistors with 1 or 3 embedded temperature sensors for tripping	**1LE1092-1DB42-1CB■-Z H00**
Terminal box position	Terminal box right (viewed from DE)	**1LE1092-1DB42-1CB5-Z H00**

[1] Standard without protective cover – the protective cover is defined with order code **H00** and must be ordered in addition to the Article No. with **-Z** and this order code.

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Aluminum series SIMOTICS GP 1LE1092, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 400\ V}$	$P_{rated,\ 60\ Hz,\ 460\ V}$	$P_{rated,\ 87\ Hz,\ 400\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1092 aluminum series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz										
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			100 L	Y	52.9	9.6	81.5	0.87	6.4	1LE1092-1AA42-1■■■
	3.45			Y	62.8	9.2	84.5	0.88	6.1	
		4.5		Δ	89.4	8.2	84.5	0.82	9.9	
4			112 M	Y	51.2	12.7	83.1	0.86	8.5	1LE1092-1BA22-1■■■
	4.55			Y	61.2	12.1	84.5	0.88	8	
		6.6		Δ	88.2	12.1	84.5	0.83	14.2	
5.5			132 S	Y	51.4	17.5	84.7	0.89	11.1	1LE1092-1CA02-1■■■
	6.3			Y	61.4	16.7	86.0	0.90	10.7	
7.5			132 S	Y	51.2	23.9	86.0	0.87	15.2	1LE1092-1CA12-1■■■
	8.6			Y	61.2	22.8	88.7	0.88	14.7	
11			160 M	Y	51.3	35.0	87.6	0.85	22.5	1LE1092-1DA22-1■■■
	12.6			Y	61.2	33.4	87.5	0.86	22	
15			160 M	Y	51.4	47.8	88.7	0.84	30.5	1LE1092-1DA32-1■■■
	17.3			Y	61.4	45.9	89.5	0.86	29.5	
18.5			160 L	Y	51.1	58.9	89.3	0.86	36.5	1LE1092-1DA42-1■■■
	21.3			Y	61.1	56.5	89.5	0.87	36	
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Y	52.9	14.0	79.7	0.81	5.2	1LE1092-1AB42-1■■■
	2.55			Y	62.8	13.5	83.0	0.82	4.9	
		3.7		Δ	89.3	13.5	83.0	0.79	8.6	
3			100 L	Y	52.7	19.1	81.5	0.85	6.6	1LE1092-1AB52-1■■■
	3.45			Y	62.6	18.3	85.0	0.86	6.2	
		5		Δ	89.3	18.3	85.0	0.79	11.3	
4			112 M	Y	52.3	25.5	83.1	0.85	8.6	1LE1092-1BB22-1■■■
	4.55			Y	62.2	24.0	85.0	0.85	8.3	
		6.6		Δ	89.0	24.0	85.0	0.81	14.6	
5.5			132 S	Y	52.1	35.0	84.7	0.82	12	1LE1092-1CB02-1■■■
	6.3			Y	62.0	33.5	87.0	0.84	11.3	
		9		Δ	88.8	33.0	87.0	0.81	19.4	
7.5			132 M	Y	51.7	47.5	86.0	0.82	16.2	1LE1092-1CB22-1■■■
	8.6			Y	61.7	45.5	87.5	0.84	15.4	
		12.5		Δ	88.8	45.5	87.5	0.80	27.1	
11			160 M	Y	51.5	70.0	87.6	0.82	23.5	1LE1092-1DB22-1■■■
	12.6			Y	61.4	67.0	88.5	0.82	23	
		17		Δ	88.3	62.0	88.5	0.78	37.5	
15			160 L	Y	51.4	95.0	88.7	0.82	31.5	1LE1092-1DB42-1■■■
	17.3			Y	61.4	92.0	90.5	0.82	30.5	
		23.5		Δ	88.2	86.0	90.5	0.77	51	

For versions, see Article No. supplements and special versions. ■■■

All technical specifications refer to converter operation.

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Aluminum series SIMOTICS GP 1LE1092, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1092-1AA42-1...	20	0.0034	79.0	91.1	5500	TB1F00	6SL3210-1PE18-0.L1	FSA	IES 1
	20	0.0034	79.0	91.1	5500		6SL3210-1PE18-0.L1	FSA	IES 1
	20	0.0034	83.0	95.1	5500		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1092-1BA22-1...	25	0.0067	78.0	90.1	5500	TB1F00	6SL3210-1PE21-1.L0	FSB	IES 1
	25	0.0067	78.0	90.1	5500		6SL3210-1PE21-1.L0	FSB	IES 1
	25	0.0067	83.0	95.2	5500		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1092-1CA02-1...	35	0.013	76.0	88.3	4500	TB1F00	6SL3210-1PE21-4.L0	FSB	IES 1
	35	0.013	76.0	88.3	4500		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1092-1CA12-1...	40	0.016	76.0	88.4	4500	TB1H00	6SL3210-1PE21-8.L0	FSB	IES 2
	40	0.016	76.0	88.4	4500		6SL3210-1PE21-8.L0	FSB	IES 2
1LE1092-1DA22-1...	60	0.03	79.0	91.4	4500	TB1H00	6SL3210-1PE22-7.L0	FSC	IES 1
	60	0.03	78.0	90.4	4500		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1092-1DA32-1...	68	0.036	79.0	91.8	4500	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 1
	68	0.036	78.0	90.8	4500		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1092-1DA42-1...	78	0.044	79.0	91.8	4500	TB1J00	6SL3210-1PE23-8.L0	FSD	IES 2
	78	0.044	78.0	90.8	4500		6SL3210-1PE23-8.L0	FSD	IES 2
1LE1092-1AB42-1...	15	0.0059	79.0	91.0	4200	TB1F00	6SL3210-1PE16-1.L1	FSA	IES 1
	15	0.0059	79.0	91.0	4200		6SL3210-1PE16-1.L1	FSA	IES 1
	15	0.0059	81.0	93.0	4200		6SL3210-1PE21-1.L0	FSB	IES 1
1LE1092-1AB52-1...	21	0.0078	79.0	91.0	4200	TB1F00	6SL3210-1PE18-0.L1	FSA	IES 1
	21	0.0078	79.0	91.0	4200		6SL3210-1PE18-0.L1	FSA	IES 1
	21	0.0078	81.0	93.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1092-1BB22-1...	27	0.01	77.4	89.4	4200	TB1F00	6SL3210-1PE21-1.L0	FSB	IES 1
	27	0.01	77.2	89.2	4200		6SL3210-1PE21-1.L0	FSB	IES 1
	27	0.01	78.4	90.4	4200		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1092-1CB02-1...	39	0.019	76.0	88.0	4200	TB1H00	6SL3210-1PE21-4.L0	FSB	IES 1
	39	0.019	76.0	88.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
	39	0.019	83.0	95.0	4200		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1092-1CB22-1...	43	0.024	76.0	88.0	4200	TB1H00	6SL3210-1PE21-8.L0	FSB	IES 1
	43	0.024	76.0	88.0	4200		6SL3210-1PE21-8.L0	FSB	IES 1
	43	0.024	83.0	95.0	4200		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1092-1DB22-1...	67	0.044	83.5	95.5	4200	TB1J00	6SL3210-1PE22-7.L0	FSC	IES 1
	67	0.044	82.3	94.3	4200		6SL3210-1PE22-7.L0	FSC	IES 1
	67	0.044	85.8	97.8	4200		6SL3210-1PE24-5.L0	FSD	IES 1
1LE1092-1DB42-1...	75	0.056	83.5	95.5	4200	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 2
	75	0.056	82.3	94.3	4200		6SL3210-1PE23-3.L0	FSC	IES 2
	75	0.056	85.8	97.8	4200		6SL3210-1PE26-0.L0	FSD	IES 2

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Aluminum series SIMOTICS GP 1LE1092, line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 500\ V}$	$P_{rated,\ 60\ Hz,\ 575\ V}$	$P_{rated,\ 87\ Hz,\ 500\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1092 aluminum series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 480 V, 50 Hz/550 V, 60 Hz/480 V, 87 Hz										
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			100 L	Y	52.9	9.6	81.5	0.87	5.1	1LE1092-1AA42-6■■■
	3.45			Y	63.0	9.2	84.5	0.88	4.85	
		5		Δ	89.6	9.1	84.5	0.85	8.4	
4			112 M	Y	51.3	12.7	83.1	0.86	6.7	1LE1092-1BA22-6■■■
	4.55			Y	61.3	12.1	84.5	0.88	6.4	
		6.6		Δ	88.2	12.1	84.5	0.84	11.1	
5.5			132 S	Y	51.6	17.5	84.7	0.89	8.8	1LE1092-1CA02-6■■■
	6.3			Y	61.6	16.7	86.0	0.90	8.5	
7.5			132 S	Y	51.2	23.9	86.0	0.87	12.1	1LE1092-1CA12-6■■■
	8.6			Y	61.2	22.8	88.7	0.88	11.7	
11.0			160 M	Y	51.3	35.0	87.6	0.85	17.8	1LE1092-1DA22-6■■■
	12.6			Y	61.3	33.4	87.5	0.86	17.6	
14			160 M	Y	51.1	44.6	88.7	0.84	22.5	1LE1092-1DA32-6■■■
	16.5			Y	61.2	43.8	89.5	0.86	22.5	
17			160 L	Y	51.1	54.1	89.3	0.85	27	1LE1092-1DA42-6■■■
	19.5			Y	61.1	51.7	89.5	0.86	26.5	
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Y	52.8	14.0	79.7	0.81	4.1	1LE1092-1AB42-6■■■
	2.55			Y	62.8	13.5	83.0	0.82	3.95	
		3.7		Δ	89.6	13.5	83.0	0.79	6.8	
3			100 L	Y	52.6	19.1	81.5	0.85	5.2	1LE1092-1AB52-6■■■
	3.45			Y	62.6	18.3	85.0	0.86	4.95	
		5		Δ	89.3	18.3	85.0	0.79	8.7	
4			112 M	Y	52.4	25.5	83.1	0.85	6.8	1LE1092-1BB22-6■■■
	4.55			Y	62.3	24.1	85.0	0.85	6.6	
		6.6		Δ	89.1	24.1	85.0	0.81	12	
5.5			132 S	Y	52.0	35.0	84.7	0.82	9.5	1LE1092-1CB02-6■■■
	6.3			Y	62.0	33.4	87.0	0.84	9	
		9		Δ	88.8	32.9	87.0	0.81	15.4	
7.5			132 M	Y	51.9	47.8	86.0	0.82	12.8	1LE1092-1CB22-6■■■
	8.6			Y	61.9	45.6	87.5	0.84	12.3	
		12.5		Δ	88.7	45.7	87.5	0.80	21.5	
11			160 M	Y	51.5	70.0	87.6	0.82	18.4	1LE1092-1DB22-6■■■
	12.6			Y	61.5	66.9	88.5	0.82	18.2	
		17		Δ	88.4	62.2	88.5	0.78	29.5	
13.5			160 L	Y	51.2	86.0	88.7	0.79	23	1LE1092-1DB42-6■■■
	15.6			Y	61.2	82.8	90.5	0.81	22.5	
		23.5		Δ	88.3	86.0	90.5	0.77	40.5	

For versions, see Article No. supplements and special versions. ■■■

All technical specifications refer to converter operation.

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Aluminum series SIMOTICS GP 1LE1092, line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1092-1AA42-6...	20	0.0034	80.0	92.1	5500	TB1F00			
	20	0.0034	80.0	92.1	5500				
	20	0.0034	85.0	92.1	5500				
1LE1092-1BA22-6...	25	0.0067	79.0	91.1	5500	TB1F00			
	25	0.0067	79.0	91.1	5500				
	25	0.0067	85.0	91.1	5500		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CA02-6...	35	0.013	77.0	89.3	4500	TB1F00	6SL3210-1PH21-4.L0	FSD	
	35	0.013	77.0	89.3	4500		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CA12-6...	40	0.016	77.0	89.4	4500	TB1H00	6SL3210-1PH21-4.L0	FSD	
	40	0.016	77.0	89.4	4500		6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA22-6...	60	0.03	80.0	92.4	4500	TB1H00	6SL3210-1PH22-0.L0	FSD	
	60	0.03	80.0	92.4	4500		6SL3210-1PH22-0.L0	FSD	
1LE1092-1DA32-6...	68	0.036	80.0	92.8	4500	TB1J00	6SL3210-1PH22-3.L0	FSD	
	68	0.036	80.0	92.8	4500		6SL3210-1PH22-3.L0	FSD	
1LE1092-1DA42-6...	78	0.044	80.0	92.8	4500	TB1J00	6SL3210-1PH22-7.L0	FSD	
	78	0.044	80.0	92.8	4500		6SL3210-1PH22-7.L0	FSD	
1LE1092-1AB42-6...	18	0.0059	80.0	92.1	4200	TB1F00			
	18	0.0059	80.0	92.1	4200				
	18	0.0059	81.0	93.1	4200				
1LE1092-1AB52-6...	22	0.0078	80.0	92.1	4200	TB1F00			
	22	0.0078	80.0	92.1	4200				
	22	0.0078	81.0	93.1	4200				
1LE1092-1BB22-6...	27	0.01	79.0	91.3	4200	TB1F00			
	27	0.01	79.0	91.3	4200				
	27	0.01	80.0	92.3	4200		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CB02-6...	38	0.019	77.0	89.4	4200	TB1H00	6SL3210-1PH21-4.L0	FSD	
	38	0.019	77.0	89.4	4200		6SL3210-1PH21-4.L0	FSD	
	38	0.019	83.0	95.4	4200		6SL3210-1PH22-0.L0	FSD	
1LE1092-1CB22-6...	44	0.024	77.0	89.4	4200	TB1H00	6SL3210-1PH21-4.L0	FSD	
	44	0.024	77.0	89.4	4200		6SL3210-1PH21-4.L0	FSD	
	44	0.024	83.0	95.4	4200		6SL3210-1PH22-3.L0	FSD	
1LE1092-1DB22-6...	62	0.044	85.0	97.8	4200	TB1J00	6SL3210-1PH22-0.L0	FSD	
	62	0.044	85.0	97.8	4200		6SL3210-1PH22-0.L0	FSD	
	62	0.044	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	
1LE1092-1DB42-6...	73	0.056	85.0	97.8	4200	TB1J00	6SL3210-1PH22-3.L0	FSD	
	73	0.056	85.0	97.8	4200		6SL3210-1PH22-3.L0	FSD	
	73	0.056	85.0	97.8	4200		6SL3210-1PH24-2.L0	FSD	

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Aluminum series SIMOTICS GP 1LE1092, line voltage 690 V, 50 Hz/690 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 690\ V}$	$P_{rated,\ 60\ Hz}$	$P_{rated,\ 87\ Hz,\ 690\ V}$	Frame size	Connection	Operating values at rated power f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1092 aluminum series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 660 V/50 Hz/660 V, 87 Hz										
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			100 L	Y	52.7	9.6	81.5	0.87	3.7	1LE1092-1AA43-3■■■
		5		Δ	89.5	9.1	84.5	0.81	6.4	
4			112 M	Y	51.2	12.7	83.1	0.86	4.9	1LE1092-1BA23-3■■■
		6.6		Δ	88.2	12.1	84.5	0.83	8.2	
5.5			132 S	Y	51.6	17.5	84.7	0.89	6.4	1LE1092-1CA03-3■■■
7.5			132 S	Y	51.2	23.9	86.0	0.87	8.8	1LE1092-1CA13-3■■■
11			160 M	Y	51.3	35.0	87.6	0.85	12.9	1LE1092-1DA23-3■■■
15			160 M	Y	51.4	47.8	88.7	0.84	17.6	1LE1092-1DA33-3■■■
18.5			160 L	Y	51.3	58.9	89.3	0.86	20.5	1LE1092-1DA43-3■■■
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Y	52.9	14.0	79.7	0.81	3	1LE1092-1AB43-3■■■
		3.7		Δ	89.5	13.5	83.0	0.79	4.95	
3			100 L	Y	52.5	19.1	81.5	0.85	3.8	1LE1092-1AB53-3■■■
		5		Δ	89.5	18.3	85.0	0.79	6.5	
4			112 M	Y	52.5	25.5	83.1	0.85	5	1LE1092-1BB23-3■■■
		6.6		Δ	89.2	24.1	85.0	0.81	8.4	
5.5			132 S	Y	52.0	35.0	84.7	0.82	6.9	1LE1092-1CB03-3■■■
		9		Δ	88.7	32.9	87.0	0.81	11.2	
7.5			132 M	Y	51.7	47.8	86.0	0.82	9.3	1LE1092-1CB23-3■■■
		12.5		Δ	88.6	45.7	87.5	0.80	15.6	
11			160 M	Y	51.5	70.0	87.6	0.82	13.4	1LE1092-1DB23-3■■■
		17		Δ	88.3	62.2	88.5	0.78	21.5	
15			160 L	Y	51.4	95.5	88.7	0.82	18	1LE1092-1DB43-3■■■
		23.5		Δ	88.2	86.0	90.5	0.77	29.5	
For versions, see Article No. supplements and special versions.										■■■

All technical specifications refer to converter operation.

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Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1092-1AA43-3...	20	0.0034	80.0	92.1	5500	TB1F00			
	20	0.0034	85.0	97.1	5500				
1LE1092-1BA23-3...	25	0.0067	79.0	91.1	5500	TB1F00			
	25	0.0067	85.0	97.2	5500		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CA03-3...	35	0.013	77.0	89.3	4500	TB1F00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1CA13-3...	40	0.016	77.0	89.4	4500	TB1H00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA23-3...	60	0.03	80.0	92.4	4500	TB1H00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA33-3...	68	0.036	80.0	92.8	4500	TB1J00	6SL3210-1PH22-0.L0	FSD	
1LE1092-1DA43-3...	78	0.044	80.0	92.8	4500	TB1J00	6SL3210-1PH22-3.L0	FSD	
1LE1092-1AB43-3...	18	0.0059	80.0	92.1	4200	TB1F00			
	18	0.0059	81.0	93.1	4200				
1LE1092-1AB53-3...	22	0.0078	80.0	92.1	4200	TB1F00			
	22	0.0078	81.0	93.1	4200				
1LE1092-1BB23-3...	27	0.01	79.0	91.3	4200	TB1F00			
	27	0.01	80.0	92.3	4200		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CB03-3...	38	0.019	77.0	89.4	4200	TB1H00	6SL3210-1PH21-4.L0	FSD	
	38	0.019	83.0	95.4	4200		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CB23-3...	44	0.024	77.0	89.4	4200	TB1H00	6SL3210-1PH21-4.L0	FSD	
	44	0.024	83.0	95.4	4200		6SL3210-1PH22-0.L0	FSD	
1LE1092-1DB23-3...	62	0.044	85.0	97.8	4200	TB1J00	6SL3210-1PH21-4.L0	FSD	
	62	0.044	85.0	97.8	4200		6SL3210-1PH22-7.L0	FSD	
1LE1092-1DB43-3...	73	0.056	85.0	97.8	4200	TB1J00	6SL3210-1PH22-0.L0	FSD	
	73	0.056	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 400\ V}$	$P_{rated,\ 60\ Hz,\ 460\ V}$	$P_{rated,\ 87\ Hz,\ 400\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1592 cast-iron series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz										
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			**100 L**	Y	52.9	9.6	81.5	0.87	6.4	**1LE1592-1AA42-1■■■**
	3.45			Y	62.8	9.2	84.5	0.88	6.1	
		4.5		Δ	89.4	8.2	84.5	0.82	9.9	
4.0			**112 M**	Y	51.2	12.7	83.1	0.86	8.5	**1LE1592-1BA22-1■■■**
	4.6			Y	61.2	12.1	84.5	0.88	8	
		6.6		Δ	88.2	12.1	84.5	0.83	14.2	
5.5			**132 S**	Y	51.4	17.5	84.7	0.89	11.1	**1LE1592-1CA02-1■■■**
	6.3			Y	61.4	16.7	86.0	0.90	10.7	
7.5			**132 S**	Y	51.2	23.9	86.0	0.87	15.2	**1LE1592-1CA12-1■■■**
	8.6			Y	61.2	22.8	88.7	0.88	14.7	
11			**160 M**	Y	51.3	35.0	87.6	0.85	22.5	**1LE1592-1DA22-1■■■**
	12.6			Y	61.2	33.4	87.5	0.86	22	
15.0			**160 M**	Y	51.4	47.8	88.7	0.84	30.5	**1LE1592-1DA32-1■■■**
	17.3			Y	61.4	45.9	89.5	0.86	29.5	
18.5			**160 L**	Y	51.1	58.9	89.3	0.86	36.5	**1LE1592-1DA42-1■■■**
	21.3			Y	61.1	56.5	89.5	0.87	36	
22			**180 M**	Y	51.0	70	89.9	0.87	42.5	**1LE1592-1EA22-1■■■**
	24.5			Y	60.9	65.0	89.5	0.87	41.5	
30			**200 L**	Y	50.9	96	90.7	0.84	60	**1LE1592-2AA42-1■■■**
	33.5			Y	60.9	88.9	91.5	0.84	57	
37			**200 L**	Y	50.8	118	91.2	0.88	70	**1LE1592-2AA52-1■■■**
	41.5			Y	60.7	110.1	91.7	0.89	67	
45			**225 M**	Y	50.7	143	91.7	0.88	85	**1LE1592-2BA22-1■■■**
	51			Y	60.7	135.0	92.4	0.88	82	
55			**250 M**	Y	50.6	175	92.1	0.88	103	**1LE1592-2CA22-1■■■**
	62			Y	60.6	164.0	92.4	0.88	100	
75			**280 S**	Y	50.5	239	92.7	0.87	141	**1LE1592-2DA02-1■■■**
	84			Y	60.5	223.0	93.0	0.87	136	
90			**280 M**	Y	50.4	286	93.0	0.88	167	**1LE1592-2DA22-1■■■**
	101			Y	60.4	268	93.0	0.88	162	

For versions, see Article No. supplements and special versions. ■■■

All technical specifications refer to converter operation.

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1592-1AA42-1...	31	0.0034	79.0	91.1	5500	TB1F01	6SL3210-1PE18-0.L1	FSA	IES 1
	31	0.0034	79.0	91.1	5500		6SL3210-1PE18-0.L1	FSA	IES 1
	31	0.0034	83.0	95.1	5500		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1592-1BA22-1...	36	0.0067	78.0	90.1	5500	TB1F01	6SL3210-1PE21-4.L0	FSB	IES 1
	36	0.0067	78.0	90.1	5500		6SL3210-1PE21-4.L0	FSB	IES 1
	36	0.0067	83.0	95.2	5500		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1592-1CA02-1...	53	0.013	76.0	88.3	4500	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 1
	53	0.013	76.0	88.3	4500		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1592-1CA12-1...	58	0.016	76.0	88.4	4500	TB1H01	6SL3210-1PE22-7.L0	FSC	IES 2
	58	0.016	76.0	88.4	4500		6SL3210-1PE22-7.L0	FSC	IES 2
1LE1592-1DA22-1...	87	0.03	79.0	91.4	4500	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 1
	87	0.03	78.0	90.4	4500		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1592-1DA32-1...	95	0.036	79.0	91.8	4500	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 1
	95	0.036	78.0	90.8	4500		6SL3210-1PE23-8.L0	FSD	IES 1
1LE1592-1DA42-1...	105	0.044	79.0	91.8	4500	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 2
	105	0.044	78.0	90.8	4500		6SL3210-1PE23-8.L0	FSD	IES 2
1LE1592-1EA22-1...	150	0.069	79.0	92.0	4500	TB1J01	6SL3210-1PE24-5.L0	FSD	IES 2
	150	0.069	78.0	91.0	4500		6SL3210-1PE24-5.L0	FSD	IES 2
1LE1592-2AA42-1...	195	0.124	78.0	91.0	4500	TB1L01	6SL3210-1PE26-0.L0	FSD	IES 2
	195	0.124	78.0	91.0	4500		6SL3210-1PE26-0.L0	FSD	IES 2
1LE1592-2AA52-1...	230	0.15	76.0	89.1	4500	TB1L01	6SL3210-1PE27-5.L0	FSD	IES 2
	230	0.15	76.0	89.1	4500		6SL3210-1PE27-5.L0	FSD	IES 2
1LE1592-2BA22-1...	280	0.22	78.0	90.0	4500	TB1L01	6SL3210-1PE28-8.L0	FSE	IES 2
	280	0.22	80.0	93.0	4500		6SL3210-1PE28-8.L0	FSE	IES 2
1LE1592-2CA22-1...	360	0.4	78.0	92.0	3900	TB1N01	6SL3210-1PE31-1.L0	FSE	IES 2
	360	0.4	82.0	96.0	3900		6SL3210-1PE31-1.L0	FSE	IES 2
1LE1592-2DA02-1...	470	0.72	78.0	92.0	3600	TB1N01	6SL3210-1PE31-5.L0	FSF	IES 2
	470	0.72	82.0	96.0	3600		6SL3210-1PE31-5.L0	FSF	IES 2
1LE1592-2DA22-1...	530	0.83	78.0	92.0	3600	TB1N01	6SL3210-1PE31-8.L0	FSF	IES 2
	530	0.83	82.0	96.0	3600		6SL3210-1PE31-8.L0	FSF	IES 2

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 400\ V}$	$P_{rated,\ 60\ Hz,\ 460\ V}$	$P_{rated,\ 87\ Hz,\ 400\ V}$	Frame size	Connection	Operating values at rated power f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1592 cast-iron series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz										
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Y	52.9	14.0	79.7	0.81	5.2	1LE1592-1AB42-1■■■
	2.55			Y	62.8	13.5	83.0	0.82	4.9	
		3.7		Δ	89.3	13.5	83.0	0.79	8.6	
3			100 L	Y	52.7	19.1	81.5	0.85	6.6	1LE1592-1AB52-1■■■
	3.45			Y	62.6	18.3	85.0	0.86	6.2	
		5		Δ	89.3	18.3	85.0	0.79	11.3	
4			112 M	Y	52.3	25.5	83.1	0.85	8.6	1LE1592-1BB22-1■■■
	4.55			Y	62.2	24.0	85.0	0.85	8.3	
		6.6		Δ	89.0	24.0	85.0	0.81	14.6	
5.5			132 S	Y	52.1	35.0	84.7	0.82	12	1LE1592-1CB02-1■■■
	6.3			Y	62.0	33.5	87.0	0.84	11.3	
		9		Δ	88.8	33.0	87.0	0.81	19.4	
7.5			132 M	Y	51.7	47.5	86.0	0.82	16.2	1LE1592-1CB22-1■■■
	8.6			Y	61.7	45.5	87.5	0.84	15.4	
		12.5		Δ	88.8	45.5	87.5	0.80	27.1	
11			160 M	Y	51.5	70.0	87.6	0.82	23.5	1LE1592-1DB22-1■■■
	12.6			Y	61.4	67.0	88.5	0.82	23	
		17		Δ	88.3	62.0	88.5	0.78	37.5	
15			160 L	Y	51.4	95.0	88.7	0.82	31.5	1LE1592-1DB42-1■■■
	17.3			Y	61.4	92.0	90.5	0.82	30.5	
		23.5		Δ	88.2	86.0	90.5	0.77	51	
18.5			180 M	Y	51.1	118	89.3	0.85	37	1LE1592-1EB22-1■■■
	21.3			Y	61.1	113	91.0	0.85	36	
		31		Δ	88.1	113	91.0	0.84	62	
22			180 L	Y	51.1	140	89.9	0.83	45	1LE1592-1EB42-1■■■
	25.3			Y	61.1	134	91.0	0.84	43.5	
		36.5		Δ	88.0	134	91.0	0.82	74	
30			200 L	Y	50.9	191	90.7	0.83	60	1LE1592-2AB52-1■■■
	34.5			Y	60.9	183	92.4	0.84	58	
		48		Δ	87.8	176	92.4	0.81	97	
37			225 S	Y	50.9	236	91.4	0.85	72	1LE1592-2BB02-1■■■
	42.5			Y	60.9	225	92.4	0.86	70	
45			225 M	Y	50.9	286	92.4	0.88	84	1LE1592-2BB22-1■■■
	52			Y	60.9	276	93.0	0.83	84	
55			250 M	Y	50.8	350	92.3	0.86	105	1LE1592-2CB22-1■■■
	63			Y	60.8	334	93.0	0.86	103	
75			280 S	Y	50.6	477	92.7	0.86	143	1LE1592-2DB02-1■■■
	86			Y	60.6	456	93.2	0.87	139	
90			280 M	Y	50.6	573	93.0	0.87	169	1LE1592-2DB22-1■■■
	104			Y	60.6	552	93.2	0.87	168	
106			315 S	Y	50.4	675	94.0	0.84	205	1LE1592-3AB02-1■■■
	125			Y	60.4	663	94.2	0.85	205	
130			315 M	Y	50.4	828	94.4	0.84	250	1LE1592-3AB22-1■■■
	152			Y	60.4	806	94.8	0.85	250	
160			315 L	Y	50.4	1019	95.0	0.87	295	1LE1592-3AB42-1■■■
	184			Y	60.4	976	95.0	0.87	290	
200			315 L	Y	50.5	1273	95.5	0.89	360	1LE1592-3AB52-1■■■
	230			Y	60.5	1220	95.0	0.89	355	

For versions, see Article No. supplements and special versions. ■■■

All technical specifications refer to converter operation.

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1592-1AB42-1...	29	0.0059	79.0	91.0	4200	TB1F01	6SL3210-1PE16-1.L1	FSA	IES 1
	29	0.0059	79.0	91.0	4200		6SL3210-1PE16-1.L1	FSA	IES 1
	29	0.0059	81.0	93.0	4200		6SL3210-1PE21-1.L0	FSB	IES 1
1LE1592-1AB52-1...	33	0.0078	79.0	91.0	4200	TB1F01	6SL3210-1PE18-0.L1	FSA	IES 1
	33	0.0078	79.0	91.0	4200		6SL3210-1PE18-0.L1	FSA	IES 1
	33	0.0078	81.0	93.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1592-1BB22-1...	38	0.01	77.4	89.4	4200	TB1F01	6SL3210-1PE21-1.L0	FSB	IES 1
	38	0.01	77.2	89.2	4200		6SL3210-1PE21-1.L0	FSB	IES 1
	38	0.01	78.4	90.4	4200		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1592-1CB02-1...	60	0.019	76.0	88.0	4200	TB1H01	6SL3210-1PE21-4.L0	FSB	IES 1
	60	0.019	76.0	88.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
	60	0.019	83.0	95.0	4200		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1592-1CB22-1...	62	0.024	76.0	88.0	4200	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 1
	62	0.024	76.0	88.0	4200		6SL3210-1PE21-8.L0	FSB	IES 1
	62	0.024	83.0	95.0	4200		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1592-1DB22-1...	89	0.044	83.5	95.5	4200	TB1J01	6SL3210-1PE22-7.L0	FSC	IES 1
	89	0.044	82.3	94.3	4200		6SL3210-1PE22-7.L0	FSC	IES 1
	89	0.044	85.8	97.8	4200		6SL3210-1PE24-5.L0	FSD	IES 1
1LE1592-1DB42-1...	100	0.056	83.5	95.5	4200	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 2
	100	0.056	82.3	94.3	4200		6SL3210-1PE23-3.L0	FSC	IES 2
	100	0.056	85.8	97.8	4200		6SL3210-1PE26-0.L0	FSD	IES 2
1LE1592-1EB22-1...	170	0.13	71.0	83.0	4200	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 2
	170	0.13	73.0	85.0	4200		6SL3210-1PE23-8.L0	FSD	IES 2
	170	0.13	84.0	96.0	4200		6SL3210-1PE27-5.L0	FSD	IES 2
1LE1592-1EB42-1...	170	0.13	71.0	83.0	4200	TB1J01	6SL3210-1PE24-5.L0	FSD	IES 2
	170	0.13	73.0	85.0	4200		6SL3210-1PE24-5.L0	FSD	IES 2
	170	0.13	84.0	96.0	4200		6SL3210-1PE28-8.L0	FSE	IES 2
1LE1592-2AB52-1...	220	0.2	76.3	88.3	4200	TB1L01	6SL3210-1PE26-0.L0	FSD	IES 2
	220	0.2	77.7	89.7	4200		6SL3210-1PE26-0.L0	FSD	IES 2
	220	0.2	83.1	95.1	4200		6SL3210-1PE31-1.L0	FSE	IES 2
1LE1592-2BB02-1...	260	0.37	67.0	83.0	4500	TB1L01	6SL3210-1PE27-5.L0	FSD	IES 2
	260	0.37	70.0	86.0	4500		6SL3210-1PE27-5.L0	FSD	IES 2
1LE1592-2BB22-1...	290	0.45	70.0	83.0	4500	TB1L01	6SL3210-1PE28-8.L0	FSE	IES 2
	290	0.45	72.0	86.0	4500		6SL3210-1PE28-8.L0	FSE	IES 2
1LE1592-2CB22-1...	360	0.69	70.0	83.0	3700	TB1N01	6SL3210-1PE31-1.L0	FSE	IES 2
	360	0.69	72.0	86.0	3700		6SL3210-1PE31-1.L0	FSE	IES 2
1LE1592-2DB02-1...	540	1.2	75.0	90.0	3000	TB1N01	6SL3210-1PE31-5.L0	FSF	IES 2
	540	1.2	76.0	91.0	3000		6SL3210-1PE31-5.L0	FSF	IES 2
1LE1592-2DB22-1...	560	1.4	75.0	90.0	3000	TB1N01	6SL3210-1PE31-8.L0	FSF	IES 2
	560	1.4	76.0	91.0	3000		6SL3210-1PE31-8.L0	FSF	IES 2
1LE1592-3AB02-1...	730	1.9	79.0	94.0	2600	TB1Q01	6SL3210-1PE32-1.L0	FSF	IES 2
	730	1.9	82.0	96.0	2600		6SL3210-1PE32-1.L0	FSF	IES 2
1LE1592-3AB22-1...	760	2.2	79.0	94.0	2600	TB1Q01	6SL3210-1PE32-5.L0	FSF	IES 2
	760	2.2	82.0	96.0	2600		6SL3210-1PE32-5.L0	FSF	IES 2
1LE1592-3AB42-1...	940	2.8	79.0	94.0	2600	TB1Q01	6SL3224-0XE41-3.A0	FSGX	IES 2
	940	2.8	80.0	95.0	2600		6SL3224-0XE41-3.A0	FSGX	IES 2
1LE1592-3AB52-1...	1140	3.5	81.0	96.0	2600	TB1Q01	6SL3224-0XE41-6.A0	FSGX	IES 2
	1140	3.5	82.0	96.0	2600		6SL3224-0XE41-6.A0	FSGX	IES 2

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 500\ V}$	$P_{rated,\ 60\ Hz,\ 575\ V}$	$P_{rated,\ 87\ Hz,\ 500\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1592 cast-iron series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 480 V, 50 Hz/550 V, 60 Hz/480 V, 87 Hz										
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			**100 L**	Y	52.9	9.6	81.5	0.87	5.1	**1LE1592-1AA42-6■■■**
	3.45			Y	63.0	9.2	84.5	0.88	4.85	
		5		Δ	89.6	9.1	84.5	0.85	8.4	
4			**112 M**	Y	51.3	12.7	83.1	0.86	6.7	**1LE1592-1BA22-6■■■**
	4.55			Y	61.3	12.1	84.5	0.88	6.4	
		6.6		Δ	88.2	12.1	84.5	0.84	11.1	
5.5			**132 S**	Y	51.6	17.5	84.7	0.89	8.8	**1LE1592-1CA02-6■■■**
	6.3			Y	61.6	16.7	86.0	0.90	8.5	
7.5			**132 S**	Y	51.2	23.9	86.0	0.87	12.1	**1LE1592-1CA12-6■■■**
	8.6			Y	61.2	22.8	88.7	0.88	11.7	
11			**160 M**	Y	51.3	35.0	87.6	0.85	17.8	**1LE1592-1DA22-6■■■**
	12.6			Y	61.3	33.4	87.5	0.86	17.6	
14			**160 M**	Y	51.1	44.6	88.7	0.84	22.5	**1LE1592-1DA32-6■■■**
	16.5			Y	61.2	43.8	89.5	0.86	22.5	
17			**160 L**	Y	51.1	54.1	89.3	0.85	27	**1LE1592-1DA42-6■■■**
	19.5			Y	61.1	51.7	89.5	0.86	26.5	
22			**180 M**	Y	50.9	70	89.9	0.87	34	**1LE1592-1EA22-6■■■**
	24.5			Y	60.9	65	89.5	0.87	33	
30			**200 L**	Y	50.8	96	90.7	0.82	48.5	**1LE1592-2AA42-6■■■**
	33.5			Y	60.8	89	91.5	0.82	47	
34			**200 L**	Y	50.7	108	91.2	0.87	52	**1LE1592-2AA52-6■■■**
	40			Y	60.8	106	91.7	0.89	51	
41			**225 M**	Y	50.6	131	91.7	0.88	61	**1LE1592-2BA22-6■■■**
	48			Y	60.6	127	91.7	0.88	62	
53			**250 M**	Y	50.5	169	92.1	0.88	79	**1LE1592-2CA22-6■■■**
	60			Y	60.5	159	92.4	0.88	77	
75			**280 S**	Y	50.5	239	92.7	0.87	112	**1LE1592-2DA02-6■■■**
	84			Y	60.5	223	93.0	0.87	109	
90			**280 M**	Y	50.4	286	93.0	0.88	132	**1LE1592-2DA22-6■■■**
	101			Y	60.4	268	93.0	0.88	130	

For versions, see Article No. supplements and special versions. ■■■

All technical specifications refer to converter operation.

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1592-1AA42-6...	31	0.0034	80.0	92.1	5500	TB1F01			
	31	0.0034	80.0	92.1	5500				
	31	0.0034	85.0	97.1	5500				
1LE1592-1BA22-6...	36	0.0067	79.0	91.1	5500	TB1F01			
	36	0.0067	79.0	91.1	5500				
	36	0.0067	85.0	97.2	5500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA02-6...	53	0.013	77.0	89.3	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
	53	0.013	77.0	89.3	4500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA12-6...	58	0.016	77.0	89.4	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
	58	0.016	77.0	89.4	4500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1DA22-6...	87	0.03	80.0	92.4	4500	TB1J01	6SL3210-1PH22-0.L0	FSD	
	87	0.03	80.0	92.4	4500		6SL3210-1PH22-0.L0	FSD	
1LE1592-1DA32-6...	95	0.036	80.0	92.8	4500	TB1J01	6SL3210-1PH22-3.L0	FSD	
	95	0.036	80.0	92.8	4500		6SL3210-1PH22-3.L0	FSD	
1LE1592-1DA42-6...	105	0.044	80.0	92.8	4500	TB1J01	6SL3210-1PH22-7.L0	FSD	
	105	0.044	80.0	92.8	4500		6SL3210-1PH22-7.L0	FSD	
1LE1592-1EA22-6...	150	0.069	80.0	93.0	4500	TB1J01	6SL3210-1PH23-5.L0	FSD	
	150	0.069	80.0	93.0	4500		6SL3210-1PH23-5.L0	FSD	
1LE1592-2AA42-6...	195	0.124	79.0	92.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
	195	0.124	79.0	92.0	4500		6SL3210-1PH25-2.L0	FSE	
1LE1592-2AA52-6...	230	0.15	77.0	90.1	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
	230	0.15	77.0	90.1	4500		6SL3210-1PH25-2.L0	FSE	
1LE1592-2BA22-6...	280	0.22	78.0	90.0	4500	TB1L01	6SL3210-1PH26-2.L0	FSE	
	280	0.22	80.0	93.0	4500		6SL3210-1PH26-2.L0	FSE	
1LE1592-2CA22-6...	360	0.4	78.0	92.0	3900	TB1N01	6SL3210-1PH28-0.L0	FSF	
	360	0.4	82.0	96.0	3900		6SL3210-1PH28-0.L0	FSF	
1LE1592-2DA02-6...	470	0.72	78.0	92.0	3600	TB1N01	6SL3210-1PH31-2.L0	FSF	
	470	0.72	82.0	96.0	3600		6SL3210-1PH31-2.L0	FSF	
1LE1592-2DA22-6...	530	0.83	78.0	92.0	3600	TB1N01	6SL3210-1PH31-4.L0	FSF	
	530	0.83	82.0	96.0	3600		6SL3210-1PH31-4.L0	FSF	

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 500\ V}$	$P_{rated,\ 60\ Hz,\ 575\ V}$	$P_{rated,\ 87\ Hz,\ 500\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1592 cast-iron series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 480 V, 50 Hz/550 V, 60 Hz/480 V, 87 Hz										
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Y	52.8	14.0	79.7	0.81	4.1	1LE1592-1AB42-6■■■
	2.55			Y	62.8	13.5	83.0	0.82	3.95	
		4		Δ	89.6	13.5	83.0	0.79	6.8	
3			100 L	Y	52.6	19.1	81.5	0.85	5.2	1LE1592-1AB52-6■■■
	3.45			Y	62.6	18.3	85.0	0.86	4.95	
		5		Δ	89.3	18.3	85.0	0.79	8.7	
4			112 M	Y	52.4	25.5	83.1	0.85	6.8	1LE1592-1BB22-6■■■
	4.55			Y	62.3	24.1	85.0	0.85	6.6	
		7		Δ	89.1	24.1	85.0	0.81	12	
5.5			132 S	Y	52.0	35.0	84.7	0.82	9.5	1LE1592-1CB02-6■■■
	6.3			Y	62.0	33.4	87.0	0.84	9	
		9		Δ	88.8	32.9	87.0	0.81	15.4	
7.5			132 M	Y	51.9	47.8	86.0	0.82	12.8	1LE1592-1CB22-6■■■
	8.6			Y	61.9	45.6	87.5	0.84	12.3	
		13		Δ	88.7	45.7	87.5	0.80	21.5	
11			160 M	Y	51.5	70.0	87.6	0.82	18.4	1LE1592-1DB22-6■■■
	12.6			Y	61.5	66.9	88.5	0.82	18.2	
		17		Δ	88.4	62.2	88.5	0.78	29.5	
13.5			160 L	Y	51.2	86.0	88.7	0.79	23	1LE1592-1DB42-6■■■
	15.6			Y	61.2	82.8	90.5	0.81	22.5	
		24		Δ	88.3	86.0	90.5	0.77	40.5	
16.7			180 M	Y	51.0	106	89.3	0.84	27	1LE1592-1EB22-6■■■
	19.2			Y	61.0	102	91.0	0.84	26.5	
		31		Δ	88.0	113	91.0	0.84	49	
21.5			180 L	Y	51.1	137	89.9	0.83	34.5	1LE1592-1EB42-6■■■
	25.3			Y	61.2	134	91.0	0.84	34.5	
		37		Δ	88.1	134	91.0	0.82	59	
30			200 L	Y	51.0	191	90.7	0.83	48	1LE1592-2AB52-6■■■
	34.5			Y	61.0	183	92.4	0.84	46.5	
		48		Δ	87.9	176	92.4	0.81	77	
33			225 S	Y	50.6	210	92.0	0.84	51	1LE1592-2BB02-6■■■
	38			Y	60.6	202	92.4	0.84	51	
41			225 M	Y	50.7	261	92.4	0.87	61	1LE1592-2BB22-6■■■
	47			Y	60.7	249	93.0	0.87	61	
52			250 M	Y	50.7	331	92.3	0.85	80	1LE1592-2CB22-6■■■
	59			Y	60.7	313	93.0	0.85	78	
75			280 S	Y	50.5	477	92.7	0.85	114	1LE1592-2DB02-6■■■
	86			Y	60.5	456	93.2	0.86	113	
90			280 M	Y	50.6	573	93.0	0.87	134	1LE1592-2DB22-6■■■
	102			Y	60.6	541	93.2	0.87	132	
110			315 S	Y	50.4	700	94.0	0.84	168	1LE1592-3AB02-6■■■
	127			Y	60.4	674	94.2	0.84	168	
132			315 M	Y	50.4	840	94.4	0.85	198	1LE1592-3AB22-6■■■
	152			Y	60.4	806	94.8	0.85	198	
160			315 L	Y	50.3	1019	95.0	0.86	235	1LE1592-3AB42-6■■■
	184			Y	60.3	976	95.0	0.86	235	
200			315 L	Y	50.4	1273	95.0	0.88	290	1LE1592-3AB52-6■■■
	230			Y	60.4	1220	95.0	0.88	290	
For versions, see Article No. supplements and special versions.										■■■

All technical specifications refer to converter operation.

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz – self-ventilated

Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm²	dB(A)	dB(A)	rpm				
1LE1592-1AB42-6...	29	0.0059	80.0	92.1	4200	TB1F01			
	29	0.0059	80.0	92.1	4200				
	29	0.0059	81.0	93.1	4200				
1LE1592-1AB52-6...	33	0.0078	80.0	92.1	4200	TB1F01			
	33	0.0078	80.0	92.1	4200				
	33	0.0078	81.0	93.1	4200				
1LE1592-1BB22-6...	38	0.01	79.0	91.3	4200	TB1F01			
	38	0.01	79.0	91.3	4200				
	38	0.01	80.0	92.3	4200		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CB02-6...	60	0.019	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
	60	0.019	77.0	89.4	4200		6SL3210-1PH21-4.L0	FSD	
	60	0.019	83.0	95.4	4200		6SL3210-1PH22-0.L0	FSD	
1LE1592-1CB22-6...	62	0.024	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
	62	0.024	77.0	89.4	4200		6SL3210-1PH21-4.L0	FSD	
	62	0.024	83.0	95.4	4200		6SL3210-1PH22-3.L0	FSD	
1LE1592-1DB22-6...	89	0.044	85.0	97.8	4200	TB1J01	6SL3210-1PH22-0.L0	FSD	
	89	0.044	85.0	97.8	4200		6SL3210-1PH22-0.L0	FSD	
	89	0.044	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	
1LE1592-1DB42-6...	100	0.056	85.0	97.8	4200	TB1J01	6SL3210-1PH22-3.L0	FSD	
	100	0.056	85.0	97.8	4200		6SL3210-1PH22-3.L0	FSD	
	100	0.056	85.0	97.8	4200		6SL3210-1PH24-2.L0	FSD	
1LE1592-1EB22-6...	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH22-7.L0	FSD	
	170	0.13	72.0	85.0	4200		6SL3210-1PH22-7.L0	FSD	
	170	0.13	84.0	97.0	4200		6SL3210-1PH25-2.L0	FSE	
1LE1592-1EB42-6...	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH23-5.L0	FSD	
	170	0.13	72.0	85.0	4200		6SL3210-1PH23-5.L0	FSD	
	170	0.13	84.0	97.0	4200		6SL3210-1PH26-2.L0	FSE	
1LE1592-2AB52-6...	220	0.2	78.0	91.3	4200	TB1L01	6SL3210-1PH25-2.L0	FSE	
	220	0.2	78.0	91.3	4200		6SL3210-1PH25-2.L0	FSE	
	220	0.2	84.0	97.3	4200		6SL3210-1PH31-0.L0	FSF	
1LE1592-2BB02-6...	260	0.37	70.0	84.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
	260	0.37	70.0	84.0	4500		6SL3210-1PH25-2.L0	FSE	
1LE1592-2BB22-6...	290	0.45	71.0	84.0	4500	TB1L01	6SL3210-1PH26-2.L0	FSE	
	290	0.45	71.0	84.0	4500		6SL3210-1PH26-2.L0	FSE	
1LE1592-2CB22-6...	360	0.69	71.0	84.0	3700	TB1N01	6SL3210-1PH28-0.L0	FSF	
	360	0.69	71.0	84.0	3700		6SL3210-1PH28-0.L0	FSF	
1LE1592-2DB02-6...	540	1.2	76.0	91.0	3000	TB1N01	6SL3210-1PH31-2.L0	FSF	
	540	1.2	76.0	91.0	3000		6SL3210-1PH31-2.L0	FSF	
1LE1592-2DB22-6...	560	1.4	76.0	91.0	3000	TB1N01	6SL3210-1PH31-4.L0	FSF	
	560	1.4	76.0	91.0	3000		6SL3210-1PH31-4.L0	FSF	
1LE1592-3AB02-6...	730	1.9	80.0	95.0	2600	TB1Q01	6SL3710-1GF31-8.A3	–	
	730	1.9	80.0	95.0	2600		6SL3710-1GF31-8.A3	–	
1LE1592-3AB22-6...	760	2.2	80.0	95.0	2600	TB1Q01	6SL3710-1GF32-2.A3	–	
	760	2.2	80.0	95.0	2600		6SL3710-1GF32-2.A3	–	
1LE1592-3AB42-6...	940	2.8	80.0	95.0	2600	TB1Q01	6SL3710-1GF32-6.A3	–	
	940	2.8	80.0	95.0	2600		6SL3710-1GF32-6.A3	–	
1LE1592-3AB52-6...	1140	3.5	82.0	96.0	2600	TB1Q01	6SL3710-1GF33-3.A3	–	
	1140	3.5	82.0	96.0	2600		6SL3710-1GF33-3.A3	–	

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Cast-iron series SIMOTICS SD 1LE1592, line voltage 690 V, 50 Hz/690 V, 87 Hz – self-ventilated

Selection and ordering data

$P_{rated,\ 50\ Hz,\ 690\ V}$	$P_{rated,\ 60\ Hz}$	$P_{rated,\ 87\ Hz,\ 690\ V}$	Frame size	Connection	Operating values at rated power: f_{rated}	T_{rated}	$\eta_{rated,\ 4/4}$ for converter operation	$\cos\varphi_{rated,\ 4/4}$	I_{rated}	1LE1592 cast-iron series Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		A	Article No.
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F)										
• Operation with a SINAMICS G converter with uncontrolled infeed – rated motor voltage 660 V, 50 Hz/660 V, 87 Hz										
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			100 L	Y	52.7	9.6	81.5	0.87	3.7	1LE1592-1AA43-3■■■
		5		Δ	89.5	9.1	84.5	0.81	6.4	
4			112 M	Y	51.2	12.7	83.1	0.86	4.9	1LE1592-1BA23-3■■■
		6.6		Δ	88.2	12.1	84.5	0.83	8.2	
5.5			132 S	Y	51.6	17.5	84.7	0.89	6.4	1LE1592-1CA03-3■■■
7.5			132 S	Y	51.2	23.9	86.0	0.87	8.8	1LE1592-1CA13-3■■■
11			160 M	Y	51.3	35.0	87.6	0.85	12.9	1LE1592-1DA23-3■■■
15			160 M	Y	51.4	47.8	88.7	0.84	17.6	1LE1592-1DA33-3■■■
18.5			160 L	Y	51.3	58.9	89.3	0.86	20.5	1LE1592-1DA43-3■■■
22			180 M	Y	51.0	70	89.9	0.87	24.5	1LE1592-1EA23-3■■■
30			200 L	Y	50.9	96	90.7	0.84	34.5	1LE1592-2AA43-3■■■
37			200 L	Y	50.9	118	91.2	0.88	40.5	1LE1592-2AA53-3■■■
45			225 M	Y	50.7	143	91.7	0.88	49	1LE1592-2BA23-3■■■
55			250 M	Y	50.6	175	92.1	0.88	59	1LE1592-2CA23-3■■■
75			280 S	Y	50.5	239	92.7	0.88	80	1LE1592-2DA03-3■■■
90			280 M	Y	50.4	286	93.0	0.88	96	1LE1592-2DA23-3■■■
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Y	52.9	14.0	79.7	0.81	3	1LE1592-1AB43-3■■■
		3.7		Δ	89.5	13.5	83.0	0.79	4.95	
3			100 L	Y	52.5	19.1	81.5	0.85	3.8	1LE1592-1AB53-3■■■
		5		Δ	89.5	18.3	85.0	0.79	6.5	
4			112 M	Y	52.5	25.5	83.1	0.85	5	1LE1592-1BB23-3■■■
		6.6		Δ	89.2	24.1	85.0	0.81	8.4	
5.5			132 S	Y	52.0	35.0	84.7	0.82	6.9	1LE1592-1CB03-3■■■
		9		Δ	88.7	32.9	87.0	0.81	11.2	
7.5			132 M	Y	51.7	47.8	86.0	0.82	9.3	1LE1592-1CB23-3■■■
		12.5		Δ	88.6	45.7	87.5	0.80	15.6	
11			160 M	Y	51.5	70.0	87.6	0.82	13.4	1LE1592-1DB23-3■■■
		17		Δ	88.3	62.2	88.5	0.78	21.5	
15			160 L	Y	51.4	95.5	88.7	0.82	18	1LE1592-1DB43-3■■■
		23.5		Δ	88.2	86.0	90.5	0.77	29.5	
18.5			180 M	Y	51.1	117.8	89.3	0.85	21.5	1LE1592-1EB23-3■■■
		31		Δ	88.0	112	91.0	0.84	35	
22			180 L	Y	51.2	140	89.9	0.85	25	1LE1592-1EB43-3■■■
		36.5		Δ	88.2	134	91.0	0.84	42	
30			200 L	Y	51.0	191	90.7	0.83	35	1LE1592-2AB53-3■■■
		48		Δ	87.9	176	92.4	0.81	56	
37			225 S	Y	50.8	236	91.4	0.85	41.5	1LE1592-2BB03-3■■■
45			225 M	Y	50.8	286	92.4	0.88	48.5	1LE1592-2BB23-3■■■
55			250 M	Y	50.8	350	92.3	0.86	61	1LE1592-2CB23-3■■■
72			280 S	Y	50.5	458	92.7	0.85	80	1LE1592-2DB03-3■■■
90			280 M	Y	50.6	573	93.0	0.87	97	1LE1592-2DB23-3■■■
105			315 S	Y	50.4	668	94.0	0.85	115	1LE1592-3AB03-3■■■
130			315 M	Y	50.4	828	94.4	0.85	142	1LE1592-3AB23-3■■■
160			315 L	Y	50.3	1019	95.0	0.87	169	1LE1592-3AB43-3■■■
200			315 L	Y	50.4	1273	95.0	0.89	205	1LE1592-3AB53-3■■■
For versions, see Article No. supplements and special versions.										■■■

All technical specifications refer to converter operation.

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Motor type	$m_{IM\ B3}$	J	L_{pfA}, tolerance +3 dB(A) load	L_{WA}, tolerance +3 dB(A) load	Mech. speed limit	Terminal box	**Preferred SINAMICS G120 – PM240(-2)** Other SINAMICS converters also possible Operating mode: Low overload Type [1]	Frame size	IES class acc. to EN 50598-2
	kg	kgm^2	dB(A)	dB(A)	rpm				
1LE1592-1AA43-3...	31	0.0034	80.0	92.1	5500	TB1F01			
	31	0.0034	85.0	97.1	5500				
1LE1592-1BA23-3...	36	0.0067	79.0	91.1	5500	TB1F01			
	36	0.0067	85.0	97.2	5500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA03-3...	53	0.013	77.0	89.3	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA13-3...	58	0.016	77.0	89.4	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
1LE1592-1DA23-3...	87	0.03	80.0	92.4	4500	TB1J01	6SL3210-1PH21-4.L0	FSD	
1LE1592-1DA33-3...	95	0.036	80.0	92.8	4500	TB1J01	6SL3210-1PH22-0.L0	FSD	
1LE1592-1DA43-3...	105	0.044	80.0	92.8	4500	TB1J01	6SL3210-1PH22-3.L0	FSD	
1LE1592-1EA23-3...	150	0.069	80.0	93.0	4500	TB1J01	6SL3210-1PH22-7.L0	FSD	
1LE1592-2AA43-3...	195	0.124	79.0	92.0	4500	TB1L01	6SL3210-1PH23-5.L0	FSD	
1LE1592-2AA53-3...	230	0.15	77.0	90.1	4500	TB1L01	6SL3210-1PH24-2.L0	FSD	
1LE1592-2BA23-3...	280	0.22	78.0	90.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
1LE1592-2CA23-3...	360	0.4	78.0	92.0	3900	TB1N01	6SL3210-1PH26-2.L0	FSE	
1LE1592-2DA03-3...	470	0.72	78.0	92.0	3600	TB1N01	6SL3210-1PH28-0.L0	FSF	
1LE1592-2DA23-3...	530	0.83	78.0	92.0	3600	TB1N01	6SL3210-1PH31-0.L0	FSF	
1LE1592-1AB43-3...	29	0.0059	80.0	92.1	4200	TB1F01			
	29	0.0059	81.0	93.1	4200				
1LE1592-1AB53-3...	33	0.0078	80.0	92.1	4200	TB1F01			
	33	0.0078	81.0	93.1	4200				
1LE1592-1BB23-3...	38	0.01	79.0	91.3	4200	TB1F01			
	38	0.01	80.0	92.3	4200		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CB03-3...	60	0.019	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
	60	0.019	83.0	95.4	4200		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CB23-3...	62	0.024	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
	62	0.024	83.0	95.4	4200		6SL3210-1PH22-0.L0	FSD	
1LE1592-1DB23-3...	89	0.044	85.0	97.8	4200	TB1J01	6SL3210-1PH21-4.L0	FSD	
	89	0.044	85.0	97.8	4200		6SL3210-1PH22-7.L0	FSD	
1LE1592-1DB43-3...	100	0.056	85.0	97.8	4200	TB1J01	6SL3210-1PH22-0.L0	FSD	
	100	0.056	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	
1LE1592-1EB23-3...	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH22-3.L0	FSD	
	170	0.13	84.0	97.0	4200		6SL3210-1PH24-2.L0	FSD	
1LE1592-1EB43-3...	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH22-7.L0	FSD	
	170	0.13	84.0	97.0	4200		6SL3210-1PH25-2.L0	FSE	
1LE1592-2AB53-3...	220	0.2	78.0	91.3	4200	TB1L01	6SL3210-1PH23-5.L0	FSD	
	220	0.2	84.0	97.3	4200		6SL3210-1PH26-2.L0	FSE	
1LE1592-2BB03-3...	260	0.37	70.0	84.0	4500	TB1L01	6SL3210-1PH24-2.L0	FSD	
1LE1592-2BB23-3...	290	0.45	71.0	84.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
1LE1592-2CB23-3...	360	0.69	71.0	84.0	3700	TB1N01	6SL3210-1PH26-2.L0	FSE	
1LE1592-2DB03-3...	540	1.2	76.0	91.0	3000	TB1N01	6SL3210-1PH28-0.L0	FSF	
1LE1592-2DB23-3...	560	1.4	76.0	91.0	3000	TB1N01	6SL3210-1PH31-0.L0	FSF	
1LE1592-3AB03-3...	730	1.9	80.0	95.0	2600	TB1Q01	6SL3710-1GH31-2.A3	–	
1LE1592-3AB23-3...	760	2.2	80.0	95.0	2600	TB1Q01	6SL3710-1GH31-5.A3	–	
1LE1592-3AB43-3...	940	2.8	80.0	95.0	2600	TB1Q01	6SL3710-1GH31-8.A3	–	
1LE1592-3AB53-3...	1140	3.5	82.0	96.0	2600	TB1Q01	6SL3710-1GH32-2.A3	–	

[1] In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

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Aluminum series SIMOTICS GP 1LE1092

Selection and ordering data

Voltages	Article No. supplement			Frame size				Motor version
	Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	**100**	**112**	**132**	**160**	
				1LE1092				Standard Efficiency
1LE1092-. . . . ■ - ■ . . .			Order code					
Voltage at 50 Hz or 60 Hz								
Line voltage: 50 Hz, 400 V 60 Hz, 480 V	**2**	**1**	**–**	□	□	□	□	
Line voltage: 50 Hz, 690 V	**3**	**3**	**–**	✓	✓	✓	✓	
Non-standard voltage and/or frequencies								
Non-standard winding Reinforced insulation system (Advanced)	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	
Non-standard winding Special insulation system (Premium)	**9**	**0**	**M2Y** • and customer specifications	✓	✓	✓	✓	

□ Standard version
✓ With additional charge
• This order code only determines the price of the version – Additional plain text is required.

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Selection and ordering data

Voltages	Article No. supplement			Frame size										Motor version
	Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**	
				1LE1592										Standard Efficiency
1LE1592- . . . . ■ - ■ . . .			Order code											
Voltage at 50 Hz or 60 Hz														
Line voltage: 50 Hz, 400 V 60 Hz, 480 V	**2**	**1**	**–**	□	□	□	□	□	□	□	□	□	□	
Line voltage: 50 Hz, 500 V 60 Hz, 600 V	**2**	**6**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Line voltage: 50 Hz, 690 V	**3**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Non-standard voltage and/or frequencies														
Non-standard winding Reinforced insulation system (Advanced)	**9**	**0**	**M1Y •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Non-standard winding Special insulation system (Premium)	**9**	**0**	**M2Y •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

□ Standard version
✓ With additional charge
• This order code only determines the price of the version – Additional plain text is required.

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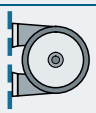
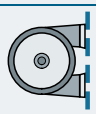
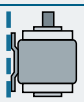
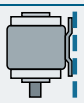
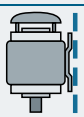
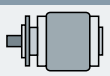
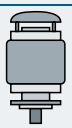
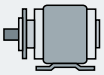
Aluminum series SIMOTICS GP 1LE1092

Selection and ordering data

Types of construction		Article No. supplement		Frame size				Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	
				1LE1092				Standard Efficiency
1LE1092-. . . . . - . ■ . . (-Z)			Order code					
Without flange								
IM B3 [1] [2]		**A**	–	□	□	□	□	
IM B6 [2]		**T**	–	□	□	□	□	
IM B7 [2]		**U**	–	□	□	□	□	
IM B8 [2]		**V**	–	□	□	□	□	
IM V6 [2]		**D**	–	□	□	□	□	
IM V5 without protective cover [2]		**C**	–	□	□	□	□	
IM V5 with protective cover [2] [3] [4] [5]		**C**	**H00**	✓	✓	✓	✓	
With flange		**Acc. to EN 50347 Acc. to DIN 42948**		**FF215 A 250**	**FF215 A 250**	**FF265 A 300**	**FF300 A 350**	
IM B5 [2] [6]		**F**	–	✓	✓	✓	✓	
IM V1 without protective cover [2]		**G**	–	✓	✓	✓	✓	
IM V1 with protective cover [2] [3] [4] [5]		**G**	**H00**	✓	✓	✓	✓	
IM V3 [3]		**H**	–	✓	✓	✓	✓	
IM B35		**J**	–	✓	✓	✓	✓	

For legends and footnotes, see page 4/113.

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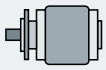
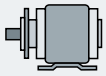
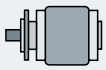
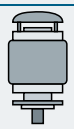
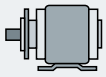
Aluminum series SIMOTICS GP 1LE1092

Types of construction	Article No. supplement		Frame size				Motor version
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	
			1LE1092				Standard Efficiency
1LE1092-. . . . . - . ■ . . (-Z)		Order code					
With flange next largest	**Acc. to EN 50347 Acc. to DIN 42948**		**FF265 A 300**	**FF265 A 300**	**FF300 A 350**	**FF350 A 400**	
IM B5 [2) 6)] 	**F**	**P01**	✓	✓	✓	–	
IM V1 without protective cover [2)]	**G**	**P01**	✓	✓	✓	–	
IM V1 with protective cover [2) 3) 4) 5)]	**G**	**P01+H00**	✓	✓	✓	–	
IM V3 [3)]	**H**	**P01**	✓	✓	✓	–	
IM B35 	**J**	**P01**	✓	✓	✓	–	
With flange next smallest	**Acc. to EN 50347 Acc. to DIN 42948**		**FF165 A 200**	**FF165 A 200**	**FF215 A 250**	**FF265 A 300**	
IM B5 [2) 6)] 	**F**	**P02**	✓	✓	✓	✓	
IM V1 without protective cover [2)]	**G**	**P02**	✓	✓	✓	✓	
IM V1 with protective cover [2) 3) 4) 5)] 	**G**	**P02+H00**	✓	✓	✓	✓	
IM V3 [3)]	**H**	**P02**	✓	✓	✓	✓	
IM B35 	**J**	**P02**	✓	✓	✓	✓	

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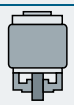
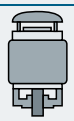
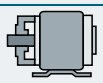
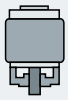
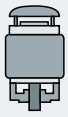
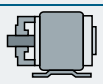
Aluminum series SIMOTICS GP 1LE1092

Types of construction		Article No. supplement		Frame size				Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	
				1LE1092				Standard Efficiency
1LE1092-. . . . . - . .		**■ . . (-Z)**	Order code					
With flange		**Acc. to EN 50347** **Acc. to DIN 42948**		**FT130** **C 160**	**FT130** **C 160**	**FT165** **C 200**	**–** **–**	
IM B14 2) 7)		**K**	**–**	✓	✓	✓	✓	
IM V19 2)		**L**	**–**	✓	✓	✓	✓	
IM V18 without protective cover 2)		**M**	**–**	✓	✓	✓	✓	
IM V18 with protective cover 2) 3) 4) 5)		**M**	**–**	✓	✓	✓	✓	
IM B34		**N**	**–**	✓	✓	✓	✓	
With flange next largest		**Acc. to EN 50347** **Acc. to DIN 42948**		**FT165** **C 200**	**FT165** **C 200**	**FT215** **C 250**	**–** **–**	
IM B14 2) 7)		**K**	**P01**	✓	✓	✓	–	
IM V19 2)		**L**	**P01**	✓	✓	✓	–	
IM V18 without protective cover 2)		**M**	**P01**	✓	✓	✓	–	
IM V18 with protective cover 2) 3) 4) 5)		**M**	**P01+H00**	✓	✓	✓	–	
IM B34		**N**	**P01**	✓	✓	✓	–	

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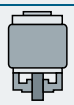
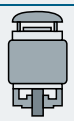
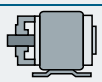
Types of construction	Article No. supplement		Frame size				Motor version
	Type of construction letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	
			1LE1092				Standard Efficiency
1LE1092-. . . . . - . ■ . . (-Z)		Order code					
With flange next smallest	**Acc. to EN 50347**		**FT115**	**FT115**	**FT130**	**–**	
	Acc. to DIN 42948		**C 140**	**C 140**	**C 160**	**–**	
IM B14 2) 7)	**K**	**P02**	✓	O. R.	O. R.	–	
IM V19 2)	**L**	**P02**	✓	O. R.	O. R.	–	
IM V18 without protective cover 2) 	**M**	**P02**	✓	O. R.	O. R.	–	
IM V18 with protective cover 2) 3) 4) 5) 	**M**	**P02+H00**	✓	O. R.	O. R.	–	
IM B34 	**N**	**P02**	✓	O. R.	O. R.	–	

□ Standard version
✓ With additional charge
– Not possible
O. R. Possible on request

4

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code **H03**), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) The "Second shaft extension" option (order code **L05**) is not possible.

4) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

5) Not possible for forced-air cooled motors with order code **F90** without external fan and fan cover.

6) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

7) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

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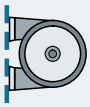
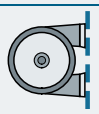
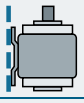
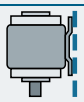
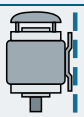
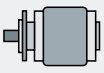
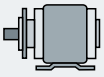
Cast-iron series SIMOTICS SD 1LE1592

Selection and ordering data

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version
			1LE1592											Standard Efficiency
1LE1592-. . . . . - . ■ . . (-Z)	■	Order code												
Without flange														
IM B3 [1] [2]	**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	
IM B6 [2] 	**T**	**–**	□	□	□	□	□	□	□	□	□	□	□	
IM B7 [2] 	**U**	**–**	□	□	□	□	□	□	□	□	□	□	□	
IM B8 [2]	**V**	**–**	□	□	□	□	□	□	□	□	□	□	□	
IM V6 [2] 	**D**	**–**	□	□	□	□	□	□	□	□	□	□	□	
IM V5 without protective cover [2] 	**C**	**–**	□	□	□	□	□	□	□	□	□	□	□	
IM V5 with protective cover [2] [3] [4] 	**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With flange	**Acc. to EN 50347** **Acc. to DIN 42948**		**FF215** **A 250**	**FF215** **A 250**	**FF265** **A 300**	**FF300** **A 350**	**FF300** **A 350**	**FF350** **A 400**	**FF400** **A 450**	**FF500** **A 550**	**FF500** **A 550**	**FF600** **A 660**	**–** **A 660**	
IM B5 [2] [5] 	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	
IM V1 without protective cover [2]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IM V1 with protective cover [2] [3] [4]	**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IM V3 [4]	**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	
IM B35 	**J**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 4/117.

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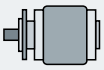
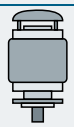
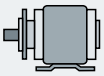
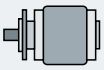
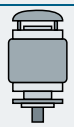
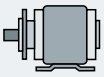
Cast-iron series SIMOTICS SD 1LE1592

Types of construction	Article No. supplement		Frame size											Motor version
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315 S/M**	**315 L**	
			1LE1592											Standard Efficiency
1LE1592-. . . . . - . ■ . . (-Z)		Order code												
With flange next largest	**Acc. to EN 50347**		**FF265**	**FF265**	**FF300**	–	–	–	–	–	–	–	–	
	Acc. to DIN 42948		**A 300**	**A 300**	**A 350**	–	–	–	–	–	–	–	–	
IM B5 2) 5) 	**F**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V1 without protective cover 2)	**G**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V1 with protective cover 2) 3) 4) 	**G**	**P01+H00**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V3 4)	**H**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM B35 	**J**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
With flange next smallest	**Acc. to EN 50347**		**FF165**	**FF215**	**FF215**	**FF265**	**FF265**	**FF300**	–	–	–	–	–	
	Acc. to DIN 42948		**A 200**	**A 250**	**A 250**	**A 300**	**A 300**	**A 350**	–	–	–	–	–	
IM B5 2) 5) 	**F**	**P02**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V1 without protective cover 2)	**G**	**P02**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V1 with protective cover 2) 3) 4) 	**G**	**P02+H00**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V3 4)	**H**	**P02**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM B35 	**J**	**P02**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	

For legends and footnotes, see page 4/117.

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Standard induction motors optimized for converter operation – VSD10 line

Article No. supplements and special versions · Types of construction

Cast-iron series SIMOTICS SD 1LE1592

Types of construction		Article No. supplement		Frame size											Motor version
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315 S/M**	**315 L**	
				1LE1592											Standard Efficiency
1LE1592-. . . . . - . .		**■ . . (-Z)**	Order code												
With flange		**Acc. to EN 50347**		**FT130**	**FT130**	**FT165**	**FT215**	–	–	–	–	–	–	–	
		Acc. to DIN 42948		**C 160**	**C 160**	**C 200**	**C 250**	–	–	–	–	–	–	–	
IM B14 2) 6)		**K**	**–**	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V19 2)		**L**	**–**	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 without protective cover 2)		**M**	**–**	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 with protective cover 2) 3) 4)		**M**	**H00**	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM B34		**N**	**–**	✓	✓	✓	✓	–	–	–	–	–	–	–	
With flange next largest		**Acc. to EN 50347**		**FT165**	**FT165**	**FT215**	–	–	–	–	–	–	–	–	
		Acc. to DIN 42948		**C 200**	**C 200**	**C 250**	–	–	–	–	–	–	–	–	
IM B14 2) 6)		**K**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V19 2)		**L**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V18 without protective cover 2)		**M**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V18 with protective cover 2) 3) 4)		**M**	**P01+H00**	✓	✓	✓	–	–	–	–	–	–	–	–	
IM B34		**N**	**P01**	✓	✓	✓	–	–	–	–	–	–	–	–	

For legends and footnotes, see page 4/117.

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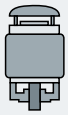
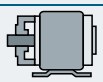
Types of construction	Article No. supplement		Frame size											Motor version
	Type of construction letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315 S/M**	**315 L**	
			1LE1592											Standard Efficiency
1LE1592-. . . . . - . ■ . . (-Z)		Order code												
With flange next smallest	**Acc. to EN 50347**		**FT115**	–	–	–	–	–	–	–	–	–	–	
	Acc. to DIN 42948		**C 140**	–	–	–	–	–	–	–	–	–	–	
IM B14 2) 6)	**K**	**P02**	✓	–	–	–	–	–	–	–	–	–	–	
IM V19 2)	**L**	**P02**	✓	–	–	–	–	–	–	–	–	–	–	
IM V18 without protective cover 2)	**M**	**P02**	✓	–	–	–	–	–	–	–	–	–	–	
IM V18 with protective cover 2) 3) 4) 	**M**	**P02+H00**	✓	–	–	–	–	–	–	–	–	–	–	
IM B34 	**N**	**P02**	✓	–	–	–	–	–	–	–	–	–	–	

□ Standard version
✓ With additional charge
– Not possible

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

4) The "Second shaft extension" option (order code **L05**) is not possible.

5) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

6) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

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Selection and ordering data

Motor protection	Article No. supplement		Frame size				Motor version	
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text if required	**100**	**112**	**132**	**160**		
			1LE1092				Standard Efficiency	
1LE1092-. . . . . - . . ■ .		Order code						
Motor protection								
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	**–**	✓	✓	✓	✓		
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	**–**	✓	✓	✓	✓		
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	**–**	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [1]	**H**	**–**	✓	✓	✓	✓		
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	**–**	○	○	○	○		
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	**–**	✓	✓	✓	✓		
1 Pt100 resistance thermometers – 2-wire input (2 terminals) [1]	**P**	**–**	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals) [1]	**Q**	**–**	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals) [1]	**R**	**–**	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (2 terminals) [1]	**Z**	**Q3A**	✓	✓	✓	✓	Only for:	Voltage code 2-1 (12th and 13th position of the Article No.)

○ Without additional charge
✓ With additional charge

[1] Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

[2] Not UL-certified. Not in combination with option **D39**.

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Selection and ordering data

Motor protection	Article No. supplement		Frame size										Motor version	
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text if required	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**		
			1LE1592										Standard Efficiency	
1LE1592-. . . . . - . .	■ .	Order code												
Motor protection														
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 Pt1000 resistance thermometers (2 terminals) [3]	**K**	**–**	○	○	○	○	○	○	○	○	○	○		
2 Pt1000 resistance thermometers (4 terminals) [3]	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**P**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**R**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (2 terminals) [2]	**Z**	**Q3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	Voltage code 2-1 (12th and 13th position of the Article No.)

○ Without additional charge
✓ With additional charge

[1] Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

[2] Only applicable for voltage code (12th and 13th position of the Article No.) 2-1.

[3] Not possible in combination with UL.

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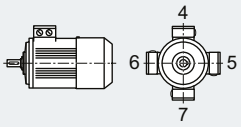
Selection and ordering data

Terminal box position	Article No. supplement		Frame size				Motor version
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	**100**	**112**	**132**	**160**	
			1LE1092				Standard Efficiency
1LE1092-. . . . . -. . . ■		Order code					
Terminal box position							
Terminal box top [1]	**4**	–	□	□	□	□	
Terminal box right-hand side [2]	**5**	–	✓	✓	✓	✓	
Terminal box left-hand side [2]	**6**	–	✓	✓	✓	✓	
Terminal box bottom [2]	**7**	–	✓	✓	✓	✓	

□ Standard version
✓ With additional charge

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[1] For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

[2] For types of construction with feet, screwed-on feet are standard.

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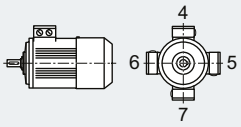
Selection and ordering data

Terminal box position	Article No. supplement		Frame size										Motor version
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text if required	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**	
			1LE1592										Standard Efficiency
1LE1592- . . . . . - . . . ■		Order code											
Terminal box position													
Terminal box top [1]	**4**	–	□	□	□	□	□	□	□	□	□	□	
Terminal box right-hand side [2]	**5**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Terminal box left-hand side [2]	**6**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Terminal box bottom [2]	**7**	–	✓	✓	✓	✓	–	–	–	–	–	–	

□ Standard version
✓ With additional charge

[1] For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

[2] For types of construction with feet, screwed-on feet are standard.

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Aluminum series SIMOTICS GP 1LE1092

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size **100**	**112**	**132**	**160**	Motor version	
		1LE1092				Standard Efficiency	
1LE1092-. . . . . -. . . . -Z	Order code						
Motor protection							
1 or 3 PTC thermistors – for tripping (2 terminals) [2) 3)]	**Q11**	✓	✓	✓	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [3)]	**Q12**	✓	✓	✓	✓		
1 KTY84-130 temperature sensor (2 terminals) [3)]	**Q23**	✓	✓	✓	✓		
2 KTY84-130 temperature sensor (4 terminals) [3)]	**Q25**	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (2 terminals) [3)]	**Q31**	✓	✓	✓	✓		
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	✓	✓	✓	✓		
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	O. R.	O. R.	O. R.	O. R.		
1 Pt1000 resistance thermometer (2 terminals) [20)]	**Q35**	O	O	O	O		
2 Pt1000 resistance thermometers (4 terminals) [20)]	**Q36**	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**Q61**	✓	✓	✓	✓		
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	✓	✓	✓	✓		
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals)	**Q72**	O. R.	O. R.	O. R.	O. R.		
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)	**Q78**	O. R.	O. R.	O. R.	O. R.		
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)	**Q79**	O. R.	O. R.	O. R.	O. R.	Not for:	Motors in combination with order codes F40 and F41 (frame sizes 225 to 315)
Motor connection and terminal box							
External grounding	**H04**	✓	✓	✓	✓		
Terminal box on NDE [1)]	**H08**	✓	✓	✓	✓		
Rotation of the terminal box through 90°, entry from DE [2)]	**R10**	O	O	O	O		
Rotation of the terminal box through 90°, entry from NDE	**R11**	O	O	O	O		
Rotation of the terminal box through 180°	**R12**	O	O	O	O		
Terminal box in position 0°; connection from right [21)]	**R13**	O	O	O	–		
One metal cable gland	**R15**	✓	✓	✓	✓		
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓		
3 cables protruding, 0.5 m long	**R20**	✓	✓	✓	✓		
6 cables protruding, 0.5 m long	**R22**	✓	✓	✓	✓		
Larger terminal box	**R50**	✓	✓	✓	✓		
Motor connector Han-Drive 10e for 230 VΔ/400 VY	**R70**	✓	✓	✓	–		
Motor connector EMC Han-Drive 10e for 230 VΔ/400 VY	**R71**	✓	✓	✓	–		
Windings and insulation							
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓		

For legends and footnotes, see page 4/125.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size **100**	**112**	**132**	**160**	Motor version
		1LE1092				Standard Efficiency
1LE1092-. . . . . -. . . . -Z	Order code					
Colors and paint finish						
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	
Unpainted, only primed	**S01**	✓	✓	✓	✓	
Special paint finish C3	**S02**	✓	✓	✓	✓	
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	
Internal coating	**S05**	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL....	✓	✓	✓	✓	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL....	✓	✓	✓	✓	
Modular technology – Basic versions [4]						
Mounting of holding brake (standard assignment) [5]	**F01**	✓	✓	✓	✓	
Mounting of brake for higher switching frequency (operating brake)	**F02**	O. R.	O. R.	O. R.	O. R.	
Mounted separately driven fan	**F70**	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	
Modular technology – Additional versions						
Brake supply voltage 24 V DC	**F10**	✓	✓	✓	✓	
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	○	○	○	○	
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	✓	✓	✓	✓	
Brake supply voltage 180 V DC	**F17**	✓	✓	✓	✓	Only for: Combination with F01
Brake supply voltage 205 V DC	**F18**	✓	✓	✓	✓	Only for: Combination with F01
Mechanical manual brake release with lever (no locking)	**F50**	✓	✓	✓	✓	
Special technology [3]						
Mounting of LL 861 900 220 rotary pulse encoder [6]	**G04**	✓	✓	✓	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder [6]	**G05**	✓	✓	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder [6]	**G06**	✓	✓	✓	✓	
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	✓	✓	✓	✓	
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	✓	✓	✓	✓	
Mechanical version and degrees of protection						
Prepared for mountings, centering hole only [7]	**G40**	✓	✓	✓	✓	
Prepared for mountings with D12 shaft [12]	**G41**	✓	✓	✓	✓	
Prepared for mountings with D16 shaft [12]	**G42**	✓	✓	✓	✓	
Mechanical protection for encoder	**G43**	✓	✓	✓	✓	
Protective cover [6] [8]	**H00**	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	**H01**	✓	✓	✓	✓	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	
Condensation drainage holes [9]	**H03**	✓	✓	✓	✓	
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	
IP65 degree of protection [10]	**H20**	✓	✓	✓	✓	
IP56 degree of protection [11]	**H22**	✓	✓	✓	✓	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar [13]	**H23**	✓	✓	✓	✓	

For legends and footnotes, see page 4/125.

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Aluminum series SIMOTICS GP 1LE1092

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 100	112	132	160	Motor version
		1LE1092				Standard Efficiency
1LE1092-. . . . . -. . . . -Z	Order code					
Coolant temperature and installation altitude						
Coolant temperature –40 to +40 °C [19]	**D03**	✓	✓	✓	✓	
Coolant temperature –30 to +40 °C [19]	**D04**	✓	✓	✓	✓	
Versions in accordance with standards and specifications						
Version according to UL and CSA (Canadian regulation)	**D39**	✓	✓	✓	✓	
TR CU product safety certificate EAC for Eurasian Customs Union	**D47**	✓	✓	✓	✓	
Bearings and lubrication						
Located bearing DE	**L20**	✓	✓	✓	✓	
Located bearing NDE	**L21**	✓	✓	✓	□	
Bearing design for increased cantilever forces	**L22**	✓	✓	✓	✓	
Regreasing device [14]	**L23**	✓	✓	✓	✓	
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	✓	✓	✓	✓	
Bearing insulation NDE	**L51**	✓	✓	✓	✓	
Measuring nipple for SPM shock pulse measurement for bearing inspection [14]	**Q01**	✓	✓	✓	✓	
Balance and vibration severity						
Vibration severity grade A		□	□	□	□	
Half-key balancing (standard)		□	□	□	□	
Balancing without feather key	**L01**	✓	✓	✓	✓	
Full-key balancing	**L02**	✓	✓	✓	✓	
Shaft and rotor						
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	
Non-standard cylindrical shaft extension, DE [15]	**Y58** • and customer specifications	✓	✓	✓	✓	
Non-standard cylindrical shaft extension, NDE [15]	**Y59** • and customer specifications	✓	✓	✓	✓	
Heating and ventilation						
Sheet metal fan cover	**F74**	✓	✓	✓	✓	
Fan cover for textile industry [16]	**F75**	✓	✓	✓	✓	
Metal external fan	**F76**	✓	✓	✓	✓	
Without external fan and without fan cover	**F90**	✓	✓	✓	✓	
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	
Rating plate and additional rating plates						
Second rating plate, loose	**M10**	✓	✓	✓	✓	
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	
Additional rating plate with customer specifications	**Y82** • and customer specifications	✓	✓	✓	✓	
Additional information on rating plate and on package label (max. 20 characters)	**Y84** • and customer specifications	✓	✓	✓	✓	
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85** • and customer specifications	✓	✓	✓	✓	

For legends and footnotes, see page 4/125.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size				Motor version
		100	**112**	**132**	**160**	
		1LE1092				Standard Efficiency
1LE1092-. . . . . -. . . . -Z	Order code					
Packaging, safety notes, documentation and test certificates						
A printed version of the safety notes in German/English and safety notes in the language of the country of use is supplied in each wire-lattice pallet [17]	**B01**	○	○	○	○	
Inspection certificate 3.1 according to EN 10204 [18]	**B02**	✓	✓	✓	✓	
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	
"Basic" documentation package	**B90**	✓	✓	✓	✓	
"Advanced" documentation package	**B91**	✓	✓	✓	✓	
"Projects" documentation package	**B92**	✓	✓	✓	✓	
Wire-lattice pallet packaging	**B99**	○	○	○	○	
Connected in star for dispatch	**M01**	✓	✓	✓	✓	
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	

◘ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O. R. Possible on request
– Not possible

1) For order code **H08** mounting feet dimensions deviate from EN 50347. Further information is available in the DT Configurator (see Appendix, "Tools and engineering").

2) With IM B5 flange, only possible in combination with order code **H08**.

3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

4) A second shaft extension is not possible. Please inquire for mounted brakes.

5) The brake supply voltage must be specified or ordered with order codes **F10**, **F11**, **F12**, **F17**, and **F18**.

6) In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

7) As standard, motors that are prepared for additional mounted components (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mounted components provided by the customer, this can be ordered with order code **G43**. In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.

8) Order code **H00** provides mechanical protection for encoders.

9) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

10) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**).

11) Not possible in combination with brake BFK458 (order code **F01**).

12) As standard, motors that are prepared for additional mounted components (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code **G43**.

13) Not possible for type of construction IM V3.

14) Not possible when a brake is mounted.

15) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
- Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
- Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.
For an explanation of the order codes, see Catalog Section 1 "Introduction".

16) The special requirements of the textile industry regarding the sheet metal cover open up the possibility that a finger may be inserted between the cover and housing. The customer must implement appropriate measures to ensure that the installed system is "finger-safe".

17) The Operating Instructions (compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976.

18) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor and will be dispatched by e-mail.

19) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

20) Not possible in combination with UL.

21) Only possible in combination with order codes **R70** and **R71**.

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Cast-iron series SIMOTICS SD 1LE1592

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 100	112	132	160	180	200	225	250	280	315	Motor version
		1LE1592										Standard Efficiency
1LE1592-. . . . . -. . . . -Z	Order code											
Motor protection												
1 or 3 PTC thermistors – for tripping (2 terminals) [2] [3]	**Q11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [3]	**Q12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) [3]	**Q23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensor (4 terminals) [3]	**Q25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) [3]	**Q31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	**Q32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: Voltage code 2-1 (12th and 13th position of the Article No.)
3 bimetal sensors (NC contacts) for tripping (6 terminals)	**Q33**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6 bimetal sensors (NC contacts) thermostat for alarm and tripping (12 terminals)	**Q34**	–	–	–	–	✓	✓	✓	✓	✓	✓	
1 Pt1000 resistance thermometer (2 terminals) [20]	**Q35**	○	○	○	○	○	○	○	○	○	○	
2 Pt1000 resistance thermometers (4 terminals) [20]	**Q36**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**Q60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals) [1]	**Q72**	–	–	–	–	✓	✓	✓	✓	✓	✓	
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)	**Q78**	–	–	–	–	✓	✓	✓	✓	✓	✓	
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)	**Q79**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Motor connection and terminal box												
External grounding	**H04**	✓	✓	✓	✓	◘	◘	◘	◘	◘	◘	
Terminal box on NDE [2]	**H08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Second external grounding	**H70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Rotation of the terminal box through 90°, entry from DE	**R10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Rotation of the terminal box through 90°, entry from NDE	**R11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Rotation of the terminal box through 180°	**R12**	○	○	○	○	✓	✓	✓	✓	✓	✓	
One EMC cable gland	**R14**	–	–	–	–	✓	✓	✓	✓	✓	✓	
One metal cable gland	**R15**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
EMC cable gland, maximum configuration	**R16**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Stud terminal for cable connection, accessories pack (3 items)	**R17**	–	–	–	–	–	–	–	✓	✓	✓	
Saddle terminal for connection without cable lug, accessories pack	**R19**	–	–	–	–	–	–	–	✓	✓	✓	
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Terminal box without cable entry opening	**R51**	○	○	○	○	○	○	○	○	○	○	
Drilled removable entry plate	**R52**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Undrilled removable entry plate	**R53**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Cast-iron auxiliary terminal box (small)	**R62**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Silicone-free version	**R74**	◘	◘	◘	◘	◘	◘	◘	✓	✓	✓	
Non-standard threaded through hole (NPT or G thread)	**Y61** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

For legend, see page 4/129, for footnotes, see page 4/130.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size										Motor version
		100	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**	
		1LE1592										Standard Efficiency
1LE1592-. . . . . -. . . . -Z	Order code											
Windings and insulation												
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Colors and paint finish												
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○	
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish for use offshore C5	**S04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Internal coating	**S05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL....	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL....	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Modular technology – Basic versions [4]												
Mounting of holding brake (standard assignment) [5]	**F01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounted separately driven fan	**F70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	**G11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	**G12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Modular technology – Additional versions												
Brake supply voltage 24 V DC	**F10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	○	○	○	○	○	○	○	○	○	○	
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Brake supply voltage 180 V DC	**F17**	✓	✓	✓	✓	✓	✓	✓	–	–	–	Only for: Combination with F01
Brake supply voltage 205 V DC	**F18**	✓	✓	✓	✓	✓	✓	✓	–	–	–	Only for: Combination with F01
Mechanical manual brake release with lever (no locking)	**F50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special technology [5]												
Mounting of LL 861 900 220 rotary pulse encoder [8]	**G04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder [8]	**G05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder [8]	**G06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of POG 10 DN rotary pulse encoder (only in combination with separately driven fan or brake) [9]	**G07**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake) [9]	**G08**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder	**G21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder	**G22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder	**G25**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder	**G27**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Mounting of a special type of rotary pulse encoder	**Y70 •** and customer specifications	–	–	–	–	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	

For legend, see page 4/129, for footnotes, see page 4/130.

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Cast-iron series SIMOTICS SD 1LE1592

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 100	112	132	160	180	200	225	250	280	315	Motor version
		1LE1592										Standard Efficiency
1LE1592-. . . . . -. . . . -Z	Order code											
Mechanical version and degrees of protection												
Prepared for mountings, centering hole only	**G40**	✓	✓	✓	✓	□	□	□	□	□	□	
Prepared for mountings with D12 shaft	**G41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Prepared for mountings with D16 shaft	**G42**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mechanical protection for encoder	**G43**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Protective cover [6) 8) 10)]	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	**H01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Condensation drainage holes		□	□	□	□	□	□	□	□	□	□	
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IP65 degree of protection [11)]	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IP54 degree of protection	**H21**	–	–	–	–	✓	✓	✓	✓	✓	✓	
IP56 degree of protection [12)]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar [13)]	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Grounding brush for converter operation	**L52**	–	–	–	–	–	–	–	–	✓	✓	
Coolant temperature and installation altitude												
Coolant temperature –50 to +40 °C	**D02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature –40 to +40 °C [14)]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature –30 to +40 °C	**D04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Versions in accordance with standards and specifications												
Version according to UL and CSA (Canadian regulation)	**D39**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
TR CU product safety certificate EAC for Eurasian Customs Union	**D47**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Bearings and lubrication												
Regreasing device with M10 × 1 grease nipple according to DIN 71412 A	**L19**	–	–	–	–	✓	✓	✓	✓	○	○	
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Located bearing NDE	**L21**	✓	✓	✓	□	□	□	□	□	□	□	
Bearing design for increased cantilever forces	**L22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Regreasing device [15)]	**L23**	✓	✓	✓	✓	✓	✓	✓	✓	□	□	
Bearings reinforced at both ends for DE and NDE, bearing size 63 [16)]	**L25**	✓	✓	✓	✓	✓	✓	✓	✓	□	□	
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	**L28**	–	–	–	–	✓	✓	✓	✓	–	–	
Bearing insulation DE	**L50**	–	–	–	–	–	–	✓	✓	✓	✓	
Bearing insulation NDE	**L51**	✓	✓	✓	✓	✓	✓	✓	✓	□	□	
Measuring nipple for SPM shock pulse measurement for bearing inspection [15)]	**Q01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Balance and vibration severity												
Vibration severity grade A		□	□	□	□	□	□	□	□	□	□	
Half-key balancing (standard)		□	□	□	□	□	□	□	□	□	□	
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Shaft and rotor												
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

For legend, see page 4/129, for footnotes, see page 4/130.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 100	112	132	160	180	200	225	250	280	315	Motor version
		1LE1592										Standard Efficiency
1LE1592-. . . . . -. . . . -Z	Order code											
Shaft and rotor (continued)												
Non-standard cylindrical shaft extension, DE [17]	**Y58 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Non-standard cylindrical shaft extension, NDE [17]	**Y59 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special shaft steel	**Y60 •** and customer specifications	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
Heating and ventilation												
Sheet metal fan cover	**F74**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Metal external fan	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Separately driven fan with non-standard voltage and/or frequency	**Y81 •** and customer specifications	–	–	–	–	–	–	✓	✓	✓	✓	
Rating plate and additional rating plates												
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	**Y85 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Extension of the liability for defects												
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery [18]	**Q80**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [18]	**Q82**	–	–	–	–	✓	✓	✓	✓	✓	✓	
Packaging, safety notes, documentation and test certificates												
Inspection certificate 3.1 according to EN 10204 [19]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Document - Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Document - Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Standard test (routine test) with acceptance	**B65**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

◘ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O. R. Possible on request
– Not possible

For footnotes, see page 4/130.

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1) Evaluation with associated tripping unit (see Catalog IC 10) is recommended.
2) For order code **H08** mounting feet dimensions deviate from EN 50347. Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
4) A second shaft extension is not possible. Please inquire for mounted brakes.
5) The brake supply voltage must be specified or ordered with order codes **F10**, **F11**, **F12**, **F17**, and **F18**.
6) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
7) In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
8) LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
9) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB! This option cannot be used in combination with brakes of type BFK458!
10) Order code **H00** provides mechanical protection for encoders.
11) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake BFK458 (order code **F01**).
12) Not possible in combination with brake BFK458 (order code **F01**).
13) Not possible for type of construction IM V3.
14) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.
15) Up to frame size 160 not possible when brake is mounted.
16) Standard version for motors from frame size 280 and higher.
17) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
- Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
- Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.

For an explanation of the order codes, see Catalog Section 1 "Introduction".
18) Wearing parts (bearings) are excluded from the warranty extension.
19) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.
20) Not possible in combination with UL.

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Overview

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

Foundation blocks according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation blocks that are bolted to the machine (without washers) and fitted with taper pins are not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 (5241) 7407-0
Fax +49 (5241) 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG
Rutesheimer Strasse 22
70499 Stuttgart, Germany
Phone +49 (711) 1388-0
Fax +49 (711) 1388-233

www.ottoroth.de
Email: info@ottoroth.de

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Flender is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner - ordering from catalog
Siemens MD 10.1 "FLENDER Standard Couplings"

or

Flender GmbH
Kupplungswerk Mussum
Industriepark Bocholt
Schlavenhorst 100
46395 Bocholt, Germany
Phone +49 (2871) 922185
Fax +49 (2871) 922579

www.flender.com
Email: flender-kupplungen-2.pd.de@siemens.com

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More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
  - For up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable spare motor with regard to the mounting dimensions and functions (the type series may vary).
  - If a spare motor is provided within the 3-year period, this will not mean that the warranty restarts.
  - Replacement motors delivered after the active production of the motor series are also identified as spare motors on the rating plate.
  - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
  - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
  - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
  - Designation and part number
  - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline
  In Germany
  Phone +49 (0) 911 895 7222

You will find telephone numbers for other countries on our Internet site:
www.siemens.com/automation/service&support

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Overview

- Dimension designations according to EN 50347 and IEC 60072.
- Fits
  The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	flange (FF)	H17

  The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

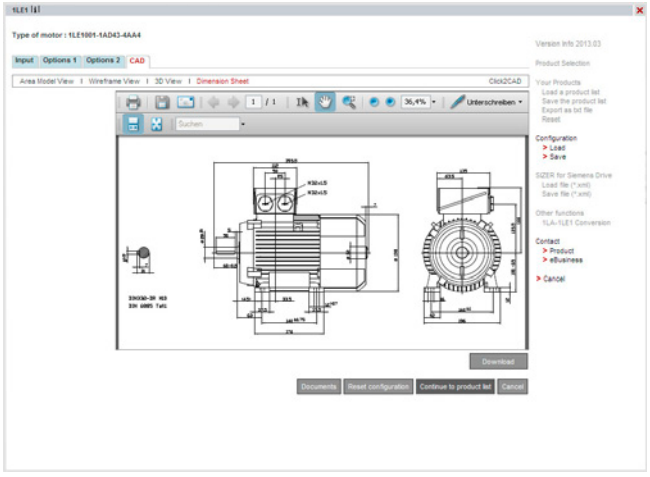
- Dimensional tolerances
  For the following dimensions, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
H	to 250	– 0.5
	over 250	– 1.0
E, EA		– 0.5

  Keyways and feather keyways (dimensions GA, GC, F, and FA) are made in compliance with DIN 6885 Part 1.
- All dimensions are specified in mm.

Overview

A dimensional drawing can be created in the "Drive Technology Configurator" (DT Configurator) for every configurable motor.
A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.
The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated into the Siemens Industry Mall and can be used on the Internet without installation.
German: www.siemens.de/dt-konfigurator
English: www.siemens.com/dt-configurator

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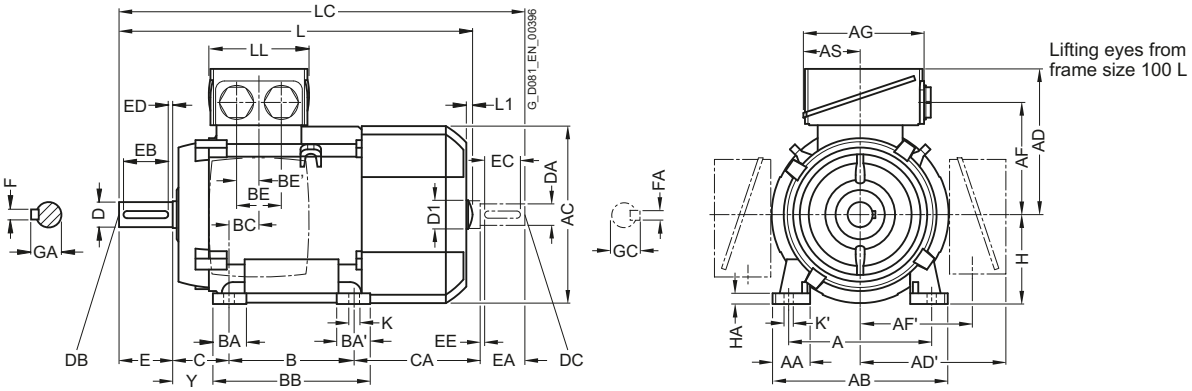
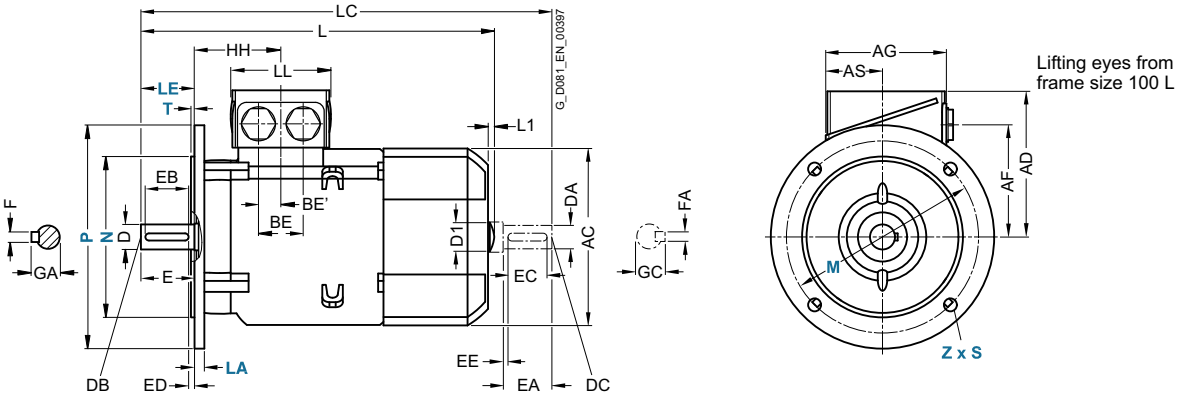
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1LE1092	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	All	2, 4	160	42	**196**	198	**166**	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	141	**100**	12	45
112 M	All	2, 4	190	46	**226**	222	**177**	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	129.7	**112**	12	52
132 S	All	2, 4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	140	38	76	218	26.5	48	24	89	128.5	**132**	15	69
132 M	All	2, 4	216	53	**256**	262	**202**	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	128.5	**132**	15	69
160 M	All	2, 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	210	44	89	300	47	57	28.5	108	148	**160**	18	85
160 L	All	2, 4	254	60	**300**	314	**236.5**	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	148	**160**	18	85

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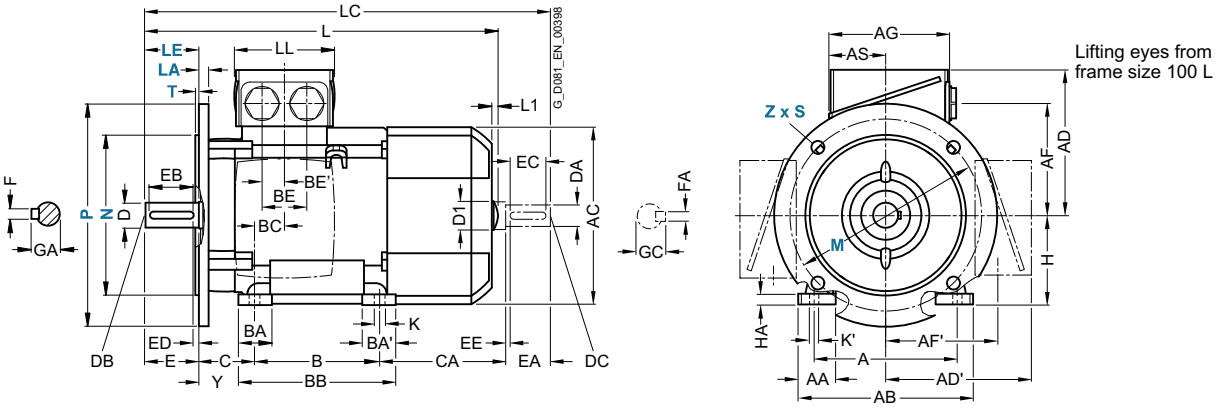
Dimensional drawings

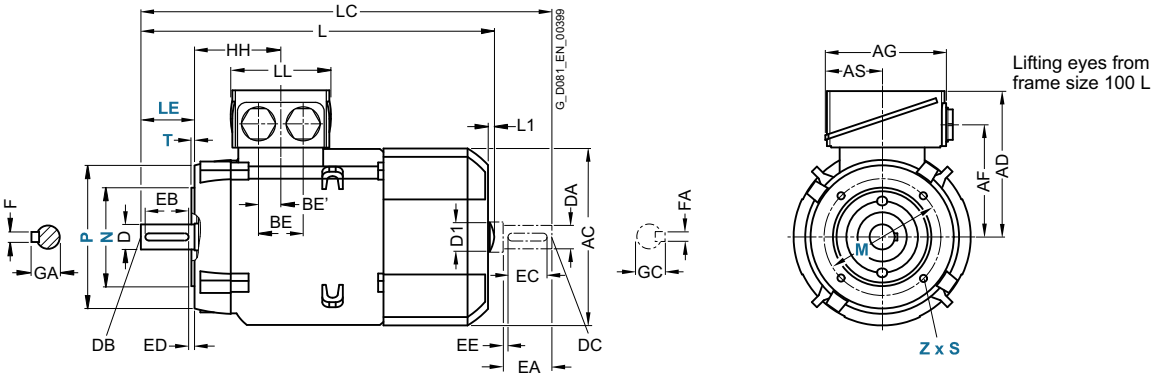
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1092	No. of poles	HH	K	K'	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	All	2, 4	96.5	12	16	**395.5**	7	32	454	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4	96	12	16	**389**	7	32	450	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4	115.5	12	16	**465**	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4	155	15	19	**604**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4	155	15	19	**604**	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

[1] The length is specified as far as the tip of the fan cover.

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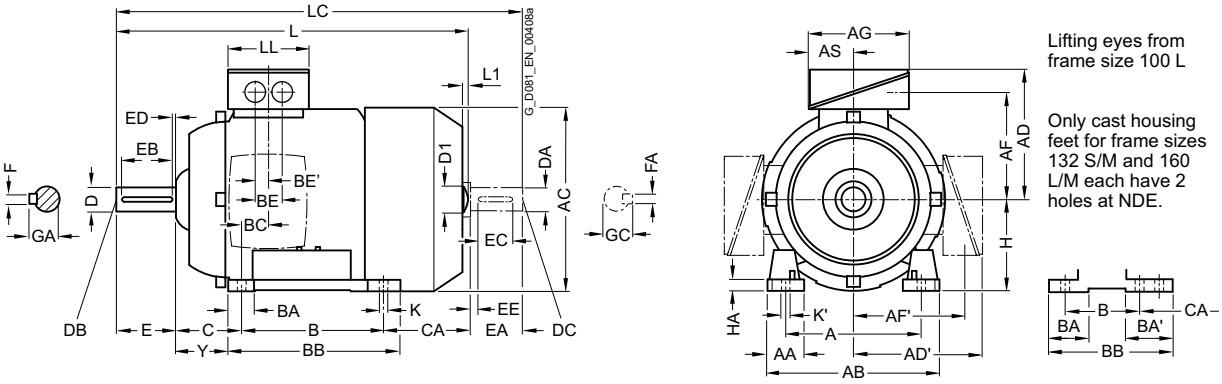
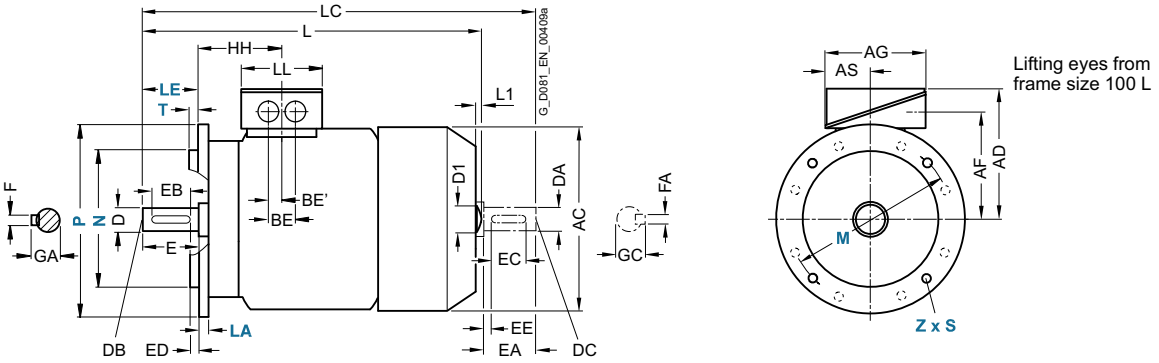
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1LE1592	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
100 L	All	2, 4	160	42	**196**	217	**193**	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	**100**	12	45
112 M	All	2, 4	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130	**112**	12	52
132 S	All	2, 4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52[1]	89[1]	218[2]	26.5	48	24	89	166.5	**132**	15	69
132 M	All	2, 4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	178	52[1]	89[3]	218	26.5	48	24	89	128.5	**132**	15	69
160 M	All	2, 4	254	60	**300**	333.5	**265**	265	213	213	190	92	210	73[4]	117[4]	300[5]	37	60	30	108	192	**160**	18	85
160 L	All	2, 4	254	60	**300**	333.5	**265**	265	213	213	190	92	254	73[4]	117[6]	300	37	60	30	108	148	**160**	18	85

[1] With screwed-on feet, this dimension is 41 mm.
[2] With screwed-on feet, this dimension is 180 mm.
[3] With screwed-on feet, this dimension is 79 mm.
[4] With screwed-on feet, this dimension is 51 mm.
[5] With screwed-on feet, this dimension is 256 mm.
[6] With screwed-on feet, this dimension is 95 mm.

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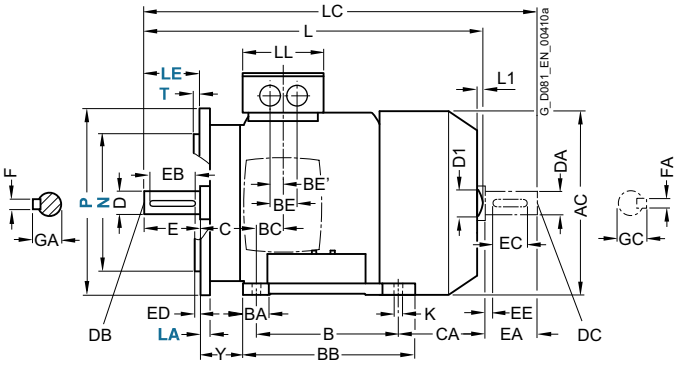
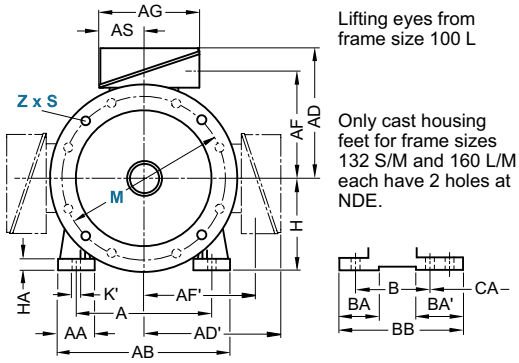
Dimensional drawings

Type of construction IM B35

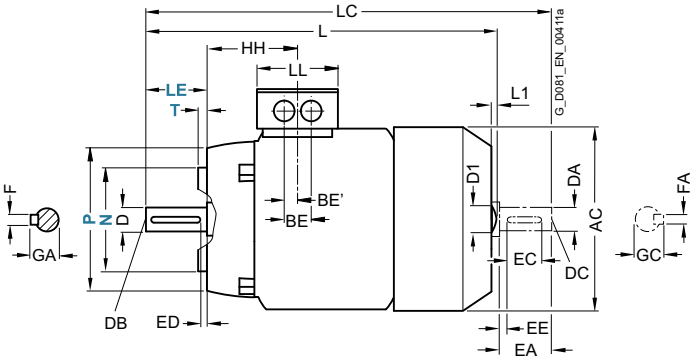
For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)

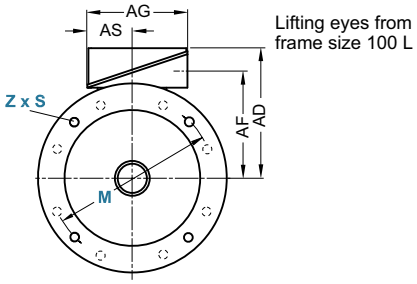




Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





For motor			Dimension designation acc. to **IEC**								DE shaft extension								NDE shaft extension						
Frame size	Motor type 1LE1592	No. of poles	HH	K	K'	**L**	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	All	2, 4	100.5	12	16	**397.5**	7	32	454	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4	100.5	12	16	**390.5**	7	32	450	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4	115.5	12	16	**466.5**	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4	145	14.5	18	**606**	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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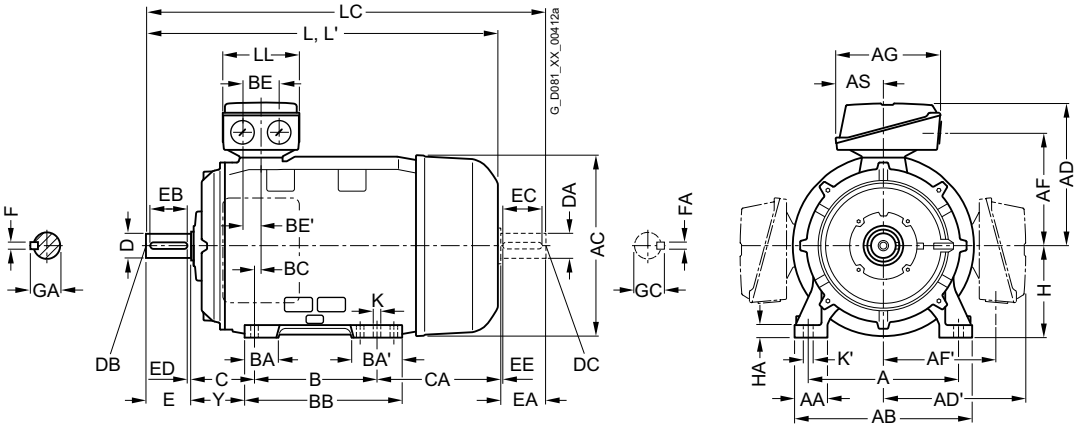
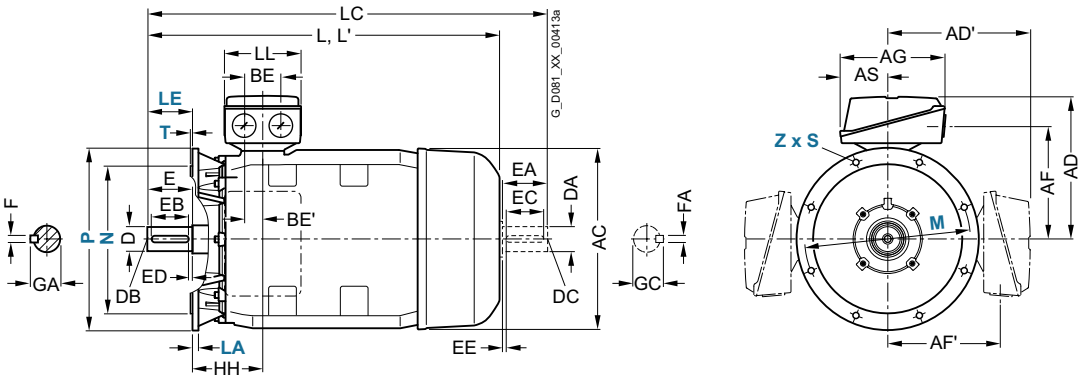
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																	
Frame size	Motor type 1LE1592-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA
180 M	1EA2	2	279	65	**339**	356	**286**	286	234	234	190	92	241	85	120	328	34	60	30	121	202
	1EB2	4											279								
180 L	1EB4	4																			
200 L	2AA4	2	318	70	**378**	396	**315**	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177
	2AA5	2																			
	2AB5	4																			
225 S	2BB0	4	356	80	**436**	449	**338**	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
225 M	2BA2	2																			
	2BB2	4																			
250 M	2CA2	2	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24	110	55	168	230
	2CB2	4																			

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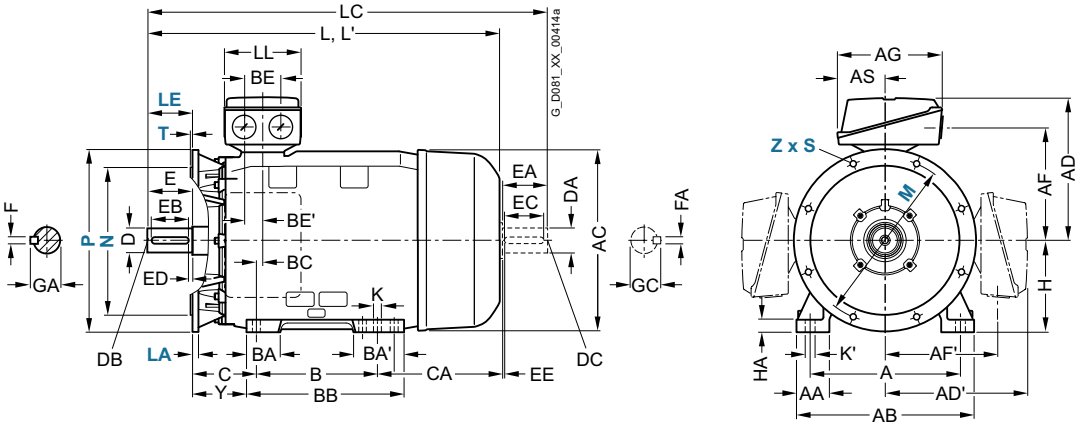
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**										DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1592-	No. of poles	**H**	HA	Y	HH	K	K´	**L**	L´	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1EA2	2	**180**	20	95	155	15	19	**668**	668	784	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EB2	4							**698**	698	814															
180 L	1EB4	4																								
200 L	2AA4	2	**200**	25	108	164	19	25	**721**	755	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	2AA5	2																								
	2AB5	4																								
225 S	2BB0	4	**225**	34	124	164	19	25	**788**	–	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	2BA2	2							**818**	852	933		55		110	100	5	16	59	48	M16				14	51.5
	2BB2	4							**848**	–	963		60		140	125	10	18	64	55	M20				16	59
250 M	2CA2	2	**250**	40	138	192	24	30	**887**	924	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB2	4								–	1032		65						69	60		140	125	10	18	64

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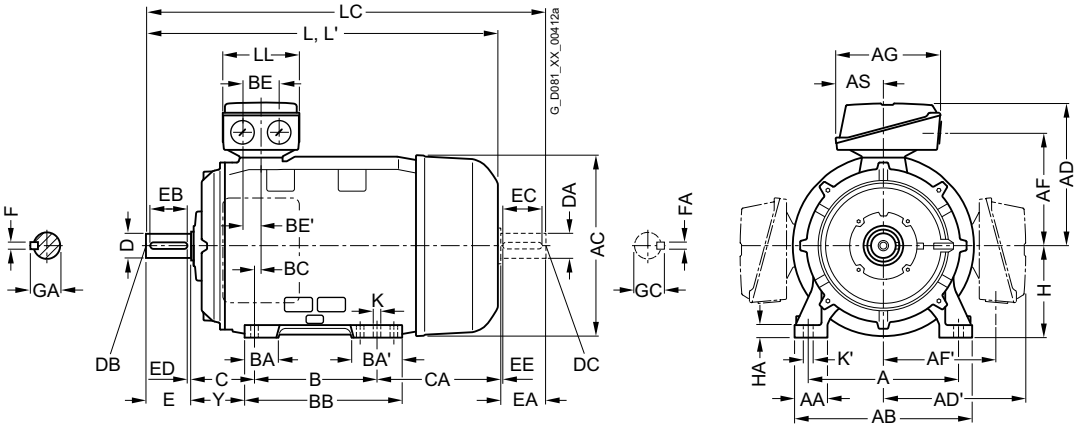
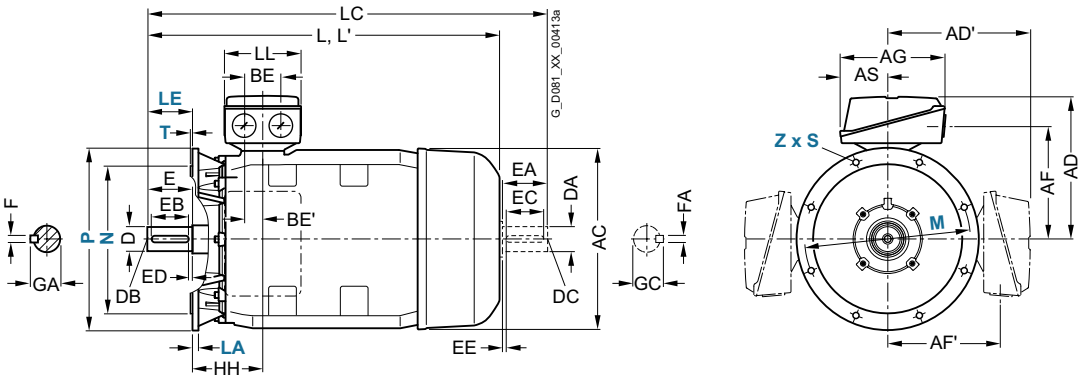
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																	
Frame size	Motor type 1LE1592-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA
280 S	2DA0 2DB0	2 4	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20	110	55	190	267
280 M	2DA2 2DB2	2 4	457	100	**540**	551	**433**	433	345	345	319	145	419	101	152	479	20	110	55	190	216
315 S	3AB0	4	508	120	**610**	616	**515**	515	404	404	374	164	406	113	170	527	22	110	55	216	295
315 M	3AB2[1)]	4	508	120	**610**	616	**515**	515	404	404	374	164	457	113	170	578	22	110	55	216	409
315 L[1)]	3AB4 3AB5	4 4	508	120	**610**	616	**515**	515	404	404	374	164	508	113 176	170 227	578 648	22	110	55	216	358 513

[1)] For orders with screwed-on feet (order code **H01**), these screwed-on feet have 3 drilled holes on the NDE side with the dimension B 406 mm, 457 mm, and 508 mm respectively; the dimension BB is 666 mm.

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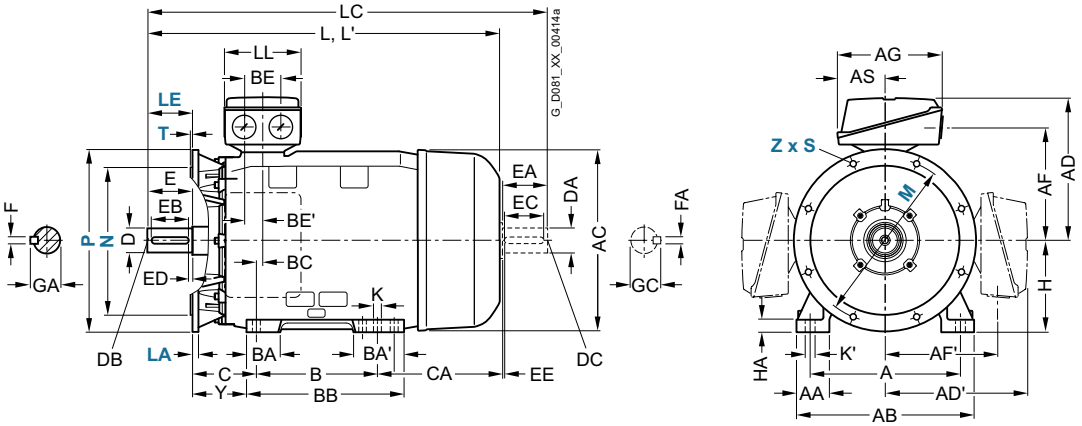
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**										DE shaft extension							NDE shaft extension						
Frame size	Motor type 1LE1592-	No. of poles	**H**	HA	Y	HH	K	K´	**L**	L´	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
280 S	2DA0 2DB0	2 4	**280**	40	160	210	24	30	**960**	998 –	1105	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
280 M	2DA2 2DB2	2 4	**280**	40	160	210	24	30	**960**	998 –	1105	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
315 S	3AB0	4	**315**	50	181	238	28	35	**1082**	–	1227	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
315 M	3AB2 [1]	4	**315**	50	181	238	28	35	**1247**	–	1392	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
315 L [1]	3AB4 3AB5	4 4	**315**	50	146	238	28	35	**1247** **1402**	–	1547	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5

[1] For orders with screwed-on feet (order code **H01**), these screwed-on feet have 3 drilled holes on the NDE side with the dimension B 406 mm, 457 mm, and 508 mm respectively; the dimension BB is 666 mm.

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Notes

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5/2 **Orientation**
5/25 Article number code

5/26 **Zones 21, 22, and 2 with types of protection Ex tb, Ex tc, Ex ec**
5/26 IE4 Super Premium Efficiency
5/26 • Cast-iron series 1MB55 – self-ventilated
5/27 IE3 Premium Efficiency
5/27 • Aluminum series 1MB10 – self-ventilated
5/28 • Cast-iron series 1MB15, 1MB16 – self-ventilated
5/31 • Cast-iron series 1MB55, 1MB58 – self-ventilated
5/33 IE2 High Efficiency
5/33 • Aluminum series 1MB10 – self-ventilated
5/35 • Cast-iron series 1MB15, 1MB16 – self-ventilated
5/39 IE1 Standard Efficiency
5/39 • Aluminum series 1MB10 – self-ventilated

5/41 **Zone 1 with type of protection Ex eb**
5/41 IE3 Premium Efficiency
5/41 • Cast-iron series 1MB1543, 1MB1643, 1MB5543, 1MB5643 – self-ventilated

5/47 **Zone 1 with types of protection Ex db, Ex db eb**
5/47 IE3 Premium Efficiency
5/47 • Cast-iron series 1MB15, 1MB55 self-ventilated

5/51 **Article No. supplements and special versions**
5/51 Voltages
5/56 Types of construction
5/68 Motor protection
5/73 Terminal box position
5/78 Options
5/101 Accessories

5/102 **Dimensions**
5/102 Notes on the dimensions
5/103 Dimension sheet generator
5/104 **Dimensions · Aluminum series SIMOTICS XP**
5/104 IE3 – 1MB1 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated
5/104 • Frame sizes 80 M to 160 L
5/106 IE2, IE1 – 1MB1 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated
5/106 • Frame sizes 80 M to 160 L
5/108 **Dimensions · Cast-iron series SIMOTICS XP**
IE4, IE3 – 1MB5 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated
5/108 • Frame sizes 400 and 450
IE3 – 1MB1 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated
5/110 • Frame sizes 71 M to 160 L
5/112 • Frame sizes 180 M to 315 L
IE3 – 1MB1 with type of protection Ex eb – self-ventilated
5/114 • Frame sizes 71 M to 160 L
5/116 • Frame sizes 180 M to 280 M
IE3 – 1MB5 with type of protection Ex eb – self-ventilated
5/118 • Frame sizes 315 S to 315 L
IE3 – 1MB1 with type of protection Ex db, Ex db eb – self-ventilated
5/120 • Frame sizes 71 M to 160 L
5/122 • Frame sizes 180 M to 280 M
IE3 – 1MB5 with type of protection Ex db, Ex db eb – self-ventilated
5/124 • Frame sizes 315 S to 355 L
IE2 – 1MB1 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated
5/126 • Frame sizes 71 M to 160 L
5/128 • Frame sizes 180 M to 250 M
5/130 • Frame sizes 280 S to 315 L

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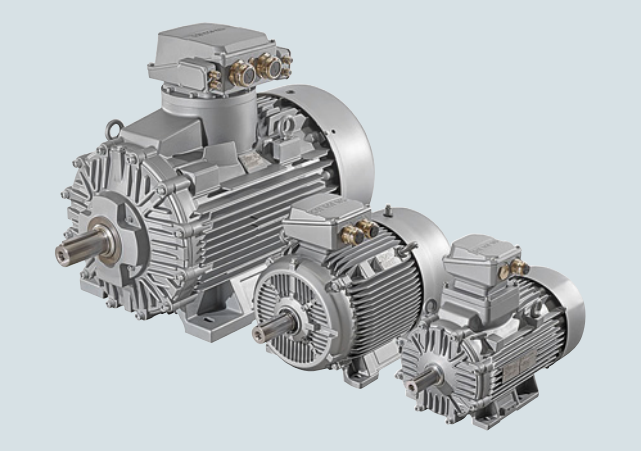
Overview



In many industrial and public sectors, explosion protection or explosion hazards are ever-present, e.g. in the chemicals industry, in refineries, on drilling platforms, at gas stations, in feed manufacturing and in sewage treatment plants.

The risk of explosion is always present when gases, fumes, mist or dust are mixed with oxygen in the air in an explosive ratio close to sources of ignition that are able to release the so-called minimum ignition energy.

In the chemical and petrochemical industries in particular, when crude oil and natural gas are transported, or in mining, milling (e.g. grain and granular solids), this can result in serious injury to persons and damage to equipment.

To ensure maximum safety in these areas, legislators in most countries have implemented appropriate stipulations in the form of laws and regulations based on national and international standards.

Explosion-protected equipment is designed such that an explosion can be prevented when it is used properly.

The explosion-protected equipment can be designed in accordance with various types of protection.

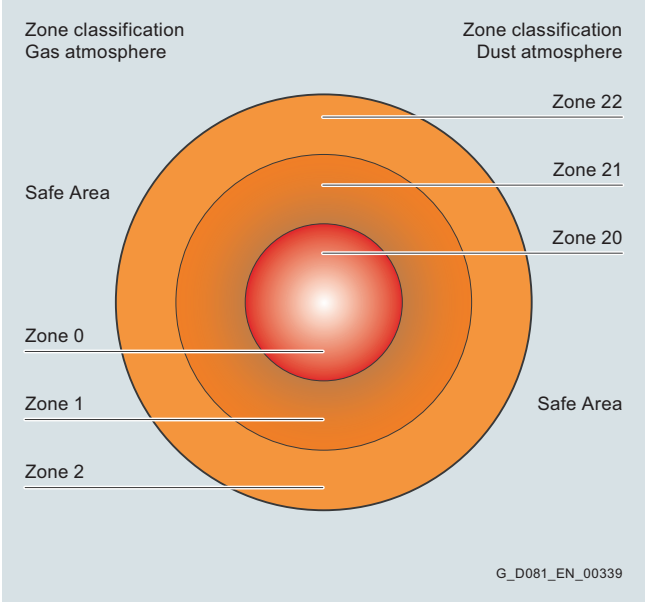
The local conditions must be subdivided into specified zones by the user with the assistance of the responsible authorities in accordance with the frequency of occurrence of an explosion hazard. Device (equipment) categories are assigned to these zones. The zones are then subdivided into possible types of protection and therefore into possible equipment (product) types.

Classification of zones

Areas subject to explosion hazard are divided into zones. Division into zones depends on the chronological and geographical probability of the presence of a hazardous, potentially explosive atmosphere. Information and specifications for classification of the zones are laid down in the following standards:

- IEC/EN 60079-10-1 for gas atmospheres
- IEC/EN 60079-10-2 for dust atmospheres

Further, a distinction is made between various explosion groups as well as temperature classes and these are included in the hazard assessment.



Depending on the particular zone and therefore the associated hazard, operating equipment must comply with defined minimum requirements regarding the type of protection. The different types of protection require corresponding measures to prevent ignition that should be implemented at the motor in order to prevent a surrounding explosive atmosphere from being ignited.

Note:
According to the standard IEC/EN 60079-7:2015, the previous designations of the types of protection Ex e and Ex nA have been changed to **Ex eb** and **Ex ec** respectively. The expiration date of the previous designations was July 31, 2018.

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Overview

Zone		Zone definition acc. to			
Gas 1) 2)	Dust 1) 2)	IEC/EN 60079-10-1 for gas atmospheres IEC/EN 60079-10-2 for dust atmospheres	Assigned types of protection	Category according to 2014/34/EU	Equipment protection level acc. to IEC/EN 60079-0
0	–	An area in which an explosive gas atmosphere is present **continuously**, **over a long period** or **frequently**.	Low-voltage motors not permitted	1	Ga
1	–	An area in which it is expected that an explosive gas atmosphere will be present **occasionally** during normal operation.	Ex eb (previously Ex e), EX db eb (previously EX de); Ex db (previously Ex d)	2	Gb
2	–	An area in which it is expected that an explosive gas atmosphere will be present only **rarely** and then only **for a short period** during normal operation.	Ex ec (previously, Ex nA)	3	Gc
–	20	An area in which there is an explosive gas atmosphere comprising a dust-air mixture **continuously**, **over long periods** or **frequently**.	Low-voltage motors not permitted	1	Da
–	21	An area in which it is expected that an explosive gas atmosphere comprising a dust-air mixture will be present **occasionally** during normal operation.	Ex tb 3)	2	Db
–	22	An area in which it is expected that an explosive gas atmosphere in the form of a cloud of combustible dust in air will be present only **rarely** and then only **for a short period** during normal operation.	Ex tc 4)	3	Dc

Changes to the Ex marking

In accordance with the latest edition of the standards for "Flameproof enclosure" and "Increased safety" types of protection, there is a change to how devices and equipment are marked. The type of protection "Non-sparking" Ex nA acc. to IEC/EN 60079-15 has been integrated into the latest edition of the standard for "Increased safety" according to IEC/EN 60079-7 as Ex ec. This has the following effect on the Ex marking:

- "Increased safety" for Zone 1 and Zone 2 (previously Ex e):
  II 2G Ex eb IIC T3 Gb
- "Increased safety" for Zone 2 (previously Ex nA):
  II 3G Ex ec IIC T3 Gc
- Flameproof enclosure for Zone 1 and Zone 2 (previously Ex d):
  II 2G Ex db IIC T4 Gb

There are no changes for the user other than the device marking.

Overview of standards for explosion protection

The explosion-protected three-phase motors comply with European standards. The European standards are recognized by all member states of CENELEC (European Committee for Electrotechnical Standardization). The national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, Portugal, and United Kingdom (UK) are members of CENELEC.

Title	European standard
General provisions	EN 60079-0
Flameproof enclosure "d"	EN 60079-1
Increased safety "e"	EN 60079-7
Zone classification (gases, vapors, mist)	EN 60079-10-1
Zone classification (dust)	EN 60079-10-2
Intrinsic safety "i"	EN 60079-11
Electrical equipment in potentially explosive atmospheres (gases, vapors, mist)	EN 60079-14
Maintenance of Ex equipment	EN 60079-17
Intrinsically safe electrical systems	EN 60079-25
Equipment "Dust" (dust explosion protection by housing) "t"	EN 60079-31
Equipment "Dust"	EN 50281-2-1
Equipment "Dust"	EN 61241-2-2
Basic concepts and methodology	EN 1127-1

1) Motors of
- Zone 1 can also be used in Zone 2
- Zone 21 can also be used in Zone 22

2) Motors which are certified for gas or dust protection must not be used in hybrid mixtures! Hybrid mixtures:
Explosive gas and dust atmospheres are present simultaneously.

3) SIMOTICS XP motors with type of protection Ex tb are intended for group IIIC as a general rule, i.e. they are permitted for operation in environments with conductive and non-conductive dust.

4) SIMOTICS XP motors with type of protection Ex tc are intended for group IIIB as a general rule, i.e. they are not permitted for operation in environments with conductive dust.

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Overview

Temperature classes and groups

Combustible gases and vapors are divided into temperature classes according to their ignitability and into groups according to their spark ignition capacity. The marking of a three-phase motor with the codes for the type of protection, group and temperature class specifies that it can be used without danger in hazardous areas depending on the zone classification. The numerical sequence of the codes for the group and temperature class has been selected so that motors that satisfy the requirements for a certain group and temperature class also satisfy the requirements for lower groups and classes.

Temperature classes

Temperature class of electrical equipment	Maximum surface temperature of electrical equipment	Ignition temperature of gases or vapors
T1	450 °C	> 450 °C
T2	300 °C	> 300 °C
T3	200 °C	> 200 °C
T4	135 °C	> 135 °C
T5	100 °C	> 100 °C
T6	85 °C	> 85 °C

Examples of the assignment of combustible gases and vapors

Group	Temperature classes											
	T1		T2		T3		T4		T5		T6	
	Material designation	Ignition temperature °C	Material designation	Ignition temperature °C	Material designation	Ignition temperature °C	Material designation	Ignition temperature °C	Material designation	Ignition temperature °C	Material designation	Ignition temperature °C
IIA [1]	Acetone	540	i-Amyl acetate	380	Naphthas		Acetaldehyde	140				
	Ethane	515	n-Butane	365	Petrol fuels	[2]						
	Ethyl acetate	460	n-Butyl alchohol	340	Mineral spirits	[2]						
	Ethyl chloride	510	Cyclohexanone	430	Diesel fuels	[2]						
	Ammonia	630	1,2-Dichloroethane	440	Heating oils	[2]						
	Benzene	555	Acetic anhydride	330	n-Hexane	240						
	Acetic acid	485										
	Carbon monoxide	605										
	Methane	595										
	Methanol	455										
	Methyl chloride	625										
	Naphtalene	520										
	Phenol	595										
	Propane	470										
	Toluene	535										
IIB [1]	Coal gas (town gas)	560	Ethanol	425	Hydrogen sulfide	270	Ethyl ether	180				
			Ethylene	425								
			Ethylene oxide	440								
IIC [1]	Hydrogen	560	Acetylene	305							Carbon disulfide	95

Explosion Protection Directive 2014/34/EU

Explosion protection has been fully harmonized by Directive 2014/34/EU in Germany and in the other member states of the European Union. The requirements of the new law came into force on April 20, 2016. Since then only those devices and protection systems that comply with Directive 2014/34/EU are permitted to be placed on the market.

Directive 2014/34/EU and Directive 1999/92/EC specify that only specific electrical equipment and devices are permitted to be used in the zones. The devices are assigned to equipment groups and categories.

Use of electrical equipment in accordance with EN 60079-14

Electrical equipment used in potentially explosive workshops and storage areas must comply with EN 60079-14/ VDE 0165-1 "Explosive atmospheres - Part 14: Electrical installations design, selection and erection". All other general regulations issued by the responsible supervisory authorities and the Employer's Liability Insurance Association or any specifically issued for individual case are also applicable. A plant or system subject to inspection is not permitted to be commissioned initially or following a significant modification until the plant or system has been inspected by an approved inspection agency for correctness of assembly, installation, site conditions and safe operation, taking into account the intended mode of operation. Devices compliant with Directive 2014/34/EU are permitted to be commissioned in accordance with the responsible supervisory authority.
(cf. German Health and Safety at Work Regulations (BetrSichV), section 3, § 14)

[1] Subgroups IIA, IIB and IIC must be specified for the types of protection Ex db, Ex eb and Ex ec described in this list in accordance with EN 60079-0.

[2] The minimum ignition temperature depends on the composition and lies between 220 to 300 °C, over 300 °C in special cases.

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Overview

Device marking

The equipment group and category are specified in the device marking.
The device marking is defined as follows:

e.g. CE 0158 II 2G Ex eb IIC T3 Gb

- **CE** conformity marking
  CE stands for "Communautés Européennes" (European Communities)
  The manufacturer of the explosion-protected devices declares by means of CE marking that the relevant product has been manufactured in accordance with all applicable regulations and requirements of the EU and the requirements laid down in Directive 2014/34/EU and the product has been subjected to the relevant conformity evaluation process.
- **0158** identification number of the inspecting authority (DEKRA)
- Marking for prevention of explosions in accordance with Directive 2014/34/EU

Example "increased safety":	**CE**	**0158**		**II**	**3**	**G**	**Ex**	**ec**	**IIC**	**T3**	**Gc**
CE marking											
Number of the certifying "notified" body (0158 = DEKRA)											
Explosion protection marking											
Equipment group: I = Underground II = All other areas											
Category: 2 (Zone 1/21) 3 (Zone 2/22)											
Ex atmosphere G = Gas D = Dust											
Explosion-protected equipment											
Type of protection Ex db, db eb, eb, ec, tb or tc (db eb = motor housing Ex db with terminal box Ex eb)											
Explosion group and explosion subgroup: II = Gas (IIA, IIB or IIC) III = Dust (IIIA, IIIB or IIIC)											
Temperature class with max. surface temperature T1 = 450 °C T4 = 135 °C T2 = 300 °C T5 = 100 °C T3 = 200 °C T6 = 85 °C											
Equipment protection level (G = Gas; D = Dust): Ga = Very high protection, Da = Very high protection, Gb = High protection, Db = High protection, Gc = Increased protection, Dc = Increased protection											

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Overview

Overview of SIMOTICS XP 1MB1, 1MB5 explosion-protected motors

The table below contains a complete overview of our products, their types of protection and the assignment of motor types to categories. It is important to note that depending on whether the motor is used for converter operation or line operation, different order codes are required for unique selection of the required product.

Sector	Category	Zone	Frequency of occurrence of the Ex atmosphere	Type of protection	Temperature class	Equipment protection level	Degree of protection	Motor type and if applicable order code	Operation	Order code	Utilization according to temperature class	Standard
Gases and vapors (G)	1G	0	constantly or long-term	Not admissible with low-voltage motors								
	2G	1	occasionally	Ex db eb IIC [1] (flameproof enclosure)	T1 – T4	Gb	IP55	1MB1.5, 1MB5.5	Line	–	130 (B)	IEC/EN 60079-0 IEC/EN 60079-1 IEC/EN 60079-7
									Converter	**B43** **B44**	130 (B) 155 (F)	
				Ex eb IIC [1] (increased safety)	T1 – T3			1MB1.4, 1MB5.4	Line	–	130 (B)/ 155 (F) [2]	IEC/EN 60079-0 IEC/EN 60079-7
	3G	2	rarely or for a short period	Ex ec IIC [1] (increased safety)		Gc		1MB103, 1MB153, 1MB163	Line	–	130 (B)	
									Converter	**B40** **B41**		
Dust (D)	1D	20	constantly or long-term	Not admissible with low-voltage motors								
	2D	21	occasionally	Ex tb IIIC [1]: Conductive and non-conductive dust	Max. housing temperature T120 °C [4]	Db	IP65	1MB101, 1MB151, 1MB161	Line	–	130 (B)	IEC/EN 60079-0 IEC/EN 60079-31
									Converter	**B40** **B41**		
	3D	22	rarely or for a short period	Ex tc IIIB [1]: non-conductive dust		Dc	IP55	1MB102, 1MB152, 1MB162				
Gases and vapors (G) and dusts (D) [3]	2G 2D	1 or 21	occasionally	Ex db eb IIC [1] (flameproof enclosure)/ Ex tb IIIC [1]: Conductive and non-conductive dust	T1 – T4/ Max. housing temperature T130 °C	Gb Db	IP65	1MB1.5 +B32, 1MB5.5 +B32	Line	–	130 (B)	IEC/EN 60079-0 IEC/EN 60079-1 IEC/EN 60079-31
									Converter	**B43** **B44**	130 (B) 155 (F)	
	3G 3D	2 or 22	rarely or for a short period	Ex ec IIC [1] (increased safety)/ Ex tc IIIB: non-conductive dust	T1 – T3/ Max. housing temperature T120 °C [4]	Gc Dc	IP55	1MB103 +B30 1MB153 +B30 1MB163 +B30	Line	–	130 (B)	IEC/EN 60079-0 IEC/EN 60079-7 IEC/EN 60079-31
									Converter	**B40** **B41**		

[1] Highest explosion group IIC includes IIB and IIA. IIIA stands for lint, IIIB for non-conductive dust and IIIC for conductive dust. 1MB155, 1MB555 motors optionally with Ex db terminal box.

[2] See EU type-examination certificate.

[3] The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

[4] For 1MB1 IE1: T140 °C
IE2: T120 °C (except T130 °C for 1MB1.11-1AD5, 1MB1.11-3AD6, 1MB1.21-1AD5 and 1MB1.21-3AD6)
IE3: T120 °C.
For 1MB5 frame sizes 400 and 450: T125 °C.

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Benefits

The explosion-protected motors from Siemens offer the user numerous advantages:

- The motors are designed and constructed in accordance with Directive 2014/34/EU. As product supplier, Siemens accepts responsibility for compliance with the applicable product standards for the selected equipment.
- By using this product, the plant operating company complies with Directive 1999/92/EC in accordance with Appendix II B (ATEX 137 previously ATEX 118a). The plant manufacturer or plant operating company is responsible for correct selection and proper usage of the equipment.
- Comprehensive series of Ex motors for protection against gas and dust.
- Individual versions of motors are possible thanks to the numerous catalog options.
- Further special versions are possible on request.
- Declarations of compliance with the order 2.1 are available for a defined spectrum of Siemens motors/converters.
- The operating instructions are available in all 23 official EU languages as well as Russian, Turkish and Chinese.
- Certificates:
  ATEX, IECEx, CQST, EACEx

For applications in harsh environments: SIMOTICS XP motors with a cast-iron housing

The right motor for various challenges

The following motor series are available with cast-iron housings for applications in harsh, hazardous environments:

- Basic Line:
  Rugged, reliable motors for machine construction
- Performance Line:
  Motors for the process industry with reinforced bearings and a more rugged coating – for requirements that extend beyond the Basic Line

Comparison: Basic Line versus Performance Line

Function	**Basic Line – 1MB15**	**Performance Line – 1MB16**
Bearing size	62, 63 from frame size 280 upwards	63
Relubrication	Optional, standard from frame size 280 upwards	Standard from frame size 160 upwards, optional for frame sizes 100 to 132
Paint system	Standard paint finish, corrosivity category C2	Special paint finish, corrosivity category C3
Drainage	Drain plug from frame size 100 upwards	Drain plug from frame size 100 upwards
Rating plate made of stainless steel	Standard from frame size 225 upwards, optional for frame sizes 71 to 200	Standard from frame size 100 upwards
Motor protection	Optional	PTC
Fan cover	Steel	Steel
Warranty	12 months	36 months

Application

The explosion-protected motors are used in the following sectors to prevent explosion hazards that result in serious injury to persons and severe damage to equipment.

- Chemical and petrochemical industry
- Production of mineral oil and gas
- Gas works
- Gas utility companies
- Gas stations
- Coking plants
- Mills (e.g. grain, solids)
- Sewage treatment plants
- Wood processing (e.g. sawdust, tree resin)
- Other industries subject to explosion hazards

Technical specifications

General information

Ex motors are suitable for operation in electrical power systems with a voltage tolerance of ± 10 %.

Ex motors in vertical type of construction with shaft extension pointing down must have a protective cover.

Standard certificate: EU type-examination certificate (ATEX) and EU declaration of conformity, optionally IECEx, CQST and EACEx.

Note:
For all explosion-protected motors, designs according to UL and CSA are not possible.

Operating instructions are supplied as standard with explosion-protected motors in English and German. Translations are also available in all the other official EU languages as well as in Russian, Turkish, and Chinese online and on DVD.

Ambient temperature

- Standard: –20 to +40 °C
- Optional: –40 to +40 °C (order code **D03**)
- Optional: –20 to +60 °C (order codes **N05**, **N06**, **N07**, **N08**)

From 40 °C, the power is reduced. Other temperatures are available on request.
Note on Ex eb (1MB1.4):
Order codes **N05**, **N06**, **N07**, **N08** currently on request.

Motor connection

Certified metric cable glands/sealing plugs are included in the scope of supply of 1MB1 and 1MB5 motors.

The certificates for the motors for hazardous areas are stored with the documentation in the DT Configurator.

Certified motor protection switches/tripping units must always be used for motor protection, see Catalog IC 10.

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Technical specifications

Type of protection "Dust explosion protection" Ex tb, Ex tc acc. to IEC/EN 60079-31 for use in Zone 21, Zone 22.

The types of protection **Ex tb** and **Ex tc** apply to electrical equipment protected using a housing and with limited surface temperature for use in areas in which combustible dust can be present in concentration levels that could cause a fire or an explosion.

Measures are taken to prevent impermissibly high temperatures and to prevent sparks or arcs from occurring on external components of the motor.

Ex tb motors are used in areas where it is expected that an explosive atmosphere comprising dust/air mixtures will be present occasionally and for a short period.
These motors are assigned to Equipment Group II – Category 2D (corresponding to Zone 21). SIMOTICS XP motors with type of protection Ex tb are intended for group IIIC, i.e. they are permitted for operation in environments with conductive and non-conductive dust.

Ex tc motors are used in areas where it is expected that a potentially-explosive atmosphere will be caused by dust that is stirred up. If this does occur, in all probability rarely and for a short period. These motors are assigned to Equipment Group II – Category 3D (corresponding to Zone 22). SIMOTICS XP motors with type of protection Ex tc are intended for group IIIB as a general rule, i.e. they are only permitted for operation in environments with non-conductive dust.

Ex tb IIIC T120 °C Gb for use in Zone 21:
Design for Zone 21, as well as Zone 22 for conductive dust (degree of protection: IP65) equipment category 2D.
Motors Ex tb IIIC T120 °C Db [1]: 1MB1.1 and 1MB5.1 are suitable for use in explosive dust atmospheres with conductive or non-conductive dust that are present occasionally (Zone 21) or rarely (Zone 22). For rated operation, the surface temperature is 120 °C [1].

Ex tc IIIB T120 °C Gc for use in Zone 22:

Version for Zone 22 with non-conductive dust (degree of protection IP55) equipment category 3D. Motors Ex tc IIIB T120 °C Dc [1]: 1MB1.2 and 1MB5.2 are suitable for use in explosive dust atmospheres with non-conductive dust that are present rarely (Zone 22). For rated operation, the surface temperature is 120 °C [1].

The motors have a terminal box, a sealing system, an external grounding terminal, a metal fan cover and a metal external fan according to standard IEC/EN 60079-0.

Identification on the rating plate:
- Zone 21: Ⓔx II 2D Ex tb IIIC T120 °C Db [1]
- Zone 22: Ⓔx II 3D Ex tc IIIB T120 °C Dc [1]

Number of the EU type-examination certificate

Pole-changing versions:
- Ex tb (Zone 21): Not possible
- Ex tc (Zone 22): Possible on request.

Type of protection "increased safety" Ex ec acc. to IEC/EN 60079-7 for use in Zone 2

Type of protection **Ex ec** ensures that a motor in normal operation as well as when operated under deviating conditions as specified in the standard is not able to ignite a surrounding explosive gas atmosphere. The maximum surface temperature that can occur during operation must be below the limit temperature of the temperature class marked on the motor, e.g. T3.

Measures are taken to prevent impermissibly high temperatures and to prevent sparks or arcs from occurring on the inside and on external components of the motor.

Motors with type of protection **Ex ec** are used in an explosive atmosphere where this atmosphere is expected to reach a level that poses a risk **only rarely** and then also **only for a short period**. These motors are assigned to Equipment Group II – Category 3G (corresponding to Zone 2).

Ex ec motors can additionally optionally have type of protection Ex tc with Group IIIB (non-conductive dust) acc. to IEC/EN 60079-31 for use in Zone 22 (present rarely).

Ex ec IIC T3 Gc
➔ Standard version for paint film thicknesses < 200 µm.

Optional **Ex ec IIB T3 Gc** (order code **B31**)
➔ Optional version for paint film thicknesses > 200 µm to < 2 mm.

For further information about paint and paint film thicknesses, see page 1/14 onwards.

Optional type of protection **Ex ec**/**Ex tc** for use in Zone 2/22 [2]

The motors must be ordered with:
Version additionally for dust Ex tc - Zone 22 –
order code **B30** [2]

Motors
- Ex ec IIC T3 Gc: 1MB1.3 and 1MB5.3
- Ex ec IIB T3 Gc: 1MB1.3 and 1MB5.3 (order code **B31**)

have a terminal box (similar to Ex eb), a sealing system, an external grounding terminal and a metal fan cover according to standard IEC/EN 60079-0. The temperature class is T1-T3.

With optional order with order code **B30** additionally a metal external fan.

The combination **B30**+**B31** is possible.

Identification on the rating plate:
- Zone 2: Ⓔx II 3G Ex ec IIC T3 Gc
- Zone 2/22: Ⓔx II 3G Ex ec IIC T3 Gc
  Ⓔx II 3D Ex tc IIIB T120 °C Dc [2]

Number of the EU type-examination certificate

Please inquire in the case of:
- Utilization according to temperature class 155 (F)
- For pole-changing versions

[1] IE1: T140 °C
IE2: T120 °C (except T130 °C for 1MB1.11-1AD5, 1MB1.11-3AD6, 1MB1.21-1AD5 and 1MB1.21-3AD6)
IE3: T120 °C

[2] Hybrid mixtures:
For certification of the motors according to the usual standards, the suitability test for use in explosive gas atmospheres is performed separately from the suitability test for use in explosive dust atmospheres. This enables marking for explosive gas or dust atmospheres, but not for use of the motor in hybrid mixtures.
The owner can certify the motor for hybrid mixtures despite the statements in the Operating Instructions. Information on operation in hybrid mixtures is provided in IEC 60079-14:2013 Annex M.

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Technical specifications

Type of protection "increased safety" Ex eb acc. to IEC/EN 60079-7 for use in Zone 1

With type of protection **Ex eb**, additional measures are taken to prevent the possibility of high temperatures and to prevent sparks or arcs from occurring on the inside and on external components of the motor.

In case of a malfunction, the drive must be switched off within the time t_E. This ensures that none of the motor's components reaches the ignition temperature of the surrounding gas in the event of a malfunction.

Motors with type of protection **Ex eb** are used in an explosive atmosphere where a hazardous explosive atmosphere is expected occasionally to reach a level that poses a risk.
These motors are assigned to Equipment Group II – Category 2G (corresponding to Zone 1). They ensure a high degree of safety.

Optionally Ex eb motors can additionally have type of protection Ex tb with Group IIIC (conductive and non-conductive dust) acc. to IEC/EN 60079-31 for use in Zone 21 (occasionally present).

Ex eb IIC T3 Gb
➔ Standard version for paint film thicknesses < 200 µm.

Optional Ex eb IIB T3 Gb (order code **B31**)
➔ Optional version for paint film thicknesses > 200 µm to < 2 mm.

For further information about paint and paint film thicknesses, see page 1/14 onwards.

Optional type of protection Ex eb/Ex tb for use in Zone 1/21 [2)]

The motors must be ordered with:

Version additionally for dust Ex tb - Zone 21 – order code **B32** [2)]

Motors
- Ex eb IIC T3 Gb: 1MB1.4 and 1MB5.4
- Ex eb IIB T3 Gb: 1MB1.4 and 1MB5.4 (order code **B31**)

have a terminal box (Ex eb), a sealing system, an external grounding terminal and a metal fan cover according to standard IEC/EN 60079-0. The winding is specially designed and tested for the temperature class T1/T2 or T3.

With optional order with order code **B32** additionally a metal external fan.

The combination **B32**+**B31** is possible.

Identification on the rating plate:
- Zone 1: Ⓔx II 2G Ex eb IIC T3 Gb
- Zone 1/21: Ⓔx II 2G Ex eb IIC T3 Gb
  Ⓔx II 2D Ex tb IIIC T120 °C Db [1)]

Number of the EU type-examination certificate

Please inquire in the case of:
- Increased coolant temperatures
- Marine certificates

Type of protection "flameproof enclosure" Ex db eb and Ex db acc. to IEC/EN 60079-1 for use in Zone 1

Type of protection **Ex db** is achieved by ensuring that any explosion is contained within the motor. The housing must resist the pressure of the explosion and also prevent ignition from the internal to the external atmospheres.

Motors with type of protection **Ex db** are used in an explosive atmosphere where a hazardous explosive atmosphere is expected occasionally to reach a level that poses a risk. These motors are assigned to Equipment Group II – Category 2G (corresponding to Zone 1). They ensure a high degree of safety.

To define the risk posed by a potentially explosive gas, the minimum ignition temperature of a dust cloud is required as well as details of the possibility of a flame exiting through a narrow slit in the motor housing. This is achieved by classification in explosion groups IIA, IIB and IIC, whereby IIC represents the highest requirements (see the table "Assignment of combustible gases and vapors").

Ex db eb IIC T4 Gb
➔ Standard version for paint film thicknesses < 200 µm.

Optional Ex db eb IIB T4 Gb (order code **B31**)
➔ Optional version for paint film thicknesses > 200 µm to < 2 mm.

Alternatively, a paint finish certified in accordance with the Ex Directive can be used. For further information about paint and paint film thicknesses, see page 1/14 onwards.

Optional type of protection
- **Ex db eb**/**Ex tb** for use in Zone 1/21 [2)]
- **Ex db eb**/**Ex tc** for use in Zone 1/22 [2)]

The motors must be ordered with:
- Version additionally for dust Ex tb IIIC - Zone 21 – order code **B32** [2)]
- Version additionally for dust Ex tb IIIB - Zone 22 – order code **B30** [2)]

Motors
- Ex db eb IIC T4 Gb: 1MB155 and 1MB555
- Ex db eb IIB T4 Gb: 1MB155 and 1MB555 (order code **B31**)

are suitable for use in explosive gas atmospheres with occasionally present gases or vapors in Zone 1 for temperature classes T1 to T4. The maximum surface temperature that can occur during operation must lie below the limit temperature of the respective temperature class.
The motors have a terminal box (Ex eb), optional Ex db (order code **R48**), a sealing system, an external grounding terminal and a metal fan cover according to standard IEC/EN 60079-0. The motor housing is designed with type of protection "flameproof enclosure" and has temperature class T4.

With optional order with order code **B32** additionally a metal external fan.

The combination **B32**+**B31** is possible.

Identification on the rating plate:
Zone 1: Ⓔx II 2G Ex db eb IIC T4 Gb or
Ⓔx II 2G Ex db IIC T4 Gb (R48)
Zone 1/21: Ⓔx II 2G Ex db eb IIC T4 Gb
Ⓔx II 2D Ex tb IIIC T130 °C Db [2)]

Number of the EU type-examination certificate

Please inquire in the case of: Reduced starting currents

[1)] IE1: T140 °C
IE2: T120 °C (except T130 °C for 1MB1.11-1AD5, 1MB1.11-3AD6, 1MB1.21-1AD5 and 1MB1.21-3AD6)
IE3: T120 °C

[2)] Hybrid mixtures:
For certification of the motors according to the usual standards, the suitability test for use in explosive gas atmospheres is performed separately from the suitability test for use in explosive dust atmospheres. This enables marking for explosive gas or dust atmospheres, but not for use of the motor in hybrid mixtures.
The owner can certify the motor for hybrid mixtures despite the statements in the Operating Instructions. Information on operation in hybrid mixtures is provided in IEC 60079-14:2013 Annex M.

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Technical specifications

Line operation

Insulation system

The insulation system of SIMOTICS XP 1MB1 and 1MB5 motors is suitable for line voltages up to 690 V. The connection system (terminal box, terminals) is also designed for this rated voltage.

The motors are equipped with 6 terminals. They can therefore be operated in any star or delta connection. If a voltage variant with dual voltage e.g. 400VΔ/690VY is selected, the rated data of all voltage levels will be stamped on the rating plate.

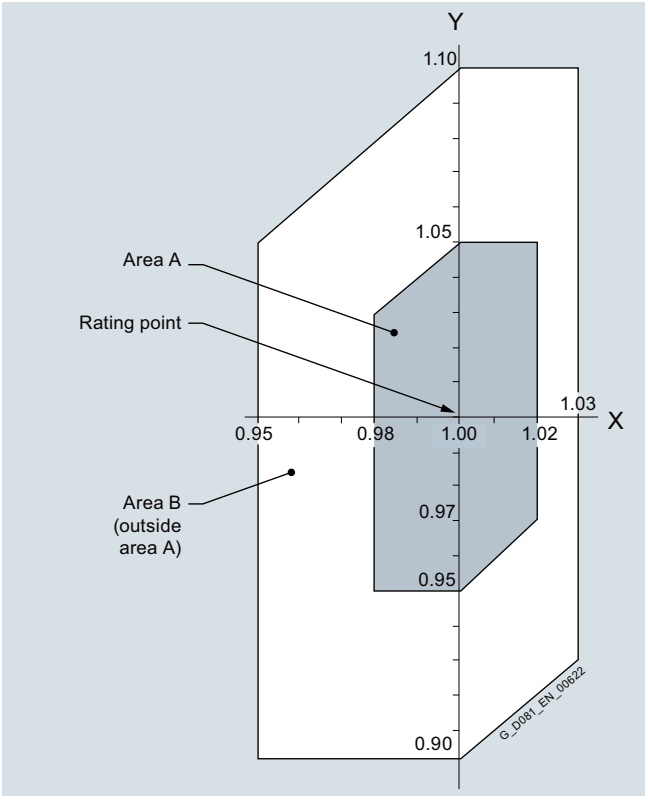
SIMOTICS XP 1MB1 and 1MB5 motors have an insulation system with a thermal class of 155 °C (F). Utilization at rated operation corresponds to thermal class 130 °C (B).

For deviations in use for frame sizes 400 and 450, see "Winding and insulation version with regard to temperature class", on page 1/27.

Voltage tolerances

The motors are suitable for operation with voltage and frequency tolerances according to EN 60034-1.

In addition, tests are to be performed to ensure that the permissible temperature limits for the inner and outer surfaces of the motor according to the relevant standard are not exceeded during continuous operation at the voltage limits (± 10 %).
For 8-pole motors of frame size 450, continuous duty is only possible with ± 5 %.



Y-axis: Voltage tolerance
Z-axis: Frequency tolerance

Motor protection

Motor protection must always be realized with a certified motor circuit breaker, see Catalog IC 10, taking into account the inrush current ratio and the maximum startup time.

Note:
For Ex eb motors in line operation, motor protection is alternatively possible as protection by PTC thermistors only, taking into account the inrush current ratio $I_{startup}/I_{rated}$ and time t_E.
When the motor shaft is locked, the motor circuit breaker must disconnect the motor from the line supply within time t_E so that the maximum ignition temperature of the specific temperature class is not exceeded. Optionally on some motors up to frame size 200, full motor protection with a PTC thermistor is possible. The information about full motor protection with a PTC thermistor is documented in the EU type-examination certificate. The tripping devices required for this purpose, see Catalog IC 10, must always be certified.

Operation on a frequency converter

General information

Basically, explosion-protected motors (except for Ex eb) can be fed from converters. Particular attention must be paid to the interaction between the motor and converter system, especially with regard to the following aspects:

- The harmonic content of the supply voltage raises the motor temperature, so the motor power must be reduced
- Less cooling of the motor at speeds below the rated speed
- Voltage stress on the motor winding
- Bearing currents

The general use of high-quality insulation systems enables converter operation. When operated with a converter, the motor with explosion protection must be fitted with PTC thermistors. These are installed in the stator winding and, in combination with an ex-certified trip unit (EU type-examination certificate), they perform sole motor protection in the case of converter operation.

The permissible speed and torque range is stamped on an additional rating plate.

These rated operating points stamped on the additional rating plate apply for both constant torque drives and fluid-flow machines with a square-law load torque. For constant torque drives, the resulting thermal motor torques in the positioning range must be taken into account.

During converter operation, the reduced torques for constant torque and drives for fans, pumps and compressors must be observed due to the harmonic content of the supply.
This data is available in the "Drive Technology Configurator" (DT Configurator) at
www.siemens.com/dtconfigurator

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Technical specifications

Higher noise levels must be expected than for 50 Hz line operation for motors operating with converters due to the harmonic content of the supply.

Maximum voltage stress on the motor winding in converter operation:

Frame sizes: 71 to 355:

- $\hat{U}_{phase\text{-}to\text{-}phase}$: ≤ 1500 V (3000 V peak-peak values ($V_{pk/pk}$))
- $\hat{U}_{phase\text{-}to\text{-}ground}$: ≤ 1100 V (2200 V peak-peak values ($V_{pk/pk}$))

The following generally applies to Siemens converters (SINAMICS):

- U_{line}: = 480 V ± 10 % (BLM = Basic Line Module; DFE = Direct Front End)
- U_{line}: ≤ 480 V ± 10 % (ALM = Active Line Module; AFE = Active Front End); U_{dc} < 720 V
- U_{line}: = 690 V ± 10 % (only permissible with a suitable dv/dt or sine-wave filter)
  Ex db: Certificate valid for general PWM converter
  Ex ec, Ex tb, Ex tc certificate valid only in combination with a SINAMICS G180 that has an amplified dv/dt filter (standard option G180: **L10**).

Motors of the 1MB55 series with frame sizes 400 and 450 with the IVIC-C advanced insulation system:

- $\hat{U}_{phase\text{-}to\text{-}phase}$: ≤ 1600 V (3200 V peak-peak values ($V_{pk/pk}$))
- $\hat{U}_{phase\text{-}to\text{-}ground}$: ≤ 1400 V (2800 V peak-peak values ($V_{pk/pk}$))

Motors of the 1MB.8 series with frame sizes 71 to 450 with the IVIC-C premium insulation system:

- $\hat{U}_{phase\text{-}to\text{-}phase}$: ≤ 2200 V (4400 V peak-peak values ($V_{pk/pk}$))
- $\hat{U}_{phase\text{-}to\text{-}ground}$: ≤ 1500 V (3000 V peak-peak values ($V_{pk/pk}$))

Motors with the advanced insulation system can be operated on the converter without an additional dv/dt or sine-wave filter if the following limits are observed:

- U_{line} ≤ 480 V
- U_{DC} ≤ 720 V

Converter operation requires a dv/dt or sine-wave filter or a motor with PREMIUM insulation system (motor types 1MB18. or 1MB58.) if at least one of the following limits is exceeded:

- U_{line} > 480 V
- U_{DC} > 720 V

The voltage limits are chosen such that safe operation is ensured without knowledge of the converter or the converter infeed. If it is ensured that the motor is powered through a converter with uncontrolled infeed (e.g. SINAMICS G), the 1MB15 and 1MB55 motors can be operated up to U_{line} = 480 V as an exception because the limits U_{DC} ≤ 720 V are then observed.

In configuration of the drive system, it must be considered that the DC-link voltage UDC exceeds the limit of $U_{DC, max}$ = 720 V (continuous duty) during braking where converters without energy recovery capability, such as SINAMICS G, are used. Exceeding this limit is permissible for a short time, for example, if the $U_{DC, max}$ controller or braking chopper ensures that the DC-link voltage does not exceed the following limits:

- 1MB.5 (advanced): $U_{DC, max}$ = 890 V (short-time duty)
- 1MB.8 (premium): $U_{DC, max}$ = 1225 V (short-time duty)

Further configuration notes are documented in the declaration of compliance with the order 2.1 and in the EU type-examination certificates.

Order processing of 1MB1, 1MB5 motors with Ex db, Ex ec, Ex tb and Ex tc for converter operation

PTC thermistor

For converter operation, Ex motors must always be monitored using PTC thermistors. The motors must therefore be ordered with the 15th position of the Article No.

- **B** – PTC thermistor for tripping – or alternatively
- **C** – PTC thermistor for alarm and tripping.

General information regarding the PTC thermistors:

- **B** in 15th position of the Article No.:
  The motors are equipped with 3 PTC thermistors for tripping in the motor winding.
- **C** in 15th position of the Article No.:
  The motors are equipped with 3 PTC thermistors for alarm and 3 PTC thermistors for tripping in the motor winding.

Certified tripping units are required for this purpose, see Catalog IC 10.

To ensure unambiguous order handling for the voltage, each approved voltage code/voltage order code is assigned only "one" voltage/frequency, as seen below:

Voltage code 12th and 13th position of the Article No.	Order code	Line frequency	Line voltage
27	–	50 Hz	500 VY, 50 Hz power
40	–	50 Hz	500 VΔ, 50 Hz power
90	**M4A**	50 Hz	400 VY, 50 Hz power
90	**M4B**	50 Hz	400 VΔ, 50 Hz power
90	**M2C**	60 Hz	440 VY, 50 Hz power
90	**M1C**	60 Hz	440 VY, 60 Hz power
90	**M2D**	60 Hz	440 VΔ, 50 Hz power
90	**M1D**	60 Hz	440 VΔ, 60 Hz power
90	**M2E**	60 Hz	460 VY, 50 Hz power
90	**M1E**	60 Hz	460 VY, 60 Hz power
90	**M2F**	60 Hz	460 VΔ, 50 Hz power
90	**M1F**	60 Hz	460 VΔ, 60 Hz power
90	**M2G**	60 Hz	575 VY, 50 Hz power
90	**M1G**	60 Hz	575 VY, 60 Hz power
90	**M2H**	60 Hz	575 VΔ, 50 Hz power
90	**M1H**	60 Hz	575 VΔ, 60 Hz power
90	**M2K**	60 Hz	480 VY; 50 Hz power
90	**M1K**	60 Hz	480 VY; 60 Hz power
90	**M2L**	60 Hz	480 VΔ, 50 Hz power
90	**M1L**	60 Hz	480 VΔ, 60 Hz power
90	**M1Y** (non-standard winding)	50 or 60 Hz	Plain text (observe max. voltage stress)
90	**M3A** [1]	87 Hz	At 87 Hz, 400 VΔ: (4-pole to 8-pole)

[1] The motor contains winding version 50 Hz 230 VΔ.

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Technical specifications

Converter operation specially for motors in type of protection "Ex ec" (Zone 2) and VIK-Ex ec version

IEC/EN 60079-7 specifies that the motor and converter must be tested as a unit (individual test). The individual test is available for motors of "Ex ec" type of protection on the specified converters SINAMICS G, SINAMICS S and SINAMICS V20.
For details, see declaration of compliance with the order 2.1. Not possible for frame sizes 400 and 450.

Individual testing can be performed for non-Siemens converters on request (additional charge). The customer may be required to supply the external converter for individual tests.

The test will cost more when using non-Siemens converters (especially on commissioning). Commissioning personnel must be provided by the customer for setup and operation during the test, if required.

Converter operation specially for motors in type of protection "Ex tb" (Zone 21) and "Ex tc" (Zone 22) [1)]

The drive system comprising motors protected against dust explosions operating on SINAMICS G, SINAMICS S and SINAMICS V20 converters has been tested. For details, see declaration of compliance with the order 2.1. Please inquire about operation with non-Siemens converters. Not possible for frame sizes 400 and 450.

Converter operation specially for motors with type of protection "Ex ec/Ex tc" (Zone 2/22) [2)]

For the 1MB..3 Ex ec motors, the order code **B30** version (IP55) for Zones 2 and 22 must also be specified in the case of non-conductive dust. Declaration of compliance with the order 2.1 analogous to that for Zones 2, 21 and 22.
Please inquire about non-Siemens converters.

1MB1, 1MB5 in Ex ec, Ex tb and Ex tc:
Selection of the frequency converters

The SINAMICS frequency converters are categorized into 2 product groups (order code **B40** and **B41**). Each product group is a data record with motor operating data each assigned to one frequency converter. The converter type is stamped on the rating plate. Alternative, approved SINAMICS converters can be selected, by adding the order code **Y68**.

Product group 1 (basic version):

Order code B40 - version for converter operation in basic version with operating data SINAMICS G120 with PM240-2

Product group 1 (alternative SINAMICS converter):

Order codes **B40** + **Y68**

Operating data such as the **B40** order code with alternative SINAMICS converter on the rating plate:

- **Y68** with plain text (C-text) G120 with PM230
- **Y68** with plain text (C-text) G120 with PM240
- **Y68** with plain text (C-text) G120C
- **Y68** with plain text (C-text) G120P with PM230
- **Y68** with plain text (C-text) G120P with PM240-2
- **Y68** with plain text (C-text) G120P with PM240P-2
- **Y68** with plain text (C-text) G120P with PM330
- **Y68** with plain text (C-text) G130
- **Y68** with plain text (C-text) G150
- **Y68** with plain text (C-text) G180
- **Y68** with plain text (C-text) S120 (BLM/SLM)
- **Y68** with plain text (C-text) V20

Product group 2 (basic version):

Order code **B41** - version for converter operation in basic version with operating data SINAMICS S150.

Product group 2 (alternative SINAMICS converter):

Order codes **B41** + **Y68**

Operating data such as the **B41** order code with alternative SINAMICS converter on the rating plate:

- Order code **Y68** with plain text (C-text) S120 (ALM)

1MB155 and 1MB555 with Ex db, Ex db eb:
Selection of the frequency converter

The SIMOTICS 1MB..5. motors are suitable and certified for operation on the PWM frequency converter. The only distinction made is whether the maximum permitted temperature rise of the winding is 130(B) – order code **B43** or 155(F) – order code **B44**. The power with utilization of 155(F) is approx. 10 % higher than with utilization 130(B) and the order code **B43** is usually approximately equal to the line power.

Combination with SINAMICS converters as stated in the list under Ex ec has been pretested and is recommended. For other converter types and non-Siemens converters, operation according to the Ex specifications is possible if the requirements of the certificate are met.

Defining the power for converter operation

The optimum power data are marked on the motors. These data are universally valid and can be viewed in the "Drive Technology Configurator" (DT Configurator) and used as the basis for configuration.

In specific applications, e.g. for very long motor cables, if a sine-wave filter is being used - or for converter types that cannot reach the full rated voltage at rated frequency as a result of the inherent design, then at rated voltage there is a voltage drop at the motor terminals. Under this operating condition, in order that the motor temperature rise is not inadmissibly high, at the maximum permissible current, it is possible that the motor power is reduced (derating). For example, for use of sine-wave filters and the consequential reduction of the motor voltage by 10 to 15 %, the permissible power ratings for converter operation must be similarly reduced by 10 to 15 % at rated frequency because the corner frequency for determining the power is reduced accordingly. Operation below the reduced corner frequency is possible without reducing the torque.

1) Zone 21 includes conductive and non-conductive dust.

2) The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

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Technical specifications

Rating plate

The operating data for line operation is specified on the rating plate - on an additional rating plate, according to the selected product, 4 rated operating points are possible in the following variants:

Possible variants	Rated operating points in Hz				Additional identification code voltage code 12th and 13th position of the Article No. and order code
50 Hz field weakening range	5	25	50	f_{max}	50 Hz voltage: e.g. "**90**" and **M4A**
60 Hz field weakening range	6	30	60	f_{max}	60 Hz voltage: e.g. "**90**" and **M1E**
87 Hz characteristic	5	25	87	f_{max}	87 Hz at 400 VΔ: "**90**" and **M3A**

f_{max} see page 5/17 "Mechanical limit speeds of the SIMOTICS XP 1MB15, 1MB5 Ex db, Ex ec, Ex tb and Ex tc explosion-protected motors".

Other voltages can be selected with the voltage code **90** (12th, 13th position of the Article No.) and order code **M1Y** Special winding.

Special case: Line operation data in two voltage levels plus converter data in one voltage level: **M1Y** + **Y80** e.g.
400 VΔ/690 VY 50Hz DOL + 400 VΔ VSD

Insulated bearings

Frame sizes 225 and 250:
For converter operation it is recommended that an "insulated bearing cartridge NDE" – order code **L51** be used.

Frame sizes 280 to 355:
For ordering with order codes **B40**/**B41**/**B43**/**B44**, the "insulated bearing cartridge NDE" is included as standard.

Frame sizes 400 and 450:
For ordering with order codes **B40**/**B41**/**B43**, the "insulated bearing cartridge NDE" is included as standard.

The data on the separate rating plate for converter operation apply to both constant torque drives and pump/fan/compressor drives. For a constant torque drive, the resulting thermal motor torques in the positioning range must be taken into account.

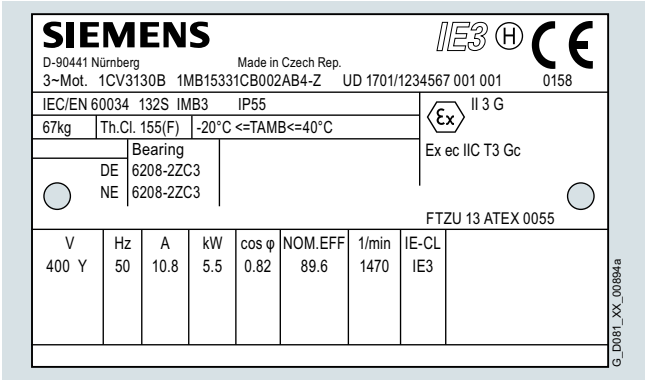
Example motor ID:

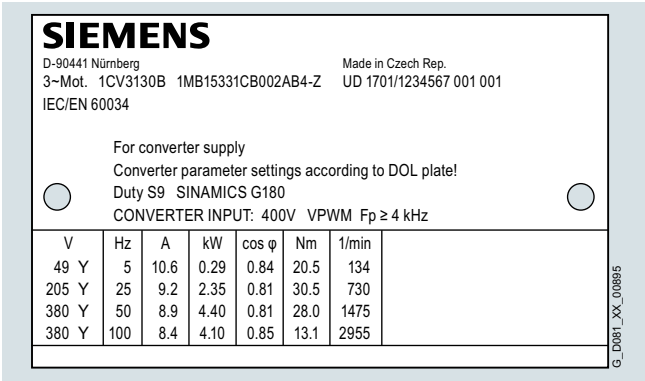
Motor rating plate with line operation data and additional rating plate with converter operation data:

Increased safety motor Ex ec (Zone 2) for operation on SINAMICS G180:

1MB15331CB002AB4-Z
M4A+B40+Y68

Plain text Y68: SINAMICS G180





For all motors, an additional rating plate complete with the operating data for the motor on the converter is fitted.

The converter type and the associated operating data are on the rating plate.

The reasons for stamping the converter type on the additional rating plate are the different control levels for the converter output voltage, pulse frequency, output frequency, harmonic content and the associated derating for the motor.

For compliance with the permissible temperature class 130 (B), derating is necessary for converter operation below the power for direct line operation! The reduction in torque depends on the choice of converter type. The data can be viewed in the "Drive Technology Configurator" (DT Configurator) and used as the basis for configuration.

The declaration of compliance with the order 2.1 for the specified converters is stored with the documentation for low-voltage motors in the "Drive Technology Configurator" (DT Configurator).

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Technical specifications

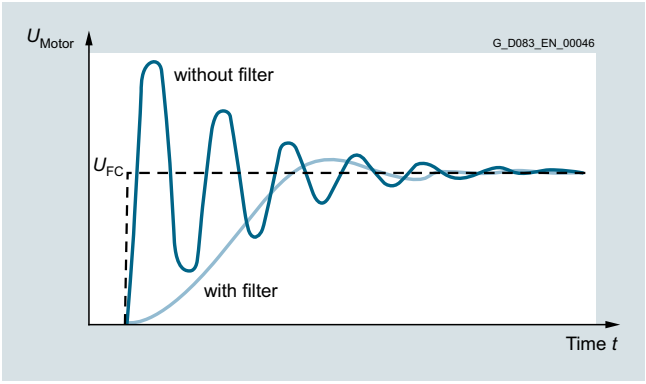
Configuration notes for converter operation

Permissible voltage stress

More stress is placed on the insulation of the motor winding with converter operation than with line operation. The voltage stress also depends on the type of converter used.

Voltage stress on a converter with pulse width modulation (PWM)

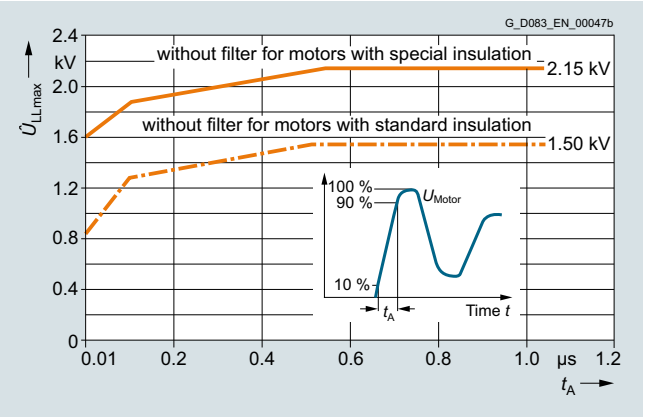
The PWM converter subjects the motor windings to wear and tear mainly by quickly applying voltage pulses. Each switching process of the converter releases a voltage wave onto the motor supply cable that can result in excessive motor voltages due to reflection (see diagram).



Typical progression of converter voltage U_{FC} and motor voltage U_{Motor} on the PWM converter (converter with and without output filter)

The maximum voltage is influenced by the rise time of the pulses and by the length of cable used between motor and converter. A dv/dt output filter at the converter can reduce the maximum motor voltage to uncritical values. If the permitted limits of the peak voltage for standard insulation 1500 V_{peak} or for premium insulation 2200 V_{peak} is exceeded in operation, premature motor failures can occur.

For SIMOTICS XP motors, the limits according to the certificate apply additionally and take precedence.



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Technical specifications

Individual drive check of variable speed drive (VSD) systems (IC411 self-ventilated motors) with configuration characteristics for converter operation – 1MB1/1MB5 motors (all types of protection).

Limits for example control ranges are listed in the power tables on the following pages. For individual drive checks, the following configuration characteristics apply to frame sizes 71 to 355.

For driven machine power or torque less than or equal to rated data, operation up to f_{max} in accordance with the power tables is possible. This applies to configurations with any load torques and control ranges.

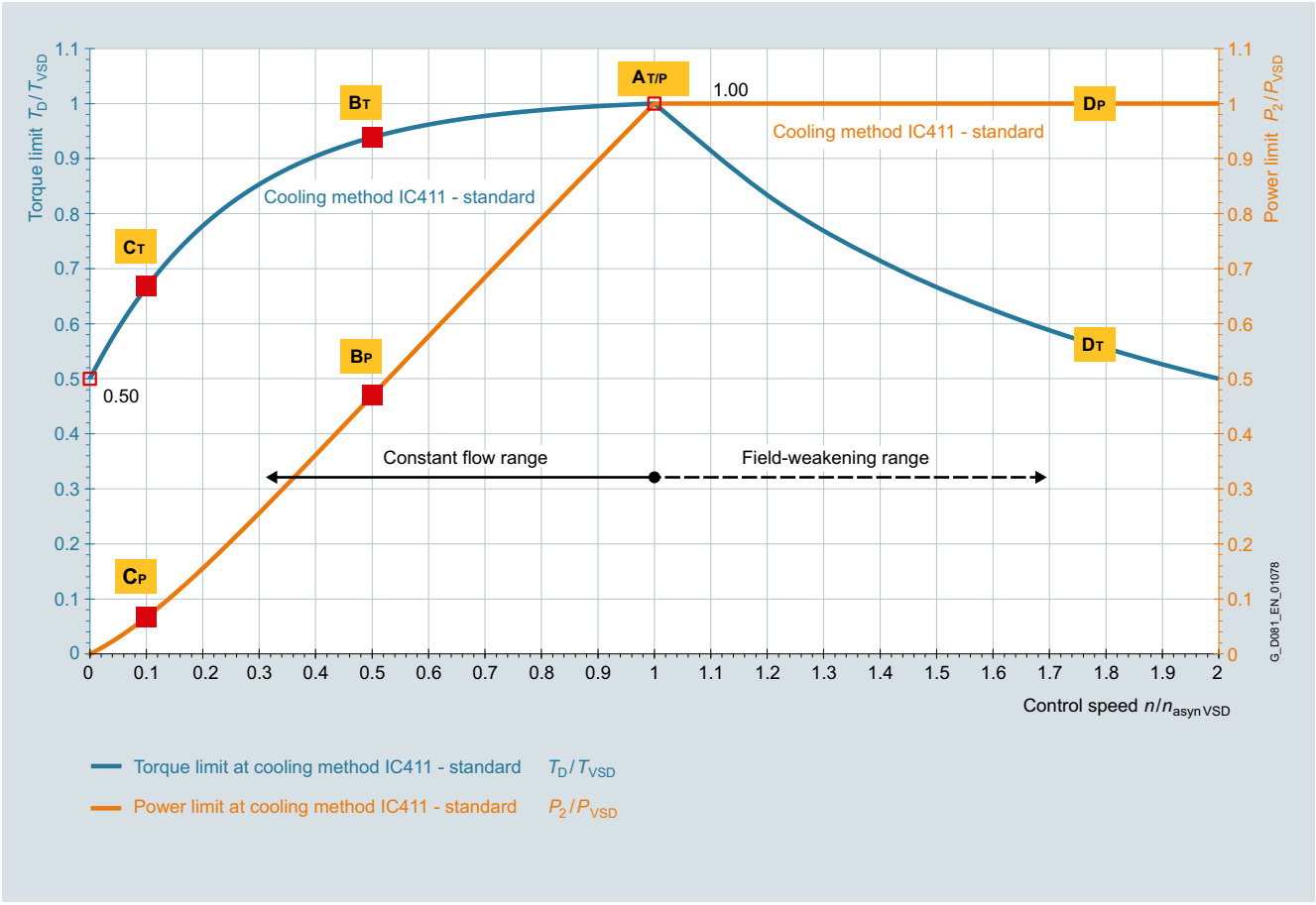
The maximum admissible speed in field weakening can be calculated by dividing $f_{max} \times 120$ by the motor's number of poles.

Checking the feasibility of the required operating point

To do this, (derived from reference point A)

- The desired load/power P_2 must be divided by the VSD power P_{VSD}
- The desired control speed n must be divided by the VSD asynchronous speed $n_{asyn\ VSD}$
- The desired load/torque T_D must be divided by the VSD torque T_{VSD}.

These calculated values should be checked afterwards against the following diagrams to determine whether the desired operating point (from speed 0) is below the VSD load/torque limit T_D/T_{VSD} and the load/power limit P_2/P_{VSD}.



Configuration characteristics for frame sizes 71 to 200

$A_{M/P}$: Reference point for general selecting/dimensioning

A_P: Typical load point for applications with square-law load torque, e.g. fans and pumps

B_M/C_M: Typical load point for applications with constant load torque, e.g. hoisting gear, conveyor belts etc.

D_M/D_P: Typical load point for applications with increased speed/frequency

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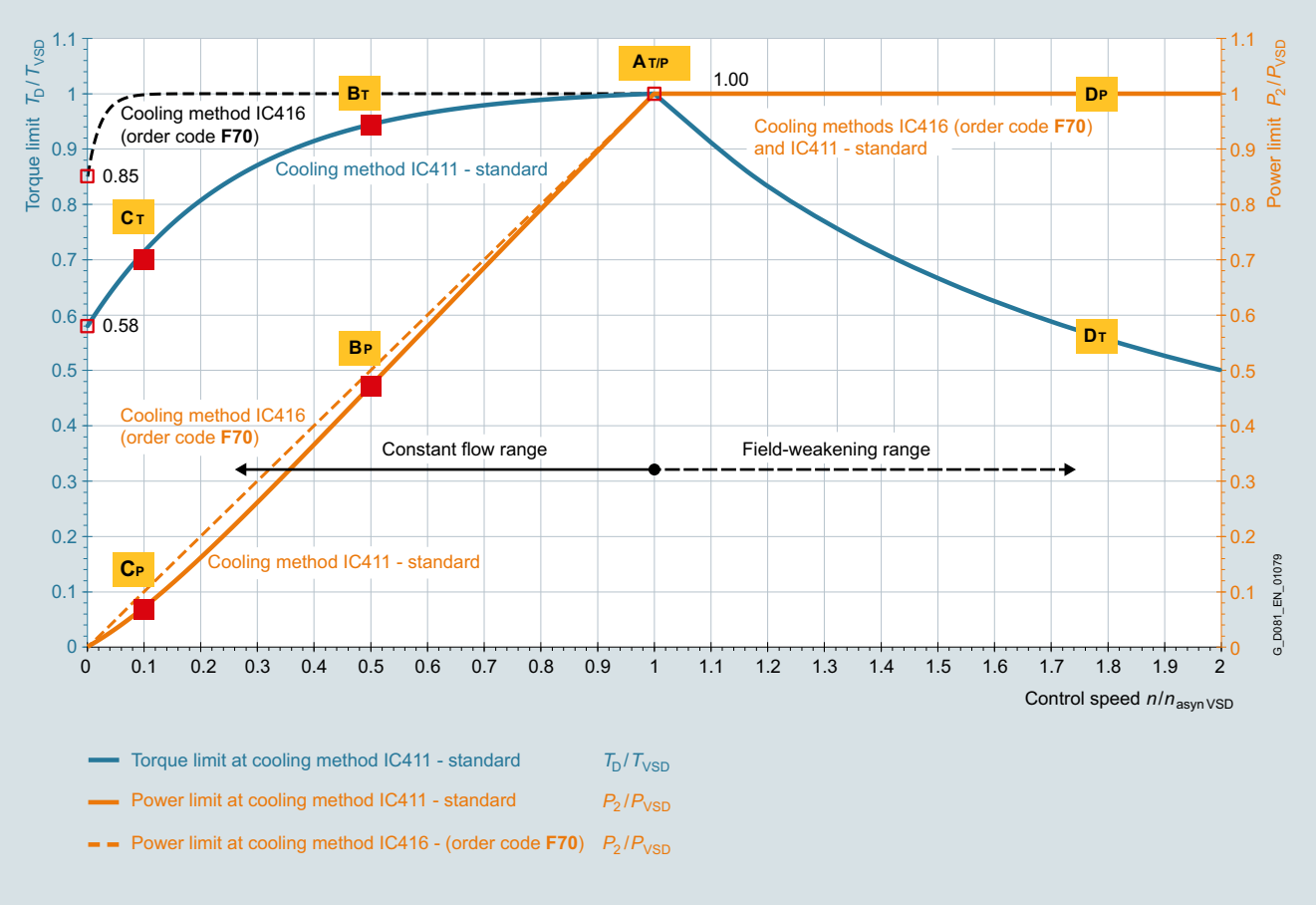
Technical specifications



Configuration characteristics for frame sizes 225 to 355

$A_{M/P}$: Reference point for general selecting/dimensioning

A_P: Typical load point for applications with square-law load torque, e.g. fans and pumps

B_M/C_M: Typical load point for applications with constant load torque, e.g. hoisting gear, conveyor belts etc.

D_M/D_P: Typical load point for applications with increased speed/frequency

Fan

For version of the fan and the fan cover

Motor series	Frame size	Type of protection			
		Ex tb, Ex tc	Ex ec	Ex eb	Ex db eb
		1MB..1, 1MB..2	1MB..3	1MB..4	1MB..5
1MB1	63	Aluminum	Plastic	–	–
	71 ... 90	Aluminum	Plastic	Plastic	Plastic
	100 ... 160	Aluminum	Plastic [1]	Plastic	Plastic
	180 ... 280	Sheet steel	Plastic	Plastic	Plastic
	315	Sheet steel	Plastic	–	–
1MB5	315	Sheet steel	Sheet steel	Plastic	Plastic
	355 (2-pole)	Sheet steel	Sheet steel	–	Plastic
	355 (4- ... 8-pole)	Sheet steel	Sheet steel	–	Sheet steel
	400 ... 450	Cast iron	Cast iron	–	–

Note: For Ex ec, Ex eb and Ex db eb motors in combination with order code
- **B30** – Version additionally for dust Ex tc – Zone 22
- **B32** – Version additionally for dust Ex tb – Zone 21

Fan material as for Ex tb, Ec tc.

[1] The fan material for 1MB1032 (IE1) is aluminum.

Low-noise version

Clockwise rotation: Order code **F77**
Counterclockwise rotation: Order code **F78**

Low-noise version			
Motor series	Frame size	2-pole motors	
		LpfA db (A)	LWA db (A)
1MB155	225	69.5	83.4 [2]
	250	72.5	86.5 [2]
	280	73.4	85
1MB555	315	73.5	88.3
	355	79.6	94.9

A version with a second shaft extension is not possible.

[2] These sound power levels are above the set values in the VIK recommendation in the "reduced noise" version. This difference must be agreed between the manufacturer and the operator.

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Technical specifications

Mechanical limit speeds

Mechanical limit speeds of the SIMOTICS XP 1MB10, 1MB15, 1MB16 Ex ec, Ex tb and Ex tc explosion-protected motors

Motor frame size	Motor type	2-pole [1] n_{max} rpm	f_{max} Hz	4-pole n_{max} rpm	f_{max} Hz	6-pole n_{max} rpm	f_{max} Hz	8-pole n_{max} rpm	f_{max} Hz
11MB10, 1MB15, 1MB16									
71 M	1MB15	6000	100	3000	100	2000	100	1500	100
80 M	1MB15	6000	100	3000	100	2000	100	1500	100
90 L	1MB15	6000	100	3000	100	2000	100	1500	100
100 L	1MB10, 1MB15, 1MB16	5100	85	3000	100	2000	100	1500	100
112 M	1MB10, 1MB15, 1MB16	5100	85	3000	100	2000	100	1500	100
132 S/M	1MB10, 1MB15, 1MB16	3800	63.3	3000	100	2000	100	1500	100
160 M/L	1MB10, 1MB15, 1MB16	4500	75	3000	100	2000	100	1500	100
180 M/L	1MB15, 1MB16	4500	75	3000	100	2000	100	1500	100
200 L	1MB15, 1MB16	4500	75	3000	100	2000	100	1500	100
225 S/M	1MB15, 1MB16	3600	60	3000	100	2000	100	1500	100
250 M	1MB15, 1MB16	3600	60	3000	100	2000	100	1500	100
280 S/M	1MB15, 1MB16	3600	60	3000	100	2000	100	1500	100
315 S/M/L	1MB15, 1MB16	– [2]	– [2]	2600	87	2000	100	1500	100

Mechanical limit speeds of the SIMOTICS XP 1MB..5 Ex db, Ex db eb explosion-protected motors

Motor frame size	Motor type	2-pole [1] n_{max} rpm	f_{max} Hz	4-pole n_{max} rpm	f_{max} Hz	6-pole n_{max} rpm	f_{max} Hz	8-pole n_{max} rpm	f_{max} Hz
1MB1.5, 1MB5.5									
71 M	1MB1.5	6000	100	3000	100	2000	100	1500	100
80 M	1MB1.5	6000	100	3000	100	2000	100	1500	100
90 L	1MB1.5	6000	100	3000	100	2000	100	1500	100
100 L	1MB1.5	6000	100	3000	100	2000	100	1500	100
112 M	1MB1.5	6000	100	3000	100	2000	100	1500	100
132 S/M	1MB1.5	5400	90	3000	100	2000	100	1500	100
160 M/L	1MB1.5	4800	80	3000	100	2000	100	1500	100
180 M/L	1MB1.5	4560	76	3000	100	2000	100	1500	100
200 L	1MB1.5	4500	75	3000	100	2000	100	1500	100
225 S/M	1MB1.5	4500	75	2610	87	2000	100	1500	100
250 M	1MB1.5	3900	65	2400	80	2000	100	1500	100
280 S/M	1MB1.5	3600	60	2250	75	2000	100	1500	100
315 S/M/L	1MB5.5	3600	60	1950	65	2000	100	1500	100
355 M/L	1MB5.5	3600	60	1800	60	2000	100	1500	100

[1] For continuous operation in the range f_{max} (n_{max}), an inquiry is required.

[2] For frame size 315, converter operation is not permissible with 2 poles.

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Technical specifications

Special technology

"Special technology" comprises technology that is compatible with explosion-protected motors.

Explosion-protected motors can be implemented in a broader range of applications when explosion-protected rotary pulse encoders or explosion-protected separately driven fans are mounted.

The use of a separately driven fan is recommended to increase motor utilization at low speeds and to limit noise generation at speeds significantly higher than the synchronous speed.

Both are normally only appropriate with converter-fed operation.

For explosion-protected motor versions with explosion-protected rotary pulse encoders or explosion-protected separately driven fans, see the tables below.

The following explosion-protected motor versions are available with explosion-protected rotary pulse encoders:

Type of protection	Motor type + order code	Frame size	Order code for explosion-protected rotary pulse encoder
Ex tb (Zone 21)	1MB101… 1MB151… 1MB161… 1MB551… 1MB581…	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	**G30**: Mounting of LL 841 (HTL); 1024 explosion-protected rotary pulse encoder
Ex tc (Zone 22)	1MB102… 1MB152… 1MB162… 1MB552… 1MB582…	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	
Ex ec (Zone 2)	1MB103… 1MB153… 1MB163… 1MB553… 1MB583…	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	
Ex ec or Ex tc (Zone 2/22)	1MB103… + B30 1MB153… + B30 1MB163… + B30 1MB553… + B30 1MB583… + B30	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	
Ex db or Ex db eb (Zone 1)	1MB155… 1MB555…	100 L ... 355 L	
Ex db or Ex db eb (Zone 1/21)	1MB155… + B32 1MB555… + B32	100 L ... 355 L	

Note:
The maximum speed of the rotary pulse encoder is limited to n_{max} = 4200 rpm.

The following explosion-protected motor versions are available with explosion-protected separately driven fans:

Type of protection	Motor type + order code	Frame size	Order code for explosion-protected separately driven fan
Ex tb (Zone 21)	1MB151… 1MB161… 1MB551… 1MB581…	225 S ... 315 L 225 S ... 315 L 400 ... 450 400 ... 450	**F70**: "Mounted separately driven fan".
Ex tc (Zone 22)	1MB102… 1MB152… 1MB162… 1MB552… 1MB582…	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	
Ex ec (Zone 2)	1MB103… 1MB153… 1MB163… 1MB553… 1MB583…	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	
Ex ec or Ex tc (Zone 2/22)	1MB103… + B30 1MB153… + B30 1MB163… + B30 1MB553… + B30 1MB583… + B30	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L 400 ... 450 400 ... 450	
Ex db or Ex db eb (Zone 1)	1MB155… 1MB555…	225 S ... 355 L	
Ex db or Ex db eb (Zone 1/21)	1MB155… + B32 1MB555… + B32	225 S ... 355 L	

Notes:

- The motor operating data with the explosion-protected separately driven fan is available in the "Drive Technology Configurator" (DT Configurator).
- Alternatively, explosion-protected separately driven fans can also be used in line operation for special applications.

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Technical specifications

Explosion-protected rotary pulse encoder

The rotary pulse encoder can only be mounted on a standard non-drive end (NDE), i.e. a second shaft extension cannot be supplied.

By virtue of its design, the explosion-protected rotary pulse encoder does not have insulated bearings (please inquire).

The degree of protection of the rotary pulse encoder must be observed. The relevant data are stamped on the rating plate of the rotary pulse encoder.

Attaching an explosion-protected rotary pulse encoder increases the length of the motor by Δl.
For an explanation of the additional dimensions and weights, see "Dimensions and weights of explosion-protected rotary pulse encoders".

LL 841 910 013 rotary pulse encoder (HTL version)

This encoder has a rugged construction and is therefore also suitable for difficult operating conditions. It is resistant to shock and vibration.

The LL 841 910 013 explosion-protected rotary pulse encoder is supplied with the already mounted ADS diagnostic system for early detection of errors in the encoder.
Order code **G30**

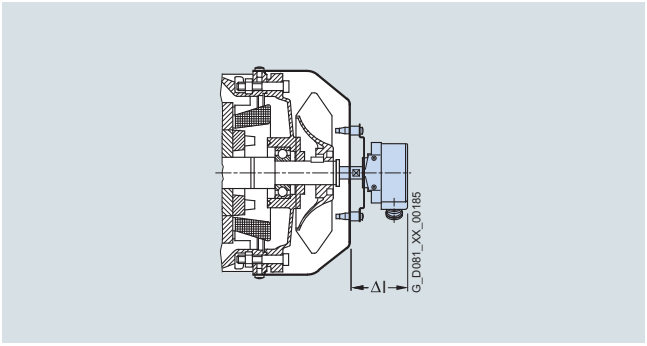
Technical specifications for LL 841 910 013 (HTL version)

Supply voltage U_B	**+9 ... +30 V**
Current input without load	max. 80 mA
Admissible load current per output	40 mA
Pulses per revolution	1024
Outputs	6 short-circuit proof square-wave pulses A, A', B, B', 0, 0', high current HTL Floating switching output for ADS signal
Pulse offset between the two outputs	90° ±2 5° el.
Output amplitude	$U_{High} > U_B$ - 4 V $U_{Low} < 2.5$ V
Mark space ratio	1:1 ± 10 %
Maximum frequency	100 kHz with 350 m cable length
Maximum speed	4200 rpm (the maximum permissible speed must be observed during the configuration)
Temperature range	–40 ... +70 °C
Degree of protection	IP65
Maximum adm. radial cantilever force	150 N
Maximum adm. axial force	100 N
Connection system	Terminal strips in encoder/cable connection M20 x 1.5 radial (screw terminals)
Weight, approx.	1.7 kg

Manufacturer:
Leine und Linde AG
Olivehällsvägen 8
64542 Strängnäs, Sweden
Phone: +46 152 265 00
Fax +46 152 265 05

www.leinelinde.com
Email: info@leinelinde.de

Dimensions and weights of the explosion-protected rotary pulse encoders



Explosion-protected rotary pulse encoder (on cover), order code **G30**

1MB10, 1MB15, 1MB16, 1MB55, 1MB56, 1MB58 motors		
Frame size	Δl	Weight approx.
	mm	kg
100	110	2
112	110	2
132	110	2
160	110	2
180	110	2
200	110	2
225	100	3
250	100	3
280	100	3
315	100	3
355	100	3
400	100	3
450	100	3

A protective cover of non-corrosive sheet steel is available for the explosion-protected rotary pulse encoders from the "special technology".
For motors in the shaft heights

- 100 to 200: a protective cover is always provided
- 225 to 450: Order code **G43** – "Mechanical protection for encoder" (protective cover analogous to order code **H00**)

The length of the motor is also increased in the case of the following shaft heights:

- 100 to 200 by up to 146 mm
- 225 to 315 by up to 25 mm

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Technical specifications

Explosion-protected separately driven fan

The use of a separately driven fan is recommended to increase motor utilization at low speeds or to limit noise generation at speeds significantly higher than the synchronous speed. Both of these results can only be achieved with converter operation. Please inquire about traction and vibratory operation.

In the case of explosion-protected motors, the explosion-protected separately driven fan is available already mounted. Order code **F70**

Notes:

- The order code **F70** applies to all types of protection because the type of protection is already defined by the article number of the motor. Order code **F70** determines the additional charge for the separately driven fan in the assigned type of protection.
- The motor operating data with the explosion-protected separately driven fan is available in the "Drive Technology Configurator" (DT Configurator).

The supply voltage for the explosion-protected motors with separately driven fan is specified as follows:

Type 2CW2 has a wide-range voltage winding
(see page 5/21 "Technical specifications of separately driven fans for 1MB1 explosion-protected motors (frame sizes 100 to 200) in the Ex tc (Zone 22) and Ex ec (Zone 2) versions").
These explosion-protected motors with separately driven fan up to frame size 200 have a rated voltage (rated voltage range) with tolerances according to IEC/EN 60034-1, range A.

Technical specifications of separately driven fans for 1MB1.5 and 1MB5.5 explosion-protected motors (frame sizes 225 to 355) in the Ex db eb (Zone 1) versions

Frame size	Voltage	Frequency	P_{max}	I_{max}
	V	Hz	kW	A
225	400	50	0.55	1.34
250				
280	460	60		1.23
315				
355	400	50	1.1	2.25
	460	60		1.98

A rating plate with the operating data is fitted to each explosion-protected motor with separately driven fan.

The type of protection of the explosion-protected motor with separately driven fan corresponds to that of the associated explosion-protected basic motor. Please note the direction of rotation of the separately driven fan (axial-flow fan) when connecting it.

Please inquire regarding coolant temperatures outside the range –20 to +40 °C.

The Ex ec/Ex tc motor with separately driven fan has the degree of protection IP55 as standard; Ex tb: IP65 (higher degrees of protection with Ex ec are available on request).

Motors with a separately driven fan must be equipped with a PTC thermistor as motor protection (15th position of the Article No.): In the event of a fault in the separately driven fan, the PTC thermistor must reliably trip the 1MB1 or 1MB5 explosion-protected motors.

For assignments and article numbers, see the tables "Technical specifications of separately driven fans for explosion-protected motors 1MB1…" on the following pages. A rating plate listing all the important data is fitted to the separately driven fan. Please inquire in the case of supply voltages outside of the rated voltage range. Please note the direction of rotation of the separately driven fan (axial-flow fan) when connecting it. The permissible coolant temperatures are CT_{min} –20 °C and CT_{max} +40 °C. Lower coolant temperatures are available on request.

When the separately driven fan is mounted, the length of the motor increases by Δl. For an explanation of the additional dimensions and weights, see "Dimensions and weights of explosion-protected separately driven fans".

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Technical specifications

Technical specifications of separately driven fans for 1MB1 explosion-protected motors (frame sizes 100 to 200) in the Ex tc (Zone 22) and Ex ec (Zone 2) versions

Technical specifications of separately driven fans (according to tolerances of EN 60034-1)

Frame size	Rated voltage range	Frequency	Power consumption	Rated current
	V	Hz	kW	A
100	1 AC 220 ... 277	50	0.066	0.28
	3 AC 200 ... 303 Δ	50	0.091	0.37
	3 AC 346 ... 525 Y	50	0.091	0.22
	1 AC 220 ... 277	60	0.075	0.30
	3 AC 220 ... 332 Δ	60	0.087	0.31
	3 AC 380 ... 575 Y	60	0.087	0.18
112	1 AC 220 ... 277	50	0.071	0.28
	3 AC 200 ... 303 Δ	50	0.097	0.35
	3 AC 346 ... 525 Y	50	0.097	0.20
	1 AC 220 ... 277	60	0.094	0.37
	3 AC 220 ... 332 Δ	60	0.103	0.31
	3 AC 380 ... 575 Y	60	0.103	0.18
132	1 AC 230 ... 277	50	0.098	0.40
	3 AC 200 ... 303 Δ	50	0.124	0.58
	3 AC 346 ... 525 Y	50	0.124	0.33
	1 AC 230 ... 277	60	0.149	0.57
	3 AC 220 ... 332 Δ	60	0.148	0.44
	3 AC 380 ... 575 Y	60	0.148	0.25
160 ... 200	1 AC 230 ... 277	50	0.253	0.97
	3 AC 200 ... 303 Δ	50	0.247	0.87
	3 AC 346 ... 525 Y	50	0.247	0.50
	3 AC 220 ... 332 Δ	60	0.360	0.93
	3 AC 380 ... 575 Y	60	0.360	0.56

Technical specifications of separately driven fans for 1MB1 explosion-protected motors (frame sizes 225 to 315) in the Ex tb (Zone 21), Ex tc (Zone 22) and Ex ec (Zone 2) versions

Frame size	Designation on rating plate of separately driven fan	Rated voltage range	Frequency	Rated speed	Power consumption	Rated current for rated voltage
		V	Hz	rpm	kW	A
225 M ... 280 M	1LA7073-2AA62-Z	3 AC 230 Δ	50	2800	0.550	1.36
		3 AC 400 Y	50	2800	0.550	0.79
		3 AC 460 Y	60	3400	0.630	1.32
315 – 2-pole	1LA9073-2LA92-Z	3 AC 230 Δ	50	2780	0.700	1.73
		3 AC 400 Y	50	2780	0.700	1.00
		3 AC 460 Y	60	3385	0.700	1.64
315 – 4, 6, 8-pole	1LA7073-2AA62-Z	3 AC 230 Δ	50	2800	0.550	1.36
		3 AC 400 Y	50	2800	0.550	0.79
		3 AC 460 Y	60	3400	0.630	1.32

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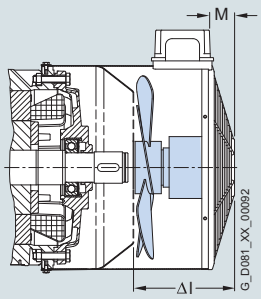
Technical specifications

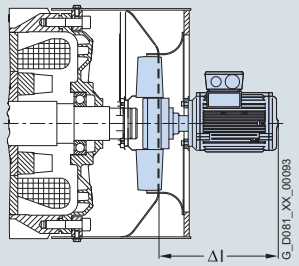
Dimensions and weights of the explosion-protected separately driven fans (order code **F70**)

1MB102, 1MB152, 1MB162, 1MB103, 1MB153, 1MB163
Frame sizes 100 to 200
Explosion-protected separately driven fans
Ex tc, Ex ec



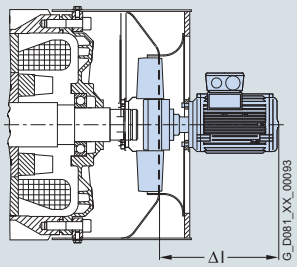
Frame size	Type of protection/motor type Ex tc (Zone 22)/1MB102, 1MB152, 1MB162 Ex ec (Zone 2)/1MB103, 1MB153, 1MB163 ΔI	Weight approx.
	mm	kg
100	141	4
112	158	4.5
132	177	5.5
160	227	7
180	269	10
200	272	11

1MB151, 1MB161, 1MB152, 1MB162, 1MB153, 1MB163
Frame sizes 225 to 315
Explosion-protected separately driven fans
Ex tb, Ex tc, Ex ec



Frame size	Type of protection/motor type Ex tb (Zone 21)/1MB151, 1MB161 Ex tc (Zone 22)/1MB152, 1MB162 Ex ec (Zone 2)/1MB153, 1MB163 ΔI	Weight approx.
	mm	kg
225	267	24.5
250	272	27.5
280	270	30.5
315	280	38.5

1MB..5
Frame sizes 225 to 355
Explosion-protected separately driven fan
Ex db eb



Frame size	Type of protection/motor type Ex db eb (Zone 1)/1MB155, 1MB555 ΔI	Weight approx.
	mm	kg
225	555	
250		
280		
315		
355	370	

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Technical specifications

Version 1MB..5 motors (Ex db, Ex db eb) with mounted brake

The brake is located at drive-end of the motor and can be mounted with flange B5 or B14 depending on the motor – 14th position of the Article No. **F** (flange B5); **K** (flange B14).

The shaft extension is implemented in the same way as the standard shaft extension of the motor. A special shaft extension or special bearings are not possible.

The motor, including the brake, is available ATEX-certified as standard and optionally with IECEx (order code **D37**) and EACEx (order code **D35**).

The spring-operated brake (order code **F20**) is a single-disk brake with two friction surfaces. The compression springs produce the braking torque by means of friction that opposes the disk. The brake is released electromagnetically.

The degree of protection of the brake is IP66 (IEC/EN 60034-5 and IEC/EN 60079-0).

The braking voltage supply 24 V DC (order code **F10**), 230 V AC (order code **F11**) and 400 V AC (order code **F12**) have to be ordered together with order code **F20**.

In the standard version, the brake is equipped with a bimetal protection device for thermal protection with a limit value for the temperature class of the brake.

Dynamic application of the brake in accordance with the permissible energy and frequency of braking (duty cycles) can be determined by the formula "Calculation of the slipping time of the friction disk" and table "Frequency of braking".

For special operating characteristics in accordance with the permissible energy and the frequency of braking (braking cycles), calculation of new values by Siemens is necessary.

The possibility of manual release of the brake can be ordered optionally (order code **F50**). In this case, the brake can be released in the de-energized state (no lock).

Further options for controlling the brake, such as a PTC thermistor for monitoring the brake temperature, are available on request

Overview of the brake selection for 1MB1553 motors, 2 to 8-pole

		Frame size							
		80	90	100	112	132	160 [1]	180 [2]	200 [2]
Flange of the brake system with B5 flange at DE [3]		FF165	FF165	FF215	FF215	FF265	FF300	FF300	FF350
Flange of the brake system with B14 flange at DE [3]		FT100	FT115	FT130	FT130	FT165	FT215	–	–
Max. diameter of the shaft extension	mm	19 j6	24 j6	28 j6	28 j6	38 k6	42 k6	48 k6	55 m6
Brake type		VIS80	VIS90	VIS100	VIS112	VIS132	VIS160	VIS180	VIS200
Permissible radial force of the point of application x = 0.5 [4]	N	380	380	550	550	790	790	1700	1700
Rated braking torque (T_f) [5] (static torque)	Nm	12	20	40	50	100	160	260	350
Possible range of the torque (on request)	Nm	12 ... 22	12 ... 22	24 ... 40	30 ... 60	70 ... 150	100 ... 160	180 ... 350	300 ... 460
Maximum speed n_{max} - (S1 duty)	rpm	3600	3600	3600	3600	3600	2900	2500	2500
Maximum speed n_{max} - (S3-40 % load)	rpm	4320	4320	4000	4000	4000	3600	2800	2800
Power supply unit power	W	50	50	80	80	105	105	180	180
Current at 24 V DC	A	2.7	2.7	2.1	2.1	2.8	2.8	3.5	3.5
Current at 230 V AC – (207 V DC coil voltage) [6]	A	0.45	0.45	0.2	0.2	0.35	0.35	0.6	0.6
Current at 400 V AC – (180 V DC coil voltage) [7]	A	0.22	0.22	0.18	0.18	0.2	0.2	0.35	0.35
Weight, approx.	kg	32	34	50	50	78	82	135	150
Brake engagement time t_1 [8]	ms	40	40	90	90	180	180	230	230
Disengagement time t_2 [9]	ms	18	18	18	18	23	23	30	30
VIS brake moment of inertia	kgm^2	0.00088	0.00088	0.00323	0.00323	0.00831	0.00885	0.0385	0.0397
Lifetime of the brake lining (time to inspection)	kJ	50000	50000	75000	75000	90000	90000	120000	120000

Dynamic application of the brake

Due to dynamic application of the brake, the permissible energy is limited by the maximum frequency of brake application and the maximum slipping time of the friction disk for one brake application.

1) Due to the limited maximum braking velocity, 2-pole motors are not suitable for S1 duty.

2) Due to the limited maximum braking velocity, 2-pole motors are not possible.

3) The brake is mounted at the drive-end. The motor with brake can be mounted with a B5 or B14 flange, depending on the motor.
Flange B5 (14th position of the Article No. **F**) mounting of types of construction IM B5, IM V1, IM B35, IM V15;
Flange B14 (14th position of the Article No. **K**) mounting of types of construction IM B14, IM V18, IM B34).
It is not possible to mount IM V3 and IM V35.

4) The bearing lifetime of the brake is the same as the bearing lifetime of the motor.

5) The dynamic braking torque is lower because the rated braking torque depends on the speed. (The technical specifications must be stated for the dynamic braking torque.)

6) For a voltage of 230 V AC, a bridge rectifier is used, which is contained in the scope of supply.

7) For a voltage of 400 V AC, a half-wave rectifier is used, which is contained in the scope of supply.

8) Time until the braking torque is reached after the voltage supply is switched off.

9) Time until the braking torque has decayed after the voltage supply is switched on.

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Technical specifications

Calculation of the slipping time t_3 of the friction disk [1)]

$$t_3 = \frac{J_{total} \cdot n}{9.55 \cdot (T_f \pm T_{load})}$$

J_{total} Total moment of inertia on the motor shaft $J_{brake} + J_{motor} + J_{load}$ in kgm^2
n Motor speed in rpm
T_f Rated braking torque in Nm
T_{load} Instantaneous load torque in Nm positive or negative, depending on the conformity with the braking torque
t_3 Slipping time in s

Frequency and slipping time t_3 (duty cycles)

Brake type	Frequency of operations per cycle (1/h) [2)]	
	Slipping time t_3 ≤ 0.5 s	Slipping time t_3 ≥ 0.5 s to ≤ 0.8 s
VIS80	1800	900
VIS90	1800	900
VIS100	1300	650
VIS112	1300	650
VIS132	900	450
VIS160	900	450
VIS180	600	300
VIS200	600	300

VIK version

VIK = Verband der Industriellen Energie- und Kraftwirtschaft e.V. (German Association of the Energy and Power Supply Industry)

- **VIK standard version** –
  1LE1, 1LE5 + order code **C02**
  "VIK" identification on rating plate.
  ➔ Product range in Catalog Section 2.
- **VIK-Ex ec version for line operation** –
  1MB1.3, 1MB5 + order code **C02**
  "VIK" and "Ex ec IIC T3 Gc" marking on the rating plate according to Directive 2014/34/EU (ATEX).
  ➔ Product range in this Catalog Section.
- **VIK Ex ec version for converter operation** –
  1MB1.3, 1MB5 + order code **C02**+**B40**/**B41**+...
  "VIK" and "Ex ec IIC T3 Gc" markings on the rating plate and motor operating data for converter operation on the additional rating plate according to Directive 2014/34/EU (ATEX).

VIK standard version and VIK Ex ec versions include technology for Zone 2 with type of protection Ex ec IIC T3 Gc. Motors up to frame size 355 can be supplied in accordance with the technical requirements of the VIK recommendation.

Minimum efficiency class:
For VIK standard, VIK Ex ec and VIK-Ex db version, the minimum efficiency class IE3 for line operation and IE2 for converter operation must be complied with according to EC Directive 640/2009 EC. For the VIK Ex eb version, the minimum efficiency class is IE2.

Note:
8-pole motors or all motors < 0.75 kW are still possible as these motors are outside the power range specified for IE stamping.

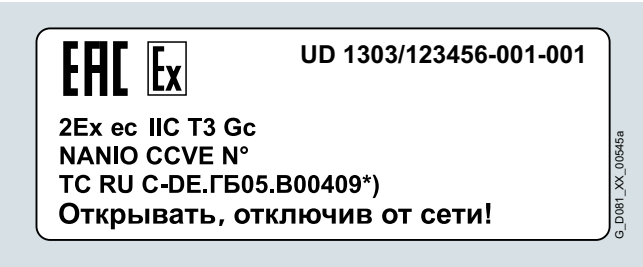
Ex certification EAC for the Eurasian Customs Union (Russia, Belarus, and Kazakhstan, Armenia, Kyrgyzstan)

EAC = Eurasian Conformity

For the import and commissioning of explosion-protected motors in the Eurasian Customs Union, approval is required from a named Russian testing authority.

"Ex certificate EAC for the Eurasian Customs Union"
Order code **D35**

When motors are ordered with order code **D35**, they are fitted with an additional rating plate displaying the logo "EAC Ex" and the Russian Ex marking.



Example: Additional rating plate

The "EAC Ex" logo can also be found on the package label. The motor must have an "EAC Ex certificate", although the certificate does not generally have to be shipped with the motor. The customs authorities use the motor article number to check the motor certification.
A copy of the EAC Ex certificate must be in the customer's possession before the motor is commissioned.
The certificates are available from the SIOS (Siemens Industry Online Support) portal
https://support.industry.siemens.com/cs/ww/en/
as well as the "Drive Technology Configurator" (DT Configurator)
www.siemens.com/dt-configurator

Coolant temperature

Coolant temperature –40 to +40 °C for explosion-protected motor

For all SIMOTICS XP 1MB. motors of frame sizes 71 to 450, the operating temperature can optionally be extended up to –40 °C. Extensive technical measures are necessary in this case.

Order code **D03**

Order code **D03** is not possible in combination with order code **H02** "Vibration-proof version".

1) The slipping time t_3 is the friction time until the motor stops (≤ 0.8 s); slipping time > 0.8 s on request.

2) Maximum frequency of braking (duty cycles) per hour (> 0.8 s on request).

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Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:
1MB1511-1DB22-2AB4-Z
R10

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and power and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.

Structure of the Article No.:		Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	
1st to 4th position: Digit, letter, letter, digit	Explosion-protected – Self-ventilated by fan mounted on and driven by rotor		**1** **1**	**M** **M**	**B** **B**	**1** **5**															
5th position: Digit	Aluminum housing						**0**														
	Cast-iron housing Basic Line						**5**														
	Cast-iron housing Performance Line						**6**														
	Cast-iron housing – Premium insulation system						**8**														
6th to 7th position: 2 digits	Ex tb IIIC (Ex-Zone 21)	Motors with IE2 High Efficiency						**1**	**1**												
		Motors with IE1 Standard Efficiency						**1**	**2**												
		Motors with IE3 Premium Efficiency						**1**	**3**												
		Motors with IE4 Super Premium Efficiency						**1**	**4**												
	Ex tc IIIB (Ex-Zone 22)	Motors with IE2 High Efficiency						**2**	**1**												
		Motors with IE1 Standard Efficiency						**2**	**2**												
		Motors with IE3 Premium Efficiency						**2**	**3**												
		Motors with IE4 Super Premium Efficiency						**2**	**4**												
	Ex ec IIC T3 (Ex Zone 2)	Motors with IE2 High Efficiency						**3**	**1**												
		Motors with IE1 Standard Efficiency						**3**	**2**												
		Motors with IE3 Premium Efficiency						**3**	**3**												
		Motors with IE4 Super Premium Efficiency						**3**	**4**												
	Ex eb IIC T3 (Ex Zone 1)	Motors with IE3 Premium Efficiency						**4**	**3**												
	Ex db, Ex db ed IIC T4 (Ex Zone 1)	Motors with IE3 Premium Efficiency						**5**	**3**												
8th, 9th and 11th position: Digit, letter, digit	**Motor frame size** (frame size as a combination of shaft height and overall length, encoded)										**0** ... **4**	**A** ... **B**		**0** ... **7**							
10th position: Letter	**No. of poles** A: 2-pole, B: 4-pole, C: 6-pole, D: 8-pole												**A** ... **D**								
12th and 13th position: 2 digits	**Voltage, circuit and frequency** (encoded with two digits, 9-0 requires order code M.. (e.g. M1Y))														**0** ... **9**		**0** ... **8**				
14th position: Letter	**Type of construction** (encoded with A ... V)																	**A** ... **V**			
15th position: Letter	**Motor protection** (encoded with A ... J)																		**A** ... **J**		
16th position: Digit	**Terminal box position** 0: Terminal box, top left, 1: Terminal box, top right, 2: Terminal box, 45° left, 3: Terminal box, 45° right, 4: Terminal box, at top, 5: Terminal box, on right side, 6: Terminal box, on left side, 7: Terminal box, at bottom, 9: Special mounted components																			**0** ... **9**	
	Special order versions: encoded – additional order code required not encoded – additional plain text required																				**- Z**

Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type 1MB1	Self-ventilated motor with explosion protection of type Ex tb IIIC (Ex Zone 21), cast-iron version, with IE2 High Efficiency, IP55 degree of protection	1MB1511-■■■■■-■■■■
Motor frame size/No. of poles/Speed	160 M/4-pole/1500 rpm	**1MB1511-1DB2■-■■■■**
Rated power	11 kW	
Voltage and frequency	230 VΔ/400 VY, 50 Hz	**1MB1511-1DB22-2■■■**
Type of construction with special version	IM B3	**1MB1511-1DB22-2A■■**
Motor protection	Motor protection with PTC thermistor with 3 embedded temperature sensors for tripping	**1MB1511-1DB22-2AB■**
Terminal box position	Terminal box at top	**1MB1511-1DB22-2AB4**
Special version	Rotation of the terminal box through 90°, entry from DE	**1MB1511-1DB22-2AB4-Z** **R10**

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Cast-iron series 1MB55.4 – self-ventilated or forced-air cooled

Selection and ordering data

$P_{rated, 50 Hz}$	Frame size	Operating values at rated power n_{rated}	T_{rated}	$\eta_{rated, 4/4}$	$\eta_{rated, 3/4}$	$\eta_{rated, 2/4}$	$\cos\varphi_{rated, 4/4}$	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1MB55.4 Article No.	$m_{IM B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• **Cooling: self-ventilated (IC411)** • **Efficiency: IE4 Super Premium Efficiency, service factor for sinusoidal supply** • **Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization with sinusoidal supply in accordance with thermal class 130 (temperature class B)** • **Optional and suitable for converter operation with insulated bearings (L51) for $f_P \geq 2.5$ kHz; $U_{line} \leq 480$ V; $U_{motor} \leq 500$ V; $U_{DC} \leq 720$ V - IVIC-C advanced insulation system**																
2-pole: 3000 rpm at 50 Hz																
560 1) 2)	**400**	2988	1790	97.0	96.9	96.5	0.89	940	1.6	7.3	3.1	74	90	▲ **1MB55■ 4-4AA3■-■■■■**	2850	8.9
630 1) 2)	**400**	2988	2000	97.0	97.1	96.8	0.90	1040	1.6	7.3	3.0	74	90	▲ **1MB55■ 4-4AA5■-■■■■**	3000	9.8
710 3)	**400**	2988	2250	97.1	97.2	96.9	0.90	680	1.7	7.3	2.9	74	90	▲ **1MB55■ 4-4AA7■-■■■■**	3200	10.8
800 1) 2) 3) 4)	**450**	2990	2550	97.4	97.4	97.1	0.87	790	1.2	7.7	3.3	75	91	▲ **1MB55■ 4-4BA3■-■■■■**	4000	12.3
900 1) 2) 3) 4)	**450**	2988	2900	97.4	97.5	97.4	0.89	870	1.2	7.2	3.0	75	91	▲ **1MB55■ 4-4BA5■-■■■■**	4250	13.5
1000 1) 2) 3) 4)	**450**	2988	3200	97.4	97.6	97.6	0.90	950	1.2	7.0	2.7	75	91	▲ **1MB55■ 4-4BA7■-■■■■**	4450	14.7
4-pole: 1500 rpm at 50 Hz																
560 1) 2)	**400**	1493	3600	96.9	97.0	96.6	0.86	970	2.2	7.5	3.1	72	88	▲ **1MB55■ 4-4AB3■-■■■■**	3050	14.9
630 1) 2)	**400**	1492	4050	96.8	96.9	96.6	0.87	1080	2.2	6.9	2.8	74	90	▲ **1MB55■ 4-4AB5■-■■■■**	3150	15.6
710 3)	**400**	1492	4550	97.0	97.0	96.8	0.87	700	2.2	7.2	2.9	74	90	▲ **1MB55■ 4-4AB7■-■■■■**	3250	16.9
800 3)	**450**	1492	5100	96.9	97.1	96.9	0.87	790	1.4	6.5	2.4	79	95	▲ **1MB55■ 4-4BB3■-■■■■**	4000	24.0
900 3)	**450**	1492	5800	97.0	97.2	97.0	0.88	880	1.4	6.5	2.5	79	95	▲ **1MB55■ 4-4BB5■-■■■■**	4150	25.4
1000 1) 3)	**450**	1492	6400	97.1	97.2	97.1	0.88	980	1.5	6.8	2.6	79	95	▲ **1MB55■ 4-4BB7■-■■■■**	4350	28.0
6-pole: 1000 rpm at 50 Hz																
450	**400**	994	4300	96.6	96.8	96.4	0.85	790	2.2	7.2	2.7	70	86	▲ **1MB55■ 4-4AC3■-■■■■**	3100	25.5
500 1)	**400**	994	4800	96.7	96.8	96.5	0.85	880	2.3	7.3	2.8	70	86	▲ **1MB55■ 4-4AC5■-■■■■**	3250	27.4
560	**400**	994	5400	96.7	96.8	96.4	0.84	1000	2.4	7.5	2.9	70	86	▲ **1MB55■ 4-4AC7■-■■■■**	3300	28.6
630 1) 2)	**450**	995	6000	96.8	97.0	96.7	0.83	1130	2.0	7.0	2.8	72	88	▲ **1MB55■ 4-4BC3■-■■■■**	4050	38.6
710 3)	**450**	994	6800	96.8	97.0	96.9	0.84	730	1.8	6.6	2.5	72	88	▲ **1MB55■ 4-4BC5■-■■■■**	4200	41.0
800 1) 3)	**450**	994	7700	96.8	97.0	96.8	0.84	820	1.8	6.6	2.4	74	90	▲ **1MB55■ 4-4BC7■-■■■■**	4300	43.3
8-pole: 750 rpm at 50 Hz																
355	**400**	744	4550	95.8	96.1	95.8	0.80	670	2.0	6.5	2.6	64	80	▲ **1MB55■ 4-4AD3■-■■■■**	2850	21.9
400	**400**	744	5100	96.0	96.2	95.9	0.80	750	2.1	6.8	2.7	64	80	▲ **1MB55■ 4-4AD5■-■■■■**	3050	24.5
450	**400**	744	5800	96.0	96.3	96.0	0.80	850	2.1	6.8	2.7	64	80	▲ **1MB55■ 4-4AD7■-■■■■**	3250	27.5
500 5)	**450**	745	6400	96.2	96.4	96.1	0.79	950	2.0	6.8	2.5	67	83	▲ **1MB55■ 4-4BD3■-■■■■**	3800	34.0
560 5)	**450**	745	7200	96.3	96.5	96.1	0.79	1060	2.0	6.9	2.6	67	83	▲ **1MB55■ 4-4BD5■-■■■■**	4000	38.0
630 1) 5)	**450**	745	8100	96.4	96.6	96.3	0.80	1180	2.0	6.9	2.5	67	83	▲ **1MB55■ 4-4BD7■-■■■■**	4250	42.5

			Code	Order code
Zones				
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3	
Voltages		Version		Order code
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3 4	–
50 Hz 500 VΔ	60 Hz 575 VΔ	Without additional charge	4 0	–
50 Hz 690 VΔ		Without additional charge	4 7	–
For other voltages and more information, see from page 5/55			■ ■	. . .
Types of construction		Version		Order code
Without flange	IM B3	**Standard**	A	–
With flange	IM B5	With additional charge	F	–
For other types of construction and more information, see from page 5/67			■	. . .
Motor protection		Version		Order code
Without		**Standard**	A	–
PTC thermistor with 3 temperature sensors		With additional charge	B	–
For other motor protection and more information, see from page 5/72			■	. . .
Terminal box position		Version		Order code
Terminal box base left with terminal box 45°		Without additional charge	2	–
Terminal box base right with terminal box 45°		**Standard**	3	–
For other terminal box positions and more information, see from page 5/77			■	. . .
Special versions				Order code(s)
Forced-air cooled (IC416)			**1MB55■ 4- . . . . ■-■■■■** -Z	F90+. . .+. . .+. . .
For options and information, see from page 5/96			**1MB55■ 4- . . . . ■-■■■■** -Z	. . .+. . .+. . .+. . .

1) Terminal box 1XB1631.

2) Terminal box position NDE can only be ordered using order code **H09** (2 × terminal box TB3R61). Order code **H08** not available.

3) The standard version is 50 Hz 690 VΔ (voltage code **4-7**) or 60 Hz 575 VΔ (voltage code **4-0**).

4) In the series version, the maximum speed is n_{max} = 3000 rpm. Converter operation at higher speeds on request for an additional charge.

5) Utilization with sinusoidal supply in accordance with thermal class 155 (temperature class F).

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1MB1 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
0.75	0.86	80 M	2850	2.5		80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	1MB10■3-0DA2■-■■■■	11	0.0011
1.1	1.27	80 M	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	1MB10■3-0DA3■-■■■■	12	0.0013
1.5	1.75	90 S	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	1MB10■3-0EA0■-■■■■	15	0.0021
2.2	2.55	90 L	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	1MB10■3-0EA4■-■■■■	19	0.0031
3	3.45	100 L	2920	9.8		87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	67	79	1MB10■3-1AA4■-■■■■	26	0.0054
4	4.55	112 M	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	69	81	1MB10■3-1BA2■-■■■■	34	0.012
5.5	6.3	132 S	2950	18		89.2	90.1	89.7	0.9	9.9	1.9	7.3	3.7	68	80	1MB10■3-1CA0■-■■■■	43	0.024
7.5	8.6	132 S	2950	24		90.1	90.9	90.7	0.92	13.1	2.1	8.3	4	68	80	1MB10■3-1CA1■-■■■■	57	0.031
11	12.6	160 M	2955	36		91.2	91.3	90.2	0.87	20	2.5	7.6	3.8	70	82	1MB10■3-1DA2■-■■■■	75	0.053
15	17.3	160 M	2960	48		91.9	91.9	91	0.87	27	2.8	8.8	4.3	70	82	1MB10■3-1DA3■-■■■■	84	0.061
18.5	21.3	160 L	2955	60		92.4	92.8	92.3	0.9	32	2.8	8.3	3.9	70	82	1MB10■3-1DA4■-■■■■	94	0.068
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
0.55	0.63	80 M	1440	3.6		80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	1MB10■3-0DB2■-■■■■	11	0.0021
0.75	0.86	80 M	1450	4.9		82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	1MB10■3-0DB3■-■■■■	14	0.0029
1.1	1.27	90 S	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68	1MB10■3-0EB0■-■■■■	16	0.0036
1.5	1.75	90 L	1445	9.9		85.3	86	85.2	0.8	3.15	2.9	7.3	3.5	60	68	1MB10■3-0EB4■-■■■■	19	0.0049
2.2	2.55	100 L	1465	14.3		86.7	87	85.9	0.83	4.4	3.2	8.4	4.4	60	72	1MB10■3-1AB4■-■■■■	30	0.014
3	3.45	100 L	1460	19.6		87.7	88.5	87.9	0.83	5.9	2.5	8.3	3.9	60	72	1MB10■3-1AB5■-■■■■	30	0.014
4	4.55	112 M	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	1MB10■3-1BB2■-■■■■	34	0.017
5.5	6.3	132 S	1470	36		89.6	90	89.4	0.82	10.8	2.9	8.6	3.7	64	76	1MB10■3-1CB0■-■■■■	64	0.046
7.5	8.6	132 M	1465	49		90.4	91.1	90.8	0.84	14.3	2.6	8.2	3.7	64	76	1MB10■3-1CB2■-■■■■	64	0.046
11	12.6	160 M	1475	71		91.4	91.8	91.2	0.84	20.5	2.6	7.6	3.4	65	77	1MB10■3-1DB2■-■■■■	83	0.083
15	17.3	160 L	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	1MB10■3-1DB4■-■■■■	100	0.099
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.37	0.43	80 M	940	3.8		73.5	73.1	69.4	0.66	1.1	2.3	4.2	2.7	42	53	1MB10■3-0DC2■-■■■■	12	0.0025
0.55	0.63	80 M	935	5.6		77.2	77	73.9	0.67	1.53	2.5	4.5	2.8	42	53	1MB10■3-0DC3■-■■■■	14	0.0031
0.75	0.86	90 S	945	7.6		78.9	80	78.8	0.7	1.96	2.2	4.6	2.6	43	55	1MB10■3-0EC0■-■■■■	16	0.004
1.1	1.27	90 L	950	11	IE1	81	81.4	79.3	0.66	2.95	2.8	5	3	57	65	1MB10■3-0EC4■-■■■■	19	0.0052
1.5	1.75	100 L	970	14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	1MB10■3-1AC4■-■■■■	30	0.014
2.2	2.55	112 M	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	1MB10■3-1BC2■-■■■■	39	0.014
3	3.45	132 S	975	29		85.6	86.1	84.9	0.73	6.9	2.3	6.6	3.2	58	66	1MB10■3-1CC0■-■■■■	42	0.034
4	4.55	132 M	975	39		86.8	87.1	86.2	0.73	9.1	2.2	6.2	3	67	75	1MB10■3-1CC2■-■■■■	46	0.039
5.5	6.3	132 M	975	54		88.0	88.3	87.2	0.72	12.5	2.7	6.8	3.4	64	72	1MB10■3-1CC3■-■■■■	58	0.05
7.5	8.6	160 M	985	73		89.1	89.5	88.6	0.81	15	2.3	7.9	3.2	71	79	1MB10■3-1DC2■-■■■■	95	0.132
11	12.6	160 L	980	107		90.3	90.8	90.2	0.80	22	2.9	6.8	2.8	66	74	1MB10■3-1DC4■-■■■■	106	0.164

Zones					
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1		
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2		
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3		
Voltages		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 5/51			9	0	. . .
Types of construction		Version			Order code
Without flange	IM B3 [2]	**Standard**		A	–
With flange	IM B5 [2]	With additional charge		F	–
With flange	IM B14 [2]	With additional charge		K	–
For other types of construction and more information, see from page 5/56				■	. . .
Motor protection		Version			
Without		**Standard**		A	
3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge		B	
For other motor protection and more information, see from page 5/68				■	
Terminal box position		Version			
Terminal box at top		**Standard**		4	
For other terminal box positions and more information, see from page 5/73				■	
Special versions					Order code(s)
For options, see from page 5/78			1MB10■3- . . . . ■-■■■■	-Z	. . .+. . .+. . .+. . .

For footnotes, see page 5/40

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.3 – *Basic Line* 1MB16.3 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz 1)																		
0.37	**0.43**	**71 M**	2850	1.2		73.8	73.3	69.7	0.76	0.95	3.5	5.8	3.5	52	63	**1MB1 5■3-0CA2■-■■■■**	13	0.00045
0.55	**0.63**	**71 M**	2860	1.8		77.8	77.5	74.5	0.76	1.34	3.7	6.1	3.7	57	68	**1MB1 5■3-0CA3■-■■■■**	14.5	0.00056
0.75	**0.88**	**80 M**	2850	2.5		80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	**1MB1 5■3-0DA2■-■■■■**	18	0.0011
1.1	**1.27**	**80 M**	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	**1MB1 5■3-0DA3■-■■■■**	21	0.0013
1.5	**1.75**	**90 S**	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	**1MB1 5■3-0EA0■-■■■■**	25.5	0.0021
2.2	**2.55**	**90 L**	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	**1MB1 5■3-0EA4■-■■■■**	32	0.0031
3	**3.45**	**100 L**	2920	9.8		87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	67	79	**1MB1■■3-1AA4■-■■■■**	36	0.0054
4	**4.55**	**112 M**	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	69	81	**1MB1■■3-1BA2■-■■■■**	45	0.012
5.5	**6.3**	**132 S**	2950	18		89.2	90.1	89.7	0.9	9.9	1.9	7.3	3.7	68	80	**1MB1■■3-1CA0■-■■■■**	58	0.024
7.5	**8.6**	**132 S**	2950	24		90.1	90.9	90.7	0.92	13.1	2.1	8.3	4	68	80	**1MB1■■3-1CA1■-■■■■**	73	0.031
11	**12.6**	**160 M**	2955	36		91.2	91.3	90.2	0.87	20	2.5	7.6	3.8	70	82	**1MB1■■3-1DA2■-■■■■**	100	0.053
15	**17.3**	**160 M**	2960	48		91.9	91.9	91	0.87	27	2.8	8.8	4.3	70	82	**1MB1■■3-1DA3■-■■■■**	110	0.061
18.5	**21.3**	**160 L**	2955	60		92.4	92.8	92.3	0.9	32	2.8	8.3	3.9	70	82	**1MB1■■3-1DA4■-■■■■**	127	0.068
22	**24.5**	**180 M**	2950	71		92.7	93	92.4	0.89	38.5	2.3	7.5	3.5	67	80	**1MB1■■3-1EA2■-■■■■**	160	0.08
30	**33.5**	**200 L**	2955	97		93.3	93.6	93.3	0.87	53	2.5	7	3.3	67	80	**1MB1■■3-2AA4■-■■■■**	225	0.134
37	**41.5**	**200 L**	2955	120		93.7	93.9	93.5	0.88	65	2.5	7.1	3.2	67	80	**1MB1■■3-2AA5■-■■■■**	250	0.158
45	**51**	**225 M**	2960	145		94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	**1MB1■■3-2BA2■-■■■■**	315	0.26
55	**62**	**250 M**	2975	177		94.3	94.5	93.9	0.89	95	2.3	6.7	3.1	73	87	**1MB1■■3-2CA2■-■■■■**	385	0.46
75	**84**	**280 S**	2975	241	IE2	94.7	94.8	94.1	0.89	128	2.4	6.8	3	74	88	**1MB1■■3-2DA0■-■■■■**	510	0.77
90	**101**	**280 M**	2975	289	IE2	95	95.1	94.6	0.9	152	2.4	7.2	3.1	74	88	**1MB1■■3-2DA2■-■■■■**	590	0.94
110	**123**	**315 S**	2982	352		95.2	95.4	94.9	0.91	183	2.4	7.1	3.1	75	89	**1MB1■■3-3AA0■-■■■■**	750	1.4
132	**148**	**315 M**	2982	423		95.4	95.5	95.2	0.91	220	2.5	7.2	3.1	75	89	**1MB1■■3-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	2982	512	IE2	95.6	95.7	95.2	0.92	265	2.8	7.8	3.3	77	91	**1MB1■■3-3AA4■-■■■■**	980	1.9
200	**224**	**315 L**	2982	640		95.8	95.9	95.5	0.92	330	2.5	7.2	3	77	91	**1MB1■■3-3AA5■-■■■■**	1150	2.3

			Article No. position	Order code
Basic Line			5	
Performance Line			6	
Zones				
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3	
Voltages 3)		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz 1) 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz 1) 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages 1) and more information, see from page 5/52			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 2)	**Standard**	A	–
With flange	IM B5 2)	With additional charge	F	–
With flange	IM B14 2)	With additional charge	K	–
For other types of construction and more information, see from page 5/59			■	. . .
Motor protection	Line	Version		
Without	Only possible for **Basic Line**	**Standard**	A	
PTC thermistor with 3 temperature sensors	**Basic Line**	With additional charge	B	
	Performance Line	**Standard**	B	
For other motor protection and more information, see from page 5/69			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/74			■	
Special versions				Order code(s)
For options, see from page 5/82			**1MB1■■3- . . . . ■-■■■■-Z**	. . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.3 – *Basic Line* 1MB16.3 – *Performance Line* Article No.	$m_{IM B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: self-ventilated (IC411)																		
• Efficiency according to IEC 60034-30: IE3 Premium Efficiency																		
• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1)]																		
0.25	**0.29**	**71 M**	1395	1.7		73.5	73.6	70.4	0.72	0.68	2.5	4.2	2.6	44	55	**1MB1 5■3-0CB2■-■■■■**	13	0.00095
0.37	**0.43**	**71 M**	1410	2.6		77.3	76.8	73.2	0.7	0.99	3.1	4.8	3.1	56	67	**1MB1 5■3-0CB3■-■■■■**	16	0.0014
0.55	**0.63**	**80 M**	1440	3.6		80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	**1MB1 5■3-0DB2■-■■■■**	18.5	0.0021
0.75	**0.88**	**80 M**	1450	4.9		82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	**1MB1 5■3-0DB3■-■■■■**	22.5	0.0029
1.1	**1.27**	**90 S**	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68	**1MB1 5■3-0EB0■-■■■■**	25	0.0036
1.5	**1.75**	**90 L**	1445	9.9		85.3	86	85.2	0.8	3.15	2.9	7.3	3.5	60	68	**1MB1 5■3-0EB4■-■■■■**	31	0.0049
2.2	**2.55**	**100 L**	1465	14.3		86.7	87	85.9	0.83	4.4	3.2	8.4	4.4	60	72	**1MB1■■3-1AB4■-■■■■**	40	0.014
3	**3.45**	**100 L**	1460	19.6		87.7	88.5	87.9	0.83	5.9	2.5	8.3	3.9	60	72	**1MB1■■3-1AB5■-■■■■**	40	0.014
4	**4.55**	**112 M**	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	**1MB1■■3-1BB2■-■■■■**	46	0.017
5.5	**6.3**	**132 S**	1470	36		89.6	90	89.4	0.82	10.8	2.9	8.6	3.7	64	76	**1MB1■■3-1CB0■-■■■■**	74	0.046
7.5	**8.6**	**132 M**	1465	49		90.4	91.1	90.8	0.84	14.3	2.6	8.2	3.7	64	76	**1MB1■■3-1CB2■-■■■■**	80	0.046
11	**12.6**	**160 M**	1475	71		91.4	91.8	91.2	0.84	20.5	2.6	7.6	3.4	65	77	**1MB1■■3-1DB2■-■■■■**	109	0.083
15	**17.3**	**160 L**	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	**1MB1■■3-1DB4■-■■■■**	127	0.099
18.5	**21.3**	**180 M**	1470	120		92.6	93.1	93	0.82	35	2.5	7.2	3.3	66	73	**1MB1■■3-1EB2■-■■■■**	165	0.13
22	**25.3**	**180 L**	1470	143		93	93.6	93.6	0.83	41	2.3	6.8	3.3	68	75	**1MB1■■3-1EB4■-■■■■**	170	0.14
30	**34.5**	**200 L**	1470	195	IE2	93.6	94.2	94.2	0.84	55	2.6	7.3	3.1	65	72	**1MB1■■3-2AB5■-■■■■**	240	0.22
37	**42.5**	**225 S**	1478	239	IE2	93.9	94.5	94.4	0.86	66	2.5	6.4	2.7	65	78	**1MB1■■3-2BB0■-■■■■**	285	0.42
45	**52**	**225 M**	1478	291	IE2	94.2	94.9	95	0.86	80	2.6	6.6	2.6	66	79	**1MB1■■3-2BB2■-■■■■**	340	0.52
55	**63**	**250 M**	1482	354	IE2	94.6	95.1	95	0.87	96	2.5	6.8	2.9	66	79	**1MB1■■3-2CB2■-■■■■**	420	0.85
75	**86**	**280 S**	1485	482	IE2	95	95.3	95	0.86	133	2.5	6.9	3	69	83	**1MB1■■3-2DB0■-■■■■**	570	1.4
90	**104**	**280 M**	1485	579	IE2	95.2	95.5	95.3	0.87	157	2.6	7.2	3	70	84	**1MB1■■3-2DB2■-■■■■**	670	1.7
110	**127**	**315 S**	1488	706		95.4	95.8	95.5	0.87	191	2.6	6.8	2.9	70	84	**1MB1■■3-3AB0■-■■■■**	760	2.2
132	**152**	**315 M**	1490	846		95.6	95.9	95.9	0.87	230	2.8	7.3	3	73	87	**1MB1■■3-3AB2■-■■■■**	960	2.9
160	**184**	**315 L**	1490	1025		95.8	96.1	96.1	0.87	275	2.9	7.3	3.1	73	87	**1MB1■■3-3AB4■-■■■■**	990	3.1
200	**230**	**315 L**	1488	1284	IE2	96	96.3	96.1	0.88	340	3.2	7.4	3	73	87	**1MB1■■3-3AB5■-■■■■**	1190	3.7

Option			Version	Article No. position	Order code
Basic Line				5	
Performance Line				6	
Zones					
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC				1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB				2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC				3	
Voltages [3)]			Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz [1)] 460 VY		**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz [1)] 460 VΔ		**Standard**	3 4	–
50 Hz 500 VY			Without additional charge	2 7	–
50 Hz 500 VΔ			Without additional charge	4 0	–
For other voltages [1)] and more information, see from page 5/52				9 0	. . .
Types of construction			Version		Order code
Without flange	IM B3 [2)]		**Standard**	A	–
With flange	IM B5 [2)]		With additional charge	F	–
With flange	IM B14 [2)]		With additional charge	K	–
For other types of construction and more information, see from page 5/59				■	. . .
Motor protection			Version		
Without		Only possible for **Basic Line**	**Standard**	A	
PTC thermistor with 3 temperature sensors		**Basic Line**	With additional charge	B	
		Performance Line	**Standard**	B	
For other motor protection and more information, see from page 5/69				■	
Terminal box position			Version		
Terminal box at top			**Standard**	4	
For other terminal box positions and more information, see from page 5/74				■	
Special versions					Order code(s)
For options, see from page 5/82				**1MB1■■3-** . . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

For footnotes, see page 5/40

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.3 – *Basic Line* 1MB16.3 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) **• Efficiency according to IEC 60034-30: IE3 Premium Efficiency** **• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)**																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1)]																		
0.18	**0.21**	**71 M**	885	1.9		63.9	64.6	60.8	0.69	0.59	2.3	2.8	2.3	39	50	**1MB1 5■3-0CC2■-■■■■**	12.5	0.001
0.25	**0.29**	**71 M**	900	2.7		68.6	69.5	66.2	0.69	0.76	2.6	3.2	2.6	46	57	**1MB1 5■3-0CC3■-■■■■**	15.5	0.0015
0.37	**0.43**	**80 M**	940	3.8		73.5	73.1	69.4	0.66	1.1	2.3	4.2	2.7	42	53	**1MB1 5■3-0DC2■-■■■■**	18.5	0.0025
0.55	**0.63**	**80 M**	935	5.6		77.2	77	73.9	0.67	1.53	2.5	4.5	2.8	42	53	**1MB1 5■3-0DC3■-■■■■**	22.5	0.0031
0.75	**0.88**	**90 S**	945	7.6		78.9	80	78.8	0.7	1.96	2.2	4.6	2.6	43	55	**1MB1 5■3-0EC0■-■■■■**	26.5	0.004
1.1	**1.27**	**90 L**	950	11	IE1	81	81.4	79.3	0.66	2.95	2.8	5	3	57	65	**1MB1 5■3-0EC4■-■■■■**	32	0.0052
1.5	**1.75**	**100 L**	970	14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	**1MB1■■3-1AC4■-■■■■**	36	0.011
2.2	**2.55**	**112 M**	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	**1MB1■■3-1BC2■-■■■■**	53	0.017
3	**3.45**	**132 S**	975	29		85.6	86.1	84.9	0.73	6.9	2.3	6.6	3.2	58	66	**1MB1■■3-1CC0■-■■■■**	60	0.034
4	**4.55**	**132 M**	975	39		86.8	87.1	86.2	0.73	9.1	2.2	6.2	3	67	75	**1MB1■■3-1CC2■-■■■■**	64	0.039
5.5	**6.3**	**132 M**	975	54		88.0	88.3	87.2	0.72	12.5	2.7	6.8	3.4	64	72	**1MB1■■3-1CC3■-■■■■**	76	0.05
7.5	**8.6**	**160 M**	985	73		89.1	89.5	88.6	0.81	15	2.3	7.9	3.2	71	79	**1MB1■■3-1DC2■-■■■■**	124	0.132
11	**12.6**	**160 L**	980	107		90.3	90.8	90.2	0.80	22	2.9	6.8	2.8	66	74	**1MB1■■3-1DC4■-■■■■**	138	0.164
15	**18**	**180 L**	975	147	IE2	91.2	91.9	91.9	0.8	29.5	2.3	5.9	2.8	61	68	**1MB1■■3-1EC4■-■■■■**	180	0.19
18.5	**22**	**200 L**	978	181	IE2	91.7	92.5	92.5	0.79	37	2.5	5.6	2.6	64	71	**1MB1■■3-2AC4■-■■■■**	215	0.28
22	**26.5**	**200 L**	978	215	IE2	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	61	68	**1MB1■■3-2AC5■-■■■■**	230	0.32
30	**36**	**225 M**	982	292	IE2	92.9	93.6	93.5	0.83	56	2.6	6.6	3	64	77	**1MB1■■3-2BC2■-■■■■**	325	0.67
37	**44.5**	**250 M**	985	359	IE2	93.3	94	94	0.85	67	2.7	7	2.9	62	75	**1MB1■■3-2CC2■-■■■■**	405	1
45	**54**	**280 S**	988	435	IE2	93.7	94.3	94.2	0.85	82	3	6.8	2.8	60	74	**1MB1■■3-2DC0■-■■■■**	510	1.4
55	**66**	**280 M**	988	532	IE2	94.1	94.5	94.4	0.85	99	3.3	7.2	3	65	79	**1MB1■■3-2DC2■-■■■■**	560	1.64
75	**90**	**315 S**	990	723		94.6	94.9	94.4	0.84	136	2.6	7.5	3.1	63	78	**1MB1■■3-3AC0■-■■■■**	750	2.6
90	**108**	**315 M**	991	867	IE2	94.9	95.2	94.9	0.85	161	2.5	6.7	2.8	63	78	**1MB1■■3-3AC2■-■■■■**	890	3.1
110	**132**	**315 L**	991	1060	IE2	95.1	95.5	95.3	0.84	199	2.8	7.2	3	63	78	**1MB1■■3-3AC4■-■■■■**	990	3.9
132	**158**	**315 L**	992	1271	IE2	95.4	95.7	95.4	0.82	245	3.3	8	3.3	66	81	**1MB1■■3-3AC5■-■■■■**	1130	4.48
160	**192**	**315 L**	992	1540	IE2	95.6	95.8	95.5	0.82	295	3.5	8.5	3.6	66	81	**1MB1■■3-3AC6■-■■■■**	1260	5.41

Basic Line				5		
Performance Line				6		
Zones						
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC				1		
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB				2		
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC				3		
Voltages [3)]			Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1)] 460 VY		**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1)] 460 VΔ		**Standard**	3	4	–
50 Hz 500 VY			Without additional charge	2	7	–
50 Hz 500 VΔ			Without additional charge	4	0	–
For other voltages [1)] and more information, see from page 5/52				9	0	. . .
Types of construction			Version			Order code
Without flange	IM B3 [2)]		**Standard**	A		–
With flange	IM B5 [2)]		With additional charge	F		–
With flange	IM B14 [2)]		With additional charge	K		–
For other types of construction and more information, see from page 5/59				■		. . .
Motor protection		Line	Version			
Without		Only possible for **Basic Line**	**Standard**	A		
PTC thermistor with 3 temperature sensors		**Basic Line**	With additional charge	B		
		Performance Line	**Standard**	B		
For other motor protection and more information, see from page 5/69				■		
Terminal box position			Version			
Terminal box at top			**Standard**	4		
For other terminal box positions and more information, see from page 5/74				■		
Special versions						Order code(s)
For options, see from page 5/82			**1MB1■■3- . . . . ■-■■■■-Z**			. . .+. . .+. . .+. . .

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Selection and ordering data

$P_{rated, 50\ Hz}$	Frame size	Operating values at rated power n_{rated}	T_{rated}	$\eta_{rated, 4/4}$	$\eta_{rated, 3/4}$	$\eta_{rated, 2/4}$	$\cos\varphi_{rated, 4/4}$	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1MB55.3 Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency, service factor with sinusoidal supply (SF) 1.05 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization with sinusoidal supply in accordance with thermal class 130 (temperature class B) • Optional and suitable for converter operation with insulated bearings (L51) for $f_P \geq 2.5$ kHz; $U_{line} \leq 480$ V; $U_{motor} \leq 500$ V; $U_{DC} \leq 720$ V - IVIC-C advanced insulation system															
2-pole: 3000 rpm at 50 Hz																
560 [1) 2)]	**400**	2986	1790	96.6	96.7	96.3	0.90	930	1.6	7.0	2.8	74	90	▲ **1MB55■ 3-4AA3■-■■■■**	2850	8.9
630 [1) 2)]	**400**	2986	2000	96.6	96.7	96.6	0.91	1030	1.6	7.0	2.8	74	90	▲ **1MB55■ 3-4AA5■-■■■■**	3000	9.8
710 [3)]	**400**	2986	2250	96.8	96.9	96.7	0.91	670	1.7	7.0	2.8	74	90	▲ **1MB55■ 3-4AA7■-■■■■**	3200	10.8
800 [1) 2) 3) 4)]	**450**	2988	2550	97.0	97.0	96.6	0.88	780	1.1	7.5	3.1	75	91	▲ **1MB55■ 3-4BA3■-■■■■**	4000	12.3
900 [1) 2) 3) 4)]	**450**	2986	2900	97.0	97.1	96.9	0.90	860	1.1	7.0	2.8	75	91	▲ **1MB55■ 3-4BA5■-■■■■**	4250	13.5
1000 [1) 2) 3) 4)]	**450**	2984	3200	97.0	97.1	97.0	0.91	950	1.1	6.8	2.6	75	91	▲ **1MB55■ 3-4BA7■-■■■■**	4450	14.7
4-pole: 1500 rpm at 50 Hz																
560	**400**	1492	3600	96.2	96.3	95.8	0.87	970	1.8	6.5	2.7	78	94	▲ **1MB55■ 3-4AB3■-■■■■**	2800	12.8
630 [1) 2)]	**400**	1492	4050	96.4	96.5	95.9	0.87	1080	1.9	6.8	2.7	78	94	▲ **1MB55■ 3-4AB5■-■■■■**	3000	14.4
710 [3)]	**400**	1492	4550	96.5	96.6	96.2	0.88	700	1.9	6.8	2.7	78	94	▲ **1MB55■ 3-4AB7■-■■■■**	3200	16.5
800 [3)]	**450**	1492	5100	96.5	96.6	96.1	0.88	790	1.6	7.0	2.6	81	97	▲ **1MB55■ 3-4BB3■-■■■■**	3850	22.2
900 [3)]	**450**	1492	5800	96.6	96.7	96.2	0.87	900	1.5	7.0	2.6	81	97	▲ **1MB55■ 3-4BB5■-■■■■**	4100	24.8
1000 [1) 3)]	**450**	1492	6400	96.6	96.7	96.3	0.89	970	1.7	7.0	2.6	81	97	▲ **1MB55■ 3-4BB7■-■■■■**	4300	27.4
6-pole: 1000 rpm at 50 Hz																
450	**400**	992	4350	96.0	96.1	95.8	0.86	790	2.1	6.5	2.7	72	88	▲ **1MB55■ 3-4AC3■-■■■■**	2900	22.0
500	**400**	992	4800	96.0	96.1	95.8	0.86	870	2.2	6.5	2.7	72	88	▲ **1MB55■ 3-4AC5■-■■■■**	3050	24.7
560 [1)]	**400**	992	5400	96.2	96.3	96.0	0.86	980	2.2	6.5	2.7	72	88	▲ **1MB55■ 3-4AC7■-■■■■**	3250	27.8
630 [1)]	**450**	993	6100	96.3	96.4	96.2	0.85	1110	2.0	6.5	2.6	74	90	▲ **1MB55■ 3-4BC3■-■■■■**	3800	34.4
710 [3)]	**450**	993	6800	96.3	96.4	96.4	0.85	730	2.0	6.5	2.5	74	90	▲ **1MB55■ 3-4BC5■-■■■■**	4050	38.5
800 [1) 3)]	**450**	993	7700	96.5	96.7	96.5	0.85	820	2.0	6.5	2.5	74	90	▲ **1MB55■ 3-4BC7■-■■■■**	4300	43.1
8-pole: 750 rpm at 50 Hz																
355	**400**	742	4550	95.6	95.7	95.5	0.81	660	1.9	6.2	2.5	64	80	▲ **1MB55■ 3-4AD3■-■■■■**	2850	21.9
400	**400**	742	5100	95.7	95.8	95.5	0.81	740	2.0	6.5	2.6	64	80	▲ **1MB55■ 3-4AD5■-■■■■**	3050	24.5
450	**400**	742	5800	95.8	95.9	95.8	0.81	840	2.0	6.5	2.6	64	80	▲ **1MB55■ 3-4AD7■-■■■■**	3250	27.5
500 [5)]	**450**	744	6400	95.9	96.0	95.7	0.80	940	1.9	6.5	2.4	67	83	▲ **1MB55■ 3-4BD3■-■■■■**	3800	34.0
560 [5)]	**450**	744	7200	96.0	96.1	95.8	0.80	1050	1.9	6.5	2.4	67	83	▲ **1MB55■ 3-4BD5■-■■■■**	4000	38.0
630 [1) 5)]	**450**	744	8100	96.1	96.2	95.9	0.81	1170	1.9	6.5	2.4	67	83	▲ **1MB55■ 3-4BD7■-■■■■**	4250	42.5

Zones					
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC				1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB				2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC				3	
Voltages		Version			Order code
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4	–
50 Hz 500 VΔ	60 Hz 575 VΔ	Without additional charge	4	0	–
50 Hz 690 VΔ		Without additional charge	4	7	–
For other voltages and more information, see from page 5/55			■	■	. . .
Types of construction		Version			Order code
Without flange	IM B3	**Standard**		A	–
With flange	IM B5	With additional charge		F	–
For other types of construction and more information, see from page 5/67				■	. . .
Motor protection		Version			Order code
Without		**Standard**			A –
PTC thermistor with 3 temperature sensors		With additional charge			B –
For other motor protection and more information, see from page 5/72					■ . . .
Terminal box position		Version			Order code
Terminal box base left with terminal box 45°		Without additional charge			2 –
Terminal box base right with terminal box 45°		**Standard**			3 –
For other terminal box positions and more information, see from page 5/77					■ . . .
Special versions					Order code(s)
Forced-air cooled (IC416)					**1MB55■ 3- . . . . ■-■■■■ -Z F90+. . .+. . .+. . .**
For options and information, see from page 5/96					**1MB55■ 3- . . . . ■-■■■■ -Z** . . .+. . .+. . .+. . .

1) Terminal box 1XB1631.

2) Terminal box position NDE can only be ordered using order code **H09** (2 × terminal box TB3R61). Order code **H08** not available.

3) The standard version is 50 Hz 690 VΔ (voltage code **4**-**7**) or 60 Hz 575 VΔ (voltage code **4**-**0**).

4) In the series version, the maximum speed is n_{max} = 3000 rpm. Converter operation at higher speeds on request for an additional charge.

5) Utilization with sinusoidal supply in accordance with thermal class 155 (temperature class F).

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Selection and ordering data

$P_{rated, 50\ Hz}$	Frame size	Operating values at rated power: n_{rated}	T_{rated}	η_{rated}, 4/4	η_{rated}, 3/4	η_{rated}, 2/4	$\cos\varphi_{rated}$, 4/4	I_{rated}	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}	L_{WA}	Cast-iron series 1MB58.3 Article No.	$m_{IM\ B3}$	J
kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency: IE3 Premium Efficiency, service factor with sinusoidal supply (SF) 1.05 • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F) • Optional and suitable for converter operation with insulated bearings (L51) for $f_P \geq 2.5$ kHz; $U_{line} \leq 690$ V - IVIC-C premium insulation system																
2-pole: 3000 rpm at 50 Hz																
545 [1]	**400**	2988	1740	96.9	96.9	96.4	0.90	900	1.6	7.3	3.1	74	90	▲ **1MB58■ 3-4AA3■-■■■■**	2850	8.9
610 [1]	**400**	2988	1950	97.0	97.0	96.7	0.91	1000	1.6	7.3	3.1	74	90	▲ **1MB58■ 3-4AA5■-■■■■**	3000	9.8
680 [2]	**400**	2988	2150	97.0	97.1	96.8	0.91	640	1.7	7.3	3	74	90	▲ **1MB58■ 3-4AA7■-■■■■**	3200	10.8
775 [1] [2] [3]	**450**	2990	2500	97.4	97.4	97.0	0.88	760	1.2	7.7	3.4	75	91	▲ **1MB58■ 3-4BA3■-■■■■**	4000	12.3
875 [1] [2] [3]	**450**	2988	2800	97.4	97.5	97.3	0.90	840	1.2	7.2	3	75	91	▲ **1MB58■ 3-4BA5■-■■■■**	4250	13.5
970 [1] [2] [3]	**450**	2986	3100	97.4	97.5	97.4	0.91	920	1.2	7.0	2.8	75	91	▲ **1MB58■ 3-4BA7■-■■■■**	4450	14.7
4-pole: 1500 rpm at 50 Hz																
545	**400**	1492	3500	96.4	96.4	96.0	0.87	940	1.8	6.7	2.7	78	94	▲ **1MB58■ 3-4AB3■-■■■■**	2800	12.8
615	**400**	1492	3950	96.6	96.6	96.2	0.87	1060	1.9	6.9	2.8	78	94	▲ **1MB58■ 3-4AB5■-■■■■**	3000	14.4
690 [2]	**400**	1492	4400	96.6	96.7	96.4	0.88	680	2.0	7.0	2.7	78	94	▲ **1MB58■ 3-4AB7■-■■■■**	3200	16.5
785 [2]	**450**	1492	5000	96.6	96.6	96.1	0.88	770	1.6	7.2	2.7	81	97	▲ **1MB58■ 3-4BB3■-■■■■**	3850	22.2
880 [2]	**450**	1492	5600	96.8	96.8	96.3	0.87	870	1.5	7.2	2.6	81	97	▲ **1MB58■ 3-4BB5■-■■■■**	4100	24.8
980 [2]	**450**	1492	6300	96.9	96.9	96.5	0.89	950	1.7	7.1	2.6	81	97	▲ **1MB58■ 3-4BB7■-■■■■**	4300	27.4
6-pole: 1000 rpm at 50 Hz																
435	**400**	993	4200	96.2	96.3	96.0	0.85	770	2.1	6.7	2.8	72	88	▲ **1MB58■ 3-4AC3■-■■■■**	2900	22.0
485	**400**	993	4650	96.2	96.4	96.1	0.86	850	2.2	6.7	2.8	72	88	▲ **1MB58■ 3-4AC5■-■■■■**	3050	24.7
545 [1]	**400**	993	5200	96.3	96.5	96.2	0.86	950	2.2	6.7	2.7	72	88	▲ **1MB58■ 3-4AC7■-■■■■**	3250	27.8
615 [1]	**450**	993	5900	96.5	96.7	96.4	0.84	1100	2.1	6.6	2.7	74	90	▲ **1MB58■ 3-4BC3■-■■■■**	3800	34.4
690 [2]	**450**	993	6600	96.6	96.8	96.6	0.85	700	2.0	6.8	2.5	74	90	▲ **1MB58■ 3-4BC5■-■■■■**	4050	38.5
780 [2]	**450**	993	7500	96.7	96.9	96.7	0.85	790	2.0	6.7	2.6	74	90	▲ **1MB58■ 3-4BC7■-■■■■**	4300	43.1
8-pole: 750 rpm at 50 Hz																
335	**400**	744	4300	95.8	96.0	95.6	0.80	630	2.0	6.9	2.6	64	80	▲ **1MB58■ 3-4AD3■-■■■■**	2850	21.9
375	**400**	744	4800	95.9	96.1	95.7	0.80	710	2.1	7.2	2.8	64	80	▲ **1MB58■ 3-4AD5■-■■■■**	3050	24.5
425	**400**	744	5500	96.1	96.2	95.8	0.80	800	2.1	7.2	2.7	64	80	▲ **1MB58■ 3-4AD7■-■■■■**	3250	27.5
485 [4]	**450**	745	6200	96.1	96.2	95.9	0.79	920	2.0	7.0	2.6	67	83	▲ **1MB58■ 3-4BD3■-■■■■**	3800	34.0
545 [4]	**450**	745	7000	96.2	96.4	96.0	0.79	1040	2.0	7.0	2.6	67	83	▲ **1MB58■ 3-4BD5■-■■■■**	4000	38.0
600 [1] [4]	**450**	745	7700	96.3	96.5	96.1	0.80	1120	2.1	7.3	2.6	67	83	▲ **1MB58■ 3-4BD7■-■■■■**	4250	42.5

Zones					Order code
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC				**1**	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB				**2**	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC				**3**	
Voltages		Version			Order code
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**		**3 4**	–
50 Hz 500 VΔ	60 Hz 575 VΔ	Without additional charge		**4 0**	–
50 Hz 690 VΔ		Without additional charge		**4 7**	–
For other voltages and more information, see from page 5/55				**■ ■**	. . .
Types of construction		Version			Order code
Without flange	IM B3	**Standard**		**A**	–
With flange	IM B5	With additional charge		**F**	–
For other types of construction and more information, see from page 5/67				**■**	. . .
Motor protection		Version			Order code
Without		**Standard**		**A**	–
PTC thermistor with 3 temperature sensors		With additional charge		**B**	–
For other motor protection and more information, see from page 5/72				**■**	. . .
Terminal box position		Version			Order code
Terminal box base left with terminal box 45°		Without additional charge		**2**	–
Terminal box base right with terminal box 45°		**Standard**		**3**	–
For other terminal box positions and more information, see from page 5/77				**■**	. . .
Special versions					Order code(s)
Forced-air cooled (IC416)			**1MB58■ 3- . . . . ■-■■■■-Z**		**F90+. . .+. . .+. . .**
For options and information, see from page 5/96			**1MB58■ 3- . . . . ■-■■■■-Z**		**. . .+. . .+. . .+. . .**

[1] Terminal box 1XB1631.

[2] The standard version is 50 Hz 690 VΔ (voltage code **4**-**7**) or 60 Hz 575 VΔ (voltage code **4**-**0**).

[3] In the series version, the maximum speed is n_{max} = 3000 rpm. Converter operation at higher speeds on request for an additional charge.

[4] Utilization with sinusoidal supply in accordance with thermal class 155 (temperature class F).

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1MB1 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																		
0.75	0.86	80 M	2805	2.6		77.4	80	80.1	0.84	1.67	1.9	4.9	2.3	60	71	1MB10■1-0DA2■-■■■■	9	0.0008
1.1	1.27	80 M	2835	3.7		79.6	81.3	80.9	0.83	2.4	2.7	6	3.1	60	71	1MB10■1-0DA3■-■■■■	11	0.0011
1.5	1.75	90 S	2885	4.9		81.3	81.7	79.8	0.84	3.15	2.7	6.9	3.6	65	77	1MB10■1-0EA0■-■■■■	13	0.0017
2.2	2.55	90 L	2890	7.3		83.2	83.7	82	0.85	4.5	2.5	7.1	3.7	65	77	1MB10■1-0EA4■-■■■■	15	0.0021
3	3.45	100 L	2905	9.9		84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	1MB10■1-1AA4■-■■■■	21	0.0044
4	4.55	112 M	2945	13		85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	1MB10■1-1BA2■-■■■■	27	0.0092
5.5	6.3	132 S	2950	18		87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	1MB10■1-1CA0■-■■■■	39	0.02
7.5	8.6	132 S	2950	24		88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	1MB10■1-1CA1■-■■■■	43	0.024
11	12.6	160 M	2955	36		89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	1MB10■1-1DA2■-■■■■	67	0.045
15	17.3	160 M	2955	48		90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	1MB10■1-1DA3■-■■■■	75	0.053
18.5	21.3	160 L	2955	60		90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	1MB10■1-1DA4■-■■■■	84	0.061
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																		
0.55	0.63	80 M	1440	3.6		77.1	76.8	73.7	0.74	1.39	2.2	5.3	3.1	53	64	1MB10■1-0DB2■-■■■■	10	0.0017
0.75	0.86	80 M	1440	5		79.6	79.9	77.5	0.76	1.79	2.2	5.6	3.1	53	64	1MB10■1-0DB3■-■■■■	11	0.0021
1.1	1.27	90 S	1425	7.4		81.4	81.8	80	0.78	2.5	2.3	5.6	2.9	56	68	1MB10■1-0EB0■-■■■■	13	0.0028
1.5	1.75	90 L	1435	10		82.8	83.5	82.2	0.79	3.3	2.6	6.4	3.4	56	68	1MB10■1-0EB4■-■■■■	16	0.0036
2.2	2.55	100 L	1455	14		84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	1MB10■1-1AB4■-■■■■	21	0.0086
3	3.45	100 L	1455	20		85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	1MB10■1-1AB5■-■■■■	25	0.011
4	4.55	112 M	1460	26		86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	1MB10■1-1BB2■-■■■■	29	0.014
5.5	6.3	132 S	1465	36		87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	1MB10■1-1CB0■-■■■■	42	0.027
7.5	8.6	132 M	1465	49		88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	1MB10■1-1CB2■-■■■■	49	0.034
11	12.6	160 M	1470	71		89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	1MB10■1-1DB2■-■■■■	71	0.065
15	17.3	160 L	1475	97		90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	1MB10■1-1DB4■-■■■■	83	0.083

Zones				
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3	
Voltages		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages [1] and more information, see from page 5/51			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 [2]	**Standard**	A	–
With flange	IM B5 [2]	With additional charge	F	–
With flange	IM B14 [2]	With additional charge	K	–
For other types of construction and more information, see from page 5/56			■	. . .
Motor protection		Version		
Without		**Standard**	A	
3 temperature sensors (frame sizes 80, 90 or 100 to 200)		With additional charge	B	
For other motor protection and more information, see from page 5/68			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/73			■	
Special versions				Order code(s)
For options, see from page 5/78			1MB10■1- . . . . ■-■■■■-Z	. . .+. . .+. . .+. . .

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For footnotes, see page 5/40

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: η_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1MB1 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.37	0.43	80 M	925	3.8		67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	1MB10■1-0DC2■-■■■■	9	0.0017
0.55	0.63	80 M	935	5.6		73.1	73.8	70.8	0.66	1.65	2.5	4.4	2.9	42	53	1MB10■1-0DC3■-■■■■	12	0.0025
0.75	0.86	90 S	935	7.7		75.9	76.8	74.5	0.7	2.05	2	4.1	2.5	43	55	1MB10■1-0EC0■-■■■■	13	0.003
1.1	1.27	90 L	935	11	IE1	78.1	79.3	77.7	0.7	2.9	2.2	4.4	2.6	43	55	1MB10■1-0EC4■-■■■■	16	0.004
1.5	1.75	100 L	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1MB10■1-1AC4■-■■■■	25	0.011
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1MB10■1-1BC2■-■■■■	29	0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1MB10■1-1CC0■-■■■■	38	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1MB10■1-1CC2■-■■■■	43	0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1MB10■1-1CC3■-■■■■	52	0.037
7.5	8.6	160 M	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1MB10■1-1DC2■-■■■■	77	0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1MB10■1-1DC4■-■■■■	93	0.098
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																		
0.75	0.86	100 L	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	1MB10■1-1AD4■-■■■■	21	0.0086
1.1	1.27	100 L	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	1MB10■1-1AD5■-■■■■	25	0.011
1.5	1.75	112 M	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	75	1MB10■1-1BD2■-■■■■	34	0.017
2.2	2.55	132 S	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	1MB10■1-1CD0■-■■■■	46	0.034
3	3.45	132 M	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	1MB10■1-1CD2■-■■■■	52	0.037
4	4.55	160 M	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	1MB10■1-1DD2■-■■■■	69	0.065
5.5	6.3	160 M	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	1MB10■1-1DD3■-■■■■	82	0.083
7.5	8.6	160 L	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	1MB10■1-1DD4■-■■■■	94	0.098

Zones																		
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC																1		
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB																2		
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC																3		
Voltages														Version				Order code
50 Hz 230 VΔ/400 VY			60 Hz [1] 460 VY											**Standard**		2	2	–
50 Hz 400 VΔ/690 VY			60 Hz [1] 460 VΔ											**Standard**		3	4	–
50 Hz 500 VY														Without additional charge		2	7	–
50 Hz 500 VΔ														Without additional charge		4	0	–
For other voltages [1] and more information, see from page 5/51																9	0	. . .
Types of construction														Version				Order code
Without flange			IM B3 [2]											**Standard**			A	–
With flange			IM B5 [2]											With additional charge			F	–
With flange			IM B14 [2]											With additional charge			K	–
For other types of construction and more information, see from page 5/56																	■	. . .
Motor protection														Version				
Without														**Standard**				A
3 temperature sensors (frame sizes 80, 90 or 100 to 200)														With additional charge				B
For other motor protection and more information, see from page 5/68																		■
Terminal box position														Version				
Terminal box at top														**Standard**				4
For other terminal box positions and more information, see from page 5/73																		■
Special versions																		Order code(s)
For options, see from page 5/78																1MB10■1-. . . . ■-■■■■-Z		. . .+. . .+. . .+. . .

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For footnotes, see page 5/40

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.1 – *Basic Line*, 1MB16.1 – *Performance Line* Article No.	$m_{IM B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz 1)																		
0.37	**0.43**	**71 M**	2770	1.3		69.5	70.5	67.9	0.81	0.95	2.5	4.1	2.5	58	63	**1MB1 5■1-0CA2■-■■■■**	11.5	0.00035
0.55	**0.63**	**71 M**	2780	1.9		74.1	75.2	72.9	0.8	1.34	2.6	4.6	2.6	58	63	**1MB1 5■1-0CA3■-■■■■**	13	0.00045
0.75	**0.86**	**80 M**	2805	2.6		77.4	80	80.1	0.84	1.67	1.9	4.9	2.3	60	71	**1MB1 5■1-0DA2■-■■■■**	16	0.0008
1.1	**1.27**	**80 M**	2835	3.7		79.6	81.3	80.9	0.83	2.4	2.7	6	3.1	60	71	**1MB1 5■1-0DA3■-■■■■**	18	0.0011
1.5	**1.75**	**90 S**	2885	4.9		81.3	81.7	79.8	0.84	3.15	2.7	6.9	3.6	65	77	**1MB1 5■1-0EA0■-■■■■**	23	0.0017
2.2	**2.55**	**90 L**	2890	7.3		83.2	83.7	82	0.85	4.5	2.5	7.1	3.7	65	77	**1MB1 5■1-0EA4■-■■■■**	25.5	0.0021
3	**3.45**	**100 L**	2905	9.9		84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	**1MB1 ■■1-1AA4■-■■■■**	32	0.0044
4	**4.55**	**112 M**	2945	13		85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	**1MB1 ■■1-1BA2■-■■■■**	39	0.0092
5.5	**6.3**	**132 S**	2950	18		87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	**1MB1 ■■1-1CA0■-■■■■**	57	0.02
7.5	**8.6**	**132 S**	2950	24		88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	**1MB1 ■■1-1CA1■-■■■■**	61	0.024
11	**12.6**	**160 M**	2955	36		89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	**1MB1 ■■1-1DA2■-■■■■**	96	0.045
15	**17.3**	**160 M**	2955	48		90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	**1MB1 ■■1-1DA3■-■■■■**	104	0.053
18.5	**21.3**	**160 L**	2955	60		90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	**1MB1 ■■1-1DA4■-■■■■**	113	0.061
22	**24.5**	**180 M**	2940	71		91.3	91.6	90.9	0.87	40	2.7	7.4	3.6	77	84	**1MB1 ■■1-1EA2■-■■■■**	145	0.069
30	**33.5**	**200 L**	2960	97		92	92.1	91.5	0.87	54	2.5	6.9	3.3	78	85	**1MB1 ■■1-2AA4■-■■■■**	200	0.13
37	**41.5**	**200 L**	2960	119		92.5	92.7	92.1	0.88	66	2.7	7.4	3.5	78	85	**1MB1 ■■1-2AA5■-■■■■**	225	0.15
45	**51**	**225 M**	2965	145		92.9	93.1	92.5	0.88	79	2.7	7.8	3.7	76	89	**1MB1 ■■1-2BA2■-■■■■**	295	0.23
55	**62**	**250 M**	2970	177		93.2	93.3	92.4	0.88	97	2.3	6.8	3.1	76	89	**1MB1 ■■1-2CA2■-■■■■**	360	0.4
75	**84**	**280 S**	2978	240		93.8	93.6	92.4	0.86	134	2.5	7.2	3.2	76	89	**1MB1 ■■1-2DA0■-■■■■**	490	0.71
90	**101**	**280 M**	2975	289		94.1	94.2	93.5	0.88	157	2.5	7.1	3.1	76	89	**1MB1 ■■1-2DA2■-■■■■**	530	0.83
110	**123**	**315 S**	2982	352		94.3	94.2	93.3	0.9	187	2.4	7.3	3	77	91	**1MB1 ■■1-3AA0■-■■■■**	720	1.3
132	**148**	**315 M**	2982	423		94.6	94.7	94.1	0.91	220	2.4	7.2	3.1	77	91	**1MB1 ■■1-3AA2■-■■■■**	880	1.6
160	**180**	**315 L**	2982	512		94.8	94.9	94.3	0.92	265	2.3	7	3.1	80	95	**1MB1 ■■1-3AA4■-■■■■**	930	1.8
200	**224**	**315 L**	2982	640		95	95.2	94.8	0.92	330	2.5	7.3	3	80	95	**1MB1 ■■1-3AA5■-■■■■**	1130	2.2

			Code	Order code
Basic Line			5	
Performance Line			6	
Zones				
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3	
Voltages 3)		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz 1) 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz 1) 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages 1) and more information, see from page 5/52			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 2)	**Standard**	A	–
With flange	IM B5 2)	With additional charge	F	–
With flange	IM B14 2)	With additional charge	K	–
For other types of construction and more information, see from page 5/59			■	. . .
Motor protection	Line	Version		
Without	Only possible for **Basic Line**	**Standard**	A	
PTC thermistor with 3 temperature sensors	**Basic Line**	With additional charge	B	
	Performance Line	**Standard**	B	
For other motor protection and more information, see from page 5/69			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/74			■	
Special versions				Order code(s)
For options, see from page 5/82			**1MB1■■1- . . . . ■-■■■■**-Z	. . .+. . .+. . .+. . .

For footnotes, see page 5/40

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.1 – *Basic Line* 1MB16.1 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm^2
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1)]																		
0.25	**0.29**	**71 M**	1395	1.7		68.5	68.4	64.2	0.69	0.76	2.4	3.7	2.5	50	61	**1MB1 5■1-0CB2■-■■■■**	12	0.00076
0.37	**0.43**	**71 M**	1380	2.6		72.7	73.2	69.9	0.72	1.02	2.3	3.8	2.4	50	61	**1MB1 5■1-0CB3■-■■■■**	13	0.00095
0.55	**0.63**	**80 M**	1440	3.6		77.1	76.8	73.7	0.74	1.39	2.2	5.3	3.1	53	64	**1MB1 5■1-0DB2■-■■■■**	17	0.0017
0.75	**0.86**	**80 M**	1440	5		79.6	79.9	77.5	0.76	1.79	2.2	5.6	3.1	53	64	**1MB1 5■1-0DB3■-■■■■**	18.5	0.0021
1.1	**1.27**	**90 S**	1425	7.4		81.4	81.8	80	0.78	2.5	2.3	5.6	2.9	56	68	**1MB1 5■1-0EB0■-■■■■**	23	0.0028
1.5	**1.75**	**90 L**	1435	10		82.8	83.5	82.2	0.79	3.3	2.6	6.4	3.4	56	68	**1MB1 5■1-0EB4■-■■■■**	25	0.0036
2.2	**2.55**	**100 L**	1455	14		84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	**1MB1■■1-1AB4■-■■■■**	32	0.0086
3	**3.45**	**100 L**	1455	20		85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	**1MB1■■1-1AB5■-■■■■**	37	0.011
4	**4.55**	**112 M**	1460	26		86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	**1MB1■■1-1BB2■-■■■■**	46	0.014
5.5	**6.3**	**132 S**	1465	36		87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	**1MB1■■1-1CB0■-■■■■**	61	0.027
7.5	**8.6**	**132 M**	1465	49		88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	**1MB1■■1-1CB2■-■■■■**	75	0.034
11	**12.6**	**160 M**	1470	71		89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	**1MB1■■1-1DB2■-■■■■**	96	0.065
15	**17.3**	**160 L**	1475	97		90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	**1MB1■■1-1DB4■-■■■■**	104	0.083
18.5	**21.3**	**180 M**	1465	121		91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	**1MB1■■1-1EB2■-■■■■**	160	0.12
22	**25.3**	**180 L**	1465	143		91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	**1MB1■■1-1EB4■-■■■■**	170	0.13
30	**34.5**	**200 L**	1470	195		92.3	92.8	92.5	0.84	56	2.5	6.7	3.7	70	77	**1MB1■■1-2AB5■-■■■■**	230	0.2
37	**42.5**	**225 S**	1470	240		92.7	93.5	93.5	0.88	65	2.3	6.6	2.9	66	79	**1MB1■■1-2BB0■-■■■■**	280	0.42
45	**52**	**225 M**	1475	291		93.1	93.8	93.7	0.87	80	2.5	6.9	3.1	66	79	**1MB1■■1-2BB2■-■■■■**	305	0.46
55	**63**	**250 M**	1480	355		93.5	93.9	93.5	0.85	100	2.7	6.8	3	66	79	**1MB1■■1-2CB2■-■■■■**	385	0.75
75	**86**	**280 S**	1485	482		94	94.2	93.8	0.87	132	2.5	6.8	3	71	85	**1MB1■■1-2DB0■-■■■■**	550	1.3
90	**104**	**280 M**	1486	578		94.2	94.3	93.6	0.87	159	2.6	7.3	3.1	71	85	**1MB1■■1-2DB2■-■■■■**	570	1.4
110	**127**	**315 S**	1490	705		94.5	94.6	94	0.86	195	2.7	7.4	3	72	86	**1MB1■■1-3AB0■-■■■■**	740	2
132	**152**	**315 M**	1490	846		94.7	94.9	94.6	0.87	230	2.7	7.1	2.9	75	89	**1MB1■■1-3AB2■-■■■■**	870	2.3
160	**184**	**315 L**	1490	1025		94.9	95	94.5	0.87	280	2.8	7.2	3.1	76	91	**1MB1■■1-3AB4■-■■■■**	940	2.8
200	**230**	**315 L**	1490	1282		95.1	95.3	94.7	0.87	350	3.1	7.5	3.2	77	92	**1MB1■■1-3AB5■-■■■■**	1140	3.5

			Article No. position	Order code
Basic Line			5	
Performance Line			6	
Zones				
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3	
Voltages [3)]		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz [1)] 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz [1)] 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages [1)] and more information, see from page 5/52			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 [2)]	**Standard**	A	–
With flange	IM B5 [2)]	With additional charge	F	–
With flange	IM B14 [2)]	With additional charge	K	–
For other types of construction and more information, see from page 5/59			■	. . .
Motor protection	Line	Version		
Without	Only possible for **Basic Line**	**Standard**	A	
PTC thermistor with 3 temperature sensors	**Basic Line**	With additional charge	B	
	Performance Line	**Standard**	B	
For other motor protection and more information, see from page 5/69			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/74			■	
Special versions				Order code(s)
For options, see from page 5/82			**1MB1■■1- . . . . ■-■■■■**-Z	. . .+. . .+. . .+. . .

For footnotes, see page 5/40

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: η_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.1 – *Basic Line* 1MB16.1 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																		
0.18	0.21	71 M	875	2		56.6	56.9	52.7	0.68	0.68	2.2	2.5	2.3	46	57	1MB15 ■1-0CC2■-■■■■	11.5	0.0008
0.25	0.29	71 M	870	2.7		61.6	62.7	59.2	0.7	0.84	2.3	2.6	2.3	46	57	1MB15 ■1-0CC3■-■■■■	12.5	0.0010
0.37	0.43	80 M	925	3.8		67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	1MB15 ■1-0DC2■-■■■■	16.5	0.0017
0.55	0.63	80 M	935	5.6		73.1	73.8	70.8	0.66	1.65	2.5	4.4	2.9	42	53	1MB15 ■1-0DC3■-■■■■	18.5	0.0025
0.75	0.86	90 S	935	7.7		75.9	76.8	74.5	0.7	2.05	2	4.1	2.5	43	55	1MB15 ■1-0EC0■-■■■■	23	0.003
1.1	1.27	90 L	935	11	IE1	78.1	79.3	77.7	0.7	2.9	2.2	4.4	2.6	43	55	1MB15 ■1-0EC4■-■■■■	26.5	0.004
1.5	1.75	100 L	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1MB1■■1-1AC4■-■■■■	36	0.011
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1MB1■■1-1BC2■-■■■■	41	0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1MB1■■1-1CC0■-■■■■	56	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1MB1■■1-1CC2■-■■■■	61	0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1MB1■■1-1CC3■-■■■■	70	0.037
7.5	8.6	160 M	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1MB1■■1-1DC2■-■■■■	106	0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1MB1■■1-1DC4■-■■■■	122	0.098
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1MB1■■1-1EC4■-■■■■	155	0.17
18.5	22	200 L	978	181	IE1	90.4	91.3	91.2	0.82	36	2.4	5.8	2.6	63	76	1MB1■■1-2AC4■-■■■■	200	0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	1MB1■■1-2AC5■-■■■■	220	0.3
30	36	225 M	980	292	IE1	91.7	92.5	92.3	0.83	57	2.5	5.6	2.7	65	78	1MB1■■1-2BC2■-■■■■	300	0.58
37	44.5	250 M	982	360	IE1	92.2	93.1	93.1	0.83	70	2.8	6	2.5	62	77	1MB1■■1-2CC2■-■■■■	370	0.86
45	54	280 S	985	436	IE1	92.7	93.4	93.2	0.84	83	2.7	6.3	2.6	65	79	1MB1■■1-2DC0■-■■■■	460	1.1
55	66	280 M	985	533	IE1	93.1	93.9	94	0.86	99	2.5	6.4	2.6	65	79	1MB1■■1-2DC2■-■■■■	510	1.4
75	90	315 S	988	725	IE1	93.7	94	93.6	0.84	138	2.5	6.7	2.8	65	79	1MB1■■1-3AC0■-■■■■	660	2.1
90	108	315 M	988	870	IE1	94	94.3	93.6	0.84	165	2.6	6.9	2.8	65	79	1MB1■■1-3AC2■-■■■■	730	2.5
110	132	315 L	988	1063	IE1	94.3	94.6	94.5	0.86	196	2.7	7	2.8	68	82	1MB1■■1-3AC4■-■■■■	940	3.6
132	158	315 L	988	1276		94.6	94.9	94.7	0.86	235	3	7.5	2.9	69	84	1MB1■■1-3AC5■-■■■■	990	4.0
160	192	315 L	988	1546		94.8	94.7	94.4	0.86	285	3.1	7.7	3.3	69	84	1MB1■■1-3AC6■-■■■■	1160	4.7

Basic Line				5	
Performance Line				6	
Zones					
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC				1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB				2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC				3	
Voltages [3]		Version			Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY	**Standard**	2	2	–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ	**Standard**	3	4	–
50 Hz 500 VY		Without additional charge	2	7	–
50 Hz 500 VΔ		Without additional charge	4	0	–
For other voltages [1] and more information, see from page 5/52			9	0	. . .
Types of construction		Version			Order code
Without flange	IM B3 [2]	**Standard**		A	–
With flange	IM B5 [2]	With additional charge		F	–
With flange	IM B14 [2]	With additional charge		K	–
For other types of construction and more information, see from page 5/59				■	. . .
Motor protection	Line	Version			
Without	Only possible for **Basic Line**	**Standard**		A	
PTC thermistor with 3 temperature sensors	**Basic Line**	With additional charge		B	
	Performance Line	**Standard**		B	
For other motor protection and more information, see from page 5/69				■	
Terminal box position		Version			
Terminal box at top		**Standard**		4	
For other terminal box positions and more information, see from page 5/74				■	
Special versions					Order code(s)
For options, see from page 5/82			1MB1■■1- . . . . ■-■■■■ -Z		. . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	Different IE class 60 Hz/P60	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Cast-iron series 1MB15.1 – *Basic Line*, 1MB16.1 – *Performance Line*; Article No.	$m_{IM B3}$	J
kW	kW	FS	rpm	Nm		%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE2 High Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																		
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1)]																		
0.09	**0.11**	**71 M**	630	1.4	[4)]	40.1	40.6	35.8	0.67	0.50	1.7	1.6	1.7	59	63	**1MB1 5■1-0CD2■-■■■■**	11.5	0.00077
0.12	**0.14**	**71 M**	640	1.8		40.1	39.6	34.7	0.66	0.65	1.8	1.8	1.8	48	59	**1MB1 5■1-0CD3■-■■■■**	12.5	0.00100
0.18	**0.21**	**80 M**	690	2.5		45.9	43.6	37.8	0.60	0.93	1.7	2.2	2.1	51	62	**1MB1 5■1-0DD2■-■■■■**	16.5	0.00175
0.25	**0.29**	**80 M**	705	3.4		50.6	48.1	41.9	0.55	1.30	2.0	2.5	2.5	51	62	**1MB1 5■1-0DD3■-■■■■**	18.5	0.00246
0.37	**0.43**	**90 S**	675	5.2		56.1	55.6	49.6	0.71	1.34	1.4	2.6	1.7	53	65	**1MB1 5■1-0ED0■-■■■■**	20	0.00225
0.55	**0.63**	**90 L**	665	7.9		61.7	63.4	59.8	0.74	1.74	1.5	2.7	1.7	53	65	**1MB1 5■1-0ED4■-■■■■**	21.5	0.00305
0.75	**0.86**	**100 L**	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	**1MB1■■1-1AD4■-■■■■**	32	0.0086
1.1	**1.27**	**100 L**	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	**1MB1■■1-1AD5■-■■■■**	36	0.011
1.5	**1.75**	**112 M**	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	72	**1MB1■■1-1BD2■-■■■■**	53	0.017
2.2	**2.55**	**132 S**	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	**1MB1■■1-1CD0■-■■■■**	64	0.034
3	**3.45**	**132 M**	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	**1MB1■■1-1CD2■-■■■■**	67	0.037
4	**4.55**	**160 M**	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	**1MB1■■1-1DD2■-■■■■**	98	0.065
5.5	**6.3**	**160 M**	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	**1MB1■■1-1DD3■-■■■■**	111	0.083
7.5	**8.6**	**160 L**	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	**1MB1■■1-1DD4■-■■■■**	123	0.098
11	**13.2**	**180 L**	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	75	**1MB1■■1-1ED4■-■■■■**	155	0.195
15	**18**	**200 L**	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	80	**1MB1■■1-2AD5■-■■■■**	220	0.344
18.5	**22**	**225 S**	730	242	IE1	89	89.9	89.5	0.78	38.5	2.2	5.4	2.7	59	72	**1MB1■■1-2BD0■-■■■■**	250	0.43
22	**26.5**	**225 M**	730	288		90.3	91.3	91.1	0.8	44	2.3	5.5	2.7	58	71	**1MB1■■1-2BD2■-■■■■**	270	0.5
30	**36**	**250 M**	732	391		91.3	92.2	92	0.8	59	2.4	5.6	2.7	60	73	**1MB1■■1-2CD2■-■■■■**	370	0.86
37	**44.5**	**280 S**	736	480		91.9	92.5	92.1	0.78	75	2.3	5.4	2.4	63	77	**1MB1■■1-2DD0■-■■■■**	460	1.1
45	**54**	**280 M**	738	582		92.4	92.8	92.4	0.79	89	2.5	5.7	2.5	66	80	**1MB1■■1-2DD2■-■■■■**	510	1.4
55	**66**	**315 S**	740	710		92.9	93.3	92.9	0.8	107	2.2	5.8	2.6	69	83	**1MB1■■1-3AD0■-■■■■**	640	2
75	**90**	**315 M**	738	970		93.5	94.4	94.5	0.81	143	2.3	5.9	2.7	69	84	**1MB1■■1-3AD2■-■■■■**	720	2.5
90	**108**	**315 L**	740	1161		93.5	94.3	94.4	0.83	167	2.2	5.8	2.5	69	84	**1MB1■■1-3AD4■-■■■■**	860	3.1
110	**132**	**315 L**	740	1419		94.2	95	95.1	0.82	205	2.7	6.7	2.9	74	88	**1MB1■■1-3AD5■-■■■■**	980	3.9
132	**158**	**315 L**	740	1703		94.4	94.8	94.4	0.81	250	2.9	7.2	3.3	76	90	**1MB1■■1-3AD6■-■■■■**	1070	4.5

			Code	Order code
Basic Line			5	
Performance Line			6	
Zones				
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC			1	
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB			2	
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC			3	
Voltages [3)]		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz [1)] 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz [1)] 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages [1)] and more information, see from page 5/52			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 [2)]	**Standard**	A	–
With flange	IM B5 [2)]	With additional charge	F	–
With flange	IM B14 [2)]	With additional charge	K	–
For other types of construction and more information, see from page 5/59			■	. . .
Motor protection	Line	Version		
Without	Only possible for **Basic Line**	**Standard**	A	
PTC thermistor with 3 temperature sensors	**Basic Line**	With additional charge	B	
	Performance Line	**Standard**	B	
For other motor protection and more information, see from page 5/69			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/74			■	
Special versions				Order code(s)
For options, see from page 5/82			**1MB1■■1- . . . . ■-■■■■**-Z	. . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1MB1 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE1 Standard Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
3	3.45	100 L	2835	10	81.5	83.2	82.8	0.87	6.1	3.2	6.4	3.5	67	79	1MB10■2-1AA4■-■■■■	20	0.0034
4	4.55	112 M	2935	13	83.1	83	80.8	0.85	8.2	3.3	8.3	4.2	69	81	1MB10■2-1BA2■-■■■■	25	0.0067
5.5	6.3	132 S	2910	18	84.7	85.9	85.7	0.88	10.7	1.8	5.7	2.6	68	80	1MB10■2-1CA0■-■■■■	35	0.013
7.5	8.6	132 S	2925	24	86	86.7	86.1	0.88	14.3	2.2	6.8	3.1	68	80	1MB10■2-1CA1■-■■■■	40	0.016
11	12.6	160 M	2925	36	87.6	88	87.1	0.86	21	2	5.7	2.7	70	82	1MB10■2-1DA2■-■■■■	60	0.03
15	17.3	160 M	2935	49	88.7	88.9	87.7	0.85	28.5	2.4	6.8	3.2	70	82	1MB10■2-1DA3■-■■■■	68	0.036
18.5	21.3	160 L	2935	60	89.3	89.7	89.3	0.87	34.5	2.7	7.6	3.4	70	82	1MB10■2-1DA4■-■■■■	78	0.044
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
2.2	2.55	100 L	1425	15	79.7	80.3	78.1	0.81	4.9	2.3	5.1	2.7	60	72	1MB10■2-1AB4■-■■■■	18	0.0059
3	3.45	100 L	1425	20	81.5	82.6	81.5	0.85	6.3	2.4	5.4	2.6	60	72	1MB10■2-1AB5■-■■■■	22	0.0078
4	4.55	112 M	1435	27	83.1	84.3	83.7	0.83	8.4	2.5	6.1	2.9	58	70	1MB10■2-1BB2■-■■■■	27	0.010
5.5	6.3	132 S	1450	36	84.7	85.3	84.2	0.82	11.4	2.3	5.7	2.7	64	76	1MB10■2-1CB0■-■■■■	38	0.019
7.5	8.6	132 M	1450	49	86	86.5	85.4	0.82	15.4	2.6	6.6	3.1	64	76	1MB10■2-1CB2■-■■■■	44	0.024
11	12.6	160 M	1460	72	87.6	87.9	86.7	0.81	22.5	2.7	6.9	3.3	65	77	1MB10■2-1DB2■-■■■■	62	0.044
15	17.3	160 L	1460	98	88.7	89.1	88	0.82	30	3	7.5	3.6	65	77	1MB10■2-1DB4■-■■■■	73	0.056

Zones																		
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC															1			
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB															2			
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC															3			
Voltages															Version			Order code
50 Hz 230 VΔ/400 VY															**Standard**	2	2	–
50 Hz 400 VΔ/690 VY															**Standard**	3	4	–
50 Hz 500 VY															Without additional charge	2	7	–
50 Hz 500 VΔ															Without additional charge	4	0	–
For other voltages [1] and more information, see from page 5/51																9	0	. . .
Types of construction															Version			Order code
Without flange	IM B3 [2]														**Standard**		A	–
With flange	IM B5 [2]														With additional charge		F	–
With flange	IM B14 [2]														With additional charge		K	–
For other types of construction and more information, see from page 5/56																	■	. . .
Motor protection															Version			
Without															**Standard**			A
PTC thermistor with 3 temperature sensors															With additional charge			B
For other motor protection and more information, see from page 5/68																		■
Terminal box position															Version			
Terminal box at top															**Standard**			4
For other terminal box positions and more information, see from page 5/73																		■
Special versions																		Order code(s)
For options, see from page 5/78															1MB10■2- . . . . ■-■■■■			-Z . . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	L_{pfA}, 50 Hz	L_{WA}, 50 Hz	Aluminum series 1MB1 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)		kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE1 Standard Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																	
1.5	1.75	100 L	940	15	75.2	75.6	72.3	0.74	3.9	2	4	2.2	59	71	1MB10 ■2-1AC4■-■■■■	19	0.0065
2.2	2.55	112 M	940	22	77.7	78.5	76.3	0.72	5.7	2.6	4.6	2.7	57	69	1MB10 ■2-1BC2■-■■■■	25	0.0092
3	3.45	132 S	955	30	79.7	79.9	77.1	0.74	7.3	2	4.6	2.6	63	75	1MB10 ■2-1CC0■-■■■■	34	0.017
4	4.55	132 M	955	40	81.4	82.6	81.9	0.76	9.3	2.3	5.2	2.6	63	75	1MB10 ■2-1CC2■-■■■■	39	0.021
5.5	6.3	132 M	955	55	83.1	84	83	0.75	12.7	2.7	5.7	3	63	75	1MB10 ■2-1CC3■-■■■■	48	0.027
7.5	8.6	160 M	970	74	84.7	84.8	83.2	0.73	17.5	2.1	5.5	2.9	67	79	1MB10 ■2-1DC2■-■■■■	72	0.056
11	12.6	160 L	965	109	86.4	86.8	85.9	0.77	24	1.9	5.9	2.7	67	79	1MB10 ■2-1DC4■-■■■■	92	0.078
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																	
0.75	0.86	100 L	705	10	61.2	58.1	50.5	0.62	2.85	1.9	3	2.2	60	72	1MB10 ■2-1AD4■-■■■■	17	0.0056
1.1	1.27	100 L	690	15	66.5	66	61.8	0.61	3.9	2	3.2	2.3	60	72	1MB10 ■2-1AD5■-■■■■	22	0.0078
1.5	1.75	112 M	700	20	70.2	71.1	68.7	0.66	4.65	1.9	3.5	2.1	63	75	1MB10 ■2-1BD2■-■■■■	29	0.0094
2.2	2.55	132 S	715	29	74.2	74.1	71.4	0.66	6.5	1.7	3.9	2.4	63	75	1MB10 ■2-1CD0■-■■■■	37	0.019
3	3.45	132 M	715	40	77	77.4	75.2	0.68	8.3	1.8	3.9	2.2	63	75	1MB10 ■2-1CD2■-■■■■	44	0.024
4	4.55	160 M	720	53	79.2	79.3	76.3	0.67	10.9	1.6	4.1	2.3	63	75	1MB10 ■2-1DD2■-■■■■	60	0.044
5.5	6.3	160 M	720	73	81.4	81.9	80.3	0.68	14.3	1.6	4	2.2	63	75	1MB10 ■2-1DD3■-■■■■	72	0.056
7.5	8.6	160 L	715	100	83.1	83.7	82.4	0.69	18.9	1.7	3.8	2.2	63	75	1MB10 ■2-1DD4■-■■■■	91	0.077

Zones							
Zone 21 (conductive and non-conductive dust occasionally) Ex tb IIIC					1		
Zone 22 (non-conductive dust rarely or for a short period) Ex tc IIIB					2		
Zone 2 (explosive gases rarely or for a short period) Ex ec IIC					3		
Voltages			Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz [1] 460 VY		**Standard**	2	2		–
50 Hz 400 VΔ/690 VY	60 Hz [1] 460 VΔ		**Standard**	3	4		–
50 Hz 500 VY			Without additional charge	2	7		–
50 Hz 500 VΔ			Without additional charge	4	0		–
For other voltages [1] and more information, see from page 5/51				9	0		. . .
Types of construction			Version				Order code
Without flange	IM B3 [2]		**Standard**			A	–
With flange	IM B5 [2]		With additional charge			F	–
With flange	IM B14 [2]		With additional charge			K	–
For other types of construction and more information, see from page 5/56						■	. . .
Motor protection			Version				
Without			**Standard**				A
PTC thermistor with 3 temperature sensors			With additional charge				B
For other motor protection and more information, see from page 5/68							■
Terminal box position			Version				
Terminal box at top			**Standard**				4
For other terminal box positions and more information, see from page 5/73							■
Special versions							Order code(s)
For options, see from page 5/78							1MB10■2- . . . . ■-■■■■-Z . . .+. . .+. . .+. . .

[1] Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

[3] Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

[4] No IE class for 50 and 60 Hz because the motor is outside the validity for the efficiency classes according to IEC 60034-30-1:2014.

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Selection and ordering data

P_{rated}, 50 Hz	Temperature class	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	t_E, 50Hz, T1/T2	t_E, 50Hz, T3	L_{pfA}, 50 Hz 1)	L_{WA}, 50 Hz 1)	Cast-iron series 1MB1543 – Basic Line, 1MB5543 – Basic Line, 1MB1643 – Performance Line, 1MB5643 – Performance Line; Article No.	$m_{IM\ B3}$	J
kW		FS	rpm	Nm	%	%	%		A						dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																			
2-pole: 3000 rpm at 50 Hz, temperature classes T1 to T3																			
0.37	T1, T2, T3	71 M	2775	1.3	73.8	74.4	72.4	0.83	0.91	2.7	5	2.7	42	37	63	70[2]	▲ 1MB1 5 43-0CA2 ■-■■■■	13	0.00045
0.55	T1, T2, T3	71 M	2845	1.8	77.8	77	73.8	0.76	1.33	3.9	6.7	3.8	25	22	63	70[2]	▲ 1MB1 5 43-0CA3 ■-■■■■	15	0.00056
0.75	T1, T2, T3	80 M	2840	2.5	80.7	81.7	80.8	0.86	1.7	2.6	5.7	2.8	22	19	64	71[2]	▲ 1MB1 5 43-0DA2 ■-■■■■	18	0.0011
1.1	T1, T2, T3	80 M	2845	3.7	82.7	83.7	82.7	0.85	2.4	3.1	6.7	3.2	22	14	65	73[2]	▲ 1MB1 5 43-0DA3 ■-■■■■	21	0.0013
1.3	T1, T2, T3	90 S	2900	4.3	83.5	84.2	83	0.89	2.7	2.7	7.4	3.4	9	8	68	75	▲ 1MB1 5 43-0EA0 ■-■■■■	26	0.0021
1.85	T1, T2, T3	90 L	2890	6.1	85.1	86	85.9	0.92	3.7	2.7	7.8	3.2	8	7	68	75	▲ 1MB1 5 43-0EA4 ■-■■■■	32	0.0031
2.5	T1, T2, T3	100 L	2895	8.2	86.4	87.5	86.9	0.92	4.9	2.7	7.7	3.3	10	9	68	75	▲ 1MB1 ■43-1AA4 ■-■■■■	37	0.0054
3.3	T1, T2, T3	112 M	2940	10.7	87.4	87.6	87.3	0.92	6.5	1.9	7.3	2.9	10	9	70	77	▲ 1MB1 ■43-1BA2 ■-■■■■	43	0.012
4.6	T1, T2, T3	132 S	2950	15	88.6	89.8	90.1	0.91	8.7	1.7	7.5	3.1	16	13	72	79	▲ 1MB1 ■43-1CA0 ■-■■■■	61	0.024
5.5	T3	132 S	2950	18	89.2	90.3	90.4	0.93	10.2	1.9	7.7	3	16	14	72	79	▲ 1MB1 ■43-1CA1 ■-■■■■	75	0.031
7.5	T3	160 M	2955	24	90.1	90.2	88.6	0.9	13.7	2.3	8.2	3.2	37	21	78	85[2]	▲ 1MB1 ■43-1DA2 ■-■■■■	100	0.053
10	T3	160 M	2955	32.5	90.9	91.1	90.6	0.91	18	2.3	8	3.1	29	15	78	85[2]	▲ 1MB1 ■43-1DA3 ■-■■■■	110	0.061
12.5	T3	160 M	2945	40.5	91.5	91.9	91.7	0.92	22.5	2.2	7.6	2.8	26	13	78	85[2]	▲ 1MB1 ■43-1DA4 ■-■■■■	125	0.068
15	T3	180 M	2955	48.5	91.9	92.3	91.2	0.89	27.5	2.6	8.3	3.6	21	8	74	81	▲ 1MB1 ■43-1EA2 ■-■■■■	165	0.08
20	T3	200 L	2970	64	92.5	92.7	91.7	0.84	38	1.9	7	3.1	42	7[3]	76	83	▲ 1MB1 ■43-2AA4 ■-■■■■	220	0.12
24	T3	200 L	2970	77	92.9	93.1	92.8	0.86	44.5	2	7.1	3	39	11	75	82	▲ 1MB1 ■43-2AA5 ■-■■■■	245	0.15
28	T3	225 M	2960	90	93.2	93.7	93.5	0.9	52	2.4	5.9	2.6	30	11	76	90	▲ 1MB1 ■43-2BA2 ■-■■■■	330	0.266
36	T3	250 M	2975	116	93.7	93.8	93.1	0.91	65	2.4	6.2	2.7	35	17	75	88	▲ 1MB1 ■43-2CA2 ■-■■■■	420	0.466
47	T3	280 S	2975	151	94.1	94.2	93.5	0.9	84	2.7	6.4	2.6	21	9	75	89	▲ 1MB1 ■43-2DA0 ■-■■■■	530	0.826
58	T3	280 M	2975	186	94.4	94.5	94	0.91	103	2.6	6.5	2.6	20	8[3]	75	89	▲ 1MB1 ■43-2DA2 ■-■■■■	620	0.934
68	T3	315 S	2982	220	94.6	94.6	93.8	0.92	119	2.2	6.6	2.8	33	15	75	89	▲ 1MB5 ■43-3AA0 ■-■■■■	950	1.67
80	T3	315 M	2982	255	94.8	94.9	94.3	0.93	140	2.2	6.4	2.6	28	15	75	89	▲ 1MB5 ■43-3AA2 ■-■■■■	1020	1.95
100	T3	315 L	2982	320	95.1	95.1	94.6	0.93	172	2.4	6.7	2.7	23	10	75	89	▲ 1MB5 ■43-3AA4 ■-■■■■	1190	2.32
125	T3	315 L	2980	400	95.3	95.4	94.9	0.92	215	2.3	6.6	2.7	19	10	76	91	▲ 1MB5 ■43-3AA5 ■-■■■■	1210	2.34

Basic Line																	5			
Performance Line																	6			
Voltages																	Version			Order code
50 Hz 230 VΔ/400 VY		60 Hz 460 VY															**Standard**	2	2	–
50 Hz 400 VΔ/690 VY		60 Hz 460 VΔ															**Standard**	3	4	–
50 Hz 500 VY																	Without additional charge	2	7	–
50 Hz 500 VΔ																	Without additional charge	4	0	–
For other voltages and more information, see from page 5/53																		9	0	. . .
Types of construction																	Version			Order code
Without flange		IM B3 [4]															**Standard**		A	–
With flange		IM B5 [4]															With additional charge		F	–
With flange		IM B14 [4]															With additional charge		K	–
For other types of construction and more information, see from page 5/62																			■	. . .
Motor protection																	Version			
Without																	**Standard**			A
PTC thermistor with 3 temperature sensors																	With additional charge			B
For other motor protection and more information, see from page 5/70																				■
Terminal box position																	Version			
Terminal box at top																	**Standard**			4
For other terminal box positions and more information, see from page 5/75																				■
Special versions																				Order code(s)
For options, see from page 5/87																	1MB ■■43-			■-■■■■ -Z . . .+. . .+. . .

1) Noise values for line operation under load, tolerance + 3dB(A).

2) These sound power levels are above the set values in the VIK recommendation in the "standard" version. This difference must be agreed between the manufacturer and the operator.

3) The t_E time T3 of
- 1MB1543-2AA4 at 7s is below the set value of 7.8 s
- 1MB1543-2DA2 at 8 s is below the set values of 8.6 s
from the VIK recommendation. This difference must be agreed between the manufacturer and the operator.

4) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible.
The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

P_{rated}, 50 Hz	Temperature class	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	t_E, 50Hz, T1/T2	t_E, 50Hz, T3	L_{pfA}, 50 Hz 1)	L_{WA}, 50 Hz 1)	Cast-iron series 1MB1543 – *Basic Line* 1MB1643 – *Performance Line* Article No.	$m_{IM\ B3}$	J
kW		FS	rpm	Nm	%	%	%		A						dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																			
2-pole: 3000 rpm at 50 Hz, temperature classes T1 and T2 with second rating plate (T1/T2 and T3)																			
6.5 2)	**T1, T2**	**132 S**	2930	21	87.6	88.8	90.1	0.93	12.2	1.6	6.5	2.5	13	–	72	79	▲ **1MB1■43-1CA1■-■■■■**	75	0.031
9.5	**T1, T2**	**160 M**	2935	31	90.8	91.4	91.6	0.91	17.4	1.8	6.4	2.5	32	–	78	85 3)	▲ **1MB1■43-1DA2■-■■■■**	100	0.053
13 2)	**T1, T2**	**160 M**	2925	42.5	89.9	90.9	91.4	0.92	23.5	1.8	6.1	2.4	22	–	78	85 3)	▲ **1MB1■43-1DA3■-■■■■**	110	0.061
16 2)	**T1, T2**	**160 L**	2910	53	90.5	91.9	92.4	0.92	29.5	1.7	5.8	2.2	17	–	78	85 3)	▲ **1MB1■43-1DA4■-■■■■**	125	0.068
19	**T1, T2**	**180 M**	2935	62	92.4	93.1	92.9	0.91	34.5	2.0	6.6	2.8	16	–	74	81	▲ **1MB1■43-1EA2■-■■■■**	165	0.08
25	**T1, T2**	**200 L**	2955	81	93.0	93.7	94.0	0.86	46.5	1.5	5.7	2.5	21	–	76	83	▲ **1MB1■43-2AA4■-■■■■**	220	0.12
31	**T1, T2**	**200 L**	2950	100	93.4	93.9	94.2	0.88	57	1.5	5.4	2.3	23	–	75	82	▲ **1MB1■43-2AA5■-■■■■**	245	0.15

			Article No. position	Order code
Basic Line			5	
Performance Line			6	
Voltages		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages and more information, see from page 5/53			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 4)	**Standard**	A	–
With flange	IM B5 4)	With additional charge	F	–
With flange	IM B14 4)	With additional charge	K	–
For other types of construction and more information, see from page 5/62			■	. . .
Motor protection		Version		
Without		**Standard**	A	
PTC thermistor with 3 temperature sensors		With additional charge	B	
For other motor protection and more information, see from page 5/70			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/75			■	
Special versions				Order code(s)
For options, see from page 5/87			**1MB1■43-. . . . ■-■■■■**	-Z . . .+. . .+. . .

1) Noise values for line operation under load, tolerance + 3dB(A).

2) Only complies with efficiency classification IE2.

3) These sound power levels are above the set values in the VIK recommendation in the "standard" version. This difference must be agreed between the manufacturer and the operator.

4) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

P_{rated}, 50 Hz	Temperature class	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	t_E, 50Hz, T1/T2	t_E, 50Hz, T3	L_{pfA}, 50 Hz 1)	L_{WA}, 50 Hz 1)	Cast-iron series 1MB1543 – Basic Line, 1MB5543 – Basic Line, 1MB1643 – Performance Line, 1MB5643 – Performance Line; Article No.	$m_{IM\ B3}$	J
kW		FS	rpm	Nm	%	%	%		A						dB(A)	dB(A)	▲ New	kg	kgm^2
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																			
4-pole: 1500 rpm at 50 Hz, temperature classes T1 to T3																			
0.25	T1, T2, T3	71 M	1385	1.72	73.5	72.7	68.3	0.72	0.75	2.4	4.1	2.6	73	65	59	66 3)	▲ 1MB1 5 43-0CB2 ■-■■■■	13	0.00095
0.37	T1, T2, T3	71 M	1400	2.5	77.3	76.7	73	0.7	1.02	3.3	4.9	3.1	66	59	56	63 3)	▲ 1MB1 5 43-0CB3 ■-■■■■	16	0.0014
0.55	T1, T2, T3	80 M	1435	3.7	80.8	80.7	77.7	0.77	1.37	2.2	5.4	2.8	34	30	57	64 3)	▲ 1MB1 5 43-0DB2 ■-■■■■	18	0.0021
0.75	T1, T2, T3	80 M	1440	4.95	82.5	82.6	80.8	0.76	1.8	2.7	6.4	3.2	28	25	60	67 3)	▲ 1MB1 5 43-0DB3 ■-■■■■	22	0.0029
1	T1, T2, T3	90 S	1435	6.7	83.7	84.3	82.8	0.78	2.3	3	6.7	3.4	35	31	57	64 3)	▲ 1MB1 5 43-0EB0 ■-■■■■	25	0.0036
1.35	T1, T2, T3	90 L	1440	9	84.9	85.1	83.7	0.78	3.05	3	7	3.6	30	27	62	69 3)	▲ 1MB1 5 43-0EB4 ■-■■■■	31	0.0049
2	T1, T2, T3	100 L	1455	13.1	86.3	86.7	86	0.85	4	2.4	7.7	3.3	28	25	61	68	▲ 1MB1 ■43-1AB4 ■-■■■■	40	0.014
2.5	T1, T2, T3	100 L	1455	16	87.1	88.1	87.6	0.85	5.1	2.4	7.9	3.2	18	16	63	70 3)	▲ 1MB1 ■43-1AB5 ■-■■■■	40	0.014
3.6	T1, T2, T3	112 M	1460	24	88.3	88.8	88	0.83	7.3	2.2	8	3.4	14	13	59	66	▲ 1MB1 ■43-1BB2 ■-■■■■	43	0.017
5	T1, T2, T3	132 S	1470	32	89.3	90.1	89.8	0.84	9.8	2.1	7.5	3	27	23	62	69	▲ 1MB1 ■43-1CB0 ■-■■■■	67	0.034
6.8	T1, T2, T3	132 M	1470	44	90.2	90.7	90.4	0.84	13.4	2.2	7.7	3.1	26	23	66	73	▲ 1MB1 ■43-1CB2 ■-■■■■	82	0.046
10	T1, T2, T3	160 M	1475	65	91.2	91.6	90.9	0.84	19.6	1.7	6.6	2.8	28	21	66	73	▲ 1MB1 ■43-1DB2 ■-■■■■	110	0.083
13.5	T1, T2, T3	160 L	1475	87	91.9	92.1	91.4	0.84	26.5	2.7	7.4	3.1	23	11	66	73	▲ 1MB1 ■43-1DB4 ■-■■■■	130	0.099
15	T3	180 M	1470	97	92.1	92.5	92.5	0.82	30	2.4	7.6	3.4	22	8	67	74	▲ 1MB1 ■43-1EB2 ■-■■■■	165	0.13
17.5	T3	180 L	1470	114	92.5	93	93	0.83	34.5	2.3	7.5	3.3	23	7 2)	69	76	▲ 1MB1 ■43-1EB4 ■-■■■■	180	0.14
24	T3	200 L	1475	155	93.1	93.4	93	0.84	46.5	2.4	7.6	3.3	20	6 2)	65	72	▲ 1MB1 ■43-2AB5 ■-■■■■	240	0.22
30	T3	225 S	1485	193	93.6	93.7	93.1	0.84	57	3	7.3	3.1	32	13	66	79	▲ 1MB1 ■43-2BB0 ■-■■■■	300	0.417
36	T3	225 M	1482	230	93.9	94.3	94.2	0.85	67	3	7.1	2.9	31	11	66	79	▲ 1MB1 ■43-2BB2 ■-■■■■	370	0.545
44	T3	250 M	1486	285	94.2	94.5	94.2	0.86	80	3.1	7.6	3.1	37	18	69	83	▲ 1MB1 ■43-2CB2 ■-■■■■	480	0.975
58	T3	280 S	1488	370	94.6	94.8	94.3	0.87	106	2.8	7.2	3	45	20	68	82	▲ 1MB1 ■43-2DB0 ■-■■■■	680	1.7
70	T3	280 M	1490	450	94.9	95.1	94.9	0.86	129	3.1	7.6	2.9	29	13	69	83	▲ 1MB1 ■43-2DB2 ■-■■■■	670	1.61
84	T3	315 S	1492	540	95.1	95.1	94.6	0.85	156	2.2	7.1	2.8	22	9	69	84	▲ 1MB5 ■43-3AB0 ■-■■■■	900	2.38
100	T3	315 M	1491	640	95.3	95.4	94.9	0.86	184	2.2	7	2.7	33	16	70	85	▲ 1MB5 ■43-3AB2 ■-■■■■	980	2.88
115	T3	315 L	1492	740	95.5	95.5	95	0.85	215	2.5	7.1	3	35	15	72	86	▲ 1MB5 ■43-3AB4 ■-■■■■	1110	3.18
135	T3	315 L	1492	860	95.7	95.8	95.3	0.85	250	2.4	7.1	2.9	22	9	70	85	▲ 1MB5 ■43-3AB5 ■-■■■■	1190	3.67

Basic Line																	5		
Performance Line																	6		
Voltages															Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY														**Standard**		2	2	–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ														**Standard**		3	4	–
50 Hz 500 VY															Without additional charge		2	7	–
50 Hz 500 VΔ															Without additional charge		4	0	–
For other voltages and more information, see from page 5/53																	9	0	. . .
Types of construction															Version				Order code
Without flange	IM B3 4)														**Standard**			A	–
With flange	IM B5 4)														With additional charge			F	–
With flange	IM B14 4)														With additional charge			K	–
For other types of construction and more information, see from page 5/62																		■	. . .
Motor protection															Version				
Without															**Standard**				A
PTC thermistor with 3 temperature sensors															With additional charge				B
For other motor protection and more information, see from page 5/70																			■
Terminal box position															Version				
Terminal box at top															**Standard**				4
For other terminal box positions and more information, see from page 5/75																			■
Special versions																			Order code(s)
For options, see from page 5/87																	1MB . ■43-	■-■■■■	-Z . . .+. . .+. . .

1) Noise values for line operation under load, tolerance + 3dB(A).

2) The tE time T3 of
– 1MB1543-1EB4 at 7s falls below the set value of 7.2s from the VIK recommendation
– 1MB1543-2AB5 at 6s falls below the set value of 7.1s from the VIK recommendation.
These differences must be agreed between the manufacturer and the operator.

3) These sound power levels are above the set values in the VIK recommendation in the "standard" version. This difference must be agreed between the manufacturer and the operator.

4) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible.
The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

P_{rated}, 50 Hz	Temperature class	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	t_E, 50Hz, T1/T2	t_E, 50Hz, T3	L_{pfA}, 50 Hz 1)	L_{WA}, 50 Hz 1)		Cast-iron series: 1MB1543 – *Basic Line*; 1MB5543 – *Basic Line*; 1MB1643 – *Performance Line*; 1MB5643 – *Performance Line*; Article No.	$m_{IM B3}$	J
kW		FS	rpm	Nm	%	%	%		A						dB(A)	dB(A)	▲	New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																				
4-pole: 1500 rpm at 50 Hz, temperature classes T1 and T2 with second rating plate (T1/T2 and T3)																				
17	**T1, T2**	**180 M**	1465	111	92.4	93.3	93.4	0.83	33.5	2.1	6.9	2.9	19	–	67	74	▲	**1MB1 ■43-1EB2 ■-■■■■**	165	0.13
20	**T1, T2**	**180 L**	1465	130	92.8	93.9	94.2	0.84	39.0	2	6.6	2.9	18	–	71	78	▲	**1MB1 ■43-1EB4 ■-■■■■**	180	0.14
27	**T1, T2**	**200 L**	1470	175	93.4	94.0	94.1	0.85	52	2.1	6.9	2.9	16	–	66	73	▲	**1MB1 ■43-2AB5 ■-■■■■**	240	0.22
33	**T1, T2**	**225 S**	1482	215	93.6	93.9	93.5	0.85	62	2.7	6.7	2.8	30	–	65	79	▲	**1MB1 ■43-2BB0 ■-■■■■**	300	0.417
40	**T1, T2**	**225 M**	1480	260	94.1	94.7	94.8	0.86	75	2.7	6.3	2.6	27	–	66	79	▲	**1MB1 ■43-2BB2 ■-■■■■**	370	0.545
50	**T1, T2**	**250 M**	1485	320	94.4	94.9	94.9	0.87	91	2.7	6.7	2.7	35	–	70	84	▲	**1MB1 ■43-2CB2 ■-■■■■**	480	0.975
68	**T1, T2**	**280 S**	1485	435	94.9	95.3	95.2	0.88	124	2.4	6.1	2.6	40	–	69	83	▲	**1MB1 ■43-2DB0 ■-■■■■**	680	1.7
80	**T1, T2**	**280 M**	1490	510	95.1	95.6	95.6	0.87	146	2.7	6.7	2.5	23	–	69	83	▲	**1MB1 ■43-2DB2 ■-■■■■**	670	1.61
100	**T1, T2**	**315 S**	1490	640	95.3	95.6	95.4	0.86	185	1.8	6	2.3	19	–	71	85	▲	**1MB5 ■43-3AB0 ■-■■■■**	900	2.38
120	**T1, T2**	**315 M**	1488	770	95.5	95.8	95.7	0.86	220	1.8	5.8	2.2	28	–	76	91	▲	**1MB5 ■43-3AB2 ■-■■■■**	980	2.88
135	**T1, T2**	**315 L**	1490	870	95.7	96	95.8	0.86	250	2.1	6.1	2.5	23	–	74	89	▲	**1MB5 ■43-3AB4 ■-■■■■**	1110	3.18
165	**T1, T2**	**315 L**	1488	1060	95.8	96.1	**96.0**	0.86	305	2	5.8	2.3	17	–	72	87	▲	**1MB5 ■43-3AB5 ■-■■■■**	1190	3.67

		Version	Article No. position	Order code
Basic Line			5	
Performance Line			6	
Voltages		Version		Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2 2	–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3 4	–
50 Hz 500 VY		Without additional charge	2 7	–
50 Hz 500 VΔ		Without additional charge	4 0	–
For other voltages and more information, see from page 5/53			9 0	. . .
Types of construction		Version		Order code
Without flange	IM B3 2)	**Standard**	A	–
With flange	IM B5 2)	With additional charge	F	–
With flange	IM B14 2)	With additional charge	K	–
For other types of construction and more information, see from page 5/62			■	. . .
Motor protection		Version		
Without		**Standard**	A	
PTC thermistor with 3 temperature sensors		With additional charge	B	
For other motor protection and more information, see from page 5/70			■	
Terminal box position		Version		
Terminal box at top		**Standard**	4	
For other terminal box positions and more information, see from page 5/75			■	
Special versions				Order code(s)
For options, see from page 5/87			**1MB . ■43- . . . . ■-■■■■**	-Z . . .+. . .+. . .

1) Noise values for line operation under load, tolerance + 3dB(A).

2) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

P_{rated}, 50 Hz	Temperature class	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	t_E, 50Hz, T1/T2	t_E, 50Hz, T3	L_{pfA}, 50 Hz 1)	L_{WA}, 50 Hz 1)	Cast-iron series: 1MB1543 – Basic Line; 1MB5543 – Basic Line; 1MB1643 – Performance Line; 1MB5643 – Performance Line; Article No.	$m_{IM\ B3}$	J
kW		FS	rpm	Nm	%	%	%		A						dB(A)	dB(A)	▲ New	kg	kgm^2
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																			
6-pole: 1000 rpm at 50 Hz, temperature classes T1 to T3																			
0.25	T1, T2, T3	71 M	875	2.75	68.6	69.8	67.9	0.72	0.72	2.4	3.4	2.4	500	233	58	65 2)	▲ 1MB1 5 43-0CC3 ■-■■■■	16	0.00015
0.37	T1, T2, T3	80 M	935	3.8	73.5	72.6	68	0.64	1.16	2.3	4.2	2.7	73	65	55	62 2)	▲ 1MB1 5 43-0DC2 ■-■■■■	19	0.00025
0.55	T1, T2, T3	80 M	925	5.7	77.2	77.1	74.3	0.65	1.65	2.6	4.4	2.9	94	82	60	67 2)	▲ 1MB1 5 43-0DC3 ■-■■■■	22	0.0031
0.65	T1, T2, T3	90 S	940	6.6	78.3	79.3	77.8	0.7	1.8	1.8	4.2	2.4	87	77	61	68 2)	▲ 1MB1 5 43-0EC0 ■-■■■■	26	0.004
0.95	T1, T2, T3	90 L	935	9.7	80.2	81.3	79.9	0.71	2.5	2.2	4.7	2.5	64	56	60	67 2)	▲ 1MB1 5 43-0EC4 ■-■■■■	31	0.0048
1.3	T1, T2, T3	100 L	955	13	81.8	82.5	80.5	0.71	3.4	2.5	5.3	2.8	63	55	58	65	▲ 1MB1 ■43-1AC4 ■-■■■■	36	0.011
1.9	T1, T2, T3	112 M	960	18.9	83.6	84.5	83.7	0.74	4.5	2.6	6.6	3.2	45	40	60	67	▲ 1MB1 ■43-1BC2 ■-■■■■	46	0.017
2.6	T1, T2, T3	132 S	980	25.5	85	85.8	85.3	0.75	5.8	2.1	6.5	2.8	54	48	63	70	▲ 1MB1 ■43-1CC0 ■-■■■■	70	0.029
3.5	T1, T2, T3	132 M	975	34.5	86.3	87.4	87.3	0.76	7.8	1.8	5.8	2.5	31	27	68	75	▲ 1MB1 ■43-1CC2 ■-■■■■	70	0.037
4.8	T1, T2, T3	132 M	975	47	87.5	88.4	88.3	0.76	10.5	2.1	6.2	2.7	34	30	69	76	▲ 1MB1 ■43-1CC3 ■-■■■■	82	0.046
6.6	T1, T2, T3	160 M	980	64	88.6	88.7	87.8	0.8	13.8	2.4	6.8	2.8	37	33	67	74	▲ 1MB1 ■43-1DC2 ■-■■■■	120	0.098
9.7	T1, T2, T3	160 L	980	95	89.9	90	89	0.79	20.5	2.7	7.1	2.9	22	19	70	77	▲ 1MB1 ■43-1DC4 ■-■■■■	145	0.12
13.2	T1, T2, T3	180 L	975	129	90.8	91.4	91.6	0.77	28	2.1	6.2	2.8	38	17	66	73	▲ 1MB1 ■43-1EC4 ■-■■■■	180	0.19
16.5	T1, T2, T3	200 L	975	162	91.4	92.3	92.5	0.8	34.5	2	5.4	2.3	52	12	60	67	▲ 1MB1 ■43-2AC4 ■-■■■■	215	0.28
20	T1, T2, T3	200 L	985	194	91.9	92.1	91.3	0.79	43	1.7	6.5	3	40	16	69	76	▲ 1MB1 ■43-2AC5 ■-■■■■	265	0.33
27	T1, T2, T3	225 M	985	220	92.7	93.2	93.1	0.82	52	2.8	6.9	3.1	61	24	64	77	▲ 1MB1 ■43-2BC2 ■-■■■■	390	0.845
33	T1, T2, T3	250 M	985	265	93.1	93.9	94	0.85	63	2.4	6.3	2.6	61	22	65	78	▲ 1MB1 ■43-2CC2 ■-■■■■	480	1.27
40	T1, T2, T3	280 S	988	320	93.5	94.1	94	0.86	75	2.8	6.3	2.5	47	13	66	80	▲ 1MB1 ■43-2DC0 ■-■■■■	570	1.64
46	T3	280 M	990	370	93.8	94.2	94.1	0.84	87	3.4	7.5	3	28	13	63	77	▲ 1MB1 ■43-2DC2 ■-■■■■	570	1.64
64	T3	315 S	992	510	94.4	94.6	94.1	0.86	118	2.4	7.5	3.3	32	15	65	79	▲ 1MB5 ■43-3AC0 ■-■■■■	870	3.25
76	T3	315 M	992	610	94.6	94.9	94.6	0.87	139	2.3	7.4	3.2	28	11	65	79	▲ 1MB5 ■43-3AC2 ■-■■■■	900	3.54
92	T3	315 L	991	740	94.9	95.2	95.1	0.88	167	2.3	6.9	3	37	13	69	83	▲ 1MB5 ■43-3AC4 ■-■■■■	1090	4.52
110	T3	315 L	992	880	95.1	95.3	95.1	0.87	198	2.5	7.6	3.3	26	9	71	86	▲ 1MB5 ■43-3AC5 ■-■■■■	1170	5.16
125	T3	315 L	992	1000	95.3	95.5	95.1	0.85	230	2.4	6.7	2.7	28	9	70	84	▲ 1MB5 ■43-3AC6 ■-■■■■	1180	4.89

Basic Line 5
Performance Line 6

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages and more information, see from page 5/53			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 3)	**Standard**			A		–
With flange	IM B5 3)	With additional charge			F		–
With flange	IM B14 3)	With additional charge			K		–
For other types of construction and more information, see from page 5/62					■		. . .
Motor protection		Version					
Without		**Standard**				A	
PTC thermistor with 3 temperature sensors		With additional charge				B	
For other motor protection and more information, see from page 5/70						■	
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 5/75							■
Special versions							Order code(s)
For options, see from page 5/87							1MB . ■43- . . . . ■-■■■■ -Z . . .+. . .+. . .

1) Noise values for line operation under load, tolerance + 3dB(A).

2) These sound power levels are above the set values in the VIK recommendation in the "standard" version. This difference must be agreed between the manufacturer and the operator.

3) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

P_{rated}, 50 Hz	Temperature class	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}, 50 Hz	I_{LR}/I_{rated}, 50 Hz	T_B/T_{rated}, 50 Hz	t_{E}, 50Hz, T1/T2	t_{E}, 50Hz, T3	L_{pfA}, 50 Hz 1)	L_{WA}, 50 Hz 1)	Cast-iron series 1MB1543 – Basic Line, 1MB5543 – Basic Line, 1MB1643 – Performance Line, 1MB5643 – Performance Line; Article No.	$m_{IM\ B3}$	J
kW		FS	rpm	Nm	%	%	%		A						dB(A)	dB(A)	▲ New	kg	kgm^2

- **Cooling: self-ventilated (IC411)**
- **Efficiency according to IEC 60034-30: IE3 Premium Efficiency**
- **Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)**

6-pole: 1000 rpm at 50 Hz, temperature classes T1 and T2 with second rating plate (T1/T2 and T3)

50	**T1, T2**	**280 M**	988	485	93.9	94.5	94.5	0.85	94	3.1	6.9	2.8	27	–	63	77	▲ **1MB1 ■43-2DC2 ■-■■■■**	570	1.64
68	**T1, T2**	**315 S**	991	660	94.5	94.7	94.4	0.87	125	2.3	7	3.1	31	–	66	80	▲ **1MB5 ■43-3AC0 ■-■■■■**	870	3.25
82	**T1, T2**	**315 M**	991	790	94.7	95.1	94.9	0.88	149	2.2	6.9	3	25	–	65	79	▲ **1MB5 ■43-3AC2 ■-■■■■**	900	3.54
98	**T1, T2**	**315 L**	990	950	95	95.4	95.4	0.88	179	2.2	6.5	2.8	34	–	69	84	▲ **1MB5 ■43-3AC4 ■-■■■■**	1090	4.52
120	**T1, T2**	**315 L**	991	1160	95.2	95.6	95.5	0.88	218	2.3	6.9	3.1	23	–	71	86	▲ **1MB5 ■43-3AC5 ■-■■■■**	1170	5.16
135	**T1, T2**	**315 L**	991	1300	95.4	95.7	95.5	0.85	250	2.2	6.2	2.5	24	–	70	85	▲ **1MB5 ■43-3AC6 ■-■■■■**	1180	4.89

Basic Line																	**5**		
Performance Line																	**6**		

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	**2**	**2**			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	**3**	**4**			–
50 Hz 500 VY		Without additional charge	**2**	**7**			–
50 Hz 500 VΔ		Without additional charge	**4**	**0**			–
For other voltages and more information, see from page 5/53			**9**	**0**			. . .
Types of construction		Version					Order code
Without flange	IM B3 2)	**Standard**			**A**		–
With flange	IM B5 2)	With additional charge			**F**		–
With flange	IM B14 2)	With additional charge			**K**		–
For other types of construction and more information, see from page 5/62					■		. . .
Motor protection		Version					
Without		**Standard**				**A**	
PTC thermistor with 3 temperature sensors		With additional charge				**B**	
For other motor protection and more information, see from page 5/70						■	
Terminal box position		Version					
Terminal box at top		**Standard**					**4**
For other terminal box positions and more information, see from page 5/75							■
Special versions							Order code(s)
For options, see from page 5/87							**1MB . ■43-. . . . ■-■■■■** -Z . . .+. . .+. . .

1) Noise values for line operation under load, tolerance + 3dB(A).

2) Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible.
The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	$L_{pfA, 1)}$ 50 Hz	$L_{WA, 1)}$ 50 Hz	Cast-iron series 1MB1553/1MB5553 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz [1]																	
0.37	0.37	71 M	2850	1.2	73.8	73.3	69.7	0.76	0.95	3.5	5.8	3.5	57	64	▲ 1MB1553-0CA2 ■-■■■■	24	0.00045
0.55	0.55	71 M	2850	1.8	77.8	77.5	74.5	0.76	1.34	3.7	6.1	3.7	57	68	▲ 1MB1553-0CA3 ■-■■■■	25	0.00056
0.75	0.75	80 M	2850	2.5	80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	58	69	▲ 1MB1553-0DA2 ■-■■■■	30	0.0011
1.1	1.1	80 M	2885	3.6	82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	58	78	▲ 1MB1553-0DA3 ■-■■■■	32	0.0013
1.5	1.5	90 S	2910	4.9	84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	60	71	▲ 1MB1553-0EA0 ■-■■■■	41	0.0021
2.2	2.2	90 L	2910	7.2	85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	60	73	▲ 1MB1553-0EA4 ■-■■■■	45	0.0031
3	3	100 L	2920	9.8	87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	65	82	▲ 1MB1553-1AA4 ■-■■■■	64	0.0054
4	4	112 M	2950	13	88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	65	77	▲ 1MB1553-1BA2 ■-■■■■	74	0.012
5.5	5.5	132 S	2950	18	89.2	90.1	89.7	0.9	9.9	1.9	7.3	3.7	68	80	▲ 1MB1553-1CA0 ■-■■■■	95	0.024
7.5	7.5	132 S	2950	24	90.1	90.9	90.7	0.92	13.1	2.1	8.3	4	68	78	▲ 1MB1553-1CA1 ■-■■■■	106	0.031
11	11	160 M	2955	36	91.2	91.3	90.2	0.87	20	2.5	7.6	3.8	68	80	▲ 1MB1553-1DA2 ■-■■■■	169	0.053
15	15	160 M	2960	48	91.9	91.9	91	0.87	27	2.8	8.8	4.3	70	82	▲ 1MB1553-1DA3 ■-■■■■	179	0.061
18.5	18.5	160 L	2955	60	92.4	92.8	92.3	0.9	32	2.8	8.3	3.9	70	84	▲ 1MB1553-1DA4 ■-■■■■	190	0.068
22	22	180 M	2950	71	92.7	93	92.4	0.89	38.5	2.3	7.5	3.5	70	80	▲ 1MB1553-1EA2 ■-■■■■	238	0.08
30	30	200 L	2955	97	93.3	93.6	93.3	0.87	53	2.5	7	3.3	69	81	▲ 1MB1553-2AA4 ■-■■■■	324	0.134
37	37	200 L	2955	120	93.7	93.9	93.5	0.88	65	2.5	7.1	3.2	69	82	▲ 1MB1553-2AA5 ■-■■■■	348	0.158
45	45	225 M	2960	145	94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	▲ 1MB1553-2BA2 ■-■■■■	447	0.26
55	55	250 M	2975	177	94.3	94.5	93.9	0.89	95	2.3	6.7	3.1	73	87	▲ 1MB1553-2CA2 ■-■■■■	532	0.46
75	75	280 S	2975	241	94.7	94.8	94.2	0.89	128	2.5	7.3	2.7	78	92	▲ 1MB1553-2DA0 ■-■■■■	729	0.77
90	90	280 M	2975	289	95	95.2	94.8	0.9	152	2.4	7.5	3.1	79	93	▲ 1MB1553-2DA2 ■-■■■■	763	0.926
110	110	315 S	2982	352	95.2	95.3	94.7	0.91	183	2.3	7.2	3.2	80	94	▲ 1MB5553-3AA0 ■-■■■■	1100	1.76
132	132	315 M	2984	422	95.4	95.4	94.7	0.91	220	1.9	7.5	2.5	80	94	▲ 1MB5553-3AA2 ■-■■■■	1230	1.99
160	160	315 L	2980	513	95.6	95.7	95.3	0.91	265	1.8	6.9	2.3	80	94	▲ 1MB5553-3AA4 ■-■■■■	1300	2.29
200	200	315 L	2980	641	95.8	96	95.7	0.92	330	1.9	6.9	2.4	80	94	▲ 1MB5553-3AA5 ■-■■■■	1430	2.65
250	250	315 L	2982	801	95.8	95.9	95.6	0.91	415	2.8	7.2	3	80	94	▲ 1MB5553-3AA6 ■-■■■■	1590	2.82
315	315	355 M	2986	1007	95.8	95.9	95.4	0.9	530	2.1	7.8	2.8	83	98	▲ 1MB5553-3BA2 ■-■■■■	2130	4.31
355	355	355 M	2975	1139	95.8	96.1	96	0.92	580	2.4	6.6	2.5	83	98	▲ 1MB5553-3BA3 ■-■■■■	2340	5.8
400	400	355 L	2986	1279	95.8	96	95.7	0.89	680	2.3	7.6	2.9	83	98	▲ 1MB5553-3BA4 ■-■■■■	2610	5.9
460	460	355 L	2990	1469	95.8	95.8	95.3	0.89	780	2.8	9	3.5	83	98	▲ 1MB5553-3BA5 ■-■■■■	2620	5.9

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages and more information, see from page 5/54			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 5/65					■		. . .
Motor protection		Version					
Without		**Standard**				A	
PTC thermistor with 3 temperature sensors		With additional charge				B	
For other motor protection and more information, see from page 5/71						■	
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 5/76							■
Special versions							Order code(s)
For options, see from page 5/91			1MB.553- . . . . ■-■■■■				-Z . . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	$L_{pfA, 1)}$ 50 Hz	$L_{WA, 1)}$ 50 Hz	Cast-iron series 1MB1553/1MB5553 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz [1]																	
0.25	0.25	71 M	1395	1.7	73.5	73.7	70.4	0.72	0.68	2.5	4.2	2.6	64	64	▲ 1MB1553-0CB2 ■-■■■■	25	0.00095
0.37	0.37	71 M	1410	2.5	77.3	76.8	73.2	0.70	0.99	3.1	4.8	3.1	70	70	▲ 1MB1553-0CB3 ■-■■■■	27	0.0014
0.55	0.55	80 M	1440	3.6	80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	69	69	▲ 1MB1553-0DB2 ■-■■■■	30	0.0021
0.75	0.75	80 M	1450	4.9	82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	70	70	▲ 1MB1553-0DB3 ■-■■■■	33	0.0029
1.1	1.1	90 S	1440	7.3	84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	72	72	▲ 1MB1553-0EB0 ■-■■■■	42	0.0036
1.5	1.5	90 L	1445	10	85.3	85.9	84.9	0.80	3.15	2.7	7.2	3.6	63	63	▲ 1MB1553-0EB4 ■-■■■■	45	0.0049
2.2	2.2	100 L	1465	14	86.7	87.0	85.9	0.83	4.4	3.2	8.4	4.4	77	77	▲ 1MB1553-1AB4 ■-■■■■	67	0.014
3	3	100 M	1460	20	87.7	88.5	87.9	0.83	5.9	2.5	8.3	3.9	69	69	▲ 1MB1553-1AB5 ■-■■■■	68	0.014
4	4	112 S	1460	26	88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	69	69	▲ 1MB1553-1BB2 ■-■■■■	76	0.017
5.5	5.5	132 S	1470	36	89.6	90.0	89.4	0.82	10.8	2.9	8.6	3.7	80	80	▲ 1MB1553-1CB0 ■-■■■■	109	0.034
7.5	7.5	132 M	1465	49	90.4	91.1	90.8	0.84	14.3	2.6	8.2	3.7	76	76	▲ 1MB1553-1CB2 ■-■■■■	120	0.046
11	11	160 M	1475	71	91.4	91.8	91.2	0.84	20.5	2.6	7.6	3.4	81	81	▲ 1MB1553-1DB2 ■-■■■■	179	0.071
15	15	160 L	1475	97	92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	71	71	▲ 1MB1553-1DB4 ■-■■■■	191	0.085
18.5	18.5	180 M	1470	120	92.6	93.1	93.0	0.82	35	2.5	7.2	3.3	82	82	▲ 1MB1553-1EB2 ■-■■■■	240	0.13
22	22	180 L	1470	143	93.0	93.6	93.6	0.83	41	2.3	6.8	3.3	76	76	▲ 1MB1553-1EB4 ■-■■■■	249	0.14
30	30	200 L	1470	195	93.6	94.2	94.2	0.84	55	2.6	7.3	3.1	75	75	▲ 1MB1553-2AB5 ■-■■■■	346	0.24
37	37	225 S	1480	239	93.9	94.5	94.4	0.86	66	2.5	6.4	2.7	63	77	▲ 1MB1553-2BB0 ■-■■■■	456	0.467
45	45	225 M	1475	291	94.2	94.7	94.6	0.86	80	2.6	6.4	2.7	64	78	▲ 1MB1553-2BB2 ■-■■■■	466	0.52
55	55	250 M	1482	354	94.6	95.1	95	0.87	96	2.5	6.8	2.9	66	79	▲ 1MB1553-2CB2 ■-■■■■	563	0.85
75	75	280 S	1486	482	95	95.3	95	0.86	133	2.5	6.9	3	72	86	▲ 1MB1553-2DB0 ■-■■■■	782	1.4
90	90	280 M	1485	579	95.2	95.5	95.3	0.87	157	2.6	7.2	3	70	84	▲ 1MB1553-2DB2 ■-■■■■	818	1.7
110	110	315 S	1490	705	95.4	95.7	95.4	0.85	196	2.4	6.6	2.6	75	91	▲ 1MB5553-3AB0 ■-■■■■	1150	2.48
132	132	315 M	1490	846	95.6	95.9	95.7	0.86	230	2.1	7	2.7	75	91	▲ 1MB5553-3AB2 ■-■■■■	1270	2.79
160	160	315 L	1491	1025	95.8	96	95.6	0.85	285	2.3	7.5	3	75	91	▲ 1MB5553-3AB4 ■-■■■■	1330	3.17
200	200	315 L	1490	1282	96	96.4	96.3	0.86	350	2.3	7.6	2.8	75	91	▲ 1MB5553-3AB5 ■-■■■■	1480	3.79
250	250	315 L	1490	1602	96	96.2	95.9	0.87	430	2.1	7.2	2.8	75	91	▲ 1MB5553-3AB6 ■-■■■■	1660	4.55
315	315	355 M	1491	2017	96	96.2	95.8	0.86	550	2.3	8	2.9	81	95	▲ 1MB5553-3BB2 ■-■■■■	2140	5.6
355	355	355 M	1491	2274	96	96.1	95.8	0.88	610	2.2	7.5	3.1	81	95	▲ 1MB5553-3BB3 ■-■■■■	2240	6.36
400	400	355 L	1491	2562	96	96.1	95.9	0.87	690	2.1	7.3	3	80	95	▲ 1MB5553-3BB4 ■-■■■■	2420	7.06
460	460	355 L	1492	2944	96	96.2	96	0.85	810	3.1	8.4	3.3	80	96	▲ 1MB5553-3BB5 ■-■■■■	2720	8.5

Voltages		Version					Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2			–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4			–
50 Hz 500 VY		Without additional charge	2	7			–
50 Hz 500 VΔ		Without additional charge	4	0			–
For other voltages and more information, see from page 5/54			9	0			. . .
Types of construction		Version					Order code
Without flange	IM B3 [2]	**Standard**			A		–
With flange	IM B5 [2]	With additional charge			F		–
With flange	IM B14 [2]	With additional charge			K		–
For other types of construction and more information, see from page 5/65					■		. . .
Motor protection		Version					
Without		**Standard**				A	
PTC thermistor with 3 temperature sensors		With additional charge				B	
For other motor protection and more information, see from page 5/71						■	
Terminal box position		Version					
Terminal box at top		**Standard**					4
For other terminal box positions and more information, see from page 5/76							■
Special versions							Order code(s)
For options, see from page 5/91			1MB.553- . . . . ■-■■■■				-Z . . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	$L_{pfA, 1)}$ 50 Hz	$L_{WA, 1)}$ 50 Hz	Cast-iron series 1MB1553/1MB5553 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz [1]																	
0.18	0.18	71 M	885	1.94	63.9	64.6	60.8	0.69	0.59	2.3	2.8	2.3	39	68	▲ 1MB1553-0CC2 ■-■■■■	24	0.001
0.25	0.25	71 M	885	2.70	68.6	69.5	66.2	0.69	0.76	2.6	3.2	2.6	39	50	▲ 1MB1553-0CC3 ■-■■■■	26	0.0015
0.37	0.37	80 M	940	3.76	73.1	69.4	69.4	0.66	1.10	2.3	4.2	2.7	46	57	▲ 1MB1553-0DC2 ■-■■■■	31	0.0025
0.55	0.55	80 M	935	5.60	77.2	77.0	73.9	0.67	1.53	2.5	4.5	2.8	42	68	▲ 1MB1553-0DC3 ■-■■■■	34	0.0031
0.75	0.75	90 S	945	7.60	78.9	80.0	78.8	0.70	1.96	2.2	4.6	2.6	42	66	▲ 1MB1553-0EC0 ■-■■■■	43	0.004
1.1	1.1	100 L	965	10.9	81	81.1	79.4	0.74	2.65	2.6	7.2	3.7	62	69	▲ 1MB1553-1AC3 ■-■■■■	67	0.014
1.5	1.5	112 L	975	14.7	82.5	82.5	81.0	0.70	3.75	3.7	7.9	4.1	57	64	▲ 1MB1553-1BC1 ■-■■■■	75	0.017
2.2	2.2	132 S	975	29.4	85.6	86.6	86.3	0.75	6.7	2.4	7.3	3.5	59	66	▲ 1MB1553-1CC1 ■-■■■■	96	0.037
3	3	132 S	975	21.5	84.3	85.2	84.7	0.74	5.1	2.5	7.3	3.6	59	66	▲ 1MB1553-1CC0 ■-■■■■	96	0.037
4	4	132 M	970	39.3	86.8	87.9	87.7	0.76	8.8	2.4	7	3.4	59	66	▲ 1MB1553-1CC2 ■-■■■■	101	0.037
5.5	5.5	132 M	975	54	88	88.8	88.4	0.77	11.7	2.5	7.4	3.6	59	66	▲ 1MB1553-1CC3 ■-■■■■	115	0.046
7.5	7.5	160 M	982	73	89.1	89.7	89.2	0.81	15	2.9	7.2	3	62	69	▲ 1MB1553-1DC2 ■-■■■■	184	0.098
11	11	160 L	982	107	90.3	90.7	89.9	0.81	21.5	3.1	7.6	3.2	62	69	▲ 1MB1553-1DC4 ■-■■■■	200	0.12
15	15	180 L	975	147	91.2	91.9	91.9	0.80	29.5	2.3	5.9	2.8	67	68	▲ 1MB1553-1EC4 ■-■■■■	236	0.19
18.5	18.5	200 L	978	181	91.7	92.5	92.5	0.79	37.0	2.5	5.6	2.6	61	71	▲ 1MB1553-2AC4 ■-■■■■	325	0.28
22	22	200 L	978	215	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	64	72	▲ 1MB1553-2AC5 ■-■■■■	339	0.32
30	30	225 M	982	292	92.9	93.6	93.5	0.83	56	2.6	6.6	3	64	77	▲ 1MB1553-2BC2 ■-■■■■	458	0.67
37	37	250 M	986	358	93.3	93.9	93.8	0.84	68	2.7	7.2	2.9	58	72	▲ 1MB1553-2CC2 ■-■■■■	533	1.01
45	45	280 S	988	435	93.7	94.4	94.3	0.85	82	3	6.8	2.8	60	75	▲ 1MB1553-2DC0 ■-■■■■	729	1.4
55	55	280 M	988	532	94.1	94.6	94.4	0.85	99	3.2	7.2	3	60	74	▲ 1MB1553-2DC2 ■-■■■■	748	1.6
75	75	315 S	992	722	94.6	94.8	94.2	0.8	143	2.4	7.6	2.9	68	83	▲ 1MB5553-3AC0 ■-■■■■	1070	2.98
90	90	315 M	992	866	94.9	95.2	94.8	0.82	167	2.5	7.7	2.9	68	83	▲ 1MB5553-3AC2 ■-■■■■	1130	3.54
110	110	315 L	992	1059	95.1	95.4	95.1	0.83	200	2.4	7.7	2.8	68	83	▲ 1MB5553-3AC4 ■-■■■■	1270	4.25
132	132	315 L	992	1271	95.4	95.7	95.5	0.83	240	2.5	7.8	2.9	68	83	▲ 1MB5553-3AC5 ■-■■■■	1380	4.89
160	160	315 L	992	1540	95.6	96	96.1	0.82	295	2.5	7.3	2.8	68	83	▲ 1MB5553-3AC6 ■-■■■■	1520	5.7
200	200	315 L	992	1925	95.8	96	95.8	0.81	370	2.8	7	3	68	83	▲ 1MB5553-3AC7 ■-■■■■	1670	6.39
250	250	355 S	993	2404	95.8	96.2	96.1	0.84	450	2.5	8	3.1	75	90	▲ 1MB5553-3BC1 ■-■■■■	2340	11.3
315	315	355 M	992	3032	95.8	96.3	96.4	0.86	550	2.4	6.8	2.8	75	90	▲ 1MB5553-3BC2 ■-■■■■	2630	13.8
355	355	355 M	993	3414	95.8	95.9	95.6	0.84	640	2.6	7.4	3.2	76	91	▲ 1MB5553-3BC3 ■-■■■■	2650	13.8
380	380	355 L	993	3654	95.8	96.1	95.9	0.84	680	2.7	7.7	2.9	75	90	▲ 1MB5553-3BC4 ■-■■■■	2650	13.5

Voltages		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2		–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4		–
50 Hz 500 VY		Without additional charge	2	7		–
50 Hz 500 VΔ		Without additional charge	4	0		–
For other voltages and more information, see from page 5/54			9	0		. . .
Types of construction		Version				Order code
Without flange	IM B3 [2]	**Standard**			A	–
With flange	IM B5 [2]	With additional charge			F	–
With flange	IM B14 [2]	With additional charge			K	–
For other types of construction and more information, see from page 5/65					■	. . .
Motor protection		Version				
Without		**Standard**				A
PTC thermistor with 3 temperature sensors		With additional charge				B
For other motor protection and more information, see from page 5/71						■
Terminal box position		Version				
Terminal box at top		**Standard**				4
For other terminal box positions and more information, see from page 5/76						■
Special versions						Order code(s)
For options, see from page 5/91						1MB.553- . . . . ■-■■■■-Z . . .+. . .+. . .+. . .

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Selection and ordering data

P_{rated}, 50 Hz	P_{rated}, 60 Hz	Frame size	Operating values at rated power: n_{rated}, 50 Hz	T_{rated}, 50 Hz	η_{rated}, 50 Hz, 4/4	η_{rated}, 50 Hz, 3/4	η_{rated}, 50 Hz, 2/4	$\cos\varphi_{rated}$, 50 Hz, 4/4	I_{rated}, 50 Hz, 400 V	T_{LR}/T_{rated}	I_{LR}/I_{rated}	T_B/T_{rated}	$L_{pfA, 1)}$ 50 Hz	$L_{WA, 1)}$ 50 Hz	Cast-iron series 1MB1553/1MB5553 Article No.	$m_{IM\ B3}$	J
kW	kW	FS	rpm	Nm	%	%	%		A				dB(A)	dB(A)	▲ New	kg	kgm²
• Cooling: self-ventilated (IC411) • Efficiency according to IEC 60034-30: IE3 Premium Efficiency • Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)																	
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz [1]																	
0.09	0.09	71 M	650	1.3	44.1	42.8	37.3	0.64	0.81	1.9	2.2	1.9	58	61	▲ 1MB1553-0CD2 ■-■■■■	25	
0.12	0.12	71 M	660	1.7	50.7	49.9	44.8	0.63	0.95	2.1	2.5	2.1	58	61	▲ 1MB1553-0CD3 ■-■■■■	27	
0.18	0.18	80 M	715	2.4	58.7	54.8	47.3	0.51	1.51	1.9	2.9	2.6	59	65	▲ 1MB1553-0DD2 ■-■■■■	30	
0.25	0.25	80 M	695	3.4	64.1	62.7	57.8	0.57	1.72	1.8	2.9	2.1	59	65	▲ 1MB1553-0DD3 ■-■■■■	33	
0.37	0.37	90 S	710	5	69.3	68.3	63.7	0.55	2.45	1.6	3.2	2.3	60	73	▲ 1MB1553-0ED0 ■-■■■■	43	
0.55	0.55	90 L	715	7.3	73	71.2	66.5	0.52	3.65	2.3	3.6	2.7	60	73	▲ 1MB1553-0ED4 ■-■■■■	44	
0.75	0.75	100 L	700	10.2	75	77.3	76.2	0.70	2.05	1.7	4	2.2	60	67	▲ 1MB1553-1AD4 ■-■■■■	59	
1.1	1.1	100 L	710	14.9	77.7	79.4	78.2	0.70	2.9	1.9	4.8	2.5	60	67	▲ 1MB1553-1AD5 ■-■■■■	64	
1.5	1.5	112 M	720	19.9	79.7	80.3	78.6	0.70	3.9	2.1	5	2.8	60	70	▲ 1MB1553-1BD2 ■-■■■■	74	
2.2	2.2	132 S	720	29.1	81.9	83.4	82.9	0.73	5.3	2.1	6.1	2.7	62	76	▲ 1MB1553-1CD0 ■-■■■■	96	
3	3	132 M	725	39.5	83.5	84.4	83.6	0.74	7	2.4	6.4	2.9	62	76	▲ 1MB1553-1CD2 ■-■■■■	104	
4	4	160 M	728	52	84.5	86.0	86.2	0.74	9.2	1.9	5.4	2.4	61	68	▲ 1MB1553-1DD2 ■-■■■■	157	
5.5	5.5	160 M	732	72	86.2	87.3	86.6	0.74	12.5	2.1	5.9	2.6	61	68	▲ 1MB1553-1DD3 ■-■■■■	169	
7.5	7.5	160 L	735	98	87.3	87.9	87.0	0.77	16.1	1.8	6.3	2.7	61	68	▲ 1MB1553-1DD4 ■-■■■■	183	
11	11	180 L	725	145	88.6	89.7	89.6	0.74	24	2.1	5.1	2.4	67	82	▲ 1MB1553-1ED4 ■-■■■■	259	
15	15	200 L	730	196	89.6	90.1	89.4	0.73	33.5	3	6.8	3.7	65	70	▲ 1MB1553-2AD5 ■-■■■■	357	
18.5	18.5	225 S	732	241	90.1	90.6	90	0.75	39.5	2.5	5.9	3	56	70	▲ 1MB1553-2BD0 ■-■■■■	417	0.5
22	22	225 M	732	287	90.6	91.4	91.2	0.77	45.5	2.6	5.9	2.9	56	70	▲ 1MB1553-2BD2 ■-■■■■	425	0.55
30	30	250 M	735	390	91.3	91.8	91.5	0.79	60	2.6	6.1	3	60	74	▲ 1MB1553-2CD2 ■-■■■■	512	0.86
37	37	280 S	736	480	91.8	92.5	92.4	0.78	75	2.3	5.4	2.4	63	77	▲ 1MB1553-2DD0 ■-■■■■	680	1.1
45	45	280 M	738	582	92.2	92.8	92.6	0.8	88	2.5	5.9	2.5	65	79	▲ 1MB1553-2DD2 ■-■■■■	743	1.6
55	55	315 S	744	706	92.5	92.8	92.4	0.81	106	2.4	6.4	2.6	67	82	▲ 1MB5553-3AD0 ■-■■■■	1020	3.14
75	75	315 M	743	964	93.1	93.5	93.2	0.81	144	2.5	6.3	2.6	67	82	▲ 1MB5553-3AD2 ■-■■■■	1090	3.14
90	90	315 L	742	1158	93.4	93.9	93.7	0.82	170	2.4	6.3	2.5	67	82	▲ 1MB5553-3AD4 ■-■■■■	1150	3.76
110	110	315 L	742	1416	94.7	95.1	94.9	0.82	205	2.6	6.6	2.7	67	82	▲ 1MB5553-3AD5 ■-■■■■	1290	4.48
132	132	315 L	741	1701	94	94.4	94.2	0.82	245	2.4	6	2.5	67	82	▲ 1MB5553-3AD6 ■-■■■■	1370	5.1
160	160	315 L	741	2062	94.3	94.7	94.7	0.79	310	2.4	6.2	2.4	67	82	▲ 1MB5553-3AD7 ■-■■■■	1650	6.78
200	200	355 M	744	2567	94.6	95	95	0.8	380	2.3	7.1	2.7	73	88	▲ 1MB5553-3BD0 ■-■■■■	2340	11.3
250	250	355 M	744	3209	94.6	95	95	0.8	475	2.4	7.2	2.9	73	88	▲ 1MB5553-3BD1 ■-■■■■	2600	13.8
315	315	355 L	744	4043	94.6	94.9	94.6	0.8	600	2.4	7	2.9	73	88	▲ 1MB5553-3BD2 ■-■■■■	2610	13.8

Voltages		Version				Order code
50 Hz 230 VΔ/400 VY	60 Hz 460 VY	**Standard**	2	2		–
50 Hz 400 VΔ/690 VY	60 Hz 460 VΔ	**Standard**	3	4		–
50 Hz 500 VY		Without additional charge	2	7		–
50 Hz 500 VΔ		Without additional charge	4	0		–
For other voltages and more information, see from page 5/54			9	0		. . .
Types of construction		Version				Order code
Without flange	IM B3 [2]	**Standard**			A	–
With flange	IM B5 [2]	With additional charge			F	–
With flange	IM B14 [2]	With additional charge			K	–
For other types of construction and more information, see from page 5/65					■	. . .
Motor protection		Version				
Without		**Standard**			A	
PTC thermistor with 3 temperature sensors		With additional charge			B	
For other motor protection and more information, see from page 5/71					■	
Terminal box position		Version				
Terminal box at top		**Standard**			4	
For other terminal box positions and more information, see from page 5/76					■	
Special versions						Order code(s)
For options, see from page 5/91						1MB.553- . . . . ■-■■■■-Z . . .+. . .+. . .+. . .

[1] Noise values for line operation under load, tolerance +3dB(A).

[2] Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate.

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Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Article No. supplement: Additional identification code with order code and plain text if required	Frame size: 80	90	100	112	132	160	Motor version		
				1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
				1MB10.1								IE2
						1MB10.2						IE1
1MB10- . . . . ■ - ■ . . .			Order code									
Voltage at 50 Hz or 60 Hz (50 Hz power)												
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	**2**	**2**	**–**	□	□	□	□	□	□			
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	**3**	**4**	**–**	□	□	□	□	□	□			
50 Hz 500 VY	**2**	**7**	**–**	○	○	○	○	○	○			
50 Hz 500 VΔ	**4**	**0**	**–**	–	–	○	○	○	○			
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	**2**	**1**	**–**	✓	✓	✓	✓	✓	✓			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	**3**	**3**	**–**	✓	✓	✓	✓	✓	✓			
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	**2**	**3**	**–**	✓	✓	✓	✓	✓	✓			
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	**–**	✓	✓	✓	✓	✓	✓			
50 Hz 400 VY, 60 Hz 460 VY [1]	**0**	**2**	**–**	○	○	○	○	○	○			
50 Hz 400 VΔ, 60 Hz 460 VΔ [2]	**0**	**4**	**–**	○	○	○	○	○	○			
60 Hz 220 VΔ/380 VY	**1**	**7**	**–**	✓	✓	✓	✓	✓	✓	Not for:	1MB10.2	
60 Hz 230 VΔ/400 VY	**1**	**8**	**–**	✓	✓	✓	✓	✓	✓	Not for:	1MB10.2	
60 Hz 380 VΔ/660 VY	**3**	**0**	**–**	✓	✓	✓	✓	✓	✓	Not for:	1MB10.2	
60 Hz 400 VΔ/690 VY	**3**	**1**	**–**	✓	✓	✓	✓	✓	✓	Not for:	1MB10.2	
50 Hz 400 VY	**9**	**0**	**M4A**	○	○	○	○	○	○			
50 Hz 400 VΔ	**9**	**0**	**M4B**	○	○	○	○	○	○			
Voltage at 60 Hz (50 Hz power)												
220 VΔ/380 VY; 50 Hz power [3]	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓			
220 VΔ/380 VY; 60 Hz power	**9**	**0**	**M1A**	✓	✓	✓	✓	✓	✓			
380 VΔ/660 VY; 50 Hz power [3]	**9**	**0**	**M2B**	✓	✓	✓	✓	✓	✓			
380 VΔ/660 VY; 60 Hz power	**9**	**0**	**M1B**	✓	✓	✓	✓	✓	✓			
440 VY; 50 Hz power [3]	**9**	**0**	**M2C**	✓	✓	✓	✓	✓	✓			
440 VY; 60 Hz power	**9**	**0**	**M1C**	✓	✓	✓	✓	✓	✓			
440 VΔ; 50 Hz power [3]	**9**	**0**	**M2D**	✓	✓	✓	✓	✓	✓			
440 VΔ; 60 Hz power	**9**	**0**	**M1D**	✓	✓	✓	✓	✓	✓			
460 VY; 50 Hz power [3]	**9**	**0**	**M2E**	✓	✓	✓	✓	✓	✓			
460 VY; 60 Hz power	**9**	**0**	**M1E**	○	○	○	○	○	○			
460 VΔ; 50 Hz power [3]	**9**	**0**	**M2F**	✓	✓	✓	✓	✓	✓			
460 VΔ; 60 Hz power	**9**	**0**	**M1F**	○	○	○	○	○	○			
575 VY; 50 Hz power [3]	**9**	**0**	**M2G**	✓	✓	✓	✓	✓	✓			
575 VY; 60 Hz power	**9**	**0**	**M1G**	✓	✓	✓	✓	✓	✓			
575 VΔ; 50 Hz power [3]	**9**	**0**	**M2H**	✓	✓	✓	✓	✓	✓			
575 VΔ; 60 Hz power	**9**	**0**	**M1H**	✓	✓	✓	✓	✓	✓			
400 VΔ/690 VY; 50 Hz power [3]	**9**	**0**	**M2J**	✓	✓	✓	✓	✓	✓			
400 VΔ/690 VY; 60 Hz power	**9**	**0**	**M1J**	✓	✓	✓	✓	✓	✓			
480 VY; 50 Hz power [3]	**9**	**0**	**M2K**	✓	✓	✓	✓	✓	✓			
480 VY; 60 Hz power	**9**	**0**	**M1K**	✓	✓	✓	✓	✓	✓			
480 VΔ; 50 Hz power [3]	**9**	**0**	**M2L**	✓	✓	✓	✓	✓	✓			
480 VΔ; 60 Hz power	**9**	**0**	**M1L**	✓	✓	✓	✓	✓	✓			
230 VΔ/400 VY; 50 Hz power [3]	**9**	**0**	**M2M**	✓	✓	✓	✓	✓	✓			
230 VΔ/400 VY; 60 Hz power	**9**	**0**	**M1M**	✓	✓	✓	✓	✓	✓			
Voltage at 87 Hz (87 Hz power)												
400 VΔ [5]	**9**	**0**	**M3A**	✓	✓	✓	✓	✓	✓			
Non-standard voltage and/or frequencies												
Non-standard winding [4]	**9**	**0**	**M1Y •** and customer specifications	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge
– Not possible
• This order code only determines the price of the version – Additional plain text is required.

1) Delta connection is not possible.
2) Star connection is not possible.
3) A power of 3.7 kW is stamped on the rating plate for versions 1MB1... - 1BA2, 1MB1... - 1BB2, 1MB1... - 1CC2 and 1MB1... - 1DD2 at 60 Hz with 50 Hz power in accordance with the international efficiency classification to IEC 60034-30.
4) Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.
5) Only possible for 4-pole, 6-pole and 8-pole motors and in combination with the order codes **B40** and **B41**. The operating data for converter operation is also provided in a table on the additional rating plate. The motor contains winding version 50 Hz 230 VΔ.

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Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 / IE2
				1MB15.3 Basic Line															
							1MB16.3 Performance Line												
				1MB15.1 Basic Line															
							1MB16.1 Performance Line												
1MB15 . . - . . . . ■ - ■ .			Order code																
1MB16 . . - . . . . ■ - ■ .																			
Voltage at 50 Hz or 60 Hz																			
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	**2**	**2**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□			
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	**3**	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□			
50 Hz 400 VY, 60 Hz 460 VY [1]	**0**	**2**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	○			
50 Hz 400 VΔ, 60 Hz 460 VΔ [2]	**0**	**4**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	○			
50 Hz 500 VY	**2**	**7**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	○			
50 Hz 500 VΔ	**4**	**0**	**–**	–	–	–	○	○	○	○	○	○	○	○	○	○			
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	**2**	**1**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	**3**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	**2**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
60 Hz 220 VΔ/380 VY	**1**	**7**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
60 Hz 230 VΔ/400 VY	**1**	**8**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
60 Hz 380 VΔ/660 VY	**3**	**0**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
60 Hz 400 VΔ/690 VY	**3**	**1**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 400 VY	**9**	**0**	**M4A**	○	○	○	○	○	○	○	○	○	○	○	○	○			
50 Hz 400 VΔ	**9**	**0**	**M4B**	○	○	○	○	○	○	○	○	○	○	○	○	○			
Voltage at 60 Hz and required power																			
220 VΔ/380 VY; 50 Hz power [3]	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
220 VΔ/380 VY; 60 Hz power	**9**	**0**	**M1A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
380 VΔ/660 VY; 50 Hz power [3]	**9**	**0**	**M2B**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
380 VΔ/660 VY; 60 Hz power	**9**	**0**	**M1B**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
440 VY; 50 Hz power [3]	**9**	**0**	**M2C**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
440 VY; 60 Hz power	**9**	**0**	**M1C**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
440 VΔ; 50 Hz power [3]	**9**	**0**	**M2D**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
440 VΔ; 60 Hz power	**9**	**0**	**M1D**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
460 VY; 50 Hz power [3]	**9**	**0**	**M2E**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
460 VY; 60 Hz power	**9**	**0**	**M1E**	–	–	–	○	○	○	○	○	○	○	○	○	○			
460 VΔ; 50 Hz power [3]	**9**	**0**	**M2F**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
460 VΔ; 60 Hz power	**9**	**0**	**M1F**	–	–	–	○	○	○	○	○	○	○	○	○	○			
575 VY; 50 Hz power [3]	**9**	**0**	**M2G**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
575 VY; 60 Hz power	**9**	**0**	**M1G**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
575 VΔ; 50 Hz power [3]	**9**	**0**	**M2H**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
575 VΔ; 60 Hz power	**9**	**0**	**M1H**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
400 VΔ/690 VY; 50 Hz power [3]	**9**	**0**	**M2J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
400 VΔ/690 VY; 60 Hz power	**9**	**0**	**M1J**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
480 VY; 50 Hz power [3]	**9**	**0**	**M2K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
480 VY; 60 Hz power	**9**	**0**	**M1K**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
480 VΔ; 50 Hz power [3]	**9**	**0**	**M2L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
480 VΔ; 60 Hz power	**9**	**0**	**M1L**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
230 VΔ/400 VY; 50 Hz power [3]	**9**	**0**	**M2M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
230 VΔ/400 VY; 60 Hz power	**9**	**0**	**M1M**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Voltage at 87 Hz (87 Hz power)																			
400 VΔ [5]	**9**	**0**	**M3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–			
Non-standard voltage and/or frequencies																			
Non-standard winding [4]	**9**	**0**	**M1Y •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge
– Not possible
• This order code only determines the price of the version – Additional plain text is required.

1) Delta connection is not possible.

2) Star connection is not possible.

3) A power of 3.7 kW is stamped on the rating plate for versions 1MB1... - 1BA2, 1MB1... - 1BB2, 1MB1... - 1CC2 and 1MB1... - 1DD2 at 60 Hz with 50 Hz power in accordance with the international efficiency classification to IEC 60034-30.

4) Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside the range on request). Frequency, connection, for 60 Hz, additionally required rated power in kW.

5) Only possible for 4-pole, 6-pole and 8-pole motors and in combination with the order codes **B40** and **B41**. The operating data for converter operation is also provided in a table on the additional rating plate. The motor contains winding version 50 Hz 230 VΔ.

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Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version: IEC	Ex eb (Zone 1)	IE3
				1MB1543 Basic Line															
							1MB1643 Performance Line												
															1MB5543 Basic Line				
															1MB5643 Performance Line				
1MB1543 - . . . . ■ - ■ .																			
1MB1643 - . . . . ■ - ■ .																			
1MB5543 - . . . . ■ - ■ .			Order code																
1MB5643 - . . . . ■ - ■ .																			
Voltage at 50 Hz or 60 Hz [3]																			
50 Hz 230 VΔ/400 VY	**2**	**2**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	–			
50 Hz 400 VΔ/690 VY	**3**	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□			
50 Hz 500 VY	**2**	**7**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	–			
50 Hz 500 VΔ [1]	**4**	**0**	**–**	–	–	–	○	○	○	○	○	○	○	○	○	○			
50 Hz 220 VΔ/380 VY	**2**	**1**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–			
50 Hz 230 VΔ	**0**	**1**	**–**	○	○	○	○	○	○	○	○	○	–	–	–	–			
50 Hz 380 VΔ/660 VY	**3**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 240 VΔ [1]	**2**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
50 Hz 415 VΔ	**3**	**5**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 400 VY	**9**	**0**	**M4A**	○	○	○	○	○	○	○	○	○	○	○	○	–			
50 Hz 400 VΔ	**9**	**0**	**M4B**	○	○	○	○	○	○	○	○	○	○	○	○	○			
Voltage at 60 Hz and required power																			
220 VΔ/380 VY; 50 Hz power	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–			
380 VΔ/660 VY; 50 Hz power [2]	**9**	**0**	**M2B**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
440 VY; 50 Hz power	**9**	**0**	**M2C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
440 VΔ; 50 Hz power	**9**	**0**	**M2D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
460 VY; 50 Hz power	**9**	**0**	**M2E**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
460 VΔ; 50 Hz power	**9**	**0**	**M2F**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
575 VY; 50 Hz power [2]	**9**	**0**	**M2G**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
575 VΔ; 50 Hz power	**9**	**0**	**M2H**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard voltage and/or frequencies																			
Non-standard winding [2]	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge
– Not possible
• This order code only determines the price of the version – Additional plain text is required.

[1] Special certification is required for 60 Hz.

[2] Plain text must be specified in the order:
Voltage between 200 V and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

[3] Motors in these frame sizes have a second rating plate (T1/T2 and T3) as standard.
The T3 power is stamped on the rating plate as standard if the following motors are selected with PTC thermistor (protection by PTC thermistor only) or voltage code "**90**":
– 2-pole motors: Frame sizes 132 to 160
– 4-pole motors: Frame size 180
Alternatively, with order code **B33**, the "T1/T2 power is stamped on the rating plate".
– 2-pole motors: Frame sizes 132 to 200
– 4-pole motors: Frame sizes 180 to 200

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Selection and ordering data

Voltages	Article No. supplement: Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text if required	Frame size													Motor version		
				71	80	90	100	112	132	160	180	200	225	250	280	315	355	IEC	Ex db, Ex db eb (Zone 1)	IE3
				1MB1553																
				1MB5553																
	1MB.553 - . . . . ■ - ■ .		Order code																	
Voltage at 50 Hz or 60 Hz																				
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	**2**	**2**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	–	–			
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	**3**	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
50 Hz 500 VY	**2**	**7**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	–	–			
50 Hz 500 VΔ	**4**	**0**	**–**	–	–	–	○	○	○	○	○	○	○	○	○	○	○			
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	**2**	**1**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	**3**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	**2**	**3**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
50 Hz 400 VY	**9**	**0**	**M4A**	○	○	○	○	○	○	○	○	○	○	○	○	–	–			
50 Hz 400 VΔ	**9**	**0**	**M4B**	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
50 Hz 230 VΔ	**0**	**1**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	–	–			
50 Hz 400 VY [1]	**0**	**2**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	–	–			
50 Hz 400 VΔ [2]	**0**	**4**	**–**	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
Voltage at 60 Hz and required power																				
220 VΔ/380 VY; 50 Hz power [3]	**9**	**0**	**M2A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
380 VΔ/660 VY; 50 Hz power [3]	**9**	**0**	**M2B**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
440 VY; 50 Hz power [3]	**9**	**0**	**M2C**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
440 VΔ; 50 Hz power [3]	**9**	**0**	**M2D**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
460 VY; 50 Hz power [3]	**9**	**0**	**M2E**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
460 VΔ; 50 Hz power [3]	**9**	**0**	**M2F**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
575 VY; 50 Hz power [3]	**9**	**0**	**M2G**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–			
575 VΔ; 50 Hz power [3]	**9**	**0**	**M2H**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Voltage at 87 Hz (87 Hz power)																				
400 VΔ [5]	**9**	**0**	**M3A**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–			
Non-standard voltage and/or frequencies																				
Non-standard winding [4]	**9**	**0**	**M1Y** • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge
– Not possible
• This order code only determines the price of the version – Additional plain text is required.

1) Delta connection is not possible.

2) Star connection is not possible.

3) Power at 60 Hz according to the specification in the selection and ordering data of the basic motor.

4) Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

5) Only possible for 4-pole, 6-pole and 8-pole motors and in combination with the order codes **B40** and **B41**. The operating data for converter operation is also provided in a table on the additional rating plate. The motor contains winding version 50 Hz 230 VΔ.

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Selection and ordering data

Voltages	Article No. supplement			Frame size		Motor version		
	Voltage code 12th and 13th position of the Article No.		Additional identification code with order code and plain text, if required	**400, 450**				
				$P_{rated} \leq$ **630 kW**	$P_{rated} >$ **630 kW**			
				1MB55 . 4				
				1MB55 . 3				
				1MB58 . 3				
1MB5 . . . - . . . ■ - ■ . . .			Order code			IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4 / IE3
Voltage at 50 Hz or 60 Hz								
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	**3**	**4**	–	□	O. R.			
50 Hz 500 VΔ	**4**	**0**	–	○	○			
60 Hz 575 VΔ				○	□ 2)			
50 Hz 690 VΔ	**4**	**7**	–	✓	□			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	**3**	**3**	–	✓	O. R.			
50 Hz 415 VΔ, 60 Hz 480 VΔ	**3**	**5**	–	✓	O. R.			
50 Hz 600 VΔ, 60 Hz 690 VΔ	**4**	**4**	–	✓	✓			
50 Hz 660 VΔ	**4**	**6**	–	✓	✓			
Voltage at 50 Hz and required power								
400 VΔ; 50 Hz power	**9**	**0**	**M4B**	✓	O. R.			
Voltage at 60 Hz and required power								
440 VΔ; 60 Hz power	**9**	**0**	**M1D**	✓	O. R.			
460 VΔ; 60 Hz power	**9**	**0**	**M1F**	✓	O. R.			
575 VΔ; 60 Hz power	**9**	**0**	**M1H**	✓	✓ 2)			
400 VΔ/690 VY; 60 Hz power	**9**	**0**	**M1J**	O. R.	O. R.			
480 VΔ; 60 Hz power	**9**	**0**	**M1L**	✓	O. R.			
440 VΔ; 50 Hz power	**9**	**0**	**M2D**	✓	O. R.			
460 VΔ; 50 Hz power	**9**	**0**	**M2F**	✓	O. R.			
575 VΔ; 50 Hz power	**9**	**0**	**M2H**	✓	✓ 2)			
400 VΔ/690 VY; 50 Hz power	**9**	**0**	**M2J**	O. R.	O. R.			
480 VΔ; 50 Hz power	**9**	**0**	**M2L**	✓	O. R.			
Non-standard voltage and/or frequencies								
Non-standard winding 1)	**9**	**0**	**M1Y** • and customer specifications	✓	✓			

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
O. R. Possible on request
✓ With additional charge

1) Plain text must be specified in the order: Voltage between 380 and 690 V (voltages outside this range are available on request), frequency, circuit, rated power in kW.

2) 2-pole version, frame size 450 for 60 Hz operation on request.

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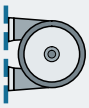
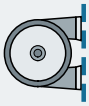
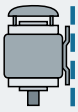
Aluminum series 1MB10

Selection and ordering data

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code -Z	Frame size: 80	90	100	112	132	160	Motor version		
				1MB10.3								
				1MB10.1								
						1MB10.2						
1MB10 . . - . . . . . - . ■ . . (-Z)			Order code									
Without flange												
IM B3		**A**	–	□	□	□	□	□	□			
IM B6 [1]		**T**	–	□	□	□	□	□	□			
IM B7 [1]		**U**	–	□	□	□	□	□	□			
IM B8 [1]		**V**	–	□	□	□	□	□	□			
IM V6 [1]		**D**	–	□	□	□	□	□	□			
IM V5 with protective cover [1] [2]		**C**	**H00**	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/58.

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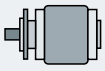
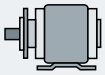
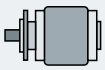
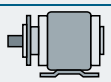
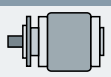
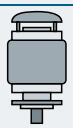
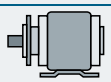
Types of construction		Article No. supplement		Frame size						Motor version		
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**80**	**90**	**100**	**112**	**132**	**160**			
				1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
				1MB10.1								IE2
						1MB10.2						IE1
1MB10 . . - . . . . . - .		**■**	**. . (-Z)**	Order code								
With flange		**Acc. to EN 50347 Acc. to DIN 42 948**		**FF165 A 200**	**FF165 A 200**	**FF215 A 250**	**FF215 A 250**	**FF265 A 300**	**FF300 A 350**			
IM B5		**F**	**–**	✓	✓	✓	✓	✓	✓			
IM V1 with protective cover 1) 2)		**G**	**H00**	✓	✓	✓	✓	✓	✓			
IM V3 1)		**H**	**–**	✓	✓	✓	✓	✓	✓			
IM B35		**J**	**–**	✓	✓	✓	✓	✓	✓			
With flange next largest		**Acc. to EN 50347 Acc. to DIN 42 948**		**– –**	**FF215 A 250**	**FF265 A 300**	**FF265 A 300**	**FF300 A 350**	**– –**			
IM B5		**F**	**P01**	–	✓	✓	✓	✓	–			
IM V1 with protective cover 1) 2)		**G**	**P01+H00**	–	✓	✓	✓	✓	–			
IM V3 1)		**H**	**P01**	–	✓	✓	✓	✓	–			
IM B35		**J**	**P01**	–	✓	✓	✓	✓	–			
With flange next smallest		**Acc. to EN 50347 Acc. to DIN 42 948**		**FF130 A 160**	**– –**	**FF165 A 200**	**FF165 A 200**	**FF215 A 250**	**– –**			
IM B5		**F**	**P02**	✓	–	✓	✓	✓	–			
IM V1 with protective cover 1) 2)		**G**	**P02+H00**	✓	–	✓	✓	✓	–			
IM V3 1)		**H**	**P02**	✓	–	✓	✓	✓	–			
IM B35		**J**	**P02**	✓	–	✓	✓	✓	–			

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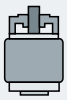
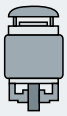
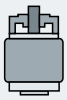
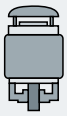
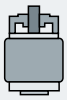
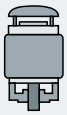
Aluminum series 1MB10

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 80	90	100	112	132	160	Motor version
				1MB10.3						IEC: Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2): IE3
				1MB10.1						IE2
						1MB10.2				IE1
1MB10 . . - . . . . . - . ■ . . (-Z)			Order code							
With flange		**Acc. to EN 50347 Acc. to DIN 42 948**		**FT100 C 120**	**FT115 C 140**	**FT130 C 160**	**FT130 C 160**	**FT165 C 200**	**FT215 C 250**	
IM B14 [1]		**K**	**–**	✓	✓	✓	✓	✓	✓	
IM V19 [1]		**L**	**–**	✓	✓	✓	✓	✓	✓	
IM V18 with protective cover [1] [2]		**M**	**H00**	✓	✓	✓	✓	✓	✓	
IM B34		**N**	**–**	✓	✓	✓	✓	✓	✓	
With flange next largest		**Acc. to EN 50347 Acc. to DIN 42 948**		**FT115 C 140**	**FT130 C 160**	**FT165 C 200**	**FT165 C 200**	**FT215 C 250**	**– –**	
IM B14 [1]		**K**	**P01**	✓	✓	✓	✓	✓	–	
IM V19 [1]		**L**	**P01**	✓	✓	✓	✓	✓	–	
IM V18 with protective cover [1] [2]		**M**	**P01+H00**	✓	✓	✓	✓	✓	–	
IM B34		**N**	**P01**	✓	✓	✓	✓	✓	–	
With flange next smallest		**Acc. to EN 50347 Acc. to DIN 42 948**		**– –**	**– –**	**FT115 C 140**	**– –**	**– –**	**– –**	
IM B14 [1]		**K**	**P02**	–	–	✓	–	–	–	
IM V19 [1]		**L**	**P02**	–	–	✓	–	–	–	
IM V18 with protective cover [1] [2]		**M**	**P02+H00**	–	–	✓	–	–	–	
IM B34		**N**	**P02**	–	–	✓	–	–	–	

□ Standard version
✓ With additional charge
– Not possible

[1] The following applies for explosion-protected motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

[2] The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

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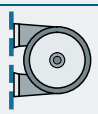
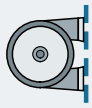
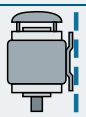
Selection and ordering data

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version: IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 / IE2
			1MB15.3 Basic Line																
						1MB16.3 Performance Line													
			1MB15.1 Basic Line																
						1MB16.1 Performance Line													
1MB15 . . - . . . . - . ■ . . (-Z)																			
1MB16 . . - . . . . - . ■ . . (-Z)		Order code																	
Without flange																			
IM B3	**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B6 1) 	**T**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B7 1) 	**U**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B8 1)	**V**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM V6 1)	**D**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM V5 with protective cover 1) 2) 	**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/61.

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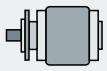
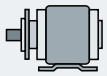
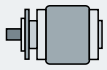
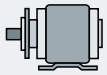
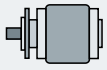
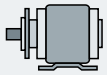
Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version
			1MB15.3 Basic Line														IEC: Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2): IE3
						1MB16.3 Performance Line											
			1MB15.1 Basic Line														IE2
						1MB16.1 Performance Line											
1MB15 . . - . . . . . - . ■ . . (-Z)																	
1MB16 . . - . . . . . - . ■ . . (-Z)		Order code															
With flange	**Acc. to EN 50347 Acc. to DIN 42 948**		FF130 A 160	FF165 A 200	FF165 A 200	FF215 A 250	FF215 A 250	FF265 A 300	FF300 A 350	FF300 A 350	FF350 A 400	FF400 A 450	FF500 A 550	FF500 A 550	FF600 A 660	FF600 A 660	
IM B5 	**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	
IM V1 with protective cover 1) 2)	**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IM V3 1)	**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	
IM B35 1) 	**J**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With flange next largest	**Acc. to EN 50347 Acc. to DIN 42 948**		– –	– –	FF215 A 250	FF265 A 300	FF265 A 300	FF300 A 350	– –	– –	– –	– –	– –	– –	– –	– –	
IM B5 	**F**	**P01**	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V1 with protective cover 1) 2)	**G**	**P01+H00**	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V3 1)	**H**	**P01**	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM B35 1) 	**J**	**P01**	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
With flange next smallest	**Acc. to EN 50347 Acc. to DIN 42 948**		– –	FF130 A 160	– –	FF165 A 200	FF165 A 200	FF215 A 250	FF265 A 300	FF265 A 300	FF300 A 350	– –	– –	– –	– –	– –	
IM B5 	**F**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V1 with protective cover 1) 2)	**G**	**P02+H00**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V3 1)	**H**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM B35 1) 	**J**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	

For legends and footnotes, see page 5/61.

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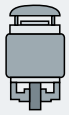
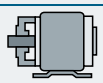
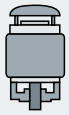
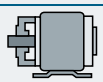
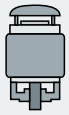
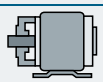
Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version
			1MB15.3 Basic Line														IEC: Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2): IE3
						1MB16.3 Performance Line											
			1MB15.1 Basic Line														IE2
						1MB16.1 Performance Line											
1MB15 . . - . . . . . - . ■ **. . (-Z)**																	
1MB16 . . - . . . . . - . ■ **. . (-Z)**		Order code															
With flange	**Acc. to EN 50347 Acc. to DIN 42 948**		FT85 C 105	FT100 C 120	FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT215 C 250	– –	– –	– –	– –	– –	– –	– –	– –	
IM B14 1)	K	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V19 1)	L	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 with protective cover 1) 2) 	M	H00	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM B34 	N	–	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
With flange next largest	**Acc. to EN 50347 Acc. to DIN 42 948**		FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT165 C 200	FT215 C 250	– –	– –	– –	– –	– –	– –	– –	– –	– –	
IM B14 1)	K	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V19 1)	L	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V18 with protective cover 1) 2) 	M	P01+H00	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM B34 	N	P01	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
With flange next smallest	**Acc. to EN 50347 Acc. to DIN 42 948**		– –	– –	– –	FT115 C 140	– –	– –	– –	– –	– –	– –	– –	– –	– –	– –	– –	
IM B14 1)	K	P02	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	
IM V19 1)	L	P02+H00	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	
IM V18 with protective cover 1) 2) 	M	P02	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	
IM B34 	N	P02	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	

□ Standard version
✓ With additional charge
– Not possible

1) The following applies for explosion-protected motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

2) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

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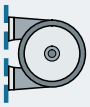
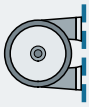
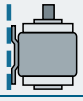
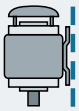
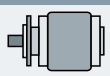
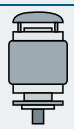
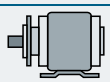
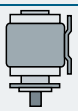
Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Selection and ordering data

Types of construction		Article No. supplement: Type of construction code letter 14th position of the Article No.	Article No. supplement: For types of construction with order code(s) Article No. with additional identification code -Z	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version
				1MB1543 Basic Line														IEC Ex eb (Zone 1) IE3
							1MB1643 Performance Line											
														1MB5543 Basic Line				
														1MB5643 Performance Line				
1MB1543 - . . . . . - . ■ . . (-Z)																		
1MB1643 - . . . . . - . ■ . . (-Z)																		
1MB5543 - . . . . . - . ■ . . (-Z)																		
1MB5643 - . . . . . - . ■ . . (-Z)			Order code															
Without flange																		
IM B3 2)		**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
IM B6 1) 2)		**T**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
IM B7 1) 2)		**U**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
IM B8 1) 2)		**V**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
IM V6 1) 2)		**D**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
IM V5 with protective cover 1) 2)		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With flange		**Acc. to EN 50347 Acc. to DIN 42 948**		FF130 A 160	FF165 A 200	FF165 A 200	FF215 A 250	FF215 A 250	FF265 A 300	FF300 A 350	FF300 A 350	FF350 A 400	FF400 A 450	FF500 A 550	FF500 A 550	FF600 A 660	FF600 A 660	
IM B5 2)		**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	
IM V1 with protective cover 1) 2) 3)		**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IM V3 1) 2)		**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	
IM B35 1) 2)		**J**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IM V15 1) 2)		**W**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 5/64.

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Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version
			1MB1543 Basic Line														IEC Ex eb (Zone 1) IE3
						1MB1643 Performance Line											
												1MB5543 Basic Line					
												1MB5643 Performance Line					
1MB1543 - . . . . . - . ■ . . (-Z)																	
1MB1643 - . . . . . - . ■ . . (-Z)																	
1MB5543 - . . . . . - . ■ . . (-Z)																	
1MB5643 - . . . . . - . ■ . . (-Z)		Order code															
With flange next largest	**Acc. to EN 50347**		–	–	–	FF265	FF265	FF300	FF350	–	–	–	–	–	–	–	
	Acc. to DIN 42 948		–	–	–	A 300	A 300	A 350	A 400	–	–	–	–	–	–	–	
IM B5 2)	**F**	**P01**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V1 with protective cover 1) 2) 3)	**G**	**P01+H00**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V3 1) 2)	**H**	**P01**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM B35 1) 2)	**J**	**P01**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V15 1) 2)	**W**	**P01**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	
With flange next smallest	**Acc. to EN 50347**		–	FF130	–	FF165	FF165	FF215	FF265	FF265	FF300	–	–	–	–	–	
	Acc. to DIN 42 948		–	A 160	–	A 200	A 200	A 250	A 300	A 300	A 350	–	–	–	–	–	
IM B5 2)	**F**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V1 with protective cover 1) 2) 3)	**G**	**P02+H00**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V3 1) 2)	**H**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM B35 1) 2)	**J**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	
IM V15 1) 2)	**W**	**P02**	–	✓	–	✓	✓	✓	✓	✓	✓	–	–	–	–	–	

For legends and footnotes, see page 5/64.

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Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Types of construction	Article No. supplement: Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version
			1MB1543 Basic Line														IEC Ex eb (Zone 1) IE3
						1MB1643 Performance Line											
														1MB5543 Basic Line			
														1MB5643 Performance Line			
1MB1543 - . . . . . - . ■ . . (-Z)																	
1MB1643 - . . . . . - . ■ . . (-Z)																	
1MB5543 - . . . . . - . ■ . . (-Z)																	
1MB5643 - . . . . . - . ■ . . (-Z)		Order code															
With flange	**Acc. to EN 50347 Acc. to DIN 42 948**		FT85 C 105	FT100 C 120	FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT215 C 250	– –	– –	– –	– –	– –	– –	– –	
IM B14 1) 2)	**K**	**–**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V19 1) 2)	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 with protective cover 1) 2) 3)	**M**	**H00**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM B34 1) 2)	**N**	**–**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
With flange next largest	**Acc. to EN 50347 Acc. to DIN 42 948**		FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT165 C 200	FT215 C 250	– –	– –	– –	– –	– –	– –	– –	– –	
IM B14 1) 2) 4)	**K**	**P01**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V19 1) 2) 4)	**L**	**P01**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM V18 with protective cover 1) 2) 3) 4)	**M**	**P01+H00**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
IM B34 1) 2) 4)	**N**	**P01**	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	–	
With flange next smallest	**Acc. to EN 50347 Acc. to DIN 42 948**		– –	– –	– –	FT115 C 140	– –	– –	– –	– –	– –	– –	– –	– –	– –	– –	
IM B14 1) 2) 4)	**K**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	
IM V19 1) 2) 4)	**L**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	
IM V18 with protective cover 1) 2) 3) 4)	**M**	**P02+H00**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	
IM B34 1) 2) 4)	**N**	**P02**	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	

□ Standard version ✓ With additional charge – Not possible

1) The following applies for explosion-protected motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

2) The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code **H03**), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

4) With reference to standard EN 50347, flanges that are 2 steps larger are used with option P01 in the frame sizes 71 and 80.

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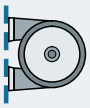
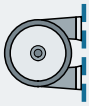
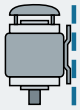
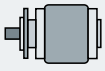
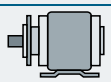
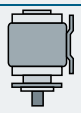
Selection and ordering data

Types of construction		Article No. supplement		Frame size														Motor version		
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	71	80	90	100	112	132	160	180	200	225	250	280	315	355			
				1MB1553														IEC	Ex db, Ex db eb (Zone 1)	IE3
														1MB5553						
1MB.553 - . . . . . - . ■ . . (-Z)		■	Order code																	
Without flange																				
IM B3		**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B6 1)		**T**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	–			
IM B7 1)		**U**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	–			
IM B8		**V**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	–			
IM V6 1) 3)		**D**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	–			
IM V5 with protective cover 1) 3)		**C**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
With flange		**Acc. to EN 50347 Acc. to DIN 42 948**		FF130 A 160	FF165 A 200	FF165 A 200	FF215 A 250	FF215 A 250	FF265 A 300	FF300 A 350	FF300 A 350	FF350 A 400	FF400 A 450	FF500 A 550	FF500 A 550	FF600 A 660	FF740 A 800			
IM B5 1)		**F**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
IM V1 with protective cover 2) 3)		**G**	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V3 3)		**H**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
IM B35		**J**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V15 2) 3)		**W**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			

For legends and footnotes, see page 5/66.

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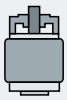
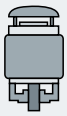
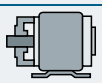
Cast-iron series 1MB1553, 1MB5553

Types of construction	Article No. supplement		Frame size													Motor version
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**	**355**	
			1MB1553														IEC Ex db, Ex db eb (Zone 1) IE3
													1MB5553				
1MB.553 - . . . . . - .	**■ . . (-Z)**	Order code															
With flange	**Acc. to EN 50347 Acc. to DIN 42 948**		FT85 C 105	FT100 C 120	FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT215 C 250	– –	– –	– –	– –	– –	– –	– –	
IM B14 3)	**K**	**–**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V19 3) 	**L**	**–**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM V18 with protective cover 2) 3) 	**M**	**H00**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	
IM B34 	**N**	**–**	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	

□ Standard version
✓ With additional charge
– Not possible

1) Only possible for frame size 315 S/M (horizontal mounting).

2) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

3) The following applies for explosion-protected motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

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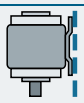
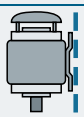
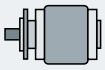
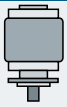
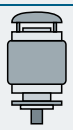
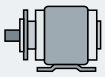
Selection and ordering data

Types of construction		Article No. supplement		Frame size		Motor version		
		Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code **-Z**	**400**	**450**			
				1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
				1MB55 . 3				IE3
				1MB58 . 3				
1MB5 . . . - . . . . . - . ■ **. . (-Z)**			Order code					
Without flange								
IM B3 [1] [2]		**A**	–	□	□			
IM V6 [2]		**D**	–	O. R. [7]	O. R. [7]			
IM V5 without protective cover [2]		**C**	–	O. R. [7]	O. R. [7]			
IM V5 with protective cover [2] [3] [4]		**C**	**H00**	O. R. [7]	O. R. [7]			
With flange		**EN 50347 DIN 42948**		**FF940 A 1000**	**FF1080 A 1150**			
IM B5 [2] [5]		**F**	–	✓ [6]	✓ [6]			
IM V1 without protective cover [2]		**G**	–	✓ [7]	✓ [7]			
IM V1 with protective cover [2] [3] [4]		**G**	**H00**	✓ [7]	✓ [7]			
IM B35 [3]		**J**	–	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge

1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

2) The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

3) In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

4) The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

5) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

6) For machines, type of construction IM B5, provide an additional support foot at the NDE. The support foot is not included in the scope of supply. Use an appropriately sized support foot with the appropriate rigidity. The support foot must be able to support the total weight of the machine.

7) Not available for 2-pole motors.

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Aluminum series 1MB10

Selection and ordering data

Motor protection	Article No. supplement		Frame size						Motor version		
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text, if required	80	90	100	112	132	160			
			1MB10.3								
			1MB10.1						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
					1MB10.2						IE2
											IE1
1MB10 . . - . . . . . - . . . ■ .		Order code									
Motor protection											
None (standard)	**A**	–	□	□	□	□	□	□			
3 PTC thermistors – for tripping (2 terminals) [1]	**B**	–	✓	✓	✓	✓	✓	✓			
6 PTC thermistors – for warning and tripping (4 terminals) [1]	**C**	–	✓	✓	✓	✓	✓	✓			
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	–	✓	✓	✓	✓	✓	✓			
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	–	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [1] [2]	**H**	–	–	–	✓	✓	✓	✓			
1 Pt1000 resistance thermometer (2 terminals) [1]	**K**	–	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals) [1]	**L**	–	✓	✓	✓	✓	✓	✓			

□ Standard version
✓ With additional charge
– Not possible

[1] Evaluation with associated tripping unit (see Catalog IC 10) is recommended. In converter operation, PTC thermistor motor protection is always required.

[2] In combination with the 15th position of the Article No. "**H**", the order codes **Q02** and **Q03** are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

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Selection and ordering data

Motor protection	Article No. supplement		Frame size													Motor version		
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text, if required	71	80	90	100	112	132	160	180	200	225	250	280	315			
			1MB15.3 Basic Line													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
						1MB16.3 Performance Line												
			1MB15.1 Basic Line															IE2
						1MB16.1 Performance Line												
1MB15 . . - . . . . . - . .	■ .																	
1MB16 . . - . . . . . - . .	■ .	Order code																
Motor protection																		
None (standard)	**A**	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for:	1MB15.. Basic Line	
3 PTC thermistors – for tripping (2 terminals) [1]	**B**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6 PTC thermistors – for warning and tripping (4 terminals) [2]	**C**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB15.. Basic Line	
			–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	MB16.. Performance Line	
1 KTY84-130 temperature sensor (2 terminals) [2]	**F**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 KTY84-130 temperature sensors (4 terminals) [2]	**G**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [2] [3]	**H**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
6 Pt100 resistance thermometers – 2-wire input (12 terminals) [2]	**J**	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
1 Pt1000 resistance thermometer (2 terminals) [2]	**K**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

□ Standard version
✓ With additional charge
– Not possible

[1] For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code letter B) is already included in the basic price. For the Performance Line, the option "without motor protection" (motor protection code letter A) is not possible.

[2] Evaluation with associated tripping unit (see Catalog IC 10) is recommended. In converter operation, PTC thermistor motor protection is always required.

[3] In combination with the 15th position of the Article No. "**H**", the order codes **Q02** and **Q03** are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

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Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Selection and ordering data

Motor protection	Article No. supplement: Motor protection code letter 15th position of the Article No.	Article No. supplement: Additional identification code with order code and plain text, if required	Frame size: 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version
			1MB1543 Basic Line													IEC Ex eb (Zone 1) IE3
						1MB1643 Performance Line										
												1MB5543 Basic Line				
												1MB5643 Performance Line				
1MB1543 - . . . . . - . .	■ .															
1MB1643 - . . . . . - . .	■ .															
1MB5543 - . . . . . - . .	■ .															
1MB5643 - . . . . . - . .	■ .	Order code														
Motor protection																
Without (standard) [1]	**A**	–	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for: 1MB.5.. Basic Line
3 PTC thermistors – for tripping (2 terminals) [1] [2] [3]	**B**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB.5.. Basic Line
			□	□	□	□	□	□	□	□	□	□	□	□	□	Only for: MB.6.. Performance Line
6 PTC thermistors – for warning and tripping (4 terminals) [2] [3]	**C**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

□ Standard version
✓ With additional charge

1) For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code letter B) is already included in the basic price. For the Performance Line, the option "without motor protection" (motor protection code letter A) is not possible.

2) Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

3) Motors in these frame sizes have a second rating plate (T1/T2 and T3) as standard.
The T3 power is stamped on the rating plate as standard if the following motors are selected with PTC thermistor (protection by PTC thermistor only) or voltage code "**90**":
– 2-pole motors: Frame sizes 132 to 160
– 4-pole motors: Frame size 180
Alternatively, with order code **B33**, the "T1/T2 power is stamped on the rating plate".
– 2-pole motors: Frame sizes 132 to 200
– 4-pole motors: Frame sizes 180 to 200

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Selection and ordering data

Motor protection	Article No. supplement		Frame size														Motor version	
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text, if required	71	80	90	100	112	132	160	180	200	225	250	280	315	355	IEC	Ex db, Ex db eb (Zone 1) IE3
			1MB1553															
			1MB5553															
1MB.553 - . . . . . - . . ■ .		Order code																
Motor protection																		
None (standard)	**A**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□	□		
3 PTC thermistors – for tripping (2 terminals) [1]	**B**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 PTC thermistors – for warning and tripping (4 terminals) [1] [2]	**C**	**–**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [2]	**H**	**Q60**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 2-wire input (12 terminals) [2] [3]	**J**	**Q61**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓		
1 Pt1000 resistance thermometers (2 terminals) [1]	**K**	**Q35**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
2 Pt1000 resistance thermometers (4 terminals) [2]	**L**	**Q36**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3 Pt100 resistance thermometers – 3-wire input (9 terminals) [2] [3]	**Q**	**Q63**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓		
6 Pt100 resistance thermometers – 3-wire input (18 terminals) [2] [3]	**R**	**Q64**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓		

□ Standard version
✓ With additional charge
– Not possible

[1] Mandatory winding monitoring of the motors suitable for converter operation.

[2] Maximum number of terminals for accessories, see the terminal box concept.

[3] Auxiliary terminal box required; option in Ex eb with order code **R62** or **R63**

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Selection and ordering data

Motor protection	Article No. supplement		Frame size		Motor version		
	Motor protection code letter 15th position of the Article No.	Additional identification code with order code and plain text, if required	**400**	**450**			
			1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
			1MB55 . 3				IE3
			1MB58 . 3				
1MB5 . . . - . . . . . - . . ■ .		Order code					
Motor protection							
None (standard)	**A**	–	□	□			
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**B**	–	✓	✓			
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**C**	–	✓	✓			
1 KTY84-130 temperature sensor (2 terminals) [1]	**F**	–	✓	✓			
2 KTY84-130 temperature sensors (4 terminals) [1]	**G**	–	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	**H**	–	✓	✓			
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	**J**	–	✓	✓			
1 Pt1000 resistance thermometer (2 terminals)	**K**	–	✓	✓			
2 Pt1000 resistance thermometers (4 terminals)	**L**	–	✓	✓			
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**P**	–	✓	✓			
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q**	–	✓	✓			
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**R**	–	✓	✓			
3 NTC thermistors – for tripping (6 terminals)	**Z**	**Q2A**	✓	✓			

□ Standard version
✓ With additional charge

Note:

Options are available specifically for bearing protection – for order codes and descriptions, see from page 5/96.

[1] Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

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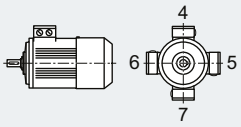
Selection and ordering data

Terminal box position	Article No. supplement		Frame size						Motor version		
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text, if required	**80**	**90**	**100**	**112**	**132**	**160**			
			1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
			1MB10.1								IE2
					1MB10.2						IE1
1MB10 . . - . . . . . - . . . ■		Order code									
Terminal box position											
Terminal box top [1]	**4**	–	□	□	□	□	□	□			
Terminal box right-hand side [2]	**5**	–	✓	✓	✓	✓	✓	✓			
Terminal box left-hand side [2]	**6**	–	✓	✓	✓	✓	✓	✓			
Terminal box at bottom [2] [3]	**7**	–	–	–	✓	✓	✓	✓			

□ Standard version
✓ With additional charge

[1] For types of construction with feet, cast feet are standard.
[2] For types of construction with feet, screwed-on feet are standard.
[3] Not generally possible for motors with feet.

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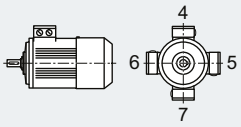
Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data

Terminal box position	Article No. supplement		Frame size													Motor version		
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text, if required	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**			
			1MB15.3 Basic Line													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
						1MB16.3 Performance Line												IE2
			1MB15.1 Basic Line															
						1MB16.1 Performance Line												
1MB15 . . - . . . . . - . . . ■																		
1MB16 . . - . . . . . - . . . ■		Order code																
Terminal box position																		
Terminal box top [1]	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	□			
Terminal box right-hand side [2]	**5**	**–**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box left-hand side [2]	**6**	**–**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box bottom [3]	**7**	**–**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–			

□ Standard version
✓ With additional charge
– Not possible

[1] For types of construction with feet, cast feet are standard.
[2] For types of construction with feet, screwed-on feet are standard.
[3] Not generally possible for motors with feet.

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Selection and ordering data

Terminal box position	Article No. supplement		Frame size													Motor version		
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text, if required	71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex eb (Zone 1)	IE3
			1MB1543 Basic Line															
						1MB1643 Performance Line												
															1MB5543 Basic Line			
															1MB5643 Performance Line			
1MB15 . . - . . . . . - . . . ■																		
1MB16 . . - . . . . . - . . . ■																		
1MB55 . . - . . . . . - . . . ■																		
1MB56 . . - . . . . . - . . . ■		Order code																
Terminal box position																		
Terminal box base left with terminal box at the top	**0**	**–**	–	–	–	–	–	–	–	–	–	–	–	–	✓			
Terminal box base right with terminal box at the top	**1**	**–**	–	–	–	–	–	–	–	–	–	–	–	–	✓			
Terminal box base left with oblique terminal box 45°	**2**	**–**	–	–	–	–	–	–	–	–	–	–	–	–	○			
Terminal box base right with oblique terminal box 45°	**3**	**–**	–	–	–	–	–	–	–	–	–	–	–	–	□			
Terminal box top [1]	**4**	**–**	□	□	□	□	□	□	□	□	□	□	□	□	–			
Terminal box right-hand side [2]	**5**	**–**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box left-hand side [2]	**6**	**–**	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Terminal box at bottom [2] [3]	**7**	**–**	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–			
Terminal box on left-hand side (base below)	**9**	**R5L**	–	–	–	–	–	–	–	–	–	–	–	–	✓			
Terminal box on right-hand side (base below)	**9**	**R6R**	–	–	–	–	–	–	–	–	–	–	–	–	✓			
Terminal box bottom left	**9**	**R7L**	–	–	–	–	–	–	–	–	–	–	–	–	✓			
Terminal box bottom right	**9**	**R7R**	–	–	–	–	–	–	–	–	–	–	–	–	✓			

□ Standard version
○ Without additional charge
✓ With additional charge
– Not possible

[1] For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

[2] For types of construction with feet, screwed-on feet are standard.

[3] Not generally possible for motors with feet.

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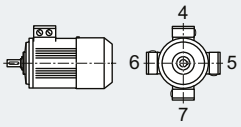
Cast-iron series 1MB1553, 1MB5553

Selection and ordering data

Terminal box position	Article No. supplement		Frame size													Motor version	
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text, if required	**71**	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**	**355**	IEC	Ex db, Ex db eb (Zone 1) IE3
			1MB1553															
														1MB5553				
1MB.553 - . . . . . - . . . ■		Order code																
Terminal box position																		
Terminal box top [1]	**4**	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□		
Terminal box right-hand side [1]	**5**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Terminal box left-hand side [1]	**6**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	–	–		
Terminal box bottom [2]	**7**	–	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–		

□ Standard version
✓ With additional charge
– Not possible

Standard version:
Cable entry from right, as seen looking onto the shaft, with terminal box position left, entry from below, on frame size 355 and with terminal box on the right-hand side, cable entry is from the NDE.

[1] For types of construction with feet, cast feet are standard.
[2] Not generally possible for motors with feet.

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Selection and ordering data

Terminal box position	Article No. supplement		Frame size		Motor version		
	Terminal box position code 16th position of the Article No.	Additional identification code with order code and plain text, if required	**400**	**450**			
			1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
			1MB55 . 3				IE3
			1MB58 . 3				
1MB5 . . . - . . . . . - . . . ■		Order code					
Terminal box position							
Terminal box base left with terminal box at the top	**0**	**–**	✓	✓			
Terminal box base right with terminal box at the top	**1**	**–**	✓	✓			
Terminal box base left with oblique terminal box 45°	**2**	**–**	○	○			
Terminal box base right with oblique terminal box 45°	**3**	**–**	□	□			
Terminal box on right-hand side	**5**	**–**	✓	✓			
Terminal box on left-hand side	**6**	**–**	✓	✓			
Terminal box left-hand side (base below) [1]	**9**	**R5L**	✓	✓			
Terminal box right-hand side (base below) [1]	**9**	**R6R**	✓	✓			
Terminal box bottom left [1]	**9**	**R7L**	✓	✓			
Terminal box bottom right [1]	**9**	**R7R**	✓	✓			

□ Standard version
○ Without additional charge
✓ With additional charge

[1] Only possible in combination with type of construction IM V1.

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Aluminum series 1MB10

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	Motor version		
		1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
		1MB10.1								IE2
				1MB10.2						IE1
1MB10 . . - . . . . . - . . . . -Z	Order code									
Explosion-protected version										
Version additionally for dust Ex tc – Zone 22 [1) 14) 22)]	**B30**	✓	✓	✓	✓	✓	✓	Only for:	1MB103. – Ex ec (Zone 2)	
Version IIC with stamping of IIB [22)]	**B31**	○	○	○	○	○	○	Only for:	1MB103. – Ex ec (Zone 2)	
VIK version	**C02**	✓	✓	✓	✓	✓	✓	Only for:	1MB1033 – Ex ec IE3 (Zone 2)	
Version for converter operation										
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2. [15)]	**B40**	✓	✓	✓	✓	✓	✓			
Version for converter operation in basic version with operating data SINAMICS S150 [15)]	**B41**	✓	✓	✓	✓	✓	✓			
Operating data such as the **B40** order code with alternative SINAMICS converter on the rating plate • G120 with PM230 • G120 with PM240 • G120C • G120P with PM230 • G120P with PM240-2 • G120P with PM240P-2 • G120P with PM330 • G130, G150, G180 • S120 (BLM/SLM) • V20 Operating data such as order code **B41** with alternative SINAMICS converters on the rating plate • S120 (ALM)	**Y68 •** and converter type	○	○	○	○	○	○			
Motor protection										
1 Pt1000 resistance thermometer (2 terminals)	**Q35**	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals)	**Q36**	✓	✓	✓	✓	✓	✓			
Motor connection and terminal box										
External grounding		◘	◘	◘	◘	◘	◘			
Rotation of the terminal box through 90°, entry from DE	**R10**	○	○	○	○	○	○			
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	○			
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	○			
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓			
Larger terminal box	**R50**	◘	◘	–	–	–	–			
Windings and insulation										
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % [2)]	**N05**	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % [2)]	**N06**	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % [2)]	**N07**	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	**N08**	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	**Y50 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/81.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	Motor version		
		1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
		1MB10.1								IE2
				1MB10.2						IE1
1MB10 . . - . . . . . - . . . . -Z	Order code									
Colors and paint finish										
Special paint finish in RAL 7030 stone gray		□	□	□	□	□	□			
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○			
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓			
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓			
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓			
Top coat polyurethane [12]	**S06**	✓	✓	✓	✓	✓	✓	Only for:	1MB103. – Ex ec (Zone 2)	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓			
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓			
Modular technology – Basic versions										
Mounting of separately driven fan [17]	**F70**	–	–	–	–	–	–	Only for:	1MB101. – Ex tb (Zone 21)	
		–	–	✓	✓	✓	✓	Only for:	1MB102. – Ex tc (Zone 22), 1MB103. – Ex ec (Zone 2)	
Special technology										
Mounting of LL 841 (HTL); 1024 I explosion-protected rotary pulse encoder [16]	**G30**	–	–	✓	✓	✓	✓			
Mechanical version and degrees of protection										
Low-noise version for 2-pole motors with clockwise direction of rotation	**F77**	–	–	–	–	✓	✓			
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	–	–	–	–	✓	✓			
Mechanical protection for encoder	**G43**	□	□	□	□	□	□			
Protective cover	**H00**	✓	✓	✓	✓	✓	✓			
Screwed-on (instead of cast) feet	**H01**	✓	✓	✓	✓	✓	✓			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	✓	✓			
Condensation drainage holes [6]	**H03**	✓	✓	✓	✓	✓	✓			
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓			
IP65 degree of protection [4]	**H20**	✓	✓	✓	✓	✓	✓	Only for:	1MB103. – Ex ec (Zone 2)	
IP56 degree of protection [5]	**H22**	✓	✓	✓	✓	✓	✓	Only for:	1MB103. – Ex ec (Zone 2)	
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar [3]	**H23**	✓	✓	✓	✓	✓	✓			
Coolant temperature and installation altitude										
Coolant temperature –40 to +40 °C [20]	**D03**	✓	✓	✓	✓	✓	✓			
Versions in accordance with standards and specifications										
Ex certification for China	**D32**	✓	✓	✓	✓	✓	✓			
China Energy Efficiency Label	**D34**	✓	✓	✓	✓	✓	✓			
EAC Ex certificate for the Eurasian Customs Union [18]	**D35**	✓	✓	✓	✓	✓	✓			
IECEx certification	**D37**	✓	✓	–	–	–	–	Only for:	1MB101. – Ex tb (Zone 21)	
		✓	✓	✓	✓	✓	✓	Only for:	1MB102. – Ex tc (Zone 22), 1MB103. – Ex ec (Zone 2)	

For legends and footnotes, see page 5/81.

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Aluminum series 1MB10

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	Motor version		
		1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
		1MB10.1								IE2
				1MB10.2						IE1
1MB10 . . - . . . . . - . . . . -Z	Order code									
Bearings and lubrication										
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓			
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	□			
Bearing design for increased cantilever forces [13]	**L22**	–	–	✓	✓	✓	✓			
Regreasing device	**L23**	–	–	✓	✓	✓	✓			
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	–	–	✓	✓	✓	✓			
Bearing insulation NDE	**L51**	–	–	✓	✓	✓	✓			
Measuring nipple for SPM shock pulse measurement for bearing inspection	**Q01**	–	–	✓	✓	✓	✓			
Balance and vibration severity										
Vibration severity grade A		□	□	□	□	□	□			
Vibration severity grade B [19]	**L00**	✓	✓	✓	✓	✓	✓			
Half-key balancing		□	□	□	□	□	□			
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓			
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓			
Shaft and rotor										
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓			
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, DE [7]	**Y58 •** and customer specifications	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, NDE [7]	**Y59 •** and customer specifications	✓	✓	✓	✓	✓	✓			
Heating and ventilation										
Metal external fan [8]	**F76**	□	□	–	–	–	–	Only for:	1MB103. – Ex ec (Zone 2)	
		□	□	✓	✓	✓	✓	Only for:	1MB101. – Ex tb (Zone 21), 1MB102. – Ex tc (Zone 22)	
Anti-condensation heating for 230 V (2 terminals) [9]	**Q02**	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 115 V (2 terminals) [9]	**Q03**	✓	✓	✓	✓	✓	✓			
Rating plate and additional rating plates										
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓			
Additional rating plate with deviating rating plate data	**Y80 •** and customer specifications	✓	✓	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/81.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 80	90	100	112	132	160	Motor version		
		1MB10.3						IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
		1MB10.1								IE2
				1MB10.2						IE1
1MB10 . . - . . . . . - . . . . -Z	Order code									
Packaging, safety notes, documentation and test certificates										
Printed Operating Instructions in German/English and a DVD with all official EU languages as well as Norwegian, Russian, Turkish, and Chinese [11]		□	□	□	□	□	□			
Inspection certificate 3.1 according to EN 10204 [10]	**B02**	✓	✓	✓	✓	✓	✓			
Document – Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓			
Document – Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓			
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓			
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓			
Wire-lattice pallet packaging	**B99**	○	○	○	○	○	○			
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓			

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
– Not possible

1) Please inquire regarding combination with order codes **D03** and **C02**. Not possible in combination with order codes **H20** and **H22**.

2) There is no derating in combination with order codes **M2A**, **M2B**, **M2C**, **M2D**, **M2E**, **M2F**, **M2G**, **M2H**.

3) Not possible for type of construction IM V3.

4) For Zone 21, IP65 degree of protection is standard. Not possible for Zone 22, because only IP55 degree of protection is required.

5) Not admissible for Zone 21 (IP65 degree of protection) and Zone 22 (IP55 degree of protection).

6) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

7) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension
For an explanation of the order codes, see Catalog Section 1 "Introduction".

8) The metal external fan is not possible in combination with the low-noise version – order code **F77** or **F78**.

9) In combination with the 15th position of the article number "**H**", the order codes **Q02** and **Q03** are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

10) The delivery time for the inspection certificate may differ from the delivery time for the motor.

11) The Operating Instructions are available on the Internet in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300.

12) Order code **S06** cannot be combined with order code **B30**.

13) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

14) The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

15) In combination with order codes **B40** and **B41**, "**B**" or "**C**" must be added to the 15th position of the Article No. . For compliance with the admissible temperature class 130 (B), derating is necessary in the case of converter operation in Zones 2, 21 and 22. The operating data for SINAMICS converters from Siemens are on the rating plate – the torque is reduced in contrast to line operation. The motor operating data for converter operation is available in the DTC selection and ordering tool (www.siemens.com/dt-configurator).
For converter operation, voltage codes/order codes are only admissible with one voltage only. When used in hazardous zones, the frequency converter must have a certified trip unit for motors of equipment category 1 (Zone 21). A certified trip unit is also recommended for motors of device category 3 (Zones 2 and 22). Alternatively, an external, certified trip unit can be used (see Catalog IC 10).

16) Can be combined with order codes **N30**, **N31**, **L51** and **F70** on request. Not admissible in combination with order code **L05**. Combination with protective cover as standard for frame sizes 100 to 200. Protective cover not possible for frame sizes 225 to 315.

17) In combination with order codes **N05**, **N06**, **N07**, **N08**, **N30**, **N31**, **D03**, **G30**, **C02**, **H20** and **H22** on request. Not admissible with order code **L05**. The degree of protection of the separately driven fan must match that of the motor.

18) Not admissible in combination with anti-condensation heating (order code **Q02**/**Q03**). For this component, no TR CU certificate is available yet.

19) Vibration severity grade B not admissible in combination with converter operation (order code **B40**/**B41**).

20) Not possible in combination with order codes **Q02** or **Q03**.

21) Not possible in vertical version with downward shaft extension DE.

22) Permissible paint film thickness up to 2 mm.

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Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size													Motor version		
		71	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**			
		1MB15.3 Basic Line													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
					1MB16.3 Performance Line												
1MB15 . . - . . . . . - . . . . -Z		**1MB15.1 Basic Line**															IE2
1MB16 . . - . . . . . - . . . . -Z	Order code				**1MB16.1 Performance Line**												
Explosion-protected version																	
Version additionally for dust Ex tc – Zone 22 [1) 16)]	**B30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.3. – Ex ec (Zone 2)	
Version IIC with stamping of IIB [24)]	**B31**	○	○	○	○	○	○	○	○	○	○	○	○	○	Only for:	1MB1.3. – Ex ec (Zone 2)	
VIK version	**C02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.33 – Ex ec (Zone 2)	
Version for converter operation																	
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2. [17) 20) 21) 22)]	**B40**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[20)]	✓[20)]			
Version for converter operation in basic version with operating data SINAMICS S150 [17) 20) 21)]	**B41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓[20)]	✓[20)]			
Operating data such as order code **B40** with alternative SINAMICS converters on the rating plate [20)] • G120 with PM230 • G120 with PM240 • G120C • G120P with PM230 • G120P with PM240-2 • G120P with PM240P-2 • G120P with PM330 • G130, G150, G180 • S120 (BLM/SLM) • V20 Operating data such as order code **B41** with alternative SINAMICS converters on the rating plate [20)] • S120 (ALM)	**Y68** • and converter type	○	○	○	○	○	○	○	○	○	○	○	○	○			
Motor protection																	
1 Pt1000 resistance thermometer (2 terminals)	**Q35**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt1000 resistance thermometers (4 terminals)	**Q36**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals) [2) 3)]	**Q72**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals) [2) 3)]	**Q78**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals) [2) 3)]	**Q79**	–	–	–	–	–	–	–	–	–	–	–	✓	✓			
Motor connection and terminal box																	
External grounding		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘			
Rotation of the terminal box through 90°, entry from DE	**R10**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Stud terminal for cable connection, accessories pack (3 items)	**R17**	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	Only for:	1MB1.1. – Ex tb (Zone 21), 1MB1.2. – Ex tc (Zone 22)	
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Saddle terminal for connection without cable lug, accessories pack	**R19**	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	Only for:	1MB1.1. – Ex tb (Zone 21), 1MB1.2. – Ex tc (Zone 22)	
		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for:	1MB1.3. – Ex ec (Zone 2)	
Larger terminal box [15)]	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Cast-iron auxiliary terminal box (small)	**R62**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/86.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size													Motor version		
		71	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**			
		1MB15.3 Basic Line													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
					1MB16.3 Performance Line												
1MB15 . . - . . . . . - . . . . -Z		**1MB15.1 Basic Line**															IE2
1MB16 . . - . . . . . - . . . . -Z	Order code				**1MB16.1 Performance Line**												
Windings and insulation																	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % [4]	**N05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % [4]	**N06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % [4]	**N07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	**N08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	**Y50 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Colors and paint finish																	
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for:	1MB15..	
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○	○	○	○			
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB15..	
		–	–	–	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for:	1MB16..	
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Special paint finish for use offshore C5	**S04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Top coat polyurethane [12]	**S06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.3. – Ex ec (Zone 2)	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB15..	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Modular technology – Basic versions																	
Mounting of separately driven fan [19]	**F70**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓	Only for:	1MB1.1. – Ex tb (Zone 21)	
		–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.2. – Ex tc (Zone 22)	
		–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.3. – Ex ec (Zone 2)	
Special technology																	
Mounting of LL 841 (HTL); 1024 I explosion-protected rotary pulse encoder [18]	**G30**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/86.

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Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size													Motor version		
		71	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**			
		1MB15.3 Basic Line													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
					1MB16.3 Performance Line												
1MB15 . . - . . . . . - . . . . -Z		**1MB15.1 Basic Line**															IE2
1MB16 . . - . . . . . - . . . . -Z	Order code				**1MB16.1 Performance Line**												
Mechanical version and degrees of protection																	
Low-noise version for 2-pole motors with clockwise direction of rotation	**F77**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Mechanical protection for encoder	**G43**	–	–	–	□	□	□	□	□	□	✓	✓	✓	✓			
Protective cover	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Screwed-on (instead of cast) feet	**H01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994 [27]	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Condensation drainage holes [7]	**H03**	✓	✓	✓	□	□	□	□	□	□	□	□	□	□			
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IP65 degree of protection [5]	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.3. – Ex ec (Zone 2)	
IP56 degree of protection [6]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.3. – Ex ec (Zone 2)	
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Type of construction IM V3	
Coolant temperature and installation altitude																	
Coolant temperature –40 to +40 °C [26]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Versions in accordance with standards and specifications																	
Ex certification for China	**D32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB15..	
		–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB16..	
China Energy Efficiency Label	**D34**	○	○	○	○	○	○	○	○	○	○	○	○	○	Only for:	1MB15..	
		–	–	–	○	○	○	○	○	○	○	○	○	○	Only for:	1MB16..	
EAC Ex certificate for the Eurasian Customs Union [13]	**D35**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IECEx certification	**D37**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Bearings and lubrication																	
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	**L19**	–	–	–	–	–	–	–	✓	✓	✓	✓	○	○			
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□	□			
Bearing design for increased cantilever forces [14]	**L22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Regreasing device	**L23**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	□	□	Only for:	1MB15..	
		–	–	–	✓	✓	✓	□	□	□	□	□	□	□	Only for:	1MB16..	
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	Only for:	1MB15..	
		–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	1MB16..	
Bearing insulation NDE [20]	**L51**	–	–	–	–	–	–	–	–	–	✓	✓	✓[20]	✓[20]			
Measuring nipple for SPM shock pulse measurement for bearing inspection	**Q01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Balance and vibration severity																	
Vibration severity grade A [21]		□	□	□	□	□	□	□	□	□	□	□	□	□			
Vibration severity grade B [21] [22] [23]	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Half-key balancing		□	□	□	□	□	□	□	□	□	□	□	□	□			
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/86.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size													Motor version		
		71	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**			
		1MB15.3 Basic Line													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
					1MB16.3 Performance Line												
1MB15 . . - . . . . . - . . . . -Z		**1MB15.1 Basic Line**															IE2
1MB16 . . - . . . . . - . . . . -Z	Order code				**1MB16.1 Performance Line**												
Shaft and rotor																	
Shaft extension with standard dimensions, without feather keyway	**L04**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347 [25)]	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, DE [8)]	**Y58 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, NDE [8)]	**Y59 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Heating and ventilation																	
Metal external fan [9)]	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for:	1MB1.3. – Ex ec (Zone 2)	
Anti-condensation heating for 230 V (2 terminals) [3)]	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 115 V (2 terminals) [3)]	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate and additional rating plates																	
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□	Only for:	1MB15..	
		–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	1MB16..	
Additional rating plate with deviating rating plate data	**Y80 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Packaging, safety notes, documentation and test certificates																	
Printed Operating Instructions in German/English and a DVD with all official EU languages as well as Norwegian, Russian, Turkish, and Chinese [11)]		□	□	□	□	□	□	□	□	□	□	□	□	□			
Inspection certificate 3.1 according to EN 10204 [10)]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document – Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document – Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Wire-lattice pallet packaging	**B99**	○	○	○	○	○	○	○	–	–	–	–	–	–			
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□			

For legends and footnotes, see page 5/86.

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Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

- ◘ Standard version
- ○ Without additional charge
- • This order code only determines the price of the version – Additional plain text is required.
- ✓ With additional charge
- – Not possible

1) Please inquire regarding combination with order codes **D03** and **C02**. Not possible in combination with order codes **H20** and **H22**.

2) Evaluation with associated tripping unit (see Catalog IC 10) is recommended. A certified tripping unit is necessary for use in hazardous areas.

3) In combination with the 15th position of the Article No. "**H**", the order codes **Q02** and **Q03** are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

4) There is no derating in combination with order codes **M2A**, **M2B**, **M2C**, **M2D**, **M2E**, **M2F**, **M2G**, **M2H**.

5) Order code **H20** (IP65 degree of protection) can only be ordered for Zone 2.
For Zone 21, IP65 degree of protection is standard. Not possible for Zone 22, because only IP55 degree of protection is required.

6) Order code **H22** IP56 degree of protection is only possible for Zone 2. Degree of protection IP56 is not permissible for Zone 21 (IP65 degree of protection) and Zone 22 (IP55 degree of protection).

7) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position.

8) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case.
For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables in "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension
For an explanation of the order codes, see Catalog Section 1 "Introduction".

9) The metal external fan is not possible in combination with the low-noise version – order code **F77** or **F78**.

10) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

11) The Operating Instructions are available on the Internet in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300.

12) Order code **S06** not possible in combination with order code **B30**.

13) Not admissible in combination with anti-condensation heating (order code **Q02**/**Q03**). For this component, no TR CU certificate is available yet.

14) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

15) A larger terminal box is the standard version in combination with the order code **Q02**, **Q03** and/or 15th position of the Article No. "**H**" for frame sizes 71 to 90.

16) The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

17) In combination with order codes **B40** and **B41**, "**B**" or "**C**" must be added to the 15th position of the Article No. . For compliance with the admissible temperature class 130 (B), derating is necessary in the case of converter operation in Zones 2, 21 and 22. The operating data for SINAMICS converters from Siemens are on the rating plate – the torque is reduced in contrast to line operation. The motor operating data for converter operation is available in the DTC selection and ordering tool (www.siemens.com/dt-configurator).
For converter operation, voltage codes/order codes are only admissible with one voltage only. When used in hazardous zones, the frequency converter must have a certified trip unit for motors of equipment category 1 (Zone 21). A certified trip unit is also recommended for motors of device category 3 (Zones 2 and 22). Alternatively, an external, certified trip unit can be used (see Catalog IC 10).

18) Can be combined with order codes **N30**, **N31**, **L51** and **F70** on request. Not admissible in combination with order code **L05**. Combination with protective cover as standard for FS 100 to 200. Protective cover not possible for FS 225 to 315.

19) In combination with order codes **N05**, **N06**, **N07**, **N08**, **N30**, **N31**, **D03**, **G30**, **C02**, **H20** and **H22** on request. Not admissible with order code **L05**. The degree of protection of the separately driven fan must match that of the motor.

20) The frame sizes 280 and 315 in combination with order code **B40** or **B41** are equipped with "Bearing insulation NDE" as standard (order code **L51** is included in **B40**/**B41**).

21) Not admissible for frame size 315, 2-pole. An exception is elastic installation (please inquire).

22) Not admissible in combination with converter operation (order code **B40**, **B41**).

23) On request for 2-pole motors for line operation (concerns frame sizes 315).

24) Permissible paint film thickness up to 2 mm.

25) Not possible in vertical version with downward shaft extension DE.

26) Not possible in combination with order code **Q02** or **Q03**.

27) Not possible in combination with order code **R50**.

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	Ex eb (Zone 1)	IE3
		1MB1543 Basic Line															
					1MB1643 Performance Line												
													1MB5543 Basic Line				
													1MB5643 Performance Line				
1MB1543 - . . . . . - . . . . -Z																	
1MB1643 - . . . . . - . . . . -Z																	
1MB5543 - . . . . . - . . . . -Z																	
1MB5643 - . . . . . - . . . . -Z	Order code																
Explosion-protected version																	
Version IIC with stamping of IIB [1]	**B31**	○	○	○	○	○	○	○	○	○	○	○	○	○			
Version additionally for dust Ex tb – Zone 21; IP65 [2]	**B32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
T1/T2 on rating plate [3]	**B33**	–	–	–	–	–	○	○	○	○	○	○	○	○			
VIK version [19]	**C02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Motor protection																	
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals) [4]	**Q72**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals) [4]	**Q78**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals) [4]	**Q79**	–	–	–	–	–	–	–	–	–	–	–	✓	✓			
Motor connection and terminal box																	
External grounding		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘			
Second external grounding	**H70**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from DE	**R10**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from NDE	**R11**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 180°	**R12**	○	○	○	○	○	○	○	✓	✓	✓	✓	✓	✓			
Metal cable gland, maximum configuration	**R18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Saddle terminal for connection without cable lug, accessories pack	**R19**	–	–	–	–	–	–	–	–	–	◘	◘	◘	◘			
Larger terminal box	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Drilled removable entry plate	**R52**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
Undrilled removable entry plate	**R53**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
Cast-iron auxiliary terminal box (small)	**R62**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Cast-iron auxiliary terminal box (large)	**R63**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
2 small cast-iron auxiliary terminal boxes	**R67**	–	–	–	✓[22]	✓[22]	✓[22]	✓	✓	✓	✓	✓	✓	✓			
Windings and insulation																	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % [5]	**N05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % [5]	**N06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % [5]	**N07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 % [5]	**N08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/90.

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SIMOTICS XP 1MB1, 1MB5 explosion-protected motors

Article No. supplements and special versions · Options

Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version
		1MB1543 Basic Line													IEC Ex eb (Zone 1) IE3
					1MB1643 Performance Line										
											1MB5543 Basic Line				
											1MB5643 Performance Line				
1MB1543 - . . . . . - . . . . -Z															
1MB1643 - . . . . . - . . . . -Z															
1MB5543 - . . . . . - . . . . -Z															
1MB5643 - . . . . . - . . . . -Z	Order code														
Colors and paint finish															
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for: 1MB.5..
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○	○	○	○	
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB.5..
		–	–	–	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for: 1MB.6..
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish for use offshore C5	**S04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Internal coating	**S05**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Top coat polyurethane [6]	**S06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB.5..
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mechanical version and degrees of protection															
Low-noise version for 2-pole motors with clockwise direction of rotation [7] [19]	**F77**	–	–	–	–	–	O. R.	O. R.	O. R.	O. R.	✓	✓	✓	✓	
Low-noise version for 2-pole motors with anti-clockwise direction of rotation [7] [19]	**F78**	–	–	–	–	–	O. R.	O. R.	O. R.	O. R.	✓	✓	✓	✓	
Protective cover	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	**H01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Condensation drainage holes [8]	**H03**	✓	✓	✓	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IP65 degree of protection [9]	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IP56 degree of protection [9]	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar Not possible for type of construction IM V3	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Coolant temperature and installation altitude															
Coolant temperature –40 to +40 °C [10]	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Versions in accordance with standards and specifications															
IECEx certification	**D37**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Bearings and lubrication															
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	**L19**	–	–	–	–	–	–	–	✓	✓	✓	✓	○	○	
Located bearing DE	**L20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	✓	◘	◘	◘	◘	◘	◘	◘	
Bearing design for increased cantilever forces [11]	**L22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Regreasing device	**L23**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	◘	◘	Only for: 1MB.5..
		–	–	–	✓	✓	✓	◘	◘	◘	◘	◘	◘	◘	Only for: 1MB.6..
Bearings reinforced at both ends for DE and NDE, bearing size 63	**L25**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	◘	◘	Only for: 1MB.5..
		–	–	–	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	Only for: 1MB.6..
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	**L28**	–	–	–	–	–	–	–	✓	✓	✓	✓	–	–	
Bearing insulation DE [23]	**L50**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓	
Bearing insulation NDE [23]	**L51**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓	
Measuring nipple for SPM shock pulse measurement for bearing inspection	**Q01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 5/90.

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Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size													Motor version		
		71	80	90	100	112	132	160	180	200	225	250	280	315			
		1MB1543 Basic Line													IEC	Ex eb (Zone 1)	IE3
					1MB1643 Performance Line												
											1MB5543 Basic Line						
											1MB5643 Performance Line						
1MB1543 -. . . . . -. . . . -Z																	
1MB1643 -. . . . . -. . . . -Z																	
1MB5543 -. . . . . -. . . . -Z																	
1MB5643 -. . . . . -. . . . -Z	Order code																
Balance and vibration severity																	
Vibration severity grade A [21]		□	□	□	□	□	□	□	□	□	□	□	□	□			
Vibration severity grade B [21]	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Half-key balancing		□	□	□	□	□	□	□	□	□	□	□	□	□			
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft and rotor																	
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347 [12]	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class [13]	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors [13]	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, DE [14]	**Y58 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, NDE [14]	**Y59 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Heating and ventilation																	
Sheet metal fan cover		□	□	□	□	□	□	□	□	□	□	□	□	□			
Metal external fan [15]	**F76**	□	□	□	□	□	□	□	□	□	□	□	□	□			
Anti-condensation heating for 230 V (2 terminals) [20]	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 115 V (2 terminals) [20]	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate and additional rating plates																	
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□	Only for:	1MB.5..	
		–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	1MB.6..	
Additional rating plate with deviating rating plate data	**Y80 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Extension of the liability for defects																	
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery [15]	**Q80**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	1MB.5..	
		–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	1MB.6..	
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [16]	**Q82**	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	Only for:	1MB.5..	
		–	–	–	□	□	□	□	□	□	□	□	□	□	Only for:	1MB.6..	

For legends and footnotes, see page 5/90.

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Cast-iron series 1MB1543, 1MB5543 Basic Line and 1MB1643, 1MB5643 Performance Line

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	Motor version IEC	Ex eb (Zone 1)	IE3
		1MB1543 Basic Line															
					1MB1643 Performance Line												
														1MB5543 Basic Line			
														1MB5643 Performance Line			
1MB1543 - . . . . . - . . . . -Z																	
1MB1643 - . . . . . - . . . . -Z																	
1MB5543 - . . . . . - . . . . -Z																	
1MB5643 - . . . . . - . . . . -Z	Order code																
Packaging, safety notes, documentation and test certificates																	
Printed Operating Instructions in German/English and a DVD with all official EU languages as well as Norwegian, Russian, Turkish, and Chinese [17]		□	□	□	□	□	□	□	□	□	□	□	□	□			
Inspection certificate 3.1 according to EN 10204 [18]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document – Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document – Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard test (routine test) with acceptance	**B65**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, without acceptance	**B82**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Basic" documentation package	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Projects" documentation package	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□			

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O. R. Possible on request
– Not possible

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1) Permissible paint film thickness up to 2 mm.

2) Please inquire regarding combination with order codes **D03** and **C02**. Not possible in combination with order codes **H20** and **H22**.

3) Motors in these frame sizes have a second rating plate (T1/T2 and T3) as standard.
The T3 power is stamped on the rating plate as standard if the following motors are selected with PTC thermistor (protection by PTC thermistor only) or voltage code "**90**":
– 2-pole motors: Frame sizes 132 to 160
– 4-pole motors: Frame size 180
Alternatively, with order code **B33**, the "T1/T2 power is stamped on the rating plate".
– 2-pole motors: Frame sizes 132 to 200
– 4-pole motors: Frame sizes 180 to 200

4) Evaluation with associated tripping unit (see Catalog IC 10) is recommended. A certified tripping unit is necessary for use in hazardous areas.

5) The maximum possible certified power will be supplied.
For motors with T1/T2, T3 power, T3 power is supplied.
The T1/T2 power must be ordered with the order code B33.

6) Order code **S06** cannot be combined with order code **B32**.

7) The motors are up to 80 mm longer than normal. A second shaft extension is not possible.

8) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE for IP55, IP56 and IP65 degrees of protection. If condensation drainage holes are required in motors of the IM B6, IM B7 or IM B8 type of construction (feet located on side or top), it is necessary to relocate the bearing shields at the drive end (DE) and non-drive end (NDE) so that the condensation drainage holes situated between the feet on delivery are underneath.

9) Not possible in combination with version additionally for dust Ex tb – Zone 21; IP65 - order code **B32**. IP65 degree of protection is prescribed for the version for Zone 21.

10) Not possible in combination with vibration-proof version, order code **H02**.

11) Not possible for 2-pole motors, frame size 315 L in vertical frame sizes; bearings for increased cantilever forces for vibration severity grade B are available on request for motors of frame size 225 M and above. Not possible for motors of frame size 225 M and above in combination with shaft extension run-out, concentricity and perpendicularity according to DIN 42955 tolerance R for flange-mounting types.

12) For motors of frame size 180 M and above in vertical type of construction in version with second shaft extension on request. Not possible for low-noise version (2-pole) for frame sizes 132 S to 160 L. Version with protective cover not possible.

13) Can be combined with deep-groove bearings of series 60.., 62.. and 63… Not possible in combination with cylindrical roller bearings (e.g. bearings for increased cantilever forces, order code **L22**).

14) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case.
For order codes **Y58**, **Y59** and **L05** the following applies:
–Dimensions D and DA ≤ ball bearing inner diameter
(see dimension tables in "Dimensions")
–Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension
For an explanation of the order codes, see Catalog Section 1 "Introduction".

15) The metal external fan is not possible in combination with the low-noise version – order code **F77** or **F78**.

16) Wearing parts (bearings) are excluded from the warranty extension.

17) The Operating Instructions are available on the Internet in SIOS too:
http://support.automation.siemens.com/WW/view/en/10803948/133300

18) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

19) The motors may exceed the noise levels defined by VIK.

20) For frame sizes 71 to 90 in combination with the order codes **Q02** and **Q03**, **R50** is the standard version (the additional charge **R50** is already contained in **Q02** and **Q03**).

21) Not permissible for frame size 315, 2-pole, except for elastic installation.

22) For frame sizes 100 and 112, only permissible in combination with order code **R50**.

23) It is not permissible to combine order codes **L50** and **L51**.

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	355	Motor version IEC	Ex db, Ex db eb (Zone 1)	IE3
		1MB1553																
												1MB5553						
1MB.553 - . . . . . - . . . . -Z	Order code																	
Explosion-protected version																		
Version IIC with stamping of IIB	**B31**	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
Version additionally for dust Ex tb – Zone 21; IP65	**B32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
VIK version [18]	**C02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Version for converter operation																		
Version for converter operation with power data on the PWM converter [6]	**B43**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Version for converter operation with power data on the PWM converter, utilization in accordance with temperature class 155 (F) [6]	**B44**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Motor protection																		
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals) [1]	**Q72**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals) [1]	**Q78**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals) [1]	**Q79**	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓			
Motor connection and terminal box																		
External grounding		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘			
Second external grounding	**H70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from DE	**R10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 90°, entry from NDE	**R11**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rotation of the terminal box through 180°	**R12**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Metal cable gland, maximum configuration [17]	**R18**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
1 cable gland, Ex eb, for armored cable, line feeder cable	**R45**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2 cable glands, Ex eb, for armored cable, line feeder cable	**R46**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Main terminal box in Ex db IIC [27]	**R48**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Auxiliary terminal box in Ex db IIC [27]	**R49**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Larger terminal box [17]	**R50**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–			
Enlarged connection system for main terminal box [17]	**R54**	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–			
Cast-iron auxiliary terminal box (small)	**R62**	✓[24]	✓[24]	✓[24]	✓[23]	✓[23]	✓[23]	✓	✓	✓	✓	✓	✓	✓	✓			
Cast-iron auxiliary terminal box (large)	**R63**	–	–	–	–	–	–	–	–	✓[24]	✓[23]	✓	✓	✓	✓			
2 small cast-iron auxiliary terminal boxes	**R67**	✓[24]	✓[24]	✓[24]	✓[23]	✓[23]	✓[23]	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard threaded through hole (NPT or G thread)	**Y61 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Windings and insulation																		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	**N05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	**N06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	**N07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	**N08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air [22]	**N31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/95.

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Cast-iron series 1MB1553, 1MB5553

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	355	Motor version IEC	Ex db, Ex db eb (Zone 1) IE3
		1MB1553															
													1MB5553				
1MB.553 - . . . . . - . . . . -Z	Order code																
Windings and insulation (continued)																	
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	**Y50 •** and spec. power, CT .. °C or IA …. m above sea level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Colors and paint finish																	
Standard paint finish C2 in RAL 7030 stone gray		◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘	◘		
Unpainted (only cast-iron parts primed)	**S00**	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Unpainted, only primed	**S01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Special paint finish C3	**S02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Special paint finish sea air resistant C4	**S03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Special paint finish for use offshore C5	**S04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Internal coating	**S05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Top coat polyurethane [16]	**S06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56 •** and paint finish RAL ….	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Modular technology – Basic versions																	
Mounting of separately driven fan [26]	**F70**	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓		
Modular technology – Additional versions																	
Brake supply voltage 24 V DC	**F10**	–	○	○	○	○	○	○	○	○	–	–	–	–	–		
Brake supply voltage 230 V AC, 50/60 Hz	**F11**	–	○	○	○	○	○	○	○	○	–	–	–	–	–		
Brake supply voltage 400 V AC, 50/60 Hz	**F12**	–	○	○	○	○	○	○	○	○	–	–	–	–	–		
Mechanical manual brake release with lever (no locking)	**F50**	–	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–		
Special technology																	
Mounting of brake in Ex db version [28]	**F20**	–	✓	✓	✓	✓	✓	✓	✓	✓	–	–	–	–	–		
Mounting of LL 841 (HTL); 1024 I explosion-protected rotary pulse encoder	**G30**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Mechanical version and degrees of protection																	
Low-noise version for 2-pole motors with clockwise direction of rotation [26]	**F77**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓		
Low-noise version for 2-pole motors with counterclockwise direction of rotation [26]	**F78**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓		
Protective cover [4]	**H00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	**H02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Not for:	Combination with order code F20, F70, R50
External screws, bolts and unpainted materials made of stainless steel (V4A) [5]	**H06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Rust-resistant screws (externally)	**H07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IP65 degree of protection	**H20**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IP56 degree of protection	**H22**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar	**H23**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Adjustment screws for feet in horizontal installation [7]	**H30**	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓		
Coolant temperature and installation altitude																	
Coolant temperature –40 to +40 °C	**D03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

For legends and footnotes, see page 5/95.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	355	Motor version IEC	Ex db, Ex db eb (Zone 1)	IE3
		1MB1553																
													1MB5553					
1MB.553 - . . . . . - . . . . -Z	Order code																	
Versions in accordance with standards and specifications																		
Ex certification for China [25]	**D32**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
China Energy Efficiency Label [25]	**D34**	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
EAC Ex certificate for the Eurasian Customs Union [25]	**D35**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IECEx certification	**D37**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
MEPS Australia [25]	**D70**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Bearings and lubrication																		
Preparation for SPM measuring nipple – thread M8	**G50**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	**L19**	–	–	–	–	–	–	✓	✓	✓	✓	✓	○	○	○			
Located bearing DE	**L20**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
Located bearing NDE	**L21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Bearing design for increased cantilever forces [19]	**L22**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Regreasing device	**L23**	–	–	–	–	–	–	✓	✓	✓	✓	✓	□	□	□			
Bearing insulation NDE [3]	**L51**	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓			
Measuring nipple for SPM shock pulse measurement for bearing inspection	**Q01**	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Balance and vibration severity																		
Vibration severity grade A		□	□	□	□	□	□	□	□	□	□	□	□	□	□			
Vibration severity grade B [2]	**L00**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Half-key balancing		□	□	□	□	□	□	□	□	□	□	□	□	□	□			
Balancing without feather key	**L01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Full-key balancing	**L02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft and rotor																		
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard shaft made of stainless steel (e.g. 1.4021)	**L06**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, DE [8]	**Y58 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-standard cylindrical shaft extension, NDE [8]	**Y59 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Heating and ventilation																		
Metal fan cover		□	□	□	□	□	□	□	□	□	□	□	□	□	□			
Metal fan made of brass	**F68**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Metal external fan [9]	**F76**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 230 V (2 terminals) [1] [10]	**Q02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 115 V (2 terminals) [1] [10]	**Q03**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Anti-condensation heating for 220 V (2 terminals) [1] [10]	**Q04**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Separately driven fan with non-standard voltage and/or frequency	**Y81 •** and customer specifications	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓			

For legends and footnotes, see page 5/95.

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Cast-iron series 1MB1553, 1MB5553

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	355	Motor version IEC	Ex db, Ex db eb (Zone 1)	IE3
		1MB1553																
												1MB5553						
1MB.553 - . . . . . - . . . . -Z	Order code																	
Rating plate and additional rating plates																		
Second rating plate, loose	**M10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	**M11**	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
Additional rating plate with deviating rating plate data	**Y80 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Extension of the liability for defects																		
Extension of the liability for defects period by 12 months to a total of 24 months (2 years) from delivery	**Q80**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Extension of the liability for defects period by 24 months to a total of 36 months (3 years) from delivery	**Q82**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Packaging, safety notes, documentation and test certificates																		
Printed Operating Instructions in German/English and a DVD with all official EU languages as well as Norwegian, Russian, Turkish, and Chinese [11]		□	□	□	□	□	□	□	□	□	□	□	□	□	□			
Inspection certificate 3.1 according to EN 10204 [12]	**B02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document – Electrical datasheet	**B60**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Document – Order dimensional drawing	**B61**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Standard test (routine test) with acceptance	**B65**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Noise measurement without load with octave band analysis, without acceptance [13]	**B71**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Noise measurement without load with octave band analysis, with acceptance [14]	**B72**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for vertical motors, without acceptance [13]	**B80**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for vertical motors, with acceptance [14]	**B81**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, without acceptance [13]	**B82**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Type test with heat run for horizontal motors, with acceptance [14]	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Basic" documentation package [15]	**B90**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package [15]	**B91**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
"Projects" documentation package [15]	**B92**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Wire-lattice pallet packaging	**B99**	○	○	○	○	○	○	○	–	–	–	–	–	–	✓			
Connected in star for dispatch	**M01**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□	□			

For legends and footnotes, see page 5/95.

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- ◘ Standard version
- ○ Without additional charge
- • This order code only determines the price of the version – Additional plain text is required.
- ✓ With additional charge
- – Not possible

1) Maximum number of connections for accessories, see terminal box concept.

2) Not admissible in combination with converter operation (order codes **B43**, **B44**).

3) The frame sizes 280, 315, and 355 in combination with order code **B43** or **B44** are equipped with "Bearing insulation NDE" as standard (order code **L51** is included in B43/B44).

4) The following applies for explosion-protected motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

5) Rating plate, screws, grounding, and options with order codes **L19**, **L23**, **Q01** made of stainless steel (V4A).

6) Power data in converter operation according to the VSD rating lists. Winding monitoring with PTC thermistor mandatory.
- Only in combination with single voltages, e.g.: **M4A**.
- Frame size 280 and larger with insulated bearings on the fan side (NDE).

7) 4 threads in the motor feet; adjustment screws not in the scope of supply.

8) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case.
For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables in "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension
For an explanation of the order codes, see Catalog Section 1 "Introduction".

9) The material of the fan is aluminum, for frame sizes 225 to 355 steel – metal fans are painted with paint finishes with film thickness 90 µm or more.

10) Connection in the main terminal box in the standard version.

11) The Operating Instructions are available on the Internet in PDF format for all official EU languages.

12) The delivery time for the inspection certificate may differ from the delivery time for the motor.

13) The delivery time is then approx. 20 working days longer.

14) The delivery time is then approx. 25 working days longer or the confirmed acceptance date.

15) Version and content of the documentation, see Chapter 1.

16) Not in combination with order codes **S00**, **S01**, and **S02**. Other colors, order codes **Y53** and **Y56**, on request.

17) Not in combination with order codes **R48** and **R49**.

18) For installation in a hostile and corrosive environment, paint finish with order code **S03** or better is recommended.

19) Only in combination with regreasing, order code **L19** or **L23**.

20) Cable glands in Ex e version.

21) Frame size 315 only in combination with order code **R50**, frame sizes 250 and 280 not in combination with order code **R50**.

22) Standard paint finish C2, we recommend C3 or better (e.g. order code **S02**, **S03**, **S04**).

23) Only possible in combination with order code **R50**.

24) Only possible in combination with order code **R54**.

25) Not possible in combination with **1MB..56** or **1MB..57**.

26) Not available in combination with order code **D03**.

27) Supplied without cable gland.

28) Select brake connection voltage separately, order codes **F10**, **F11**, or **F12** – note further details in Chapter 1 under "Modular technology", "Brakes".

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Cast-iron series 1MB55.4, 1MB55.3, 1MB58.3

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size **400**	**450**	Motor version		
		1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4 / IE3
		1MB55 . 3				
		1MB58 . 3				
1MB5 . . . - . . . . . - . . . . -Z	Order code					
Explosion-protected version						
VIK version	**C02**	✓	✓			
Version additionally for dust Ex tc – Zone 22	**B30**	✓	✓			
Version IIC with stamping of IIB	**B31**	✓	✓			
Version for converter operation						
Version for converter operation in the basic version with SINAMICS G120 operating data with PM240-2	**B40**	O. R.	O. R.			
Version for converter operation in the basic version with SINAMICS S150 operating data	**B41**	O. R.	O. R.			
Version for converter operation with power data on the PWM converter	**B43**	O. R.	O. R.			
Operating data such as the **B40** order code with alternative SINAMICS converter on the rating plate • G120 with PM230 • G120 with PM240 • G120C • G120P with PM230 • G120P with PM240-2 • G120P with PM240P-2 • G120P with PM330 • G130, G150, G180 • S120 (BLM/SLM) • V20 Operating data such as order code **B41** with alternative SINAMICS converters on the rating plate • S120 (ALM)	**Y68** • and converter type	O	O			
Motor protection						
1 or 3 PTC thermistors – for tripping (2 terminals) [1]	**Q11**	✓	✓	Not for:	Combination with motor protection code letter B (15th position of the Article No.)	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) [1]	**Q12**	✓	✓	Not for:	Combination with motor protection code letter C (15th position of the Article No.)	
3 NTC thermistors – for tripping (6 terminals)	**Q21**	✓	✓	Not for:	Combination with motor protection code letter F (15th position of the Article No.)	
1 KTY84-130 temperature sensor (2 terminals) [1]	**Q23**	✓	✓	Not for:	Combination with motor protection code letter F (15th position of the Article No.)	
2 KTY84-130 temperature sensors (4 terminals) [1]	**Q25**	✓	✓	Not for:	Combination with motor protection code letter G (15th position of the Article No.)	
1 Pt1000 resistance thermometer (2 terminals)	**Q35**	✓	✓			
2 Pt1000 resistance thermometers (4 terminals)	**Q36**	✓	✓			
6 Pt1000 resistance thermometers (12 terminals)	**Q37**	✓	✓			
3 Pt100 resistance thermometers – 2-wire input (6 terminals) [1]	**Q60**	✓	✓	Not for:	Combination with motor protection code letter H (15th position of the Article No.)	
6 Pt100 resistance thermometers – 2-wire input (12 terminals) [1]	**Q61**	✓	✓	Not for:	Combination with motor protection code letter J (15th position of the Article No.)	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	**Q62**	✓	✓			
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	**Q63**	✓	✓			
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	**Q64**	✓	✓			
2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals)	**Q72**	✓	✓			
2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)	**Q78**	✓	✓			
2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)	**Q79**	✓	✓			

For legends and footnotes, see page 5/100.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size		Motor version		
		400	**450**			
		1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
		1MB55 . 3				IE3
		1MB58 . 3				
1MB5 . . . - . . . . . - . . . . -Z	Order code					
Motor connection and terminal box						
External grounding		□	□			
Terminal box at NDE	**H08**	✓	✓			
Two terminal boxes at NDE [17]	**H09**	✓	✓			
Second external grounding	**H70**	✓	✓			
Subsequently rotatable main terminal box	**R09**	✓	✓			
Rotation of the terminal box through 90°, entry from DE [12]	**R10**	✓	✓	Not for:	Combination with type of construction code letters F, G, J (14th position of the Article No.)	
Rotation of the terminal box through 90°, entry from NDE	**R11**	✓	✓			
Rotation of the terminal box through 180°	**R12**	✓	✓			
Saddle terminal for connection without cable lug, accessories pack	**R19**	✓	✓			
Larger terminal box [13]	**R50**	✓	✓			
Drilled removable entry plate	**R52**	✓	✓			
Undrilled removable entry plate		□	□			
Cast-iron auxiliary terminal box (small)	**R62**	✓	✓			
Cast-iron auxiliary terminal box (large)	**R63**	✓	✓			
Stainless steel auxiliary terminal box (large)	**R65**	✓	✓			
Non-standard threaded through hole (NPT or G thread) [2]	**Y61 •** and customer specifications	✓	✓			
Windings and insulation						
Temperature class 155 (F), utilized acc. to 155 (F), with service factor [9]		□	□			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % [15]	**N05**	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % [15]	**N06**	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % [15]	**N07**	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 % [15]	**N08**	✓	✓			
Increased air humidity/temperature with 30 to 60 g water per m^3 of air	**N30**	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m^3 of air	**N31**	✓	✓			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude [9]	**Y50 •** and spec. power, CT .. °C or IA .... m above sea level	✓	✓			
Colors and paint finish						
Standard paint finish C2 in RAL 7030 stone gray		□	□			
Unpainted (only cast-iron parts primed)	**S00**	○	○			
Unpainted, only primed	**S01**	✓	✓			
Special paint finish C3	**S02**	✓	✓			
Special paint finish sea air resistant C4 [14]	**S03**	✓	✓			
Special paint finish for use offshore C5 [14]	**S04**	✓	✓			
Internal coating	**S05**	✓	✓			
Top coat polyurethane [6]		□	□			
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	**Y53 •** and paint finish RAL....	✓	✓			

For legends and footnotes, see page 5/100.

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Cast-iron series 1MB55.4, 1MB55.3, 1MB58.3

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size		Motor version		
		400	**450**			
		1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
		1MB55 . 3				IE3
		1MB58 . 3				
1MB5 . . . - . . . . . - . . . . -Z	Order code					
Colors and paint finish (continued)						
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	**Y56** • and paint finish RAL....	✓	✓			
Modular technology – Basic versions						
Mounting of separately driven fan [10]	**F70**	✓	✓			
Special technology						
Mounting of LL 841 (HTL); 1024 I explosion-protected rotary pulse encoder	**G30**	✓	✓			
Mounting of a special type of rotary pulse encoder	**Y70** • and customer specifications	O. R.	O. R.			
Mechanical version and degrees of protection						
Low-noise version for 2-pole motors with clockwise direction of rotation		◘	◘			
Low-noise version for 2-pole motors with counterclockwise direction of rotation	**F78**	○	○			
Prepared for mounted components, centering hole only		◘	◘			
Prepared for mountings with D16 shaft	**G42**	✓	✓			
Mechanical protection for encoder	**G43**	✓	✓			
Protective cover	**H00**	✓	✓			
Condensation drainage holes		◘	◘			
Rust-resistant screws (externally)	**H07**	✓	✓			
IP65 degree of protection [19]	**H20**	✓	✓			
IP56 degree of protection	**H22**	✓	✓			
Sealing ring made of fluoroelastomer (FKM)	**H25**	✓	✓			
Increased corrosion protection for external components	**H90**	✓	✓			
Coolant temperature and installation altitude						
Coolant temperature –40 to +40 °C	**D03**	✓	✓			
Versions in accordance with standards and specifications						
Electrical according to NEMA MG1-12		◘	◘			
IECEx certificate	**D37**	✓	✓			
Bearings and lubrication						
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	**L19**	○	○			
Located bearing DE		◘	◘			
Located bearing NDE [11]	**L21**	✓	✓			
Bearing design for increased cantilever forces [7] [8]	**L22**	O. R.	O. R.			
Regreasing device		◘	◘			
Drainage for used grease	**L30**	O. R.	O. R.			
Measuring nipple for SPM shock pulse measurement for bearing inspection	**Q01**	✓	✓			
Balance and vibration severity						
Vibration severity grade A		◘	◘			
Vibration severity grade B	**L00**	✓	✓			
Half-key balancing (standard)		◘	◘			
Balancing without feather key [16]	**L01**	✓	✓			
Full-key balancing [16]	**L02**	✓	✓			
Shaft and rotor						
Shaft extension with standard dimensions, without feather keyway	**L04**	✓	✓			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	**L05**	✓	✓			
Shaft extension run-out in accordance with IEC 60072-1 precision class	**L07**	✓	✓			
Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors	**L08**	✓	✓			
Non-standard cylindrical shaft extension, DE [3]	**Y58** • and customer specifications	✓	✓			

For legends and footnotes, see page 5/100.

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Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size		Motor version		
		400	**450**			
		1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
		1MB55 . 3				IE3
		1MB58 . 3				
1MB5 . . . - . . . . . - . . . . -Z	Order code					
Shaft and rotor (continued)						
Non-standard cylindrical shaft extension, NDE [3]	**Y59 •** and customer specifications	✓	✓			
Special shaft steel	**Y60 •** and customer specifications	O. R.	O. R.			
Heating and ventilation						
Sheet metal fan cover		□	□			
Metal external fan		□	□			
Without external fan and without fan cover	**F90**	✓	✓			
Anti-condensation heating for 230 V (2 terminals)	**Q02**	✓	✓			
Anti-condensation heating for 115 V (2 terminals)	**Q03**	✓	✓			
Anti-condensation heating for 400 V (2 terminals)	**Q06**	✓	✓			
Separately driven fan with non-standard voltage and/or frequency	**Y81 •** and customer specifications	O. R.	O. R.			
Rating plate and additional rating plates						
Second rating plate, loose	**M10**	✓	✓			
Rating plate, stainless steel		□	□			
Additional rating plate with deviating rating plate data [18]	**Y80 •** and customer specifications	✓	✓			
Additional rating plate with customer specifications	**Y82 •** and customer specifications	✓	✓			
Additional information on rating plate and on package label (max. 20 characters)	**Y84 •** and customer specifications	✓	✓			
Extension of the liability for defects						
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery [4]	**Q80**	✓	✓			
Extension of the liability for defects by 18 months to a total of 30 months (2.5 years) from delivery [4]	**Q81**	✓	✓			
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery [4]	**Q82**	✓	✓			
Extension of the liability for defects by 30 months to a total of 42 months (3.5 years) from delivery [4]	**Q83**	✓	✓			
Extension of the liability for defects by 36 months to a total of 48 months (4 years) from delivery [4]	**Q84**	✓	✓			
Extension of the liability for defects by 48 months to a total of 60 months (5 years) from delivery [4]	**Q85**	✓	✓			
Packaging, safety notes, documentation and test certificates						
Inspection certificate 3.1 according to EN 10204 [4]	**B02**	✓	✓			
Printed German/English operating instructions enclosed [5]		□	□			
Equivalent circuit diagram	**B51**	✓	✓			
Starting diagram (torque vs. speed and current vs. speed)	**B52**	✓	✓			
Document – Electrical datasheet	**B60**	✓	✓			
Document – Order dimensional drawing	**B61**	✓	✓			
Standard test (routine test) with acceptance	**B65**	✓	✓			
Temperature test without acceptance	**B67**	✓	✓			
Temperature test with acceptance	**B68**	✓	✓			
Type test with heat run for vertical motors, without acceptance	**B80**	✓	✓			
Type test with heat run for vertical motors, with acceptance	**B81**	✓	✓			
Type test with heat run for horizontal motors, without acceptance	**B82**	✓	✓			

For legends and footnotes, see page 5/100.

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Cast-iron series 1MB55.4, 1MB55.3, 1MB58.3

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size		Motor version		
		400	**450**			
		1MB55 . 4		IEC	Ex ec, Ex tc, Ex tb (Zones 2, 22 and 21)	IE4
		1MB55 . 3				IE3
		1MB58 . 3				
1MB5 . . . -. . . . . -. . . . -Z	Order code					
Packaging, safety notes, documentation and test certificates (continued)						
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓			
"Basic" documentation package	**B90**	✓	✓			
"Advanced" documentation package	**B91**	✓	✓			
"Projects" documentation package	**B92**	✓	✓			
Connected in star for dispatch	**M01**	✓	✓			
Connected in delta for dispatch	**M02**	✓	✓			

□ Standard version
○ Without additional charge
• This order code only determines the price of the version – Additional plain text is required.
✓ With additional charge
O. R. Possible on request

5

1) Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

2) Parallel Whitworth threaded pipe DIN ISO 228 (DIN 259) BSPP (British Standard Pipe Parallel), threaded pipe for connections not sealed in the thread (cylindrical), external = G.

3) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347 are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:
– Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
– Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.

4) The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.

5) The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300

6) Order code **S06** cannot be combined with order codes **S00** and **S01**. Possible without restriction in combination with **Y53** for frame sizes 315 to 355 and for frame sizes 400 and 450.

7) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

8) For frame sizes 400 and 450, permissible cantilever forces for motors with reinforced bearings are available on request. Please specify cantilever force and lever arm.

9) Only possible for line operation.

10) The separately driven fan motor is implemented with voltage code **34** (400 V/50 Hz; 460 V/60 Hz).

11) For frame sizes 400 and 450, not possible for a vertical type of construction.

12) For motors with flange (IM B5, IM B35, IM V1), only possible in conjunction with order code **H08**.

13) Restrictions can apply when mounting the terminal box.

14) Only available for 1MB552 (Ex tc for Zone 22). Not available for 1MB553 (Ex ec for Zone 2).

15) Not available for 8-pole motors, frame size 450.

16) Not possible in combination with order code **C02**.

17) Not possible in combination with order code **R50**.

18) Customer specifications: Voltage between 380 and 690 V (voltages outside this range are available on request), frequency, circuit, required rated power in kW.

19) Standard version for 1MB5.1 (Ex tb for Zone 21).

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Overview

Couplings for use in hazardous areas

The motor from Siemens is connected to the machine or gear unit through a coupling. Flender is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended. These coupling types are suitable for use in areas subject to explosion hazards and are offered with declaration of conformity and EU type-examination certificate according to Directive 2014/34/EU.

Available from:

Siemens contact partner - ordering from catalog
Siemens MD 10.1 "FLENDER Standard Couplings"

or

Flender GmbH
Kupplungswerk Mussum
Industriepark Bocholt
Schlavenhorst 100
46395 Bocholt, Germany
Phone +49 (2871) 922185
Fax +49 (2871) 922579

www.flender.com
Email: flender-kupplungen-2.pd.de@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG
Rutesheimer Strasse 22
70499 Stuttgart, Germany
Phone +49 711 1388-0
Fax +49 711 1388-233

www.ottoroth.de
Email: info@ottoroth.de

Foundation blocks according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation blocks that are bolted to the machine (without washers) and fitted with taper pins are not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 5241 7407-0
Fax +49 5241 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH
Postfach 42 51
33276 Gütersloh, Germany
Phone +49 5241 7407-0
Fax +49 5241 7407-90

www.luetgert-antriebe.de
Email: info@luetgert-antriebe.de

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
  - For up to 3 years after the delivery of the original motor, in the event of total motor failure – with regard to the mounting dimensions and functions – Siemens will supply a comparable replacement motor (the type series may vary).
  - If a spare motor is supplied within the 3-year period, this does not mean that the warranty restarts.
  - Replacement motors delivered after the active production of the motor series are also identified as spare motors on the rating plate.
  - Spare parts are available only on request for these spare motors. Repair or replacement is not possible.
  - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
  - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
  - Designation and part number
  - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- Repair parts are available for 1MB1 motors on request.
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline
  In Germany
  Phone +49 911 895 7 222

You will find telephone numbers for other countries on our Internet site:
www.siemens.com/automation/service&support

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Notes on the dimensions

Overview

- Dimension designations according to EN 50347 and IEC 60072.
- Fits
  The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	flange (FF)	H17

  The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

- Dimensional tolerances
  For the following dimension designations, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
H	to 250	– 0.5
	over 250	– 1.0
E, EA		– 0.5

  Feather keyways and feather keys (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.
- All dimensions are specified in mm.

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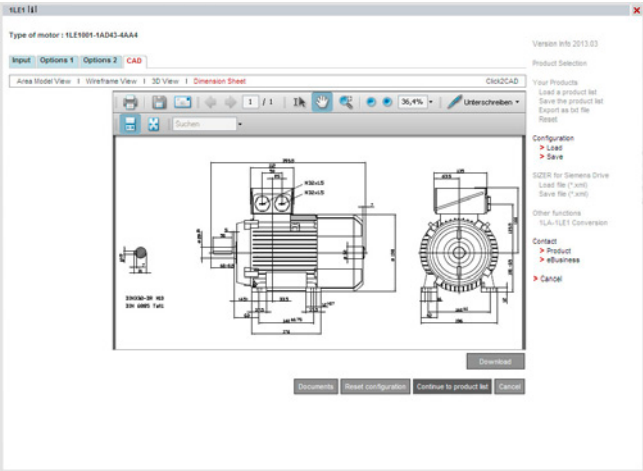
Overview

A dimensional drawing can be created in the "Drive Technology Configurator" (DT Configurator) for every configurable motor.
A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.
The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The "DT Configurator" is integrated into the Siemens Industry Mall and can be used on the Internet without installation.
German: www.siemens.de/dt-konfigurator
English: www.siemens.com/dt-configurator

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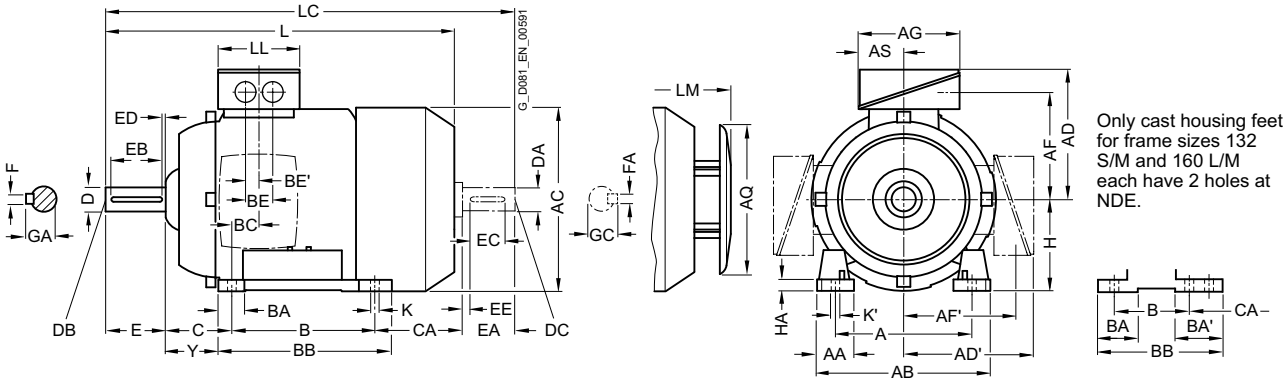
IE3 – 1MB1 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated · Frame sizes 80 M to 160 L

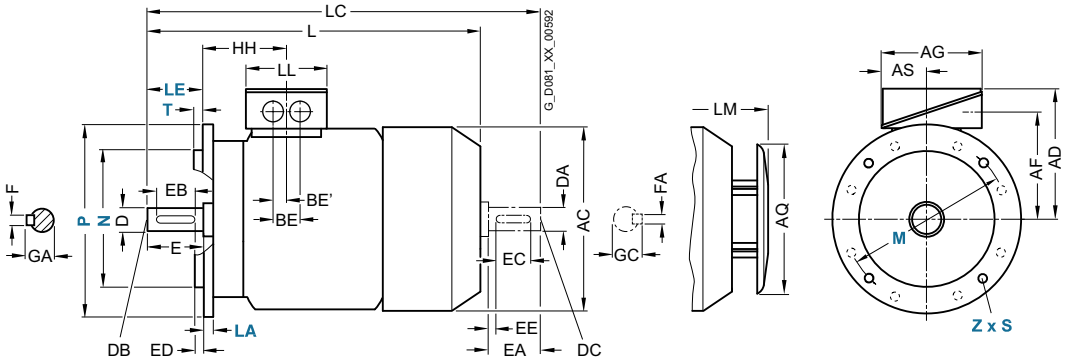
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																						
Frame size	Motor type 1MB10.3-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AQ	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	0DA2, 0DB2, 0DC3	2, 4, 6	125	30.5	**150**	159	**121**	121	96.5	96.5	93	155	43	100	32	32	118	23	36	18	50	113	**80**	8	41
	0DA3, 0DB3, 0DC3																								
90 S	All	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	155	43	100	33	33	143	22.5	36	18	56	159	**90**	10	47
90 L	All	2, 4, 6	140	30.5	**165**	178	**126**	126	101.5	101.5	93	155	43	125	33	33	143	22.5	36	18	56	199	**90**	10	47
100 L	All	2, 4	160	42	**196**	198	**166**	166	125.5	125.5	135	195	63.5	140	37.5	–	176	33.5	50	25	63	176	**100**	12	45
112 M	All	2, 4	190	46	**226**	222	**177**	177	136.5	136.5	135	195	63.5	140	35.4	–	176	26	50	25	70	155	**112**	12	52
132 S	1CA0, 1CC0	2, 6	216	53	**256**	262	**202**	202	159.5	159.5	155	260	70.5	140	38	76	218	26.5	48	24	89	128.5	**132**	15	69
	1CA1, 1CB0	2, 4														38	180					178.5			
132 M	1CC2	6	216	53	**256**	262	**202**	202	159.5	159.5	155	260	70.5	178	38	76	218	26.5	48	24	89	128.5	**132**	15	69
	1CB2, 1CC3	4, 6														38						178.5			
160 M	All	2, 4, 6	254	60	**300**	314	**236.5**	236.5	190	190	175	260	77.5	210	44	89	300	47	57	28.5	108	148	**160**	18	85
160 L	All	2, 4, 6	254	60	**300**	314	**236.5**	236.5	190	190	175	260	77.5	254	44	–	300	47	57	28.5	108	208	**160**	18	85

[1] With screwed-on feet, dimension BA' is 43 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 51 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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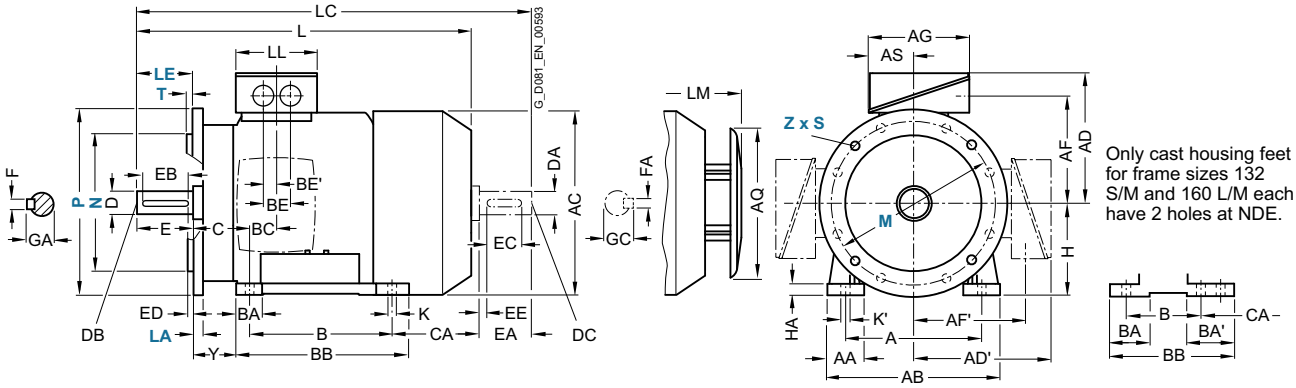
Dimensional drawings

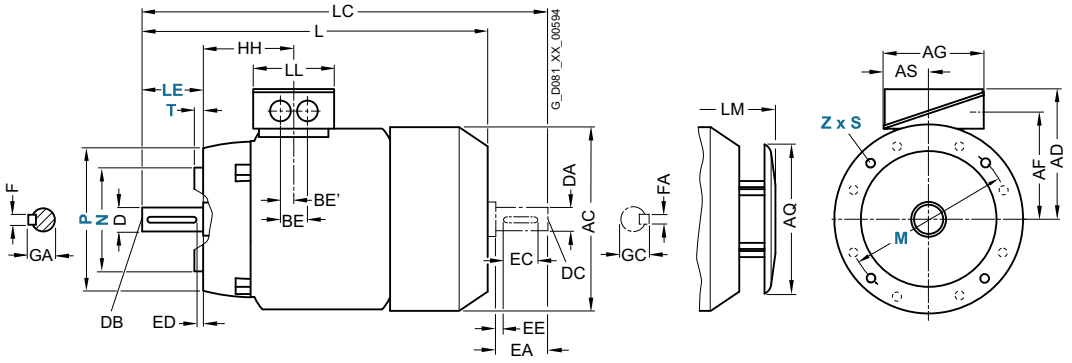
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**							DE shaft extension							NDE shaft extension							
Frame size	Motor type 1MB10.3-	No. of poles	HH	K	K'	**L**	LC	LL	LM	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DA2, 0DB2, 0DC3	2, 4, 6	73	9.5	13.5	**292**	343	79	328	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3, 0DC3					**327**																	
90 S	All	2, 4, 6	78.5	10	14	**347**	405	79	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	All	2, 4, 6	78.5	10	14	**387**	445	79	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4	100.5	12	16	**418**	489	112	463.5	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4	100.5	12	16	**401**	475	112	447	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	**449.5**	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				**499.5**	585.5		550.5														
132 M	1CC2	6	115.5	12	16	**449.5**	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				**499.5**	585.5		550.5														
160 M	All	2, 4, 6	145	15	19	**586**	730	145	654	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6	145	15	19	**646**	790	145	714	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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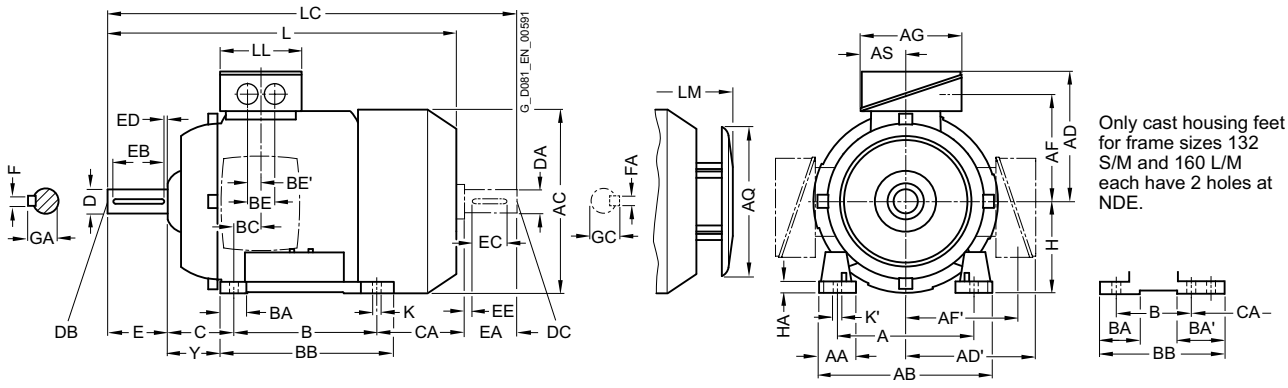
IE2, IE1 – 1MB1 with types of protection Ex tb, Ex tc, Ex ec – self-ventilated · Frame sizes 80 M to 160 L

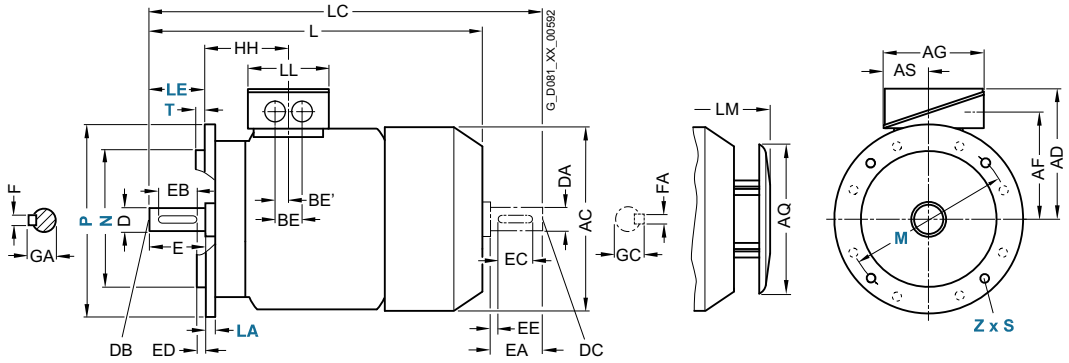
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1MB10.1, 1MB10.2	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AQ	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
80 M	1MB10.1	2, 4, 6	125	30.5	**150**	159	**149**	149	96.5	112.5	119.5	155	61.5	100	32	32	118	23	36	18	50	112.5	**80**	8	41
90 S	1MB10.1	2, 4, 6	140	30.5	**165**	178	**154**	154	101.5	117.5	119.5	155	62.5	100	33	54	143	22.5	36	18	56	159	**90**	10	47
90 L	1MB10.1	2, 4, 6	140	30.5	**165**	178	**154**	154	101.5	117.7	119.5	155	62.5	125	33	54	143	22.5	36	18	56	134	**90**	10	47
100 L	All	2, 4, 6, 8	160	42	**196**	198	**166**	166	125.5	125.5	135	195	63.5	140	37.5	37.5	176	33.5	50	25	63	141	**100**	12	45
112 M	All	2, 4, 6, 8	190	46	**226**	222	**177**	177	136.5	136.5	135	195	63.5	140	35.4	37.5	176	26	50	25	70	129.7	**112**	12	52
132 S	All	2, 4, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	260	70.5	140	38	76[1]	218[2]	26.5	48	24	89	128.5[3]	**132**	15	69
132 M	All	2, 4, 6, 8	216	53	**256**	262	**202**	202	159.5	159.5	155	260	70.5	178	38	76	218	26.5	48	24	89	128.5[3]	**132**	15	69
160 M	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	260	77.5	210	44	89[4]	300[5]	47	57	28.5	108	148[6]	**160**	18	85
160 L	All	2, 4, 6, 8	254	60	**300**	314	**236.5**	236.5	190	190	175	260	77.5	254	44	89	300	47	57	28.5	108	148[6]	**160**	18	85

1) With screwed-on feet, dimension BA' is 38 mm.
2) With screwed-on feet, dimension BB is 180 mm.
3) With screwed-on feet, dimension CA is 166.5 mm.
4) With screwed-on feet, dimension BA' is 44 mm.
5) With screwed-on feet, dimension BB is 256 mm.
6) With screwed-on feet, dimension CA is 192 mm.

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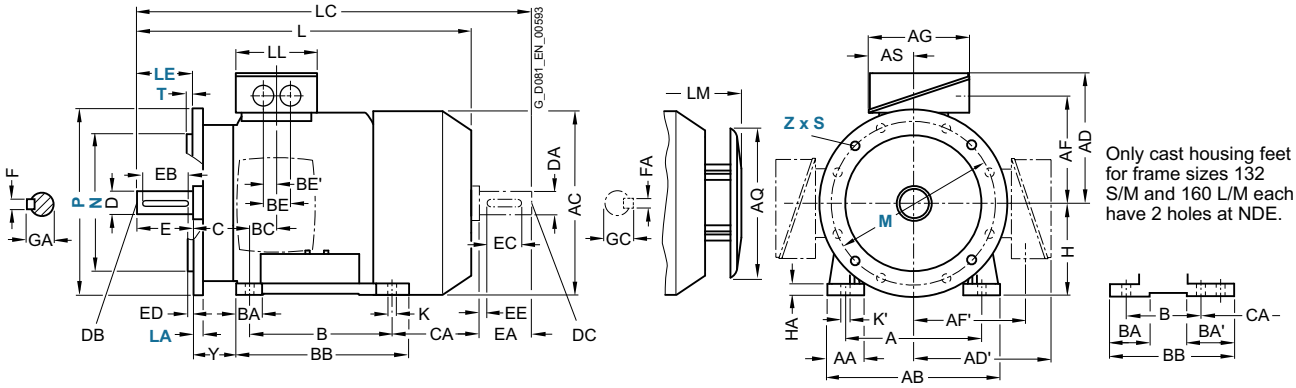
Dimensional drawings

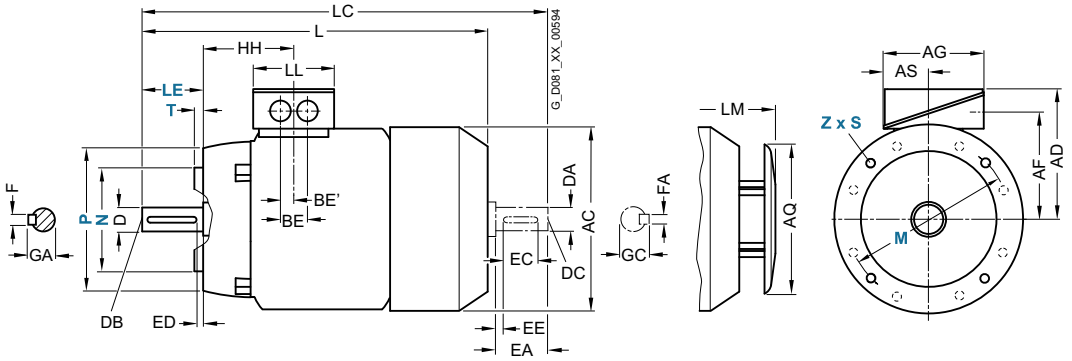
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**							DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB10.1, 1MB10.2	No. of poles	HH	K	K'	**L**	LC	LL	LM	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1MB10.1	2, 4, 6	73	9.5	13.5	**253**	342.5	123	328	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S/L	1MB10.1	2, 4, 6	78.5	10	14	**294.5**	405	123	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	1MB10.1	2, 4, 6	78.5	10	14	**294.5**	405	123	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	**388.5**	454	112	428.5	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	96	12	16	**382**	450	112	422	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	**456.5**	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	**456.5**	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	155	15	19	**594**	730	145	654	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	155	15	19	**594**	730	145	654	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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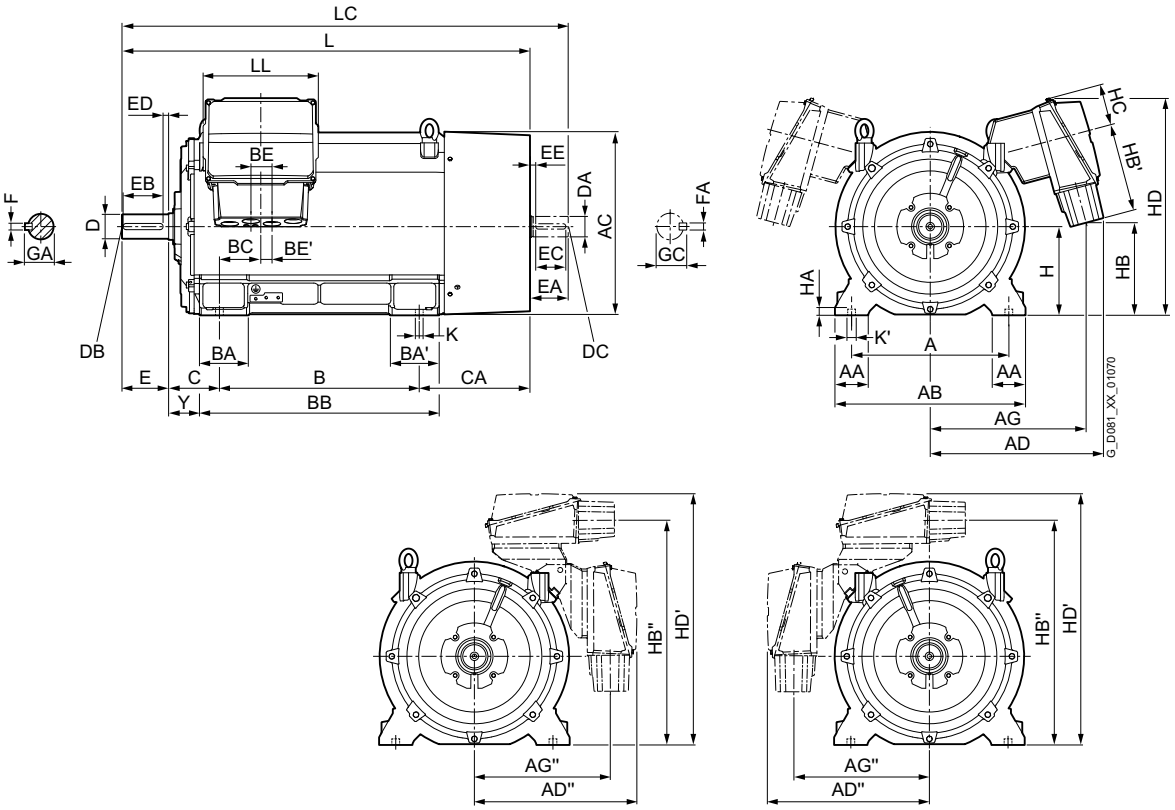
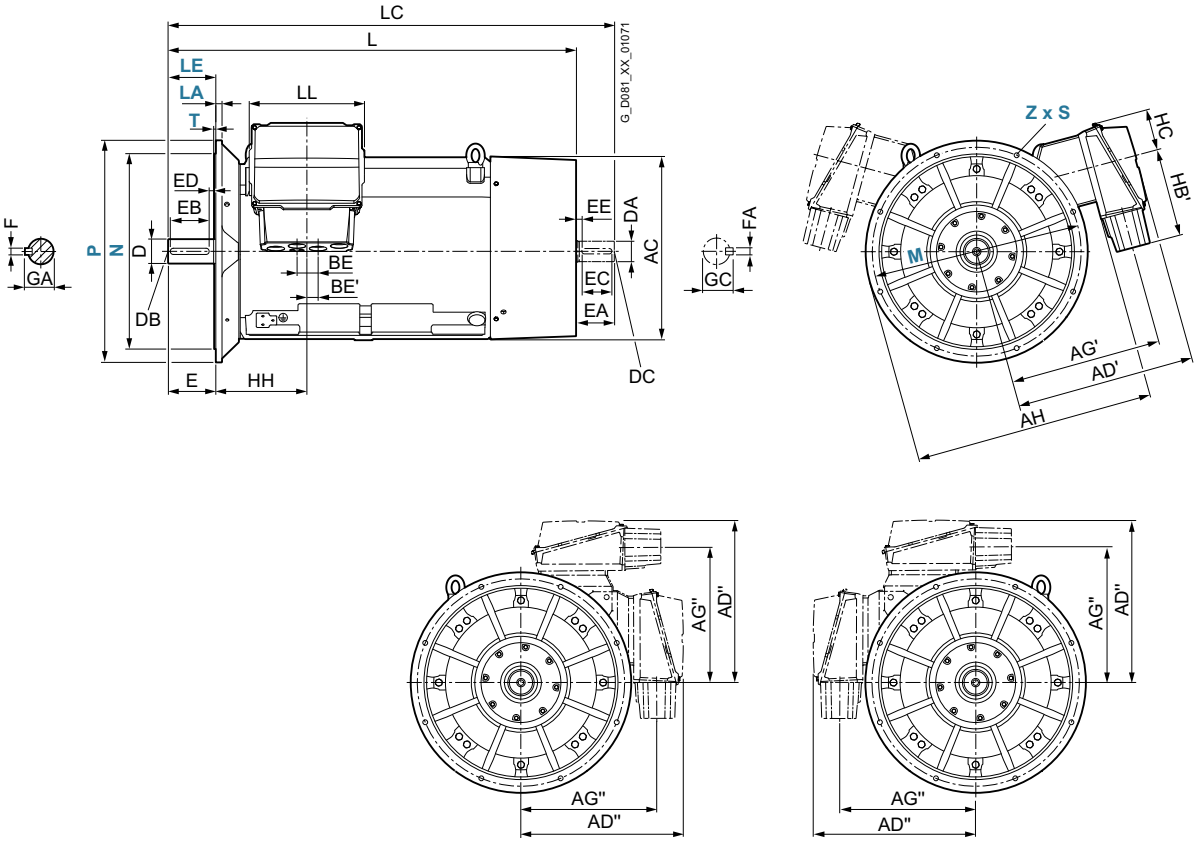
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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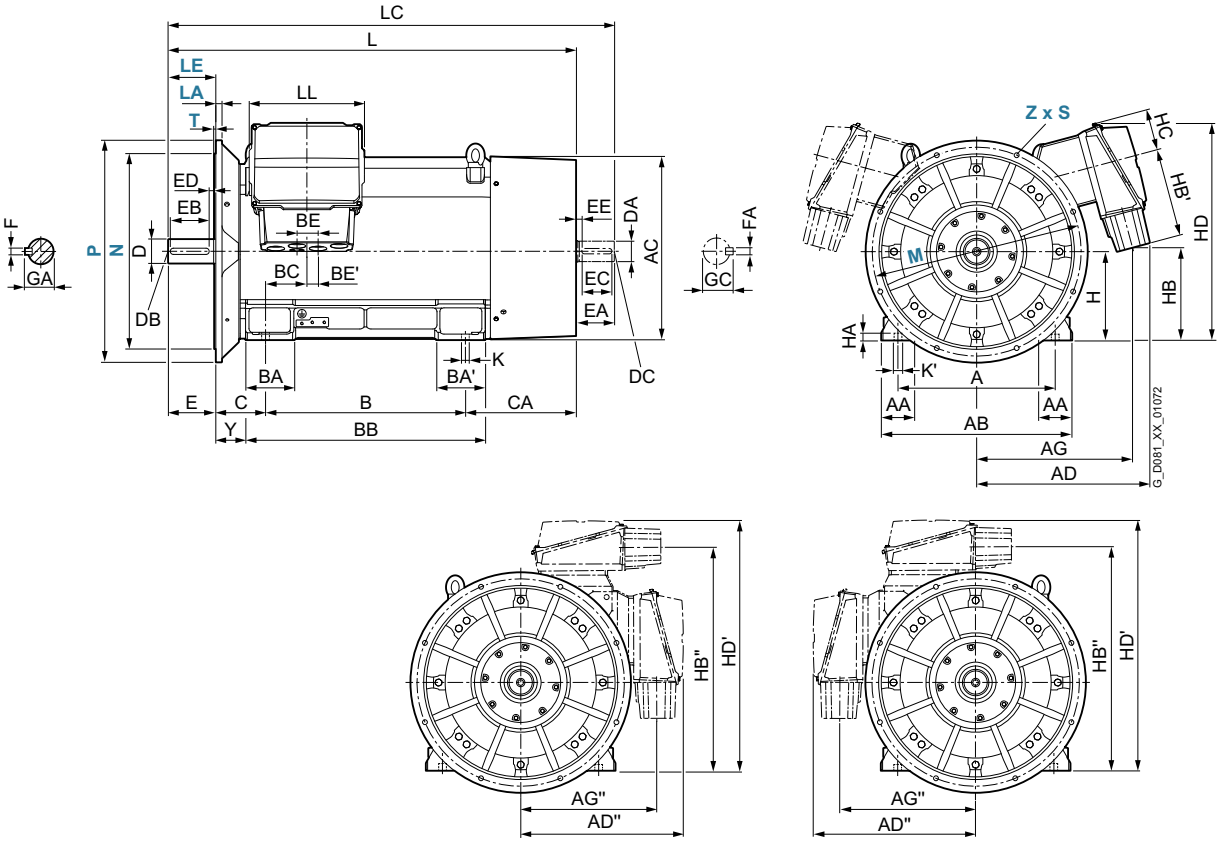
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor		Dimension designation acc. to **IEC**																										
Frame size	Motor type 1MB5.2-1MB5.3-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AD''	AG	AG'	AG''	AH	B	B'	B''	BA	BA'	BB	BC	BE	BE'	C	CA	C A'	C A''	**H**	H A	HB
400	4AA	2	710	150	**860**	880	**785**	845	740	705	720	620	1110	900	–	–	220	220	1080	186	87.5	43.5	224	501	–	–	**400**	35	420
	4AB	4																											
	4AC	6																											
	4AD	8																											
450	4BA	2	800	180	**980**	970	**820**	895	775	740	770	655	1235	1000	–	–	260	260	1220	170	87.5	43.5	250	535	–	–	**450**	42	505
	4BB	4																											
	4BC	6																											
	4BD	8																											

For motor		Dimension designation acc. to **IEC**													DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB5.2-1MB5.3-	No. of poles	HB'	HB''	HC	HD	HD'	HH	Y	K	K'	**L**	LC [1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
400	4AA	2	400	1020	190	980	1140	410	134	35	42	**1795**	1940	519	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
	4AB	4										**1835**	2010		110	M24	210	180		28	116	90	M24	170	140	25	25	95
	4AC	6																										
	4AD	8																										
450	4BA	2	400	1105	190	1065	1225	420	140	42	50	**1955**	2100	519	90	M24	170	140	25	25	95	75	M20	140	125	10	20	79.5
	4BB	4										**1995**	2210		120		210	180		32	127	100	M24	210	180	25	28	106
	4BC	6																										
	4BD	8																										

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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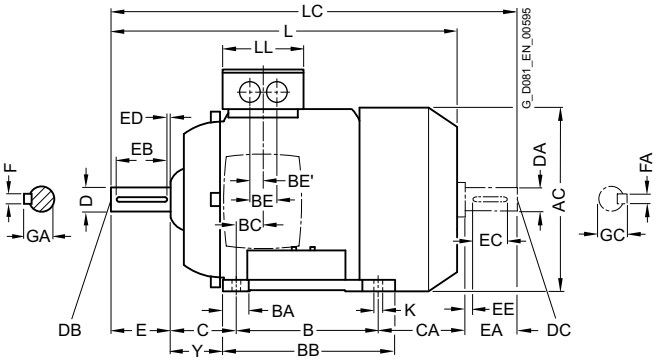
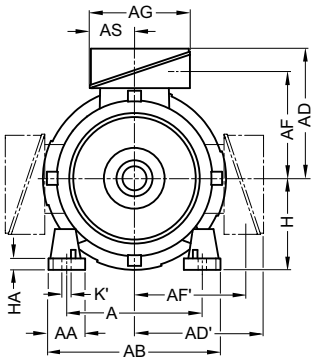
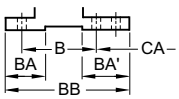
Dimensional drawings

Type of construction IM B3



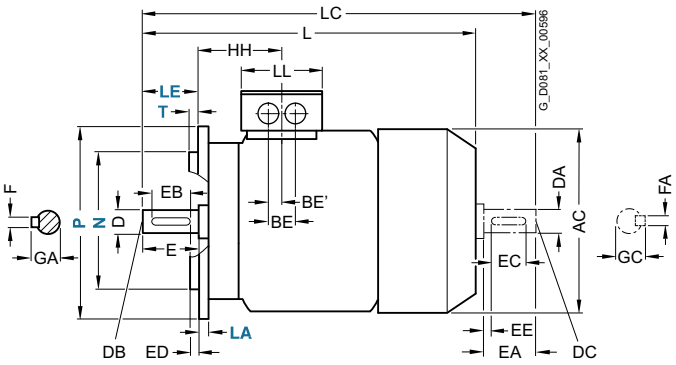


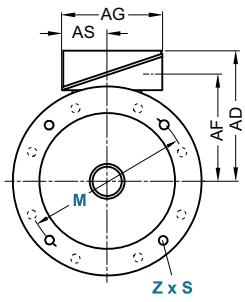
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
71 M	0CA2, 0CB2, 0CC2	2, 4, 6	112	30.5	**132**	145	**149**	149	112	112	126	62	90	32	32	106	21	36	18	45	83	**71**	7	37
	0CA3, 0CB3, 0CC3																28							
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	125	30.5	**150**	162	**159**	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	**80**	8	41
	0DA3, 0DB3, 0DC3																							
90 S	All	2, 4, 6	140	30.5	**165**	180	**164**	164	127	127	126	62	100	33	54	143	24.5	36	18	56	149	**90**	10	47
90 L	All	2, 4, 6	140	30.5	**165**	180	**164**	164	127	127	126	62	125	33	54	143	24.5	36	18	56	164	**90**	10	47
100 L	All	2, 4, 6	160	42	**196**	198	**193**	193	147	147	163	80.5	140	40	40	176	37.5	48	24	63	176	**100**	12	45
112 M	All	2, 4, 6	190	46	**226**	222	**195**	195	150	150	163	80.5	140	40	40	176	30	48	24	70	155	**112**	12	52
132 S	1CA0, 1CC0	2, 6	216	53	**256**	262	**214.5**	214.5	169	169	163	80.5	140	44	81[1]	218[2]	26.5	48	24	89	128.5	**132**	15	69
	1CA1, 1CB0	2, 4													–						178.5			
132 M	1CC2	6	216	53	**256**	262	**214.5**	214.5	169	169	163	80.5	178	44	81[1]	218	26.5	48	24	89	128.5	**132**	15	69
	1CB2, 1CC3	4, 6													–						178.5			
160 M	All	2, 4, 6	254	60	**300**	314	**261**	261	213	213	190	92	210	73	117[3]	300[4]	37	60	30	108	148	**160**	18	85
160 L	All	2, 4, 6	254	60	**300**	314	**261**	261	213	213	190	92	254	73	117[3]	300	37	60	30	108	208	**160**	18	85

[1] With screwed-on feet, dimension BA' is 43 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 51 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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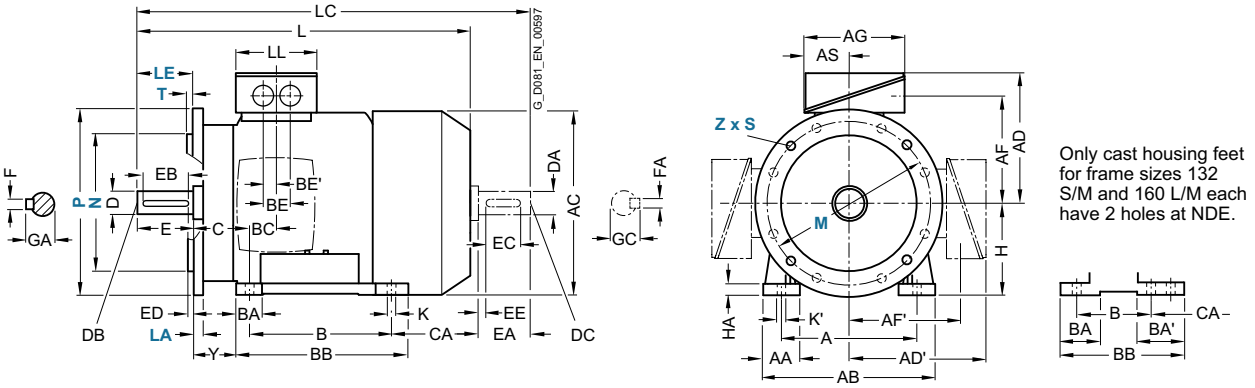
Dimensional drawings

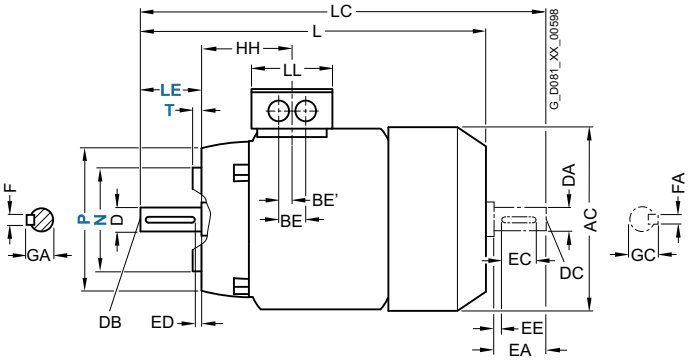
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**						DE shaft extension							NDE shaft extension							
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	0CA2, 0CB2, 0CC2	2, 4, 6	63	7.5	7.5	**240**	278	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
	0CA3, 0CB3, 0CC3		70			**280**	318															
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	72.5	10	13.5	**292**	342.5	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3 0DC3					**327**	377.5															
90 S	All	2, 4, 6	80.5	10	10	**347**	405	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
90 L	All	2, 4, 6	80.5	10	10	**387**	445	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
100 L	All	2, 4, 6	100.5	12	16	**418**	489	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6	100.5	12	16	**402**	475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	**449.5**	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				**499.5**	586															
132 M	1CC2	6	115.5	12	16	**449.5**	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				**499.5**	586															
160 M	All	2, 4, 6	145	15	19	**586**	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6	145	15	19	**646**	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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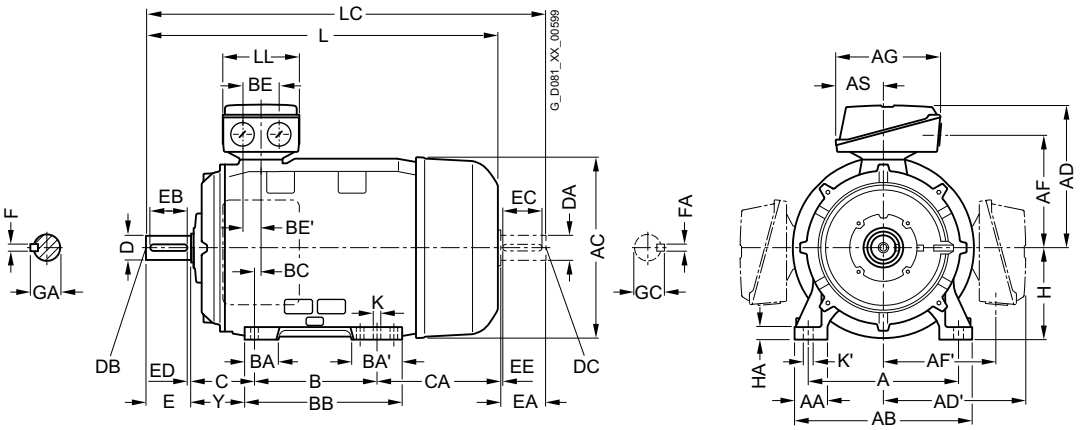
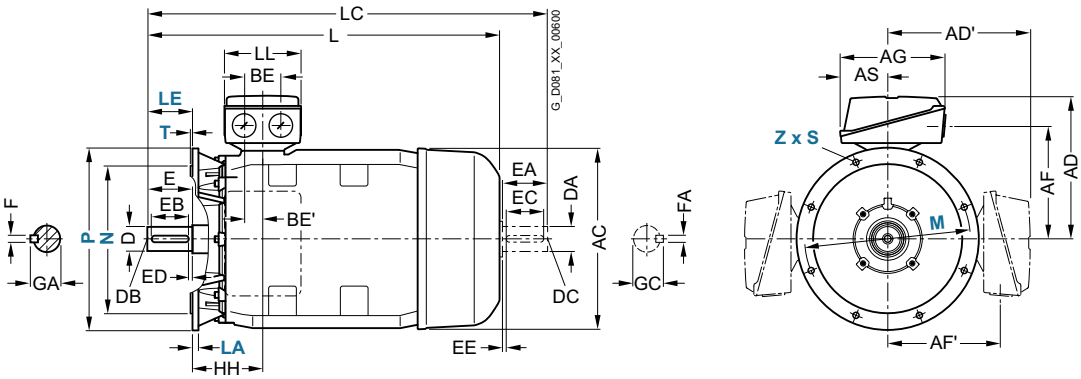
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AH	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
180 M	1EA2	2	279	65	**339**	356	**286**	286	234	234	190	468	92	241	85	120	328	34	60	30	121	202
	1EB2	4																				
180 L	1EB4	4	279	65	**339**	356	**286**	286	234	234	190	468	92	279	85	120	328	34	60	30	121	202
	1EC4	6																				
200 L	2AA4, 2AC4	2, 6	318	60	**378**	396	**315**	315	259	259	266	533	112	305	104	104	355	31	85	42.5	133	177
	2AA5, 2AB5, 2AC5	2, 4, 6																				
225 S	2BB0	4	356	80	**436**	449	**338**	338	282	282	266	556	112	286	92	117	361	15	85	42.5	149	218
225 M	2BA2	2	356	80	**436**	449	**338**	338	282	282	266	556	112	311	92	117	361	15	85	42.5	149	253
	2BB2, 2BC2	4, 6																				
250 M	2CA2	2	406	100	**490**	497	**410**	410	322	322	319	620	145	349	102	102	409	24	110	55	168	230
	2CB2, 2CC2	4, 6																				
280 S	2DA0	2	457	100	**540**	551	**433**	433	345	345	319	672	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0	4, 6																				
280 M	2DA2	2	457	100	**540**	551	**433**	433	345	345	319	672	145	419	101	152	479	20	110	55	190	326
	2DB2	4																				
	2DC2	6																				216
315 S	3AA0	2	508	120	**610**	616	**515**	515	404	404	374	780	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0	4, 6																				
315 M	3AA2	2	508	120	**610**	616	**515**	515	404	404	374	780	164	457	113	170	578	22	110	55	216	409
	3AB2, 3AC2	4, 6																				
315 L	3AA4	2	508	120	**610**	616	**515**	515	404	404	374	780	164	508	113	170	578	22	110	55	216	358
	3AB4, 3AC4	4, 6																				
	3AA5	2													176	227	648					513
	3AB5, 3AC5, 3AC6	4, 6																				

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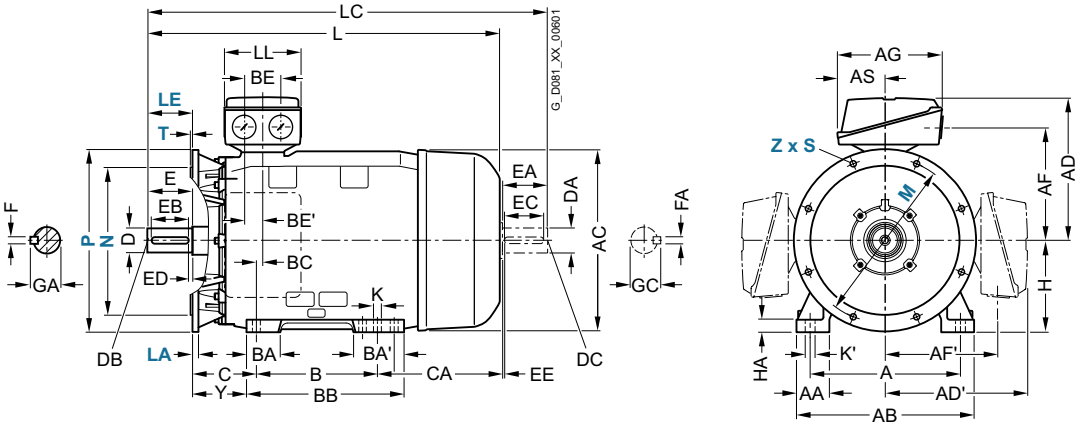
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**										DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	**H**	HA	Y	HH	K	K'	**L**	L' [1]	LC[2]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1EA2	2	**180**	20	95	155	15	19	**698**	698	814	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EB2	4							**668**	668	784															
180 L	1EB4	4	**180**	20	95	155	15	19	**698**	698	814	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EC4	6							**668**	668	784															
200 L	2AA4, 2AC4	2, 6	**200**	25	108	164	19	25	**721**	755	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	2AA5, 2AB5, 2AC5	2, 4, 6							**746**	780	860															
225 S	2BB0	4	**225**	34	124	164	19	25	**788**	–	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	2BA2	2	**225**	34	124	164	19	25	**818**	852	933	197	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
	2BB2, 2BC2	4, 6							**848**	–	963		60		140	125	10	18	64	55	M20				16	59
250 M	2CA2	2	**250**	40	138	192	24	30	**887**	924	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB2, 2CC2	4, 6								–	1032		65						69	60		140	125	10	18	64
280 S	2DA0	2	**280**	40	160	210	24	30	**960**	998	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB0, 2DC0	4, 6								–			75					20	79.5	65						69
280 M	2DA2	2	**280**	40	160	210	24	30	**1070**	1108	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB2	4								–	1215		75					20	79.5	65						69
	2DC2	6							**960**																	
315 S	3AA0	2	**315**	50	181	238	28	35	**1052**	1122	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB0, 3AC0	4, 6							**1082**	–	1227		80		170	140	25	22	85	70					20	74.5
315 M	3AA2	2	**315**	50	181	238	28	35	**1217**	1287	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB2, 3AC2	4, 6							**1247**	–	1392		80		170	140	25	22	85	70					20	74.5
315 L	3AA4	2	**315**	50	181	238	28	35	**1217**	1287	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB4, 3AC4	4, 6							**1247**	–	1392		80		170	140	25	22	85	70					20	74.5
	3AA5	2			146				**1372**	1442	1517		65		140	125	10	18	69	60					18	64
	3AB5, 3AC5, 3AC6	4, 6							**1402**	–	1547		80		170	140	25	22	85	70					20	74.5

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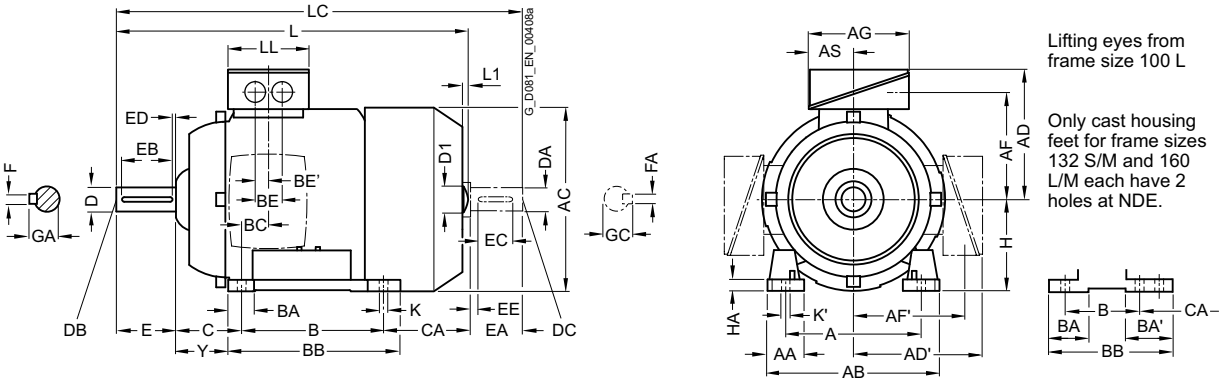
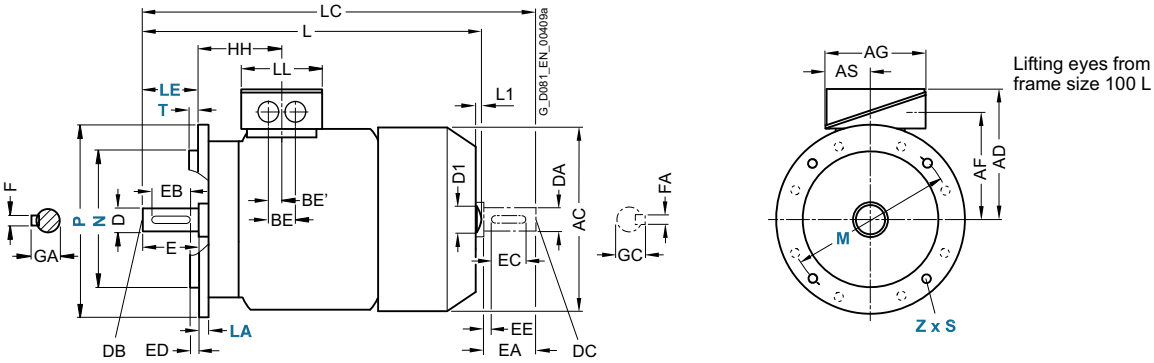
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																					
Frame size	Motor type 1MB1543- 1MB1643-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA	**H**	HA	Y
71 M	0C.2 0C.3	2, 4, 6	112	30.5	**132**	145	**173**	173	129	129	163	80.5	90	32	32	106	21	48	24	45	83	**71**	7	37
80 M	0D.2 0D.3	2, 4, 6	125	30.5	**150**	162	**183**	183	139	139	163	80.5	100	32	32	118	22.5	48	24	50	112.5	**80**	8	41
90 S	0E.0	2, 4, 6	140	30.5	**165**	180	**188**	188	144	144	163	80.5	100	33	54	143	24.5	48	24	56	159	**90**	11	47
90 L	0E.4	2, 4, 6	140	30.5	**165**	180	**188**	188	144	144	163	80.5	125	33	54	143	24.5	48	24	56	134	**90**	11	47
100 L	All	2, 4, 6	160	42	**196**	217	**193**	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	**100**	12	45
112 M	All	2, 4, 6	190	46	**226**	239	**195**	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130	**112**	12	52
132 S	1CA0, 1CC0 1CA1, 1CB0	2, 6 2, 4	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	140	52	89[1]	218[2]	26.5	48	24	89	128.5 178.5	**132**	15	69
132 M	1CC2 1CB2, 1CC3	6 4, 6	216	53	**256**	281	**214.5**	214.5	169	169	163	80.5	178	52	89[1]	218	26.5	48	24	89	128.5 178.5	**132**	15	69
160 M	All	2, 4, 6	254	60	**300**	333.5	**261**	261	213	213	190	92	210	73	117[3]	300[4]	37	60	30	108	192	**160**	18	85
160 L	All	2, 4, 6	254	60	**300**	333.5	**261**	261	213	213	190	92	254	73	117[3]	300	37	60	30	108	208	**160**	18	85

[1] With screwed-on feet, dimension BA' is 43 mm.
[2] With screwed-on feet, dimension BB is 180 mm.
[3] With screwed-on feet, dimension BA' is 51 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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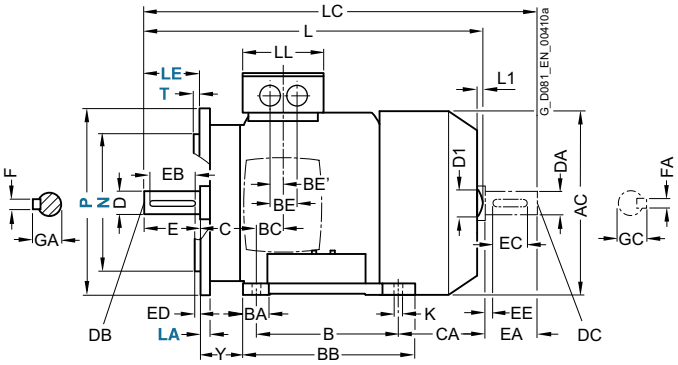
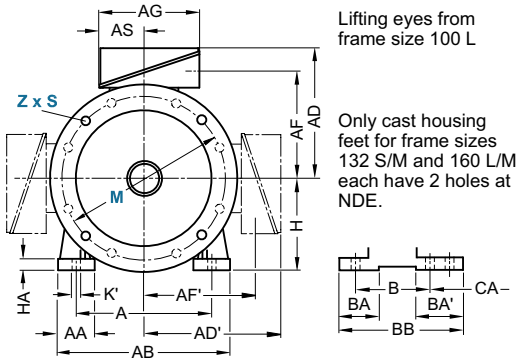
Dimensional drawings

Type of construction IM B35

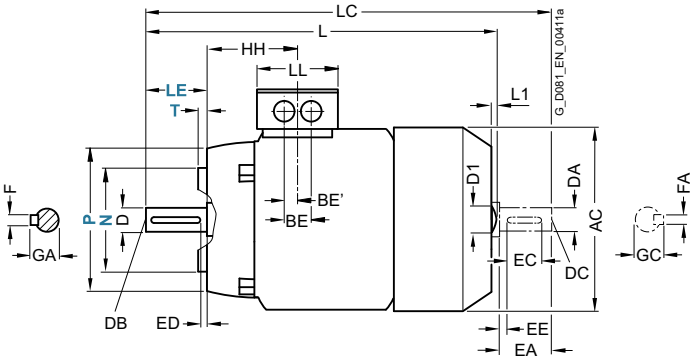
For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)

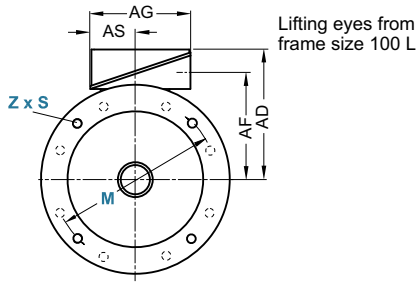




Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





For motor			Dimension designation acc. to **IEC**								DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB1543- 1MB1643-	No. of poles	HH	K	K´	**L**[1]	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	0C.2 0C.3	2, 4, 6	64.5	7.5	7.5	**240** **280**	–	–	278	134	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	0D.2 0D.3	2, 4, 6	71.5	10	10	**292** **327**	–	–	318	134	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	0E.0	2, 4, 6	79.5	10	10	**347**	–	–	343	134	24	M8	50	40	5	8	27	19	M6	50	40	5	8	21.5
90 L	0E.4	2, 4, 6	79.5	10	10	**387**	–	–	378	134	24	M8	50	40	5	8	27	19	M6	50	40	5	8	21.5
100 L	All	2, 4, 6	100.5	12	16	**425.5**	–	32	405	134	28	M10	M10	50	5	8	31	24	M8	M10	50	5	8	27
112 M	All	2, 4, 6	100.5	12	16	**408.5**	–	32	445	134	28	M10	60	50	5	8	31	24	M8	60	50	5	8	27
132 S	1CA0, 1CC0 1CA1, 1CB0	2, 6 2, 4	115.5	12	16	**458**	–	39	489	134	38	M12	80	70	5	10	41	28	M10	80	70	5	10	31
132 M	1CC2 1CB2, 1CC3	6 4, 6	115.5	12	16	**508**	–	39	342.5	134	38	M12	80	70	5	10	41	28	M10	80	70	5	10	31
160 M	All	2, 4, 6	145	14.5	18	**596**	–	45	475	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6	145	14.5	18	**656**	–	45	535.5	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

[1] For 1MB1643 motors less dimension L1.

[2] Only for 1MB1543 motors.

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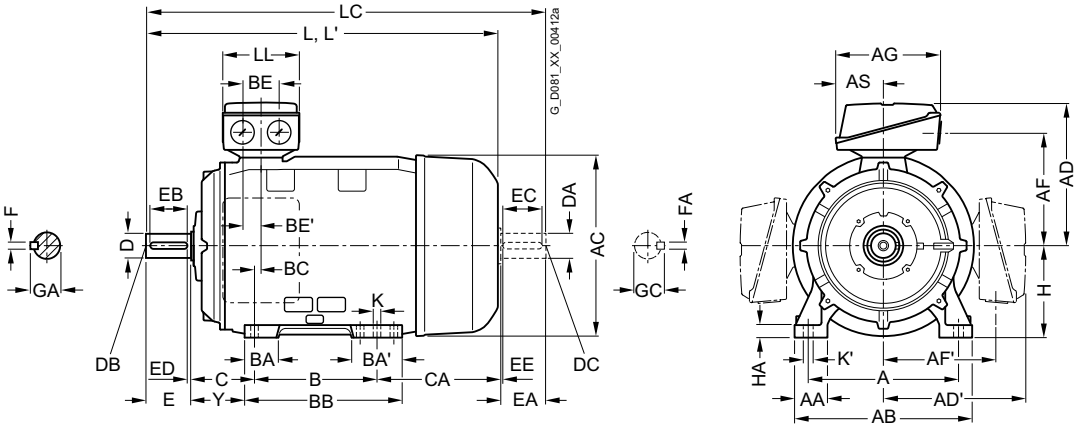
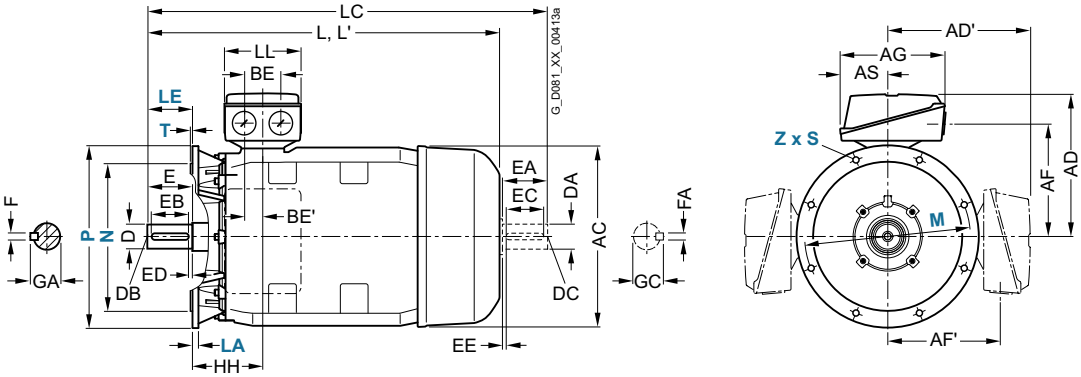
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1MB1543- 1MB1643-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA
180 M/ 180 L	1EA2, 1EB4 1EB2, 1EC4	2, 4 4, 6	279	65	**339**	356	**286**	286	234	234	190	92	241	85	120	328	34				
200 L	2AA4, 2AC4 2AA5, 2AB5, 2AC5	2, 6 2, 4, 6	318	70	**378**	396	**315**	315	259	259	266	112	305	104	104	355	31				
225 S	2BB0	4	356	80	**436**	449	**338**	338	282	282	265	112	286	93	118	361	15				
225 M	2BA2 2BB2, 2BC2	2 4, 6											311								
250 M	2CA2 2CB2, 2CC2	2 4, 6	406	100	**490**	497	**410**	410	322	322	319	145	349	102	102	409	24				
280 S	2DA0 2DB0, 2DC0	2 4, 6	457	100	**540**	551	**433**	433	345	345	319	145	368	101	152	479	20				
280 M	2DA2 2DB2 2DC2	2 4 6											419								

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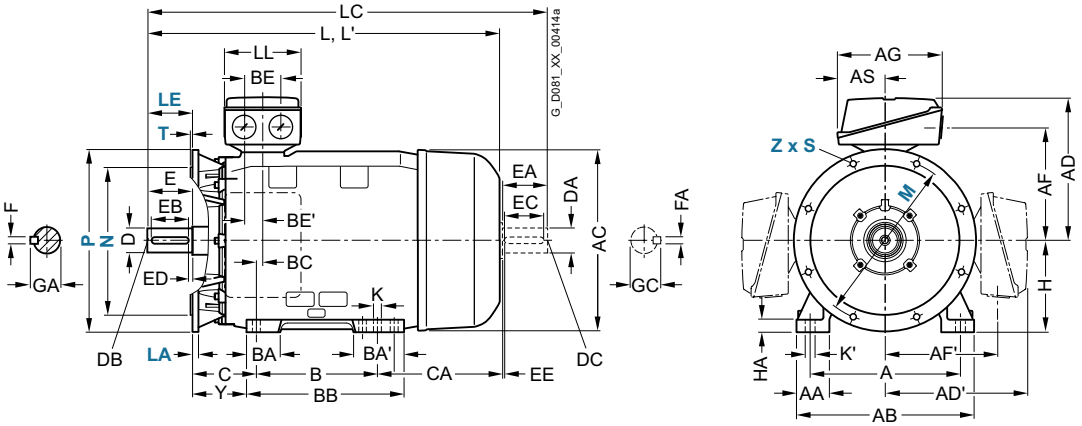
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB1543- 1MB1643-	No. of poles	**H**	HA	Y	HH	K	K´	**L**	LC[1]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M/ 180 L	1EA2, 1EB4 1EB2, 1EC4	2, 4	**180**	20	95	155	15	19	**698** **668**	814 784	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
200 L	2AA4, 2AC4 2AA5, 2AB5, 2AC5	2, 6 2, 4, 6	**200**	25	108	164	19	25	**721** **746**	835 860	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S	2BB0	4	**225**	34	124	164	19	25	**788**	963	197	60	M20	140	125	10	18	64	55	M20	175	100	70	16	59
225 M	2BA2	2							**818**	993		55		110	100	5	16	59	48	M16				14	51.5
	2BB2, 2BC2	4, 6							**928**	1103		60		140	125	10	18	64	55	M20				16	59
250 M	2CA2	2	**250**	40	138	192	24	30	**887**	1062	233	60	M20	140	125	10	18	64	55	M20	175	100	70	16	59
	2CB2, 2CC2	4, 6							**957**	1162		65						69	60		205	125	75	18	64
280 S	2DA0	2	**280**	40	160	210	24	30	**960**	1170	233	65	M20	140	125	10	18	69	60	M20	210	125	80	18	64
	2DB0, 2DC0	4, 6										75					20	79.5	65						69
280 M	2DA2	6							**1070**	1280		65					18	69	60						64
	2DB2	2										75					20	79.5	65						69
	2DC2	4							**960**	1170															

[1] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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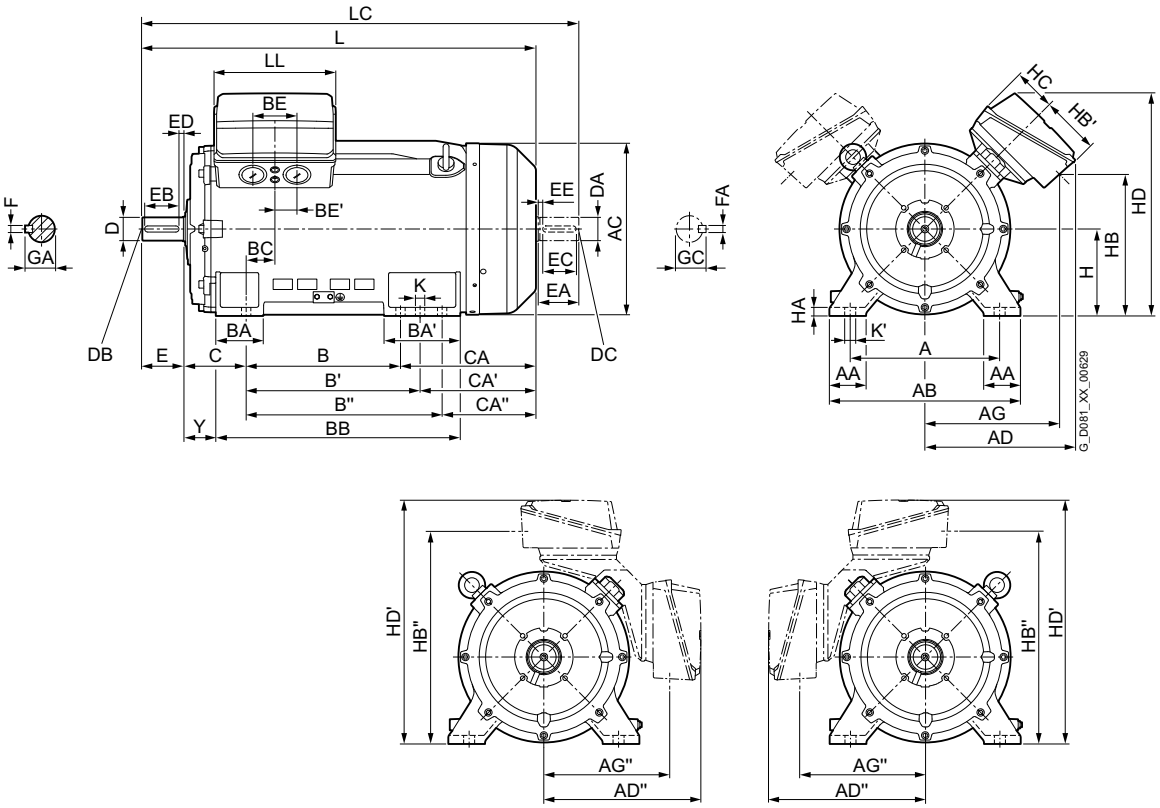
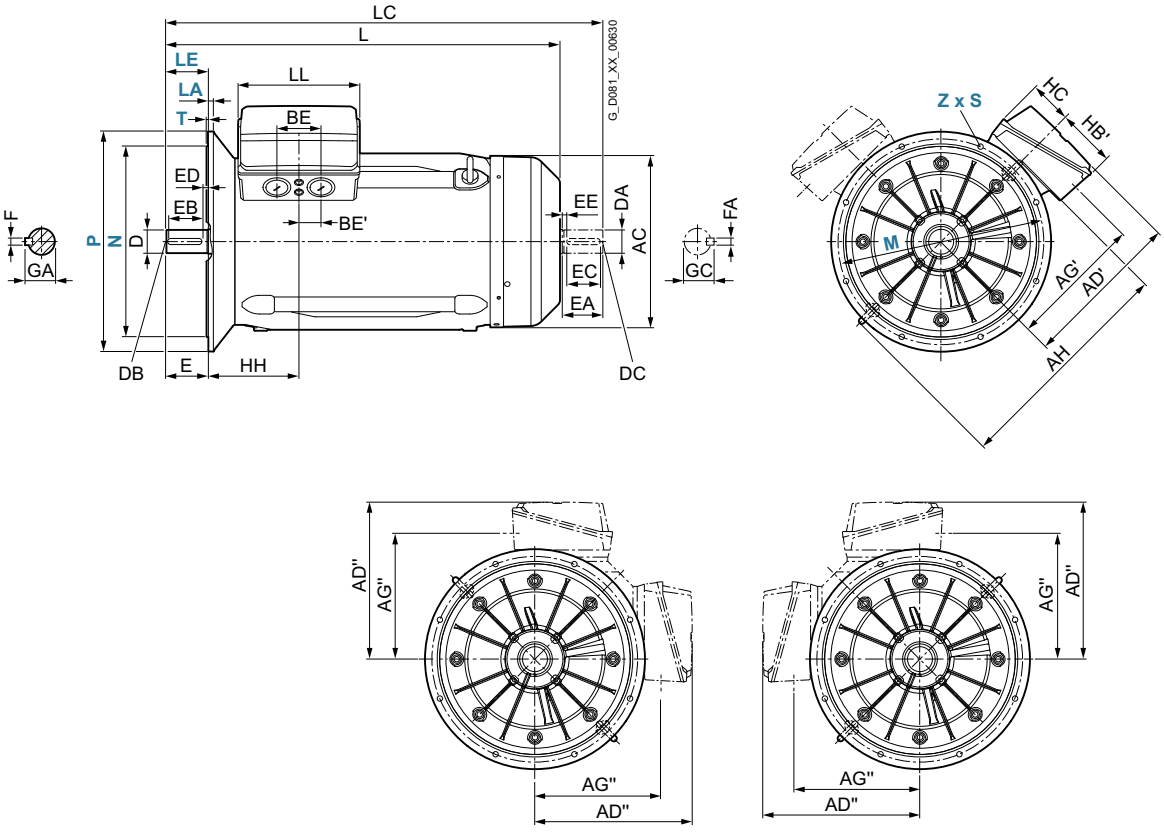
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



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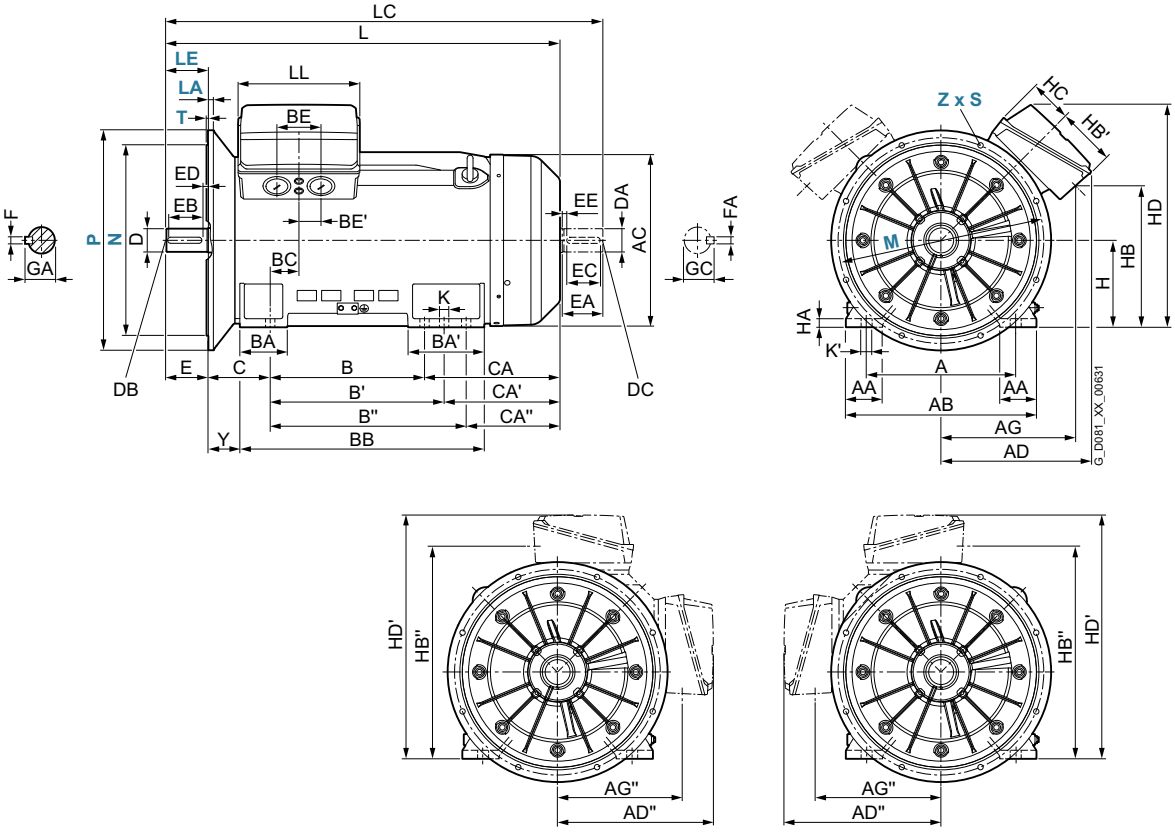
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																								
Frame size	Motor type 1MB5543 1MB5643	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AD´´	AG	AG´	AG´´	AH	B	B´	BA	BA´	BB	BC	BE	BE´	C	CA	CA´	**H**	HA	HB
315 S/M	3AA0, 3AA2 3AB0, 3AB2, 3AC0, 3AC2	2 4, 6	508	120	**610**	641	**543**	565	540	491	480	481	660	406	457	176 177	227 226	570	139	135	67.5	216	370	319	**315**	50	491
315 L	3AA4, 3AA5, 3AB4, 3AB5, 3AC4, 3AC5, 3AC6	2 4, 6	508	120	**610**	641	**543**	565	540	491	480	481	660	457	508	176	227	648	139	135	67.5	216	469	418	**315**	50	491

For motor			Dimension designation acc. to **IEC**											DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB5543 1MB5643	No. of poles	HB´	HB´´	HC	HD	HD´	HH	Y	K	K´	**L**	LC[1)]	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 S/M	3AA0, 3AA2 3AB0, 3AB2, 3AC0, 3AC2	2 4, 6	225	796	167	800	880	355	146	28	35	**1132** **1162**	1277 1307	327	65 80	M20 M20	140 170	125 140	10 25	18 22	69 85	60 70	M20	140	125	80	18 20	64 74
315 L	3AA0, 3AA2 3AB4, 3AB5, 3AC4, 3AC5, 3AC6	2 4, 6	225	796	167	800	880	355	146	28	35	**1282** **1312**	1427 1457	327	65 80	M20	140	125	10	18	69	60	M20	140	125	80	18	64

[1)] In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

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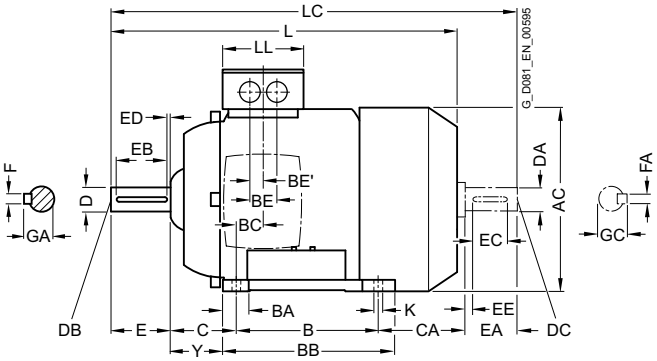
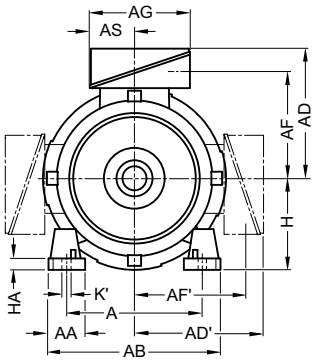
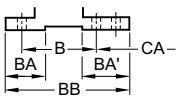
Dimensional drawings

Type of construction IM B3



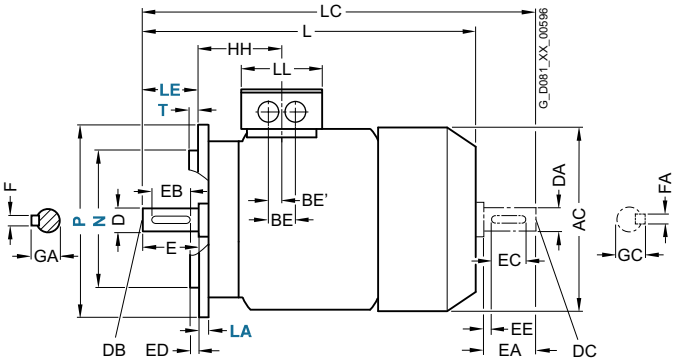


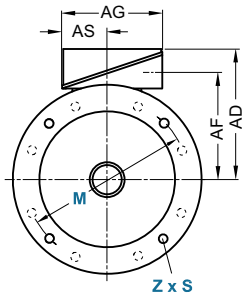
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)





For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1MB1553-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA	**H**	HA	Y
71 M	All	2, 4, 6, 8	112	25	**140**	169	**240**	–	195	–	163	81	90	30	45	125	76	36	18	45	199.5	**71**	10	35
80 M	All	2, 4, 6, 8	125	35	**160**	169	**249**	–	204	–	163	81	100	33	38	130	75.5	36	18	50	204	**80**	13	37.5
90 S/L	All	2, 4, 6, 8	140	40	**180**	182	**261**	–	216	–	163	81	125	41	40	155	80	36	18	56	239	**90**	13	41
100 L	All	2, 4, 6, 8	160	40	**205**	218	**259**	–	213	–	163	81	140	50	50	170	92	48	24	63	306	**100**	18	48
112 M	All	2, 4, 6, 8	190	45	**240**	230	**279**	–	233	–	163	81	140	50	50	170	92	48	24	70	280.5	**112**	18	55
132 S	All	2, 4, 6, 8	216	50	**260**	262	**295**	295	250	250	163	81	140	58	104	235	101	48	24	89	292	**132**	18	64
132 M	1CB2, 1CC3	4, 6	216	50	**260**	262	**295**	295	250	250	163	81	178	58	104	235	101	48	24	89	309	**132**	18	64
	1CC2, 1CD2	6, 8																			254			
160 M	All	2, 4, 6, 8	254	60	**310**	314	**351**	351	299	299	190	92	210	61	114	307	162.5	60	3	108	393	**160**	20	87.5
160 L	All	2, 4, 6, 8	254	60	**310**	314	**351**	351	299	299	190	92	254	61	114	307	162.5	60	3	108	349	**160**	20	87.5

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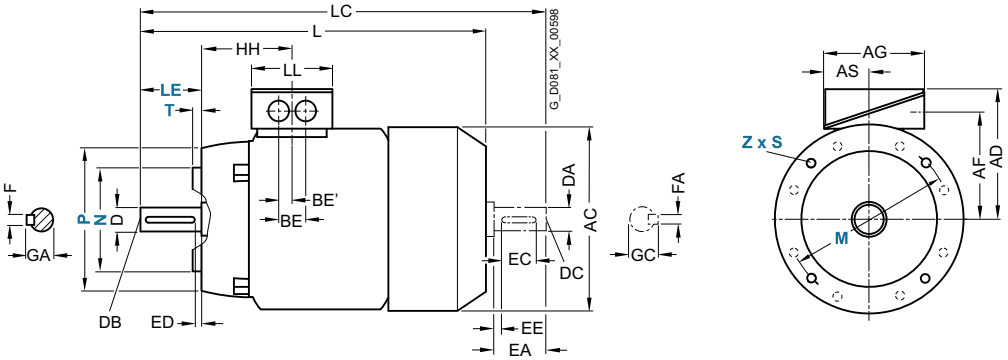
Dimensional drawings

Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**						DE shaft extension							NDE shaft extension							
Frame size	Motor type 1MB1553-	No. of poles	HH	K	K´	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	All	2, 4, 6, 8	121	7	10	**350**	394.5	134	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	All	2, 4, 6, 8	125.5	10	15	**374**	434	134	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S/L	All	2, 4, 6, 8	136	10	15	**450**	510	134	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	155	12	19	**544**	619	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	162	12	19	**520**	600.5	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	190	12	19	**571**	661	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2, 1CC3	4, 6	190	12	19	**626**	716	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CC2, 1CD2	6, 8				**571**	661															
160 M	All	2, 4, 6, 8	270.5	14.5	23	**786**	931	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	270.5	14.5	23	**786**	931	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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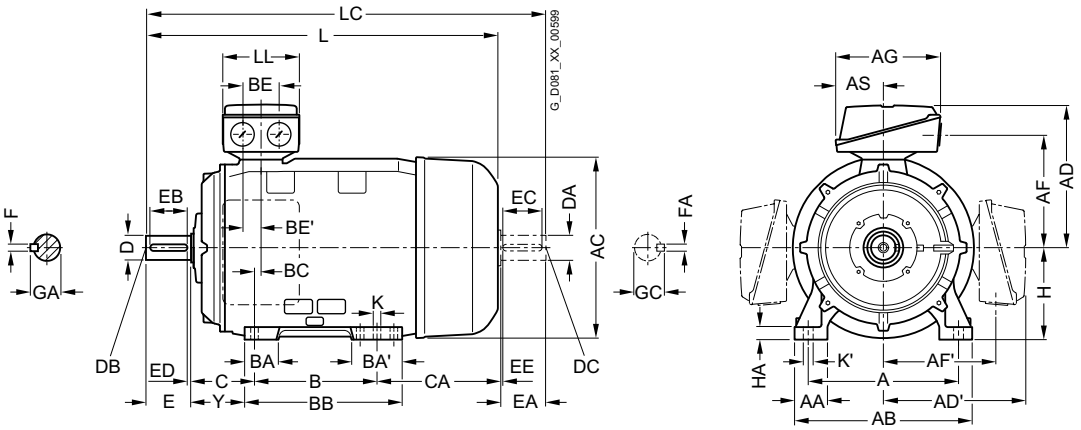
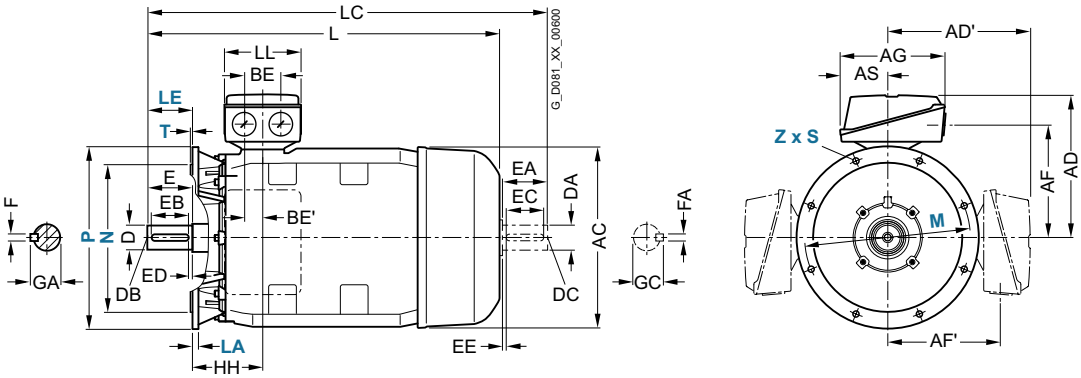
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1MB1553-	No. of poles	A	AA	**AB**	AC	**AD**	AD´	AF	AF´	AG	AS	B	BA	BA´	BB	BC	BE	BE´	C	CA
180 M	1EA2, 1EB2	2, 4	279	70	**349**	353	**388**	388	336	336	190	92	241	100	170	359	184	60	30	121	411
180 L	4EB4, 1EC4, 1ED4	4, 6, 8	279	70	**349**	353	**388**	388	336	336	190	92	279	100	170	359	184	60	30	121	373
200 L	All	2, 4, 6, 8	318	80	**400**	393	**447**	447	390	390	266	112	305	120	142	425	217	85	42.5	133	411
225 S	2BB0, 2BD0	4, 8	356	90	**446**	439	**467**	467	410	410	266	112	286	115	209	438	221	85	42.5	149	494
225 M	2BA2	2	356	90	**446**	439	**467**	467	410	410	266	112	311	115	209	438	221	85	42.5	149	469
	2BB2, 2BC2, 2BD2	4, 6, 8																			
250 M	2CA2	2	406	100	**505**	487	**502**	502	414	414	319	145	349	123	128	420	188	110	55	168	422
	2CB2, 2CC2, 2CD2	4, 6, 8																			
280 S	2CA0	2	457	110	**570**	540	**524**	524	436	436	319	145	368	173	177	520	252	110	55	190	496
	2DB0, 2DC0, 2DC0	4, 6, 8																			
280 M	2DA2	2	457	110	**570**	540	**524**	524	436	436	319	145	419	173	177	520	252	110	55	190	445
	2CB2, 2DC2, 2DD2	4, 6, 8																			

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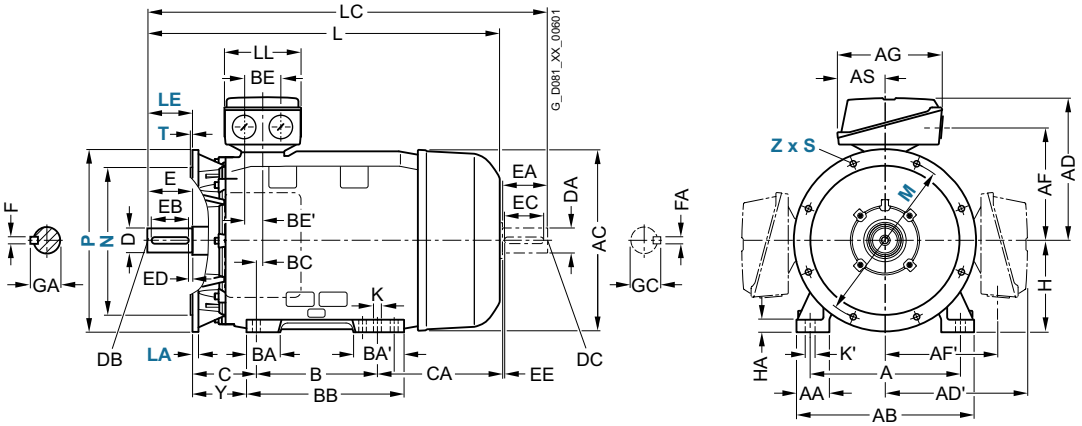
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB1553-	No. of poles	**H**	HA	Y	HH	K	K´	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1EA2, 1EB2	2, 4	**180**	19	97	305	14.5	22	**838**	993	165	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
180 L	4EB4, 1EC4, 1ED4	4, 6, 8	**180**	19	97	305	14.5	22	**838**	993	165	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
200 L	All	2, 4, 6, 8	**200**	25	101	350	18.5	25	**899**	1069	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S	2BB0, 2BD0	4, 8	**225**	25.5	117	370	18.5	25	**1004**	1179	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	2BA2	2	**225**	25.5	117	370	18.5	25	**974**	1149	197	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
	2BB2, 2BC2, 2BD2	4, 6, 8							**1004**	1179		60		140	125	10	18	64	55	M20				16	59
250 M	2CA2	2	**250**	35	133	356	24	40	**1014**	1189	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB2, 2CC2, 2CD2	4, 6, 8								1219		65						69	60		140	125	10	18	64
280 S	2CA0	2	**280**	40	140	442	24	40	**1124**	1334	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB0, 2DC0, 2DC0	4, 6, 8										75					20	79.5	65						69
280 M	2DA2	2	**280**	40	140	442	24	40	**1124**	1334	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2CB2, 2DC2, 2DD2	4, 6, 8										75					20	79.5	65						69

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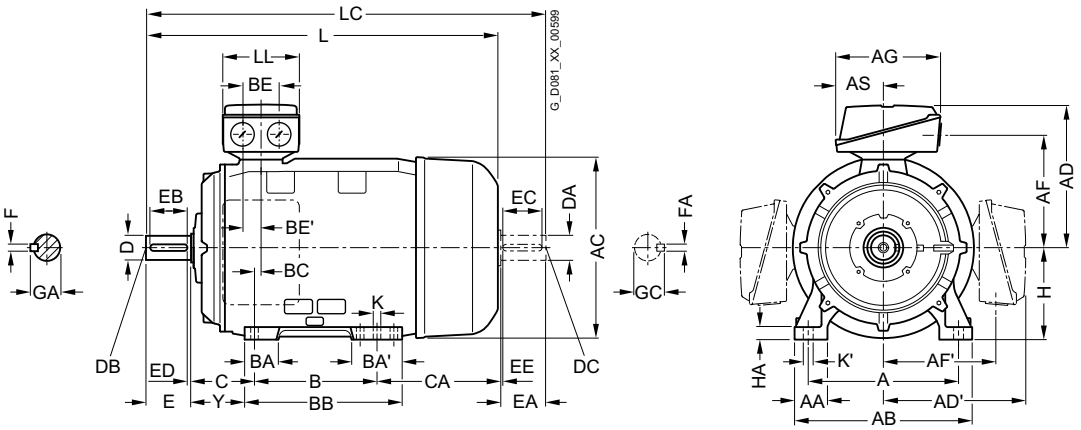
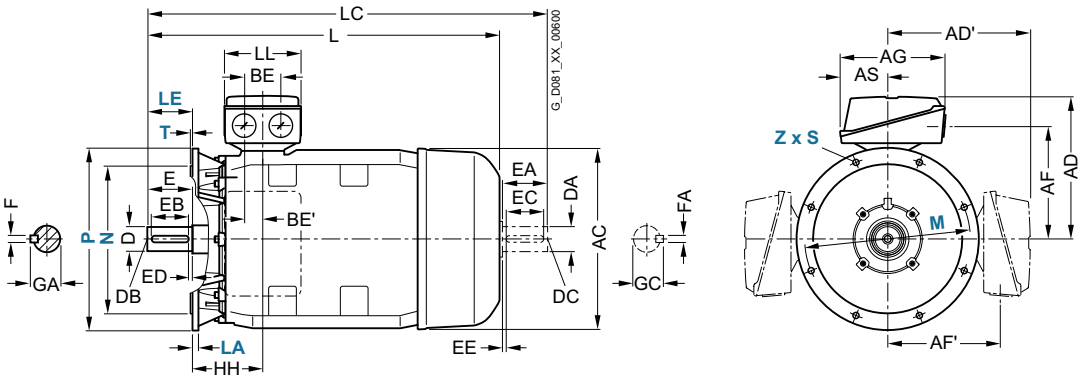
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																		
Frame size	Motor type 1MB5553-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
315 S	3AA0	2	508	120	**610**	668	**603**	603	509	509	509	167	406	140	196	602	169	120	60	216	497
	3AB0, 3AC0, 3AD0	4, 6, 8																			
315 M	3AA2	2	508	120	**610**	668	**603**	603	509	509	509	167	457	140	286	692	169	120	60	216	536
	3AB2	4													286	692					536
	3AC2, 3AD2	6, 8													196	602					446
315 L	3AA4	2	508	120	**610**	668	**603**	603	509	509	509	167	508	140	286	692	169	120	60	216	485
	3AA5														305	762					555
	3AA6														334	842	254				635
	3AB4, 3AC4, 3AD5, 3AD6	4, 6, 8													286	692	169				485
	3AB5, 3AC5, 3AC6	4, 6													305	762	169				555
	3AB6, 3AC7, 3AD7	4, 6, 8													334	842	254				635
	3AD4	8											457		196	602	169				446
355 S	3BD0	8	508	120	**610**	668	**603**	603	509	509	509	167	457	140	196	602	169	120	60	216	446
	3BD1																				
355 M	3BD2	8	508	120	**610**	668	**603**	603	509	509	509	167	457	140	196	602	169	120	60	216	446
355 L	3BA2	2	610	150	**780**	736	**710**	710	590	590	570	175	630	187	350	893	230	120	60	254	535
	3BA3														365	968					610
	3BA4, 3BA5													191	401	1078					720
	3BB2, 3BB3	4												187	350	893					535
	3BB4, 3BC1	4, 6													365	968					
	3BB5, 3BC2, 3BC3, 3BC4	4, 6, 8												191	401	1078					

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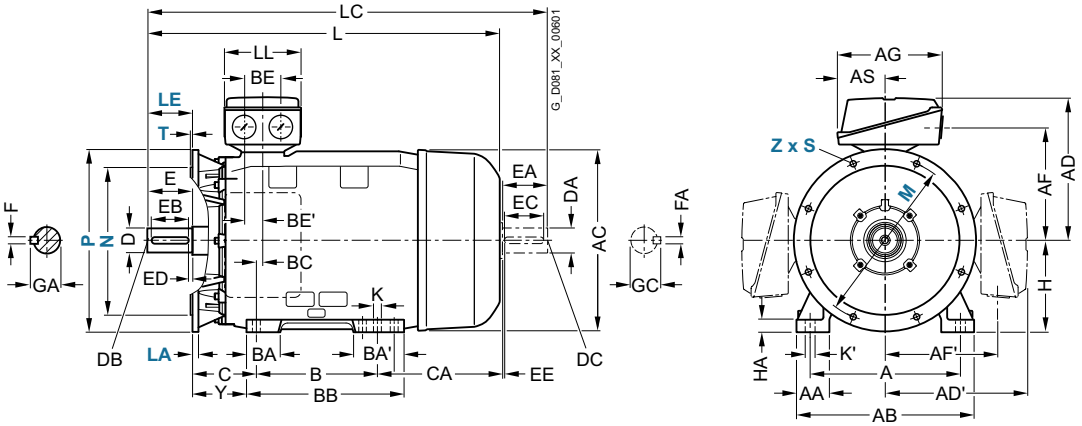
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB5553	No. of poles	**H**	HA	Y	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 S	3AA0	2	**315**	50	146	385	28	28	**1189**	1399	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB0, 3AC0, 3AD0	4, 6, 8							**1219**	1429		80	M20	170	140	25	22	85	70					20	74.5
315 M	3AA2	2	**315**	50	146	385	28	28	**1279**	1489	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB2	4							**1309**	1519		80		170	140	25	22	85	70					20	74.5
	3AC2, 3AD2	6, 8							**1219**	1429															
315 L	3AA4	2	**315**	50	146	385	28	28	**1279**	1489	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AA5								**1349**	1559															
	3AA6					470			**1429**	1639															
	3AB4, 3AC4, 3AD5, 3AD6	4, 6, 8				385			**1309**	1519		80		170	140	25	22	85	70					20	74.5
	3AB5, 3AC5, 3AC6	4, 6				385			**1379**	1589															
	3AB6, 3AC7, 3AD7	4, 6, 8				470			**1459**	1669															
	3AD4	8				385			**1219**	1429															
355 S	3BD0	8	**315**	50	146	385	28	28	**1584**	1834	497	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
	3BD1								**1694**	1944															
355 M	3BD2	8	**315**	50	146	385	28	28	**1694**	1944	497	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
355 L	3BA2	2	**355**	50	139	385	35	35	**1479**	1699	497	75	M20	140	125	10	20	79.5	60	M20	140	125	10	18	64
	3BA3								**1554**	1774															
	3BA4, 3BA5								**1664**	1884															
	3BB2, 3BB3	4							**1509**	1759		95	M24	170	140	25	25	100	80	M20	170	125	25	22	85
	3BB4, 3BC1	4, 6							**1584**	1834															
	3BB5, 3BC2, 3BC3, 3BC4	4, 6, 8							**1694**	1944															

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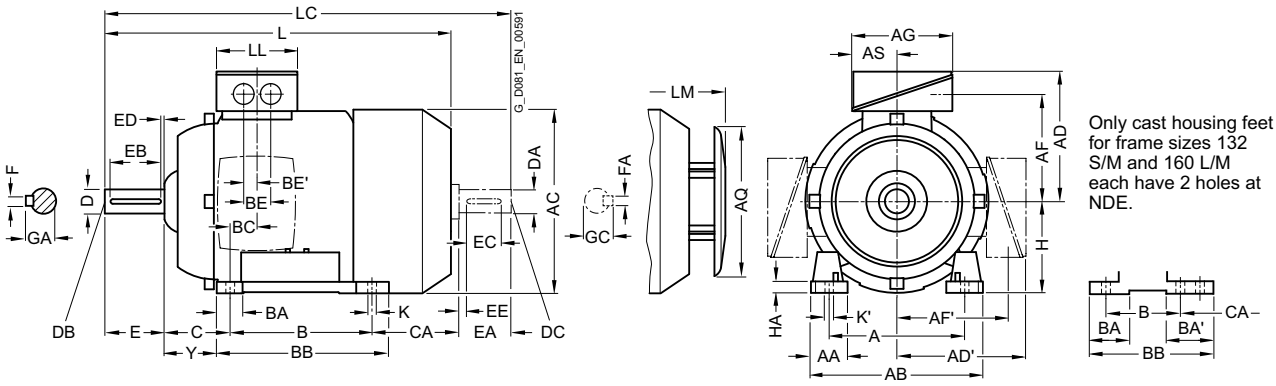
Dimensional drawings

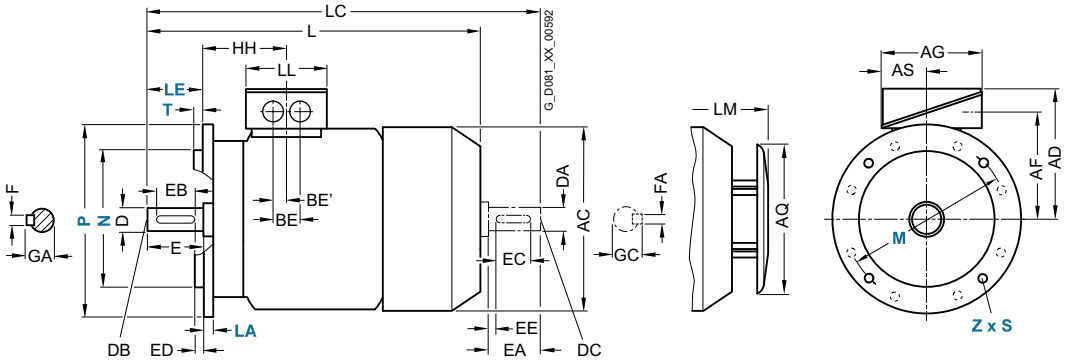
Type of construction IM B3



Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																				
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	**H**	HA	Y
71 M	0CA2, 0CB2, 0CC2, 0CD2	2, 4, 6, 8	112	30.5	**132**	145	**149**	149	112	112	126	62	90	32	32	106	21	36	18	45	83	**71**	7	37
	0CA3, 0CB3, 0CC3, 0CD3																28							
80 M	0DA2, 0DB2, 0DC2, 0DD2	2, 4, 6, 8	125	30.5	**150**	162	**159**	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	**80**	8	41
	0DA3, 0DB3, 0DC3, 0DD3																							
90 S	All	2, 4, 6, 8	140	30.5	**165**	180	**164**	164	127	127	126	62	100	33	54	143	24.5	36	18	56	149	**90**	10	47
90 L	All	2, 4, 6, 8	140	30.5	**165**	180	**164**	164	127	127	126	62	125	33	54	143	24.5	36	18	56	124	**90**	10	47
100 L	All	2, 4, 6, 8	160	42	**196**	198	**193**	193	147	147	163	80.5	140	40	40	176	37.5	48	24	63	141	**100**	12	45
112 M	1BA2, 1BB2, 1BC2	2, 4, 6	190	46	**226**	222	**195**	195	150	150	163	80.5	140	40	40	176	30	48	24	70	129.7	**112**	12	52
	1BD2	8																						
132 S	All	2, 4, 6, 8	216	53	**256**	262	**214.5**	214.5	169	169	163	80.5	140	44	81[1]	218[3]	26.5	48	24	89	167	**132**	15	69
132 M	All	2, 4, 6, 8	216	53	**256**	262	**214.5**	214.5	169	169	163	80.5	178	44	81[1]	218	26.5	48	24	89	129	**132**	15	69
160 M	All	2, 4, 6, 8	254	60	**300**	314	**265**	265	213	213	190	92	210	51	95[2]	300[4]	37	60	30	108	192	**160**	18	85
160 L	All	2, 4, 6, 8	254	60	**300**	314	**265**	265	213	213	190	92	254	51	95[2]	300	37	60	30	108	148	**160**	18	85

[1] With screwed-on feet, dimension BA' is 43 mm.
[2] With screwed-on feet, dimension BA' is 51 mm.
[3] With screwed-on feet, dimension BB is 180 mm.
[4] With screwed-on feet, dimension BB is 256 mm.

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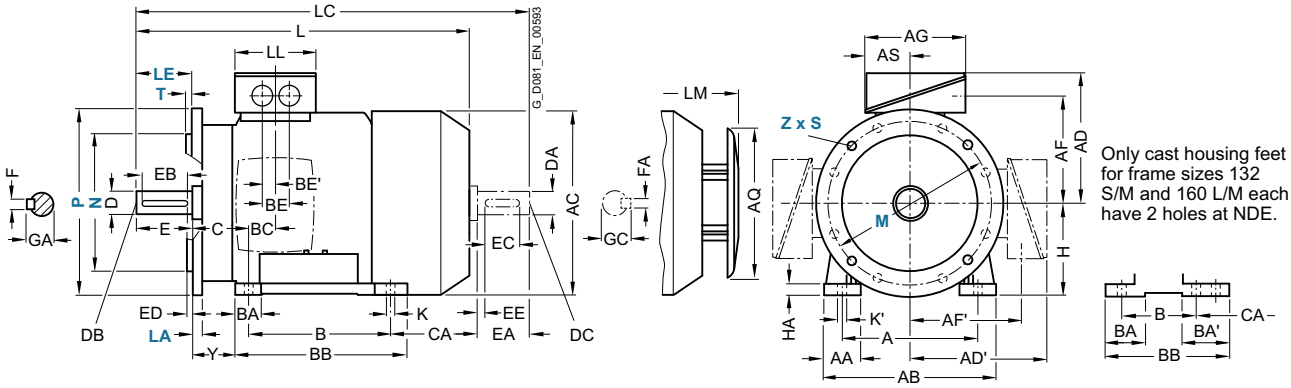
Dimensional drawings

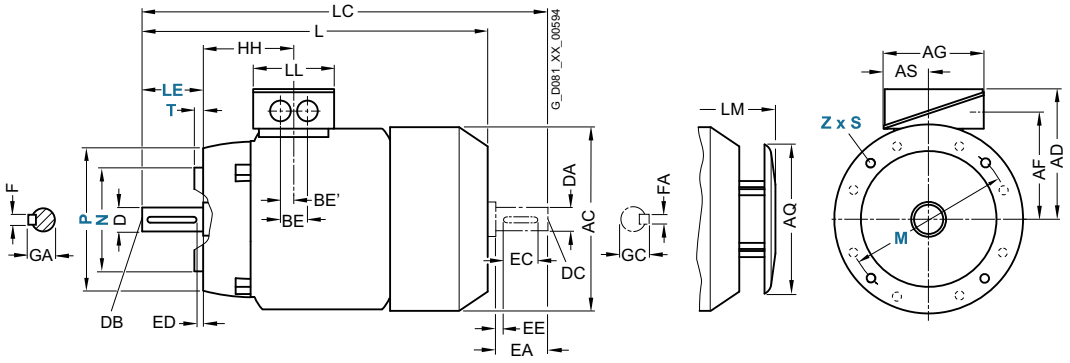
Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



Type of construction IM B14

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**						DE shaft extension							NDE shaft extension							
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	0CA2, 0CB2, 0CC2, 0CD2	2, 4, 6, 8	63	7	7	**240**	278	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
	0CA3, 0CB3, 0CC3, 0CD3		70			**280**	318															
80 M	0DA2, 0DB2, 0DC2, 0DD2	2, 4, 6, 8	72.5	10	13.5	**292**	342.5	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3, 0DC3, 0DD3					**327**	377.5															
90 S	All	2, 4, 6, 8	80.5	10	10	**347**	405	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
90 L	All	2, 4, 6, 8	80.5	10	10	**387**	445	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
100 L	All	2, 4, 6, 8	100.5	12	16	**390.5**	454	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2, 1BC2	2, 4, 6	100.5	12	16	**390.5**	450	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1BD2	8				**408.5**	475															
132 S	All	2, 4, 6, 8	115.5	12	16	**458**	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	**458**	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	145	15	19	**596**	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	145	15	19	**596**	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

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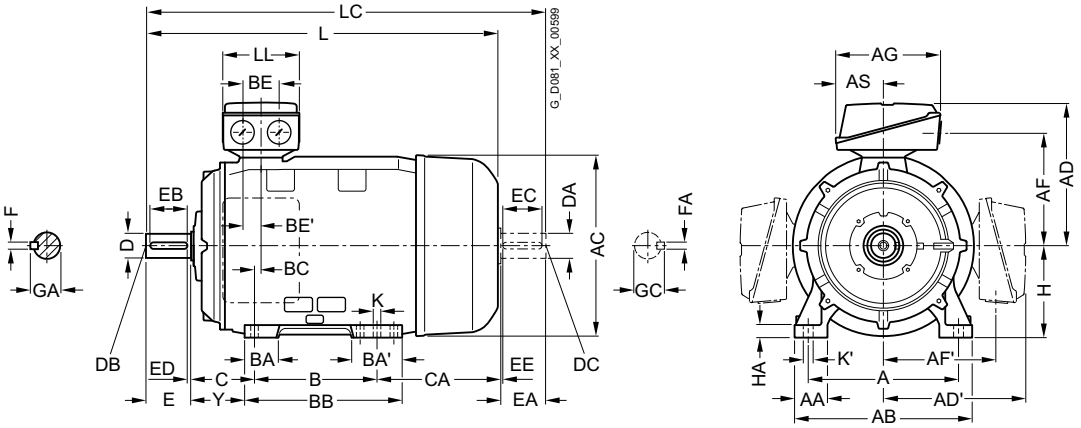
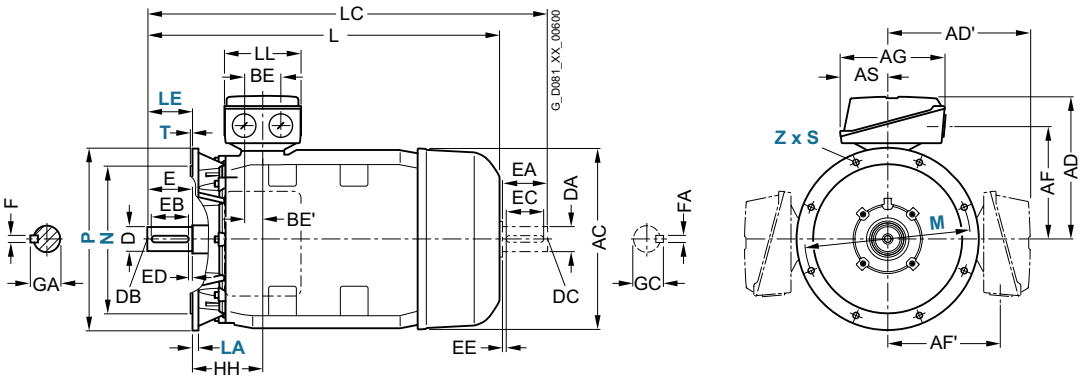
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																			
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AH	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
180 M/ 180 L	1EA2, 1EB24	2, 4	279	65	**339**	356	**286**	286	234	234	190	468	92	241	85	120	328	34	60	30	121	202
	1EC4, 1ED4	6, 8												279								
	1EB4	4																				
200 L	All	2, 4, 6, 8	318	60	**378**	396	**315**	315	259	259	266	533	112	305	104	104	355	31	85	42.5	133	177
225 S/ 225 M	2BB0, 2BD0,	4, 8	356	80	**436**	449	**338**	338	282	282	266	556	112	311	92	117	361	15	85	42.5	149	253
	2BB2, 2BC2, 2BD2	4, 6, 8																				
	2BA2	2																				
250 M	2CA2	2	406	100	**490**	497	**410**	410	322	322	319	620	145	349	102	102	409	24	110	55	168	230
	2CB2, 2CC2, 2CD2	4, 6, 8																				

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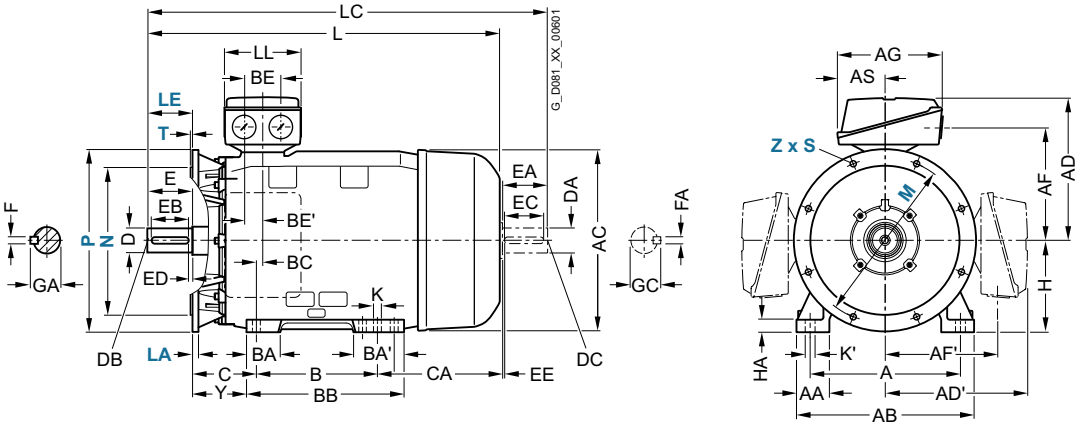
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension					
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	**H**	HA	Y	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M/ 180 L	1EA2, 1EB2	2, 4	**180**	20	95	155	15	19	**668**	784	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EC4, 1ED4	6, 8																							
	1EB4	4							**698**	814															
200 L	All	2, 4, 6, 8	**200**	25	108	164	19	25	**721**	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S/ 225 M	2BB0, 2BD0,	4, 8	**225**	34	124	164	19	25	**788**	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2BB2, 2BC2, 2BD2	4, 6, 8							**848**	963															
	2BA2	2							**818**	933		55		110	100	5	16	59	48	M16			14	51.5	
250 M	2CA2	2	**250**	40	138	192	24	30	**887**	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB2, 2CC2, 2CD2	4, 6, 8								1032		65						69	60		140	125	10	18	64

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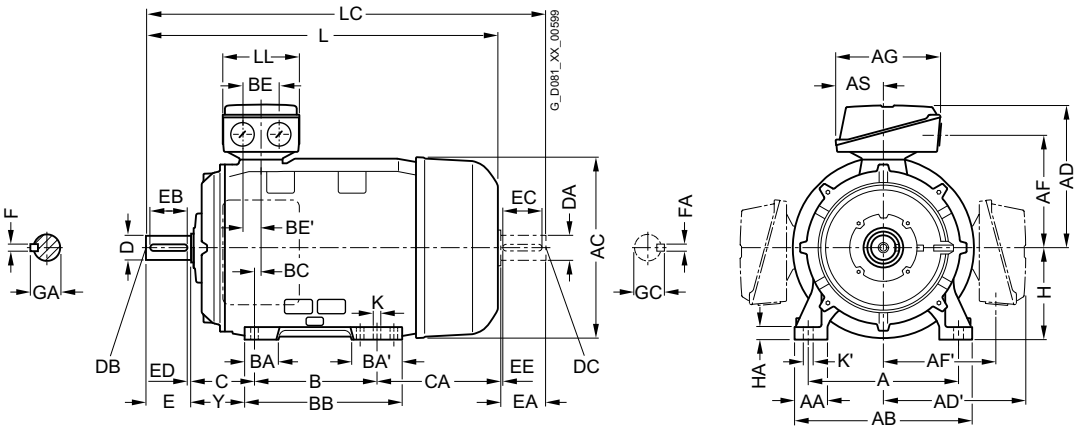
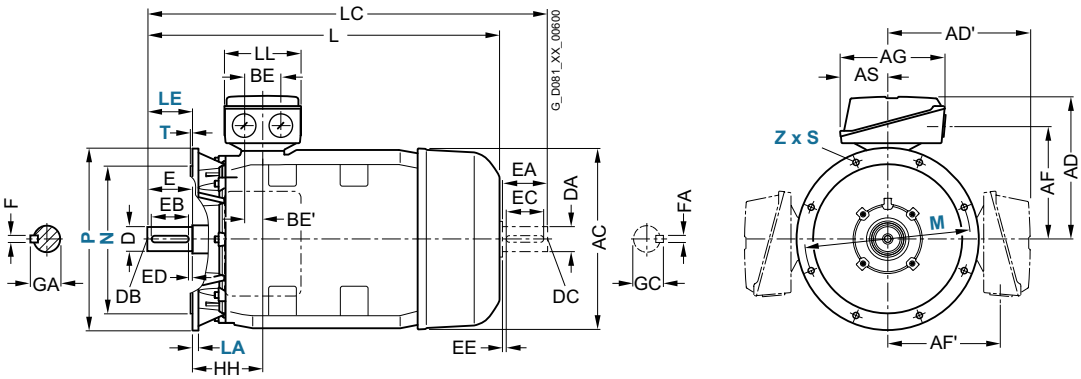
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**																			
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	A	AA	**AB**	AC	**AD**	AD'	AF	AF'	AG	AH	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
280 S	2DA0	2	457	100	**540**	551	**433**	433	345	345	319	672	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0, 2DD0	4, 6, 8																				
280 M	2DA2	2	457	100	**540**	551	**433**	433	345	345	319	672	145	419	101	152	479	20	110	55	190	216
	2DB2, 2DC2, 2DD2	4, 6, 8																				
315 S	3AA0	2	508	120	**610**	616	**515**	515	404	404	374	780	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0, 3AD0	4, 6, 8																				
315 M	3AA2	2	508	120	**610**	616	**515**	515	404	404	374	780	164	457	113	170	578	22	110	55	216	409
	3AB2	4																				
	3AC2, 3AD2	6, 8															327					244
315 L	3AA4	2	508	120	**610**	616	**515**	515	404	404	374	780	164	508	113	170	578	22	110	55	216	358
	3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6	4, 6, 8																				
	3AA5	2													176	227	648					513
	3AB5[1], 3AC6[1]	4, 6																				

[1] When ordering a terminal box positioned on the left-hand side or right-hand side, the feet are screwed on as standard.
These screwed-on feet have 3 drill holes on the NDE with the respective dimension B 406, 457 and 508 mm; the dimension BB is 666 mm.

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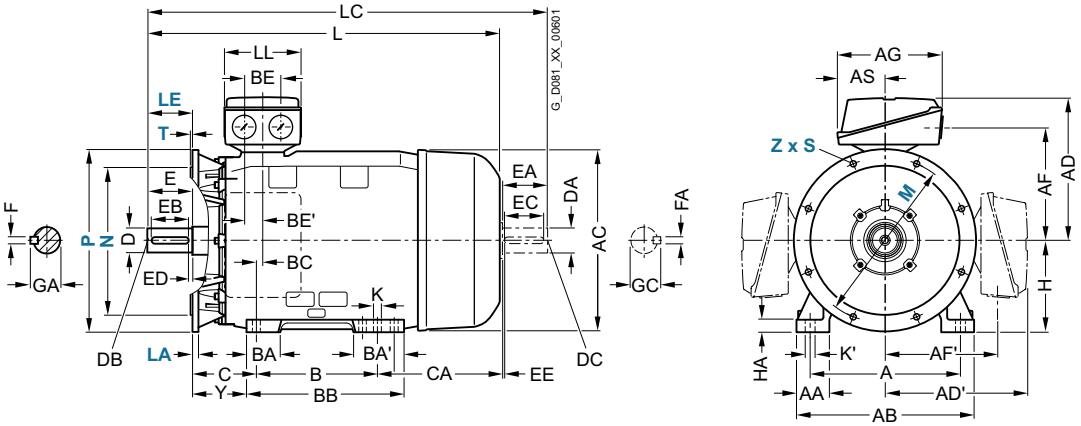
Dimensional drawings

Type of construction IM B35

For flange dimensions, see page 1/47 (**Z** = the number of retaining holes)



For motor			Dimension designation acc. to **IEC**									DE shaft extension							NDE shaft extension						
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	**H**	HA	Y	HH	K	K'	**L**	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
280 S	2DA0	2	**280**	40	160	210	24	30	**960**	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB0, 2DC0, 2DD0	4, 6, 8										75					20	79.5	65						69
280 M	2DA2	2	**280**	40	160	210	24	30	**960**	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB2, 2DC2, 2DD2	4, 6, 8										75					20	79.5	65						69
315 S	3AA0	2	**315**	50	181	238	28	35	**1052**	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB0, 3AC0, 3AD0	4, 6, 8							**1082**	1227		80		170	140	25	22	85	70					20	74.5
315 M	3AA2	2	**315**	50	181	238	28	35	**1217**	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB2	4							**1247**	1392		80		170	140	25	22	85	70					20	74.5
	3AC2, 3AD2	6, 8							**1082**	1227															
315 L	3AA4	2	**315**	50	181	238	28	35	**1217**	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6	4, 6, 8							**1247**	1392		80		170	140	25	22	85	70					20	74.5
	3AA5	2			146				**1372**	1517		65		140	125	10	18	69	60					18	64
	3AB5, 3AC6	4, 6							**1402**	1547		80		170	140	25	22	85	70					20	74.5

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Notes

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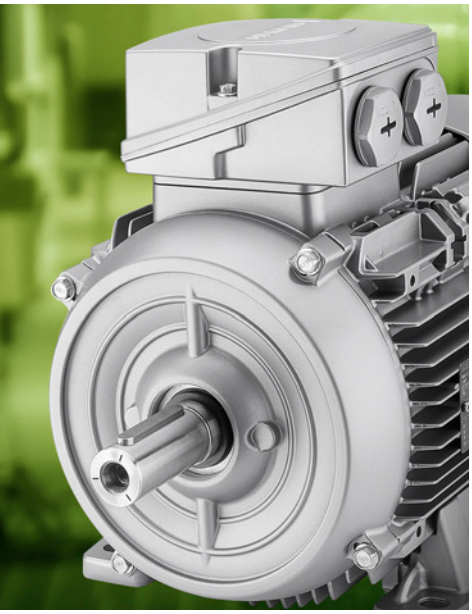

6/2 **Introduction**

6/3 **Marine motors**

6/3 **Orientation**

6/9 **Special versions**
6/9 Options
6/9 • Aluminum series 1LE10
6/10 • Cast-iron series 1LE15/1LE16 Basic/Performance Line
6/11 • Cast-iron series 1LE55/1LE56 Basic/Performance Line
6/12 • Aluminum series 1MB10, Cast-iron series 1MB15/1MB16/1MB55

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Overview

With the designation SIMOTICS DP, Siemens offers a number of industry and application specific (**D**efinite **P**urpose) motors that differ from standard motors in that they have special industry/ application-specific features:

SIMOTICS DP marine motors

Marine motors are exposed to air humidity and other hostile conditions on the high seas and must always perform their function reliably. Our marine motors meet the standards of the leading classification companies (DNV GL, BV, LR, RS, KR, ABS, RINA) and have type test certifications up to frame size 315 L. They are basically suitable for the higher ambient temperatures in engine rooms below deck. If requested, a representative of the marine classification society can be present in our factories to formally accept equipment.

You will find more information on marine motors on the following pages.

SIMOTICS DP steel plant motors

The steel plant motors are specially designed for applications in the steel industry with stringent requirements for vibrations and shocks according to class 3M4 (EN 60721-3-3). They provide an optimized technical and economic solution for numerous transportation tasks in the steel manufacturing process or in steel manufacturing facilities, in which no scale dust occurs. Steel plant motors can be operated at a constant speed directly on the line or are used together with the SINAMICS S120 converter for dynamic processes.

The ordering data for SIMOTICS DP steel plant motors can be found in the Catalog Add On D 81.1 AO – Motors for the steel industry.

SIMOTICS DP roller table and steel plant motors

SIMOTICS DP roller table and steel plant motors are designed for directly driving the rollers of working roller tables in reversing rolling mills. They are designed as completely enclosed three-phase induction motors, with a housing made of spheroidal graphite cast iron, ring ribs, and reinforced bearing shields. This makes the motors ideal for use with typical shocks and vibrations and severe dirt due to scale dust. On account of their special mechanical design, they meet the most stringent requirements demanded by this application. Of course, the motors are also designed for variable-speed reversing operation on frequency converters of the SINAMICS S and G series.

The ordering data for SIMOTICS DP roller table and steel plant motors can be found in the Catalog Add On D 81.1 AO – Motors for the steel industry.

SIMOTICS DP crane motors

Like marine motors, crane motors are exposed to extreme climatic conditions and must meet tough operating requirements. Our crane motors stand up to high humidity levels, salt-laden air, and high wind speeds. They are characterized by high overload capability and a large speed setting range, for example, to operate hoist mechanisms efficiently in converter operation. SIMOTICS DP crane motors are reliably protected against corrosion with especially elaborate paint finishes and sealing. The rugged cast-iron motors are especially suitable for tough operation under hostile conditions, for indoor and outdoor use, e.g. in harbor facilities for rubber-tired gantry, rail-mounted gantry, and automatic stacking cranes. Special pulse encoders and brakes round off the product to form a perfectly adapted solution.

You can obtain further information on the SIMOTICS DP crane motors from your Siemens contact.

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Overview

Low-voltage motors in the marine version can be used below deck on ships and in the offshore industry. The thermal utilization of the motors is adapted to the generally higher ambient temperatures onboard ships. If the application demands compliance with additional regulations, such as explosion protection (Directive 2014/34/EU (ATEX 95)), the appropriate motor series must be chosen.

The motors on board ships are generally subdivided into three classes of importance by the marine classification societies in cooperation with customers, depending on the field of application:

- **Essential Service for Propulsion** or also referred to as Primary Essential Service
- **Essential Service** or also referred to as Secondary Essential Service or Important Service
- **Non-Essential Service** or also referred to as Non-Important Service

The class of importance must be specified by the customer (ordering party). Retrospective certification by means of individual acceptance test or construction supervision cannot be issued.

The categories include the following requirements of the classification societies:

	Class of importance		
	Essential Service for Propulsion	**Essential Service**	**Non-Essential Service**
Typical applications	Propeller drive, thruster	Thrusters, lateral thrust units, anchor winches, bilge and ballast pumps, fire-fighting pumps	Pumps for service water
Version	In accordance with the regulations set up by the classification society		In accordance with ambient conditions set up by the classification society
Inspection certificate	Inspection certificate 3.2 in accordance with EN 10204	Inspection certificate 3.1 in accordance with EN 10204	None
Individual acceptance by classification society	Necessary if no type test certificate exists or the classification society has defined it based on the application		Not required
Type test	Not a requirement of the classification societies For standard motors up to frame size 355, a type test certificate is supplied. These motors can only be ordered with options E11 to E54 in accordance with the classification society.		
Ordering several identical motors	Differentiation between the first motor and additional ones must be realized when ordering using an order code		No distinction
Rating plate data	Information about ambient conditions of the classification society		
Stamp of the classification society	Stamp on shaft and housing		No stamp

Classification societies

Society	Abbreviation	Location
American Bureau of Shipping	**ABS**	USA
Bureau Veritas	**BV**	France
DNV GL Maritime	**DNV GL**	Germany
Korean Register	**KR**	Korea
Lloyds Register	**LR**	UK
Registro Italiano Navale	**RINA**	Italy
Russian Maritime Register of Shipping	**RS**	Russia

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Overview

Type test (type approval)

All 1LE1, 1LE5, 1MB1, 1PC1, 1PC3, 1PC4 motors are manufactured and type tested in accordance with the regulations set up by the following international classification societies:

- ABS (American Bureau of Shipping)
- BV (Bureau Veritas, France)
- DNV GL Maritime
- KR (Korean Register of Shipping)
- LR (Lloyds Register of Shipping)
- Registro Italiano Navale (RINA)
- Russian Maritime Register of Shipping (RS)

Special versions that differ from the range defined in the catalog are possible on request.

Benefits

The marine motors offer the user a number of advantages and benefits:

- Cast-iron versions can be supplied for corrosive atmospheres especially for high humidity levels and salty air
- Increased corrosion protection using specially designed paint finishes is available
- Certified marine motors can be supplied for use in areas to be protected against explosion (hazardous zones)
- Due to the existing type test, individual acceptance test in power ranges below the power limits defined by the classification societies is not required which means short delivery times
- In depth know-how regarding customer requirements
- Worldwide service network with 24 hour service hotline for motors and converters

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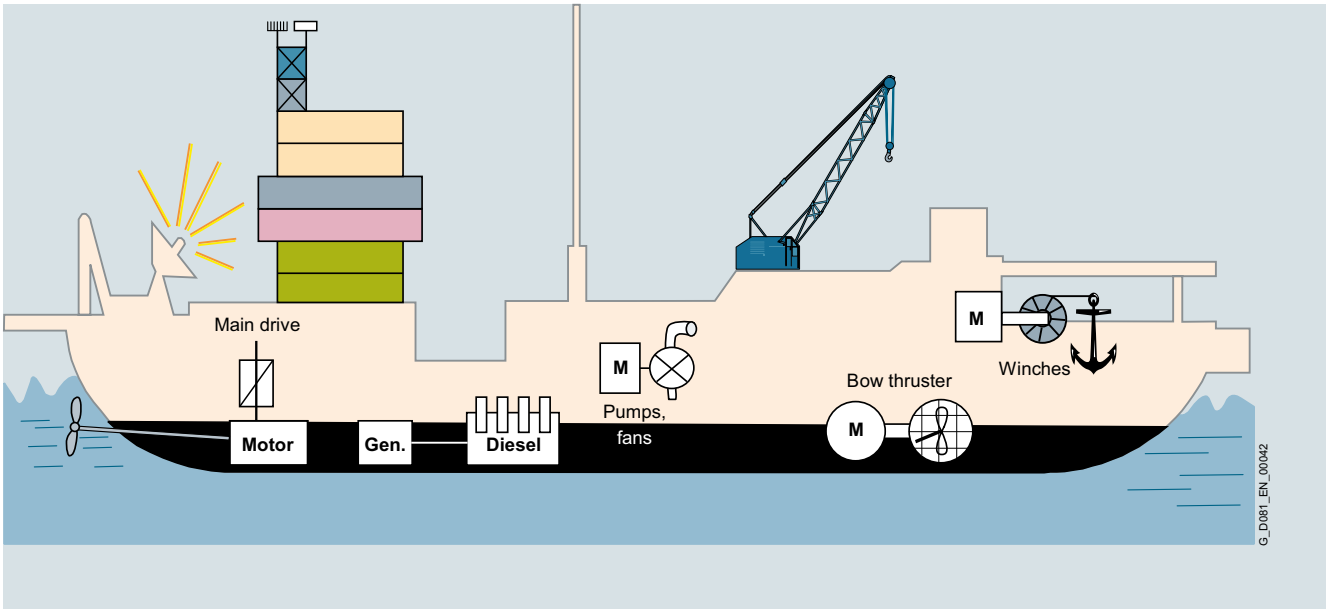
Application

Our type tested marine motors are specially designed for use on board ship below deck and for the offshore industry:

- Applications on ships as main and auxiliary drives below deck, e.g.:
  - Fans (air conditioning systems, refrigeration systems)
  - Pumps (for fire-extinguishing water, fuels, oils)
  - Winches (anchor winches, warping winches, lifting gear)
  - Compressors
  - Bow thruster drives
  - Ex motors for hazardous zones
- Application in the offshore industry
  - Coastal areas, e.g. oil rigs, drilling ships



Typical below-deck applications

Technical specifications

Housing design

Motors can be supplied depending on the motor series in a corrosion-resistant aluminum housing or in a rugged low-vibration cast-iron version.

Motor connection

Cable glands are not included in the standard scope of supply with the exception of explosion-protected motors (see "Special versions").

All marine motors generally have an external grounding terminal.

Mountings (rotary pulse encoder, separately driven fan, brake)

Brakes, encoders and separately driven fans from our basic series (1LE, 1MB) are accepted as mountings without a separate certificate from the marine classification societies by the following: LR, RINA, RS, DNV GL, ABS and KR.

However, BV always demands separate certification for encoders. For this reason, 1LE1, 1MB1, 1PC1 and 1PC3 motors for BV can only be supplied in the "prepared for encoder mounting" condition. In this instance, the customer must bear responsibility for purchasing and installing a suitable encoder. With respect to brakes and separately driven fans, BV will also accept Siemens standard components.

Fan / fan cover

Fans and fan covers are made from the same materials as components from the basic series. BV stipulates that these components must be made of metal, and they are automatically supplied in this material when order code **E31** is specified.

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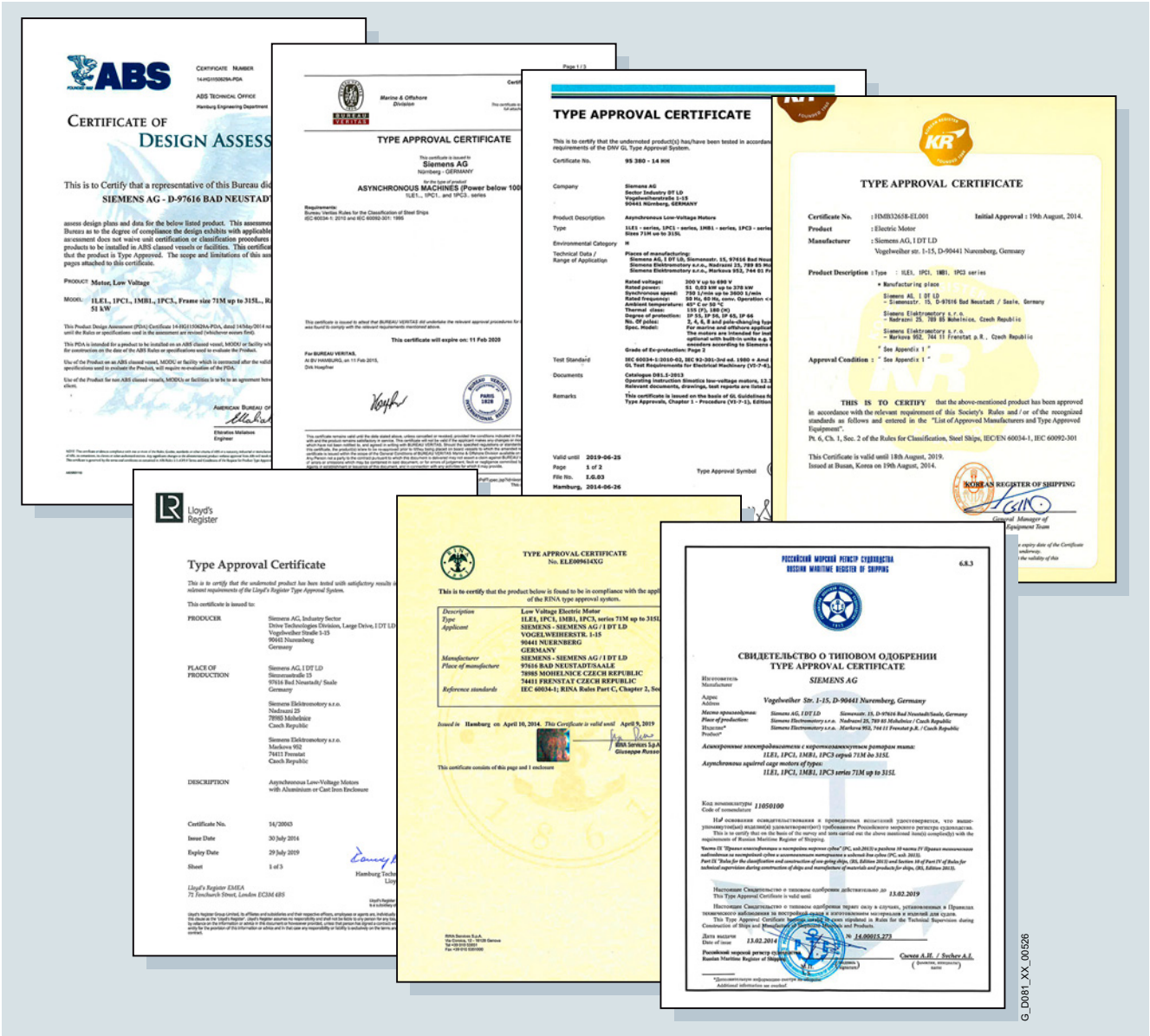
Technical specifications

Specifications of the individual classification societies with order codes (options) for motors in frame sizes 71M - 315 L

Classification society	Coolant temperature CT	Admissible temperature rise limit according to the classification society		Rated power limit for individual acceptance test for essential service drive	Rated power limit for construction supervision for essential service drive	Order codes for surface-cooled motors up to frame size 315 L with type test certificate
		Temperature class				
		130 (B)	155 (F)			
	°C	K	K	kW	kW	
LR	45	70	95	≥ 100	≥ 100	E21
BV	45	75	100	≥ 100	–	E31
DNV GL	45	75	100	≥ 300	–	E51
ABS	50	70	95	≥ 100 [1)]	–	E52
RINA	45	75	100	≥ 100	–	E41
RS	45	75	95	≥ 20	–	E46
KR	45	75	95	≥ 7.5	–	E54

Type test certificates



1) Required for all power ranges for ATEX compliance.

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Technical specifications

Temperature class and coolant temperature

SIMOTICS GP/SD standard motors and SIMOTICS XP explosion-protected motors up to frame size 355

In general, marine motors are designed for a coolant temperature CT 45 °C in temperature class 155 (F) – used according to 155 (F) – with thermal reserve. When motors are used according to temperature class 130 (B) (order code **N05**), derating is required. For standard motors up to frame size 315 L, the derating is approx. 4 % (for order codes **E52** and **E21** approx. 8 %).

1MB1 motors in Zones 2, 21 and 22 are designed for temperature class 155 (F) – used according to temperature class 130 (B) – with derating of approx. 4 % (with order code **E52** approx. 8 %). Motors with increased power in temperature class 155 (F) – used according to temperature class 155 (F) – are also derated by approx. 4 % (with order code **E52** and **E21** approx. 8 %). If temperature class 155 (F) is to be used according to 130 (B), further derating of approximately 10 % is required.

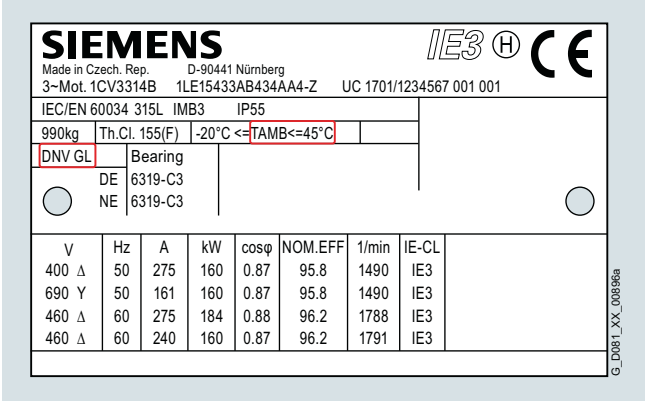
Coolant temperatures that exceed CT 45 °C require derating in accordance with the following table:

	Coolant temperature CT			
	45 °C	50 °C	55 °C	60 °C
Temperature class 155 (F) used according to 155 (F)				
Derating factor for line operation	1.00	0.96	0.92	0.87
Temperature class 155 (F) used according to 130 (B)				
Derating factor for line operation	0.90	0.86	0.83	0.78

More detailed information is available on request.

Rating plate and inspection certificate

The rating plate indicates the relevant classification society and the associated coolant temperature



Rating plate for a marine motor according to DNV GL

Degree of protection

The protection classes applicable here are specified in the catalog sections for basic series 1LE1/1MB1/1PC1. With IP56, icing must be avoided.

Winding and motor protection

For monitoring the winding and bearings, the motors can be equipped with PTC thermistors, temperature sensors and resistance thermometers. Anti-condensation heaters can also be fitted to the marine motors to prevent condensation building up on the winding.

Paint finish

The standard paint finish is suitable for indoor installations or outdoor installations which are roof-protected against weathering.

When installing the standard motors in sea air or in rooms with permanent moisture, the special paint finish climate group "worldwide" according to IEC 60721-2-1 is appropriate, because this ensures a higher degree of corrosion protection. Most marine motors are finished in this special paint finish as standard (see "Special versions").

With particularly corrosive atmospheres, the sea-air-resistant special paint finish C4 (order code **S03**) or the offshore special paint finish C5 (order code **S04**) is recommended.

Special paint colors with the order codes **Y53** and **Y56** and increased film thicknesses are available on request.

Converter operation

The standard insulation of the motors is designed such that converter operation is permissible at line voltages up to $U_{rated} \leq 500$ V. The following limit values (voltage values are peak values) must be maintained: $\hat{U}_{phase\text{-}to\text{-}phase} \leq 1500$ V, $\hat{U}_{phase\text{-}to\text{-}ground} \leq 1100$ V, voltage rise times of $t_s > 0.1$ µs. Operation of motors at higher voltage peaks (e.g. on converters with controlled input, e.g. AFE, ALM) requires motors with higher insulation resistance.
Please inquire in this case.

During installation, the EMC guidelines must be complied with. This does not apply to motors in type of protection Ex eb according to IEC/EN 60079-2 that are certified only for line operation.

It is important to note the extent to which the converter used must also be acceptance tested by the marine classification authority.

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Technical specifications

Recommended special versions

- Motor protection with with 1 or 3 PTC thermistors – for tripping (2 terminals) – 15th position of the Article No. **B**
- Installation of Pt100 resistance thermometers for winding temperature monitoring – 16th position of the Article No. **"H"**
- Especially for the motor series 1LE5:
  Installation of 2 Pt100 resistance thermometers in basic circuit for rolling-contact bearings – order code **Q72**
- Anti-condensation heating for 230 V – order code **Q02**
- Anti-condensation heating for 115 V – order code **Q03**
- IP56 degree of protection for protection against harmful dust deposits, protection against water jets from any direction – order code **H22**
- IP65 degree of protection for complete protection against dust deposits, protection against water jets from any direction – order code **H20**
- Special bearing for drive-end (DE) and non-drive-end (NDE), bearing size 63 – order code **L25**,
  for non-standard motors on request
- Metal external fan for self-ventilated motors –
  order codes **F74** and **F76** (standard with order code **E31**)

Additional notes

Order information

The fees levied by the classification societies for individual acceptance testing are included in order code **B10** for motor types 1LE1, 1LE5, 1PC5, 1MB1, 1PC1 and 1PC3.

When ordering, add the supplement **-Z** to the Article No. and state details in plain text if required.

For information about other special versions, refer to the appropriate sections under "SIMOTICS GP/SD 1LE1/1PC1 standard motors" and "SIMOTICS XP 1MB1 explosion-protected motors".

In addition to this, for marine motors, the following special versions are the "Standard version" and therefore included in the order codes for the basic marine version.

Standard version:

Designation	Order code
Inspection certificate 3.1 in accordance with EN 10204 Note: The delivery time for the manufacturer's test certificate may differ from the delivery time for the motor.	**B02**
External grounding terminal	**H04**

Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type	SIMOTICS SD Basic Line, efficiency class IE3 Premium Efficiency, IP55 degree of protection, IM B3 type of construction, without winding protection, terminal box at top	**1LE1503**
No. of poles, speed, rated power	4-pole, 1500 rpm, 55 kW	**1LE1503-2CB2**
Voltage, frequency	400 VΔ/690 VY, 50 Hz	**1LE1503-2CB23-4**
Type of construction	IM B3	**1LE1503-2CB23-4A**
Motor protection	1 or 3 PTC thermistors – for tripping (2 terminals)	**1LE1503-2CB23-4AB**
Terminal box position	Terminal box right	**1LE1503-2CB23-4AB5**
Paint finish	Paint finish in "Brilliant blue" RAL 5007	**1LE1503-2CB23-4AB5-Z Y53** Plain text: **RAL5007**
Marine version	Drive for "Essential Services" with type test certificate according to **DNV GL Maritime** with coolant temperature CT 45 °C	**1LE1503-2CB23-4AB5-Z Y53+E51** Plain text: **RAL5007**
	Individual acceptance (by marine classification society)	**1LE1503-2CB23-4AB5-Z Y53+E51+B10** Plain text: **RAL5007**
Motor order		
	Type test with temperature-rise run for horizontal motors, with acceptance	**1LE1503-2CB23-4AB5-Z Y53+E51+B10+B83** Plain text: **RAL5007**

The ordering example is valid for an order quantity of 1 item.
For larger order quantities, a type test with heat run (order code **B83**) has only to be ordered for one motor.
It is not necessary to specify order code **B83** for any further identical motors (included in the same order).
The order must be divided into two order items; see "Example for 5 identical motors".

Example for 5 identical motors

Order item	Quantity in units	Article No.
1	1	**1LE1503-2CB23-4AB5-Z Z=Y53+E51+B10+B83** Plain text: **RAL 5007**
2	4	**1LE1503-2CB23-4AB5-Z Z=Y53+E51+B10** Plain text: **RAL 5007**

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 63	71	80	90	100	112	132	160	180	200	Motor version	
						1LE1004						IEC	IE4
				1LE1003									IE3
		1LE1001											IE2
		1LE1002											IE1
				1LE1023								Eagle Line	NPE (NEMA)
					1LE1021								NEE (NEMA)
						1LE1011						Pole-changing	
1LE10 . . - . . . . . - . . . . -Z	Order code					**1LE1012**							
Marine version – Basic version													
With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E46**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E51**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	**E52**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E54**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Marine version – Acceptance/certification													
Individual acceptance by marine classification society	**B10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

✓ With additional charge
– Not possible

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Cast-iron series 1LE15/1LE16 Basic/Performance Line

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size												Motor version	
		71	**80**	**90**	**100**	**112**	**132**	**160**	**180**	**200**	**225**	**250**	**280**	**315**	
					1LE1504 Basic Line										IEC IE4
					1LE1604 Performance Line										
		1LE1503 Basic Line													IE3
					1LE1603 Performance Line										
		1LE1501 Basic Line													IE2
					1LE1601 Performance Line										
		1LE1523 Basic Line													Eagle Line NPE (NEMA)
					1LE1623 Performance Line										
1LE1 . . . - . . . . . - . . . . -Z	Order code				**1LE1521 Basic Line**										NEE (NEMA)
Marine version – Basic version															
With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E46**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E51**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	**E52**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E54**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Marine version – Acceptance/certification															
Individual acceptance by marine classification society	**B10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ With additional charge
– Not possible

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Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size		Motor version	
		315	**355**		
		1LE55.4 Basic Line		IEC	IE4
		1LE56.4 Performance Line			
		1LE55.3 Basic Line			IE3
1LE5 . . . - . . . . . - . . . . -Z	Order code	**1LE56.3 Performance Line**			
Marine version – Basic version					
With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E21**	✓	✓		
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E41**	✓	✓		
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E46**	✓	✓		
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E51**	✓	✓		
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	**E52**	✓	✓		
Marine version – Acceptance/certification					
Individual acceptance by marine classification society	**B10**	✓	✓		
Type test with heat run for vertical motors, with acceptance	**B81**	✓	✓		
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓		

✓ With additional charge

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Aluminum series 1MB10, cast-iron series 1MB15/1MB16/1MB55

Selection and ordering data

Special versions	Additional identification code **-Z** with order code and plain text if required	Frame size 71	80	90	100	112	132	160	180	200	225	250	280	315	355	Motor version	
Aluminum series			1MB10.3													IEC	IE3
			1MB10.1														IE2
					1MB10.2												IE1
Cast-iron series																	IE3
					1MB16.3 Performance Line												
		1MB1553															
												1MB5553					
		1MB15.1 Basic Line															IE2
1MB . . . . - . . . . . - . . . . -Z	Order code				1MB16.1 Performance Line												
Marine version – Basic version																	
With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E21**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E31**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E41**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E46**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E51**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	**E52**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	**E54**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Marine version – Acceptance/certification																	
Individual acceptance by marine classification society	**B10**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Type test with heat run for horizontal motors, with acceptance	**B83**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

✓ With additional charge

6

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Appendix

7/2 NEMA motors
7/2 Motors according to NEMA standard

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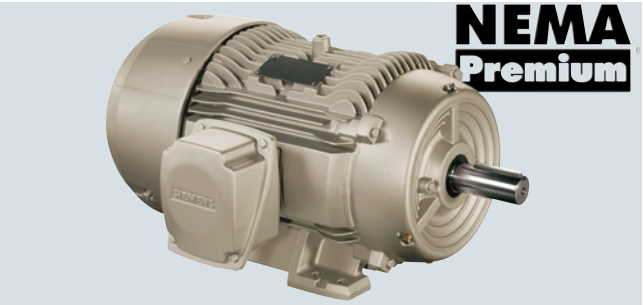
Motors according to NEMA standard



NEMA motors (National Electrical Manufacturers Association) for the North American market distinguish themselves as a result of their new design – and especially as a result of their efficiency. Siemens offers a complete line of General Purpose motors (aluminum and cast-iron design), Severe Duty motors, IEEE 841 and XP motors with NEMA Premium or higher efficiencies. Energy-saving motors with NEMA Premium efficiency class comply with the US EISA legislation (Energy Independence and Security Act) for minimum efficiencies. Our NEMA Premium + efficiency class exceeds the efficiencies specified in the EISA standards.
The motors are mechanically and electrically compliant with NEMA MG1. In addition to the minimum efficiencies specified in the US, these motors also fulfill the minimum efficiency requirements for Canada (CSA) and Mexico (NOM).

General technical specifications

Voltage and power range	208 ... 230/460 V, 575 V, 60 Hz 1 ... 400 hp (0.75 ... 300 kW)
Frame sizes and types	NEMA frame sizes 140 ... 440
Pole number and frequencies	2, 4, 6 and 8-pole, 60 Hz
Environmental conditions	Surface-cooled with IP54/IP55 degree of protection

Customer benefits

Copper die-cast rotors optimize the efficiency
Copper die-cast rotors reduce the power loss and slightly reduce the motor length. This version reduces the motor life cycle costs as a result of the lower energy consumption.

Can be easily modified for high versatility
Unmounted feet (aluminum housing) or 8-hole foot mounting (cast-iron housing) make it easier to modify the motors, ensure a high degree of versatility and reduce inventory costs – for the OEM as well as for servicing and maintenance.

A design that fulfills each and every requirement
We offer motors suitable for any application in a lightweight aluminum design or with a rugged cast-iron housing. Both variants are available with NEMA Premium or NEMA Premium + efficiency. The perfect fit for any operating period.

Typical applications

NEMA motors are suitable throughout the industrial and commercial field, in the automotive, textile, printing and chemical industries as well as in cross-industry applications – for example in conveyor technology. The HVAC sector (Heating, Ventilating & Air Conditioning), for instance, which requires extremely light motors, provides typical applications for our so-called General Purpose motors – either with cast-iron or aluminum housings. Severe Duty motors in a fully cast-iron design are suitable for use under harsh environmental conditions – for instance in the pulp and paper industry. The Severe Duty SD100 IEEE 841 motor version even exceeds the stringent IEEE 841 standards applicable in the crude oil and chemical industries.

More information

The full range of products with all ordering data and technical information can be found in Catalog
D 81.2, US/Canada www.sea.siemens.com/motors.

General Purpose

	GP100A	
Power range	1 ... 20 hp (0.75 ... 15 kW)	FS 140 ... 250
Frame size (FS)	140 ... 250	
Degree of protection NEMA MG1	TEFC (totally enclosed fan cooled)	
Housing material	Die-cast aluminum	8-hole foot mounting
Efficiency	NEMA Premium NEMA Premium +	FS 140 ... 250 FS 140 ... 250
Power supply	3-phase, 60 Hz	
Voltage	208 ... 230/460 V 575 V	FS 140 ... 250 FS 140 ... 250
Service factor	1.15	Sinusoidal
Electrical design	NEMA design B	
Hazard classification	Not specified	
Insulation	Class F	NEMA MG1 Part 31
Utilization	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal
Terminal box (oversized)	Die-cast aluminum	FS 140 ... 250
Fan cover	Plastic	FS 140 ... 250
Fan	Bi-directional - Polypropylene	
Seal	O-ring	FS 140 ... 250
Rotor material	Die-cast aluminum Die-cast copper	FS 140 ... 250 FS 140 ... 250
Stator winding	Copper – random wound	
Shaft material	High-strength carbon steel	C1045
Shaft seal/ slinger	V-ring slinger meets IP54	(DE only)
Bearing housing	Cast aluminum	FS 140 ... 250
Bearing type	Double-shielded	FS 140 ... 250
Bearing inner cap	No	
Lubrication	Polyurea	Base grease
Oil filling nozzle	Not specified	
Oil drain valve	Not specified	
Vibrations	0.15 IPS	
Rating plate	Aluminum	Engraved
Condensation drainage hole	Condensation drainage holes – lowest point (2)	
Mountings	Rust-resistant	
Lifting eye	Cast	
Paint finish	ALKYED modified	RAL7030
Warranty	18 months	
Converter operation	VT 20:1 CT 4:1 CT 10:1	FS 140 ... 250 FS 140 ... 250 FS 140 ... 250 (Cu)
Catalog	**D 81.2, US/Canada**	

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			Severe Duty			
	GP100		**SD100**		**SD100 IEEE 841**	
	1 ... 200 hp (0.75 ... 132 kW)	FS 140 ... 440	1 ... 400 hp (0.75 ... 300 kW)	FS 140 ... S440	1 ... 400 hp (0.75 ... 300 kW)	FS 140 ... S440
	140 ... 440		140 ... S449		140 ... S449	
	TEFC (totally enclosed fan cooled)		TEFC (totally enclosed fan cooled)		TEFC (totally enclosed fan cooled)	
	Cast iron	8-hole foot	Cast iron	8-hole foot	Cast iron	8-hole foot
	NEMA Premium NEMA Premium +	FS 140 ... 440 FS 140 ... 250	NEMA Premium NEMA Premium +	FS 140 ... S440 FS 140 ... 250	NEMA Premium NEMA Premium +	FS 140 ... S440 FS 140 ... 250
	3-phase, 60 Hz		3-phase, 60 Hz		3-phase, 60 Hz	
	208 ... 230/460 V 230/460 V 460 V 575 V	FS 140 ... 250 FS 280 ... 360 100 ... 200 hp 1 ... 200 hp	208 ... 230/460 V 460 V 575 V	1 ... 20 hp 25 ... 400 hp 1 ... 400 hp	460 V 575 V	FS 140 ... S440 FS 140 ... S440
	1.15	Sinusoidal	1.15	Sinusoidal	1.15	Sinusoidal
	NEMA design B		NEMA design B		NEMA design B	
	Not specified		CL I Gr, C&D Div. 2	Optional	CL I Gr, C&D Div. 2	Optional
	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31
	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal
	Die-cast aluminum Steel Cast iron	FS 140 ... 250 FS 280 ... 400 FS 440	Cast iron		Cast iron	
	Plastic Cast iron	FS 140 ... 250 FS 280 ... 440	Cast iron	FS 140 ... S440	Cast iron	FS 140 ... S440
	Bi-directional - Polypropylene		Bi-directional - Polypropylene - Bronze Counterclockwise	FS 140 ... 440 FS S440 300 ... 400 hp 2P/4P	Bi-directional - Polypropylene - Bronze Counterclockwise	FS 140 ... 440 FS S440 300 ... 400 hp 2P/4P
	O-ring Neoprene	FS 140 ... 250 FS 280 ... 440	Neoprene		Neoprene	
	Die-cast aluminum Die-cast copper	FS 140 ... 440 FS 140 ... 250	Die-cast aluminum Die-cast copper	FS 140 ... S440 FS 140 ... 250	Die-cast aluminum Die-cast copper	FS 140 ... S440 FS 140 ... 250
	Copper – random wound		Copper – random wound		Copper – random wound	
	High-strength carbon steel	C1045	High-strength carbon steel	C1045	High-strength carbon steel	C1045
	V-ring slinger meets IP54	(DE only)	V-ring slinger meets IP54	(DE, NDE)	Inpro/seal bearing insulation meets IP55	(DE, NDE)
	Cast iron	FS 140 ... 440	Cast iron	FS 140 ... S440	Cast iron	FS 140 ... S440
	Double-shielded Regreasable inlet and outlet	(FS 440 only)	Double-shielded Single-shielded Regreasable inlet and outlet	FS 140 ... 250 FS 280 ... S440	Double-shielded Single-shielded Regreasable inlet and outlet	FS 140 ... 250 FS 280 ... S440
	No		Cast iron		Cast iron	
	Polyurea	Base grease	Polyurea	Base grease	Polyurea	Base grease
	Alemite	FS 440 only	Alemite		Alemite	
	Plug	FS 440 only	Plug		Pressure relief (automatic)	
	0.15 IPS		0.08 IPS		0.06 IPS	
	Aluminum	Engraved	Stainless steel	Engraved	Stainless steel	Embossed
	Condensation drainage holes – lowest point (2)		T discharges – lowest point (2)		T discharges – lowest point (2)	
	Rust-resistant		Rust-resistant		Rust-resistant	
	Included	> 75 lb (> 34.0 kg)	Included	> 75 lb (> 34.0 kg)	Included	
	ALKYED modified	RAL7030	ALKYED modified	RAL7030	ALKYED modified	RAL7030
	18 months		36 months		60 months	
	VT 20:1 CT 4:1 CT 10:1	FS 140 ... 440 FS 140 ... 440 FS 140 ... 250 (Cu)	CT 20:1 CT 4:1 CT 10:1	FS 143 ... 365 FS 140 ... 440 FS 140 ... 250 (Cu)	CT 20:1 CT 4:1 CT 10:1	FS 143 ... 365 FS 140 ... 440 FS 140 ... 250 (Cu)
	D 81.2, US/Canada		**D 81.2, US/Canada**		**D 81.2, US/Canada**	

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Motors according to NEMA standard

	Explosion Protected				Definite Purpose	
	XP100		**XP100 ID1**		**SD10 MS**	
Power range	1 ... 300 hp (0.75 ... 200 kW)	FS 140 ... 440	1 ... 300 hp (0.75 ... 200 kW)	FS 140 ... 440	1 ... 200 hp (0.75 ... 160 kW)	4/8-pole – 1W VT
Frame size (FS)	140 ... 440		140 ... 440		140 ... 440	
Degree of protection NEMA MG1	TEFC (totally enclosed fan cooled)		TEFC (totally enclosed fan cooled)		TEFC (totally enclosed fan cooled)	
Housing material	Cast iron	8-hole foot	Cast iron	8-hole foot	Cast iron	8-hole foot
Efficiency	NEMA Premium	FS 140 ... 440	NEMA Premium	FS 140 ... 440	Standard	FS 140 ... 440
Power supply	3-phase, 60 Hz		3-phase, 60 Hz		3-phase, 60 Hz	
Voltage	208 ... 230/460 V 230/460 V 460 V 575 V	1 ... 20 hp 25 ... 100 hp 125 ... 300 hp 1 ... 300 hp	208 ... 230/460 V 230/460 V 460 V 575 V	1 ... 20 hp FS 280 ... 100 hp 125 ... 300 hp 1 ... 300 hp	460 V 575 V	FS 140 ... 440 FS 140 ... 440
Service factor	1.0	Sinusoidal	1.0	Sinusoidal	1.0	Sinusoidal
Electrical design	NEMA design B		NEMA design B		Not specified	
Hazard classification	CL I Gr. C&D, CL II F&G Div 1	Max. code T3C	CL I Gr. D, Div 1	Max. code T2A	Not specified	
Insulation	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31
Utilization	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal not with 300, 250 hp, 4-pole	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal not with 300, 250 hp, 4-pole
Terminal box (oversized)	Cast iron		Cast iron	FS 140 ... 440	Cast iron	FS 140 ... 440
Fan cover	Cast iron	FS 140 ... 440	Cast iron	FS 140 ... 440	Cast iron	FS 140 ... 440
Fan	Bi-directional - Polypropylene	FS 140 ... 440	Bi-directional - Polypropylene	FS 140 ... 440	Bi-directional - Polypropylene	FS 140 ... 440
Seal	Neoprene		Not specified	(lead seal)	Neoprene	
Rotor material	Die-cast aluminum		Die-cast aluminum		Die-cast aluminum	FS 140 ... 440
Stator winding	Copper – random wound NC protective device	FS 140 – 440 Included	Copper – random wound NC protective device	FS 140 – 440 Not specified	Copper – random wound	FS 140 ... 440
Shaft material	High-strength carbon steel	C1045	High-strength carbon steel	C1045	High-strength carbon steel	C1045
Shaft seal/ slinger	V-ring slinger meets IP54	(DE, NDE)	V-ring slinger meets IP54	(DE, NDE)	V-ring slinger meets IP54	(DE, NDE)
Bearing housing	Cast iron	FS 140 ... 440	Cast iron		Cast iron	FS 140 ... 440
Bearing type	Double-shielded Regreasable inlet and outlet	FS 140 ... 440	Double-shielded Regreasable inlet and outlet	FS 140 ... 440	Double-shielded Single-shielded Regreasable inlet and outlet	FS 140 ... 250 FS 280 ... S440
Bearing inner cap	Cast iron	FS 140 ... 440	Cast iron	FS 140 ... 440	Cast iron	FS 140 ... 440
Lubrication	Polyurea	Base grease	Polyurea	Base grease	Polyurea	Base grease
Oil filling nozzle	Alemite		Alemite		Alemite	
Oil drain valve	Plug		Plug		Plug	
Vibrations	0.08 IPS		0.08 IPS		0.08 IPS	
Rating plate	Stainless steel	Engraved	Stainless steel	Engraved	Stainless steel	Engraved
Condensation drainage hole	UL certification	FS 280 ... 440	UL certification	FS 280 ... 440	T discharges – lowest point (2)	
Mountings	Rust-resistant		Rust-resistant		Rust-resistant	
Lifting eye	Included	> 75 lb (> 34.0 kg)	Included	> 75 lb (> 34.0 kg)	Included	> 75 lb (> 34.0 kg)
Paint finish	ALKYED modified	RAL7030	ALKYED modified	RAL7030	ALKYED modified	RAL7030
Warranty	36 months		36 months		36 months	
Converter operation	VT 20:1 CT 4:1	FS 140 ... 440 FS 140 ... 320	VT 20:1 CT 4:1	FS 140 ... 440 FS 140 ... 440	Not specified	
Catalog	**D 81.2, US/Canada**		**D 81.2, US/Canada**		**D 81.2, US/Canada**	

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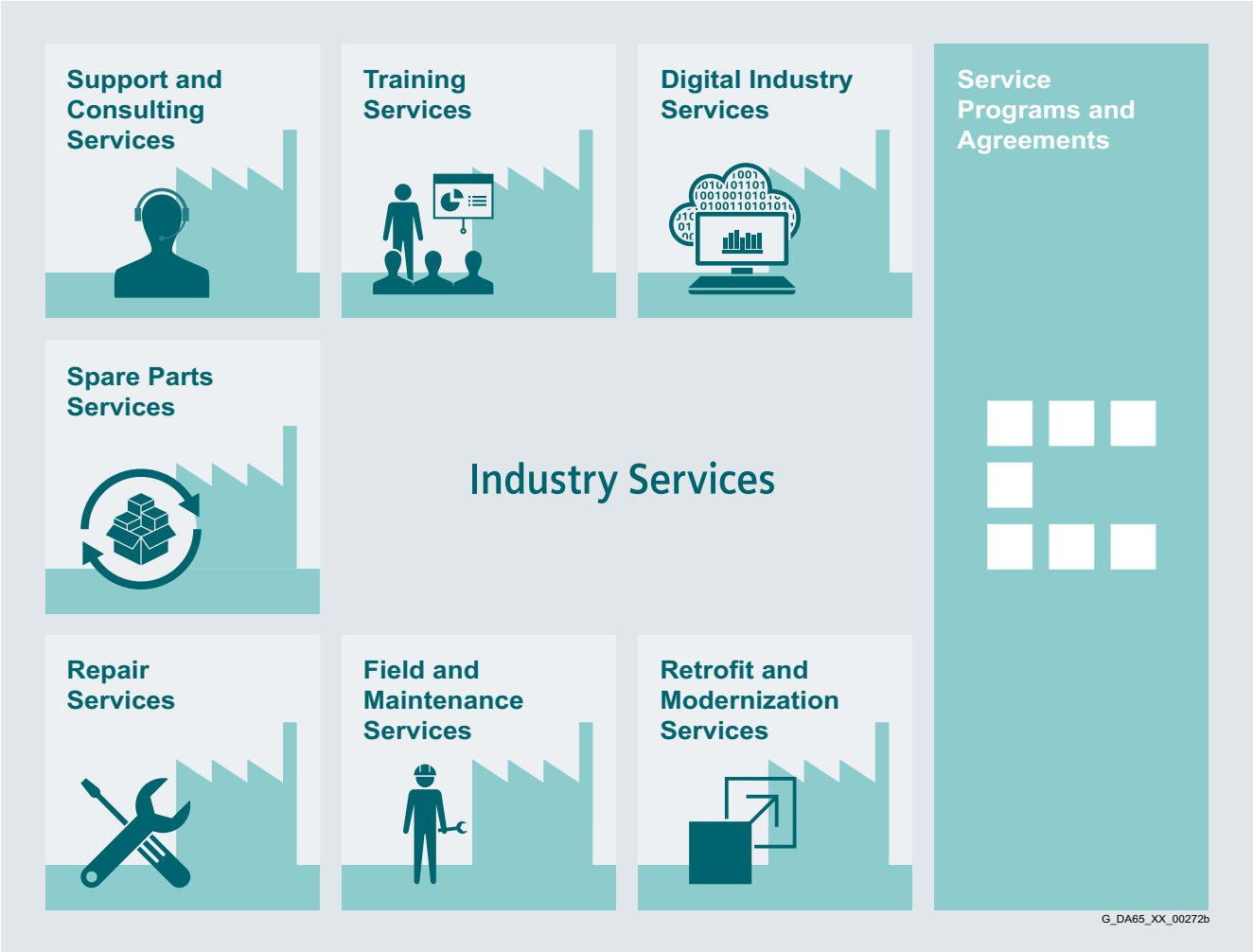
Overview



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Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt. Of course, we take care that your production is protected against cyber threats. We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

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Industry Services – Portfolio overview

Overview

Digital Industry Services make your industrial processes transparent to gain improvements in productivity, asset availability, and energy efficiency.

Production data is generated, filtered and translated with intelligent analytics to enhance decision-making.

This is done whilst taking data security into consideration and with continuous protection against cyber-attack threats.

https://www.siemens.com/global/en/home/products/services/industry/digital-services.html

Industry Online Support site for comprehensive information, application examples, FAQs and support requests.

Technical and Engineering Support for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

Information & Consulting Services, e.g. SIMATIC System Audit; clarity about the state and service capability of your automation system or Lifecycle Information Services; transparency on the lifecycle of the products in your plants.

https://support.industry.siemens.com/cs/ww/en/sc/2235

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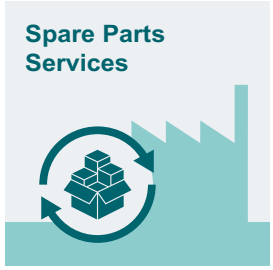

Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

Asset Optimization Services help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.

https://support.industry.siemens.com/cs/ww/en/sc/2110

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Overview

Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.

https://support.industry.siemens.com/cs/ww/en/sc/2154

Retrofit and Modernization Services provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.

https://support.industry.siemens.com/cs/ww/en/sc/2286

Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance.

All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.

https://support.industry.siemens.com/cs/ww/en/sc/2265

A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.

https://support.industry.siemens.com/cs/ww/en/sc/2275

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Overview

Siemens Industry and Online Support with some 1.7 million visitors per month is one of the most popular web services provided by Siemens. It is the central access point for comprehensive technical know-how about products, systems and services for automation and drives applications as well as for process industries.

In connection with the challenges and opportunities related to digitalization you can look forward to continued support with innovative offerings.

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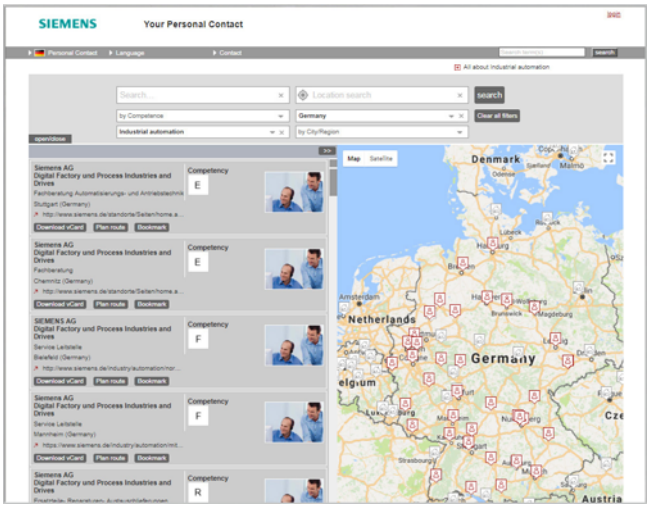

At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Digital Industries.

Your partner can be found in our Personal Contacts Database at:
www.siemens.com/automation-contact

You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

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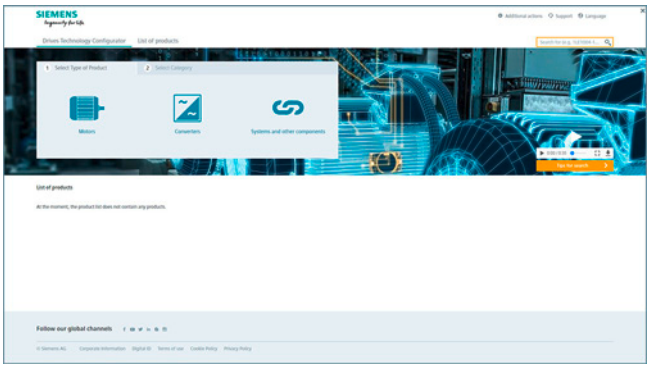
Drive Technology Configurator selection tool

Overview

The Drive Technology (DT) Configurator supports you when you are configuring the optimum drive technology products for your application – from gearboxes, motors, converters as well as the associated options and components through to controllers, software licenses and connection systems. With or without detailed knowledge of products: Preselected product groups, targeted navigation through selection menus and direct product selection through entry of the article number support quick, efficient and convenient configuration.

In addition, comprehensive documentation comprising technical data sheets, 2D dimensional drawings/3D CAD models, operating instructions, certificates, etc. can be selected in the DT Configurator. Immediate ordering is possible by simply transferring a parts list to the shopping cart of the Industry Mall.



Drive Technology Configurator for efficient drive configuration with the following functions

- Quick and easy configuration of drive products and associated components – gear units, motors, converters, controllers, connection systems
- Configuration of drive systems for pump, fan and compressor applications from 1 kW to 2.6 MW
- Displayable documentation for configured products and components, such as
  - Data sheets in up to 9 languages in PDF or RTF format
  - 2D dimensional drawings/3D CAD models in various formats
  - Terminal box drawing and terminal connection diagram
  - Operating instructions
  - Certificates
  - Start-up calculation for SIMOTICS motors
  - EPLAN macros
- Support with retrofitting in conjunction with Spares On Web www.siemens.com/sow
- Ability to order products directly in the Siemens Industry Mall

Access to the Drive Technology Configurator

The Drive Technology Configurator can be called up without registration and without a login:
www.siemens.com/dt-configurator

More information

Online access to Drive Technology Configurator

More information about the Drive Technology Configurator is available on the Internet at:
www.siemens.com/dtconfigurator

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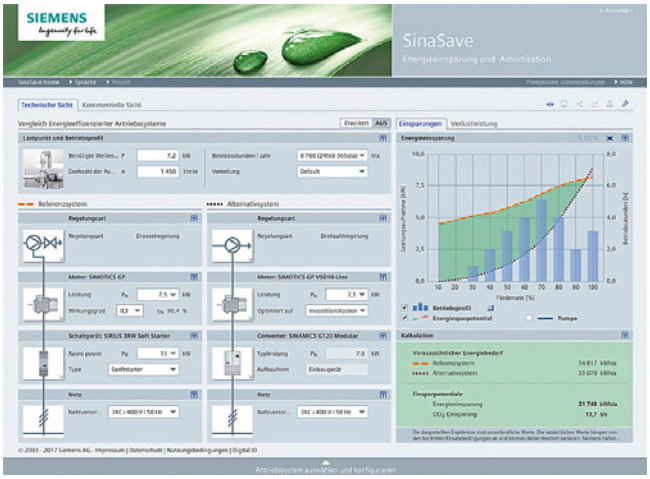
Overview

The SinaSave energy efficiency tool determines energy saving potential and amortization times based on your individual conditions of use and therefore offers practical assistance in making decisions about investments in energy-efficient technologies.

In SinaSave Version 6.0 and higher, the drive systems to be compared and the relevant drive component parameters are displayed graphically. An additional expansion includes numerous comparison possibilities for different control types and comprehensive product combinations for drive solutions for pump and fan applications. In addition to SIMOTICS motors and SINAMICS converters, the product portfolio comprises SIRIUS controls, offering a comprehensive range of comparison possibilities – according to your individual requirements.

SinaSave offers numerous comparison scenarios:

- Comparison of drive systems for pump and fan applications in the power range from 0.55 kW (low voltage) to 5.5 MW (medium voltage) for
  - Reactor control (fixed speed; motor and switchgear)
  - Bypass control (fixed speed; motor and switchgear)
  - Speed control (variable speed; motor and converter)
- Comparison and evaluation of standard motors (incl. ignition protection motors) in different energy efficiency classes



SinaSave supports the evaluation of different product and system comparisons by:

- Displaying the potential savings for energy and energy costs as well as CO_2 emissions
- Estimation of the amortization time
- Estimation of the individual total lifecycle costs
- Representation of the system power losses according to EN 50598-2 for full load and partial load
- Direct comparison of Siemens drives with the reference Power Drive System (PDS) described in EN 50598-2

Access to the SinaSave energy efficiency tool

SinaSave can be accessed without the need for registration or logging in:
www.sinasave.siemens.com

More information

For more information about the amortization calculator for energy-efficient drive systems, visit
www.sinasave.siemens.com

More information about services for energy saving is available on the Internet at
www.siemens.com/energy-saving

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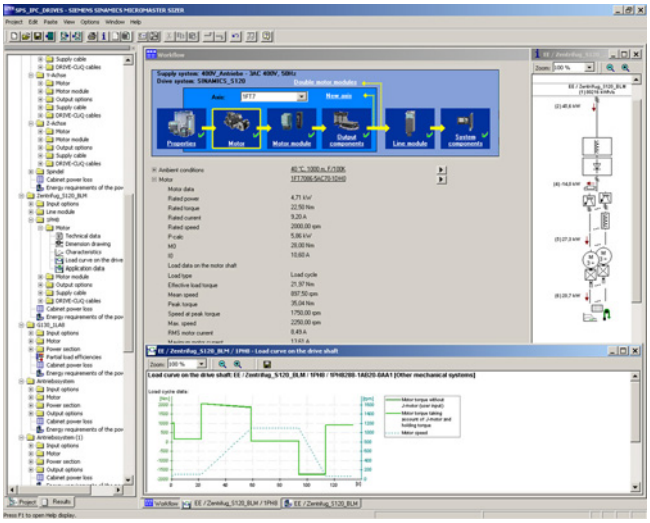
SIZER for Siemens Drives engineering tool

Overview



The following drives and controls can be engineered in a user-friendly way using the SIZER for Siemens Drives engineering tool:

- SIMOTICS low-voltage motors, including servo geared motors
- SIMOGEAR geared motors
- SINAMICS low-voltage drive systems
- Motor starters
- SINUMERIK CNC
- SIMOTION Motion Control controller
- SIMATIC controller

It provides support when selecting the technologies involved in the hardware and firmware components required for a drive task. SIZER for Siemens Drives covers the full range of operations required to configure a complete drive system, from basic single drives to demanding multi-axis applications.

SIZER for Siemens Drives supports all of the engineering steps in one workflow:

- Configuring the power supply
- Designing the motor and gearbox, including calculation of mechanical transmission elements
- Configuring the drive components
- Compiling the required accessories
- Selecting the line-side and motor-side power options, e.g. cables, filters, and reactors

When SIZER for Siemens Drives was being designed, particular importance was placed on a high degree of usability and a universal, function-based approach to the drive application. The extensive user guidance makes it easy to use the tool. Status information keeps you continually informed about the progress of the configuration process.

The drive configuration is saved in a project. In the project, the components and functions used are displayed in a hierarchical tree structure.

The project view permits the configuration of drive systems and the copying/inserting/modifying of drives already configured.

The configuration process produces the following results:

- A parts list of the required components (export to Excel, use of the Excel data sheet for import to SAP)
- Technical specifications of the system
- Characteristic curves
- Comments on system reactions
- Mounting arrangement of drive and control components and dimensional drawings of motors
- Energy requirements of the configured application

These results are displayed in a results tree and can be reused for documentation purposes.

Support is provided by the technological online help menu:

- Detailed technical specifications
- Information about the drive systems and their components
- Decision-making criteria for the selection of components
- Online help in English, French, German, Italian, Chinese and Japanese

System requirements

- PG or PC, PentiumTM III min. 800 MHz (recommended > 1 GHz)
- 512 MB RAM (1 GB recommended)
- At least 2 GB of free hard disk space
- An additional 100 MB of free hard disk space on Windows system drive
- Screen resolution 1024 × 768 pixels
- Operating system:
  - Windows 7 (32/64-bit) Professional, Enterprise, Ultimate, Home
  - Windows 8.1 (32/64-bit) Professional, Enterprise, Ultimate, Home
  - Microsoft Office 2003/2007/2010/2013/2016
  - Windows 365
  - Microsoft Internet Explorer V8.0
  - Microsoft .NET Framework 2.0
  - OpenGL 2.1
  - Windows 10 (64-bit) Professional, Enterprise
- Microsoft Internet Explorer from V5.5 SP2

More information

The SIZER for Siemens Drives engineering tool is available free on the Internet at
www.siemens.com/sizer

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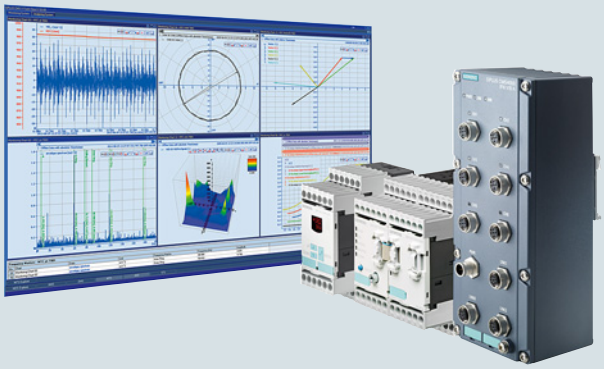
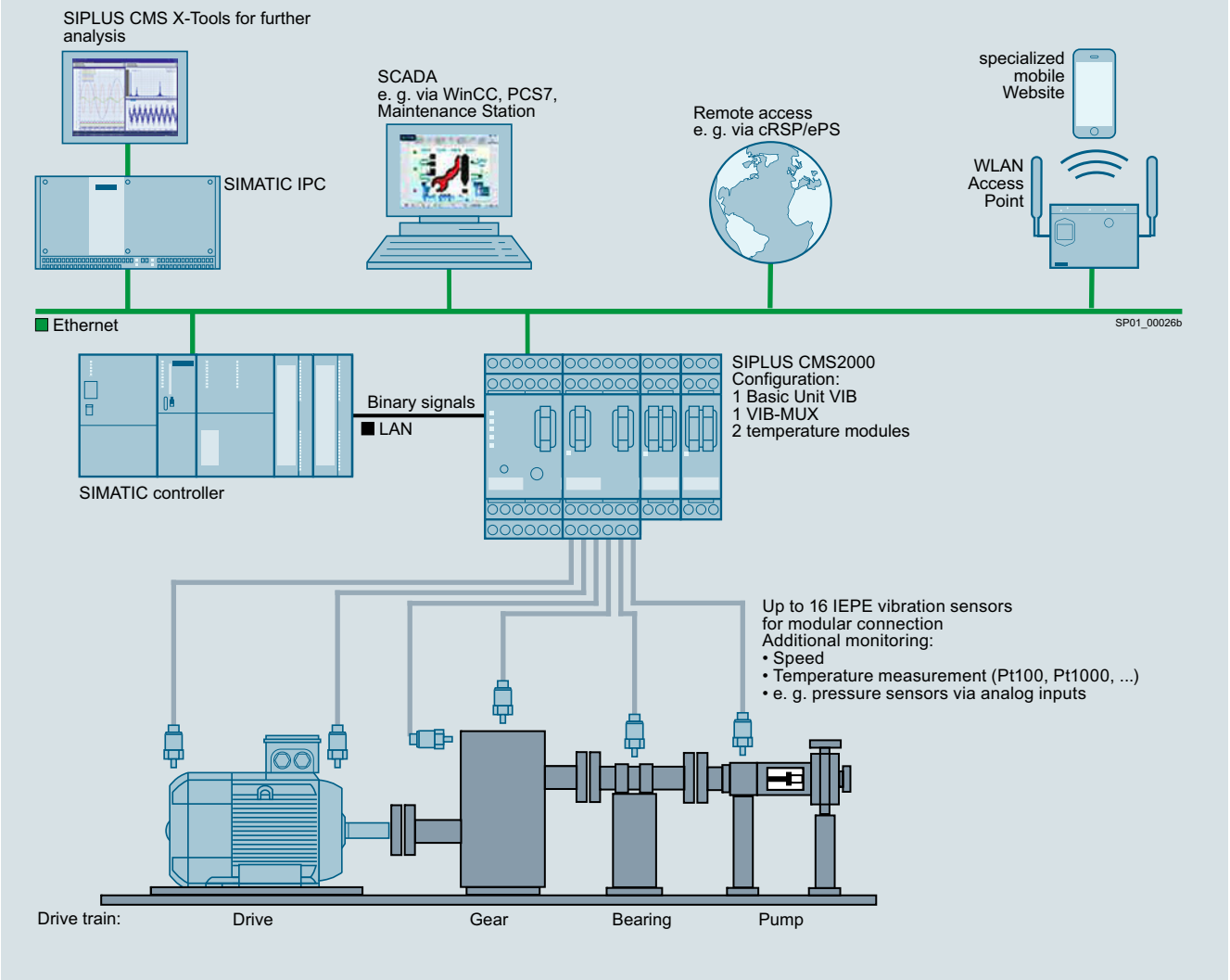
SIPLUS CMS Condition Monitoring Systems for the continuous condition monitoring of motors

Overview

The SIPLUS CMS Condition Monitoring Systems continuously monitor the condition of wear-prone drive components, such as motors. Depending on the system, individual motors can be monitored as well as complete drive trains, or even the entire plant. IEPE sensors are used for acquisition of the motor vibrations for analysis, visualization and archiving by SIPLUS CMS. Information is supplied regularly and event-driven – even in remote operation. SIPLUS CMS can also be retrofitted.

More information on SIPLUS CMS is available on the Internet at www.siemens.com/siplus-cms





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Index of order codes

Order codes for motors 1FP, 1LE, 1MB, 1PC

All options are listed alphanumerically according to order codes in the following table.

Order code	Special versions	Category	For further information, see page
B01	A printed version of the safety notes in German/English and safety notes in the language of the country of use is supplied in each wire-lattice pallet	Packaging, safety notes, documentation and test certificates	2/123, 4/67, 4/125
B02	Inspection certificate 3.1 in accordance with EN 10204		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/99
B04	Printed German/English Operating Instructions enclosed		3/32
B07	Additional rating plate for voltage tolerance	Rating plate and additional rating plates	2/123, 2/131, 3/32
B10	Individual acceptance by marine classification society	Marine version – Acceptance/ certification	6/9, 6/10, 6/11, 6/12
B13	Without "Made in manufacturing country" marking	Packaging, safety notes, documentation and test certificates	3/32
B30	Version additionally for dust Ex tc – Zone 22	Explosion-protected version	5/78, 5/82, 5/96
B31	Version IIC with stamping of IIB		5/78, 5/82, 5/87, 5/91, 5/96
B32	Version additionally for dust Ex tb - Zone 21; IP65		5/87, 5/91
B33	T1/T2 on rating plate		5/87
B40	Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2	Version for converter operation	5/78, 5/82, 5/96
B41	Version for converter operation in basic version with operating data SINAMICS S150		5/78, 5/82, 5/96
B43	Version for converter operation with power data on the PWM converter		5/91, 5/96
B44	Version for converter operation with power data on the PWM converter when used in accordance with temperature class 155 (F)		5/91
B51	Equivalent circuit diagram	Packaging, safety notes, documentation and test certificates	3/32, 5/99
B52	Starting diagram (torque vs. speed and current vs. speed)		3/32, 5/99
B60	Document - Electrical datasheet		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/99
B61	Document - Order dimensional drawing		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/99
B65	Standard test (routine test) with acceptance		2/131, 2/137, 3/32, 4/71, 4/129, 5/90, 5/94, 5/99
B67	Temperature test without acceptance		3/32, 5/99
B68	Temperature test with acceptance		3/32, 5/99
B71	Noise measurement without load with octave band analysis, without acceptance		5/94
B72	Noise measurement without load with octave band analysis, with acceptance		5/94
B80	Type test with heat run for vertical motors, without acceptance		3/32, 5/94, 5/99
B81	Type test with heat run for vertical motors, with acceptance		3/32, 5/94, 5/99
B81	Type test with heat run for vertical motors, with acceptance		6/11
B82	Type test with heat run for horizontal motors, without acceptance		2/131, 2/137, 3/32, 5/90, 5/94, 5/99
B83	Type test with heat run for horizontal motors, with acceptance		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/100
B83	Type test with heat run for horizontal motors, with acceptance	Marine version – Acceptance/ certification	6/9, 6/10, 6/11, 6/12
B90	"Basic" documentation package	Packaging, safety notes, documentation and test certificates	2/123, 2/131, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/100
B91	"Advanced" documentation package		2/123, 2/131, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/100
B92	"Projects" documentation package		2/123, 2/131, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/100
B99	Wire-lattice pallet packaging	Packaging, safety notes, documentation and test certificates	2/123, 4/67, 4/125, 5/81, 5/85, 5/94
C02	VIK version	Versions in accordance with standards and specifications	2/121, 2/129, 3/30
C02	VIK version	Explosion-protected version	5/78, 5/82, 5/87, 5/91, 5/96

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Order code	Special versions	Category	For further information, see page
D01	CCC China Compulsory Certification	Versions in accordance with standards and specifications	2/121, 2/129
D02	Coolant temperature –50 to +40 °C	Coolant temperature and installation altitude	2/129, 2/136, 3/30, 4/70, 4/128
D03	Coolant temperature -40 to +40 °C		2/121, 2/129, 2/136, 3/30, 4/66, 4/70, 4/124, 4/128, 5/79, 5/84, 5/88, 5/92, 5/98
D04	Coolant temperature –30 to +40 °C		2/121, 2/129, 2/136, 3/30, 4/66, 4/70, 4/124, 4/128
D22	Motor without CE marking for export outside EEA (see EU Regulation 640/2009)	Versions in accordance with standards and specifications	2/121, 2/129, 2/136, 3/30
D23	Motor exclusively for use in transportation equipment for passenger and freight transportation corresponding to EVPG §1 dated February 27, 2008		3/30
D30	Electrical according to NEMA MG1-12		2/121, 2/129, 3/30
D31	Design according to UL with "Recognition Mark"		2/121, 2/129, 3/30
D32	Ex certification for China		5/79, 5/84, 5/93
D33	KEMCO Korea Energy Efficiency Label		2/121, 2/129
D34	China Energy Efficiency Label		2/121, 2/129, 3/30, 5/79, 5/84, 5/93
D35	Ex certificate EAC for the Eurasian Customs Union		5/79, 5/84, 5/93
D37	IECEx certification		5/79, 5/84, 5/88, 5/93, 5/98
D39	Version according to UL and CSA (Canadian regulation)		4/66, 4/70, 4/124, 4/128
D40	Canadian regulations (CSA)		2/121, 2/129, 3/30
D41	NEMA Premium Efficient, North America version acc. to NEMA MG1, Table 12-11, incl. UL and CSA		2/121, 2/130
D47	TR CU product safety certificate EAC for Eurasian Customs Union		2/121, 2/130, 3/30, 4/66, 4/70, 4/124, 4/128
D70	MEPS Australia		2/121, 2/130, 5/93
E21	With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	Marine version – Basic version	6/9, 6/10, 6/11, 6/12
E31	With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)		6/9, 6/10, 6/12
E41	With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)		6/9, 6/10, 6/11, 6/12
E46	With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)		6/9, 6/10, 6/11, 6/12
E51	With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)		6/9, 6/10, 6/11, 6/12
E52	With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)		6/9, 6/10, 6/11, 6/12
E54	With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)		6/9, 6/10, 6/12
F01	Mounting of holding brake (standard assignment)	Modular technology – Basic versions	2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127
F02	Mounting of brake for higher switching frequency (operating brake)		2/120, 4/65, 4/123
F04	Mounting of PRECIMA brake		2/127, 2/135
F10	Brake supply voltage 24 V DC	Modular technology – Additional versions	2/120, 2/128, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127, 5/92
F11	Brake supply voltage 230 V AC, 50/60 Hz		2/120, 2/128, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127, 5/92
F12	Brake supply voltage 400 V AC, 50/60 Hz		2/120, 2/128, 2/135, 3/29, 4/65, 4/69, 4/123, 4/127, 5/92
F17	Brake supply voltage 180 V DC		2/120, 2/128, 2/135, 4/65, 4/69, 4/123, 4/127
F18	Brake supply voltage 205 V DC		2/120, 2/128, 2/135, 4/65, 4/69, 4/123, 4/127
F20	Mounting of brake in Ex db version	Special technology	5/92
F40	Backstop, counterclockwise motion blocked, clockwise direction of rotation	Modular technology – Additional versions	2/128, 2/135, 3/29, 4/69
F41	Backstop, clockwise motion blocked, counterclockwise direction of rotation		2/128, 2/135, 3/29, 4/69
F50	Mechanical manual brake release with lever (no locking)		2/120, 2/128, 2/135, 4/65, 4/69, 4/123, 4/127, 5/92
F68	Metal fan made of brass	Heating and ventilation	5/93
F70	Mounted separately driven fan	Modular technology – Basic versions	2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/92, 5/98

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Index of order codes

Order code	Special versions	Category	For further information, see page
F74	Sheet metal fan cover	Heating and ventilation	2/122, 2/131, 2/137, 3/31, 4/66, 4/71, 4/124, 4/129
F75	Fan cover for textile industry		2/122, 4/66, 4/124
F76	Metal external fan		2/122, 2/131, 2/137, 3/31, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/93
F77	Low-noise version for 2-pole motors with clockwise direction of rotation	Mechanical design and degrees of protection	2/121, 2/129, 2/136, 3/29, 5/79, 5/84, 5/88, 5/92
F78	Low-noise version for 2-pole motors with counterclockwise direction of rotation		2/121, 2/129, 2/136, 3/29, 5/79, 5/84, 5/88, 5/92, 5/98
F90	Without external fan and without fan cover	Heating and ventilation	2/122, 2/131, 2/137, 3/31, 4/66, 4/124, 5/99
G04	Mounting of LL 861 900 220 rotary pulse encoder	Special technology	2/120, 2/128, 2/135, 3/29, 4/65, 4/69, 4/123, 4/127
G05	Mounting of HOG 9 DN 1024 I rotary pulse encoder		2/120, 2/128, 2/135, 3/29, 4/65, 4/69, 4/123, 4/127
G06	Mounting of HOG 10 D 1024 I rotary pulse encoder		2/120, 2/128, 2/135, 3/29, 4/65, 4/69, 4/123, 4/127
G07	Mounting of POG 10 DN rotary pulse encoder (only in combination with separately driven fan or brake)		2/128, 2/135, 3/29, 4/69, 4/127
G08	Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake)		2/128, 2/135, 3/29, 4/69, 4/127
G11	Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	Modular technology – Basic versions	2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127
G12	Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder		2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127
G15	Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box moisture protection	Special technology	2/128, 2/135, 3/29
G16	Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection		2/128, 2/135, 3/29
G21	Mounting of Kübler Sendix 5834FS2 1024, SIL-2 rotary pulse encoder		2/120, 2/128, 4/65, 4/69, 4/123, 4/127
G22	Mounting of Kübler Sendix 5834FS3 1024, SIL-3 rotary pulse encoder		2/120, 2/128, 4/65, 4/69, 4/123, 4/127
G25	Mounting of HOGS100S-B76.626.01024.1 rotary pulse encoder		2/120, 2/128, 4/65, 4/69, 4/127
G27	Mounting of LL FSI 862-184560-1024, SIL-2 rotary pulse encoder		2/120, 2/128, 4/65, 4/69, 4/127
G30	Mounting of LL 841 (HTL); 1024 I explosion-protected rotary pulse encoder		5/79, 5/83, 5/92, 5/98
G40	Prepared for mounted components, centering hole only	Mechanical design and degrees of protection	2/121, 2/129, 2/136, 3/29, 4/65, 4/70, 4/123, 4/128
G41	Prepared for mountings with D12 shaft		2/121, 2/129, 2/136, 3/29, 4/65, 4/70, 4/123, 4/128
G42	Prepared for mountings with D16 shaft		2/121, 2/129, 2/136, 3/29, 4/65, 4/70, 4/123, 4/128, 5/98
G43	Mechanical protection for encoder		2/121, 2/129, 2/136, 3/29, 4/65, 4/70, 4/123, 4/128, 5/79, 5/84, 5/98
G50	Preparation for SPM measuring nipple – thread M8	Bearings and lubrication	5/93
H00	Protective cover	Mechanical design and degrees of protection	2/121, 2/129, 2/136, 3/29, 4/65, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88, 5/92, 5/98
H01	Screwed-on (instead of cast) feet		2/121, 2/129, 2/136, 4/66, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88
H02	Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994		2/121, 2/129, 2/136, 3/30, 4/66, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88, 5/92
H03	Condensation drainage holes		2/121, 2/129, 2/136, 4/66, 4/123, 5/79, 5/84, 5/88
H04	External grounding	Motor connection and terminal boxes	2/118, 2/125, 2/133, 4/64, 4/68, 4/122, 4/126
H06	External screws, bolts and unpainted materials made of stainless steel (V4A)	Mechanical design and degrees of protection	5/92
H07	Rust-resistant screws (externally)		2/121, 2/129, 2/136, 3/30, 4/66, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88, 5/92, 5/98

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Order code	Special versions	Category	For further information, see page
H08	Terminal box on NDE	Motor connection and terminal boxes	2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/97
H09	Two terminal boxes on NDE		3/26, 5/97
H10	Housing with screw mounting	Mechanical design and degrees of protection	2/121, 4/66, 4/70
H20	IP65 degree of protection		2/121, 2/129, 3/30, 4/66, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88, 5/92, 5/98
H21	IP54 degree of protection		2/129, 2/136, 3/30, 4/70, 4/128
H22	IP56 degree of protection		2/121, 2/129, 2/136, 3/30, 4/66, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88, 5/92, 5/98
H23	Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar		2/121, 2/129, 2/136, 3/30, 4/66, 4/70, 4/123, 4/128, 5/79, 5/84, 5/88, 5/92
H25	Sealing ring made of fluoroelastomer (FKM)		3/30, 5/98
H30	Adjustment screws for feet in horizontal installation		5/92
H70	Second external grounding	Motor connection and terminal boxes	2/125, 2/133, 3/26, 4/68, 4/126, 5/87, 5/91, 5/97
H90	Increased corrosion protection for external components	Mechanical design and degrees of protection	3/30, 5/98
L00	Vibration severity grade B	Balance and vibration severity	2/122, 2/130, 2/136, 3/31, 5/80, 5/84, 5/89, 5/93, 5/98
L01	Balancing without feather key		2/122, 2/130, 2/136, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/89, 5/93, 5/98
L02	Full-key balancing		2/122, 2/130, 2/136, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/89, 5/93, 5/98
L04	Shaft extension with standard dimensions, without feather keyway	Shaft and rotor	2/122, 2/130, 2/137, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/85, 5/89, 5/93, 5/98
L05	Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347		2/122, 2/130, 2/137, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/85, 5/89, 5/93, 5/98
L06	Standard shaft made of stainless steel (e.g. 1.4021)		2/122, 2/130, 2/137, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/85, 5/89, 5/93
L07	Shaft extension run-out in accordance with IEC 60072-1 precision class		2/122, 2/130, 2/137, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/85, 5/89, 5/93, 5/98
L08	Shaft extension run-out, concentricity and perpendicularity in accordance with IEC 60072-1 precision class for flange-mounted motors		2/122, 2/130, 2/137, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/85, 5/89, 5/93, 5/98
L19	Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	Bearings and lubrication	2/130, 2/136, 3/30, 4/70, 4/128, 5/84, 5/88, 5/93, 5/98
L20	Located bearing DE		2/122, 2/130, 2/136, 3/30, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88, 5/93
L21	Located bearing NDE		2/122, 2/130, 2/136, 3/30, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88, 5/93, 5/98
L22	Bearing design for increased cantilever forces		2/122, 2/130, 2/136, 3/30, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88, 5/93, 5/98
L23	Regreasing device		2/122, 2/130, 2/136, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88, 5/93
L24	Hot bearing grease		3/30
L25	Bearings reinforced at both ends for DE and NDE, bearing size 63		2/122, 2/130, 2/136, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88
L28	Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces		2/130, 2/136, 4/70, 4/128, 5/88
L30	Drainage for used grease		3/30, 5/98
L37	Special version with higher speeds		3/31
L50	Bearing insulation DE		2/130, 2/136, 3/31, 4/128, 5/88
L51	Bearing insulation NDE		2/122, 2/130, 2/136, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88, 5/93

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L52	Grounding brush for converter operation	Mechanical design and degrees of protection	2/129, 2/136, 3/30, 4/128
L90	Version suitable for railways IC411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic	Versions in accordance with standards and specifications	2/121
L91	Version suitable for railways IC411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal		2/121
L92	Version suitable for railways IC418, EN IEC 60349, without EN 45545, without external fan and fan cover		2/121
M01	Connected in star for dispatch	Packaging, safety notes, documentation and test certificates	2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/100
M02	Connected in delta for dispatch		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/125, 4/129, 5/81, 5/85, 5/90, 5/94, 5/100
M10	Second rating plate, loose	Rating plate and additional rating plates	2/123, 2/131, 2/137, 3/32, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/94, 5/99, 6/22, 6/24
M11	Rating plate, stainless steel		2/123, 2/131, 2/137, 3/32, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/94
N01	Temperature class 155 (F), utilized according to 155 (F), with service factor	Windings and insulation	2/119, 2/126, 2/134, 3/27
N02	Temperature class 155 (F), utilized acc. to 155 (F), with increased power		2/119, 2/126, 2/134, 3/27
N03	Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature		2/119, 2/126, 2/134, 3/27
N05	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %		2/119, 2/126, 2/134, 3/27, 5/78, 5/83, 5/87, 5/91, 5/97
N06	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %		2/119, 2/126, 2/134, 3/27, 5/78, 5/83, 5/87, 5/91, 5/97
N07	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %		2/119, 2/126, 2/134, 3/27, 5/78, 5/83, 5/87, 5/91, 5/97
N08	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %		2/119, 2/126, 2/134, 3/27, 5/78, 5/83, 5/87, 5/91, 5/97
N10	Temperature class 180 (H)		2/119, 2/126, 2/134, 3/27
N11	Temperature class 180 (H) at rated power and max. CT 60 °C		2/119, 2/126, 2/134, 3/27, 4/65, 4/69
N30	Increased air humidity/temperature with 30 to 60 g water per m^3 of air		2/119, 2/126, 2/134, 3/27, 4/65, 4/69, 4/122, 4/127, 5/78, 5/83, 5/87, 5/91, 5/97
N31	Increased air humidity/temperature with 60 to 100 g water per m^3 of air		2/119, 2/126, 2/134, 3/28, 4/65, 4/69, 4/127, 5/78, 5/83, 5/87, 5/91, 5/97
Q01	Measuring nipple for SPM shock pulse measurement for bearing inspection	Bearings and lubrication	2/122, 2/130, 2/136, 3/31, 4/66, 4/70, 4/124, 4/128, 5/80, 5/84, 5/88, 5/93, 5/98
Q02	Anti-condensation heating for 230 V (2 terminals)	Heating and ventilation	2/122, 2/131, 2/137, 3/31, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/93, 5/99
Q03	Anti-condensation heating for 115 V (2 terminals)		2/122, 2/131, 2/137, 3/31, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/93, 5/99
Q04	Anti-condensation heating for 220 V (2 terminals)		5/93
Q06	Anti-condensation heating for 400 V (2 terminals)		3/31, 5/99
Q11	1 or 3 PTC thermistors – for tripping (2 terminals)	Motor protection	2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q12	2 or 6 PTC thermistors – for alarm and tripping (4 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q21	3 NTC thermistors – for tripping (6 terminals)		5/96
Q23	1 KTY84-130 temperature sensor (2 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q25	2 KTY84-130 temperature sensors (4 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q31	3 bimetal sensors (NC contacts) for tripping (2 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126
Q32	6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126

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Q33	3 bimetal sensors (NC contacts) for tripping (6 terminals)	Motor protection	2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126
Q34	6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/126
Q35	1 Pt1000 resistance thermometer (2 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/78, 5/82, 5/96
Q36	2 Pt1000 resistance thermometers (4 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/78, 5/82, 5/96
Q37	6 Pt1000 resistance thermometer (12 terminals)		5/96
Q60	3 Pt100 resistance thermometers – 2-wire input (6 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q61	6 Pt100 resistance thermometers – 2-wire input (12 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/122, 5/96
Q62	1 Pt100 resistance thermometer – 2-wire input (2 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q63	3 Pt100 resistance thermometers – 3-wire input (9 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q64	6 Pt100 resistance thermometers – 3-wire input (18 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/96
Q72	2 Pt100 resistance thermometers in basic configuration for bearings (2 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/82, 5/87, 5/91, 5/96
Q78	2 Pt100 resistance thermometers in 3-wire input for bearings (6 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/82, 5/87, 5/91, 5/96
Q79	2 Pt100 double resistance thermometers in 3-wire input for bearings (12 terminals)		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/82, 5/87, 5/91, 5/96
Q80	Extension of the liability for defects period by 12 months to a total of 24 months (2 years) from delivery	Extension of the liability for defects	2/131, 3/32, 4/129, 5/89, 5/94, 5/99
Q81	Extension of the liability for defects period by 18 months to a total of 30 months (2.5 years) from delivery		3/32, 5/99
Q82	Extension of the liability for defects period by 24 months to a total of 36 months (3 years) from delivery		2/131, 3/32, 4/129, 5/89, 5/94, 5/99
Q83	Extension of the liability for defects period by 30 months to a total of 42 months (3.5 years) from delivery		3/32, 5/99
Q84	Extension of the liability for defects period by 36 months to a total of 48 months (4 years) from delivery		3/32, 5/99
Q85	Extension of the liability for defects period by 48 months to a total of 60 months (5 years) from delivery		3/32, 5/99
R09	Subsequently rotatable main terminal box	Motor connection and terminal boxes	3/26, 5/97
R10	Rotation of the terminal box through 90°, entry from DE		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/78, 5/82, 5/87, 5/91, 5/97
R11	Rotation of the terminal box through 90°, entry from NDE		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/78, 5/82, 5/87, 5/91, 5/97
R12	Rotation of the terminal box through 180°		2/118, 2/125, 2/133, 3/26, 4/64, 4/68, 4/122, 4/126, 5/78, 5/82, 5/87, 5/91, 5/97
R13	Terminal box in position 0°; connection from right		2/118, 4/64, 4/122
R14	One EMC cable gland		2/125, 2/133, 3/27, 4/68, 4/126
R15	One metal cable gland		2/118, 2/125, 2/133, 3/27, 4/64, 4/68, 4/122, 4/126
R16	EMC cable gland, maximum configuration		2/125, 2/133, 3/27, 4/68, 4/126
R17	Stud terminal for cable connection, accessories pack (3 items)		2/125, 2/133, 3/27, 4/126, 5/82
R18	Metal cable gland, maximum configuration		2/118, 2/125, 2/133, 3/27, 4/64, 4/122, 5/78, 5/82, 5/87, 5/91
R19	Saddle terminal for connection without cable lug, accessories pack		2/126, 2/133, 3/27, 4/126, 5/82, 5/87, 5/97
R20	3 cables protruding, 0.5 m long		2/118, 2/126, 2/133, 4/64, 4/122

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R21	3 cables protruding, 1.5 m long	Motor connection and terminal boxes	2/118, 2/126, 2/133, 3/27, 4/64
R22	6 cables protruding, 0.5 m long		2/118, 2/126, 2/133, 4/64, 4/122
R23	6 cables protruding, 1.5 m long		2/118, 2/126, 2/133, 3/27, 4/64
R24	6 cables protruding, 3 m long		2/119, 2/126, 2/133, 3/27, 4/64
R30	Reduction piece for M cable gland in accordance with British Standard, mounted on both cable entries		2/119, 2/126
R31	12 cables protruding with cable lugs		2/134
R45	1 cable gland, Ex eb, for armored cable, line feeder cable		5/91
R46	2 cable glands, Ex eb, for armored cable, line feeder cable		5/91
R48	Main terminal box in Ex db IIC		5/91
R49	Auxiliary terminal box in Ex db IIC		5/91
R50	Larger terminal box		2/119, 2/126, 2/134, 3/27, 4/64, 4/68, 4/122, 4/126, 5/78, 5/82, 5/87, 5/91, 5/97
R51	Terminal box without cable entry opening		2/126, 2/134, 3/27, 4/68, 4/126
R52	Drilled removable entry plate		2/126, 2/134, 3/27, 4/68, 4/126, 5/87, 5/97
R53	Undrilled removable entry plate		2/126, 2/134, 3/27, 4/68, 4/126, 5/87
R54	Enlarged connection system for main terminal box		5/91
R60	Auxiliary terminal box, aluminum		2/119
R62	Cast-iron auxiliary terminal box (small)		2/126, 2/134, 3/27, 4/68, 4/126, 5/82, 5/87, 5/91, 5/97
R63	Cast-iron auxiliary terminal box (large)		2/134, 3/27, 5/87, 5/91, 5/97
R65	Stainless steel auxiliary terminal box (large)		3/27, 5/97
R67	2 small cast-iron auxiliary terminal boxes		5/87, 5/91
R70	Motor connector Han-Drive 10e for 230 VΔ/400 VY		2/119, 4/64, 4/122
R71	Motor connector EMC Han-Drive 10e for 230 VΔ/400 VY		2/119, 4/64, 4/122
R72	Small motor connector CQ12 with EMC		2/119
R73	Small motor connector CQ12 without EMC		2/119
R74	Silicone-free version		2/126, 2/134, 3/27, 4/126
S00	Unpainted (only cast-iron parts primed)	Colors and paint finish	2/120, 2/127, 2/134, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/88, 5/92, 5/97
S01	Unpainted, only primed		2/120, 2/127, 2/134, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/88, 5/92, 5/97
S02	Special paint finish C3		2/120, 2/127, 2/134, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/88, 5/92, 5/97
S03	Special paint finish sea air resistant C4		2/120, 2/127, 2/134, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/88, 5/92, 5/97
S04	Special paint finish for use offshore C5		2/127, 2/134, 3/28, 4/69, 4/127, 5/83, 5/88, 5/92, 5/97
S05	Internal coating		2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127, 5/88, 5/92, 5/97
S06	Top coat polyurethane		2/120, 2/127, 2/135, 3/28, 5/79, 5/83, 5/88, 5/92
Y50 • and spec. power, CT .. °C or IA .... m above sea level	Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	Windings and insulation	2/119, 2/127, 2/134, 3/28, 5/78, 5/83, 5/92, 5/97
Y52 • and spec. power, CT .. °C or IA .... m above sea level	Temperature class 155 (F), utilized according to 155 (F), other requirements		2/119, 2/127, 2/134, 3/28

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Order code	Special versions	Category	For further information, see page
Y53 • and paint finish RAL ….	Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	Colors and paint finish	2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/88, 5/92, 5/97
Y56 • and paint finish RAL ….	Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")		2/120, 2/127, 2/135, 3/28, 4/65, 4/69, 4/123, 4/127, 5/79, 5/83, 5/88, 5/92, 5/98
Y58 • and customer specifications	Non-standard cylindrical shaft extension, DE	Shaft and rotor	2/122, 2/130, 2/137, 3/31, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/93, 5/98
Y59 • and customer specifications	Non-standard cylindrical shaft extension, NDE		2/122, 2/130, 2/137, 3/31, 4/66, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/93, 5/99
Y60 • and customer specifications	Special shaft steel		2/130, 2/137, 3/31, 4/71, 4/129, 5/99
Y61 • and customer specifications	Non-standard threaded through hole (NPT or G thread)	Motor connection and terminal boxes	2/126, 2/134, 3/27, 4/68, 4/126, 5/91, 5/97
Y68 • and converter type	Operating data such as the **B40** order code with alternative SINAMICS converter on the rating plate • G120 with PM230 • G120 with PM240 • G120C • G120P with PM230 • G120P with PM240P-2 • G120P with PM330 • G130, G150, G180 • S120 (BLM/SLM) • V20 Operating data such as the B41 order code with alternative SINAMICS converter on the rating plate • S120 (ALM)	Version for converter operation	5/78, 5/82, 5/96
Y70 • and customer specifications	Mounting of a special type of rotary pulse encoder	Special technology	2/128, 3/29, 4/70, 4/127, 5/98
Y74 • and spec. speed .... rpm	Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed ... rpm), terminal box moisture protection		2/128, 2/135, 3/29
Y75 • and spec. power, CT .. °C or IA …. m above sea level	Temperature class 180 (H), utilized according to 155 (F)	Windings and insulation	2/119, 2/127, 2/134, 3/28
Y76 • and spec. speed .... rpm	Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed ... rpm), terminal box dust protection	Special technology	2/128, 2/135, 3/29
Y79 • and spec. speed (max. 3) .... rpm	Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed ... rpm), terminal box dust protection		2/128, 2/135, 3/29
Y80 • and customer specifications	Additional rating plate with deviating rating plate data	Rating plate and additional rating plates	2/123, 2/131, 2/137, 3/32, 5/80, 5/85, 5/89, 5/94, 5/99
Y81 • and customer specifications	Separately driven fan with non-standard voltage and/or frequency	Heating and ventilation	2/131, 2/137, 3/31, 4/129, 5/93, 5/99
Y82 • and customer specifications	Additional rating plate with customer specifications	Rating plate and additional rating plates	2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/94, 5/99
Y84 • and customer specifications	Additional information on rating plate and on package label (max. 20 characters)		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/124, 4/129, 5/80, 5/85, 5/89, 5/94, 5/99
Y85 • and customer specifications	Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)		2/123, 2/131, 2/137, 3/32, 4/67, 4/71, 4/124, 4/129

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Rotary inertia (to convert from A to B, multiply by entry in table)

A \ B	lb-in^2	lb-ft^2	lb-in-s^2	lb-ft-s^2 slug-ft^2	kg-cm^2	kg-cm-s^2	gm-cm^2	gm-cm-s^2	oz-in^2	oz-in-s^2
lb-in^2	1	6.94×10^{-3}	2.59×10^{-3}	2.15×10^{-4}	2.926	2.98×10^{-3}	2.92×10^{3}	2.984	16	4.14×10^{-2}
lb-ft^2	144	1	0.3729	3.10×10^{-2}	421.40	0.4297	4.21×10^{5}	429.71	2304	5.967
lb-in-s^2	386.08	2.681	1	8.33×10^{-2}	1.129×10^{3}	1.152	1.129×10^{6}	1.152×10^{3}	6.177×10^{3}	16
lb-ft-s^2 slug-ft^2	4.63×10^{3}	32.17	12	1	1.35×10^{4}	13.825	1.355×10^{7}	1.38×10^{4}	7.41×10^{4}	192
kg-cm^2	0.3417	2.37×10^{-3}	8.85×10^{-4}	7.37×10^{-5}	1	1.019×10^{-3}	1000	1.019	5.46	1.41×10^{-2}
kg-cm-s^2	335.1	2.327	0.8679	7.23×10^{-2}	980.66	1	9.8×10^{5}	1000	5.36×10^{3}	13.887
gm-cm^2	3.417×10^{-4}	2.37×10^{-6}	8.85×10^{-7}	7.37×10^{-8}	1×10^{-3}	1.01×10^{-6}	1	1.01×10^{-3}	5.46×10^{-3}	1.41×10^{-5}
gm-cm-s^2	0.335	2.32×10^{-3}	8.67×10^{-4}	7.23×10^{-5}	0.9806	1×10^{-3}	980.6	1	5.36	1.38×10^{-2}
oz-in^2	0.0625	4.34×10^{-4}	1.61×10^{-4}	1.34×10^{-5}	0.182	1.86×10^{-4}	182.9	0.186	1	2.59×10^{-3}
oz-in-s^2	24.13	0.1675	6.25×10^{-2}	5.20×10^{-3}	70.615	7.20×10^{-2}	7.09×10^{4}	72.0	386.08	1

Torque (to convert from A to B, multiply by entry in table)

A \ B	lb-in	lb-ft	oz-in	N-m	kg-cm	kg-m	gm-cm	dyne-cm
lb-in	1	8.333×10^{-2}	16	0.113	1.152	1.152×10^{-2}	1.152×10^{3}	1.129×10^{6}
lb-ft	12	1	192	1.355	13.825	0.138	1.382×10^{4}	1.355×10^{7}
oz-in	6.25×10^{-2}	5.208×10^{-3}	1	7.061×10^{-3}	7.200×10^{-2}	7.200×10^{-4}	72.007	7.061×10^{4}
N-m	8.850	0.737	141.612	1	10.197	0.102	1.019×10^{4}	1×10^{7}
kg-cm	0.8679	7.233×10^{-2}	13.877	9.806×10^{-2}	1	10^{-2}	1000	9.806×10^{5}
kg-m	86.796	7.233	1.388×10^{3}	9.806	100	1	1×10^{5}	9.806×10^{7}
gm-cm	8.679×10^{-4}	7.233×10^{-5}	1.388×10^{-2}	9.806×10^{-5}	1×10^{-3}	1×10^{-5}	1	980.665
dyne-cm	8.850×10^{-7}	7.375×10^{-8}	1.416×10^{-5}	10^{-7}	1.0197×10^{-6}	1.019×10^{-8}	1.019×10^{-3}	1

Length (to convert from A to B, multiply by entry in table)

A \ B	inches	feet	cm	yd	mm	m
inches	1	0.0833	2.54	0.028	25.4	0.0254
feet	12	1	30.48	0.333	304.8	0.3048
cm	0.3937	0.03281	1	1.09×10^{-2}	10	0.01
yd	36	3	91.44	1	914.4	0.914
mm	0.03937	0.00328	0.1	1.09×10^{-3}	1	0.001
m	39.37	3.281	100	1.09	1000	1

Power (to convert from A to B, multiply by entry in table)

A \ B	hp	Watts
hp (English)	1	745.7
(lb-in) (deg./s)	2.645×10^{-6}	1.972×10^{-3}
(lb-in) (rpm)	1.587×10^{-5}	1.183×10^{-2}
(lb-ft) (deg./s)	3.173×10^{-5}	2.366×10^{-2}
(lb-ft) (rpm)	1.904×10^{-4}	0.1420
Watts	1.341×10^{-3}	1

Force (to convert from A to B, multiply by entry in table)

A \ B	lb	oz	gm	dyne	N
lb	1	16	453.6	4.448×10^{5}	4.4482
oz	0.0625	1	28.35	2.780×10^{4}	0.27801
gm	2.205×10^{-3}	0.03527	1	1.02×10^{-3}	N.A.
dyne	2.248×10^{-6}	3.59×10^{-5}	980.7	1	0.00001
N	0.22481	3.5967	N.A.	100000	1

Mass (to convert from A to B, multiply by entry in table)

A \ B	lb	oz	gm	kg	slug
lb	1	16	453.6	0.4536	0.0311
oz	6.25×10^{-2}	1	28.35	0.02835	1.93×10^{-3}
gm	2.205×10^{-3}	3.527×10^{-2}	1	10^{-3}	6.852×10^{-5}
kg	2.205	35.27	10^{3}	1	6.852×10^{-2}
slug	32.17	514.8	1.459×10^{4}	14.59	1

Rotation (to convert from A to B, multiply by entry in table)

A \ B	rpm	rad/s	degrees/s
rpm	1	0.105	6.0
rad/s	9.55	1	57.30
degrees/s	0.167	1.745×10^{-2}	1

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Temperature Conversion

°F	°C	°C	°F
0	–17.8	–10	14
32	0	0	32
50	10	10	50
70	21.1	20	68
90	32.2	30	86
98.4	37	37	98.4
212	100	100	212
subtract 32 and multiply by $^5/_9$		multiply by $^9/_5$ and add 32	

Mechanism Efficiencies

Acme-screw with brass nut	~0.35–0.65
Acme-screw with plastic nut	~0.50–0.85
Ball-screw	~0.85–0.95
Chain and sprocket	~0.95–0.98
Preloaded ball-screw	~0.75–0.85
Spur or bevel-gears	~0.90
Timing belts	~0.96–0.98
Worm gears	~0.45–0.85
Helical gear (1 reduction)	~0.92

Friction Coefficients

Materials	μ
Steel on steel (greased)	~0.15
Plastic on steel	~0.15–0.25
Copper on steel	~0.30
Brass on steel	~0.35
Aluminum on steel	~0.45
Steel on steel	~0.58

Mechanism	μ
Ball bushings	<0.001
Linear bearings	<0.001
Dove-tail slides	~0.2++
Gibb ways	~0.5++

Material Densities

Material	lb-in^3	gm-cm^3
Aluminum	0.096	2.66
Brass	0.299	8.30
Bronze	0.295	8.17
Copper	0.322	8.91
Hard wood	0.029	0.80
Soft wood	0.018	0.48
Plastic	0.040	1.11
Glass	0.079–0.090	2.2–2.5
Titanium	0.163	4.51
Paper	0.025–0.043	0.7–1.2
Polyvinyl chloride	0.047–0.050	1.3–1.4
Rubber	0.033–0.036	0.92–0.99
Silicone rubber, without filler	0.043	1.2
Cast iron, gray	0.274	7.6
Steel	0.280	7.75

Wire Gauges[1)]

Cross-section mm^2	Standard Wire Gauge (SWG)	American Wire Gauge (AWG)
0.2	25	24
0.3	23	22
0.5	21	20
0.75	20	19
1.0	19	18
1.5	17	16
2.5	15	13
4	13	11
6	12	9
10	9	7
16	7	6
25	5	3
35	3	2
50	0	1/0
70	000	2/0
95	00000	3/0
120	0000000	4/0
150	–	6/0
185	–	7/0

1) The table shows approximate SWG/AWG sizes nearest to standard metric sizes; the cross-sections do not match exactly.

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Explanation of the raw material/metal surcharges[1)]

Surcharge calculation

To compensate for variations in the price of the raw materials silver, copper, aluminum, lead, gold, dysprosium[2)] and/or neodym[2)], surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The surcharges are calculated in accordance with the following criteria:

- Basic official price of the raw material
  Basic official price from the day prior to receipt of the order or prior to release order (daily price) for[3)]
  - Silver (sales price, processed)
  - Gold (sales price, processed)

  and for[4)]
  - Copper (lower DEL notation + 1 %)
  - Aluminum (aluminum in cables)
  - Lead (lead in cables)
- Metal factor of the products
  Certain products are displayed with a metal factor. The metal factor determines the official price (for those raw materials concerned) as of which the metal surcharges are applied and the calculation method used (weight or percentage method). An exact explanation is given below.

Structure of the metal factor

The metal factor consists of several digits; the first digit indicates whether the percentage method of calculation refers to the list price or a possible discounted price (customer net price) (L = list price / N = customer net price).

The remaining digits indicate the method of calculation used for the respective raw material. If no surcharge is added for a raw material, a "-" is used.

1st digit	List or customer net price using the percentage method
2nd digit	for silver (AG)
3rd digit	for copper (CU)
4th digit	for aluminum (AL)
5th digit	for lead (PB)
6th digit	for gold (AU)
7th digit	for dysprosium (Dy)[2)]
8th digit	for neodym (Nd)[2)]

Weight method

The weight method uses the basic official price, the daily price and the raw material weight. In order to calculate the surcharge, the basic official price must be subtracted from the daily price. The difference is then multiplied by the raw material weight.

The basic official price can be found in the table below using the number (1 to 9) of the respective digit of the metal factor. The raw material weight can be found in the respective product descriptions.

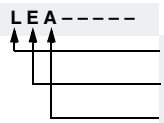
Percentage method

Use of the percentage method is indicated by the letters A-Z at the respective digit of the metal factor.

The surcharge is increased - dependent on the deviation of the daily price compared with the basic official price - using the percentage method in "steps" and consequently offers surcharges that remain constant within the framework of this "step range". A higher percentage rate is charged for each new step. The respective percentage level can be found in the table below.

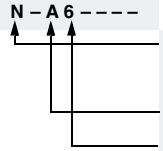
Metal factor examples

L E A – – – – –



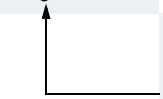
Basis for % surcharge: List price
Silver Basis 150 €, Step 50 €, 0.5 %
Copper Basis 150 €, Step 50 €, 0.1 %
No surcharge for aluminum
No surcharge for lead
No surcharge for gold
No surcharge for dysprosium
No surcharge for neodym

N – A 6 – – – –



Basis for % surcharge: Customer net price
No surcharge for silver
Copper Basis 150 €, Step 50 €, 0.1 %
Aluminum acc. to weight, basic offic. price 225 €
No surcharge for lead
No surcharge for gold
No surcharge for dysprosium
No surcharge for neodym

– – 3 – – – – –



No basis necessary
No surcharge for silver
Copper acc. to weight, basic official price 150 €
No surcharge for aluminum
No surcharge for lead
No surcharge for gold
No surcharge for dysprosium
No surcharge for neodym

1) Refer to the separate explanation on the next page regarding the raw materials dysprosium and neodym (= rare earths).
2) For a different method of calculation, refer to the separate explanation for these raw materials on the next page.
3) Source: Umicore, Hanau (www.metalsmanagement.umicore.com).
4) Source: Schutzvereinigung DEL-Notiz e.V. (www.del-notiz.org).

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Explanation of the raw material/metal surcharges for dysprosium and neodym (rare earths)

Surcharge calculation

To compensate for variations in the price of the raw materials silver[1], copper[1], aluminum[1], lead[1], gold[1], dysprosium and/or neodym, surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. The surcharge for dysprosium and neodym is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The surcharge is calculated in accordance with the following criteria:

- Basic official price of the raw material[2]
  Three-month basic average price (see below) in the period before the quarter in which the order was received or the release order took place (= average official price) for
  - dysprosium (Dy metal, 99 % min. FOB China; USD/kg)
  - neodym (Nd metal, 99 % min. FOB China; USD/kg)
- Metal factor of the products
  Certain products are displayed with a metal factor. The metal factor indicates (for those raw materials concerned) the basic official price as of which the surcharges for dysprosium and neodym are calculated using the weight method. An exact explanation of the metal factor is given below.

Three-month average price

The prices of rare earths vary according to the foreign currency, and there is no freely accessible stock exchange listing. This makes it more difficult for all parties involved to monitor changes in price. In order to avoid continuous adjustment of the surcharges, but to still ensure fair, transparent pricing, an average price is calculated over a three-month period using the average monthly foreign exchange rate from USD to EUR (source: European Central Bank). Since not all facts are immediately available at the start of each month, a one-month buffer is allowed before the new average price applies.

Examples of calculation of the average official price:

Period for calculation of the average price:	Period during which the order/release order is effected and the average price applies:
Sep 2012 - Nov 2012	Q1 in 2013 (Jan - Mar)
Dec 2012 - Feb 2013	Q2 in 2013 (Apr - Jun)
Mar 2013 - May 2013	Q3 in 2013 (Jul - Sep)
Jun 2013 - Aug 2013	Q4 in 2013 (Oct - Dec)

Structure of the metal factor

The metal factor consists of several digits; the first digit is not relevant to the calculation of dysprosium and neodym.

The remaining digits indicate the method of calculation used for the respective raw material. If no surcharge is added for a raw material, a "-" is used.

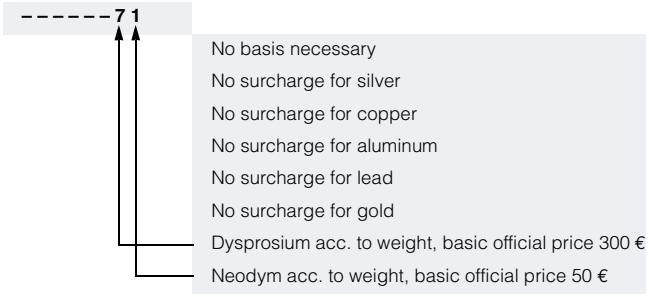
1st digit	List or customer net price using the percentage method
2nd digit	for silver (AG)[1]
3rd digit	for copper (CU)[1]
4th digit	for aluminum (AL)[1]
5th digit	for lead (PB)[1]
6th digit	for gold (AU)[1]
7th digit	for dysprosium (Dy)
8th digit	for neodym (Nd)

Weight method

The weight method uses the basic official price, the average price and the raw material weight. In order to calculate the surcharge, the basic official price must be subtracted from the average price. The difference is then multiplied by the raw material weight.

The basic official price can be found in the table below using the number (1 to 9) of the respective digit of the metal factor. Your Sales contact can inform you of the raw material weight.

Metal factor examples



1) For a different method of calculation, refer to the separate explanation for these raw materials on the previous page.
2) Source: Asian Metal Ltd (www.asianmetal.com)

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Values of the metal factor

Percentage method	Basic official price in €	Step range in €	% surcharge 1st step	% surcharge 2nd step	% surcharge 3rd step	% surcharge 4th step	% surcharge per additional step
			Price in €	Price in €	Price in €	Price in €	
			150.01 - 200.00	200.01 - 250.00	250.01 - 300.00	300.01 - 350.00	
A	150	50	0.1	0.2	0.3	0.4	0.1
B	150	50	0.2	0.4	0.6	0.8	0.2
C	150	50	0.3	0.6	0.9	1.2	0.3
D	150	50	0.4	0.8	1.2	1.6	0.4
E	150	50	0.5	1.0	1.5	2.0	0.5
F	150	50	0.6	1.2	1.8	2.4	0.6
G	150	50	1.0	2.0	3.0	4.0	1.0
H	150	50	1.2	2.4	3.6	4.8	1.2
I	150	50	1.6	3.2	4.8	6.4	1.6
J	150	50	1.8	3.6	5.4	7.2	1.8
			175.01 - 225.00	225.01 - 275.00	275.01 - 325.00	325.01 - 375.00	
O	175	50	0.1	0.2	0.3	0.4	0.1
P	175	50	0.2	0.4	0.6	0.8	0.2
R	175	50	0.5	1.0	1.5	2.0	0.5
			225.01 - 275.00	275.01 - 325.00	325.01 - 375.00	375.01 - 425.00	
S	225	50	0.2	0.4	0.6	0.8	0.2
U	225	50	1.0	2.0	3.0	4.0	1.0
V	225	50	1.0	1.5	2.0	3.0	1.0
W	225	50	1.2	2.5	3.5	4.5	1.0
			150.01 - 175.00	175.01 - 200.00	200.01 - 225.00	225.01 - 250.00	
Y	150	25	0.3	0.6	0.9	1.2	0.3
			400.01 - 425.00	425.01 - 450.00	450.01 - 475.00	475.01 - 500.00	
Z	400	25	0.1	0.2	0.3	0.4	0.1
	Price basis (1st digit)						
L	Calculation based on the list price						
N	Calculation based on the customer net price (discounted list price)						
Weight method	**Basic official price in €**						
1	50	Calculation based on raw material weight					
2	100						
3	150						
4	175						
5	200						
6	225						
7	300						
8	400						
9	555						
Miscellaneous							
-	No metal surcharge						

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- for consulting services the "General Terms and Conditions for Consulting Services of the Division DF – Germany"[1)] and/or
- for other supplies and/or services the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)].
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For customers with a seat or registered office outside Germany, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
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- for consulting services the "General Terms and Conditions for Consulting Services of the Division DF – Germany"[1)] and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"1) supplemented by "Software Licensing Conditions"1)

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To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

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Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

You will find a detailed explanation of the metal factor on the page headed "Metal surcharges".

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

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[1)] The text of the Terms and Conditions of Siemens AG can be downloaded at
https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

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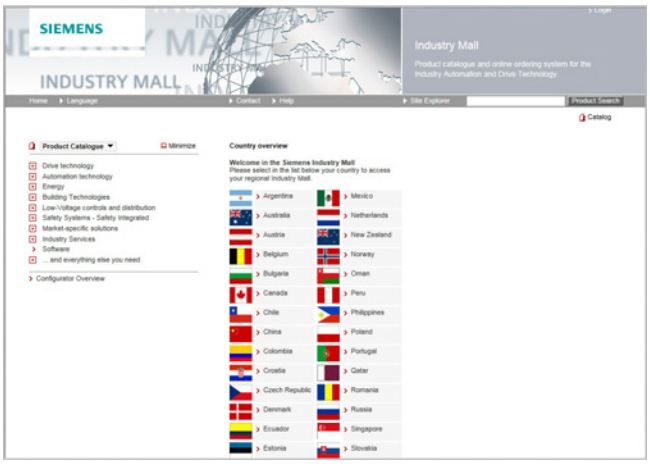

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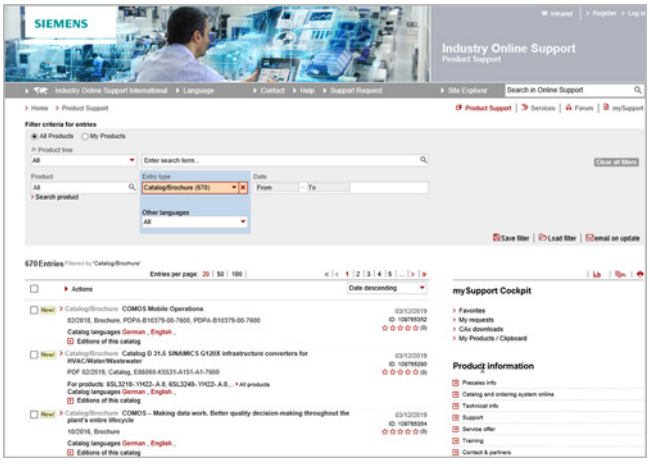

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