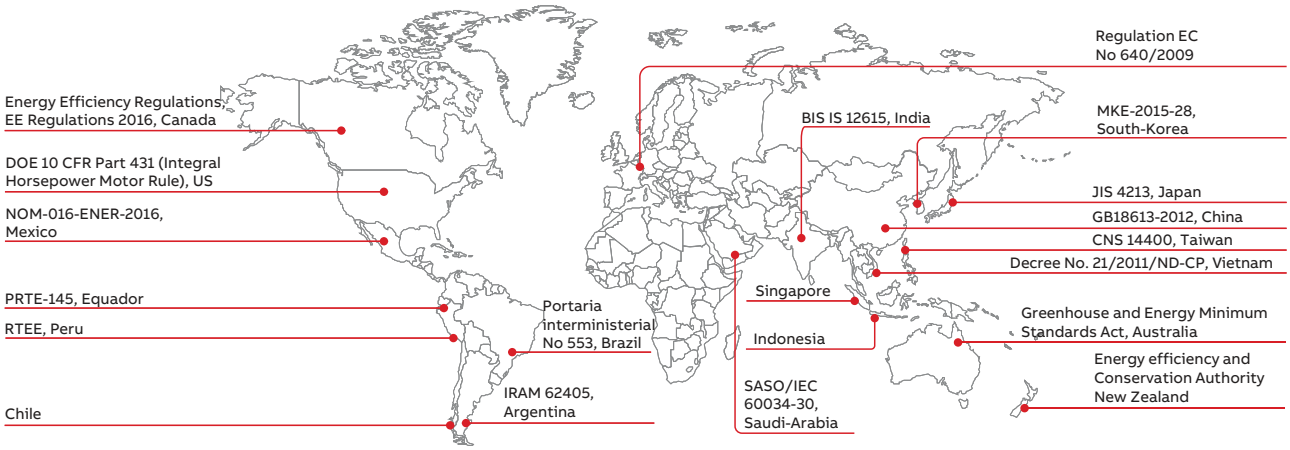
CATALOG | DECEMBER 2020

# Low voltage

## Process performance motors

400 V 50 Hz, 460V 60 Hz

# International motor efficiency standards and regulations




Since the validation of IEC 60034-30:2008 and its refined version IEC 60034-30-1:2014, a worldwide energy efficiency classification system has existed for low voltage three-phase asynchronous motors. These international standards have been created to enable and increase the level of harmonization in efficiency regulations around the world and to also cover motors for explosive atmospheres.

IEC 60034-30-1:2014 defines International Efficiency (IE) classes for single speed, three-phase, 50 Hz and 60 Hz induction motors. The efficiency levels defined in IEC 60034-30-1 are based on the test method specified in IEC 60034-2-1:2014. Both standards are part of an effort to unify motor testing procedures with CSA390-10 and IEEE 112 standards as well as efficiency and product labeling (IE) requirements to enable motor purchasers worldwide to easily recognize premium efficiency products.

To promote transparency in the market, IEC 60034-30-1 states that both the efficiency class and efficiency value must be shown on the motor rating plate and in product documentation. The documentation must clearly indicate the efficiency testing method used as different methods can produce differing results.

**Minimum energy performance standards**
While the IEC as an international standardization organization sets guidelines for motor testing and efficiency classes, the organization does not regulate efficiency levels in countries. The biggest drivers for mandatory Minimum Energy Performance Standard (MEPS) levels for electric motors are global climate change, government targets to curb $CO_2$ emissions and rising electricity demand, especially in developing countries. The whole value chain, from manufacturer up to end user, must be aware of the legislation in order to meet local requirements, to save energy and reduce the carbon footprint.

Harmonized global standards and the increasing adoption of MEPS around the world are good news for all of us. However, it is important to remember that harmonization is an ongoing process. Even though MEPS are already in effect in several regions and countries, they are evolving and differ in terms of scope and requirements. At the same time, more countries are planning to adopt their own MEPS regulations. A view of existing and coming MEPS regulations in the world can be seen on the World map above.

To get the latest information please visit www.abb.com/motors&generators/energyefficiency.

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01 IE Classes - 4-pole motors.

**IEC 60034-30-1:2014**

This standard defines four International Efficiency (IE) classes for single speed electric motors that are rated according to IEC 60034-1 or IEC 60079-0 (explosive atmospheres) and designed for operation on sinusoidal voltage.

– IE4 = Super premium efficiency
– IE3 = Premium efficiency, identical to the table in 10CFR431 ('NEMA Premium') in the USA and CSA C390-10:2015 for 60 Hz
– IE2 = High efficiency
– IE1 = Standard efficiency

IEC 60034-30-1 covers the power range from 0.12 kW up to 1000 kW. Most of the different technical constructions of electric motors are covered as long as they are rated for direct on-line operation. The coverage of the standard includes:

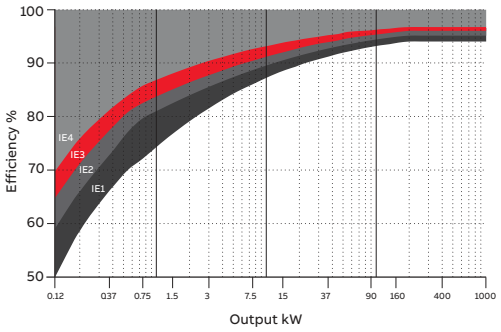
– Single speed electric motors (single and three-phase), 50 and 60 Hz
– 2, 4, 6 and 8 poles
– Rated output $P_N$ from 0.12 kW to 1000 kW
– Rated voltage $U_N$ above 50 V up to 1 kV
– Motors capable of continuous operation at their rated power with a temperature rise within the specified insulation temperature class
– Motors, marked with any ambient temperature within the range of -20 °C to +60 °C
– Motors, marked with an altitude up to 4000 m above sea level

By comparing IEC 60034-30-1 to CSA C390-10:2015 and "10CFR431 Subpart B – Electric motors", it can be seen that the efficiency limits and tables are well aligned and their major difference is in the scope of the output power where CSA and 10CFR431 have a maximum power of 500 hp. There are also some minor differences in the scope of excluded motors.

Note: CFR is Code of Federal Regulations.

The following motors are excluded from IEC 60034-30-1:

– Single-speed motors with 10 or more poles or multi-speed motors
– Motors completely integrated into a machine (for example pump, fan or compressor) that cannot be tested separately from the machine
– Brake motors, when the brake cannot be dismantled or separately fed

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01

**ABB and efficiency standards**

ABB determines efficiency values according to IEC 60034-2-1 using the low uncertainty method (i.e. summaration of losses), with additional load losses determined by the method of residual loss.

It is good to mention and emphasize that the IEC 60034-2-1 test method, which is known as an indirect method, is technically equivalent to the test methods in the standards CSA 390-10 and IEEE 112 Method B leading to the equivalent losses and thus efficiency values. Both test methods can be used by ABB and shall be used for both Canada and the US where IEC 60034-2-1 is not recognized yet.

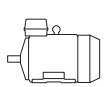
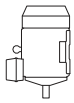
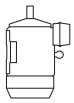
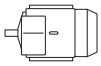
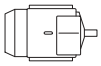
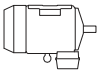
As the world market leader, ABB offers the largest range of LV motors available. It has long advocated the need for efficiency in motors, and high efficiency products have formed the core of its portfolio for many years. The core of ABB's Process performance range is based on a full range of IE2 and IE3 motors - with many available from stock. We also supply IE4 motors for additional energy savings.

**Nominal efficiency limits defined in IEC 60034-30-1:2014 (reference values at 50 Hz, based on test methods specified in IEC 60034-2-1:2014).**

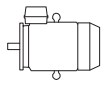
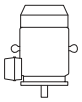
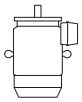
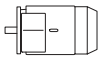
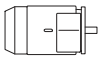
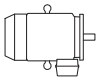
| Out-put | IE1 Standard efficiency | | | | IE2 High efficiency | | | | IE3 Premium efficiency | | | | IE4 Super Premium efficiency | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| kW | 2 pole | 4 pole | 6 pole | 8 pole | 2 pole | 4 pole | 6 pole | 8 pole | 2 pole | 4 pole | 6 pole | 8 pole | 2 pole | 4 pole | 6 pole | 8 pole |
| 0.12 | 45.0 | 50.0 | 38.3 | 31.0 | 53.6 | 59.1 | 50.6 | 39.8 | 60.8 | 64.8 | 57.7 | 50.7 | 66.5 | 69.8 | 64.9 | 62.3 |
| 0.18 | 52.8 | 57.0 | 45.5 | 38.0 | 60.4 | 64.7 | 56.6 | 45.9 | 65.9 | 69.9 | 63.9 | 58.7 | 70.8 | 74.7 | 70.1 | 67.2 |
| 0.20 | 54.6 | 58.5 | 47.6 | 39.7 | 61.9 | 65.9 | 58.2 | 47.4 | 67.2 | 71.1 | 65.4 | 60.6 | 71.9 | 75.8 | 71.4 | 68.4 |
| 0.25 | 58.2 | 61.5 | 52.1 | 43.4 | 64.8 | 68.5 | 61.6 | 50.6 | 69.7 | 73.5 | 68.6 | 64.1 | 74.3 | 77.9 | 74.1 | 70.8 |
| 0.37 | 63.9 | 66.0 | 59.7 | 49.7 | 69.5 | 72.7 | 67.6 | 56.1 | 73.8 | 77.3 | 73.5 | 69.3 | 78.1 | 81.1 | 78.0 | 74.3 |
| 0.40 | 64.9 | 66.8 | 61.1 | 50.9 | 70.4 | 73.5 | 68.8 | 57.2 | 74.6 | 78.0 | 74.4 | 70.1 | 78.9 | 81.7 | 78.7 | 74.9 |
| 0.55 | 69.0 | 70.0 | 65.8 | 56.1 | 74.1 | 77.1 | 73.1 | 61.7 | 77.8 | 80.8 | 77.2 | 73.0 | 81.5 | 83.9 | 80.9 | 77.0 |
| 0.75 | 72.1 | 72.1 | 70.0 | 61.2 | 77.4 | 79.6 | 75.9 | 66.2 | 80.7 | 82.5 | 78.9 | 75.0 | 83.5 | 85.7 | 82.7 | 78.4 |
| 1.1 | 75.0 | 75.0 | 72.9 | 66.5 | 79.6 | 81.4 | 78.1 | 70.8 | 82.7 | 84.1 | 81.0 | 77.7 | 85.2 | 87.2 | 84.5 | 80.8 |
| 1.5 | 77.2 | 77.2 | 75.2 | 70.2 | 81.3 | 82.8 | 79.8 | 74.1 | 84.2 | 85.3 | 82.5 | 79.7 | 86.5 | 88.2 | 85.9 | 82.6 |
| 2.2 | 79.7 | 79.7 | 77.7 | 74.2 | 83.2 | 84.3 | 81.8 | 77.6 | 85.9 | 86.7 | 84.3 | 81.9 | 88.0 | 89,5 | 87.4 | 84.5 |
| 3 | 81.5 | 81.5 | 79.7 | 77.0 | 84.6 | 85.5 | 83.3 | 80.0 | 87.1 | 87.7 | 85.6 | 83.5 | 89.1 | 90.4 | 88.6 | 85.9 |
| 4 | 83.1 | 83.1 | 81.4 | 79.2 | 85.8 | 86.6 | 84.6 | 81.9 | 88.1 | 88.6 | 86.8 | 84.8 | 90.0 | 91.1 | 89.5 | 87.1 |
| 5.5 | 84.7 | 84.7 | 93.1 | 81.4 | 87.0 | 87.7 | 86.0 | 83.8 | 89.2 | 89.6 | 88.0 | 86.2 | 90.9 | 91.9 | 90.5 | 88.3 |
| 7.5 | 86.0 | 86.0 | 84.7 | 83.1 | 88.1 | 88.7 | 87.2 | 85.3 | 90.1 | 90.4 | 89.1 | 87.3 | 91.7 | 92.6 | 91.3 | 89.3 |
| 11 | 87.6 | 87.6 | 86.4 | 85.0 | 89.4 | 89.8 | 88.7 | 86.9 | 91.2 | 91.4 | 90.3 | 88.6 | 92.6 | 93.3 | 92.3 | 90.4 |
| 15 | 88.7 | 88.7 | 87.7 | 86.2 | 90.3 | 90.6 | 89.7 | 88.0 | 91.9 | 92.1 | 91.2 | 89.6 | 93.3 | 93.9 | 92.9 | 91.2 |
| 18.5 | 89.3 | 89.3 | 88.6 | 86.9 | 90.9 | 91.2 | 90.4 | 88.6 | 92.5 | 92.6 | 91.7 | 90.1 | 93.7 | 94.2 | 93.4 | 91.7 |
| 22 | 89.9 | 89.9 | 89.2 | 87.4 | 91.3 | 91.6 | 90.9 | 89.1 | 92.7 | 93.0 | 92.2 | 90.6 | 94.0 | 94.5 | 93.7 | 92.1 |
| 30 | 90.7 | 90.7 | 90.2 | 88.3 | 92.0 | 92.3 | 91.7 | 89.8 | 93.3 | 93.6 | 92.9 | 91.3 | 94.5 | 94.9 | 94.2 | 92.7 |
| 37 | 91.2 | 91.2 | 90.8 | 88.8 | 92.5 | 92.7 | 92.2 | 90.3 | 93.7 | 93.9 | 93.3 | 91.8 | 94.8 | 95.2 | 94.5 | 93.1 |
| 45 | 91.7 | 91.7 | 91.4 | 89.2 | 92.9 | 93.1 | 92.7 | 90.7 | 94.0 | 94.2 | 93.7 | 92.2 | 95.0 | 95.4 | 94.8 | 93.4 |
| 55 | 92.1 | 92.1 | 91.9 | 89.7 | 93.2 | 93.5 | 93.1 | 91.0 | 94.3 | 94.6 | 94.1 | 92.5 | 95.3 | 95.7 | 95.1 | 93.7 |
| 75 | 92.7 | 92.7 | 92.6 | 90.3 | 93.8 | 94.0 | 93.7 | 91.6 | 94.7 | 95.0 | 94.6 | 93.1 | 95.6 | 96.0 | 95.4 | 94.2 |
| 90 | 93.0 | 93.0 | 92.9 | 90.7 | 94.1 | 94.2 | 94.0 | 91.9 | 95.0 | 95.2 | 94.9 | 93.4 | 95.8 | 96.1 | 95.6 | 94.4 |
| 110 | 93.3 | 93.3 | 93.3 | 91.1 | 94.3 | 94.5 | 94.3 | 92.3 | 95.2 | 95,4 | 95.1 | 93.7 | 96.0 | 96.3 | 95.8 | 94.7 |
| 132 | 93.5 | 93.5 | 93.5 | 91.5 | 94.6 | 94.7 | 94.6 | 92.6 | 95.4 | 95.6 | 95.4 | 94.0 | 96.2 | 96.4 | 96.0 | 94.9 |
| 160 | 93.8 | 93.8 | 93.8 | 91.9 | 94.8 | 94.9 | 94.8 | 93.0 | 95.6 | 95.8 | 95.6 | 94.3 | 96.3 | 96.6 | 96.2 | 95.1 |
| 200 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.3 | 95.4 |
| 250 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.5 | 95.4 |
| 315 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.6 | 95.4 |
| 355 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.6 | 95.4 |
| 400 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.6 | 95.4 |
| 450 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.6 | 95.4 |
| 500-1000 | 94.0 | 94.0 | 94.0 | 92.5 | 95.0 | 95.1 | 95.0 | 93.5 | 95.8 | 96.0 | 95.8 | 94.6 | 96.5 | 96.7 | 96.6 | 95.4 |

# Mounting arrangements

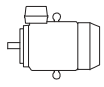
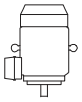
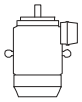
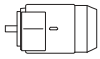
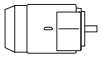
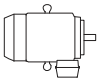
**Foot-mounted motor**

| Code I / code II | | | | | | Product code pos. 12 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | A: foot-mounted, term. box top<br>R: foot-mounted, term. box RHS<br>L: foot-mounted, term. box LHS |
| IM B3 | IM V5 | IM V6 | IM B6 | IM B7 | IM B8 | |
| IM 1001 | IM 1011 | IM 1031 | IM 1051 | IM 1061 | IM 1071 | |

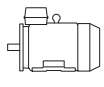
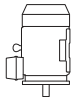
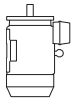
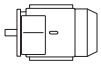
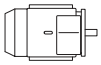
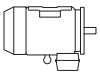
**Flange-mounted motor, large flange**

| Code I / code II | | | | | | Product code pos. 12 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | B: flange mounted, large flange |
| IM B5 | IM V1 | IM V3 | *) | *) | *) | |
| IM 3001 | IM 3011 | IM 3031 | IM 3051 | IM 3061 | IM 3071 | |

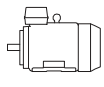
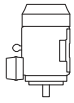
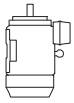
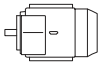
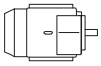
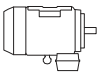
**Flange-mounted motor, small flange**

| Code I / code II | | | | | | Product code pos. 12 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | C: flange mounted, small flange |
| IM B14 | IM V18 | IM V19 | *) | *) | *) | |
| IM 3601 | IM 3611 | IM 3631 | IM 3651 | IM 3661 | IM 3671 | |

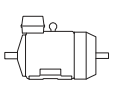
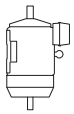
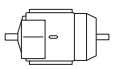
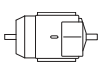
**Foot- and flange-mounted motor with feet, large flange**

| Code I / code II | | | | | | Product code pos. 12 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | H: foot/flange-mounted, term. box top<br>S: foot/flange-mounted, term. box RHS<br>T: foot/flange-mounted, term. box LHS |
| IM B35 | IM V15 | IM V35 | *) | *) | *) | |
| IM 2001 | IM 2011 | IM 2031 | IM 2051 | IM 2061 | IM 2071 | |

**Foot- and flange-mounted motor with feet, small flange**

| Code I / code II | | | | | | Product code pos. 12 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | J: foot/flange-mounted, small flange |
| IM B34 | IM V17 | | | | | |
| IM 2101 | IM 2111 | IM 2131 | IM 2151 | IM 2161 | IM 2171 | |

**Foot-mounted motor, shaft with free extensions**

| Code I / code II | | | | | | Product code pos. 12 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | |
| IM 1002 | IM 1012 | IM 1032 | IM 1052 | IM 1062 | IM 1072 | |

*) Not stated in IEC 60034-7.
Note: If the motor is mounted shaft upwards, take measures to prevent water or any other liquid from running down the shaft into the motor.

# General information
## Cooling

Designation system concerning methods of cooling refers to standard IEC 60034-6.

**Explanation of the product code**

| International Cooling | Circuit arrangement | Primary coolant | Method of movement of primary coolant | Secondary coolant | Method of movement of secondary coolant |
|---|---|---|---|---|---|
| IC | 4 | (A) | 1 | (A) | 6 |
| | 1 | 2 | 3 | 4 | 5 |

**Position 1**

| | |
|---|---|
| 0: | Free circulation (open circuit) |
| 4: | Free circulatio (open circuit) |

**Position 2**

| | |
|---|---|
| A: | For air (omitted for simplifi ed designation) |

**Position 3**

| | |
|---|---|
| 0: | Free convection |
| 1: | Self-circulation |
| 6: | Machine-mounted independent component |

**Position 4**

| | |
|---|---|
| A: | For air (omitted for simplifi ed designation) |
| W: | For water |

**Position 5**

| | |
|---|---|
| 0: | Free convection |
| 1: | Self-circulation |
| 6: | Machine-mounted independent component |
| 8: | Relative displacement |

# General information
## Degrees of protection: IP code/IK code

Classification of degrees of protection provided by enclosures of rotating machines are refers to:

– Standard IEC 60034-5 or EN 60529 for IP code
– Standard EN 50102 for IK code

### IP protection
Protection of persons against getting in contact with (or approaching) live parts and against contact with moving parts inside the enclosure. Also protection of the machine against ingress of solid foreign objects. Protection of machines against the harmful effects due to the ingress of water.

**Explanation of the IP code**

| Ingress protection | Degree of protection to persons and to parts of the motors inside the enclosure | Degree of protection provided by the enclosure with respect to harmful effects due to ingress of water |
|---|---|---|
| IP | 5 | 5 |
| | 1 | 2 |

| Position 1 | |
|---|---|
| 2: | Motors protected against solid objects greater than 12 mm |
| 4: | Motors protected against solid objects greater than 1 mm |
| 5: | Dust-protected motors |
| 6: | Dust-tight motors |

| Position 2 | |
|---|---|
| 3: | Motors protected against spraying water |
| 4: | Motors protected against splashing water |
| 5: | Motors protected against water jets |
| 6: | Motors protected against heavy seas |

### IK code
Classification of degrees of protection provided by enclosure for motors against external mechanical impacts.

**Explanation of the IK code**

| International mechanical protection | Characteristic group |
|---|---|
| IK | 08 |
| | 1 |

| Position 1 | |
|---|---|
| **Relation between IK code and impact energy:** | |
| **IK code** | **Impact energy/Joule** |
| 0: | Not protected according to EN 50102 |
| 01: | 0.15 |
| 02: | 0.2 |
| 03: | 0.35 |
| 04: | 0.5 |
| 05: | 0.7 |
| 06: | 1 |
| 07: | 2 |
| 08: | 5 (ABB Standard) |
| 09: | 10 |
| 10: | 20 |

# Insulation

—
01 Safety margins per thermal class.

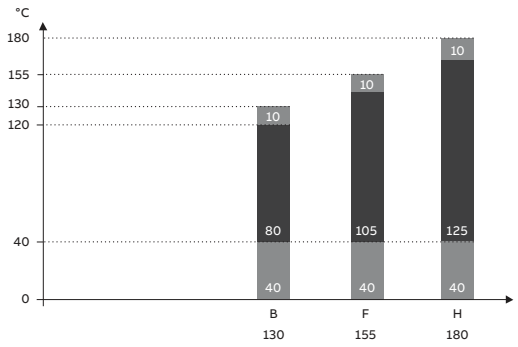
ABB uses class F insulation, which, with temperature rise B, is the most common requirement among industry today.

The use of class F insulation with class B temperature rise gives ABB products a 25 °C safety margin. This can be used to increase the loading for limited periods, to operate at higher ambient temperatures or altitudes, or with greater voltage and frequency tolerances. It can also be used to extend insulation. For instance, a 10 K temperature reduction will extend the insulation life.

**Thermal class 130 (B)**
– Nominal ambient temperature 40 °C
– Max permissible temperature rise 80 K
– Hot spot temperature margin 10 K

**Thermal class 155 (F)**
– Nominal ambient temperature 40 °C
– Max permissible temperature rise 105 K
– Hot spot temperature margin 10 K

**Thermal class 180 (H)**
– Nominal ambient temperature 40 °C
– Max permissible temperature rise 125 K
– Hot spot temperature margin 10 K




—
01

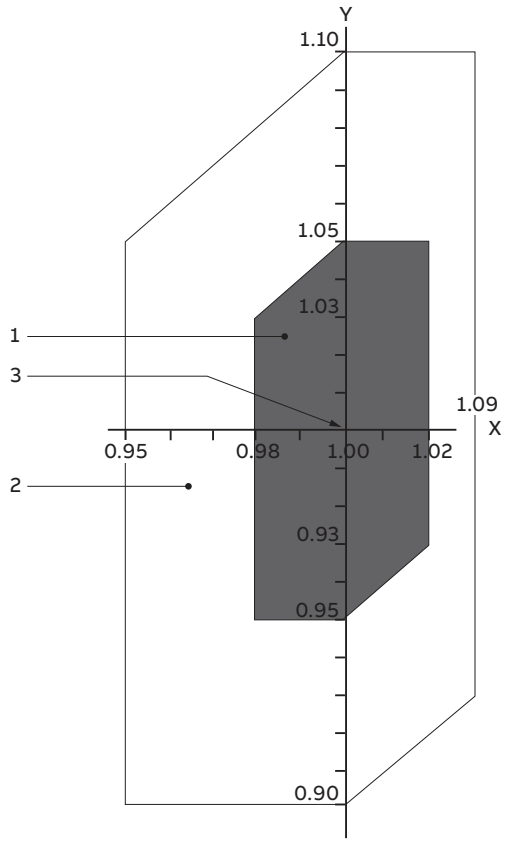
# General information
## Voltage and frequency

— 01 Voltage and frequency deviation in zones A and B.

The impact on temperature rise caused by voltage and frequency fluctuation is defined in IEC 60034-1. The standard divides the combinations into two zones, A and B. Zone A is the combination of voltage deviation of +/-5 % and frequency deviation of +/-2 %. Zone B is the combination of voltage deviation of +/-10 % and frequency deviation of +3/-5 %. This is illustrated in figure below.

Motors are capable of supplying the rated torque in both zones A and B, but the temperature rise will be higher than at rated voltage and frequency. Motors can be run in zone B only for a short period of time.

| Key | |
|---|---|
| X axis | frequency p.u. |
| Y axis | voltage p.u. |
| 1 | zone A |
| 2 | zone B (outside zone A |
| 3 | rating point |




— 01

# Surface treatment

The surface treatment categorization of ABB motors is based on the ISO 12944 standard. ISO 12994-5 divides paint system durability into three categories: low (L), medium (M), and high (H). Low durability corresponds to a lifetime up to 7 years, medium to 7 – 15 years, high durability 15-25 years, and very high over 25 years.

The durability range is not a guaranteed lifetime. Its purpose is to help the owner of the motor plan for appropriate maintenance intervals. More frequent maintenance may be required because of fading, chalking, contamination, wear and tear, or for other reasons.

ABB's standard surface treatment is corrosivity category C3, durability range M (which equal to medium corrosivity and medium durability). Special surface treatment is available in corrosivity categories C4 and CX. In addition, surface treatment according to the NORSOK standard for offshore environments is available as an option.

The standard ABB paint color for motors is Munsell blue 8B 4.5/3.25 except for special systems such as Norsok where a specific color is requested.

| Corrosivity category | Outdoor atmospheres | Indoor atmospheres | Use in ABB motors |
|---|---|---|---|
| C1, very low | Not used | Heated buildings with clean atmospheres | Not available |
| C2, low | Atmospheres with low level pollution, mostly rural areas. | Unheated buildings where condensation may occur, such as depots and sports halls. | Not available |
| C3, medium | Urban and industrial atmospheres, moderate sulfur dioxide pollution. Coastal areas with low salinity. | Production rooms with high humidity and some air pollution; food processing plants, laundries, breweries, dairies. | Standard treatment |
| C4, high | Industrial areas and coastal areas with moderate salinity. | Chemical plants, swimming pools, coastal ship- and boatyards. | Optional treatment for cast iron motors, variant code 115 |
| C5, very high (industrial) | Industrial areas and coastal areas with high humidity and aggressive atmosphere. | Buildings or areas with nearly permanent condensation and high pollution. | Not available |
| CX, very high (marine) | Coastal and offshore areas with high salinity. | Buildings or areas with nearly permanent condensation and high pollution. | Optional treatment for cast iron motors, variant code 754, 711 |

Atmospheric corrosivity categories and recommended environments.

# Variable-speed drives with process performance motors

Frequency converters provide significant benefits when used together with ABB process performance motors. The advantages include better process control and energy savings through regulation of motor speed, and smooth starting with reduced inrush current, reducing the stress on the equipment and supply network.

By choosing an ABB motor–drive package, users can be confident that the motor and drive combination is optimized for their application; it is a working package with known performance, as the combination has been tested and verified.

Process performance motors are designed for both DOL and variable-speed operation, and will, either as standard or by adding a few extras, be suitable for variable-speed operation.

When selecting process performance motors for VSDs, the following points must be taken into consideration. The DriveSize selection software available at www.abb.com helps in selecting the optimal combination of motor, drive and supply transformer.

**Operating speed**
Process performance motors are designed to work over a wide speed range and also at speeds significantly higher than nominal. The maximum speeds can be found on motor rating plates or in DriveSize. In addition to motor speed, make sure that the maximum or critical speed of the entire application is not exceeded.

Guideline maximum speed values for process performance motors are shown in Table 1.

| | Maximum speed, r/min | |
|---|---|---|
| **Motor size** | **2-pole motors** | **4-pole motors** |
| 71-80 | 6000 | 4000 |
| 90-100 | 6000 | 6000 |
| 112-200 | 4500 | 4500 |
| 225-250 | 3600 | 3600 |
| 280 | 3600 | 2000 |
| 315 | 3600 | 2200 |
| 355 SM, ML, LKA | 3600 | 2200 |
| 355 LKB | 3000 | 2200 |
| 400 | 3600 | 2200 |
| 450 | 3000 | 2200 |

Table 1. Guideline maximum speed values for process performance motors.

**Ventilation**
When the motor is operating at low speeds, the cooling capacity of the fan decreases, which again reduces the motor's load capacity. A separate, constant-speed fan (variant codes 183, 422, 514) can be used to increase cooling capacity at low speed if required for loads with constant torque characteristics.

**Lubrication**
The lubrication interval of regreasable bearings depends on the running speed of the motor and the bearing temperature. Motors in frame size 280 and larger are delivered as standard with a lubrication plate in tabular format that states the relubrication intervals at different speeds and temperatures. A similar plate is optional for sizes 160–250 and can be ordered using variant code 795. Smaller motors usually have greased, sealed-for-life bearings. Please refer to the installation, operation and safety manual for further information on lubrication.

**Winding insulation**
To ensure that motors operate reliably, the effects of non-sinusoidal output voltages from the converter must be taken into consideration when selecting the correct insulation system for the motor and output filters for the converter. The insulation and filters must be selected according to Table 2.

| **Winding insulation and filters required** | |
|---|---|
| $U_N \leq 500$ V | Standard insulation |
| $U_N \leq 600$ V | Standard insulation + dU/dt filters OR Special insulation (variant code 405) |
| $U_N \leq 690$ V | Special insulation (variant code 405) AND dU/dt-filters at converter output |
| 600 V < $U_N \leq 690$ V cable length > 150 m | Special insulation (variant code 405) |

Table 2. Selection of motor winding insulation and converter output filters

For more information on dU/dt filters, see the relevant ABB drives catalogs.

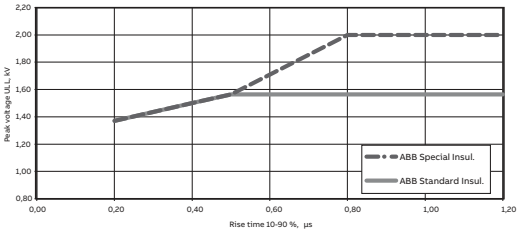
For other converters and cases where the guidelines shown in Table 2 cannot be applied, selection must be based on the voltages present at the motor terminals.

—
01 Maximum allowed phase-to-phase voltage peaks at motor terminals, as a function pulse rise time.

Allowed phase-to-ground voltage peaks at motor terminals:

– 1,300 V peak: standard insulation
– 1,800 V peak: special insulation, variant code 405

The maximum allowed phase-to-phase voltage peaks at the motor terminals as a function of pulse rise time are shown in Figure 01. The higher curve (special insulation) applies to motors with special winding insulation for frequency converter supply (variant code 405). Standard insulation applies to motors with a standard design.

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**Bearing currents**
Bearing voltages and currents must be avoided in all motors to ensure reliable operation of the entire application. Table 3 gives the selection rules depending on motor output power and frame size when used together with ABB converters; the same rules can also be applied as guidance when using ABB process performance motors with other converters.

| Nominal power ($P_N$ and / or Frame size (IEC) | Precautionary measures |
|---|---|
| $P_N$ < 100 kW | No action needed |
| $P_N$ ≥ 100 kW OR IEC 315 ≤ Frame size ≤ IEC 355 | Insulated non-drive end bearing |
| $P_N$ ≥ 350 kW OR IEC 400 ≤ Frame size ≤ IEC 450 | Insulated non-drive end bearing AND Common mode filter at the converter |

Table 3. Precautionary measures to avoid bearing currents in variable speed drives.

**Common mode filters**
Common mode filters are installed at the output of the frequency converter. These filters reduce common mode currents and so decrease the risk of bearing currents. Common mode filters do not significantly affect the phase of main voltages on motor terminals. For more information, see ABB drives catalogs.

**Insulated bearings**
ABB uses bearings with an insulated outer race or hybrid bearings with ceramic rolling elements. Insulated bearings at the non-drive end should be selected as indicated in Table 3. This solution can be ordered using variant code 701.

**Earthing and cabling**
For motors with a nominal power above 30 kW, cables with a symmetrical concentric protective earth should be used across the system. The same type of cables are also recommended for motors with an output of 30 kW and below.

**Solutions for persistent bearing currents**
In very rare cases, bearing currents might still exist even if the measures specified above have been taken. For such installations, there are two advanced methods that would provide a remedy: either a shaft grounding bush, or insulated bearings at both ends.

The shaft grounding bush is installed inside the motor to protect it from the environment and ensure good grounding of the shaft. The shaft grounding brush can be ordered using variant code 588.

The second advanced solution is to mount insulated bearings at both ends. These can either be bearings with an insulated out race, or hybrid bearings with ceramic rolling elements. Insulated bearings at both ends can be ordered using variant code 702. Note that this variant cannot be combined with special drive-end bearing solutions, such as roller bearings or angular contact ball bearings.

**Electromagnetic compatibility (EMC)**
The high-frequency components in a variable-speed drive might cause electromagnetic interference with other equipment in the installation. To avoid this, certain measures should be taken. To meet EMC requirements, special EMC cables glands with a 360° connection to the concentric protective earth conductor should be used. Such cable glands can be used with variant code 704.

**Motor loadability with frequency converter drives**
The difference in the temperature rise of a motor run direct on line compared to the same motor run with a converter is influenced by factors such as the cooling effect of a shaft-mounted fan depending on the speed of the motor, increased losses due to harmonics generated by the converter and reduced flux above the field weakening point. The effects of all these factors are combined in the loadability curves.

The loadability curves shown in Figures 02-05 are generic and give indicative guidelines for dimensioning standard low-voltage motors used with a frequency converter.

The curves show the maximum continuous load torque as a function of frequency (speed), which results in the same temperature rise as opera-

tion with the rated sinusoidal supply at nominal frequency and full rated load.

Normally, process performance motors operate according to a class B temperature rise. For these motors, dimensioning should be according to the temperature rise B curve, or the motor can be slightly overloaded. In other words, it can be dimensioned according to the temperature rise F curve. However, if only a class F temperature rise with a sinusoidal supply is indicated for the motor in the technical data section, dimensioning must be done according to temperature rise curve B. If the motor is loaded according the temperature rise F curve, it will be necessary to check the temperature rise in other parts of the motor and ensure that the lubrication intervals and grease type are still appropriate.

02 Loadability curves for ABB frequency converters with DTC control.

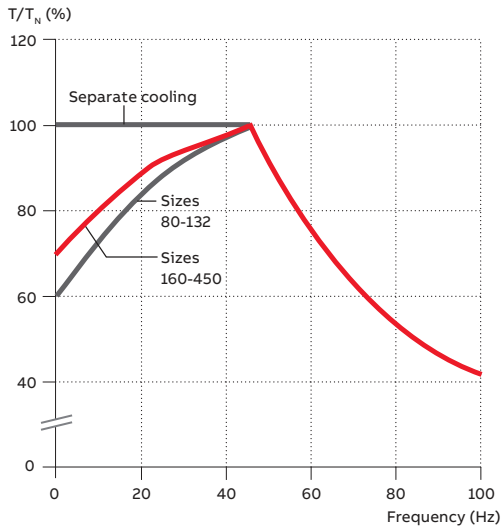
03 Loadability curves for other frequency converters.

04 Loadability curves for ABB frequency converters with DTC control.

05 Loadability curves for other frequency converters.

Curves are valid for a field weakening point of 50 Hz.

Temperature rise B

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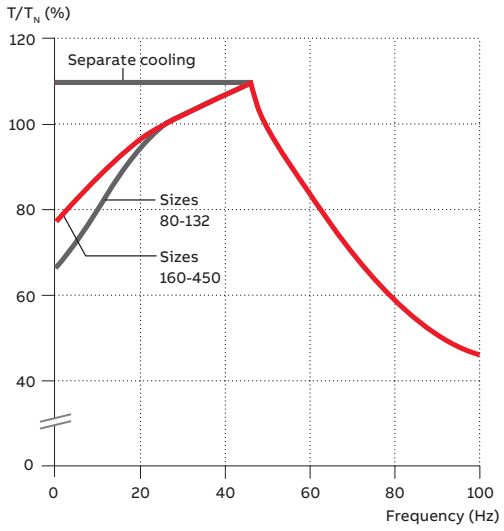
Temperature rise F

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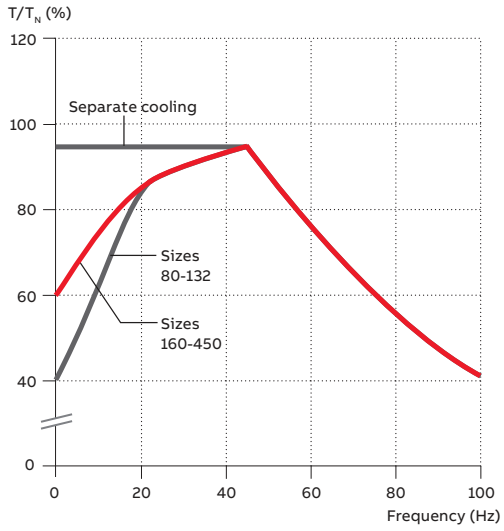
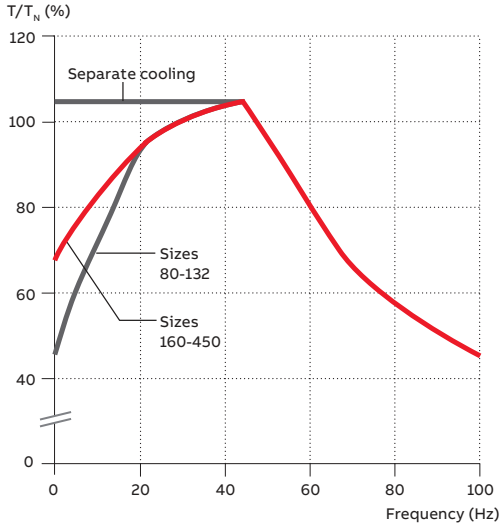
Temperature rise B




03

Temperature rise F




05

# Rating plates

The motor's main rating plate shows the motor's performance values with various connections at nominal speed. The rating plate also shows the efficiency level (IE2, IE3, or IE4), year of manufacture, and the lowest nominal efficiency at 100, 75, and 50 % nominal load.

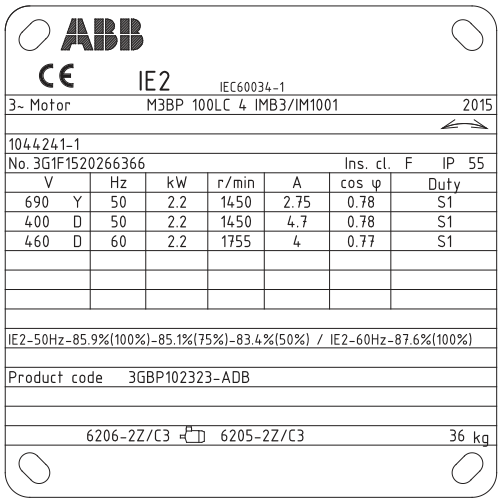
The plate samples shown on this page present typical data rows. The actual content of the plate may vary according to your order and according to the motor's IE class.

—
01 Rating plate example, motor size 100, IE2.

02 Rating plate example, motor size 160, K generation, IE3.

03 Rating plate example, motor size 315, L generation, IE3.

04 Rating plate example, motor size 315, IE4.

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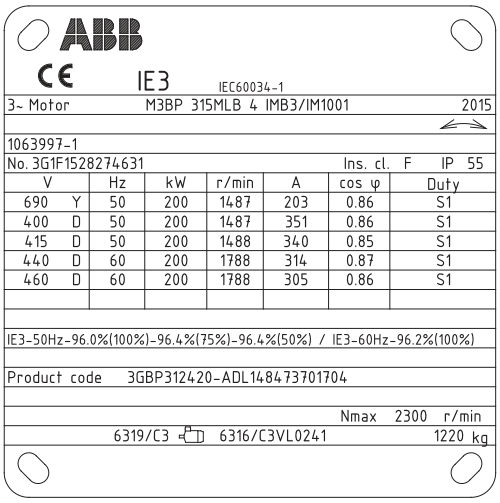
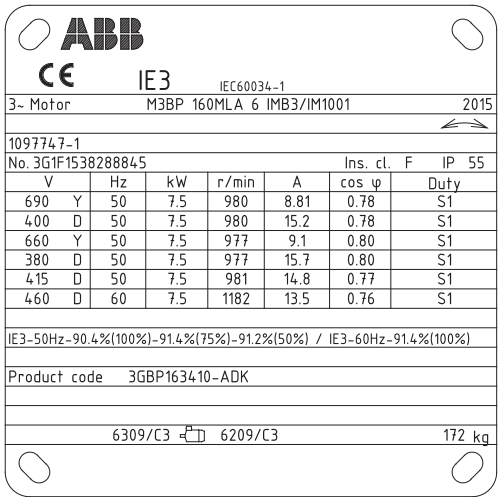
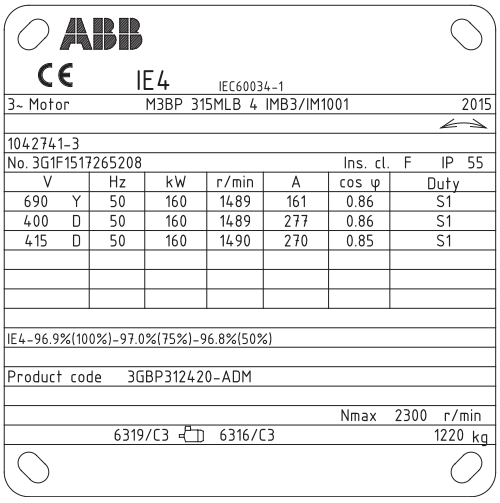



03




02




04

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 r/min = 2 poles** | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.75 | M3BP 80MD 2 | 3GBP081340-••K | 2894 | 80.7 | 80.4 | 77.2 | 0.74 | 1.7 | 7.9 | 2.4 | 3.7 | 4.2 | 0.0008 | 18 | 57 |
| 1.1 | M3BP 80MG 2 | 3GBP081370-••K | 2883 | 82.7 | 82.4 | 80.6 | 0.81 | 2.3 | 7.9 | 3.6 | 3.7 | 4.2 | 0.001 | 19 | 56 |
| 1.5 | M3BP 90LB 2 | 3GBP091520-••K | 2906 | 84.2 | 84.7 | 84.6 | 0.89 | 2.8 | 7.9 | 4.9 | 2.3 | 3.3 | 0.0027 | 31 | 60 |
| 2.2 | M3BP 90LC 2 | 3GBP091530-••K | 2900 | 85.9 | 87.5 | 87.6 | 0.89 | 4.0 | 8.3 | 7.2 | 2.9 | 3.5 | 0.0032 | 35 | 60 |
| 3 | M3BP 100LKA 2 | 3GBP101810-••K | 2896 | 87.1 | 88.2 | 88.0 | 0.90 | 5.4 | 8.4 | 9.8 | 3.2 | 3.9 | 0.0057 | 50 | 62 |
| 4 | M3BP 112MG 2 | 3GBP111370-••K | 2888 | 88.1 | 89.4 | 89.6 | 0.91 | 7.1 | 8.4 | 13.2 | 3.2 | 4.0 | 0.0104 | 56 | 68 |
| 5.5 | M3BP 132SMF 2 | 3GBP131260-••K | 2901 | 89.2 | 89.9 | 90.1 | 0.91 | 9.7 | 7.9 | 18.1 | 2.3 | 3.4 | 0.0154 | 77 | 68 |
| 7.5 | M3BP 132SMG 2 | 3GBP131270-••K | 2909 | 90.1 | 91.2 | 91.4 | 0.90 | 13.1 | 8.3 | 24.6 | 3.0 | 3.9 | 0.0173 | 77 | 70 |
| 11 | M3BP 160MLA 2 | 3GBP161410-••K | 2943 | 91.2 | 92.0 | 91.6 | 0.91 | 19.1 | 7.2 | 35.57 | 2.6 | 3.6 | 0.057 | 141 | 69 |
| 15 | M3BP 160MLB 2 | 3GBP161420-••K | 2947 | 91.9 | 92.2 | 91.8 | 0.88 | 26.5 | 8.2 | 48.49 | 3.2 | 4.2 | 0.063 | 170 | 69 |
| 18.5 | M3BP 160MLC 2 | 3GBP161430-••K | 2949 | 92.4 | 93.0 | 92.6 | 0.90 | 32 | 9.0 | 59.81 | 3.3 | 3.9 | 0.076 | 183 | 73 |
| 22 | M3BP 180MLA 2 | 3GBP181410-••K | 2956 | 92.7 | 93.1 | 92.7 | 0.90 | 37.7 | 7.8 | 70.98 | 3.0 | 3.8 | 0.11 | 234 | 73 |
| 30 | M3BP 200MLA 2 | 3GBP201410-••K | 2956 | 93.3 | 93.7 | 93.0 | 0.90 | 51.6 | 7.7 | 96.9 | 2.7 | 3.1 | 0.178 | 289 | 72 |
| 37 | M3BP 200MLB 2 | 3GBP201420-••K | 2959 | 93.7 | 93.9 | 93.2 | 0.90 | 63.5 | 8.2 | 119 | 3.0 | 3.3 | 0.196 | 314 | 72 |
| 45 | M3BP 225SMA 2 | 3GBP221210-••K | 2968 | 94.0 | 94.0 | 93.0 | 0.87 | 79.6 | 7.3 | 145 | 3.2 | 3.1 | 0.296 | 409 | 76 |
| 55 | M3BP 250SMA 2 | 3GBP251210-••K | 2968 | 94.3 | 93.7 | 93.6 | 0.89 | 94.8 | 6.8 | 177 | 2.4 | 3.0 | 0.426 | 452 | 76 |
| 75 | M3BP 280SMB 2 | 3GBP281220-••K | 2978 | 94.7 | 94.4 | 93.5 | 0.88 | 130 | 7.0 | 240 | 2.3 | 3.0 | 0.9 | 665 | 74 |
| 90 | M3BP 280SMC 2 | 3GBP281230-••K | 2981 | 95.7 | 95.6 | 95.0 | 0.88 | 153 | 8.0 | 288 | 3.0 | 3.1 | 1.15 | 725 | 77 |
| 110 | M3BP 315SMB 2 | 3GBP311220-••K | 2982 | 95.9 | 95.9 | 95.2 | 0.88 | 189 | 6.7 | 352 | 1.9 | 2.6 | 1.4 | 940 | 77 |
| 132 | M3BP 315SMC 2 | 3GBP311230-••K | 2986 | 96.1 | 96.2 | 95.9 | 0.88 | 226 | 7.9 | 422 | 2.4 | 3.0 | 1.7 | 1025 | 77 |
| 160 | M3BP 315MLA 2 | 3GBP311410-••K | 2983 | 95.6 | 95.6 | 94.9 | 0.87 | 275 | 7.4 | 512 | 2.2 | 2.8 | 1.7 | 1190 | 78 |
| 200 | M3BP 355SMA 2 | 3GBP351210-••K | 2985 | 96.4 | 96.1 | 95.3 | 0.89 | 336 | 7.6 | 640 | 2.0 | 3.1 | 3 | 1600 | 83 |
| 250 | M3BP 355SMB 2 | 3GBP351220-••K | 2984 | 95.8 | 95.5 | 94.5 | 0.89 | 423 | 7.7 | 800 | 2.1 | 3.3 | 3 | 1680 | 83 |
| 315 | M3BP 355SMC 2 | 3GBP351230-••K | 2980 | 95.8 | 95.7 | 95.0 | 0.89 | 531 | 7.0 | 1009 | 2.1 | 3.0 | 3.4 | 1750 | 83 |
| 355 | M3BP 355MLA 2 | 3GBP351410-••K | 2984 | 95.8 | 95.8 | 94.9 | 0.88 | 603 | 7.2 | 1136 | 2.2 | 3.0 | 3.6 | 2000 | 83 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 r/min = 2 poles** | | | | **400 V 50 Hz** | | | | **High-output design** | | | | | | | |
| 200 | M3BP 315MLB 2 | 3GBP311420-••K | 2983 | 95.8 | 95.8 | 95.3 | 0.88 | 342 | 7.7 | 640 | 2.5 | 3.1 | 2.1 | 1220 | 81 |
| 250 | M3BP 315LKB 2 | 3GBP311820-••K | 2982 | 96.4 | 96.7 | 96.7 | 0.91 | 413 | 7.9 | 800 | 2.5 | 2.7 | 2.9 | 1540 | 77 |

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500 r/min = 4 poles** | | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.75 | | M3BP 80MLG 4 | 3GBP082470-••K | 1440 | 82.5 | 82.4 | 80.2 | 0.76 | 1.68 | 7.9 | 4.9 | 3.3 | 3.7 | 0.0027 | 22 | 54 |
| 1.1 | | M3BP 90LC 4 | 3GBP092530-••K | 1442 | 84.1 | 83.5 | 81.7 | 0.80 | 2.3 | 7.9 | 7.2 | 3.3 | 3.9 | 0.0055 | 33 | 56 |
| 1.5 | | M3BP 90LD 4 | 3GBP092540-••K | 1439 | 85.3 | 84.7 | 82.8 | 0.78 | 3.2 | 8.2 | 9.9 | 3.5 | 4.0 | 0.0055 | 34 | 55 |
| 2.2 | | M3BP 100LKA 4 | 3GBP102810-••K | 1454 | 86.7 | 87.2 | 86.1 | 0.83 | 4.3 | 8.9 | 14.5 | 3.1 | 4.1 | 0.0144 | 49 | 54 |
| 3 | | M3BP 100LKB 4 | 3GBP102820-••K | 1452 | 87.7 | 88.1 | 87.1 | 0.83 | 5.9 | 9.0 | 19.7 | 3.5 | 4.2 | 0.0144 | 49 | 54 |
| 4 | | M3BP 112MG 4 | 3GBP112370-••K | 1454 | 88.6 | 89.1 | 88.6 | 0.75 | 8.7 | 6.9 | 26.3 | 3.1 | 3.3 | 0.0176 | 52 | 59 |
| 5.5 | | M3BP 132SMF 4 | 3GBP132260-••K | 1463 | 89.6 | 89.8 | 88.7 | 0.74 | 11.9 | 7.6 | 36 | 2.8 | 3.9 | 0.0295 | 81 | 70 |
| 7.5 | | M3BP 132SMG 4 | 3GBP132270-••K | 1464 | 90.4 | 90.8 | 90.7 | 0.81 | 14.7 | 7.7 | 48.9 | 2.5 | 3.6 | 0.0414 | 81 | 64 |
| 11 | | M3BP 160MLA 4 | 3GBP162410-••K | 1477 | 91.4 | 91.8 | 91.1 | 0.82 | 21.1 | 7.6 | 71.27 | 2.6 | 3.3 | 0.11 | 188 | 61 |
| 15 | | M3BP 160MLB 4 | 3GBP162420-••K | 1477 | 92.1 | 92.4 | 91.6 | 0.82 | 28.5 | 8.2 | 96.99 | 3.0 | 3.6 | 0.135 | 187 | 61 |
| 18.5 | | M3BP 180MLA 4 | 3GBP182410-••K | 1481 | 92.6 | 93.2 | 92.9 | 0.83 | 34.9 | 7.2 | 119.3 | 2.8 | 3.0 | 0.219 | 235 | 60 |
| 22 | | M3BP 180MLB 4 | 3GBP182420-••K | 1480 | 93.3 | 94.1 | 94.1 | 0.82 | 41.5 | 8.2 | 141 | 2.8 | 3.1 | 0.217 | 235 | 62 |
| 30 | | M3BP 200MLA 4 | 3GBP202410-••K | 1483 | 93.6 | 93.9 | 93.4 | 0.84 | 54.8 | 7.5 | 193 | 2.7 | 3.2 | 0.385 | 319 | 63 |
| 37 | [1] | M3BP 225SMA 4 | 3GBP222210-••K | 1483 | 94.6 | 95.0 | 94.6 | 0.86 | 65.5 | 7.7 | 238 | 2.3 | 2.7 | 0.542 | 398 | 66 |
| 37 | | M3BP 225SMA 4 | 3GBP222210-••K | 1482 | 93.9 | 94.1 | 93.8 | 0.83 | 68.9 | 7.2 | 239 | 3.1 | 3.1 | 0.427 | 398 | 67 |
| 45 | | M3BP 225SMB 4 | 3GBP222220-••K | 1482 | 94.2 | 94.4 | 94.0 | 0.84 | 82.3 | 8.0 | 290 | 3.1 | 3.5 | 0.525 | 398 | 66 |
| 55 | | M3BP 250SMA 4 | 3GBP252210-••K | 1485 | 95.4 | 95.9 | 95.7 | 0.85 | 97.8 | 7.9 | 353 | 3.0 | 3.3 | 0.933 | 476 | 67 |
| 75 | | M3BP 280SMB 4 | 3GBP282220-••K | 1485 | 95.0 | 95.2 | 94.8 | 0.86 | 133 | 6.4 | 483 | 2.3 | 2.8 | 1.38 | 665 | 72 |
| 90 | | M3BP 280SMC 4 | 3GBP282230-••K | 1485 | 95.2 | 95.5 | 95.2 | 0.86 | 158 | 7.1 | 578 | 2.5 | 2.9 | 1.73 | 725 | 72 |
| 110 | | M3BP 315SMC 4 | 3GBP312230-••K | 1491 | 96.2 | 96.5 | 96.1 | 0.85 | 194 | 7.8 | 704 | 2.4 | 3.1 | 2.9 | 1000 | 68 |
| 132 | | M3BP 315SMD 4 | 3GBP312240-••K | 1490 | 96.3 | 96.6 | 96.2 | 0.85 | 234 | 7.9 | 846 | 2.6 | 3.2 | 3.2 | 1065 | 68 |
| 160 | | M3BP 315MLB 4 | 3GBP312420-••K | 1490 | 96.5 | 96.7 | 96.4 | 0.87 | 278 | 7.9 | 1026 | 2.7 | 3.0 | 3.9 | 1220 | 68 |
| 200 | | M3BP 355SMA 4 | 3GBP352210-••K | 1491 | 96.6 | 96.7 | 96.4 | 0.87 | 345 | 7.3 | 1282 | 2.1 | 2.7 | 5.9 | 1610 | 74 |
| 250 | | M3BP 355SMB 4 | 3GBP352220-••K | 1491 | 96.0 | 96.0 | 95.6 | 0.86 | 435 | 6.4 | 1601 | 2.1 | 2.9 | 5.9 | 1780 | 78 |
| 315 | | M3BP 355SMC 4 | 3GBP352230-••K | 1491 | 96.0 | 96.1 | 95.7 | 0.85 | 550 | 7.3 | 2018 | 2.4 | 3.3 | 6.9 | 1820 | 78 |
| 355 | | M3BP 355MLA 4 | 3GBP352410-••K | 1490 | 96.0 | 96.2 | 95.8 | 0.86 | 616 | 6.3 | 2273 | 2.3 | 2.8 | 7.2 | 2140 | 78 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500 r/min = 4 poles** | | | | **400 V 50 Hz** | | | | **High-output design** | | | | | | | |
| 200 | M3BP 315LKB 4 | 3GBP312820-••K | 1487 | 96.0 | 96.4 | 96.4 | 0.86 | 351 | 6.8 | 1284 | 2.4 | 3.0 | 3.9 | 1480 | 74 |
| 250 | M3BP 315LKC 4 | 3GBP312830-••K | 1490 | 96.6 | 96.9 | 96.8 | 0.87 | 432 | 7.8 | 1601 | 2.3 | 3.0 | 5.5 | 1600 | 74 |

[1] Temperature rise class F

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000 r/min = 6 poles** | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.75 | M3BP 90LG 6 | 3GBP093570-••K | 938 | 81.5 | 82.8 | 82.2 | 0.74 | 1.8 | 4.8 | 7.7 | 2.4 | 2.7 | 0.0072 | 34 | 44 |
| 1.1 | M3BP 100LKG 6 | 3GBP103870-••K | 969 | 84.4 | 84.5 | 82.8 | 0.68 | 2.6 | 4.1 | 10.9 | 1.6 | 2.2 | 0.0025 | 47 | 49 |
| 1.5 | M3BP 112MH 6 | 3GBP113380-••K | 972 | 85.8 | 85.6 | 83.6 | 0.64 | 3.8 | 4.5 | 14.7 | 1.3 | 2.5 | 0.0196 | 53 | 66 |
| 2.2 | M3BP 132SMC 6 | 3GBP133230-••K | 978 | 87.3 | 87.5 | 86.1 | 0.69 | 5.1 | 5.4 | 21.5 | 2.0 | 2.6 | 0.0416 | 81 | 57 |
| 3 | M3BP 132SMD 6 | 3GBP133240-••K | 977 | 88.5 | 88.8 | 87.5 | 0.69 | 6.9 | 5.9 | 29 | 1.4 | 2.8 | 0.0416 | 82 | 57 |
| 4 | M3BP 132SMG 6 | 3GBP133270-••K | 974 | 89.4 | 89.9 | 89.3 | 0.69 | 9.3 | 5.6 | 38.7 | 2.2 | 2.8 | 0.0416 | 82 | 57 |
| 5.5 | M3BP 132SMH 6 | 3GBP133280-••K | 966 | 89.6 | 90.4 | 90.2 | 0.73 | 12.1 | 5.0 | 54.1 | 1.8 | 2.7 | 0.0654 | 79 | 57 |
| 7.5 | M3BP 160MLA 6 | 3GBP163410-••K | 980 | 90.8 | 91.5 | 91.0 | 0.78 | 15.2 | 7.9 | 73 | 1.7 | 3.3 | 0.114 | 172 | 59 |
| 11 | M3BP 160MLB 6 | 3GBP163420-••K | 979 | 91.2 | 91.8 | 91.1 | 0.74 | 23.5 | 8.5 | 107 | 2.2 | 3.9 | 0.131 | 198.7 | 59 |
| 15 | M3BP 180MLA 6 | 3GBP183410-••K | 981 | 92.2 | 92.5 | 91.5 | 0.77 | 30.4 | 5.5 | 146 | 1.7 | 2.7 | 0.225 | 234 | 59 |
| 18.5 | M3BP 200MLA 6 | 3GBP203410-••K | 990 | 92.8 | 93.2 | 92.6 | 0.77 | 37.3 | 7.5 | 178 | 2.6 | 3.2 | 0.448 | 291 | 63 |
| 22 | M3BP 200MLB 6 | 3GBP203420-••K | 990 | 93.3 | 93.7 | 93.1 | 0.79 | 43 | 7.8 | 212 | 2.6 | 3.2 | 0.531 | 318 | 63 |
| 30 | M3BP 225SMA 6 | 3GBP223210-••K | 989 | 94.1 | 94.7 | 94.5 | 0.81 | 56.8 | 7.9 | 289 | 2.8 | 3.1 | 0.813 | 392 | 63 |
| 37 | M3BP 250SMA 6 | 3GBP253210-••K | 991 | 94.4 | 94.9 | 94.7 | 0.83 | 68 | 7.7 | 356 | 2.7 | 2.9 | 1.49 | 467 | 63 |
| 45 | M3BP 280SMB 6 | 3GBP283220-••K | 992 | 94.7 | 95.1 | 94.6 | 0.85 | 80.9 | 7.5 | 434 | 2.4 | 2.6 | 2.2 | 680 | 65 |
| 55 | M3BP 280SMC 6 | 3GBP283230-••K | 990 | 95.0 | 95.4 | 95.0 | 0.85 | 99.4 | 6.8 | 506 | 2.4 | 2.6 | 2.85 | 725 | 65 |
| 75 | M3BP 315SMC 6 | 3GBP313230-••K | 994 | 95.3 | 95.6 | 95.2 | 0.83 | 138 | 7.0 | 721 | 2.2 | 2.8 | 4.9 | 1000 | 67 |
| 90 | M3BP 315SMD 6 | 3GBP313240-••K | 994 | 95.5 | 95.8 | 95.4 | 0.81 | 170 | 7.2 | 864 | 2.4 | 2.9 | 4.9 | 1040 | 67 |
| 110 | M3BP 315MLB 6 | 3GBP313420-••K | 994 | 95.7 | 95.9 | 95.7 | 0.83 | 202 | 6.9 | 1058 | 2.3 | 2.7 | 6.3 | 1200 | 68 |
| 132 | M3BP 315LKA 6 | 3GBP313810-••K | 993 | 95.9 | 96.1 | 95.9 | 0.82 | 243 | 6.9 | 1269 | 2.4 | 2.7 | 7.3 | 1410 | 68 |
| 160 | M3BP 355SMB 6 | 3GBP353220-••K | 995 | 96.1 | 96.1 | 95.6 | 0.82 | 294 | 7.0 | 1536 | 2.1 | 2.7 | 9.7 | 1680 | 73 |
| 200 | M3BP 355SMC 6 | 3GBP353230-••K | 995 | 96.2 | 96.4 | 96.1 | 0.82 | 367 | 7.3 | 1920 | 2.3 | 2.8 | 11.3 | 1820 | 73 |
| 250 | M3BP 355MLB 6 | 3GBP353420-••K | 995 | 96.4 | 96.6 | 96.5 | 0.83 | 456 | 7.1 | 2399 | 2.3 | 2.7 | 13.5 | 2180 | 73 |
| 315 | M3BP 355LKA 6 | 3GBP353810-••K | 994 | 96.5 | 96.7 | 96.4 | 0.83 | 576 | 6.9 | 3026 | 2.3 | 2.6 | 15.5 | 2500 | 76 |
| 355 | M3BP 355LKB 6 | 3GBP353820-••K | 995 | 96.5 | 96.6 | 96.1 | 0.81 | 668 | 7.7 | 3407 | 2.7 | 2.9 | 16.5 | 2600 | 76 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000 r/min = 6 poles** | | | | **400 V 50 Hz** | | | | **High-output design** | | | | | | | |
| 160 | M3BP 315LKC 6 | 3GBP313830-••K | 994 | 96.1 | 96.3 | 96.2 | 0.82 | 297 | 7.4 | 1537 | 2.7 | 2.9 | 9.2 | 1600 | 68 |

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **750 r/min = 8 poles** | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0,75 | M3BP 100LKA 8 | 3GBP104810-••K | 710 | 75,0 | 74,5 | 70,5 | 0,65 | 2,1 | 4,4 | 10 | 2,4 | 2,8 | 0,00855 | 37 | 53 |
| 1,1 | M3BP 100LKB 8 | 3GBP104820-••K | 703 | 77,7 | 77,7 | 74,7 | 0,65 | 3,1 | 4,4 | 14,9 | 2,7 | 2,9 | 0,0128 | 45 | 53 |
| 1,5 | M3BP 112MC 8 | 3GBP114330-••K | 717 | 79,7 | 80,1 | 78,8 | 0,62 | 4,1 | 4,3 | 19,9 | 1,8 | 2,6 | 0,0194 | 53 | 55 |
| 2,2 | M3BP 132SMA 8 | 3GBP134210-••K | 725 | 81,9 | 82,3 | 80,2 | 0,64 | 5,8 | 5,2 | 28,9 | 2,0 | 3,0 | 0,0291 | 66 | 57 |
| 3 | M3BP 132SMG 8 | 3GBP134270-••K | 723 | 83,5 | 84,1 | 82,8 | 0,66 | 7,5 | 4,8 | 39,6 | 1,8 | 2,8 | 0,0375 | 76 | 57 |
| 4 | M3BP 160MLA 8 | 3GBP164410-••K | 734 | 84,8 | 85,1 | 83,2 | 0,65 | 10,3 | 4,5 | 52 | 1,8 | 2,3 | 0,091 | 130 | 59 |
| 5,5 | M3BP 160MLB 8 | 3GBP164420-••K | 732 | 86,2 | 87,1 | 86,1 | 0,69 | 13 | 5,0 | 71,7 | 2,0 | 2,4 | 0,091 | 132 | 59 |
| 7,5 | M3BP 160MLC 8 | 3GBP164430-••K | 733 | 87,3 | 88,2 | 87,2 | 0,69 | 17,6 | 5,1 | 97,7 | 2,0 | 2,4 | 0,12 | 167 | 59 |
| 11 | M3BP 180MLA 8 | 3GBP184410-••K | 731 | 88,6 | 89,2 | 88,4 | 0,70 | 25,3 | 5,0 | 143 | 2,1 | 2,1 | 0,2 | 219 | 59 |
| 15 | M3BP 200MLA 8 | 3GBP204410-••K | 737 | 89,6 | 90,5 | 90,1 | 0,74 | 32,5 | 5,2 | 194 | 2,1 | 2,4 | 0,45 | 290 | 60 |
| 18,5 | M3BP 225SMA 8 | 3GBP224210-••K | 736 | 90,1 | 90,8 | 90,2 | 0,74 | 39,8 | 5,2 | 240 | 2,0 | 2,3 | 0,669 | 350 | 63 |
| 22 | M3BP 225SMB 8 | 3GBP224220-••K | 736 | 90,6 | 91,6 | 91,5 | 0,73 | 47,5 | 5,3 | 285 | 2,3 | 2,5 | 0,722 | 363 | 63 |
| 30 | M3BP 250SMA 8 | 3GBP254210-••K | 741 | 91,3 | 91,7 | 91,0 | 0,71 | 67 | 5,6 | 386 | 2,7 | 2,7 | 1,4 | 440 | 63 |
| 37 | M3BP 280SMA 8 | 3GBP284210-••K | 741 | 91,8 | 92,0 | 91,3 | 0,79 | 72,6 | 7,3 | 476 | 1,7 | 3,0 | 1,85 | 605 | 65 |
| 45 | M3BP 280SMB 8 | 3GBP284220-••K | 741 | 92,2 | 92,3 | 91,7 | 0,78 | 89,2 | 7,6 | 579 | 1,8 | 3,1 | 2,2 | 645 | 65 |
| 55 | M3BP 315SMA 8 | 3GBP314210-••K | 742 | 92,5 | 93,1 | 92,5 | 0,80 | 106 | 7,1 | 707 | 1,6 | 2,7 | 3,2 | 830 | 62 |
| 75 | M3BP 315SMB 8 | 3GBP314220-••K | 741 | 93,1 | 93,2 | 93,1 | 0,82 | 146 | 7,1 | 966 | 1,7 | 2,7 | 4,1 | 930 | 62 |
| 90 | M3BP 315SMC 8 | 3GBP314230-••K | 741 | 93,4 | 93,7 | 93,4 | 0,82 | 170 | 7,4 | 1159 | 1,8 | 2,7 | 4,9 | 1000 | 64 |
| 110 | M3BP 315MLA 8 | 3GBP314410-••K | 740 | 93,7 | 94,0 | 94,1 | 0,83 | 211 | 7,3 | 1419 | 1,8 | 2,7 | 5,8 | 1150 | 72 |
| 132 | M3BP 355SMA 8 | 3GBP354210-••K | 744 | 94,0 | 93,9 | 93,4 | 0,79 | 256 | 7,5 | 1694 | 1,5 | 2,6 | 7,9 | 1520 | 69 |
| 160 | M3BP 355SMB 8 | 3GBP354220-••K | 744 | 94,3 | 94,3 | 93,8 | 0,79 | 293 | 7,6 | 1926 | 1,6 | 2,6 | 9,7 | 1680 | 69 |
| 200 | M3BP 355SMC 8 | 3GBP354230-••K | 742 | 94,6 | 95,0 | 94,8 | 0,79 | 385 | 7,4 | 2576 | 1,6 | 2,6 | 11,3 | 1820 | 69 |
| 250 | M3BP 355MLB 8 | 3GBP354420-••K | 743 | 94,6 | 94,7 | 94,1 | 0,80 | 472 | 7,5 | 3213 | 1,6 | 2,7 | 13,5 | 2180 | 72 |
| 315 [1)] | M3BP 355LKB 8 | 3GBP354820-••K | 742 | 94,6 | 94,8 | 94,2 | 0,80 | 595 | 7,9 | 4053 | 1,7 | 2,7 | 16,5 | 2600 | 75 |

[1)] Temperature rise class F

# Technical data, 460 V 60 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3600 r/min = 2 poles** | | | | **460 V 60 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.75 | M3BP 80MD 2 | 3GBP081340-••K | 3502 | 77.0 | 75.2 | 70.0 | 0.72 | 1.56 | 8.9 | 2 | 4.3 | 5.2 | 0.0008 | 18 | 61 |
| 1.1 | M3BP 80MG 2 | 3GBP081370-••K | 3500 | 84.0 | 83.0 | 80.2 | 0.78 | 2.0 | 9.9 | 3 | 3.6 | 5.3 | 0.001 | 19 | 60 |
| 1.5 | M3BP 90LB 2 | 3GBP091520-••K | 3522 | 85.5 | 85.3 | 84.0 | 0.88 | 2.4 | 9.6 | 4 | 2.5 | 4.0 | 0.0027 | 31 | 65 |
| 2.2 | M3BP 90LC 2 | 3GBP091530-••K | 3517 | 86.5 | 87.1 | 85.8 | 0.88 | 3.5 | 9.9 | 5.9 | 3.1 | 4.2 | 0.0032 | 35 | 65 |
| 3 | M3BP 100LKA 2 | 3GBP101810-••K | 3512 | 88.5 | 88.7 | 87.3 | 0.89 | 4.7 | 9.9 | 8.1 | 3.5 | 4.6 | 0.0057 | 50 | 65 |
| 4 | M3BP 112MG 2 | 3GBP111370-••K | 3500 | 88.5 | 88.9 | 87.9 | 0.90 | 6.2 | 10.0 | 10.9 | 3.6 | 4.8 | 0.0104 | 56 | 71 |
| 5.5 | M3BP 132SMF 2 | 3GBP131260-••K | 3519 | 89.5 | 89.4 | 88.7 | 0.90 | 8.4 | 9.1 | 14.9 | 2.5 | 3.9 | 0.0154 | 77 | 74 |
| 7.5 | M3BP 132SMG 2 | 3GBP131270-••K | 3524 | 90.2 | 90.7 | 90.0 | 0.90 | 11.4 | 9.6 | 20.3 | 3.1 | 4.5 | 0.0173 | 77 | 73 |
| 11 | M3BP 160MLA 2 | 3GBP161410-••K | 3549 | 91.0 | 91.1 | 89.9 | 0.91 | 16.6 | 8.7 | 29.54 | 2.7 | 3.9 | 0.057 | 141 | 75 |
| 15 | M3BP 160MLB 2 | 3GBP161420-••K | 3554 | 91.0 | 90.4 | 89.6 | 0.89 | 22.7 | 8.5 | 40.27 | 3.8 | 4.8 | 0.063 | 170 | 74 |
| 18.5 | M3BP 160MLC 2 | 3GBP161430-••K | 3555 | 93.5 | 93.6 | 92.7 | 0.89 | 27.9 | 10.5 | 49.64 | 3.8 | 4.7 | 0.076 | 183 | 75 |
| 22 | M3BP 180MLA 2 | 3GBP181410-••K | 3560 | 91.7 | 91.7 | 90.4 | 0.89 | 33 | 9.2 | 58.96 | 4.1 | 4.7 | 0.11 | 234 | 77 |
| 30 | M3BP 200MLA 2 | 3GBP201410-••K | 3562 | 92.4 | 92.0 | 90.4 | 0.90 | 44.9 | 8.7 | 80.4 | 2.8 | 3.4 | 0.178 | 289 | 76 |
| 37 | M3BP 200MLB 2 | 3GBP201420-••K | 3564 | 93.0 | 92.8 | 91.1 | 0.89 | 55.8 | 9.2 | 99.1 | 3.1 | 3.7 | 0.196 | 314 | 76 |
| 45 | M3BP 225SMA 2 | 3GBP221210-••K | 3570 | 93.6 | 93.1 | 91.5 | 0.89 | 67.4 | 7.8 | 120 | 2.8 | 3.7 | 0.296 | 409 | 79 |
| 55 | M3BP 250SMA 2 | 3GBP251210-••K | 3569 | 93.6 | 93.1 | 91.6 | 0.90 | 82.7 | 7.9 | 147 | 2.3 | 3.3 | 0.426 | 452 | 81 |
| 75 | M3BP 280SMB 2 | 3GBP281220-••K | 3579 | 94.1 | 93.4 | 91.6 | 0.87 | 115 | 7.9 | 200 | 2.7 | 3.4 | 0.9 | 665 | 74 |
| 90 | M3BP 280SMC 2 | 3GBP281230-••K | 3582 | 95.3 | 94.9 | 93.7 | 0.88 | 133 | 9.0 | 240 | 3.4 | 3.4 | 1.15 | 725 | 80 |
| 110 | M3BP 315SMB 2 | 3GBP311220-••K | 3598 | 95.3 | 94.9 | 93.5 | 0.88 | 165 | 7.5 | 293 | 1.9 | 2.9 | 1.4 | 940 | 80 |
| 132 | M3BP 315SMC 2 | 3GBP311230-••K | 3586 | 95.7 | 95.4 | 94.2 | 0.88 | 197 | 8.9 | 351 | 2.4 | 3.3 | 1.7 | 1025 | 80 |
| 160 | M3BP 315MLA 2 | 3GBP311410-••K | 3585 | 95.4 | 94.9 | 93.6 | 0.87 | 242 | 8.3 | 426 | 2.2 | 3.1 | 1.7 | 1190 | 81 |
| 200 | M3BP 355SMA 2 | 3GBP351210-••K | 3586 | 96.1 | 95.8 | 94.8 | 0.88 | 295 | 8.5 | 533 | 2.0 | 3.4 | 3 | 1600 | 86 |
| 250 | M3BP 355SMB 2 | 3GBP351220-••K | 3585 | 95.8 | 95.3 | 94.0 | 0.89 | 370 | 8.6 | 665 | 1.8 | 3.7 | 3 | 1680 | 86 |
| 315 | M3BP 355SMC 2 | 3GBP351230-••K | 3582 | 95.8 | 95.5 | 94.3 | 0.89 | 466 | 7.8 | 839 | 2.2 | 3.3 | 3.4 | 1750 | 86 |
| 355 | M3BP 355MLA 2 | 3GBP351410-••K | 3586 | 95.8 | 95.3 | 94.2 | 0.88 | 528 | 8.1 | 945 | 2.2 | 3.3 | 3.6 | 2000 | 88 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3600 r/min = 2 poles** | | | | **460 V 60 Hz** | | | | **High-output design** | | | | | | | |
| 200 | M3BP 315MLB 2 | 3GBP311420-••K | 3585 | 95.8 | 95.6 | 94.6 | 0.88 | 298 | 8.7 | 533 | 2.5 | 3.4 | 2.1 | 1220 | 84 |
| 250 | M3BP 315LKB 2 | 3GBP311820-••K | 3583 | 96.1 | 96.1 | 95.8 | 0.91 | 359 | 9.0 | 666 | 2.6 | 3.0 | 2.9 | 1540 | 80 |

# Technical data, 460 V 60 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1800 r/min = 4 poles** | | | | **460 V 60 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.75 | M3BP 80MLG 4 | 3GBP082470-••K | 1748 | 83.5 | 82.2 | 79 | 0.74 | 1.48 | 9.5 | 4 | 3.8 | 4.5 | 0.0027 | 22 | 57 |
| 1.1 | M3BP 90LC 4 | 3GBP092530-••K | 1749 | 86.5 | 85.4 | 82.5 | 0.77 | 2.0 | 8.4 | 6 | 3.7 | 4.6 | 0.0055 | 33 | 56 |
| 1.5 | M3BP 90LD 4 | 3GBP092540-••K | 1748 | 86.5 | 85.1 | 82.0 | 0.75 | 2.9 | 9.5 | 8.1 | 4.0 | 5.0 | 0.0055 | 34 | 58 |
| 2.2 | M3BP 100LKA 4 | 3GBP102810-••K | 1760 | 89.5 | 89.2 | 87.4 | 0.81 | 3.8 | 10.2 | 11.9 | 3.3 | 4.7 | 0.0144 | 49 | 57 |
| 3 | M3BP 100LKB 4 | 3GBP102820-••K | 1759 | 89.5 | 89.3 | 87.4 | 0.81 | 5.2 | 10.4 | 16.3 | 3.8 | 4.9 | 0.0144 | 49 | 57 |
| 4 | M3BP 112MG 4 | 3GBP112370-••K | 1760 | 89.8 | 89.7 | 88.3 | 0.74 | 7.6 | 8.8 | 21.7 | 3.8 | 4.4 | 0.0176 | 52 | 62 |
| 5.5 | M3BP 132SMF 4 | 3GBP132260-••K | 1767 | 91.7 | 91.1 | 89.6 | 0.73 | 10.4 | 8.7 | 29.81 | 3.0 | 4.5 | 0.0295 | 81 | 73 |
| 7.5 | M3BP 132SMG 4 | 3GBP132270-••K | 1766 | 91.7 | 91.6 | 90.8 | 0.79 | 13 | 8.7 | 40.5 | 2.6 | 3.9 | 0.0414 | 81 | 69 |
| 11 | M3BP 160MLA 4 | 3GBP162410-••K | 1780 | 92.4 | 92.2 | 90.9 | 0.80 | 18.9 | 8.7 | 59.14 | 3.4 | 3.7 | 0.11 | 188 | 68 |
| 15 | M3BP 160MLB 4 | 3GBP162420-••K | 1780 | 93.0 | 92.7 | 91.4 | 0.82 | 24.7 | 9.5 | 80.47 | 3.3 | 4.1 | 0.135 | 187 | 67 |
| 18.5 | M3BP 180MLA 4 | 3GBP182410-••K | 1783 | 93.6 | 93.7 | 93.1 | 0.82 | 30.3 | 8.4 | 99.04 | 3.1 | 3.5 | 0.219 | 235 | 68 |
| 22 | M3BP 180MLB 4 | 3GBP182420-••K | 1783 | 93.8 | 94.2 | 93.7 | 0.82 | 35.8 | 9.3 | 117 | 3.0 | 3.4 | 0.217 | 235 | 66 |
| 30 | M3BP 200MLA 4 | 3GBP202410-••K | 1785 | 94.1 | 94.1 | 93.1 | 0.84 | 47.7 | 8.2 | 161 | 2.8 | 3.9 | 0.385 | 319 | 69 |
| 37 | M3BP 225SMA 4 | 3GBP222210-••K | 1783 | 94.5 | 94.7 | 94.1 | 0.83 | 59.3 | 8.8 | 198 | 3.6 | 3.5 | 0.427 | 398 | 65 |
| 45 | M3BP 225SMB 4 | 3GBP222220-••K | 1784 | 95.0 | 94.9 | 95.0 | 0.83 | 71.8 | 8.8 | 241 | 2.9 | 4.7 | 0.525 | 398 | 72 |
| 55 | M3BP 250SMA 4 | 3GBP252210-••K | 1787 | 95.7 | 95.8 | 95.2 | 0.84 | 85.8 | 9.1 | 293 | 3.3 | 3.7 | 0.933 | 476 | 71 |
| 75 | M3BP 280SMB 4 | 3GBP282220-••K | 1785 | 95.4 | 95.2 | 94.1 | 0.84 | 117 | 7.4 | 401 | 2.5 | 3.1 | 1.38 | 665 | 75 |
| 90 | M3BP 280SMC 4 | 3GBP282230-••K | 1786 | 95.4 | 95.2 | 94.2 | 0.85 | 139 | 8.2 | 481 | 2.7 | 3.2 | 1.73 | 725 | 75 |
| 110 | M3BP 315SMC 4 | 3GBP312230-••K | 1792 | 96.1 | 96.0 | 95.3 | 0.84 | 172 | 8.8 | 586 | 2.6 | 3.4 | 2.9 | 1000 | 71 |
| 132 | M3BP 315SMD 4 | 3GBP312240-••K | 1791 | 96.4 | 96.3 | 95.6 | 0.84 | 206 | 9.0 | 704 | 2.8 | 3.6 | 3.2 | 1065 | 71 |
| 160 | M3BP 315MLB 4 | 3GBP312420-••K | 1791 | 96.4 | 96.4 | 95.9 | 0.86 | 241 | 9.0 | 853 | 2.9 | 3.3 | 3.9 | 1220 | 71 |
| 200 | M3BP 355SMA 4 | 3GBP352210-••K | 1792 | 96.4 | 96.2 | 95.4 | 0.87 | 301 | 8.3 | 1065 | 2.2 | 3.0 | 5.9 | 1610 | 77 |
| 250 | M3BP 355SMB 4 | 3GBP352220-••K | 1792 | 96.2 | 95.9 | 95.0 | 0.85 | 380 | 7.3 | 1333 | 2.2 | 3.2 | 5.9 | 1780 | 81 |
| 315 | M3BP 355SMC 4 | 3GBP352230-••K | 1793 | 96.2 | 96.0 | 95.1 | 0.86 | 478 | 7.6 | 1679 | 2.5 | 3.5 | 6.9 | 1820 | 81 |
| 355 | M3BP 355MLA 4 | 3GBP352410-••K | 1791 | 96.2 | 96.0 | 95.2 | 0.86 | 541 | 7.2 | 1893 | 2.4 | 3.1 | 7.2 | 2140 | 81 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1800 r/min = 4 poles** | | | | **460 V 60 Hz** | | | | **High-output design** | | | | | | | |
| 200 | M3BP 315LKB 4 | 3GBP312820-••K | 1788 | 96.2 | 96.2 | 95.6 | 0.86 | 305 | 7.8 | 1068 | 2.6 | 3.3 | 3.9 | 1480 | 77 |
| 250 | M3BP 315LKC 4 | 3GBP312830-••K | 1791 | 96.7 | 96.7 | 96.4 | 0.86 | 376 | 8.9 | 1332 | 2.5 | 3.3 | 5.5 | 1600 | 77 |

# Technical data, 460 V 60 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1; 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1200 r/min = 6 poles** | | | | **460 V 60 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.75 | M3BP 90LG 6 | 3GBP093570-••K | 1146 | 83.4 | 83.4 | 81.2 | 0.72 | 1.6 | 5.5 | 6.3 | 2.6 | 3.2 | 0.0072 | 34 | 47 |
| 1.1 | M3BP 100LKG 6 | 3GBP103870-••K | 1171 | 88.0 | 88.0 | 86.4 | 0.66 | 2.3 | 4.6 | 9 | 1.3 | 2.7 | 0.0025 | 47 | 52 |
| 1.5 | M3BP 112MH 6 | 3GBP113380-••K | 1174 | 89.4 | 89.0 | 87.1 | 0.62 | 3.4 | 7.5 | 12.2 | 3.0 | 5.2 | 0.0196 | 53 | 69 |
| 2.2 | M3BP 132SMC 6 | 3GBP133230-••K | 1180 | 90.1 | 89.6 | 87.6 | 0.68 | 4.5 | 6.5 | 17.8 | 2.1 | 3.3 | 0.0416 | 81 | 60 |
| 3 | M3BP 132SMD 6 | 3GBP133240-••K | 1179 | 90.1 | 89.7 | 87.9 | 0.68 | 6.1 | 6.5 | 24 | 1.4 | 3.1 | 0.0416 | 82 | 60 |
| 4 | M3BP 132SMG 6 | 3GBP133270-••K | 1177 | 90.1 | 90.0 | 88.6 | 0.68 | 8.1 | 6.3 | 32 | 2.3 | 3.2 | 0.0416 | 82 | 60 |
| 5.5 | M3BP 132SMH 6 | 3GBP133280-••K | 1169 | 91.0 | 91.2 | 90.3 | 0.72 | 10.6 | 5.7 | 44.7 | 2.0 | 3.1 | 0.0654 | 79 | 60 |
| 7.5 | M3BP 160MLA 6 | 3GBP163410-••K | 1182 | 91.4 | 91.5 | 90.3 | 0.76 | 13.5 | 8.6 | 60.5 | 1.8 | 3.7 | 0.114 | 172 | 63 |
| 11 | M3BP 160MLB 6 | 3GBP163420-••K | 1183 | 91.7 | 91.8 | 90.5 | 0.73 | 20.6 | 9.4 | 88.7 | 2.3 | 4.4 | 0.131 | 198.7 | 63 |
| 15 | M3BP 180MLA 6 | 3GBP183410-••K | 1183 | 92.3 | 92.0 | 90.5 | 0.75 | 27.1 | 6.0 | 121 | 1.8 | 3.1 | 0.225 | 234 | 63 |
| 18.5 | M3BP 200MLA 6 | 3GBP203410-••K | 1191 | 93.3 | 93.2 | 92.1 | 0.77 | 32.3 | 8.6 | 148 | 2.9 | 3.6 | 0.448 | 291 | 67 |
| 22 | M3BP 200MLB 6 | 3GBP203420-••K | 1191 | 93.8 | 93.8 | 92.8 | 0.78 | 37.7 | 8.8 | 176 | 2.9 | 3.6 | 0.531 | 318 | 67 |
| 30 | M3BP 225SMA 6 | 3GBP223210-••K | 1191 | 94.2 | 94.3 | 93.6 | 0.80 | 49.9 | 8.9 | 240 | 3.2 | 3.5 | 0.813 | 392 | 67 |
| 37 | M3BP 250SMA 6 | 3GBP253210-••K | 1192 | 94.5 | 94.7 | 94.1 | 0.82 | 59.9 | 8.6 | 296 | 3.0 | 3.2 | 1.49 | 467 | 67 |
| 45 | M3BP 280SMB 6 | 3GBP283220-••K | 1193 | 95.3 | 95.2 | 94.3 | 0.85 | 70.6 | 7.9 | 361 | 2.6 | 2.9 | 2.2 | 680 | 68 |
| 55 | M3BP 280SMC 6 | 3GBP283230-••K | 1190 | 95.3 | 95.3 | 94.5 | 0.85 | 86.2 | 7.8 | 420 | 2.6 | 2.9 | 2.85 | 725 | 68 |
| 75 | M3BP 315SMC 6 | 3GBP313230-••K | 1195 | 95.7 | 95.5 | 94.7 | 0.82 | 121 | 7.9 | 600 | 2.5 | 3.1 | 4.9 | 1000 | 70 |
| 90 | M3BP 315SMD 6 | 3GBP313240-••K | 1195 | 95.7 | 95.6 | 94.9 | 0.80 | 149 | 8.2 | 719 | 2.7 | 3.2 | 4.9 | 1040 | 70 |
| 110 | M3BP 315MLB 6 | 3GBP313420-••K | 1194 | 96.1 | 96.0 | 95.4 | 0.81 | 177 | 7.9 | 880 | 2.6 | 3.0 | 6.3 | 1200 | 71 |
| 132 | M3BP 315LKA 6 | 3GBP313810-••K | 1194 | 96.1 | 96.0 | 95.5 | 0.81 | 215 | 7.9 | 1055 | 2.7 | 3.0 | 7.3 | 1410 | 71 |
| 160 | M3BP 355SMB 6 | 3GBP353220-••K | 1195 | 96.1 | 96.0 | 95.3 | 0.81 | 260 | 7.9 | 1278 | 2.3 | 3.0 | 9.7 | 1680 | 76 |
| 200 | M3BP 355SMC 6 | 3GBP353230-••K | 1196 | 96.1 | 95.7 | 95.0 | 0.82 | 320 | 8.3 | 1598 | 2.5 | 3.1 | 11.3 | 1820 | 76 |
| 250 | M3BP 355MLB 6 | 3GBP353420-••K | 1195 | 96.4 | 96.4 | 95.8 | 0.82 | 401 | 9.2 | 1997 | 2.3 | 3.0 | 13.5 | 2180 | 76 |
| 315 | M3BP 355LKA 6 | 3GBP353810-••K | 1195 | 96.4 | 96.4 | 95.8 | 0.83 | 500 | 7.9 | 2516 | 2.6 | 2.9 | 15.5 | 2500 | 79 |
| 355 | M3BP 355LKB 6 | 3GBP353820-••K | 1195 | 96.4 | 96.1 | 95.3 | 0.80 | 584 | 8.8 | 2835 | 3.0 | 3.2 | 16.5 | 2600 | 79 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1; 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1200 r/min = 6 poles** | | | | **460 V 60 Hz** | | | | **High-output design** | | | | | | | |
| 160 | M3BP 315LKC 6 | 3GBP313830-••K | 1195 | 96.1 | 96.0 | 95.3 | 0.81 | 259 | 8.4 | 1279 | 3.0 | 3.2 | 9.2 | 1600 | 71 |

[1)] Temperature rise class F

# Technical data, 460 V 60 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1; 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **900 r/min = 8 poles** | | | | **460 V 60 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0,75 | M3BP 100LKA 8 | 3GBP104810-••K | 866 | 75,5 | 73,9 | 68,5 | 0,61 | 1,9 | 4,9 | 8,27 | 2,6 | 3,2 | 0,00855 | 37 | 57 |
| 1,1 | M3BP 100LKB 8 | 3GBP104820-••K | 860 | 78,5 | 77,4 | 73,0 | 0,61 | 2,8 | 4,9 | 12,2 | 2,9 | 3,1 | 0,0128 | 45 | 57 |
| 1,5 | M3BP 112MC 8 | 3GBP114330-••K | 872 | 84,0 | 83,6 | 81,3 | 0,58 | 3,7 | 4,7 | 16,4 | 1,9 | 3,0 | 0,0194 | 53 | 59 |
| 2,2 | M3BP 132SMA 8 | 3GBP134210-••K | 879 | 85,5 | 84,9 | 82,2 | 0,60 | 5,2 | 5,7 | 23,9 | 2,1 | 3,4 | 0,0291 | 66 | 61 |
| 3 | M3BP 132SMG 8 | 3GBP134270-••K | 877 | 86,5 | 86,3 | 84,1 | 0,63 | 6,7 | 5,4 | 32,6 | 1,9 | 3,2 | 0,0375 | 76 | 61 |
| 4 | M3BP 160MLA 8 | 3GBP164410-••K | 886 | 86,5 | 86,1 | 83,5 | 0,63 | 9,2 | 5,0 | 43,1 | 2,1 | 2,7 | 0,091 | 130 | 63 |
| 5,5 | M3BP 160MLB 8 | 3GBP164420-••K | 886 | 86,5 | 86,5 | 84,6 | 0,67 | 11,4 | 5,6 | 59,2 | 2,3 | 2,6 | 0,091 | 132 | 63 |
| 7,5 | M3BP 160MLC 8 | 3GBP164430-••K | 887 | 89,5 | 89,6 | 88,2 | 0,67 | 15,5 | 5,8 | 80,7 | 2,4 | 2,7 | 0,12 | 167 | 63 |
| 11 | M3BP 180MLA 8 | 3GBP184410-••K | 885 | 89,5 | 89,5 | 87,8 | 0,68 | 22,2 | 5,7 | 118 | 2,3 | 2,4 | 0,2 | 219 | 63 |
| 15 | M3BP 200MLA 8 | 3GBP204410-••K | 889 | 90,2 | 90,5 | 89,5 | 0,72 | 28,6 | 6,0 | 161 | 2,4 | 2,9 | 0,45 | 290 | 64 |
| 18,5 | M3BP 225SMA 8 | 3GBP224210-••K | 890 | 90,2 | 90,3 | 89,0 | 0,72 | 35,1 | 5,9 | 198 | 2,2 | 2,5 | 0,669 | 350 | 67 |
| 22 | M3BP 225SMB 8 | 3GBP224220-••K | 889 | 91,7 | 92,2 | 91,6 | 0,71 | 41,7 | 6,0 | 236 | 2,6 | 2,8 | 0,722 | 363 | 67 |
| 30 | M3BP 250SMA 8 | 3GBP254210-••K | 892 | 91,7 | 91,8 | 90,5 | 0,68 | 59,4 | 6,3 | 321 | 3,1 | 3,0 | 1,4 | 440 | 67 |
| 37 | M3BP 280SMA 8 | 3GBP284210-••K | 893 | 92,4 | 92,1 | 90,5 | 0,78 | 64,2 | 8,1 | 396 | 1,8 | 3,4 | 1,85 | 605 | 68 |
| 45 | M3BP 280SMB 8 | 3GBP284220-••K | 892 | 92,4 | 92,1 | 90,5 | 0,77 | 78,8 | 8,5 | 482 | 1,9 | 3,5 | 2,2 | 645 | 69 |
| 55 | M3BP 315SMA 8 | 3GBP314210-••K | 893 | 93,6 | 93,3 | 92,0 | 0,80 | 92,8 | 8,0 | 589 | 1,9 | 3,0 | 3,2 | 830 | 65 |
| 75 | M3BP 315SMB 8 | 3GBP314220-••K | 892 | 93,6 | 93,6 | 92,6 | 0,81 | 129 | 7,9 | 803 | 1,8 | 3,0 | 4,1 | 930 | 65 |
| 90 | M3BP 315SMC 8 | 3GBP314230-••K | 890 | 94,1 | 94,1 | 93,1 | 0,81 | 149 | 8,3 | 964 | 1,9 | 3,0 | 4,9 | 1000 | 67 |
| 110 | M3BP 315MLA 8 | 3GBP314410-••K | 892 | 94,1 | 94,2 | 93,5 | 0,81 | 182 | 8,2 | 1178 | 1,9 | 3,0 | 5,8 | 1150 | 75 |
| 132 | M3BP 355SMA 8 | 3GBP354210-••K | 895 | 94,5 | 94,2 | 92,9 | 0,76 | 230 | 8,3 | 1409 | 1,5 | 2,9 | 7,9 | 1520 | 72 |
| 160 | M3BP 355SMB 8 | 3GBP354220-••K | 895 | 94,5 | 94,3 | 93,0 | 0,78 | 274 | 8,4 | 1703 | 1,6 | 2,8 | 9,7 | 1680 | 72 |
| 200 | M3BP 355SMC 8 | 3GBP354230-••K | 893 | 95,0 | 94,9 | 94,0 | 0,79 | 335 | 8,2 | 2143 | 1,6 | 2,9 | 11,3 | 1820 | 72 |
| 250 | M3BP 355MLB 8 | 3GBP354420-••K | 893 | 95,0 | 94,9 | 94,0 | 0,79 | 417 | 8,3 | 2672 | 1,6 | 2,9 | 13,5 | 2180 | 75 |
| 315 [1)] | M3BP 355LKB 8 | 3GBP354820-••K | 893 | 95,0 | 95,0 | 94,1 | 0,79 | 524 | 8,8 | 3369 | 1,8 | 2,9 | 16,5 | 2600 | 78 |

[1)] Temperature rise class F

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 r/min = 2 poles** | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.55 | M3BP 71ME 2 | 3GBP071350-••L | 2755 | 77.8 | 79.3 | 78.4 | 0.83 | 1.25 | 6.8 | 1.9 | 2.8 | 3.1 | 0.00045 | 11 | 56 |
| 0.75 | M3BP 80MC 2 | 3GBP081330-••L | 2894 | 80.7 | 80.4 | 77.2 | 0.74 | 1.7 | 7.9 | 2.4 | 3.7 | 4.2 | 0.0008 | 17 | 57 |
| 1.1 | M3BP 80ME 2 | 3GBP081350-••L | 2883 | 82.7 | 82.4 | 80.6 | 0.81 | 2.3 | 7.9 | 3.6 | 3.7 | 4.2 | 0.001 | 18 | 56 |
| 1.5 | M3BP 90SLA 2 | 3GBP091010-••L | 2906 | 84.2 | 84.7 | 84.6 | 0.89 | 2.8 | 7.9 | 4.9 | 2.3 | 3.3 | 0.0027 | 27 | 60 |
| 2.2 | M3BP 90LA 2 | 3GBP091510-••L | 2900 | 85.9 | 87.5 | 87.6 | 0.89 | 4.0 | 8.3 | 7.2 | 2.9 | 3.5 | 0.0032 | 30 | 60 |
| 3 | M3BP 100MLA 2 | 3GBP101410-••L | 2896 | 87.1 | 88.2 | 88.0 | 0.90 | 5.4 | 8.4 | 9.8 | 3.2 | 3.9 | 0.0057 | 42 | 62 |
| 4 | M3BP 112ME 2 | 3GBP111350-••L | 2888 | 88.1 | 89.4 | 89.6 | 0.91 | 7.1 | 8.4 | 13.2 | 3.2 | 4.0 | 0.0104 | 56 | 68 |
| 5.5 | M3BP 132SMC 2 | 3GBP131230-••L | 2901 | 89.2 | 89.9 | 90.1 | 0.91 | 9.7 | 7.9 | 18.1 | 2.3 | 3.4 | 0.0154 | 69 | 68 |
| 7.5 | M3BP 132SME 2 | 3GBP131250-••L | 2909 | 90.1 | 91.2 | 91.4 | 0.90 | 13.1 | 8.3 | 24.6 | 3.0 | 3.9 | 0.0173 | 75 | 70 |
| 11 | M3BP 160MLA 2 | 3GBP161410-••L | 2943 | 91.2 | 91.9 | 91.6 | 0.91 | 19.1 | 7.2 | 35.57 | 2.6 | 3.6 | 0.057 | 144 | 69 |
| 15 | M3BP 160MLB 2 | 3GBP161420-••L | 2947 | 91.9 | 92.2 | 91.8 | 0.88 | 26.5 | 8.2 | 48.49 | 3.2 | 4.2 | 0.063 | 152 | 69 |
| 18.5 | M3BP 160MLC 2 | 3GBP161430-••L | 2949 | 92.4 | 92.9 | 92.6 | 0.90 | 32 | 9.0 | 59.81 | 3.3 | 3.9 | 0.076 | 164 | 73 |
| 22 | M3BP 180MLA 2 | 3GBP181410-••L | 2956 | 92.7 | 93.2 | 92.7 | 0.90 | 37.7 | 7.8 | 70.98 | 3.4 | 3.8 | 0.11 | 205 | 73 |
| 30 | M3BP 200MLA 2 | 3GBP201410-••L | 2956 | 93.3 | 93.7 | 93.0 | 0.90 | 51.6 | 7.7 | 96.9 | 2.7 | 3.1 | 0.178 | 263 | 72 |
| 37 | M3BP 200MLB 2 | 3GBP201420-••L | 2959 | 93.7 | 93.9 | 93.2 | 0.90 | 63.5 | 8.2 | 119 | 3.0 | 3.3 | 0.196 | 289 | 72 |
| 45 | M3BP 225SMA 2 | 3GBP221210-••L | 2968 | 94.0 | 94.0 | 93.1 | 0.87 | 79.6 | 7.2 | 145 | 2.5 | 3.1 | 0.296 | 335 | 76 |
| 55 | M3BP 250SMA 2 | 3GBP251210-••L | 2968 | 94.3 | 93.7 | 93.6 | 0.89 | 94.8 | 6.8 | 177 | 2.4 | 3.0 | 0.426 | 400 | 76 |
| 75 | M3BP 280SMB 2 | 3GBP281220-••L | 2977 | 94.7 | 94.2 | 92.8 | 0.88 | 131 | 7.6 | 240 | 2.1 | 3.0 | 0.8 | 665 | 77 |
| 90 | M3BP 280SMC 2 | 3GBP281230-••L | 2976 | 95.0 | 95.1 | 94.3 | 0.89 | 154 | 7.4 | 288 | 2.1 | 2.9 | 0.9 | 690 | 77 |
| 110 | M3BP 315SMB 2 | 3GBP311220-••L | 2982 | 95.2 | 94.9 | 93.9 | 0.87 | 192 | 7.0 | 352 | 1.8 | 2.7 | 1.3 | 910 | 78 |
| 132 | M3BP 315SMC 2 | 3GBP311230-••L | 2982 | 95.4 | 95.1 | 94.0 | 0.88 | 227 | 7.4 | 422 | 2.2 | 3.0 | 1.4 | 965 | 78 |
| 160 | M3BP 315SMD 2 | 3GBP311240-••L | 2983 | 95.6 | 95.6 | 94.9 | 0.87 | 275 | 7.4 | 512 | 2.2 | 2.8 | 1.7 | 1025 | 78 |
| 200 | M3BP 315MLA 2 | 3GBP311410-••L | 2983 | 95.8 | 95.8 | 95.3 | 0.88 | 342 | 7.7 | 640 | 2.5 | 3.1 | 2.1 | 1190 | 81 |
| 250 | M3BP 355SMA 2 | 3GBP351210-••L | 2985 | 95.8 | 95.6 | 94.6 | 0.89 | 423 | 7.7 | 800 | 2.1 | 3.3 | 3 | 1600 | 83 |
| 315 | M3BP 355SMB 2 | 3GBP351220-••L | 2980 | 95.8 | 95.7 | 95.0 | 0.89 | 529 | 7.0 | 1009 | 2.1 | 3.0 | 3.4 | 1680 | 83 |
| 355 | M3BP 355SMC 2 | 3GBP351230-••L | 2984 | 95.8 | 95.8 | 95.0 | 0.88 | 605 | 7.2 | 1136 | 2.2 | 3.0 | 3.6 | 1750 | 83 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **3000 r/min = 2 poles** | | | | **400 V 50 Hz** | | | | **High-output design** | | | | | | | |
| 22 | M3BP 160MLD 2 | 3GBP161440-••L | 2944 | 92.7 | 93.5 | 93.5 | 0.90 | 38 | 8.4 | 71.36 | 3.2 | 3.7 | 0.071 | 174 | 74 |
| 30 | M3BP 180MLB 2 | 3GBP181420-••L | 2957 | 93.3 | 94.0 | 93.9 | 0.88 | 52.7 | 8.7 | 96.88 | 3.0 | 3.8 | 0.104 | 215 | 74 |
| 37 | M3BP 180MLC 2 | 3GBP181430-••L | 2952 | 93.7 | 94.5 | 94.5 | 0.88 | 64.7 | 8.7 | 120 | 3.1 | 3.7 | 0.115 | 229 | 74 |
| 45 | M3BP 200MLC 2 | 3GBP201430-••L | 2955 | 94.0 | 94.5 | 94.4 | 0.89 | 77.6 | 8.0 | 145 | 2.9 | 3.3 | 0.214 | 305 | 77 |
| 55 | M3BP 225SMB 2 | 3GBP221220-••L | 2966 | 94.3 | 94.6 | 94.1 | 0.88 | 95.6 | 7.4 | 177 | 2.9 | 2.9 | 0.274 | 355 | 79 |
| 75 [1)] | M3BP 225SMC 2 | 3GBP221230-••L | 2966 | 94.7 | 94.8 | 94.1 | 0.88 | 129 | 8.1 | 241 | 3.3 | 3.0 | 0.329 | 408 | 79 |
| 75 | M3BP 250SMB 2 | 3GBP251220-••L | 2971 | 94.7 | 95.1 | 94.8 | 0.90 | 127 | 7.9 | 241 | 2.8 | 3.3 | 0.644 | 479 | 81 |
| 90 [1)] | M3BP 250SMC 2 | 3GBP251230-••L | 2968 | 95.0 | 95.4 | 95.0 | 0.90 | 151 | 8.4 | 290 | 2.7 | 3.4 | 0.644 | 495 | 81 |
| 110 | M3BP 280SMD 2 | 3GBP281240-••L | 2977 | 95.2 | 95.2 | 94.4 | 0.88 | 190 | 7.5 | 353 | 2.4 | 3.1 | 1.15 | 725 | 75 |
| 250 | M3BP 315LKB 2 | 3GBP311820-••L | 2983 | 95.8 | 96.0 | 95.5 | 0.90 | 419 | 7.7 | 800 | 2.5 | 3.3 | 2.9 | 1540 | 81 |

[1)] Temperature rise class F

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500 r/min = 4 poles** | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.25 | M3BP 71MD 4 | 3GBP072340-••L | 1416 | 73.5 | 75.1 | 73.8 | 0.80 | 0.6 | 4.8 | 1.68 | 2.0 | 2.6 | 0.0009 | 11 | 45 |
| 0.37 | M3BP 71MLE 4 | 3GBP072450-••L | 1432 | 77.3 | 77.4 | 74.5 | 0.76 | 0.9 | 5.8 | 2.46 | 2.7 | 3.3 | 0.00122 | 15 | 45 |
| 0.55 | M3BP 80MLC 4 | 3GBP082430-••L | 1444 | 80.8 | 81.6 | 80.1 | 0.80 | 1.2 | 6.7 | 4 | 3.0 | 3.5 | 0.0028 | 20 | 45 |
| 0.75 | M3BP 80MLE 4 | 3GBP082450-••L | 1448 | 82.5 | 82.5 | 80.1 | 0.78 | 1.7 | 7.4 | 4.9 | 3.5 | 4.0 | 0.0033 | 22 | 50 |
| 1.1 | M3BP 90LA 4 | 3GBP092510-••L | 1437 | 84.1 | 83.7 | 81.2 | 0.78 | 2.46 | 8.0 | 7.32 | 3.3 | 3.8 | 0.007 | 28 | 50 |
| 1.5 | M3BP 90LB 4 | 3GBP092520-••L | 1445 | 85.3 | 85.0 | 82.7 | 0.75 | 3.34 | 7.6 | 9.95 | 3.4 | 4.1 | 0.007 | 32 | 50 |
| 2.2 | M3BP 100LA 4 | 3GBP102510-••L | 1455 | 86.7 | 86.6 | 84.6 | 0.80 | 4.6 | 7.9 | 14.4 | 3.2 | 4.0 | 0.011 | 38 | 54 |
| 3 | M3BP 100MLB 4 | 3GBP102420-••L | 1445 | 87.7 | 88.2 | 87.6 | 0.83 | 5.9 | 7.7 | 19.8 | 2.8 | 3.5 | 0.014 | 42 | 63 |
| 4 | M3BP 112ME 4 | 3GBP112350-••L | 1451 | 88.6 | 89.4 | 89.0 | 0.77 | 8.6 | 7.6 | 26.3 | 3.1 | 4.1 | 0.018 | 52 | 64 |
| 5.5 | M3BP 132SMB 4 | 3GBP132220-••L | 1460 | 89.6 | 90.1 | 89.6 | 0.82 | 11 | 6.6 | 35.9 | 2.2 | 3.3 | 0.031 | 68 | 66 |
| 7.5 | M3BP 132SME 4 | 3GBP132250-••L | 1462 | 90.4 | 91.0 | 90.3 | 0.79 | 15.6 | 6.7 | 48.9 | 2.5 | 3.4 | 0.037 | 78 | 63 |
| 11 | M3BP 160MLA 4 | 3GBP162410-••L | 1477 | 91.4 | 91.8 | 91.1 | 0.82 | 21.1 | 7.6 | 71.27 | 2.6 | 3.3 | 0.11 | 160 | 61 |
| 15 | M3BP 160MLB 4 | 3GBP162420-••L | 1477 | 92.1 | 92.3 | 91.6 | 0.82 | 28.5 | 8.2 | 96.99 | 3.0 | 3.6 | 0.135 | 179 | 61 |
| 18.5 | M3BP 180MLA 4 | 3GBP182410-••L | 1481 | 92.6 | 93.2 | 92.9 | 0.83 | 34.9 | 7.2 | 119 | 2.8 | 3.0 | 0.219 | 215 | 60 |
| 22 | M3BP 180MLB 4 | 3GBP182420-••L | 1481 | 93.0 | 93.5 | 93.3 | 0.82 | 41.4 | 8.3 | 142 | 3.0 | 3.2 | 0.243 | 229 | 60 |
| 30 | M3BP 200MLA 4 | 3GBP202410-••L | 1483 | 93.6 | 93.9 | 93.4 | 0.84 | 54.8 | 7.5 | 193 | 2.7 | 3.2 | 0.385 | 292 | 63 |
| 37 | M3BP 225SMA 4 | 3GBP222210-••L | 1482 | 93.9 | 94.1 | 93.8 | 0.83 | 68.9 | 7.2 | 239 | 3.1 | 3.1 | 0.427 | 322 | 67 |
| 45 | M3BP 225SMB 4 | 3GBP222220-••L | 1482 | 94.2 | 94.4 | 94.0 | 0.84 | 82.3 | 8.0 | 290 | 3.1 | 3.5 | 0.525 | 357 | 66 |
| 55 | M3BP 250SMA 4 | 3GBP252210-••L | 1482 | 94.6 | 94.7 | 94.1 | 0.84 | 100 | 7.1 | 354 | 2.9 | 3.4 | 0.694 | 406 | 68 |
| 75 | M3BP 280SMB 4 | 3GBP282220-••L | 1485 | 95.0 | 95.2 | 94.8 | 0.86 | 133 | 6.4 | 483 | 2.3 | 2.8 | 1.38 | 645 | 75 |
| 90 | M3BP 280SMC 4 | 3GBP282230-••L | 1485 | 95.2 | 95.5 | 95.2 | 0.86 | 158 | 7.1 | 578 | 2.5 | 2.9 | 1.73 | 700 | 75 |
| 110 | M3BP 315SMB 4 | 3GBP312220-••L | 1489 | 95.4 | 95.5 | 95.0 | 0.84 | 198 | 7.0 | 705 | 2.1 | 3.0 | 2.43 | 930 | 71 |
| 132 | M3BP 315SMC 4 | 3GBP312230-••L | 1488 | 95.6 | 95.9 | 95.5 | 0.86 | 231 | 6.7 | 847 | 2.2 | 2.9 | 2.9 | 1000 | 71 |
| 160 | M3BP 315SMD 4 | 3GBP312240-••L | 1488 | 95.8 | 96.0 | 95.8 | 0.85 | 282 | 6.9 | 1026 | 2.2 | 3.0 | 3.2 | 1065 | 71 |
| 200 | M3BP 315MLB 4 | 3GBP312420-••L | 1487 | 96.0 | 96.4 | 96.4 | 0.86 | 351 | 6.8 | 1284 | 2.4 | 3.0 | 3.9 | 1220 | 74 |
| 250 | M3BP 355SMA 4 | 3GBP352210-••L | 1491 | 96.0 | 96.0 | 95.6 | 0.86 | 435 | 6.4 | 1601 | 2.1 | 2.9 | 5.9 | 1610 | 78 |
| 315 | M3BP 355SMB 4 | 3GBP352220-••L | 1491 | 96.0 | 96.1 | 95.7 | 0.85 | 550 | 7.3 | 2018 | 2.4 | 3.3 | 6.9 | 1780 | 78 |
| 355 | M3BP 355SMC 4 | 3GBP352230-••L | 1490 | 96.0 | 96.2 | 95.8 | 0.86 | 616 | 6.3 | 2273 | 2.3 | 2.8 | 7.2 | 1820 | 78 |

# Technical data, 400 V 50 Hz
## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1500 r/min = 4 poles** | | | | **400 V 50 Hz** | | | | **High-output design** | | | | | | | |
| 18.5 | M3BP 160MLC 4 | 3GBP162430-••L | 1473 | 92.6 | 93.3 | 93.1 | 0.82 | 35.1 | 8.3 | 120 | 3.1 | 3.5 | 0.124 | 180 | 67 |
| 30 | M3BP 180MLC 4 | 3GBP182430-••L | 1476 | 93.6 | 94.1 | 94.1 | 0.82 | 56.5 | 7.4 | 195 | 2.5 | 3.2 | 0.191 | 235 | 62 |
| 37 | M3BP 200MLB 4 | 3GBP202420-••L | 1480 | 93.9 | 94.8 | 94.8 | 0.82 | 69.3 | 7.5 | 239 | 2.8 | 2.9 | 0.362 | 305 | 68 |
| 55 | M3BP 225SMC 4 | 3GBP222230-••L | 1478 | 94.6 | 94.9 | 94.8 | 0.84 | 99.9 | 7.7 | 355 | 3.3 | 3.3 | 0.536 | 391 | 71 |
| 75 | M3BP 250SMB 4 | 3GBP252220-••L | 1482 | 95.0 | 95.4 | 95.0 | 0.84 | 135 | 7.9 | 483 | 3.3 | 3.5 | 0.941 | 464 | 73 |
| 110 | M3BP 280SMD 4 | 3GBP282240-••L | 1486 | 95.4 | 95.7 | 95.3 | 0.85 | 196 | 7.3 | 707 | 2.7 | 3.0 | 1.95 | 750 | 76 |
| 132 | M3BP 280MLA 4 | 3GBP282410-••L | 1483 | 95.6 | 95.9 | 95.7 | 0.86 | 232 | 7.0 | 849 | 2.7 | 2.8 | 2.3 | 840 | 75 |
| 160 | M3BP 280MLB 4 | 3GBP282420-••L | 1484 | 95.8 | 96.0 | 95.8 | 0.86 | 280 | 7.4 | 1029 | 2.9 | 2.9 | 2.5 | 890 | 75 |
| 250 | M3BP 315LKA 4 | 3GBP312810-••L | 1488 | 96.0 | 96.3 | 96.1 | 0.85 | 442 | 6.9 | 1604 | 2.5 | 3.2 | 4.4 | 1410 | 78 |
| 280 | M3BP 315LKB 4 | 3GBP312820-••L | 1488 | 96.0 | 96.2 | 96.0 | 0.86 | 490 | 7.8 | 1797 | 2.7 | 3.1 | 5 | 1520 | 78 |
| 315 | M3BP 315LKC 4 | 3GBP312830-••L | 1489 | 96.0 | 96.1 | 95.8 | 0.85 | 557 | 8.3 | 2020 | 3.0 | 3.3 | 5.5 | 1600 | 78 |

# Technical data, 400 V 50 Hz

## IE3 cast iron motors

**IP 55 - IC 411 - Insulation class F, temperature rise class B**
**IE3 efficiency class according to IEC 60034-30-1: 2014**

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000 r/min = 6 poles** | | | | **400 V 50 Hz** | | | | **CENELEC-design** | | | | | | | |
| 0.25 | M3BP 80MB 6 | 3GBP083320-••L | 942 | 68.6 | 67.0 | 61.7 | 0.61 | 0.82 | 4.8 | 2.5 | 2.7 | 2.9 | 0.0019 | 14 | 47 |
| 0.37 | M3BP 80MC 6 | 3GBP083330-••L | 936 | 73.5 | 73.9 | 71.1 | 0.67 | 1.06 | 4.5 | 3.8 | 2.6 | 2.9 | 0.0028 | 16 | 50 |
| 0.55 | M3BP 80ME 6 | 3GBP083350-••L | 933 | 77.2 | 77.9 | 75.9 | 0.68 | 1.52 | 5.0 | 5.6 | 2.7 | 2.9 | 0.0035 | 18 | 47 |
| 0.75 | M3BP 90SLD 6 | 3GBP093040-••L | 940 | 78.9 | 80.3 | 79.2 | 0.75 | 1.8 | 4.4 | 7.57 | 2.1 | 2.8 | 0.0056 | 29 | 53 |
| 1.1 | M3BP 90LF 6 | 3GBP093560-••L | 944 | 81.0 | 81.7 | 80.1 | 0.75 | 2.6 | 4.7 | 11.1 | 2.1 | 2.8 | 0.0068 | 33 | 44 |
| 1.5 | M3BP 100MLB 6 | 3GBP103420-••L | 960 | 82.5 | 82.5 | 80.1 | 0.68 | 3.8 | 5.4 | 14.9 | 2.7 | 3.4 | 0.012 | 41 | 49 |
| 2.2 | M3BP 112MJ 6 | 3GBP113390-••L | 962 | 84.3 | 85.5 | 84.7 | 0.68 | 5.3 | 5.9 | 21.8 | 2.3 | 3.3 | 0.0196 | 53 | 66 |
| 3 | M3BP 132SMB 6 | 3GBP133220-••L | 973 | 85.6 | 85.1 | 82.9 | 0.62 | 8.0 | 6.6 | 29.2 | 2.7 | 3.8 | 0.0355 | 75 | 57 |
| 4 | M3BP 132SMF 6 | 3GBP133260-••L | 971 | 86.8 | 86.5 | 84.7 | 0.62 | 10.7 | 6.6 | 39 | 2.7 | 3.8 | 0.0416 | 82 | 57 |
| 5.5 | M3BP 132SMJ 6 | 3GBP133290-••L | 966 | 88.0 | 89.1 | 88.9 | 0.73 | 12.3 | 4.2 | 54 | 1.7 | 2.7 | 0.0408 | 81 | 57 |
| 7.5 | M3BP 160MLA 6 | 3GBP163410-••L | 975 | 89.1 | 90.0 | 90.0 | 0.77 | 15.7 | 5.7 | 73.2 | 1.4 | 3.0 | 0.089 | 146 | 59 |
| 11 | M3BP 160MLB 6 | 3GBP163420-••L | 975 | 90.3 | 91.2 | 91.1 | 0.78 | 22.5 | 6.4 | 108 | 1.6 | 3.1 | 0.138 | 180 | 64 |
| 15 | M3BP 180MLA 6 | 3GBP183410-••L | 979 | 91.2 | 91.9 | 91.6 | 0.79 | 30.1 | 5.2 | 147 | 1.5 | 2.7 | 0.212 | 212 | 63 |
| 18.5 | M3BP 200MLA 6 | 3GBP203410-••L | 989 | 91.7 | 91.9 | 91.3 | 0.82 | 35.2 | 6.5 | 179 | 2.2 | 3.2 | 0.496 | 272 | 59 |
| 22 | M3BP 200MLB 6 | 3GBP203420-••L | 989 | 92.2 | 92.4 | 91.5 | 0.81 | 42.4 | 7.3 | 212 | 2.6 | 3.5 | 0.585 | 297 | 59 |
| 30 | M3BP 225SMA 6 | 3GBP223210-••L | 988 | 92.9 | 93.0 | 92.2 | 0.77 | 60.4 | 7.7 | 291 | 2.9 | 3.5 | 0.724 | 349 | 63 |
| 37 | M3BP 250SMA 6 | 3GBP253210-••L | 990 | 93.3 | 93.7 | 93.5 | 0.80 | 71.1 | 6.5 | 357 | 2.4 | 3.1 | 1.3 | 431 | 58 |
| 45 | M3BP 280SMB 6 | 3GBP283220-••L | 991 | 93.7 | 94.0 | 93.5 | 0.84 | 82 | 7.4 | 433 | 2.7 | 3.0 | 1.87 | 645 | 72 |
| 55 | M3BP 280SMC 6 | 3GBP283230-••L | 992 | 94.1 | 94.3 | 93.8 | 0.86 | 99 | 7.5 | 528 | 2.8 | 3.0 | 2.57 | 725 | 71 |
| 75 | M3BP 315SMB 6 | 3GBP313220-••L | 994 | 94.6 | 94.9 | 94.6 | 0.84 | 136 | 6.8 | 720 | 1.8 | 2.6 | 4.1 | 930 | 75 |
| 90 | M3BP 315SMC 6 | 3GBP313230-••L | 994 | 94.9 | 95.1 | 94.7 | 0.84 | 164 | 7.2 | 864 | 2.0 | 3.0 | 4.6 | 1000 | 76 |
| 110 | M3BP 315SMD 6 | 3GBP313240-••L | 994 | 95.1 | 95.3 | 95.0 | 0.83 | 200 | 7.3 | 1056 | 2.2 | 3.1 | 4.9 | 1040 | 75 |
| 132 | M3BP 315MLB 6 | 3GBP313420-••L | 995 | 95.4 | 95.5 | 95.1 | 0.82 | 242 | 7.3 | 1266 | 2.3 | 3.2 | 6.3 | 1200 | 72 |
| 160 | M3BP 355SMA 6 | 3GBP353210-••L | 993 | 95.6 | 95.8 | 95.6 | 0.82 | 292 | 6.7 | 1538 | 2.5 | 2.6 | 7.9 | 1520 | 75 |
| 200 | M3BP 355SMB 6 | 3GBP353220-••L | 993 | 95.8 | 96.2 | 96.1 | 0.82 | 365 | 6.7 | 1923 | 2.6 | 2.5 | 9.7 | 1680 | 75 |
| 250 | M3BP 355SMC 6 | 3GBP353230-••L | 993 | 95.8 | 96.1 | 95.8 | 0.81 | 465 | 7.7 | 2404 | 3.0 | 3.1 | 11.3 | 1820 | 75 |
| 315 | M3BP 355MLB 6 | 3GBP353420-••L | 993 | 95.8 | 96.1 | 96.0 | 0.83 | 571 | 6.8 | 3029 | 2.6 | 3.2 | 13.5 | 2180 | 76 |
| 355 | M3BP 355LKA 6 | 3GBP353810-••L | 993 | 95.8 | 96.0 | 95.9 | 0.81 | 653 | 7.5 | 3413 | 2.9 | 3.2 | 15.5 | 2500 | 76 |

| Output kW | Motor type | Product code | Speed r/min | Efficiency IEC 60034-30-1: 2014 Full load 100% | 3/4 load 75% | 1/2 load 50% | Power factor Cosφ | Current $I_N$ A | $I_s/I_N$ | Torque $T_N$ Nm | $T_l/T_N$ | $T_b/T_N$ | Moment of inertia J = 1/4 GD²kgm² | Weight kg | Sound pressure Level $L_{PA}$ dB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1000 r/min = 6 poles** | | | | **400 V 50 Hz** | | | | **High-output design** | | | | | | | |
| 18.5 | M3BP 180MLB 6 | 3GBP183420-••L | 980 | 91.7 | 92.5 | 92.0 | 0.75 | 38.8 | 6.4 | 180 | 2.1 | 3.1 | 0.22 | 219 | 65 |
| 37 | M3BP 225SMB 6 | 3GBP223220-••L | 985 | 93.3 | 93.7 | 93.4 | 0.80 | 71.5 | 7.0 | 359 | 2.7 | 3.0 | 0.813 | 382 | 68 |
| 45 | M3BP 250SMB 6 | 3GBP253220-••L | 991 | 93.7 | 94.1 | 93.6 | 0.81 | 85.5 | 7.6 | 434 | 2.9 | 3.3 | 1.5 | 465 | 68 |
| 55 | M3BP 250SMC 6 | 3GBP253230-••L | 989 | 94.1 | 94.7 | 94.5 | 0.80 | 105 | 7.1 | 531 | 3.0 | 3.1 | 1.49 | 466 | 68 |
| 75 | M3BP 280SMD 6 | 3GBP283240-••L | 991 | 94.6 | 94.9 | 94.5 | 0.85 | 135 | 7.6 | 723 | 2.8 | 3.0 | 3.0 | 740 | 73 |
| 160 | M3BP 315LKA 6 | 3GBP313810-••L | 994 | 95.6 | 95.8 | 95.4 | 0.81 | 298 | 7.5 | 1535 | 2.2 | 3.1 | 7.3 | 1410 | 76 |
| 180 | M3BP 315LKB 6 | 3GBP313820-••L | 994 | 95.8 | 95.9 | 95.4 | 0.82 | 331 | 7.6 | 1729 | 2.3 | 3.1 | 8.3 | 1520 | 76 |
| 200 | M3BP 315LKC 6 | 3GBP313830-••L | 993 | 95.8 | 96.1 | 95.8 | 0.82 | 367 | 7.0 | 1923 | 2.2 | 2.8 | 9.2 | 1600 | 76 |