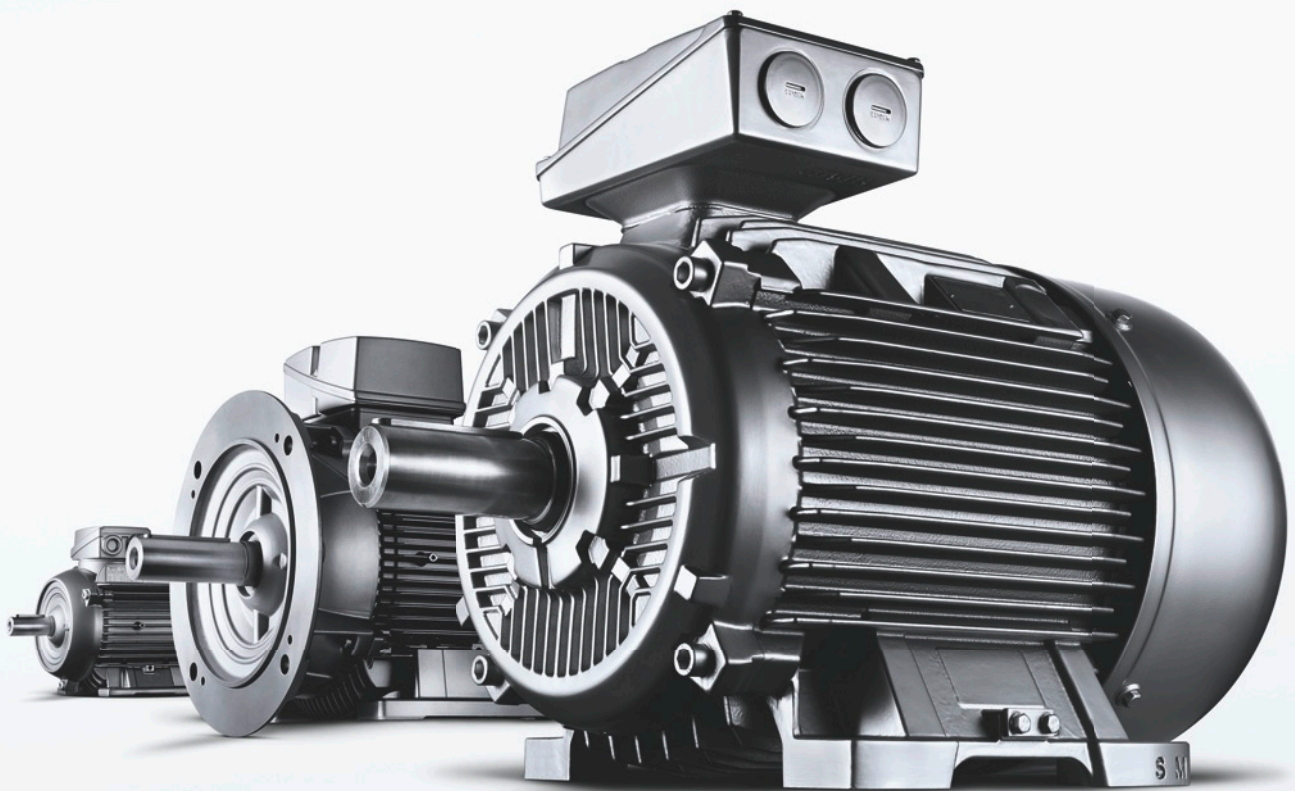


SIEMENS



Motors

SIMOTICS Low-Voltage Motors

Distribution Line and Option Line

Ordering
Brochure

Edition
04/2018

[siemens.com/drives](https://www.siemens.com/drives)

Ordering Brochure
SIMOTICS Low-Voltage Motors
Distribution Line and Option Line · 04/2018

Supersedes:

- SIMOTICS Low-Voltage Motors
Distribution offering and 1LE0 option line
Ordering Brochure 07.2014

- SIMOTICS GP 1LE0 Low-Voltage Motors
Catalog D 81.5N 09.2011
Article No.: E20001-K0369-C600-X-5D00

Additional information is provided in the following documents and/or links:

- SIMOTICS Low-Voltage Motors
Catalog D 81.1 · 2018
Article No.: E86060-K5581-A111-B1-7600

- Energy saving/Energy-saving program SinaSave
Further information regarding energy savings and the energy-saving program SinaSave can be found at the following internet addresses:
www.siemens.com/sinasave
www.siemens.com/energysaving

- Selection tool DT Configurator
The DT Configurator covers the product range of low-voltage motors and MICROMASTER 4 / SINAMICS inverters and converters as well as frequency converters for SIMATIC ET 200 distributed I/O. The range of available products is being continuously expanded.

Individual products:

- 2D/3D-model generator for motors and converters
- Data sheet generator
- Start-up calculation for motors
- Comprehensive product-specific documentation

www.siemens.com/dt-configurator

- Additional documentation
You will find all information material, such as brochures, catalogs, manuals and operating instructions for standard drive systems up-to-date on the Internet at the address
www.siemens.com/motors/printmaterial

You can order the listed documentation or download it in common file formats (PDF, ZIP).

- Further information about
Drive Systems > Variable-Speed Drives, e.g.,

SINAMICS and Motors for Single-Axis Drives Built-In Inverters D 31.1

SINAMICS and Motors for Single-Axis Drives Distributed Inverters D 31.2

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

SINAMICS S120 Chassis Format Units and Cabinet Modules D 21.3

can be obtained at

www.siemens.com/industry/infocenter

This brochure is only applicable in designated countries for the following regions:

- Asia
- Africa
- Middle East
- South America

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Introduction

General overview

SIMOTICS – The name for the widest range of motors in the world

With 150 years of experience, we have driven motor technology forward, optimized them and played a decisive role in defining them.

Based on over 150 years of experience Siemens offers with SIMOTICS the most comprehensive range of motors for industrial applications proven with more than 40 million Siemens motors and drives installed around the world.

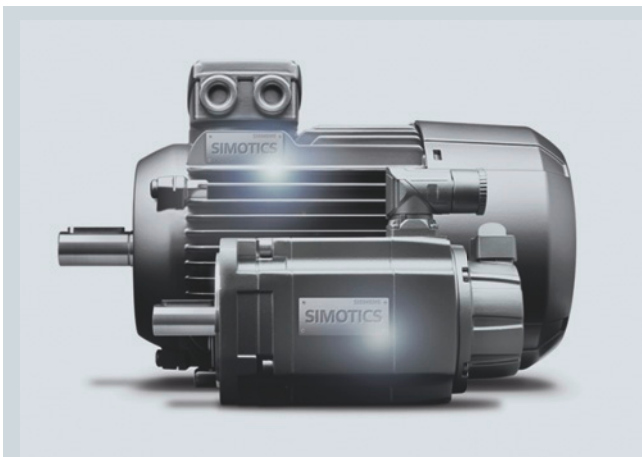
Our low-voltage motors meet the latest efficiency standards and stand for highest quality, reliability and compactness. Our motors are optimally integrated into the drive train. They are perfectly harmonized for the use with SIRIUS motor starters and SINAMICS frequency converters.

Our foundation of outstanding quality is the unparalleled experience from numerous Siemens production facilities around the world and close to our customers. This is how our experience drives your success!

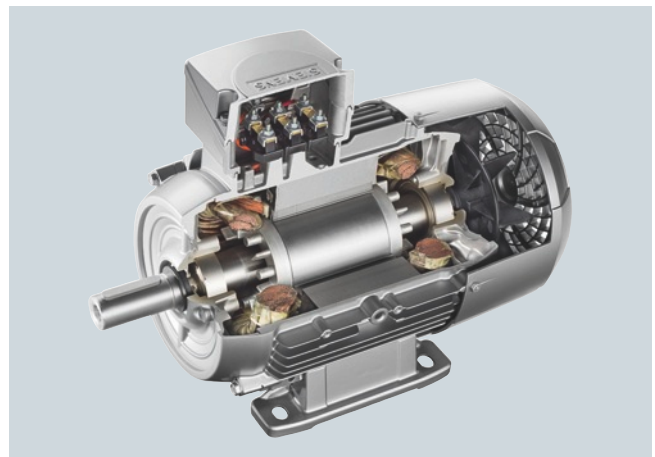
Siemens is present in more than 190 countries around the world and a true local global player. We manufacture locally serving the individual markets. All of our products are based on one common global quality and design standard derived from our German engineering roots adapted to global market requirements.

We are present in your local market, understand your market's needs and also comply with local requirements and standards.

Let us show you how our experience and our partnership will drive your success with a new motors series specifically defined for the distribution business.



SIMOTICS low-voltage motors



Cut-away aluminum motor



This brochure is using all of our 150 years experience and focuses on our SIMOTICS low-voltage IEC motors, especially defined for the distribution market. It covers cast-iron motor series for general purpose. Additional offering is always available from our standard motor catalog portfolio. For further information, please refer to Catalog D 81.1. We comply with the latest efficiency standards and describe motors for IE1, IE2 and IE3 efficiencies.

Although Siemens also has ranges for specific solutions for IE4 efficiency, these are still considered specialized and are not described in this document. In addition to these general IE1, IE2 and IE3 solutions, Siemens can also provide specific variants for specific markets i.e. in India, China etc. In such instances please consult your local Siemens representative.

Our motor offering for the distribution market already includes the most common features required in your local market and country, e.g. drain holes, embedded PTCs and more.



IE1, IE2 & IE3 Cast-iron motors (1LE0)

- Frame size: 80 – 355
- Rated output: 0.55 – 315 kW
- No. of poles: 2, 4 and 6
- Voltage & frequency: Up to 690 V \pm 10%, 50 Hz, 60 Hz
- Type of construction: IM B3 and other types of construction
- Service factors: SF 1.1 for IE1 and IE2 motors
SF 1.15 for IE3 motors



SIMOTICS 1LE0 Cast-iron motor

Product highlights

1. **Wide range of options** – can be selected according to specific customer requirements. The 1LE0 Option Line motor is a standard motor without any built-in options.
2. **Fulfill voltage and construction requirements** – The Distribution Line and Option Line offer additional selection of rated voltages and mounting types.
3. **Easy retrofit and upgrade to higher efficiency class** – due to harmonized design dimensions throughout the whole 1LE0 motor family.
4. **Common user and spare parts** – are applicable within the 1LE0 motor line (Distribution Line and Option Line).
5. **Increase plant and system availability** – Options of winding protection, insulated bearing and separately driven fan enhance (Option Line) the availability and thus reliability of the system.
6. **Rotatable terminal box**
7. **Global support** – worldwide warranty and service

Application note

- **Pump:** Energy saving for quadratic torque load with variable speed operation
- **Fan:** Ideal for flow control application
- **Material handling:** Effectively working with continuous and intermittent periodic duties. Reliable operation.



Pump



Fan

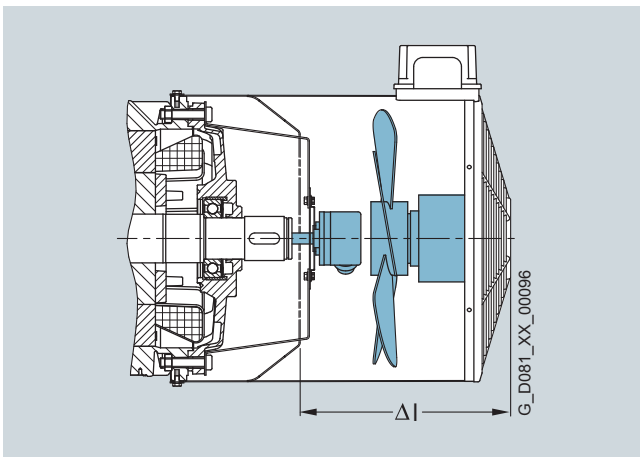
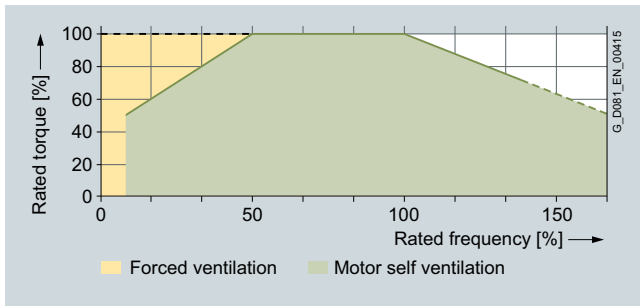


Material handling

Flexible control options

With separately driven fan (Option Line), the motor can be worked with inverter in constant torque operation. This is the result of continuous full speed ventilation of forced fan option.

Working with SINAMICS, you can rely on a drive family with flexible control options – with V/f control as well as vector control. As a result, applications can be addressed with basic speed control and with higher speed precision with encoderless vector control or with encoder.



Motor with encoder and separately driven fan

Highlight features

Highlight motor options

- **Insulated bearing, encoder and separately driven fan** to increase reliability for converter operation
- **KTY 84-130 and Pt100 sensors** are additional protections that can evaluate motor temperature for alarm and tripping.
- **Measuring nipple** for SPM shock pulse measurement for bearing inspection
- **Vibration severity level B** according to IEC 60034-14
- **Rotation of terminal box** on right or left hand side of the motor drive end

SIMOTICS Low-Voltage Motors – Key features

In order to maximize inventory turn rates, minimize complexity, decrease stock levels and minimize your investment required, we defined a specific distribution portfolio already including most common required features as standard. In addition we offer an additional selection of options with which you can modify the distribution offering even more.

Besides we can always offer you the most comprehensive motor portfolio made to order for all applications and industries available from our standard catalog portfolio D 81.1.

The low-voltage motor unique key features:

1. Low vibration

The low vibration results from our precision manufacturing and the use of defined and controlled quality components. The quality bearings used augment this and result in longer life and lower noise. See chapter 2 – Technical features.

2. Drain hole as standard (only Distribution Line)

Drain holes as standard make sure condensed water does not stay inside of the motor. This is especially important in humid environment and big temperature deltas.

3. Bearings for high cantilever forces and longer lifetime (only Distribution Line for IE2 and IE3)

Bearings in our motors are not only designed for high cantilever forces, but also to make sure the motors run smooth.

4. True IP55 as standard

Our IP55 design covers a vast majority of applications and is tested and proven for full lifetime, plus you have the full modification possibility within IP55 rating.

5. F to B thermal class for built-in reserve

The Siemens motors are rated at normal sinusoidal voltage with a class B (130 °C) temperature rise. The windings are rated to class F (155 °C) thus allowing for reserve for the additional losses associated with variable speed drive operation and / or higher ambient temperature and / or overload conditions when operating directly on-line. F to F is possible for converter operation.

6. Converter operation for variable speed as standard

For all motors offered up to 460 V converter operation is possible as standard configuration – no special option or series is needed. Insulation bearing option code available for FS 250 and above.

7. Embedded thermal protection 3 × PTC

Thermal protection with PTC thermistors with 3 embedded temperature sensors for tripping is provided in our IE2 & IE3 motors in the Distribution Line above frame size 112 as standard version.

8. Global motor platform

Our motor design is based on one global motor platform with the same look and feel on all low-voltage motor IEC products.

9. Prepared for easy modification and mount auxiliaries

Our distribution motors are equipped with metal fan cover and center hole on non-drive end shaft for easy modification and mount auxiliaries.

For details on the above mentioned key features, please see chapter 2 "Technical features".

SIMOTICS Low-Voltage Motors – Special features

		SIMOTICS General Purpose					
		Cast-iron series					
		IE1	IE2	IE3	IE1	IE2	IE3
Efficiency class	Series	1LE0102	1LE0101	1LE0103	1LE0022	1LE0021	1LE0023
DOL	Voltage up to	690 V ±10%	690 V ±10%	690 V ±10%	690 V ±10%	690 V ±10%	690 V ±10%
	Frequency	50 Hz / 60 Hz +3% / -5%	50 Hz / 60 Hz +3% / -5%	50 Hz / 60 Hz +3% / -5%	50 Hz / 60 Hz +3% / -5%	50 Hz / 60 Hz +3% / -5%	50 Hz / 60 Hz +3% / -5%
Converter operation up to		460 V _{rms} + 10%	460 V _{rms} + 10%	460 V _{rms} + 10%	460 V _{rms} + 10%	460 V _{rms} + 10%	460 V _{rms} + 10%
Frame sizes		80 ... 355	80 ... 355	80 ... 355	80 ... 355	80 ... 355	80 ... 355
Type of construction	Standard	IM B3	IM B3	IM B3	IM B3	IM B3	IM B3
	Optional	IM B35, IM B5 ^(c) , IM V1, IM B14	IM B35, IM B5 ^(c) , IM V1, IM B14	IM B35, IM B5 ^(c) , IM V1, IM B14	IM B35, IM B5 ^(c) , IM V1, IM B14	IM B35, IM B5 ^(c) , IM V1, IM B14	IM B35, IM B5 ^(c) , IM V1, IM B14
Bearing designation	Bearing 62 C	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)
	Bearing 63 C	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)	<input type="checkbox"/> ^(a)
Others	Metal fan cover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Metal rating plate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Drain hole	<input type="checkbox"/> ^(b)	<input type="checkbox"/> ^(b)	<input type="checkbox"/> ^(b)	✓	✓	✓
	Center hole at non-drive end prepared for auxiliary mountings	–	<input type="checkbox"/> ^(b)	<input type="checkbox"/> ^(b)	✓	✓	✓
	Space heater	✓	✓	✓	✓	✓	✓
Motor protection 3 × PTC		✓	<input type="checkbox"/> ^(b)	<input type="checkbox"/> ^(b)	✓	✓	✓
Certificate	Extra rating plate for voltage tolerance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	CE marking	– ^(c)	<input type="checkbox"/> ^(d)	<input type="checkbox"/>	–	<input type="checkbox"/> ^(d)	<input type="checkbox"/>
	Routine test	✓	✓	✓	✓	✓	✓
Standard color	Stone gray (RAL 7030)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prep. for easy modification		–	<input type="checkbox"/>	<input type="checkbox"/>	–	–	–

= Standard

✓ = Option

– = Not available

^(a) = The limit for converter operation is 460 V_{rms} +10%.

^(b) = Depending on frame size and/or number of poles, please see respective sections.

^(c) = CE marking is valid for power rating.

^(d) = Only motors smaller 0.75 kW

For converter operation with the powers specified in the ordering brochure, 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.



On our SIMOTICS GP 1LE0 motors we have an additional sticker mentioning voltage deviation as standard. On our other product line, deviations should be mentioned, please add option code B07.



All our motors are shown as 400 V as the nominal standard. The IEC 60034 regulations state that the rating plate data is only valid at the specific given voltage. In practice, all listed 400 V motors may be used at connection voltages 400 V ±5%. The motors will function well, although there would be deviations from the nominal electrical rating plate data. All 1LE0 motors will have a sticker in addition on the cowl as standard giving the nominal connection voltage as 400 V ±5%. According to the standard, motors can also be operated at 400 V ±10% (Category B), only longer operation is not recommended.

Applicable standards and specifications

Title	IEC
Efficiency classes and efficiencies	IEC 60034-30-1:30-2014
Rotating electrical machines – Part 1: Rating and performance	IEC 60034-1
Rotating electrical machines – Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)	IEC 60034-2
Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) – Classification	IEC 60034-5
Rotating electrical machines – Part 6: Methods of cooling (IC Code)	IEC 60034-6
Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)	IEC 60034-7
Rotating electrical machines – Part 8: Terminal markings and direction of rotation	IEC 60034-8
Rotating electrical machines – Part 9: Noise limits	IEC 60034-9
Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity	IEC 60034-14
Rotating electrical machines – Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080	IEC 60072-1
Classification of environmental conditions Part 2-1: Environmental conditions appearing in nature – Temperature and humidity	IEC 60721-2-1
Standard voltages	IEC 60038
Electrical insulation – Thermal classification	IEC 60085

IEC 60034-1 differentiates between Category A (combination of voltage deviation $\pm 5\%$ and frequency deviation $\pm 2\%$) and Category B (combination of voltage deviation $\pm 10\%$ and frequency deviation $+3\% / -5\%$) for voltage and frequency fluctuations.

The motors can supply their rated torque in both Category A and B. In Category A, the temperature rise is approximately 10 K higher than during normal operation.

Standard 60034-1	Category A	Category B
Voltage deviation	±5%	±10%
Frequency deviation	±2%	3% / -5%
Rating plate data stamped with rated voltage a (e.g. 230 V)	a ±5% (e.g. 230 V ±5%)	a ±10% (e.g. 230 V ±10%)
Rating plate data stamped with rated voltage ranges b to c (e.g. 220 V to 240 V)	b -5% to c +5% (e.g. 220 V -5% to 240 V +5%)	b -10% to c +10% (e.g. 220 V -10% to 240 V +10%)

In Category B, the standard does not recommend extended operation, so it is not permissible for explosion-proof motors. See "Rating plate and extra rating plates" for details of the rating plate inscriptions and corresponding examples. The selection and ordering data state the rated current at 400 V. The IEC 60038 standard specifies a tolerance of ±10% for line voltages of 230 V, 400 V and 690 V. Rotors are dynamically balanced with half key. This corresponds to vibration quantity level A.

Tolerance for electrical data

- Efficiency η at
 - $P_{\text{rated}} \leq 150 \text{ kW}$: $-0.15 \times (1 - \eta)$
 - $P_{\text{rated}} > 150 \text{ kW}$: $-0.10 \times (1 - \eta)$
 - With η being a decimal number
- Power factor $-(1 - \cos \varphi) / 6$
 - 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%

Limits (rms values) for max. vibration quantity of vibration distance (s), vibration speed (v) and acceleration (a) for the shaft height H										
Vibration quantity level	Machine installation	Shaft height H in mm								
		56 ≤ H ≤ 132			132 < H ≤ 280			H > 280		
		s_{rms} μm	v_{rms} mm/s	a_{rms} mm/s ²	s_{rms} μm	v_{rms} mm/s	a_{rms} mm/s ²	s_{rms} μm	v_{rms} mm/s	a_{rms} mm/s ²
A	Free suspension	25	1.6	2.5	35	2.2	3.5	45	2.8	4.4
	Rigid clamping	21	1.3	2.0	29	1.8	2.8	37	2.3	3.6
B	Free suspension	11	0.7	1.1	18	1.1	1.7	29	1.8	2.8
	Rigid clamping	–	–	–	14	0.9	1.4	24	1.5	2.4

Efficiency

Standardization of the efficiency classes

Different energy efficiency standards exist worldwide for induction motors: To promote international standardization, the international standard IEC 60034-30-1-1 03/2014 (Rotating electrical machines – Part 30-1: Efficiency classes of single-speed, three-phase, cage-induction motors (IE code) was created. This groups low-voltage asynchronous motors into new efficiency classes (first released in October 2008).

Applicability (excerpt)

The efficiency classes are grouped according to the following nomenclature (IE = International Efficiency):

- Low-voltage motors up to 1000 V (50/60 Hz with line operation)
- 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.

Standardization of the 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	NEMA MG1	GB 18613-2012
IE4 ¹⁾		Grade 1 (IE4)
IE3	Premium Efficient (60 Hz)	Grade 2 (IE3)
IE2	Energy Efficient (60 Hz)	Grade 3 (IE2)

¹⁾ Defined in IEC/TS 60034-31.

Comparison of IE efficiency classes

Note:

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



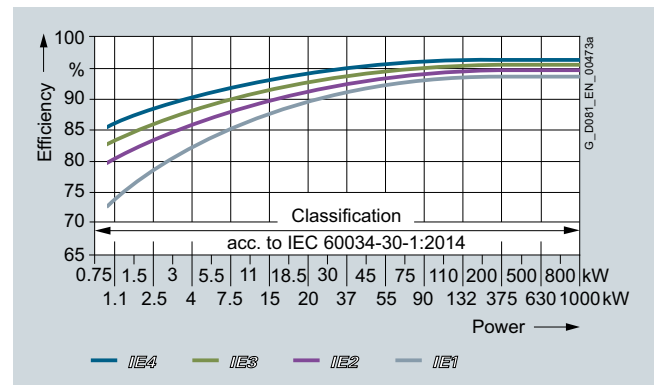
We comply with the latest efficiency standards and describe motors from IE1 to IE3 efficiencies. Although Siemens also has ranges for specific solutions for IE4 efficiency, these are still considered specialized and are not described in this document.

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 (consumed power; IEC 60034-2)
Now: P_{LL} = individual measurement (IEC 60034-1)

P_{LL} = load-dependent supplementary losses



IE1-IE4 efficiencies, 4-pole, 50 Hz, according to power



Did you know

The better the efficiency of a motor, the lower the internal heat loss. The lower the heat loss, the lower the temperature rise. Higher efficiency IE2 motors run cooler than same size IE1 motors. That increases the electrical life expectancy of an IE2 motor.

Background information

Comprehensive laws have been introduced in the European Union with the objective of reducing energy consumption and therefore CO₂ emissions. EU Directive 640/2009 concerns the energy consumption or efficiency of induction motors in the industrial environment. This Directive is now in force in every country of the European Economic Area.

For further details on internationally applicable standards and legal requirements, visit:

www.siemens.com/international-efficiency

Exceptions to the EU Directive

- 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 5 °C or above 25 °C;
 - With cooling liquid temperatures at the product intake of below 5 °C or above 25 °C;
 - In hazardous areas in the context of Directive 94/9/EU of the European Parliament and Council;
- Brake motors

The following motors are not involved:

- 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:

Since July 27, 2014, the following exceptions have been valid in accordance with EU Regulation 04/2014:

- At altitudes exceeding 4000 m (above sea level)
- Where ambient temperatures exceed 60 °C
- At ambient temperatures of less than –30 °C, or less than 0 °C with water cooling
- Where coolant temperatures at the inlet to a product are less than 0 °C or exceed 32 °C

Since January 1, 2015:

Compliance with the legally required minimum efficiency class IE3 for power ratings from 7.5 to 375 kW or, as an alternative, IE2 motor plus frequency converter.

Beginning January 1, 2017:

Compliance with the legally required minimum efficiency class IE3 for power ratings from 0.75 to 375 kW or, as an alternative, IE2 motor plus frequency converter.

Changes in accordance with EU Motor Regulation 640/2009

Low-voltage motors with a power ranging from 0.75 to < 7 kW, from January 1, 2017, and low-voltage motors with a power ranging from 7.5 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.

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

Abbreviations

NEMA: National Electrical Manufacturers Association

IEC: International Electrotechnical Commission

EEA: European Economic Area

Types of construction

In addition to the basic IM B3 type of construction, motors can also be supplied in other types of construction. We provide most commonly used types of constructions in our selection for you, as well as possibility for own modification by user parts.

The possible versions in our selection for a particular motor type can be taken from the table below.

Standard types of construction and special types of construction

Type of construction according to IEC 60034-7	Frame size	16 Digits Article No. 14 th position of the Article No.
IM B3	80 to 355	A
IM B35	80 to 355	J
IM B5	80 to 315	F
IM V1	80 to 355	G
IM B14	80 to 160	K

Did you know

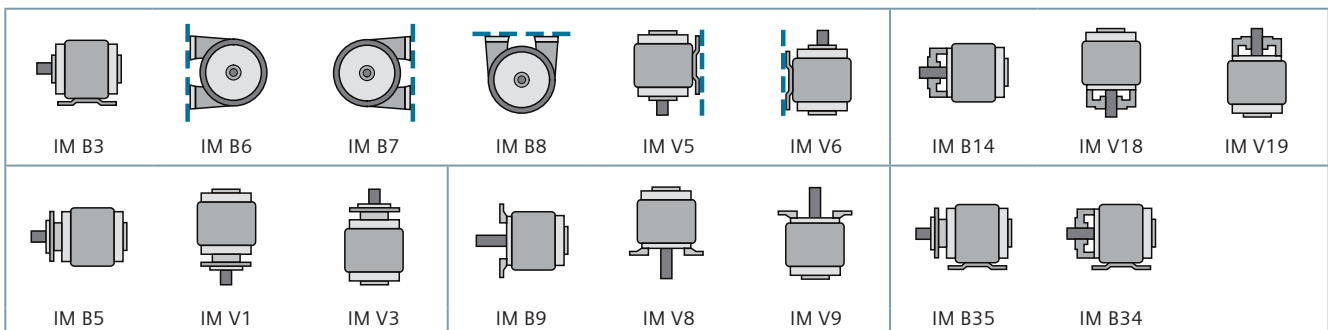
When mounting the motors in diverse orientations consider the location of the drain hole – it must be at the lowest point to drain water.

Apart from the distribution portfolio covered types of construction, here is the general overview of the possible types of construction. Many of them can be achieved by modifying this offered portfolio. Anything else can still be supplied out of our standard catalog portfolio, see D 81.1

TIP

Mounting motors in orientations other than these intended could lead to mechanical or structural premature failure. If in any doubt, please consult your Siemens partner.

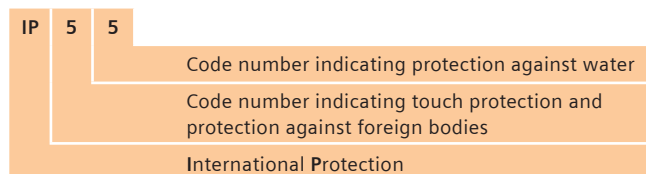
Types of construction



Types of construction according to DIN IEC 34, Part 7

IP rating

The IP code (or Ingress Protection Rating, sometimes also interpreted as International Protection Rating) consists of the letters IP followed by two digits or one digit and one letter and an optional letter. As defined in international standard IEC 60529, IP code classifies and rates the degrees of protection provided against the intrusion of solid objects, dust, accidental contact, and water in mechanical casings and with electrical enclosures.



TIP



Some manufacturers offer sealing and protection above IP55. Although it is available as an option, Siemens prefers a true IP55 as a default standard.

- IP55 covers the vast majority of applications as it offers dust and rain protection
- The IP55 is stable over the life of the motor. Higher protections can need maintenance or an exact assembly to ensure that the higher protection is real and not just on paper.
- Modifications can be made on an IP55 motor whilst maintaining that degree of protection.

Solids, first digit

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

Level	Object size protected against	Effective against
0	–	No protection against contact and ingress of objects
1	> 50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	> 12.5 mm	Fingers or similar objects
3	> 2.5 mm	Tools, thick wires, etc.
4	> 1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact
6	Dust tight	No ingress of dust; complete protection against contact

TIP



A suitable degree of protection should be selected depending on the operating and environmental conditions. Siemens offers a standard which is most suitable and applicable over the lifetime of a motor such as true IP55 standard.

Liquids, second digit

Protection of the equipment inside the enclosure against harmful ingress of water.

Level	Protected against	Testing for	Details
0	Not protected	–	–
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.	Test duration: 10 minutes Water equivalent to 1 mm rainfall per minute
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.	Test duration: 10 minutes Water equivalent to 3 mm rainfall per minute
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.	Test duration: 5 minutes Water volume: 0.7 liters per minute Pressure: 80–100 kN/m ²
4	Splashing water	Water splashing against the enclosure from any direction shall have no harmful effect.	Test duration: 5 minutes Water volume: 10 liters per minute Pressure: 80–100 kN/m ²
5	Water jets	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 12.5 liters per minute Pressure: 30 kN/m ² at distance of 3 m
6	Powerful water jets	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 100 liters per minute Pressure: 100 kN/m ² at distance of 3 m
7	Immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).	Test duration: 30 minutes Immersion at depth of 1 m
8	Immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.	Test duration: continuous immersion in water Depth specified by manufacturer

Thermal class

The Siemens motors are rated at normal sinusoidal voltage with a class B (130 °C) temperature rise. The windings are rated to class F (155 °C) thus allowing for reserve for the additional losses associated with variable speed drive operation and/or higher ambient temperature and/or overload conditions.

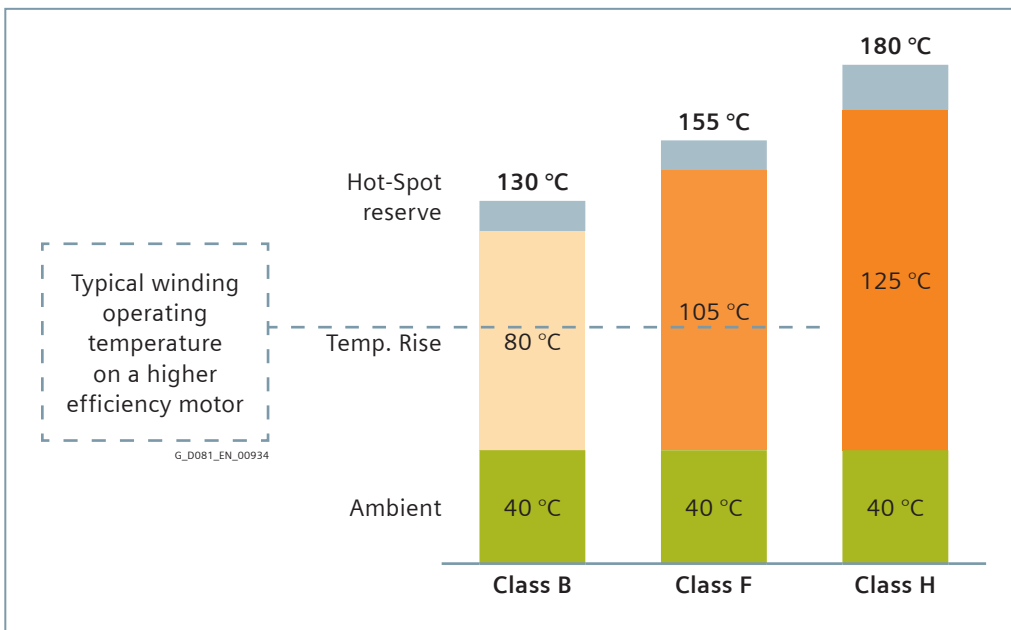
The temperature rise of the winding of the motor is important. It provides a great insight into the design of the motor and its life expectancy. The cooler a motor runs the better its life expectancy and longer its life. Siemens builds motors to a minimum of class F (155 °C) on all material – continuous operation for a very long life expectancy.

- Class B (130 °C) is the normal utilization – even better.
- Class H (180 °C) is reserved for special application motors.
- Class H motors are considered detrimental for normal use due to the degradation of the overall life expectancy of paint and bearings.
- At class H the outside surface temperature can exceed an unsafe 100 °C.

The more efficient the motor, the less heat it produces – to the extent that modern motors often only run with internal temperatures of 95 °C – much cooler than the limits set by the standards.

Siemens uses double coated wires with DURIGNIT insulation materials and capable varnishes – we consider all components including electrical connections and bearing grease – our motors are true class F under all circumstances – with reserve built in on top.

A claim to class H could be made but that would not reflect the true life expectancy which you would expect.



Did you know



Although Siemens uses class H wire, we do not rate our motors for class H operation. The electrical life expectancy at class F is four times greater than at class H. If used at class B or cooler 400000 hours and more are not exceptional.

TIP





Siemens builds motors with reserve: The motors are capable to operate at least at 155 °C (class F) but we only rate at a nominal 130 °C (class B).

- An IE1 motor can be operated at 10% overload or at 50 °C ambient temperature.
- An IE2 motor can be operated at 15% overload or at 55 °C ambient temperature.



Rating plates



1LE0 series



G_D081_EN_00358										
 										
Made in P.R.China										
3~MOT.1LE0102-2AB43-4AA4-Z 200L IMB3 IP55 LMH-0209/800003888993/004										
1	2	3	4	5	6	7	8	9	10	11
V	Hz	kW	A	EFF.	cos φ	r/min	EFF.Cl.			
400/690 Δ/Y	50	30	56/32.5	90.7%	0.85	1470	IE1			
460 Δ	60	33.5	48.5	91.7%	0.85	1765				
BRG DE 6312ZJ C3			BRG NDE 6312ZJ C3			Th.Cl.155(F) AMB 40 °C				
IEC60034										
Net: 238 kg										



Legend:

- | | |
|---------------------------------|-----------------------------|
| 1 Three-phase low-voltage motor | 11 Efficiency |
| 2 Article No. | 12 Rated speed |
| 3 Serial number | 13 Machine weight [kg] |
| 4 Type of construction | 14 Standards |
| 5 Degree of protection | 15 Temperature class |
| 6 Rated voltage | 16 Frame size |
| 7 Frequency [Hz] | 17 Ambient temperature |
| 8 Rated output [kW] | 18 Bearing at drive end |
| 9 Rated current [A] | 19 Bearing at non-drive end |
| 10 Power factor [cos φ] | 20 Efficiency class |
| | 21 Balance method |

 									
Made in P.R.China									
3~MOT.1LE0101-2DB03-4AA4 280S IMB3 IP55 LMH-									
V	Hz	kW	A	EFF.	cos φ	r/min	EFF.Cl.		
400/690 Δ/Y	50	75	132/77	94.0%	0.87	1485	IE2		
460 Δ	60	84	128	94.5%	0.87	1780	IE1		
BRG DE 6317 C3			BRG NDE 6317 C3			Th.Cl.155(F) AMB 40°C			
GREASE: Unirex N3									
Re-grease interval: 5000h					Quantity: 30g				
IEC60034									
Net: 555 kg									

 									
Made in P.R.China									
3~MOT. 0CV3280B 1LE0023-2DB03-4AA4 LMH-									
V	Hz	kW	A	EFF.	cos φ	r/min	EFF.Cl.		
400/690 Δ/Y	50	75	133/77	95.0%	0.86	1485	IE3		
460 Δ	60	84	129	95.2%	0.86	1782	IE2		
BRG DE 6317 C3			BRG NDE 6317 C3			280S IMB3 IP55			
GREASE: Unirex N3									
Re-grease interval: 5000h					Quantity: 30g				
IEC60034									
Net: 595 kg									

 									
Made in P.R.China									
3~MOT.1LE0021-2DB03-4AA4 280S IMB3 IP55 LMH-									
V	Hz	kW	A	EFF.	cos φ	r/min	EFF.Cl.		
400/690 Δ/Y	50	75	132/77	94.0%	0.87	1485	IE2		
460 Δ	60	84	128	94.5%	0.87	1780	IE1		
BRG DE 6317 C3			BRG NDE 6317 C3			Th.Cl.155(F) AMB 40°C			
GREASE: Unirex N3									
Re-grease interval: 5000h					Quantity: 30g				
IEC60034									
Net: 555 kg									

 									
Made in P.R.China									
3~MOT. 0CV3280B 1LE0103-2DB03-4AA4 LMH-									
V	Hz	kW	A	EFF.	cos φ	r/min	EFF.Cl.		
400/690 Δ/Y	50	75	133/77	95.0%	0.86	1485	IE3		
460 Δ	60	84	129	95.2%	0.86	1782	IE2		
BRG DE 6317 C3			BRG NDE 6317 C3			280S IMB3 IP55			
GREASE: Unirex N3									
Re-grease interval: 5000h					Quantity: 30g				
IEC60034									
Net: 595 kg									

Derating

Environmental

- Degree of motor protection IP55 (IEC 60034-5).
- Altitude shall not exceed 1000 m above sea level (IEC 60034-1).
- Allowed air temperature between -20 and 40 °C (IEC 60034-1).
- Permitted relative humidity:
 - -20 °C < T < 20 °C: 100%
 - 20 °C < T < 30 °C: 95%
 - 30 °C < T < 40 °C: 55%

For higher coolant temperatures and / or site altitudes higher than 1000 m above sea level, the specified motor must be reduced by using the factor k_{HT} . This results in an admissible output (P_{adm}) of the motor:

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

Reduction factor k_{HT} for different site altitudes and / or coolant temperature

Site altitude above sea level m	Ambient temperature/coolant temperature					
	< 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

Note:

If operating conditions exceed above values, please contact our local sales office for the selection of catalog motors.

Anti-condensation

Moisture is present in the air around us. Under the correct circumstances it can condensate. The warmer the air the higher the possible moisture content. As air cools the moisture carrying content reduces to the point when the moisture condenses – called the “dew point”.

This condition can be met several times a day under normal operation, as a motor operates and cools at differing times of the day.

Smaller motors are less susceptible than larger motors due to the smaller volume of moist air possible in the motor. Dew moisture condenses and accumulates in a motor, which is seen as water collection. The water accumulates at the lowest point of the motor. It often does no harm as long as the collection point is below the level of the electrical system.

Two points that need to be paid attention to are, first, how much water there is in the air and when it will condensate. The second is, whether it will do any harm.

Relative humidity	Temperature							
	20 °C	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C	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

If operating conditions exceed temperatures of 60 °C, please contact our local sales office for the selection of catalog motors.

The table shows the weight of moisture contained in the air, given as g/m³.

The local temperature is on the X-axis and the local relative humidity is shown on the Y-axis.

Blue fields show normal conditions.

Yellow fields show higher moisture – for motors FS ≥ 112 a drain hole is recommended.

For orange colored fields a drain hole is recommended and for more important motors a heating is also recommended (separate space heater of winding heating).



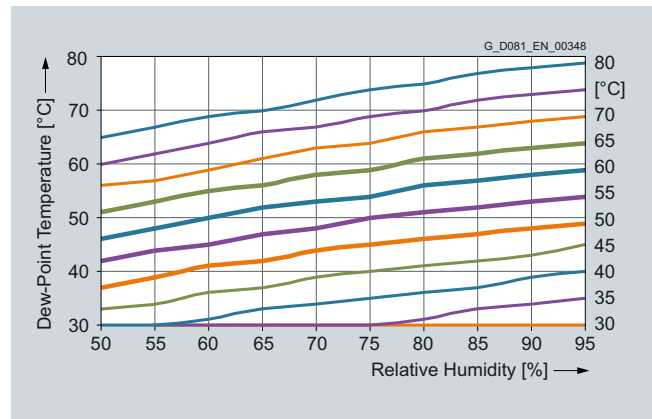
TIP

In humid climates, during motor cool down the air inside contracts, pulling in fresh, warm, humid air. This humidity condensates inside the motor, forming water droplets. Those water droplets have to drain.

Therefore on many motors, especially the larger ones, Siemens has foreseen drain holes as standard.

Anti-condensation heating can be provided for motors where there is a danger that moisture condensation will form on the winding due to the climatic situation. This anti-condensation heater warms up the air in the motor to a temperature above the dew point temperature in order to prevent condensation forming inside the motor. The anti-condensation heating must not be switched on while the motor is operating.

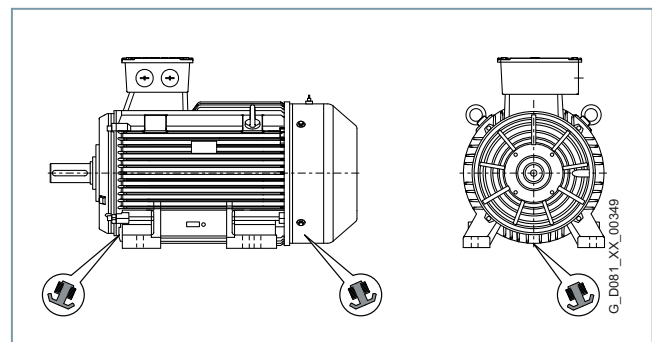
The graphic shows the temperature at which the moisture in the air will condensate to water. The lines on the right show the local temperature. The X-axis gives the local relative humidity. The "dew point" temperature can be read on the Y-axis.



TIP



Another possible solution is to connect a voltage to the stator terminals U1 and V1 that should be between 4 and 10% of the rated motor voltage. Approximately 20 to 30% of the rated current is sufficient in order to achieve an adequate temperature rise to avoid condensation.



Drain hole location

Motor protection

PTC thermistor temperature sensors are predominantly used for thermistor motor protection devices (alarm or shutdown) for motors. These thermistors are generally integrated in the winding overhang. As a consequence, the stator winding is directly protected. The temperature difference between alarm and shutdown (trip) is 10 K.

When a limit temperature is reached (nominal tripping temperature), the resistance of PTC thermistors will have a step change. This is evaluated by a tripping unit and can be used to open auxiliary circuits.

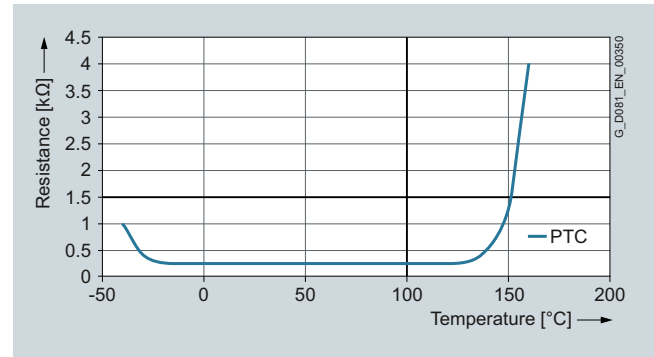
Thermal protection with PTC thermistors with 3 embedded temperature sensors for tripping is provided in our IE2 motors above frame size 112 as standard version.

Anyhow it can be selected as an option for our IE1 motors and IE2 motors with frame size less than 132. Connection can be done through 2 auxiliary terminals in the terminal box.

TIP



3 × PTC to wire have already been embedded in our 1LE0 IE2 motors as standard version.



Note:

The PTC thermistors themselves cannot be subjected to high currents and voltages. This would result in destruction of the semiconductor. The switching hysteresis of the PTC thermistor and tripping unit is low, which supports fast restarting of the drive. Motors with this type of protection are recommended for heavy duty starting, switching duty, extreme changes in load, high ambient temperatures or fluctuating supply systems.

Converter application

The insulation system of our motors is capable for converter operation as standard.

For sinusoidal (mains) supplies 690 V_{rms} 50 Hz with:

- phase to phase 1200 V_{rms} capability
- phase to ground 900 V_{rms} capability

For converter operation, as standard:

- 460 V_{rms} max. frequency limited by motor maximum speed 5000 V/μs

Converter application

Our motors are suitable for pumps, fans, compressors, textile machines and mechanical machine applications where variable or constant speed is required.

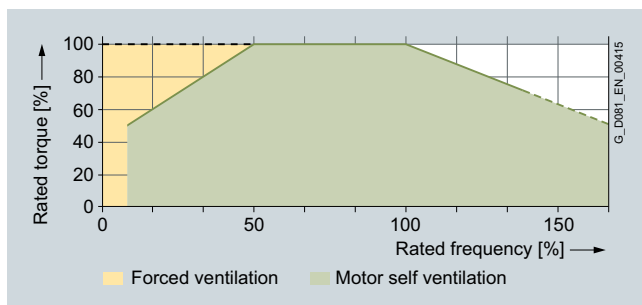
In applications where the motor is driven by a converter, the degree of electrical interference depends on the type of converter used (type, number of IGBTs, interference suppression measures, and manufacturer), cabling, distance and application requirements. The installation guidelines of the converter manufacturer with regards to electromagnetic compatibility must be considered at all times during the design and implementation phases.

At rated output with converter operation, the motors will be used in temperature class 155 (F). To prevent damage as a result of bearing currents, insulated bearings are recommended to be assembled for frame size 250 and above. Please inquire Siemens about the detailed information of insulated bearing.

Converter operation

The standard insulation of our motors is designed such that operation is possible on the converter at mains voltage up to 460 V.

Our motors are capable for converter operation with certain characteristics load, of which the load torque characteristics is referred in the following diagram:



By usage with admissible torque and below, the motor can be operated with self cooling; by usage over the admissible torque line, the motor with forced ventilation is needed.

TIP



These motors do not have a special series for converter operation – they are suited as standard. On-line or converter operation.

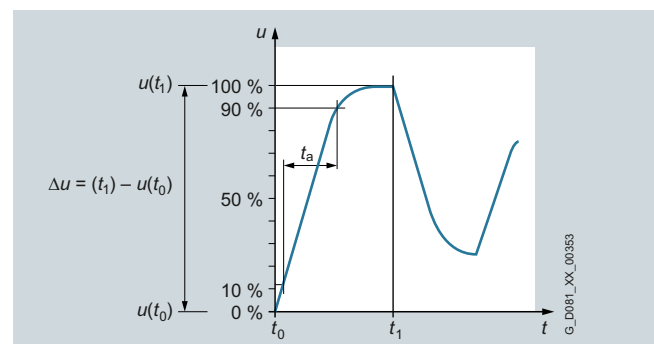
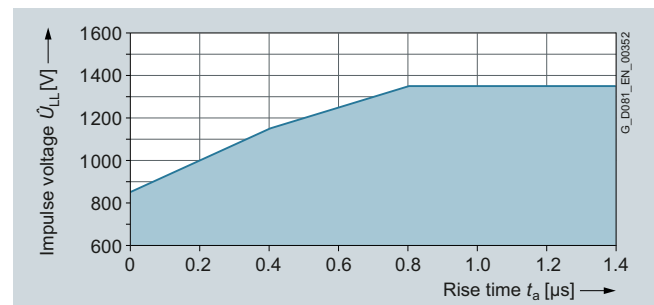
At operating speeds above rated speed the noise and vibration levels increase and the bearing lifetime reduces. Attention should be paid to the re-greasing intervals and the grease service life. For converter operation with frequencies greater than 60 Hz special balancing is required for compliance with the specified limit values.

Voltage (peak and gradient) withstand levels

The dielectric stress of the winding insulation is determined by:

- the peak voltage, rise time and frequency of the impulses produced by the converter.
- the characteristics and the length of the connection leads between the converter and motor.
- the winding construction and other system parameters, especially the voltages between the different parts of the winding and the ground represent dielectric stress at the insulation system.

The standard insulation of our motors is designed to withstand voltage peak and gradient which is shown in the diagram:



Did you know

As the motor gets larger so does the internal surface area between the stator and rotor. That surface has a stray capacitance which can lead to a voltage on the shaft – and that voltage can lead to bearing failure (bearing currents). The situation is aggravated by converter operation. Siemens recommends the use of insulated bearings for motors of frame size ≥ 250 . The insulated bearing as an option can be supplied out of our standard catalog portfolio D 81.1 and on request for the 1LE0 series.

SIMOTICS General Purpose							
Frame size	Number of poles	Cast-iron series					
		IE1 efficiency 1LE0102		IE2 & IE3 efficiencies 1LE0101 & 1LE0103		IE1, IE2 & IE3 efficiencies 1LE002.	
		max. mechanical speed	f_{max}	max. mechanical speed	f_{max}	max. mechanical speed	f_{max}
80	2	5200	87	5200	87	5200	87
	4	3600	120	3600	120	3600	120
	6	2400	120	2400	120	2400	120
90	2	5200	87	5200	87	5200	87
	4	3600	120	3600	120	3600	120
	6	2400	120	2400	120	2400	120
100	2	5200	87	5200	87	5200	87
	4	3600	120	3600	120	3600	120
	6	2400	120	2400	120	2400	120
112	2	5200	87	5200	87	5200	87
	4	3600	120	3600	120	3600	120
	6	2400	120	2400	120	2400	120
132	2	4500	75	4500	75	4500	75
	4	2700	90	2700	90	2700	90
	6	2400	120	2400	120	2400	120
160	2	4500	75	4500	75	4500	75
	4	2700	90	2700	90	2700	90
	6	2400	120	2400	120	2400	120
180	2	4500	75	4500	75	4500	75
	4	2700	90	2700	90	2700	90
	6	2400	120	2400	120	2400	120
200	2	4500	75	4500	75	4500	75
	4	2300	77	2300	77	2300	77
	6	1800	90	1800	90	1800	90
225	2	3600	60	3600	60	3600	60
	4	2300	77	2300	77	2300	77
	6	1800	90	1800	90	1800	90
250	2	3600	60	3600	60	3600	60
	4	2300	77	2300	77	2300	77
	6	1800	90	1800	90	1800	90
280	2	3600	60	3600	60	3600	60
	4	2300	77	2300	77	2300	77
	6	1800	90	1800	90	1800	90
315	2	3600	60	3600	60	3600	60
	4	2300	77	2300	77	2300	77
	6	1800	90	1800	90	1800	90
355	2	3600	60	3600	60	3600	60
	4	2300	77	2300	77	2300	77
	6	1800	90	1800	90	1800	90

Mechanical stress and grease lifetime (converter operation).

High speeds that exceed the rated speed and the resulting increased vibrations alter the mechanical running smoothness and the bearings are subject to increased mechanical stress. This reduces the grease lifetime and the bearing lifetime. More detailed information on request.

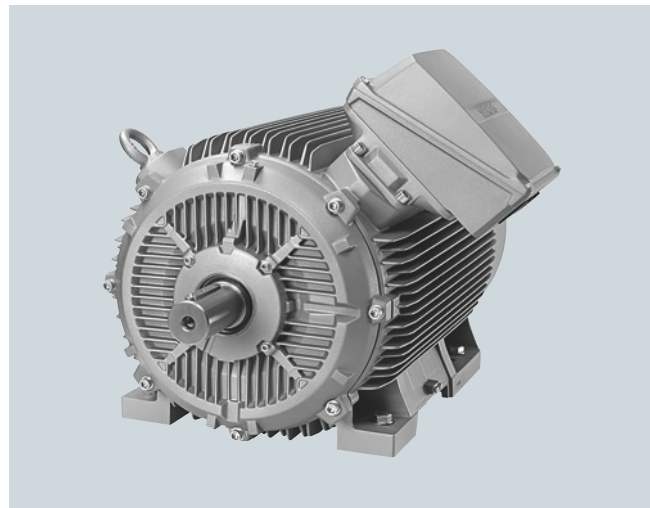
Ventilation/noise generation (converter operation).

The fan noise can increase at speeds that are higher than the rated speed of self-ventilated motors. To increase motor utilization at low speeds it is recommended that forced ventilated motors are used.

Mechanical limit speeds

When the motor is operated at 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.

With converter operation, the reduction factors for constant torque and drives for fans, pumps and compressors must be observed.



TIP 

By use of converter operation, motors can run at speeds higher than 50 Hz or 60 Hz nominal speed. High speeds that exceed the rated speed of a motor can lead to increased vibration and substantially decrease the life expectancy of the bearings. The maximum mechanical speed of a motor must not be exceeded due to risk of failure. More detailed information on request.

Noise

Motors are often used in applications in which noise is a primary concern. The use of converters can excite the surfaces of motors and the sound of diverse frequencies can be resonated in the cooling channels.

Siemens has addressed this issue but modifying the core design.

Surfaces, shapes and materials and air channels have been optimized. The result is a motor which is quieter, especially with converter operation.

In order to define the motor noise level, the A-weighted sound pressure level (L_A) is measured at several points on the measuring plane (1 m away from the motor surface). The measurement is carried out in a room with low reflection. As a result of noise reflection, the level can be increased up to 3 dB(A) depending on the acoustic properties of the surroundings.

The A sound power level is normally used when engineering projects and when it is necessary to determine the noise radiated from a group of motors whose envelope dimensions differ significantly.

SIMOTICS General Purpose									
Output (kW)	Sound pressure level L_{pfa} / Sound power level L_{WA} (dB(A))								
	Cast-iron series								
	IE1 efficiency 1LE0102			IE2 efficiency 1LE0101			IE3 efficiency 1LE0103		
	3000 rpm (2-pole)	1500 rpm (4-pole)	1000 rpm (6-pole)	3000 rpm (2-pole)	1500 rpm (4-pole)	1000 rpm (6-pole)	3000 rpm (2-pole)	1500 rpm (4-pole)	1000 rpm (6-pole)
0.55	–	45/57	44/56	–	45/57	44/56	–	45/56	44/55
0.75	53/65	45/57	48/60	53/65	45/57	48/60	51/62	45/56	45/57
1.1	53/65	48/60	48/60	53/65	47/59	48/60	51/62	47/59	45/57
1.5	60/72	48/60	54/66	60/72	47/59	52/64	55/67	47/59	49/61
2.2	60/72	57/69	54/66	60/72	55/ 67	54/66	55/67	52/64	53/65
3	64/76	57/69	57/69	62/74	55/ 67	56/69	62/74	52/64	57/69
4	65/77	57/69	57/69	63/75	55/ 67	56/69	65/77	53/65	57/69
5.5	68/80	58/71	57/69	66/79	57/70	56/69	67/79	59/71	57/69
7.5	68/80	58/71	61/73	66/79	57/70	60/73	67/79	59/71	61/73
11	70/83	61/74	61/73	67/80	60/73	60/73	69/81	61/73	61/73
15	70/83	61/74	61/74	67/80	60/73	61/74	69/81	61/73	59/73
18.5	70/83	63/76	65/78	67/80	61/74	65/78	69/81	63/76	59/73
22	72/85	63/76	65/78	69/82	61/74	65/78	70/83	63/76	59/73
30	76/90	65/78	66/80	71/84	63/76	65/79	71/84	63/76	60/74
37	76/90	66/80	66/80	71/84	63/77	65/79	71/84	65/78	62/76
45	76/90	66/79	66/80	74/88	63/77	65/79	72/85	65/78	64/78
55	78/92	67/81	66/80	74/88	64/78	65/79	75/89	66/79	64/78
75	79/93	70/84	70/84	74/88	66/80	66/80	77/91	66/80	69/83
90	79/93	70/84	70/84	76/90	66/80	66/80	77/91	66/80	69/83
110	80/94	76/90	70/84	78/92	69/83	68/82	78/92	74/88	69/83
132	80/94	76/90	70/84	78/92	69/83	68/83	78/92	74/88	69/83
160	80/94	78/92	77/92	81/95	69/83	72/87	78/92	74/88	71/85
185	85/98	78/92	77/92	81/95	74/88	75/90	78/92	74/88	71/85
200	85/98	78/92	77/92	81/95	74/88	75/90	78/92	74/88	71/85
220	86/101	86/101	77/92	86/101	82/97	75/90	85/100	81/95	71/85
250	86/101	86/101	–	86/101	82/97	–	85/100	81/95	71/85
280	88/103	86/101	–	88/103	85/100	–	85/100	81/95	–
315	88/103	86/101	–	88/103	85/100	–	85/100	81/95	–

Bearings

The bearings are especially important in order that the motor runs perfectly. A good selection of bearing will guarantee long lubrication intervals, low noise, low-vibration operation and longer lifetime as well.

There are many types of bearing: diverse ball and roller bearings, tapered roller bearings and specialized bearings. Siemens has selected an applicable range of single-shielded and double-shielded bearings. Z for when regreasing is needed and ZZ when no-regreasing is wished for. C62 as standard and suitable for not applications, C63 for driven loads with cantilever forces/radial forces C63 standard FS 280 and bigger.

Sealed-for-life bearings are avoided as they bring inherent disadvantages in operation temperatures and limit operating speeds.

Special bearings are avoided due to their disadvantages outside of their specific application.

TIP



Factors that reduce the lifetime of a bearing:

- Operating a motor beyond the rated speed increases the motor vibration and results in an additional radial and axial force on the bearing.
- Increased motor vibration due to the environment or other equipment results in an higher radial and axial force.

The bearing lifetime of motors with horizontal type of construction is at least 40000 hours if there is no additional axial loading at the coupling output and at least 20000 hours with the maximum admissible loads. This assumes that the motor is operated at 50 Hz.

A bearing is only as good as its lubrication. Siemens designed a special lithium complex grease – Unirex N3. It gives a super thermal stability for optimized bearing life. The grease gives a great temperature range from –30 to 130 °C – with an intermittent temperature reserve to 165 °C.

Frame size	Number of poles	Grease lifetime up to CT 40 °C ¹⁾
Grease for bearings with permanent lubrication		
80 ... 250	2, 4, 6	20000 or 40000 (h) ²⁾
Grease for regreasable bearings		
100 ... 160	2, 4, 6	8000 (h)
180 ... 250	2	4000 (h)
180 ... 250	4, 6	8000 (h)
280 ... 315	2	3000 (h)
280 ... 315	4, 6	5000 (h)
355	2	2000 (h)
355	4, 6	4000 (h)

¹⁾ If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

²⁾ 40000 h apply to horizontally installed motors with coupling output without additional axial loads.

Cantilever force

This force acts transversely at the center line of the motor shaft extension. The cantilever force is calculated from the circumferential force multiplied by the pre-tension factor, which is dependent on the mechanical transmission characteristics of the particular belt.

The permissible cantilever forces for the individual motor frame sizes and speeds are specified in Catalog D 81.1. For motors with deep-groove ball bearings, the permissible cantilever force can be increased by replacing the bearings at the drive end with cylindrical roller bearings.

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

Dimension x [mm] is the distance between the point of application of force F_Q and the shaft shoulder.

Dimension x_{max} corresponds to the length of the shaft extension. Total cantilever force is calculated using the following equation.

$$F_Q = c \cdot F_U$$

The pre-tension factor c is a value gained from experience by 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 and load), $c = 2$ to 2.5.

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

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

F_U = circumferential force in N

P = rated motor power (transmitted power) in kW

n = rated motor speed

D = pulleys in mm.



Belt drive

A belt drive is used to connect two parallel shafts, the motor shaft with the shaft of the driven machine, whereby the speed can be simultaneously changed corresponding to the ratio between the two belt pulley diameters.

The belt must be pre-tensioned so that it can transmit the circumferential force through friction. The pre-tension factor indicates how much higher the actual tension load (cantilever force) is than the circumferential force (peripheral force).

Today, flat belts are almost always manufactured out of plastic with an adhesive coating (e.g. chrome leather). Pre-tension factor, approx. 2 to 2.5.

The pre-tension factor for V-belts is approx. 1.5 to 2.5.

The belt must be able to transmit the power at the defined circumferential velocity. This defines the belt thickness and width. The belt supplier specifies the pre-tension factor. The recommended circumferential velocity is approx. 35 m/s for flat belts and approx. 25 m/s for V-belts. Steel belt pulleys must be used for circumferential velocities greater than 26 m/s due to the centrifugal force which occurs.

The actual cantilever force (belt tension) must be compared with the cantilever force permissible for the motor to select the correct motor and bearing sizes.

Bearings – Bearing types

Standard bearing assignment

SIMOTICS General Purpose										
Frame size	Number of poles	Cast-iron series								
		IE1 efficiency 1LE0102			IE2 & IE3 efficiencies 1LE0101 & 1LE0103			IE1, IE2 & IE3 efficiencies 1LE002. ¹⁾		
		Drive end	Non-drive end		Drive end	Non-drive end		Drive end	Non-drive end	
		(Horizontal mounting)	(Vertical mounting)		(Horizontal mounting)	(Vertical mounting)		(Horizontal mounting)	(Vertical mounting)	
80	2	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3
	4	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3
	6	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3	6204 2Z C3
90	2	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3
	4	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3
	6	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3	6205 2Z C3
100	2	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3
	4	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3
	6	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3
112	2	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3
	4	6206 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3
	6	6206 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3	6206 2Z C3
132	2	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3
	4	6208 2Z C3	6208 2Z C3	6208 2Z C3	6308 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3
	6	6208 2Z C3	6208 2Z C3	6208 2Z C3	6308 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3	6208 2Z C3
160	2	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3
	4	6209 2Z C3	6209 2Z C3	6209 2Z C3	6309 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3
	6	6209 2Z C3	6209 2Z C3	6209 2Z C3	6309 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3	6209 2Z C3
180	2	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3
	4	6210 Z C3	6210 Z C3	6210 Z C3	6310 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3
	6	6210 Z C3	6210 Z C3	6210 Z C3	6310 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3	6210 Z C3
200	2	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3
	4	6212 Z C3	6212 Z C3	6212 Z C3	6312 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3
	6	6212 Z C3	6212 Z C3	6212 Z C3	6312 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3	6212 Z C3
225	2	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3
	4	6213 Z C3	6213 Z C3	6213 Z C3	6313 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3
	6	6213 Z C3	6213 Z C3	6213 Z C3	6313 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3	6213 Z C3
250	2	6215 C3	6215 C3	7215 AC	6215 C3	6215 C3	7215 AC	6215 C3	6215 C3	7215 AC
	4	6215 C3	6215 C3	7215 AC	6315 C3	6215 C3	7215 AC	6215 C3	6215 C3	7215 AC
	6	6215 C3	6215 C3	7215 AC	6315 C3	6215 C3	7215 AC	6215 C3	6215 C3	7215 AC
280	2	6317 C3	6317 C3	7317 AC	6317 C3	6317 C3	7317 AC	6317 C3	6317 C3	7317 AC
	4	6317 C3	6317 C3	7317 AC	6317 C3	6317 C3	7317 AC	6317 C3	6317 C3	7317 AC
	6	6317 C3	6317 C3	7317 AC	6317 C3	6317 C3	7317 AC	6317 C3	6317 C3	7317 AC
315	2	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC
	4	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC
	6	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC
355	2	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC	6319 C3	6319 C3	7319 AC
	4	6322 C3	6322 C3	7322 AC	6322 C3	6322 C3	7322 AC	6322 C3	6322 C3	7322 AC
	6	6322 C3	6322 C3	7322 AC	6322 C3	6322 C3	7322 AC	6322 C3	6322 C3	7322 AC

¹⁾ Only for Option Line motors with efficiency classes IE2 and IE3:
use of standard bearings e.g. SKF, NSK.

Bearings – Bearing types

Bearing design for increased cantilever forces

SIMOTICS General Purpose										
Frame size	Number of poles	Cast-iron series								
		IE1 efficiency 1LE0102			IE2 & IE3 efficiencies 1LE0101 & 1LE0103			IE1, IE2 & IE3 efficiencies 1LE002.		
		Drive end	Non-drive end		Drive end	Non-drive end		Drive end	Non-drive end	
		(Horizontal mounting)	(Vertical mounting)		(Horizontal mounting)	(Vertical mounting)		(Horizontal mounting)	(Vertical mounting)	
80	2	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	–	–	–
90	2	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	–	–	–
100	2	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3
	4	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3
	6	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3
112	2	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3
	4	6306 2Z C3	6206 2Z C3	6206 2Z C3	–	–	–	6306 2Z C3	6206 2Z C3	6206 2Z C3
	6	6306 2Z C3	6206 2Z C3	6206 2Z C3	–	–	–	6306 2Z C3	6206 2Z C3	6206 2Z C3
132	2	6308 2Z C3	6208 2Z C3	6208 2Z C3	6308 2Z C3	6208 2Z C3	6208 2Z C3	6308 2Z C3	6208 2Z C3	6208 2Z C3
	4	6308 2Z C3	6208 2Z C3	6208 2Z C3	–	–	–	6308 2Z C3	6208 2Z C3	6208 2Z C3
	6	6308 2Z C3	6208 2Z C3	6208 2Z C3	–	–	–	6308 2Z C3	6208 2Z C3	6208 2Z C3
160	2	6309 2Z C3	6209 2Z C3	6209 2Z C3	6309 2Z C3	6209 2Z C3	6209 2Z C3	6309 2Z C3	6209 2Z C3	6209 2Z C3
	4	6309 2Z C3	6209 2Z C3	6209 2Z C3	–	–	–	6309 2Z C3	6209 2Z C3	6209 2Z C3
	6	6309 2Z C3	6209 2Z C3	6209 2Z C3	–	–	–	6309 2Z C3	6209 2Z C3	6209 2Z C3
180	2	NU210	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3
	4	NU210	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3
	6	NU210	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3
200	2	NU212	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3
	4	NU212	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3
	6	NU212	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3
225	2	NU213	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3
	4	NU213	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3
	6	NU213	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3
250	2	NU215	6215 C3	7215 AC	NU215	6215 C3	7215 AC	NU215	6215 C3	7215 AC
	4	NU215	6215 C3	7215 AC	NU215	6215 C3	7215 AC	NU215	6215 C3	7215 AC
	6	NU215	6215 C3	7215 AC	NU215	6215 C3	7215 AC	NU215	6215 C3	7215 AC
280	2	NU317	6317 C3	7317 AC	NU317	6317 C3	7317 AC	NU317	6317 C3	7317 AC
	4	NU317	6317 C3	7317 AC	NU317	6317 C3	7317 AC	NU317	6317 C3	7317 AC
	6	NU317	6317 C3	7317 AC	NU317	6317 C3	7317 AC	NU317	6317 C3	7317 AC
315	2	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC
	4	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC
	6	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC
355	2	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC	NU319	6319 C3	7319 AC
	4	NU322	6322 C3	7322 AC	NU322	6322 C3	7322 AC	NU322	6322 C3	7322 AC
	6	NU322	6322 C3	7322 AC	NU322	6322 C3	7322 AC	NU322	6322 C3	7322 AC

Did you know



When the load pulls sideways on the shaft, it is called a radial load. A heavy radial load is a belt or pulley drive. If in doubt, it is common to use "C63" or strengthened bearings.

Bearings – Cantilever forces

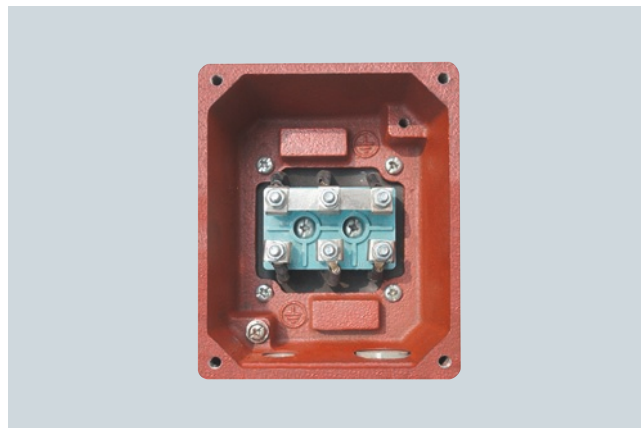
Admissible cantilever forces for standard version

SIMOTICS General Purpose							
Frame size	Number of poles	Cast-iron series					
		IE1 efficiency 1LE0102		IE2 & IE3 efficiencies 1LE0101 & 1LE0103		IE1, IE2 & IE3 efficiencies 1LE002.	
		for x_0 N	for x_{max} N	for x_0 N	for x_{max} N	for x_0 N	for x_{max} N
80	2	620	510	620	510	620	510
	4	790	640	790	640	790	640
	6	910	740	910	740	910	740
90	2	700	560	700	560	700	560
	4	880	720	880	720	880	720
	6	1020	820	1020	820	1020	820
100	2	980	790	980	790	980	790
	4	1230	990	1230	990	1230	990
	6	1420	1140	1420	1140	1420	1140
112	2	980	790	980	790	980	790
	4	1230	990	1870	1540	1230	990
	6	1420	1140	2140	1720	1420	1140
132	2	1440	1120	1440	1120	1440	1120
	4	1820	1420	2720	2170	1820	1420
	6	2080	1630	3100	2420	2080	1630
160	2	1560	1240	1560	1240	1560	1240
	4	1970	1570	3300	2600	1970	1570
	6	2260	1800	3750	2900	2260	1800
180	2	1820	1470	1820	1470	1820	1470
	4	2300	1900	4000	3300	2300	1900
	6	2630	2150	4500	3700	2630	2150
200	2	2650	2230	2650	2230	2650	2230
	4	3350	2800	5400	4530	3350	2800
	6	3850	3230	6200	5200	3850	3230
225	2	3000	2540	3000	2540	3000	2540
	4	3700	3000	5900	4800	3700	3000
	6	4250	3470	6800	5550	4250	3470
250	2	3150	2620	3150	2620	3150	2620
	4	3950	3280	7350	6100	3950	3280
	6	4600	3820	8450	7000	4600	3820
280	2	6600	5550	6600	5550	6600	5550
	4	8300	6950	8300	6950	8300	6950
	6	9650	8120	9650	8120	9650	8120
315	2	7100	6200	7100	6200	7100	6200
	4	8700	7250	8700	7250	8700	7250
	6	10000	8500	10000	8500	10000	8500
355	2	6800	6000	6800	6000	6800	6000
	4	11500	10000	11500	10000	11500	10000
	6	13200	11600	13200	11600	13200	11600

Bearing design for increased cantilever forces

SIMOTICS General Purpose							
Frame size	Number of poles	Cast-iron series					
		IE1 efficiency 1LE0102		IE2 & IE3 efficiencies 1LE0101 & 1LE0103		IE1, IE2 & IE3 efficiencies 1LE002.	
		for x_0 N	for x_{max} N	for x_0 N	for x_{max} N	for x_0 N	for x_{max} N
80	2	–	–	–	–	–	–
	4	–	–	–	–	–	–
	6	–	–	–	–	–	–
90	2	–	–	–	–	–	–
	4	–	–	–	–	–	–
	6	–	–	–	–	–	–
100	2	1480	1220	1480	1220	1480	1220
	4	1870	1540	1870	1540	1870	1540
	6	2140	1720	2140	1720	2140	1720
112	2	1480	1220	1480	1220	1480	1220
	4	1870	1540	–	–	1870	1540
	6	2140	1720	–	–	2140	1720
132	2	2100	1700	2100	1700	2100	1700
	4	2720	2170	–	–	2720	2170
	6	3100	2420	–	–	3100	2420
160	2	2650	2120	2650	2120	2650	2120
	4	3300	2600	–	–	3300	2600
	6	3750	2900	–	–	3750	2900
180	2	3300	2700	3300	2700	3300	2700
	4	4200	3400	4200	3400	4200	3400
	6	4750	3900	4750	3900	4750	3900
200	2	5000	4200	5000	4200	5000	4200
	4	6330	5320	6330	5320	6330	5320
	6	7250	6080	7250	6080	7250	6080
225	2	5650	4800	5650	4800	5650	4800
	4	6950	5600	6950	5600	6950	5600
	6	7900	6500	7900	6500	7900	6500
250	2	6700	5600	6700	5600	6700	5600
	4	8500	7000	8500	7000	8500	7000
	6	9500	7800	9500	7800	9500	7800
280	2	11500	9500	11500	9500	11500	9500
	4	17000	14000	17000	14000	17000	14000
	6	20000	17000	20000	17000	20000	17000
315	2	14600	12300	14600	12300	14600	12300
	4	20000	16500	20000	16500	20000	16500
	6	23000	19000	23000	19000	23000	19000
355	2	15800	14000	15800	14000	15800	14000
	4	22000	19000	22000	19000	22000	19000
	6	25000	22000	25000	22000	25000	22000

Terminal box



Frame size	Cast-iron series				
	IE1, IE2 and IE3 efficiencies				
	Number of terminals	Contact screw thread	1LE0		
Max. connectable cross-section (mm ²)			Outer cable diameter (sealing range)	Cable entry size (screwed plug)	
80	6	M4	1.5	13 ... 18	M25 × 1.5 + M16 × 1.5
90	6	M4	1.5	13 ... 18	M25 × 1.5 + M16 × 1.5
100	6	M4	4	18 ... 25	M32 × 1.5 + M32 × 1.5
112	6	M4	4	18 ... 25	M32 × 1.5 + M32 × 1.5
132	6	M4	6	18 ... 25	M32 × 1.5 + M32 × 1.5
160	6	M5	16	22 ... 32	M40 × 1.5 + M40 × 1.5
180	6	M5	16	22 ... 32	M40 × 1.5 + M40 × 1.5
200	6	M6	25	32 ... 38	M50 × 1.5 + M50 × 1.5
225	6	M8	35	32 ... 38	M50 × 1.5 + M50 × 1.5
250	6	M10	120	37 ... 44	M63 × 1.5 + M63 × 1.5
280	6	M10	120	37 ... 44	M63 × 1.5 + M63 × 1.5
315	6	M12	240	37 ... 44	M63 × 1.5 + M63 × 1.5
355	6	M16	240	44 ... 57	M72 × 2 + M72 × 2

Packaging size

Frame size	Cast-iron series					
	Packaging size mm					
	IE1 and IE2 efficiencies			IE3 efficiency		
	Length	1LE0		Length	1LE0	
Width		High	Width		High	
80	335	225	260	395	225	260
90	400	225	280	455	225	280
100	445	275	315	515	275	315
112	455	275	335	515	275	335
132	565	335	385	615	335	385
160	730	460	580	730	460	580
180	800	460	630	820	460	630
200	830	510	695	905	510	695
225	905	560	735	990	560	735
250	980	660	810	1060	660	810
280	1090	675	920	1215	675	920
315	1390	770	1060	1485	770	1060
355	1605	905	1260	1710	905	1260



Did you know

Power

Power is the work performed in a unit of time, measured in W (Watt).

Dimensions:

$$\begin{aligned}
 1 \text{ W} &= \text{J/s} \text{ (1 Joule per second)} \\
 &= 1 \text{ Nm/s} \text{ (1 Newton meter per second)} \\
 &= 1 \text{ kgm}^2/\text{s}^3 \\
 &= 0.102 \text{ kpm/s} \\
 1 \text{ kW} &= 1.36 \text{ hp}
 \end{aligned}$$

The following applies to three-phase motors:

$$P_N = \sqrt{3} \cdot V_{\text{supply}} \cdot I_{\text{supply}} \cdot \eta \cdot \cos \varphi$$

P_N	Rated power in W
V	Rated voltage in V
I	Line current in A
η	Efficiency
$\cos \varphi$	Power factor

The rated power is one of the most important parameters of a motor. According to DIN 42673 – and maintaining the regulations according to VDE 0530 – the individual motor frame sizes are assigned specific power ratings for continuous duty S1. Different operating conditions or different duty types generally result in a change in the rated power.



Did you know

Torque

Torque is generated by the effect of force applied to a lever arm. This is the product of force multiplied by the vertical distance from the axis of rotation; for belt drives, e.g. circumferential force multiplied by the radius of the belt pulley.

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

M	Torque in Nm
P	Power in kW
n	Speed in rpm



Did you know

Speed

The synchronous speed n_s (rpm) of a three-phase induction motor is obtained from the line frequency f and the pole pair number p (4-pole $\rightarrow 2p = 4$).

$$n_s = \frac{120 \cdot f}{2 \cdot p}$$

When connected to a 50 Hz line supply, a $2p = 4$ -pole motor has a synchronous speed of

$$\frac{120 \cdot 50}{4} = 1500 \text{ rpm}$$

The synchronous speeds of the generally used 2, 4, and 6-pole motors are correspondingly obtained

- at a line frequency of 50 Hz
3000, 1500, 1000 rpm
- at a line frequency of 60 Hz
3600, 1800, 1200 rpm

The rotor of a three-phase induction motor rotates with a lower speed (with slip) than the rotating field.

Slip s is calculated according to the following formula:

$$s = \frac{n_s - n}{n_s} \cdot 100$$

s	Slip as a %
n_s	Synchronous speed in rpm
n	Rotor speed in rpm

The rated slip s_N is correspondingly calculated.

The rotor losses of the motor are approximately proportional to the slip. The objective is to achieve a low rated slip in order to achieve a good efficiency.

The rated slip depends on the motor size.

For instance, for small motors, it is approx. 10% and for large motors, approx. 1%.

Handling and storage

When lifting the motors, always use the lifting eyes provided. Prior to lifting the motor make sure that the lifting eyes are installed correctly and tightened. Never lift a motor using the rotor shaft and fan cover. In addition, care must be taken during lifting and lowering of the motor to avoid any shocks or vibrations which can result in bearing damages.

It is recommended that all motors be stored in a dry, dust-free environment and free of excessive vibrations.

If the DE and NDE bearings are of the sealed types, it is recommended that they are replaced if storage has exceeded 2 years from date of motor manufacture. If the motors have the regreasable bearings, then the recommendation is to replace the grease after 2 years of storage.

The service life of the motor can be considerably reduced if the storage period extends beyond 2 years in environments with high moisture and dirt. If necessary, the insulation resistance of the winding could be measured to determine the health of the motor prior to installation and start-up.

Machined surfaces (flange, DE rotor shaft) are treated at the factory with an anticorrosive agent to prevent rusting. However, these surfaces should be retreated during storage as deemed necessary. It is recommended that the motor shaft is rotated by hand on a frequent basis to ensure even grease distribution.

Certificates

ISO 9001 Quality Management System Certificate



ISO 14001 Environmental Management System Certificate



SIMOTICS Distribution Line and Option Line

SIMOTICS Distribution Line – Motor selection and article number code

Overview

The article number consists of a combination of figures and letters and is divided into three blocks linked with hyphens for a better overview.

The first block (Position 1 to 7) identifies the motor type and efficiency level; the second block (Position 8 to 12)

defines the motor frame size and length, the number of poles and in some cases the frequency/output; and in the third block (Position 13 to 16) the frequency/output, type of construction and other design features are encoded.

Article number code

Structure	Position: 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z
<u>Position 1 to 6:</u>	Low-voltage motor series • Cast iron / Distribution Line 1 L E 0 1 0
<u>Position 7:</u>	Motor efficiency • Motor with High Efficiency – IE2 • Motor with Standard Efficiency – IE1 • Motor with Premium Efficiency – IE3 1 2 3
<u>Position 8 and 9:</u>	Frame size • 0D = 080; 0E = 090 • 1A = 100; 1B = 112; 1C = 132; 1D = 160; 1E = 180 • 2A = 200; 2B = 225; 2C = 250; 2D = 280 • 3A = 315; 3B = 355
<u>Position 10:</u>	Number of poles • A: 2-pole; B: 4-pole; C: 6-pole
<u>Position 11:</u>	Frame length • 0 or 1 = S (short) • 2, 3 or 4 = M (medium) • 4, 5, 6 or 7 = L (long) ^(a)
<u>Position 12 and 13:</u>	Voltage, circuit and frequency • 21: 220 VΔ/380 VY 50 Hz • 33: 380 VΔ/660 VY 50 Hz • 22: 230 VΔ/400 VY 50 Hz • 34: 400 VΔ/690 VY 50 Hz • 41: 525 VΔ 50 Hz • 23: 240 VΔ/415 VY 50 Hz • 35: 415 VΔ 50 Hz
<u>Position 14:</u>	Type of construction • A: IM B3 • J: IM B35 • F: IM B5 • G: IM V1 • K: IM B14
<u>Position 15:</u>	Motor protection • A: without winding protection • B: 3 PTC thermistors for tripping
<u>Position 16:</u>	Terminal box position (view from drive end) • 4: Terminal box top
	Special order versions Encoded – additional order (option) code required ^(a)

^(a) For deviations in the second and third block from the catalog codes, -Z should be used as alphanumeric values appropriate, e.g. 1LE0101-1DB23-4AB4-Z B02.

Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type	Cast-iron motor with IP55 degree of protection	1LE010 ■■■■■■-■■■■■
Efficiency	High Efficiency IE2	1LE0101-■■■■■-■■■■■
Motor frame size / No. of poles / Speed	160 / 4-pole / 1500 rpm	1LE0101-1DB2 ■■■■■
Rated output	11 kW	
Voltage and frequency	400 V, 50 Hz	1LE0101-1DB23-4■■■■
Type of construction	IM B3	1LE0101-1DB23-4A■■■
Motor protection	3 PTC thermistors	1LE0101-1DB23-4AB■
Terminal box position	Terminal box top	1LE0101-1DB23-4AB4
Special versions	Anti-condensation heating for 230 V	1LE0101-1DB23-4AB4-Z Q02



Did you know

All our described motors have a repeated starting capability. Those motors used on a frequency converter ramping quickly from 0 Hz do not overheat and have an unlimited starting capability. (also see section "converter application") Those motors started direct on-line heat slightly each time they start. The number of starts can only be calculated if many parameters are known. As a rule, three successive normal starts for a cold motor and two successive starts for a warm motor are accepted.

Motor selection

Here is our comprehensive distribution motor portfolio, offering cast-iron series IE1, IE2 and IE3 efficiencies.

Our portfolio is covering power ratings from 0.55 up to 315 kW and frame sizes 80 to 355.

SIMOTICS General Purpose									
Cast-iron series									
Efficiency class	IE1			IE2			IE3		
Series	1LE0102			1LE0101			1LE0103		
No. of poles	2	4	6	2	4	6	2	4	6
Cooling	Self-ventilated (IC 411)			Self-ventilated (IC 411)			Self-ventilated (IC 411)		
Degree of protection	IP55			IP55			IP55		
Insulation	Thermal class 155 (F)			Thermal class 155 (F)			Thermal class 155 (F)		
Utilization	Thermal class 130 (B)			Thermal class 130 (B)			Thermal class 130 (B)		
Frame size	80 ... 355			80 ... 355			80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW			0.55 ... 315 kW			0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm			2.6 ... 2412 Nm			2.5 ... 2406.8 Nm		
Rated power (kW)									
0.55	–	✓	✓	–	✓	✓	–	✓	✓
0.75	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.2	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓	✓	✓
5.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
7.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	✓	✓	✓	✓	✓	✓	✓	✓	✓
18.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	✓	✓	✓	✓	✓	✓	✓	✓	✓
30	✓	✓	✓	✓	✓	✓	✓	✓	✓
37	✓	✓	✓	✓	✓	✓	✓	✓	✓
45	✓	✓	✓	✓	✓	✓	✓	✓	✓
55	✓	✓	✓	✓	✓	✓	✓	✓	✓
75	✓	✓	✓	✓	✓	✓	✓	✓	✓
90	✓	✓	✓	✓	✓	✓	✓	✓	✓
110	✓	✓	✓	✓	✓	✓	✓	✓	✓
132	✓	✓	✓	✓	✓	✓	✓	✓	✓
160	✓	✓	✓	✓	✓	✓	✓	✓	✓
185	✓	✓	✓	✓	✓	✓	✓	✓	✓
200	✓	✓	✓	✓	✓	✓	✓	✓	✓
220	✓	✓	✓	✓	✓	✓	✓	✓	✓
250	✓	✓	✓	✓	✓	✓	✓	✓	✓
280	✓	✓	–	✓	✓	–	✓	✓	–
315	✓	✓	–	✓	✓	–	✓	✓	–

✓ = Available

– = Not available



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE1

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0102		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Rated output		Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.75	0.86	80 M	1LE0102-ODA22-2..4	IE1	2800	2.6	1.76	0.86	72.1	73	71.1	5.1	2.3	2.7	0.0008	D	15
1.1	1.3	80 M	1LE0102-ODA32-2..4	IE1	2830	3.7	2.5	0.86	75	77.3	74.4	6	2.6	3.1	0.001	E	17.5
1.5	1.75	90 S	1LE0102-0EA02-2..4	IE1	2885	5	3.3	0.85	77.2	76.9	73.5	6.9	2.5	3.2	0.0017	F	22
2.2	2.55	90 L	1LE0102-0EA42-2..4	IE1	2885	7.3	4.5	0.87	79.7	80.5	78.1	7.5	2.7	3.4	0.0022	F	26
3	3.45	100 L	1LE0102-1AA42-2..4	IE1	2850	10	6.3	0.85	81.5	82.1	79.9	6.9	3	3.7	0.0033	F	33
4	4.6	112 M	1LE0102-1BA22-2..4	IE1	2910	13.1	8.2	0.85	83.1	83.7	81.5	7.8	2.9	4.2	0.0064	L	39
5.5	6.3	132 S	1LE0102-1CA02-2..4	IE1	2915	18	10.9	0.86	84.7	85.3	83.7	6.9	2	3.1	0.013	K	56
7.5	8.6	132 S	1LE0102-1CA12-2..4	IE1	2920	24.5	14.3	0.88	86	87.2	86.2	7.1	2	2.9	0.015	K	62
400 V Δ / 690 VY																	
3	3.45	100 L	1LE0102-1AA43-4..4	IE1	2850	10	6.3	0.85	81.5	82.1	79.9	6.9	3	3.7	0.0033	F	33
4	4.6	112 M	1LE0102-1BA23-4..4	IE1	2910	13.1	8.2	0.85	83.1	83.7	81.5	7.8	2.9	4.2	0.0064	L	39
5.5	6.3	132 S	1LE0102-1CA03-4..4	IE1	2915	18	10.9	0.86	84.7	85.3	83.7	6.9	2	3.1	0.013	K	56
7.5	8.6	132 S	1LE0102-1CA13-4..4	IE1	2920	24.5	14.3	0.88	86	87.2	86.2	7.1	2	2.9	0.015	K	62
11	12.6	160 M	1LE0102-1DA23-4..4	IE1	2925	35.9	21.5	0.84	87.6	88.2	87.1	6.3	2	3.1	0.028	J	93
15	17.3	160 M	1LE0102-1DA33-4..4	IE1	2930	48.9	28.5	0.85	88.7	89.3	87.4	7	2.2	3.2	0.034	K	101
18.5	21.3	160 L	1LE0102-1DA43-4..4	IE1	2935	60	35	0.86	89.3	89.9	89.1	7.6	2.5	3.4	0.041	K	120
22	24.5	180 M	1LE0102-1EA23-4..4	IE1	2925	72	40.5	0.87	89.9	90.6	90	7.6	2.7	3.5	0.072	K	151
30	33.5	200 L	1LE0102-2AA43-4..4	IE1	2950	97	55	0.87	90.7	90.8	89	7.5	2.5	3.2	0.12	K	224
37	41.5	200 L	1LE0102-2AA53-4..4	IE1	2950	120	67	0.88	91.2	91.6	90.4	7.4	2.6	3.2	0.15	K	242
45	51	225 M	1LE0102-2BA23-4..4	IE1	2960	145	81	0.88	91.7	91.9	90.5	7.6	2.8	3.3	0.23	K	304
55	62	250 M	1LE0102-2CA23-4..4	IE1	2970	177	98	0.88	92.1	92.4	90.7	7.7	2.5	3.1	0.4	K	374
75	84	280 S	1LE0102-2DA03-4..4	IE1	2970	241	134	0.87	92.7	92.6	91.1	6.7	2.7	3	0.7	J	540
90	101	280 M	1LE0102-2DA23-4..4	IE1	2975	289	159	0.88	93	93.2	91.3	7.2	2.8	3	0.82	J	560
110	123	315 S	1LE0102-3AA03-4..4	IE1	2982	353	189	0.9	93.3	93.1	91.2	7.5	2.2	3.1	1.4	K	735
132	148	315 M	1LE0102-3AA23-4..4	IE1	2980	423	220	0.92	93.5	93.1	91.7	7.5	2.3	2.9	1.7	J	850
160	180	315 L	1LE0102-3AA53-4..4	IE1	2982	513	265	0.92	93.8	93.6	92.5	7.6	2.5	2.8	1.9	J	960
185	207	315 L	1LE0102-3AA63-4..4	IE1	2978	594	310	0.92	93.9	93.9	93.1	7.5	2.4	2.8	2.3	J	1070
200	224	315 L	1LE0102-3AA73-4..4	IE1	2980	641	335	0.92	94	94.3	93.2	7.9	2.5	2.6	2.3	K	1080
220	246	355 M	1LE0102-3BA23-4..4	IE1	2985	704	370	0.9	94.8	95	92.8	6.5	2	2.1	2.9	H	1590
250	280	355 M	1LE0102-3BA33-4..4	IE1	2985	800	420	0.9	95.2	95.2	93	6.5	2	2.1	3	H	1620
280	314	355 L	1LE0102-3BA53-4..4	IE1	2985	896	470	0.9	95.2	95.2	92.9	6.5	2	2.1	3.5	H	1820
315	353	355 L	1LE0102-3BA63-4..4	IE1	2985	1008	530	0.9	95.4	95.4	93.2	6.5	2	2.1	3.5	H	1830

SIMOTICS Distribution Line – IE1

**TIP**

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0102		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0102-0DB22-2..4	–	1415	3.7	1.43	0.81	69.4	69.9	66.8	4.5	2	2.6	0.0016	D	17
0.75	0.86	80 M	1LE0102-0DB32-2..4	IE1	1405	5.1	1.87	0.81	72.1	73.7	71.8	4.8	2	2.6	0.0019	D	18.5
1.1	1.3	90 S	1LE0102-0EB02-2..4	IE1	1420	7.4	2.65	0.8	75	77.3	74.3	5.4	2	2.6	0.0027	E	23
1.5	1.75	90 L	1LE0102-0EB42-2..4	IE1	1425	10	3.5	0.81	77.2	77.3	75.1	5.6	2	2.5	0.0034	E	26
2.2	2.55	100 L	1LE0102-1AB42-2..4	IE1	1425	14.8	4.95	0.81	79.7	80.7	78.7	5.8	2.4	2.9	0.0063	E	30
3	3.45	100 L	1LE0102-1AB52-2..4	IE1	1420	20.2	6.4	0.83	81.5	83.1	81.5	6.5	2.8	3.1	0.0081	E	33
4	4.6	112 M	1LE0102-1BB22-2..4	IE1	1445	26.4	8.8	0.79	83.1	83.3	81.5	7.4	2.8	3.3	0.011	M	44
5.5	6.3	132 S	1LE0102-1CB02-2..4	IE1	1450	36.2	11.4	0.82	84.7	85.5	84.3	6.5	2	3.1	0.019	K	61
7.5	8.6	132 M	1LE0102-1CB22-2..4	IE1	1435	50	15.4	0.82	86	87.2	87.2	6.4	2.3	3.1	0.025	K	70
400 V Δ / 690 VY																	
2.2	2.55	100 L	1LE0102-1AB43-4..4	IE1	1425	14.8	4.9	0.81	79.7	80.7	78.7	5.8	2.4	2.9	0.0063	E	30
3	3.45	100 L	1LE0102-1AB53-4..4	IE1	1420	20.2	6.4	0.83	81.5	83.1	81.5	6.5	2.8	3.1	0.0081	E	33
4	4.6	112 M	1LE0102-1BB23-4..4	IE1	1445	26.4	8.8	0.79	83.1	83.3	81.5	7.4	2.8	3.3	0.011	M	44
5.5	6.3	132 S	1LE0102-1CB03-4..4	IE1	1450	36.2	11.4	0.82	84.7	85.5	84.3	6.5	2	3.1	0.019	K	61
7.5	8.6	132 M	1LE0102-1CB23-4..4	IE1	1435	50	15.4	0.82	86	87.2	87.2	6.4	2.3	3.1	0.025	K	70
11	12.6	160 M	1LE0102-1DB23-4..4	IE1	1455	72	21.5	0.84	87.6	88.5	87.8	6.9	2.2	3.3	0.045	K	99
15	17.3	160 L	1LE0102-1DB43-4..4	IE1	1460	98	29	0.84	88.7	89.4	88.6	7.8	2.7	3.8	0.06	L	125
18.5	21.3	180 M	1LE0102-1EB23-4..4	IE1	1470	120	35	0.85	89.3	90.3	89.9	7.8	2.7	3.5	0.13	L	163
22	24.5	180 L	1LE0102-1EB43-4..4	IE1	1465	143	41.5	0.85	89.9	90.9	89.9	7.8	2.4	3.2	0.14	L	179
30	33.5	200 L	1LE0102-2AB43-4..4	IE1	1470	195	56	0.85	90.7	91.6	90.5	7.4	2.4	3.1	0.22	K	235
37	41.5	225 S	1LE0102-2BB03-4..4	IE1	1470	240	68	0.86	91.2	91.8	91	7.3	2.3	2.8	0.44	K	295
45	51	225 M	1LE0102-2BB23-4..4	IE1	1475	292	82	0.87	91.7	92.4	92	7.8	2.9	3.3	0.5	K	322
55	62	250 M	1LE0102-2CB23-4..4	IE1	1478	356	101	0.86	92.1	92.8	92	7.6	3	2.8	0.8	K	410
75	84	280 S	1LE0102-2DB03-4..4	IE1	1480	484	133	0.88	92.7	93.3	92.2	7.2	2.6	2.8	1.3	J	540
90	101	280 M	1LE0102-2DB23-4..4	IE1	1485	579	159	0.88	93	93.5	92.2	7.8	2.7	2.8	1.4	K	600
110	123	315 S	1LE0102-3AB03-4..4	IE1	1490	706	200	0.85	93.3	93.4	92.5	8.6	2.8	3.1	2.2	L	745
132	148	315 M	1LE0102-3AB23-4..4	IE1	1488	848	235	0.87	93.5	93.8	93.4	7.3	2.5	2.7	2.5	J	875
160	180	315 L	1LE0102-3AB53-4..4	IE1	1488	1030	285	0.87	93.8	94	93.6	7.4	3	2.9	3	K	950
185	207	315 L	1LE0102-3AB63-4..4	IE1	1490	1185	325	0.88	93.9	94.1	93.6	7.6	3	2.9	3.6	K	1060
200	224	315 L	1LE0102-3AB73-4..4	IE1	1488	1285	345	0.88	94	94.3	94.1	7.4	3	3	3.7	J	1070
220	246	355 M	1LE0102-3BB23-4..4	IE1	1490	1410	380	0.87	95	95.1	93.1	6.5	2.1	2.2	6.6	H	1630
250	280	355 M	1LE0102-3BB33-4..4	IE1	1490	1602	435	0.87	95.2	95.2	93.6	6.5	2.1	2.2	6.9	H	1650
280	314	355 L	1LE0102-3BB53-4..4	IE1	1490	1795	485	0.87	95.2	95.2	93.4	6.5	2.1	2.2	7.7	H	1820
315	353	355 L	1LE0102-3BB63-4..4	IE1	1490	2019	550	0.87	95.2	95.3	93.6	6.5	2.1	2.2	8.5	H	1890



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE1

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0102		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0102-0DC32-2..4	–	910	5.8	1.6	0.74	67.5	68.7	65.6	3.8	2.1	2.4	0.0024	C	18
0.75	0.86	90 S	1LE0102-0EC02-2..4	IE1	925	7.7	2.1	0.74	70	71.5	68.9	3.9	2	2.5	0.0028	C	25
1.1	1.3	90 L	1LE0102-0EC42-2..4	IE1	935	11.3	3	0.73	72.9	74	71.8	4.4	2.2	2.7	0.0038	D	26
1.5	1.75	100 L	1LE0102-1AC42-2..4	IE1	940	15.4	3.8	0.76	75.2	77.2	74.7	4.6	2.1	2.6	0.0074	D	32
2.2	2.55	112 M	1LE0102-1BC22-2..4	IE1	940	22.3	5.5	0.75	77.7	79.2	78.1	5.2	2.4	3	0.01	E	42
3	3.45	132 S	1LE0102-1CC02-2..4	IE1	955	30	7.5	0.73	79.7	80.9	79.3	5.2	2	2.8	0.018	E	56
4	4.6	132 M	1LE0102-1CC22-2..4	IE1	955	40	9.7	0.73	81.4	82.2	79.4	5.6	2.1	2.9	0.023	K	65
5.5	6.3	132 M	1LE0102-1CC32-2..4	IE1	955	55	12.9	0.74	83.1	84.2	83	6	2.3	3.2	0.029	K	73
400 V Δ / 690 VY																	
1.5	1.75	100 L	1LE0102-1AC43-4..4	IE1	940	15.4	3.8	0.76	75.2	77.2	74.7	4.6	2.1	2.6	0.0074	D	32
2.2	2.55	112 M	1LE0102-1BC23-4..4	IE1	940	22.3	5.4	0.75	77.7	79.2	78.1	5.2	2.4	3	0.01	E	42
3	3.45	132 S	1LE0102-1CC03-4..4	IE1	955	30	7.4	0.73	79.7	80.9	79.3	5.2	2	2.8	0.018	E	56
4	4.6	132 M	1LE0102-1CC23-4..4	IE1	955	40	9.7	0.73	81.4	82.2	79.4	5.6	2.1	2.9	0.023	K	65
5.5	6.3	132 M	1LE0102-1CC33-4..4	IE1	955	55	12.9	0.74	83.1	84.2	83	6	2.3	3.2	0.029	K	73
7.5	8.6	160 M	1LE0102-1DC23-4..4	IE1	965	74	16.8	0.76	84.7	85.4	84.5	5.8	2	2.9	0.052	K	101
11	12.6	160 L	1LE0102-1DC43-4..4	IE1	965	109	24	0.76	86.4	87	86	6.6	2.2	3.1	0.072	K	128
15	17.3	180 L	1LE0102-1EC43-4..4	IE1	970	148	32	0.78	87.7	88.7	88.4	6.5	2.3	3	0.18	K	169
18.5	21.3	200 L	1LE0102-2AC43-4..4	IE1	975	182.1	36.5	0.82	88.6	90	90.1	5.8	2.2	2.8	0.26	J	218
22	24.5	200 L	1LE0102-2AC53-4..4	IE1	975	215	43	0.82	89.2	90.5	90.5	6.5	2.3	2.8	0.31	J	237
30	33.5	225 M	1LE0102-2BC23-4..4	IE1	978	293	58	0.83	90.2	91.4	90.5	6.7	2.4	2.8	0.6	K	290
37	41.5	250 M	1LE0102-2CC23-4..4	IE1	982	360	71	0.83	90.8	91.5	91.2	7.5	3	2.8	0.89	K	389
45	51	280 S	1LE0102-2DC03-4..4	IE1	985	437	84	0.85	91.4	92.4	92.3	7.1	2.5	2.8	1.1	K	500
55	62	280 M	1LE0102-2DC23-4..4	IE1	988	532	102	0.85	91.9	92.6	92.4	7.5	2.4	2.7	1.4	K	525
75	84	315 S	1LE0102-3AC03-4..4	IE1	988	725	141	0.83	92.6	93	92.4	7.5	2.4	3	2.3	K	675
90	101	315 M	1LE0102-3AC23-4..4	IE1	986	872	166	0.84	92.9	93.4	93.2	7	2.3	2.8	2.8	K	830
110	123	315 L	1LE0102-3AC53-4..4	IE1	986	1066	200	0.86	93.3	93.9	93.8	6.5	2.2	2.7	3.4	J	915
132	148	315 L	1LE0102-3AC63-4..4	IE1	988	1278	235	0.86	93.5	94.2	93.6	7.8	2.2	2.4	3.9	K	1010
160	180	355 M	1LE0102-3BC23-4..4	IE1	989	1545	275	0.88	94.5	94.6	92.4	6.5	2	2.1	7.7	H	1640
185	207	355 M	1LE0102-3BC33-4..4	IE1	989	1786	320	0.88	94.5	94.6	92.6	6.5	2	2.1	8.4	H	1680
200	224	355 M	1LE0102-3BC43-4..4	IE1	989	1931	345	0.88	94.7	94.7	93.4	6.5	2	2.1	9.1	H	1720
220	246	355 L	1LE0102-3BC53-4..4	IE1	989	2124	380	0.88	94.7	94.7	92.6	6.5	2	2.1	10.1	H	1840
250	280	355 L	1LE0102-3BC63-4..4	IE1	989	2414	430	0.88	94.7	94.7	93.4	6.5	2	2.1	11.4	H	1920

SIMOTICS Distribution Line – IE1



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0102		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Electrical data – 1LE0 – IE1 – 2-pole (IE1 cast iron) 3000 rpm 2-pole, 525 V 50 Hz																
Rated output kW	Frame size	Article number	IE class	Rated		Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
				speed rpm	torque Nm			100% load %	75% load %	50% load %						
0.75	80 M	1LE0102-ODA24-1..4	IE1	2800	2.6	1.33	0.86	72.1	73	71.1	5.1	2.3	2.7	0.0008	D	15
1.1	80 M	1LE0102-ODA34-1..4	IE1	2830	3.7	1.88	0.86	75	77.3	74.4	6	2.6	3.1	0.001	E	17.5
1.5	90 S	1LE0102-OEA04-1..4	IE1	2885	5	2.5	0.85	77.2	76.9	73.5	6.9	2.5	3.2	0.0017	F	22
2.2	90 L	1LE0102-OEA44-1..4	IE1	2885	7.3	3.5	0.87	79.7	80.5	78.1	7.5	2.7	3.4	0.0022	F	26
3	100 L	1LE0102-1AA44-1..4	IE1	2850	10	4.8	0.85	81.5	82.1	79.9	6.9	3	3.7	0.0033	F	33
4	112 M	1LE0102-1BA24-1..4	IE1	2910	13.1	6.2	0.85	83.1	83.7	81.5	7.8	2.9	4.2	0.0064	L	39
5.5	132 S	1LE0102-1CA04-1..4	IE1	2915	18	8.3	0.86	84.7	85.3	83.7	6.9	2	3.1	0.013	K	56
7.5	132 S	1LE0102-1CA14-1..4	IE1	2920	24.5	10.9	0.88	86	87.2	86.2	7.1	2	2.9	0.015	K	62
11	160 M	1LE0102-1DA24-1..4	IE1	2925	35.9	16.3	0.84	87.6	88.2	87.1	6.3	2	3.1	0.028	J	93
15	160 M	1LE0102-1DA34-1..4	IE1	2930	48.9	21.5	0.85	88.7	89.3	87.4	7	2.2	3.2	0.034	K	101
18.5	160 L	1LE0102-1DA44-1..4	IE1	2935	60	26.5	0.86	89.3	89.9	89.1	7.6	2.5	3.4	0.041	K	120
22	180 M	1LE0102-1EA24-1..4	IE1	2925	72	31	0.87	89.9	90.6	90	7.6	2.7	3.5	0.072	K	151
30	200 L	1LE0102-2AA44-1..4	IE1	2950	97	42	0.87	90.7	90.8	89	7.5	2.5	3.2	0.12	K	224
37	200 L	1LE0102-2AA54-1..4	IE1	2950	120	51	0.88	91.2	91.6	90.4	7.4	2.6	3.2	0.15	K	242
45	225 M	1LE0102-2BA24-1..4	IE1	2960	145	62	0.88	91.7	91.9	90.5	7.6	2.8	3.3	0.23	K	304
55	250 M	1LE0102-2CA24-1..4	IE1	2970	177	75	0.88	92.1	92.4	90.7	7.7	2.5	3.1	0.4	K	374
75	280 S	1LE0102-2DA04-1..4	IE1	2970	241	102	0.87	92.7	92.6	91.1	6.7	2.7	3	0.7	J	540
90	280 M	1LE0102-2DA24-1..4	IE1	2975	289	121	0.88	93	93.2	91.3	7.2	2.8	3	0.82	J	560
110	315 S	1LE0102-3AA04-1..4	IE1	2982	353	144	0.9	93.3	93.1	91.2	7.5	2.2	3.1	1.4	K	735
132	315 M	1LE0102-3AA24-1..4	IE1	2980	423	170	0.92	93.5	93.1	91.7	7.5	2.3	2.9	1.7	J	850
160	315 L	1LE0102-3AA54-1..4	IE1	2982	513	205	0.92	93.8	93.6	92.5	7.6	2.5	2.8	1.9	J	960
185	315 L	1LE0102-3AA64-1..4	IE1	2978	594	235	0.92	93.9	93.9	93.1	7.5	2.4	2.8	2.3	J	1070
200	315 L	1LE0102-3AA74-1..4	IE1	2980	641	255	0.92	94	94.3	93.2	7.9	2.5	2.6	2.3	K	1080
220	355 M	1LE0102-3BA24-1..4	IE1	2985	704	280	0.9	94.8	95	92.8	6.5	2	2.1	2.9	H	1590
250	355 M	1LE0102-3BA34-1..4	IE1	2985	800	320	0.9	95.2	95.2	93	6.5	2	2.1	3	H	1620
280	355 L	1LE0102-3BA54-1..4	IE1	2985	896	360	0.9	95.2	95.2	92.9	6.5	2	2.1	3.5	H	1820
315	355 L	1LE0102-3BA64-1..4	IE1	2985	1008	405	0.9	95.4	95.4	93.2	6.5	2	2.1	3.5	H	1830

TIP

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE1

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0102		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Electrical data – 1LE0 – IE1 – 4-pole

(IE1 cast iron) 1500 rpm 4-pole, 525 V 50 Hz

Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100% load %	75% load %	50% load %						
0.55	80 M	1LE0102-0DB24-1..4	–	1415	3.7	1.08	0.81	69.4	69.9	66.8	4.5	2	2.6	0.0016	D	17
0.75	80 M	1LE0102-0DB34-1..4	IE1	1405	5.1	1.41	0.81	72.1	73.7	71.8	4.8	2	2.6	0.0019	D	18.5
1.1	90 S	1LE0102-0EB04-1..4	IE1	1420	7.4	2.05	0.8	75	77.3	74.3	5.4	2	2.6	0.0027	E	23
1.5	90 L	1LE0102-0EB44-1..4	IE1	1425	10	2.65	0.81	77.2	77.3	75.1	5.6	2	2.5	0.0034	E	26
2.2	100 L	1LE0102-1AB44-1..4	IE1	1425	14.8	3.75	0.81	79.7	80.7	78.7	5.8	2.4	2.9	0.0063	E	30
3	100 L	1LE0102-1AB54-1..4	IE1	1420	20.2	4.85	0.83	81.5	83.1	81.5	6.5	2.8	3.1	0.0081	E	33
4	112 M	1LE0102-1BB24-1..4	IE1	1445	26.4	6.7	0.79	83.1	83.3	81.5	7.4	2.8	3.3	0.011	M	44
5.5	132 S	1LE0102-1CB04-1..4	IE1	1450	36.2	8.7	0.82	84.7	85.5	84.3	6.5	2	3.1	0.019	K	61
7.5	132 M	1LE0102-1CB24-1..4	IE1	1435	50	11.7	0.82	86	87.2	87.2	6.4	2.3	3.1	0.025	K	70
11	160 M	1LE0102-1DB24-1..4	IE1	1455	72	16.3	0.84	87.6	88.5	87.8	6.9	2.2	3.3	0.045	K	99
15	160 L	1LE0102-1DB44-1..4	IE1	1460	98	22	0.84	88.7	89.4	88.6	7.8	2.7	3.8	0.06	L	125
18.5	180 M	1LE0102-1EB24-1..4	IE1	1470	120	27	0.85	89.3	90.3	89.9	7.8	2.7	3.5	0.13	L	163
22	180 L	1LE0102-1EB44-1..4	IE1	1465	143	31.5	0.85	89.9	90.9	89.9	7.8	2.4	3.2	0.14	L	179
30	200 L	1LE0102-2AB44-1..4	IE1	1470	195	42.5	0.85	90.7	91.6	90.5	7.4	2.4	3.1	0.22	K	235
37	225 S	1LE0102-2BB04-1..4	IE1	1470	240	52	0.86	91.2	91.8	91	7.3	2.3	2.8	0.44	K	295
45	225 M	1LE0102-2BB24-1..4	IE1	1475	292	62	0.87	91.7	92.4	92	7.8	2.9	3.3	0.5	K	322
55	250 M	1LE0102-2CB24-1..4	IE1	1478	356	77	0.86	92.1	92.8	92	7.6	3	2.8	0.8	K	410
75	280 S	1LE0102-2DB04-1..4	IE1	1480	484	101	0.88	92.7	93.3	92.2	7.2	2.6	2.8	1.3	J	540
90	280 M	1LE0102-2DB24-1..4	IE1	1485	579	121	0.88	93	93.5	92.2	7.8	2.7	2.8	1.4	K	600
110	315 S	1LE0102-3AB04-1..4	IE1	1490	706	153	0.85	93.3	93.4	92.5	8.6	2.8	3.1	2.2	L	745
132	315 M	1LE0102-3AB24-1..4	IE1	1488	848	177	0.87	93.5	93.8	93.4	7.3	2.5	2.7	2.5	J	875
160	315 L	1LE0102-3AB54-1..4	IE1	1488	1030	215	0.87	93.8	94	93.6	7.4	3	2.9	3	K	950
185	315 L	1LE0102-3AB64-1..4	IE1	1490	1185	245	0.88	93.9	94.1	93.6	7.6	3	2.9	3.6	K	1060
200	315 L	1LE0102-3AB74-1..4	IE1	1488	1285	265	0.88	94	94.3	94.1	7.4	3	3	3.7	J	1070
220	355 M	1LE0102-3BB24-1..4	IE1	1490	1410	290	0.87	95	95.1	93.1	6.5	2.1	2.2	6.6	H	1630
250	355 M	1LE0102-3BB34-1..4	IE1	1490	1602	330	0.87	95.2	95.2	93.6	6.5	2.1	2.2	6.9	H	1650
280	355 L	1LE0102-3BB54-1..4	IE1	1490	1795	370	0.87	95.2	95.2	93.4	6.5	2.1	2.2	7.7	H	1820
315	355 L	1LE0102-3BB64-1..4	IE1	1490	2019	420	0.87	95.2	95.3	93.6	6.5	2.1	2.2	8.5	H	1890

SIMOTICS Distribution Line – IE1



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0102		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Electrical data – 1LE0 – IE1 – 6-pole				(IE1 cast iron) 1000 rpm 6-pole, 525 V 50 Hz												
Rated output kW	Frame size	Article number	IE class	Rated		Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
				speed rpm	torque Nm			100% load %	75% load %	50% load %						
0.55	80 M	1LE0102-0DC34-1..4	–	910	5.8	1.21	0.74	67.5	68.7	65.6	3.8	2.1	2.4	0.0024	C	18
0.75	90 S	1LE0102-0EC04-1..4	IE1	925	7.7	1.59	0.74	70	71.5	68.9	3.9	2	2.5	0.0028	C	25
1.1	90 L	1LE0102-0EC44-1..4	IE1	935	11.3	2.3	0.73	72.9	74	71.8	4.4	2.2	2.7	0.0038	D	26
1.5	100 L	1LE0102-1AC44-1..4	IE1	940	15.4	2.9	0.76	75.2	77.2	74.7	4.6	2.1	2.6	0.0074	D	32
2.2	112 M	1LE0102-1BC24-1..4	IE1	940	22.3	4.15	0.75	77.7	79.2	78.1	5.2	2.4	3	0.01	E	42
3	132 S	1LE0102-1CC04-1..4	IE1	955	30	5.7	0.73	79.7	80.9	79.3	5.2	2	2.8	0.018	E	56
4	132 M	1LE0102-1CC24-1..4	IE1	955	40	7.4	0.73	81.4	82.2	79.4	5.6	2.1	2.9	0.023	K	65
5.5	132 M	1LE0102-1CC34-1..4	IE1	955	55	9.8	0.74	83.1	84.2	83	6	2.3	3.2	0.029	K	73
7.5	160 M	1LE0102-1DC24-1..4	IE1	965	74	12.8	0.76	84.7	85.4	84.5	5.8	2	2.9	0.052	K	101
11	160 L	1LE0102-1DC44-1..4	IE1	965	109	18.5	0.76	86.4	87	86	6.6	2.2	3.1	0.072	K	128
15	180 L	1LE0102-1EC44-1..4	IE1	970	148	24.5	0.78	87.7	88.7	88.4	6.5	2.3	3	0.18	K	169
18.5	200 L	1LE0102-2AC44-1..4	IE1	975	182.1	28	0.82	88.6	90	90.1	5.8	2.2	2.8	0.26	J	218
22	200 L	1LE0102-2AC54-1..4	IE1	975	215	33	0.82	89.2	90.5	90.5	6.5	2.3	2.8	0.31	J	237
30	225 M	1LE0102-2BC24-1..4	IE1	978	293	44	0.83	90.2	91.4	90.5	6.7	2.4	2.8	0.6	K	290
37	250 M	1LE0102-2CC24-1..4	IE1	982	360	54	0.83	90.8	91.5	91.2	7.5	3	2.8	0.89	K	389
45	280 S	1LE0102-2DC04-1..4	IE1	985	437	64	0.85	91.4	92.4	92.3	7.1	2.5	2.8	1.1	K	500
55	280 M	1LE0102-2DC24-1..4	IE1	988	532	77	0.85	91.9	92.6	92.4	7.5	2.4	2.7	1.4	K	525
75	315 S	1LE0102-3AC04-1..4	IE1	988	725	107	0.83	92.6	93	92.4	7.5	2.4	3	2.3	K	675
90	315 M	1LE0102-3AC24-1..4	IE1	986	872	127	0.84	92.9	93.4	93.2	7	2.3	2.8	2.8	K	830
110	315 L	1LE0102-3AC54-1..4	IE1	986	1066	152	0.86	93.3	93.9	93.8	6.5	2.2	2.7	3.4	J	915
132	315 L	1LE0102-3AC64-1..4	IE1	988	1278	181	0.86	93.5	94.2	93.6	7.8	2.2	2.4	3.9	K	1010
160	355 M	1LE0102-3BC24-1..4	IE1	989	1545	210	0.88	94.5	94.6	92.4	6.5	2	2.1	7.7	H	1640
185	355 M	1LE0102-3BC34-1..4	IE1	989	1786	240	0.88	94.5	94.6	92.6	6.5	2	2.1	8.4	H	1680
200	355 M	1LE0102-3BC44-1..4	IE1	989	1931	260	0.88	94.7	94.7	93.4	6.5	2	2.1	9.1	H	1720
220	355 L	1LE0102-3BC54-1..4	IE1	989	2124	290	0.88	94.7	94.7	92.6	6.5	2	2.1	10.1	H	1840
250	355 L	1LE0102-3BC64-1..4	IE1	989	2414	330	0.88	94.7	94.7	93.4	6.5	2	2.1	11.4	H	1920



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE2

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0101		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.75	0.86	80 M	1LE0101-ODA22-2..4	IE2	2795	2.6	1.67	0.84	77.4	78.5	78.5	5.6	2.4	2.4	0.0008	D	15.5
1.1	1.3	80 M	1LE0101-ODA32-2..4	IE2	2835	3.7	2.4	0.84	79.6	80.6	77.4	6	2.8	3.2	0.0012	E	17.5
1.5	1.75	90 S	1LE0101-OEA02-2..4	IE2	2890	5	3.2	0.84	81.3	81.7	78	6.5	2.4	3.1	0.0021	E	23
2.2	2.55	90 L	1LE0101-OEA42-2..4	IE2	2890	7.3	4.55	0.85	83.2	83.7	80.8	7.2	2.6	3.5	0.0026	F	26
3	3.45	100 L	1LE0101-1AA42-2..4	IE2	2885	9.9	6.1	0.84	84.6	85.1	84.1	7.5	4	4.5	0.0036	F	34
4	4.6	112 M	1LE0101-1BA22-2..4	IE2	2930	13	7.8	0.86	85.8	86.6	84.7	7.5	2.2	2.9	0.0064	L	40
5.5	6.3	132 S	1LE0101-1CA02-2.B4	IE2	2930	17.9	10.5	0.87	87	87.6	86.9	7.5	2.2	2.9	0.014	K	56
7.5	8.6	132 S	1LE0101-1CA12-2.B4	IE2	2930	24.4	13.8	0.89	88.1	88.8	88.5	7.5	2.3	2.9	0.017	K	62
400 V Δ / 690 VY																	
3	3.45	100 L	1LE0101-1AA43-4..4	IE2	2885	9.9	6.1	0.84	84.6	85.1	84.1	7.5	4	4.5	0.0036	F	34
4	4.6	112 M	1LE0101-1BA23-4..4	IE2	2930	13	7.8	0.86	85.8	86.6	84.7	7.5	2.2	2.9	0.0064	L	40
5.5	6.3	132 S	1LE0101-1CA03-4.B4	IE2	2930	17.9	10.5	0.87	87	87.6	86.9	7.5	2.2	2.9	0.014	K	56
7.5	8.6	132 S	1LE0101-1CA13-4.B4	IE2	2930	24.4	13.8	0.89	88.1	88.8	88.5	7.5	2.3	2.9	0.017	K	62
11	12.6	160 M	1LE0101-1DA23-4.B4	IE2	2935	35.8	20.5	0.86	89.4	90.1	89.3	7.5	2.2	2.9	0.031	K	96
15	17.3	160 M	1LE0101-1DA33-4.B4	IE2	2935	48.8	28	0.86	90.3	91	90.5	7.5	2.4	3.2	0.038	K	106
18.5	21.3	160 L	1LE0101-1DA43-4.B4	IE2	2935	60.2	33	0.89	90.9	91.7	91.5	7.5	2.4	3.2	0.046	K	125
22	24.5	180 M	1LE0101-1EA23-4.B4	IE2	2935	71.6	40	0.87	91.3	91.8	91.1	7.6	2.5	3.2	0.072	K	152
30	33.5	200 L	1LE0101-2AA43-4.B4	IE2	2955	97	55	0.86	92	92.3	91.5	7.5	2.5	3.2	0.13	K	229
37	41.5	200 L	1LE0101-2AA53-4.B4	IE2	2955	120	66	0.88	92.5	92.8	92.3	7.5	2.5	3.2	0.15	K	245
45	51	225 M	1LE0101-2BA23-4.B4	IE2	2965	145	80	0.88	92.9	93.1	92.5	7.9	2.5	3.1	0.24	K	307
55	62	250 M	1LE0101-2CA23-4.B4	IE2	2970	177	97	0.88	93.2	93.2	91.8	7.5	2.5	3	0.42	K	378
75	84	280 S	1LE0101-2DA03-4.B4	IE2	2975	241	133	0.87	93.8	93.8	92.7	7.5	2.8	3	0.75	K	550
90	101	280 M	1LE0101-2DA23-4.B4	IE2	2978	289	159	0.87	94.1	94.1	92.9	7.5	3	3.1	0.88	K	570
110	123	315 S	1LE0101-3AA03-4.B4	IE2	2982	352	187	0.9	94.3	94.3	93.3	7.5	2.2	2.6	1.4	J	740
132	148	315 M	1LE0101-3AA23-4.B4	IE2	2982	423	220	0.91	94.6	94.6	93.9	7.5	2.3	2.9	1.7	J	855
160	180	315 L	1LE0101-3AA53-4.B4	IE2	2982	512	265	0.92	94.8	95.1	94.1	7.5	2.5	2.8	1.9	J	970
185	207	315 L	1LE0101-3AA63-4.B4	IE2	2982	592	305	0.92	95	95.3	94.2	7.5	2.5	2.8	2.3	J	1080
200	224	315 L	1LE0101-3AA73-4.B4	IE2	2982	641	330	0.92	95	95.3	94.4	7.5	2.5	2.8	2.3	J	1090
220	246	355 M	1LE0101-3BA23-4.B4	IE2	2980	705	370	0.9	95	95	92.8	7.1	2	2.2	2.9	J	1600
250	280	355 M	1LE0101-3BA33-4.B4	IE2	2980	801	420	0.9	95	95	93	7.1	2	2.2	3	J	1650
280	314	355 L	1LE0101-3BA53-4.B4	IE2	2980	897	475	0.9	95	95.1	93	7.1	2	2.2	3.5	J	1830
315	353	355 L	1LE0101-3BA63-4.B4	IE2	2980	1009	530	0.9	95	95.1	93.1	7.1	2	2.3	3.5	J	1840

SIMOTICS Distribution Line – IE2



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0101		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0101-0DB22-2..4	–	1425	3.7	1.34	0.8	74	74.7	70.1	6	2	2.7	0.0021	F	17.5
0.75	0.86	80 M	1LE0101-0DB32-2..4	IE2	1440	5	1.82	0.75	79.6	79.6	76.8	6.5	2.8	3.5	0.0027	F	19
1.1	1.3	90 S	1LE0101-0EB02-2..4	IE2	1440	7.3	2.65	0.75	81.4	81.4	77.6	7	2.8	3.5	0.0041	G	24
1.5	1.75	90 L	1LE0101-0EB42-2..4	IE2	1440	9.9	3.45	0.76	82.8	82.8	80.2	7	3	3.8	0.0047	G	27
2.2	2.55	100 L	1LE0101-1AB42-2..4	IE2	1435	14.6	4.8	0.79	84.3	85	83.1	7	3	3.2	0.0081	F	33
3	3.45	100 L	1LE0101-1AB52-2..4	IE2	1435	20	6.4	0.79	85.5	86.3	84.2	7	3	3.2	0.01	F	37
4	4.6	112 M	1LE0101-1BB22-2..4	IE2	1445	26.4	8.4	0.79	86.6	87.1	85.8	7.1	2.7	3.1	0.011	L	45
5.5	6.3	132 S	1LE0101-1CB02-2.B4	IE2	1460	36	11.5	0.79	87.7	88.2	86.9	7.5	2.5	3.1	0.021	L	61
7.5	8.6	132 M	1LE0101-1CB22-2.B4	IE2	1460	49.1	14.9	0.82	88.7	89.4	88.8	7.7	2.7	3.2	0.029	L	73
400 V Δ / 690 VY																	
2.2	2.55	100 L	1LE0101-1AB43-4..4	IE2	1435	14.6	4.75	0.79	84.3	85	83.1	7	3	3.2	0.0081	F	33
3	3.45	100 L	1LE0101-1AB53-4..4	IE2	1435	20	6.4	0.79	85.5	86.3	84.2	7	3	3.2	0.01	F	37
4	4.6	112 M	1LE0101-1BB23-4..4	IE2	1445	26.4	8.455	0.79	86.6	87.1	85.8	7.1	2.7	3.1	0.011	L	45
5.5	6.3	132 S	1LE0101-1CB03-4.B4	IE2	1460	36	11.495	0.79	87.7	88.2	86.9	7.5	2.5	3.1	0.021	L	61
7.5	8.6	132 M	1LE0101-1CB23-4.B4	IE2	1460	49.1	14.915	0.82	88.7	89.4	88.8	7.7	2.7	3.2	0.029	L	73
11	12.6	160 M	1LE0101-1DB23-4.B4	IE2	1465	71.7	21	0.84	89.8	90.4	90.1	7.5	2.5	3.1	0.051	K	103
15	17.3	160 L	1LE0101-1DB43-4.B4	IE2	1465	97.8	28.025	0.85	90.6	91.3	90.6	7.8	2.7	3.2	0.066	K	130
18.5	21.3	180 M	1LE0101-1EB23-4.B4	IE2	1465	121	34.5	0.85	91.2	91.8	91.8	7.3	2.5	3.2	0.13	K	165
22	24.5	180 L	1LE0101-1EB43-4.B4	IE2	1465	143	41	0.85	91.6	92.3	92.7	7.3	2.4	3.2	0.14	K	180
30	33.5	200 L	1LE0101-2AB43-4.B4	IE2	1470	195	55	0.85	92.3	92.9	92.9	7.3	2.7	3.2	0.22	K	238
37	41.5	225 S	1LE0101-2BB03-4.B4	IE2	1475	240	67	0.86	92.7	93.2	92.9	7.3	2.7	3.2	0.45	K	298
45	51	225 M	1LE0101-2BB23-4.B4	IE2	1475	291	80	0.87	93.1	93.5	93.9	7.3	2.7	3.2	0.51	K	322
55	62	250 M	1LE0101-2CB23-4.B4	IE2	1480	355	99	0.86	93.5	93.9	93.3	7.5	3.1	3.5	0.8	K	410
75	84	280 S	1LE0101-2DB03-4.B4	IE2	1485	482	132	0.87	94	94.3	93.9	7.5	2.7	3.1	1.4	K	555
90	101	280 M	1LE0101-2DB23-4.B4	IE2	1485	579	159	0.87	94.2	94.3	94.2	7.5	2.7	3.1	1.5	K	610
110	123	315 S	1LE0101-3AB03-4.B4	IE2	1488	706	195	0.86	94.5	94.5	93.9	7.3	2.8	2.9	2.2	K	750
132	148	315 M	1LE0101-3AB23-4.B4	IE2	1486	848	230	0.88	94.7	94.7	95	7.3	2.5	2.7	2.5	J	875
160	180	315 L	1LE0101-3AB53-4.B4	IE2	1488	1027	275	0.88	94.9	94.9	95.1	7.4	3	2.9	3	J	960
185	207	315 L	1LE0101-3AB63-4.B4	IE2	1488	1187	320	0.88	95.1	95.1	95	7.4	3	3	3.6	J	1070
200	224	315 L	1LE0101-3AB73-4.B4	IE2	1488	1284	345	0.88	95.1	95.1	95.1	7.4	3	3	3.7	J	1080
220	246	355 M	1LE0101-3BB23-4.B4	IE2	1490	1410	370	0.9	95.1	95.2	93.3	6.9	2	2.2	6.6	J	1640
250	280	355 M	1LE0101-3BB33-4.B4	IE2	1490	1602	420	0.9	95.1	95.2	93.8	6.9	2	2.2	6.9	J	1680
280	314	355 L	1LE0101-3BB53-4.B4	IE2	1490	1795	470	0.9	95.1	95.2	93.8	6.9	2	2.2	7.7	J	1830
315	353	355 L	1LE0101-3BB63-4.B4	IE2	1490	2019	530	0.9	95.1	95.2	93.8	6.9	2	2.2	8.5	J	1900



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE2

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0101		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0101-ODC32-2..4	–	895	5.9	1.48	0.76	71	72	68.5	3.8	2.1	2.4	0.0028	C	18.5
0.75	0.86	90 S	1LE0101-OEC02-2..4	IE2	935	7.7	2	0.71	75.9	76.5	72.7	3.9	2	2.5	0.0038	C	26
1.1	1.3	90 L	1LE0101-OEC42-2..4	IE2	945	11.1	2.85	0.71	78.1	78.1	75.7	4.4	2.2	2.7	0.0046	D	27
1.5	1.75	100 L	1LE0101-1AC42-2..4	IE2	945	15.2	3.7	0.74	79.8	80.1	78.2	4.6	2.1	2.6	0.0086	D	34
2.2	2.55	112 M	1LE0101-1BC22-2..4	IE2	950	22.1	5.4	0.73	81.8	82.5	81	5.2	2.4	3	0.012	E	44
3	3.45	132 S	1LE0101-1CC02-2.B4	IE2	960	29.8	7.2	0.73	83.3	84.3	83.4	5.2	2	2.8	0.019	E	56
4	4.6	132 M	1LE0101-1CC22-2.B4	IE2	960	39.8	9.4	0.73	84.6	85.4	84.5	5.6	2.1	2.9	0.024	K	66
5.5	6.3	132 M	1LE0101-1CC32-2.B4	IE2	960	54.7	12.3	0.75	86	86.6	85.7	6	2.3	3.2	0.031	K	75
400 V Δ / 690 VY																	
1.5	1.75	100 L	1LE0101-1AC43-4..4	IE2	945	15.2	3.65	0.74	79.8	80.1	78.2	4.6	2.1	2.6	0.0086	D	34
2.2	2.55	112 M	1LE0101-1BC23-4..4	IE2	950	22.1	5.3	0.73	81.8	82.5	81	5.2	2.4	3	0.012	E	44
3	3.45	132 S	1LE0101-1CC03-4.B4	IE2	960	29.8	7.1	0.73	83.3	84.3	83.4	5.2	2	2.8	0.019	D	56
4	4.6	132 M	1LE0101-1CC23-4.B4	IE2	960	39.8	9.3	0.73	84.6	85.4	84.5	5.6	2.1	2.9	0.024	K	66
5.5	6.3	132 M	1LE0101-1CC33-4.B4	IE2	960	54.7	12.4	0.75	86	86.6	85.7	6	2.3	3.2	0.031	K	75
7.5	8.6	160 M	1LE0101-1DC23-4.B4	IE2	965	74.2	16.2	0.77	87.2	87.9	87.2	5.8	2	2.9	0.056	J	104
11	12.6	160 L	1LE0101-1DC43-4.B4	IE2	965	109	23	0.78	88.7	89.4	89.5	6.6	2.2	3.1	0.077	K	132
15	17.3	180 L	1LE0101-1EC43-4.B4	IE2	975	147	31	0.78	89.7	90.4	89.9	6.5	2.3	3	0.18	K	170
18.5	21.3	200 L	1LE0101-2AC43-4.B4	IE2	975	181	36.5	0.81	90.4	91	91.8	5.8	2.2	2.8	0.27	J	220
22	24.5	200 L	1LE0101-2AC53-4.B4	IE2	975	215	43	0.82	90.9	91.4	91.9	6.5	2.3	2.8	0.32	J	240
30	33.5	225 M	1LE0101-2BC23-4.B4	IE2	980	292	57	0.83	91.7	92.3	92.7	6.7	2.4	2.8	0.62	J	294
37	41.5	250 M	1LE0101-2CC23-4.B4	IE2	982	360	69	0.83	92.2	92.8	92.3	7.5	3	2.8	0.91	K	394
45	51	280 S	1LE0101-2DC03-4.B4	IE2	985	436	83	0.85	92.7	93.3	93.5	7.1	2.5	2.8	1.2	K	510
55	62	280 M	1LE0101-2DC23-4.B4	IE2	986	533	101	0.85	93.1	93.7	93.6	7.5	2.4	2.7	1.5	K	535
75	84	315 S	1LE0101-3AC03-4.B4	IE2	986	726	136	0.85	93.7	94.3	93.8	7.5	2.4	3	2.3	K	680
90	101	315 M	1LE0101-3AC23-4.B4	IE2	986	872	163	0.85	94	94.5	94.4	7	2.3	2.8	2.8	J	835
110	123	315 L	1LE0101-3AC53-4.B4	IE2	988	1063	195	0.86	94.3	94.7	94.6	6.5	2.2	2.7	3.9	J	975
132	148	315 L	1LE0101-3AC63-4.B4	IE2	988	1276	230	0.86	94.6	95	94.9	7.8	2.2	2.4	4.3	K	1030
160	180	355 M	1LE0101-3BC23-4.B4	IE2	990	1543	280	0.87	94.8	95.1	93.5	6.5	2	2.1	7.7	J	1650
185	207	355 M	1LE0101-3BC33-4.B4	IE2	990	1785	325	0.87	95	95.3	93.5	6.5	2	2.1	8.4	J	1690
200	224	355 M	1LE0101-3BC43-4.B4	IE2	990	1929	350	0.87	95	95.3	93.6	6.5	2	2.1	9.1	J	1730
220	246	355 L	1LE0101-3BC53-4.B4	IE2	990	2122	385	0.87	95	95.3	93.5	6.5	2	2.1	10.1	J	1850
250	280	355 L	1LE0101-3BC63-4.B4	IE2	990	2412	435	0.87	95	95.3	93.5	6.5	2	2.1	11.4	J	1930

SIMOTICS Distribution Line – IE2



TIP

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0101		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Electrical data – 1LE0 – IE2 – 2-pole		(IE2 cast iron) 3000 rpm 2-pole, 525 V 50 Hz														
Rated output kW	Frame size	Article number	IE class	Rated torque		Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
				speed rpm	Nm			100% load %	75% load %	50% load %						
0.75	80 M	1LE0101-0DA24-1..4	IE2	2795	2.6	1.27	0.84	77.4	78.5	78.5	5.6	2.4	2.4	0.0008	D	15.5
1.1	80 M	1LE0101-0DA34-1..4	IE2	2835	3.7	1.81	0.84	79.6	80.6	77.4	6	2.8	3.2	0.0012	E	17.5
1.5	90 S	1LE0101-0EA04-1..4	IE2	2890	5	2.4	0.84	81.3	81.7	78	6.5	2.4	3.1	0.0021	E	23
2.2	90 L	1LE0101-0EA44-1..4	IE2	2890	7.3	3.45	0.85	83.2	83.7	80.8	7.2	2.6	3.5	0.0026	F	26
3	100 L	1LE0101-1AA44-1..4	IE2	2885	9.9	4.65	0.84	84.6	85.1	84.1	7.5	4	4.5	0.0036	F	34
4	112 M	1LE0101-1BA24-1..4	IE2	2930	13	5.9	0.86	85.8	86.6	84.7	7.5	2.2	2.9	0.0064	L	40
5.5	132 S	1LE0101-1CA04-1.B4	IE2	2930	17.9	8	0.87	87	87.6	86.9	7.5	2.2	2.9	0.014	K	56
7.5	132 S	1LE0101-1CA14-1.B4	IE2	2930	24.4	10.5	0.89	88.1	88.8	88.5	7.5	2.3	2.9	0.017	K	62
11	160 M	1LE0101-1DA24-1.B4	IE2	2935	35.8	15.6	0.86	89.4	90.1	89.3	7.5	2.2	2.9	0.031	K	96
15	160 M	1LE0101-1DA34-1.B4	IE2	2935	48.8	21.5	0.86	90.3	91	90.5	7.5	2.4	3.2	0.038	K	106
18.5	160 L	1LE0101-1DA44-1.B4	IE2	2935	60.2	25	0.89	90.9	91.7	91.5	7.5	2.4	3.2	0.046	K	125
22	180 M	1LE0101-1EA24-1.B4	IE2	2935	71.6	30.5	0.87	91.3	91.8	91.1	7.6	2.5	3.2	0.072	K	152
30	200 L	1LE0101-2AA44-1.B4	IE2	2955	97	42	0.86	92	92.3	91.5	7.5	2.5	3.2	0.13	K	229
37	200 L	1LE0101-2AA54-1.B4	IE2	2955	120	50	0.88	92.5	92.8	92.3	7.5	2.5	3.2	0.15	K	245
45	225 M	1LE0101-2BA24-1.B4	IE2	2965	145	61	0.88	92.9	93.1	92.5	7.9	2.5	3.1	0.24	K	307
55	250 M	1LE0101-2CA24-1.B4	IE2	2970	177	74	0.88	93.2	93.2	91.8	7.5	2.5	3	0.42	K	378
75	280 S	1LE0101-2DA04-1.B4	IE2	2975	241	101	0.87	93.8	93.8	92.7	7.5	2.8	3	0.75	K	550
90	280 M	1LE0101-2DA24-1.B4	IE2	2978	289	121	0.87	94.1	94.1	92.9	7.5	3	3.1	0.88	K	570
110	315 S	1LE0101-3AA04-1.B4	IE2	2982	352	143	0.9	94.3	94.3	93.3	7.5	2.2	2.6	1.4	J	740
132	315 M	1LE0101-3AA24-1.B4	IE2	2982	423	170	0.91	94.6	94.6	93.9	7.5	2.3	2.9	1.7	J	855
160	315 L	1LE0101-3AA54-1.B4	IE2	2982	512	205	0.92	94.8	95.1	94.1	7.5	2.5	2.8	1.9	J	970
185	315 L	1LE0101-3AA64-1.B4	IE2	2982	592	230	0.92	95	95.3	94.2	7.5	2.5	2.8	2.3	J	1080
200	315 L	1LE0101-3AA74-1.B4	IE2	2982	641	255	0.92	95	95.3	94.4	7.5	2.5	2.8	2.3	J	1090
220	355 M	1LE0101-3BA24-1.B4	IE2	2980	705	280	0.9	95	95	92.8	7.1	2	2.2	2.9	J	1600
250	355 M	1LE0101-3BA34-1.B4	IE2	2980	801	320	0.9	95	95	93	7.1	2	2.2	3	J	1650
280	355 L	1LE0101-3BA54-1.B4	IE2	2980	897	360	0.9	95	95.1	93	7.1	2	2.2	3.5	J	1830
315	355 L	1LE0101-3BA64-1.B4	IE2	2980	1009	405	0.9	95	95.1	93.1	7.1	2	2.3	3.5	J	1840

Electrical data – 1LE0 – IE2 – 4-pole		(IE2 cast iron) 1500 rpm 4-pole, 525 V 50 Hz														
Rated output kW	Frame size	Article number	IE class	Rated torque		Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
				speed rpm	Nm			100% load %	75% load %	50% load %						
0.55	80 M	1LE0101-0DB24-1..4	-	1425	3.7	1.01	0.8	74	74.7	70.1	6	2	2.7	0.0021	F	17.5
0.75	80 M	1LE0101-0DB34-1..4	IE2	1440	5	1.38	0.75	79.6	79.6	76.8	6.5	2.8	3.5	0.0027	F	19
1.1	90 S	1LE0101-0EB04-1..4	IE2	1440	7.3	1.99	0.75	81.4	81.4	77.6	7	2.8	3.5	0.0041	G	24
1.5	90 L	1LE0101-0EB44-1..4	IE2	1440	9.9	2.6	0.76	82.8	82.8	80.2	7	3	3.8	0.0047	G	27
2.2	100 L	1LE0101-1AB44-1..4	IE2	1435	14.6	3.6	0.79	84.3	85	83.1	7	3	3.2	0.0081	F	33
3	100 L	1LE0101-1AB54-1..4	IE2	1435	20	4.85	0.79	85.5	86.3	84.2	7	3	3.2	0.01	F	37
4	112 M	1LE0101-1BB24-1..4	IE2	1445	26.4	6.4	0.79	86.6	87.1	85.8	7.1	2.7	3.1	0.011	L	45
5.5	132 S	1LE0101-1CB04-1.B4	IE2	1460	36	8.8	0.79	87.7	88.2	86.9	7.5	2.5	3.1	0.021	L	61
7.5	132 M	1LE0101-1CB24-1.B4	IE2	1460	49.1	11.4	0.82	88.7	89.4	88.8	7.7	2.7	3.2	0.029	L	73
11	160 M	1LE0101-1DB24-1.B4	IE2	1465	71.7	15.9	0.84	89.8	90.4	90.1	7.5	2.5	3.1	0.051	K	103
15	160 L	1LE0101-1DB44-1.B4	IE2	1465	97.8	21.5	0.85	90.6	91.3	90.6	7.8	2.7	3.2	0.066	K	130
18.5	180 M	1LE0101-1EB24-1.B4	IE2	1465	121	26.5	0.85	91.2	91.8	91.8	7.3	2.5	3.2	0.13	K	165
22	180 L	1LE0101-1EB44-1.B4	IE2	1465	143	31	0.85	91.6	92.3	92.7	7.3	2.4	3.2	0.14	K	180
30	200 L	1LE0101-2AB44-1.B4	IE2	1470	195	42	0.85	92.3	92.9	92.9	7.3	2.7	3.2	0.22	K	238
37	225 S	1LE0101-2BB04-1.B4	IE2	1475	240	51	0.86	92.7	93.2	92.9	7.3	2.7	3.2	0.45	K	298



The nominal torque of the motor is easy to calculate;
Torque (Nm) =
Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE2

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0101		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Electrical data – 1LE0 – IE2 – 4-pole

(IE2 cast iron) 1500 rpm 4-pole, 525 V 50 Hz

Rated output kW	Frame size	Article number	IE class	Rated		Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
				speed rpm	torque Nm			100% load %	75% load %	50% load %						
45	225 M	1LE0101-2BB24-1.B4	IE2	1475	291	61	0.87	93.1	93.5	93.9	7.3	2.7	3.2	0.51	K	322
55	250 M	1LE0101-2CB24-1.B4	IE2	1480	355	75	0.86	93.5	93.9	93.3	7.5	3.1	3.5	0.8	K	410
75	280 S	1LE0101-2DB04-1.B4	IE2	1485	482	101	0.87	94	94.3	93.9	7.5	2.7	3.1	1.4	K	555
90	280 M	1LE0101-2DB24-1.B4	IE2	1485	579	121	0.87	94.2	94.3	94.2	7.5	2.7	3.1	1.5	K	610
110	315 S	1LE0101-3AB04-1.B4	IE2	1488	706	148	0.86	94.5	94.5	93.9	7.3	2.8	2.9	2.2	K	750
132	315 M	1LE0101-3AB24-1.B4	IE2	1486	848	174	0.88	94.7	94.7	95	7.3	2.5	2.7	2.5	J	875
160	315 L	1LE0101-3AB54-1.B4	IE2	1488	1027	210	0.88	94.9	94.9	95.1	7.4	3	2.9	3	J	960
185	315 L	1LE0101-3AB64-1.B4	IE2	1488	1187	240	0.88	95.1	95.1	95	7.4	3	3	3.6	J	1070
200	315 L	1LE0101-3AB74-1.B4	IE2	1488	1284	265	0.88	95.1	95.1	95.1	7.4	3	3	3.7	J	1080
220	355 M	1LE0101-3BB24-1.B4	IE2	1490	1410	280	0.9	95.1	95.2	93.3	6.9	2	2.2	6.6	J	1640
250	355 M	1LE0101-3BB34-1.B4	IE2	1490	1602	320	0.9	95.1	95.2	93.8	6.9	2	2.2	6.9	J	1680
280	355 L	1LE0101-3BB54-1.B4	IE2	1490	1795	360	0.9	95.1	95.2	93.8	6.9	2	2.2	7.7	J	1830
315	355 L	1LE0101-3BB64-1.B4	IE2	1490	2019	405	0.9	95.1	95.2	93.8	6.9	2	2.2	8.5	J	1900

Electrical data – 1LE0 – IE2 – 6-pole

(IE2 cast iron) 1000 rpm 6-pole, 525 V 50 Hz

0.55	80 M	1LE0101-0DC34-1.4	–	895	5.9	1.12	0.76	71	72	68.5	3.8	2.1	2.4	0.0028	C	18.5
0.75	90 S	1LE0101-0EC04-1.4	IE2	935	7.7	1.52	0.71	75.9	76.5	72.7	3.9	2	2.5	0.0038	C	26
1.1	90 L	1LE0101-0EC44-1.4	IE2	945	11.1	2.15	0.71	78.1	78.1	75.7	4.4	2.2	2.7	0.0046	D	27
1.5	100 L	1LE0101-1AC44-1.4	IE2	945	15.2	2.8	0.74	79.8	80.1	78.2	4.6	2.1	2.6	0.0086	D	34
2.2	112 M	1LE0101-1BC24-1.4	IE2	950	22.1	4.05	0.73	81.8	82.5	81	5.2	2.4	3	0.012	E	44
3	132 S	1LE0101-1CC04-1.B4	IE2	960	29.8	5.4	0.73	83.3	84.3	83.4	5.2	2	2.8	0.019	D	56
4	132 M	1LE0101-1CC24-1.B4	IE2	960	39.8	7.1	0.73	84.6	85.4	84.5	5.6	2.1	2.9	0.024	K	66
5.5	132 M	1LE0101-1CC34-1.B4	IE2	960	54.7	9.4	0.75	86	86.6	85.7	6	2.3	3.2	0.031	K	75
7.5	160 M	1LE0101-1DC24-1.B4	IE2	965	74.2	12.3	0.77	87.2	87.9	87.2	5.8	2	2.9	0.056	J	104
11	160 L	1LE0101-1DC44-1.B4	IE2	965	109	17.4	0.78	88.7	89.4	89.5	6.6	2.2	3.1	0.077	K	132
15	180 L	1LE0101-1EC44-1.B4	IE2	975	147	23.5	0.78	89.7	90.4	89.9	6.5	2.3	3	0.18	K	170
18.5	200 L	1LE0101-2AC44-1.B4	IE2	975	181	28	0.81	90.4	91	91.8	5.8	2.2	2.8	0.27	J	220
22	200 L	1LE0101-2AC54-1.B4	IE2	975	215	32.5	0.82	90.9	91.4	91.9	6.5	2.3	2.8	0.32	J	240
30	225 M	1LE0101-2BC24-1.B4	IE2	980	292	43.5	0.83	91.7	92.3	92.7	6.7	2.4	2.8	0.62	J	294
37	250 M	1LE0101-2CC24-1.B4	IE2	982	360	53	0.83	92.2	92.8	92.3	7.5	3	2.8	0.91	K	394
45	280 S	1LE0101-2DC04-1.B4	IE2	985	436	63	0.85	92.7	93.3	93.5	7.1	2.5	2.8	1.2	K	510
55	280 M	1LE0101-2DC24-1.B4	IE2	986	533	77	0.85	93.1	93.7	93.6	7.5	2.4	2.7	1.5	K	535
75	315 S	1LE0101-3AC04-1.B4	IE2	986	726	104	0.85	93.7	94.3	93.8	7.5	2.4	3	2.3	K	680
90	315 M	1LE0101-3AC24-1.B4	IE2	986	872	124	0.85	94	94.5	94.4	7	2.3	2.8	2.8	J	835
110	315 L	1LE0101-3AC54-1.B4	IE2	988	1063	148	0.86	94.3	94.7	94.6	6.5	2.2	2.7	3.9	J	975
132	315 L	1LE0101-3AC64-1.B4	IE2	988	1276	177	0.86	94.6	95	94.9	7.8	2.2	2.4	4.3	K	1030
160	355 M	1LE0101-3BC24-1.B4	IE2	990	1543	215	0.87	94.8	95.1	93.5	6.5	2	2.1	7.7	J	1650
185	355 M	1LE0101-3BC34-1.B4	IE2	990	1785	245	0.87	95	95.3	93.5	6.5	2	2.1	8.4	J	1690
200	355 M	1LE0101-3BC44-1.B4	IE2	990	1929	270	0.87	95	95.3	93.6	6.5	2	2.1	9.1	J	1730
220	355 L	1LE0101-3BC54-1.B4	IE2	990	2122	295	0.87	95	95.3	93.5	6.5	2	2.1	10.1	J	1850
250	355 L	1LE0101-3BC64-1.B4	IE2	990	2412	335	0.87	95	95.3	93.5	6.5	2	2.1	11.4	J	1930

SIMOTICS Distribution Line – IE3



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0103		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.75 Nm		

Electrical data – 1LE0 – IE3 – 2-pole (IE3 cast iron) 3000 rpm 2-pole, 400 V 50 Hz																	
230 VΔ / 400 VY																	
Rated output	Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
								100% load	75% load	50% load							
50 Hz kW	60 Hz kW			rpm	Nm	A		%	%	%					kgm ²	kg	
0.75	0.86	80 M	1LE0103-0DA22-2..4	IE3	2835	2.5	1.56	0.86	80.7	82.92	82.9	6	2.4	3	0.00208	J	16
1.1	1.3	80 M	1LE0103-0DA32-2..4	IE3	2870	3.7	2.3	0.83	82.7	83.98	83.9	6.5	2.4	3.4	0.00154	K	18
1.5	1.75	90 S	1LE0103-0EA02-2..4	IE3	2900	4.9	3	0.86	84.2	84.77	82.3	6.5	2	3.4	0.00276	K	24
2.2	2.55	90 L	1LE0103-0EA42-2..4	IE3	2910	7.2	4.2	0.88	85.9	87.19	86.5	7.5	2.3	3.6	0.00356	K	28
3	3.45	100 L	1LE0103-1AA42-2..4	IE3	2875	10.0	5.7	0.87	87.1	88.29	88.3	7.8	2.6	3.6	0.00462	L	39
4	4.6	112 M	1LE0103-1BA22-2..4	IE3	2925	13.1	7.3	0.9	88.1	89.56	89.8	7.8	2.6	3.6	0.0088	K	46
5.5	6.3	132 S	1LE0103-1CA02-2..B4	IE3	2930	17.9	10	0.89	89.2	90.24	90.3	7.5	2.3	3.6	0.0185	K	64
7.5	8.6	132 S	1LE0103-1CA12-2..B4	IE3	2925	24.5	13.3	0.9	90.1	91.46	92.2	7.5	2.3	3.6	0.0232	K	71
400 VΔ / 690 VY																	
3	3.45	100 L	1LE0103-1AA43-4..4	IE3	2875	10.0	5.7	0.87	87.1	88.3	88.3	7.8	2.6	3.6	0.0046	L	39
4	4.6	112 M	1LE0103-1BA23-4..4	IE3	2925	13.1	7.3	0.9	88.1	89.6	89.8	7.8	2.6	3.6	0.0088	K	46
5.5	6.3	132 S	1LE0103-1CA03-4..B4	IE3	2930	17.9	10	0.89	89.2	90.2	90.3	7.5	2.3	3.6	0.0185	K	64
7.5	8.6	132 S	1LE0103-1CA13-4..B4	IE3	2925	24.5	13.4	0.9	90.1	91.5	92.2	7.5	2.3	3.6	0.0232	K	71
11	12.6	160 M	1LE0103-1DA23-4..B4	IE3	2935	35.8	19.6	0.89	91.2	92.0	91.7	7.5	2.3	2.5	0.0390	K	99
15	17.3	160 M	1LE0103-1DA33-4..B4	IE3	2930	48.9	26.5	0.89	91.9	92.6	92.5	7.5	2.4	3.4	0.0472	K	107
18.5	21.3	160 L	1LE0103-1DA43-4..B4	IE3	2940	60.1	32.5	0.89	92.4	93.0	92.9	7.8	2.4	3.4	0.0577	K	131
22	24.5	180 M	1LE0103-1EA23-4..B4	IE3	2950	71.2	38.5	0.89	92.7	93.0	92.4	7.8	2.4	3.4	0.0770	K	171
30	33.5	200 L	1LE0103-2AA43-4..B4	IE3	2955	97.0	52	0.89	93.3	93.4	92.4	7.8	2.4	3.4	0.1330	K	250
37	41.5	200 L	1LE0103-2AA53-4..B4	IE3	2955	119.6	64	0.89	93.7	93.9	93.3	7.8	2.4	3.4	0.1520	K	260
45	51	225 M	1LE0103-2BA23-4..B4	IE3	2960	145.2	78	0.89	94	94.3	93.8	7.8	2.4	3.2	0.2540	K	342
55	62	250 M	1LE0103-2CA23-4..B4	IE3	2975	176.6	95	0.89	94.3	94.1	93.1	7.8	2.4	3.2	0.4430	K	425
75	84	280 S	1LE0103-2DA03-4..B4	IE3	2975	240.8	128	0.89	94.7	94.8	94.1	7.2	2.4	3	0.7800	J	545
90	101	280 M	1LE0103-2DA23-4..B4	IE3	2975	288.9	152	0.9	95	95.3	95	7.2	2.4	3.4	0.9500	J	620
110	123	315 S	1LE0103-3AA03-4..B4	IE3	2975	353.1	185	0.9	95.2	95.1	94.5	8.5	1.8	2.6	1.3000	K	790
132	148	315 M	1LE0103-3AA23-4..B4	IE3	2980	423.0	220	0.9	95.4	95.3	92.4	8.5	2.1	2.6	1.5100	K	960
160	180	315 L	1LE0103-3AA53-4..B4	IE3	2978	513.1	265	0.91	95.6	95.7	95.3	8.5	2.1	2.6	1.8100	K	1060
185	207	315 L	1LE0103-3AA63-4..B4	IE3	2978	593.3	305	0.92	95.7	95.9	95.7	8.5	2.3	2.6	2.1900	K	1145
200	224	315 L	1LE0103-3AA73-4..B4	IE3	2982	640.5	330	0.92	95.8	95.9	95.7	8.5	2.6	3.2	2.1900	K	1165
220	246	355 M	1LE0103-3BA23-4..B4	IE3	2986	704.0	370	0.90	95.8	95.4	94.2	8.5	2.2	2.8	3.0000	K	1490
250	280	355 M	1LE0103-3BA33-4..B4	IE3	2985	800.0	420	0.90	95.8	95.7	94.6	8	2.2	2.8	3.0000	K	1490
280	314	355 L	1LE0103-3BA53-4..B4	IE3	2988	895.0	470	0.9	95.8	95.7	94.9	8.5	2.2	2.8	3.5000	K	1620
315	353	355 L	1LE0103-3BA63-4..B4	IE3	2982	1009.0	530	0.9	95.8	95.8	95.3	8	2.2	2.8	3.5	K	1670



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE3

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0103		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.8 ... 2406.8 Nm		

Electrical data – 1LE0 – IE3 – 4-pole		(IE3 cast iron) 1500 rpm 4-pole, 400 V 50 Hz															
Rated output 50 Hz kW	60 Hz kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Power factor	Efficiency at			Starting current	Starting torque	Break- down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
									100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0103-0DB22-2..4	IE3	1440	3.65	1.29	0.76	80.8	81.77	80.2	5.5	2.2	3.2	0.0022	K	16.5
0.75	0.86	80 M	1LE0103-0DB32-2..4	IE3	1445	4.96	1.75	0.75	82.5	82.92	80.7	6	2.7	3.7	0.0025	K	18
1.1	1.3	90 S	1LE0103-0EB02-2..4	IE3	1430	7.35	2.4	0.79	84.1	85.07	83.9	6.5	2.7	3.7	0.0039	K	24
1.5	1.75	90 L	1LE0103-0EB42-2..4	IE3	1440	9.95	3.2	0.79	85.3	86	85.2	6.5	2.7	3.8	0.0050	K	27
2.2	2.55	100 L	1LE0103-1AB42-2..4	IE3	1445	14.54	4.45	0.82	86.7	87.11	85.7	8.3	3.7	4.6	0.0113	M	42
3	3.45	100 L	1LE0103-1AB52-2..4	IE3	1450	19.76	6	0.82	87.7	88.06	87.1	8.3	3.7	4.6	0.0131	M	46
4	4.6	112 M	1LE0103-1BB22-2..4	IE3	1450	26.34	7.9	0.82	88.6	89.59	89.2	8.3	3.7	4.6	0.0149	M	52
5.5	6.3	132 S	1LE0103-1CB02-2.B4	IE3	1455	36.10	10.5	0.84	89.6	90.87	91.1	7.8	2.4	3.8	0.0285	L	71
7.5	8.6	132 M	1LE0103-1CB22-2.B4	IE3	1455	49.23	14.1	0.85	90.4	91.69	93.2	7.8	2.4	3.8	0.0356	L	83
400 V Δ / 690 VY																	
2.2	2.55	100 L	1LE0103-1AB43-4..4	IE3	1445	14.54	4.45	0.82	86.7	87.11	85.7	8.3	3.7	4.6	0.01125	M	42
3	3.45	100 L	1LE0103-1AB53-4..4	IE3	1450	19.76	6	0.82	87.7	88.06	87.1	8.3	3.7	4.6	0.01313	M	46
4	4.6	112 M	1LE0103-1BB23-4..4	IE3	1450	26.34	7.9	0.82	88.6	89.59	89.2	8.3	3.7	4.6	0.01493	M	52
5.5	6.3	132 S	1LE0103-1CB03-4.B4	IE3	1455	36.10	10.5	0.84	89.6	90.87	91.1	7.8	2.4	3.8	0.02847	L	71
7.5	8.6	132 M	1LE0103-1CB23-4.B4	IE3	1455	49.23	14.1	0.85	90.4	91.69	93.2	7.8	2.4	3.8	0.03561	L	83
11	12.6	160 M	1LE0103-1DB23-4.B4	IE3	1460	71.95	20	0.86	91.4	92.4	92.6	7.8	2.4	3.8	0.06482	K	110
15	17.3	160 L	1LE0103-1DB43-4.B4	IE3	1460	98.12	27.5	0.86	92.1	92.91	93	7.8	2.6	3.8	0.08109	K	134
18.5	21.3	180 M	1LE0103-1EB23-4.B4	IE3	1470	120.19	34.5	0.83	92.6	93	92.5	7.8	2.6	3.6	0.12600	L	170
22	24.5	180 L	1LE0103-1EB43-4.B4	IE3	1470	142.93	41	0.83	93	93.7	93.6	7.8	2.6	3.6	0.14600	L	192
30	33.5	200 L	1LE0103-2AB43-4.B4	IE3	1470	194.90	55	0.84	93.6	94.3	94.2	7.8	2.6	3.6	0.22000	K	255
37	41.5	225 S	1LE0103-2BB03-4.B4	IE3	1478	239.07	67	0.85	93.9	94.1	93.4	8.3	3.3	3.6	0.46100	L	315
45	51	225 M	1LE0103-2BB23-4.B4	IE3	1478	290.76	81	0.85	94.2	94.2	93.7	8.3	3.3	3.6	0.47900	L	342
55	62	250 M	1LE0103-2CB23-4.B4	IE3	1482	354.42	98	0.86	94.6	95	94.7	7.6	2.6	3.3	0.82000	K	440
75	84	280 S	1LE0103-2DB03-4.B4	IE3	1485	482.32	133	0.86	95	95.3	95.3	7.6	2.6	3	1.31000	K	580
90	101	280 M	1LE0103-2DB23-4.B4	IE3	1485	578.79	157	0.87	95.2	95.64	95.5	7.6	2.6	3	1.69000	K	685
110	123	315 S	1LE0103-3AB03-4.B4	IE3	1488	705.98	191	0.87	95.4	95.7	95.4	7.9	3.3	3	2.77000	K	800
132	148	315 M	1LE0103-3AB23-4.B4	IE3	1488	847.18	230	0.87	95.6	95.9	95.5	7.9	3.3	3	3.00000	K	1035
160	180	315 L	1LE0103-3AB53-4.B4	IE3	1488	1026.88	275	0.87	95.8	96.1	95.8	7.9	3.3	3	3.14000	K	1065
185	207	315 L	1LE0103-3AB63-4.B4	IE3	1488	1187.33	320	0.87	95.9	96.2	95.8	7.9	3.3	3	3.46000	K	1115
200	224	315 L	1LE0103-3AB73-4.B4	IE3	1490	1281.88	340	0.88	96	96.3	96.1	7.9	3.3	3	3.79000	K	1175
220	246	355 M	1LE0103-3BB23-4.B4	IE3	1492	1408.18	375	0.88	96	96.01	95.3	8	2	3.2	6.90000	K	1670
250	280	355 M	1LE0103-3BB33-4.B4	IE3	1490	1602.35	425	0.88	96	96.04	95.3	7.8	1.8	2.9	6.90000	K	1670
280	314	355 L	1LE0103-3BB53-4.B4	IE3	1490	1794.63	480	0.88	96	96.11	95.7	7.8	1.8	2.9	7.70000	K	1700
315	353	355 L	1LE0103-3BB63-4.B4	IE3	1490	2018.96	540	0.88	96	96.13	95.8	8	1.8	2.9	8.50000	K	1790

SIMOTICS Distribution Line – IE3



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0103		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		

Rated output		Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0103-ODC32-2..4	IE3	935	5.62	1.53	0.67	77.2	77.45	74.6	5	2.7	3.4	0.00310	K	19.5
0.75	0.86	90 S	1LE0103-OEC02-2..4	IE3	940	7.62	1.96	0.7	78.9	80.32	78	5	2.4	3.2	0.00436	K	25
1.1	1.3	90 L	1LE0103-OEC42-2..4	IE3	945	11.12	2.85	0.69	81	81.58	80.4	5.5	2.7	3.5	0.00513	K	28
1.5	1.75	100 L	1LE0103-1AC42-2..4	IE3	945	15.16	3.55	0.74	82.5	84.13	82.9	5.5	2.7	3.5	0.01136	K	42
2.2	2.55	112 M	1LE0103-1BC22-2..4	IE3	945	22.23	5.1	0.74	84.3	86.11	95.7	6	2.7	3.4	0.01451	K	50
3	3.45	132 S	1LE0103-1CC02-2.B4	IE3	965	29.69	6.7	0.75	85.6	86.6	86	6	2.7	4	0.02666	K	67
4	4.6	132 M	1LE0103-1CC22-2.B4	IE3	955	40.00	8.9	0.75	86.8	88.54	88.7	6	2.3	3.4	0.03045	K	76
5.5	6.3	132 M	1LE0103-1CC32-2.B4	IE3	960	54.71	11.9	0.76	88	89.15	89	6.5	2.3	4	0.04125	K	88
400 V Δ / 690 VY																	
1.5	1.75	100 L	1LE0103-1AC43-4..4	IE3	945	15.16	3.55	0.74	82.50	84.13	82.90	5.5	2.7	3.5	0.0114	K	42
2.2	2.55	112 M	1LE0103-1BC23-4..4	IE3	945	22.23	5.1	0.74	84.30	86.11	95.70	6	2.7	3.4	0.0145	K	50
3	3.45	132 S	1LE0103-1CC03-4.B4	IE3	965	29.69	6.7	0.75	85.60	86.60	86.00	6	2.7	4	0.0267	K	67
4	4.6	132 M	1LE0103-1CC23-4.B4	IE3	955	40.00	8.9	0.75	86.80	88.54	88.70	6	2.3	3.4	0.0305	K	76
5.5	6.3	132 M	1LE0103-1CC33-4.B4	IE3	960	54.71	11.9	0.76	88.00	89.15	89.00	6.5	2.3	4	0.0413	K	88
7.5	8.6	160 M	1LE0103-1DC23-4.B4	IE3	965	74.22	15.6	0.78	89.10	90.36	90.30	6.5	2.3	3.6	0.0703	K	112
11	12.6	160 L	1LE0103-1DC43-4.B4	IE3	970	108.30	22.5	0.78	90.30	90.30	89.80	7	2.3	3.6	0.0707	K	144
15	17.3	180 L	1LE0103-1EC43-4.B4	IE3	975	146.92	29.5	0.8	91.20	92.10	91.80	7	2.3	3	0.1850	K	175
18.5	21.3	200 L	1LE0103-2AC43-4.B4	IE3	978	180.65	36.5	0.8	91.70	92.45	92.20	7	2.3	3	0.2840	K	235
22	24.5	200 L	1LE0103-2AC53-4.B4	IE3	978	214.83	43	0.8	92.20	93.10	93.00	7	2.4	3	0.3270	K	251
30	33.5	225 M	1LE0103-2BC23-4.B4	IE3	982	291.75	56	0.83	92.90	93.90	94.30	7.6	2.4	3	0.7100	K	350
37	41.5	250 M	1LE0103-2CC23-4.B4	IE3	985	358.73	68	0.84	93.30	94.10	94.10	7.6	2.4	3	1.0300	K	430
45	51	280 S	1LE0103-2DC03-4.B4	IE3	985	436.29	83	0.84	93.70	94.47	94.40	7.8	3	3	1.4000	K	520
55	62	280 M	1LE0103-2DC23-4.B4	IE3	988	531.63	100	0.84	94.10	94.60	94.50	7.8	3	3	1.7000	K	585
75	84	315 S	1LE0103-3AC03-4.B4	IE3	990	723.48	136	0.84	94.60	95.00	94.70	7.8	2.6	3	2.7300	K	790
90	101	315 M	1LE0103-3AC23-4.B4	IE3	990	868.18	163	0.84	94.90	95.26	94.90	7.8	2.6	3	3.2900	K	950
110	123	315 L	1LE0103-3AC53-4.B4	IE3	991	1060.04	196	0.85	95.10	95.30	94.90	7.8	2.6	3	4.1700	K	1085
132	148	315 L	1LE0103-3AC63-4.B4	IE3	991	1272.05	235	0.85	95.40	95.70	95.40	7.8	2.6	3	4.4900	K	1135
160	180	355 M	1LE0103-3BC23-4.B4	IE3	994	1537.22	290	0.84	95.60	95.65	95.20	8.5	3	2.4	8.4000	L	1770
185	207	355 M	1LE0103-3BC33-4.B4	IE3	993	1779.20	330	0.84	95.70	95.81	95.30	8.5	3	2.4	8.4000	L	1770
200	224	355 M	1LE0103-3BC43-4.B4	IE3	993	1923.46	360	0.84	95.80	95.91	95.40	8.5	3	2.4	11.2000	L	1810
220	246	355 L	1LE0103-3BC53-4.B4	IE3	993	2115.81	395	0.84	95.80	95.95	95.60	8.5	3	2.4	11.4000	L	1980
250	280	355 L	1LE0103-3BC63-4.B4	IE3	992	2406.75	450	0.84	95.8	96.09	95.9	8.5	3	2.4	11.4	L	2010

TIP

The nominal torque of the motor is easy to calculate:
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Distribution Line – IE3

Cast-iron series		
Efficiency class	IE3	
Series	1LE0103	
No. of poles	2	4
Cooling	Self-ventilated (IC 411)	
Degree of protection	IP55	
Insulation	Thermal class 155 (F)	
Utilization	Thermal class 130 (B)	
Frame size	80 ... 355	
Rated output at 50 Hz	0.55 ... 315 kW	
Rated torque at 50 Hz	2.5 ... 2406.8 Nm	

Electrical data – 1LE0 – IE3 – 2-pole**(IE3 cast iron) 3000 rpm 2-pole, 525 VΔ 50 Hz**

Rated output	Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
								100% load	75% load	50% load						
kW				rpm	Nm	A		%	%	%			kgm ²		kg	
0.75	80 M	1LE0103-ODA24-1..4	IE3	2835	2.5	1.19	0.86	80.7	82.9	82.9	6	2.4	3	0.002083	J	16
1.1	80 M	1LE0103-ODA34-1..4	IE3	2870	3.7	1.76	0.83	82.7	84.0	83.9	6.5	2.4	3.4	0.001537	K	18
1.5	90 S	1LE0103-OEA04-1..4	IE3	2900	4.9	2.3	0.86	84.2	84.8	82.3	6.5	2	3.4	0.002764	K	24
2.2	90 L	1LE0103-OEA44-1..4	IE3	2910	7.2	3.2	0.88	85.9	87.2	86.5	7.5	2.3	3.6	0.003557	K	28
3	100 L	1LE0103-1AA44-1..4	IE3	2875	10.0	4.35	0.87	87.1	88.3	88.3	7.8	2.6	3.6	0.004619	L	39
4	112 M	1LE0103-1BA24-1..4	IE3	2925	13.1	5.5	0.9	88.1	89.6	89.8	7.8	2.6	3.6	0.00879	K	46
5.5	132 S	1LE0103-1CA04-1.B4	IE3	2930	17.9	7.6	0.89	89.2	90.2	90.3	7.5	2.3	3.6	0.01847	K	64
7.5	132 S	1LE0103-1CA14-1.B4	IE3	2925	24.5	10.2	0.9	90.1	91.5	92.2	7.5	2.3	3.6	0.023231	K	71
11	160 M	1LE0103-1DA24-1.B4	IE3	2935	35.8	14.9	0.89	91.2	92.0	91.7	7.5	2.3	2.5	0.03903	K	99
15	160 M	1LE0103-1DA34-1.B4	IE3	2930	48.9	20	0.89	91.9	92.6	92.5	7.5	2.4	3.4	0.0472	K	107
18.5	160 L	1LE0103-1DA44-1.B4	IE3	2940	60.1	24.5	0.89	92.4	93.0	92.9	7.8	2.4	3.4	0.05773	K	131
22	180 M	1LE0103-1EA24-1.B4	IE3	2950	71.2	29.5	0.89	92.7	93.0	92.4	7.8	2.4	3.4	0.077	K	171
30	200 L	1LE0103-2AA44-1.B4	IE3	2955	97.0	39.5	0.89	93.3	93.4	92.4	7.8	2.4	3.4	0.133	K	250
37	200 L	1LE0103-2AA54-1.B4	IE3	2955	119.6	49	0.89	93.7	93.9	93.3	7.8	2.4	3.4	0.152	K	260
45	225 M	1LE0103-2BA24-1.B4	IE3	2960	145.2	59	0.89	94.0	94.3	93.8	7.8	2.4	3.2	0.254	K	342
55	250 M	1LE0103-2CA24-1.B4	IE3	2975	176.6	72	0.89	94.3	94.1	93.1	7.8	2.4	3.2	0.443	K	425
75	280 S	1LE0103-2DA04-1.B4	IE3	2975	240.8	98	0.89	94.7	94.8	94.1	7.2	2.4	3	0.78	J	545
90	280 M	1LE0103-2DA24-1.B4	IE3	2975	288.9	116	0.9	95.0	95.3	95.0	7.2	2.4	3.4	0.95	J	620
110	315 S	1LE0103-3AA04-1.B4	IE3	2975	353.1	141	0.9	95.2	95.1	94.5	8.5	1.8	2.6	1.3	K	790
132	315 M	1LE0103-3AA24-1.B4	IE3	2980	423.0	169	0.9	95.4	95.3	92.4	8.5	2.1	2.6	1.51	K	960
160	315 L	1LE0103-3AA54-1.B4	IE3	2978	513.1	200	0.91	95.6	95.7	95.3	8.5	2.1	2.6	1.81	K	1060
185	315 L	1LE0103-3AA64-1.B4	IE3	2978	593.3	230	0.92	95.7	95.9	95.7	8.5	2.3	2.6	2.19	K	1145
200	315 L	1LE0103-3AA74-1.B4	IE3	2982	640.5	250	0.92	95.8	95.9	95.7	8.5	2.6	3.2	2.19	K	1165
220	355 M	1LE0103-3BA24-1.B4	IE3	2986	704.0	280	0.90	95.8	95.4	94.2	8.5	2.2	2.8	3	K	1490
250	355 M	1LE0103-3BA34-1.B4	IE3	2985	800.0	320	0.90	95.8	95.7	94.6	8	2.2	2.8	3	K	1490
280	355 L	1LE0103-3BA54-1.B4	IE3	2988	895.0	355	0.9	95.8	95.7	94.9	8.5	2.2	2.8	3.5	K	1620
315	355 L	1LE0103-3BA64-1.B4	IE3	2982	1009.0	400	0.9	95.8	95.8	95.3	8	2.2	2.8	3.5	K	1670

Electrical data – 1LE0 – IE3 – 4-pole**(IE3 cast iron) 1500 rpm 4-pole, 525 VΔ 50 Hz**

Rated output	Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
								100% load	75% load	50% load						
kW				rpm	Nm	A		%	%	%			kgm ²		kg	
0.55	80 M	1LE0103-0DB24-1..4	IE3	1440	3.6	0.98	0.76	80.8	81.8	80.2	5.5	2.2	3.2	0.002155	K	16.5
0.75	80 M	1LE0103-0DB34-1..4	IE3	1445	5.0	1.33	0.75	82.5	82.9	80.7	6	2.7	3.7	0.002501	K	18
1.1	90 S	1LE0103-0EB04-1..4	IE3	1430	7.3	1.82	0.79	84.1	85.1	83.9	6.5	2.7	3.7	0.003888	K	24
1.5	90 L	1LE0103-0EB44-1..4	IE3	1440	9.9	2.45	0.79	85.3	86.0	85.2	6.5	2.7	3.8	0.004992	K	27
2.2	100 L	1LE0103-1AB44-1..4	IE3	1445	14.5	3.4	0.82	86.7	87.1	85.7	8.3	3.7	4.6	0.01125	M	42
3	100 L	1LE0103-1AB54-1..4	IE3	1450	19.8	4.6	0.82	87.7	88.1	87.1	8.3	3.7	4.6	0.01313	M	46
4	112 M	1LE0103-1BB24-1..4	IE3	1450	26.3	6.1	0.82	88.6	89.6	89.2	8.3	3.7	4.6	0.014928	M	52
5.5	132 S	1LE0103-1CB04-1.B4	IE3	1455	36.1	8	0.84	89.6	90.9	91.1	7.8	2.4	3.8	0.028465	L	71
7.5	132 M	1LE0103-1CB24-1.B4	IE3	1455	49.2	10.7	0.85	90.4	91.7	93.2	7.8	2.4	3.8	0.03561	L	83
11	160 M	1LE0103-1DB24-1.B4	IE3	1460	72.0	15.4	0.86	91.4	92.4	92.6	7.8	2.4	3.8	0.06482	K	110
15	160 L	1LE0103-1DB44-1.B4	IE3	1460	98.1	21	0.86	92.1	92.9	93.0	7.8	2.6	3.8	0.08109	K	134
18.5	180 M	1LE0103-1EB24-1.B4	IE3	1470	120.2	26.5	0.83	92.6	93.0	92.5	7.8	2.6	3.6	0.126	L	170
22	180 L	1LE0103-1EB44-1.B4	IE3	1470	142.9	31.5	0.83	93.0	93.7	93.6	7.8	2.6	3.6	0.146	L	192
30	200 L	1LE0103-2AB44-1.B4	IE3	1470	194.9	42	0.84	93.6	94.3	94.2	7.8	2.6	3.6	0.22	K	255

SIMOTICS Distribution Line – IE3

**TIP**

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0103		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2406.8 Nm		

Electrical data – 1LE0 – IE3 – 4-pole													(IE3 cast iron) 1500 rpm 4-pole, 525 VΔ 50 Hz				
Rated output	Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
kW				rpm	Nm	A		100% load	75% load	50% load				kgm ²		kg	
								%	%	%							
37	225 S	1LE0103-2BB04-1.B4	IE3	1478	239.1	51	0.85	93.9	94.1	93.4	8.3	3.3	3.6	0.461	L	315	
45	225 M	1LE0103-2BB24-1.B4	IE3	1478	290.8	62	0.85	94.2	94.2	93.7	8.3	3.3	3.6	0.479	L	342	
55	250 M	1LE0103-2CB24-1.B4	IE3	1482	354.4	74	0.86	94.6	95.0	94.7	7.6	2.6	3.3	0.82	K	440	
75	280 S	1LE0103-2DB04-1.B4	IE3	1485	482.3	101	0.86	95.0	95.3	95.3	7.6	2.6	3	1.31	K	580	
90	280 M	1LE0103-2DB24-1.B4	IE3	1485	578.8	120	0.87	95.2	95.6	95.5	7.6	2.6	3	1.69	K	685	
110	315 S	1LE0103-3AB04-1.B4	IE3	1488	706.0	146	0.87	95.4	95.7	95.4	7.9	3.3	3	2.77	K	800	
132	315 M	1LE0103-3AB24-1.B4	IE3	1488	847.2	175	0.87	95.6	95.9	95.5	7.9	3.3	3	3	K	1035	
160	315 L	1LE0103-3AB54-1.B4	IE3	1488	1026.9	210	0.87	95.8	96.1	95.8	7.9	3.3	3	3.14	K	1065	
185	315 L	1LE0103-3AB64-1.B4	IE3	1488	1187.3	245	0.87	95.9	96.2	95.8	7.9	3.3	3	3.46	K	1115	
200	315 L	1LE0103-3AB74-1.B4	IE3	1490	1281.9	260	0.88	96.0	96.3	96.1	7.9	3.3	3	3.79	K	1175	
220	355 M	1LE0103-3BB24-1.B4	IE3	1492	1408.2	285	0.88	96.0	96.0	95.3	8	2	3.2	6.9	K	1670	
250	355 M	1LE0103-3BB34-1.B4	IE3	1490	1602.3	325	0.88	96.0	96.0	95.3	7.8	1.8	2.9	6.9	K	1670	
280	355 L	1LE0103-3BB54-1.B4	IE3	1490	1794.6	365	0.88	96.0	96.1	95.7	7.8	1.8	2.9	7.7	K	1700	
315	355 L	1LE0103-3BB64-1.B4	IE3	1490	2019.0	410	0.88	96.0	96.1	95.8	8	1.8	2.9	8.5	K	1790	

Electrical data – 1LE0 – IE3 – 6-pole													(IE3 cast iron) 1000 rpm 6-pole, 525 VΔ 50 Hz				
Rated output	Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
kW				rpm	Nm	A		100% load	75% load	50% load				kgm ²		kg	
								%	%	%							
0.55	80 M	1LE0103-0DC34-1..4	IE3	935	5.6	1.17	0.67	77.2	77.45	74.6	5	2.7	3.4	0.003101	K	19.5	
0.75	90 S	1LE0103-0EC04-1..4	IE3	940	7.6	1.49	0.7	78.9	80.32	78	5	2.4	3.2	0.00436	K	25	
1.1	90 L	1LE0103-0EC44-1..4	IE3	945	11.1	2.15	0.69	81	81.58	80.4	5.5	2.7	3.5	0.00513	K	28	
1.5	100 L	1LE0103-1AC44-1..4	IE3	945	15.2	2.7	0.74	82.5	84.13	82.9	5.5	2.7	3.5	0.01136	K	42	
2.2	112 M	1LE0103-1BC24-1..4	IE3	945	22.2	3.9	0.74	84.3	86.11	95.7	6	2.7	3.4	0.014506	K	50	
3	132 S	1LE0103-1CC04-1.B4	IE3	965	29.7	5.1	0.75	85.6	86.6	86	6	2.7	4	0.02666	K	67	
4	132 M	1LE0103-1CC24-1.B4	IE3	955	40.0	6.8	0.75	86.8	88.54	88.7	6	2.3	3.4	0.03045	K	76	
5.5	132 M	1LE0103-1CC34-1.B4	IE3	960	54.7	9	0.76	88	89.15	89	6.5	2.3	4	0.04125	K	88	
7.5	160 M	1LE0103-1DC24-1.B4	IE3	965	74.2	11.9	0.78	89.1	90.36	90.3	6.5	2.3	3.6	0.0703	K	112	
11	160 L	1LE0103-1DC44-1.B4	IE3	970	108.3	17.2	0.78	90.3	90.3	89.8	7	2.3	3.6	0.07068	K	144	
15	180 L	1LE0103-1EC44-1.B4	IE3	975	146.9	22.5	0.8	91.2	92.1	91.8	7	2.3	3	0.185	K	175	
18.5	200 L	1LE0103-2AC44-1.B4	IE3	978	180.6	27.5	0.8	91.7	92.45	92.2	7	2.3	3	0.284	K	235	
22	200 L	1LE0103-2AC54-1.B4	IE3	978	214.8	33	0.8	92.2	93.1	93	7	2.4	3	0.327	K	251	
30	225 M	1LE0103-2BC24-1.B4	IE3	982	291.8	43	0.83	92.9	93.9	94.3	7.6	2.4	3	0.71	K	350	
37	250 M	1LE0103-2CC24-1.B4	IE3	985	358.7	52	0.84	93.3	94.1	94.1	7.6	2.4	3	1.03	K	430	
45	280 S	1LE0103-2DC04-1.B4	IE3	985	436.3	63	0.84	93.7	94.67	94.4	7.8	3	3	1.4	K	520	
55	280 M	1LE0103-2DC24-1.B4	IE3	988	531.6	77	0.84	94.1	94.6	94.5	7.8	3	3	1.7	K	585	
75	315 S	1LE0103-3AC04-1.B4	IE3	990	723.5	104	0.84	94.6	95	94.7	7.8	2.6	3	2.73	K	790	
90	315 M	1LE0103-3AC24-1.B4	IE3	990	868.2	124	0.84	94.9	95.256	94.9	7.8	2.6	3	3.29	K	950	
110	315 L	1LE0103-3AC54-1.B4	IE3	991	1060.0	150	0.85	95.1	95.3	94.9	7.8	2.6	3	4.17	K	1085	
132	315 L	1LE0103-3AC64-1.B4	IE3	991	1272.0	179	0.85	95.4	95.7	95.4	7.8	2.6	3	4.49	K	1135	
160	355 M	1LE0103-3BC24-1.B4	IE3	994	1537.2	220	0.84	95.6	95.65	95.2	8.5	3	2.4	8.4	L	1770	
185	355 M	1LE0103-3BC34-1.B4	IE3	993	1779.2	255	0.84	95.7	95.81	95.3	8.5	3	2.4	8.4	L	1770	
200	355 M	1LE0103-3BC44-1.B4	IE3	993	1923.5	275	0.84	95.8	95.91	95.4	8.5	3	2.4	11.2	L	1810	
220	355 L	1LE0103-3BC54-1.B4	IE3	993	2115.8	300	0.84	95.8	95.95	95.6	8.5	3	2.4	11.4	L	1980	
250	355 L	1LE0103-3BC64-1.B4	IE3	992	2406.8	340	0.84	95.8	96.09	95.9	8.5	3	2.4	11.4	L	2010	

SIMOTICS Distribution Line – List of options

Cast iron		Series				
SIMOTICS GP 1LE0102 Standard Efficiency IE1		4		available		
SIMOTICS GP 1LE0101 High Efficiency IE2 & 1LE0103 Premium Efficiency IE3		5		available		
Option description	Motor type	Order code	Series availability	80	90	100
Voltage and frequency						
220 VΔ/380 VY, 50 Hz	1LE.....2-1...		4, 5	✓	✓	✓
230 VΔ/400 VY, 50 Hz	1LE.....2-2...		4, 5	□	□	□
400 V, 50 Hz, 690 V, 50 Hz	1LE.....3-4...		4, 5	–	–	□
380 V, 50 Hz, 660 V, 50 Hz	1LE010.....3-3...		4, 5	–	–	✓
415 V, 50 Hz	1LE010.....2-3...		4, 5	✓	✓	✓
415 V, 50 Hz	1LE010.....3-5...		4, 5	✓	✓	✓
525 V, 50 Hz	1LE010.....4-1...		4, 5	✓	✓	✓
Types of construction						
IM B3	1LE.....A..		4, 5	□	□	□
IM B35	1LE.....J..		4, 5	✓	✓	✓
IM B5	1LE.....F..		4, 5	✓	✓	✓
IM V1	1LE.....G..		4, 5	✓	✓	✓
IM B14	1LE.....K..		4, 5	✓	✓	✓
Mechanical version and degrees of protection						
Condensation drainage holes	1LE.....-Z	H03	4, 5	◇	◇	◇
Prepared for mountings, center hole only	1LE.....-Z	G40	5	□ 5	□ 5	□ 5
Heating and ventilation						
Anti-condensation heating for 230 V	1LE.....-Z	Q02	4, 5	✓	✓	✓
Anti-condensation heating for 115 V	1LE.....-Z	Q03	4, 5	✓	✓	✓
Sheet metal fan cover	1LE0.....	F74	4, 5	□ 4, 5	□ 4, 5	□ 4, 5
Motor protection						
Without protection	1LE.....A.		4, 5	□	□	□
Motor protection with PTC thermistor with 1 or 3 embedded temperature sensors for tripping	1LE.....B.	A11	4, 5	✓	✓	✓
Bearings and lubrication						
Bearing design for increased cantilever forces	1LE.....-Z	L22	4, 5	–	–	✓
Regreasing device	1LE.....-Z	L23	4, 5	–	–	✓
Packaging, safety notes, documentation and test certificate						
Extra rating plate for voltage tolerance	1LE0.....	B07	4, 5	□ 4, 5	□ 4, 5	□ 4, 5
Acceptance test certificate 3.1 in accordance with EN 10204 (routine test)	1LE.....-Z	B02	4, 5	✓	✓	✓
CE marking				□ (b)	□ (b)	□ (b)
Sea-worthy packing for export				□	□	□



The most common features are already embedded in our distribution motors, such as metal fan cover, 3 × PTC, etc. In addition you can also enjoy an exclusive package price on 1LE0. When you place the order, you simply add these standard features in the article number according to the option guideline below. Our 1LE0 series already include all embedded features in the basic article number.

available			available						available
available			available						available
112	132	160	180	200	225	250	280	315	355
✓	✓	–	–	–	–	–	–	–	–
□	□	–	–	–	–	–	–	–	–
□	□	□	□	□	□	□	□	□	□
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	–	–	–	–	–	–	–	–
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
□	□	□	□	□	□	□	□	□	□
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	–
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	–	–	–	–	–	–	–
□ 4, 5	□ 4, 5	□ 4, 5	□	□	□	□	□	□	□
□ 5	□ 5	□ 5	□ 5	□ 5	□ 5	□ 5	□ 5	□ 5	□ 5
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
□ 4, 5	□ 4, 5	□ 4, 5	□	□	□	□	□	□	□
□	□ 4 – 5	□ 4 – 5	□ 4 – 5	□ 4 – 5	□ 4 – 5	□ 4 – 5	□ 4 – 5	□ 4 – 5	□ 4 – 5
✓	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5	✓ 4 □ 5
✓ 4 □ 5 (a)	✓ 4 □ 5 (a)	✓ 4 □ 5 (a)	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	□	□	□
□ 4, 5	□ 4, 5	□ 4, 5	□	□	□	□	□	□	□
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
□ (b)	□ (b)	□ (b)	□ (b)	□ (b)	□ (b)	□ (b)	□ (b)	□ (b)	□ (b)
□	□	□	□	□	□	□	□	□	□

- Standard
- ✓ Option in distribution portfolio
- ◇ Not available in distribution portfolio, only from standard catalog
- Not available
- (a) Standard for 4-pole and 6-pole motor, optional for 2-pole motor
- (b) Not available for type of construction IM V1

SIMOTICS Option Line – Motor selection and article number code

Overview

The article number consists of a combination of figures and letters and is divided into three blocks linked with hyphens for a better overview.

The first block (Position 1 to 7) identifies the motor type and efficiency level; the second block (Position 8 to 12)

defines the motor frame size and length, the number of poles and in some cases the frequency/output; and in the third block (Position 13 to 16) the frequency/output, type of construction and other design features are encoded.

Article number code

Structure	Position: 1 2 3 4 5 6 7 - 8 9 10 11 12 - 13 14 15 16 - Z
<u>Position 1 to 6:</u>	Low-voltage motor series • 1LE0 Option Line
<u>Position 7:</u>	Motor efficiency • Motor with High Efficiency – IE2 • Motor with Standard Efficiency – IE1 • Motor with Premium Efficiency – IE3
<u>Position 8 to 11:</u>	Frame size, number of poles and frame length Refer to page 36
<u>Position 12 and 13:</u>	Voltage, circuit and frequency • 22: 230 VΔ/400 VY 50 Hz • 34: 400 VΔ/690 VY 50 Hz • 35: 415 VΔ 50 Hz • 21: 220 VΔ/380 VY 50 Hz • 33: 380 VΔ/660 VY 50 Hz • 90 ^(a) : special voltage & frequency • 23: 240 VΔ/415 VY 50 Hz • 41: 525 VΔ 50 Hz
<u>Position 14:</u>	Type of construction (refer to page 14) • A: IM B3 • J: IM B35 • F: IM B5 • G: IM V1 • K: IM B14 • T: IM B6 • U: IM B7 • V: IM B8 • C: IM V5 • D: IM V6 • N: IM B34 • M: IM V18 • L: IM V19 • W: IM V15 • Y: IM V35 • H: IM V3
<u>Position 15:</u>	Motor protection • A: without winding protection • B: 3 PTC thermistors for tripping • C: 6 PTC thermistors for alarm and tripping • F: 1 temperature sensor KTY 84-130 • H: 3 resistance thermometers Pt100 • J: 6 resistance thermometers Pt100
<u>Position 16:</u>	Terminal box position (view from drive end) • 4: Terminal box top • 5: Terminal box right • 6: Terminal box left
	Special order versions Encoded – additional order (option) code required ^(a)

^(a) For deviations in the second and third block from the catalog codes, -Z or 90 should be used as alphanumeric values appropriate, e.g. 1LE0021-1DB43-4AB4-Z B02; or 1LE0021-1DB49-0AB4 M2A.

Ordering example

1LE0021-1DB43-4AH4-Z F70+B02

1LE0 Option Line motor, IE2 High Efficiency motor, FS 160, 4-pole, 400 VΔ/690 VY 50 Hz, IM B3, 3 resistance thermometers Pt100, terminal box top included separately driven fan (F70) and acceptance test certificate 3.1 in accordance with EN 10204 (B02).



Did you know

All our described motors have a repeated starting capability. Those motors used on a frequency converter ramping quickly from 0 Hz do not overheat and have an unlimited starting capability. (also see section "converter application") Those motors started direct on-line heat slightly each time they start. The number of starts can only be calculated if many parameters are known. As a rule, three successive normal starts for a cold motor and two successive starts for a warm motor are accepted.

Motor selection

Here is our comprehensive distribution motor portfolio, offering cast-iron series IE1, IE2 and IE3 efficiencies.

Our portfolio is covering power ratings from 0.55 up to 315 kW and frame sizes 80 to 355.

SIMOTICS General Purpose									
Cast-iron series									
Efficiency class	IE1			IE2			IE3		
Series	1LE0022			1LE0021			1LE0023		
No. of poles	2	4	6	2	4	6	2	4	6
Cooling	Self-ventilated (IC 411)			Self-ventilated (IC 411)			Self-ventilated (IC 411)		
Degree of protection	IP55			IP55			IP55		
Insulation	Thermal class 155 (F)			Thermal class 155 (F)			Thermal class 155 (F)		
Utilization	Thermal class 130 (B)			Thermal class 130 (B)			Thermal class 130 (B)		
Frame size	80 ... 355			80 ... 355			80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW			0.55 ... 315 kW			0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm			2.6 ... 2412 Nm			2.5 ... 2406.8 Nm		
Rated power (kW)									
0.55	–	✓	✓	–	✓	✓	–	✓	✓
0.75	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
1.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.2	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓	✓	✓
5.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
7.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	✓	✓	✓	✓	✓	✓	✓	✓	✓
18.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	✓	✓	✓	✓	✓	✓	✓	✓	✓
30	✓	✓	✓	✓	✓	✓	✓	✓	✓
37	✓	✓	✓	✓	✓	✓	✓	✓	✓
45	✓	✓	✓	✓	✓	✓	✓	✓	✓
55	✓	✓	✓	✓	✓	✓	✓	✓	✓
75	✓	✓	✓	✓	✓	✓	✓	✓	✓
90	✓	✓	✓	✓	✓	✓	✓	✓	✓
110	✓	✓	✓	✓	✓	✓	✓	✓	✓
132	✓	✓	✓	✓	✓	✓	✓	✓	✓
160	✓	✓	✓	✓	✓	✓	✓	✓	✓
185	✓	✓	✓	✓	✓	✓	✓	✓	✓
200	✓	✓	✓	✓	✓	✓	✓	✓	✓
220	✓	✓	✓	✓	✓	✓	✓	✓	✓
250	✓	✓	✓	✓	✓	✓	✓	✓	✓
280	✓	✓	–	✓	✓	–	✓	✓	–
315	✓	✓	–	✓	✓	–	✓	✓	–

✓ = Available

– = Not available



The nominal torque of the motor is easy to calculate;
Torque (Nm) =
Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE1

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0022		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.75	0.86	80 M	1LE0022-ODA22-2...	IE1	2800	2.6	1.76	0.86	72.1	73	71.1	5.1	2.3	2.7	0.0008	D	15
1.1	1.3	80 M	1LE0022-ODA32-2...	IE1	2830	3.7	2.5	0.86	75	77.3	74.4	6	2.6	3.1	0.001	E	17.5
1.5	1.75	90 S	1LE0022-OEA02-2...	IE1	2885	5	3.3	0.85	77.2	76.9	73.5	6.9	2.5	3.2	0.0017	F	22
2.2	2.55	90 L	1LE0022-OEA42-2...	IE1	2885	7.3	4.5	0.87	79.7	80.5	78.1	7.5	2.7	3.4	0.0022	F	26
3	3.45	100 L	1LE0022-1AA42-2...	IE1	2850	10	6.3	0.85	81.5	82.1	79.9	6.9	3	3.7	0.0033	F	33
4	4.6	112 M	1LE0022-1BA22-2...	IE1	2910	13.1	8.2	0.85	83.1	83.7	81.5	7.8	2.9	4.2	0.0064	L	39
5.5	6.3	132 S	1LE0022-1CA02-2...	IE1	2915	18	10.9	0.86	84.7	85.3	83.7	6.9	2	3.1	0.013	K	56
7.5	8.6	132 S	1LE0022-1CA12-2...	IE1	2920	24.5	14.3	0.88	86	87.2	86.2	7.1	2	2.9	0.015	K	62
400 V Δ / 690 VY																	
3	3.45	100 L	1LE0022-1AA43-4...	IE1	2850	10	6.3	0.85	81.5	82.1	79.9	6.9	3	3.7	0.0033	F	33
4	4.6	112 M	1LE0022-1BA23-4...	IE1	2910	13.1	8.2	0.85	83.1	83.7	81.5	7.8	2.9	4.2	0.0064	L	39
5.5	6.3	132 S	1LE0022-1CA03-4...	IE1	2915	18	10.9	0.86	84.7	85.3	83.7	6.9	2	3.1	0.013	K	56
7.5	8.6	132 S	1LE0022-1CA13-4...	IE1	2920	24.5	14.3	0.88	86	87.2	86.2	7.1	2	2.9	0.015	K	62
11	12.6	160 M	1LE0022-1DA23-4...	IE1	2925	35.9	21.5	0.84	87.6	88.2	87.1	6.3	2	3.1	0.028	J	93
15	17.3	160 M	1LE0022-1DA33-4...	IE1	2930	48.9	28.5	0.85	88.7	89.3	87.4	7	2.2	3.2	0.034	K	101
18.5	21.3	160 L	1LE0022-1DA43-4...	IE1	2935	60	35	0.86	89.3	89.9	89.1	7.6	2.5	3.4	0.041	K	120
22	24.5	180 M	1LE0022-1EA23-4...	IE1	2925	72	40.5	0.87	89.9	90.6	90	7.6	2.7	3.5	0.072	K	151
30	33.5	200 L	1LE0022-2AA43-4...	IE1	2950	97	55	0.87	90.7	90.8	89	7.5	2.5	3.2	0.12	K	224
37	41.5	200 L	1LE0022-2AA53-4...	IE1	2950	120	67	0.88	91.2	91.6	90.4	7.4	2.6	3.2	0.15	K	242
45	51	225 M	1LE0022-2BA23-4...	IE1	2960	145	81	0.88	91.7	91.9	90.5	7.6	2.8	3.3	0.23	K	304
55	62	250 M	1LE0022-2CA23-4...	IE1	2970	177	98	0.88	92.1	92.4	90.7	7.7	2.5	3.1	0.4	K	374
75	84	280 S	1LE0022-2DA03-4...	IE1	2970	241	134	0.87	92.7	92.6	91.1	6.7	2.7	3	0.7	J	540
90	101	280 M	1LE0022-2DA23-4...	IE1	2975	289	159	0.88	93	93.2	91.3	7.2	2.8	3	0.82	J	560
110	123	315 S	1LE0022-3AA03-4...	IE1	2982	353	189	0.9	93.3	93.1	91.2	7.5	2.2	3.1	1.4	K	735
132	148	315 M	1LE0022-3AA23-4...	IE1	2980	423	220	0.92	93.5	93.1	91.7	7.5	2.3	2.9	1.7	J	850
160	180	315 L	1LE0022-3AA53-4...	IE1	2982	513	265	0.92	93.8	93.6	92.5	7.6	2.5	2.8	1.9	J	960
185	207	315 L	1LE0022-3AA63-4...	IE1	2978	594	310	0.92	93.9	93.9	93.1	7.5	2.4	2.8	2.3	J	1070
200	224	315 L	1LE0022-3AA73-4...	IE1	2980	641	335	0.92	94	94.3	93.2	7.9	2.5	2.6	2.3	K	1080
220	246	355 M	1LE0022-3BA23-4...	IE1	2985	704	370	0.9	94.8	95	92.8	6.5	2	2.1	2.9	H	1590
250	280	355 M	1LE0022-3BA33-4...	IE1	2985	800	420	0.9	95.2	95.2	93	6.5	2	2.1	3	H	1620
280	314	355 L	1LE0022-3BA53-4...	IE1	2985	896	470	0.9	95.2	95.2	92.9	6.5	2	2.1	3.5	H	1820
315	353	355 L	1LE0022-3BA63-4...	IE1	2985	1008	530	0.9	95.4	95.4	93.2	6.5	2	2.1	3.5	H	1830

SIMOTICS Option Line – IE1

**TIP**

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0022		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0022-0DB22-2...	–	1415	3.7	1.43	0.81	69.4	69.9	66.8	4.5	2	2.6	0.0016	D	17
0.75	0.86	80 M	1LE0022-0DB32-2...	IE1	1405	5.1	1.87	0.81	72.1	73.7	71.8	4.8	2	2.6	0.0019	D	18.5
1.1	1.3	90 S	1LE0022-0EB02-2...	IE1	1420	7.4	2.65	0.8	75	77.3	74.3	5.4	2	2.6	0.0027	E	23
1.5	1.75	90 L	1LE0022-0EB42-2...	IE1	1425	10	3.5	0.81	77.2	77.3	75.1	5.6	2	2.5	0.0034	E	26
2.2	2.55	100 L	1LE0022-1AB42-2...	IE1	1425	14.8	4.95	0.81	79.7	80.7	78.7	5.8	2.4	2.9	0.0063	E	30
3	3.45	100 L	1LE0022-1AB52-2...	IE1	1420	20.2	6.4	0.83	81.5	83.1	81.5	6.5	2.8	3.1	0.0081	E	33
4	4.6	112 M	1LE0022-1BB22-2...	IE1	1445	26.4	8.8	0.79	83.1	83.3	81.5	7.4	2.8	3.3	0.011	M	44
5.5	6.3	132 S	1LE0022-1CB02-2...	IE1	1450	36.2	11.4	0.82	84.7	85.5	84.3	6.5	2	3.1	0.019	K	61
7.5	8.6	132 M	1LE0022-1CB22-2...	IE1	1435	50	15.4	0.82	86	87.2	87.2	6.4	2.3	3.1	0.025	K	70
400 V Δ / 690 VY																	
2.2	2.55	100 L	1LE0022-1AB43-4...	IE1	1425	14.8	4.9	0.81	79.7	80.7	78.7	5.8	2.4	2.9	0.0063	E	30
3	3.45	100 L	1LE0022-1AB53-4...	IE1	1420	20.2	6.4	0.83	81.5	83.1	81.5	6.5	2.8	3.1	0.0081	E	33
4	4.6	112 M	1LE0022-1BB23-4...	IE1	1445	26.4	8.8	0.79	83.1	83.3	81.5	7.4	2.8	3.3	0.011	M	44
5.5	6.3	132 S	1LE0022-1CB03-4...	IE1	1450	36.2	11.4	0.82	84.7	85.5	84.3	6.5	2	3.1	0.019	K	61
7.5	8.6	132 M	1LE0022-1CB23-4...	IE1	1435	50	15.4	0.82	86	87.2	87.2	6.4	2.3	3.1	0.025	K	70
11	12.6	160 M	1LE0022-1DB23-4...	IE1	1455	72	21.5	0.84	87.6	88.5	87.8	6.9	2.2	3.3	0.045	K	99
15	17.3	160 L	1LE0022-1DB43-4...	IE1	1460	98	29	0.84	88.7	89.4	88.6	7.8	2.7	3.8	0.06	L	125
18.5	21.3	180 M	1LE0022-1EB23-4...	IE1	1470	120	35	0.85	89.3	90.3	89.9	7.8	2.7	3.5	0.13	L	163
22	24.5	180 L	1LE0022-1EB43-4...	IE1	1465	143	41.5	0.85	89.9	90.9	89.9	7.8	2.4	3.2	0.14	L	179
30	33.5	200 L	1LE0022-2AB43-4...	IE1	1470	195	56	0.85	90.7	91.6	90.5	7.4	2.4	3.1	0.22	K	235
37	41.5	225 S	1LE0022-2BB03-4...	IE1	1470	240	68	0.86	91.2	91.8	91	7.3	2.3	2.8	0.44	K	295
45	51	225 M	1LE0022-2BB23-4...	IE1	1475	292	82	0.87	91.7	92.4	92	7.8	2.9	3.3	0.5	K	322
55	62	250 M	1LE0022-2CB23-4...	IE1	1478	356	101	0.86	92.1	92.8	92	7.6	3	2.8	0.8	K	410
75	84	280 S	1LE0022-2DB03-4...	IE1	1480	484	133	0.88	92.7	93.3	92.2	7.2	2.6	2.8	1.3	J	540
90	101	280 M	1LE0022-2DB23-4...	IE1	1485	579	159	0.88	93	93.5	92.2	7.8	2.7	2.8	1.4	K	600
110	123	315 S	1LE0022-3AB03-4...	IE1	1490	706	200	0.85	93.3	93.4	92.5	8.6	2.8	3.1	2.2	L	745
132	148	315 M	1LE0022-3AB23-4...	IE1	1488	848	235	0.87	93.5	93.8	93.4	7.3	2.5	2.7	2.5	J	875
160	180	315 L	1LE0022-3AB53-4...	IE1	1488	1030	285	0.87	93.8	94	93.6	7.4	3	2.9	3	K	950
185	207	315 L	1LE0022-3AB63-4...	IE1	1490	1185	325	0.88	93.9	94.1	93.6	7.6	3	2.9	3.6	K	1060
200	224	315 L	1LE0022-3AB73-4...	IE1	1488	1285	345	0.88	94	94.3	94.1	7.4	3	3	3.7	J	1070
220	246	355 M	1LE0022-3BB23-4...	IE1	1490	1410	380	0.87	95	95.1	93.1	6.5	2.1	2.2	6.6	H	1630
250	280	355 M	1LE0022-3BB33-4...	IE1	1490	1602	435	0.87	95.2	95.2	93.6	6.5	2.1	2.2	6.9	H	1650
280	314	355 L	1LE0022-3BB53-4...	IE1	1490	1795	485	0.87	95.2	95.2	93.4	6.5	2.1	2.2	7.7	H	1820
315	353	355 L	1LE0022-3BB63-4...	IE1	1490	2019	550	0.87	95.2	95.3	93.6	6.5	2.1	2.2	8.5	H	1890



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE1

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0022		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Rated output		Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0022-0DC32-2...	–	910	5.8	1.6	0.74	67.5	68.7	65.6	3.8	2.1	2.4	0.0024	C	18
0.75	0.86	90 S	1LE0022-0EC02-2...	IE1	925	7.7	2.1	0.74	70	71.5	68.9	3.9	2	2.5	0.0028	C	25
1.1	1.3	90 L	1LE0022-0EC42-2...	IE1	935	11.3	3	0.73	72.9	74	71.8	4.4	2.2	2.7	0.0038	D	26
1.5	1.75	100 L	1LE0022-1AC42-2...	IE1	940	15.4	3.8	0.76	75.2	77.2	74.7	4.6	2.1	2.6	0.0074	D	32
2.2	2.55	112 M	1LE0022-1BC22-2...	IE1	940	22.3	5.5	0.75	77.7	79.2	78.1	5.2	2.4	3	0.01	E	42
3	3.45	132 S	1LE0022-1CC02-2...	IE1	955	30	7.5	0.73	79.7	80.9	79.3	5.2	2	2.8	0.018	E	56
4	4.6	132 M	1LE0022-1CC22-2...	IE1	955	40	9.7	0.73	81.4	82.2	79.4	5.6	2.1	2.9	0.023	K	65
5.5	6.3	132 M	1LE0022-1CC32-2...	IE1	955	55	12.9	0.74	83.1	84.2	83	6	2.3	3.2	0.029	K	73
400 V Δ / 690 VY																	
1.5	1.75	100 L	1LE0022-1AC43-4...	IE1	940	15.4	3.8	0.76	75.2	77.2	74.7	4.6	2.1	2.6	0.0074	D	32
2.2	2.55	112 M	1LE0022-1BC23-4...	IE1	940	22.3	5.4	0.75	77.7	79.2	78.1	5.2	2.4	3	0.01	E	42
3	3.45	132 S	1LE0022-1CC03-4...	IE1	955	30	7.4	0.73	79.7	80.9	79.3	5.2	2	2.8	0.018	E	56
4	4.6	132 M	1LE0022-1CC23-4...	IE1	955	40	9.7	0.73	81.4	82.2	79.4	5.6	2.1	2.9	0.023	K	65
5.5	6.3	132 M	1LE0022-1CC33-4...	IE1	955	55	12.9	0.74	83.1	84.2	83	6	2.3	3.2	0.029	K	73
7.5	8.6	160 M	1LE0022-1DC23-4...	IE1	965	74	16.8	0.76	84.7	85.4	84.5	5.8	2	2.9	0.052	K	101
11	12.6	160 L	1LE0022-1DC43-4...	IE1	965	109	24	0.76	86.4	87	86	6.6	2.2	3.1	0.072	K	128
15	17.3	180 L	1LE0022-1EC43-4...	IE1	970	148	32	0.78	87.7	88.7	88.4	6.5	2.3	3	0.18	K	169
18.5	21.3	200 L	1LE0022-2AC43-4...	IE1	975	182.1	36.5	0.82	88.6	90	90.1	5.8	2.2	2.8	0.26	J	218
22	24.5	200 L	1LE0022-2AC53-4...	IE1	975	215	43	0.82	89.2	90.5	90.5	6.5	2.3	2.8	0.31	J	237
30	33.5	225 M	1LE0022-2BC23-4...	IE1	978	293	58	0.83	90.2	91.4	90.5	6.7	2.4	2.8	0.6	K	290
37	41.5	250 M	1LE0022-2CC23-4...	IE1	982	360	71	0.83	90.8	91.5	91.2	7.5	3	2.8	0.89	K	389
45	51	280 S	1LE0022-2DC03-4...	IE1	985	437	84	0.85	91.4	92.4	92.3	7.1	2.5	2.8	1.1	K	500
55	62	280 M	1LE0022-2DC23-4...	IE1	988	532	102	0.85	91.9	92.6	92.4	7.5	2.4	2.7	1.4	K	525
75	84	315 S	1LE0022-3AC03-4...	IE1	988	725	141	0.83	92.6	93	92.4	7.5	2.4	3	2.3	K	675
90	101	315 M	1LE0022-3AC23-4...	IE1	986	872	166	0.84	92.9	93.4	93.2	7	2.3	2.8	2.8	K	830
110	123	315 L	1LE0022-3AC53-4...	IE1	986	1066	200	0.86	93.3	93.9	93.8	6.5	2.2	2.7	3.4	J	915
132	148	315 L	1LE0022-3AC63-4...	IE1	988	1278	235	0.86	93.5	94.2	93.6	7.8	2.2	2.4	3.9	K	1010
160	180	355 M	1LE0022-3BC23-4...	IE1	989	1545	275	0.88	94.5	94.6	92.4	6.5	2	2.1	7.7	H	1640
185	207	355 M	1LE0022-3BC33-4...	IE1	989	1786	320	0.88	94.5	94.6	92.6	6.5	2	2.1	8.4	H	1680
200	224	355 M	1LE0022-3BC43-4...	IE1	989	1931	345	0.88	94.7	94.7	93.4	6.5	2	2.1	9.1	H	1720
220	246	355 L	1LE0022-3BC53-4...	IE1	989	2124	380	0.88	94.7	94.7	92.6	6.5	2	2.1	10.1	H	1840
250	280	355 L	1LE0022-3BC63-4...	IE1	989	2414	430	0.88	94.7	94.7	93.4	6.5	2	2.1	11.4	H	1920

SIMOTICS Option Line – IE1



The nominal torque
of the motor is easy to calculate;
Torque (Nm) =
Power (kW) × 9550 / Speed (rpm).

	Cast-iron series
Efficiency class	IE1
Series	1LE0022
No. of poles	2 4 6
Cooling	Self-ventilated (IC 411)
Degree of protection	IP55
Insulation	Thermal class 155 (F)
Utilization	Thermal class 130 (B)
Frame size	80 ... 355
Rated output at 50 Hz	0.55 ... 315 kW
Rated torque at 50 Hz	2.6 ... 2414 Nm

Electrical data – 1LE0 – IE1 – 2-pole		(IE1 cast iron) 3000 rpm 2-pole, 525 VΔ 50 Hz														
Rated output kW	Frame size	Article number	IE class	Rated speed		Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
				rpm	Nm			100% load %	75% load %	50% load %						
0.75	80 M	1LE0022-ODA24-1...	IE1	2800	2.6	1.33	0.86	72.1	73	71.1	5.1	2.3	2.7	0.0008	D	15
1.1	80 M	1LE0022-ODA34-1...	IE1	2830	3.7	1.88	0.86	75	77.3	74.4	6	2.6	3.1	0.001	E	17.5
1.5	90 S	1LE0022-OEA04-1...	IE1	2885	5	2.5	0.85	77.2	76.9	73.5	6.9	2.5	3.2	0.0017	F	22
2.2	90 L	1LE0022-OEA44-1...	IE1	2885	7.3	3.5	0.87	79.7	80.5	78.1	7.5	2.7	3.4	0.0022	F	26
3	100 L	1LE0022-1AA44-1...	IE1	2850	10	4.8	0.85	81.5	82.1	79.9	6.9	3	3.7	0.0033	F	33
4	112 M	1LE0022-1BA24-1...	IE1	2910	13.1	6.2	0.85	83.1	83.7	81.5	7.8	2.9	4.2	0.0064	L	39
5.5	132 S	1LE0022-1CA04-1...	IE1	2915	18	8.3	0.86	84.7	85.3	83.7	6.9	2	3.1	0.013	K	56
7.5	132 S	1LE0022-1CA14-1...	IE1	2920	24.5	10.9	0.88	86	87.2	86.2	7.1	2	2.9	0.015	K	62
11	160 M	1LE0022-1DA24-1...	IE1	2925	35.9	16.3	0.84	87.6	88.2	87.1	6.3	2	3.1	0.028	J	93
15	160 M	1LE0022-1DA34-1...	IE1	2930	48.9	21.5	0.85	88.7	89.3	87.4	7	2.2	3.2	0.034	K	101
18.5	160 L	1LE0022-1DA44-1...	IE1	2935	60	26.5	0.86	89.3	89.9	89.1	7.6	2.5	3.4	0.041	K	120
22	180 M	1LE0022-1EA24-1...	IE1	2925	72	31	0.87	89.9	90.6	90	7.6	2.7	3.5	0.072	K	151
30	200 L	1LE0022-2AA44-1...	IE1	2950	97	42	0.87	90.7	90.8	89	7.5	2.5	3.2	0.12	K	224
37	200 L	1LE0022-2AA54-1...	IE1	2950	120	51	0.88	91.2	91.6	90.4	7.4	2.6	3.2	0.15	K	242
45	225 M	1LE0022-2BA24-1...	IE1	2960	145	62	0.88	91.7	91.9	90.5	7.6	2.8	3.3	0.23	K	304
55	250 M	1LE0022-2CA24-1...	IE1	2970	177	75	0.88	92.1	92.4	90.7	7.7	2.5	3.1	0.4	K	374
75	280 S	1LE0022-2DA04-1...	IE1	2970	241	102	0.87	92.7	92.6	91.1	6.7	2.7	3	0.7	J	540
90	280 M	1LE0022-2DA24-1...	IE1	2975	289	121	0.88	93	93.2	91.3	7.2	2.8	3	0.82	J	560
110	315 S	1LE0022-3AA04-1...	IE1	2982	353	144	0.9	93.3	93.1	91.2	7.5	2.2	3.1	1.4	K	735
132	315 M	1LE0022-3AA24-1...	IE1	2980	423	170	0.92	93.5	93.1	91.7	7.5	2.3	2.9	1.7	J	850
160	315 L	1LE0022-3AA54-1...	IE1	2982	513	205	0.92	93.8	93.6	92.5	7.6	2.5	2.8	1.9	J	960
185	315 L	1LE0022-3AA64-1...	IE1	2978	594	235	0.92	93.9	93.9	93.1	7.5	2.4	2.8	2.3	J	1070
200	315 L	1LE0022-3AA74-1...	IE1	2980	641	255	0.92	94	94.3	93.2	7.9	2.5	2.6	2.3	K	1080
220	355 M	1LE0022-3BA24-1...	IE1	2985	704	280	0.9	94.8	95	92.8	6.5	2	2.1	2.9	H	1590
250	355 M	1LE0022-3BA34-1...	IE1	2985	800	320	0.9	95.2	95.2	93	6.5	2	2.1	3	H	1620
280	355 L	1LE0022-3BA54-1...	IE1	2985	896	360	0.9	95.2	95.2	92.9	6.5	2	2.1	3.5	H	1820
315	355 L	1LE0022-3BA64-1...	IE1	2985	1008	405	0.9	95.4	95.4	93.2	6.5	2	2.1	3.5	H	1830

Electrical data – 1LE0 – IE1 – 4-pole		(IE1 cast iron) 1500 rpm 4-pole, 525 VΔ 50 Hz														
0.55	80 M	1LE0022-0DB24-1...	–	1415	3.7	1.08	0.81	69.4	69.9	66.8	4.5	2	2.6	0.0016	D	17
0.75	80 M	1LE0022-0DB34-1...	IE1	1405	5.1	1.41	0.81	72.1	73.7	71.8	4.8	2	2.6	0.0019	D	18.5
1.1	90 S	1LE0022-0EB04-1...	IE1	1420	7.4	2.05	0.8	75	77.3	74.3	5.4	2	2.6	0.0027	E	23
1.5	90 L	1LE0022-0EB44-1...	IE1	1425	10	2.65	0.81	77.2	77.3	75.1	5.6	2	2.5	0.0034	E	26
2.2	100 L	1LE0022-1AB44-1...	IE1	1425	14.8	3.75	0.81	79.7	80.7	78.7	5.8	2.4	2.9	0.0063	E	30
3	100 L	1LE0022-1AB54-1...	IE1	1420	20.2	4.85	0.83	81.5	83.1	81.5	6.5	2.8	3.1	0.0081	E	33
4	112 M	1LE0022-1BB24-1...	IE1	1445	26.4	6.7	0.79	83.1	83.3	81.5	7.4	2.8	3.3	0.011	M	44
5.5	132 S	1LE0022-1CB04-1...	IE1	1450	36.2	8.7	0.82	84.7	85.5	84.3	6.5	2	3.1	0.019	K	61
7.5	132 M	1LE0022-1CB24-1...	IE1	1435	50	11.7	0.82	86	87.2	87.2	6.4	2.3	3.1	0.025	K	70
11	160 M	1LE0022-1DB24-1...	IE1	1455	72	16.3	0.84	87.6	88.5	87.8	6.9	2.2	3.3	0.045	K	99
15	160 L	1LE0022-1DB44-1...	IE1	1460	98	22	0.84	88.7	89.4	88.6	7.8	2.7	3.8	0.06	L	125
18.5	180 M	1LE0022-1EB24-1...	IE1	1470	120	27	0.85	89.3	90.3	89.9	7.8	2.7	3.5	0.13	L	163
22	180 L	1LE0022-1EB44-1...	IE1	1465	143	31.5	0.85	89.9	90.9	89.9	7.8	2.4	3.2	0.14	L	179
30	200 L	1LE0022-2AB44-1...	IE1	1470	195	42.5	0.85	90.7	91.6	90.5	7.4	2.4	3.1	0.22	K	235
37	225 S	1LE0022-2BB04-1...	IE1	1470	240	52	0.86	91.2	91.8	91	7.3	2.3	2.8	0.44	K	295



The nominal torque of the motor is easy to calculate;
Torque (Nm) =
Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE1

	Cast-iron series		
Efficiency class	IE1		
Series	1LE0022		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2414 Nm		

Electrical data – 1LE0 – IE1 – 4-pole

(IE1 cast iron) 1500 rpm 4-pole, 525 VΔ 50 Hz

Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100% load %	75% load %	50% load %						
45	225 M	1LE0022-2BB24-1...	IE1	1475	292	62	0.87	91.7	92.4	92	7.8	2.9	3.3	0.5	K	322
55	250 M	1LE0022-2CB24-1...	IE1	1478	356	77	0.86	92.1	92.8	92	7.6	3	2.8	0.8	K	410
75	280 S	1LE0022-2DB04-1...	IE1	1480	484	101	0.88	92.7	93.3	92.2	7.2	2.6	2.8	1.3	J	540
90	280 M	1LE0022-2DB24-1...	IE1	1485	579	121	0.88	93	93.5	92.2	7.8	2.7	2.8	1.4	K	600
110	315 S	1LE0022-3AB04-1...	IE1	1490	706	153	0.85	93.3	93.4	92.5	8.6	2.8	3.1	2.2	L	745
132	315 M	1LE0022-3AB24-1...	IE1	1488	848	177	0.87	93.5	93.8	93.4	7.3	2.5	2.7	2.5	J	875
160	315 L	1LE0022-3AB54-1...	IE1	1488	1030	215	0.87	93.8	94	93.6	7.4	3	2.9	3	K	950
185	315 L	1LE0022-3AB64-1...	IE1	1490	1185	245	0.88	93.9	94.1	93.6	7.6	3	2.9	3.6	K	1060
200	315 L	1LE0022-3AB74-1...	IE1	1488	1285	265	0.88	94	94.3	94.1	7.4	3	3	3.7	J	1070
220	355 M	1LE0022-3BB24-1...	IE1	1490	1410	290	0.87	95	95.1	93.1	6.5	2.1	2.2	6.6	H	1630
250	355 M	1LE0022-3BB34-1...	IE1	1490	1602	330	0.87	95.2	95.2	93.6	6.5	2.1	2.2	6.9	H	1650
280	355 L	1LE0022-3BB54-1...	IE1	1490	1795	370	0.87	95.2	95.2	93.4	6.5	2.1	2.2	7.7	H	1820
315	355 L	1LE0022-3BB64-1...	IE1	1490	2019	420	0.87	95.2	95.3	93.6	6.5	2.1	2.2	8.5	H	1890

Electrical data – 1LE0 – IE1 – 6-pole

(IE1 cast iron) 1000 rpm 6-pole, 525 VΔ 50 Hz

Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100% load %	75% load %	50% load %						
0.55	80 M	1LE0022-0DC34-1...	–	910	5.8	1.21	0.74	67.5	68.7	65.6	3.8	2.1	2.4	0.0024	C	18
0.75	90 S	1LE0022-0EC04-1...	IE1	925	7.7	1.59	0.74	70	71.5	68.9	3.9	2	2.5	0.0028	C	25
1.1	90 L	1LE0022-0EC44-1...	IE1	935	11.3	2.3	0.73	72.9	74	71.8	4.4	2.2	2.7	0.0038	D	26
1.5	100 L	1LE0022-1AC44-1...	IE1	940	15.4	2.9	0.76	75.2	77.2	74.7	4.6	2.1	2.6	0.0074	D	32
2.2	112 M	1LE0022-1BC24-1...	IE1	940	22.3	4.15	0.75	77.7	79.2	78.1	5.2	2.4	3	0.01	E	42
3	132 S	1LE0022-1CC04-1...	IE1	955	30	5.7	0.73	79.7	80.9	79.3	5.2	2	2.8	0.018	E	56
4	132 M	1LE0022-1CC24-1...	IE1	955	40	7.4	0.73	81.4	82.2	79.4	5.6	2.1	2.9	0.023	K	65
5.5	132 M	1LE0022-1CC34-1...	IE1	955	55	9.8	0.74	83.1	84.2	83	6	2.3	3.2	0.029	K	73
7.5	160 M	1LE0022-1DC24-1...	IE1	965	74	12.8	0.76	84.7	85.4	84.5	5.8	2	2.9	0.052	K	101
11	160 L	1LE0022-1DC44-1...	IE1	965	109	18.5	0.76	86.4	87	86	6.6	2.2	3.1	0.072	K	128
15	180 L	1LE0022-1EC44-1...	IE1	970	148	24.5	0.78	87.7	88.7	88.4	6.5	2.3	3	0.18	K	169
18.5	200 L	1LE0022-2AC44-1...	IE1	975	182.1	28	0.82	88.6	90	90.1	5.8	2.2	2.8	0.26	J	218
22	200 L	1LE0022-2AC54-1...	IE1	975	215	33	0.82	89.2	90.5	90.5	6.5	2.3	2.8	0.31	J	237
30	225 M	1LE0022-2BC24-1...	IE1	978	293	44	0.83	90.2	91.4	90.5	6.7	2.4	2.8	0.6	K	290
37	250 M	1LE0022-2CC24-1...	IE1	982	360	54	0.83	90.8	91.5	91.2	7.5	3	2.8	0.89	K	389
45	280 S	1LE0022-2DC04-1...	IE1	985	437	64	0.85	91.4	92.4	92.3	7.1	2.5	2.8	1.1	K	500
55	280 M	1LE0022-2DC24-1...	IE1	988	532	77	0.85	91.9	92.6	92.4	7.5	2.4	2.7	1.4	K	525
75	315 S	1LE0022-3AC04-1...	IE1	988	725	107	0.83	92.6	93	92.4	7.5	2.4	3	2.3	K	675
90	315 M	1LE0022-3AC24-1...	IE1	986	872	127	0.84	92.9	93.4	93.2	7	2.3	2.8	2.8	K	830
110	315 L	1LE0022-3AC54-1...	IE1	986	1066	152	0.86	93.3	93.9	93.8	6.5	2.2	2.7	3.4	J	915
132	315 L	1LE0022-3AC64-1...	IE1	988	1278	181	0.86	93.5	94.2	93.6	7.8	2.2	2.4	3.9	K	1010
160	355 M	1LE0022-3BC24-1...	IE1	989	1545	210	0.88	94.5	94.6	92.4	6.5	2	2.1	7.7	H	1640
185	355 M	1LE0022-3BC34-1...	IE1	989	1786	240	0.88	94.5	94.6	92.6	6.5	2	2.1	8.4	H	1680
200	355 M	1LE0022-3BC44-1...	IE1	989	1931	260	0.88	94.7	94.7	93.4	6.5	2	2.1	9.1	H	1720
220	355 L	1LE0022-3BC54-1...	IE1	989	2124	290	0.88	94.7	94.7	92.6	6.5	2	2.1	10.1	H	1840
250	355 L	1LE0022-3BC64-1...	IE1	989	2414	330	0.88	94.7	94.7	93.4	6.5	2	2.1	11.4	H	1920

SIMOTICS Option Line – IE2

**TIP**

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

Cast-iron series	
Efficiency class	IE2
Series	1LE0021
No. of poles	2 4 6
Cooling	Self-ventilated (IC 411)
Degree of protection	IP55
Insulation	Thermal class 155 (F)
Utilization	Thermal class 130 (B)
Frame size	80 ... 355
Rated output at 50 Hz	0.55 ... 315 kW
Rated torque at 50 Hz	2.6 ... 2412 Nm

Electrical data – 1LE0 – IE2 – 2-pole (IE2 cast iron) 3000 rpm 2-pole, 400 V 50 Hz																	
Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.75	0.86	80 M	1LE0021-ODA22-2...	IE2	2795	2.6	1.67	0.84	77.4	78.5	78.5	5.6	2.4	2.4	0.0008	D	15.5
1.1	1.3	80 M	1LE0021-ODA32-2...	IE2	2835	3.7	2.4	0.84	79.6	80.6	77.4	6	2.8	3.2	0.0012	E	17.5
1.5	1.75	90 S	1LE0021-OEA02-2...	IE2	2890	5	3.2	0.84	81.3	81.7	78	6.5	2.4	3.1	0.0021	E	23
2.2	2.55	90 L	1LE0021-OEA42-2...	IE2	2890	7.3	4.55	0.85	83.2	83.7	80.8	7.2	2.6	3.5	0.0026	F	26
3	3.45	100 L	1LE0021-1AA42-2...	IE2	2885	9.9	6.1	0.84	84.6	85.1	84.1	7.5	4	4.5	0.0036	F	34
4	4.6	112 M	1LE0021-1BA22-2...	IE2	2930	13	7.8	0.86	85.8	86.6	84.7	7.5	2.2	2.9	0.0064	L	40
5.5	6.3	132 S	1LE0021-1CA02-2...	IE2	2930	17.9	10.5	0.87	87	87.6	86.9	7.5	2.2	2.9	0.014	K	56
7.5	8.6	132 S	1LE0021-1CA12-2...	IE2	2930	24.4	13.8	0.89	88.1	88.8	88.5	7.5	2.3	2.9	0.017	K	62
400 V Δ / 690 VY																	
3	3.45	100 L	1LE0021-1AA43-4...	IE2	2885	9.9	6.1	0.84	84.6	85.1	84.1	7.5	4	4.5	0.0036	F	34
4	4.6	112 M	1LE0021-1BA23-4...	IE2	2930	13	7.8	0.86	85.8	86.6	84.7	7.5	2.2	2.9	0.0064	L	40
5.5	6.3	132 S	1LE0021-1CA03-4...	IE2	2930	17.9	10.5	0.87	87	87.6	86.9	7.5	2.2	2.9	0.014	K	56
7.5	8.6	132 S	1LE0021-1CA13-4...	IE2	2930	24.4	13.8	0.89	88.1	88.8	88.5	7.5	2.3	2.9	0.017	K	62
11	12.6	160 M	1LE0021-1DA23-4...	IE2	2935	35.8	20.5	0.86	89.4	90.1	89.3	7.5	2.2	2.9	0.031	K	96
15	17.3	160 M	1LE0021-1DA33-4...	IE2	2935	48.8	28	0.86	90.3	91	90.5	7.5	2.4	3.2	0.038	K	106
18.5	21.3	160 L	1LE0021-1DA43-4...	IE2	2935	60.2	33	0.89	90.9	91.7	91.5	7.5	2.4	3.2	0.046	K	125
22	24.5	180 M	1LE0021-1EA23-4...	IE2	2935	71.6	40	0.87	91.3	91.8	91.1	7.6	2.5	3.2	0.072	K	152
30	33.5	200 L	1LE0021-2AA43-4...	IE2	2955	97	55	0.86	92	92.3	91.5	7.5	2.5	3.2	0.13	K	229
37	41.5	200 L	1LE0021-2AA53-4...	IE2	2955	120	66	0.88	92.5	92.8	92.3	7.5	2.5	3.2	0.15	K	245
45	51	225 M	1LE0021-2BA23-4...	IE2	2965	145	80	0.88	92.9	93.1	92.5	7.9	2.5	3.1	0.24	K	307
55	62	250 M	1LE0021-2CA23-4...	IE2	2970	177	97	0.88	93.2	93.2	91.8	7.5	2.5	3	0.42	K	378
75	84	280 S	1LE0021-2DA03-4...	IE2	2975	241	133	0.87	93.8	93.8	92.7	7.5	2.8	3	0.75	K	550
90	101	280 M	1LE0021-2DA23-4...	IE2	2978	289	159	0.87	94.1	94.1	92.9	7.5	3	3.1	0.88	K	570
110	123	315 S	1LE0021-3AA03-4...	IE2	2982	352	187	0.9	94.3	94.3	93.3	7.5	2.2	2.6	1.4	J	740
132	148	315 M	1LE0021-3AA23-4...	IE2	2982	423	220	0.91	94.6	94.6	93.9	7.5	2.3	2.9	1.7	J	855
160	180	315 L	1LE0021-3AA53-4...	IE2	2982	512	265	0.92	94.8	95.1	94.1	7.5	2.5	2.8	1.9	J	970
185	207	315 L	1LE0021-3AA63-4...	IE2	2982	592	305	0.92	95	95.3	94.2	7.5	2.5	2.8	2.3	J	1080
200	224	315 L	1LE0021-3AA73-4...	IE2	2982	641	330	0.92	95	95.3	94.4	7.5	2.5	2.8	2.3	J	1090
220	246	355 M	1LE0021-3BA23-4...	IE2	2980	705	370	0.9	95	95	92.8	7.1	2	2.2	2.9	J	1600
250	280	355 M	1LE0021-3BA33-4...	IE2	2980	801	420	0.9	95	95	93	7.1	2	2.2	3	J	1650
280	314	355 L	1LE0021-3BA53-4...	IE2	2980	897	475	0.9	95	95.1	93	7.1	2	2.2	3.5	J	1830
315	353	355 L	1LE0021-3BA63-4...	IE2	2980	1009	530	0.9	95	95.1	93.1	7.1	2	2.3	3.5	J	1840



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE2

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0021		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0021-0DB22-2...	–	1425	3.7	1.34	0.8	74	74.7	70.1	6	2	2.7	0.0021	F	17.5
0.75	0.86	80 M	1LE0021-0DB32-2...	IE2	1440	5	1.82	0.75	79.6	79.6	76.8	6.5	2.8	3.5	0.0027	F	19
1.1	1.3	90 S	1LE0021-0EB02-2...	IE2	1440	7.3	2.65	0.75	81.4	81.4	77.6	7	2.8	3.5	0.0041	G	24
1.5	1.75	90 L	1LE0021-0EB42-2...	IE2	1440	9.9	3.45	0.76	82.8	82.8	80.2	7	3	3.8	0.0047	G	27
2.2	2.55	100 L	1LE0021-1AB42-2...	IE2	1435	14.6	4.8	0.79	84.3	85	83.1	7	3	3.2	0.0081	F	33
3	3.45	100 L	1LE0021-1AB52-2...	IE2	1435	20	6.4	0.79	85.5	86.3	84.2	7	3	3.2	0.01	F	37
4	4.6	112 M	1LE0021-1BB22-2...	IE2	1445	26.4	8.4	0.79	86.6	87.1	85.8	7.1	2.7	3.1	0.011	L	45
5.5	6.3	132 S	1LE0021-1CB02-2...	IE2	1460	36	11.5	0.79	87.7	88.2	86.9	7.5	2.5	3.1	0.021	L	61
7.5	8.6	132 M	1LE0021-1CB22-2...	IE2	1460	49.1	14.9	0.82	88.7	89.4	88.8	7.7	2.7	3.2	0.029	L	73
400 V Δ / 690 VY																	
2.2	2.55	100 L	1LE0021-1AB43-4...	IE2	1435	14.6	4.75	0.79	84.3	85	83.1	7	3	3.2	0.0081	F	33
3	3.45	100 L	1LE0021-1AB53-4...	IE2	1435	20	6.4	0.79	85.5	86.3	84.2	7	3	3.2	0.01	F	37
4	4.6	112 M	1LE0021-1BB23-4...	IE2	1445	26.4	8.455	0.79	86.6	87.1	85.8	7.1	2.7	3.1	0.011	L	45
5.5	6.3	132 S	1LE0021-1CB03-4...	IE2	1460	36	11.495	0.79	87.7	88.2	86.9	7.5	2.5	3.1	0.021	L	61
7.5	8.6	132 M	1LE0021-1CB23-4...	IE2	1460	49.1	14.915	0.82	88.7	89.4	88.8	7.7	2.7	3.2	0.029	L	73
11	12.6	160 M	1LE0021-1DB23-4...	IE2	1465	71.7	21	0.84	89.8	90.4	90.1	7.5	2.5	3.1	0.051	K	103
15	17.3	160 L	1LE0021-1DB43-4...	IE2	1465	97.8	28.025	0.85	90.6	91.3	90.6	7.8	2.7	3.2	0.066	K	130
18.5	21.3	180 M	1LE0021-1EB23-4...	IE2	1465	121	34.5	0.85	91.2	91.8	91.8	7.3	2.5	3.2	0.13	K	165
22	24.5	180 L	1LE0021-1EB43-4...	IE2	1465	143	41	0.85	91.6	92.3	92.7	7.3	2.4	3.2	0.14	K	180
30	33.5	200 L	1LE0021-2AB43-4...	IE2	1470	195	55	0.85	92.3	92.9	92.9	7.3	2.7	3.2	0.22	K	238
37	41.5	225 S	1LE0021-2BB03-4...	IE2	1475	240	67	0.86	92.7	93.2	92.9	7.3	2.7	3.2	0.45	K	298
45	51	225 M	1LE0021-2BB23-4...	IE2	1475	291	80	0.87	93.1	93.5	93.9	7.3	2.7	3.2	0.51	K	322
55	62	250 M	1LE0021-2CB23-4...	IE2	1480	355	99	0.86	93.5	93.9	93.3	7.5	3.1	3.5	0.8	K	410
75	84	280 S	1LE0021-2DB03-4...	IE2	1485	482	132	0.87	94	94.3	93.9	7.5	2.7	3.1	1.4	K	555
90	101	280 M	1LE0021-2DB23-4...	IE2	1485	579	159	0.87	94.2	94.3	94.2	7.5	2.7	3.1	1.5	K	610
110	123	315 S	1LE0021-3AB03-4...	IE2	1488	706	195	0.86	94.5	94.5	93.9	7.3	2.8	2.9	2.2	K	750
132	148	315 M	1LE0021-3AB23-4...	IE2	1486	848	230	0.88	94.7	94.7	95	7.3	2.5	2.7	2.5	J	875
160	180	315 L	1LE0021-3AB53-4...	IE2	1488	1027	275	0.88	94.9	94.9	95.1	7.4	3	2.9	3	J	960
185	207	315 L	1LE0021-3AB63-4...	IE2	1488	1187	320	0.88	95.1	95.1	95	7.4	3	3	3.6	J	1070
200	224	315 L	1LE0021-3AB73-4...	IE2	1488	1284	345	0.88	95.1	95.1	95.1	7.4	3	3	3.7	J	1080
220	246	355 M	1LE0021-3BB23-4...	IE2	1490	1410	370	0.9	95.1	95.2	93.3	6.9	2	2.2	6.6	J	1640
250	280	355 M	1LE0021-3BB33-4...	IE2	1490	1602	420	0.9	95.1	95.2	93.8	6.9	2	2.2	6.9	J	1680
280	314	355 L	1LE0021-3BB53-4...	IE2	1490	1795	470	0.9	95.1	95.2	93.8	6.9	2	2.2	7.7	J	1830
315	353	355 L	1LE0021-3BB63-4...	IE2	1490	2019	530	0.9	95.1	95.2	93.8	6.9	2	2.2	8.5	J	1900

SIMOTICS Option Line – IE2

**TIP**

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0021		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0021-0DC32-2...	–	895	5.9	1.48	0.76	71	72	68.5	3.8	2.1	2.4	0.0028	C	18.5
0.75	0.86	90 S	1LE0021-0EC02-2...	IE2	935	7.7	2	0.71	75.9	76.5	72.7	3.9	2	2.5	0.0038	C	26
1.1	1.3	90 L	1LE0021-0EC42-2...	IE2	945	11.1	2.85	0.71	78.1	78.1	75.7	4.4	2.2	2.7	0.0046	D	27
1.5	1.75	100 L	1LE0021-1AC42-2...	IE2	945	15.2	3.7	0.74	79.8	80.1	78.2	4.6	2.1	2.6	0.0086	D	34
2.2	2.55	112 M	1LE0021-1BC22-2...	IE2	950	22.1	5.4	0.73	81.8	82.5	81	5.2	2.4	3	0.012	E	44
3	3.45	132 S	1LE0021-1CC02-2...	IE2	960	29.8	7.2	0.73	83.3	84.3	83.4	5.2	2	2.8	0.019	E	56
4	4.6	132 M	1LE0021-1CC22-2...	IE2	960	39.8	9.4	0.73	84.6	85.4	84.5	5.6	2.1	2.9	0.024	K	66
5.5	6.3	132 M	1LE0021-1CC32-2...	IE2	960	54.7	12.3	0.75	86	86.6	85.7	6	2.3	3.2	0.031	K	75
400 V Δ / 690 VY																	
1.5	1.75	100 L	1LE0021-1AC43-4...	IE2	945	15.2	3.65	0.74	79.8	80.1	78.2	4.6	2.1	2.6	0.0086	D	34
2.2	2.55	112 M	1LE0021-1BC23-4...	IE2	950	22.1	5.3	0.73	81.8	82.5	81	5.2	2.4	3	0.012	E	44
3	3.45	132 S	1LE0021-1CC03-4...	IE2	960	29.8	7.1	0.73	83.3	84.3	83.4	5.2	2	2.8	0.019	D	56
4	4.6	132 M	1LE0021-1CC23-4...	IE2	960	39.8	9.3	0.73	84.6	85.4	84.5	5.6	2.1	2.9	0.024	K	66
5.5	6.3	132 M	1LE0021-1CC33-4...	IE2	960	54.7	12.4	0.75	86	86.6	85.7	6	2.3	3.2	0.031	K	75
7.5	8.6	160 M	1LE0021-1DC23-4...	IE2	965	74.2	16.2	0.77	87.2	87.9	87.2	5.8	2	2.9	0.056	J	104
11	12.6	160 L	1LE0021-1DC43-4...	IE2	965	109	23	0.78	88.7	89.4	89.5	6.6	2.2	3.1	0.077	K	132
15	17.3	180 L	1LE0021-1EC43-4...	IE2	975	147	31	0.78	89.7	90.4	89.9	6.5	2.3	3	0.18	K	170
18.5	21.3	200 L	1LE0021-2AC43-4...	IE2	975	181	36.5	0.81	90.4	91	91.8	5.8	2.2	2.8	0.27	J	220
22	24.5	200 L	1LE0021-2AC53-4...	IE2	975	215	43	0.82	90.9	91.4	91.9	6.5	2.3	2.8	0.32	J	240
30	33.5	225 M	1LE0021-2BC23-4...	IE2	980	292	57	0.83	91.7	92.3	92.7	6.7	2.4	2.8	0.62	J	294
37	41.5	250 M	1LE0021-2CC23-4...	IE2	982	360	69	0.83	92.2	92.8	92.3	7.5	3	2.8	0.91	K	394
45	51	280 S	1LE0021-2DC03-4...	IE2	985	436	83	0.85	92.7	93.3	93.5	7.1	2.5	2.8	1.2	K	510
55	62	280 M	1LE0021-2DC23-4...	IE2	986	533	101	0.85	93.1	93.7	93.6	7.5	2.4	2.7	1.5	K	535
75	84	315 S	1LE0021-3AC03-4...	IE2	986	726	136	0.85	93.7	94.3	93.8	7.5	2.4	3	2.3	K	680
90	101	315 M	1LE0021-3AC23-4...	IE2	986	872	163	0.85	94	94.5	94.4	7	2.3	2.8	2.8	J	835
110	123	315 L	1LE0021-3AC53-4...	IE2	988	1063	195	0.86	94.3	94.7	94.6	6.5	2.2	2.7	3.9	J	975
132	148	315 L	1LE0021-3AC63-4...	IE2	988	1276	230	0.86	94.6	95	94.9	7.8	2.2	2.4	4.3	K	1030
160	180	355 M	1LE0021-3BC23-4...	IE2	990	1543	280	0.87	94.8	95.1	93.5	6.5	2	2.1	7.7	J	1650
185	207	355 M	1LE0021-3BC33-4...	IE2	990	1785	325	0.87	95	95.3	93.5	6.5	2	2.1	8.4	J	1690
200	224	355 M	1LE0021-3BC43-4...	IE2	990	1929	350	0.87	95	95.3	93.6	6.5	2	2.1	9.1	J	1730
220	246	355 L	1LE0021-3BC53-4...	IE2	990	2122	385	0.87	95	95.3	93.5	6.5	2	2.1	10.1	J	1850
250	280	355 L	1LE0021-3BC63-4...	IE2	990	2412	435	0.87	95	95.3	93.5	6.5	2	2.1	11.4	J	1930



The nominal torque of the motor is easy to calculate;
Torque (Nm) =
Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE2

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0021		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Electrical data – 1LE0 – IE2 – 2-pole

(IE2 cast iron) 3000 rpm 2-pole, 525 VA 50 Hz

Rated output kW	Frame size	Article number	IE class	Rated		Rated power factor	Efficiency at			Starting current	Starting torque	Break- down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg	
				speed rpm	torque Nm		100% load %	75% load %	50% load %							
0.75	80 M	1LE0021-0DA24-1...	IE2	2795	2.6	1.27	0.84	77.4	78.5	78.5	5.6	2.4	2.4	0.0008	D	15.5
1.1	80 M	1LE0021-0DA34-1...	IE2	2835	3.7	1.81	0.84	79.6	80.6	77.4	6	2.8	3.2	0.0012	E	17.5
1.5	90 S	1LE0021-0EA04-1...	IE2	2890	5	2.4	0.84	81.3	81.7	78	6.5	2.4	3.1	0.0021	E	23
2.2	90 L	1LE0021-0EA44-1...	IE2	2890	7.3	3.45	0.85	83.2	83.7	80.8	7.2	2.6	3.5	0.0026	F	26
3	100 L	1LE0021-1AA44-1...	IE2	2885	9.9	4.65	0.84	84.6	85.1	84.1	7.5	4	4.5	0.0036	F	34
4	112 M	1LE0021-1BA24-1...	IE2	2930	13	5.9	0.86	85.8	86.6	84.7	7.5	2.2	2.9	0.0064	L	40
5.5	132 S	1LE0021-1CA04-1...	IE2	2930	17.9	8	0.87	87	87.6	86.9	7.5	2.2	2.9	0.014	K	56
7.5	132 S	1LE0021-1CA14-1...	IE2	2930	24.4	10.5	0.89	88.1	88.8	88.5	7.5	2.3	2.9	0.017	K	62
11	160 M	1LE0021-1DA24-1...	IE2	2935	35.8	15.6	0.86	89.4	90.1	89.3	7.5	2.2	2.9	0.031	K	96
15	160 M	1LE0021-1DA34-1...	IE2	2935	48.8	21.5	0.86	90.3	91	90.5	7.5	2.4	3.2	0.038	K	106
18.5	160 L	1LE0021-1DA44-1...	IE2	2935	60.2	25	0.89	90.9	91.7	91.5	7.5	2.4	3.2	0.046	K	125
22	180 M	1LE0021-1EA24-1...	IE2	2935	71.6	30.5	0.87	91.3	91.8	91.1	7.6	2.5	3.2	0.072	K	152
30	200 L	1LE0021-2AA44-1...	IE2	2955	97	42	0.86	92	92.3	91.5	7.5	2.5	3.2	0.13	K	229
37	200 L	1LE0021-2AA54-1...	IE2	2955	120	50	0.88	92.5	92.8	92.3	7.5	2.5	3.2	0.15	K	245
45	225 M	1LE0021-2BA24-1...	IE2	2965	145	61	0.88	92.9	93.1	92.5	7.9	2.5	3.1	0.24	K	307
55	250 M	1LE0021-2CA24-1...	IE2	2970	177	74	0.88	93.2	93.2	91.8	7.5	2.5	3	0.42	K	378
75	280 S	1LE0021-2DA04-1...	IE2	2975	241	101	0.87	93.8	93.8	92.7	7.5	2.8	3	0.75	K	550
90	280 M	1LE0021-2DA24-1...	IE2	2978	289	121	0.87	94.1	94.1	92.9	7.5	3	3.1	0.88	K	570
110	315 S	1LE0021-3AA04-1...	IE2	2982	352	143	0.9	94.3	94.3	93.3	7.5	2.2	2.6	1.4	J	740
132	315 M	1LE0021-3AA24-1...	IE2	2982	423	170	0.91	94.6	94.6	93.9	7.5	2.3	2.9	1.7	J	855
160	315 L	1LE0021-3AA54-1...	IE2	2982	512	205	0.92	94.8	95.1	94.1	7.5	2.5	2.8	1.9	J	970
185	315 L	1LE0021-3AA64-1...	IE2	2982	592	230	0.92	95	95.3	94.2	7.5	2.5	2.8	2.3	J	1080
200	315 L	1LE0021-3AA74-1...	IE2	2982	641	255	0.92	95	95.3	94.4	7.5	2.5	2.8	2.3	J	1090
220	355 M	1LE0021-3BA24-1...	IE2	2980	705	280	0.9	95	95	92.8	7.1	2	2.2	2.9	J	1600
250	355 M	1LE0021-3BA34-1...	IE2	2980	801	320	0.9	95	95	93	7.1	2	2.2	3	J	1650
280	355 L	1LE0021-3BA54-1...	IE2	2980	897	360	0.9	95	95.1	93	7.1	2	2.2	3.5	J	1830
315	355 L	1LE0021-3BA64-1...	IE2	2980	1009	405	0.9	95	95.1	93.1	7.1	2	2.3	3.5	J	1840

Electrical data – 1LE0 – IE2 – 4-pole

(IE2 cast iron) 1500 rpm 4-pole, 525 VA 50 Hz

0.55	80 M	1LE0021-0DB24-1...	-	1425	3.7	1.01	0.8	74	74.7	70.1	6	2	2.7	0.0021	F	17.5
0.75	80 M	1LE0021-0DB34-1...	IE2	1440	5	1.38	0.75	79.6	79.6	76.8	6.5	2.8	3.5	0.0027	F	19
1.1	90 S	1LE0021-0EB04-1...	IE2	1440	7.3	1.99	0.75	81.4	81.4	77.6	7	2.8	3.5	0.0041	G	24
1.5	90 L	1LE0021-0EB44-1...	IE2	1440	9.9	2.6	0.76	82.8	82.8	80.2	7	3	3.8	0.0047	G	27
2.2	100 L	1LE0021-1AB44-1...	IE2	1435	14.6	3.6	0.79	84.3	85	83.1	7	3	3.2	0.0081	F	33
3	100 L	1LE0021-1AB54-1...	IE2	1435	20	4.85	0.79	85.5	86.3	84.2	7	3	3.2	0.01	F	37
4	112 M	1LE0021-1BB24-1...	IE2	1445	26.4	6.4	0.79	86.6	87.1	85.8	7.1	2.7	3.1	0.011	L	45
5.5	132 S	1LE0021-1CB04-1...	IE2	1460	36	8.8	0.79	87.7	88.2	86.9	7.5	2.5	3.1	0.021	L	61
7.5	132 M	1LE0021-1CB24-1...	IE2	1460	49.1	11.4	0.82	88.7	89.4	88.8	7.7	2.7	3.2	0.029	L	73
11	160 M	1LE0021-1DB24-1...	IE2	1465	71.7	15.9	0.84	89.8	90.4	90.1	7.5	2.5	3.1	0.051	K	103
15	160 L	1LE0021-1DB44-1...	IE2	1465	97.8	21.5	0.85	90.6	91.3	90.6	7.8	2.7	3.2	0.066	K	130
18.5	180 M	1LE0021-1EB24-1...	IE2	1465	121	26.5	0.85	91.2	91.8	91.8	7.3	2.5	3.2	0.13	K	165
22	180 L	1LE0021-1EB44-1...	IE2	1465	143	31	0.85	91.6	92.3	92.7	7.3	2.4	3.2	0.14	K	180
30	200 L	1LE0021-2AB44-1...	IE2	1470	195	42	0.85	92.3	92.9	92.9	7.3	2.7	3.2	0.22	K	238
37	225 S	1LE0021-2BB04-1...	IE2	1475	240	51	0.86	92.7	93.2	92.9	7.3	2.7	3.2	0.45	K	298

SIMOTICS Option Line – IE2

**TIP**

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE2		
Series	1LE0021		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.6 ... 2412 Nm		

Electrical data – 1LE0 – IE2 – 4-pole (IE2 cast iron) 1500 rpm 4-pole, 525 VΔ 50 Hz																
Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at load %			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100%	75%	50%						
45	225 M	1LE0021-2BB24-1...	IE2	1475	291	61	0.87	93.1	93.5	93.9	7.3	2.7	3.2	0.51	K	322
55	250 M	1LE0021-2CB24-1...	IE2	1480	355	75	0.86	93.5	93.9	93.3	7.5	3.1	3.5	0.8	K	410
75	280 S	1LE0021-2DB04-1...	IE2	1485	482	101	0.87	94	94.3	93.9	7.5	2.7	3.1	1.4	K	555
90	280 M	1LE0021-2DB24-1...	IE2	1485	579	121	0.87	94.2	94.3	94.2	7.5	2.7	3.1	1.5	K	610
110	315 S	1LE0021-3AB04-1...	IE2	1488	706	148	0.86	94.5	94.5	93.9	7.3	2.8	2.9	2.2	K	750
132	315 M	1LE0021-3AB24-1...	IE2	1486	848	174	0.88	94.7	94.7	95	7.3	2.5	2.7	2.5	J	875
160	315 L	1LE0021-3AB54-1...	IE2	1488	1027	210	0.88	94.9	94.9	95.1	7.4	3	2.9	3	J	960
185	315 L	1LE0021-3AB64-1...	IE2	1488	1187	240	0.88	95.1	95.1	95	7.4	3	3	3.6	J	1070
200	315 L	1LE0021-3AB74-1...	IE2	1488	1284	265	0.88	95.1	95.1	95.1	7.4	3	3	3.7	J	1080
220	355 M	1LE0021-3BB24-1...	IE2	1490	1410	280	0.9	95.1	95.2	93.3	6.9	2	2.2	6.6	J	1640
250	355 M	1LE0021-3BB34-1...	IE2	1490	1602	320	0.9	95.1	95.2	93.8	6.9	2	2.2	6.9	J	1680
280	355 L	1LE0021-3BB54-1...	IE2	1490	1795	360	0.9	95.1	95.2	93.8	6.9	2	2.2	7.7	J	1830
315	355 L	1LE0021-3BB64-1...	IE2	1490	2019	405	0.9	95.1	95.2	93.8	6.9	2	2.2	8.5	J	1900

Electrical data – 1LE0 – IE2 – 6-pole (IE2 cast iron) 1000 rpm 6-pole, 525 VΔ 50 Hz																
Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Rated power factor	Efficiency at load %			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100%	75%	50%						
0.55	80 M	1LE0021-0DC34-1...	–	895	5.9	1.12	0.76	71	72	68.5	3.8	2.1	2.4	0.0028	C	18.5
0.75	90 S	1LE0021-0EC04-1...	IE2	935	7.7	1.52	0.71	75.9	76.5	72.7	3.9	2	2.5	0.0038	C	26
1.1	90 L	1LE0021-0EC44-1...	IE2	945	11.1	2.15	0.71	78.1	78.1	75.7	4.4	2.2	2.7	0.0046	D	27
1.5	100 L	1LE0021-1AC44-1...	IE2	945	15.2	2.8	0.74	79.8	80.1	78.2	4.6	2.1	2.6	0.0086	D	34
2.2	112 M	1LE0021-1BC24-1...	IE2	950	22.1	4.05	0.73	81.8	82.5	81	5.2	2.4	3	0.012	E	44
3	132 S	1LE0021-1CC04-1...	IE2	960	29.8	5.4	0.73	83.3	84.3	83.4	5.2	2	2.8	0.019	D	56
4	132 M	1LE0021-1CC24-1...	IE2	960	39.8	7.1	0.73	84.6	85.4	84.5	5.6	2.1	2.9	0.024	K	66
5.5	132 M	1LE0021-1CC34-1...	IE2	960	54.7	9.4	0.75	86	86.6	85.7	6	2.3	3.2	0.031	K	75
7.5	160 M	1LE0021-1DC24-1...	IE2	965	74.2	12.3	0.77	87.2	87.9	87.2	5.8	2	2.9	0.056	J	104
11	160 L	1LE0021-1DC44-1...	IE2	965	109	17.4	0.78	88.7	89.4	89.5	6.6	2.2	3.1	0.077	K	132
15	180 L	1LE0021-1EC44-1...	IE2	975	147	23.5	0.78	89.7	90.4	89.9	6.5	2.3	3	0.18	K	170
18.5	200 L	1LE0021-2AC44-1...	IE2	975	181	28	0.81	90.4	91	91.8	5.8	2.2	2.8	0.27	J	220
22	200 L	1LE0021-2AC54-1...	IE2	975	215	32.5	0.82	90.9	91.4	91.9	6.5	2.3	2.8	0.32	J	240
30	225 M	1LE0021-2BC24-1...	IE2	980	292	43.5	0.83	91.7	92.3	92.7	6.7	2.4	2.8	0.62	J	294
37	250 M	1LE0021-2CC24-1...	IE2	982	360	53	0.83	92.2	92.8	92.3	7.5	3	2.8	0.91	K	394
45	280 S	1LE0021-2DC04-1...	IE2	985	436	63	0.85	92.7	93.3	93.5	7.1	2.5	2.8	1.2	K	510
55	280 M	1LE0021-2DC24-1...	IE2	986	533	77	0.85	93.1	93.7	93.6	7.5	2.4	2.7	1.5	K	535
75	315 S	1LE0021-3AC04-1...	IE2	986	726	104	0.85	93.7	94.3	93.8	7.5	2.4	3	2.3	K	680
90	315 M	1LE0021-3AC24-1...	IE2	986	872	124	0.85	94	94.5	94.4	7	2.3	2.8	2.8	J	835
110	315 L	1LE0021-3AC54-1...	IE2	988	1063	148	0.86	94.3	94.7	94.6	6.5	2.2	2.7	3.9	J	975
132	315 L	1LE0021-3AC64-1...	IE2	988	1276	177	0.86	94.6	95	94.9	7.8	2.2	2.4	4.3	K	1030
160	355 M	1LE0021-3BC24-1...	IE2	990	1543	215	0.87	94.8	95.1	93.5	6.5	2	2.1	7.7	J	1650
185	355 M	1LE0021-3BC34-1...	IE2	990	1785	245	0.87	95	95.3	93.5	6.5	2	2.1	8.4	J	1690
200	355 M	1LE0021-3BC44-1...	IE2	990	1929	270	0.87	95	95.3	93.6	6.5	2	2.1	9.1	J	1730
220	355 L	1LE0021-3BC54-1...	IE2	990	2122	295	0.87	95	95.3	93.5	6.5	2	2.1	10.1	J	1850
250	355 L	1LE0021-3BC64-1...	IE2	990	2412	335	0.87	95	95.3	93.5	6.5	2	2.1	11.4	J	1930



The nominal torque of the motor is easy to calculate;
Torque (Nm) =
Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE3

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0023		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		

Electrical data – 1LE0 – IE3 – 2-pole		(IE3 cast iron) 3000 rpm 2-pole, 400 V 50 Hz															
Rated output	Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Net weight (IM B3)	
								100% load	75% load	50% load							
50 Hz kW	60 Hz kW			rpm	Nm	A		%	%	%				kgm ²	kg		
230 VΔ / 400 VY																	
0.75	0.86	80 M	1LE0023-ODA22-2...	IE3	2835	2.5	1.56	0.86	80.7	82.92	82.9	6	2.4	3	0.00208	J	16
1.1	1.3	80 M	1LE0023-ODA32-2...	IE3	2870	3.7	2.3	0.83	82.7	83.98	83.9	6.5	2.4	3.4	0.00154	K	18
1.5	1.75	90 S	1LE0023-OEA02-2...	IE3	2900	4.9	3	0.86	84.2	84.77	82.3	6.5	2	3.4	0.00276	K	24
2.2	2.55	90 L	1LE0023-OEA42-2...	IE3	2910	7.2	4.2	0.88	85.9	87.19	86.5	7.5	2.3	3.6	0.00356	K	28
3	3.45	100 L	1LE0023-1AA42-2...	IE3	2875	10.0	5.7	0.87	87.1	88.29	88.3	7.8	2.6	3.6	0.00462	L	39
4	4.6	112 M	1LE0023-1BA22-2...	IE3	2925	13.1	7.3	0.9	88.1	89.56	89.8	7.8	2.6	3.6	0.0088	K	46
5.5	6.3	132 S	1LE0023-1CA02-2...	IE3	2930	17.9	10	0.89	89.2	90.24	90.3	7.5	2.3	3.6	0.0185	K	64
7.5	8.6	132 S	1LE0023-1CA12-2...	IE3	2925	24.5	13.3	0.9	90.1	91.46	92.2	7.5	2.3	3.6	0.0232	K	71
400 VΔ / 690 VY																	
3	3.45	100 L	1LE0023-1AA43-4...	IE3	2875	10.0	5.7	0.87	87.1	88.3	88.3	7.8	2.6	3.6	0.0046	L	39
4	4.6	112 M	1LE0023-1BA23-4...	IE3	2925	13.1	7.3	0.9	88.1	89.6	89.8	7.8	2.6	3.6	0.0088	K	46
5.5	6.3	132 S	1LE0023-1CA03-4...	IE3	2930	17.9	10	0.89	89.2	90.2	90.3	7.5	2.3	3.6	0.0185	K	64
7.5	8.6	132 S	1LE0023-1CA13-4...	IE3	2925	24.5	13.4	0.9	90.1	91.5	92.2	7.5	2.3	3.6	0.0232	K	71
11	12.6	160 M	1LE0023-1DA23-4...	IE3	2935	35.8	19.6	0.89	91.2	92.0	91.7	7.5	2.3	2.5	0.0390	K	99
15	17.3	160 M	1LE0023-1DA33-4...	IE3	2930	48.9	26.5	0.89	91.9	92.6	92.5	7.5	2.4	3.4	0.0472	K	107
18.5	21.3	160 L	1LE0023-1DA43-4...	IE3	2940	60.1	32.5	0.89	92.4	93.0	92.9	7.8	2.4	3.4	0.0577	K	131
22	24.5	180 M	1LE0023-1EA23-4...	IE3	2950	71.2	38.5	0.89	92.7	93.0	92.4	7.8	2.4	3.4	0.0770	K	171
30	33.5	200 L	1LE0023-2AA43-4...	IE3	2955	97.0	52	0.89	93.3	93.4	92.4	7.8	2.4	3.4	0.1330	K	250
37	41.5	200 L	1LE0023-2AA53-4...	IE3	2955	119.6	64	0.89	93.7	93.9	93.3	7.8	2.4	3.4	0.1520	K	260
45	51	225 M	1LE0023-2BA23-4...	IE3	2960	145.2	78	0.89	94	94.3	93.8	7.8	2.4	3.2	0.2540	K	342
55	62	250 M	1LE0023-2CA23-4...	IE3	2975	176.6	95	0.89	94.3	94.1	93.1	7.8	2.4	3.2	0.4430	K	425
75	84	280 S	1LE0023-2DA03-4...	IE3	2975	240.8	128	0.89	94.7	94.8	94.1	7.2	2.4	3	0.7800	J	545
90	101	280 M	1LE0023-2DA23-4...	IE3	2975	288.9	152	0.9	95	95.3	95	7.2	2.4	3.4	0.9500	J	620
110	123	315 S	1LE0023-3AA03-4...	IE3	2975	353.1	185	0.9	95.2	95.1	94.5	8.5	1.8	2.6	1.3000	K	790
132	148	315 M	1LE0023-3AA23-4...	IE3	2980	423.0	220	0.9	95.4	95.3	92.4	8.5	2.1	2.6	1.5100	K	960
160	180	315 L	1LE0023-3AA53-4...	IE3	2978	513.1	265	0.91	95.6	95.7	95.3	8.5	2.1	2.6	1.8100	K	1060
185	207	315 L	1LE0023-3AA63-4...	IE3	2978	593.3	305	0.92	95.7	95.9	95.7	8.5	2.3	2.6	2.1900	K	1145
200	224	315 L	1LE0023-3AA73-4...	IE3	2982	640.5	330	0.92	95.8	95.9	95.7	8.5	2.6	3.2	2.1900	K	1165
220	246	355 M	1LE0023-3BA23-4...	IE3	2986	704.0	370	0.90	95.8	95.4	94.2	8.5	2.2	2.8	3.0000	K	1490
250	280	355 M	1LE0023-3BA33-4...	IE3	2985	800.0	420	0.90	95.8	95.7	94.6	8	2.2	2.8	3.0000	K	1490
280	314	355 L	1LE0023-3BA53-4...	IE3	2988	895.0	470	0.9	95.8	95.7	94.9	8.5	2.2	2.8	3.5000	K	1620
315	353	355 L	1LE0023-3BA63-4...	IE3	2982	1009.0	530	0.9	95.8	95.8	95.3	8	2.2	2.8	3.5	K	1670

SIMOTICS Option Line – IE3



TIP
 The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0023		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		

Rated output		Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net Weight (IM B3) kg
50 Hz kW	60 Hz kW								100% load %	75% load %	50% load %						
230 VΔ / 400 VY																	
0.55	0.63	80 M	1LE0023-0DB22-2...	IE3	1440	3.65	1.29	0.76	80.8	81.77	80.2	5.5	2.2	3.2	0.0022	K	16.5
0.75	0.86	80 M	1LE0023-0DB32-2...	IE3	1445	4.96	1.75	0.75	82.5	82.92	80.7	6	2.7	3.7	0.0025	K	18
1.1	1.3	90 S	1LE0023-0EB02-2...	IE3	1430	7.35	2.4	0.79	84.1	85.07	83.9	6.5	2.7	3.7	0.0039	K	24
1.5	1.75	90 L	1LE0023-0EB42-2...	IE3	1440	9.95	3.2	0.79	85.3	86	85.2	6.5	2.7	3.8	0.0050	K	27
2.2	2.55	100 L	1LE0023-1AB42-2...	IE3	1445	14.54	4.45	0.82	86.7	87.11	85.7	8.3	3.7	4.6	0.0113	M	42
3	3.45	100 L	1LE0023-1AB52-2...	IE3	1450	19.76	6	0.82	87.7	88.06	87.1	8.3	3.7	4.6	0.0131	M	46
4	4.6	112 M	1LE0023-1BB22-2...	IE3	1450	26.34	7.9	0.82	88.6	89.59	89.2	8.3	3.7	4.6	0.0149	M	52
5.5	6.3	132 S	1LE0023-1CB02-2...	IE3	1455	36.10	10.5	0.84	89.6	90.87	91.1	7.8	2.4	3.8	0.0285	L	71
7.5	8.6	132 M	1LE0023-1CB22-2...	IE3	1455	49.23	14.1	0.85	90.4	91.69	93.2	7.8	2.4	3.8	0.0356	L	83
400 VΔ / 690 VY																	
2.2	2.55	100 L	1LE0023-1AB43-4...	IE3	1445	14.54	4.45	0.82	86.7	87.11	85.7	8.3	3.7	4.6	0.01125	M	42
3	3.45	100 L	1LE0023-1AB53-4...	IE3	1450	19.76	6	0.82	87.7	88.06	87.1	8.3	3.7	4.6	0.01313	M	46
4	4.6	112 M	1LE0023-1BB23-4...	IE3	1450	26.34	7.9	0.82	88.6	89.59	89.2	8.3	3.7	4.6	0.01493	M	52
5.5	6.3	132 S	1LE0023-1CB03-4...	IE3	1455	36.10	10.5	0.84	89.6	90.87	91.1	7.8	2.4	3.8	0.02847	L	71
7.5	8.6	132 M	1LE0023-1CB23-4...	IE3	1455	49.23	14.1	0.85	90.4	91.69	93.2	7.8	2.4	3.8	0.03561	L	83
11	12.6	160 M	1LE0023-1DB23-4...	IE3	1460	71.95	20	0.86	91.4	92.4	92.6	7.8	2.4	3.8	0.06482	K	110
15	17.3	160 L	1LE0023-1DB43-4...	IE3	1460	98.12	27.5	0.86	92.1	92.91	93	7.8	2.6	3.8	0.08109	K	134
18.5	21.3	180 M	1LE0023-1EB23-4...	IE3	1470	120.19	34.5	0.83	92.6	93	92.5	7.8	2.6	3.6	0.12600	L	170
22	24.5	180 L	1LE0023-1EB43-4...	IE3	1470	142.93	41	0.83	93	93.7	93.6	7.8	2.6	3.6	0.14600	L	192
30	33.5	200 L	1LE0023-2AB43-4...	IE3	1470	194.90	55	0.84	93.6	94.3	94.2	7.8	2.6	3.6	0.22000	K	255
37	41.5	225 S	1LE0023-2BB03-4...	IE3	1478	239.07	67	0.85	93.9	94.1	93.4	8.3	3.3	3.6	0.46100	L	315
45	51	225 M	1LE0023-2BB23-4...	IE3	1478	290.76	81	0.85	94.2	94.2	93.7	8.3	3.3	3.6	0.47900	L	342
55	62	250 M	1LE0023-2CB23-4...	IE3	1482	354.42	98	0.86	94.6	95	94.7	7.6	2.6	3.3	0.82000	K	440
75	84	280 S	1LE0023-2DB03-4...	IE3	1485	482.32	133	0.86	95	95.3	95.3	7.6	2.6	3	1.31000	K	580
90	101	280 M	1LE0023-2DB23-4...	IE3	1485	578.79	157	0.87	95.2	95.64	95.5	7.6	2.6	3	1.69000	K	685
110	123	315 S	1LE0023-3AB03-4...	IE3	1488	705.98	191	0.87	95.4	95.7	95.4	7.9	3.3	3	2.77000	K	800
132	148	315 M	1LE0023-3AB23-4...	IE3	1488	847.18	230	0.87	95.6	95.9	95.5	7.9	3.3	3	3.00000	K	1035
160	180	315 L	1LE0023-3AB53-4...	IE3	1488	1026.88	275	0.87	95.8	96.1	95.8	7.9	3.3	3	3.14000	K	1065
185	207	315 L	1LE0023-3AB63-4...	IE3	1488	1187.33	320	0.87	95.9	96.2	95.8	7.9	3.3	3	3.46000	K	1115
200	224	315 L	1LE0023-3AB73-4...	IE3	1490	1281.88	340	0.88	96	96.3	96.1	7.9	3.3	3	3.79000	K	1175
220	246	355 M	1LE0023-3BB23-4...	IE3	1492	1408.18	375	0.88	96	96.01	95.3	8	2	3.2	6.90000	K	1670
250	280	355 M	1LE0023-3BB33-4...	IE3	1490	1602.35	425	0.88	96	96.04	95.3	7.8	1.8	2.9	6.90000	K	1670
280	314	355 L	1LE0023-3BB53-4...	IE3	1490	1794.63	480	0.88	96	96.11	95.7	7.8	1.8	2.9	7.70000	K	1700
315	353	355 L	1LE0023-3BB63-4...	IE3	1490	2018.96	540	0.88	96	96.13	95.8	8	1.8	2.9	8.50000	K	1790



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE3

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0023		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		

Rated output		Frame size	Article number	IE class	Rated speed	Rated torque	Rated current	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia	Torque class	Weight (IM B3)
50 Hz kW	60 Hz kW								100% load	75% load	50% load						
230 V Δ / 400 VY																	
0.55	0.63	80 M	1LE0023-ODC32-2...	IE3	935	5.62	1.53	0.67	77.2	77.45	74.6	5	2.7	3.4	0.00310	K	19.5
0.75	0.86	90 S	1LE0023-OEC02-2...	IE3	940	7.62	1.96	0.7	78.9	80.32	78	5	2.4	3.2	0.00436	K	25
1.1	1.3	90 L	1LE0023-OEC42-2...	IE3	945	11.12	2.85	0.69	81	81.58	80.4	5.5	2.7	3.5	0.00513	K	28
1.5	1.75	100 L	1LE0023-1AC42-2...	IE3	945	15.16	3.55	0.74	82.5	84.13	82.9	5.5	2.7	3.5	0.01136	K	42
2.2	2.55	112 M	1LE0023-1BC22-2...	IE3	945	22.23	5.1	0.74	84.3	86.11	95.7	6	2.7	3.4	0.01451	K	50
3	3.45	132 S	1LE0023-1CC02-2...	IE3	965	29.69	6.7	0.75	85.6	86.6	86	6	2.7	4	0.02666	K	67
4	4.6	132 M	1LE0023-1CC22-2...	IE3	955	40.00	8.9	0.75	86.8	88.54	88.7	6	2.3	3.4	0.03045	K	76
5.5	6.3	132 M	1LE0023-1CC32-2...	IE3	960	54.71	11.9	0.76	88	89.15	89	6.5	2.3	4	0.04125	K	88
400 V Δ / 690 VY																	
1.5	1.75	100 L	1LE0023-1AC43-4...	IE3	945	15.16	3.55	0.74	82.50	84.13	82.90	5.5	2.7	3.5	0.0114	K	42
2.2	2.55	112 M	1LE0023-1BC23-4...	IE3	945	22.23	5.1	0.74	84.30	86.11	95.70	6	2.7	3.4	0.0145	K	50
3	3.45	132 S	1LE0023-1CC03-4...	IE3	965	29.69	6.7	0.75	85.60	86.60	86.00	6	2.7	4	0.0267	K	67
4	4.6	132 M	1LE0023-1CC23-4...	IE3	955	40.00	8.9	0.75	86.80	88.54	88.70	6	2.3	3.4	0.0305	K	76
5.5	6.3	132 M	1LE0023-1CC33-4...	IE3	960	54.71	11.9	0.76	88.00	89.15	89.00	6.5	2.3	4	0.0413	K	88
7.5	8.6	160 M	1LE0023-1DC23-4...	IE3	965	74.22	15.6	0.78	89.10	90.36	90.30	6.5	2.3	3.6	0.0703	K	112
11	12.6	160 L	1LE0023-1DC43-4...	IE3	970	108.30	22.5	0.78	90.30	90.30	89.80	7	2.3	3.6	0.0707	K	144
15	17.3	180 L	1LE0023-1EC43-4...	IE3	975	146.92	29.5	0.8	91.20	92.10	91.80	7	2.3	3	0.1850	K	175
18.5	21.3	200 L	1LE0023-2AC43-4...	IE3	978	180.65	36.5	0.8	91.70	92.45	92.20	7	2.3	3	0.2840	K	235
22	24.5	200 L	1LE0023-2AC53-4...	IE3	978	214.83	43	0.8	92.20	93.10	93.00	7	2.4	3	0.3270	K	251
30	33.5	225 M	1LE0023-2BC23-4...	IE3	982	291.75	56	0.83	92.90	93.90	94.30	7.6	2.4	3	0.7100	K	350
37	41.5	250 M	1LE0023-2CC23-4...	IE3	985	358.73	68	0.84	93.30	94.10	94.10	7.6	2.4	3	1.0300	K	430
45	51	280 S	1LE0023-2DC03-4...	IE3	985	436.29	83	0.84	93.70	94.47	94.40	7.8	3	3	1.4000	K	520
55	62	280 M	1LE0023-2DC23-4...	IE3	988	531.63	100	0.84	94.10	94.60	94.50	7.8	3	3	1.7000	K	585
75	84	315 S	1LE0023-3AC03-4...	IE3	990	723.48	136	0.84	94.60	95.00	94.70	7.8	2.6	3	2.7300	K	790
90	101	315 M	1LE0023-3AC23-4...	IE3	990	868.18	163	0.84	94.90	95.26	94.90	7.8	2.6	3	3.2900	K	950
110	123	315 L	1LE0023-3AC53-4...	IE3	991	1060.04	196	0.85	95.10	95.30	94.90	7.8	2.6	3	4.1700	K	1085
132	148	315 L	1LE0023-3AC63-4...	IE3	991	1272.05	235	0.85	95.40	95.70	95.40	7.8	2.6	3	4.4900	K	1135
160	180	355 M	1LE0023-3BC23-4...	IE3	994	1537.22	290	0.84	95.60	95.65	95.20	8.5	3	2.4	8.4000	L	1770
185	207	355 M	1LE0023-3BC33-4...	IE3	993	1779.20	330	0.84	95.70	95.81	95.30	8.5	3	2.4	8.4000	L	1770
200	224	355 M	1LE0023-3BC43-4...	IE3	993	1923.46	360	0.84	95.80	95.91	95.40	8.5	3	2.4	11.2000	L	1810
220	246	355 L	1LE0023-3BC53-4...	IE3	993	2115.81	395	0.84	95.80	95.95	95.60	8.5	3	2.4	11.4000	L	1980
250	280	355 L	1LE0023-3BC63-4...	IE3	992	2406.8	450	0.84	95.8	96.1	95.9	8.5	3	2.4	11.4	L	2010

SIMOTICS Option Line – IE3


TIP

The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0023		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		

Electrical data – 1LE0 – IE3 – 2-pole (IE3 cast iron) 3000 rpm 2-pole, 525 VA 50 Hz																
Rated output kW	Frame size	Article number	IE class	Rated torque		Rated current A	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Weight (IM B3) kg
				speed rpm	Nm			100% load %	75% load %	50% load %						
0.75	80 M	1LE0023-ODA24-1...	IE3	2835	2.5	1.19	0.86	80.7	82.9	82.9	6	2.4	3	0.002083	J	16
1.1	80 M	1LE0023-ODA34-1...	IE3	2870	3.7	1.76	0.83	82.7	84.0	83.9	6.5	2.4	3.4	0.001537	K	18
1.5	90 S	1LE0023-OEA04-1...	IE3	2900	4.9	2.3	0.86	84.2	84.8	82.3	6.5	2	3.4	0.002764	K	24
2.2	90 L	1LE0023-OEA44-1...	IE3	2910	7.2	3.2	0.88	85.9	87.2	86.5	7.5	2.3	3.6	0.003557	K	28
3	100 L	1LE0023-1AA44-1...	IE3	2875	10.0	4.35	0.87	87.1	88.3	88.3	7.8	2.6	3.6	0.004619	L	39
4	112 M	1LE0023-1BA24-1...	IE3	2925	13.1	5.5	0.9	88.1	89.6	89.8	7.8	2.6	3.6	0.00879	K	46
5.5	132 S	1LE0023-1CA04-1...	IE3	2930	17.9	7.6	0.89	89.2	90.2	90.3	7.5	2.3	3.6	0.01847	K	64
7.5	132 S	1LE0023-1CA14-1...	IE3	2925	24.5	10.2	0.9	90.1	91.5	92.2	7.5	2.3	3.6	0.023231	K	71
11	160 M	1LE0023-1DA24-1...	IE3	2935	35.8	14.9	0.89	91.2	92.0	91.7	7.5	2.3	2.5	0.03903	K	99
15	160 M	1LE0023-1DA34-1...	IE3	2930	48.9	20	0.89	91.9	92.6	92.5	7.5	2.4	3.4	0.0472	K	107
18.5	160 L	1LE0023-1DA44-1...	IE3	2940	60.1	24.5	0.89	92.4	93.0	92.9	7.8	2.4	3.4	0.05773	K	131
22	180 M	1LE0023-1EA24-1...	IE3	2950	71.2	29.5	0.89	92.7	93.0	92.4	7.8	2.4	3.4	0.077	K	171
30	200 L	1LE0023-2AA44-1...	IE3	2955	97.0	39.5	0.89	93.3	93.4	92.4	7.8	2.4	3.4	0.133	K	250
37	200 L	1LE0023-2AA54-1...	IE3	2955	119.6	49	0.89	93.7	93.9	93.3	7.8	2.4	3.4	0.152	K	260
45	225 M	1LE0023-2BA24-1...	IE3	2960	145.2	59	0.89	94.0	94.3	93.8	7.8	2.4	3.2	0.254	K	342
55	250 M	1LE0023-2CA24-1...	IE3	2975	176.6	72	0.89	94.3	94.1	93.1	7.8	2.4	3.2	0.443	K	425
75	280 S	1LE0023-2DA04-1...	IE3	2975	240.8	98	0.89	94.7	94.8	94.1	7.2	2.4	3	0.78	J	545
90	280 M	1LE0023-2DA24-1...	IE3	2975	288.9	116	0.9	95.0	95.3	95.0	7.2	2.4	3.4	0.95	J	620
110	315 S	1LE0023-3AA04-1...	IE3	2975	353.1	141	0.9	95.2	95.1	94.5	8.5	1.8	2.6	1.3	K	790
132	315 M	1LE0023-3AA24-1...	IE3	2980	423.0	169	0.9	95.4	95.3	92.4	8.5	2.1	2.6	1.51	K	960
160	315 L	1LE0023-3AA54-1...	IE3	2978	513.1	200	0.91	95.6	95.7	95.3	8.5	2.1	2.6	1.81	K	1060
185	315 L	1LE0023-3AA64-1...	IE3	2978	593.3	230	0.92	95.7	95.9	95.7	8.5	2.3	2.6	2.19	K	1145
200	315 L	1LE0023-3AA74-1...	IE3	2982	640.5	250	0.92	95.8	95.9	95.7	8.5	2.6	3.2	2.19	K	1165
220	355 M	1LE0023-3BA24-1...	IE3	2986	704.0	280	0.90	95.8	95.4	94.2	8.5	2.2	2.8	3	K	1490
250	355 M	1LE0023-3BA34-1...	IE3	2985	800.0	320	0.90	95.8	95.7	94.6	8	2.2	2.8	3	K	1490
280	355 L	1LE0023-3BA54-1...	IE3	2988	895.0	355	0.9	95.8	95.7	94.9	8.5	2.2	2.8	3.5	K	1620
315	355 L	1LE0023-3BA64-1...	IE3	2982	1009.0	400	0.9	95.8	95.8	95.3	8	2.2	2.8	3.5	K	1670



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

SIMOTICS Option Line – IE3

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0023		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		

Electrical data – 1LE0 – IE3 – 4-pole (IE3 cast iron) 1500 rpm 4-pole, 525 VA 50 Hz																
Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100% load %	75% load %	50% load %						
0.55	80 M	1LE0023-0DB24-1...	IE3	1440	3.6	0.98	0.76	80.8	81.8	80.2	5.5	2.2	3.2	0.002155	K	16.5
0.75	80 M	1LE0023-0DB34-1...	IE3	1445	5.0	1.33	0.75	82.5	82.9	80.7	6	2.7	3.7	0.002501	K	18
1.1	90 S	1LE0023-0EB04-1...	IE3	1430	7.3	1.82	0.79	84.1	85.1	83.9	6.5	2.7	3.7	0.003888	K	24
1.5	90 L	1LE0023-0EB44-1...	IE3	1440	9.9	2.45	0.79	85.3	86.0	85.2	6.5	2.7	3.8	0.004992	K	27
2.2	100 L	1LE0023-1AB44-1...	IE3	1445	14.5	3.4	0.82	86.7	87.1	85.7	8.3	3.7	4.6	0.01125	M	42
3	100 L	1LE0023-1AB54-1...	IE3	1450	19.8	4.6	0.82	87.7	88.1	87.1	8.3	3.7	4.6	0.01313	M	46
4	112 M	1LE0023-1BB24-1...	IE3	1450	26.3	6.1	0.82	88.6	89.6	89.2	8.3	3.7	4.6	0.014928	M	52
5.5	132 S	1LE0023-1CB04-1...	IE3	1455	36.1	8	0.84	89.6	90.9	91.1	7.8	2.4	3.8	0.028465	L	71
7.5	132 M	1LE0023-1CB24-1...	IE3	1455	49.2	10.7	0.85	90.4	91.7	93.2	7.8	2.4	3.8	0.03561	L	83
11	160 M	1LE0023-1DB24-1...	IE3	1460	72.0	15.4	0.86	91.4	92.4	92.6	7.8	2.4	3.8	0.06482	K	110
15	160 L	1LE0023-1DB44-1...	IE3	1460	98.1	21	0.86	92.1	92.9	93.0	7.8	2.6	3.8	0.08109	K	134
18.5	180 M	1LE0023-1EB24-1...	IE3	1470	120.2	26.5	0.83	92.6	93.0	92.5	7.8	2.6	3.6	0.126	L	170
22	180 L	1LE0023-1EB44-1...	IE3	1470	142.9	31.5	0.83	93.0	93.7	93.6	7.8	2.6	3.6	0.146	L	192
30	200 L	1LE0023-2AB44-1...	IE3	1470	194.9	42	0.84	93.6	94.3	94.2	7.8	2.6	3.6	0.22	K	255
37	225 S	1LE0023-2BB04-1...	IE3	1478	239.1	51	0.85	93.9	94.1	93.4	8.3	3.3	3.6	0.461	L	315
45	225 M	1LE0023-2BB24-1...	IE3	1478	290.8	62	0.85	94.2	94.2	93.7	8.3	3.3	3.6	0.479	L	342
55	250 M	1LE0023-2CB24-1...	IE3	1482	354.4	74	0.86	94.6	95.0	94.7	7.6	2.6	3.3	0.82	K	440
75	280 S	1LE0023-2DB04-1...	IE3	1485	482.3	101	0.86	95.0	95.3	95.3	7.6	2.6	3	1.31	K	580
90	280 M	1LE0023-2DB24-1...	IE3	1485	578.8	120	0.87	95.2	95.6	95.5	7.6	2.6	3	1.69	K	685
110	315 S	1LE0023-3AB04-1...	IE3	1488	706.0	146	0.87	95.4	95.7	95.4	7.9	3.3	3	2.77	K	800
132	315 M	1LE0023-3AB24-1...	IE3	1488	847.2	175	0.87	95.6	95.9	95.5	7.9	3.3	3	3	K	1035
160	315 L	1LE0023-3AB54-1...	IE3	1488	1026.9	210	0.87	95.8	96.1	95.8	7.9	3.3	3	3.14	K	1065
185	315 L	1LE0023-3AB64-1...	IE3	1488	1187.3	245	0.87	95.9	96.2	95.8	7.9	3.3	3	3.46	K	1115
200	315 L	1LE0023-3AB74-1...	IE3	1490	1281.9	260	0.88	96.0	96.3	96.1	7.9	3.3	3	3.79	K	1175
220	355 M	1LE0023-3BB24-1...	IE3	1492	1408.2	285	0.88	96.0	96.0	95.3	8	2	3.2	6.9	K	1670
250	355 M	1LE0023-3BB34-1...	IE3	1490	1602.3	325	0.88	96.0	96.0	95.3	7.8	1.8	2.9	6.9	K	1670
280	355 L	1LE0023-3BB54-1...	IE3	1490	1794.6	365	0.88	96.0	96.1	95.7	7.8	1.8	2.9	7.7	K	1700
315	355 L	1LE0023-3BB64-1...	IE3	1490	2019.0	410	0.88	96.0	96.1	95.8	8	1.8	2.9	8.5	K	1790

SIMOTICS Option Line – IE3

	Cast-iron series		
Efficiency class	IE3		
Series	1LE0023		
No. of poles	2	4	6
Cooling	Self-ventilated (IC 411)		
Degree of protection	IP55		
Insulation	Thermal class 155 (F)		
Utilization	Thermal class 130 (B)		
Frame size	80 ... 355		
Rated output at 50 Hz	0.55 ... 315 kW		
Rated torque at 50 Hz	2.5 ... 2406.8 Nm		



The nominal torque of the motor is easy to calculate;
 Torque (Nm) =
 Power (kW) × 9550 / Speed (rpm).

Electrical data – 1LE0 – IE3 – 6-pole (IE3 cast iron) 1000 rpm 6-pole, 525 VΔ 50 Hz																
Rated output kW	Frame size	Article number	IE class	Rated speed rpm	Rated torque Nm	Rated current A	Power factor	Efficiency at			Starting current	Starting torque	Break-down torque	Moment of inertia kgm ²	Torque class	Net weight (IM B3) kg
								100% load %	75% load %	50% load %						
0.55	80 M	1LE0023-0DC34-1...	IE3	935	5.6	1.17	0.67	77.2	77.45	74.6	5	2.7	3.4	0.003101	K	19.5
0.75	90 S	1LE0023-0EC04-1...	IE3	940	7.6	1.49	0.7	78.9	80.32	78	5	2.4	3.2	0.00436	K	25
1.1	90 L	1LE0023-0EC44-1...	IE3	945	11.1	2.15	0.69	81	81.58	80.4	5.5	2.7	3.5	0.00513	K	28
1.5	100 L	1LE0023-1AC44-1...	IE3	945	15.2	2.7	0.74	82.5	84.13	82.9	5.5	2.7	3.5	0.01136	K	42
2.2	112 M	1LE0023-1BC24-1...	IE3	945	22.2	3.9	0.74	84.3	86.11	95.7	6	2.7	3.4	0.014506	K	50
3	132 S	1LE0023-1CC04-1...	IE3	965	29.7	5.1	0.75	85.6	86.6	86	6	2.7	4	0.02666	K	67
4	132 M	1LE0023-1CC24-1...	IE3	955	40.0	6.8	0.75	86.8	88.54	88.7	6	2.3	3.4	0.03045	K	76
5.5	132 M	1LE0023-1CC34-1...	IE3	960	54.7	9	0.76	88	89.15	89	6.5	2.3	4	0.04125	K	88
7.5	160 M	1LE0023-1DC24-1...	IE3	965	74.2	11.9	0.78	89.1	90.36	90.3	6.5	2.3	3.6	0.0703	K	112
11	160 L	1LE0023-1DC44-1...	IE3	970	108.3	17.2	0.78	90.3	90.3	89.8	7	2.3	3.6	0.07068	K	144
15	180 L	1LE0023-1EC44-1...	IE3	975	146.9	22.5	0.8	91.2	92.1	91.8	7	2.3	3	0.185	K	175
18.5	200 L	1LE0023-2AC44-1...	IE3	978	180.6	27.5	0.8	91.7	92.45	92.2	7	2.3	3	0.284	K	235
22	200 L	1LE0023-2AC54-1...	IE3	978	214.8	33	0.8	92.2	93.1	93	7	2.4	3	0.327	K	251
30	225 M	1LE0023-2BC24-1...	IE3	982	291.8	43	0.83	92.9	93.9	94.3	7.6	2.4	3	0.71	K	350
37	250 M	1LE0023-2CC24-1...	IE3	985	358.7	52	0.84	93.3	94.1	94.1	7.6	2.4	3	1.03	K	430
45	280 S	1LE0023-2DC04-1...	IE3	985	436.3	63	0.84	93.7	94.467	94.4	7.8	3	3	1.4	K	520
55	280 M	1LE0023-2DC24-1...	IE3	988	531.6	77	0.84	94.1	94.6	94.5	7.8	3	3	1.7	K	585
75	315 S	1LE0023-3AC04-1...	IE3	990	723.5	104	0.84	94.6	95	94.7	7.8	2.6	3	2.73	K	790
90	315 M	1LE0023-3AC24-1...	IE3	990	868.2	124	0.84	94.9	95.256	94.9	7.8	2.6	3	3.29	K	950
110	315 L	1LE0023-3AC54-1...	IE3	991	1060.0	150	0.85	95.1	95.3	94.9	7.8	2.6	3	4.17	K	1085
132	315 L	1LE0023-3AC64-1...	IE3	991	1272.0	179	0.85	95.4	95.7	95.4	7.8	2.6	3	4.49	K	1135
160	355 M	1LE0023-3BC24-1...	IE3	994	1537.2	220	0.84	95.6	95.65	95.2	8.5	3	2.4	8.4	L	1770
185	355 M	1LE0023-3BC34-1....	IE3	993	1779.2	255	0.84	95.7	95.81	95.3	8.5	3	2.4	8.4	L	1770
200	355 M	1LE0023-3BC44-1....	IE3	993	1923.5	275	0.84	95.8	95.91	95.4	8.5	3	2.4	11.2	L	1810
220	355 L	1LE0023-3BC54-1...	IE3	993	2115.8	300	0.84	95.8	95.95	95.6	8.5	3	2.4	11.4	L	1980
250	355 L	1LE0023-3BC64-1...	IE3	992	2406.8	340	0.84	95.8	96.09	95.9	8.5	3	2.4	11.4	L	2010

SIMOTICS Option Line – List of options

Remark: The basic 1LE0 extended option motor does not include any option as standard.

Motor frame size	12 th & 13 th position of the Article No.	Option code ¹⁾	Description
Voltage and frequency			
FS 80 ~ 132	21		220 VΔ/380 VY 50 Hz, 440 VY 60 Hz ²⁾
FS 100 ~ 355	33		380 VΔ/660 VY 50 Hz, 440 VΔ 60 Hz ²⁾
FS 80 ~ 132	22		230 VΔ/400 VY 50 Hz, 460 VY 60 Hz ²⁾
FS 100 ~ 355	34		400 VΔ/690 VY 50 Hz, 460 VΔ 60 Hz ²⁾
FS 80 ~ 355	23		240 VΔ/415 VY 50 Hz, 440 VΔ 60 Hz
FS 80 ~ 355	35		415 VΔ 50 Hz, 480 VΔ 60 Hz
FS 80 ~ 355	41		525 VΔ 50 Hz
FS 80 ~ 355	90	M2A	220 VΔ/380 VY 60 Hz (50 Hz output)
FS 80 ~ 355	90	M2B	380 VΔ 60 Hz (50 Hz output)
FS 80 ~ 355	90	M2C	440 VY 60 Hz (50 Hz output)
FS 80 ~ 355	90	M2D	440 VΔ 60 Hz (50 Hz output)
FS 80 ~ 355	90	M2E	460 VY 60 Hz (50 Hz output)
FS 80 ~ 355	90	M2F	460 VΔ 60 Hz (50 Hz output)
FS 80 ~ 355	90	M1A	220 VΔ/380 VY 60 Hz (60 Hz output)
FS 80 ~ 355	90	M1B	380 VΔ/660 VY 60 Hz (60 Hz output)
FS 80 ~ 355	90	M1C	440 VY 60 Hz (60 Hz output)
FS 80 ~ 355	90	M1D	440 VΔ 60 Hz (60 Hz output)
FS 80 ~ 355	90	M1E	460 VY 60 Hz (60 Hz output)
FS 80 ~ 355	90	M1F	460 VΔ 60 Hz (60 Hz output)
FS 80 ~ 355	90	X04	480 VY 60 Hz (60 Hz output)
FS 80 ~ 355	90	X20	480 VΔ 60 Hz (60 Hz output)
Motor frame size	15 th position of the Article No.	Option code ¹⁾	Description
Motor protection			
FS 80 ~ 355	A ²⁾		Without motor protection
FS 80 ~ 355	B		Motor protection with PTC thermistors with three embedded temperature sensors for tripping
FS 80 ~ 355	C		Motor protection with PTC thermistors with 6 embedded temperature sensors for alarm and tripping
FS 100 ~ 355	F		Motor temperature detection with embedded temperature sensor KTY 84-130
FS 80 ~ 355	H		Installation of three Pt100 resistance thermometers
FS 80 ~ 355	J		Installation of six Pt100 resistance thermometers
Motor frame size	16 th position of the Article No.	Option code ¹⁾	Description
Motor terminal box			
FS 80 ~ 355	4		Terminal box top, cable entry on right (view from DE)
FS 80 ~ 355	5		Terminal box on RHS
FS 80 ~ 355	6		Terminal box on LHS
FS 80 ~ 355		R10 ³⁾	Rotation of the terminal box through 90°, entry from DE
FS 80 ~ 355		R11	Rotation of the terminal box through 90°, entry from NDE
FS 80 ~ 355		R12	Rotation of the terminal box through 180°, cable entry at left side from DE view
FS 80 ~ 355		H08 ⁴⁾	Terminal box on NDE
FS 80 ~ 355		L97	Additional connection box
Windings and insulation			
FS 80 ~ 355		N01	Temperature class 155 (F), used acc. to 155 (F), with service factor (SF)
FS 80 ~ 355		N10	Temperature class 180 (H)
FS 80 ~ 355		Q04	Anti-condensation heating for 220 V
FS 80 ~ 355		Q02	Anti-condensation heating for 230 V

¹⁾ Article No. supplement with option code when ordering.

²⁾ Without additional charge.

³⁾ For FS 80 to 112 motor, R10 only in combination with option code H08 (Terminal box on NDE) possible.

⁴⁾ Cable entry on terminal box towards the non-drive end.



For FS 80 ... 160, the floating bearings are assembled. For FS 180 ... 355, the floating bearing at DE, and the fixed bearing at NDE are assembled. If vertical mounting, the axial and trust load have to be considered.

Motor frame size	Option code ¹⁾	Description
Bearings		
FS 100 ~ 355	L22	Bearing design for increased cantilever forces
FS 80 ~ 160	L20	Located bearing DE
FS 100 ~ 250	L23 ⁵⁾	Regreasing device
FS 180 ~ 355	Q72	Installation of 2 Pt100 screw-in resistance thermometers for bearings
FS 250 ~ 355	L53 ⁶⁾	Insulated bearing
FS 250 ~ 355	Q01	Measuring nipple for SPM shock pulse measurement for bearing inspection
FS 80 - 355	L80	SKF bearing
Balance and vibration quantity		
FS 80 ~ 355	L00	Vibration quantity level B
Mechanical version and degree of protection		
FS 80 ~ 355	L05 ⁷⁾⁸⁾	Second standard shaft extension
FS 80 ~ 355	H00 ⁹⁾	Protective cover (canopy)
FS 80 ~ 355	H03 ¹⁰⁾	Condensation drainage holes
FS 80 ~ 280	H04 ¹¹⁾	External earthing
FS 80 ~ 355	H22	IP56 degree of protection (non-heavy-sea)
Modular technology		
FS 80 ~ 355	F70 ¹²⁾	Mounting of separately driven fan
FS 80 ~ 355	F90 ¹³⁾	Without external fan and without fan cover
FS 80 ~ 355	F76	Metal fan
FS 112 ~ 355	G04	Mounting of LL 861 900 220 rotary pulse encoder
FS 80 ~ 355	W74	Prepared for of LL 861 900 220 encoder
FS 112 ~ 355	X05	Prepared for of LL 861 900 220 encoder
FS 80 ~ 355	X50	Mounting of Omron rotary pulse encoder (E6B2-CWZ1X) and separately driven fan
Rating plate and test certificates		
FS 80 ~ 355	B02	Acceptance test certificate 3.1 according to EN 10204
Paint finish		
FS 80 ~ 355	S01	Unpainted, only primed
FS 80 ~ 355	S80	Standard finish in RAL 7032
FS 80 ~ 355	S81	Standard finish in RAL 9006
FS 80 ~ 355	W88	Design for TH, W, F1, WF1 and Sea air resistant
Coolant temperature		
FS 80 ~ 355	D03	Coolant temperature -40 to +40 °C
Versions in accordance with standards and specifications		
FS 80 ~ 90	D01	CCC China Compulsory Certification (only for IE2 & IE3 motors)
FS 80 ~ 355	D34	China Energy Efficiency Label (only for IE2 & IE3 motors)
FS 80 ~ 355	D47	TR CU product safety certificate EAC for the Eurasian Customs Union
Marine certificate		
FS 80 ~ 355	E11	With certification acc. to GL (Germanischer Lloyd), Germany, cooling temperature. 45 °C, thermal. class. 155 (F), utilised acc. to F

⁵⁾ FS 280, FS 315 and FS 355 motor with the regreasing device as standard.

⁶⁾ For horizontal mounting motor, the insulated bearing is located at NDE. For vertical mounting motor, the insulated bearing is located at DE.

⁷⁾ Not possible in combination with canopy or separately driven fan (order code: F70).

⁸⁾ Second standard shaft extension on NDE is smaller than DE and provides output at the level of the next smaller frame size.

⁹⁾ Only applicable for the types of construction IM V5, IM V1, IM V15 and IM V18. Not possible in combination with option code L05.

¹⁰⁾ Position of the condensation drainage hole will be adapted to the type of construction of the motor accordingly.

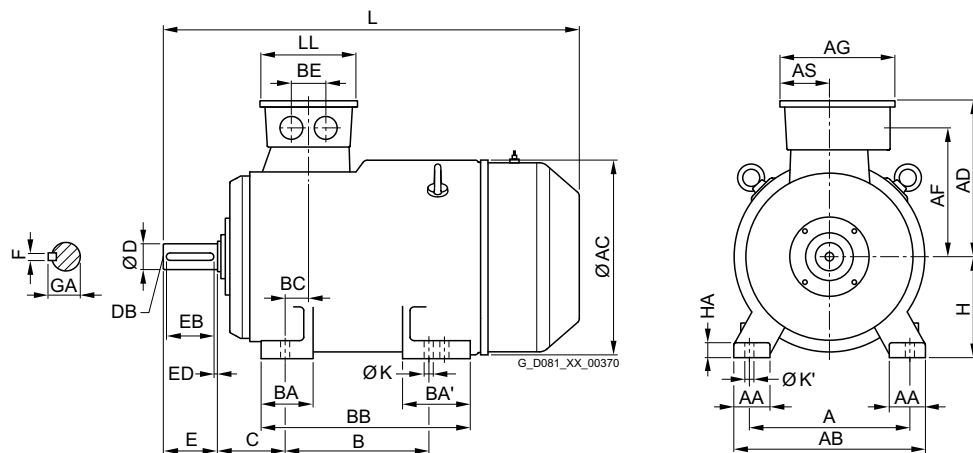
¹¹⁾ FS 315 and FS 355 motor with external earthing as standard.

¹²⁾ When the separately driven fan is mounted, the length of the motor increases by Δl .

¹³⁾ Without fan and fan cover, the length of the motor decreases by Δl . By using the power output of rating plate, the motor must have external cooling by air flow. The correct motor cooling is in responsibility of customer. Missing or wrong cooling reduces the lifetime or damages the motor.

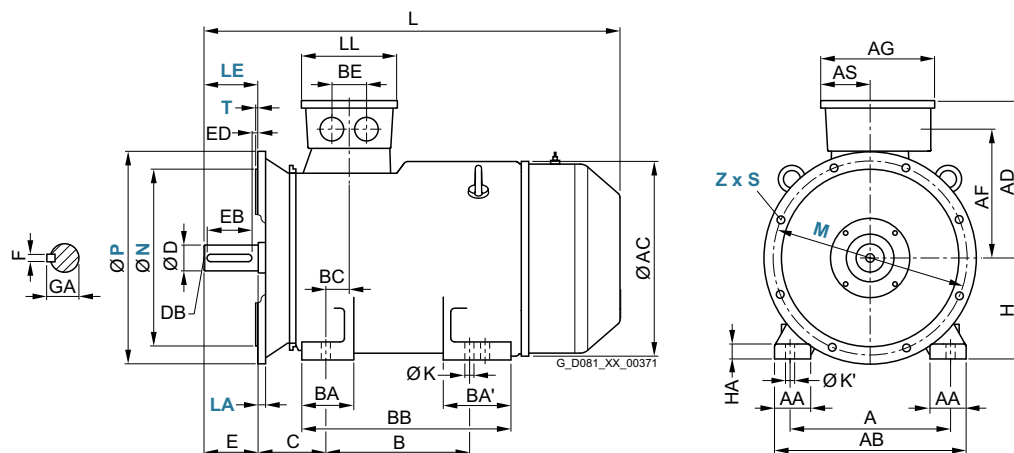
SIMOTICS 1LE0 – Dimensional drawings

IM B3



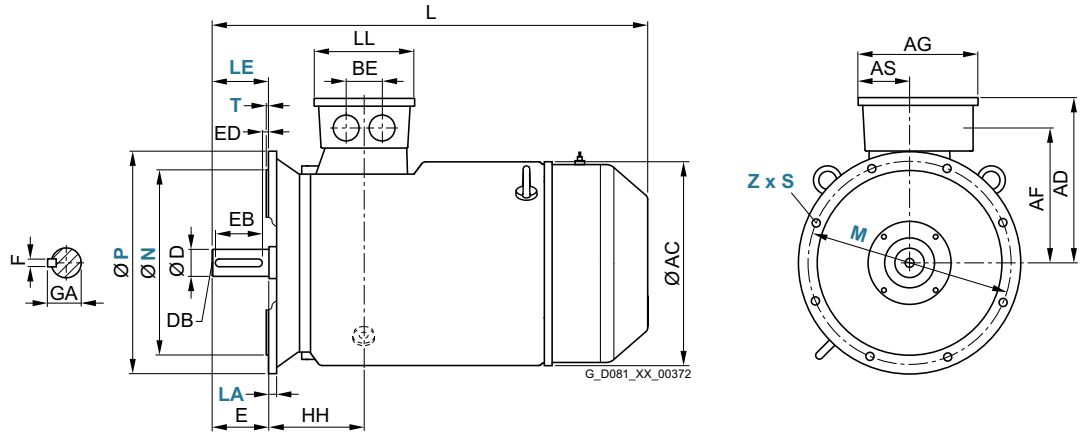
IM B35

For flange dimensions, see Page 82 (Z = the number of retaining holes)



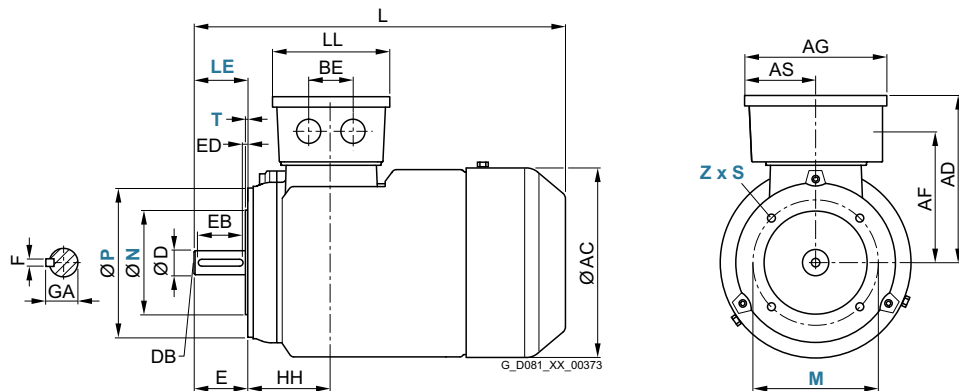
IM B5 and IM V1

For flange dimensions, see Page 82 (Z = the number of retaining holes)



IM B14

For flange dimensions, see Page 82 (Z = the number of retaining holes)



Cast-iron series – 1LE0 – IE1 & IE2

For motor		Dimension designation acc. to IEC																	
Frame size	Motor type 1LE0-	Number of poles	A	AA	AB	AC ¹⁾	AD/AD'	AF/AF'	AG	AS	B ²⁾	BA/BA'	BB	BC	BE	C	CA ²⁾	H	HA
80 M	OD.2	2	125	36	160	157	142	110.5	161	65.5	100	44	135	26	42	50	103	80	10
		4, 6	125	36	160	157	142	110.5	161	65.5	100	44	135	26	42	50	103	80	10
	OD.3	2, 4, 6	125	36	160	157	142	110.5	161	65.5	100	44	135	26	42	50	103	80	10
90 S	OE.0	2, 4, 6	140	46	175	175	152	120.5	161	65.5	100	46	140	20	42	56	115	90	10
90 L	OE.4		140	46	175	175	152	120.5	161	65.5	125	46	165	20	42	56	115	90	10
100 L	1A.4	2, 4, 6	160	45	200	196	177	140	175	70	140	45	176	30.5	54	63	133	100	12
	1A.5	4	160	45	200	196	177	140	175	70	140	45	176	30.5	54	63	133	100	12
112 M	1B.2	2, 4, 6	190	45	226	221	188.5	152	175	70	140	50	180	22	54	70	129.5	112	12
132 S	1C.0	2, 4, 6	216	50	256	259	191.5	175	175	70	140	64	186	32.5	54	89	178	132	15
	1C.1	2	216	50	256	259	191.5	175	175	70	140	64	186	32.5	54	89	178	132	15
132 M	1C.2	4, 6	216	50	256	259	191.5	175	175	70	178	64	224	32.5	54	89	185	132	15
	1C.3	6	216	50	256	259	191.5	175	175	70	178	64	224	32.5	54	89	185	132	15
160 M	1D.2	2, 4, 6	254	60	314	312	255	206	231	94	210	70	258	51	68	108	194	160	20
	1D.3	2	254	60	314	312	255	206	231	94	210	70	258	51	68	108	194	160	20
160 L	1D.4	2, 4, 6	254	60	314	312	255	206	231	94	254	70	302	51	68	108	210	160	20
180 M	1E.2	2, 4	279	65	339	356	270	221	231	94	241	80	301	37	68	121	219	180	20
180 L	1E.4	4, 6	279	65	339	356	270	221	231	94	279	80	339	37	68	121	216	180	20
200 L	2A.4	2, 6	318	70	378	397	300	247.5	288	107.5	305	80	369	69	85	133	234	200	25
	2A.5	2, 4, 6	318	70	378	397	300	247.5	288	107.5	305	80	369	69	85	133	234	200	25
225 S	2B.0	4	356	80	436	442	327	274	288	107.5	286	80	348	63	85	149	255	225	34
225 M	2B.2	2	356	80	436	442	327	274	288	107.5	311	80	373	63	85	149	255	225	34
		4, 6																	
250 M	2C.2	2	406	90	490	488	373	310.5	342	123	349	100	421	92	84	169	269	250	40
		4, 6																	
280 S	2D.0	2 4, 6	457	100	540	538	413	350.5	342	123	368	115	454	72	84	190	237	280	40
280 M	2D.2	2 4, 6	457	100	540	538	413	350.5	342	123	419	115	505	72	84	190	288	280	40
315 S	3A.0	2 4, 6	508	120	610	608	482	401	401	148	406	165	520	75	110	216	351	315	50
315 M	3A.2	2 4, 6	508	120	610	608	482	401	401	148	457/508	165	668	75	110	216	480	315	50
315 L	3A.5/3A.6/ 3A.7	2	508	120	610	608	482	401	401	148	457/508	165	668	75	110	216	480	315	50
		4																	
355 M	3B.2/3B.3	2	610	116	726	718	655	572	472	198.5	560/630	–	750	–	130	254	536	355	52
		4, 6																	
355 L	3B.4	2	610	116	726	718	655	572	472	198.5	560/630	–	750	–	130	254	536	355	52
		6																	
355 L	3B.5/3B.6	2	610	116	726	718	655	572	472	198.5	560/630	–	750	–	130	254	536	355	52
		4, 6																	

¹⁾ Measured across the bolt heads.

²⁾ This dimension is assigned in IEC 60072-1 to the frame size listed.

For motor			Dimension designation acc. to IEC					DE shaft extension										
Frame size	Motor type 1LE0-	Number of poles	HH	K/K'	L	LC	LL	D	DB	E	EB	ED	F	GA				
80 M	OD.2	2	76	10	288	323	109	19	M6	40	32	3.5	6	21.5				
		4, 6	76	10	288	323	109	19	M6	40	32	3.5	6	21.5				
	OD.3	2, 4, 6	76	10	288	323	109	19	M6	40	32	3.5	6	21.5				
90 S	0E.0	2, 4, 6	76	10	316	361	109	24	M8	50	40	3.5	8	27				
90 L	0E.4		76	10	341	386	109	24	M8	50	40	3.5	8	27				
100 L	1A.4	2, 4, 6	93.5	12	390	446	118	28	M10	60	50	3.5	8	31				
	1A.5	4	93.5	12	390	446	118	28	M10	60	50	3.5	8	31				
112 M	1B.2	2, 4, 6	92	12	393.5	449.5	118	28	M10	60	50	3.5	8	31				
132 S	1C.0	2, 4, 6	121.5	12	480	547	118	38	M12	80	70	4	10	41				
	1C.1	2	121.5	12	480	547	118	38	M12	80	70	4	10	41				
132 M	1C.2	4, 6	121.5	12	525	592	118	38	M12	80	70	4	10	41				
	1C.3	6	121.5	12	525	592	118	38	M12	80	70	4	10	41				
160 M	1D.2	2, 4, 6	159	15	614	701	158	42	M16	110	100	5	12	45				
	1D.3	2	159	15	614	701	158	42	M16	110	100	5	12	45				
160 L	1D.4	2, 4, 6	159	15	674	761	158	42	M16	110	100	5	12	45				
180 M	1E.2	2, 4	158	15	683	801	158	48	M16	110	100	5	14	51.5				
180 L	1E.4	4, 6	158	15	718	836	158	48	M16	110	100	5	14	51.5				
200 L	2A.4	2, 6	202	19	772	892	215	55	M20	110	100	5	16	59				
	2A.5	2, 4, 6	202	19	772	892	215	55	M20	110	100	5	16	59				
225 S	2B.0	4	212	19	820	940	215	60	M20	140	125	5	18	64				
225 M	2B.2	2	212	19	815	935	215	55	M20	110	100	5	16	59				
		4, 6			845	965							60	140	125	18	64	
250 M	2C.2	2	260	24	917	1037	246	60	M20	140	125	5	18	64				
		4, 6				1067							65	69				
280 S	2D.0	2	262	24	976	1126	246	65	M20	140	125	5	18	69				
		4, 6						75					5	20	79.5			
280 M	2D.2	2	262	24	1027	1177	246	65	M20	140	125	5	18	69				
		4, 6						75					20	79.5				
315 S	3A.0	2	291	28	1113	1265	296	65	M20	140	125	6	18	69				
		4, 6			1143	1295		80					170	140	22	85		
315 M	3A.2	2	291	28	1293	1445	296	65	M20	140	125	6	18	69				
		4, 6			1323	1475		80					170	22	85			
315 L	3A.5/3A.6/	2	291	28	1293	1445	296	65	M20	140	125	6	18	69				
	3A.7	4						1323					1475	80	170	140	22	85
	3A.5/3A.6	6						1323					1475	296	80	M20	170	140
355 M	3B.2/3B.3	2	298	28	1490	1652	397	75	M20	140	125	6	20	79.5				
		4, 6			1520	1712		95					M24	170	140	25	100	
	3B.4	6	298	28	1520	1712	397	95	M24	170	140	6	25	100				
355 L	3B.5/3B.6	2	298	28	1490	1652	397	75	M20	140	125	6	20	79.5				
		4, 6			1520	1712		95					M24	170	140	25	100	

Cast-iron series – 1LE0 – IE3

For motor		Dimension designation acc. to IEC																	
Frame size	Motor type 1LE0-	Number of poles	A	AA	AB	AC ¹⁾	AD/AD'	AF/AF'	AG	AS	B ²⁾	BA/BA'	BB	BC	BE	C	CA ²⁾	H	HA
80 M	OD.2	2	125	36	160	157	142	110.5	145	65.5	100	44	135	26	42	50	143	80	10
		4, 6	125	36	160	157	142	110.5	145	65.5	100	44	135	26	42	50	143	80	10
	OD.3	2, 4, 6	125	36	160	157	142	110.5	145	65.5	100	44	135	26	42	50	143	80	10
90 S	OE.0	2, 4, 6	140	46	175	175	152	120.5	145	65.5	100	46	140	20	42	56	165	90	10
90 L	OE.4		140	46	175	175	152	120.5	145	65.5	125	46	165	20	42	56	165	90	10
100 L	1A.4	2, 4, 6	160	45	200	196	177	140	163	70	140	45	176	30.5	54	63/78 ³⁾	203.5	100	12
	1A.5	4	160	45	200	196	177	140	163	70	140	45	176	30.5	54	63/78 ³⁾	203.5	100	12
112 M	1B.2	2, 4, 6	190	45	226	221	188.5	152	163	70	140	50	180	22	54	70	182	112	12
132 S	1C.0	2, 4, 6	216	50	256	259	212	175	163	70	140	64	186	32.5	54	89/104 ³⁾	213	132	15
	1C.1	2	216	50	256	259	212	175	163	70	140	64	186	32.5	54	89/104 ³⁾	213	132	15
132 M	1C.2	4, 6	216	50	256	259	212	175	163	70	178	64	224	32.5	54	89/111 ³⁾	220	132	15
	1C.3	6	216	50	256	259	212	175	163	70	178	64	224	32.5	54	89/111 ³⁾	220	132	15
160 M	1D.2	2, 4, 6	254	60	314	312	255	206	231	94	210	70	258	51	68	108/112 ³⁾	193	160	20
	1D.3	2	254	60	314	312	255	206	231	94	210	70	258	51	68	108/112 ³⁾	193	160	20
160 L	1D.4	2, 4, 6	254	60	314	312	255	206	231	94	254	70	302	51	68	108/128 ³⁾	209	160	20
180 M	1E.2	2, 4	279	65	339	356	270	221	231	94	241	80	301	37	68	121/150 ³⁾	246	180	20
180 L	1E.4	4, 6	279	65	339	356	270	221	231	94	279	80	339	37	68	121/152 ³⁾	248	180	20
200 L	2A.4	2, 6	318	70	378	397	300	247.5	288	107.5	305	80	369	69	85	133/158 ³⁾	259	200	25
	2A.5	2, 4, 6	318	70	378	397	300	247.5	288	107.5	305	80	369	69	85	133/158 ³⁾	259	200	25
225 S	2B.0	4	356	80	436	442	327	274	288	107.5	286	90	348	63	85	149/136 ³⁾	245	225	34
225 M	2B.2	2	356	80	436	442	327	274	288	107.5	311	90	373	63	85	149/166 ³⁾	275	225	34
		4, 6																	
250 M	2C.2	2	406	90	490	488	373	310.5	342	123	349	100	421	92	84	168/208 ³⁾	309	250	40
		4, 6																	
280 S	2D.0	2, 4, 6	457	100	540	538	413	350.5	342	123	368	115	454	72	84	190/172 ³⁾	293	280	40
280 M	2D.2	2	457	100	540	538	413	350.5	342	123	419	115	505	72	84	190/172 ³⁾	293	280	40
		4, 6																	
315 S	3A.0	2	508	120	610	608	482	401	401	148	406	140	520	75	110	216/230 ³⁾	401	315	50
		4, 6																	
315 M	3A.2	2	508	120	610	608	482	401	401	148	457/508	165/215	668	75	110	216/409 ³⁾	580	315	50
		4, 6																	
315 L	3A.5/3A.6/ 3A.7	2, 4, 6	508	120	610	608	482	401	401	148	457/508	165/215	668	75	110	216/358 ³⁾	529	315	50
355 M	3B.2/3B.3	2	610	120	730	695	646	545	464	173.5	560/630	153/207	750	27	130	254/378 ³⁾	547	355	53
		4, 6																	
355 L	3B.4	2	610	120	730	695	646	545	464	173.5	560/630	153/207	750	27	130	254/378 ³⁾	547	355	53
		4, 6																	
355 L	3B.5/3B.6	2	610	120	730	695	646	545	464	173.5	560/630	153/207	750	27	130	254/308 ³⁾	547	355	53
		4, 6																	

¹⁾ Measured across the bolt heads.

²⁾ This dimension is assigned in IEC 60072-1 to the frame size listed.

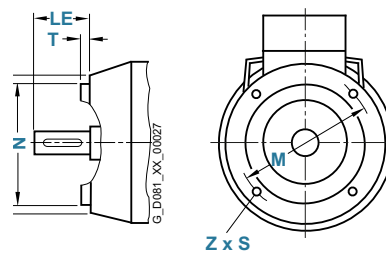
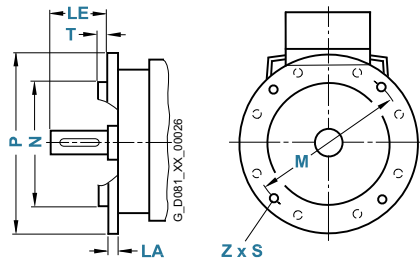
³⁾ Only for the motor configured with H08 option.

For motor			Dimension designation acc. to IEC					DE shaft extension						
Frame size	Motor type 1LE0-	Number of poles	HH	K/K'	L	LC	LL	D	DB	E	EB	ED	F	GA
80 M	OD.2	2	76	10	328	363	109	19	M6	40	32	4	6	21.5
		4, 6	76	10	328	363	109	19	M6	40	32	4	6	21.5
	OD.3	2, 4, 6	76	10	328	363	109	19	M6	40	32	4	6	21.5
90 S	OE.0	2, 4, 6	76	10	366	411	109	24	M8	50	40	5	8	27
90 L	OE.4		76	10	391	436	109	24	M8	50	40	5	8	27
100 L	1A.4	2, 4, 6	93.5	12	460	516.5	118	28	M10	60	50	5	8	31
	1A.5	4	93.5	12	460	516.5	118	28	M10	60	50	5	8	31
112 M	1B.2	2, 4, 6	92	12	448	502	118	28	M10	60	50	5	8	31
132 S	1C.0	2, 4, 6	121.5	12	515	582	118	38	M12	80	70	5	10	41
	1C.1	2	121.5	12	515	582	118	38	M12	80	70	5	10	41
132 M	1C.2	4, 6	121.5	12	560	627	118	38	M12	80	70	5	10	41
	1C.3	6	121.5	12	560	627	118	38	M12	80	70	5	10	41
160 M	1D.2	2, 4, 6	159	15	614	701	158	42	M16	110	100	5	12	45
	1D.3	2	159	15	614	701	158	42	M16	110	100	5	12	45
160 L	1D.4	2, 4, 6	159	15	674	761	158	42	M16	110	100	5	12	45
180 M	1E.2	2, 4	158	15	718	836	158	48	M16	110	100	5	14	51.5
180 L	1E.4	4, 6	158	15	758	876	158	48	M16	110	100	5	14	51.5
200 L	2A.4	2, 6	202	19	807	927	215	55	M20	110	100	5	16	59
	2A.5	2, 4, 6	202	19	807	927	215	55	M20	110	100	5	16	59
225 S	2B.0	4	212	19	845	965	215	60	M20	140	125	10	18	64
225 M	2B.2	2	212	19	820	940	215	55	M20	110	100	5	16	59
		4, 6			875	995								
250 M	2C.2	2	260	24	967	1087	246	60	M20	140	125	10	18	64
		4, 6				1117								
280 S	2D.0	2	262	24	991	1141	246	65	M20	140	125	10	18	69
		4, 6												
280 M	2D.2	2	262	24	1042	1192	246	65	M20	140	125	10	18	69
		4, 6												
315 S	3A.0	2	291	28	1163	1315	296	65	M20	140	125	10	18	69
		4, 6			1193	1545								
315 M	3A.2	2	291	28	1393	1345	296	65	M20	140	125	10	18	69
		4, 6			1423	1575								
315 L	3A.5/3A.6/ 3A.7	2	291	28	1393	1345	296	65	M20	140	125	10	18	69
		4, 6												
355 M	3B.2/3B.3	2	281	28	1490	1642	397	75	M20	140	125	10	20	79.5
		4, 6			1520	1702								
	3B.4	6	281	28	1520	1702		95	M24	170	140	25	25	100
355 L	3B.5/3B.6	2	281	28	1490	1642	397	75	M20	140	125	10	20	79.5
		4, 6			1520	1702								

SIMOTICS 1LE0 – Flange dimensions

Type of construction – IM B5

Type of construction – IM B14



In IEC 60072-1, 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	Type of construction	Flange type	Flange with through holes (FF/A) / tapped holes (FT/C)		Dimension designation acc. to IEC							
			Acc. to IEC 60072-1	Acc. to DIN 42948	LA	LE	M	N	P	S	T	Z
Cast-iron series – 1LE0												
80	IM B5, IM B35, IM V1, IM V3	Flange	FF165	A 200	10	40	165	130	200	12	3.5	4
	IM B14, IM V18, IM V19	Standard flange	FT100	C 120	–	40	100	80	120	M6	3	4
90	IM B5, IM B35, IM V1, IM V3	Flange	FF165	A 200	10	50	165	130	200	12	3.5	4
	IM B14, IM V18, IM V19	Standard flange	FT115	C 140	–	50	115	95	140	M8	3	4
100	IM B5, IM B35, IM V1, IM V3	Flange	FF215	A 250	11	60	215	180	250	14.5	4	4
	IM B14, IM V18, IM V19	Standard flange	FT130	C 160	–	60	130	110	160	M8	3.5	4
112	IM B5, IM B35, IM V1, IM V3	Flange	FF215	A 250	11	60	215	180	250	14.5	4	4
	IM B14, IM V18, IM V19	Standard flange	FT130	C 160	–	60	130	110	160	M8	3.5	4
132	IM B5, IM B35, IM V1, IM V3	Flange	FF265	A 300	12	80	265	230	300	14.5	4	4
	IM B14, IM V18, IM V19	Standard flange	FT165	C 200	–	80	165	130	200	M10	3.5	4
160	IM B5, IM B35, IM V1, IM V3	Flange	FF300	A 350	13	110	300	250	350	18.5	5	4
	IM B14, IM V18, IM V19	Standard flange	FT215	C 250	–	110	215	180	250	M12	4	4
180	IM B5, IM B35, IM V1, IM V3	Flange	FF300	A 350	15	110	300	250	350	18.5	5	4
200	IM B5, IM B35, IM V1, IM V3	Flange	FF350	A 400	17	110	350	300	400	18.5	5	4
225	IM B5, IM B35, IM V1, IM V3	Flange	FF400	A 450	20	110/140	400	350	450	18.5	5	8
250	IM B5, IM B35, IM V1, IM V3	Flange	FF500	A 550	22	140	500	450	550	18.5	5	8
280	IM B5, IM B35, IM V1, IM V3	Flange	FF500	A 550	22	140	500	450	550	18.5	5	8
315	IM B5, IM B35, IM V1, IM V3	Flange	FF600	A 660	22	140/170	600	550	660	24	6	8
355	IM B5, IM B35, IM V1, IM V3	Flange	FF740	A 800	22	140/170	740	680	800	24	6	8

Notes

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