WE3 Series of Premium - Efficiency Three - phase Asynchronous Motor

www.wolong.com/en
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WE.18-10.EN

WOLONG
Power your future

Sincerity, Harmony and Creativity

Who are we? And what can we offer?

Established in 1984, Wolong Electric Group Co., Ltd was listed on the Shanghai Stock Exchange in June 2002. The Wolong Group currently has 55 Subsidiaries, more than 18.500 staff, assets of 3.2 billion and an annual revenue of 4.5 billion USD in 2016. The company is mainly focused on three product chains: Motor and Drives, Transformers and Power Supply.

The history of the ATB Group (Antriebs Technik Bauknecht), with a shareholding of 100 % by Wolong, dates back more than 90 years. With 12 manufacturing bases and more than 3.000 staff in Europe the ATB group includes brands such as Brook Crompton, Laurence Scott, Morley and Schorch, Other brands within the Wolong group are CNE, OLI and SIR.

Today, the Wolong Electric Group ranks amongst the leading global companies, offering more than 130 years of experience and expertise.

The product portfolio covers a de range of rating from a few Watts to 130 MWatt of motors and drives, generators, power supply batteries, electric transmission and transformation equipment and other related products. These can be standard solutions, customised solutions and design-to-order solutions including complete drive systems for a wide range of applications in low and high volumes. Our products are widely used in home appliances such as air conditioners, washing machines, kitchen and garden tools -and also in standard and heavy duty industrial applications such as Oil and Gas, Power Generation, Mining, Marine, Railway, Electrical Vehicles and many others.

Cast iron specification

Specification		
	Standard product	**Option**
Frame size	80-355	
Enclosure	IP55	IP56, IP65
Mounting option	Foot (B3), Flange (B5), Face (B14)	Foot & Flange (B35), Foot & Face (B34)
Terminal box position	Top	Right hand side, left hand side
Voltage	400, 380 (V)	500, 690, 415, 440, 460, 480 (V)
Frequency	50 Hz	60 Hz
Cooling	IC411	IC410, IC418
Bearing location	Drive end	Non drive end
Lubrication	80 - 180 double-shielded bearings	Regreasing facility
	200-355 regreasing facility	
Insulation	class F	class H or Nano Insulation (Pg 14)
Temperature rise	class B	class F
Paint colour		on request
Fan cover	Steel	
Thermal protection		PTC, PTO, PT100
Anti condensation heaters		100 - 355
Drain holes		80 - 355
Inverter Duty (with derate)	Variable Torque 10:1	
	Constant Torque: 2:1	Alternative speed range
Ambient temperature	-15˚C to + 40˚C	

The above specification and options give a brief summary of features available for the WE3 cast iron range.
For a full listing of optional features, please contact Wolong sales.

Quality assurance

The entire order realisation process for electrical machines, from quotation to delivery including the integration of our suppliers, is based on a generally accepted quality assurance system pursuant to ISO 9001, which is constantly monitored and undergoes further development.
The designs, technical data and illustrations contained in this documentation are subject to change.
They are only binding upon written confirmation.

Standards, codes, regulations and specifications

The motors conform to the relevant standards and regulations, including without limitation the following:

CE label

The motors bear the CE label pursuant to the Low Voltage Directive 2014/35/EC or the ErP Directive 2009/125/EC. On 29/12/2009, the Machinery Directive 2006/42/EC came into force which clearly exempts induction motors. The EMC Directive 2014/30/EC rates induction motors as benign equipment and exempts them explicitly from its scope.
The motors of this technical list are therefore now only subject to the Low Voltage Directive.

Title	IEC	DIN/EN	GB standard
Rotating electrical machines Rating and performance	IEC 60034-1	DIN EN 60034-1	GB 755
Determination of losses and efficiency	IEC 60034-2-1	DIN EN 60034-2-1	GB/T1032
IP degrees of protection	IEC 60034-5	DIN EN 60034-5	GB/T 4942.1
Methods of cooling (IC code)	IEC 60034-6	DIN EN 60034-6	GB/T 1993
Types of construction (IM code)	IEC 60034-7	DIN EN 60034-7	GB/T 997
Terminal markings and direction of rotation	IEC 60034-8	DIN EN 60034-8	GB 1971
Noise limits	IEC 60034-9	DIN EN 60034-9	GB 10069.3
Built-in thermal protection; rules for protection	IEC 60034-11	DIN EN 60034-11	GB/T 13002
Starting performance of single-speed three-phase cage induction motors, excluding multi-speed motors, for voltages up to and including 690 V/50 Hz	IEC 60034-12	DIN EN 60034-12	GB/T 22210
Mechanical vibration of certain machines with shaft heights of 56 mm and above	IEC 60034-14	DIN EN 60034-14	GB10068
Rotating electrical machines - Part 25: Guidance for the design and performance of cage induction motors designed for converter supply	IEC 60034-25	DIN EN 60034-25	
Efficiency classes of three-phase squirrel cage motors	IEC 60034-30-1	DIN EN 60034-30-1	GB18613
IEC standard voltages	IEC 60038	DIN IEC 60038	
Three-phase motors for general use with standardized dimensions and outputs	IEC 60072 [1]	DIN EN 50347	GB/T 4772.1

[1] IEC 60072 only provides for dimensions but does not define any output classifications. (tolerances acc. to EN 50347)

Technical explanations

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Three-phase alternating current, rated power
Rated-load torque, speed
Connection

Three-phase alternating current

The term three-phase alternating current is used if the existing three-phase system carries three individual alternating voltages that have identical values, but show a 120-degree phase shift. The three connections of the three-phase system are called L1, L2 and L3.

Rated power

The rated power is supplied at the motor's shaft end:

$P_N = \sqrt{3} \times U_N \times I_N \times \cos\varphi \times \eta$ [W]

or

$P_N = \sqrt{3} \times U_N \times I_N \times \cos\varphi \times \eta \times 10^{-3}$ [kW]

U_N = rated voltage at the motor [V]
I_N = rated current [A]
$\cos\varphi$ = power factor
η = efficiency

The same formulae, but without the concatenation factor $\sqrt{3}$, can be used for single-phase motors.

Rated-load torque

The rated-load torque is determined as follows

$$M_N = 9550 \times \frac{P_N}{n_N} \text{ [Nm]}$$

P_N = rated power [kW]
n_N = rated speed [min^{-1}]
The SI unit is Newton meter.

$$1 \text{ Nm} = \frac{1}{9.81} \text{ kgm}$$

Speed

The no-load speed corresponds to the synchronous speed reduced by the slip. The motor's synchronous speed is determined as follows

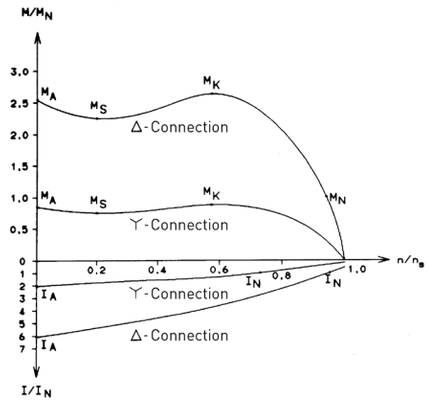
$$n_S = \frac{f \times 60}{p} \text{ [min}^{-1}\text{]}$$

f = frequency [Hz]
p = number of pole pairs

The synchronous speed is reduced to the rated speed by the slip s that is required for power output (refer to technical data).

$n_N = n_S \times 3\ (1 - s)$ [min^{-1}]
n_S = synchronous speed [min^{-1}]

Speed-torque characteristic



Connection

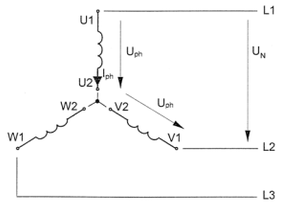
Basically, there are two different ways to connect the motor's three phases.

Star connection

If the U 2, V 2 and W 2 winding ends are connected to each other, the star connection with a neutral point is formed.

Rated voltage U_N, i.e. total voltage at 2 of the 3 phases that are shifted by 120 degrees each; rated current I_N, i.e. current at the individual system connections, which means

$U_N = \sqrt{3} \times U_{ph}$
$I_N = I_{ph}$

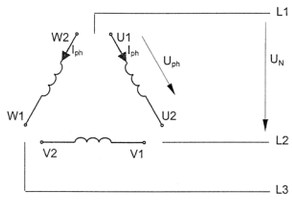


Delta connection

If the end of each phase winding is connected to the start of the next phase winding, the delta connection is formed. Such a connection does not include a neutral point.

Rated voltage U_N, i.e. voltage at 2 of the 3 system connections. Rated current I_N, i.e. total current at 2 of the 3 phases that are shifted by 120 degrees each, which means

$U_N = U_{ph}$
$I_N = \sqrt{3} \times I_{ph}$



In general, three-phase motors with a power of up to 4 kW are provided with direct-on-line starting, while three-phase motors with a power from 5.5 kW upwards are provided with star-delta starting.

Degree of protection according to IEC 60034-5

Degree of protection [1]	Scope of protection (test conditions)		Motor design	Explanation
	Protection against electric shock and the ingress of solid foreign bodies	Protection against the ingress of water		
IP 54	Full protection against contact with and approach to live parts, as well as contact with moving parts inside the housing. Protection against detrimental dust deposits. The ingress of dust is not completely blocked, however, dust ingress is reduced to ensure that satisfactory machine operation will not be affected.	Water sprayed onto the machine from all directions may not have any detrimental effects.	Standard design	The motors can be installed in a dusty or damp environment. Such conditions are also permissible for the insulation of the stator winding. Motors that are exposed to moderate environmental influences during proper storage or installation in premises used for industrial purposes do not require any special measures. Standard N 04 paint provides sufficient protection for the impact occurring under such conditions. In case of extreme climatic conditions, an IP 55 degree of protection is required with additional measures, e.g. in case of permanent moisture (more than 80 % relative humidity), damp tropical climate, aggressive industrial atmosphere, unprotected outdoor installation with the risk of stormy rain, and in coastal climate.
IP 55 [2]		A jet of water from a nozzle, pointed at the machine from all directions, has no detrimental effects.	Special design on customer's request	
IP 56		Splashes of water caused by heavy seas or strong jets do not penetrate the housing in detrimental quantities.		
IP 65	Full protection against contact with and approach to live parts, as well as contact with moving parts inside the housing. Protection against the ingress of dust (dust-tight).	A jet of water from a nozzle, pointed at the machine from all directions, has no detrimental effects.		

For all types of construction with the shaft end in a downward position, the design "with drip roof" is recommended, in order to prevent the ingress of water at the second non-drive shaft end. For all types of construction with the shaft end in an upward position, a suitable cover, which prevents the dropping of small parts onto the fan cowl, is a prerequisite. This does not apply when the motor is attached to a driven machine, which then provides cover. However, the cooling air flow may not be affected by such a cover. Motors that are installed out of doors must be protected against intensive solar radiation (for IM V1 with drip roof).

Condensate drainage holes

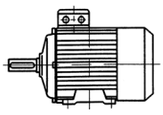
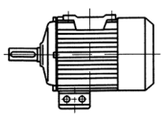
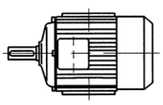
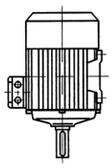
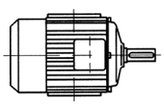
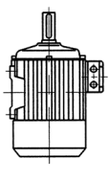
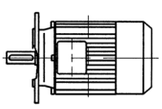
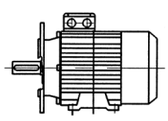
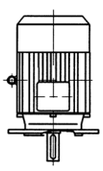
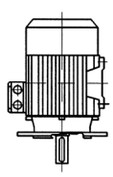
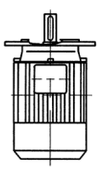
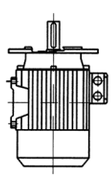
Motors up to and including frame size 355 are not provided with condensate drain holes.
They will be installed only at special request, which has to be explicitly specified in the order.
The position of these holes depends on the motor's type of construction and mounting position.
Condensate drain holes are positioned at the lowest point (in the end shield or motor housing) depending on the order.

Note:
In addition to the "normal use" as specified in the operating and maintenance instructions, motors with condensate drain holes, which owing to the motor's degree of protection are sealed tightly with a screw, must be drained at reasonable intervals (in accordance with the degree of condensate formation).

Mounting arrangements

The most common mounting arrangements are shown in the following table. The dimensional drawings show the range of frame sizes for which the individual types of construction are available. Further types of construction are available on request. The basic type of construction is specified on the rating plate according to code I, IEC 60034-7. Standard motors, i.e. frame sizes 80 – 355, which are ordered as the basic types of construction (universal types of construction) IM B3, IM B5 or IM B14, can also be operated in the following non-standard mounting positions[1]:

IM B3 in IM B6, IM B7, IM B8, IM V5 or IM V6,
IM B5 in IM V1 or IM V3,
IM B14 in IM V18 or IM V19.
For motors up to frame size 315 (standard design without condensate drain). Owing to the fact that the terminal boxes are rotatable by 90 degrees, connection of the motors to the supply system is provided for in all types of construction.

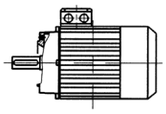
	Code I (Code II)		**Code I** (Code II)	
Foot-mounting motors All frame sizes	**IM B3** (IM 1001) – Shaft in a horizontal position – Feet on the floor		**IM B8** (IM 1071) – Shaft in a horizontal position – Feet upward	
	IM B6 (IM 1051) – Shaft in a horizontal position – Feet on the wall and left when looking at the shaft end		**IM V5** (IM 1011) – Shaft in a vertical downward position – Feet on the wall	
	IM B7 (IM 1061) – Shaft in a horizontal position – Feet on the wall and right when looking at the shaft end		**IM V6** (IM 1031) – Shaft in a vertical upward position – Feet on the wall	
Flange-mounting motors, FF flange with through-holes All frame sizes former designation acc. to DIN: A-flange	**IM B5** (IM 3001) – Shaft in a horizontal position		**IM B35 (IM 2001)** – Shaft in a horizontal position – Feet on the floor	
	IM V1 (IM 3011) – Shaft in a vertical downward position		**IM V15** (IM 2011) – Shaft in a vertical downward position – Feet on the wall	
	IM V3 (IM 3031) – Shaft in a vertical upward position		**IM V35** (IM 2031) – Shaft in a vertical upward position – Feet on the wall	

limited bearing load with vertical installation

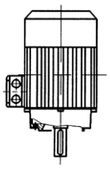
Mounting arrangements

Flange-mounting motors, FT flange with tapped holes up to frame size 160; former designation acc. to DIN: C-flange

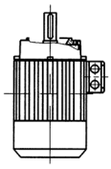
Code I (Code II)
IM B14 (IM 3601)
– Shaft in a horizontal position



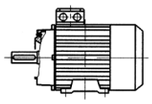
IM V18 (IM 3611)
– Shaft in a vertical downward position



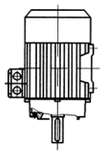
IM V3 (IM 3031)
– Shaft in a vertical upward position



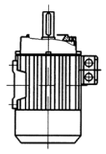
Code I (Code II)
IM B34 (IM 2101)
– Shaft in a horizontal position
– Feet on the floor



IM V17 (IM 2111)
– Shaft in a vertical downward position
– Feet on the wall

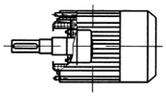


IM V37 (IM 2131)
– Shaft in a vertical upward position
– Feet on the wall

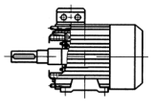


Motors without end shield and rolling-contact bearing at the drive end

IM B9 (IM 9101)
– Threaded tension bolts
– Shaft in a horizontal position



IM B15 (IM 1201)
– Feet and threaded tension bolts
– Shaft in a horizontal position



Technical explanations

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Shaft ends, Key and Keyway
Balancing, mechanical running smoothness
Coupling drive

Shaft ends

The shaft ends are cylindrical and both their design, size and performance classification conform to IEC 50347. Motors from frame size 80 upwards are equipped with shaft ends that have internal threads conforming to DIN 332-2 for the fitting of belt pulleys and couplings. The design of the featherkeys conforms to DIN 6885-1; the keys are always included in the motor delivery packages.
On customer request, motors are delivered with a second free shaft end.

Key & Keyway

The key and keyway correspond to form A according to DIN 6885-1. The tolerances of the featherkey and the feather-key way are in accordance with IEC 50347.
Frame sizes 80 – 355 dimensions of the key and keyway and position in the shaft end: central

Frame size	Length			
	Width	Height	Standard	Minimum lengths acc. to DIN EN 50347
	mm	mm	mm	mm
80	6	6	**32**	**32**
90	8	7	**40**	**40**
100 + 112	8	7	**50**	**50**
132	10	8	**70**	**70**
160	12	8	**100**	**90**
180	14	9	**100**	**100**
200	16	10	**100**	**100**
225/2	16	10	**100**	**100**
225/4	18	11	**125**	**125**
250/2	18	11	**125**	**125**
250/4	18	11	**125**	**125**
280/2	18	11	**125**	**125**
280/4	20	12	**125**	**125**
315/2	18	11	**125**	**125**
315/4	22	14	**140**	**140**
355/2	20	12	**125**	**125**
355/4	25	14	**140**	**140**

Balancing

On all motors, the rotors are dynamically balanced with a half key at operating speeds according to DIN ISO 21940-32:2012. In accordance with this standard, letter symbols additionally specify the type of key and keyway balancing on the rating plate or the face of the drive shaft. (H – half key balancing, F – full key balancing).
The use of high-quality, rolling-contact bearings as well as compliance with the fit tolerances ensure reliable running smoothness and vibration severity grade. The catalogued motors conform with vibration severity grade "A" according to IEC 60034-14.
It must be ensured that transmission elements (belt pulleys, couplings, gear wheels, etc.) without slots are dynamically balanced at the intended speed.
Furthermore, it is important that the hub length corresponds to the length of the key, as, failing this, additional residual unbalances would affect the motor's vibration.
According to the regulation IEC 60034, rotors are designed for an overspeed test speed equal to 1.2 times the highest safer rated speed.

Vibration

In case of special requirements, vibration severity grade "B" is available on a surcharge basis:
The subsequent vibration severity limits are valid for motors running at no load in an uncoupled mode with free suspension.

Vibration severity grade	Speed range	Vibration velocity in mm/s Effective height to shaft centre value in mm		
	min^{-1}	≤132	160 – 280	. 280>
A	120 to 3600	1.6	2.2	2.8
B	120 to 3600	0.7	1.1	1.8

According to IEC 60034-14 (VDE 0530, part 14)

Coupling

Torsionally flexible coupling is permitted for all motors. However, it must be taken into consideration that torsionally flexible couplings also require very precise alignment of the machines to be coupled, in order to exclude vibrations during running to the greatest possible extent and to ensure that the bearings' life is not reduced by non-permissible loads. The coupling of 2-pole motors (with synchronous speeds of 3000 min^{-1} at 50 Hz and 3600 min^{-1} at 60 Hz) must be carried out with the utmost care and precision. It is essential to ensure that the coupling half on the motor end is dynamically balanced on a plain mandrel.

Fitting and extraction of belt pulleys and couplings

Belt pulleys and couplings must be fitted and extracted using special tools.

Cooling method

The motors are fitted with fans made of plastic or metal that provide cooling regardless of the direction of rotation of the motor. The built-in fan moves the cooling air from the non-drive end to the drive end. For this reason, it is essential that the openings of the fan cowl ensure free air inflow. Correct cooling depends on observing a minimum space between the fan cowl and any existing wall.
The cooling methods for electrical machines are stated in code according to IEC 60034-6. The code consists of the letters IC (International Cooling) and a three-digit number.

- IC 410: Totally enclosed non-ventilated: cooling without using a fan, by natural ventilation and radiation on the enclosed motor surface.
- IC 411: Totally enclosed fan-cooled: cooling air is blown over the totally enclosed motor surface by a fan mounted on the shaft.
- IC 418: External surface-cooled: Cooling air is blown over the totally enclosed motor surface. The motor is positioned in the external air flow and can be self-ventilated or also non-ventilated.

The standard featured in this list are classified in the cooling method IC 411 (surface-cooled)
Due consideration must be given to heat incidence and heat radiation (e.g. solar radiation, media temperatures, ...).

Bearings

The motors are equipped with rolling-contact bearings on the drive end and the non-drive end. The bearings in motors up to and including frame size 180 are permanently lubricated. Motors of frame size 200 have a regreasable bearing. Other on request. These motors are fitted with an additional plate stating details about the specific lubricant, the quantity required and the greasing intervals.

Bearing type (bearing selection can be changed according to customer needs)

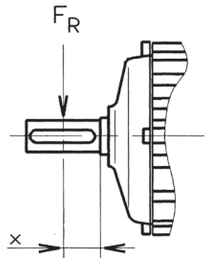
Frame size	Number of poles	Drive end	Non drive end
80	2~6	6204ZZ	6204ZZ
90	2~6	6205ZZ	6203ZZ
100	2~6	6206ZZ	6205ZZ
112	2~6	6206ZZ	6206ZZ
132	2~6	6208ZZ	6305ZZ
160	2~6	6309ZZ	6307ZZ
180	2~6	6310ZZ	6308ZZ
200	2	6312	6212
200	4~6	6312	6212
225	2	6312	6312
225	4~6	6313	6312
250	2	6313	6313
250	4~6	6314	6313
280	2	6314	6314
280	4~6	6317	6314
315	2	6317	6317
315	4~6	6319	6319
355	2	6319	6319
355	4~6	6322	6322

Lubrication

Standard motors are lubricated for life. In the case of increased load and extreme temperatures, special greases are available.

Permissible forces at the shaft end

The specified values are valid for the bearings and drive end shaft ends contained in this list, taking a calculated life of L_{10h} = 20000 h as the basis. They are permitted for both horizontal and vertical shafts. The table contains data concerning the permissible radial force F_R at a distance x from the shaft shoulder.

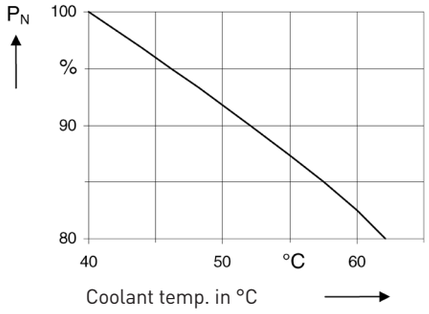


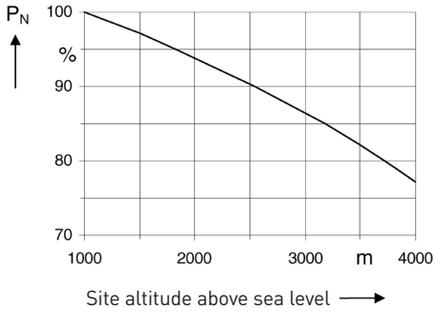
Permissible radial force
Frame sizes 80-355

Frame	Radical Force F0 (N)					
	2P		4P		6P	
	$F_{R\ x=0}$	$F_{R\ x=max}$	$F_{R\ x=0}$	$F_{R\ x=max}$	$F_{R\ x=0}$	$F_{R\ x=max}$
WE3-80	485	400	625	515	735	605
WE3-90	725	605	920	775	10990	910
WE3-100	1010	830	1270	1040	1520	1240
WE3-112	1030	840	1310	1060	1550	1250
WE3-132	1490	1180	1940	1530	2260	1780
WE3-160	1540	1210	2040	1590	2330	1820
WE3-180	2000	1550	2350	1950	2800	2250
WE3-200	2550	2100	3350	2750	3900	3200
WE3-225	3050	2550	3750	2950	4550	3600
WE3-250	3650	2950	4400	3600	5350	4350
WE3-280	3350	2800	8700	7200	10800	8900
WE3-315	3950	3350	9900	8100	12100	9900
WE3-355	4250	3750	10300	9000	13000	11000

Power

The rated power and operating values specified in the selection tables are applicable to the S1 service type as defined by IEC 60034-1 at a rated frequency of 50 Hz, rated voltage, a coolant temperature (KT) of max. 40 °C and a site altitude of up to 1000 m above sea level. The motors can also be used at coolant temperatures from 40 °C to max. 60 °C, or a site altitude of more than 1000 m above sea level. In these cases, the rated power specified in the selection tables must be reduced in accordance with the below chart and/or a larger motor type or higher temperature class must be selected. Motors for higher coolant temperatures are





Occasional excess current
According to DIN EN 60034-1, motors with a rated power of up to 315 kW, running at rated-load operating temperature, can withstand excess current of 1.5 times the rated current for a period of 2 minutes without their lifetimes being adversely affected.

Tolerances

According to DIN EN 60034-1, the following tolerances apply to the electrical values specified in the rating tables:

Efficiency η:

$P_N \leq 150$kW	–15 % (1 – η)
$P_N >$ 150 kW	–10 % (1 – η)

Power factor cos φ: $-\frac{1-\cos\varphi}{6}$

Slip s at nominal load and rated-load operating temperature:

> 1 kW	± 20 % of the guaranteed slip
< 1 kW	± 30 % of the guaranteed slip

Locked-rotor torque: –15 %
Breakdown torque: –10 %
Locked-rotor current: +20 %

Rated current:
The rating tables specify the rated currents only for a rated voltage of 400 V. In the case of any other voltages, the rated currents change in reverse proportion to the voltages:

$$\frac{U}{UN} = \frac{IN}{I}$$

From this, it follows:

$$IN = \frac{U \times I}{UN}$$

Efficiency according to IEC 60034-30-1

2-pole

P_N (kW)		0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200-375
IE1	50 Hz	72.1	75.0	77.2	79.7	81.5	83.1	84.7	86.0	87.6	88.7	89.3	89.9	90.7	91.2	91.7	92.1	92.7	93.0	93.3	93.5	93.8	94.0
(η %)	60 Hz	74.0	78.5	81.0	81.5		84.5 [1]	86.0	87.5	87.5	88.5	89.5	89.5	90.2	91.5	91.7	92.4	93.0	93.0	93.0	94.1 [2]	94.1 [3]	94.1
IE2	50 Hz	77.4	79.6	81.3	83.2	84.6	85.8	87.0	88.1	89.4	90.3	90.9	91.3	92.0	92.5	92.9	93.2	93.8	94.1	94.3	94.6	94.8	95.0
(η %)	60 Hz	75.5	82.5	84.0	85.5		87.5 [1]	88.5	89.5	90.2	90.2	91.0	91.0	91.7	92.4	93.0	93.0	93.6	94.5	94.5	95.0 [2]	95.4 [3]	95.4
IE3	50 Hz	80.7	82.7	84.2	85.9	87.1	88.1	89.2	90.1	91.2	91.9	92.4	92.7	93.3	93.7	94.0	94.3	94.7	95.0	95.2	95.4	95.6	95.8
(η %)	60 Hz	77.0	84.0	85.5	86.5		88.5 [1]	89.5	90.2	91.0	91.0	91.7	91.7	92.4	93.0	93.6	93.6	94.1	95.0	95.0	95.4 [2]	95.8 [3]	95.8
IE4	50 Hz	83.5	85.2	86.5	88.0	89.1	90.0	90.9	91.7	92.6	93.3	93.7	94.0	94.5	94.8	95.0	95.3	95.6	95.8	96.0	96.2	96.3	96.5
(η %)	60 Hz	82.5	85.5	86.5	88.5		89.5 [1]	90.2	91.7	92.4	92.4	93.0	93.0	93.6	94.1	94.5	94.5	95.0	95.4	95.4	95.8 [2]	96.2 [3]	96.2

4-pole

P_N (kW)		0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200-375
IE1	50 Hz	72.1	75.0	77.2	79.7	81.5	83.1	84.7	86.0	87.6	88.7	89.3	89.9	90.7	91.2	91.7	92.1	92.7	93.0	93.3	93.5	93.8	94.0
(η %)	60 Hz	77.0	79.0	81.5	83.0		85.0 [1]	87.0	87.5	88.5	89.5	90.5	91.0	91.7	92.4	93.0	93.0	93.2	93.2	93.5	94.5 [2]	94.5 [3]	94.5
IE2	50 Hz	79.6	81.4	82.8	84.3	85.5	86.6	87.7	88.7	89.8	90.6	91.2	91.6	92.3	92.7	93.1	93.5	94.0	94.2	94.5	94.7	94.9	95.1
(η %)	60 Hz	78.0	84.0	84.0	87.5		87.5 [1]	89.5	89.5	91.0	91.0	92.4	92.4	93.0	93.0	93.6	94.1	94.5	94.5	95.0	95.0 [2]	95.0 [3]	95.4
IE3	50 Hz	82.5	84.1	85.3	86.7	87.7	88.6	89.6	90.4	91.4	92.1	92.6	93.0	93.6	93.9	94.2	94.6	95.0	95.2	95.4	95.6	95.8	96.0
(η %)	60 Hz	83.5	86.5	86.5	89.5		89.5 [1]	91.7	91.7	92.4	93.0	93.6	93.6	94.1	94.5	95.0	95.4	95.4	95.4	95.8	96.2 [2]	96.2 [3]	96.2
IE4	50 Hz	85.7	87.2	88.2	89.5	90.4	91.1	91.9	92.6	93.3	93.9	94.2	94.5	94.9	95.2	95.4	95.7	96.0	96.1	96.3	96.4	96.6	96.7
(η %)	60 Hz	85.5	87.5	88.5	91.0		91.0 [1]	92.4	92.4	93.6	94.1	94.5	94.5	95.0	95.4	95.4	95.8	96.2	96.2	96.2	96.5 [2]	96.5 [3]	96.8

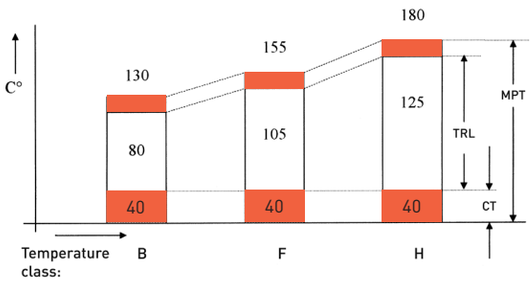
6-pole

P_N (kW)		0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200-375
IE1	50 Hz	70.0	72.9	75.2	77.7	79.7	81.4	83.1	84.7	86.4	87.7	88.6	89.2	90.2	90.8	91.4	91.9	92.6	92.9	93.3	93.5	93.8	94.0
(η %)	60 Hz	72.0	75.0	77.0	78.5		83.5 [1]	85.0	86.0	89.0	89.5	90.2	91.0	91.7	91.7	91.7	92.1	93.0	93.0	94.1	94.1 [2]	94.1 [3]	94.1
IE2	50 Hz	75.9	78.1	79.8	81.8	83.3	84.6	86.0	87.2	88.7	89.7	90.4	90.9	91.7	92.2	92.7	93.1	93.7	94.0	94.3	94.6	94.8	95.0
(η %)	60 Hz	73.0	85.5	86.5	87.5		87.5 [1]	89.5	89.5	90.2	90.2	91.7	91.7	93.0	93.0	93.6	93.6	94.1	94.1	95.0	95.0 [2]	95.0 [3]	95.0
IE3	50 Hz	78.9	81.0	82.5	84.3	85.6	86.8	88.0	89.1	90.3	91.2	91.7	92.2	92.9	93.3	93.7	94.1	94.6	94.9	95.1	95.4	95.6	95.8
(η %)	60 Hz	82.5	87.5	88.5	89.5		89.5 [1]	91.0	91.0	91.7	91.7	93.0	93.0	94.1	94.1	94.5	94.5	95.0	95.0	95.8	95.8 [2]	95.8 [3]	95.8
IE4	50 Hz	82.7	84.5	85.9	87.4	88.6	89.5	90.5	91.3	92.3	92.9	93.4	93.7	94.2	94.5	94.8	95.1	95.4	95.6	95.8	96.0	96.2	96.5
(η %)	60 Hz	84.0	88.5	89.5	90.2		90.2 [1]	91.7	92.4	93.0	93.0	94.1	94.1	95.0	95.0	95.4	95.4	95.8	95.8	96.2	96.2 [2]	96.2 [3]	96.5

[1] at 3.7 kW
[2] at 150 kW
[3] at 185 kW

Temperature classes

According to DIN EN 60034, insulating materials, including impregnants, are classified in temperature classes, to which exactly defined temperature values are assigned.



TRL Temperature rise limit (temperature rise) in K (mean value in Kelvin)
CT Coolant temperature
MPT Maximum allowable permanent temperature in °C (for the hottest point of the winding)

Insulation

All motors are designed in accordance with temperature class 155 (F). At rated power and in direct on-line operation, motor utilization corresponds to temperature class 130 (B).
The used insulating material systems largely protect the winding against the influence of gases, vapours, dust and oil. They withstand normal climate loads according to IEC 60721-3 and are tropic-proof.

Temperature class 155 (F)

As the standard design motors specified in this list are utilized in accordance with temperature class 130 (B), it is possible to either increase the rated power for frame size 80 to 355 motors in continuous operation with a coolant temperature of 40 °C by 10 %, or to raise the coolant temperature from 40 °C to 60 °C in operation at rated power.
Motors for higher coolant temperatures are available on request.

Direction of rotation

Motors can be operated in both directions of rotation. If the line phases are connected to the U1, V1, W1 motor terminals in a L1, L2, L3 order, the direction of rotation is clockwise when looking at the drive end, in accordance with IEC 60034-8. The direction of rotation can be reversed by exchanging any two phases.

Types of service

Types of service according to DIN EN 60034-1	Designation	Required data
S1	Continuous running duty (constant load)	
S2	Short-term duty (constant load)	Operating duration
S3	Periodic duty (constant load/standstill)	Cyclic duration factor
S4	Intermittent periodic duty with starting (starting/constant load/standstill)	Cyclic duration factor Mass moment of inertia of the motor Mass moment of inertia of the loading machine
S5	Intermittent periodic duty with electric braking (starting/constant load/braking/standstill)	Cyclic duration factor Mass moment of inertia of the motor Mass moment of inertia of the loading machine
S6	Continuous-operation periodic duty (constant load/no load)	Cyclic duration factor
S7	Continuous-operation periodic duty with electric braking (starting/constant load/braking/standstill)	Mass moment of inertia of the motor Mass moment of inertia of the loading machine
S8	Continuous-operation periodic duty with load/speed changes	Mass moment of inertia of the motor Mass moment of inertia of the loading machine Load/speed/cyclic duration factor
S9	Duty with non-periodic load and speed variations	on request
S10	Duty with discrete constant loads	Load/application time Relative thermal life expectancy

Recommended values for
Operating duration: 10, 30, 60 and 90 minutes
Cyclic duration factor: 15; 25; 40 and 60 %
Cycle time: 10 minutes
For the S2-S8 types of services, the starting counter-torque must be specified.

Thermal motor protection

The thermal motor protection of the stator windings should be chosen to ideally suit the operating conditions. In addition to motor protecting switches with thermally delayed overcurrent protection, motors can also be protected by thermistor detectors, integrated into the winding. "Thermal motor protection" (TMS) provides increased protection by monitoring the temperature at a critical point in the winding. Thus, conditions such as reduced cooling or increased ambient temperatures are detected, which a bimetal trip element does not register. In special cases, such as reversing duty, frequent operation or conversion, the bimetal trip element cannot be adjusted to provide sufficient protection. In such cases, it is essential to use thermal motor protection. Usually, PTC thermistors are employed as temperature detectors, however in special cases, NTC thermistors are used.
In order to protect all the motor windings, each winding incorporates one thermistor per phase.
Motors protected exclusively by PTC (so-called motor protection exclusively by PTC thermistors) are available on request. The control unit which is required in addition to the PTC disconnects the motor winding from the supply when the nominal response temperature (NAT) is reached. A maximum of 6 PTC thermistors can be connected to one control unit.

Space heater

To reduce condensation inside the motor, motors can be equipped with space heaters which are available on request at a surcharge. For the normal supply voltage, refer to the table. Other supply voltages are available on request. The space heater must not be on during operation.
Alternatively, it is possible to connect a voltage of approx. 5 – 10% of the motor's rated voltage to the U1 and V1 terminals (single-phase), in order to provide for sufficient heating of the stator winding.

Space heater overview

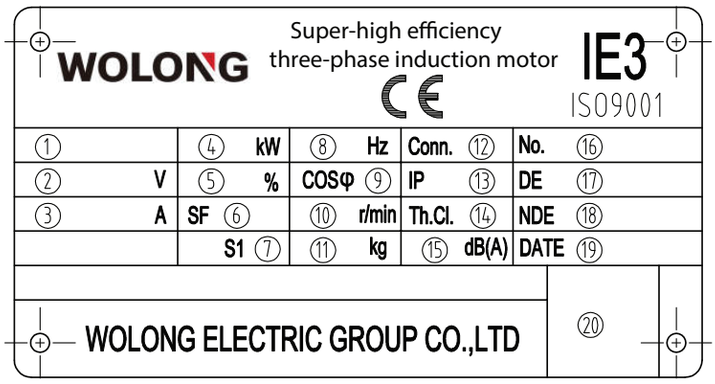
Frame size	Supply voltage	Heating output
	V	W
100	230	30
112	230	30
132	230	40
160	230	40
180	230	50
200	230	50
225	230	60
250	230	60
280	230	60
315	230	2 x 80
355	230	2 x 110

Starting frequency

The number of starts/h specified in the following table are permissible without closer checks on the following conditions. **Load moment of inertia ≤ rotor moment of inertia; counter-torque increasing with the square of the speed to nominal torque; starts at regular intervals.**

Shaft height	Permissible number of starts/h		
	2-pole	4-pole	6-pole
180	15	30	50
200 + 225	8	15	30
250 – 315	4	8	12

Nameplate



The technical data according to Annex 1 (2) of Regulation 640/2009 are numbered through from point **1** to **20** and are listed below with reference to the nameplate and the tables with the electrical data in this chapter.

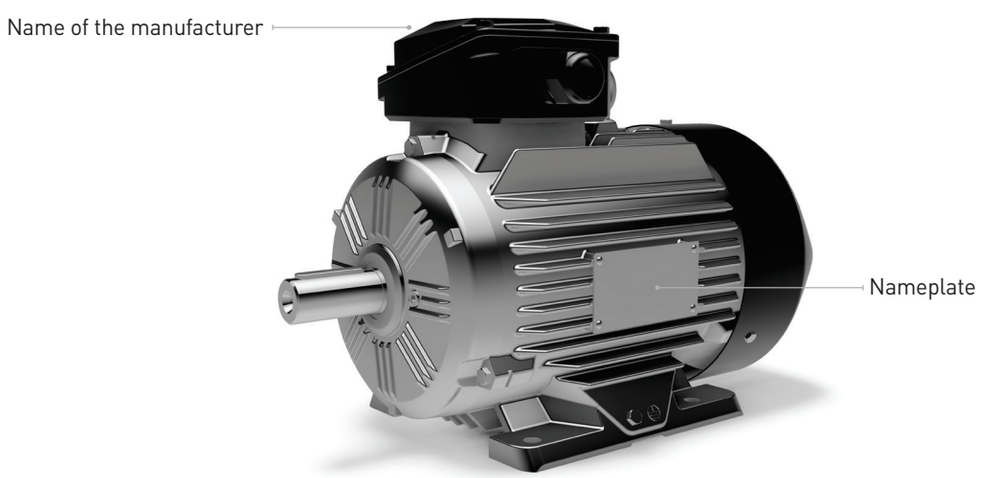
1 Type
2 Rated voltage
3 Rated current
4 Rated power
5 Efficiency
6 The service factor
7 Duty type
8 Rated frequency
9 Power factor
10 Rated speed
11 Weight
12 Connection
13 Protection class
14 Insulation class
15 Noise
16 Manufacturing number
17 Front bearing type
18 Rear bearing type
19 Date of production
20 QR code

Type designation, frame sizes 80-355

The full type designation is stated in the rating tables.
It is structured as follows:

WE3 - 160 L - 2 - x

- x: Environmental condition code
  (Needed when there are special design requirements)
  F1-Indoor anti-medium corrosion type
  F2-Indoor anti-strong corrosion type
  WF1-Outdoor anti-medium corrosion type
  WF2-Outdoor anti-strong corrosion type
  TH-Humid tropics
  G-Highland
- 2: Poles
- L: Length of FS e.g. S means short FS, L means long FS
- 160: Frame Size
- WE3: WE3 Series three-phase asynchronous motor, IE3 efficiency.



Technical parameters 2 pole 50Hz

Type	Rated Output	Rated current at 380 V	Rated current at 400 V	Rated current at 415 V	Rated Speed	Efficiency			Power factor			Starting Torque	Starting Current	Breakdown Torque	Weight	Noise	Moment of inertia	Torque
						50% Load	75% Load	100% Load	50% Load	75% Load	100% Load							
	PN (kW)	IN (A)	IN (A)	IN (A)	n (min^{-1})		η (%)			Cosφ		T_{st}/T_N	I_{st}/I_N	T_M/T_N	m_M kg	dB(A)	(kgm^2)	MN (Nm)
WE3-80M1-2	0.75	1.72	1.64	1.58	2860	79.3	81.1	80.7	0.73	0.79	0.82	2.3	7.0	2.3	12	62	0.00099	2.50
WE3-80M2-2	1.1	2.43	2.31	2.23	2880	79.6	82.5	82.7	0.73	0.76	0.83	2.2	7.3	2.3	12.5	62	0.00129	3.65
WE3-90S-2	1.5	3.22	3.06	2.95	2885	84.1	84.9	84.2	0.74	0.81	0.84	2.2	7.6	2.3	22.5	67	0.00137	4.97
WE3-90L-2	2.2	4.58	4.35	4.19	2870	85.8	86.5	85.9	0.74	0.82	0.85	2.2	7.6	2.3	24	67	0.00160	7.32
WE3-100L-2	3	6.02	5.71	5.51	2900	86.2	87.4	87.1	0.79	0.84	0.87	2.2	7.8	2.3	34	74	0.00531	9.88
WE3-112M-2	4	7.84	7.45	7.18	2900	88.7	89.2	88.1	0.78	0.85	0.88	2.2	8.3	2.3	41	77	0.00690	13.2
WE3-132S1-2	5.5	10.6	10.1	9.75	2920	88.9	89.6	89.2	0.78	0.85	0.88	2.0	8.3	2.3	60	79	0.01447	18.0
WE3-132S2-2	7.5	14.4	13.7	13.2	2905	89.9	90.6	90.1	0.79	0.85	0.88	2.0	7.9	2.3	63	79	0.01842	24.7
WE3-132L-2	9.2	17.5	16.7	16.1	2905	89.9	91.0	90.6	0.79	0.85	0.88	2.0	7.9	2.3	75	79	0.02345	30.2
WE3-160M1-2	11	20.6	19.6	18.9	2940	89.9	91.1	91.2	0.78	0.86	0.89	2.0	8.1	2.3	110	81	0.04558	35.7
WE3-160M2-2	15	27.9	26.5	25.5	2930	91.3	92.1	91.9	0.79	0.86	0.89	2.0	8.1	2.3	118	81	0.05260	48.9
WE3-160L-2	18.5	34.2	32.5	31.3	2930	92.2	92.7	92.4	0.81	0.87	0.89	2.0	8.2	2.3	132	81	0.06312	60.3
WE3-180M-2	22	40.5	38.5	37.1	2945	92.1	92.9	92.7	0.81	0.87	0.89	2.0	8.2	2.3	158	83	0.09162	71.3
WE3-200L1-2	30	54.9	52.1	50.3	2970	91.3	92.9	93.3	0.80	0.87	0.89	2.0	7.6	2.3	256	84	0.18377	96.5
WE3-200L2-2	37	67.4	64.0	61.7	2970	91.8	93.3	93.7	0.78	0.86	0.89	2.0	7.6	2.3	260	84	0.21675	119
WE3-225M-2	45	80.8	76.8	74.0	2970	92.4	94.0	94.0	0.83	0.88	0.90	2.0	7.7	2.3	330	86	0.35520	145
WE3-250M-2	55	98.5	93.5	90.2	2970	93.0	94.3	94.3	0.78	0.86	0.90	2.0	7.7	2.3	395	89	0.44658	177
WE3-280S-2	75	134	127	122	2980	93.5	94.7	94.7	0.83	0.87	0.90	1.8	7.1	2.3	571	91	0.81913	241
WE3-280M-2	90	160	152	146	2980	93.3	95.0	95.0	0.80	0.87	0.90	1.8	7.1	2.3	657	91	1.02392	289
WE3-315S-2	110	195	185	179	2985	93.8	95.2	95.2	0.86	0.89	0.90	1.8	7.1	2.3	910	92	1.39782	353
WE3-315M-2	132	234	222	214	2985	94.0	95.4	95.4	0.84	0.87	0.90	1.8	7.1	2.3	1230	92	1.54652	423
WE3-315L1-2	160	279	265	256	2985	94.7	95.6	95.6	0.85	0.88	0.91	1.8	7.2	2.3	1345	92	2.02237	513
WE3-315L2-2 185	185	323	307	296	2985	94.6	95.7	95.7	0.86	0.88	0.91	1.8	7.2	2.2	1410	92	2.15685	593
WE3-315L3-2 200	200	349	331	319	2985	95.2	95.8	95.8	0.87	0.89	0.91	1.8	7.2	2.2	1450	92	2.37926	641
WE3-355M1-2	220	384	364	351	2990	95.5	95.8	95.8	0.87	0.89	0.91	1.6	7.2	2.2	1590	100	4.01523	705
WE3-355M2-2	250	436	414	399	2990	95.4	95.8	95.8	0.88	0.89	0.91	1.6	7.2	2.2	1607	100	4.71113	801
WE3-355L1-2	280	488	464	447	2990	94.8	95.8	95.8	0.88	0.89	0.91	1.6	7.2	2.2	1837	100	4.29613	897
WE3-355L2-2	315	549	522	503	2990	95.3	95.8	95.8	0.88	0.89	0.91	1.6	7.2	2.2	1860	100	5.71224	1009
WE3-3551-2 355	355	619	588	567	2990	95.3	95.8	95.8	0.88	0.89	0.91	1.6	7.2	2.2	2085	104	6.47780	1138
WE3-3552-2 375	375	654	621	598	2990	95.3	95.8	95.8	0.88	0.89	0.91	1.6	7.2	2.2	2285	104	6.47780	1202

Technical parameters 4 pole 50Hz

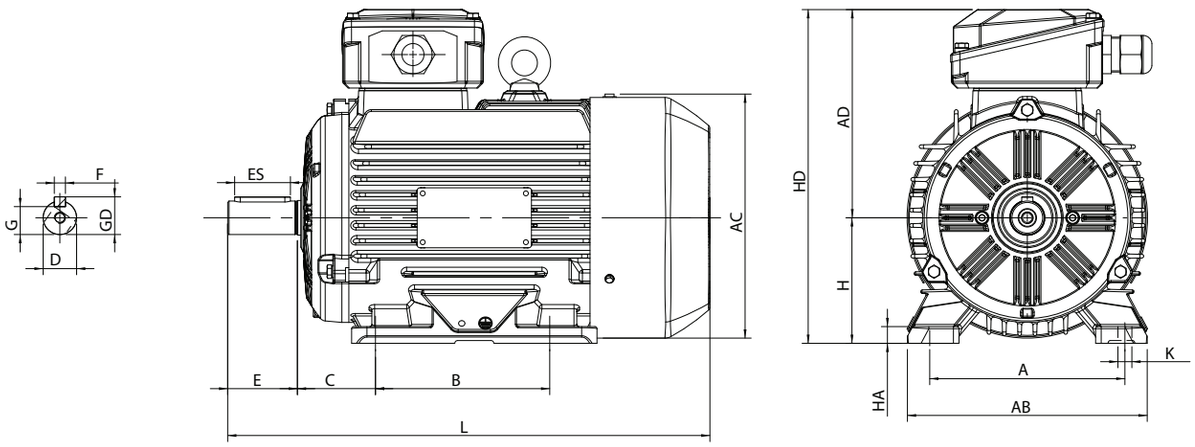
Type	Rated Output	Rated current at 380 V	Rated current at 400 V	Rated current at 415 V	Rated Speed	Efficiency			Power factor			Starting Torque	Starting Current	Breakdown Torque	Weight	Noise	Moment of inertia	Torque
						50% Load	75% Load	100% Load	50% Load	75% Load	100% Load							
	PN (kW)	IN (A)	IN (A)	IN (A)	n (min^{-1})		η (%)			Cosφ		T_{st}/T_N	I_{st}/I_N	T_M/T_N	m_M kg	dB(A)	(kgm^2)	MN (Nm)
WE3-80M1-4	0.55	1.38	1.31	1.26	1425	77.9	80.8	80.8	0.57	0.68	0.75	2.3	6.6	2.3	14	56	0.00182	3.69
WE3-80M2-4	0.75	1.84	1.75	1.69	1425	79.6	82.4	82.5	0.57	0.69	0.75	2.3	6.6	2.3	15.5	56	0.00234	5.03
WE3-90S-4	1.1	2.61	2.48	2.39	1430	83.2	84.6	84.1	0.56	0.69	0.76	2.3	6.8	2.3	23	59	0.00340	7.35
WE3-90L-4	1.5	3.47	3.30	3.18	1425	84.7	85.8	85.3	0.58	0.70	0.77	2.3	7.0	2.3	26	59	0.00429	10.1
WE3-100L1-4	2.2	4.76	4.52	4.36	1445	84.8	86.8	86.7	0.64	0.75	0.81	2.3	7.6	2.3	35	64	0.01021	14.5
WE3-100L2-4	3	6.34	6.02	5.80	1420	85.7	87.7	87.7	0.65	0.76	0.82	2.3	7.6	2.3	41	64	0.01392	20.2
WE3-112M-4	4	8.37	7.95	7.66	1450	88.5	89.2	88.6	0.69	0.78	0.82	2.2	7.8	2.3	50	65	0.02010	26.3
WE3-132S-4	5.5	11.2	10.7	10.3	1460	89.3	90.0	89.6	0.67	0.77	0.83	2.0	7.9	2.3	70	71	0.03208	36.0
WE3-132M-4	7.5	15.0	14.3	13.7	1445	90.9	91.2	90.4	0.70	0.80	0.84	2.0	7.5	2.3	76.5	71	0.03609	49.6
WE3-132L-4	9.2	18.3	17.4	16.8	1445	91.2	91.7	90.9	0.70	0.80	0.84	2.0	7.5	2.3	85	71	0.04061	60.8
WE3-160M-4	11	21.5	20.4	19.7	1470	90.7	91.6	91.4	0.70	0.80	0.85	2.2	7.7	2.3	121	73	0.08875	71.5
WE3-160L-4	15	28.8	27.3	26.3	1470	92.0	92.5	92.1	0.74	0.82	0.86	2.2	7.8	2.3	129	73	0.10593	97.4
WE3-180M-4	18.5	35.3	33.5	32.3	1475	92.0	92.8	92.6	0.71	0.81	0.86	2.0	7.8	2.3	173	76	0.17329	120
WE3-180L-4	22	41.8	39.7	38.3	1475	92.2	93.0	93.0	0.72	0.82	0.86	2.0	7.8	2.3	184	76	0.19736	142
WE3-200L-4	30	56.6	53.8	51.9	1475	92.7	93.6	93.6	0.76	0.83	0.86	2.0	7.3	2.3	270	76	0.41523	194
WE3-225S-4	37	69.6	66.1	63.7	1480	92.4	93.9	93.9	0.74	0.82	0.86	2.0	7.4	2.3	305	78	0.45833	239
WE3-225M-4	45	84.4	80.2	77.3	1480	92.8	94.2	94.2	0.75	0.82	0.86	2.0	7.4	2.3	335	78	0.52839	290
WE3-250M-4	55	103	97.6	94.1	1480	93.0	94.6	94.6	0.77	0.82	0.86	2.2	7.4	2.3	451	79	0.83961	355
WE3-280S-4	75	136	129	125	1485	93.3	95.0	95.0	0.78	0.85	0.88	2.0	6.9	2.3	598	80	1.46336	484
WE3-280M-4	90	163	155	129	1485	93.6	95.2	95.2	0.76	0.83	0.88	2.0	6.9	2.3	684	80	1.79595	579
WE3-315S-4	110	197	187	180	1490	93.6	95.4	95.4	0.82	0.86	0.89	2.0	7.0	2.2	890	88	2.92524	707
WE3-315M-4	132	236	224	216	1490	94.8	95.6	95.6	0.82	0.87	0.89	2.0	7.0	2.2	1240	88	3.26277	849
WE3-315L1-4	160	285	271	261	1490	95.2	95.8	95.8	0.84	0.86	0.89	2.0	7.1	2.2	1390	88	3.93783	1029
WE3-315L2-4 185	185	329	313	302	1490	95.3	95.3	95.9	0.83	0.86	0.89	2.0	7.1	2.2	1420	88	5.06613	1190
WE3-315L3-4 200	200	352	334	322	1490	95.8	96.0	96.0	0.86	0.88	0.90	2.0	7.1	2.2	1440	88	5.06292	1286
WE3-355M1-4	220	387	368	354	1495	95.8	96.0	96.0	0.84	0.87	0.89	2.0	7.1	2.2	1645	95	8.85473	1412
WE3-355M2-4	250	440	418	403	1495	95.6	96.0	96.0	0.85	0.88	0.90	2.0	7.1	2.2	1665	95	8.21532	1597
WE3-355L1-4	280	493	468	451	1495	95.4	96.0	96.0	0.85	0.88	0.90	2.0	7.1	2.2	1658	95	10.54836	1797
WE3-355L2-4	315	554	526	507	1495	94.9	96.0	96.0	0.86	0.87	0.90	2.0	7.1	2.2	1815	95	9.17059	2022
WE3-3551-4 355	355	639	607	585	1495	94.9	96.0	96.0	0.84	0.85	0.88	1.7	7.0	2.2	1995	102	10.31692	2275
WE3-3552-4 375	375	674	641	618	1495	94.9	96.0	96.0	0.84	0.85	0.88	1.7	7.0	2.2	2085	102	12.22746	2395

Technical parameters 6 pole 50Hz

Type	Rated Output	Rated current at 380 V	Rated current at 400 V	Rated current at 415 V	Rated Speed	Efficiency			Power factor			Starting Torque	Starting Current	Breakdown Torque	Weight	Noise	Moment of inertia	Torque
						50% Load	75% Load	100% Load	50% Load	75% Load	100% Load							
	PN (kW)	IN (A)	IN (A)	IN (A)	n (min^{-1})		η (%)			Cosφ		T_{st}/T_N	I_{st}/I_N	T_M/T_N	m_M kg	dB(A)	(kgm^2)	MN (Nm)
WE3-80M1-6	0.37	1,09	1.04	1	925	72.7	74.8	73.5	0.50	0.62	0.70	2.0	6.0	2.1	13	54	0.00212	3.82
WE3-80M2-6	0.55	1,5	1.43	1,38	925	77.0	78.6	77.2	0.53	0.65	0.72	2.0	6.0	2.1	15.5	54	0.00329	5.68
WE3-90S-6	0.75	2,03	1.93	1,86	940	77.5	79.3	78.9	0.51	0.64	0.71	2.0	6.0	2.1	24	57	0.00553	7.62
WE3-90L-6	1.1	2,83	2.69	2,59	945	81.1	82.1	81.0	0.55	0.67	0.73	2.0	6.0	2.1	27.5	57	0.00719	11.1
WE3-100L-6	1.5	3,78	3.60	3,47	960	81.5	83.2	82.5	0.57	0.68	0.73	2.0	6.5	2.1	37	61	0.01302	14.9
WE3-112M-6	2.2	5,36	5.09	4,91	950	82.6	84.5	84.3	0.56	0.67	0.74	2.0	6.6	2.1	46	65	0.02092	22.1
WE3-132S-6	3	7,2	6.84	6,59	960	82.4	86.4	85.6	0.57	0.68	0.74	2.0	6.8	2.1	57	69	0.02681	29.8
WE3-132M1-6	4	9,46	8.99	8,66	960	86.4	87.3	86.8	0.57	0.68	0.74	2.0	6.8	2.1	63	69	0.03412	39.8
WE3-132M2-6	5.5	12,7	12.0	11,6	965	87.3	88.2	88.0	0.58	0.69	0.75	2.0	7.0	2.1	78	69	0.04874	54.4
WE3-160M-6	7.5	16,2	15.4	14,8	970	88.0	89.2	89.1	0.63	0.74	0.79	2.0	7.0	2.1	116	73	0.11731	73.8
WE3-160L-6	11	23,1	22.0	21,2	970	89.3	90.4	90.3	0.64	0.75	0.8	2.0	7.2	2.1	142	73	0.17394	108
WE3-180L-6	15	30,9	29.3	28,2	975	90.5	91.4	91.2	0.69	0.78	0.81	2.0	7.3	2.1	181	73	0.26935	147
WE3-200L1-6	18.5	37,8	36.0	34,7	980	90.5	91.7	91.7	0.69	0.77	0.81	2.0	7.3	2.1	234	73	0.40188	180
WE3-200L2-6	22	44,8	42.5	41	980	91.2	92.2	92.2	0.68	0.77	0.81	2.0	7.4	2.1	254	73	0.46886	214
WE3-225M-6	30	59,1	56.2	54,1	980	91.8	92.9	92.9	0.78	0.81	0.83	2.0	6.9	2.1	328	74	0.96248	292
WE3-250M-6	37	71,7	68.1	65,7	985	92.6	93.3	93.3	0.72	0.80	0.84	2.0	7.1	2.1	416	76	1.27630	361
WE3-280S-6	45	85,8	81.6	78,6	985	92.0	93.7	93.7	0.78	0.82	0.85	2.0	7.3	2.0	543	78	2.64945	439
WE3-280M-6	55	103	98.1	94,6	985	92.6	94.1	94.1	0.76	0.83	0.86	2.0	7.3	2.0	635	78	3.32721	536
WE3-315S-6	75	143	136	131	990	94.3	94.6	94.6	0.77	0.80	0.84	2.0	6.6	2.0	1190	83	3.64703	727
WE3-315M-6	90	170	161	155	990	94.2	94.9	94.9	0.73	0.80	0.85	2.0	6.7	2.0	1320	83	4.24246	873
WE3-315L1-6	110	207	196	189	990	94.8	95.1	95.1	0.76	0.81	0.85	2.0	6.7	2.0	1430	83	5.21004	1066
WE3-315L2-6	132	244	232	224	990	94.9	95.4	95.4	0.77	0.83	0.86	2.0	6.8	2.0	1610	83	6.17762	1280
WE3-355M1-6 160	160	296	281	271	995	95.3	95.6	95.6	0.85	0.84	0.86	1.8	6.8	2.0	1710	85	9.81353	1551
WE3-355M2-6 200	200	365	346	334	995	94.6	95.8	95.8	0.81	0.84	0.87	1.8	6.8	2.0	1850	85	12.26691	1939
WE3-355L1-6	220	401	385	372	995	94.6	95.8	95.8	0.82	0.84	0.86	1.8	6.8	2.0	1905	85	13.37093	2112
WE3-355L2-6 250	250	456	433	417	995	95.2	95.8	95.8	0.82	0.85	0.86	1.8	6.8	2.0	2015	91	14.47495	2424
WE3-3551-6	280	511	491	473	995	95.2	95.8	95.8	0.82	0.85	0.86	1.8	6.8	2.0	2285	91	15.21097	2687
WE3-3552-6 315	315	575	546	526	995	95.2	95.8	95.8	0.82	0.85	0.86	1.8	6.8	2.0	2350	91	15.94698	3054

B3 cast iron motor installation and dimensions

WE3-80-180



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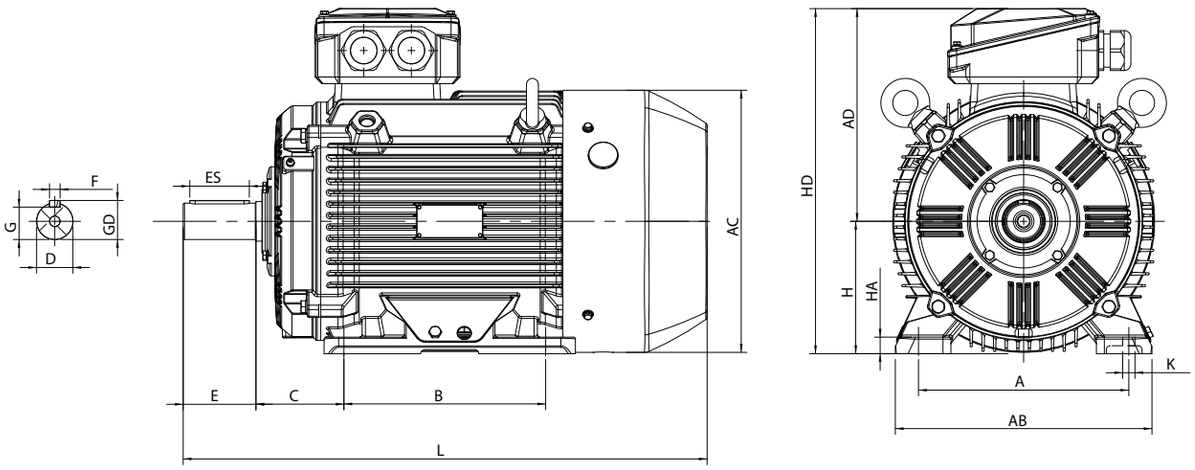
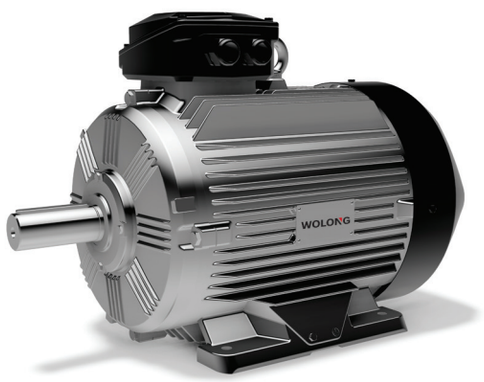




Subject to modifications

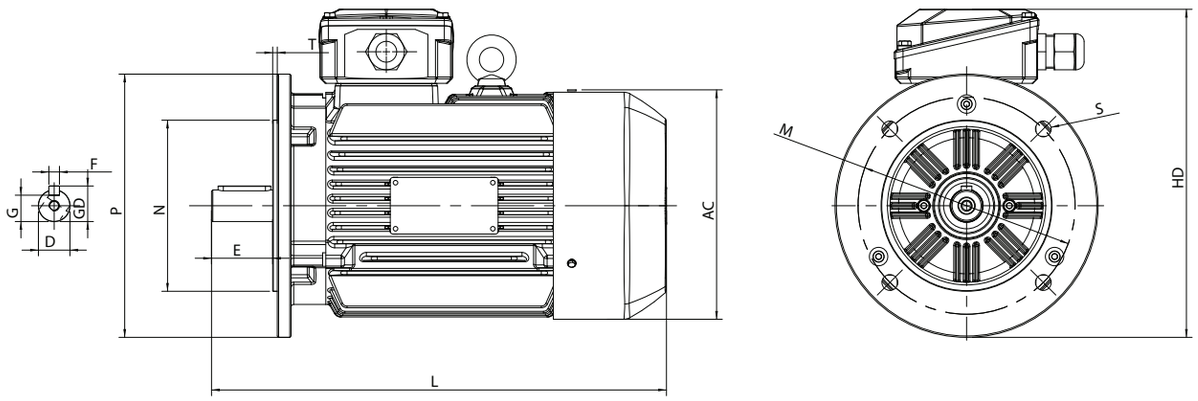
Drawings for information purpose only

B3 cast iron motor installation and dimensions

FRAME SIZE	A	B	C	D	E	F	G	H	K	AB	AC	AD	HD	L	ES	GD	HA
80	125	100	50	19	40	6	15,5	80	10	157	163	136	221	299	32	21,5	10
90S	140	100	56	24	50	8	20	90	10	170	177	149	244	329	40	27	10
90L	140	125	56	24	50	8	20	90	10	170	177	149	244	351	40	27	10
100L	160	140	63	28	60	8	24	100	12	200	208	163	268	393	45	31	14
112M	190	140	70	28	60	8	24	112	12	226	226	189	305	408	45	31	15
132S	216	140	89	38	80	10	33	132	12	262	252	203	340	445	60	41	16
132M/L	216	178	89	38	80	10	33	132	12	262	252	203	340	483	60	41	16
160M	254	210	108	42	110	12	37	160	14,5	314	318	256	421	584	90	45	20
160L	254	254	108	42	110	12	37	160	14,5	314	318	256	421	628	90	45	20
180M	279	241	121	48	110	14	42,5	180	14,5	349	360	279	463	646	100	51,5	22
180L	279	279	121	48	110	14	42,5	180	14,5	349	360	279	463	684	100	51,5	22
200L	318	305	133	55	110	16	49	200	18,5	388	396	321	526	796	98	59	25
225S	356	286	149	60	140	18	53	225	18,5	431	442	345	570	846	110	64	28
225M-2	356	311	149	55	110	16	49	225	18,5	431	442	345	570	841	90	59	28
225M-4/6	356	311	149	60	140	18	53	225	18,5	431	442	345	570	871	110	64	28
250M-2	406	349	168	60	140	18	53	250	24	484	488	446	696	929	110	64	30
250M-4/6	406	349	168	65	140	18	58	250	24	484	488	446	696	929	110	69	30
280S-2	457	368	190	65	140	18	58	280	24	542	547	449	728	1007	110	69	35
280S-4/6	457	368	190	75	140	20	67,5	280	24	542	547	449	728	1007	110	79,5	35
280M-2	457	419	190	65	140	18	58	280	24	542	547	449	728	1055	110	69	35
280M-4/6	457	419	190	75	140	20	67,5	280	24	542	547	449	728	1055	110	79,5	35
315S-2	508	406	216	65	140	18	58	315	28	628	631	507	822	1132	110	69	40
315S-4/6	508	406	216	80	170	22	71	315	28	628	631	507	822	1162	140	85	40
315M-2	508	457	216	65	140	18	58	315	28	628	631	507	822	1232	110	69	40
315M-4/6	508	457	216	80	170	22	71	315	28	628	631	507	822	1262	140	85	40
315L-2	508	508	216	65	140	18	58	315	28	628	631	507	822	1232	110	69	40
315L-4/6	508	508	216	80	170	22	71	315	28	628	631	507	822	1262	140	85	40
355M-2	610	560	254	75	140	20	67,5	355	28	740	709	644	999	1432	110	79,5	45
355M-4/6	610	560	254	95	170	25	86	355	28	740	709	644	999	1462	160	100	45
355L-2	610	630	254	75	140	20	67,5	355	28	740	709	644	999	1602	110	79,5	45
355L-4/6	610	630	254	95	170	25	86	355	28	740	709	644	999	1632	160	100	45
3551/2-2	630	630	254	75	170	20	71	355	35	740	709	644	999	1632	140	85	45
3551/2-4/6	630	630	254	95	210	25	100	355	35	740	709	644	999	1672	200	116	45

B5 cast iron motor installation and dimensions

WE3-80-180



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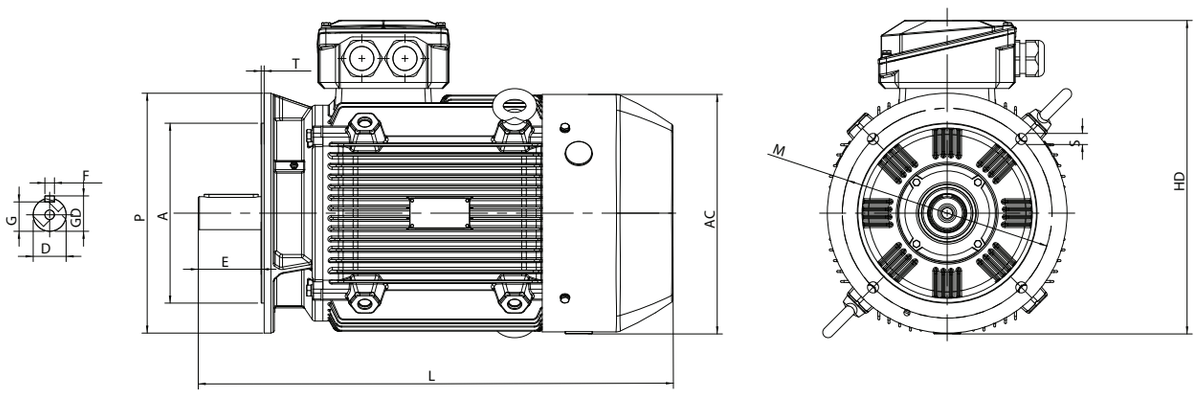
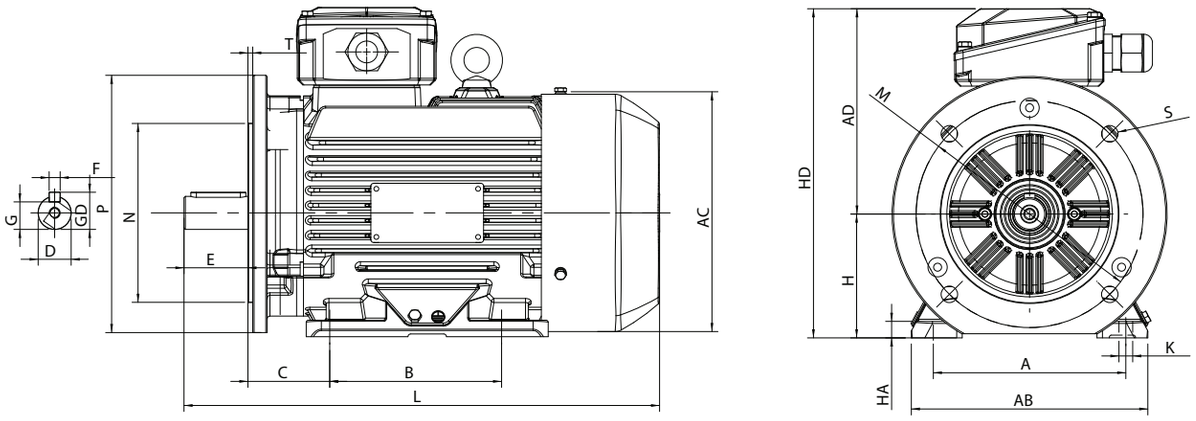


B5 cast iron motor installation and dimensions

FRAME SIZE	D	E	F	G	M	N	P	S	T	AC	AD	L	GD
80	19	40	6	15,5	165	130	200	4-12	3,5	163	136	299	21,5
90S	24	50	8	20	165	130	200	4-12	3,5	177	149	329	27
90L	24	50	8	20	165	130	200	4-12	3,5	177	149	351	27
100L	28	60	8	24	215	180	250	4-14.5	4	208	163	401	31
112M	28	60	8	24	215	180	250	4-14.5	4	226	189	417	31
132S	38	80	10	33	265	230	300	4-14.5	4	252	203	454	41
132M/L	38	80	10	33	265	230	300	4-14.5	4	252	203	492	41
160M	42	110	12	37	300	250	350	4-18.5	5	318	256	590	45
160L	42	110	12	37	300	250	350	4-18.6	5	318	256	634	45
180M	48	110	14	42,5	300	250	350	4-18.7	5	360	279	655	51,5
180L	48	110	14	42,5	300	250	350	4-18.8	5	360	279	693	51,5
200L	55	110	16	49	350	300	400	4-18.9	5	396	321	796	59
225S	60	140	18	53	400	350	450	8-18.5	5	442	345	846	64
225M-2	55	110	16	49	400	350	450	8-18.5	5	442	345	841	59
225M-4/6	60	140	18	53	400	350	450	8-18.5	5	442	345	871	64
250M-2	60	140	18	53	500	450	550	8-18.5	5	488	446	929	64
250M-4/6	65	140	18	58	500	450	550	8-18.5	5	488	446	929	69
280S-2	65	140	18	58	500	450	550	8-18.5	5	547	449	1007	69
280S-4/6	75	140	20	67,5	500	450	550	8-18.5	5	547	449	1007	79,5
280M-2	65	140	18	58	500	450	550	8-18.5	5	547	449	1055	69
280M-4/6	75	140	20	67,5	500	450	550	8-18.5	5	547	449	1055	79,5
315S-2	65	140	18	58	600	550	660	8-24	6	631	507	1132	69
315S-4/6	80	170	22	71	600	550	660	8-24	6	631	507	1162	85
315M-2	65	140	18	58	600	550	660	8-24	6	631	507	1232	69
315M-4/6	80	170	22	71	600	550	660	8-24	6	631	507	1262	85
315L-2	65	140	18	58	600	550	660	8-24	6	631	507	1232	69
315L-4/6	80	170	22	71	600	550	660	8-24	6	631	507	1262	85
355M-2	75	140	20	67,5	740	680	800	8-24	6	709	644	1432	79,5
355M-4/6	95	170	25	86	740	680	800	8-24	6	709	644	1462	100
355L-2	75	140	20	67,5	740	680	800	8-24	6	709	644	1602	79,5
355L-4/6	95	170	25	86	740	680	800	8-24	6	709	644	1632	100
3551/2-2	80	170	22	67,5	740	680	800	8-24	6	709	644	1632	85
3551/2-4/6	110	210	21	86	740	680	800	8-24	6	709	644	1672	116

B35 cast iron motor installation and dimensions

WE3-80-180



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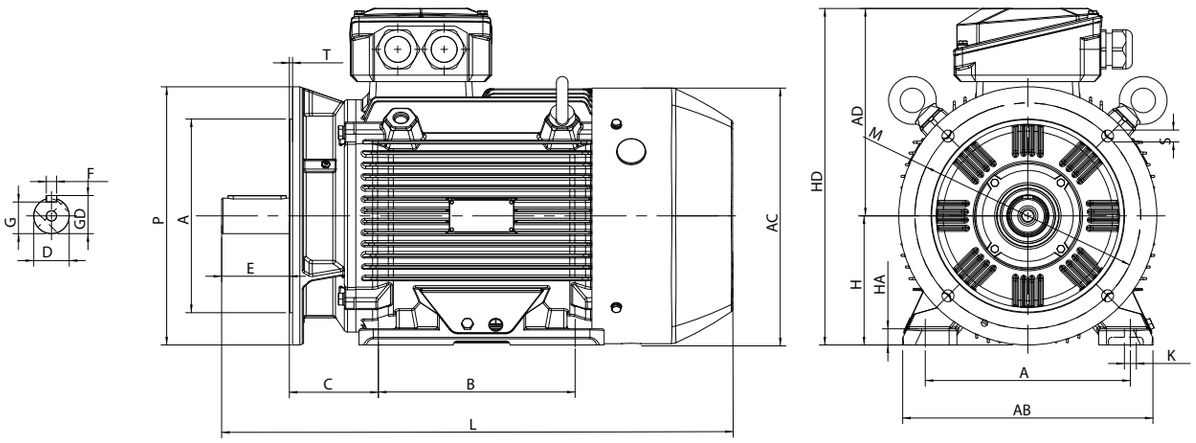


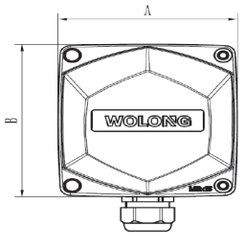
B35 cast iron motor installation and dimensions

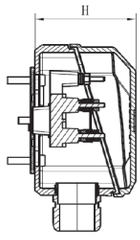
FRAME SIZE	A	B	C	D	E	F	G	H	K	M	N	P	S	T	AB	AC	AD	HD	L	GD	HA
80	125	100	50	19	40	6	15,5	80	10	165	130	200	4-12	3,5	157	163	136	221	299	21,5	10
90S	140	100	56	24	50	8	20	90	10	165	130	200	4-12	3,5	170	177	149	244	329	27	10
90L	140	125	56	24	50	8	20	90	10	165	130	200	4-12	3,5	170	177	149	244	351	27	10
100L	160	140	63	28	60	8	24	100	12	215	180	250	4-14.5	4	200	208	163	268	401	31	14
112M	190	140	70	28	60	8	24	112	12	215	180	250	4-14.5	4	226	226	189	305	417	31	15
132S	216	140	89	38	80	10	33	132	12	265	230	300	4-14.5	4	262	252	203	340	454	41	16
132M/L	216	178	89	38	80	10	33	132	12	265	230	300	4-14.5	4	262	252	203	340	492	41	16
160M	254	210	108	42	110	12	37	160	14,5	300	250	350	4-18.5	5	314	318	256	421	590	45	20
160L	254	254	108	42	110	12	37	160	14,5	300	250	350	4-18.6	5	314	318	256	421	634	45	20
180M	279	241	121	48	110	14	42,5	180	14,5	300	250	350	4-18.7	5	349	360	279	463	655	51,5	22
180L	279	279	121	48	110	14	42,5	180	14,5	300	250	350	4-18.8	5	349	360	279	463	693	51,5	22
200L	318	305	133	55	110	16	49	200	18,5	350	300	400	4-18.9	5	388	396	321	526	796	59	25
225S	356	286	149	60	140	18	53	225	18,5	400	350	450	8-18.5	5	431	442	345	570	846	64	28
225M-2	356	311	149	55	110	16	49	225	18,5	400	350	450	8-18.5	5	431	442	345	570	841	59	28
225M-4/6	356	311	149	60	140	18	53	225	18,5	400	350	450	8-18.5	5	431	442	345	570	871	64	28
250M-2	406	349	168	60	140	18	53	250	24	500	450	550	8-18.5	5	484	488	446	671	929	64	30
250M-4/6	406	349	168	65	140	18	58	250	24	500	450	550	8-18.5	5	484	488	446	671	929	69	30
280S-2	457	368	190	65	140	18	58	280	24	500	450	550	8-18.5	5	542	547	449	728	1007	69	35
280S-4/6	457	368	190	75	140	20	67,5	280	24	500	450	550	8-18.5	5	542	547	449	728	1007	79,5	35
280M-2	457	419	190	65	140	18	58	280	24	500	450	550	8-18.5	5	542	547	449	728	1055	69	35
280M-4/6	457	419	190	75	140	20	67,5	280	24	500	450	550	8-18.5	5	542	547	449	728	1055	79,5	35
315S-2	508	406	216	65	140	18	58	315	28	600	550	660	8-24	6	628	631	507	822	1132	69	40
315S-4/6	508	406	216	80	170	22	71	315	28	600	550	660	8-24	6	628	631	507	822	1162	85	40
315M-2	508	508	216	65	140	18	58	315	28	600	550	660	8-24	6	628	631	507	822	1232	69	40
315M-4/6	508	508	216	80	170	22	71	315	28	600	550	660	8-24	6	628	631	507	822	1262	85	40
315L-2	508	508	216	65	140	18	58	315	28	600	550	660	8-24	6	628	631	507	822	1232	69	40
315L-4/6	508	508	216	80	170	22	71	315	28	600	550	660	8-24	6	628	631	507	822	1262	85	40
355M-2	610	560	254	75	140	20	67,5	355	28	740	680	800	8-24	6	740	709	644	999	1432	79,5	45
355M-4/6	610	560	254	95	170	25	86	355	28	740	680	800	8-24	6	740	709	644	999	1462	100	45
355L-2	610	610	254	75	140	20	67,5	355	28	740	680	800	8-24	6	740	709	644	999	1602	79,5	45
355L-4/6	610	610	254	95	170	25	86	355	28	740	680	800	8-24	6	740	709	644	999	1632	100	45
3551/2-2	610	610	254	80	170	22	67,5	355	35	740	680	800	8-24	6	740	709	644	1010	1632	85	45
3551/2-4/6	610	610	254	110	210	21	86	355	35	740	680	800	8-24	6	740	709	644	1010	1672	116	45

Terminal Box
Size of Lifting eye
Threaded hole by shaft end

Terminal Box

Frame	AxBxH(mm)	Cable entry	Single hole cable grand can be locked the diameter of cable grand (mm)	Terminal thread
80	90x96x50	1-M25x1.5	Ø8-Ø12	M4
90-100	102x110x57.5	1-M25x1.5	Ø8-Ø12	M5
112-132	136x146x72	2-M25x1.5	Ø8-Ø12	M5
160-180	171x181x91	2-M32x1.5	Ø16-Ø21	M6
200-225	220x230x113	2-M50x1.5	Ø32-Ø39	M8
250-280	270x280x116.5	2-M63x1.5	Ø37-Ø44	M10
315	312x329x175	2-M63x1.5		M12
355	382x402x200	2-M72x2	Ø45-Ø53	M16





Size of lifting eye

Frame size	Lifting eye size	Horizontal mounting	
		Quantity	Position
H80-90S	--- ---	--- ---	--- ---
H90L~112	M8	1	Top
H132	M10	1	
H160	M12	1	
H180	M16	1	
H200-225	M20	2	Top, both sides of terminal box Left front and right rear view from shaft end
H250-280	M24	2	
H315	M30	2	
H355	M36	2	

Threaded hole by shaft end (selectabletable)

No.	Frame size	Hole size
1	H80	M6*16
2	H90	M8*19
3	H100	M10*22
4	H112	M10*28
5	H132	M12*28
6	H160	M16*36
7	H180	M16*36
8	H200-280	M20*42
9	H315	M20*42
10	H355	M20*45

WOLONG

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