

# ABB High Voltage Induction Motors

Technical catalogue



**ABB**



# High Voltage Induction Motors

From 110 to 2800 kW

## Contents

Page

1

**Standard motors**

5

2

**Engineered motors**

45

3

**Motors with VSD**


125 

ABB reserves the right to change the design, technical specification and dimensions without prior notice.

1

2

3

# General Information

This catalogue includes three sections: standard, engineered and motors with VSD. The availability of standard motors is shown in the Section 1. Standard motors of up to 530 kW are available with the electrical and mechanical design characteristics as shown in this catalogue.

Section 2 presents ABB's high voltage engineered induction motor range of up to 2800 kW. Engineered motors are made according to customers' specifications. This section includes preliminary standard technical data and drawings of engineered

motors. All the engineered motors are configured and optimized for each order and application.

Section 3 describes ABB's engineered motors for low voltage variable speed drives range of up to 2240 kW. This section includes preliminary standard technical data and drawings with low voltage main terminal box. The basic mechanical construction is the same as described in Section 2. As with the engineered motors all the motors with VSD are configured and optimized for each order and application.



# High Voltage Process Performance Cast Iron Motors

Totally enclosed squirrel cage three phase high voltage motors,  
Sizes 315 - 400, 110 to 530 kW



1

[www.abb.com/motors&drives](http://www.abb.com/motors&drives)

- > **Motors**
- >> **High Voltage Motors**
- >>> **Process Performance**  
**Cast Iron Motors, 315-400**

Mechanical design.....	6
Ordering information.....	17
Technical data.....	18
Variant codes.....	38
Dimension drawings .....	39
Accessories .....	41
Construction .....	42
Cast iron motors in brief .....	43

# Mechanical design

The standard motors in this Section are offered with limited optional features and accessories. In case you

need an engineered cast iron motor, please see the Section 2.

## Stator frame

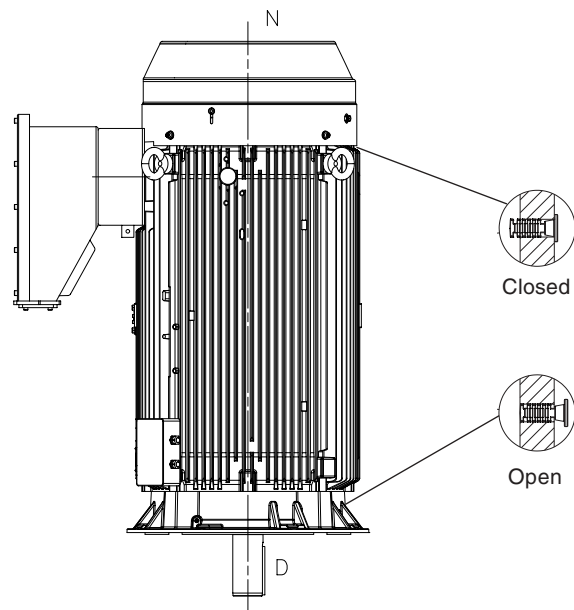
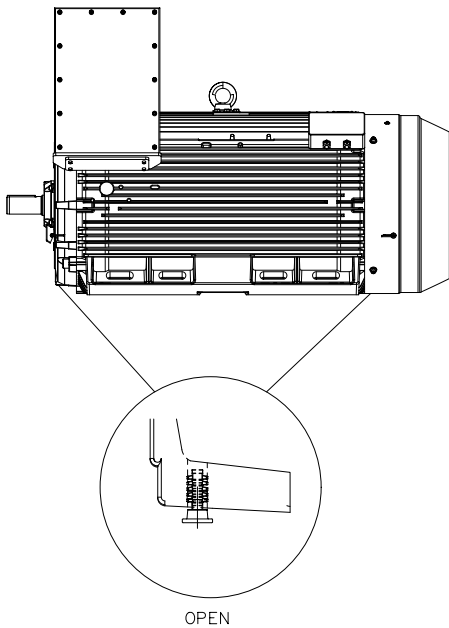
The motor frames feature integrally cast feet to provide a very rigid mounting and minimal vibration; the feet and bearing housing are made of cast iron. Motors

can be supplied for foot mounting (horizontal) or flange mounting (vertical). The terminal box is made of structural steel.

## Drain holes

All high voltage motors are fitted with drain holes and closable plugs. The drain hole plugs are open on delivery and users must ensure that the drain holes face downward when mounting the motors.

For applications with a vertical mounting, the upper plug must be hammered home completely. In very dusty environments, both plugs should be hammered home.



### Motor sizes 315-400

As standard with drain holes and closable plugs.

# Terminal boxes

The high voltage terminal box is shown below. The main technical data are listed below.

## Technical data:

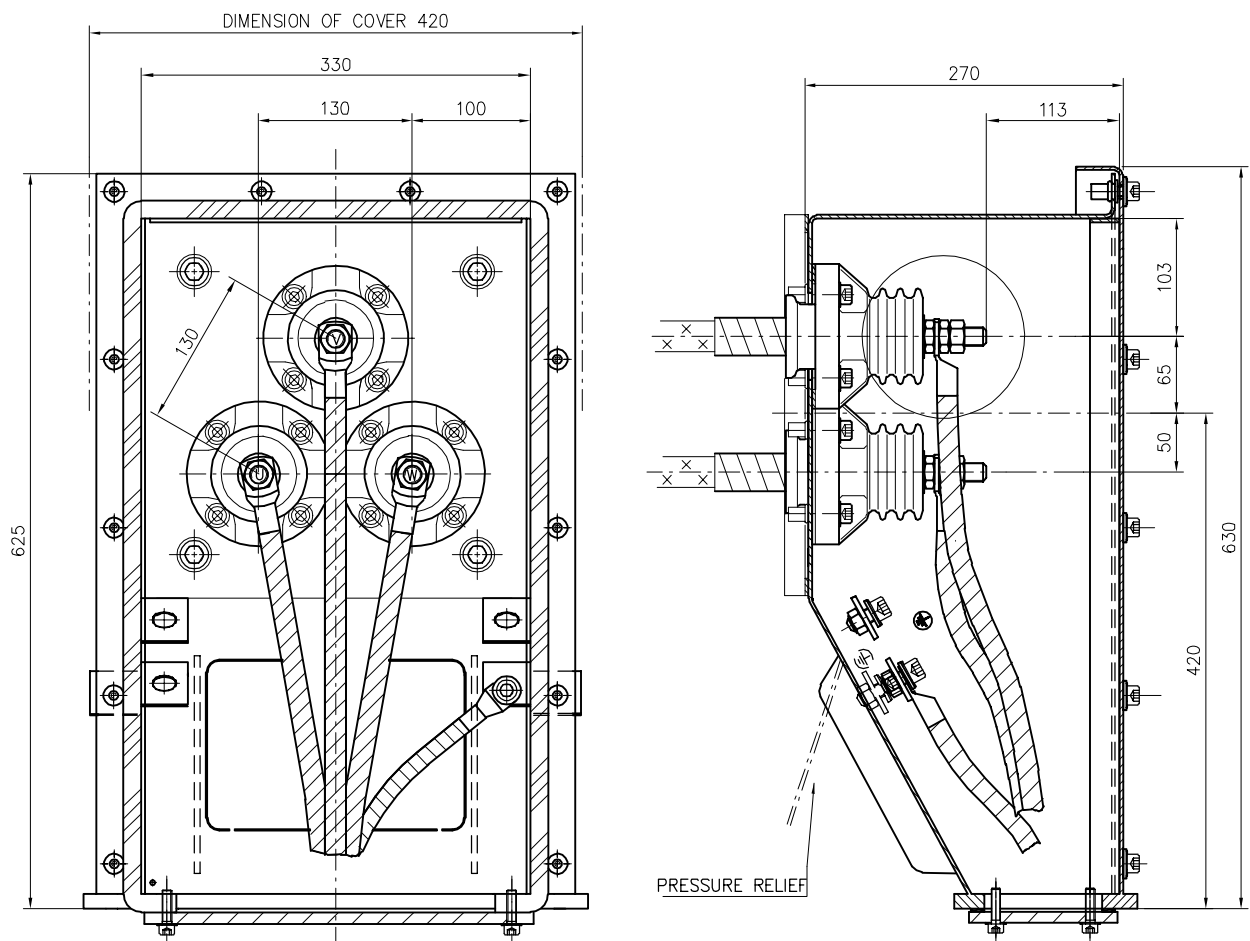
Voltage (max.)	6.6 kV
Current (max.)	400 A
No of cables (max.)	1 per phase
Cross section of cables (max.)	300 mm <sup>2</sup> /cable
Cable gland	blind gland (1 pce)
Clearance (min.)	60 mm
Creepage (min.)	90 mm
Gross volume	47.3 dm <sup>3</sup>
Usable volume	42.1 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts tightening torque	40 Nm
Ground connections	M12 (both in- and outside)
Weight	33 kg
Protection	IP 66
Standard	DIN 42962 TEIL 1, A2
Dynamic short circuit current	30 kA rms x 0.25 s/ 75 kA peak

## Materials:

Box	welded structural steel (thickness min. 3 mm)
Cable gland plate	steel
Connection screws	Bronze Bz
Isolators	epoxy casting resin or polyurethane resin
Grounding pad	stainless steel

## Other features:

- rigid welded construction
- ample size for making connections of supply cables
- box turnable to allow cable entry from left or right side
- box turnable in steps of 90°
- either 3-phase or 1-phase cables can be connected
- pressure relief plate in the bottom of the box in case of an arching short circuit



High voltage terminal box.

The high voltage star point terminal box is shown below (option, variant code 750). The main technical data are listed below.

Technical data:

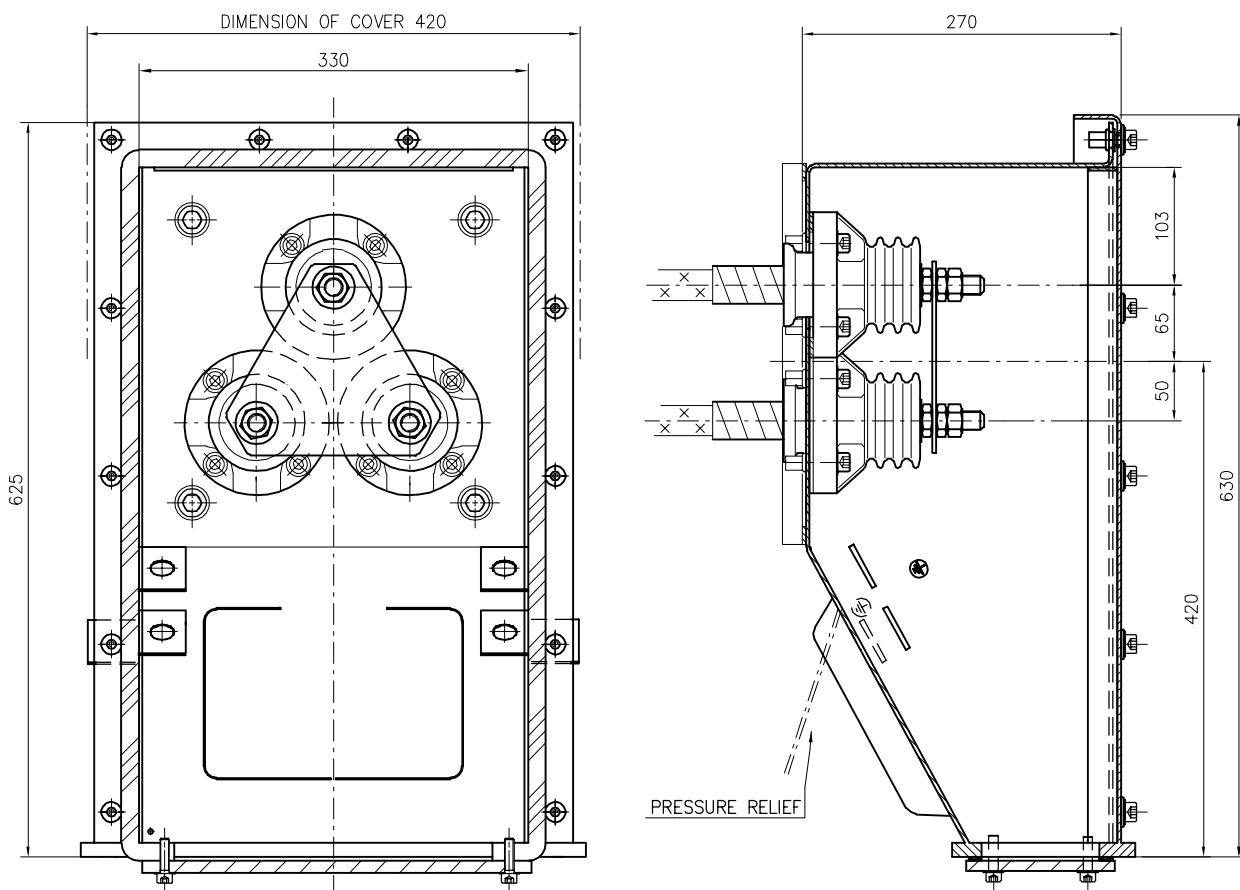
Voltage (max.)	6.6 kV
Current (max.)	400 A
Cable gland	blind gland (1 pce)
Creepage (min.)	90 mm
Gross volume	47.3 dm <sup>3</sup>
Usable volume	42.1 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts tightening torque	40 Nm
Ground connections	M12 (both in- and outside)
Weight	33 kg
Protection	IP 66

Materials:

Box	welded structural steel (thickness min. 3 mm)
Cable gland plate	steel
Connection screws	Bronze Bz
Connection bar	Copper Cu
Isolators	epoxy casting resin or polyurethane resin
Grounding pad	stainless steel

Other features:

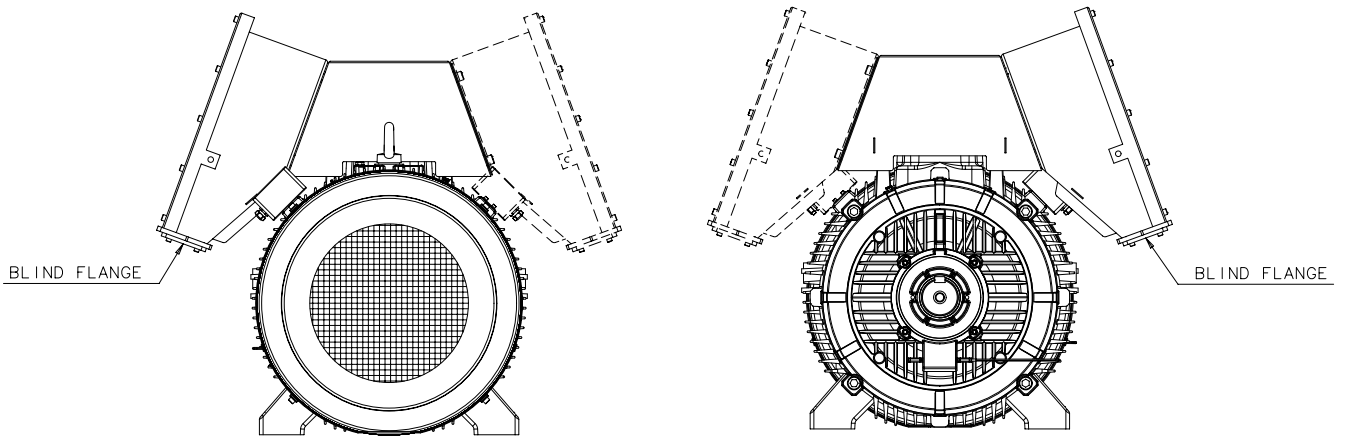
- rigid welded construction
- box turnable to left or right side
- box turnable in steps of 90°
- pressure relief plate in the bottom of the box in case of an arching short circuit



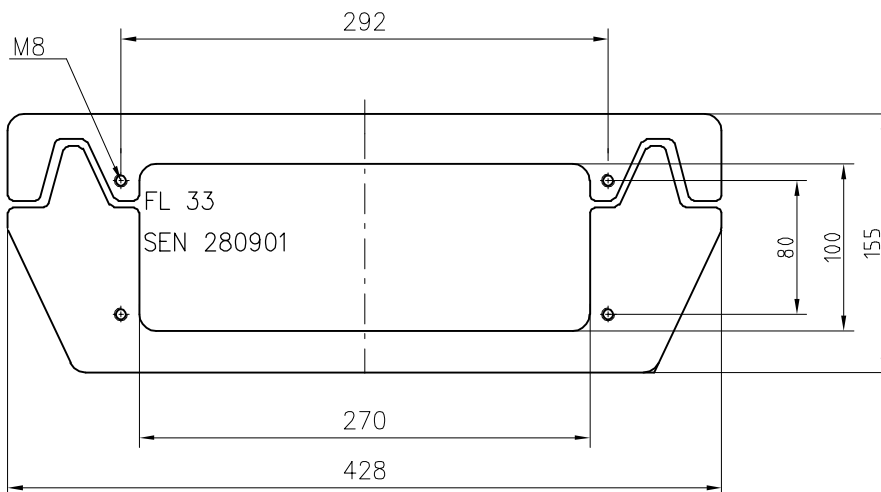
High voltage star point terminal box.



## Star point terminal box (optional)

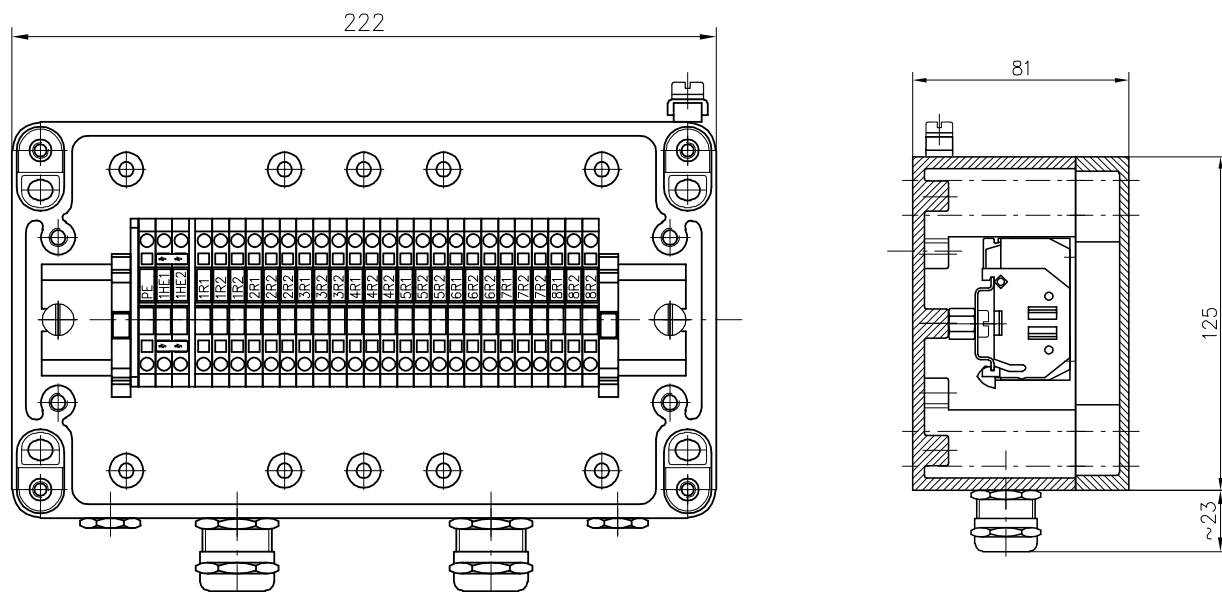


## Dimensions for terminal box inlet, blind flange



# Auxiliary boxes

Auxiliary box is used for control equipment and heating elements.



- one box as default
- stator Pt-100
- bearing Pt-100 (optional, variant code 107)
- heating element (optional, variant code 450/451)
- separate auxiliary box for heating element (optional, variant code 447)

## Specification:

Material designation	Al-Si10Mg (pressure die cast)
Material standard	EN 573-3
Surface treatment	RAL 7001 (grey)

## Other features:

- equipped with assembly rail ARH 22 (DIN-35, 35x203 mm)
- main dimensions 125x222x81
- degree of protection IP 66 (IEC 529)
- gasket material polyurethane
- temperature resistance -50 - +140 °C (material), +80 °C (continuous use)
- max. terminal blocks:
 

34 pcs	2.5 mm <sup>2</sup>
28 pcs	4.0 mm <sup>2</sup>
- weight 1.6 kg

# Bearings

Single-row deep groove ball bearings, as listed in the table below, are normally fitted to the motors.

## Basic version with deep groove ball bearings

Motor size	Number of poles	Deep groove ball bearings	
		D-end	N-end
315	2	6316M/C3	6316M/C3
	4-6	6319/C3	6316/C3
355	2	6316M/C3	6316M/C3
	4-6	6322/C3	6316/C3
400	2	6317M/C3	6317M/C3
	4-12	6324/C3	6319/C3

Higher radial forces can be handled if the bearings at the D-end is replaced with a roller bearing (NU-). Roller bearings are suitable for belt drive applications.

## Version with roller bearings, variant code 037

Motor size	Number of poles	Roller bearings, variant code 037
		D-end
315	4-6	NU 319/C3
355	4-6	NU 322/C3
400	4-12	NU 324/C3

## Axially-locked bearings

All motors are equipped with an axially-locked bearing at the D-end as standard.

The bearing's outer ring is tightly locked between bearing's covers and the housing fit.

The N-end bearing is axially free and can take the thermal expansion. NB: NU-bearing is axially locked at N-end.

## Transport locking

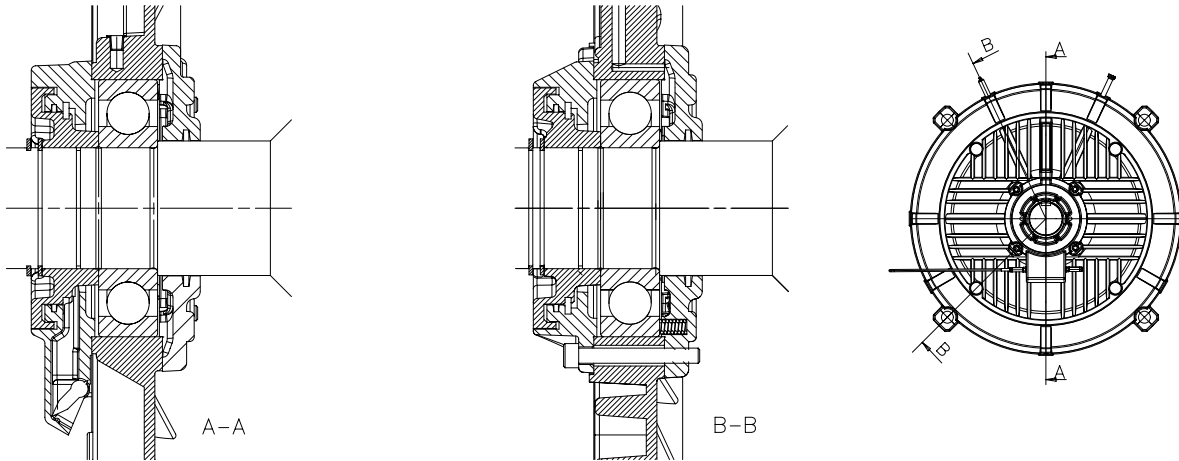
Motors with roller bearings are fitted with a transport lock to prevent damage to the bearings during transport. All high voltage motors are fitted with a warning sign when the transport lock is fitted to prevent operational damage and alert operators.

Locking may be fitted in any other situations where the transport conditions are considered as potentially damaging.

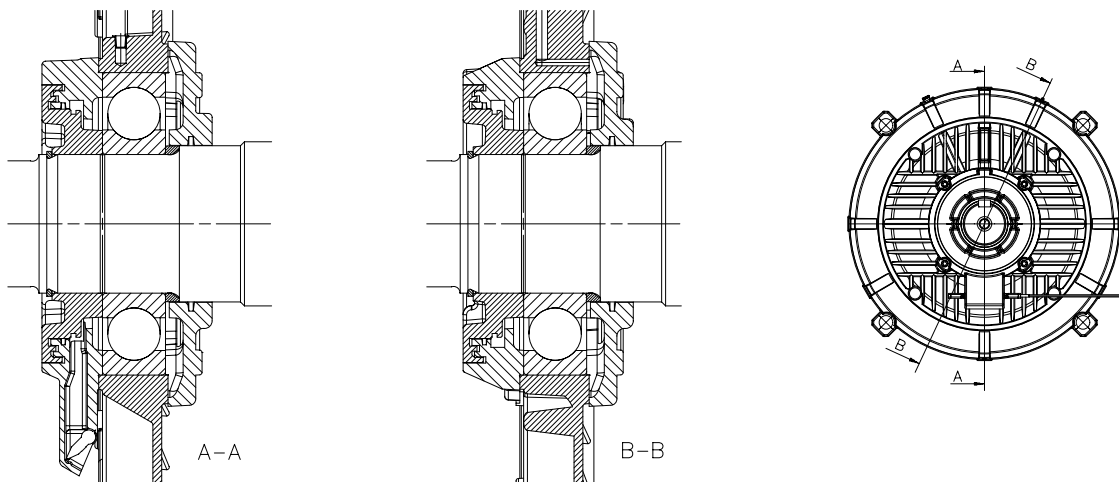
# Bearing seals

All high voltage motors are equipped with labyrinth sealed bearings.

## Axially free (N-end)



## Axially locked (D-end)



# Lubrication

On delivery, the motors are pre-lubricated with high-quality grease. The grease grade is stamped on the lubrication plate fastened to the motor frame. See page 16 for an example of a lubrication plate.

More information about lubrication and greases can be found in ABB's High Voltage Process Performance Manual delivered with the motor.

## Lubrication intervals

The lubrication interval is defined by following the L1-principle. This means that 99% of ABB's motors will achieve normal service intervals. Values for the lubrication intervals can also be calculated according to the L10-principle, which are normally doubled compared to L1-values. Values are available from ABB on request.

Frame size	Ambient °C	3000 r/min	1500 r/min	≤1000 r/min
<b>Ball bearings, horizontal motor: lubrication intervals in duty hours</b>				
315	25	2600	8800	8800
315	40	1500	4400	4400
355	25	2200	4400	8800
355	40	1300	2200	4400
400	25	2000	3300	6300
400	40	1100	2000	3300

Frame size	Ambient °C	3000 r/min	1500 r/min	≤1000 r/min
<b>Roller bearings: lubrication intervals in duty hours</b>				
315	25	-	6000	8800
315	40	-	3000	5500
355	25	-	3000	8000
355	40	-	1600	4000
400	25	-	2500	7000
400	40	-	1300	3600

NB: The motors require special grease for roller bearings.

## Motors with relubrication nipples

Motors are lubricated while running and the bearing system on all high voltage motors has been built so that a valve disc can be used for lubrication.

The grease outlet opening has closing valves at both ends that should be opened before greasing and closed 1-2 hours after regreasing. Closing the valves ensures that the construction is tight and prevents dust or dirt getting inside the bearing.

The table below gives lubrication intervals for different speeds (according to the L1-principle). The values are valid for horizontal mounted motors (B3), using high-quality lithium grease.

For more information, see ABB's High Voltage Process Performance Motors Manual.

Frame size	Ambient °C	3000 r/min	1500 r/min	≤1000 r/min
<b>Ball bearings, vertical motor: lubrication intervals in duty hours</b>				
315	25	-	4400	4400
315	40	-	2200	2200
355	25	-	2200	4400
355	40	-	1100	2200
400	25	-	1600	3300
400	40	-	1100	1600

# Pulley diameter

The minimum permissible pulley diameter can be calculated using  $F_R$ , once the desired bearing life has been determined, using the following formula:

$$D = \frac{1.9 \cdot 10^7 \cdot K \cdot P}{n \cdot F_R}$$

where:

- D = diameter of pulley, mm
- P = power requirement, kW
- n = motor speed, r/min
- K = belt tension factor, dependent on belt type and type of duty. A common value for V-belts is 2.5.
- $F_R$  = permissible radial force

# Permissible shaft loadings

The tables on next page give the maximum permissible radial force in Newtons, assuming zero axial force, based on normal conditions at 50 Hz and calculated bearing lives  $L_{10h}$  for 40,000 hours.

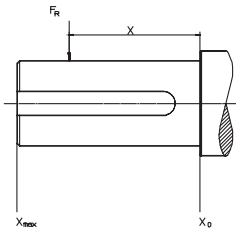
Motors are foot-mounted IM B3 version with force directed sideways. In some cases the strength of the shaft affects the permissible forces.

Permissible loads of simultaneous radial and axial forces can be supplied on request.

If the radial force is applied between points  $X_0$  and  $X_{max}$ , the permissible force  $F_R$  can be calculated from the following formula:

$$F_R = F_{X0} - \frac{X}{E} (F_{X0} - F_{Xmax})$$

E = length of shaft extension in basic version



## Permissible radial forces

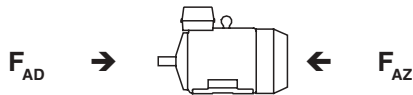
Motor size	Poles	Length of shaft extension E (mm)	Ball bearings		Roller bearings	
			40,000 hours		40,000 hours	
			$F_{x0}$ (N)	$F_{xmax}$ (N)	$F_{x0}$ (N)	$F_{xmax}$ (N)
315	2	140	4850	4300	-	-
	4	170	7900	6850	25900	9500
	6	170	9050	7850	29200	9500
355	2	140	2350	2150	-	-
	4	210	9900	8600	35300	12000
	6	210	11500	9950	39950	12000
400	2	170	550	500	-	-
	4	210	8850	7650	40250	15000
	6-12	210	10250	8900	44800	15000

## Permissible axial forces

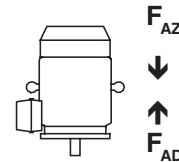
The following tables give the permissible axial forces in Newton, assuming zero radial force. The values are based on normal conditions at 50 Hz with standard bearings and calculated bearing lives  $L_{10h}$  40,000 hours.

Given axial forces  $F_{AD}$ , assumes D-bearing locked by means of locking ring.

### Mounting arrangement IM B3



### Mounting arrangement IM V1



Motor size	40,000 hours					
	2-pole		4-pole		6-12-pole	
	$F_{AD}$ N	$F_{AZ}$ N	$F_{AD}$ N	$F_{AZ}$ N	$F_{AD}$ N	$F_{AZ}$ N
315	2050	4050	4150	6150	5050	7050
355	850	4650	4350	8150	5650	9450
400	200	5200	3100	9100	4050	10050

Motor size	40,000 hours					
	2-pole		4-pole		6-12-pole	
	$F_{AD}$ N	$F_{AZ}$ N	$F_{AD}$ N	$F_{AZ}$ N	$F_{AD}$ N	$F_{AZ}$ N
315	-	-	7650	3750	9150	4350
355	-	-	10900	3850	12700	4600
400	-	-	11550	3550	15100	2600

# Vibration limits / Balancing

Motors are balanced according to ISO1940: 1998 standard, balancing grade G2.5.

The following table lists the vibration IEC values that the machines fulfil in compliance with IEC 60034-14.



Poles	Speed rpm	Design	Bearing housing vibration
2	1800 < n 3600	Standard	2.3 mm/s rms
≥4	1800	Standard	2.3 mm/s rms

## Rating plate

Rating plate

ABB Oy, Electrical Machines Induction Machines, Helsinki, Finland						
3 ~ Motor M3BM 355 LKA 4 B3						
IEC 355 L/K 100						
S1				No. 4574949		
Temperature rise		cl. B		Ins.cl. F		IP 55
V	Hz	kW	r/min	A	cosφ	Duty
3000	50	250	1490	61	0.83	
Product code 3GBM352810-AQA						
Year of manufacture 2003		Nmax 1800 r/min				
6322/C3		6316/C3		1860 kg		
<b>ABB</b> IEC 60034-1						

Lubrication plate

<b>ABB</b>	
Bearings	6324/C3  6319/C3
Regreasing amount	60 g  35 g
Regreasing intervals valid with following running speed and ambient temperatures:	1500 rpm
At 25 °C	4400 h
At 40 °C	2400 h
Grease	Esso Unirex N2
See the Maintenance Manual	

## Restamping output, voltage, ambient and altitude

M3BM motor catalogue ratings can be re-stamped as follows. Motor construction will not be changed but a new rating plate and data sheet can be created with variant code 002. In all the below cases or their combinations, please contact ABB for correct motor size and motor data. Bearing re-lubrication intervals as shown in this catalogue are valid also for re-stamped motors.

### Output

Output can be re-stamped downwards from the catalogue data, however the minimum output available for hazardous area motors is 110 kW.

### Voltage

Voltage can be re-stamped downwards up to 10% from the motor nominal voltage in the catalogue. Motor output has to be de-rated so that the motor absolute temperature will not be higher compared to catalogue data.

### Ambient temperature

Motor can be de-rated to higher ambient temperature. Maximum ambient temperature is 55 °C. The output has to be de-rated so that motor's absolute temperature will not be higher than the catalogue data.

NB: Motors with CSA and GOST certificate cannot be re-stamped to higher than 40 °C ambient. Ambient temperature is limited in the certificates.

### Altitude

Motor can be de-rated to higher altitudes than standard 1000 meters above sea level. There are different maximum altitude limits for different motors depending on voltage level. The motor output has to be de-rated so that the absolute temperature of the motor will not be higher than the catalogue data.

NB: M3GM (Ex) motors for higher than 1000 meters above sea level altitude can be offered only case by case from the manufacturing unit.



# Ordering information

When placing an order, please state the following minimum data in the order, as in the example.

The product code of the motor is composed in accordance with the following example.

Motor type	M3BM 315LKA
Pole number	4
Mounting arrangement (IM code)	IM B3 (IM 1001)
Rated output	110 kW
Product code	3GBM312810-AQA
Variant codes if needed	

## Motor size

A	B	C	D, E, F, G														
M3BM	315LKA	3GBM 312 810	- AQA 003 etc.														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	

A	Motor type
B	Motor size
C	Product code
D	Mounting arrangement code
E	Voltage and frequency code
F	Generation code
G	Variant codes

## Explanation of the product code:

### Positions 1 to 4

**3GBM** = Totally enclosed fan cooled squirrel cage motor with cast iron frame, high voltage

### Positions 5 and 6

IEC-frame

**31** = 315

**35** = 355

**40** = 400

### Position 7

Speed (Pole pairs)

**1** = 2 poles

**2** = 4 poles

**3** = 6 poles

**4** = 8 poles

**5** = 10 poles

**6** = 12 poles

### Position 8 to 10

Serial number

### Position 11

- (dash)

### Position 12

Mounting arrangement

**A** = Horizontal

**B** = Vertical

### Position 13

Voltage and frequency code

See table below

### Position 14

Generation code

A, B, C...

**The product code must be, if needed, followed by variant codes.**

## Code letters for supplementing the product code - single speed motors

### Code letter for voltage and frequency

Q	R	S	T
50 Hz	50 Hz	50 Hz	50 Hz
3000 V	3300 V	6600 V	6000 V

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current			
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	
<b>3000 r/min = 2 poles</b>				<b>3000 V 50 Hz</b>							
132	M3BM	315 LKA 3GBM	311 810-•QA	2971	94.7	94.5	0.92	0.92	29	6.3	5
160	M3BM	315 LKB 3GBM	311 820-•QA	2971	94.9	94.8	0.92	0.92	35	6.5	6
200	M3BM	355 LKA 3GBM	351 810-•QA	2974	95.0	94.9	0.90	0.90	45	5.6	9
250	M3BM	355 LKB 3GBM	351 820-•QA	2975	95.5	95.5	0.90	0.90	56	6.1	11
315	M3BM	355 LKC 3GBM	351 830-•QA	2973	96.0	96.1	0.91	0.92	69	6.0	11
335	M3BM	355 LKD 3GBM	351 840-•QA	2972	96.0	96.1	0.91	0.92	74	6.0	12
355 <sup>4)</sup>	M3BM	400 LA 3GBM	401 510-•QA	2980	96.0	95.9	0.90	0.90	79	6.3	16
400 <sup>4)</sup>	M3BM	400 LB 3GBM	401 520-•QA	2978	96.2	96.2	0.91	0.91	88	6.2	15
450 <sup>4)</sup>	M3BM	400 LC 3GBM	401 530-•QA	2978	96.4	96.4	0.91	0.92	98	6.4	17
<b>3000 r/min = 2 poles</b>				<b>3300 V 50 Hz</b>							
160	M3BM	315 LKA 3GBM	311 810-•RA	2969	94.9	94.9	0.92	0.92	32	6.1	5
200	M3BM	355 LKA 3GBM	351 810-•RA	2978	95.1	94.9	0.89	0.88	41	6.3	10
250	M3BM	355 LKB 3GBM	351 820-•RA	2975	95.5	95.5	0.90	0.90	51	6.1	10
315	M3BM	355 LKC 3GBM	351 830-•RA	2975	96.0	96.0	0.91	0.92	63	6.4	11
335	M3BM	355 LKD 3GBM	351 840-•RA	2975	96.2	96.2	0.91	0.92	67	6.5	11
355 <sup>4)</sup>	M3BM	400 LA 3GBM	401 510-•RA	2979	96.1	96.0	0.90	0.90	72	6.3	14
400 <sup>4)</sup>	M3BM	400 LB 3GBM	401 520-•RA	2978	96.2	96.1	0.91	0.91	80	6.2	14
450 <sup>4)</sup>	M3BM	400 LC 3GBM	401 530-•RA	2977	96.4	96.4	0.91	0.92	90	6.2	14
<b>3000 r/min = 2 poles</b>				<b>6000 V 50 Hz</b>							
250	M3BM	355 LKA 3GBM	351 810-•TA	2975	95.3	95.4	0.91	0.91	28	6.1	5
280	M3BM	355 LKB 3GBM	351 820-•TA	2975	95.6	95.7	0.91	0.92	31	6.2	5
315 <sup>4)</sup>	M3BM	400 LA 3GBM	401 510-•TA	2981	95.5	95.4	0.89	0.88	36	6.4	8
355 <sup>4)</sup>	M3BM	400 LB 3GBM	401 520-•TA	2979	95.9	95.8	0.91	0.91	39	6.3	7
400 <sup>4)</sup>	M3BM	400 LC 3GBM	401 530-•TA	2978	96.0	96.0	0.91	0.91	44	6.2	8
425 <sup>4)</sup>	M3BM	400 LD 3GBM	401 540-•TA	2978	96.2	96.2	0.91	0.92	47	6.3	8
<b>3000 r/min = 2 poles</b>				<b>6600 V 50 Hz</b>							
280	M3BM	355 LKA 3GBM	351 810-•SA	2976	95.5	95.6	0.91	0.92	28	6.5	5
315 <sup>4)</sup>	M3BM	400 LA 3GBM	401 510-•SA	2980	95.6	95.4	0.90	0.89	32	6.4	7
355 <sup>4)</sup>	M3BM	400 LB 3GBM	401 520-•SA	2980	95.8	95.7	0.91	0.91	36	6.3	7
400 <sup>4)</sup>	M3BM	400 LC 3GBM	401 530-•SA	2979	96.1	96.1	0.91	0.91	40	6.5	7
425 <sup>4)</sup>	M3BM	400 LD 3GBM	401 540-•SA	2978	96.2	96.2	0.91	0.92	42	6.5	7

<sup>1)</sup> The given values of load inertia assume two starts from cold and one start from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. The magnetic noise level of 2- and 4-pole motors is typically low compared to the fan noise, resulting no increase in the noise level on-load. The variation and measuring tolerance of the figures is +3 dB(A).

<sup>4)</sup> Unidirectional fan construction as standard. Direction of rotation must be stated when ordering, see variant codes 044 and 045.

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
		T <sub>N</sub>	T <sub>S</sub>	T <sub>max</sub>								
		Nm	T <sub>N</sub>	T <sub>N</sub>								
<b>3000 r/min = 2 poles</b>		<b>3000 V 50 Hz</b>										
132	M3BM 315 LKA	424	1.2	2.4	0.17	11	8	16	2.2	240	1240	78
160	M3BM 315 LKB	514	1.3	2.5	0.16	13	8	16	2.3	250	1270	78
200	M3BM 355 LKA	642	0.8	2.2	0.13	15	11	22	2.7	280	1680	83
250	M3BM 355 LKB	802	0.9	2.4	0.13	16	8	16	3.2	300	1780	83
315	M3BM 355 LKC	1012	1.0	2.2	0.13	20	8	16	5.0	390	2160	83
335	M3BM 355 LKD	1076	1.0	2.3	0.14	19	7	14	5.5	410	2240	83
355 <sup>4)</sup>	M3BM 400 LA	1138	0.9	2.4	0.13	26	10	20	6.4	460	2420	79
400 <sup>4)</sup>	M3BM 400 LB	1283	1.0	2.3	0.14	32	10	20	8.0	520	2670	79
450 <sup>4)</sup>	M3BM 400 LC	1443	1.1	2.3	0.14	34	9	18	9.6	580	2900	79
<b>3000 r/min = 2 poles</b>		<b>3300 V 50 Hz</b>										
160	M3BM 315 LKA	515	1.2	2.3	0.17	13	8	16	2.3	250	1280	78
200	M3BM 355 LKA	641	0.9	2.5	0.13	16	10	20	2.7	280	1680	83
250	M3BM 355 LKB	802	0.9	2.4	0.13	18	9	16	3.2	300	1780	83
315	M3BM 355 LKC	1011	1.1	2.4	0.14	20	7	14	5.0	390	2140	83
335	M3BM 355 LKD	1075	1.1	2.4	0.13	21	7	14	5.5	410	2250	83
355 <sup>4)</sup>	M3BM 400 LA	1138	1.0	2.3	0.12	25	9	18	6.4	460	2440	79
400 <sup>4)</sup>	M3BM 400 LB	1283	1.0	2.3	0.13	27	9	18	8.0	520	2660	79
450 <sup>4)</sup>	M3BM 400 LC	1444	1.1	2.2	0.14	32	9	18	9.6	570	2910	79
<b>3000 r/min = 2 poles</b>		<b>6000 V 50 Hz</b>										
250	M3BM 355 LKA	803	1.0	2.3	0.15	15	8	16	4.6	370	2010	83
280	M3BM 355 LKB	899	1.1	2.3	0.15	18	8	16	5.5	410	2200	83
315 <sup>4)</sup>	M3BM 400 LA	1009	1.0	2.4	0.14	23	10	20	5.6	430	2260	79
355 <sup>4)</sup>	M3BM 400 LB	1138	1.0	2.3	0.14	27	10	20	7.2	490	2500	79
400 <sup>4)</sup>	M3BM 400 LC	1283	1.0	2.3	0.14	31	10	20	8.0	520	2620	79
425 <sup>4)</sup>	M3BM 400 LD	1363	1.1	2.3	0.14	35	10	20	9.2	560	2800	79
<b>3000 r/min = 2 poles</b>		<b>6600 V 50 Hz</b>										
280	M3BM 355 LKA	898	1.1	2.4	0.15	13	6	12	5.5	410	2190	83
315 <sup>4)</sup>	M3BM 400 LA	1009	1.0	2.4	0.14	24	10	20	5.6	430	2260	79
355 <sup>4)</sup>	M3BM 400 LB	1138	1.0	2.3	0.14	26	10	20	7.2	490	2490	79
400 <sup>4)</sup>	M3BM 400 LC	1282	1.1	2.4	0.14	30	9	18	8.0	520	2620	79
425 <sup>4)</sup>	M3BM 400 LD	1363	1.2	2.3	0.15	33	9	18	9.2	560	2800	79

1

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current			
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	
<b>1500 r/min = 4 poles</b>				<b>3000 V 50 Hz</b>							
110	M3BM	315 LKA 3GBM	312 810-•QA	1488	94.7	94.3	0.83	0.79	27	6.2	11
132	M3BM	315 LKB 3GBM	312 820-•QA	1484	94.7	94.7	0.84	0.82	32	5.2	11
160	M3BM	315 LKC 3GBM	312 830-•QA	1485	95.0	94.9	0.87	0.85	37	6.3	11
200	M3BM	315 LKD 3GBM	312 840-•QA	1484	95.3	95.4	0.87	0.85	46	6.4	14
250	M3BM	355 LKA 3GBM	352 810-•QA	1490	95.6	95.4	0.83	0.80	61	6.2	23
315	M3BM	355 LKB 3GBM	352 820-•QA	1489	95.9	95.8	0.84	0.81	76	6.0	27
355	M3BM	355 LKC 3GBM	352 830-•QA	1488	96.1	96.0	0.84	0.82	85	6.1	29
400	M3BM	355 LKD 3GBM	352 840-•QA	1489	96.3	96.3	0.85	0.83	94	6.2	30
450	M3BM	400 LA 3GBM	402 510-•QA	1490	96.7	96.7	0.85	0.83	105	6.4	33
500	M3BM	400 LB 3GBM	402 520-•QA	1489	96.5	96.4	0.85	0.83	118	6.3	37
530	M3BM	400 LC 3GBM	402 530-•QA	1490	96.6	96.5	0.85	0.83	124	6.5	38
<b>1500 r/min = 4 poles</b>				<b>3300 V 50 Hz</b>							
132	M3BM	315 LKA 3GBM	312 810-•RA	1488	94.9	94.6	0.81	0.76	30	6.2	13
160	M3BM	315 LKB 3GBM	312 820-•RA	1484	95.1	95.1	0.84	0.81	35	5.5	12
200	M3BM	315 LKC 3GBM	312 830-•RA	1484	95.3	95.4	0.87	0.85	42	6.4	12
250	M3BM	355 LKA 3GBM	352 810-•RA	1489	95.6	95.5	0.83	0.80	55	6.1	20
315	M3BM	355 LKB 3GBM	352 820-•RA	1490	95.8	95.7	0.83	0.79	70	6.4	27
355	M3BM	355 LKC 3GBM	352 830-•RA	1489	96.0	96.0	0.83	0.80	78	6.4	28
400	M3BM	355 LKD 3GBM	352 840-•RA	1489	96.3	96.2	0.85	0.82	86	6.4	28
450	M3BM	400 LA 3GBM	402 510-•RA	1489	96.7	96.7	0.85	0.83	96	6.1	29
500	M3BM	400 LB 3GBM	402 520-•RA	1490	96.5	96.4	0.85	0.82	107	6.5	35
530	M3BM	400 LC 3GBM	402 530-•RA	1489	96.6	96.5	0.85	0.84	112	6.4	34
<b>1500 r/min = 4 poles</b>				<b>6000 V 50 Hz</b>							
250	M3BM	355 LKA 3GBM	352 810-•TA	1486	95.5	95.5	0.83	0.80	30	5.7	11
315	M3BM	355 LKB 3GBM	352 820-•TA	1487	96.0	95.9	0.83	0.79	38	6.4	15
355	M3BM	400 LA 3GBM	402 510-•TA	1489	96.2	96.2	0.85	0.83	42	6.2	13
400	M3BM	400 LB 3GBM	402 520-•TA	1489	96.4	96.4	0.85	0.83	47	6.4	15
450	M3BM	400 LC 3GBM	402 530-•TA	1489	96.2	96.2	0.86	0.84	53	6.2	16
500	M3BM	400 LD 3GBM	402 540-•TA	1490	96.4	96.4	0.85	0.83	59	6.4	18
<b>1500 r/min = 4 poles</b>				<b>6600 V 50 Hz</b>							
250	M3BM	355 LKA 3GBM	352 810-•SA	1488	95.5	95.4	0.82	0.78	28	6.1	11
315	M3BM	355 LKB 3GBM	352 820-•SA	1487	95.9	95.9	0.83	0.80	35	6.3	13
355	M3BM	400 LA 3GBM	402 510-•SA	1489	96.2	96.2	0.85	0.83	38	6.1	12
400	M3BM	400 LB 3GBM	402 520-•SA	1489	96.3	96.3	0.85	0.83	43	6.2	13
450	M3BM	400 LC 3GBM	402 530-•SA	1489	96.2	96.2	0.85	0.83	48	6.4	15
500	M3BM	400 LD 3GBM	402 540-•SA	1490	96.4	96.4	0.85	0.83	53	6.5	17

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. The magnetic noise level of 2- and 4-pole motors is typically low compared to the fan noise, resulting no increase in the noise level on-load. The variation and measuring tolerance of the figures is +3 dB(A).

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type		Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
			T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>								
<b>1500 r/min = 4 poles</b>			<b>3000 V 50 Hz</b>										
110	M3BM	315 LKA	706	1.6	2.3	0.21	50	9	20	2.0	220	1190	73
132	M3BM	315 LKB	849	1.3	1.9	0.21	53	10	20	2.0	220	1190	73
160	M3BM	315 LKC	1029	1.7	2.2	0.21	69	8	16	3.2	260	1190	73
200	M3BM	315 LKD	1287	1.8	2.2	0.21	78	7	14	3.9	300	1290	73
250	M3BM	355 LKA	1603	1.3	2.2	0.17	86	8	16	6.4	400	1860	74
315	M3BM	355 LKB	2021	1.3	2.1	0.17	92	7	14	7.6	450	1990	74
355	M3BM	355 LKC	2278	1.4	2.1	0.17	105	7	14	8.4	480	2090	74
400	M3BM	355 LKD	2566	1.4	2.2	0.17	120	7	14	10.4	550	2310	74
450	M3BM	400 LA	2855	1.5	2.1	0.16	125	6	12	14.4	660	2880	74
500	M3BM	400 LB	3206	1.5	2.1	0.16	134	6	12	14.4	660	2870	79
530	M3BM	400 LC	3398	1.5	2.1	0.16	147	6	12	16.2	710	3040	79
<b>1500 r/min = 4 poles</b>			<b>3300 V 50 Hz</b>										
132	M3BM	315 LKA	847	1.7	2.3	0.21	70	10	20	2.0	220	1190	73
160	M3BM	315 LKB	1029	1.5	2.0	0.21	70	10	20	2.3	240	1260	73
200	M3BM	315 LKC	1287	1.8	2.2	0.21	78	7	14	3.9	300	1290	73
250	M3BM	355 LKA	1603	1.3	2.2	0.17	83	8	16	6.4	400	1860	74
315	M3BM	355 LKB	2019	1.5	2.3	0.17	87	6	12	7.6	450	1970	74
355	M3BM	355 LKC	2277	1.5	2.2	0.17	98	6	12	8.4	480	2070	74
400	M3BM	355 LKD	2565	1.5	2.2	0.17	107	6	12	10.4	550	2300	74
450	M3BM	400 LA	2886	1.4	2.0	0.16	114	6	12	13.2	620	2760	74
500	M3BM	400 LB	3025	1.5	2.1	0.16	140	6	10	14.4	660	2850	79
530	M3BM	400 LC	3398	1.5	2.1	0.16	143	6	11	16.8	730	3100	79
<b>1500 r/min = 4 poles</b>			<b>6000 V 50 Hz</b>										
250	M3BM	355 LKA	1606	1.2	2.1	0.17	95	9	20	4.6	380	2010	74
315	M3BM	355 LKB	2022	1.5	2.3	0.17	110	7	18	5.9	440	2290	74
355	M3BM	400 LA	2277	1.4	2.1	0.17	110	7	14	12.0	600	2590	74
400	M3BM	400 LB	2565	1.5	2.1	0.17	111	6	12	13.2	640	2720	74
450	M3BM	400 LC	2887	1.5	2.1	0.17	122	6	12	14.4	670	2840	79
500	M3BM	400 LD	3206	1.6	2.1	0.17	138	6	12	15.6	700	2950	79
<b>1500 r/min = 4 poles</b>			<b>6600 V 50 Hz</b>										
250	M3BM	355 LKA	1605	1.4	2.3	0.17	93	8	16	4.6	380	2010	74
315	M3BM	355 LKB	2023	1.4	2.3	0.17	105	7	14	5.9	440	2280	74
355	M3BM	400 LA	2277	1.4	2.1	0.17	110	7	14	12.0	600	2600	74
400	M3BM	400 LB	2566	1.5	2.1	0.17	125	7	14	13.2	640	2710	74
450	M3BM	400 LC	2886	1.6	2.1	0.17	128	6	12	14.4	670	2830	79
500	M3BM	400 LD	3205	1.6	2.1	0.17	141	6	12	15.6	700	2940	79

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current			
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	
<b>1000 r/min = 6 poles</b>				<b>3000 V 50 Hz</b>							
110	M3BM	315 LKA 3GBM	313 810-•QA	987	94.4	94.6	0.79	0.76	28	5.3	12
132	M3BM	315 LKB 3GBM	313 820-•QA	986	94.7	94.9	0.79	0.75	34	5.4	14
150	M3BM	315 LKC 3GBM	313 830-•QA	987	95.1	95.2	0.80	0.75	38	5.7	16
160	M3BM	355 LKA 3GBM	353 810-•QA	992	95.3	95.2	0.74	0.68	43	5.5	22
200	M3BM	355 LKB 3GBM	353 820-•QA	990	95.7	95.7	0.78	0.74	52	5.3	22
250	M3BM	355 LKC 3GBM	353 830-•QA	991	96.0	96.0	0.78	0.74	64	5.5	28
315	M3BM	400 L 3GBM	403 500-•QA	991	96.1	96.2	0.81	0.78	78	5.9	29
355	M3BM	400 LA 3GBM	403 510-•QA	991	96.3	96.4	0.82	0.79	87	5.9	31
400	M3BM	400 LB 3GBM	403 520-•QA	991	96.4	96.5	0.82	0.79	98	6.2	36
425	M3BM	400 LC 3GBM	403 530-•QA	991	96.4	96.5	0.82	0.79	104	6.3	38
<b>1000 r/min = 6 poles</b>				<b>3300 V 50 Hz</b>							
110	M3BM	315 LKA 3GBM	313 810-•RA	988	94.5	94.6	0.79	0.74	26	5.6	11
132	M3BM	315 LKB 3GBM	313 820-•RA	987	94.7	94.9	0.79	0.75	31	5.6	13
150	M3BM	315 LKC 3GBM	313 830-•RA	987	95.1	95.2	0.80	0.75	35	5.7	15
160	M3BM	355 LKA 3GBM	353 810-•RA	992	95.3	95.1	0.73	0.67	40	5.7	21
200	M3BM	355 LKB 3GBM	353 820-•RA	990	95.6	95.7	0.78	0.74	47	5.3	20
250	M3BM	355 LKC 3GBM	353 830-•RA	990	95.9	96.0	0.79	0.75	58	5.3	24
315	M3BM	400 L 3GBM	403 500-•RA	990	96.0	96.2	0.81	0.79	71	5.7	25
355	M3BM	400 LA 3GBM	403 510-•RA	991	96.2	96.3	0.81	0.79	79	6.0	29
400	M3BM	400 LB 3GBM	403 520-•RA	991	96.4	96.5	0.82	0.79	89	6.0	32
425	M3BM	400 LC 3GBM	403 530-•RA	991	96.5	96.6	0.82	0.78	95	6.4	35
<b>1000 r/min = 6 poles</b>				<b>6000 V 50 Hz</b>							
220	M3BM	355 LKA 3GBM	353 810-•TA	992	95.5	95.5	0.79	0.74	28	6.3	12
250	M3BM	355 LKB 3GBM	353 820-•TA	991	95.6	95.7	0.80	0.76	31	6.0	13
280	M3BM	400 L 3GBM	403 500-•TA	991	96.0	96.0	0.79	0.75	36	5.6	15
315	M3BM	400 LA 3GBM	403 510-•TA	992	96.2	96.1	0.79	0.75	40	5.8	17
355	M3BM	400 LB 3GBM	403 520-•TA	991	96.3	96.3	0.80	0.76	45	5.6	18
375	M3BM	400 LC 3GBM	403 530-•TA	991	96.3	96.3	0.79	0.76	47	5.8	19
<b>1000 r/min = 6 poles</b>				<b>6600 V 50 Hz</b>							
250	M3BM	355 LKA 3GBM	353 810-•SA	992	95.6	95.6	0.79	0.75	29	6.3	13
280	M3BM	400 L 3GBM	403 500-•SA	991	95.9	95.9	0.78	0.74	33	5.6	14
315	M3BM	400 LA 3GBM	403 510-•SA	992	96.2	96.1	0.78	0.73	37	6.1	16
355	M3BM	400 LB 3GBM	403 520-•SA	991	96.3	96.3	0.79	0.75	41	5.8	17
375	M3BM	400 LC 3GBM	403 530-•SA	992	96.4	96.3	0.79	0.75	43	5.9	18

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. Sound level values of 6...12-pole motors at no-load are typically 1...3 dB(A) higher than the corresponding values at no-load. The variation and measuring tolerance of the figures is +3 dB(A).

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
		T <sub>N</sub>	T <sub>S</sub>	T <sub>max</sub>								
		Nm	T <sub>N</sub>	T <sub>N</sub>								
<b>1000 r/min = 6 poles</b>		<b>3000 V 50 Hz</b>										
110	M3BM 315 LKA	1065	1.5	2.0	0.22	127	10	20	3.2	270	1170	65
132	M3BM 315 LKB	1278	1.6	2.1	0.22	144	9	18	3.7	290	1240	65
150	M3BM 315 LKC	1452	1.7	2.2	0.22	156	8	20	4.6	340	1380	65
160	M3BM 355 LKA	1541	1.5	2.1	0.19	178	10	20	4.8	350	1660	70
200	M3BM 355 LKB	1928	1.4	2.0	0.19	205	10	20	6.4	410	1850	70
250	M3BM 355 LKC	2410	1.5	2.0	0.19	275	10	20	8.0	480	2040	70
315	M3BM 400 L	3036	1.6	2.0	0.18	335	9	18	16.2	680	2500	75
355	M3BM 400 LA	3422	1.6	2.0	0.18	370	9	18	19.8	770	2740	75
400	M3BM 400 LB	3854	1.7	2.0	0.19	400	8	18	23.4	870	2970	75
425	M3BM 400 LC	4094	1.8	2.1	0.19	435	8	18	26.1	940	3130	75
<b>1000 r/min = 6 poles</b>		<b>3300 V 50 Hz</b>										
110	M3BM 315 LKA	1064	1.6	2.1	0.22	136	10	20	3.2	270	1170	65
132	M3BM 315 LKB	1277	1.7	2.1	0.22	149	9	18	3.7	290	1240	65
150	M3BM 315 LKC	1452	1.7	2.2	0.22	175	9	20	4.6	340	1380	65
160	M3BM 355 LKA	1540	1.5	2.2	0.19	184	10	20	4.8	350	1660	70
200	M3BM 355 LKB	1928	1.4	2.0	0.19	204	10	20	6.4	410	1850	70
250	M3BM 355 LKC	2412	1.4	1.9	0.19	258	10	20	8.0	480	2040	70
315	M3BM 400 L	3038	1.5	1.9	0.18	350	9	18	16.2	680	2500	75
355	M3BM 400 LA	3422	1.6	2.0	0.19	382	9	18	19.8	770	2730	75
400	M3BM 400 LB	3855	1.7	2.0	0.19	435	9	18	23.4	870	2970	75
425	M3BM 400 LC	4094	1.8	2.1	0.19	445	8	18	26.1	940	3140	75
<b>1000 r/min = 6 poles</b>		<b>6000 V 50 Hz</b>										
220	M3BM 355 LKA	2118	1.8	2.3	0.21	198	7	14	9.6	540	2160	70
250	M3BM 355 LKB	2409	1.7	2.1	0.21	210	7	14	10.4	570	2250	70
280	M3BM 400 L	2697	1.3	2.0	0.16	290	10	20	11.4	590	2530	75
315	M3BM 400 LA	3033	1.4	2.1	0.17	342	10	20	13.2	640	2700	75
355	M3BM 400 LB	3421	1.4	2.0	0.17	367	10	20	14.4	680	2820	75
375	M3BM 400 LC	3613	1.4	2.0	0.17	410	10	20	15.6	720	2940	75
<b>1000 r/min = 6 poles</b>		<b>6600 V 50 Hz</b>										
250	M3BM 355 LKA	2408	1.8	2.2	0.21	193	6	12	10.4	570	2250	70
280	M3BM 400 L	2697	1.3	2.0	0.16	290	10	20	10.8	570	2460	75
315	M3BM 400 LA	3032	1.5	2.2	0.17	369	10	20	13.2	640	2700	75
355	M3BM 400 LB	3419	1.4	2.0	0.17	390	10	20	14.4	680	2820	75
375	M3BM 400 LC	3611	1.5	2.1	0.17	427	10	20	15.6	720	2940	75

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current			
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	
<b>750 r/min = 8 poles</b>				<b>3000 V 50 Hz</b>							
200	M3BM 400 LA	3GBM 404 510-•QA	742	95.1	95.2	0.79	0.76	51	5.3	21	
220	M3BM 400 LB	3GBM 404 520-•QA	742	95.3	95.4	0.79	0.75	56	5.5	24	
250	M3BM 400 LC	3GBM 404 530-•QA	742	95.4	95.6	0.80	0.76	63	5.4	25	
280	M3BM 400 LD	3GBM 404 540-•QA	741	95.4	95.6	0.80	0.77	70	5.2	26	
300	M3BM 400 LE	3GBM 404 540-•QA	741	95.6	95.8	0.80	0.77	75	5.4	29	
<b>750 r/min = 8 poles</b>				<b>3300 V 50 Hz</b>							
200	M3BM 400 LA	3GBM 404 510-•RA	742	95.0	95.2	0.79	0.76	46	5.2	19	
220	M3BM 400 LB	3GBM 404 520-•RA	742	95.2	95.4	0.80	0.76	51	5.3	20	
250	M3BM 400 LC	3GBM 404 530-•RA	741	95.3	95.6	0.80	0.78	57	5.0	21	
280	M3BM 400 LD	3GBM 404 540-•RA	741	95.5	95.7	0.80	0.77	64	5.5	25	
300	M3BM 400 LE	3GBM 404 550-•RA	741	95.5	95.7	0.80	0.77	69	5.5	27	
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>							
160	M3BM 400 LA	3GBM 404 510-•TA	741	94.4	94.4	0.76	0.71	21	5.2	10	
180	M3BM 400 LB	3GBM 404 520-•TA	740	94.5	94.6	0.77	0.72	24	5.0	11	
200	M3BM 400 LC	3GBM 404 530-•TA	740	94.7	94.8	0.77	0.73	26	5.1	12	
220	M3BM 400 LD	3GBM 404 540-•TA	740	94.8	95.0	0.78	0.74	29	5.0	12	
250	M3BM 400 LE	3GBM 404 550-•TA	740	95.1	95.1	0.77	0.72	33	5.3	15	
<b>750 r/min = 8 poles</b>				<b>6600 V 50 Hz</b>							
160	M3BM 400 LA	3GBM 404 510-•SA	741	94.5	94.4	0.76	0.71	20	5.4	9	
180	M3BM 400 LB	3GBM 404 520-•SA	741	94.5	94.5	0.76	0.70	22	5.3	11	
200	M3BM 400 LC	3GBM 404 530-•SA	740	94.6	94.8	0.78	0.74	24	4.8	10	
220	M3BM 400 LD	3GBM 404 540-•SA	740	94.9	94.9	0.77	0.72	26	5.2	12	
250	M3BM 400 LE	3GBM 404 550-•SA	741	95.1	95.1	0.76	0.71	30	5.5	14	

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. Sound level values of 6...12-pole motors at no-load are typically 1...3 dB(A) higher than the corresponding values at no-load. The variation and measuring tolerance of the figures is +3 dB(A).

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).



# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type		Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
			T <sub>N</sub>	T <sub>S</sub>	T <sub>max</sub>								
			Nm	T <sub>N</sub>	T <sub>N</sub>								
<b>750 r/min = 8 poles</b>			<b>3000 V 50 Hz</b>										
200	M3BM	400 LA	2575	1.0	2.1	0.15	390	11	22	14.4	630	2370	75
220	M3BM	400 LB	2831	1.1	2.3	0.14	425	10	20	16.2	680	2490	75
250	M3BM	400 LC	3219	1.1	2.2	0.14	480	10	20	19.8	780	2730	75
280	M3BM	400 LD	3610	1.1	2.1	0.14	530	10	20	21.6	830	2830	75
300	M3BM	400 LE	3866	1.1	2.1	0.14	565	10	20	23.4	870	2960	75
<b>750 r/min = 8 poles</b>			<b>3300 V 50 Hz</b>										
200	M3BM	400 LA	2575	1.0	2.1	0.15	390	11	22	14.4	630	2370	75
220	M3BM	400 LB	2833	1.1	2.1	0.14	425	10	20	16.2	680	2490	75
250	M3BM	400 LC	3223	1.0	2.0	0.14	480	11	22	19.8	780	2720	75
280	M3BM	400 LD	3607	1.1	2.2	0.14	530	9	18	21.6	830	2840	75
300	M3BM	400 LE	3865	1.1	2.2	0.14	565	9	18	23.4	870	2940	75
<b>750 r/min = 8 poles</b>			<b>6000 V 50 Hz</b>										
160	M3BM	400 LA	2062	1.1	2.2	0.16	320	10	20	10.2	560	2380	75
180	M3BM	400 LB	2322	1.0	2.1	0.16	355	11	22	10.8	580	2450	75
200	M3BM	400 LC	2580	1.1	2.2	0.15	390	10	20	12.6	640	2620	75
220	M3BM	400 LD	2840	1.0	2.1	0.15	425	10	20	13.8	680	2740	75
250	M3BM	400 LE	3225	1.2	2.3	0.15	480	9	18	15.6	740	2920	75
<b>750 r/min = 8 poles</b>			<b>6600 V 50 Hz</b>										
160	M3BM	400 LA	2061	1.1	2.3	0.16	320	10	20	10.8	580	2440	75
180	M3BM	400 LB	2319	1.1	2.3	0.16	355	10	20	10.8	580	2440	75
200	M3BM	400 LC	2583	1.0	2.0	0.16	390	11	22	12.6	640	2620	75
220	M3BM	400 LD	2838	1.1	2.2	0.15	425	10	20	13.8	680	2740	75
250	M3BM	400 LE	3223	1.2	2.3	0.15	480	9	18	15.6	740	2910	75

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current			
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	$I_N$ A	$I_s$ A	$I_0$ A	
<b>600 r/min = 10 poles</b>				<b>3000 V 50 Hz</b>							
150	M3BM 400 LA	3GBM 405 510-•QA	593	94.1	93.9	0.72	0.67	43	4.7	22	
160	M3BM 400 LB	3GBM 405 520-•QA	594	94.2	93.9	0.71	0.65	46	4.9	25	
180	M3BM 400 LC	3GBM 405 530-•QA	593	94.3	94.0	0.71	0.65	51	4.9	27	
200	M3BM 400 LD	3GBM 405 540-•QA	593	94.5	94.2	0.72	0.66	57	4.9	29	
220	M3BM 400 LE	3GBM 405 550-•QA	593	94.6	94.2	0.71	0.64	63	5.2	35	
<b>600 r/min = 10 poles</b>				<b>3300 V 50 Hz</b>							
150	M3BM 400 LA	3GBM 405 510-•RA	593	94.1	93.8	0.71	0.66	39	4.8	20	
160	M3BM 400 LB	3GBM 405 520-•RA	594	94.2	93.8	0.71	0.64	42	5.0	23	
180	M3BM 400 LC	3GBM 405 530-•RA	593	94.3	94.0	0.71	0.65	47	4.9	25	
200	M3BM 400 LD	3GBM 405 540-•RA	593	94.4	94.2	0.72	0.67	51	4.8	26	
220	M3BM 400 LE	3GBM 405 550-•RA	593	94.5	94.3	0.72	0.66	57	5.0	30	
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>							
110	M3BM 400 LA	3GBM 406 510-•QA	494	93.1	92.8	0.66	0.60	34	4.3	19	
120	M3BM 400 LB	3GBM 406 520-•QA	494	93.2	93.0	0.67	0.61	37	4.3	21	
132	M3BM 400 LC	3GBM 406 530-•QA	494	93.4	93.1	0.67	0.61	41	4.3	23	
150	M3BM 400 LD	3GBM 406 540-•QA	494	93.5	93.2	0.66	0.61	46	4.3	26	
160	M3BM 400 LE	3GBM 406 550-•QA	494	93.7	93.2	0.66	0.59	50	4.6	29	
<b>500 r/min = 12 poles</b>				<b>3300 V 50 Hz</b>							
110	M3BM 400 LA	3GBM 406 510-•RA	494	93.1	92.7	0.66	0.60	31	4.4	18	
120	M3BM 400 LB	3GBM 406 520-•RA	494	93.2	92.9	0.66	0.60	34	4.3	19	
132	M3BM 400 LC	3GBM 406 530-•RA	494	93.4	93.1	0.67	0.61	37	4.3	21	
150	M3BM 400 LD	3GBM 406 540-•RA	493	93.5	93.3	0.67	0.61	42	4.3	23	
160	M3BM 400 LE	3GBM 406 550-•RA	494	93.7	93.3	0.66	0.60	45	4.4	25	

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. Sound level values of 6...12-pole motors at no-load are typically 1...3 dB(A) higher than the corresponding values at no-load. The variation and measuring tolerance of the figures is +3 dB(A).

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

# HV Process performance cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type		Torque			Power factor cos $\varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
			T <sub>N</sub>	T <sub>S</sub>	T <sub>max</sub>								
			Nm	T <sub>N</sub>	T <sub>N</sub>								
<b>600 r/min = 10 poles</b>			<b>3000 V 50 Hz</b>										
150	M3BM	400 LA	2415	1.0	2.0	0.15	515	13	26	16.2	680	2480	75
160	M3BM	400 LB	2574	1.1	2.1	0.15	545	12	24	17.1	710	2540	75
180	M3BM	400 LC	2897	1.1	2.1	0.15	605	11	22	18.9	750	2660	75
200	M3BM	400 LD	3220	1.1	2.1	0.14	670	11	22	21.6	830	2840	75
220	M3BM	400 LE	3540	1.2	2.2	0.14	730	10	20	23.4	880	2950	75
<b>600 r/min = 10 poles</b>			<b>3300 V 50 Hz</b>										
150	M3BM	400 LA	2414	1.0	2.0	0.15	515	12	24	16.2	680	2470	75
160	M3BM	400 LB	2573	1.1	2.2	0.15	545	11	22	17.1	710	2530	75
180	M3BM	400 LC	2897	1.1	2.1	0.15	605	11	22	18.9	750	2650	75
200	M3BM	400 LD	3222	1.0	2.0	0.14	670	12	24	21.6	830	2830	75
220	M3BM	400 LE	3542	1.1	2.1	0.14	730	11	22	23.4	880	2950	75
<b>500 r/min = 12 poles</b>			<b>3000 V 50 Hz</b>										
110	M3BM	400 LA	2126	1.0	2.0	0.14	595	14	28	16.2	680	2470	75
120	M3BM	400 LB	2320	1.0	2.0	0.14	650	14	28	18.0	730	2580	75
132	M3BM	400 LC	2553	1.0	2.0	0.14	710	14	28	19.8	780	2700	75
150	M3BM	400 LD	2902	1.1	2.0	0.14	795	13	26	21.6	830	2820	75
160	M3BM	400 LE	3092	1.1	2.1	0.14	845	12	24	24.3	900	3000	75
<b>500 r/min = 12 poles</b>			<b>3300 V 50 Hz</b>										
110	M3BM	400 LA	2125	1.1	2.1	0.14	595	13	26	16.2	680	2460	75
120	M3BM	400 LB	2320	1.0	2.0	0.14	650	14	28	18.0	730	2580	75
132	M3BM	400 LC	2553	1.0	2.0	0.14	710	14	28	19.8	780	2700	75
150	M3BM	400 LD	2903	1.0	1.9	0.14	795	14	28	21.6	830	2820	75
160	M3BM	400 LE	3094	1.1	2.0	0.14	845	13	26	24.3	900	3000	75

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current				
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A		
<b>3000 r/min = 2 poles</b>				<b>3000 V 50 Hz</b>								
132	M3GM	315 LKA 3GGM	311 810-•QA	2971	94.7	94.5	0.92	0.92	29	6.3	5	
160	M3GM	315 LKB 3GGM	311 820-•QA	2971	94.9	94.8	0.92	0.92	35	6.5	6	
200	M3GM	355 LKA 3GGM	351 810-•QA	2974	95.0	94.9	0.9	0.9	45	5.6	9	
250	M3GM	355 LKB 3GGM	351 820-•QA	2975	95.5	95.5	0.9	0.9	56	6.1	11	
315	M3GM	355 LKC 3GGM	351 830-•QA	2973	96.0	96.1	0.91	0.92	69	6.0	11	
335	M3GM	355 LKD 3GGM	351 840-•QA	2972	96.0	96.1	0.91	0.92	74	6.0	12	
355 <sup>4)</sup>	M3GM	400 LA 3GGM	401 510-•QA	2980	96.0	95.9	0.9	0.9	79	6.3	16	
400 <sup>4)</sup>	M3GM	400 LB 3GGM	401 520-•QA	2978	96.2	96.2	0.91	0.91	88	6.2	15	
450 <sup>4)</sup>	M3GM	400 LC 3GGM	401 530-•QA	2978	96.4	96.4	0.91	0.92	98	6.4	17	
<b>3000 r/min = 2 poles</b>				<b>3300 V 50 Hz</b>								
160	M3GM	315 LKA 3GGM	311 810-•RA	2969	94.9	94.9	0.92	0.92	32	6.1	5	
200	M3GM	355 LKA 3GGM	351 810-•RA	2978	95.1	94.9	0.89	0.88	41	6.3	10	
250	M3GM	355 LKB 3GGM	351 820-•RA	2975	95.5	95.5	0.9	0.9	51	6.1	10	
315	M3GM	355 LKC 3GGM	351 830-•RA	2975	96.0	96.0	0.91	0.92	63	6.4	11	
335	M3GM	355 LKD 3GGM	351 840-•RA	2975	96.2	96.2	0.91	0.92	67	6.5	11	
355 <sup>4)</sup>	M3GM	400 LA 3GGM	401 510-•RA	2979	96.1	96.0	0.9	0.9	72	6.3	14	
400 <sup>4)</sup>	M3GM	400 LB 3GGM	401 520-•RA	2978	96.2	96.1	0.91	0.91	80	6.2	14	
450 <sup>4)</sup>	M3GM	400 LC 3GGM	401 530-•RA	2977	96.4	96.4	0.91	0.92	90	6.2	14	
<b>3000 r/min = 2 poles</b>				<b>6000 V 50 Hz</b>								
250	M3GM	355 LKA 3GGM	351 810-•TA	2975	95.3	95.4	0.91	0.91	28	6.1	5	
280	M3GM	355 LKB 3GGM	351 820-•TA	2975	95.6	95.7	0.91	0.92	31	6.2	5	
315 <sup>4)</sup>	M3GM	400 LA 3GGM	401 510-•TA	2981	95.5	95.4	0.89	0.88	36	6.4	8	
355 <sup>4)</sup>	M3GM	400 LB 3GGM	401 520-•TA	2979	95.9	95.8	0.91	0.91	39	6.3	7	
400 <sup>4)</sup>	M3GM	400 LC 3GGM	401 530-•TA	2978	96.0	96	0.91	0.91	44	6.2	8	
425 <sup>4)</sup>	M3GM	400 LD 3GGM	401 540-•TA	2978	96.2	96.2	0.91	0.92	47	6.3	8	
<b>3000 r/min = 2 poles</b>				<b>6600 V 50 Hz</b>								
280	M3GM	355 LKA 3GGM	351 810-•SA	2976	95.5	95.6	0.91	0.92	28	6.5	5	
315 <sup>4)</sup>	M3GM	400 LA 3GGM	401 510-•SA	2980	95.6	95.4	0.9	0.89	32	6.4	7	
355 <sup>4)</sup>	M3GM	400 LB 3GGM	401 520-•SA	2980	95.8	95.7	0.91	0.91	36	6.3	7	
400 <sup>4)</sup>	M3GM	400 LC 3GGM	401 530-•SA	2979	96.1	96.1	0.91	0.91	40	6.5	7	
425 <sup>4)</sup>	M3GM	400 LD 3GGM	401 540-•SA	2978	96.2	96.2	0.91	0.92	42	6.5	7	

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

<sup>1)</sup> When ordering, the following variant codes have to be added to the product code acc. to needs. The above prices INCLUDE the extra price acc. to variant code:

**for non-sparking motors:**

456 = Ex nA design, fulfilling IEC 60079-15, with certificate.

480 = EEx nA, fulfilling EN 50021.

**for DIP motors:**

453 = DIP according to EN 50281-1-1, T= 125°C, category 2D, IP65 (for zone 21)

805 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 21)

452 = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP55 (for zone 22)

454 = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP65 (for zone 22)

804 = DIP according to IEC 61241-1-1, T= 125°C, IP55 (for zone 22)

806 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 22)

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)	
		T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>									
<b>3000 r/min = 2 poles</b>			<b>3000 V 50 Hz</b>										
132	M3GM	315 LKA	424	1.2	2.4	0.17	11	8	16	2.2	240	1240	78
160	M3GM	315 LKB	514	1.3	2.5	0.17	13	8	16	2.3	250	1270	78
200	M3GM	355 LKA	642	0.8	2.2	0.13	15	11	22	2.7	280	1680	83
250	M3GM	355 LKB	802	0.9	2.4	0.13	16	8	16	3.2	300	1780	83
315	M3GM	355 LKC	1012	1.0	2.2	0.13	20	8	16	5	390	2160	83
335	M3GM	355 LKD	1076	1.0	2.3	0.14	19	7	14	5.5	410	2240	83
355 <sup>4)</sup>	M3GM	400 LA	1138	0.9	2.4	0.13	26	10	20	6.4	460	2420	79
400 <sup>4)</sup>	M3GM	400 LB	1283	1.0	2.3	0.14	32	10	20	8	520	2670	79
450 <sup>4)</sup>	M3GM	400 LC	1443	1.1	2.3	0.14	34	9	18	9.6	580	2900	79
<b>3000 r/min = 2 poles</b>			<b>3300 V 50 Hz</b>										
160	M3GM	315 LKA	515	1.2	2.3	0.17	13	8	16	2.3	250	1280	78
200	M3GM	355 LKA	641	0.9	2.5	0.13	16	10	20	2.7	280	1680	83
250	M3GM	355 LKB	802	0.9	2.4	0.13	18	9	16	3.2	300	1780	83
315	M3GM	355 LKC	1011	1.1	2.4	0.14	20	7	14	5	390	2140	83
335	M3GM	355 LKD	1075	1.1	2.4	0.13	21	7	14	5.5	410	2250	83
355 <sup>4)</sup>	M3GM	400 LA	1138	1.0	2.3	0.13	25	9	18	6.4	460	2440	79
400 <sup>4)</sup>	M3GM	400 LB	1283	1.0	2.3	0.13	27	9	18	8	520	2660	79
450 <sup>4)</sup>	M3GM	400 LC	1444	1.1	2.2	0.14	32	9	18	9.6	570	2910	79
<b>3000 r/min = 2 poles</b>			<b>6000 V 50 Hz</b>										
250	M3GM	355 LKA	803	1.0	2.3	0.15	15	8	16	4.6	370	2010	83
280	M3GM	355 LKB	899	1.1	2.3	0.15	18	8	16	5.5	410	2200	83
315 <sup>4)</sup>	M3GM	400 LA	1009	1.0	2.4	0.14	23	10	20	5.6	430	2260	79
355 <sup>4)</sup>	M3GM	400 LB	1138	1.0	2.3	0.14	27	10	20	7.2	490	2500	79
400 <sup>4)</sup>	M3GM	400 LC	1283	1.0	2.3	0.14	31	10	20	8	520	2620	79
425 <sup>4)</sup>	M3GM	400 LD	1363	1.1	2.3	0.14	35	10	20	9.2	560	2800	79
<b>3000 r/min = 2 poles</b>			<b>6600 V 50 Hz</b>										
280	M3GM	355 LKA	898	1.1	2.4	0.15	13	6	12	5.5	410	2190	83
315 <sup>4)</sup>	M3GM	400 LA	1009	1.0	2.4	0.14	24	10	20	5.6	430	2260	79
355 <sup>4)</sup>	M3GM	400 LB	1138	1.0	2.3	0.14	26	10	20	7.2	490	2490	79
400 <sup>4)</sup>	M3GM	400 LC	1282	1.1	2.4	0.14	30	9	18	8	520	2620	79
425 <sup>4)</sup>	M3GM	400 LD	1363	1.2	2.3	0.15	33	9	18	9.2	560	2800	79

<sup>1)</sup> The given values of load inertia assume two starts from cold and one start from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. The magnetic noise level of 2- and 4-pole motors is typically low compared to the fan noise, resulting no increase in the noise level on-load. The variation and measuring tolerance of the figures is + 3 dB(A).

<sup>4)</sup> Unidirectional fan construction as standard. Direction of rotation must be stated when ordering, see variant codes 044 and 045.

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current				
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> / I <sub>N</sub>	I <sub>0</sub> A		
<b>1500 r/min = 4 poles</b>				<b>3000 V 50 Hz</b>								
110	M3GM 315 LKA	3GGM 312 810-•QA	1488	94.7	94.3	0.83	0.79	27	6.2	11		
132	M3GM 315 LKB	3GGM 312 820-•QA	1484	94.7	94.7	0.84	0.82	32	5.2	11		
160	M3GM 315 LKC	3GGM 312 830-•QA	1485	95.0	94.9	0.87	0.85	37	6.3	11		
200	M3GM 315 LKD	3GGM 312 840-•QA	1484	95.3	95.4	0.87	0.85	46	6.4	14		
250	M3GM 355 LKA	3GGM 352 810-•QA	1490	95.6	95.4	0.83	0.8	61	6.2	23		
315	M3GM 355 LKB	3GGM 352 820-•QA	1489	95.9	95.8	0.84	0.81	76	6.0	27		
355	M3GM 355 LKC	3GGM 352 830-•QA	1488	96.1	96.0	0.84	0.82	85	6.1	29		
400	M3GM 355 LKD	3GGM 352 840-•QA	1489	96.3	96.3	0.85	0.83	94	6.2	30		
450	M3GM 400 LA	3GGM 402 510-•QA	1490	96.7	96.7	0.85	0.83	105	6.4	33		
500	M3GM 400 LB	3GGM 402 520-•QA	1489	96.5	96.4	0.85	0.83	118	6.3	37		
530	M3GM 400 LC	3GGM 402 530-•QA	1490	96.6	96.5	0.85	0.83	124	6.5	38		
<b>1500 r/min = 4 poles</b>				<b>3300 V 50 Hz</b>								
132	M3GM 315 LKA	3GGM 312 810-•RA	1488	94.9	94.6	0.81	0.76	30	6.2	13		
160	M3GM 315 LKB	3GGM 312 820-•RA	1484	95.1	95.1	0.84	0.81	35	5.5	12		
200	M3GM 315 LKC	3GGM 312 830-•RA	1484	95.3	95.4	0.87	0.85	42	6.4	12		
250	M3GM 355 LKA	3GGM 352 810-•RA	1489	95.6	95.5	0.83	0.8	55	6.1	20		
315	M3GM 355 LKB	3GGM 352 820-•RA	1490	95.8	95.7	0.83	0.79	70	6.4	27		
355	M3GM 355 LKC	3GGM 352 830-•RA	1489	96.0	96.0	0.83	0.8	78	6.4	28		
400	M3GM 355 LKD	3GGM 352 840-•RA	1489	96.3	96.2	0.85	0.82	86	6.4	28		
450	M3GM 400 LA	3GGM 402 510-•RA	1489	96.7	96.7	0.85	0.83	96	6.1	29		
500	M3GM 400 LB	3GGM 402 520-•RA	1490	96.5	96.4	0.85	0.82	107	6.5	35		
530	M3GM 400 LC	3GGM 402 530-•RA	1489	96.6	96.5	0.85	0.84	112	6.4	34		
<b>1500 r/min = 4 poles</b>				<b>6000 V 50 Hz</b>								
250	M3GM 355 LKA	3GGM 352 810-•TA	1486	95.5	95.5	0.83	0.8	30	5.7	11		
315	M3GM 355 LKB	3GGM 352 820-•TA	1487	96.0	95.9	0.83	0.79	38	6.4	15		
355	M3GM 400 LA	3GGM 402 510-•TA	1489	96.2	96.2	0.85	0.83	42	6.2	13		
400	M3GM 400 LB	3GGM 402 520-•TA	1489	96.4	96.4	0.85	0.83	47	6.4	15		
450	M3GM 400 LC	3GGM 402 530-•TA	1489	96.2	96.2	0.86	0.84	53	6.2	16		
500	M3GM 400 LD	3GGM 402 540-•TA	1490	96.4	96.4	0.85	0.83	59	6.4	18		
<b>1500 r/min = 4 poles</b>				<b>6600 V 50 Hz</b>								
250	M3GM 355 LKA	3GGM 352 810-•SA	1488	95.5	95.4	0.82	0.78	28	6.1	11		
315	M3GM 355 LKB	3GGM 352 820-•SA	1487	95.9	95.9	0.83	0.8	35	6.3	13		
355	M3GM 400 LA	3GGM 402 510-•SA	1489	96.2	96.2	0.85	0.83	38	6.1	12		
400	M3GM 400 LB	3GGM 402 520-•SA	1489	96.3	96.3	0.85	0.83	43	6.2	13		
450	M3GM 400 LC	3GGM 402 530-•SA	1489	96.2	96.2	0.85	0.83	48	6.4	15		
500	M3GM 400 LD	3GGM 402 540-•SA	1490	96.4	96.4	0.85	0.83	53	6.5	17		

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

<sup>1)</sup> When ordering, the following variant codes have to be added to the product code acc. to needs. The above prices INCLUDE the extra price acc. to variant code:

**for non-sparking motors:**

456 = Ex nA design, fulfilling IEC 60079-15, with certificate.  
480 = EEx nA, fulfilling EN 50021.

**for DIP motors:**

453 = DIP according to EN 50281-1-1, T= 125°C, category 2D, IP65 (for zone 21)  
805 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 21)  
452 = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP55 (for zone 22)  
454 = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP65 (for zone 22)  
804 = DIP according to IEC 61241-1-1, T= 125°C, IP55 (for zone 22)  
806 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 22)

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
		T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>								
<b>1500 r/min = 4 poles</b>			<b>3000 V 50 Hz</b>									
110	M3GM 315 LKA	706	1.6	2.3	0.21	50	9	20	2	220	1190	73
132	M3GM 315 LKB	849	1.3	1.9	0.21	53	10	20	2	220	1190	73
160	M3GM 315 LKC	1029	1.7	2.2	0.21	69	8	16	3.2	260	1190	73
200	M3GM 315 LKD	1287	1.8	2.2	0.21	78	7	14	3.9	300	1290	73
250	M3GM 355 LKA	1603	1.3	2.2	0.17	86	8	16	6.4	400	1860	74
315	M3GM 355 LKB	2021	1.3	2.1	0.17	92	7	14	7.6	450	1990	74
355	M3GM 355 LKC	2278	1.4	2.1	0.17	105	7	14	8.4	480	2090	74
400	M3GM 355 LKD	2566	1.4	2.2	0.17	120	7	14	10.4	550	2310	74
450	M3GM 400 LA	2855	1.5	2.1	0.16	125	6	12	14.4	660	2880	74
500	M3GM 400 LB	3206	1.5	2.1	0.16	134	6	12	14.4	660	2870	79
530	M3GM 400 LC	3398	1.5	2.1	0.16	147	6	12	16.2	710	3040	79
<b>1500 r/min = 4 poles</b>			<b>3300 V 50 Hz</b>									
132	M3GM 315 LKA	847	1.7	2.3	0.21	70	10	20	2	220	1190	73
160	M3GM 315 LKB	1029	1.5	2.0	0.21	70	10	20	2.3	240	1260	73
200	M3GM 315 LKC	1287	1.8	2.2	0.21	78	7	14	3.9	300	1290	73
250	M3GM 355 LKA	1603	1.3	2.2	0.17	83	8	16	6.4	400	1860	74
315	M3GM 355 LKB	2019	1.5	2.3	0.17	87	6	12	7.6	450	1970	74
355	M3GM 355 LKC	2277	1.5	2.2	0.17	98	6	12	8.4	480	2070	74
400	M3GM 355 LKD	2565	1.5	2.2	0.17	107	6	12	10.4	550	2300	74
450	M3GM 400 LA	2886	1.4	2.0	0.16	114	6	12	13.2	620	2760	74
500	M3GM 400 LB	3025	1.5	2.1	0.16	140	6	10	14.4	660	2850	79
530	M3GM 400 LC	3398	1.5	2.1	0.16	143	6	11	16.8	730	3100	79
<b>1500 r/min = 4 poles</b>			<b>6000 V 50 Hz</b>									
250	M3GM 355 LKA	1606	1.2	2.1	0.17	95	9	20	4.6	380	2010	74
315	M3GM 355 LKB	2022	1.5	2.3	0.17	110	7	18	5.9	440	2290	74
355	M3GM 400 LA	2277	1.4	2.1	0.17	110	7	14	12	600	2590	74
400	M3GM 400 LB	2565	1.5	2.1	0.17	111	6	12	13.2	640	2720	74
450	M3GM 400 LC	2887	1.5	2.1	0.17	122	6	12	14.4	670	2840	79
500	M3GM 400 LD	3206	1.6	2.1	0.17	138	6	12	15.6	700	2950	79
<b>1500 r/min = 4 poles</b>			<b>6600 V 50 Hz</b>									
250	M3GM 355 LKA	1605	1.4	2.3	0.17	93	8	16	4.6	380	2010	74
315	M3GM 355 LKB	2023	1.4	2.3	0.17	105	7	14	5.9	440	2280	74
355	M3GM 400 LA	2277	1.4	2.1	0.17	110	7	14	12	600	2600	74
400	M3GM 400 LB	2566	1.5	2.1	0.17	125	7	14	13.2	640	2710	74
450	M3GM 400 LC	2886	1.6	2.1	0.17	128	6	12	14.4	670	2830	79
500	M3GM 400 LD	3205	1.6	2.1	0.17	141	6	12	15.6	700	2940	79

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. The magnetic noise level of 2- and 4-pole motors is typically low compared to the fan noise, resulting no increase in the noise level on-load. The variation and measuring tolerance of the figures is + 3 dB(A).

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current				
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A		
<b>1000 r/min = 6 poles</b>				<b>3000 V 50 Hz</b>								
110	M3GM 315 LKA	3GGM 313 810-•QA	987	94.4	94.6	0.79	0.76	28	5.3	12		
132	M3GM 315 LKB	3GGM 313 820-•QA	986	94.7	94.9	0.79	0.75	34	5.4	14		
150	M3GM 315 LKC	3GGM 313 830-•QA	987	95.1	95.2	0.8	0.75	38	5.7	16		
160	M3GM 355 LKA	3GGM 353 810-•QA	992	95.3	95.2	0.74	0.68	43	5.5	22		
200	M3GM 355 LKB	3GGM 353 820-•QA	990	95.7	95.7	0.78	0.74	52	5.3	22		
250	M3GM 355 LKC	3GGM 353 830-•QA	991	96.0	96.0	0.78	0.74	64	5.5	28		
315	M3GM 400 L	3GGM 403 500-•QA	991	96.1	96.2	0.81	0.78	78	5.9	29		
355	M3GM 400 LA	3GGM 403 510-•QA	991	96.3	96.4	0.82	0.79	87	5.9	31		
400	M3GM 400 LB	3GGM 403 520-•QA	991	96.4	96.5	0.82	0.79	98	6.2	36		
425	M3GM 400 LC	3GGM 403 530-•QA	991	96.4	96.5	0.82	0.79	104	6.3	38		
<b>1000 r/min = 6 poles</b>				<b>3300 V 50 Hz</b>								
110	M3GM 315 LKA	3GGM 313 810-•RA	988	94.5	94.6	0.79	0.74	26	5.6	11		
132	M3GM 315 LKB	3GGM 313 820-•RA	987	94.7	94.9	0.79	0.75	31	5.6	13		
150	M3GM 315 LKC	3GGM 313 830-•RA	987	95.1	95.2	0.8	0.75	35	5.7	15		
160	M3GM 355 LKA	3GGM 353 810-•RA	992	95.3	95.1	0.73	0.67	40	5.7	21		
200	M3GM 355 LKB	3GGM 353 820-•RA	990	95.6	95.7	0.78	0.74	47	5.3	20		
250	M3GM 355 LKC	3GGM 353 830-•RA	990	95.9	96.0	0.79	0.75	58	5.3	24		
315	M3GM 400 L	3GGM 403 500-•RA	990	96	96.2	0.81	0.79	71	5.7	25		
355	M3GM 400 LA	3GGM 403 510-•RA	991	96.2	96.3	0.81	0.79	79	6.0	29		
400	M3GM 400 LB	3GGM 403 520-•RA	991	96.4	96.5	0.82	0.79	89	6.0	32		
425	M3GM 400 LC	3GGM 403 530-•RA	991	96.5	96.6	0.82	0.78	95	6.4	35		
<b>1000 r/min = 6 poles</b>				<b>6000 V 50 Hz</b>								
220	M3GM 355 LKA	3GGM 353 810-•TA	992	95.5	95.5	0.79	0.74	28	6.3	12		
250	M3GM 355 LKB	3GGM 353 820-•TA	991	95.6	95.7	0.8	0.76	31	6	13		
280	M3GM 400 L	3GGM 403 500-•TA	991	96	96	0.79	0.75	36	5.6	15		
315	M3GM 400 LA	3GGM 403 510-•TA	992	96.2	96.1	0.79	0.75	40	5.8	17		
355	M3GM 400 LB	3GGM 403 520-•TA	991	96.3	96.3	0.8	0.76	45	5.6	18		
375	M3GM 400 LC	3GGM 403 530-•TA	991	96.3	96.3	0.79	0.76	47	5.8	19		
<b>1000 r/min = 6 poles</b>				<b>6600 V 50 Hz</b>								
250	M3GM 355 LKA	3GGM 353 810-•SA	992	95.6	95.6	0.79	0.75	29	6.3	13		
280	M3GM 400 L	3GGM 403 500-•SA	991	95.9	95.9	0.78	0.74	33	5.6	14		
315	M3GM 400 LA	3GGM 403 510-•SA	992	96.2	96.1	0.78	0.73	37	6.1	16		
355	M3GM 400 LB	3GGM 403 520-•SA	991	96.3	96.3	0.79	0.75	41	5.8	17		
375	M3GM 400 LC	3GGM 403 530-•SA	992	96.4	96.3	0.79	0.75	43	5.9	18		

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

<sup>1)</sup> When ordering, the following variant codes have to be added to the product code acc. to needs. The above prices INCLUDE the extra price acc. to variant code:

**for non-sparking motors:**

**456** = Ex nA design, fulfilling IEC 60079-15, with certificate.

**480** = EEx nA, fulfilling EN 50021.

**for DIP motors:**

**453** = DIP according to EN 50281-1-1, T= 125°C, category 2D, IP65 (for zone 21)

**805** = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 21)

**452** = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP55 (for zone 22)

**454** = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP65 (for zone 22)

**804** = DIP according to IEC 61241-1-1, T= 125°C, IP55 (for zone 22)

**806** = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 22)



# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
		T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>								
<b>1000 r/min = 6 poles</b>			<b>3000 V 50 Hz</b>									
110	M3GM 315 LKA	1065	1.5	2.0	0.22	127	10	20	3.2	270	1170	65
132	M3GM 315 LKB	1278	1.6	2.1	0.22	144	9	18	3.7	290	1240	65
150	M3GM 315 LKC	1452	1.7	2.2	0.22	156	8	20	4.6	340	1380	65
160	M3GM 355 LKA	1541	1.5	2.1	0.19	178	10	20	4.8	350	1660	70
200	M3GM 355 LKB	1928	1.4	2.0	0.19	205	10	20	6.4	410	1850	70
250	M3GM 355 LKC	2410	1.5	2.0	0.19	275	10	20	8	480	2040	70
315	M3GM 400 L	3036	1.6	2.0	0.18	335	9	18	16.2	680	2500	75
355	M3GM 400 LA	3422	1.6	2.0	0.18	370	9	18	19.8	770	2740	75
400	M3GM 400 LB	3854	1.7	2.0	0.19	400	8	18	23.4	870	2970	75
425	M3GM 400 LC	4094	1.8	2.1	0.19	435	8	18	26.1	940	3130	75
<b>1000 r/min = 6 poles</b>			<b>3300 V 50 Hz</b>									
110	M3GM 315 LKA	1064	1.6	2.1	0.22	136	10	20	3.2	270	1170	65
132	M3GM 315 LKB	1277	1.7	2.1	0.22	149	9	18	3.7	290	1240	65
150	M3GM 315 LKC	1452	1.7	2.2	0.22	175	9	20	4.6	340	1380	65
160	M3GM 355 LKA	1540	1.5	2.2	0.19	184	10	20	4.8	350	1660	70
200	M3GM 355 LKB	1928	1.4	2.0	0.19	204	10	20	6.4	410	1850	70
250	M3GM 355 LKC	2412	1.4	1.9	0.19	258	10	20	8	480	2040	70
315	M3GM 400 L	3038	1.5	1.9	0.18	350	9	18	16.2	680	2500	75
355	M3GM 400 LA	3422	1.6	2.0	0.19	382	9	18	19.8	770	2730	75
400	M3GM 400 LB	3855	1.7	2.0	0.19	435	9	18	23.4	870	2970	75
425	M3GM 400 LC	4094	1.8	2.1	0.19	445	8	18	26.1	940	3140	75
<b>1000 r/min = 6 poles</b>			<b>6000 V 50 Hz</b>									
220	M3GM 355 LKA	2118	1.8	2.3	0.21	198	7	14	9.6	540	2160	70
250	M3GM 355 LKB	2409	1.7	2.1	0.21	210	7	14	10.4	570	2250	70
280	M3GM 400 L	2697	1.3	2.0	0.17	290	10	20	11.4	590	2530	75
315	M3GM 400 LA	3033	1.4	2.1	0.17	342	10	20	13.2	640	2700	75
355	M3GM 400 LB	3421	1.4	2.0	0.17	367	10	20	14.4	680	2820	75
375	M3GM 400 LC	3613	1.4	2.0	0.17	410	10	20	15.6	720	2940	75
<b>1000 r/min = 6 poles</b>			<b>6600 V 50 Hz</b>									
250	M3GM 355 LKA	2408	1.8	2.2	0.21	193	6	12	10.4	570	2250	70
280	M3GM 400 L	2697	1.3	2.0	0.17	290	10	20	10.8	570	2460	75
315	M3GM 400 LA	3032	1.5	2.2	0.17	369	10	20	13.2	640	2700	75
355	M3GM 400 LB	3419	1.4	2.0	0.17	390	10	20	14.4	680	2820	75
375	M3GM 400 LC	3611	1.5	2.1	0.17	427	10	20	15.6	720	2940	75

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. Sound level values of 6...12-pole motors at no-load are typically 1...3 dB(A) higher than the corresponding values at no-load. The variation and measuring tolerance of the figures is +3 dB(A).

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current				
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> / I <sub>N</sub>	I <sub>0</sub> A		
<b>750 r/min = 8 poles</b>				<b>3000 V 50 Hz</b>								
200	M3GM 400 LA	3GGM 404 510-•QA	742	95.1	95.2	0.79	0.76	51	5.3	21		
220	M3GM 400 LB	3GGM 404 520-•QA	742	95.3	95.4	0.79	0.75	56	5.5	24		
250	M3GM 400 LC	3GGM 404 530-•QA	742	95.4	95.6	0.8	0.76	63	5.4	25		
280	M3GM 400 LD	3GGM 404 540-•QA	741	95.4	95.6	0.8	0.77	70	5.2	26		
300	M3GM 400 LE	3GGM 404 540-•QA	741	95.6	95.8	0.8	0.77	75	5.4	29		
<b>750 r/min = 8 poles</b>				<b>3300 V 50 Hz</b>								
200	M3GM 400 LA	3GGM 404 510-•RA	742	95	95.2	0.79	0.76	46	5.2	19		
220	M3GM 400 LB	3GGM 404 520-•RA	742	95.2	95.4	0.8	0.76	51	5.3	20		
250	M3GM 400 LC	3GGM 404 530-•RA	741	95.3	95.6	0.8	0.78	57	5.0	21		
280	M3GM 400 LD	3GGM 404 540-•RA	741	95.5	95.7	0.8	0.77	64	5.5	25		
300	M3GM 400 LE	3GGM 404 550-•RA	741	95.5	95.7	0.8	0.77	69	5.5	27		
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>								
160	M3GM 400 LA	3GGM 404 510-•TA	741	94.4	94.4	0.76	0.71	21	5.2	10		
180	M3GM 400 LB	3GGM 404 520-•TA	740	94.5	94.6	0.77	0.72	24	5.0	11		
200	M3GM 400 LC	3GGM 404 530-•TA	740	94.7	94.8	0.77	0.73	26	5.1	12		
220	M3GM 400 LD	3GGM 404 540-•TA	740	94.8	95.0	0.78	0.74	29	5.0	12		
250	M3GM 400 LE	3GGM 404 550-•TA	740	95.1	95.1	0.77	0.72	33	5.3	15		
<b>750 r/min = 8 poles</b>				<b>6600 V 50 Hz</b>								
160	M3GM 400 LA	3GGM 404 510-•SA	741	94.5	94.4	0.76	0.71	20	5.4	9		
180	M3GM 400 LB	3GGM 404 520-•SA	741	94.5	94.5	0.76	0.7	22	5.3	11		
200	M3GM 400 LC	3GGM 404 530-•SA	740	94.6	94.8	0.78	0.74	24	4.8	10		
220	M3GM 400 LD	3GGM 404 540-•SA	740	94.9	94.9	0.77	0.72	26	5.2	12		
250	M3GM 400 LE	3GGM 404 550-•SA	741	95.1	95.1	0.76	0.71	30	5.5	14		

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

<sup>1)</sup> When ordering, the following variant codes have to be added to the product code acc. to needs. The above prices INCLUDE the extra price acc. to variant code:

#### for non-sparking motors:

456 = Ex nA design, fulfilling IEC 60079-15, with certificate.

480 = EEx nA, fulfilling EN 50021.

#### for DIP motors:

453 = DIP according to EN 50281-1-1, T= 125°C, category 2D, IP65 (for zone 21)

805 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 21)

452 = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP55 (for zone 22)

454 = DIP according to EN 50281-1-1, T= 125°C, category 3D, IP65 (for zone 22)

804 = DIP according to IEC 61241-1-1, T= 125°C, IP55 (for zone 22)

806 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 22)

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type		Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
			T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>								
<b>750 r/min = 8 poles</b>			<b>3000 V 50 Hz</b>										
200	M3GM	400 LA	2575	1.0	2.1	0.15	390	11	22	14.4	630	2370	75
220	M3GM	400 LB	2831	1.1	2.3	0.14	425	10	20	16.2	680	2490	75
250	M3GM	400 LC	3219	1.1	2.2	0.14	480	10	20	19.8	780	2730	75
280	M3GM	400 LD	3610	1.1	2.1	0.14	530	10	20	21.6	830	2830	75
300	M3GM	400 LE	3866	1.1	2.1	0.14	565	10	20	23.4	870	2960	75
<b>750 r/min = 8 poles</b>			<b>3300 V 50 Hz</b>										
200	M3GM	400 LA	2575	1.0	2.1	0.15	390	11	22	14.4	630	2370	75
220	M3GM	400 LB	2833	1.1	2.1	0.14	425	10	20	16.2	680	2490	75
250	M3GM	400 LC	3223	1.0	2.0	0.14	480	11	22	19.8	780	2720	75
280	M3GM	400 LD	3607	1.1	2.2	0.14	530	9	18	21.6	830	2840	75
300	M3GM	400 LE	3865	1.1	2.2	0.14	565	9	18	23.4	870	2940	75
<b>750 r/min = 8 poles</b>			<b>6000 V 50 Hz</b>										
160	M3GM	400 LA	2062	1.1	2.2	0.16	320	10	20	10.2	560	2380	75
180	M3GM	400 LB	2322	1.0	2.1	0.16	355	11	22	10.8	580	2450	75
200	M3GM	400 LC	2580	1.1	2.2	0.15	390	10	20	12.6	640	2620	75
220	M3GM	400 LD	2840	1.0	2.1	0.15	425	10	20	13.8	680	2740	75
250	M3GM	400 LE	3225	1.2	2.3	0.15	480	9	18	15.6	740	2920	75
<b>750 r/min = 8 poles</b>			<b>6600 V 50 Hz</b>										
160	M3GM	400 LA	2061	1.1	2.3	0.16	320	10	20	10.8	580	2440	75
180	M3GM	400 LB	2319	1.1	2.3	0.16	355	10	20	10.8	580	2440	75
200	M3GM	400 LC	2583	1.0	2.0	0.16	390	11	22	12.6	640	2620	75
220	M3GM	400 LD	2838	1.1	2.2	0.15	425	10	20	13.8	680	2740	75
250	M3GM	400 LE	3223	1.2	2.3	0.15	480	9	18	15.6	740	2910	75

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. Sound level values of 6...12-pole motors at no-load are typically 1...3 dB(A) higher than the corresponding values at no-load. The variation and measuring tolerance of the figures is +3 dB(A).

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Product code	Speed r/min	Efficiency		Power factor		Current			
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> / I <sub>N</sub>	I <sub>0</sub> A	
<b>600 r/min = 10 poles</b>				<b>3000 V 50 Hz</b>							
150	M3GM 400 LA	3GGM 405 510-•QA	593	94.1	93.9	0.72	0.67	43	4.7	22	
160	M3GM 400 LB	3GGM 405 520-•QA	594	94.2	93.9	0.71	0.65	46	4.9	25	
180	M3GM 400 LC	3GGM 405 530-•QA	593	94.3	94.0	0.71	0.65	51	4.9	27	
200	M3GM 400 LD	3GGM 405 540-•QA	593	94.5	94.2	0.72	0.66	57	4.9	29	
220	M3GM 400 LE	3GGM 405 550-•QA	593	94.6	94.2	0.71	0.64	63	5.2	35	
<b>600 r/min = 10 poles</b>				<b>3300 V 50 Hz</b>							
150	M3GM 400 LA	3GGM 405 510-•RA	593	94.1	93.8	0.71	0.66	39	4.8	20	
160	M3GM 400 LB	3GGM 405 520-•RA	594	94.2	93.8	0.71	0.64	42	5.0	23	
180	M3GM 400 LC	3GGM 405 530-•RA	593	94.3	94.0	0.71	0.65	47	4.9	25	
200	M3GM 400 LD	3GGM 405 540-•RA	593	94.4	94.2	0.72	0.67	51	4.8	26	
220	M3GM 400 LE	3GGM 405 550-•RA	593	94.5	94.3	0.72	0.66	57	5.0	30	
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>							
110	M3GM 400 LA	3GGM 406 510-•QA	494	93.1	92.8	0.66	0.6	34	4.3	19	
120	M3GM 400 LB	3GGM 406 520-•QA	494	93.2	93.0	0.67	0.61	37	4.3	21	
132	M3GM 400 LC	3GGM 406 530-•QA	494	93.4	93.1	0.67	0.61	41	4.3	23	
150	M3GM 400 LD	3GGM 406 540-•QA	494	93.5	93.2	0.66	0.61	46	4.3	26	
160	M3GM 400 LE	3GGM 406 550-•QA	494	93.7	93.2	0.66	0.59	50	4.6	29	
<b>500 r/min = 12 poles</b>				<b>3300 V 50 Hz</b>							
110	M3GM 400 LA	3GGM 406 510-•RA	494	93.1	92.7	0.66	0.6	31	4.4	18	
120	M3GM 400 LB	3GGM 406 520-•RA	494	93.2	92.9	0.66	0.6	34	4.3	19	
132	M3GM 400 LC	3GGM 406 530-•RA	494	93.4	93.1	0.67	0.61	37	4.3	21	
150	M3GM 400 LD	3GGM 406 540-•RA	493	93.5	93.3	0.67	0.61	42	4.3	23	
160	M3GM 400 LE	3GGM 406 550-•RA	494	93.7	93.3	0.66	0.6	45	4.4	25	

The bullet in the product code indicates choice of mounting arrangement (see ordering information page).

<sup>1)</sup> When ordering, the following variant codes have to be added to the product code acc. to needs. The above prices INCLUDE the extra price acc. to variant code:

**for non-sparking motors:**

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**for DIP motors:**

453 = DIP according to EN 50281-1-1, T= 125°C, category 2D, IP65 (for zone 21)

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806 = DIP according to IEC 61241-1-1, T= 125°C, IP65 (for zone 22)

# Non-sparking and Dust Ignition Proof HV Cast iron motors

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 – IC 411 – Insulation class F, temperature rise class B

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> kgm <sup>2</sup>	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia kgm <sup>2</sup>	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
		T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>								
<b>600 r/min = 10 poles</b>			<b>3000 V 50 Hz</b>									
150	M3GM 400 LA	2415	1	2	0.15	515	13	26	16.2	680	2480	75
160	M3GM 400 LB	2574	1.1	2.1	0.15	545	12	24	17.1	710	2540	75
180	M3GM 400 LC	2897	1.1	2.1	0.15	605	11	22	18.9	750	2660	75
200	M3GM 400 LD	3220	1.1	2.1	0.14	670	11	22	21.6	830	2840	75
220	M3GM 400 LE	3540	1.2	2.2	0.14	730	10	20	23.4	880	2950	75
<b>600 r/min = 10 poles</b>			<b>3300 V 50 Hz</b>									
150	M3GM 400 LA	2414	1.0	2.0	0.15	515	12	24	16.2	680	2470	75
160	M3GM 400 LB	2573	1.1	2.2	0.15	545	11	22	17.1	710	2530	75
180	M3GM 400 LC	2897	1.1	2.1	0.15	605	11	22	18.9	750	2650	75
200	M3GM 400 LD	3222	1.0	2.0	0.14	670	12	24	21.6	830	2830	75
220	M3GM 400 LE	3542	1.1	2.1	0.14	730	11	22	23.4	880	2950	75
<b>500 r/min = 12 poles</b>			<b>3000 V 50 Hz</b>									
110	M3GM 400 LA	2126	1.0	2.0	0.14	595	14	28	16.2	680	2470	75
120	M3GM 400 LB	2320	1.0	2.0	0.14	650	14	28	18	730	2580	75
132	M3GM 400 LC	2553	1.0	2.0	0.14	710	14	28	19.8	780	2700	75
150	M3GM 400 LD	2902	1.1	2.0	0.14	795	13	26	21.6	830	2820	75
160	M3GM 400 LE	3092	1.1	2.1	0.14	845	12	24	24.3	900	3000	75
<b>500 r/min = 12 poles</b>			<b>3300 V 50 Hz</b>									
110	M3GM 400 LA	2125	1.1	2.1	0.14	595	13	26	16.2	680	2460	75
120	M3GM 400 LB	2320	1.0	2.0	0.14	650	14	28	18	730	2580	75
132	M3GM 400 LC	2553	1.0	2.0	0.14	710	14	28	19.8	780	2700	75
150	M3GM 400 LD	2903	1.0	1.9	0.14	795	14	28	21.6	830	2820	75
160	M3GM 400 LE	3094	1.1	2.0	0.14	845	13	26	24.3	900	3000	75

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in successions against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 90% of the rated torque at the rated speed and at rated voltage.

<sup>3)</sup> The sound pressure levels are presented at no-load. Sound level values of 6...12-pole motors at no-load are typically 1...3 dB(A) higher than the corresponding values at no-load. The variation and measuring tolerance of the figures is +3 dB(A).

# HV Process performance cast iron motors - Variant codes

Code <sup>1)</sup>	Variant	Motor size		
		315	355	400
<b>Balancing</b>				
423	Balanced without key	P	P	P
424	Full key balancing.	P	P	P
<b>Bearings and lubrication</b>				
036	Transport lock for bearings.	P	P	P
037	Roller bearing at D-end.	P	P	P
107	Bearing mounted PT100 resistance elements.	P	P	P
796	Grease nipples JIS B 1575 PT 1/8 Type A.	P	P	P
<b>Branch standard designs</b>				
178	Stainless steel/acid proof bolts.	P	P	P
398	Motor designed for ambient temperature -20°C to -40°C.	P	P	P
<b>Cooling system</b>				
44	Unidirectional fan, clockwise seen from D-end.	NA	NA	P
45	Unidirectional fan, counter clockwise seen from D-end.	NA	NA	P
68	Metal fan (for M3BM motors only).	P	P	P
791	Stainless steel fan cover (horizontal motor only).	R	R	R
<b>Drain holes</b>				
65	Plugged existing drain holes.	P	P	P
448	Draining holes with metal plugs.	P	P	P
<b>Heating elements</b>				
450	Heating element, 100-120 V.	P	P	P
451	Heating element, 200-240 V.	P	P	P
<b>Painting</b>				
114	Special paint colour, standard grade.	P	P	P
751	Paint system 2, UV-light.	P	P	P
	Surface treatment acc. to the ISO 12944, category 3 with direct UV radiation.			
752	Paint system 4, offshore.	P	P	P
	Surface treatment acc. to the ISO 12944, category C5 & Norsok M-501.			
<b>Protection</b>				
005	Protective roof, vertical motor, shaft down.	P	P	P
401	Protective roof, horizontal motor (for M3BM motors only).	R	R	R
158	Degree of protection IP 65.	P	P	P
403	Degree of protection IP 56.	P	P	P
<b>Rating &amp; instruction plates</b>				
002	Restamping output and voltage, continuous duty. For M3GM on request.	P	P	P
<b>Standards and regulations</b>				
010	Fulfilling CSA Safety Certificate.	P	P	P
778	GOST Export/Import Certificate (Russia).	P	P	P
782	Fulfilling CQST Certificate requirements (China) (for M3GM motors only).	R	R	R
<b>Terminal box</b>				
021	Terminal box LHS (seen from D-end).	P	P	P
447	Top mounted separate auxiliary box for heating elements (for M3BM motors only).	P	P	P
750	Star point terminal box.	P	P	P
<b>Testing</b>				
	Routine test report included as standard.			
146	Type test with report for motor from specific delivery patch.	P	P	P
147	Type test with report for motor from specific delivery patch, customer witnessed.	P	P	P
<b>Variable speed drives</b>				
701	Insulated bearing at N-end.	P	P	P

<sup>1)</sup> Certain variant codes cannot be used simultaneously.

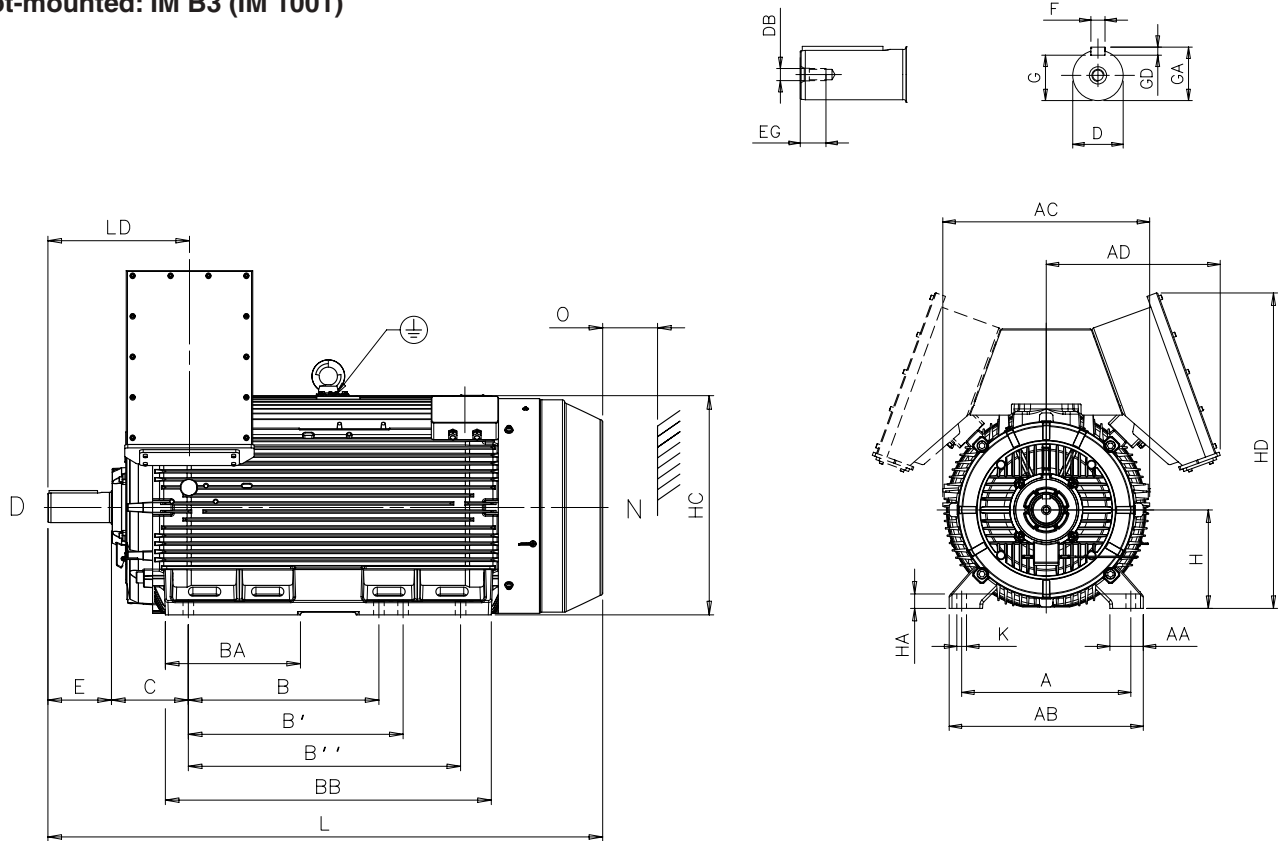
P = New manufacture only.  
NA = Not applicable.

R = On request.

# HV Process performance cast iron motors Sizes 315-400

## Dimension drawings

Foot-mounted: IM B3 (IM 1001)



Motor size	Poles	A	AA	AB	AC	AD	B	B'	B''	BA	BB	C	D	DB	E	EG
315 LK	2	508	100	590	656	555	508	560	710	336	851	216	65	M20	140	42
315 LK	4-6	508	100	590	656	555	508	560	710	336	851	216	90	M24	170	52
355 LK	2	610	120	700	746	627	630	710	900	447	1077	254	70	M20	140	42
355 LK	4-6	610	120	700	746	627	630	710	900	447	1077	254	100	M24	210	51
400 L	2	710	150	840	834	627	900	1000	-	410	1156	224	80	M20	170	42
400 L	4-12	710	150	840	834	627	900	1000	-	410	1156	224	110	M24	210	50

Motor size	Poles	F	G	GA	GD	H	HA	HC	HD	K	L	LD	O
315 LK	2	18	58	69	11	315	40	643	1055	28	1490	355	115
315 LK	4-6	25	81	95	14	315	40	643	1055	28	1521	385	115
355 LK	2	20	62.5	74.5	12	355	52	725	1138	35	1764	398	130
355 LK	4-6	28	90	106	16	355	52	725	1138	35	1834	468	130
400 L	2	22	71	85	14	400	45	814	1225	35	1851	458	150
400 L	4-12	28	100	116	16	400	45	814	1225	35	1891	498	150

Tolerances:

A, B, C	± 0,8	F	ISO h9
D	ISO m6	H	+0 -1.0

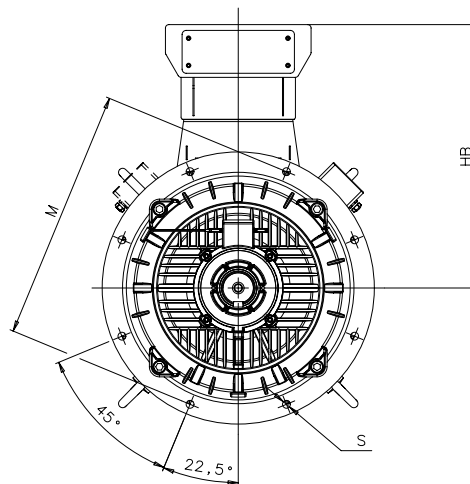
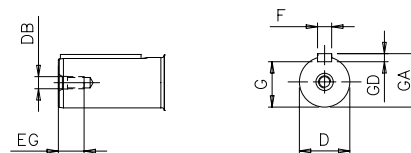
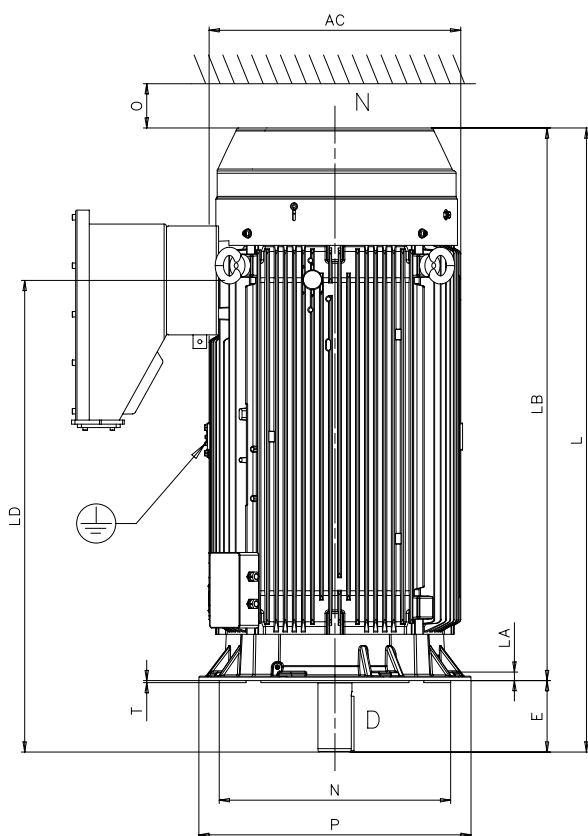
The above table gives the main dimensions in mm.

For detailed drawings please see our web-pages '[www.abb.com/motors&drives](http://www.abb.com/motors&drives)' or contact us.

# HV Process performance cast iron motors Sizes 315-400

## Dimension drawings

Flange-mounted; IM V1 (IM 3011)



Motor size	Poles	AC	D	DB	E	EG	F	G	GA	GD	HB
315 LK	4-6	725	100	M24	210	51	28	90	106	16	731
355 LK	4-6	725	100	M24	210	51	28	90	106	16	774
400 L	4-12	814	110	M24	210	50	28	100	106	16	816

Motor size	Poles	L	LA	LB	LD	M	N	O	P	S	T
315 LK	4-6	1834	25	1624	1116	600	550	130	800	23	6
355 LK	4-6	1834	25	1624	1386	740	680	130	800	23	6
400 L	4-12	1891	26	1681	1400	940	880	150	1000	28	6

Tolerances:

D ISO m6 N ISO js6 (315\_)  
F ISO h9

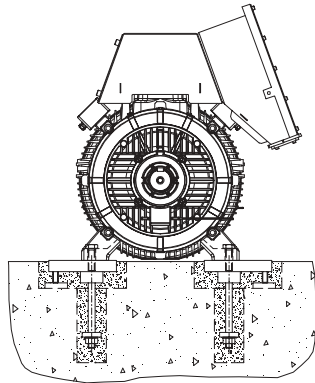
The above table gives the main dimensions in mm.

For detailed drawings please see our web-pages '[www.abb.com/motors&drives](http://www.abb.com/motors&drives)' or contact us.



# Accessories

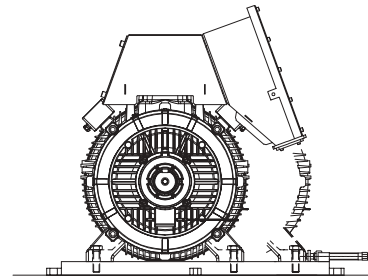
## Foundation studs



Frame size	Set code
315	FOST315-M3
355	FOST355-M3
400	FOST400-M3

The set code has to be mentioned on order.

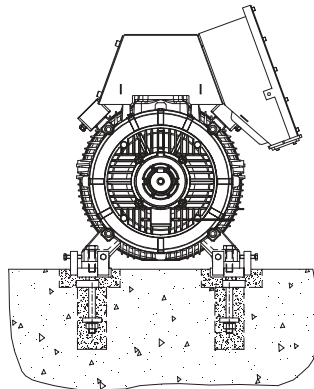
## Slide rails



Frame size	Set code
315	SLRA315-M3
355	SLRA355-M3
400	SLRA400-M3

The set code has to be mentioned on order.

## Sole plates

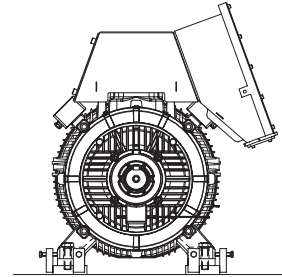


### With anchor bolts for concrete foundation

Frame size	Set code
315	SOPL315A-M3
355	SOPL355A-M3
400	SOPL400A-M3

The set code has to be mentioned on order.

## Sole plates



### Without anchor bolts

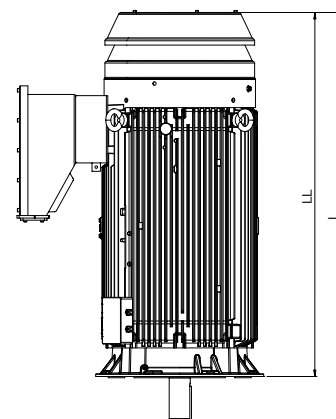
Frame size	Set code
315	SOPL315-M3
355	SOPL355-M3
400	SOPL400-M3

The set code has to be mentioned on order.

## Protective roof

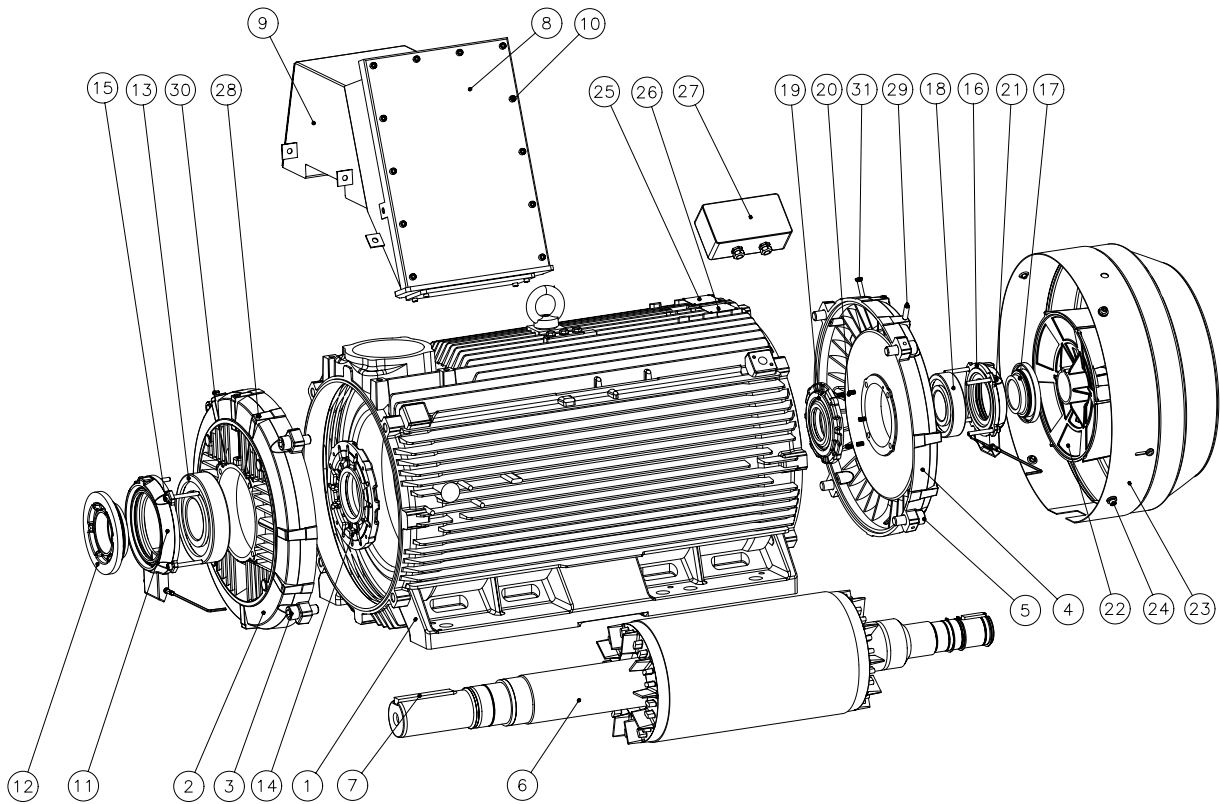
### Variant code 005

Motor size	Pole number	L	LL
315 LK	4-6	1591	1421
355 LK	4-6	1951	1741
400 L	4-6	2008	1798



# HV Process performance cast iron motor construction

Typical exploded view of high voltage cast iron motor



- |    |                                       |    |                                       |
|----|---------------------------------------|----|---------------------------------------|
| 1  | Stator frame                          | 17 | Valve disc with labyrinth seal, D-end |
| 2  | End shield, D-end                     | 18 | Bearing, N-end                        |
| 3  | Screws for end shield, D-end          | 19 | Inner bearing cover, N-end            |
| 4  | End shield, N-end                     | 20 | Spring                                |
| 5  | Screws for end shield, N-end          | 21 | Screws for bearing cover, N-end       |
| 6  | Rotor with shaft                      | 22 | Fan                                   |
| 7  | Key, D-end                            | 23 | Fan cover                             |
| 8  | Main terminal box                     | 24 | Screws for fan cover                  |
| 9  | Middle box                            | 25 | Rating plate                          |
| 10 | Screws for terminal box cover         | 26 | Lubrication plate                     |
| 11 | Outer bearing cover, D-end            | 27 | Auxiliary terminal box                |
| 12 | Valve disc with labyrinth seal, D-end | 28 | Grease nipple, D-end                  |
| 13 | Bearing, D-end                        | 29 | Grease nipple, N-end                  |
| 14 | Inner bearing cover                   | 30 | SPM nipple, D-end                     |
| 15 | Screws for bearing cover, D-end       | 31 | SPM nipple, N-end                     |
| 16 | Outer bearing cover, N-end            |    |                                       |

# HV Process performance cast iron motors in brief, basic design

Motor size		315	355	400	
<b>Stator</b>	Material	Cast iron EN-GJL-250 EN 1561			
	Paint colour shade	Blue, Munsell 8B 4.5/3.25 / NCS 4822 B05G / RAL 5014			
	Paint thickness	Two-pack epoxy paint, thickness $\geq 180 \mu\text{m}$			
<b>Bearing end shields</b>	Material	Cast iron EN-GJL-200 SFS-EN 1561			
	Paint colour shade	Blue, Munsell 8B 4.5/3.25 / NCS 4822 B05G / RAL 5014			
	Paint thickness	Two-pack epoxy paint, thickness $\geq 180 \mu\text{m}$			
<b>Bearings</b>	D-end	2 pole	6316-M/C3	6316-M/C3	6317-M/C3
		4-12 pole	6319/C3	6322/C3	6324/C3
	N-end	2 pole	6316-M/C3	6316-M/C3	6317-M/C3
		4-12 pole	6316/C3	6316/C3	6319/C3
<b>Axially-locked bearings</b>	Inner bearing cover	As standard, locked at D-end			
<b>Bearing seal</b>		As standard, labyrinth seal in both ends.			
<b>Lubrication</b>		Regreasable bearings Regreasing nipples M10x1 DIN 71412 A			
<b>SPM-nipples</b>		As standard			
<b>Rating and lubrication plate</b>	Material	Stainless steel, EN 10088, thickness 0.5 mm.			
<b>Terminal box</b>	Frame material	Structural steel S235JRG2-EN-10025, thickness 3 mm.			
	Cover material	Structural steel S235JRG2-EN-10025, thickness 3 mm.			
	Cover screws material	Yellow passivated.			
<b>Connections</b>	Cable entries	Blind gland plate.			
	Terminals	3 terminals for connection with cable lugs (not included) Grounding locations on frame and terminal box (in- and outside)			
<b>Fan</b>	Material	Glass fibre reinforced plastic, aluminum or polypropylene fan with metal hub. Direction of rotation / fans (IC411) - plastic bidirectional - aluminum birectional - polypropylene fan unidirectional.			
<b>Fan cover</b>	Material	Steel			
	Paint colour shade	Blue, Munsell 8B 4.5/3.25 / NCS 4822 B05G / RAL 5014			
	Paint thickness	Two-pack epoxy polyester powder, thickness $\geq 80 \mu\text{m}$			
<b>Stator winding</b>	Material	Form wound copper, VPI			
	Insulation	Insulation class F			
	Winding protection	PT100, 6 pieces			
<b>Rotor winding</b>	Material	Pressure die-cast aluminum			
<b>Balancing method</b>		Half key balancing as standard			
<b>Key ways</b>		Open key way			
<b>Heating elements</b>	On request	1x200 W	1x200 W	1x300 W	
<b>Drain holes</b>		Standard, open on delivery.			
<b>Enclosure</b>		IP 55, higher protection as option.			
<b>Cooling method</b>		IC 411			





# Engineered Motors

Squirrel cage three phase high voltage motors,  
Up to 2800 kW



2

- General information ..... 47
- Mechanical design..... 49
- Notes ..... 63
- Technical data..... 64
- Dimension drawings ..... 100

<b>Contents</b>	<b>Page</b>
<b>General Information</b>	<b>47</b>
<b>Enclosure and Cooling</b>	<b>49</b>
<b>Type designation</b>	<b>51</b>
<b>High voltage terminal box for IEC motors</b>	<b>52</b>
<b>Auxiliary boxes</b>	<b>56</b>
<b>Bearings</b>	<b>57</b>
<b>Vibrations</b>	<b>62</b>
<b>Notes</b>	<b>63</b>
<b>Technical Data</b>	<b>64</b>
Technical Data, Cast iron motors, HXR	64
Technical Data, Modular motors	76
Dimension Drawings, Engineered motors, HXR, IC411	100
Dimension Drawings, Engineered motors, AMA, IC01	106
Dimension Drawings, Engineered motors, AMA, IC81W	112
Dimension Drawings, Engineered motors, AMA, IC611	118

ABB reserves the right to change the design,  
technical specification and dimensions  
without prior notice.



# General Information

ABB's engineered motors are tailor-made to meet its customers' needs. All ABB engineered motors are configured and optimized individually for each order and application. Please contact ABB for further information.

This catalogue contains information on ABB's standard construction squirrel-cage induction motors operating at 50 Hz and with synchronous speed from 500 to 3000 rpm. The output range is up to 2800 kW.

This catalogue describes two different motor types, the AMA range and the HXR range. Both motor types can be operated with variable speed drives or used as induction generators and motors can be mounted horizontally or vertically. Either motor can be used for both standard and special applications.

The AMA range features a welded steel frame and is available as standard with the following cooling methods and protection types: IC 01 / IP 24W, IC 611 / IP 55 and IC 81W / IP 55. The standard shaft heights are between 400 and 500 mm.

The HXR range features a rugged cast iron frame and is totally enclosed fan cooled motor of IC 411 / IP 55. HXR motors have standard shaft heights between 355 and 560 mm.

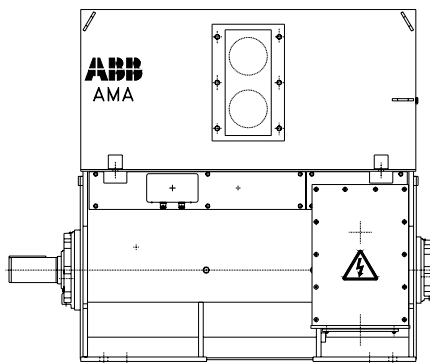
The table below shows the available output power, voltage range and pole numbers.

Poles	Output (kW) at 50 Hz HXR			Output (kW) at 50 Hz AMA		
	3 kV	6 kV	10 kV	3 kV	6 kV	10 kV
2	100 - 1730	160 - 1600	400 - 1250	630 - 2500	630 - 2500	560 - 1800
4	400 - 2240	100 - 2000	355 - 1400	630 - 2800	630 - 2800	630 - 2240
6	100 - 2000	100 - 1800	315 - 1400	450 - 2250	450 - 2250	450 - 1600
8	200 - 1800	180 - 1600	315 - 1120	280 - 1600	280 - 1600	630 - 1250
10	224 - 1400	224 - 1250	560 - 710	200 - 1120	200 - 1120	450 - 1000
12	450 - 1120	400 - 1000	-	140 - 900	140 - 900	315 - 710

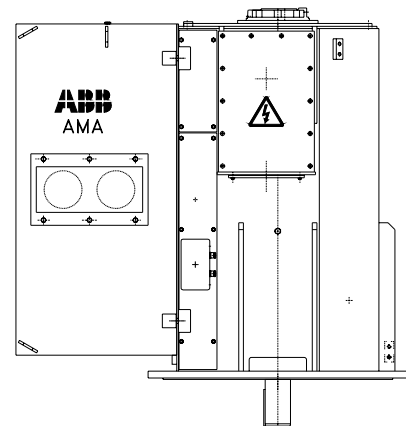
Output ranges of ABB motors (Temperature rise class B, insulation class F). Other voltages on request.

## Mounting arrangement

Standard mounting arrangements for AMA motors. Other mountings on request.

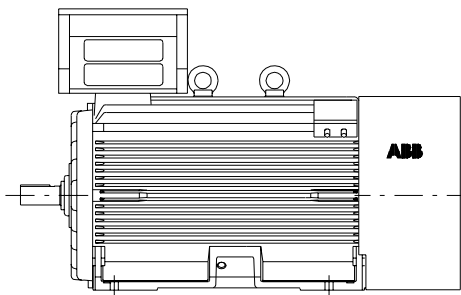


Code I: IM B3  
Code II: IM 1001  
Horizontal foot mounted



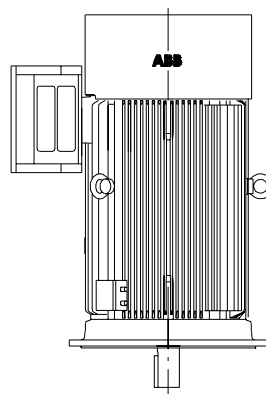
Code I: IM V1  
Code II: IM 4011  
Vertical flange mounted  
(free shaft end facing downwards)

## Standard mounting arrangements for HXR motors



Code I: IM B3  
Code II: IM 1001

Standard floor mounting, feet facing downwards  
(Horizontal foot mounted)



Code I: IM V1  
Code II: IM 3011

Flange and free shaft end facing downwards  
(Vertical solid shaft, flange mounted)

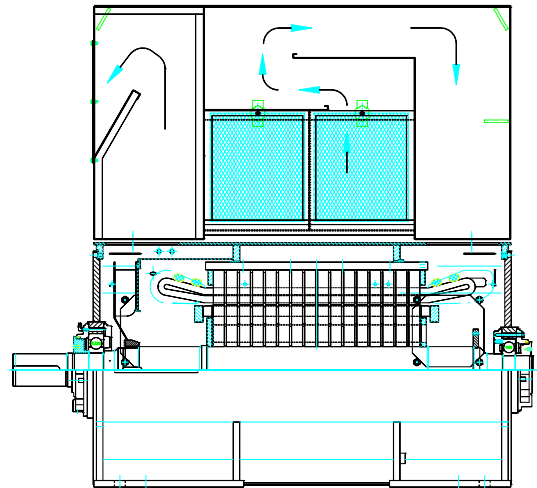


# Enclosure and Cooling

Standard combinations used for AMA-motors are:

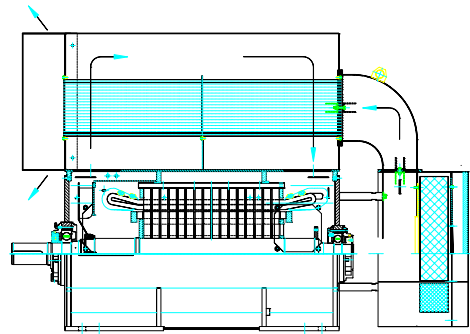
## IC 01 / IP 24W

This weather-protected motor has a shaft-mounted cooling fan located inside the housing. The design of the motor reduces the ingress of rain, snow and airborne particles into the electrical parts. On the air intake path this is achieved by ensuring that the average velocity does not exceed 3 m/s, allowing any heavier particles to settle. The design of air intake path includes three acute changes in excess of 90 degrees to further reduce the flow rate to the optimum level. The motor is protected against splashing water from any direction.



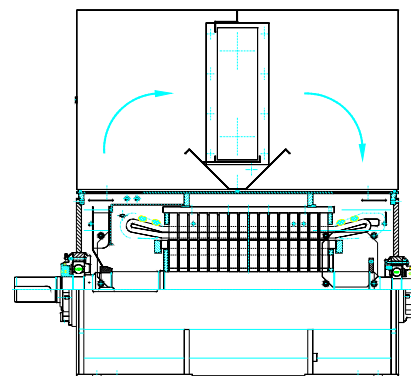
## IC 611 / IP 55

In this design the fully enclosed motor has an air-to-air heat exchanger mounted on the motor. Shaft mounted fans are fitted both inside and outside of the casing to supply the inside and outside cooling circuits respectively. The motor is protected against dust and splashing water from any direction.



## IC 81W / IP 55

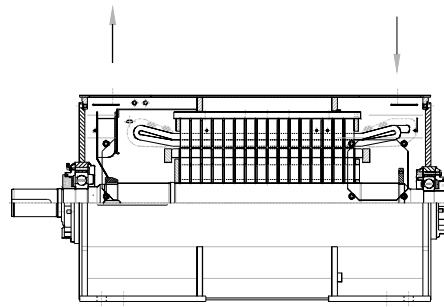
This fully enclosed motor is fitted with an air-to-water heat exchanger. A shaft mounted fan is fitted inside the casing to supply the internal cooling circuit. Motor is protected against dust and splashing water from any direction.



The terminal boxes have a protection of at least IP 55.

## IC 31 / IP 55

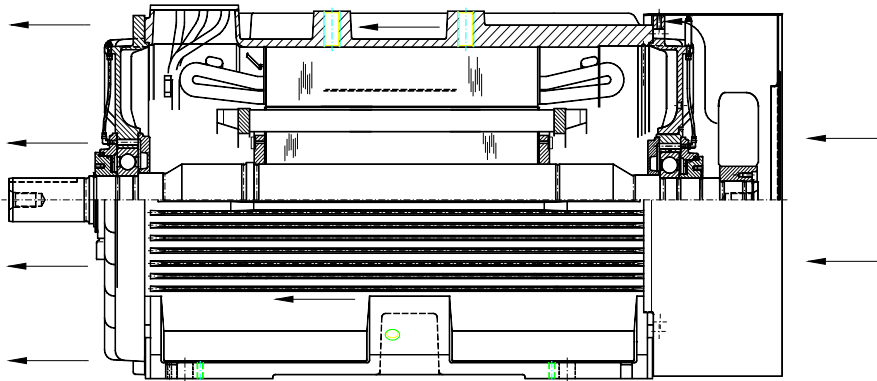
This version is fitted with an inlet and outlet pipe to use remote cooling air. Essentially this is the AMA-motor frame without any upper cover. The motor is protected against dust and splashing water from any direction.



## IC 411 / IP55 HXR motor

The HXR motor has an external shaft mounted fan that use the surrounding air for cooling. The motor is

protected against dust and water jets. The principle of this motor is shown in below:



Sectional drawing of IC 411 / IP55 motor.

### Protection definition IP55

In a dust-protected motor, some dust can ingress the motor but it does not enter in sufficient quantity to interfere with the motor's operation.

The motor protected against water jets:  
Water projected by a nozzle against the motor from any direction shall have no harmful effect.

### Method of Cooling (IC 411)

Frame surface cooled:

The primary coolant is circulated in a closed circuit in the motor and gives its heat through the external surface of the motor (in addition to the heat transfer via the stator core and other heat conducting parts) to the final coolant which is the surrounding medium. The surface may be plain or ribbed, with or without an outer shell to improve the heat transfer.

Self circulation:

The coolant is moved dependent on the rotational speed of the main motor either by action of the rotor alone or by means of a component designed for this purpose and mounted directly on the rotor of the main motor, or by a fan or pump unit mechanically driven by the rotor or the main motor.

## Type designation

The type designation of the AMA motor follows the coding principle shown below.

Example: **AMA 450L4A BATH**

- 1 **AM** Stands for **A**lternating Current **M**achines
- 2 **A** Indicates the type of machine, A - E = SCIM, K - P = WRIM
- 3 **450** Frame size in mm, 400, 450 or 500
- 4 **L** Frame length, S = small, M = medium or L = long
- 5 **4** Number of poles
- 6 **A** Stands for the IC/IP combination  
D = IC01 / IP23 [WP I]                      L = IC81W / IP54 (55) [TEWAC]  
W = IC01 / IPW24 [WP II]                  A = IC611 / IP55 [TEAAC]  
P = IC11, 21, 31 / IP23, 54 (55) [OPV, TEPV]
- 7 **B** Mounting arrangement, B = IM1001 (Horizontal), V = IM4011 (Vertical)
- 8 **A** Bearing type, A = antifriction, S = sleeve
- 9 **T** Indication of special construction  
T = separate ventilation X = electrically special  
N = Non-sparking design F = frequency converter drive Y = mechanically special
- 10 **H** Location of manufacture

The type designation of the HXR motor follows the coding principle shown below.

Example: **HXR 355LA4**

1. **HXR** Stands for the HXR machine family, three digits.
2. **355** Shaft height in mm, three digits.
3. **L** Frame length, one digit.
4. **A** Core length, one digit.
5. **4** Number of poles.

# High voltage terminal box for IEC motors

The picture shows the high voltage terminal box with its main technical data below.

## Technical data:

Voltage (max.)	6.6 kV
Current (max.)	400 A
Dynamic short circuit current	75 kA (0.25 s)
No of cables (max.)	1 per phase
Cross section of cables (max.)	300 mm <sup>2</sup> /cable
Cable gland	blind gland (1 pce)
Clearance (min.)	60 mm
Creepage (min.)	119 mm
Gross volume	47.3 dm <sup>3</sup>
Usable volume	42.1 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts	tightening torque 40 Nm
Ground connections	M12 (both in- and out side)
Weight	33 kg
Protection	IP66
Standard	DIN 42962 TEIL 1, A2

## Materials:

Box	welded sheet steel (thickness min. 3 mm)
Cable gland plate	steel
Connection screws	Bronze Bz
Isolators	epoxy casting resin or polyurethane resin
Grounding pad	stainless steel

## Other features:

- rigid welded construction
- ample size for making connections of supply cables
- box turnable to allow cable entry from left or right side
- box turnable in steps of 90°
- either 3-phase or 1-phase cables can be connected
- pressure relief plate in the bottom of the box in case of an arching short circuit
- different cable glands available
- terminal box tested acc. to IEC 298 concerning internal arc strength

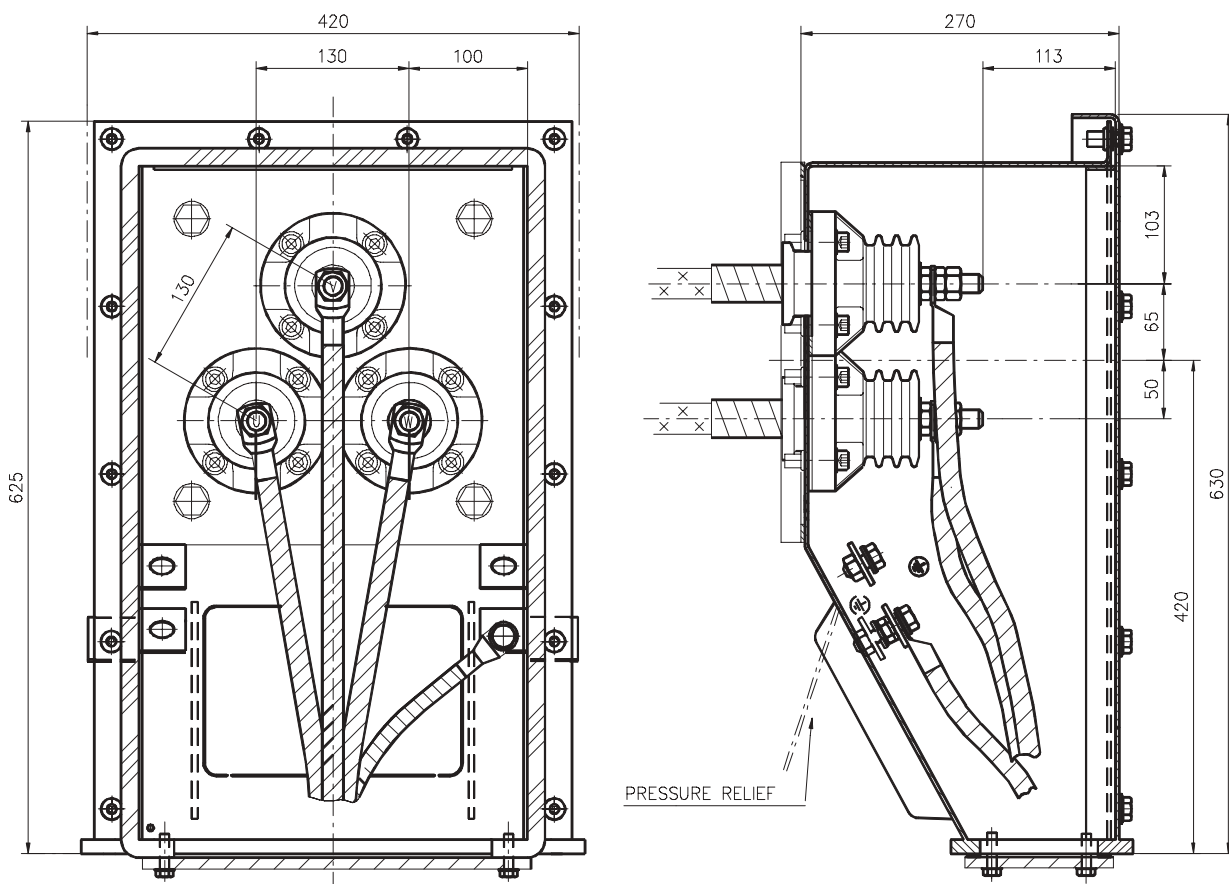


Figure above: High voltage terminal box. Dimensions in mm.

# High voltage terminal box for IEC motors

Figure below shows the high voltage terminal box with its main technical data.

### Technical data:

Voltage (max.)	6.6 kV
Current (max.)	800 A
No of cables (max.)	2 per phase
Cross section of cables (max.)	300 mm <sup>2</sup> /cable
Cable gland	blind gland (1 pce)
Clearance (min.)	70 mm
Creepage (min.)	119 mm
Gross volume	194.6 dm <sup>3</sup>
Usable volume	186.5 dm <sup>3</sup>
Connection screws	(M16x1/M12x2/ M10x2)/phase
Tightening torque for connection nuts	40 Nm
Ground connections outside)	M12 (both in- and outside)
Weight	90 kg
Protection	IP66
Standards	DIN 42962 Teil 2, D2 (internal dimensions)

### Materials:

Box	welded sheet steel (thickness min. 3 mm)
Cable gland plate	steel
Connection screws	Bronze Bz
Isolators	polyurethane resin or epoxy casting resin
Grounding pad	stainless steel

### Other features:

- rigid welded construction
- ample size for making connections of supply cables
- box turnable to allow cable entry from left or right side
- box turnable in steps of 90°
- either 3-phase or 1-phase cables can be connected
- pressure relief plate in the bottom of the box in case of an arching short circuit
- different cable glands available

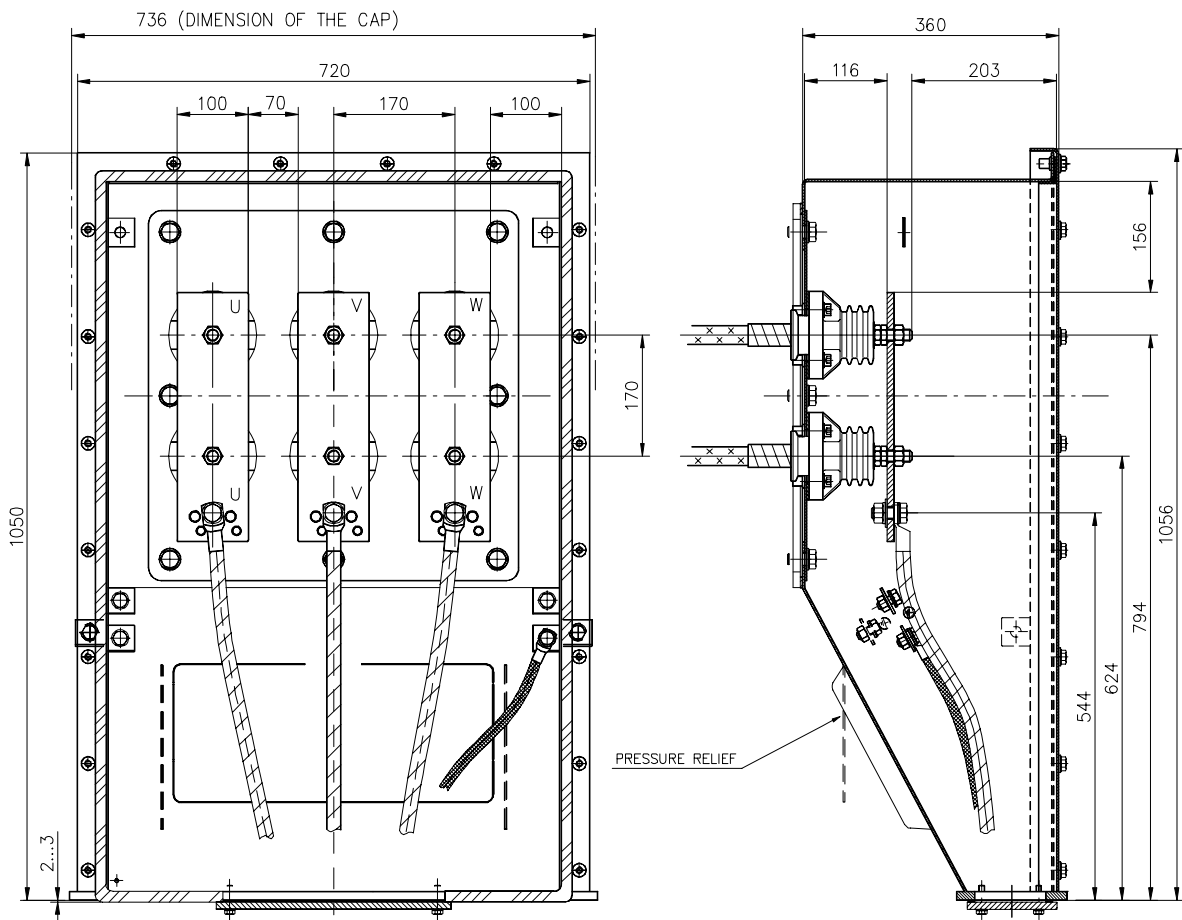


Figure above: High voltage terminal box. Dimensions in mm.

# High voltage terminal box for IEC motors

The picture shows high voltage terminal box with its main technical data below.

### Technical data:

Voltage (max.)	11.0 kV
Current (max.)	400 A
No of cables (max.)	1 per phase
Cross section of cables (max.)	300 mm <sup>2</sup> /cable
Cable gland	blind gland (1 pce)
Clearance (min.)	100 mm
Creepage (min.)	158 mm
Gross volume	122 dm <sup>3</sup>
Usable volume	116 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts	tightening torque 40 Nm
Ground connections	M12 (both in- and outside)
Weight	62 kg
Protection	IP66
Standard	DIN 42962 TEIL 2, C2

### Materials:

Box	welded sheet steel (thickness min. 3 mm)
Cable gland plate	steel
Connection screws	Bronze Bz
Isolators	epoxy casting resin
Grounding pad	stainless steel

### Other features:

- rigid welded construction
- ample size for making connections of supply cables
- box turnable to allow cable entry from left or right side
- box turnable in steps of 90°
- either 3-phase or 1-phase cables can be connected
- pressure relief plate in the bottom of the box in case of an arching short circuit
- different cable glands available

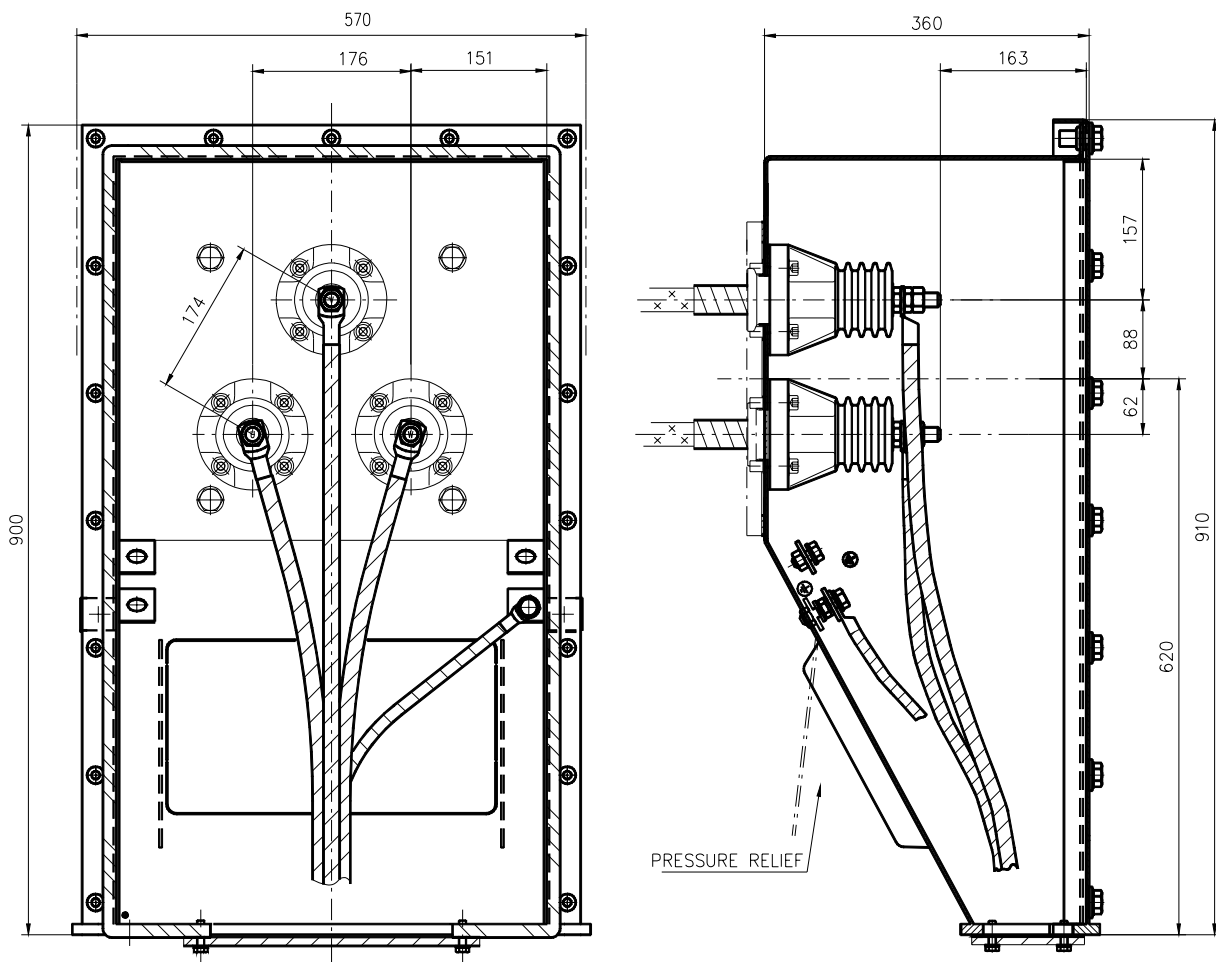


Figure above: High voltage terminal box. Dimensions in mm.

## Dimensions for terminal box inlet, blind flange

As standard, main terminal boxes are with blind flange.  
Cable glands are available on request.

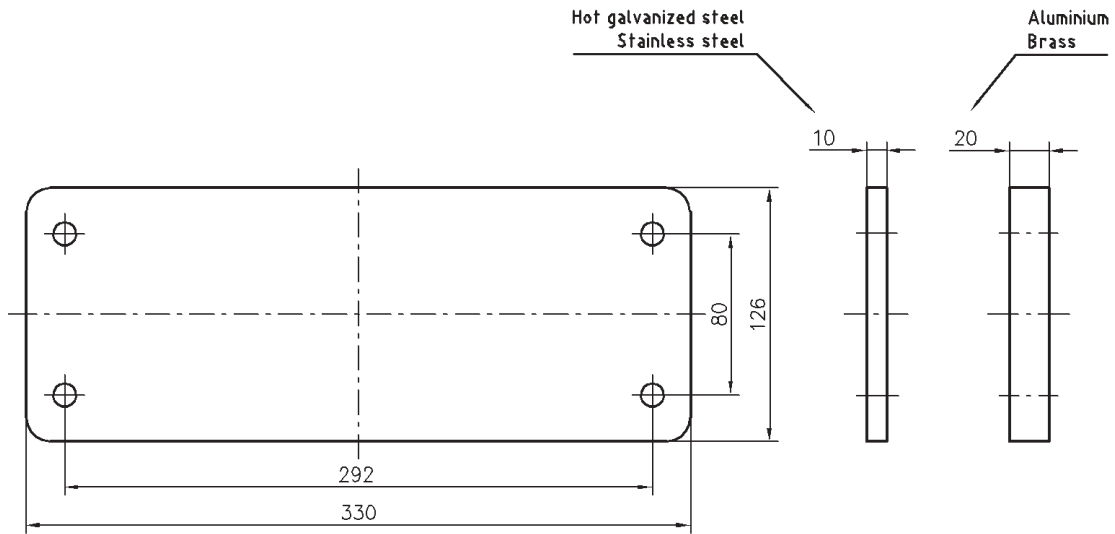


Figure above: Blind flange FL 33 for main terminal box.

## Auxiliary boxes

As standard motors in safe area are equipped with one common auxiliary terminal box for monitoring devices and space heaters.

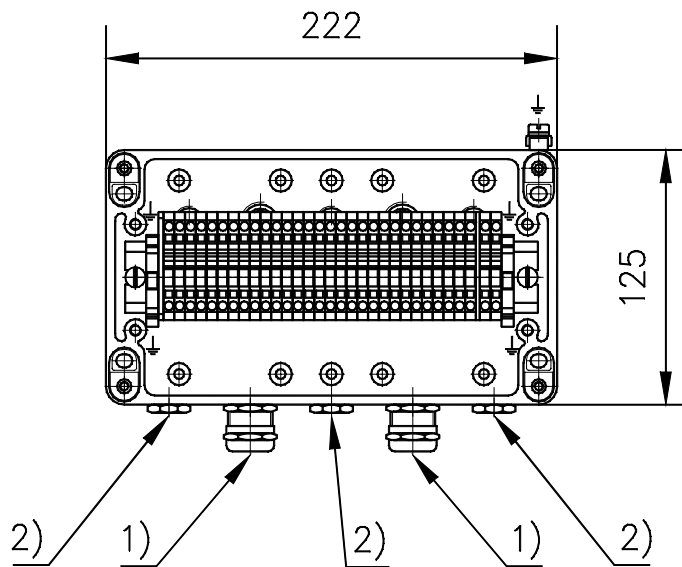
As standard motors in hazardous area are equipped with two auxiliary terminal boxes, one for monitoring devices and one for space heaters.

Type designation	Use	Size (W x L x H) mm
ZWA ALX122208	Standard	125 x 222 x 81
ZWA ALX233318	Is used when additional space is needed	230 x 330 x 180

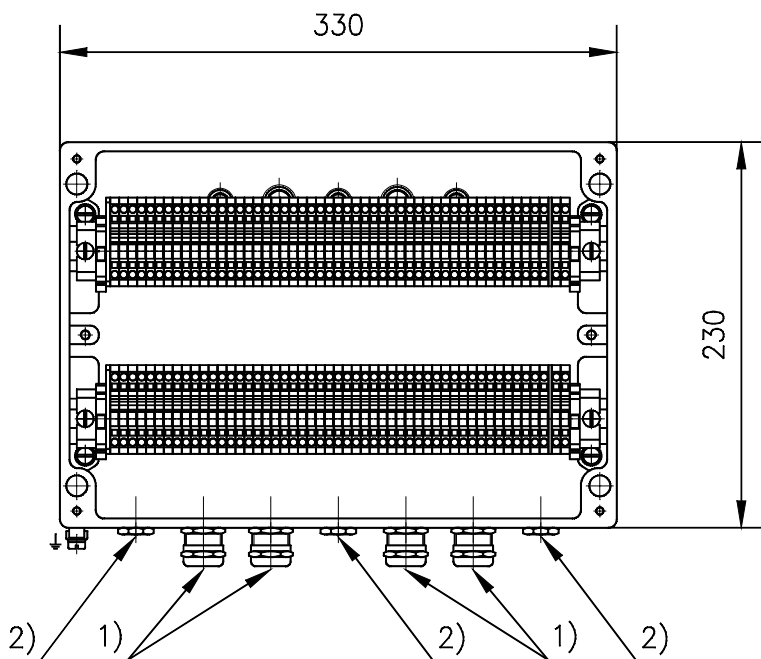
Table above: Standard auxiliary terminal boxes.

The typical arrangements for standard terminal boxes are shown below. The number of terminal blocks depends on the number of accessories equipped with

the motor. Additional terminals can be supplied on request.



Standard terminal box ZWA ALX122208 with terminal blocks and cable glands.  
 1) Cable gland M20x1.5 for cable outer diameter 10...14 mm (2 pcs)  
 2) Threaded hole for cable gland M16x1.5 (3 pcs), plugged.



Standard terminal box ZWA ALX233318 with terminal blocks and cable glands.  
 1) Cable gland M20x1.5 for cable outer diameter 10...14 mm (4 pcs)  
 2) Threaded hole for cable gland M16x1.5 (3 pcs), plugged.



# Bearings

## Horizontal motors

Horizontal motors 355 - 500 have deep groove ball bearings in both ends. HXR 560 has a double bearing arrangement (deep groove ball bearing and a cylindrical roller bearing) at D-end and cylindrical roller bearing at N-end (only horizontal motor available).

The bearing in D-end is axially locked in horizontal motors. Standard bearings of horizontal motors are

stated in table below and the bearing construction is shown in the figures on page 58.

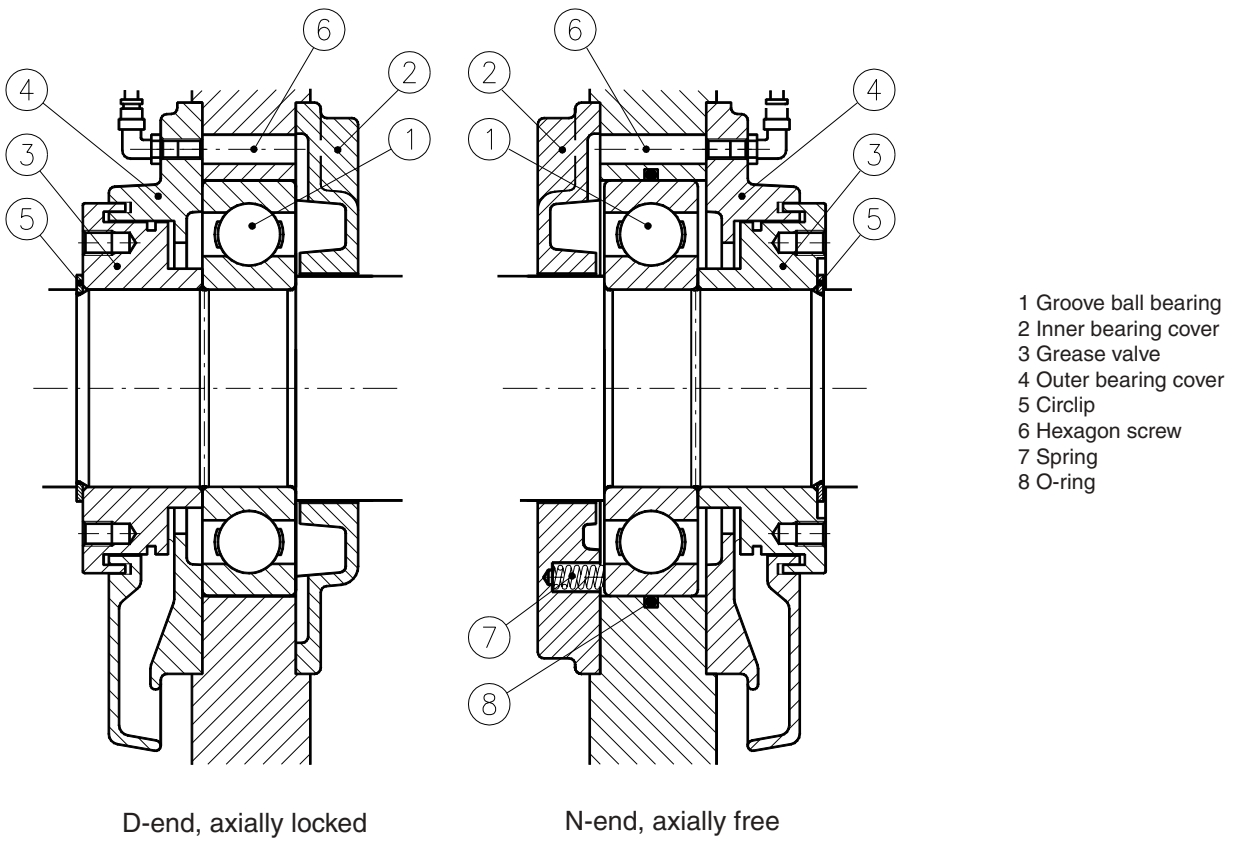
The standard bearing solution is designed to carry the weight of the typical coupling half and the weight of the motor rotor only. Any additional radial or axial force caused by driven equipment may need the bearings to be specially constructed.

Table below: Standard bearings for horizontal motors.

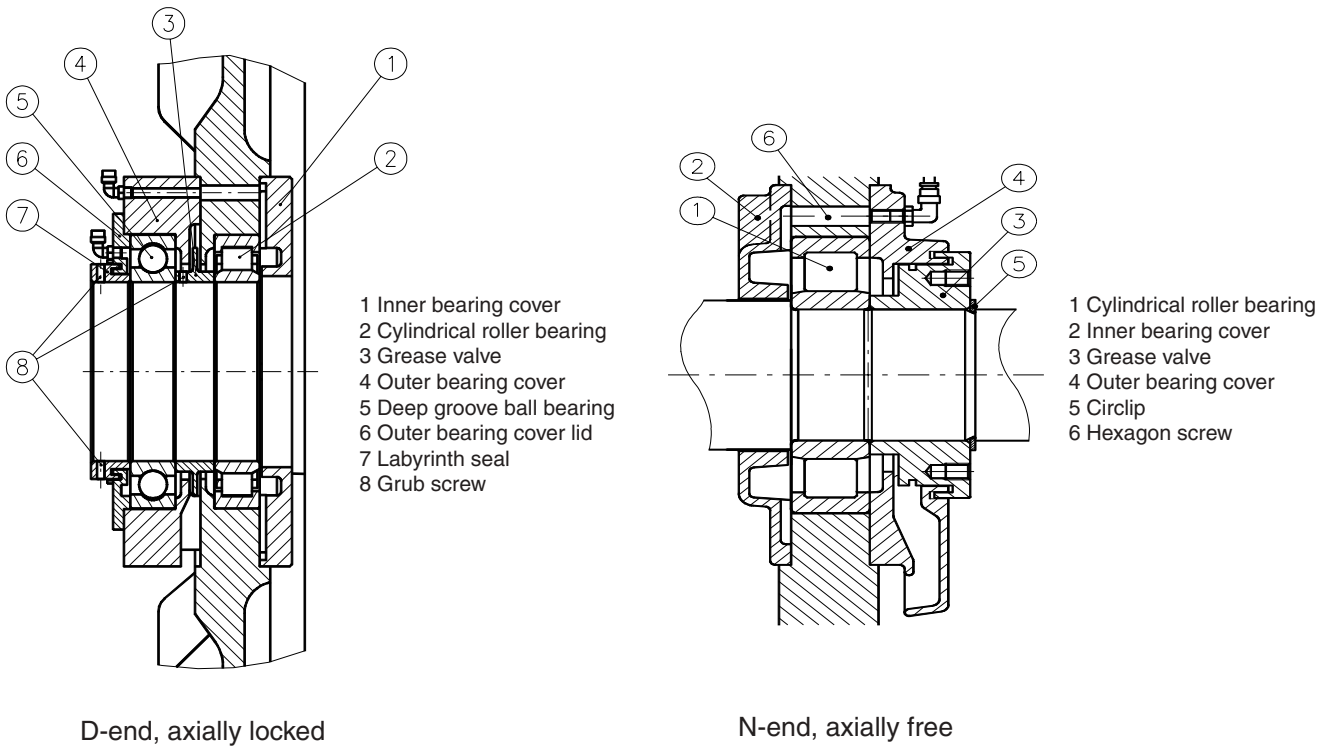
Frame size	Poles	D-end	N-end
HXR 355	2	6317M/C3	6317M/C3
HXR 355	≥ 4	6322/C3	6319/C3
HXR 400	2	6317M/C3	6317M/C3
HXR 400	≥ 4	6324/C3	6319/C3
HXR 450	2	6317M/C3	6317M/C3
HXR 450	≥ 4	6324/C3	6322/C3
HXR 500	2	6319M/C3	6319M/C3
HXR 500	≥ 4	6326/C3	6324/C3
HXR 560	≥ 4	6034/C3 + NU1034/C3	NU322/C3
HXR 560	2	sleeve*	sleeve*
AMA 400	2	6319M/C3	6319M/C3
AMA 400	≥ 4	6324/C3	6319/C3
AMA 450	2	6319M/C3	6319M/C3
AMA 450	≥ 4	6326/C3	6322/C3
AMA 500	≥ 4	6330/C3	6324/C3
AMA 500	2	sleeve*	sleeve*

\* See section sleeve bearings.

Figure below: Standard bearing construction for horizontally mounted motors, frame sizes 355-500.



2 Figure below: Standard bearing construction for horizontally mounted motors HXR 560.



### Bearing rating life

Most motors with standard bearings have a rated life time  $L_{10h}$  in excess of 100000 h. Rated life time for frame 500, 2-pole, may be less than 100000h. The life times are calculated in accordance with ISO R 281-1.

The basic rated life  $L_{10h}$  is the number of hours at rated bearing load and speed that 90% of a group of identical bearings will complete or exceed before the first evidence of failure.

### Lubrication intervals

The motors are equipped with greasing nipple(s) in both ends for lubricating the bearings. The greasing nipples are located on top of the motor. The amount of

grease and the interval of greasing are stamped on the relubrication plate. The values are also shown in the table below.

Table below: Relubrication intervals and grease amount.

Bearing type	Amount of grease [g]	Lubrication intervals in running hours at different speeds [rpm]					
		3600	3000	1800 - 1500	1200 - 1000	900 - 750	600 - 500
6317	35	800	2200	8800	8800	8800	8800
6319	45	400	1600	6600	8800	8800	8800
6322	60			6600	8800	8800	8800
6324	70			4400	8800	8800	8800
6326	80			4400	8800	8800	8800
6034	55			1600	3300	6600	8800
NU1034	55			1600	3300	4400	8800
NU322	60			3300	4400	4400	8800
7317	35		1100	4400	4400	4400	6600
7319	45		800	3300	4400	4400	6600
7322	60			3300	4400	4400	6600
7324	70			2200	4400	4400	6600

NB: Ball bearings on vertical motors should be lubricated twice as frequently as horizontal motors. The motor type is indicated by the first letter of the bearing type (6).

## Sleeve bearings

The axial float of rotor is as standard  $\pm 8$  mm from mechanical center. The running center locates within the float area and therefore operation is also allowed while machine is uncoupled, e.g. during test run. A pointer showing running center with regard to end limits is available as standard. Continuous axial forces are not permitted and therefore limiting type coupling is needed to ensure rotor location within axial float range. On request, when special axial float is at least  $\pm 3$  mm, magnetic running center can be adjusted within  $\pm 2.4$  mm from mechanical center (option).

Sleeve bearings are generally self-cooled, oil ring lubricated but some require external flood lubrication. Please see the lubrication table below for standard lubrication requirements based on a maximum 40 °C ambient and 50 Hz operation. Consult ABB for ambient temperatures above 40 °C, and/or for self-cooling of bearings where flood lubrication is standard. Those units requiring flood lubrication are supplied with provisions only. Refer oil supply pressure, type of oil, and location of provisions to factory for review prior to order acceptance.

Table below: Sleeve bearings and lubrication method.

Frame size	Poles	D-end bearing	N-end bearing	Lubrication Method
HXR 355	2	EFZLB 9-80	EFZLQ 9-80	Oil circulation <sup>1)</sup>
HXR 355	$\geq 4$	EFZLB 9-90	EFZLQ 9-90	Self lubrication
HXR 400	2	EFZLB 9-80	EFZLQ 9-80	Oil circulation <sup>1)</sup>
HXR 400	$\geq 4$	EFZLB 9-100	EFZLQ 9-100	Self lubrication
HXR 450	2	EFZLB 9-80	EFZLQ 9-80	Oil circulation <sup>1)</sup>
HXR 450	4	EFZLB 9-100	EFZLQ 9-100	Oil circulation <sup>1)</sup>
HXR 450	$\geq 6$	EFZLB 9-100	EFZLQ 9-100	Self lubrication
HXR 500	2	EFZLB 9-90	EFZLQ 9-90	Oil circulation <sup>1)</sup>
HXR 500	4	EFZLB 11-100	EFZLQ 9-100	Oil circulation <sup>1)</sup>
HXR 500	$\geq 6$	EFZLB 11-100	EFZLQ 9-100	Self lubrication
HXR 560	2	EFZLB 14-125	EFZLQ 14-125	Oil circulation
HXR 560	4	EFZLB 14-125	EFZLQ 14-125	Oil circulation <sup>1)</sup>
HXR 560	6	EFZLB 14-125	EFZLQ 14-125	Self lubrication
HXR 560	$\geq 8$	EFZLB 14-140	EFZLQ 14-140	Self lubrication
AMA 400	2	EFZLB 9-80	EFZLQ 9-80	Self lubrication
AMA 400	$\geq 4$	EFZLB 9-100	EFZLQ 9-100	Self lubrication
AMA 450	2	EFZLB 9-80	EFZLQ 9-80	Self lubrication
AMA 450	$\geq 4$	EFZLB 11-125	EFZLQ 9-100	Self lubrication
AMA 500	2	EFZLB 9-100	EFZLQ 9-100	Oil circulation <sup>1)</sup>
AMA 500	4	EFZLB 14-125	EFZLQ 11-125	Self lubrication
AMA 500	$\geq 6$	EFZLB 14-140	EFZLQ 11-125	Self lubrication

<sup>1)</sup> Possibility for self lubrication, please contact ABB

## Vertical motors

Vertical motors 355 - 500 have deep groove ball bearing in D-end and single-row angular contact ball bearing in N-end.

The bearing in D-end is axially free in vertical machines when an angular contact ball bearing is mounted in N-end. Standard bearings of vertical machines are stated in table below and the bearing construction is shown in figure below.

Standard bearing solution is designed to carry the weight of the typical coupling half and the weight of the motor rotor only. Any additional radial or axial force caused by driven equipment may require special bearing construction.

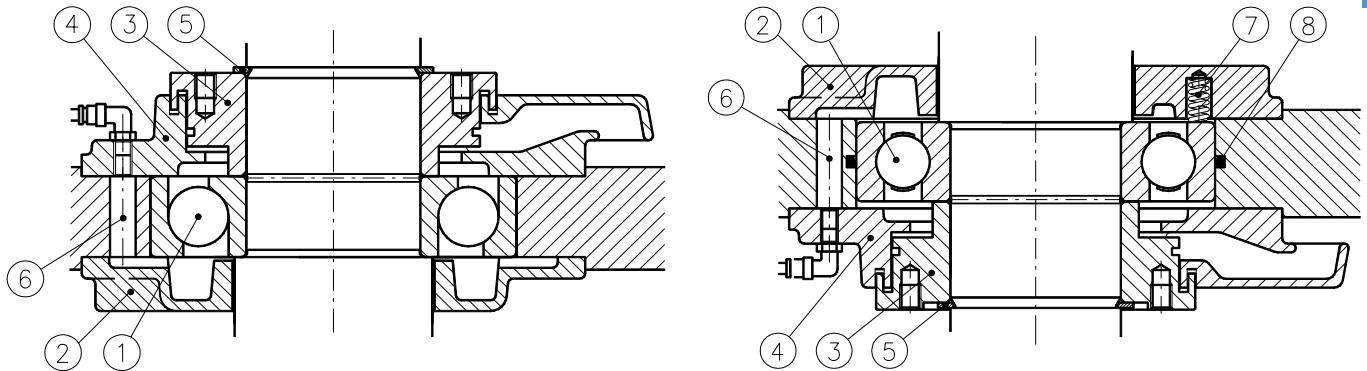
Table below: Standard bearings for vertical motors.

Frame size	Poles	D-end	N-end
HXR 355	2	6317M/C3	7317 BMP <sup>1)</sup>
HXR 355	≥ 4	6322/C3	7319 BMP
HXR 400	2	6317M/C3	7317 BMP <sup>2)</sup>
HXR 400	≥ 4	6324/C3	7319 BMP
HXR 450	≥ 4	6324/C3	7322 BMP
HXR 500	≥ 4	6326/C3	7324 BMP
AMA 400	≥ 4	6324/C3	7319 BMP
AMA 450	≥ 4	6326/C3	7322 BMP
AMA 500	≥ 4	6330/C3	7324 BMP

<sup>1)</sup> 60 Hz motors have ball bearing 6317M/C3.

<sup>2)</sup> Only for 50 Hz motors.

Figure below: Standard bearing construction of vertically mounted motor, frame sizes 355 - 500. On the left the bearing is "axially locked" angular contact ball bearing and on the right is an axially free deep groove ball bearing.



- 1 Bearing
- 2 Inner bearing cover
- 3 Grease valve
- 4 Outer bearing cover

- 5 Circlip
- 6 Hexagon screw
- 7 Spring
- 8 O-ring

### Bearing rating life

The bearing rates for all vertical motors with standard bearings have a rated life time  $L_{10h}$  in excess of 100000 h. The life times are calculated in accordance with ISO R 281-1.

The basic rated life  $L_{10h}$  is the number of hours at rated bearing load and speed that 90% of a group of identical

bearings will complete or exceed before the first evidence of failure.

Additional axial force from the driven equipment is not allowed.

### Lubrication intervals

The motors are equipped with greasing nipple(s) in both ends for lubricating the bearings. The amount of grease and the interval of greasing are stamped on the

relubrication plate. The values are also available in the table on page 59.

## Vibrations

### Standard design

The standard motors manufactured according to IEC-standard satisfy the Grade A vibration limits found in IEC 60034-14. The table below shows the maximum accepted values.

Table below: Standard design unfiltered vibration limits for IEC motors.

Poles	Speed [rpm]	Bearing housing vibration	Relative shaft vibration	Combined runout
2	$1800 < n \leq 3600$	2.3 mm/s rms	65 $\mu\text{m}$ p-p	16 $\mu\text{m}$ p-p
$\geq 4$	$n \leq 1800$	2.3 mm/s rms	90 $\mu\text{m}$ p-p	23 $\mu\text{m}$ p-p

# Notes

All ratings in this catalogue are designed for the following:

- Class F insulation / Maximum temperature rise of 80 °C by resistance
- Maximum 40 °C ambient
- Altitude of 1000 meters or less
- Data presented in rating lists are typical values. Guaranteed values are available on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.
- Please provide load data and starting requirements to ABB for final design confirmation.

# HV Cast iron motors, HXR

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>3000 V 50 Hz</b>																
100	HXR 355LA2	25	2962	93.0	92.5	0.91	0.90	23	5.3	6	322	0.6	2.3	2.7	1570	85
125	HXR 355LA2	26	2966	93.8	93.4	0.91	0.89	28	5.6	7	402	0.6	2.4	2.7	1570	85
160	HXR 355LA2	27	2967	94.5	94.3	0.92	0.91	35	5.6	8	515	0.6	2.3	3.0	1650	85
200	HXR 355LA2	28	2967	94.9	94.8	0.92	0.91	44	5.6	9	644	0.6	2.3	3.0	1650	85
224	HXR 355LA2	29	2968	95.1	95.1	0.91	0.90	50	5.6	11	721	0.6	2.3	2.9	1650	85
250	HXR 355LB2	30	2969	95.4	95.3	0.91	0.90	55	5.7	13	804	0.6	2.3	3.1	1700	85
280	HXR 355LB2	31	2970	95.6	95.6	0.91	0.90	62	5.9	14	900	0.6	2.4	3.3	1750	85
315	HXR 355LD2	32	2970	95.8	95.9	0.92	0.92	69	6.0	14	1013	0.6	2.4	3.7	1890	85
355	HXR 400LC2	34	2981	96.1	95.9	0.90	0.89	79	6.2	20	1137	0.5	2.5	5.7	2590	82
400	HXR 400LD2	35	2980	96.2	96.1	0.90	0.89	89	6.1	21	1282	0.5	2.4	6.0	2630	82
450	HXR 400LE2	36	2982	96.5	96.4	0.90	0.88	100	6.1	24	1441	0.5	2.3	6.7	2810	82
500	HXR 400LF2	37	2982	96.6	96.5	0.90	0.89	111	6.2	26	1601	0.5	2.3	7.2	2930	82
560	HXR 400LG2	38	2982	96.8	96.7	0.90	0.89	123	6.4	28	1793	0.6	2.4	7.8	3050	82
630	HXR 450LG2	39	2984	96.7	96.5	0.91	0.90	137	6.3	31	2016	0.5	2.6	11.9	4000	85
710	HXR 450LJ2	40	2983	96.9	96.8	0.93	0.92	152	6.4	31	2273	0.5	2.6	13.8	4390	85
800	HXR 500LH2	42	2989	96.8	96.5	0.90	0.89	176	6.5	43	2556	0.5	2.6	23.6	5820	86
900	HXR 500LK2	43	2986	96.9	96.8	0.93	0.92	193	6.2	38	2878	0.5	2.5	25.7	6110	86
1000	HXR 500LL2	44	2988	97.1	96.9	0.92	0.91	216	6.4	46	3196	0.5	2.5	27.6	6380	86
1120	HXR 500LP2	45	2988	97.2	97.0	0.91	0.90	244	6.6	54	3579	0.5	2.5	31.3	6860	86
1250	HXR 500LQ2	46	2989	97.4	97.3	0.93	0.92	266	6.8	53	3994	0.5	2.6	32.7	7220	86
1400	HXR 560LM2	704	2989	97.3	97.2	0.92	0.90	301	6.8	70	4473	0.5	2.8	45.3	9810	87
1600	HXR 560LR2	705	2990	97.5	97.4	0.93	0.92	340	6.8	72	5111	0.5	2.7	52.7	10790	87
1730	HXR 560LS2	706	2991	97.6	97.5	0.92	0.91	371	7.1	84	5524	0.5	2.7	57.8	11360	87

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.



# HV Cast iron motors, HXR

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>																
<b>3000 V 50 Hz</b>																
100	HXR 355LA4	131	1487	93.9	93.2	0.83	0.79	25	5.7	10	642	0.9	2.3	4.7	1620	77
125	HXR 355LA4	132	1485	94.3	93.9	0.84	0.80	31	5.6	12	804	0.9	2.2	4.7	1620	77
160	HXR 355LA4	133	1485	94.7	94.5	0.85	0.82	38	5.6	14	1029	0.9	2.2	4.8	1630	77
200	HXR 355LA4	134	1484	95.0	94.9	0.85	0.82	48	5.4	17	1287	0.8	2.1	4.8	1630	77
224	HXR 355LA4	135	1485	95.2	95.2	0.85	0.82	53	5.6	18	1441	0.9	2.1	5.1	1670	77
250	HXR 355LB4	136	1485	95.5	95.4	0.85	0.82	59	5.7	21	1607	0.9	2.1	5.4	1720	77
280	HXR 355LB4	137	1486	95.7	95.6	0.84	0.81	67	5.8	24	1799	0.9	2.1	5.7	1770	77
315	HXR 355LC4	138	1487	95.9	95.8	0.84	0.81	75	5.8	27	2023	0.9	2.1	6.3	1870	77
355	HXR 355LE4	139	1487	96.1	96.1	0.85	0.82	84	5.9	29	2280	0.9	2.1	7.2	2020	77
400	HXR 400LC4	140	1491	96.4	96.3	0.86	0.83	93	6.1	32	2562	0.8	2.2	11.3	2630	76
450	HXR 400LD4	141	1490	96.6	96.6	0.87	0.85	103	6.0	31	2884	0.8	2.1	12.5	2750	76
500	HXR 400LE4	142	1490	96.7	96.7	0.88	0.86	113	6.0	32	3204	0.8	2.1	13.6	2880	76
560	HXR 400LG4	143	1491	96.9	96.8	0.87	0.85	128	6.4	40	3586	0.9	2.2	15.1	3070	76
630	HXR 400LH4	144	1491	97.0	97.0	0.88	0.86	142	6.4	43	4034	0.9	2.2	16.8	3270	76
710	HXR 450LG4	145	1492	97.1	97.1	0.88	0.86	160	6.3	48	4545	0.8	2.3	26.6	4170	77
800	HXR 450LJ4	146	1492	97.2	97.2	0.88	0.86	180	6.3	52	5120	0.8	2.2	29.3	4420	77
900	HXR 450LL4	147	1492	97.3	97.3	0.88	0.86	201	6.4	58	5760	0.8	2.2	32.9	4740	77
1000	HXR 500LJ4	148	1491	97.2	97.3	0.90	0.88	220	6.2	58	6404	0.7	2.4	48.3	6010	77
1120	HXR 500LK4	149	1492	97.4	97.4	0.90	0.89	246	6.0	62	7167	0.7	2.2	52.9	6310	77
1250	HXR 500LL4	150	1492	97.4	97.5	0.90	0.89	274	5.9	68	7999	0.7	2.2	55.6	6510	77
1400	HXR 500LP4	151	1493	97.6	97.6	0.89	0.88	309	6.1	83	8953	0.6	2.3	63.5	7090	77
1600	HXR 560LK4	627	1494	97.7	97.7	0.90	0.88	352	6.5	95	10229	0.7	2.4	89.0	9410	82
1800	HXR 560LP4	628	1495	97.8	97.7	0.89	0.86	399	6.7	119	11500	0.6	2.5	107.2	10330	82
2000	HXR 560LS4	629	1495	97.9	97.9	0.89	0.87	441	6.9	127	12777	0.7	2.5	126.9	11350	82
2240	HXR 560LT4	630	1496	98.0	97.9	0.87	0.85	504	6.9	161	14298	0.6	2.3	139.1	11980	82

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Cast iron motors, HXR

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>				<b>3000 V 50 Hz</b>												
160	HXR 355LA6	246	988	94.6	94.5	0.78	0.73	42	5.1	19	1546	1.1	2.0	5.4	1660	75
180	HXR 355LB6	247	988	94.9	94.9	0.79	0.74	46	5.3	21	1740	1.2	2.0	5.7	1700	75
200	HXR 355LC6	248	988	95.1	95.1	0.80	0.76	51	5.1	21	1934	1.1	1.9	6.3	1800	75
224	HXR 355LC6	249	988	95.3	95.3	0.80	0.76	57	5.3	24	2165	1.2	1.9	6.6	1850	75
250	HXR 355LD6	250	988	95.4	95.4	0.80	0.76	63	5.4	26	2416	1.2	1.9	7.2	1940	75
280	HXR 355LE6	251	989	95.6	95.6	0.80	0.75	71	5.6	30	2704	1.3	2.0	7.9	2040	75
315	HXR 355LF6	252	991	95.9	95.9	0.78	0.73	81	5.7	38	3036	1.1	2.1	8.2	2100	75
355	HXR 400LD6	253	992	96.1	96.1	0.83	0.79	86	5.9	33	3417	1.1	2.0	18.3	2710	75
400	HXR 400LF6	254	993	96.3	96.3	0.83	0.80	96	6.0	36	3848	1.1	2.0	20.8	2900	75
450	HXR 400LH6	255	993	96.4	96.4	0.83	0.79	109	6.0	41	4327	1.0	2.0	24.0	3140	75
500	HXR 400LK6	256	994	96.6	96.5	0.82	0.77	122	6.2	50	4804	1.0	2.1	28.0	3460	75
560	HXR 450LF6	257	993	96.8	96.8	0.85	0.83	131	5.8	43	5388	1.0	2.0	34.7	3970	76
630	HXR 450LH6	258	993	96.8	96.9	0.86	0.83	146	5.9	47	6060	1.0	2.0	38.7	4200	76
710	HXR 450LK6	259	993	97.0	97.0	0.86	0.83	165	5.9	53	6828	1.0	2.0	44.0	4540	76
800	HXR 450LM6	260	994	97.1	97.1	0.85	0.83	186	6.1	62	7689	1.0	2.1	50.5	4930	76
900	HXR 500LG6	261	994	97.1	97.2	0.86	0.84	207	6.0	66	8648	0.9	2.1	58.1	5680	77
1000	HXR 500LJ6	262	994	97.2	97.3	0.87	0.85	227	5.9	68	9611	0.9	2.1	66.0	6080	77
1120	HXR 500LN6	263	995	97.4	97.4	0.86	0.84	256	6.1	83	10754	0.9	2.2	81.2	6860	77
1250	HXR 500LQ6	264	995	97.5	97.5	0.86	0.83	288	6.2	98	11998	0.9	2.2	88.7	7250	77
1400	HXR 500LR6	265	995	97.5	97.5	0.84	0.81	327	6.4	122	13430	0.8	2.3	97.5	7690	77
1600	HXR 560LN6	631	995	97.6	97.6	0.87	0.84	363	6.4	118	15348	0.8	2.3	141.4	10060	81
1800	HXR 560LR6	632	996	97.7	97.7	0.87	0.84	409	6.6	135	17262	0.8	2.4	168.7	11060	81
2000	HXR 560LU6	633	996	97.8	97.8	0.88	0.86	445	6.6	133	19171	0.7	2.4	206.5	12330	81

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Cast iron motors, HXR

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
200	HXR 400LB8	360	741	94.9	95.1	0.81	0.78	50	5.0	20	2577	1.0	1.9	15.1	2460	75
224	HXR 400LC8	361	741	95.1	95.3	0.82	0.78	55	5.0	22	2886	1.0	1.9	16.8	2580	75
250	HXR 400LE8	362	741	95.4	95.6	0.83	0.79	61	5.0	23	3221	1.0	1.9	19.3	2770	75
280	HXR 400LF8	363	742	95.5	95.7	0.83	0.79	68	5.0	26	3605	1.0	1.9	21.8	2950	75
315	HXR 400LH8	364	742	95.7	95.9	0.82	0.78	78	5.2	31	4052	1.0	2.0	24.2	3140	75
355	HXR 400LJ8	365	742	95.8	96.0	0.82	0.79	87	5.1	33	4568	1.0	2.0	26.8	3330	75
400	HXR 450LD8	366	743	95.9	96.0	0.83	0.80	96	5.3	35	5143	0.9	2.0	30.0	3610	78
450	HXR 450LE8	367	743	96.0	96.1	0.83	0.80	108	5.3	40	5786	0.9	2.0	31.3	3700	78
500	HXR 450LG8	368	743	96.2	96.3	0.83	0.80	120	5.5	45	6423	0.9	2.0	38.1	4100	78
560	HXR 450LH8	369	744	96.3	96.3	0.83	0.79	135	5.5	52	7192	0.9	2.0	40.7	4260	78
630	HXR 450LL8	370	744	96.4	96.4	0.82	0.79	153	5.7	60	8085	0.9	2.1	48.7	4720	78
710	HXR 500LF8	371	745	96.4	96.4	0.82	0.78	173	5.6	68	9101	0.9	2.0	55.0	5470	78
800	HXR 500LH8	372	745	96.5	96.5	0.82	0.78	194	5.6	76	10253	0.9	2.0	61.0	5780	78
900	HXR 500LK8	373	745	96.7	96.6	0.82	0.78	218	5.6	85	11532	0.9	2.0	68.9	6170	78
1000	HXR 500LN8	374	745	96.6	96.6	0.82	0.79	242	5.4	90	12821	0.9	1.9	80.1	6740	78
1120	HXR 500LP8	375	745	96.8	96.8	0.83	0.80	268	5.6	97	14353	0.9	1.9	84.8	6910	78
1250	HXR 500LR8	376	745	96.9	96.9	0.82	0.79	301	5.6	114	16013	0.9	2.0	94.5	7430	78
1400	HXR 560LN8	634	746	97.3	97.3	0.82	0.78	339	5.8	137	17919	0.8	2.1	143.3	10050	80
1600	HXR 560LR8	635	747	97.5	97.4	0.82	0.78	387	5.9	154	20460	0.9	2.0	172.5	11020	80
1800	HXR 560LU8	636	747	97.6	97.5	0.81	0.77	440	5.8	180	23009	0.8	2.0	210.6	12390	80

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Cast iron motors, HXR

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>600 r/min = 10 poles</b>																
<b>3000 V 50 Hz</b>																
160	HXR 400LC10	455	594	94.2	93.9	0.70	0.64	46	4.8	26	2572	1.0	2.0	16.9	2580	75
180	HXR 400LD10	456	594	94.4	94.2	0.72	0.66	51	4.8	28	2895	1.0	1.9	18.6	2710	75
200	HXR 400LE10	457	594	94.5	94.3	0.71	0.65	57	4.8	31	3215	1.0	1.9	19.7	2800	75
224	HXR 400LF10	458	594	94.7	94.5	0.72	0.66	63	4.8	34	3601	1.0	1.9	21.9	2970	75
250	HXR 400LH10	459	594	94.9	94.7	0.72	0.66	70	4.8	38	4018	1.0	2.0	24.4	3160	75
280	HXR 400LK10	460	594	95.0	94.8	0.73	0.66	78	4.9	41	4499	1.0	2.0	28.3	3450	75
315	HXR 450LG10	461	595	95.8	95.8	0.76	0.70	84	5.1	41	5059	1.0	2.0	38.1	4090	75
355	HXR 450LJ10	462	595	95.9	96.0	0.76	0.71	93	5.1	45	5701	1.0	2.0	42.2	4330	75
400	HXR 450LK10	463	595	96.0	96.0	0.76	0.70	106	5.3	52	6422	1.0	2.1	46.3	4570	75
450	HXR 450LM10	464	595	96.2	96.1	0.75	0.69	120	5.3	61	7222	1.0	2.1	51.6	4900	75
500	HXR 500LH10	465	595	96.5	96.6	0.78	0.72	129	5.2	60	8025	0.9	2.0	62.6	5860	76
560	HXR 500LK10	466	595	96.5	96.6	0.79	0.74	142	5.1	63	8990	0.9	2.0	70.6	6220	76
630	HXR 500LM10	467	595	96.6	96.7	0.79	0.74	159	5.2	70	10113	0.9	2.0	78.5	6610	76
710	HXR 500LN10	468	595	96.6	96.7	0.79	0.75	179	5.0	76	11402	0.9	1.9	82.5	6820	76
800	HXR 500LP10	469	594	96.6	96.7	0.79	0.75	201	4.9	83	12851	0.9	1.9	86.5	7010	76
900	HXR 500LR10	470	595	96.7	96.8	0.79	0.74	227	5.2	98	14448	0.9	2.0	98.5	7600	76
1000	HXR 560LN10	637	597	97.0	97.0	0.77	0.73	256	5.0	115	16006	0.7	1.9	144.8	10030	78
1120	HXR 560LQ10	638	597	97.1	97.0	0.77	0.72	289	5.2	135	17921	0.8	2.0	159.0	10520	78
1250	HXR 560LS10	639	597	97.1	97.1	0.78	0.73	318	5.0	139	20006	0.7	1.9	180.3	11270	78
1400	HXR 560LU10	640	597	97.2	97.0	0.75	0.69	368	5.8	187	22384	0.9	2.2	212.3	12390	78
<b>500 r/min = 12 poles</b>																
<b>3000 V 50 Hz</b>																
140	HXR 400LD12	541	494	93.6	93.4	0.67	0.61	43	4.3	25	2707	1.0	1.8	18.5	2710	75
160	HXR 400LE12	542	494	93.8	93.6	0.68	0.62	48	4.2	28	3094	1.0	1.8	20.2	2830	75
180	HXR 400LG12	543	494	94.0	93.9	0.70	0.63	53	4.1	29	3482	1.0	1.7	22.7	3030	75
200	HXR 400LH12	544	494	93.9	93.7	0.69	0.63	59	4.2	33	3867	1.0	1.8	25.3	3210	75
224	HXR 400LK12	545	494	94.1	93.8	0.68	0.61	68	4.3	39	4327	1.0	1.8	27.6	3390	75
250	HXR 450LH12	546	495	94.9	94.7	0.71	0.65	72	4.3	38	4827	0.9	1.8	39.5	4180	75
280	HXR 450LJ12	547	494	95.0	94.9	0.71	0.66	79	4.1	41	5408	0.8	1.7	42.3	4370	75
315	HXR 450LL12	548	495	95.1	95.0	0.71	0.66	89	4.3	47	6081	0.9	1.8	49.1	4750	75
355	HXR 450LM12	549	495	95.1	95.0	0.71	0.65	101	4.3	53	6853	0.9	1.8	51.8	4910	75
400	HXR 500LJ12	550	495	95.5	95.4	0.71	0.65	114	4.3	60	7717	0.8	1.8	66.2	6040	75
450	HXR 500LL12	551	495	95.6	95.5	0.72	0.66	126	4.4	66	8683	0.9	1.8	72.3	6340	75
500	HXR 500LN12	552	495	95.7	95.6	0.72	0.66	140	4.4	72	9648	0.9	1.8	80.2	6740	75
560	HXR 500LQ12	553	495	95.6	95.5	0.71	0.66	158	4.4	82	10803	0.9	1.8	88.1	7100	75
630	HXR 500LR12	554	495	95.7	95.6	0.72	0.67	176	4.4	89	12157	0.9	1.8	92.2	7300	75
710	HXR 500LS12	555	495	95.8	95.7	0.71	0.66	200	4.4	104	13695	0.9	1.8	104.0	7890	75
800	HXR 560LM12	641	496	96.5	96.6	0.77	0.72	207	4.5	95	15407	0.7	1.9	133.3	9610	76
900	HXR 560LQ12	642	496	96.6	96.6	0.78	0.74	230	4.4	100	17335	0.7	1.8	158.1	10450	76
1000	HXR 560LS12	643	496	96.7	96.7	0.77	0.72	258	4.7	119	19247	0.7	2.0	179.3	11210	76
1120	HXR 560LU12	644	497	96.9	96.8	0.75	0.69	297	5.1	149	21512	0.8	2.1	212.4	12320	76

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# HV Cast iron motors, HXR

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>3000 r/min = 2 poles</b>																
<b>6000 V 50 Hz</b>																
160	HXR 355LA2	48	2969	94.2	94.0	0.90	0.89	18	5.6	5	515	0.6	2.4	3.0	1630	85
180	HXR 355LA2	49	2965	94.2	94.2	0.91	0.90	20	5.4	5	580	0.6	2.2	3.0	1630	85
200	HXR 355LA2	50	2970	94.6	94.5	0.90	0.89	23	5.5	6	643	0.5	2.3	3.0	1630	85
224	HXR 355LB2	51	2972	95.0	94.9	0.90	0.87	25	6.3	7	720	0.7	2.5	3.3	1730	85
250	HXR 355LB2	52	2976	95.3	95.2	0.91	0.89	28	6.4	7	802	0.6	2.6	3.2	1720	85
280	HXR 355LD2	53	2978	95.5	95.4	0.90	0.88	31	6.4	8	898	0.6	2.5	3.7	1840	85
315	HXR 400LB2	54	2979	95.7	95.5	0.91	0.89	35	6.2	9	1010	0.5	2.5	5.2	2430	82
355	HXR 400LC2	55	2981	95.9	95.8	0.90	0.89	39	6.3	10	1137	0.6	2.5	5.7	2530	82
400	HXR 400LD2	56	2981	96.2	96.1	0.92	0.90	44	6.3	10	1281	0.5	2.5	6.1	2640	82
450	HXR 400LF2	57	2982	96.4	96.4	0.92	0.91	49	6.4	11	1441	0.5	2.4	7.1	2880	82
500	HXR 400LG2	58	2983	96.6	96.5	0.91	0.90	55	6.4	12	1601	0.5	2.4	7.3	2940	82
560	HXR 450LF2	59	2984	96.5	96.3	0.92	0.91	61	6.4	13	1792	0.5	2.6	11.4	3870	85
630	HXR 450LH2	60	2983	96.7	96.6	0.93	0.92	67	6.3	14	2016	0.5	2.5	13.0	4170	85
690	HXR 450LK2	61	2984	96.8	96.7	0.93	0.92	74	6.4	15	2208	0.5	2.6	14.1	4410	85
710	HXR 500LG2	62	2988	96.6	96.3	0.91	0.89	78	6.4	19	2269	0.5	2.6	22.4	5570	86
800	HXR 500LH2	63	2987	96.7	96.5	0.92	0.90	87	6.4	19	2557	0.5	2.6	23.7	5760	86
900	HXR 500LL2	64	2987	96.9	96.7	0.92	0.91	97	6.4	21	2877	0.5	2.5	26.9	6230	86
1000	HXR 500LN2	65	2987	97.1	97.0	0.93	0.92	107	6.4	20	3197	0.5	2.5	30.2	6690	86
1120	HXR 500LQ2	66	2988	97.2	97.1	0.92	0.90	121	6.6	26	3579	0.5	2.5	32.1	6970	86
1250	HXR 560LM2	707	2986	97.1	97.0	0.92	0.91	134	6.8	32	3997	0.5	2.8	46.0	9680	87
1400	HXR 560LN2	708	2988	97.3	97.2	0.92	0.90	151	6.9	36	4474	0.5	2.7	48.2	10030	87
1600	HXR 560LS2	709	2991	97.5	97.3	0.91	0.89	174	6.9	43	5109	0.5	2.6	58.9	11230	87

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# HV Cast iron motors, HXR

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>1500 r/min = 4 poles</b>				<b>6000 V 50 Hz</b>												
160	HXR 355LA4	154	1486	94.5	94.2	0.84	0.80	19	5.7	7	1028	0.9	2.1	5.0	1640	77
180	HXR 355LA4	155	1486	94.7	94.4	0.82	0.78	22	5.7	9	1156	0.9	2.1	5.0	1640	77
200	HXR 355LA4	156	1485	94.7	94.6	0.84	0.80	24	5.5	9	1286	0.9	2.0	5.0	1640	77
224	HXR 355LA4	157	1487	95.3	95.1	0.82	0.77	28	6.2	12	1438	1.0	2.3	5.1	1650	77
250	HXR 355LB4	158	1486	95.2	95.1	0.83	0.79	31	5.9	12	1606	1.0	2.1	5.6	1740	77
280	HXR 355LC4	159	1487	95.3	95.3	0.84	0.81	34	6.1	13	1798	1.0	2.2	6.0	1780	77
315	HXR 355LD4	160	1488	95.6	95.6	0.84	0.81	38	6.2	14	2022	1.0	2.2	7.2	1970	77
355	HXR 400LB4	161	1489	96.1	96.1	0.88	0.85	41	5.9	12	2277	0.8	2.1	10.4	2480	76
400	HXR 400LC4	162	1489	96.3	96.3	0.88	0.86	46	6.1	14	2565	0.9	2.2	11.4	2610	76
450	HXR 400LD4	163	1490	96.5	96.5	0.87	0.85	51	6.1	16	2884	0.9	2.2	12.5	2720	76
500	HXR 400LE4	164	1490	96.6	96.6	0.88	0.86	57	6.1	17	3204	0.9	2.1	13.6	2850	76
560	HXR 400LG4	165	1491	96.8	96.8	0.87	0.85	64	6.2	19	3587	0.9	2.2	15.6	3100	76
630	HXR 450LE4	166	1492	96.9	96.8	0.87	0.84	72	6.5	24	4031	0.8	2.4	22.9	3810	77
710	HXR 450LG4	167	1492	97.0	97.0	0.88	0.86	80	6.3	24	4545	0.8	2.3	26.6	4130	77
800	HXR 450LJ4	168	1492	97.2	97.2	0.88	0.87	90	6.2	25	5121	0.8	2.2	30.2	4450	77
900	HXR 500LF4	170	1491	97.1	97.1	0.89	0.87	101	5.9	28	5763	0.7	2.2	39.8	5430	77
1000	HXR 500LG4	171	1492	97.2	97.2	0.88	0.87	112	5.9	32	6401	0.7	2.2	43.8	5690	77
1120	HXR 500LJ4	172	1493	97.3	97.3	0.88	0.86	126	6.3	37	7166	0.7	2.3	49.3	6080	77
1250	HXR 500LP4	173	1493	97.5	97.5	0.88	0.86	140	6.2	42	7994	0.7	2.3	63.0	7030	77
1400	HXR 500LR4	174	1493	97.6	97.6	0.88	0.86	157	6.2	47	8952	0.7	2.3	68.4	7420	77
1600	HXR 560LM4	645	1495	97.7	97.6	0.89	0.86	178	6.7	54	10223	0.6	2.5	95.2	9670	82
1800	HXR 560LR4	646	1495	97.8	97.7	0.89	0.87	199	6.7	58	11500	0.7	2.5	121.8	10970	82
2000	HXR 560LT4	647	1496	97.9	97.8	0.88	0.86	224	6.7	68	12767	0.6	2.3	136.9	11730	82

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# HV Cast iron motors, HXR

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>																
<b>6000 V 50 Hz</b>																
125	HXR 355LB6	266	991	94.3	93.8	0.75	0.68	17	5.8	9	1205	1.2	2.3	5.7	1680	75
160	HXR 355LB6	267	990	94.7	94.5	0.77	0.72	21	5.7	10	1544	1.2	2.2	6.0	1720	75
180	HXR 355LB6	268	988	94.7	94.7	0.79	0.74	23	5.3	10	1739	1.2	2.0	6.0	1720	75
200	HXR 355LC6	269	989	94.9	94.9	0.79	0.74	26	5.5	12	1931	1.2	2.0	6.3	1770	75
224	HXR 355LD6	270	989	95.1	95.0	0.79	0.75	29	5.6	13	2163	1.3	2.1	6.9	1860	75
250	HXR 355LE6	271	989	95.2	95.2	0.80	0.76	31	5.6	14	2414	1.2	2.0	7.9	2000	75
280	HXR 400LC6	273	991	95.7	95.6	0.81	0.77	35	5.9	15	2698	1.0	2.2	11.2	2490	75
315	HXR 400LC6	274	991	95.8	95.8	0.82	0.78	38	5.8	15	3037	1.0	2.1	11.8	2560	75
355	HXR 400LD6	275	991	96.0	96.0	0.82	0.78	43	5.8	18	3421	1.0	2.1	12.8	2680	75
400	HXR 400LF6	276	992	96.2	96.2	0.82	0.77	49	5.9	20	3852	1.0	2.2	14.5	2870	75
450	HXR 400LJ6	277	992	96.4	96.4	0.83	0.79	54	6.0	21	4332	1.0	2.2	17.8	3250	75
450	HXR 450LD6	278	992	96.3	96.4	0.85	0.82	53	6.0	19	4330	1.0	2.1	28.1	3520	76
560	HXR 450LF6	279	993	96.6	96.7	0.86	0.83	65	6.0	21	5388	1.0	2.0	34.8	3920	76
630	HXR 450LH6	280	993	96.7	96.8	0.86	0.83	73	6.0	24	6060	1.0	2.0	38.8	4160	76
710	HXR 450LK6	281	994	96.9	96.9	0.84	0.81	84	6.3	30	6822	1.0	2.1	45.1	4520	76
800	HXR 500LH6	283	994	97.0	96.9	0.83	0.80	95	5.8	36	7685	0.8	2.1	58.9	5690	77
900	HXR 500LJ6	284	994	97.0	97.1	0.84	0.81	107	5.7	38	8647	0.8	2.0	62.8	5890	77
1000	HXR 500LK6	285	994	97.1	97.2	0.85	0.82	117	5.8	40	9609	0.9	2.0	68.7	6180	77
1120	HXR 500LN6	286	994	97.3	97.3	0.84	0.80	132	6.0	48	10755	0.9	2.1	80.0	6760	77
1250	HXR 500LR6	287	995	97.4	97.4	0.85	0.82	145	6.2	52	11995	0.8	2.2	92.1	7350	77
1400	HXR 560LM6	648	996	97.5	97.4	0.86	0.82	161	6.6	58	13424	0.8	2.4	133.8	9720	81
1600	HXR 560LR6	649	996	97.6	97.5	0.85	0.81	186	6.7	71	15334	0.7	2.5	160.3	10670	81
1800	HXR 560LU6	650	996	97.6	97.7	0.87	0.85	203	6.5	66	17260	0.8	2.4	203.3	12160	81

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Cast iron motors, HXR

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>												
180	HXR 400LC8	377	741	94.4	94.4	0.77	0.72	24	4.7	11	2319	1.0	1.9	11.7	2520	75
200	HXR 400LD8	378	742	94.7	94.6	0.76	0.71	27	4.8	13	2575	1.0	1.9	12.7	2650	75
224	HXR 400LE8	379	741	94.8	94.9	0.78	0.74	29	4.8	13	2887	1.0	1.9	13.9	2780	75
250	HXR 400LF8	380	741	94.9	95.1	0.79	0.75	32	4.7	13	3224	1.0	1.8	15.0	2900	75
280	HXR 400LH8	381	741	95.2	95.3	0.79	0.75	36	4.8	15	3607	1.0	1.9	17.2	3150	75
315	HXR 400LJ8	382	741	95.2	95.2	0.78	0.74	41	4.8	18	4057	1.0	1.9	17.7	3220	75
355	HXR 450LD8	383	743	95.5	95.6	0.84	0.81	43	5.3	15	4565	0.9	2.0	30.0	3570	78
400	HXR 450LF8	384	743	95.8	95.8	0.83	0.80	48	5.4	18	5140	0.9	2.1	34.0	3810	78
450	HXR 450LG8	385	743	95.9	95.9	0.83	0.80	54	5.3	20	5783	0.9	2.1	36.7	3970	78
500	HXR 450LK8	386	744	96.1	96.1	0.84	0.80	60	5.6	22	6420	0.9	2.1	46.1	4530	78
560	HXR 450LM8	387	744	96.2	96.2	0.83	0.80	67	5.5	25	7190	0.9	2.0	51.4	4850	78
630	HXR 450LN8	388	745	96.4	96.2	0.81	0.76	77	6.2	34	8075	1.0	2.4	52.8	4930	78
710	HXR 500LJ8	389	745	96.3	96.2	0.83	0.80	85	5.9	33	9102	0.9	2.2	66.8	5970	78
800	HXR 500LK8	390	745	96.4	96.3	0.83	0.80	96	5.9	37	10257	0.9	2.2	68.8	6080	78
900	HXR 500LL8	391	745	96.4	96.4	0.84	0.80	107	5.7	40	11542	0.8	2.1	72.7	6270	78
1000	HXR 500LP8	392	745	96.6	96.5	0.84	0.80	119	5.9	45	12819	0.9	2.2	84.6	6860	78
1120	HXR 500LS8	393	745	96.7	96.7	0.84	0.80	133	6.0	50	14352	0.9	2.3	104.5	7830	78
1250	HXR 560LM8	651	746	97.1	97.2	0.82	0.78	151	5.5	59	16002	0.8	2.0	136.3	9700	80
1400	HXR 560LQ8	652	747	97.2	97.2	0.81	0.76	172	6.4	76	17907	0.9	2.4	157.4	10390	80
1600	HXR 560LU8	653	747	97.4	97.2	0.79	0.74	199	6.3	93	20454	0.8	2.4	205.0	12110	80

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.



# HV Cast iron motors, HXR

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>600 r/min = 10 poles</b>																
<b>6000 V 50 Hz</b>																
224	HXR 400LH10	471	595	94.5	94.2	0.71	0.65	32	5.1	18	3597	1.1	2.1	25.3	3170	75
250	HXR 450LE10	472	595	95.2	95.2	0.75	0.69	34	5.2	17	4014	1.0	2.1	32.7	3710	75
280	HXR 450LF10	473	595	95.3	95.4	0.76	0.70	37	5.1	19	4497	1.0	2.0	35.4	3860	75
315	HXR 450LG10	474	595	95.5	95.5	0.76	0.70	42	5.2	21	5059	1.0	2.0	38.1	4030	75
355	HXR 450LJ10	475	594	95.6	95.7	0.77	0.72	46	5.1	22	5703	1.0	2.0	43.6	4340	75
400	HXR 450LK10	476	595	95.7	95.7	0.76	0.70	53	5.3	26	6422	1.0	2.1	46.3	4500	75
450	HXR 450LM10	477	595	95.8	95.8	0.75	0.69	60	5.3	30	7222	1.0	2.1	51.6	4820	75
500	HXR 500LJ10	479	594	96.2	96.3	0.78	0.73	64	5.0	28	8038	1.0	1.9	64.3	5890	76
560	HXR 500LL10	480	594	96.3	96.4	0.78	0.74	71	5.0	31	9001	1.0	1.9	74.2	6370	76
630	HXR 500LM10	481	595	96.3	96.3	0.79	0.74	80	5.1	35	10116	0.9	2.0	78.5	6540	76
710	HXR 500LP10	482	595	96.3	96.4	0.79	0.75	89	5.0	37	11404	0.9	1.9	84.5	6830	76
800	HXR 500LQ10	483	594	96.4	96.5	0.80	0.76	100	4.9	41	12852	0.9	1.9	90.5	7120	76
900	HXR 500LS10	484	596	96.4	96.3	0.75	0.69	120	5.3	60	14414	1.0	2.0	100.7	7610	76
1000	HXR 560LN10	654	597	96.9	96.8	0.78	0.73	128	5.0	57	16006	0.7	1.9	144.8	9910	78
1120	HXR 560LR10	655	597	97.0	96.8	0.75	0.69	147	5.7	74	17910	0.8	2.2	173.2	10900	78
1250	HXR 560LU10	656	597	97.0	96.9	0.77	0.72	161	5.6	77	19991	0.8	2.1	208.7	12070	78
<b>500 r/min = 12 poles</b>																
<b>6000 V 50 Hz</b>																
140	HXR 400LF12	556	494	93.1	92.8	0.68	0.60	21	4.3	13	2704	1.0	1.9	21.0	2840	75
160	HXR 400LG12	557	494	93.0	92.7	0.68	0.61	24	4.3	15	3090	1.0	1.9	22.7	2970	75
180	HXR 400LJ12	558	496	93.3	92.7	0.65	0.57	29	4.7	19	3469	1.1	2.1	26.1	3200	75
224	HXR 450LG12	560	495	94.4	94.2	0.71	0.65	32	4.3	17	4324	0.9	1.8	38.2	4040	75
200	HXR 450LH12	559	495	94.3	94.1	0.70	0.64	29	4.2	16	3861	0.9	1.8	34.1	3810	75
250	HXR 450LJ12	561	495	94.6	94.4	0.71	0.64	36	4.2	19	4824	0.8	1.8	43.6	4360	75
280	HXR 450LK12	562	495	94.6	94.5	0.71	0.65	40	4.3	21	5405	0.9	1.8	46.3	4520	75
315	HXR 450LL12	563	495	94.7	94.6	0.71	0.66	45	4.2	23	6081	0.9	1.8	49.1	4680	75
355	HXR 500LJ12	565	495	95.1	94.8	0.71	0.65	50	4.5	27	6851	0.9	1.9	64.3	5890	75
400	HXR 500LK12	566	495	95.0	94.8	0.71	0.65	57	4.5	30	7720	0.9	1.8	68.3	6080	75
450	HXR 500LL12	567	495	95.1	94.9	0.72	0.66	63	4.4	33	8687	0.9	1.8	74.3	6380	75
500	HXR 500LN12	568	495	95.3	95.1	0.72	0.66	70	4.5	36	9651	0.9	1.8	82.2	6770	75
560	HXR 500LQ12	569	495	95.3	95.1	0.71	0.66	79	4.4	41	10806	0.9	1.8	90.1	7160	75
630	HXR 500LS12	570	495	95.4	95.2	0.71	0.65	89	4.5	47	12153	0.9	1.8	102.0	7740	75
710	HXR 560LM12	657	496	96.3	96.3	0.77	0.72	92	4.6	42	13669	0.7	1.9	136.9	9600	76
800	HXR 560LP12	658	496	96.4	96.3	0.75	0.69	106	5.1	54	15387	0.8	2.2	151.0	10060	76
900	HXR 560LS12	659	497	96.5	96.5	0.76	0.70	118	5.2	60	17308	0.8	2.2	179.3	11060	76
1000	HXR 560LU12	660	497	96.7	96.6	0.77	0.72	130	4.8	60	19215	0.8	1.9	208.9	12020	76

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Cast iron motors, HXR

10000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>10000 V 50 Hz</b>																
400	HXR 450LE2	16	2984	95.6	95.2	0.89	0.87	27	6.3	8	1280	0.5	2.6	10.7	3670	85
450	HXR 450LF2	17	2984	95.8	95.5	0.89	0.87	30	6.3	8	1440	0.5	2.5	11.9	3870	85
500	HXR 450LG2	18	2984	96.0	95.8	0.90	0.89	33	6.4	8	1600	0.5	2.6	12.5	4010	85
560	HXR 500LF2	19	2987	96.0	95.6	0.90	0.88	38	6.3	10	1790	0.5	2.6	20.6	5300	86
630	HXR 500LG2	20	2986	96.2	95.9	0.91	0.90	41	6.4	10	2014	0.5	2.6	22.7	5570	86
710	HXR 500LJ2	21	2987	96.4	96.2	0.91	0.89	47	6.4	11	2269	0.5	2.6	24.6	5850	86
800	HXR 500LL2	22	2988	96.7	96.5	0.92	0.91	52	6.4	11	2557	0.5	2.5	27.5	6300	86
900	HXR 500LM2	23	2989	96.8	96.6	0.90	0.88	60	6.7	15	2876	0.5	2.6	29.2	6490	86
1120	HXR 560LN2	711	2990	97.0	96.7	0.90	0.89	74	6.9	19	3577	0.5	2.8	45.8	9690	87
1250	HXR 560LQ2	712	2990	97.1	96.9	0.91	0.89	82	6.9	21	3993	0.5	2.7	52.3	10400	87
<b>1500 r/min = 4 poles</b>																
<b>10000 V 50 Hz</b>																
355	HXR 450LC4	120	1492	95.8	95.5	0.84	0.80	26	6.4	10	2272	0.8	2.4	16.2	3470	77
400	HXR 450LD4	121	1492	96.0	95.8	0.85	0.81	28	6.4	10	2560	0.8	2.3	17.9	3630	77
450	HXR 450LE4	122	1492	96.2	96.1	0.85	0.82	32	6.3	11	2881	0.8	2.3	19.5	3790	77
500	HXR 450LF4	123	1492	96.4	96.2	0.85	0.82	35	6.3	12	3200	0.8	2.2	21.0	3950	77
560	HXR 450LG4	124	1492	96.5	96.4	0.85	0.82	39	6.3	14	3584	0.8	2.2	22.5	4100	77
630	HXR 450LH4	125	1493	96.7	96.5	0.84	0.81	45	6.5	17	4030	0.8	2.2	24.0	4260	77
710	HXR 500LF4	126	1491	96.6	96.5	0.86	0.83	50	5.5	16	4548	0.7	2.0	36.2	5460	77
800	HXR 500LG4	127	1492	96.8	96.8	0.87	0.85	55	5.9	17	5120	0.7	2.2	39.2	5660	77
900	HXR 500LK4	128	1493	97.0	97.0	0.87	0.85	61	6.2	19	5758	0.8	2.3	46.6	6240	77
1000	HXR 500LL4	129	1493	97.1	97.1	0.87	0.84	69	6.1	22	6397	0.7	2.2	48.8	6430	77
1120	HXR 560LL4	661	1494	97.4	97.3	0.87	0.84	76	6.4	25	7159	0.7	2.4	71.4	9530	82
1250	HXR 560LN4	662	1495	97.4	97.4	0.87	0.84	85	6.7	29	7985	0.6	2.6	78.6	9950	82
1400	HXR 560LR4	663	1495	97.6	97.5	0.87	0.84	95	6.8	33	8942	0.6	2.7	87.3	10560	82

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# HV Cast iron motors, HXR

10000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>																
<b>10000 V 50 Hz</b>																
315	HXR 450LD6	233	993	95.5	95.3	0.80	0.76	24	5.7	10	3030	0.9	2.2	18.9	3610	76
355	HXR 450LE6	234	992	95.7	95.6	0.82	0.77	26	5.7	11	3416	0.9	2.2	20.6	3770	76
400	HXR 450LF6	235	993	96.0	95.9	0.82	0.78	29	5.8	12	3845	0.8	2.2	22.4	3930	76
450	HXR 450LJ6	236	994	96.2	96.0	0.81	0.76	33	6.1	15	4322	0.8	2.3	26.4	4330	76
500	HXR 450LK6	237	994	96.3	96.0	0.80	0.75	37	6.3	17	4801	0.9	2.4	28.8	4540	76
560	HXR 500LF6	238	995	96.4	96.3	0.82	0.77	41	6.2	18	5375	0.8	2.4	40.9	5420	77
630	HXR 500LG6	239	995	96.6	96.5	0.82	0.78	46	6.0	19	6048	0.8	2.3	43.8	5610	77
710	HXR 500LH6	240	995	96.7	96.6	0.83	0.79	51	6.0	20	6817	0.8	2.2	46.7	5800	77
800	HXR 500LL6	241	995	96.9	96.8	0.82	0.77	58	6.3	25	7676	0.9	2.4	53.8	6280	77
900	HXR 500LM6	242	995	97.0	96.9	0.81	0.76	66	6.1	29	8635	0.8	2.3	57.8	6560	77
1000	HXR 560LL6	664	996	97.2	97.1	0.84	0.79	71	6.1	28	9588	0.7	2.5	94.1	9480	81
1120	HXR 560LN6	665	996	97.3	97.2	0.84	0.79	79	6.4	32	10737	0.7	2.5	104.1	9960	81
1250	HXR 560LQ6	666	996	97.3	97.2	0.82	0.78	90	6.3	38	11980	0.7	2.6	113.3	10380	81
1400	HXR 560LR6	667	997	97.4	97.2	0.79	0.72	106	6.8	53	13410	0.7	2.8	117.5	10620	81
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
315	HXR 500LC8	350	744	94.7	94.4	0.78	0.73	25	5.6	12	4040	0.8	2.3	32.5	4820	78
355	HXR 500LE8	351	745	94.9	94.6	0.78	0.73	28	5.7	13	4552	0.9	2.3	36.9	5090	78
400	HXR 500LF8	352	745	95.2	94.9	0.78	0.72	31	5.7	15	5128	0.9	2.3	39.8	5290	78
450	HXR 500LG8	353	745	95.5	95.2	0.78	0.72	35	5.8	17	5767	0.9	2.4	44.1	5580	78
500	HXR 500LH8	354	745	95.7	95.4	0.79	0.73	38	5.8	18	6409	0.9	2.3	47.1	5770	78
560	HXR 500LJ8	355	745	95.8	95.6	0.80	0.74	42	5.8	19	7180	0.9	2.3	50.1	5960	78
630	HXR 500LK8	356	745	96.0	95.8	0.80	0.75	48	5.7	22	8078	0.9	2.2	53.0	6160	78
710	HXR 500LM8	357	745	96.1	96.0	0.80	0.76	53	5.6	23	9105	0.9	2.2	57.5	6440	78
800	HXR 500LP8	358	744	96.2	96.2	0.81	0.77	59	5.5	25	10261	0.9	2.1	63.3	6830	78
900	HXR 560LM8	668	746	96.7	96.6	0.77	0.72	70	5.4	33	11519	0.8	2.2	97.4	9570	80
1000	HXR 560LN8	669	747	96.9	96.8	0.76	0.70	78	5.7	40	12789	0.7	2.3	105.5	9940	80
1120	HXR 560LR8	670	746	97.0	96.9	0.78	0.72	86	5.6	41	14332	0.8	2.2	120.2	10660	80
<b>600 r/min = 10 poles</b>																
<b>10000 V 50 Hz</b>																
560	HXR 560LL10	671	597	95.6	95.3	0.71	0.64	48	5.0	27	8959	0.8	2.1	95.3	9390	78
630	HXR 560LN10	672	596	95.7	95.5	0.72	0.65	53	5.2	29	10086	0.9	2.1	105.4	9870	78
710	HXR 560LR10	673	597	96.0	95.7	0.71	0.65	60	5.0	33	11359	0.8	2.1	118.0	10480	78

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>3000 V 50 Hz</b>																
630	AMA 400L2A	1079	2977	95.3	95.1	0.86	0.84	149	5.1	43	2021	0.5	2.2	7.0	3000	85
710	AMA 400L2A	1080	2977	95.6	95.5	0.86	0.84	166	5.2	45	2277	0.6	2.2	7.5	3130	85
800	AMA 400L2A	1081	2977	95.7	95.7	0.87	0.86	184	5.3	47	2566	0.6	2.2	8.0	3220	85
900	AMA 400L2A	1082	2977	96.0	96.0	0.87	0.86	207	5.3	52	2886	0.6	2.2	8.4	3340	85
1000	AMA 400L2A	1083	2979	96.2	96.2	0.87	0.85	231	5.6	61	3206	0.6	2.3	8.9	3450	85
1120	AMA 450L2A	1084	2979	96.2	96.1	0.86	0.85	260	4.9	69	3590	0.5	2.1	11.6	4270	86
1250	AMA 450L2A	1085	2980	96.4	96.3	0.84	0.83	296	5.0	84	4005	0.5	2.1	12.3	4420	86
1400	AMA 450L2A	1086	2982	96.6	96.5	0.84	0.82	331	5.1	93	4484	0.5	2.2	13.8	4710	86
1600	AMA 500L2A	1087	2983	96.5	96.5	0.89	0.88	358	4.9	80	5122	0.4	2.0	21.0	5370	87
1800	AMA 500L2A	1088	2986	96.7	96.6	0.87	0.86	409	5.3	113	5757	0.4	2.2	22.3	5520	87
2000	AMA 500L2A	1089	2983	96.8	96.8	0.90	0.89	444	4.9	94	6402	0.4	2.0	23.6	5710	87
2240	AMA 500L2A	1162	2986	97.0	97.0	0.88	0.87	505	5.3	128	7164	0.4	2.2	26.2	6090	87
<b>1500 r/min = 4 poles</b>																
<b>3000 V 50 Hz</b>																
630	AMA 400L4A	1090	1486	95.3	95.3	0.88	0.86	145	4.8	41	4049	0.6	1.9	15.4	3050	79
710	AMA 400L4A	1091	1488	95.6	95.6	0.86	0.83	166	5.5	56	4558	0.7	2.3	16.4	3150	79
800	AMA 400L4A	1092	1487	95.7	95.7	0.86	0.84	186	5.4	60	5136	0.7	2.2	17.4	3220	79
900	AMA 400L4A	1093	1487	95.9	95.9	0.86	0.83	210	5.4	69	5778	0.7	2.2	18.3	3330	79
1000	AMA 400L4A	1094	1488	96.1	96.1	0.87	0.84	231	5.7	75	6417	0.7	2.3	20.2	3520	79
1120	AMA 400L4A	1095	1487	96.1	96.2	0.87	0.85	257	5.3	75	7191	0.7	2.1	21.0	3550	79
1250	AMA 450L4A	1096	1488	96.0	96.0	0.87	0.85	288	5.4	85	8023	0.7	2.1	31.2	4210	81
1400	AMA 450L4A	1097	1488	96.2	96.3	0.88	0.86	318	5.5	87	8984	0.7	2.1	34.5	4470	81
1600	AMA 450L4A	1098	1488	96.4	96.5	0.88	0.86	364	5.6	102	10265	0.7	2.1	37.8	4720	81
1800	AMA 500L4A	1099	1491	96.3	96.3	0.89	0.87	406	5.4	106	11531	0.7	2.0	55.1	5570	82
2000	AMA 500L4A	1100	1491	96.5	96.5	0.88	0.87	453	5.4	121	12811	0.7	2.0	57.9	5730	82
2240	AMA 500L4A	1101	1491	96.6	96.6	0.88	0.87	506	5.6	135	14344	0.7	2.1	63.6	6030	82
2500	AMA 500L4A	1163	1490	96.7	96.8	0.89	0.89	556	5.5	125	16024	0.8	2.0	69.1	6380	82

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>																
<b>3000 V 50 Hz</b>																
450	AMA 400L6A	1102	988	95.0	95.2	0.84	0.81	109	4.9	40	4350	0.7	1.9	16.8	2950	78
500	AMA 400L6A	1103	989	95.2	95.3	0.81	0.77	124	4.8	51	4829	0.7	1.9	17.9	3050	78
560	AMA 400L6A	1104	988	95.2	95.4	0.83	0.80	136	4.9	51	5411	0.7	1.8	19.1	3130	78
630	AMA 400L6A	1105	990	95.5	95.6	0.82	0.78	155	5.0	62	6080	0.7	1.9	21.4	3320	78
710	AMA 400L6A	1106	990	95.6	95.7	0.81	0.77	176	5.1	73	6851	0.8	1.9	22.6	3410	78
800	AMA 400L6A	1107	990	95.8	95.9	0.83	0.79	194	5.2	74	7720	0.8	1.9	24.9	3600	78
900	AMA 450L6A	1108	991	96.0	96.2	0.86	0.83	210	5.1	68	8670	0.6	1.9	39.2	4220	79
1000	AMA 450L6A	1109	992	96.2	96.3	0.85	0.82	236	5.3	82	9629	0.7	2.0	41.3	4340	79
1120	AMA 450L6A	1110	991	96.1	96.3	0.86	0.84	260	5.3	80	10792	0.7	2.0	43.7	4450	79
1250	AMA 450L6A	1111	992	96.4	96.5	0.84	0.81	296	5.4	104	12033	0.7	2.0	47.8	4700	79
1400	AMA 500L6A	1112	992	96.5	96.6	0.87	0.85	320	5.4	95	13475	0.7	2.0	67.4	5560	79
1600	AMA 500L6A	1113	993	96.6	96.7	0.87	0.84	368	5.6	115	15393	0.7	2.0	74.3	5850	79
1800	AMA 500L6A	1164	992	96.6	96.8	0.88	0.87	406	5.3	106	17328	0.7	1.9	81.5	6140	79
2000	AMA 500L6A	1165	993	96.8	96.9	0.86	0.84	462	5.7	149	19226	0.7	2.1	89.4	6450	79
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
280	AMA 400L8A	1114	740	94.7	94.8	0.82	0.78	69	5.1	28	3611	0.9	2.1	18.7	2920	77
315	AMA 400L8A	1115	740	94.7	94.9	0.84	0.80	77	4.7	28	4067	0.8	1.9	20.1	3000	77
355	AMA 400L8A	1116	741	95.0	95.1	0.83	0.79	87	5.2	35	4577	0.9	2.1	21.5	3100	77
400	AMA 400L8A	1117	740	95.1	95.3	0.83	0.79	97	5.0	37	5159	0.9	2.0	22.9	3200	77
450	AMA 400L8A	1118	740	95.1	95.3	0.83	0.80	109	5.0	41	5804	0.9	2.0	24.3	3290	77
500	AMA 400L8A	1119	741	95.2	95.4	0.83	0.79	122	5.1	47	6447	0.9	2.0	25.7	3380	77
560	AMA 400L8A	1120	740	95.3	95.5	0.84	0.80	135	5.0	50	7222	0.9	2.0	28.4	3570	77
630	AMA 450L8A	1121	743	95.7	95.8	0.81	0.77	156	5.4	66	8097	0.8	2.1	42.0	4050	77
710	AMA 450L8A	1122	742	95.9	96.1	0.85	0.82	168	5.2	58	9136	0.8	2.0	47.4	4300	77
800	AMA 450L8A	1123	742	96.0	96.2	0.85	0.83	188	5.2	63	10293	0.8	2.0	52.6	4540	77
900	AMA 450L8A	1124	743	96.2	96.3	0.85	0.82	212	5.5	74	11573	0.8	2.1	57.9	4790	77
1000	AMA 500L8A	1125	742	96.1	96.4	0.87	0.85	231	4.9	67	12870	0.7	1.8	78.1	5500	77
1120	AMA 500L8A	1126	743	96.4	96.6	0.87	0.84	258	5.2	79	14394	0.7	1.9	87.3	5810	77
1250	AMA 500L8A	1127	743	96.4	96.6	0.86	0.83	291	5.3	96	16065	0.7	2.0	94.9	6080	77
1400	AMA 500L8A	1166	743	96.4	96.7	0.86	0.84	323	5.4	101	17998	0.8	2.0	103.8	6380	77

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> Nm	T <sub>max</sub> Nm			
<b>600 r/min = 10 poles</b>																
<b>3000 V 50 Hz</b>																
200	AMA 400L10A	1128	592	93.6	93.5	0.73	0.67	56	4.3	30	3227	0.7	2.0	17.4	2820	76
224	AMA 400L10A	1129	592	93.8	93.8	0.75	0.69	62	4.2	31	3615	0.7	1.9	18.8	2920	76
250	AMA 400L10A	1130	592	94.0	94.0	0.75	0.70	68	4.2	34	4035	0.7	1.9	20.2	3020	76
280	AMA 400L10A	1131	592	94.1	94.1	0.75	0.69	76	4.3	38	4518	0.7	1.9	21.6	3110	76
315	AMA 400L10A	1132	593	94.3	94.2	0.73	0.67	88	4.6	46	5071	0.8	2.0	24.4	3290	76
355	AMA 400L10A	1133	593	94.5	94.5	0.74	0.69	97	4.5	49	5719	0.8	1.9	25.8	3400	76
400	AMA 400L10A	1134	593	94.7	94.5	0.73	0.67	111	4.7	60	6437	0.9	2.1	28.6	3590	76
450	AMA 450L10A	1135	592	94.9	95.1	0.81	0.77	112	4.6	45	7254	0.8	1.9	41.9	4040	76
500	AMA 450L10A	1136	593	95.0	95.2	0.81	0.77	125	4.8	53	8056	0.8	2.0	44.5	4160	76
560	AMA 450L10A	1137	593	95.2	95.4	0.81	0.77	139	4.8	57	9021	0.8	2.0	49.7	4400	76
630	AMA 450L10A	1138	593	95.3	95.5	0.82	0.79	155	4.7	60	10149	0.8	2.0	57.5	4770	76
710	AMA 500L10A	1139	595	95.8	95.8	0.80	0.75	177	5.4	79	11397	0.8	2.2	78.6	5450	76
800	AMA 500L10A	1140	595	95.9	95.9	0.81	0.77	197	5.1	82	12849	0.7	2.1	83.0	5600	76
900	AMA 500L10A	1141	594	96.0	96.1	0.83	0.80	217	5.3	84	14457	0.8	2.1	96.4	6060	76
1000	AMA 500L10A	1167	594	96.0	96.2	0.84	0.81	238	5.0	84	16073	0.7	2.0	105.1	6350	76
<b>500 r/min = 12 poles</b>																
<b>3000 V 50 Hz</b>																
140	AMA 400L12A	1142	493	92.6	92.2	0.70	0.63	42	4.2	24	2711	0.8	2.0	18.8	2910	76
160	AMA 400L12A	1143	493	92.8	92.5	0.71	0.65	46	4.0	25	3100	0.8	1.9	20.2	3010	76
180	AMA 400L12A	1144	493	92.9	92.7	0.72	0.66	52	4.0	28	3488	0.8	1.9	21.6	3100	76
200	AMA 400L12A	1145	493	93.1	92.8	0.71	0.65	58	4.1	32	3874	0.8	1.9	23.0	3200	76
224	AMA 400L12A	1146	493	93.2	92.9	0.70	0.63	66	4.2	38	4335	0.9	2.0	24.4	3300	76
250	AMA 400L12A	1147	493	93.2	92.9	0.71	0.65	73	4.1	40	4841	0.8	1.9	25.8	3370	76
280	AMA 400L12A	1148	494	93.3	93.0	0.70	0.63	82	4.3	47	5418	0.9	2.0	28.6	3560	76
315	AMA 450L12A	1149	495	94.5	94.3	0.71	0.64	90	4.6	51	6083	0.8	2.1	42.0	4020	76
355	AMA 450L12A	1150	495	94.6	94.4	0.71	0.64	102	4.6	58	6855	0.8	2.1	44.6	4150	76
400	AMA 450L12A	1151	494	94.7	94.6	0.73	0.66	112	4.5	60	7726	0.8	2.0	49.8	4380	76
450	AMA 450L12A	1152	494	94.6	94.6	0.74	0.68	123	4.3	63	8699	0.8	1.9	52.4	4480	76
500	AMA 450L12A	1153	494	94.8	94.7	0.74	0.67	138	4.4	73	9660	0.8	2.0	57.7	4720	76
560	AMA 500L12A	1154	494	95.1	95.2	0.76	0.71	148	4.3	70	10817	0.7	1.9	78.3	5450	76
630	AMA 500L12A	1155	495	95.3	95.3	0.76	0.71	166	4.4	78	12166	0.7	1.9	87.0	5750	76
710	AMA 500L12A	1156	494	95.4	95.5	0.77	0.72	186	4.3	85	13717	0.7	1.8	91.3	5930	76
800	AMA 500L12A	1169	495	95.5	95.5	0.77	0.72	210	4.4	99	15445	0.7	1.9	104.4	6360	76

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# HV Modular motors

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>3000 r/min = 2 poles</b>																
<b>6000 V 50 Hz</b>																
630	AMA 400L2A	79	2977	95.0	94.9	0.86	0.84	74	5.1	21	2021	0.5	2.2	7.0	2960	85
710	AMA 400L2A	80	2977	95.3	95.3	0.86	0.85	83	5.2	23	2277	0.5	2.2	7.5	3070	85
800	AMA 400L2A	81	2977	95.6	95.6	0.87	0.86	92	5.3	24	2566	0.6	2.2	8.0	3190	85
900	AMA 400L2A	82	2977	95.8	95.8	0.87	0.86	104	5.3	26	2887	0.6	2.2	8.4	3300	85
1000	AMA 400L2A	83	2979	96.0	96.0	0.87	0.85	115	5.5	31	3206	0.6	2.3	8.9	3410	85
1120	AMA 450L2A	84	2979	96.1	96.0	0.86	0.85	130	5.0	35	3590	0.5	2.1	11.6	4220	86
1250	AMA 450L2A	85	2980	96.3	96.2	0.84	0.82	149	5.0	43	4005	0.5	2.1	12.3	4350	86
1400	AMA 450L2A	86	2982	96.5	96.4	0.84	0.82	166	5.1	47	4484	0.5	2.2	13.8	4650	86
1600	AMA 500L2A	87	2985	96.4	96.3	0.87	0.85	184	5.3	52	5118	0.4	2.2	20.9	5250	87
1800	AMA 500L2A	88	2986	96.6	96.5	0.88	0.86	205	5.4	56	5757	0.4	2.2	22.3	5460	87
2000	AMA 500L2A	89	2986	96.8	96.7	0.87	0.85	228	5.4	64	6396	0.4	2.2	23.6	5640	87
2240	AMA 500L2A	477	2986	96.9	96.9	0.88	0.87	252	5.4	64	7164	0.5	2.2	26.2	6010	87
<b>1500 r/min = 4 poles</b>																
<b>6000 V 50 Hz</b>																
630	AMA 400L4A	90	1486	95.0	95.1	0.88	0.86	73	4.8	21	4049	0.6	1.9	15.4	2990	79
710	AMA 400L4A	91	1487	95.3	95.4	0.86	0.83	84	5.4	29	4558	0.7	2.2	16.3	3080	79
800	AMA 400L4A	92	1487	95.5	95.6	0.86	0.84	93	5.3	31	5136	0.7	2.1	17.3	3180	79
900	AMA 400L4A	93	1487	95.7	95.8	0.86	0.83	105	5.4	34	5778	0.7	2.2	18.3	3280	79
1000	AMA 400L4A	94	1488	95.9	95.9	0.85	0.82	118	5.6	42	6417	0.7	2.3	19.3	3380	79
1250	AMA 450L4A	96	1488	95.9	95.9	0.87	0.85	144	5.5	43	8023	0.7	2.1	31.1	4150	81
1400	AMA 450L4A	97	1488	96.1	96.2	0.88	0.86	160	5.4	45	8985	0.7	2.0	34.4	4410	81
1600	AMA 500L4A	98	1491	96.0	96.0	0.88	0.87	181	5.5	49	10249	0.7	2.0	52.1	5310	82
1800	AMA 500L4A	99	1491	96.2	96.2	0.89	0.87	203	5.5	53	11531	0.7	2.0	55.0	5470	82
2000	AMA 500L4A	100	1491	96.3	96.4	0.88	0.86	227	5.5	62	12811	0.7	2.0	57.7	5630	82
2240	AMA 500L4A	101	1491	96.5	96.6	0.88	0.86	255	5.6	70	14344	0.7	2.1	63.2	5950	82
2500	AMA 500L4A	479	1490	96.6	96.7	0.88	0.86	284	5.5	75	16020	0.8	2.0	66.0	6130	82

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>																
<b>6000 V 50 Hz</b>																
450	AMA 400L6A	102	988	94.7	94.9	0.84	0.81	54	4.9	20	4351	0.8	1.9	16.8	2900	78
500	AMA 400L6A	103	989	94.9	95.0	0.82	0.78	62	4.9	25	4829	0.7	1.9	17.9	2980	78
560	AMA 400L6A	104	988	95.0	95.2	0.83	0.80	68	5.0	25	5411	0.8	1.9	19.1	3070	78
630	AMA 400L6A	105	990	95.3	95.4	0.82	0.78	77	5.1	31	6080	0.7	1.9	21.4	3260	78
710	AMA 400L6A	106	990	95.4	95.5	0.81	0.77	88	5.1	36	6851	0.8	2.0	22.6	3360	78
800	AMA 450L6A	107	991	95.7	95.9	0.86	0.84	93	5.2	30	7707	0.6	1.9	37.1	4030	79
900	AMA 450L6A	108	991	95.9	96.0	0.86	0.84	105	5.2	34	8670	0.6	2.0	39.2	4160	79
1000	AMA 450L6A	109	992	96.1	96.2	0.85	0.82	118	5.4	41	9629	0.7	2.0	41.3	4290	79
1125	AMA 450L6A	110	991	96.0	96.3	0.86	0.84	131	5.3	40	10840	0.7	2.0	43.7	4400	79
1250	AMA 450L6A	111	993	96.3	96.4	0.82	0.78	152	5.8	62	12024	0.8	2.2	47.8	4670	79
1400	AMA 500L6A	112	992	96.3	96.4	0.87	0.85	161	5.4	48	13475	0.7	2.0	67.2	5450	79
1600	AMA 500L6A	113	992	96.4	96.6	0.88	0.86	182	5.4	51	15401	0.7	1.9	74.3	5740	79
1800	AMA 500L6A	481	992	96.5	96.7	0.88	0.87	203	5.4	53	17328	0.7	1.9	81.5	6040	79
2000	AMA 500L6A	482	993	96.6	96.8	0.87	0.84	230	5.9	74	19224	0.8	2.2	89.9	6380	79
<b>750 r/min = 8 poles</b>																
<b>6000 V 50 Hz</b>																
280	AMA 400L8A	114	740	94.1	94.3	0.83	0.79	35	5.0	14	3612	0.9	2.0	18.7	2860	77
315	AMA 400L8A	115	740	94.1	94.5	0.84	0.81	38	4.7	14	4067	0.8	1.9	20.1	2960	77
355	AMA 400L8A	116	741	94.5	94.7	0.83	0.79	44	5.1	17	4577	0.9	2.1	21.5	3050	77
400	AMA 400L8A	117	740	94.6	94.9	0.83	0.80	49	5.0	19	5159	0.9	2.0	22.9	3140	77
450	AMA 400L8A	118	740	94.7	95.0	0.83	0.80	55	4.9	21	5805	0.9	2.0	24.3	3240	77
500	AMA 400L8A	119	741	94.9	95.1	0.83	0.79	61	5.0	24	6448	0.9	2.0	25.7	3330	77
560	AMA 450L8A	120	743	95.3	95.4	0.81	0.77	69	5.2	30	7199	0.7	2.1	39.3	3880	77
630	AMA 450L8A	121	743	95.4	95.6	0.81	0.77	78	5.2	33	8098	0.7	2.1	41.9	4000	77
710	AMA 450L8A	122	742	95.6	95.9	0.85	0.82	84	5.1	29	9137	0.8	2.0	47.4	4240	77
800	AMA 450L8A	123	742	95.8	96.0	0.85	0.83	94	5.2	32	10294	0.8	2.0	52.6	4480	77
900	AMA 500L8A	124	742	95.8	96.1	0.86	0.84	105	4.9	32	11585	0.7	1.8	69.4	5130	77
1000	AMA 500L8A	125	742	95.9	96.3	0.87	0.85	116	4.9	33	12870	0.7	1.8	78.1	5430	77
1120	AMA 500L8A	126	743	96.1	96.4	0.87	0.85	129	5.2	39	14395	0.7	1.9	87.3	5700	77
1250	AMA 500L8A	127	743	96.2	96.4	0.86	0.83	146	5.2	48	16063	0.7	2.0	94.9	5990	77
1400	AMA 500L8A	483	743	96.3	96.5	0.86	0.84	162	5.3	51	17995	0.7	2.0	103.8	6290	77

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.



# HV Modular motors

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load	3/4 load	Full load	3/4 load	I <sub>N</sub>	I <sub>S</sub>	I <sub>0</sub>	T <sub>N</sub>	T <sub>S</sub>	T <sub>max</sub>			
				100%	75%	100%	75%	A	A	A	Nm	T <sub>N</sub>	T <sub>N</sub>			
<b>600 r/min = 10 poles</b>				<b>6000 V 50 Hz</b>												
200	AMA 400L10A	128	592	92.9	93.0	0.74	0.67	28	4.3	15	3227	0.7	1.9	17.4	2780	76
224	AMA 400L10A	129	592	93.1	93.2	0.75	0.69	31	4.2	16	3616	0.7	1.9	18.8	2870	76
250	AMA 400L10A	130	592	93.4	93.5	0.75	0.70	34	4.2	17	4036	0.7	1.9	20.2	2970	76
280	AMA 400L10A	131	592	93.6	93.7	0.75	0.70	38	4.3	19	4518	0.7	1.9	21.6	3060	76
315	AMA 400L10A	132	593	93.8	93.8	0.74	0.67	44	4.6	23	5072	0.8	1.9	24.4	3240	76
355	AMA 400L10A	133	593	93.9	94.0	0.75	0.69	49	4.4	25	5719	0.8	1.9	25.8	3330	76
450	AMA 450L10A	135	592	94.5	94.8	0.82	0.78	56	4.6	23	7254	0.8	1.9	41.9	3970	76
500	AMA 450L10A	136	593	94.7	94.9	0.81	0.77	63	4.8	26	8056	0.8	2.0	44.5	4090	76
560	AMA 450L10A	137	593	94.9	95.1	0.82	0.78	70	4.8	28	9022	0.8	2.0	49.7	4330	76
400	AMA 450L10A	134	592	94.3	94.6	0.81	0.78	50	4.6	20	6449	0.8	1.9	39.2	3850	76
630	AMA 500L10A	138	595	95.4	95.5	0.81	0.77	78	5.3	34	10116	0.7	2.2	74.4	5230	76
710	AMA 500L10A	139	594	95.5	95.6	0.83	0.78	87	5.2	35	11406	0.7	2.1	78.8	5380	76
800	AMA 500L10A	140	594	95.7	95.9	0.83	0.79	97	5.1	38	12857	0.7	2.0	83.2	5570	76
900	AMA 500L10A	141	594	95.9	96.0	0.83	0.80	108	5.2	42	14458	0.8	2.1	96.4	6010	76
1000	AMA 500L10A	484	594	95.8	96.0	0.84	0.81	120	5.1	44	16068	0.7	2.0	105.1	6270	76
<b>500 r/min = 12 poles</b>				<b>6000 V 50 Hz</b>												
140	AMA 400L12A	142	493	91.7	91.4	0.71	0.64	21	4.1	12	2711	0.8	1.9	18.8	2870	76
160	AMA 400L12A	143	493	91.8	91.7	0.72	0.66	23	3.9	13	3101	0.8	1.8	20.2	2960	76
180	AMA 400L12A	144	493	92.1	92.0	0.72	0.66	26	3.9	14	3489	0.8	1.8	21.6	3050	76
200	AMA 400L12A	145	493	92.3	92.1	0.72	0.65	29	4.0	16	3874	0.8	1.8	23.0	3150	76
224	AMA 400L12A	146	493	92.3	92.0	0.70	0.64	33	4.2	19	4336	0.9	1.9	24.4	3230	76
250	AMA 400L12A	147	493	92.5	92.3	0.71	0.65	36	4.0	20	4842	0.8	1.8	25.8	3320	76
315	AMA 450L12A	149	495	93.9	93.8	0.72	0.65	45	4.7	26	6083	0.9	2.2	42.0	3970	76
355	AMA 450L12A	150	495	94.1	93.9	0.72	0.64	51	4.7	29	6855	0.9	2.1	44.6	4090	76
400	AMA 450L12A	151	494	94.3	94.2	0.73	0.67	56	4.6	30	7726	0.8	2.1	49.8	4320	76
450	AMA 450L12A	152	494	94.0	94.1	0.75	0.69	62	4.4	32	8699	0.8	1.9	52.4	4410	76
280	AMA 450L12A	148	495	93.8	93.6	0.71	0.64	40	4.7	24	5406	0.9	2.2	39.3	3850	76
500	AMA 500L12A	153	495	94.9	94.9	0.75	0.69	68	4.5	35	9650	0.7	2.0	73.7	5250	76
560	AMA 500L12A	154	494	94.8	94.8	0.77	0.72	74	4.5	35	10816	0.7	1.9	78.3	5370	76
630	AMA 500L12A	155	495	95.0	95.0	0.77	0.72	83	4.5	40	12164	0.7	1.9	87.0	5670	76
710	AMA 500L12A	156	494	95.2	95.2	0.77	0.72	93	4.4	43	13715	0.7	1.9	91.3	5850	76
800	AMA 500L12A	579	495	95.3	95.3	0.77	0.72	105	4.6	50	15444	0.7	1.9	104.4	6290	76

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>10000 V 50 Hz</b>																
560	AMA 450L2A	197	2979	94.2	93.8	0.86	0.84	40	4.8	12	1795	0.4	2.1	8.7	3560	86
630	AMA 450L2A	198	2978	94.5	94.3	0.87	0.85	44	4.9	12	2020	0.4	2.1	9.4	3710	86
710	AMA 450L2A	199	2977	94.8	94.7	0.88	0.86	49	5.0	13	2277	0.5	2.2	10.1	3850	86
800	AMA 450L2A	200	2980	95.2	95.1	0.88	0.87	55	5.3	14	2564	0.5	2.2	11.0	4000	86
900	AMA 450L2A	201	2981	95.5	95.4	0.87	0.86	62	5.3	16	2883	0.5	2.2	11.7	4140	86
1000	AMA 500L2A	202	2985	95.4	95.1	0.87	0.85	69	5.3	20	3199	0.4	2.2	18.6	4810	87
1120	AMA 500L2A	203	2985	95.7	95.4	0.88	0.86	77	5.3	21	3583	0.4	2.2	20.0	5000	87
1250	AMA 500L2A	204	2985	95.9	95.7	0.88	0.87	85	5.3	22	3999	0.5	2.2	21.3	5190	87
1400	AMA 500L2A	205	2986	96.1	96.0	0.88	0.87	95	5.3	24	4477	0.5	2.2	22.6	5370	87
1600	AMA 500L2A	497	2985	96.3	96.2	0.88	0.86	109	5.3	28	5118	0.5	2.1	23.9	5560	87
<b>1500 r/min = 4 poles</b>																
<b>10000 V 50 Hz</b>																
630	AMA 450L4A	206	1490	94.3	94.0	0.83	0.79	46	5.5	19	4038	0.6	2.2	24.1	3590	81
710	AMA 450L4A	207	1490	94.7	94.4	0.84	0.80	51	5.6	20	4550	0.6	2.2	25.8	3710	81
800	AMA 450L4A	208	1490	95.0	94.8	0.84	0.80	58	5.5	23	5126	0.6	2.1	27.4	3830	81
900	AMA 450L4A	209	1490	95.3	95.1	0.84	0.81	65	5.6	24	5767	0.6	2.1	29.2	3970	81
1000	AMA 500L4A	210	1491	94.5	94.4	0.86	0.83	71	5.3	24	6405	0.6	2.0	42.9	4760	82
1120	AMA 500L4A	211	1491	94.8	94.7	0.87	0.85	78	5.2	23	7175	0.6	2.0	45.8	4910	82
1250	AMA 500L4A	212	1491	95.3	95.2	0.88	0.86	86	5.4	25	8007	0.7	2.0	48.4	5080	82
1400	AMA 500L4A	213	1491	95.7	95.6	0.90	0.89	94	5.5	22	8965	0.6	2.0	54.9	5400	82
1600	AMA 500L4A	214	1491	95.9	95.9	0.90	0.89	107	5.6	26	10246	0.7	2.0	58.1	5570	82
1800	AMA 500L4A	498	1490	95.9	96.0	0.88	0.86	124	5.5	35	11536	0.6	2.1	57.0	5560	82
2000	AMA 500L4A	499	1491	96.1	96.1	0.85	0.82	141	5.7	47	12811	0.7	2.2	59.6	5720	82

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>																
<b>10000 V 50 Hz</b>																
500	AMA 450L6A	216	992	94.9	94.8	0.84	0.80	36	5.6	14	4813	0.7	2.2	32.2	3730	79
560	AMA 450L6A	217	992	95.1	95.0	0.84	0.80	41	5.5	16	5391	0.7	2.2	34.3	3850	79
630	AMA 450L6A	218	992	95.3	95.2	0.83	0.79	46	5.6	19	6063	0.7	2.2	36.4	3970	79
710	AMA 450L6A	219	991	95.3	95.4	0.85	0.82	51	5.6	18	6840	0.7	2.1	36.7	3970	79
800	AMA 450L6A	220	992	95.5	95.5	0.83	0.79	58	5.6	23	7703	0.7	2.1	38.7	4090	79
900	AMA 500L6A	221	994	95.6	95.7	0.87	0.84	63	5.4	21	8649	0.6	2.1	63.0	5210	79
1000	AMA 500L6A	222	994	95.8	95.8	0.86	0.84	70	5.4	23	9609	0.6	2.1	66.4	5350	79
1120	AMA 500L6A	223	994	95.9	96.0	0.85	0.82	79	5.4	28	10760	0.6	2.1	69.7	5500	79
1250	AMA 500L6A	500	994	96.1	96.1	0.85	0.82	88	5.4	31	12009	0.6	2.1	73.3	5660	79
1400	AMA 500L6A	501	993	96.0	96.3	0.89	0.88	94	5.3	24	13469	0.7	2.0	81.7	5960	79
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
630	AMA 500L8A	224	745	95.4	95.4	0.83	0.78	46	5.6	19	8076	0.7	2.2	65.5	4910	77
710	AMA 500L8A	225	746	95.6	95.6	0.82	0.77	52	5.5	22	9094	0.6	2.2	77.9	5330	77
800	AMA 500L8A	226	745	95.8	95.8	0.82	0.78	59	5.4	25	10248	0.6	2.2	82.2	5480	77
900	AMA 500L8A	227	745	95.9	95.9	0.82	0.77	66	5.5	28	11529	0.7	2.2	86.5	5620	77
1000	AMA 500L8A	502	745	96.0	96.0	0.82	0.78	73	5.4	30	12811	0.6	2.1	95.1	5920	77
1120	AMA 500L8A	503	745	96.0	96.1	0.84	0.81	80	5.5	29	14359	0.7	2.0	95.8	5920	77
<b>600 r/min = 10 poles</b>																
<b>10000 V 50 Hz</b>																
450	AMA 500L10A	228	595	94.4	94.4	0.81	0.75	34	5.6	16	7223	0.8	2.4	69.3	5000	76
500	AMA 500L10A	229	595	94.6	94.6	0.82	0.77	37	5.8	17	8028	0.9	2.4	73.8	5150	76
560	AMA 500L10A	230	595	94.8	94.8	0.82	0.76	42	5.7	19	8983	0.8	2.4	78.9	5300	76
630	AMA 500L10A	231	595	95.0	95.0	0.82	0.77	47	5.7	21	10108	0.8	2.3	83.3	5450	76
710	AMA 500L10A	504	595	95.1	95.1	0.81	0.76	53	5.7	24	11391	0.8	2.3	87.6	5600	76
<b>500 r/min = 12 poles</b>																
<b>10000 V 50 Hz</b>																
315	AMA 500L12A	232	495	93.4	93.5	0.77	0.71	25	4.7	13	6082	0.7	2.1	65.1	4870	76
355	AMA 500L12A	233	495	93.7	93.7	0.77	0.71	28	4.8	14	6852	0.7	2.2	69.4	5010	76
400	AMA 500L12A	234	495	93.9	93.8	0.76	0.69	33	4.9	17	7716	0.7	2.3	73.8	5160	76
450	AMA 500L12A	235	495	94.0	93.9	0.76	0.69	37	5.1	20	8678	0.8	2.3	82.5	5430	76
500	AMA 500L12A	236	495	94.1	94.1	0.76	0.69	40	5.0	21	9644	0.8	2.3	86.8	5580	76
560	AMA 500L12A	507	495	94.3	94.2	0.76	0.69	45	5.0	24	10802	0.8	2.3	91.1	5720	76

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>3000 V 50 Hz</b>																
710	AMA 400L2W	1001	2973	95.9	96.1	0.86	0.84	166	4.8	45	2280	0.5	2.1	6.0	2880	82
800	AMA 400L2W	1002	2974	96.1	96.3	0.87	0.86	184	4.9	45	2569	0.5	2.1	6.5	2980	82
900	AMA 400L2W	1003	2974	96.2	96.4	0.88	0.87	204	4.9	47	2890	0.5	2.1	7.0	3070	82
1000	AMA 400L2W	1004	2977	96.4	96.6	0.88	0.87	226	5.1	53	3208	0.5	2.1	7.3	3190	82
1120	AMA 400L2W	1005	2976	96.5	96.7	0.88	0.87	253	5.3	60	3594	0.6	2.2	7.9	3310	82
1250	AMA 450L2W	1006	2977	96.6	96.7	0.88	0.86	284	4.8	69	4010	0.5	2.0	12.0	4080	83
1400	AMA 450L2W	1007	2978	96.7	96.9	0.86	0.85	324	4.8	84	4489	0.5	2.0	12.7	4220	83
1600	AMA 450L2W	1008	2979	96.9	97.1	0.87	0.85	367	5.0	92	5129	0.5	2.1	14.2	4520	83
1800	AMA 500L2W	1009	2986	97.0	97.0	0.85	0.82	421	5.3	140	5756	0.4	2.2	19.6	5110	84
2000	AMA 500L2W	1010	2984	97.0	97.1	0.88	0.87	448	5.1	112	6401	0.4	2.1	21.0	5300	84
2240	AMA 500L2W	1011	2987	97.3	97.2	0.84	0.81	527	5.7	183	7162	0.5	2.4	22.3	5500	84
2500	AMA 500L2W	1168	2984	97.3	97.4	0.89	0.88	554	5.2	126	8000	0.5	2.1	25.0	5880	84
<b>1500 r/min = 4 poles</b>																
<b>3000 V 50 Hz</b>																
710	AMA 400L4W	1012	1488	95.8	95.9	0.80	0.75	178	5.3	79	4556	0.7	2.3	13.8	2850	79
800	AMA 400L4W	1013	1488	96.0	96.1	0.81	0.77	197	5.3	82	5134	0.7	2.2	14.8	2960	79
900	AMA 400L4W	1014	1488	96.2	96.3	0.81	0.77	221	5.4	91	5776	0.7	2.3	15.8	3070	79
1000	AMA 400L4W	1015	1487	96.2	96.4	0.85	0.83	235	5.0	78	6423	0.6	2.0	16.8	3160	79
1120	AMA 400L4W	1016	1487	96.3	96.5	0.84	0.81	265	5.3	94	7192	0.7	2.1	17.7	3260	79
1250	AMA 400L4W	1017	1487	96.4	96.6	0.83	0.80	299	5.3	108	8025	0.7	2.2	18.7	3370	79
1400	AMA 450L4W	1018	1486	96.2	96.5	0.87	0.86	321	4.9	85	8996	0.6	1.9	29.1	4000	80
1600	AMA 450L4W	1019	1486	96.4	96.7	0.88	0.88	361	5.0	86	10281	0.7	1.9	32.5	4260	80
1800	AMA 450L4W	1020	1487	96.6	96.9	0.89	0.88	404	5.3	99	11559	0.7	2.0	35.9	4520	80
2000	AMA 500L4W	1021	1490	96.6	96.8	0.89	0.88	450	4.9	106	12822	0.6	1.8	52.7	5330	81
2240	AMA 500L4W	1022	1490	96.7	96.9	0.88	0.88	505	4.9	121	14360	0.6	1.8	55.6	5490	81
2500	AMA 500L4W	1023	1490	96.8	97.0	0.89	0.88	559	5.3	133	16020	0.7	1.9	61.6	5790	81
2800	AMA 500L4W	1157	1490	97.0	97.2	0.89	0.89	621	5.5	142	17940	0.7	2.0	67.5	6140	81

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## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>																
<b>3000 V 50 Hz</b>																
500	AMA 400L6W	1024	986	95.1	95.5	0.84	0.82	120	4.4	40	4842	0.7	1.7	15.3	2780	77
560	AMA 400L6W	1025	987	95.4	95.6	0.83	0.80	135	4.8	49	5416	0.7	1.9	16.5	2880	77
630	AMA 400L6W	1026	987	95.3	95.7	0.84	0.82	151	4.6	50	6096	0.7	1.8	17.7	2960	77
710	AMA 400L6W	1027	988	95.6	95.9	0.84	0.81	169	5.0	59	6861	0.8	1.9	20.1	3150	77
800	AMA 400L6W	1028	988	95.7	96.0	0.84	0.81	192	5.1	69	7730	0.8	2.0	21.2	3250	77
900	AMA 400L6W	1029	988	95.8	96.1	0.85	0.82	213	5.1	71	8697	0.8	1.9	23.6	3440	77
1000	AMA 450L6W	1030	992	96.3	96.4	0.81	0.77	245	5.3	101	9626	0.7	2.1	36.8	4020	78
1120	AMA 450L6W	1031	991	96.3	96.6	0.86	0.84	260	5.1	81	10796	0.7	2.0	39.4	4140	78
1250	AMA 450L6W	1032	990	96.2	96.6	0.87	0.85	289	4.8	80	12059	0.6	1.8	41.6	4250	78
1400	AMA 450L6W	1033	990	96.3	96.7	0.87	0.86	322	5.0	89	13502	0.7	1.9	46.0	4490	78
1600	AMA 500L6W	1034	991	96.5	96.8	0.88	0.87	362	5.1	94	15419	0.7	1.9	64.4	5300	79
1800	AMA 500L6W	1035	992	96.6	96.9	0.88	0.86	408	5.5	112	17334	0.8	2.0	71.5	5570	79
2000	AMA 500L6W	1158	991	96.7	97.0	0.89	0.88	447	5.3	105	19272	0.8	1.9	78.8	5890	79
2250	AMA 500L6W	1159	991	96.8	97.1	0.89	0.88	503	5.4	121	21674	0.8	2.0	86.0	6190	79
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
315	AMA 400L8W	1036	738	94.5	94.9	0.83	0.80	77	4.4	27	4076	0.8	1.8	17.1	2730	75
355	AMA 400L8W	1037	739	94.6	95.0	0.83	0.80	87	4.6	32	4585	0.8	1.8	18.6	2830	75
400	AMA 400L8W	1038	739	94.9	95.3	0.83	0.80	97	4.6	35	5166	0.8	1.9	20.0	2930	75
450	AMA 400L8W	1039	739	95.1	95.4	0.84	0.81	109	4.5	37	5814	0.8	1.8	21.4	3040	75
500	AMA 400L8W	1040	739	95.1	95.4	0.84	0.81	121	4.5	41	6460	0.8	1.8	22.8	3120	75
560	AMA 400L8W	1041	739	95.2	95.5	0.84	0.81	135	4.6	47	7233	0.8	1.8	24.2	3220	75
630	AMA 400L8W	1042	739	95.2	95.6	0.84	0.82	151	4.5	50	8140	0.8	1.8	26.9	3400	75
710	AMA 450L8W	1043	742	95.8	96.0	0.83	0.79	172	5.1	66	9138	0.8	2.0	39.9	3850	76
800	AMA 450L8W	1044	741	95.8	96.2	0.85	0.84	188	4.6	58	10311	0.7	1.8	45.2	4090	76
900	AMA 450L8W	1045	741	95.8	96.3	0.86	0.84	211	4.6	63	11598	0.7	1.8	50.4	4310	76
1000	AMA 450L8W	1046	743	96.2	96.4	0.83	0.79	240	5.5	93	12854	0.8	2.1	55.5	4550	76
1120	AMA 500L8W	1047	739	95.8	96.4	0.87	0.86	258	4.3	66	14464	0.6	1.7	74.1	5240	77
1250	AMA 500L8W	1048	741	96.2	96.6	0.87	0.86	288	4.6	76	16105	0.7	1.7	83.3	5550	77
1400	AMA 500L8W	1049	742	96.4	96.7	0.86	0.85	323	5.1	96	18016	0.7	1.9	91.9	5830	77
1600	AMA 500L8W	1160	742	96.3	96.7	0.87	0.86	368	4.8	101	20602	0.7	1.8	100.6	6140	77

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# HV Modular motors

3000 V - 50 Hz

## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> Nm	T <sub>max</sub> Nm			
<b>600 r/min = 10 poles</b>				<b>3000 V 50 Hz</b>												
224	AMA 400L10W	1050	591	93.6	93.8	0.75	0.70	61	4.0	30	3621	0.7	1.8	15.9	2660	75
250	AMA 400L10W	1051	590	93.8	94.0	0.76	0.71	67	4.0	31	4043	0.7	1.7	17.3	2750	75
280	AMA 400L10W	1052	590	93.9	94.2	0.77	0.72	75	3.9	34	4528	0.7	1.7	18.7	2850	75
315	AMA 400L10W	1053	591	94.0	94.3	0.77	0.72	84	4.0	38	5093	0.7	1.7	20.1	2940	75
355	AMA 400L10W	1054	592	94.3	94.4	0.75	0.70	96	4.3	46	5725	0.8	1.8	22.9	3120	75
400	AMA 400L10W	1055	592	94.5	94.7	0.76	0.71	107	4.1	49	6455	0.7	1.7	24.3	3240	75
450	AMA 400L10W	1056	592	94.7	94.7	0.75	0.70	122	4.4	60	7253	0.8	1.9	27.1	3430	75
500	AMA 450L10W	1057	591	94.8	95.3	0.82	0.79	124	4.2	45	8074	0.7	1.7	39.7	3840	76
560	AMA 450L10W	1058	592	95.0	95.4	0.82	0.79	139	4.3	53	9038	0.7	1.8	42.3	3960	76
630	AMA 450L10W	1059	592	95.1	95.5	0.82	0.79	155	4.3	57	10167	0.7	1.8	47.5	4200	76
710	AMA 450L10W	1060	592	95.2	95.6	0.83	0.80	173	4.2	60	11459	0.7	1.7	55.3	4560	76
800	AMA 500L10W	1061	594	95.8	96.0	0.82	0.78	197	4.9	79	12857	0.7	2.0	75.2	5200	77
900	AMA 500L10W	1062	593	95.9	96.2	0.84	0.81	216	4.6	75	14484	0.6	1.8	79.8	5390	77
1000	AMA 500L10W	1063	594	96.0	96.2	0.84	0.81	239	4.8	84	16083	0.7	1.9	93.0	5810	77
1120	AMA 500L10W	1161	594	96.1	96.3	0.83	0.79	271	5.0	104	17997	0.7	2.0	101.4	6110	77
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>												
160	AMA 400L12W	1064	491	92.5	92.5	0.73	0.67	46	3.8	23	3110	0.8	1.7	17.3	2740	75
180	AMA 400L12W	1065	492	92.8	92.8	0.73	0.68	51	3.8	25	3495	0.8	1.7	18.8	2840	75
200	AMA 400L12W	1066	492	92.9	93.0	0.74	0.68	56	3.8	28	3883	0.8	1.7	20.2	2940	75
224	AMA 400L12W	1067	492	93.1	93.1	0.73	0.68	63	3.9	32	4347	0.8	1.7	21.6	3030	75
250	AMA 400L12W	1068	493	93.3	93.2	0.72	0.66	72	4.1	38	4846	0.9	1.8	23.0	3130	75
280	AMA 400L12W	1069	492	93.1	93.2	0.73	0.68	79	3.8	40	5433	0.8	1.7	24.4	3210	75
315	AMA 400L12W	1070	493	93.4	93.3	0.72	0.67	90	4.0	47	6106	0.8	1.8	27.2	3400	75
355	AMA 450L12W	1071	494	94.5	94.5	0.73	0.68	98	4.2	51	6866	0.7	1.9	39.8	3820	76
400	AMA 450L12W	1072	494	94.6	94.7	0.73	0.67	111	4.2	58	7736	0.7	1.9	42.4	3940	76
450	AMA 450L12W	1073	494	94.7	94.8	0.75	0.69	122	4.1	60	8707	0.7	1.8	47.6	4180	76
500	AMA 450L12W	1074	493	94.5	94.8	0.76	0.71	135	3.9	63	9681	0.7	1.7	50.2	4270	76
560	AMA 450L12W	1075	493	94.7	94.9	0.75	0.70	151	4.0	73	10837	0.7	1.8	55.5	4520	76
630	AMA 500L12W	1076	493	95.0	95.3	0.78	0.74	164	3.9	71	12198	0.6	1.7	74.7	5190	77
710	AMA 500L12W	1077	493	95.2	95.4	0.78	0.74	184	4.0	79	13743	0.6	1.7	83.4	5500	77
800	AMA 500L12W	1078	493	95.3	95.5	0.78	0.74	206	3.9	86	15494	0.6	1.7	87.7	5680	77
900	AMA 500L12W	1170	493	95.4	95.6	0.78	0.74	232	4.1	100	17416	0.6	1.8	100.8	6100	77

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# HV Modular motors

6000 V - 50 Hz

## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>3000 r/min = 2 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L2W	1	2973	95.6	95.8	0.86	0.84	83	4.7	22	2281	0.5	2.0	6.0	2820	82
800	AMA 400L2W	2	2974	95.8	96.0	0.87	0.86	92	4.9	23	2569	0.5	2.1	6.5	2920	82
900	AMA 400L2W	3	2974	96.0	96.3	0.88	0.87	102	4.9	23	2890	0.5	2.1	7.0	3030	82
1000	AMA 400L2W	4	2977	96.2	96.5	0.88	0.87	113	5.1	26	3208	0.5	2.1	7.3	3140	82
1120	AMA 400L2W	5	2976	96.3	96.6	0.88	0.87	127	5.3	30	3594	0.6	2.2	7.9	3260	82
1250	AMA 450L2W	6	2977	96.5	96.6	0.88	0.86	142	4.8	34	4010	0.5	2.0	12.0	4020	83
1400	AMA 450L2W	7	2978	96.6	96.8	0.86	0.85	162	4.8	42	4489	0.5	2.1	12.7	4170	83
1600	AMA 450L2W	8	2979	96.8	97.0	0.87	0.86	184	5.0	46	5129	0.5	2.1	14.2	4460	83
1800	AMA 500L2W	9	2984	96.8	96.9	0.88	0.87	203	5.1	52	5761	0.4	2.1	19.7	5030	84
2000	AMA 500L2W	10	2984	97.0	97.1	0.89	0.87	224	5.2	56	6401	0.4	2.1	21.0	5230	84
2240	AMA 500L2W	11	2984	97.1	97.2	0.89	0.87	250	5.3	63	7168	0.5	2.2	22.3	5420	84
2500	AMA 500L2W	578	2984	97.2	97.3	0.89	0.88	277	5.3	63	8000	0.5	2.1	25.0	5790	84
<b>1500 r/min = 4 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L4W	12	1486	95.5	95.8	0.86	0.83	83	5.0	28	4562	0.6	2.0	13.9	2810	79
800	AMA 400L4W	13	1486	95.7	96.0	0.87	0.85	93	5.0	28	5142	0.6	2.0	14.9	2910	79
900	AMA 400L4W	14	1486	95.8	96.2	0.87	0.85	103	5.0	30	5785	0.6	2.0	15.9	3010	79
1000	AMA 400L4W	15	1484	95.7	96.2	0.89	0.89	113	4.7	26	6435	0.6	1.9	16.9	3100	79
1120	AMA 400L4W	16	1484	95.8	96.3	0.89	0.88	126	4.8	30	7206	0.6	1.9	17.9	3200	79
1250	AMA 450L4W	17	1487	95.9	96.2	0.86	0.84	145	5.0	43	8029	0.6	1.9	27.3	3810	80
1400	AMA 450L4W	18	1486	96.1	96.4	0.87	0.86	160	5.0	42	8996	0.7	1.9	29.1	3940	80
1600	AMA 450L4W	19	1486	96.3	96.6	0.89	0.88	180	5.1	43	10281	0.7	1.9	32.5	4210	80
1800	AMA 500L4W	20	1489	96.3	96.5	0.89	0.88	203	5.0	49	11540	0.6	1.8	49.8	5070	81
2000	AMA 500L4W	21	1490	96.4	96.6	0.89	0.88	225	5.0	53	12822	0.6	1.8	52.7	5230	81
2240	AMA 500L4W	22	1490	96.5	96.8	0.89	0.88	252	5.1	60	14359	0.6	1.8	55.6	5390	81
2500	AMA 500L4W	23	1490	96.7	97.0	0.89	0.88	281	5.3	68	16021	0.7	1.9	61.2	5710	81
2800	AMA 500L4W	472	1490	96.9	97.1	0.89	0.88	312	5.5	73	17941	0.7	2.0	67.2	6020	81

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## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>				<b>6000 V 50 Hz</b>												
500	AMA 400L6W	24	986	94.8	95.2	0.85	0.82	60	4.5	20	4842	0.7	1.7	15.3	2730	77
560	AMA 400L6W	25	987	95.0	95.3	0.84	0.81	68	4.9	25	5416	0.8	1.9	16.5	2810	77
630	AMA 400L6W	26	987	95.1	95.5	0.85	0.82	75	4.7	25	6096	0.7	1.8	17.7	2910	77
710	AMA 400L6W	27	988	95.4	95.7	0.85	0.82	85	5.1	30	6861	0.8	1.9	20.1	3100	77
800	AMA 400L6W	28	988	95.5	95.8	0.84	0.81	96	5.2	35	7730	0.9	2.0	21.2	3190	77
900	AMA 450L6W	29	991	95.8	96.1	0.86	0.83	106	5.2	35	8674	0.7	2.0	35.0	3830	78
1000	AMA 450L6W	30	990	96.0	96.4	0.87	0.85	115	5.0	34	9643	0.7	1.9	37.2	3950	78
1120	AMA 450L6W	31	991	96.2	96.5	0.86	0.84	130	5.2	40	10796	0.7	2.0	39.4	4080	78
1250	AMA 450L6W	32	990	96.1	96.5	0.87	0.85	144	4.9	40	12059	0.7	1.9	41.6	4190	78
1400	AMA 450L6W	33	990	96.2	96.6	0.87	0.86	161	5.0	45	13502	0.7	1.9	46.0	4430	78
1600	AMA 500L6W	34	991	96.3	96.7	0.88	0.87	181	5.2	47	15419	0.7	1.9	64.4	5210	79
1800	AMA 500L6W	35	991	96.4	96.8	0.89	0.88	203	5.2	50	17344	0.7	1.9	71.5	5500	79
2000	AMA 500L6W	473	991	96.5	96.9	0.89	0.88	224	5.2	53	19272	0.7	1.9	78.6	5800	79
2250	AMA 500L6W	474	991	96.6	97.0	0.89	0.89	252	5.3	59	21679	0.8	1.9	85.8	6100	79
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>												
315	AMA 400L8W	36	739	94.0	94.5	0.83	0.80	39	4.5	14	4071	0.8	1.8	17.2	2700	75
355	AMA 400L8W	37	739	94.0	94.5	0.83	0.80	44	4.5	16	4586	0.8	1.8	18.6	2790	75
400	AMA 400L8W	38	739	94.4	94.9	0.84	0.81	49	4.6	17	5167	0.8	1.8	20.0	2880	75
450	AMA 400L8W	39	739	94.5	95.0	0.84	0.81	55	4.4	19	5815	0.8	1.8	21.4	2980	75
500	AMA 400L8W	40	739	94.6	95.1	0.84	0.81	61	4.5	21	6461	0.8	1.8	22.8	3070	75
560	AMA 400L8W	41	739	94.7	95.2	0.84	0.81	68	4.5	24	7234	0.8	1.8	24.2	3170	75
630	AMA 450L8W	42	742	95.3	95.7	0.83	0.80	76	5.1	29	8109	0.8	2.0	37.3	3670	76
710	AMA 450L8W	43	742	95.4	95.8	0.83	0.80	86	5.1	33	9138	0.8	2.0	39.9	3800	76
800	AMA 450L8W	44	741	95.5	96.0	0.85	0.84	94	4.6	29	10311	0.7	1.7	45.2	4030	76
900	AMA 450L8W	45	741	95.7	96.1	0.86	0.84	106	4.6	32	11598	0.7	1.8	50.4	4280	76
1000	AMA 500L8W	46	739	95.5	96.1	0.87	0.85	116	4.4	32	12915	0.6	1.7	65.5	4870	77
1120	AMA 500L8W	47	739	95.6	96.2	0.87	0.86	129	4.3	33	14465	0.6	1.7	74.1	5170	77
1250	AMA 500L8W	48	741	95.9	96.4	0.87	0.86	144	4.6	38	16102	0.6	1.7	83.4	5440	77
1400	AMA 500L8W	49	742	96.2	96.5	0.87	0.85	162	5.1	48	18012	0.7	1.9	92.1	5750	77
1600	AMA 500L8W	475	742	96.2	96.6	0.87	0.86	184	4.9	51	20597	0.7	1.8	100.7	6040	77

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.



## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>600 r/min = 10 poles</b>																
<b>6000 V 50 Hz</b>																
224	AMA 400L10W	50	591	92.9	93.2	0.75	0.70	31	4.0	15	3622	0.7	1.8	15.9	2620	75
250	AMA 400L10W	51	590	93.0	93.4	0.77	0.72	34	3.9	16	4044	0.6	1.7	17.3	2710	75
280	AMA 400L10W	52	590	93.2	93.7	0.77	0.73	37	3.9	17	4529	0.6	1.7	18.7	2800	75
315	AMA 400L10W	53	591	93.5	93.9	0.77	0.72	42	3.9	19	5094	0.7	1.7	20.1	2900	75
355	AMA 400L10W	54	592	93.8	94.0	0.76	0.70	48	4.3	23	5726	0.8	1.8	22.9	3070	75
400	AMA 400L10W	55	592	93.9	94.1	0.76	0.72	54	4.1	25	6456	0.7	1.7	24.3	3170	75
450	AMA 450L10W	56	591	94.2	94.8	0.82	0.79	56	4.1	20	7269	0.7	1.7	37.0	3650	76
500	AMA 450L10W	57	591	94.4	94.9	0.82	0.79	62	4.2	23	8074	0.7	1.7	39.7	3770	76
560	AMA 450L10W	58	592	94.5	95.0	0.82	0.79	69	4.3	26	9039	0.7	1.7	42.3	3890	76
630	AMA 450L10W	59	592	94.7	95.2	0.82	0.79	78	4.3	28	10168	0.7	1.7	47.5	4130	76
710	AMA 500L10W	60	594	95.4	95.7	0.83	0.79	87	4.8	34	11415	0.7	1.9	71.0	4980	77
800	AMA 500L10W	61	594	95.4	95.8	0.83	0.80	97	4.7	35	12869	0.7	1.9	75.4	5130	77
900	AMA 500L10W	62	593	95.6	96.0	0.84	0.81	108	4.5	38	14484	0.6	1.8	79.8	5320	77
1000	AMA 500L10W	63	594	95.8	96.1	0.84	0.81	119	4.7	42	16083	0.7	1.9	93.0	5760	77
1120	AMA 500L10W	476	594	95.7	96.1	0.85	0.82	133	4.6	44	18020	0.7	1.8	101.7	6030	77
<b>500 r/min = 12 poles</b>																
<b>6000 V 50 Hz</b>																
160	AMA 400L12W	64	492	91.6	91.8	0.73	0.68	23	3.8	12	3106	0.8	1.7	17.4	2700	75
180	AMA 400L12W	65	492	91.8	92.0	0.74	0.69	25	3.7	13	3496	0.7	1.7	18.8	2790	75
200	AMA 400L12W	66	492	92.0	92.2	0.74	0.69	28	3.7	14	3884	0.7	1.7	20.2	2890	75
224	AMA 400L12W	67	492	92.3	92.4	0.74	0.68	32	3.8	16	4348	0.8	1.7	21.6	2980	75
250	AMA 400L12W	68	492	92.3	92.3	0.73	0.67	36	4.0	19	4848	0.8	1.8	23.0	3060	75
280	AMA 400L12W	69	492	92.4	92.5	0.73	0.68	40	3.8	20	5434	0.8	1.7	24.4	3160	75
315	AMA 450L12W	70	494	93.8	93.9	0.73	0.67	44	4.3	24	6091	0.8	2.0	37.1	3640	76
355	AMA 450L12W	71	494	93.9	94.0	0.74	0.68	49	4.3	26	6866	0.8	1.9	39.8	3760	76
400	AMA 450L12W	72	494	94.1	94.2	0.74	0.68	55	4.3	29	7736	0.8	1.9	42.4	3880	76
450	AMA 450L12W	73	494	94.2	94.4	0.75	0.70	61	4.2	30	8706	0.7	1.8	47.6	4120	76
500	AMA 450L12W	74	493	93.9	94.2	0.76	0.71	67	4.0	32	9681	0.7	1.7	50.2	4200	76
560	AMA 500L12W	75	494	94.6	94.8	0.77	0.72	74	4.2	35	10831	0.6	1.9	70.3	4960	77
630	AMA 500L12W	76	493	94.6	94.9	0.78	0.74	82	4.1	36	12197	0.6	1.8	74.7	5110	77
710	AMA 500L12W	77	493	94.8	95.1	0.79	0.74	92	4.1	40	13741	0.6	1.8	83.4	5410	77
800	AMA 500L12W	78	493	95.0	95.3	0.79	0.75	103	4.0	43	15491	0.6	1.7	87.7	5600	77
900	AMA 500L12W	580	494	95.2	95.4	0.79	0.74	116	4.2	50	17414	0.6	1.8	100.8	6040	77

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## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>10000 V 50 Hz</b>																
630	AMA 450L2W	157	2980	95.2	95.1	0.84	0.81	45	5.1	15	2019	0.4	2.3	9.1	3370	83
710	AMA 450L2W	158	2980	95.5	95.5	0.86	0.83	50	5.3	16	2275	0.5	2.3	9.8	3520	83
800	AMA 450L2W	159	2981	95.8	95.8	0.86	0.83	56	5.3	17	2563	0.5	2.3	10.6	3660	83
900	AMA 450L2W	160	2980	95.8	96.0	0.88	0.86	62	5.2	16	2884	0.5	2.2	11.4	3790	83
1000	AMA 450L2W	161	2979	96.1	96.2	0.88	0.87	68	5.1	16	3206	0.5	2.2	12.1	3950	83
1120	AMA 500L2W	162	2985	96.0	95.9	0.87	0.84	78	5.3	23	3583	0.4	2.2	17.3	4580	84
1250	AMA 500L2W	163	2985	96.2	96.2	0.87	0.86	86	5.3	24	3999	0.4	2.2	18.7	4770	84
1400	AMA 500L2W	164	2985	96.4	96.4	0.88	0.86	96	5.4	26	4479	0.5	2.2	20.0	4960	84
1600	AMA 500L2W	165	2984	96.5	96.6	0.89	0.89	107	5.2	24	5120	0.5	2.1	21.4	5160	84
1800	AMA 500L2W	485	2985	96.7	96.8	0.89	0.88	120	5.4	28	5759	0.5	2.2	22.4	5340	84
<b>1500 r/min = 4 poles</b>																
<b>10000 V 50 Hz</b>																
710	AMA 450L4W	166	1489	95.0	95.0	0.85	0.82	51	5.4	18	4554	0.6	2.1	22.2	3380	80
800	AMA 450L4W	167	1489	95.3	95.4	0.86	0.83	56	5.5	19	5131	0.7	2.1	23.9	3510	80
900	AMA 450L4W	168	1489	95.5	95.6	0.86	0.83	63	5.5	21	5771	0.7	2.1	25.5	3630	80
1000	AMA 450L4W	169	1489	95.7	95.8	0.86	0.84	70	5.6	23	6412	0.7	2.1	27.3	3770	80
1120	AMA 500L4W	170	1491	95.4	95.4	0.88	0.86	77	5.5	22	7172	0.5	2.2	43.6	4670	81
1250	AMA 500L4W	171	1491	95.8	95.9	0.89	0.87	85	5.6	24	8004	0.5	2.1	46.2	4840	81
1400	AMA 500L4W	172	1491	96.0	96.1	0.89	0.87	95	5.6	26	8964	0.6	2.1	49.0	4990	81
1600	AMA 500L4W	173	1491	96.2	96.3	0.88	0.86	109	5.4	31	10245	0.5	2.0	51.7	5150	81
1800	AMA 500L4W	174	1489	96.2	96.3	0.88	0.87	123	5.5	33	11544	0.7	2.1	54.1	5310	81
2000	AMA 500L4W	486	1491	96.4	96.5	0.87	0.85	138	6.0	43	12810	0.7	2.3	57.2	5460	81
2240	AMA 500L4W	487	1490	96.3	96.5	0.88	0.86	152	5.6	42	14359	0.7	2.2	57.6	5460	81

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# HV Modular motors

10000 V - 50 Hz

## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>																
<b>10000 V 50 Hz</b>																
560	AMA 450L6W	176	991	95.2	95.4	0.85	0.82	40	5.6	14	5396	0.7	2.2	30.3	3530	78
630	AMA 450L6W	177	991	95.4	95.6	0.86	0.82	45	5.6	16	6071	0.7	2.1	32.4	3650	78
710	AMA 450L6W	178	991	95.6	95.8	0.85	0.82	50	5.7	18	6840	0.7	2.1	34.5	3770	78
800	AMA 450L6W	179	990	95.5	95.8	0.86	0.84	56	5.4	18	7716	0.7	2.0	34.7	3770	78
900	AMA 450L6W	180	991	95.7	95.9	0.85	0.82	64	5.6	23	8676	0.8	2.1	36.8	3880	78
1000	AMA 500L6W	181	994	95.9	96.1	0.87	0.85	69	5.4	21	9611	0.6	2.1	60.7	4970	79
1120	AMA 500L6W	182	994	96.0	96.3	0.87	0.85	77	5.4	24	10763	0.6	2.0	64.1	5120	79
1250	AMA 500L6W	183	993	96.1	96.3	0.87	0.85	86	5.4	27	12018	0.6	2.0	66.9	5260	79
1400	AMA 500L6W	488	993	96.2	96.5	0.87	0.85	97	5.4	30	13460	0.6	2.0	70.5	5420	79
1600	AMA 500L6W	489	993	96.4	96.6	0.87	0.85	110	5.4	34	15382	0.7	2.0	77.5	5710	79
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
710	AMA 500L8W	184	744	95.5	95.7	0.84	0.81	51	5.4	19	9110	0.7	2.0	62.5	4670	77
800	AMA 500L8W	185	745	95.7	95.9	0.84	0.80	58	5.3	22	10256	0.7	2.1	74.9	5080	77
900	AMA 500L8W	186	745	95.8	96.0	0.84	0.80	65	5.3	24	11539	0.7	2.0	79.3	5230	77
1000	AMA 500L8W	187	745	95.9	96.1	0.83	0.79	72	5.4	28	12819	0.7	2.0	83.6	5380	77
1120	AMA 500L8W	490	745	96.1	96.3	0.84	0.81	80	5.3	30	14359	0.7	2.0	92.3	5670	77
1250	AMA 500L8W	491	744	96.0	96.3	0.85	0.83	88	5.3	29	16040	0.8	1.9	93.0	5680	77
<b>600 r/min = 10 poles</b>																
<b>10000 V 50 Hz</b>																
500	AMA 500L10W	188	594	94.4	94.6	0.82	0.78	37	5.4	16	8034	0.8	2.2	66.1	4750	77
560	AMA 500L10W	189	594	94.6	94.8	0.83	0.79	41	5.2	17	9002	0.8	2.1	70.4	4900	77
630	AMA 500L10W	190	594	94.7	95.0	0.83	0.80	46	5.1	18	10131	0.8	2.0	74.7	5050	77
710	AMA 500L10W	191	595	94.9	95.2	0.83	0.79	52	5.1	21	11404	0.7	2.1	79.9	5200	77
800	AMA 500L10W	492	595	95.0	95.3	0.83	0.79	59	5.1	24	12850	0.7	2.1	84.2	5350	77
<b>500 r/min = 12 poles</b>																
<b>10000 V 50 Hz</b>																
355	AMA 500L12W	192	494	93.3	93.7	0.79	0.74	28	4.2	13	6865	0.6	1.9	61.7	4620	77
400	AMA 500L12W	193	494	93.6	93.9	0.78	0.74	31	4.3	14	7733	0.6	1.9	66.0	4760	77
450	AMA 500L12W	194	494	93.8	94.0	0.77	0.72	36	4.5	17	8693	0.7	2.0	70.4	4910	77
500	AMA 500L12W	195	495	94.0	94.1	0.77	0.72	40	4.7	20	9654	0.7	2.1	79.1	5180	77
560	AMA 500L12W	196	494	94.1	94.2	0.78	0.72	44	4.6	21	10815	0.7	2.0	83.4	5330	77
630	AMA 500L12W	495	494	94.2	94.4	0.78	0.72	50	4.6	24	12169	0.7	2.0	87.7	5470	77

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# HV Modular motors

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>3000 V 50 Hz</b>																
710	AMA 400L2L	1001	2973	95.9	96.1	0.86	0.84	166	4.8	45	2280	0.5	2.1	6.0	2880	75
800	AMA 400L2L	1002	2974	96.1	96.3	0.87	0.86	184	4.9	45	2569	0.5	2.1	6.5	2980	75
900	AMA 400L2L	1003	2974	96.2	96.4	0.88	0.87	204	4.9	47	2890	0.5	2.1	7.0	3070	75
1000	AMA 400L2L	1004	2977	96.4	96.6	0.88	0.87	226	5.1	53	3208	0.5	2.1	7.3	3190	75
1120	AMA 400L2L	1005	2976	96.5	96.7	0.88	0.87	253	5.3	60	3594	0.6	2.2	7.9	3310	75
1250	AMA 450L2L	1006	2977	96.6	96.7	0.88	0.86	284	4.8	69	4010	0.5	2.0	12.0	4080	76
1400	AMA 450L2L	1007	2978	96.7	96.9	0.86	0.85	324	4.8	84	4489	0.5	2.0	12.7	4220	76
1600	AMA 450L2L	1008	2979	96.9	97.1	0.87	0.85	367	5.0	92	5129	0.5	2.1	14.2	4520	76
1800	AMA 500L2L	1009	2986	97.0	97.0	0.85	0.82	421	5.3	140	5756	0.4	2.2	19.6	5110	77
2000	AMA 500L2L	1010	2984	97.0	97.1	0.88	0.87	448	5.1	112	6401	0.4	2.1	21.0	5300	77
2240	AMA 500L2L	1011	2987	97.3	97.2	0.84	0.81	527	5.7	183	7162	0.5	2.4	22.3	5500	77
2500	AMA 500L2L	1168	2984	97.3	97.4	0.89	0.88	554	5.2	126	8000	0.5	2.1	25.0	5880	77
<b>1500 r/min = 4 poles</b>																
<b>3000 V 50 Hz</b>																
710	AMA 400L4L	1012	1488	95.8	95.9	0.80	0.75	178	5.3	79	4556	0.7	2.3	13.8	2850	74
800	AMA 400L4L	1013	1488	96.0	96.1	0.81	0.77	197	5.3	82	5134	0.7	2.2	14.8	2960	74
900	AMA 400L4L	1014	1488	96.2	96.3	0.81	0.77	221	5.4	91	5776	0.7	2.3	15.8	3070	74
1000	AMA 400L4L	1015	1487	96.2	96.4	0.85	0.83	235	5.0	78	6423	0.6	2.0	16.8	3160	74
1120	AMA 400L4L	1016	1487	96.3	96.5	0.84	0.81	265	5.3	94	7192	0.7	2.1	17.7	3260	74
1250	AMA 400L4L	1017	1487	96.4	96.6	0.83	0.80	299	5.3	108	8025	0.7	2.2	18.7	3370	74
1400	AMA 450L4L	1018	1486	96.2	96.5	0.87	0.86	321	4.9	85	8996	0.6	1.9	29.1	4000	75
1600	AMA 450L4L	1019	1486	96.4	96.7	0.88	0.88	361	5.0	86	10281	0.7	1.9	32.5	4260	75
1800	AMA 450L4L	1020	1487	96.6	96.9	0.89	0.88	404	5.3	99	11559	0.7	2.0	35.9	4520	75
2000	AMA 500L4L	1021	1490	96.6	96.8	0.89	0.88	450	4.9	106	12822	0.6	1.8	52.7	5330	75
2240	AMA 500L4L	1022	1490	96.7	96.9	0.88	0.88	505	4.9	121	14360	0.6	1.8	55.6	5490	75
2500	AMA 500L4L	1023	1490	96.8	97.0	0.89	0.88	559	5.3	133	16020	0.7	1.9	61.6	5790	75
2800	AMA 500L4L	1157	1490	97.0	97.2	0.89	0.89	621	5.5	142	17940	0.7	2.0	67.5	6140	75

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# HV Modular motors

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>																
<b>3000 V 50 Hz</b>																
500	AMA 400L6L	1024	986	95.1	95.5	0.84	0.82	120	4.4	40	4842	0.7	1.7	15.3	2780	73
560	AMA 400L6L	1025	987	95.4	95.6	0.83	0.80	135	4.8	49	5416	0.7	1.9	16.5	2880	73
630	AMA 400L6L	1026	987	95.3	95.7	0.84	0.82	151	4.6	50	6096	0.7	1.8	17.7	2960	73
710	AMA 400L6L	1027	988	95.6	95.9	0.84	0.81	169	5.0	59	6861	0.8	1.9	20.1	3150	73
800	AMA 400L6L	1028	988	95.7	96.0	0.84	0.81	192	5.1	69	7730	0.8	2.0	21.2	3250	73
900	AMA 400L6L	1029	988	95.8	96.1	0.85	0.82	213	5.1	71	8697	0.8	1.9	23.6	3440	73
1000	AMA 450L6L	1030	992	96.3	96.4	0.81	0.77	245	5.3	101	9626	0.7	2.1	36.8	4020	74
1120	AMA 450L6L	1031	991	96.3	96.6	0.86	0.84	260	5.1	81	10796	0.7	2.0	39.4	4140	74
1250	AMA 450L6L	1032	990	96.2	96.6	0.87	0.85	289	4.8	80	12059	0.6	1.8	41.6	4250	74
1400	AMA 450L6L	1033	990	96.3	96.7	0.87	0.86	322	5.0	89	13502	0.7	1.9	46.0	4490	74
1600	AMA 500L6L	1034	991	96.5	96.8	0.88	0.87	362	5.1	94	15419	0.7	1.9	64.4	5300	74
1800	AMA 500L6L	1035	992	96.6	96.9	0.88	0.86	408	5.5	112	17334	0.8	2.0	71.5	5570	74
2000	AMA 500L6L	1158	991	96.7	97.0	0.89	0.88	447	5.3	105	19272	0.8	1.9	78.8	5890	74
2250	AMA 500L6L	1159	991	96.8	97.1	0.89	0.88	503	5.4	121	21674	0.8	2.0	86.0	6190	74
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
315	AMA 400L8L	1036	738	94.5	94.9	0.83	0.80	77	4.4	27	4076	0.8	1.8	17.1	2730	73
355	AMA 400L8L	1037	739	94.6	95.0	0.83	0.80	87	4.6	32	4585	0.8	1.8	18.6	2830	73
400	AMA 400L8L	1038	739	94.9	95.3	0.83	0.80	97	4.6	35	5166	0.8	1.9	20.0	2930	73
450	AMA 400L8L	1039	739	95.1	95.4	0.84	0.81	109	4.5	37	5814	0.8	1.8	21.4	3040	73
500	AMA 400L8L	1040	739	95.1	95.4	0.84	0.81	121	4.5	41	6460	0.8	1.8	22.8	3120	73
560	AMA 400L8L	1041	739	95.2	95.5	0.84	0.81	135	4.6	47	7233	0.8	1.8	24.2	3220	73
630	AMA 400L8L	1042	739	95.2	95.6	0.84	0.82	151	4.5	50	8140	0.8	1.8	26.9	3400	73
710	AMA 450L8L	1043	742	95.8	96.0	0.83	0.79	172	5.1	66	9138	0.8	2.0	39.9	3850	73
800	AMA 450L8L	1044	741	95.8	96.2	0.85	0.84	188	4.6	58	10311	0.7	1.8	45.2	4090	73
900	AMA 450L8L	1045	741	95.8	96.3	0.86	0.84	211	4.6	63	11598	0.7	1.8	50.4	4310	73
1000	AMA 450L8L	1046	743	96.2	96.4	0.83	0.79	240	5.5	93	12854	0.8	2.1	55.5	4550	73
1120	AMA 500L8L	1047	739	95.8	96.4	0.87	0.86	258	4.3	66	14464	0.6	1.7	74.1	5240	73
1250	AMA 500L8L	1048	741	96.2	96.6	0.87	0.86	288	4.6	76	16105	0.7	1.7	83.3	5550	73
1400	AMA 500L8L	1049	742	96.4	96.7	0.86	0.85	323	5.1	96	18016	0.7	1.9	91.9	5830	73
1600	AMA 500L8L	1160	742	96.3	96.7	0.87	0.86	368	4.8	101	20602	0.7	1.8	100.6	6140	73

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Modular motors

3000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>600 r/min = 10 poles</b>				<b>3000 V 50 Hz</b>												
224	AMA 400L10L	1050	591	93.6	93.8	0.75	0.70	61	4.0	30	3621	0.7	1.8	15.9	2660	73
250	AMA 400L10L	1051	590	93.8	94.0	0.76	0.71	67	4.0	31	4043	0.7	1.7	17.3	2750	73
280	AMA 400L10L	1052	590	93.9	94.2	0.77	0.72	75	3.9	34	4528	0.7	1.7	18.7	2850	73
315	AMA 400L10L	1053	591	94.0	94.3	0.77	0.72	84	4.0	38	5093	0.7	1.7	20.1	2940	73
355	AMA 400L10L	1054	592	94.3	94.4	0.75	0.70	96	4.3	46	5725	0.8	1.8	22.9	3120	73
400	AMA 400L10L	1055	592	94.5	94.7	0.76	0.71	107	4.1	49	6455	0.7	1.7	24.3	3240	73
450	AMA 400L10L	1056	592	94.7	94.7	0.75	0.70	122	4.4	60	7253	0.8	1.9	27.1	3430	73
500	AMA 450L10L	1057	591	94.8	95.3	0.82	0.79	124	4.2	45	8074	0.7	1.7	39.7	3840	73
560	AMA 450L10L	1058	592	95.0	95.4	0.82	0.79	139	4.3	53	9038	0.7	1.8	42.3	3960	73
630	AMA 450L10L	1059	592	95.1	95.5	0.82	0.79	155	4.3	57	10167	0.7	1.8	47.5	4200	73
710	AMA 450L10L	1060	592	95.2	95.6	0.83	0.80	173	4.2	60	11459	0.7	1.7	55.3	4560	73
800	AMA 500L10L	1061	594	95.8	96.0	0.82	0.78	197	4.9	79	12857	0.7	2.0	75.2	5200	73
900	AMA 500L10L	1062	593	95.9	96.2	0.84	0.81	216	4.6	75	14484	0.6	1.8	79.8	5390	73
1000	AMA 500L10L	1063	594	96.0	96.2	0.84	0.81	239	4.8	84	16083	0.7	1.9	93.0	5810	73
1120	AMA 500L10L	1161	594	96.1	96.3	0.83	0.79	271	5.0	104	17997	0.7	2.0	101.4	6110	73
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>												
160	AMA 400L12L	1064	491	92.5	92.5	0.73	0.67	46	3.8	23	3110	0.8	1.7	17.3	2740	73
180	AMA 400L12L	1065	492	92.8	92.8	0.73	0.68	51	3.8	25	3495	0.8	1.7	18.8	2840	73
200	AMA 400L12L	1066	492	92.9	93.0	0.74	0.68	56	3.8	28	3883	0.8	1.7	20.2	2940	73
224	AMA 400L12L	1067	492	93.1	93.1	0.73	0.68	63	3.9	32	4347	0.8	1.7	21.6	3030	73
250	AMA 400L12L	1068	493	93.3	93.2	0.72	0.66	72	4.1	38	4846	0.9	1.8	23.0	3130	73
280	AMA 400L12L	1069	492	93.1	93.2	0.73	0.68	79	3.8	40	5433	0.8	1.7	24.4	3210	73
315	AMA 400L12L	1070	493	93.4	93.3	0.72	0.67	90	4.0	47	6106	0.8	1.8	27.2	3400	73
355	AMA 450L12L	1071	494	94.5	94.5	0.73	0.68	98	4.2	51	6866	0.7	1.9	39.8	3820	73
400	AMA 450L12L	1072	494	94.6	94.7	0.73	0.67	111	4.2	58	7736	0.7	1.9	42.4	3940	73
450	AMA 450L12L	1073	494	94.7	94.8	0.75	0.69	122	4.1	60	8707	0.7	1.8	47.6	4180	73
500	AMA 450L12L	1074	493	94.5	94.8	0.76	0.71	135	3.9	63	9681	0.7	1.7	50.2	4270	73
560	AMA 450L12L	1075	493	94.7	94.9	0.75	0.70	151	4.0	73	10837	0.7	1.8	55.5	4520	73
630	AMA 500L12L	1076	493	95.0	95.3	0.78	0.74	164	3.9	71	12198	0.6	1.7	74.7	5190	73
710	AMA 500L12L	1077	493	95.2	95.4	0.78	0.74	184	4.0	79	13743	0.6	1.7	83.4	5500	73
800	AMA 500L12L	1078	493	95.3	95.5	0.78	0.74	206	3.9	86	15494	0.6	1.7	87.7	5680	73
900	AMA 500L12L	1170	493	95.4	95.6	0.78	0.74	232	4.1	100	17416	0.6	1.8	100.8	6100	73

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L2L	1	2973	95.6	95.8	0.86	0.84	83	4.7	22	2281	0.5	2.0	6.0	2820	75
800	AMA 400L2L	2	2974	95.8	96.0	0.87	0.86	92	4.9	23	2569	0.5	2.1	6.5	2920	75
900	AMA 400L2L	3	2974	96.0	96.3	0.88	0.87	102	4.9	23	2890	0.5	2.1	7.0	3030	75
1000	AMA 400L2L	4	2977	96.2	96.5	0.88	0.87	113	5.1	26	3208	0.5	2.1	7.3	3140	75
1120	AMA 400L2L	5	2976	96.3	96.6	0.88	0.87	127	5.3	30	3594	0.6	2.2	7.9	3260	75
1250	AMA 450L2L	6	2977	96.5	96.6	0.88	0.86	142	4.8	34	4010	0.5	2.0	12.0	4020	76
1400	AMA 450L2L	7	2978	96.6	96.8	0.86	0.85	162	4.8	42	4489	0.5	2.1	12.7	4170	76
1600	AMA 450L2L	8	2979	96.8	97.0	0.87	0.86	184	5.0	46	5129	0.5	2.1	14.2	4460	76
1800	AMA 500L2L	9	2984	96.8	96.9	0.88	0.87	203	5.1	52	5761	0.4	2.1	19.7	5030	77
2000	AMA 500L2L	10	2984	97.0	97.1	0.89	0.87	224	5.2	56	6401	0.4	2.1	21.0	5230	77
2240	AMA 500L2L	11	2984	97.1	97.2	0.89	0.87	250	5.3	63	7168	0.5	2.2	22.3	5420	77
2500	AMA 500L2L	578	2984	97.2	97.3	0.89	0.88	277	5.3	63	8000	0.5	2.1	25.0	5790	77
<b>1500 r/min = 4 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L4L	12	1486	95.5	95.8	0.86	0.83	83	5.0	28	4562	0.6	2.0	13.9	2810	74
800	AMA 400L4L	13	1486	95.7	96.0	0.87	0.85	93	5.0	28	5142	0.6	2.0	14.9	2910	74
900	AMA 400L4L	14	1486	95.8	96.2	0.87	0.85	103	5.0	30	5785	0.6	2.0	15.9	3010	74
1000	AMA 400L4L	15	1484	95.7	96.2	0.89	0.89	113	4.7	26	6435	0.6	1.9	16.9	3100	74
1120	AMA 400L4L	16	1484	95.8	96.3	0.89	0.88	126	4.8	30	7206	0.6	1.9	17.9	3200	74
1250	AMA 450L4L	17	1487	95.9	96.2	0.86	0.84	145	5.0	43	8029	0.6	1.9	27.3	3810	75
1400	AMA 450L4L	18	1486	96.1	96.4	0.87	0.86	160	5.0	42	8996	0.7	1.9	29.1	3940	75
1600	AMA 450L4L	19	1486	96.3	96.6	0.89	0.88	180	5.1	43	10281	0.7	1.9	32.5	4210	75
1800	AMA 500L4L	20	1489	96.3	96.5	0.89	0.88	203	5.0	49	11540	0.6	1.8	49.8	5070	75
2000	AMA 500L4L	21	1490	96.4	96.6	0.89	0.88	225	5.0	53	12822	0.6	1.8	52.7	5230	75
2240	AMA 500L4L	22	1490	96.5	96.8	0.89	0.88	252	5.1	60	14359	0.6	1.8	55.6	5390	75
2500	AMA 500L4L	23	1490	96.7	97.0	0.89	0.88	281	5.3	68	16021	0.7	1.9	61.2	5710	75
2800	AMA 500L4L	472	1490	96.9	97.1	0.89	0.88	312	5.5	73	17941	0.7	2.0	67.2	6020	75

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Modular motors

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>				<b>6000 V 50 Hz</b>												
500	AMA 400L6L	24	986	94.8	95.2	0.85	0.82	60	4.5	20	4842	0.7	1.7	15.3	2730	73
560	AMA 400L6L	25	987	95.0	95.3	0.84	0.81	68	4.9	25	5416	0.8	1.9	16.5	2810	73
630	AMA 400L6L	26	987	95.1	95.5	0.85	0.82	75	4.7	25	6096	0.7	1.8	17.7	2910	73
710	AMA 400L6L	27	988	95.4	95.7	0.85	0.82	85	5.1	30	6861	0.8	1.9	20.1	3100	73
800	AMA 400L6L	28	988	95.5	95.8	0.84	0.81	96	5.2	35	7730	0.9	2.0	21.2	3190	73
900	AMA 450L6L	29	991	95.8	96.1	0.86	0.83	106	5.2	35	8674	0.7	2.0	35.0	3830	74
1000	AMA 450L6L	30	990	96.0	96.4	0.87	0.85	115	5.0	34	9643	0.7	1.9	37.2	3950	74
1120	AMA 450L6L	31	991	96.2	96.5	0.86	0.84	130	5.2	40	10796	0.7	2.0	39.4	4080	74
1250	AMA 450L6L	32	990	96.1	96.5	0.87	0.85	144	4.9	40	12059	0.7	1.9	41.6	4190	74
1400	AMA 450L6L	33	990	96.2	96.6	0.87	0.86	161	5.0	45	13502	0.7	1.9	46.0	4430	74
1600	AMA 500L6L	34	991	96.3	96.7	0.88	0.87	181	5.2	47	15419	0.7	1.9	64.4	5210	74
1800	AMA 500L6L	35	991	96.4	96.8	0.89	0.88	203	5.2	50	17344	0.7	1.9	71.5	5500	74
2000	AMA 500L6L	473	991	96.5	96.9	0.89	0.88	224	5.2	53	19272	0.7	1.9	78.6	5800	74
2250	AMA 500L6L	474	991	96.6	97.0	0.89	0.89	252	5.3	59	21679	0.8	1.9	85.8	6100	74
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>												
315	AMA 400L8L	36	739	94.0	94.5	0.83	0.80	39	4.5	14	4071	0.8	1.8	17.2	2700	73
355	AMA 400L8L	37	739	94.0	94.5	0.83	0.80	44	4.5	16	4586	0.8	1.8	18.6	2790	73
400	AMA 400L8L	38	739	94.4	94.9	0.84	0.81	49	4.6	17	5167	0.8	1.8	20.0	2880	73
450	AMA 400L8L	39	739	94.5	95.0	0.84	0.81	55	4.4	19	5815	0.8	1.8	21.4	2980	73
500	AMA 400L8L	40	739	94.6	95.1	0.84	0.81	61	4.5	21	6461	0.8	1.8	22.8	3070	73
560	AMA 400L8L	41	739	94.7	95.2	0.84	0.81	68	4.5	24	7234	0.8	1.8	24.2	3170	73
630	AMA 450L8L	42	742	95.3	95.7	0.83	0.80	76	5.1	29	8109	0.8	2.0	37.3	3670	73
710	AMA 450L8L	43	742	95.4	95.8	0.83	0.80	86	5.1	33	9138	0.8	2.0	39.9	3800	73
800	AMA 450L8L	44	741	95.5	96.0	0.85	0.84	94	4.6	29	10311	0.7	1.7	45.2	4030	73
900	AMA 450L8L	45	741	95.7	96.1	0.86	0.84	106	4.6	32	11598	0.7	1.8	50.4	4280	73
1000	AMA 500L8L	46	739	95.5	96.1	0.87	0.85	116	4.4	32	12915	0.6	1.7	65.5	4870	73
1120	AMA 500L8L	47	739	95.6	96.2	0.87	0.86	129	4.3	33	14465	0.6	1.7	74.1	5170	73
1250	AMA 500L8L	48	741	95.9	96.4	0.87	0.86	144	4.6	38	16102	0.6	1.7	83.4	5440	73
1400	AMA 500L8L	49	742	96.2	96.5	0.87	0.85	162	5.1	48	18012	0.7	1.9	92.1	5750	73
1600	AMA 500L8L	475	742	96.2	96.6	0.87	0.86	184	4.9	51	20597	0.7	1.8	100.7	6040	73

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.



# HV Modular motors

6000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>600 r/min = 10 poles</b>																
<b>6000 V 50 Hz</b>																
224	AMA 400L10L	50	591	92.9	93.2	0.75	0.70	31	4.0	15	3622	0.7	1.8	15.9	2620	73
250	AMA 400L10L	51	590	93.0	93.4	0.77	0.72	34	3.9	16	4044	0.6	1.7	17.3	2710	73
280	AMA 400L10L	52	590	93.2	93.7	0.77	0.73	37	3.9	17	4529	0.6	1.7	18.7	2800	73
315	AMA 400L10L	53	591	93.5	93.9	0.77	0.72	42	3.9	19	5094	0.7	1.7	20.1	2900	73
355	AMA 400L10L	54	592	93.8	94.0	0.76	0.70	48	4.3	23	5726	0.8	1.8	22.9	3070	73
400	AMA 400L10L	55	592	93.9	94.1	0.76	0.72	54	4.1	25	6456	0.7	1.7	24.3	3170	73
450	AMA 450L10L	56	591	94.2	94.8	0.82	0.79	56	4.1	20	7269	0.7	1.7	37.0	3650	73
500	AMA 450L10L	57	591	94.4	94.9	0.82	0.79	62	4.2	23	8074	0.7	1.7	39.7	3770	73
560	AMA 450L10L	58	592	94.5	95.0	0.82	0.79	69	4.3	26	9039	0.7	1.7	42.3	3890	73
630	AMA 450L10L	59	592	94.7	95.2	0.82	0.79	78	4.3	28	10168	0.7	1.7	47.5	4130	73
710	AMA 500L10L	60	594	95.4	95.7	0.83	0.79	87	4.8	34	11415	0.7	1.9	71.0	4980	73
800	AMA 500L10L	61	594	95.4	95.8	0.83	0.80	97	4.7	35	12869	0.7	1.9	75.4	5130	73
900	AMA 500L10L	62	593	95.6	96.0	0.84	0.81	108	4.5	38	14484	0.6	1.8	79.8	5320	73
1000	AMA 500L10L	63	594	95.8	96.1	0.84	0.81	119	4.7	42	16083	0.7	1.9	93.0	5760	73
1120	AMA 500L10L	476	594	95.7	96.1	0.85	0.82	133	4.6	44	18020	0.7	1.8	101.7	6030	73
<b>500 r/min = 12 poles</b>																
<b>6000 V 50 Hz</b>																
160	AMA 400L12L	64	492	91.6	91.8	0.73	0.68	23	3.8	12	3106	0.8	1.7	17.4	2700	73
180	AMA 400L12L	65	492	91.8	92.0	0.74	0.69	25	3.7	13	3496	0.7	1.7	18.8	2790	73
200	AMA 400L12L	66	492	92.0	92.2	0.74	0.69	28	3.7	14	3884	0.7	1.7	20.2	2890	73
224	AMA 400L12L	67	492	92.3	92.4	0.74	0.68	32	3.8	16	4348	0.8	1.7	21.6	2980	73
250	AMA 400L12L	68	492	92.3	92.3	0.73	0.67	36	4.0	19	4848	0.8	1.8	23.0	3060	73
280	AMA 400L12L	69	492	92.4	92.5	0.73	0.68	40	3.8	20	5434	0.8	1.7	24.4	3160	73
315	AMA 450L12L	70	494	93.8	93.9	0.73	0.67	44	4.3	24	6091	0.8	2.0	37.1	3640	73
355	AMA 450L12L	71	494	93.9	94.0	0.74	0.68	49	4.3	26	6866	0.8	1.9	39.8	3760	73
400	AMA 450L12L	72	494	94.1	94.2	0.74	0.68	55	4.3	29	7736	0.8	1.9	42.4	3880	73
450	AMA 450L12L	73	494	94.2	94.4	0.75	0.70	61	4.2	30	8706	0.7	1.8	47.6	4120	73
500	AMA 450L12L	74	493	93.9	94.2	0.76	0.71	67	4.0	32	9681	0.7	1.7	50.2	4200	73
560	AMA 500L12L	75	494	94.6	94.8	0.77	0.72	74	4.2	35	10831	0.6	1.9	70.3	4960	73
630	AMA 500L12L	76	493	94.6	94.9	0.78	0.74	82	4.1	36	12197	0.6	1.8	74.7	5110	73
710	AMA 500L12L	77	493	94.8	95.1	0.79	0.74	92	4.1	40	13741	0.6	1.8	83.4	5410	73
800	AMA 500L12L	78	493	95.0	95.3	0.79	0.75	103	4.0	43	15491	0.6	1.7	87.7	5600	73
900	AMA 500L12L	580	494	95.2	95.4	0.79	0.74	116	4.2	50	17414	0.6	1.8	100.8	6040	73

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# HV Modular motors

10000 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>S</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>S</sub> Nm	T <sub>max</sub> Nm			
<b>3000 r/min = 2 poles</b>																
<b>10000 V 50 Hz</b>																
630	AMA 450L2L	157	2980	95.2	95.1	0.84	0.81	45	5.1	15	2019	0.4	2.3	9.1	3370	76
710	AMA 450L2L	158	2980	95.5	95.5	0.86	0.83	50	5.3	16	2275	0.5	2.3	9.8	3520	76
800	AMA 450L2L	159	2981	95.8	95.8	0.86	0.83	56	5.3	17	2563	0.5	2.3	10.6	3660	76
900	AMA 450L2L	160	2980	95.8	96.0	0.88	0.86	62	5.2	16	2884	0.5	2.2	11.4	3790	76
1000	AMA 450L2L	161	2979	96.1	96.2	0.88	0.87	68	5.1	16	3206	0.5	2.2	12.1	3950	76
1120	AMA 500L2L	162	2985	96.0	95.9	0.87	0.84	78	5.3	23	3583	0.4	2.2	17.3	4580	77
1250	AMA 500L2L	163	2985	96.2	96.2	0.87	0.86	86	5.3	24	3999	0.4	2.2	18.7	4770	77
1400	AMA 500L2L	164	2985	96.4	96.4	0.88	0.86	96	5.4	26	4479	0.5	2.2	20.0	4960	77
1600	AMA 500L2L	165	2984	96.5	96.6	0.89	0.89	107	5.2	24	5120	0.5	2.1	21.4	5160	77
1800	AMA 500L2L	485	2985	96.7	96.8	0.89	0.88	120	5.4	28	5759	0.5	2.2	22.4	5340	77
<b>1500 r/min = 4 poles</b>																
<b>10000 V 50 Hz</b>																
710	AMA 450L4L	166	1489	95.0	95.0	0.85	0.82	51	5.4	18	4554	0.6	2.1	22.2	3380	75
800	AMA 450L4L	167	1489	95.3	95.4	0.86	0.83	56	5.5	19	5131	0.7	2.1	23.9	3510	75
900	AMA 450L4L	168	1489	95.5	95.6	0.86	0.83	63	5.5	21	5771	0.7	2.1	25.5	3630	75
1000	AMA 450L4L	169	1489	95.7	95.8	0.86	0.84	70	5.6	23	6412	0.7	2.1	27.3	3770	75
1120	AMA 500L4L	170	1491	95.4	95.4	0.88	0.86	77	5.5	22	7172	0.5	2.2	43.6	4670	75
1250	AMA 500L4L	171	1491	95.8	95.9	0.89	0.87	85	5.6	24	8004	0.5	2.1	46.2	4840	75
1400	AMA 500L4L	172	1491	96.0	96.1	0.89	0.87	95	5.6	26	8964	0.6	2.1	49.0	4990	75
1600	AMA 500L4L	173	1491	96.2	96.3	0.88	0.86	109	5.4	31	10245	0.5	2.0	51.7	5150	75
1800	AMA 500L4L	174	1489	96.2	96.3	0.88	0.87	123	5.5	33	11544	0.7	2.1	54.1	5310	75
2000	AMA 500L4L	486	1491	96.4	96.5	0.87	0.85	138	6.0	43	12810	0.7	2.3	57.2	5460	75
2240	AMA 500L4L	487	1490	96.3	96.5	0.88	0.86	152	5.6	42	14359	0.7	2.2	57.6	5460	75

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

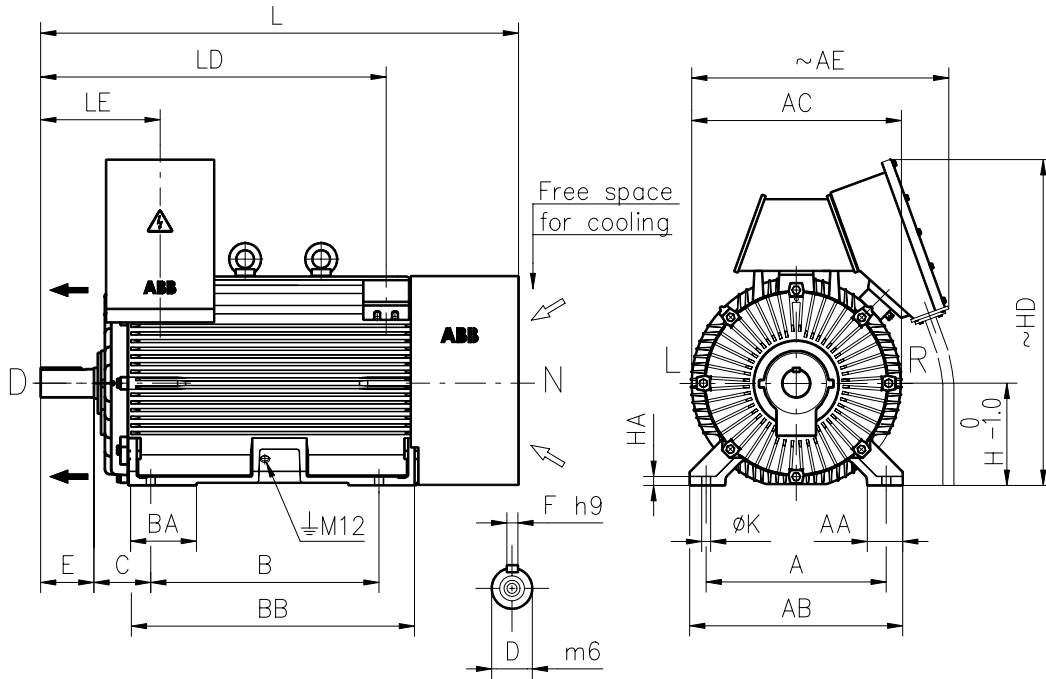
Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>				<b>10000 V 50 Hz</b>												
560	AMA 450L6L	176	991	95.2	95.4	0.85	0.82	40	5.6	14	5396	0.7	2.2	30.3	3530	74
630	AMA 450L6L	177	991	95.4	95.6	0.86	0.82	45	5.6	16	6071	0.7	2.1	32.4	3650	74
710	AMA 450L6L	178	991	95.6	95.8	0.85	0.82	50	5.7	18	6840	0.7	2.1	34.5	3770	74
800	AMA 450L6L	179	990	95.5	95.8	0.86	0.84	56	5.4	18	7716	0.7	2.0	34.7	3770	74
900	AMA 450L6L	180	991	95.7	95.9	0.85	0.82	64	5.6	23	8676	0.8	2.1	36.8	3880	74
1000	AMA 500L6L	181	994	95.9	96.1	0.87	0.85	69	5.4	21	9611	0.6	2.1	60.7	4970	74
1120	AMA 500L6L	182	994	96.0	96.3	0.87	0.85	77	5.4	24	10763	0.6	2.0	64.1	5120	74
1250	AMA 500L6L	183	993	96.1	96.3	0.87	0.85	86	5.4	27	12018	0.6	2.0	66.9	5260	74
1400	AMA 500L6L	488	993	96.2	96.5	0.87	0.85	97	5.4	30	13460	0.6	2.0	70.5	5420	74
1600	AMA 500L6L	489	993	96.4	96.6	0.87	0.85	110	5.4	34	15382	0.7	2.0	77.5	5710	74
<b>750 r/min = 8 poles</b>				<b>10000 V 50 Hz</b>												
710	AMA 500L8L	184	744	95.5	95.7	0.84	0.81	51	5.4	19	9110	0.7	2.0	62.5	4670	73
800	AMA 500L8L	185	745	95.7	95.9	0.84	0.80	58	5.3	22	10256	0.7	2.1	74.9	5080	73
900	AMA 500L8L	186	745	95.8	96.0	0.84	0.80	65	5.3	24	11539	0.7	2.0	79.3	5230	73
1000	AMA 500L8L	187	745	95.9	96.1	0.83	0.79	72	5.4	28	12819	0.7	2.0	83.6	5380	73
1120	AMA 500L8L	490	745	96.1	96.3	0.84	0.81	80	5.3	30	14359	0.7	2.0	92.3	5670	73
1250	AMA 500L8L	491	744	96.0	96.3	0.85	0.83	88	5.3	29	16040	0.8	1.9	93.0	5680	73
<b>600 r/min = 10 poles</b>				<b>10000 V 50 Hz</b>												
500	AMA 500L10L	188	594	94.4	94.6	0.82	0.78	37	5.4	16	8034	0.8	2.2	66.1	4750	73
560	AMA 500L10L	189	594	94.6	94.8	0.83	0.79	41	5.2	17	9002	0.8	2.1	70.4	4900	73
630	AMA 500L10L	190	594	94.7	95.0	0.83	0.80	46	5.1	18	10131	0.8	2.0	74.7	5050	73
710	AMA 500L10L	191	595	94.9	95.2	0.83	0.79	52	5.1	21	11404	0.7	2.1	79.9	5200	73
800	AMA 500L10L	492	595	95.0	95.3	0.83	0.79	59	5.1	24	12850	0.7	2.1	84.2	5350	73
<b>500 r/min = 12 poles</b>				<b>10000 V 50 Hz</b>												
355	AMA 500L12L	192	494	93.3	93.7	0.79	0.74	28	4.2	13	6865	0.6	1.9	61.7	4620	73
400	AMA 500L12L	193	494	93.6	93.9	0.78	0.74	31	4.3	14	7733	0.6	1.9	66.0	4760	73
450	AMA 500L12L	194	494	93.8	94.0	0.77	0.72	36	4.5	17	8693	0.7	2.0	70.4	4910	73
500	AMA 500L12L	195	495	94.0	94.1	0.77	0.72	40	4.7	20	9654	0.7	2.1	79.1	5180	73
560	AMA 500L12L	196	494	94.1	94.2	0.78	0.72	44	4.6	21	10815	0.7	2.0	83.4	5330	73
630	AMA 500L12L	495	494	94.2	94.4	0.78	0.72	50	4.6	24	12169	0.7	2.0	87.7	5470	73

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# Engineered motors, HXR

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC411



HXR	Poles	A	B	C	D	E	F	H	AE	HD	L	K	LD	LE
355L	2	610	630	254	70	140	20	355	980	1195	1505	35	1080	380
355L	≥ 4	610	630	254	100	210	28	355	980	1195	1670	35	1150	450
400L	2	710	900	224	80	170	22	400	1030	1285	1765	35	1325	430
400L	≥ 4	710	900	224	110	210	28	400	1030	1285	1900	35	1365	470
450L	2	800	1000	250	80	170	22	450	1075	1385	1985	42	1520	445
450L	≥ 4	800	1000	250	110	210	28	450	1075	1385	2120	42	1560	485
500L	2	900	1250	280	90	170	25	500	1175	1510	2320	42	1800	460
500L	≥ 4	900	1250	280	120	210	32	500	1175	1510	2455	42	1840	500
560L	≥ 4	1000	1600	400	160	300	40	560	1285	1655	3025	48	2350	630

HXR	Poles	AA	AB	AC	BA	BB	HA	D-end bearing	N-end bearing
355L	2	120	700	745	210	886	55	6317M/C3	6317M/C3
355L	≥ 4	120	700	745	210	886	55	6322/C3	6319/C3
400L	2	140	840	840	260	1120	35	6317M/C3	6317M/C3
400L	≥ 4	140	840	840	260	1120	35	6324/C3	6319/C3
450L	2	160	950	940	320	1300	40	6317M/C3	6317M/C3
450L	≥ 4	160	950	940	320	1300	40	6324/C3	6322/C3
500L	2	170	1050	1050	375	1570	45	6319M/C3	6319M/C3
500L	≥ 4	170	1050	1050	375	1570	45	6326/C3	6324/C3
560L	≥ 4	230	1170	1190	620	1940	50	6034/C3 + NU1034/C3	NU322/C3

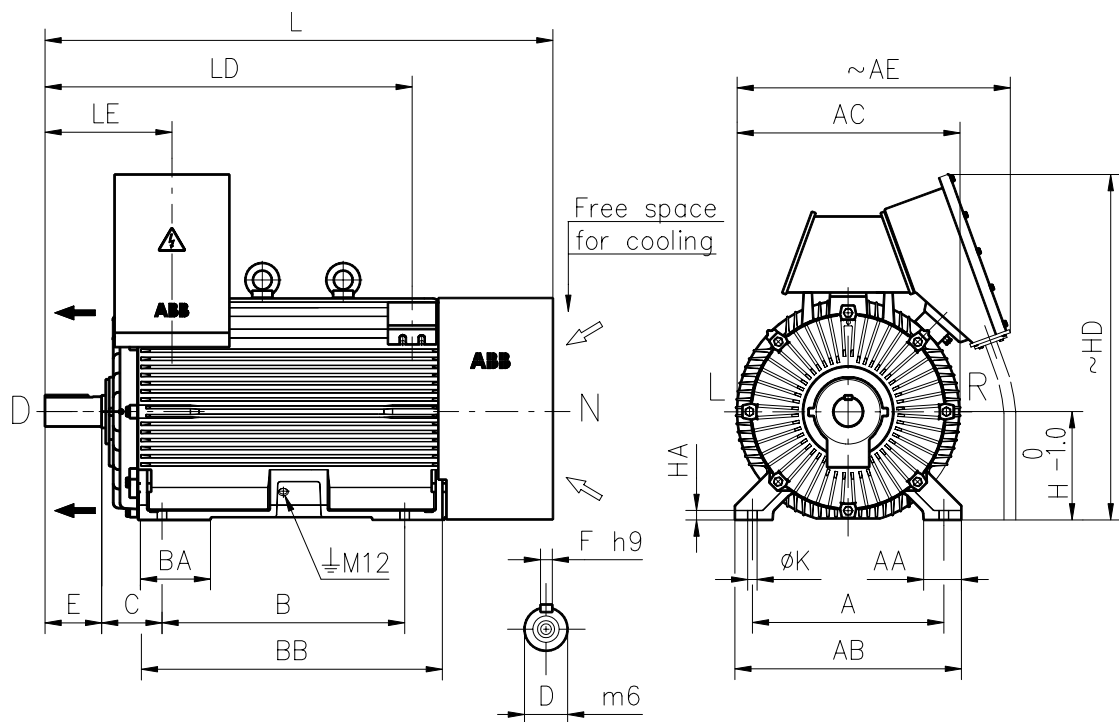
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, HXR

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM1001, IC411



HXR	Poles	A	B	C	D	E	F	H	AE	HD	L	K	LD	LE
450L	2	800	1000	250	80	170	22	450	1225	1505	1985	42	1520	445
450L	≥ 4	800	1000	250	110	210	28	450	1225	1505	2120	42	1560	485
500L	2	900	1250	280	90	170	25	500	1280	1630	2320	42	1800	460
500L	≥ 4	900	1250	280	120	210	32	500	1280	1630	2455	42	1840	500
560L	≥ 4	1000	1600	400	160	300	40	560	1360	1780	3025	48	2350	630

HXR	Poles	AA	AB	AC	BA	BB	HA	D-end bearing	N-end bearing
450L	2	160	950	940	320	1300	40	6317/C3	6317/C3
450L	≥ 4	160	950	940	320	1300	40	6324/C3	6322/C3
500L	2	170	1050	1050	375	1570	45	6319M/C3	6319M/C3
500L	≥ 4	170	1050	1050	375	1570	45	6326/C3	6324/C3
560L	≥ 4	230	1170	1190	620	1940	50	6034/C3 + NU1034/C3	NU322/C3

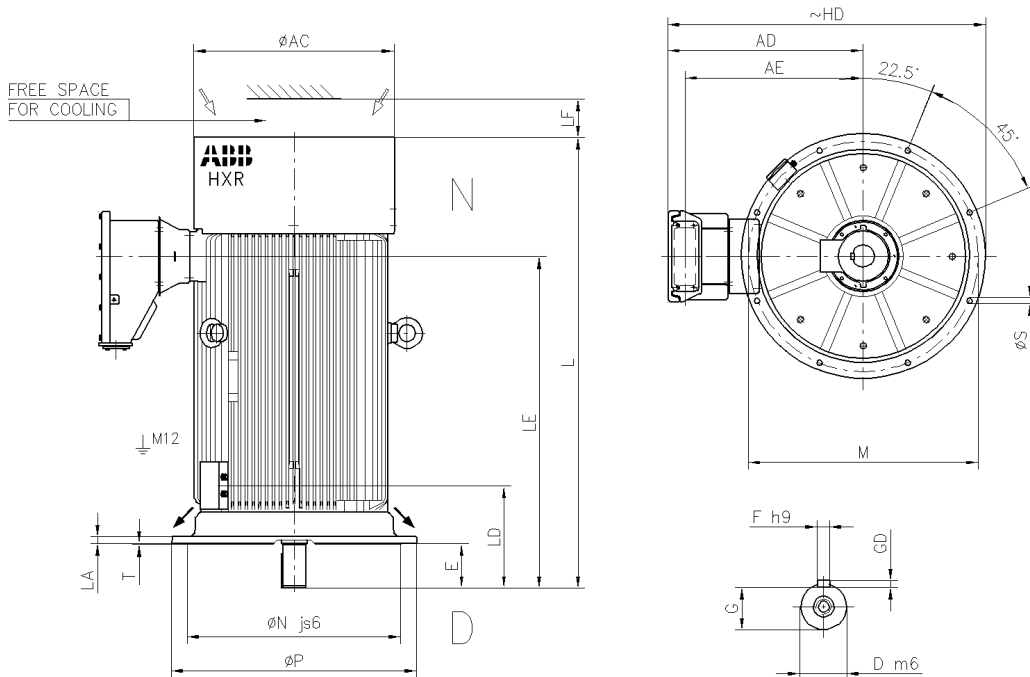
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, HXR

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM3011, IC411



HXR	Poles	M	N	P	S	D	E	F	G	GD	HD	L	LA
355L	2	740	680	800	23	70	140	20	62.5	12	1225	1505	25
355L	≥ 4	740	680	800	23	100	210	28	90	16	1225	1670	25
400L	2	940	880	1000	28	80	170	22	71	14	1370	1765	30
400L	≥ 4	940	880	1000	28	110	210	28	100	16	1370	1900	30
450L	≥ 4	1080	1000	1150	28	110	210	28	100	16	1495	2120	30
500L	≥ 4	1080	1000	1150	28	120	210	32	109	18	1570	2455	30
560L	≥ 6	1320	1250	1400	28	160	300	40	147	22	1780	3005	40

HXR	Poles	LD	LE	LF	T	AC	AD	AE	D-end bearing	N-end bearing
355L	2	395	1080	130	6	750	822	745	6317M/C3	7317 BM
355L	4	465	1150	130	6	750	822	745	6322/C3	7319 BM
400L	2	425	1315	150	6	840	867	790	6317M/C3	7317 BM
400L	≥ 4	465	1355	150	6	840	867	790	6324/C3	7319 BM
450L	≥ 4	480	1555	180	6	940	917	840	6324/C3	7322 BM
500L	≥ 4	510	1850	200	6	1040	992	915	6326/C3	7324 BM
560L	≥ 6	630	2350	250	6	1190	1077	1000	6034/C3	7334 BM

Note! Rain canopy is recommended for outdoor location.

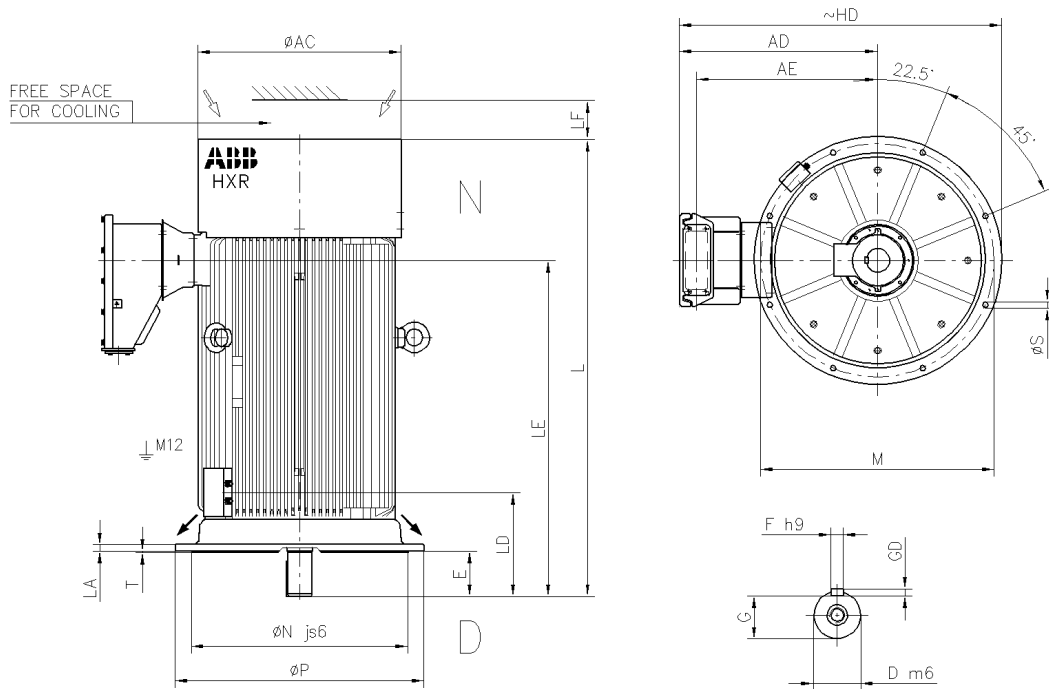
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, HXR

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 3011, IC411



HXR	Poles	M	N	P	S	D	E	F	G	GD	HD	L	LA
450L	≥ 4	1080	1000	1150	28	110	210	28	100	16	1590	2120	30
500L	≥ 4	1080	1000	1150	28	120	210	32	109	18	1665	2455	30
560L	≥ 6	1320	1250	1400	28	160	300	40	147	22	1875	3005	40

HXR	Poles	LD	LE	LF	T	AC	AD	AE	D-end bearing	N-end bearing
450L	≥ 4	480	1555	180	6	940	1012	935	6324/C3	7322 BM
500L	≥ 4	510	1850	200	6	1040	1087	1010	6326/C3	7324 BM
560L	≥ 6	630	2350	250	6	1190	1172	1095	6034/C3	7334 BM

Note! Rain canopy is recommended for outdoor location.

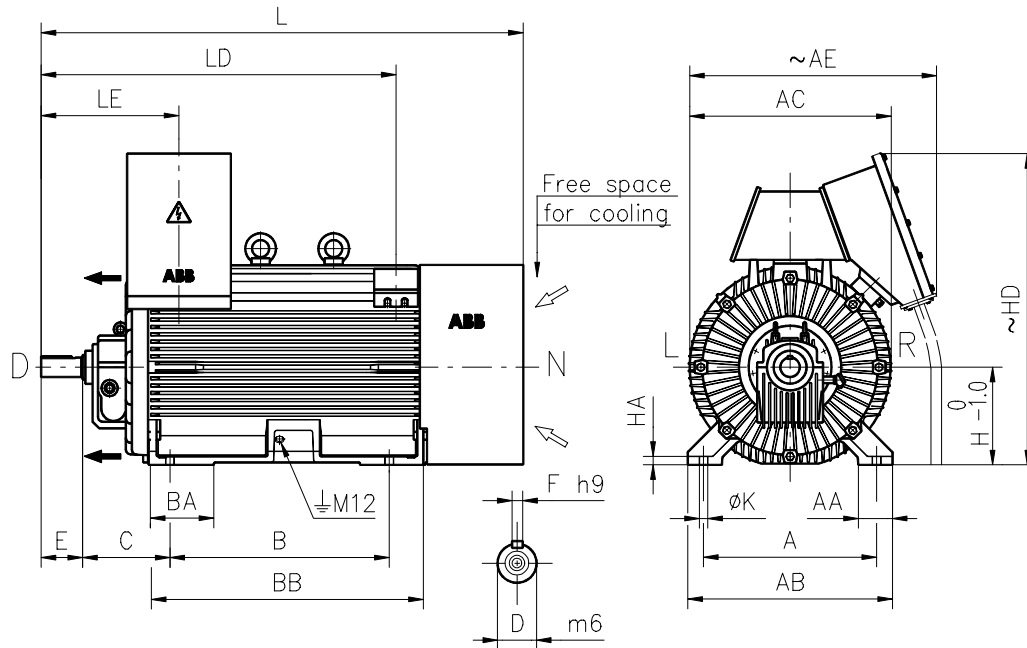
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, HXR

## Dimension drawings

Sleeve bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC411



HXR	Poles	A	B	C	D	E	F	H	AE	HD	L	K	LD	LE
355L	2	610	630	475	70	140	20	355	980	1195	1905	35	1300	600
355L	≥ 4	610	630	475	100	210	28	355	980	1195	2075	35	1370	670
400L	2	710	900	450	80	170	22	400	1030	1285	2170	35	1550	655
400L	≥ 4	710	900	450	110	210	28	400	1030	1285	2305	35	1590	695
450L	2	800	1000	475	80	170	22	450	1075	1385	2390	42	1745	670
450L	≥ 4	800	1000	475	110	210	28	450	1075	1385	2525	42	1785	710
500L	2	900	1250	500	90	170	25	500	1175	1510	2705	42	2020	680
500L	≥ 4	900	1250	500	120	210	32	500	1175	1510	2840	42	2060	720
560L	2	1000	1600	670	120	210	32	560	1285	1655	3280	48	2530	810
560L	≥ 4	1000	1600	670	160	300	40	560	1285	1655	3465	48	2620	900

HXR	Poles	AA	AB	AC	BA	BB	HA	D-end bearing	N-end bearing
355L	2	120	700	750	210	886	55	EFZLB 9-80 <sup>1)</sup>	EFZLQ 9-80 <sup>1)</sup>
355L	≥ 4	120	700	750	210	886	55	EFZLB 9-90	EFZLQ 9-90
400L	2	140	840	840	260	1120	35	EFZLB 9-80 <sup>1)</sup>	EFZLQ 9-80 <sup>1)</sup>
400L	≥ 4	140	840	840	260	1120	35	EFZLB 9-100	EFZLQ 9-100
450L	2	160	950	940	320	1300	40	EFZLB 9-80 <sup>1)</sup>	EFZLQ 9-80 <sup>1)</sup>
450L	≥ 4	160	950	940	320	1300	40	EFZLB 9-100 <sup>2)</sup>	EFZLQ 9-100 <sup>2)</sup>
500L	2	170	1050	1050	375	1570	45	EFZLB 9-90 <sup>1)</sup>	EFZLQ 9-90 <sup>1)</sup>
500L	≥ 4	170	1050	1050	375	1570	45	EFZLB 11-100 <sup>2)</sup>	EFZLQ 9-100 <sup>2)</sup>
560L	2	230	1170	1190	620	1940	50	EFZLB 14-125 <sup>1)</sup>	EFZLQ 14-125 <sup>1)</sup>
560L	4, 6	230	1170	1190	620	1940	50	EFZLB 14-125 <sup>2)</sup>	EFZLQ 14-125 <sup>2)</sup>
560L	≥ 8	230	1170	1190	620	1940	50	EFZLB 14-140	EFZLQ 14-140

<sup>1)</sup> With oil circulation as standard.

<sup>2)</sup> With oil circulation as standard for 4 poles.

Note! Axial float of rotor as standard ±8 mm.

Note! The bearing cannot withstand continuous axial forces.

The above table gives the main dimensions in mm.

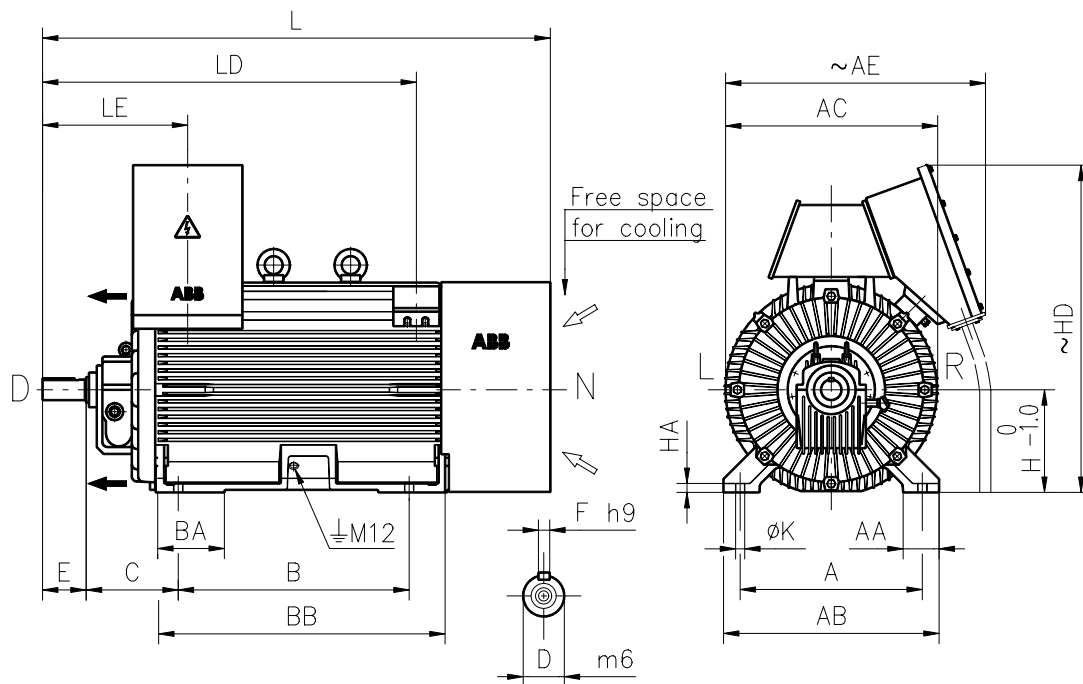
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# Engineered motors, HXR

## Dimension drawings

Sleeve bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC411



HXR	Poles	A	B	C	D	E	F	H	AE	HD	L	K	LD	LE
450L	2	800	1000	475	80	170	22	450	1225	1505	2390	42	1745	670
450L	≥ 4	800	1000	475	110	210	28	450	1225	1505	2525	42	1785	710
500L	2	900	1250	500	90	170	25	500	1280	1630	2705	42	2020	680
500L	≥ 4	900	1250	500	120	210	32	500	1280	1630	2840	42	2060	720
560L	2	1000	1600	670	120	210	32	560	1360	1780	3280	48	2530	810
560L	≥ 4	1000	1600	670	160	300	40	560	1360	1780	3465	48	2620	900

HXR	Poles	AA	AB	AC	BA	BB	HA	D-end bearing	N-end bearing
450L	2	160	950	940	320	1300	40	EFZLB 9-80 <sup>1)</sup>	EFZLQ 9-80 <sup>1)</sup>
450L	≥ 4	160	950	940	320	1300	40	EFZLB 9-100 <sup>2)</sup>	EFZLQ 9-100 <sup>2)</sup>
500L	2	170	1050	1050	375	1570	45	EFZLB 9-90 <sup>1)</sup>	EFZLQ 9-90 <sup>1)</sup>
500L	≥ 4	170	1050	1050	375	1570	45	EFZLB 11-100 <sup>2)</sup>	EFZLQ 9-100 <sup>2)</sup>
560L	2	230	1170	1190	620	1940	50	EFZLB 14-125 <sup>1)</sup>	EFZLQ 14-125 <sup>1)</sup>
560L	4, 6	230	1170	1190	620	1940	50	EFZLB 14-125 <sup>2)</sup>	EFZLQ 14-125 <sup>2)</sup>
560L	≥ 4	230	1170	1190	620	1940	50	EFZLB 14-140	EFZLQ 14-140

<sup>1)</sup> With oil circulation as standard.

<sup>2)</sup> With oil circulation as standard for 4 poles.

Note! Axial float of rotor as standard ±8 mm.

Note! The bearing cannot withstand continuous axial forces.

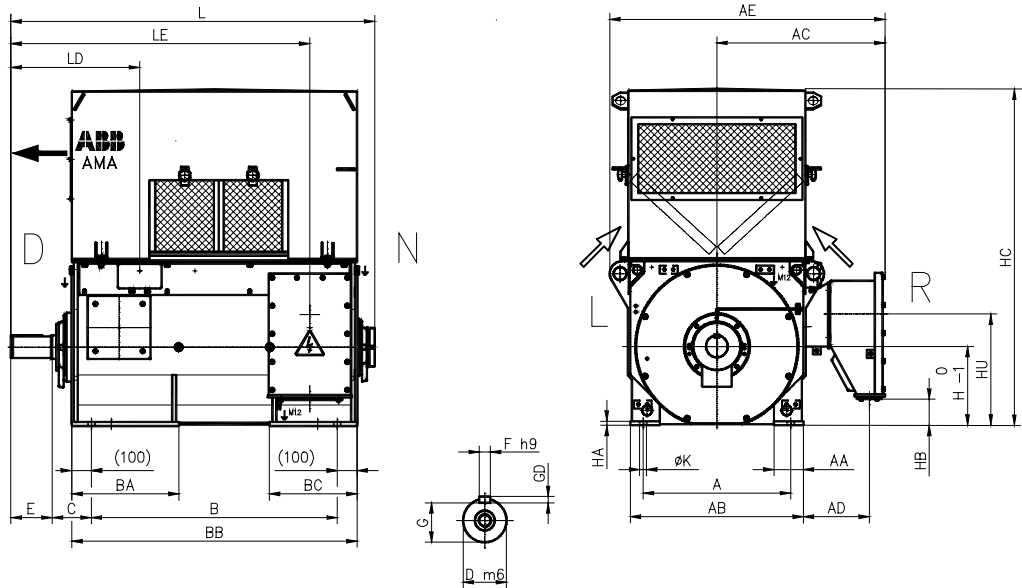
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC01 / IP24W



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
400L	2	750	1250	200	85	170	22	76	400	35	1825	150	880	855	335
400L	≥ 4	750	1250	200	110	210	28	100	400	35	1865	150	880	855	335
450L	2	850	1400	200	90	170	25	81	450	42	1975	150	980	905	335
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2025	150	980	905	335
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2265	150	1080	955	335

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1400	545	1450	445	14	20	130	1710	615	1480	565	6319M/C3	6319M/C3
400L	≥ 4	1400	545	1450	445	16	20	130	1710	655	1520	565	6324/C3	6319/C3
450L	2	1500	575	1600	465	14	25	230	1860	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1500	575	1600	465	18	25	230	1860	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1605	645	1800	495	20	35	330	2060	860	1910	765	6330/C3	6324/C3

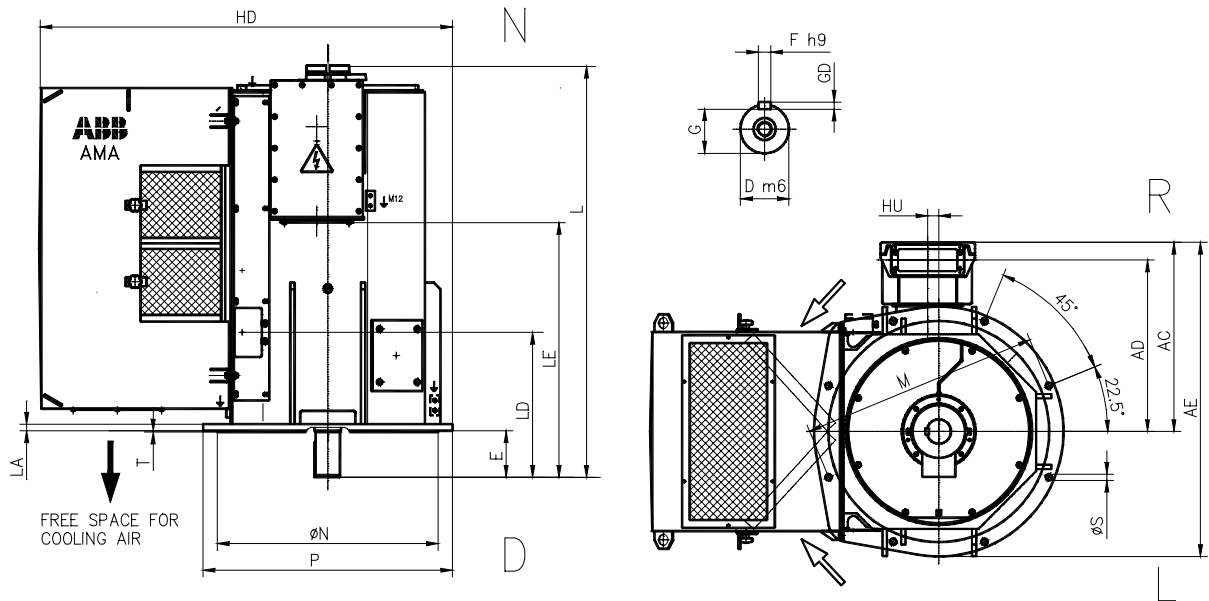
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM 4011, IC01 / IP24W



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
400L	$\geq 4$	1080	1000js6	1130	28	110	210	28	100	1875	1860	30	655	1150
450L	$\geq 4$	1180	1120h8	1230	28	125	210	32	114	2025	2020	40	750	1300
500L	$\geq 4$	1320	1250h8	1370	28	140	250	36	128	2245	2260	47	860	1540

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
400L	$\geq 4$	6	855	775	1425	16	50	6324/C3	7319B
450L	$\geq 4$	7	905	825	1525	18	50	6326/C3	7322B
500L	$\geq 4$	8	955	875	1645	20	50	6330/C3	7324B

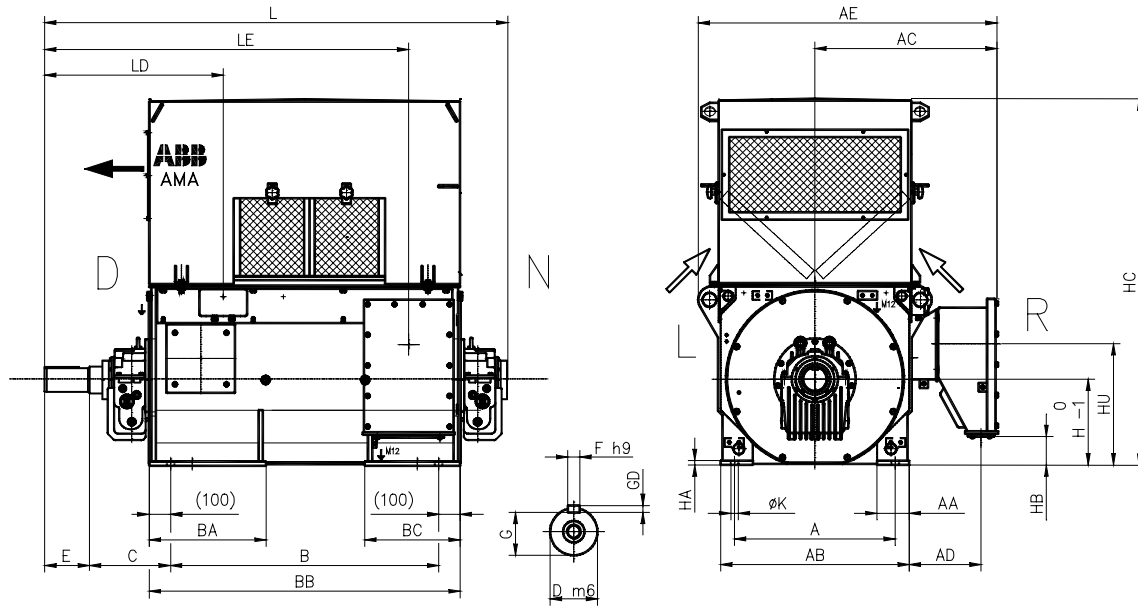
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Sleeve bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC01 / IP24W



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD	AE	BA
400L	2	750	1250	375	85	170	22	76	400	35	2065	150	880	855	335	1400	545
400L	≥ 4	750	1250	375	110	210	28	100	400	35	2100	150	880	855	335	1400	545
450L	2	850	1400	375	90	170	25	81	450	42	2215	150	980	905	335	1500	575
450L	≥ 4	850	1400	400	125	210	32	114	450	42	2275	150	980	905	335	1500	575
500L	2	950	1600	375	110	210	28	100	500	42	2485	150	1080	955	335	1605	645
500L	≥ 4	950	1600	450	140	250	36	128	500	42	2595	150	1080	955	335	1605	645

AMA	Poles	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1450	445	14	20	130	1710	790	1655	565	EFZLB9-80	EFZLQ9-80
400L	≥ 4	1450	445	16	20	130	1710	830	1695	565	EFZLB9-100	EFZLQ 9-100
450L	2	1600	465	14	25	230	1860	885	1805	665	EFZLB9-80	EFZLQ 9-80
450L	≥ 4	1600	465	18	25	230	1860	950	1870	665	EFZLB11-125	EFZLQ9-100
500L	2	1800	495	16	35	330	2060	995	2045	765	EFNLB11-90	EFNLB11-90
500L	4	1800	495	20	35	330	2060	1110	2160	765	EFZLB14-125	EFZLQ11-125
500L	≥ 6	1800	495	20	35	330	2060	1110	2160	765	EFZLB14-140	EFZLQ11-125

Note! Axial float of rotor as standard  $\pm 8$  mm.

Note! The bearing cannot withstand continuous axial forces.

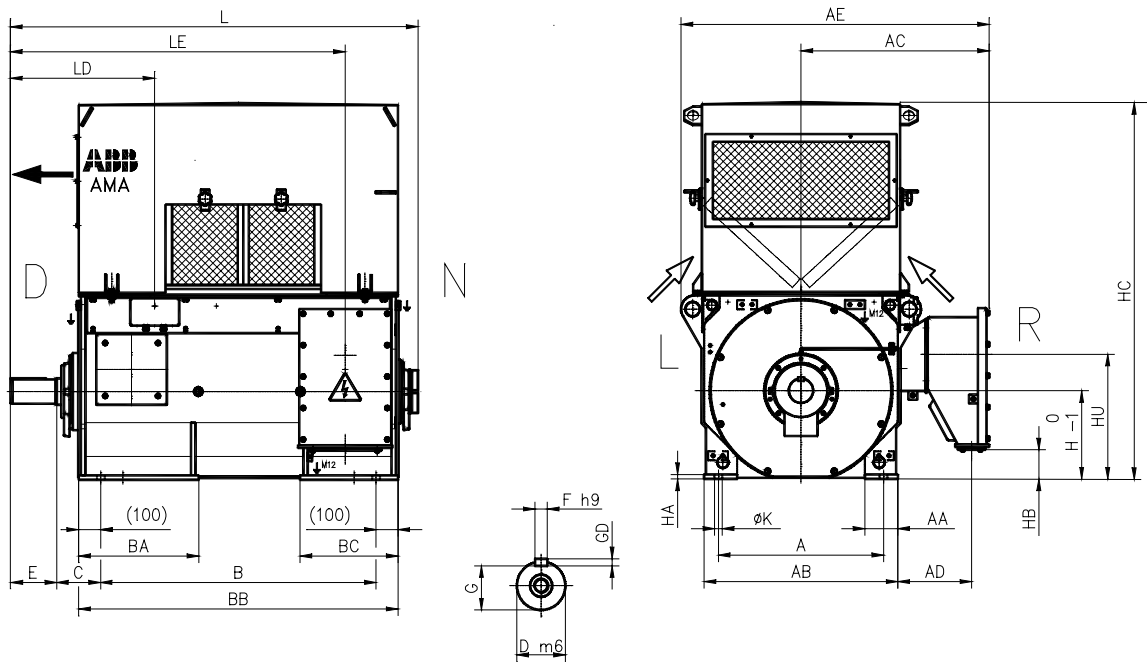
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC01 / IP24W



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
450L	2	850	1400	200	90	170	25	81	450	42	1975	150	980	1005	430
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2025	150	980	1005	430
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2265	150	1080	1055	430

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
450L	2	1600	575	1600	465	14	25	35	1860	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1600	575	1600	465	18	25	35	1860	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1700	645	1800	495	20	35	135	2060	860	1910	765	6330/C3	6324/C3

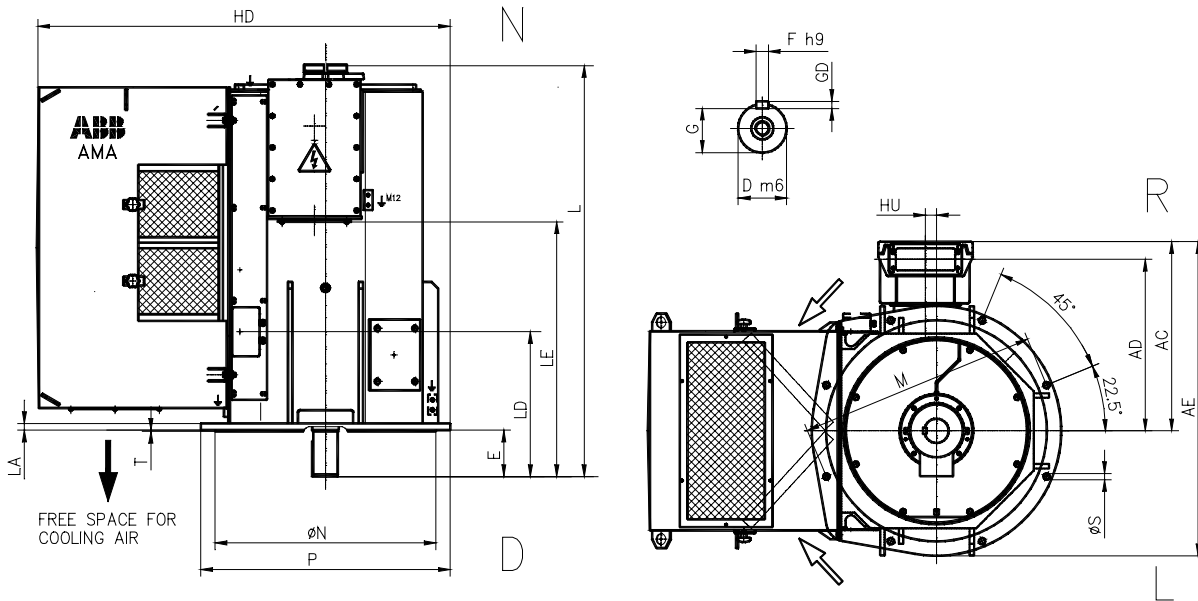
The above table gives the main dimensions in mm.

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# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 4011, IC01 / IP24W



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	2025	2030	40	750	1100
500L	≥ 4	1320	1250h8	1370	28	140	250	36	128	2245	2270	47	860	1340

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
450L	≥ 4	7	1000	920	1620	18	50	6326/C3	7322B
500L	≥ 4	8	1050	970	1740	20	50	6330/C3	7324B

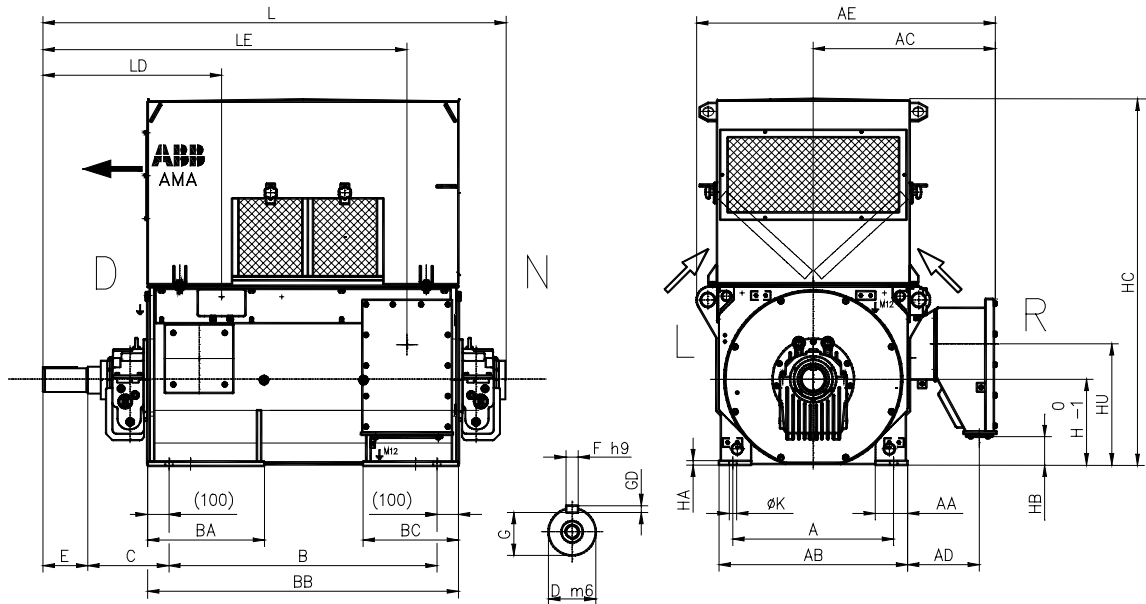
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Sleeve bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC01 / IP24W



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD	AE	BA
450L	2	850	1400	375	90	170	25	81	450	42	2215	150	980	1005	430	1600	575
450L	≥ 4	850	1400	400	125	210	32	114	450	42	2275	150	980	1005	430	1600	575
500L	2	950	1600	375	110	210	28	100	500	42	2485	150	1080	1055	430	1700	645
500L	≥ 4	950	1600	450	140	250	36	128	500	42	2595	150	1080	1055	430	1700	645

AMA	Poles	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
450L	2	1600	465	14	25	35	1860	885	1805	665	EFZLB9-80	EFZLQ 9-80
450L	≥ 4	1600	465	18	25	35	1860	950	1870	665	EFZLB11-125	EFZLQ9-100
500L	2	1800	495	16	35	135	2060	995	2045	765	EFNLB11-90	EFNLB11-90
500L	4	1800	495	20	35	135	2060	1110	2160	765	EFZLB14-125	EFZLQ11-125
500L	≥ 6	1800	495	20	35	135	2060	1110	2160	765	EFZLB14-140	EFZLQ11-125

Note! Axial float of rotor as standard ±8 mm.

Note! The bearing cannot withstand continuous axial forces.

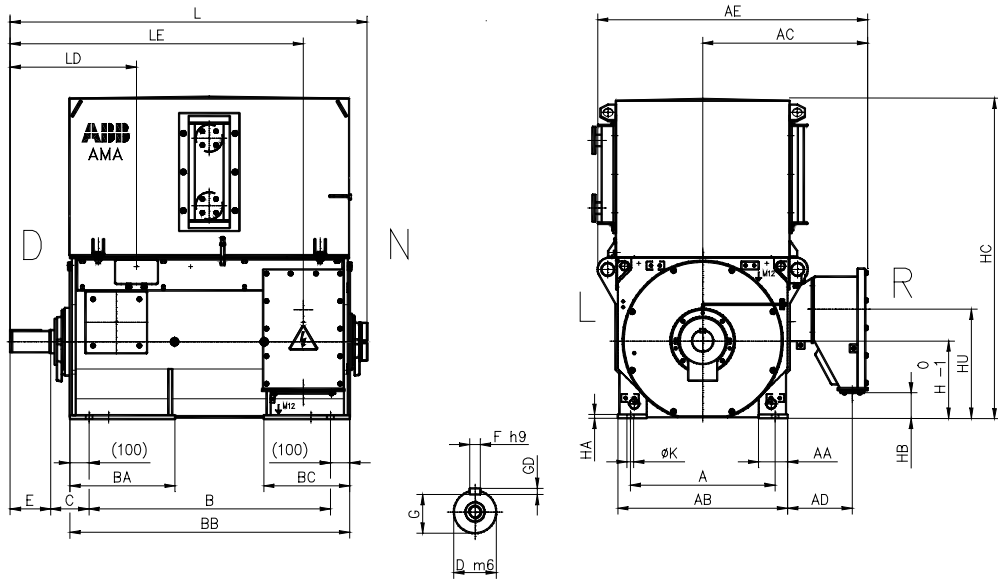
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC81W / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
400L	2	750	1250	200	85	170	22	76	400	35	1825	150	880	855	335
400L	≥ 4	750	1250	200	110	210	28	100	400	35	1865	150	880	855	335
450L	2	850	1400	200	90	170	25	81	450	42	1975	150	980	905	335
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2025	150	980	905	335
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2265	150	1080	955	335

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1400	545	1450	445	14	20	130	1670	615	1480	565	6319M/C3	6319M/C3
400L	≥ 4	1400	545	1450	445	16	20	130	1670	655	1520	565	6324/C3	6319/C3
450L	2	1500	575	1600	465	14	25	230	1870	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1500	575	1600	465	18	25	230	1870	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1605	645	1800	495	20	35	330	2070	860	1910	765	6330/C3	6324/C3

The above table gives the main dimensions in mm.

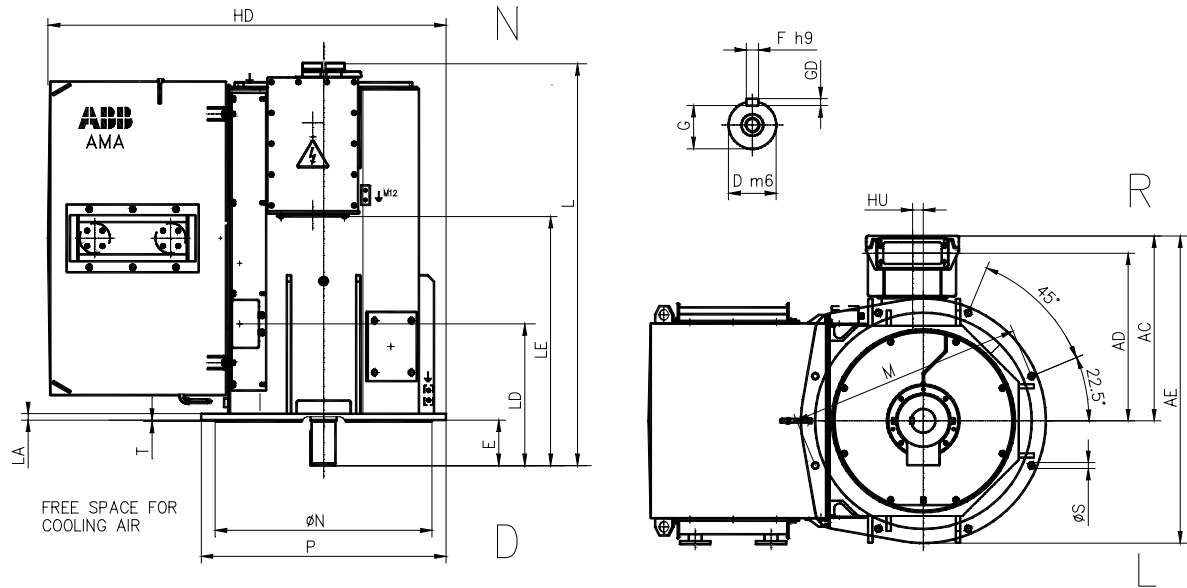
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM 4011, IC81W / IP55



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
400L	≥ 4	1080	1000js6	1130	28	110	210	28	100	1835	1860	30	655	1150
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	2035	2020	40	750	1300
500L	≥ 4	1320	1250h8	1370	28	140	250	36	128	2255	2260	47	860	1540

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
400L	≥ 4	6	855	775	1425	16	50	6324/C3	7319B
450L	≥ 4	7	905	825	1525	18	50	6326/C3	7322B
500L	≥ 4	8	955	875	1645	20	50	6330/C3	7324B

2

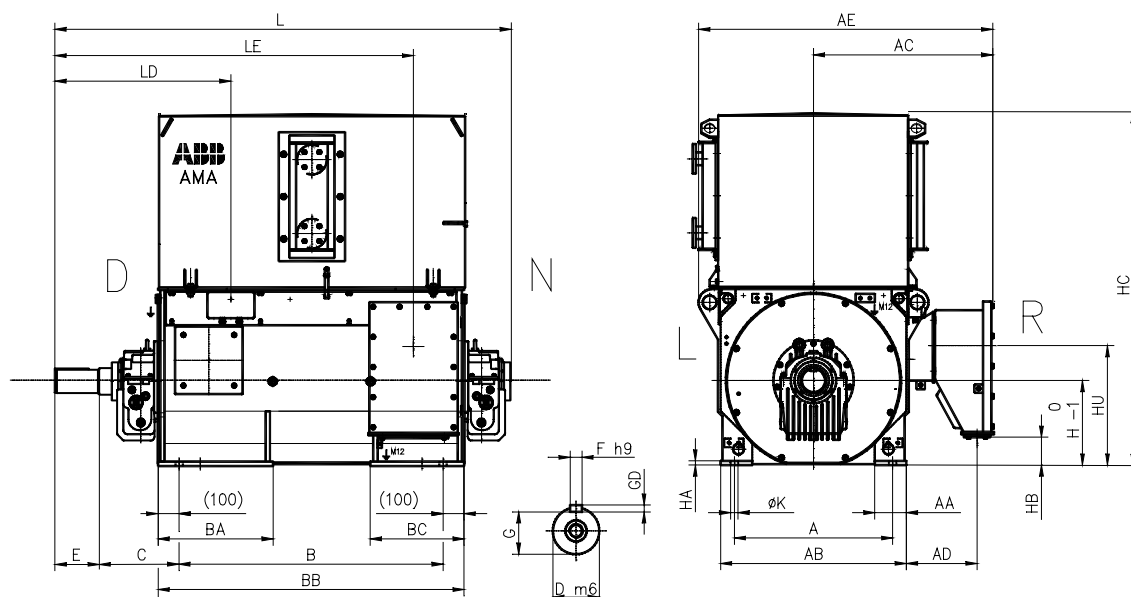
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Sleeve bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC81W / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD	AE	BA
400L	2	750	1250	375	85	170	22	76	400	35	2065	150	880	855	335	1400	545
400L	≥ 4	750	1250	375	110	210	28	100	400	35	2100	150	880	855	335	1400	545
450L	2	850	1400	375	90	170	25	81	450	42	2215	150	980	905	335	1500	575
450L	≥ 4	850	1400	400	125	210	32	114	450	42	2275	150	980	905	335	1500	575
500L	2	950	1600	375	110	210	28	100	500	42	2485	150	1080	955	335	1605	645
500L	≥ 4	950	1600	450	140	250	36	128	500	42	2595	150	1080	955	335	1605	645

AMA	Poles	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1450	445	14	20	130	1670	790	1655	565	EFZLB9-80	EFZLQ9-80
400L	≥ 4	1450	445	16	20	130	1670	830	1695	565	EFZLB9-100	EFZLQ 9-100
450L	2	1600	465	14	25	230	1870	885	1805	665	EFZLB9-80	EFZLQ 9-80
450L	≥ 4	1600	465	18	25	230	1870	950	1870	665	EFZLB11-125	EFZLQ9-100
500L	2	1800	495	16	35	330	2070	995	2045	765	EFNLB11-90	EFNLB11-90
500L	4	1800	495	20	35	330	2070	1110	2160	765	EFZLB14-125	EFZLQ11-125
500L	≥ 6	1800	495	20	35	330	2070	1110	2160	765	EFZLB14-140	EFZLQ11-125

Note! Axial float of rotor as standard  $\pm 8$  mm.

Note! The bearing cannot withstand continuous axial forces.

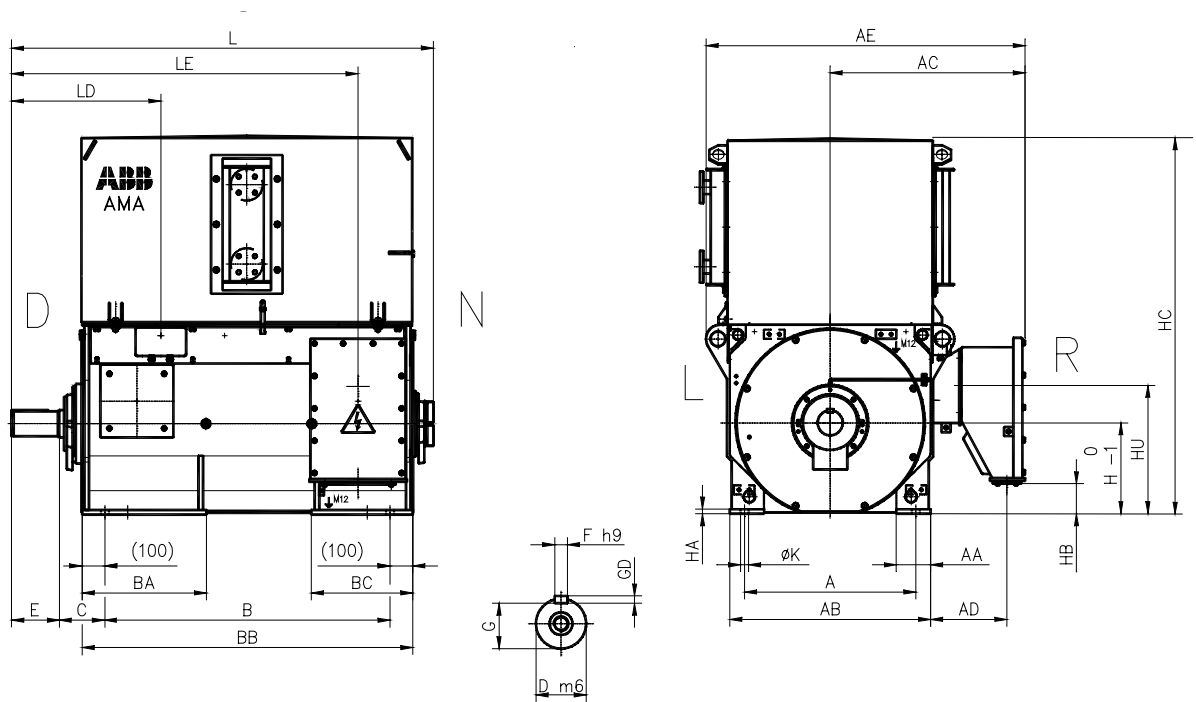
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC81W / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
450L	2	850	1400	200	90	170	25	81	450	42	1975	150	980	1005	430
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2025	150	980	1005	430
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2265	150	1080	1055	430

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
450L	2	1600	575	1600	465	14	25	35	1870	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1600	575	1600	465	18	25	35	1870	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1700	645	1800	495	20	35	135	2070	860	1910	765	6330/C3	6324/C3

2

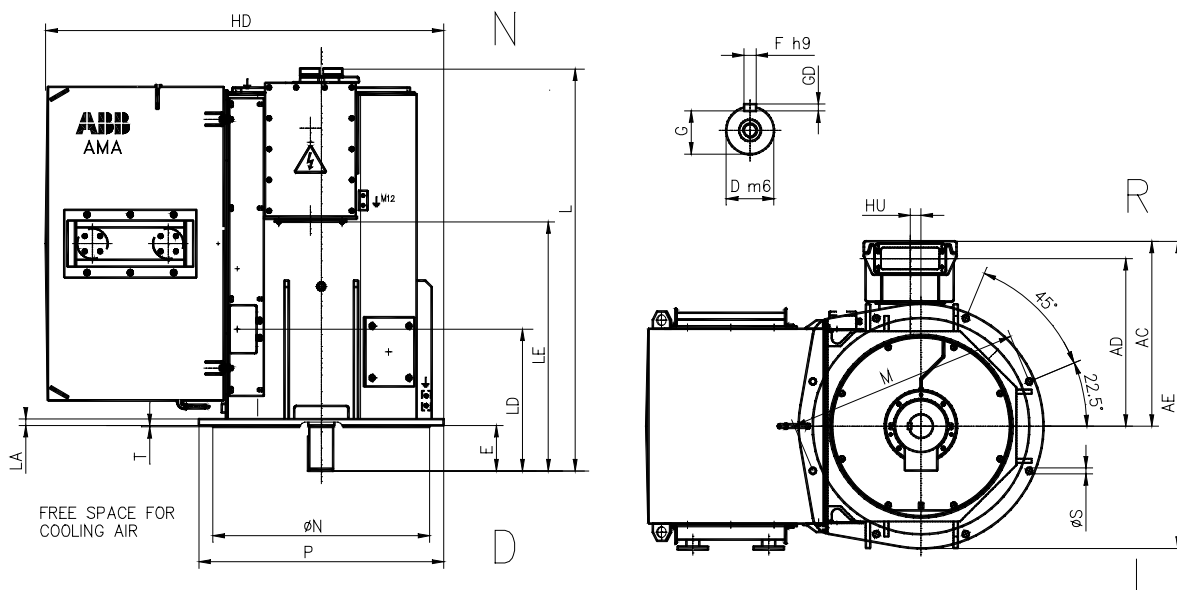
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 4011, IC81W / IP55



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	2035	2030	40	750	1100
500L	≥ 4	1320	1250h8	1370	28	140	250	36	128	2255	2270	47	860	1340

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
450L	≥ 4	7	1000	920	1620	18	50	6326/C3	7322B
500L	≥ 4	8	1050	970	1740	20	50	6330/C3	7324B

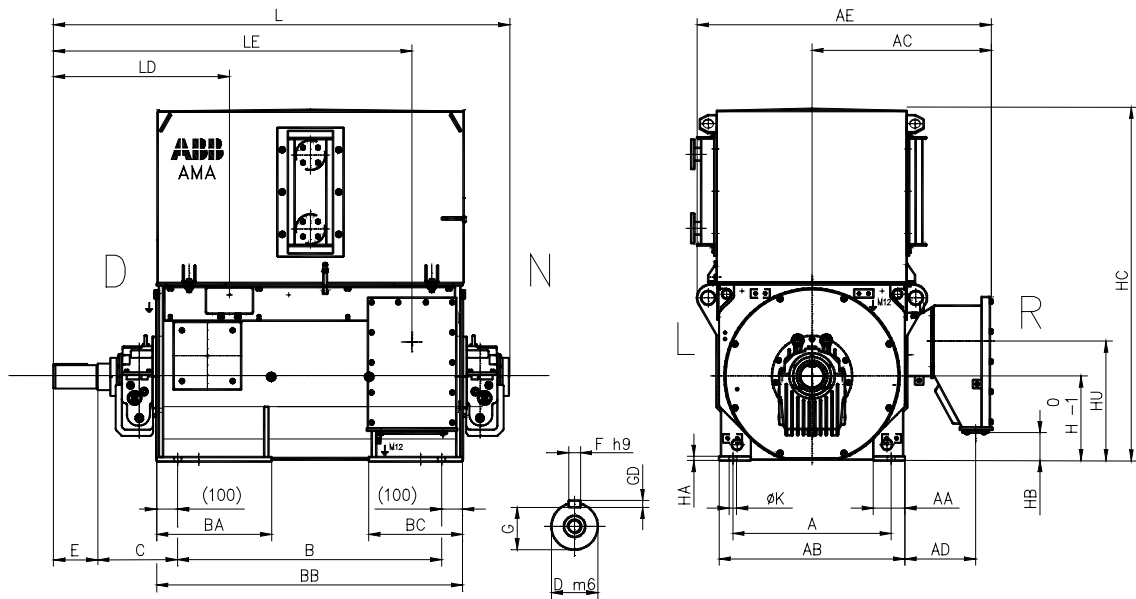
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Sleeve bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC81W / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD	AE	BA
450L	2	850	1400	375	90	170	25	81	450	42	2215	150	980	1005	430	1600	575
450L	≥ 4	850	1400	400	125	210	32	114	450	42	2275	150	980	1005	430	1600	575
500L	2	950	1600	375	110	210	28	100	500	42	2485	150	1080	1055	430	1700	645
500L	≥ 4	950	1600	450	140	250	36	128	500	42	2595	150	1080	1055	430	1700	645

AMA	Poles	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
450L	2	1600	465	14	25	35	1870	885	1805	665	EFZLB9-80	EFZLQ 9-80
450L	≥ 4	1600	465	18	25	35	1870	950	1870	665	EFZLB11-125	EFZLQ9-100
500L	2	1800	495	16	35	135	2070	995	2045	765	EFNLB11-90	EFNLB11-90
500L	4	1800	495	20	35	135	2070	1110	2160	765	EFZLB14-125	EFZLQ11-125
500L	≥ 6	1800	495	20	35	135	2070	1110	2160	765	EFZLB14-140	EFZLQ11-125

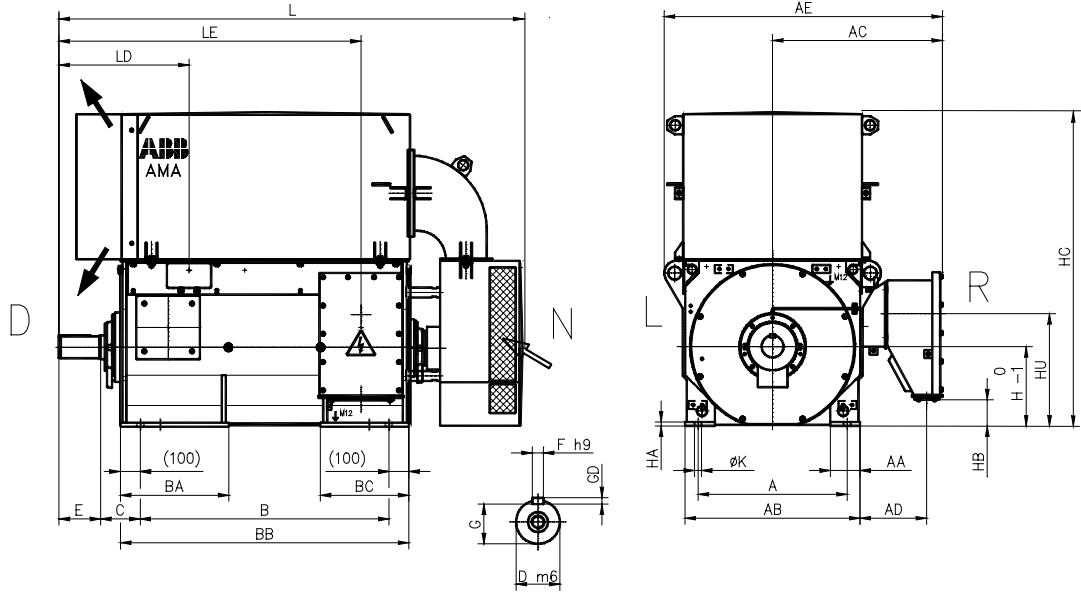
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC611 / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
400L	2	750	1250	200	85	170	22	76	400	35	2290	150	880	855	335
400L	≥ 4	750	1250	200	110	210	28	100	400	35	2330	150	880	855	335
450L	2	850	1400	200	90	170	25	81	450	42	2480	150	980	905	335
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2520	150	980	905	335
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2830	150	1080	955	335

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1400	545	1450	445	14	20	130	1590	615	1480	565	6319M/C3	6319M/C3
400L	≥ 4	1400	545	1450	445	16	20	130	1590	655	1520	565	6324/C3	6319/C3
450L	2	1500	575	1600	465	14	25	230	1760	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1500	575	1600	465	18	25	230	1760	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1605	645	1800	495	20	35	330	1960	860	1910	765	6330/C3	6324/C3

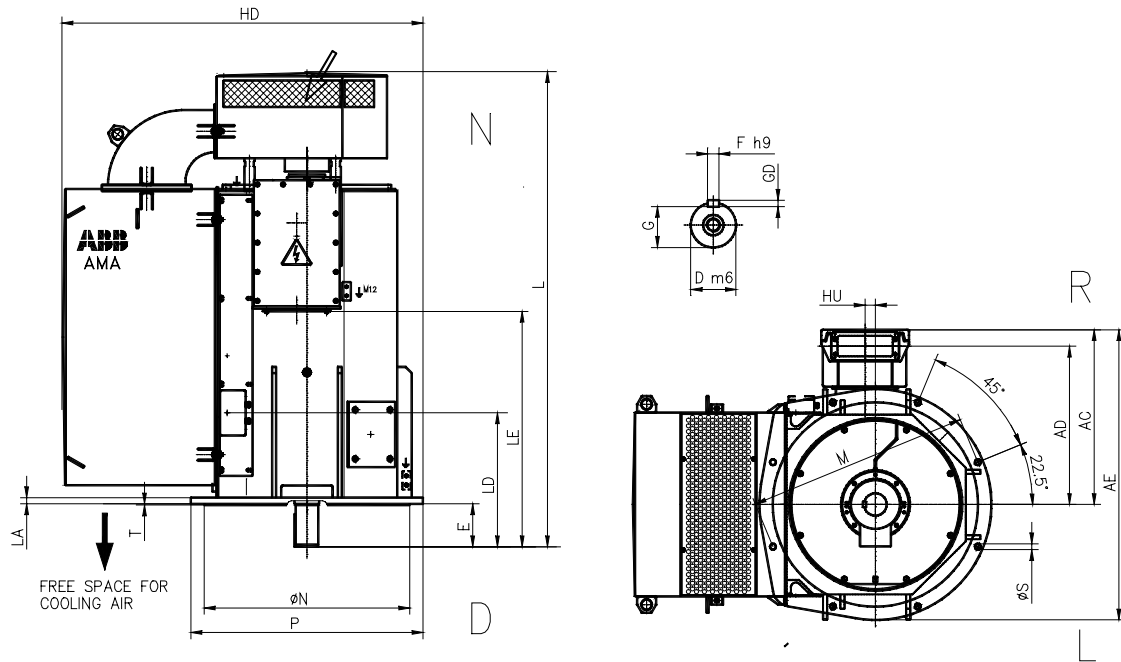
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $1 < U_N \leq 6.6 \text{ kV}$ , IM 4011, IC611 / IP55



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
400L	≥ 4	1080	1000js6	1130	28	110	210	28	100	1755	2330	30	655	1150
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	1925	2520	40	750	1300
500L	≥ 4	1320	1250h8	1370	28	140	250	36	128	2145	2830	47	860	1540

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
400L	≥ 4	6	855	775	1425	16	50	6324/C3	7319B
450L	≥ 4	7	905	825	1525	18	50	6326/C3	7322B
500L	≥ 4	8	955	875	1645	20	50	6330/C3	7324B

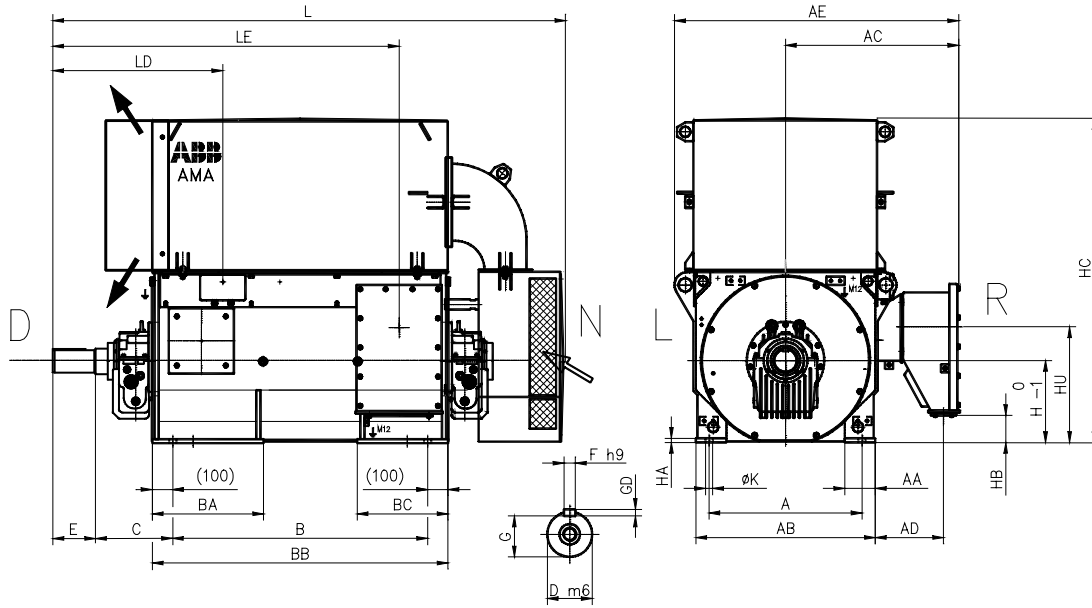
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Sleeve bearings,  $1 < U_N \leq 6.6$  kV, IM 1001, IC611 / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD	AE	BA
400L	2	750	1250	375	85	170	22	76	400	35	2465	150	880	855	335	1400	545
400L	≥ 4	750	1250	375	110	210	28	100	400	35	2505	150	880	855	335	1400	545
450L	2	850	1400	375	90	170	25	81	450	42	2655	150	980	905	335	1500	575
450L	≥ 4	850	1400	400	125	210	32	114	450	42	2720	150	980	905	335	1500	575
500L	2	950	1600	375	110	210	28	100	500	42	2965	150	1080	955	335	1605	645
500L	≥ 4	950	1600	450	140	250	36	128	500	42	3080	150	1080	955	335	1605	645

AMA	Poles	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1450	445	14	20	130	1590	790	1655	565	EFZLB9-80	EFZLQ9-80
400L	≥ 4	1450	445	16	20	130	1590	830	1695	565	EFZLB9-100	EFZLQ 9-100
450L	2	1600	465	14	25	230	1760	885	1805	665	EFZLB9-80	EFZLQ 9-80
450L	≥ 4	1600	465	18	25	230	1760	950	1870	665	EFZLB11-125	EFZLQ9-100
500L	2	1800	495	16	35	330	1960	995	2045	765	EFZLB9-100 <sup>1)</sup>	EFZLQ9-100 <sup>1)</sup>
500L	4	1800	495	20	35	330	1960	1110	2160	765	EFZLB14-125	EFZLQ11-125
500L	≥ 6	1800	495	20	35	330	1960	1110	2160	765	EFZLB14-140	EFZLQ11-125

<sup>1)</sup> With oil circulation as standard.

Note! Axial float of rotor as standard ±8 mm.

Note! The bearing cannot withstand continuous axial forces.

The above table gives the main dimensions in mm.

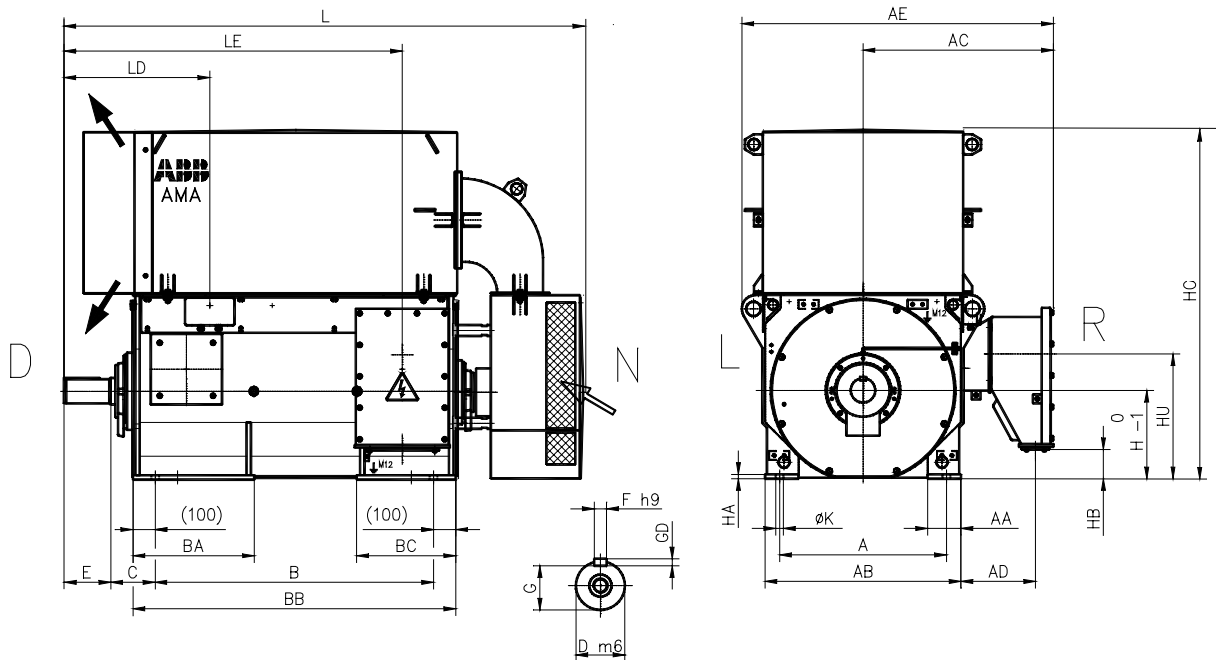
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC611 / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
450L	2	850	1400	200	90	170	25	81	450	42	2480	150	980	1005	430
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2520	150	980	1005	430
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2830	150	1080	1055	430

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
450L	2	1600	575	1600	465	14	25	35	1760	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1600	575	1600	465	18	25	35	1760	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1700	645	1800	495	20	35	135	1960	860	1910	765	6330/C3	6324/C3

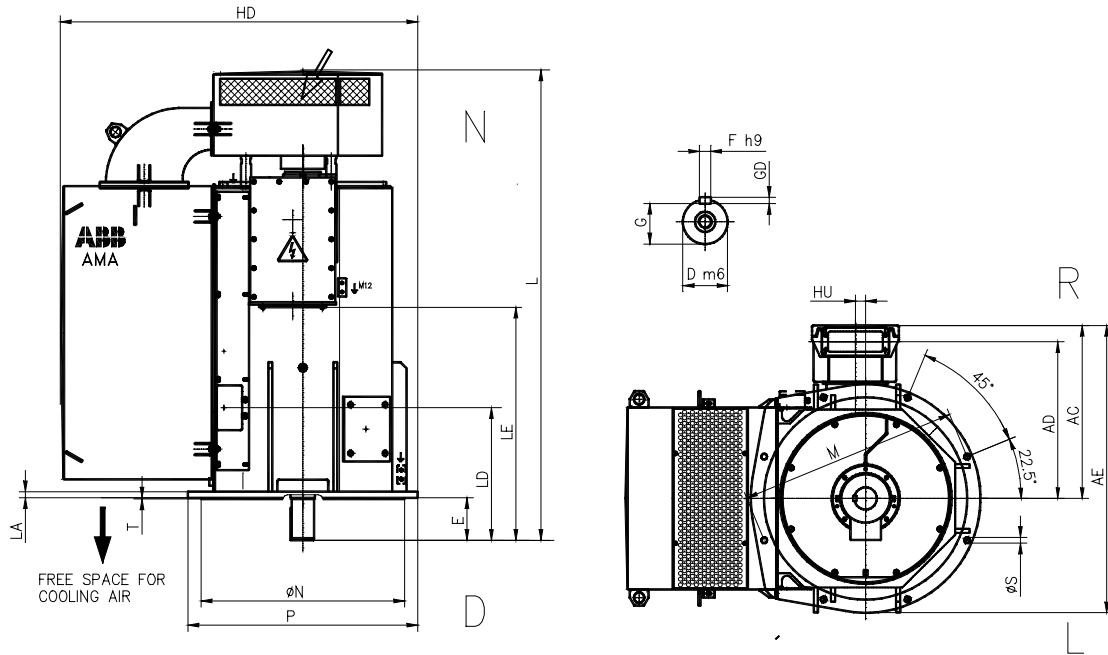
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Antifriction bearings,  $6.6 < U_N \leq 11$  kV, IM 4011, IC611 / IP55



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	1925	2520	40	750	1100
500L	≥ 4	1320	1250h8	1370	28	140	250	36	128	2145	2830	47	860	1340

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
450L	≥ 4	7	1000	920	1620	18	50	6326/C3	7322B
500L	≥ 4	8	1050	970	1740	20	50	6330/C3	7324B

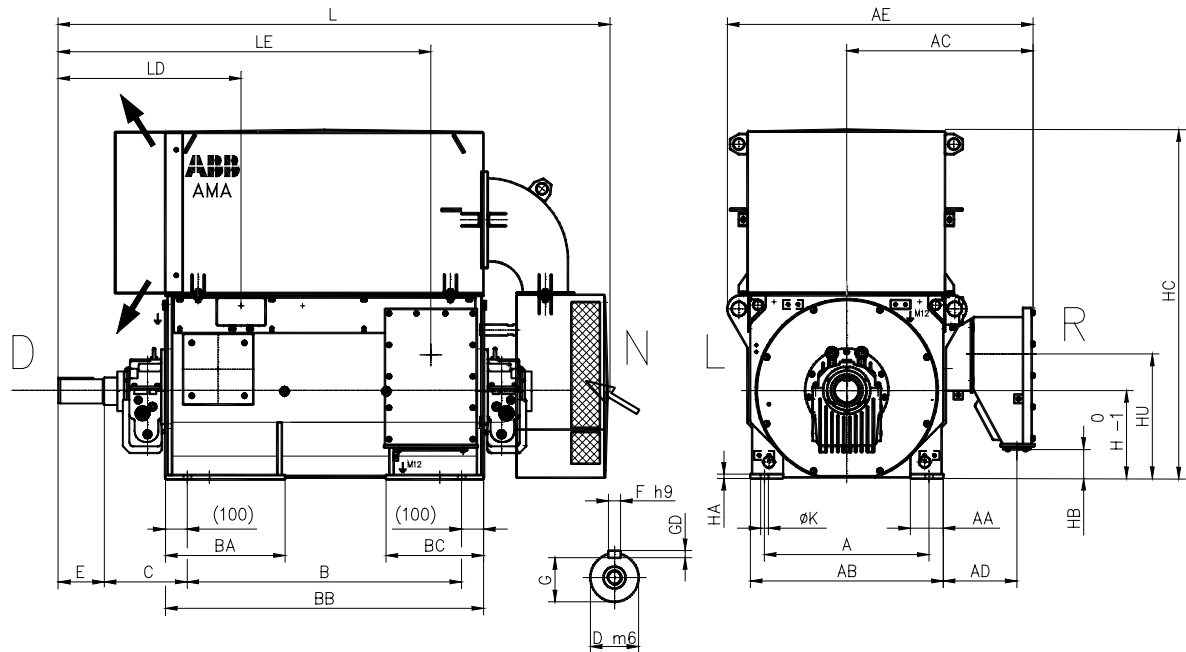
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, AMA

## Dimension drawings

Sleeve bearings,  $6.6 < U_N \leq 11$  kV, IM 1001, IC611 / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD	AE	BA
450L	2	850	1400	375	90	170	25	81	450	42	2655	150	980	1005	430	1600	575
450L	≥ 4	850	1400	400	125	210	32	114	450	42	2720	150	980	1005	430	1600	575
500L	2	950	1600	375	110	210	28	100	500	42	2965	150	1080	1055	430	1700	645
500L	≥ 4	950	1600	450	140	250	36	128	500	42	3080	150	1080	1055	430	1700	645

AMA	Poles	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
450L	2	1600	465	14	25	35	1760	885	1805	665	EFZLB9-80	EFZLQ 9-80
450L	≥ 4	1600	465	18	25	35	1760	950	1870	665	EFZLB11-125	EFZLQ9-100
500L	2	1800	495	16	35	135	1960	995	2045	765	EFZLB9-100 <sup>1)</sup>	EFZLQ9-100 <sup>1)</sup>
500L	4	1800	495	20	35	135	1960	1110	2160	765	EFZLB14-125	EFZLQ11-125
500L	≥ 6	1800	495	20	35	135	1960	1110	2160	765	EFZLB14-140	EFZLQ11-125

<sup>1)</sup> With oil circulation as standard.

Note! Axial float of rotor as standard ±8 mm.

Note! The bearing cannot withstand continuous axial forces.

The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

2

# Engineered Motors for Low Voltage Variable Speed Drives

Squirrel cage three phase low voltage motors,  
Up to 2240 kW



3

General information .....	126
Notes .....	129
Technical data.....	130
Dimension drawings .....	135

This section describes ABB's engineered motors for low voltage variable speed drives. The basic mechanical construction is the same as described in

Section 2. This section includes drawings showing the low voltage main terminal box.

## General Information

The voltage (or current) fed by the frequency converter is not purely sinusoidal. This may increase any losses, vibration and the noise of the motor. The engineered motors described in this section are specifically designed for supply through a frequency converter. The design can be varied according to the customer's specifications including altering the speed range for continuous operation and operating with short-time overload. ABB design considers the different types of variable speed drive available depending upon their electromagnetic design. The rating for motors designed for converter supply differs from that of the direct-on-line (DOL) motors.

In addition to the standard information given on the rating plates there is additional information that relates to frequency converter driven machines. An example of the rating plate is shown on page 128.

All the motors described in this catalog come with the form wound winding Micadur® Compact Industry

Insulation system, similar to that used in the high voltage motors. This construction yields very moderate voltage stresses between the winding elements even when supplied with the most efficient inverter types and the steepest voltage pulses. This makes installation easier and results in lower losses and better performance for the entire drive system as no chokes or filters are needed.

Bearing voltages and currents must be avoided in all motors and all ABB large motors for low voltage variable speed drives are equipped with bearing insulation in non-drive end. Please contact ABB for more information about bearing currents and voltages.

AC machines supplied from a frequency converter must be fitted with screened cables to comply with the EMC directive (89/336/EEC, as amended by 93/68/EEC). Please see ABB's 'Manual for Induction Motors and Generators' (code: 3BFP 000 050 R0101) or contact us for more information about EMC compliance.

## Examples of different load types

*Variable Torque (pumps, fans, etc.)*

The table below shows the electrical rating plate values for rated power, voltage, current, power factor, frequency and speed of a pump drive. The load torque

is assumed to be quadratic (as function of speed), and the motor can be operated continuously over the entire speed range. The field weakening point is 42.7 Hz.

CONVERTER SUPPLY	
S1	
0 -	1200 kW
0 -	660 V
0 -	42.7 Hz
0 -	1360 A
0 -	850 rpm
0 -	0.79 PF

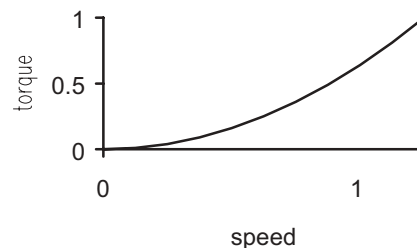


Table above: Rating plate values for a pump drive.

Figure above: Load torque curve for a pump drive.

### Constant Torque Load

Certain applications can be regarded as constant torque loads. These include paper machines, and extruders and other gear pumps. One of the advantages of AC drives is that, because there is no commutator, the AC motor can produce torque at zero speed without harmful effects, which is needed by some applications. The amount of continuous torque available at low speeds is dependent on the cooling method and often a separately driven cooling fan will be the optimal choice.

CONVERTER SUPPLY			
S1			
183	-	750	- 940 kW
162	-	660	- 660 V
17.2	-	70.0	- 87.8 Hz
828	-	828	- 992 A
340	-	1396	- 1750 rpm
0.82	-	0.82	- 0.85 PF
OVERLOAD 130% 60 s / 10 min			
1043	-	1043	- 1314 A
0	-	1395	- 1750 rpm

INVERTER PARAMETER SETTING:			
940 kW	/	660 V	/ 70.0 Hz / 1009 A / 1395 rpm /
0.84 PF	/	TRN = 1785 ms	/ Tmax/Tn = 2.2

Table above: Rating plate values for a constant torque drive.

### Constant Torque and Constant Power

For some specialist applications such as paper unwinders, reelers and metal industry coilers, the operational speed range is divided into two sections. When operating between zero speed and base speed the load has a constant torque and from base speed to maximum speed it operates as a constant power. The application requires constant tension (pull) in the web, that requires constant power on the motor shaft if the roll is centre driven. When the web speed is kept constant the motor speed increases or decreases as the roll diameter increases or decreases. Over a specific speed range this results in a constant power

CONVERTER SUPPLY			
S1			
0	-	284	- 284 - 284 kW
0	-	287	- 380 - 380 V
0	-	27.2	- 36.0 - 107.0 Hz
770	-	770	- 645 - 520 A
0	-	540	- 717 - 2130 rpm
	-	0.77	- 0.69 - 0.87 PF
OVERLOAD 60 s / 10 min			
1043	-	1043	- 1314 A
0	-	1395	- 1750 rpm

INVERTER PARAMETER SETTING:			
407 kW	/	380 V	/ 36.0 Hz / 811 A / 715 rpm /
0.79 PF	/	TRN = 1160 ms	/ Tmax/Tn = 3.2

Table above: Rating plate values for a constant torque drive.

The table below shows the rated values for a constant torque drive. Because it is a self-cooled machine, the rated torque cannot be utilized at zero speed continuously. The continuous operational speed is from 340 rpm to 1750 rpm. In this example, the motor is also capable of delivering an overload of up to 130% of the rated torque.

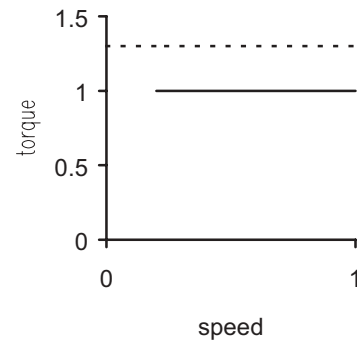


Figure above: Load torque curve for a constant torque drive.

load. To overcome these challenges a relatively high overload is often required at base speed. The field weakening frequency is often slightly higher than the base speed, giving an ideal combination for the inverter and motor.

The table below shows the rating plate values for a winder/unwind drive. In this case the normal operation speed range is from 540 rpm to 2130 rpm. The field weakening point is at 36 Hz, since that is the frequency, when the nominal voltage (380 V) is reached. The drive requirement is to deliver a varying overload from 707 kW at 540 rpm to 386 kW at 2130 rpm.

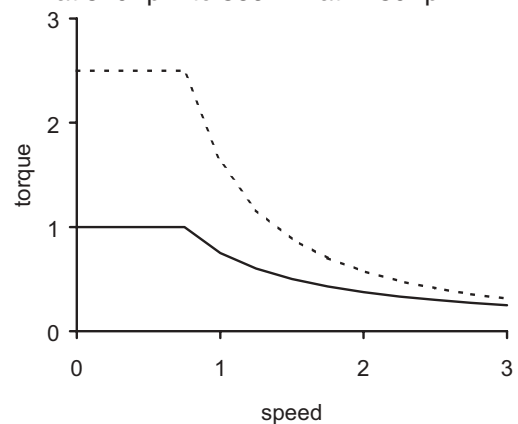


Figure above: Load torque curve for a constant torque drive.





# Notes

All ratings in this catalogue are designed for the following:

- Class F insulation / Maximum temperature rise of 80 °C by resistance with ABB ACS600 & ACS800 frequency converter
- Maximum 40 °C ambient
- Altitude of 1000 meters or less
- Data presented in rating lists are typical values. Guaranteed values are available on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.
- Rating list data based on rated voltage at motor terminals.
- All motors are designed for quadratic load torque application (centrifugal pumps, fans), field weakening point and maximum speed at 50 Hz.
- Please contact ABB for all other applications, converter types or speed range.

# LV Cast iron motors, HXR

690 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency	Power factor	Current		Torque		Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	Full load 100%	I <sub>N</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>max</sub> T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>				<b>690 V 50 Hz</b>								
355	HXR 400LB4	VSD10001	1492	96.4	0.84	367	147	2273	2.5	10.3	2540	79
400	HXR 400LC4	VSD10002	1491	96.6	0.86	406	145	2561	2.4	11.4	2660	79
450	HXR 400LD4	VSD10003	1491	96.7	0.86	451	152	2882	2.3	12.5	2800	79
500	HXR 400LF4	VSD10004	1491	96.9	0.88	493	146	3203	2.2	14.7	3060	79
560	HXR 400LH4	VSD10005	1493	97.1	0.87	558	198	3582	2.6	16.9	3330	79
630	HXR 450LG4	VSD10006	1493	97.1	0.89	612	182	4030	2.4	26.8	4220	80
710	HXR 450LH4	VSD10007	1494	97.3	0.88	695	234	4539	2.8	28.6	4390	80
800	HXR 500LG4	VSD10008	1494	97.3	0.88	784	254	5114	2.6	44.1	5840	82
900	HXR 500LH4	VSD10009	1493	97.3	0.89	871	232	5758	2.2	46.9	6040	82
1000	HXR 500LJ4	VSD10010	1495	97.5	0.87	984	349	6389	2.9	49.8	6220	82
1120	HXR 500LN4	VSD10011	1493	97.5	0.90	1071	262	7165	2.1	61.1	7010	82
1250	HXR 560LJ4	VSD10012	1493	97.6	0.89	1203	306	7993	2.1	83.3	9290	84
1400	HXR 560LM4	VSD10013	1495	97.8	0.88	1360	456	8941	2.9	98.0	10060	84
1600	HXR 560LT4	VSD10014	1496	97.9	0.89	1538	474	10215	2.7	142.3	12170	84
<b>1000 r/min = 6 poles</b>				<b>690 V 50 Hz</b>								
315	HXR 400LC6	VSD10015	994	96.2	0.78	351	176	3026	2.5	16.9	2610	80
355	HXR 400LD6	VSD10016	994	96.3	0.79	392	192	3409	2.5	18.6	2740	80
400	HXR 400LF6	VSD10017	994	96.5	0.81	428	189	3842	2.4	21.9	3000	80
450	HXR 400LH6	VSD10018	995	96.7	0.82	477	207	4321	2.4	25.3	3260	80
500	HXR 450LF6	VSD10019	995	97.0	0.83	517	213	4798	2.6	35.4	4030	82
560	HXR 450LG6	VSD10020	995	97.1	0.83	579	238	5373	2.6	38.1	4200	82
630	HXR 450LJ6	VSD10021	995	97.2	0.85	640	245	6045	2.5	43.5	4530	82
710	HXR 450LL6	VSD10022	995	97.3	0.85	718	270	6812	2.5	48.9	4860	82
800	HXR 500LG6	VSD10023	994	97.2	0.84	815	290	7682	2.1	57.8	5750	84
900	HXR 500LK6	VSD10024	996	97.4	0.83	934	390	8632	2.6	69.4	6320	84
1000	HXR 500LN6	VSD10025	996	97.5	0.83	1036	439	9588	2.7	81.1	6920	84
1120	HXR 560LK6	VSD10026	995	97.5	0.86	1120	341	10744	1.9	120.1	9370	85
1250	HXR 560LL6	VSD10027	996	97.6	0.85	1265	453	11983	2.2	127.0	9630	85
1400	HXR 560LQ6	VSD10028	997	97.7	0.85	1411	514	13416	2.4	154.5	10640	85
1600	HXR 560LU6	VSD10029	997	97.8	0.85	1601	582	15328	2.5	202.6	12370	85

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# LV Cast iron motors, HXR

690 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 411 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency	Power factor	Current		Torque		Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	Full load 100%	I <sub>N</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>max</sub> T <sub>N</sub>			
<b>750 r/min = 8 poles</b>				<b>690 V 50 Hz</b>								
224	HXR 400LC8	VSD10030	742	95.4	0.75	261	130	2882	2.0	16.5	2610	82
250	HXR 400LE8	VSD10031	743	95.7	0.76	288	143	3214	2.1	19.8	2870	82
280	HXR 400LF8	VSD10032	743	95.8	0.76	321	159	3599	2.1	21.5	3000	82
315	HXR 400LH8	VSD10033	743	95.9	0.78	354	163	4051	2.0	24.7	3250	82
355	HXR 450LD8	VSD10034	746	96.3	0.75	412	215	4546	2.2	30.4	3670	83
400	HXR 450LE8	VSD10035	746	96.4	0.75	462	240	5122	2.2	33.1	3840	83
450	HXR 450LF8	VSD10036	745	96.4	0.78	504	237	5765	2.0	35.8	3980	83
500	HXR 450LH8	VSD10037	746	96.6	0.79	552	250	6404	2.0	41.2	4310	83
560	HXR 450LL8	VSD10038	746	96.7	0.80	606	258	7172	2.0	49.4	4800	83
630	HXR 500LJ8	VSD10039	746	96.5	0.80	680	285	8067	2.0	66.6	6110	84
710	HXR 500LK8	VSD10040	746	96.7	0.81	764	315	9092	2.0	70.5	6310	84
800	HXR 500LL8	VSD10041	746	96.8	0.80	861	357	10244	2.0	74.5	6510	84
900	HXR 500LM8	VSD10042	746	96.8	0.80	975	415	11523	2.0	78.4	6710	84
1000	HXR 500LQ8	VSD10043	746	96.9	0.81	1065	423	12806	1.9	90.3	7310	84
1120	HXR 560LN8	VSD10044	747	97.4	0.80	1209	518	14327	2.0	143.2	10110	85
1250	HXR 560LQ8	VSD10045	747	97.4	0.79	1354	596	15987	2.1	157.2	10550	85
1400	HXR 560LT8	VSD10046	746	97.5	0.82	1475	567	17911	1.9	199.2	12090	85

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# LV Modular motors

690 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency	Power factor	Current		Torque		Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	Full load 100%	I <sub>N</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>max</sub> / T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>				<b>690 V 50 Hz</b>								
630	AMA 400L4A	VSD10085	1487	95.5	0.85	649	237	4045	2.4	16.3	3150	82
710	AMA 400L4A	VSD10086	1485	95.5	0.88	703	183	4566	2.0	17.3	3240	82
800	AMA 400L4A	VSD10087	1485	95.7	0.88	792	213	5144	2.0	18.3	3350	82
900	AMA 400L4A	VSD10088	1486	96.0	0.88	897	266	5783	2.2	19.3	3460	82
1000	AMA 400L4A	VSD10089	1484	95.9	0.89	980	220	6437	1.8	20.3	3560	82
1120	AMA 450L4A	VSD10090	1487	95.7	0.86	1136	330	7192	1.9	29.5	4130	83
1250	AMA 450L4A	VSD10091	1488	96.0	0.87	1247	344	8022	2.0	32.9	4390	83
1400	AMA 450L4A	VSD10092	1489	96.3	0.87	1396	415	8978	2.2	36.4	4630	83
1600	AMA 500L4A	VSD10093	1490	96.0	0.89	1559	396	10251	2.2	55	5620	84
1800	AMA 500L4A	VSD10094	1489	96.0	0.90	1739	337	11547	1.9	57.9	5780	84
2000	AMA 500L4A	VSD10095	1491	96.5	0.91	1915	449	12810	2.3	66.7	6270	84
2240	AMA 500L4A	VSD10096	1490	96.5	0.91	2145	449	14359	2.1	66.7	6270	84
<b>1000 r/min = 6 poles</b>				<b>690 V 50 Hz</b>								
450	AMA 400L6A	VSD10097	987	95.0	0.84	474	163	4355	1.7	16.8	2970	82
500	AMA 400L6A	VSD10098	987	95.2	0.84	525	182	4836	1.8	18	3070	82
560	AMA 400L6A	VSD10099	987	95.4	0.85	577	178	5417	1.7	20.4	3270	82
630	AMA 400L6A	VSD10100	988	95.5	0.84	656	229	6086	1.9	21.6	3340	82
710	AMA 400L6A	VSD10101	989	95.8	0.84	741	275	6852	2.0	24	3540	82
800	AMA 450L6A	VSD10102	989	95.7	0.87	804	241	7725	2.0	34.6	4020	82
900	AMA 450L6A	VSD10103	989	95.9	0.87	903	270	8690	2.0	36.8	4140	82
1000	AMA 450L6A	VSD10104	990	96.0	0.87	1008	321	9650	2.1	39	4270	82
1120	AMA 450L6A	VSD10105	990	96.2	0.87	1117	340	10806	2.1	43.3	4520	82
1250	AMA 500L6A	VSD10106	991	96.4	0.88	1231	334	12050	2.0	66.8	5600	82
1400	AMA 500L6A	VSD10107	992	96.5	0.87	1391	438	13483	2.3	70.4	5750	82
1600	AMA 500L6A	VSD10108	990	96.4	0.89	1570	382	15439	1.8	73.9	5900	82
1800	AMA 500L6A	VSD10109	991	96.6	0.88	1766	479	17350	2.0	80.9	6180	82
<b>750 r/min = 8 poles</b>				<b>690 V 50 Hz</b>								
280	AMA 400L8A	VSD10110	739	94.5	0.80	310	129	3618	1.9	18.5	2940	81
315	AMA 400L8A	VSD10111	738	94.6	0.81	345	135	4073	1.8	19.8	3040	81
355	AMA 400L8A	VSD10112	740	94.9	0.80	389	162	4583	2.0	22.6	3230	81
400	AMA 400L8A	VSD10113	740	95.1	0.80	439	188	5161	2.0	23.9	3330	81
450	AMA 400L8A	VSD10114	739	95.0	0.81	489	194	5813	1.9	25.3	3400	81
500	AMA 400L8A	VSD10115	740	95.2	0.81	542	217	6455	1.9	28	3600	81
560	AMA 450L8A	VSD10116	741	95.6	0.83	590	219	7212	1.9	39.3	3980	81
630	AMA 450L8A	VSD10117	742	95.8	0.82	668	262	8109	2.0	41.9	4110	81
710	AMA 450L8A	VSD10118	741	95.8	0.83	745	272	9144	1.9	44.5	4210	81
800	AMA 450L8A	VSD10119	742	96.0	0.83	839	313	10296	2.0	49.7	4460	81
900	AMA 500L8A	VSD10120	743	96.2	0.84	934	345	11563	2.0	74	5390	81
1000	AMA 500L8A	VSD10121	743	96.3	0.84	1037	379	12848	2.0	78.4	5550	81
1120	AMA 500L8A	VSD10122	743	96.4	0.83	1165	432	14389	2.0	82.7	5700	81
1250	AMA 500L8A	VSD10123	744	96.6	0.84	1289	487	16044	2.2	100.1	6320	81

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

## Technical data for open weather protected three phase motors

IP 24W - IC 01 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency	Power factor	Current		Torque		Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	Full load 100%	I <sub>N</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>max</sub> T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>				<b>690 V 50 Hz</b>								
710	AMA 400L4W	VSD10047	1486	96.1	0.86	720	237	4563	2.1	14.8	2980	82
800	AMA 400L4W	VSD10048	1485	96.2	0.88	788	213	5143	2.0	16.8	3180	82
900	AMA 400L4W	VSD10049	1486	96.4	0.88	893	267	5783	2.2	17.8	3300	82
1000	AMA 400L4W	VSD10050	1484	96.3	0.89	976	220	6437	1.8	18.8	3400	82
1120	AMA 450L4W	VSD10051	1487	96.3	0.86	1129	330	7191	1.9	27.4	3930	82
1250	AMA 450L4W	VSD10052	1488	96.6	0.87	1240	344	8022	2.0	30.8	4190	82
1400	AMA 450L4W	VSD10053	1489	96.7	0.87	1389	415	8977	2.2	34.3	4420	82
1600	AMA 500L4W	VSD10054	1491	96.7	0.89	1548	396	10251	2.2	52.6	5380	83
1800	AMA 500L4W	VSD10055	1489	96.7	0.90	1727	337	11547	1.9	55.5	5540	83
2000	AMA 500L4W	VSD10056	1491	97.0	0.91	1904	449	12809	2.3	64.3	6030	83
2240	AMA 500L4W	VSD10057	1490	97.0	0.91	2134	449	14358	2.1	64.3	6030	83
<b>1000 r/min = 6 poles</b>				<b>690 V 50 Hz</b>								
500	AMA 400L6W	VSD10058	987	95.5	0.84	523	182	4836	1.8	16.5	2910	81
560	AMA 400L6W	VSD10059	987	95.7	0.85	576	178	5416	1.7	18.9	3100	81
630	AMA 400L6W	VSD10060	988	95.8	0.84	654	229	6086	1.9	20.1	3170	81
710	AMA 400L6W	VSD10061	988	95.8	0.85	734	247	6862	1.8	21.3	3270	81
800	AMA 400L6W	VSD10062	988	95.9	0.84	827	275	7733	1.8	22.5	3380	81
900	AMA 450L6W	VSD10063	989	96.2	0.87	900	270	8689	2.0	34.6	3940	81
1000	AMA 450L6W	VSD10064	990	96.3	0.87	1005	321	9650	2.1	36.8	4070	81
1250	AMA 450L6W	VSD10066	988	96.3	0.88	1230	296	12084	1.8	43.3	4440	81
1328	AMA 450L6W	VSD10065	988	96.2	0.88	1320	340	12841	1.8	41.1	4310	81
1400	AMA 500L6W	VSD10067	989	96.5	0.88	1376	334	13514	1.8	63.4	5350	82
1600	AMA 500L6W	VSD10068	990	96.7	0.88	1579	438	15430	2.0	67.0	5500	82
1800	AMA 500L6W	VSD10069	991	96.8	0.88	1763	479	17349	2.0	77.5	5940	82
2000	AMA 500L6W	VSD10070	990	96.7	0.88	1960	479	19300	1.8	77.5	5940	82
<b>750 r/min = 8 poles</b>				<b>690 V 50 Hz</b>								
315	AMA 400L8W	VSD10071	738	94.8	0.81	344	135	4073	1.8	18.3	2870	81
355	AMA 400L8W	VSD10072	740	95.2	0.80	388	162	4582	2.0	21.1	3070	81
400	AMA 400L8W	VSD10073	740	95.3	0.80	439	188	5161	2.0	22.4	3160	81
450	AMA 400L8W	VSD10074	740	95.3	0.81	490	204	5806	2.0	25.2	3330	81
500	AMA 400L8W	VSD10075	740	95.3	0.81	541	217	6455	1.9	26.5	3430	81
560	AMA 450L8W	VSD10076	741	95.9	0.83	589	219	7212	1.9	37.1	3780	81
630	AMA 450L8W	VSD10077	742	96.0	0.82	666	261	8108	2.0	39.7	3910	81
710	AMA 450L8W	VSD10078	741	95.9	0.83	744	272	9144	1.9	42.3	4000	81
800	AMA 450L8W	VSD10079	741	96.0	0.84	834	288	10309	1.8	44.9	4130	81
900	AMA 450L8W	VSD10080	742	96.2	0.83	942	350	11585	1.9	50.1	4380	81
1000	AMA 500L8W	VSD10081	742	96.3	0.84	1029	345	12862	1.8	70.6	5140	81
1120	AMA 500L8W	VSD10082	742	96.4	0.84	1151	379	14408	1.8	75.0	5300	81
1250	AMA 500L8W	VSD10083	742	96.4	0.84	1289	432	16079	1.8	79.3	5450	81
1400	AMA 500L8W	VSD10084	742	96.5	0.85	1428	444	18013	1.7	88.0	5760	81

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# LV Modular motors

690 V - 50 Hz

## Technical data for totally enclosed squirrel cage three phase motors

IP 55 - IC 81W - Insulation class F, temperature rise class B

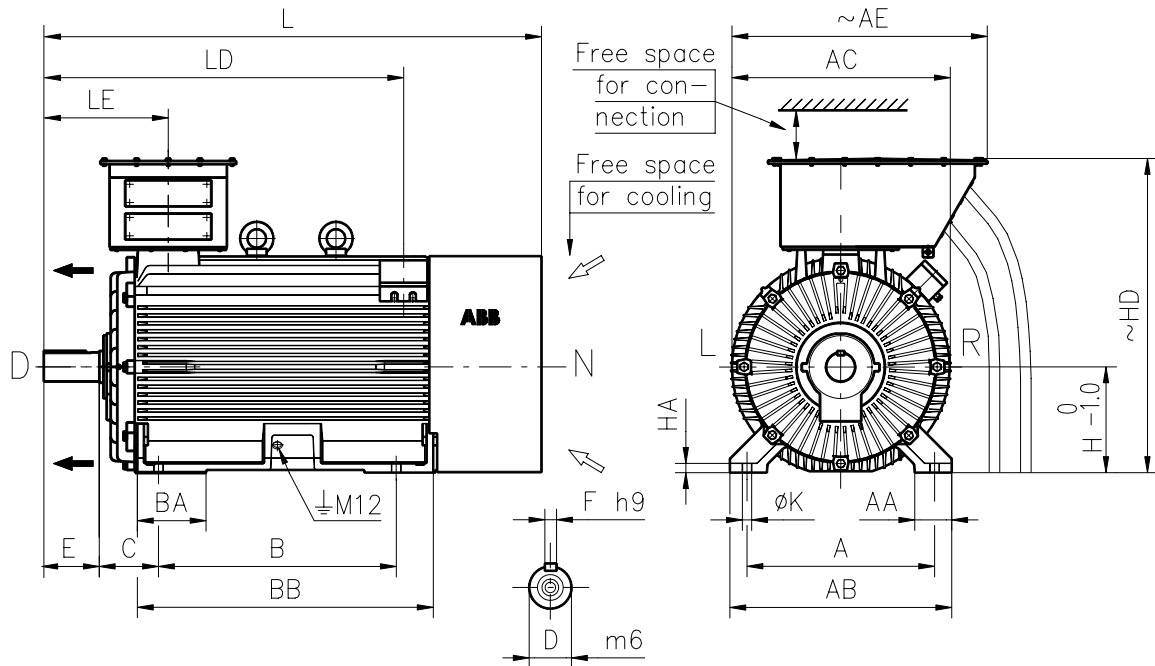
Output kW	Motor type	Product ID	Speed r/min	Efficiency	Power factor	Current		Torque		Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	Full load 100%	I <sub>N</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>max</sub> T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>				<b>690 V 50 Hz</b>								
710	AMA 400L4L	VSD10047	1486	96.1	0.86	720	237	4563	2.1	14.8	2980	80
800	AMA 400L4L	VSD10048	1485	96.2	0.88	788	213	5143	2.0	16.8	3180	80
900	AMA 400L4L	VSD10049	1486	96.4	0.88	893	267	5783	2.2	17.8	3300	80
1000	AMA 400L4L	VSD10050	1484	96.3	0.89	976	220	6437	1.8	18.8	3400	80
1120	AMA 450L4L	VSD10051	1487	96.3	0.86	1129	330	7191	1.9	27.4	3930	80
1250	AMA 450L4L	VSD10052	1488	96.6	0.87	1240	344	8022	2.0	30.8	4190	80
1400	AMA 450L4L	VSD10053	1489	96.7	0.87	1389	415	8977	2.2	34.3	4420	80
1600	AMA 500L4L	VSD10054	1491	96.7	0.89	1548	396	10251	2.2	52.6	5380	80
1800	AMA 500L4L	VSD10055	1489	96.7	0.90	1727	337	11547	1.9	55.5	5540	80
2000	AMA 500L4L	VSD10056	1491	97.0	0.91	1904	449	12809	2.3	64.3	6030	80
2240	AMA 500L4L	VSD10057	1490	97.0	0.91	2134	449	14358	2.1	64.3	6030	80
<b>1000 r/min = 6 poles</b>				<b>690 V 50 Hz</b>								
500	AMA 400L6L	VSD10058	987	95.5	0.84	523	182	4836	1.8	16.5	2910	80
560	AMA 400L6L	VSD10059	987	95.7	0.85	576	178	5416	1.7	18.9	3100	80
630	AMA 400L6L	VSD10060	988	95.8	0.84	654	229	6086	1.9	20.1	3170	80
710	AMA 400L6L	VSD10061	988	95.8	0.85	734	247	6862	1.8	21.3	3270	80
800	AMA 400L6L	VSD10062	988	95.9	0.84	827	275	7733	1.8	22.5	3380	80
900	AMA 450L6L	VSD10063	989	96.2	0.87	900	270	8689	2.0	34.6	3940	80
1000	AMA 450L6L	VSD10064	990	96.3	0.87	1005	321	9650	2.1	36.8	4070	80
1250	AMA 450L6L	VSD10066	988	96.3	0.88	1230	296	12084	1.8	43.3	4440	80
1328	AMA 450L6L	VSD10065	988	96.2	0.88	1320	340	12841	1.8	41.1	4310	80
1400	AMA 500L6L	VSD10067	989	96.5	0.88	1376	334	13514	1.8	63.4	5350	80
1600	AMA 500L6L	VSD10068	990	96.7	0.88	1579	438	15430	2.0	67.0	5500	80
1800	AMA 500L6L	VSD10069	991	96.8	0.88	1763	479	17349	2.0	77.5	5940	80
2000	AMA 500L6L	VSD10070	990	96.7	0.88	1960	479	19300	1.8	77.5	5940	80
<b>750 r/min = 8 poles</b>				<b>690 V 50 Hz</b>								
315	AMA 400L8L	VSD10071	738	94.8	0.81	344	135	4073	1.8	18.3	2870	80
355	AMA 400L8L	VSD10072	740	95.2	0.80	388	162	4582	2.0	21.1	3070	80
400	AMA 400L8L	VSD10073	740	95.3	0.80	439	188	5161	2.0	22.4	3160	80
450	AMA 400L8L	VSD10074	740	95.3	0.81	490	204	5806	2.0	25.2	3330	80
500	AMA 400L8L	VSD10075	740	95.3	0.81	541	217	6455	1.9	26.5	3430	80
560	AMA 450L8L	VSD10076	741	95.9	0.83	589	219	7212	1.9	37.1	3780	80
630	AMA 450L8L	VSD10077	742	96.0	0.82	666	261	8108	2.0	39.7	3910	80
710	AMA 450L8L	VSD10078	741	95.9	0.83	744	272	9144	1.9	42.3	4000	80
800	AMA 450L8L	VSD10079	741	96.0	0.84	834	288	10309	1.8	44.9	4130	80
900	AMA 450L8L	VSD10080	742	96.2	0.83	942	350	11585	1.9	50.1	4380	80
1000	AMA 500L8L	VSD10081	742	96.3	0.84	1029	345	12862	1.8	70.6	5140	80
1120	AMA 500L8L	VSD10082	742	96.4	0.84	1151	379	14408	1.8	75.0	5300	80
1250	AMA 500L8L	VSD10083	742	96.4	0.84	1289	432	16079	1.8	79.3	5450	80
1400	AMA 500L8L	VSD10084	742	96.5	0.85	1428	444	18013	1.7	88.0	5760	80

Data presented in rating lists are typical values. Guaranteed values on request. All engineered motors are optimized for the specified application. Accurate motor data will be given on request at quotation phase. Legally binding performance and specification data is given to the end user once each order is confirmed.

# Engineered motors, HXR, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 1001, IC411



HXR	Poles	A	B	C	D	E	F	H	AE	HD	L	K	LD	LE
400S	2	686	560	280	70	140	20	400	930	1140	1505	35	1080	380
400S	≥ 4	686	560	280	100	210	28	400	930	1140	1670	35	1150	450
400L	2	710	900	224	80	170	22	400	975	1185	1765	35	1325	430
400L	≥ 4	710	900	224	110	210	28	400	975	1185	1900	35	1365	470
450L	2	800	1000	250	80	170	22	450	1025	1290	1985	42	1520	445
450L	≥ 4	800	1000	250	110	210	28	450	1025	1290	2120	42	1560	485
500L	2	900	1250	280	90	170	25	500	1265	1530	2320	42	1800	460
500L	≥ 4	900	1250	280	120	210	32	500	1265	1530	2455	42	1840	500
560L	≥ 4	1000	1600	400	160	300	40	560	1340	1675	3025	48	2350	630

HXR	Poles	AA	AB	AC	BA	BB	HA	D-end bearing	N-end bearing
400S	2	160	780	745	210	886	100	6317M/C3	6317M/C3
400S	≥ 4	160	780	745	210	886	100	6322/C3	6319/C3
400L	2	140	840	840	260	1120	35	6317M/C3	6317M/C3
400L	≥ 4	140	840	840	260	1120	35	6324/C3	6319/C3
450L	2	160	950	940	320	1300	40	6317M/C3	6317M/C3
450L	≥ 4	160	950	940	320	1300	40	6324/C3	6322/C3
500L	2	170	1050	1050	375	1570	45	6319M/C3	6319M/C3
500L	≥ 4	170	1050	1050	375	1570	45	6326/C3	6324/C3
560L	≥ 4	230	1170	1195	620	1940	50	6034/C3 + NU1034/C3	NU322/C3

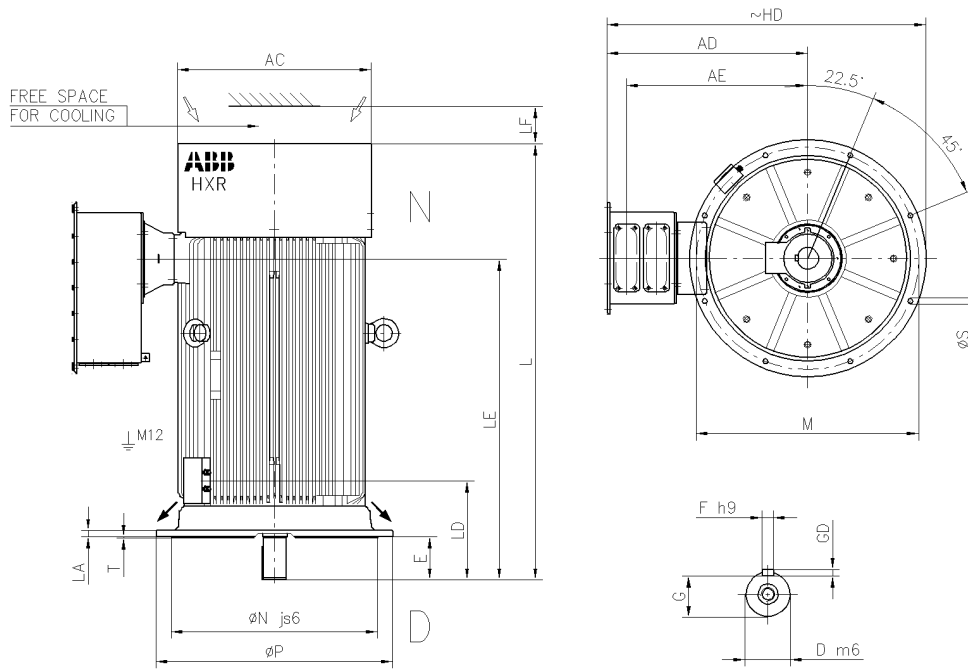
The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.

# Engineered motors, HXR, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 3011, IC411



HXR	Poles	M	N	P	S	D	E	F	G	GD	L	LA	LD
400S	2	740	680	800	23	70	140	20	62.5	12	1505	25	395
400S	≥ 4	740	680	800	23	100	210	28	90	16	1670	25	465
400L	2	940	880	1000	28	80	170	22	71	14	1765	30	425
400L	≥ 4	940	880	1000	28	110	210	28	100	16	1900	30	465
450L	≥ 4	1080	1000	1150	28	110	210	28	100	16	2120	30	480
500L	≥ 4	1080	1000	1150	28	120	210	32	109	18	2455	30	510
560L	≥ 6	1320	1250	1400	28	160	300	40	147	22	3005	40	630

HXR	Poles	LE	LF	T	AC	AD	AE	HD	D-end bearing	N-end bearing
400S	2	1080	130	6	750	880	785	1280	6317M/C3	7317 BM
400S	≥ 4	1150	130	6	750	880	785	1280	6322C3	7319 B
400L	2	1318	150	6	840	925	830	1425	6317M/C3	7317 BM
400L	≥ 4	1358	150	6	840	925	830	1425	6324/C3	7319 B
450L	≥ 4	1555	180	6	940	975	880	1550	6324/C3	7322 B
500L	≥ 4	1850	200	6	1040	1175	1020	1750	6326/C3	7324 B
560L	≥ 6	2350	250	6	1190	1260	1170	1965	6034/C3	7334 B

The above table gives the main dimensions in mm.

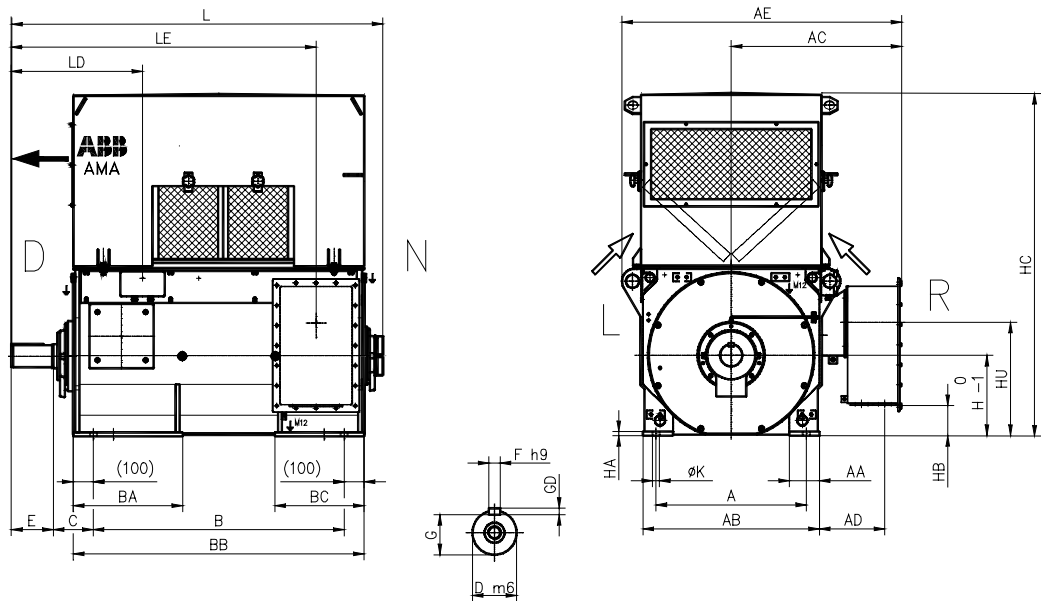
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# Engineered motors, AMA, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 1001, IC01 / IP24W



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
400L	2	750	1250	200	85	170	22	76	400	35	1825	150	880	920	380
400L	≥ 4	750	1250	200	110	210	28	100	400	35	1865	150	880	920	380
450L	2	850	1400	200	90	170	25	81	450	42	1975	150	980	970	380
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2025	150	980	970	380
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2305	150	1080	1145	505

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1470	545	1450	445	14	20	50	1710	615	1480	565	6319M/C3	6319M/C3
400L	≥ 4	1470	545	1450	445	16	20	50	1710	655	1520	565	6324/C3	6319/C3
450L	2	1570	575	1600	465	14	25	150	1860	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1570	575	1600	465	18	25	150	1860	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1785	645	1800	495	20	35	60	2060	860	1910	765	6330/C3	6324/C3

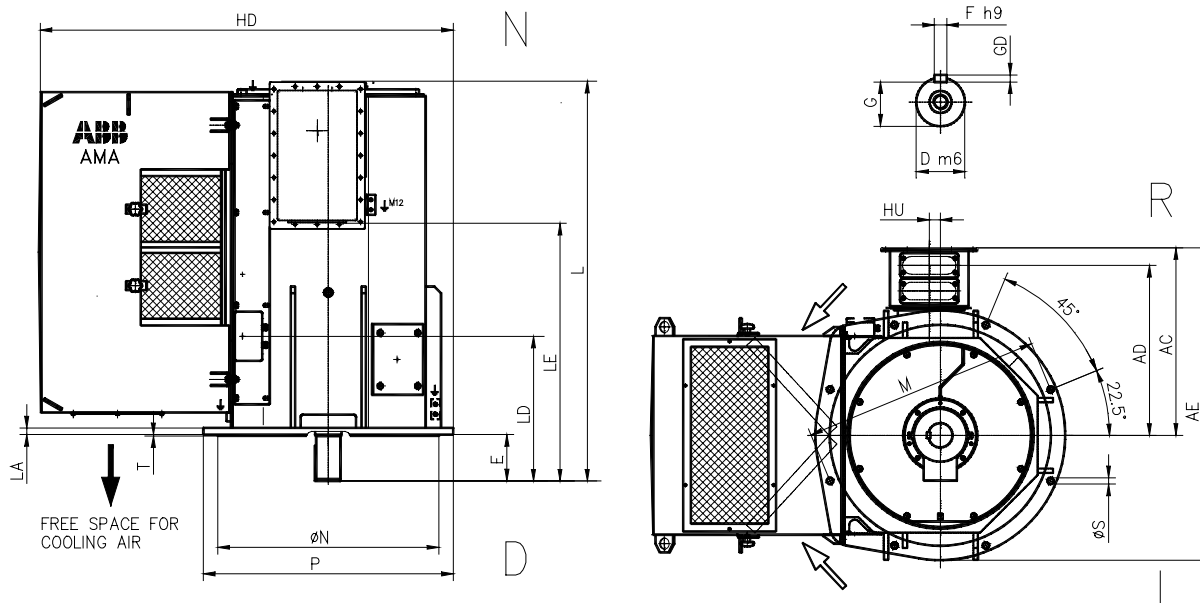
The above table gives the main dimensions in mm.

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# Engineered motors, AMA, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 4011, IC01 / IP24W



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
400L	≥ 4	1080	1000js6	1130	28	110	210	28	100	1875	1865	30	655	1065
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	2025	2020	40	750	1215
500L	≥ 4	1320	1250h8	1370	28	140	250	36	128	2245	2290	47	860	1265

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
400L	≥ 4	6	915	820	1480	16	50	6324/C3	7319B
450L	≥ 4	7	965	870	1580	18	50	6326/C3	7322B
500L	≥ 4	8	1140	1045	1825	20	50	6330/C3	7324B

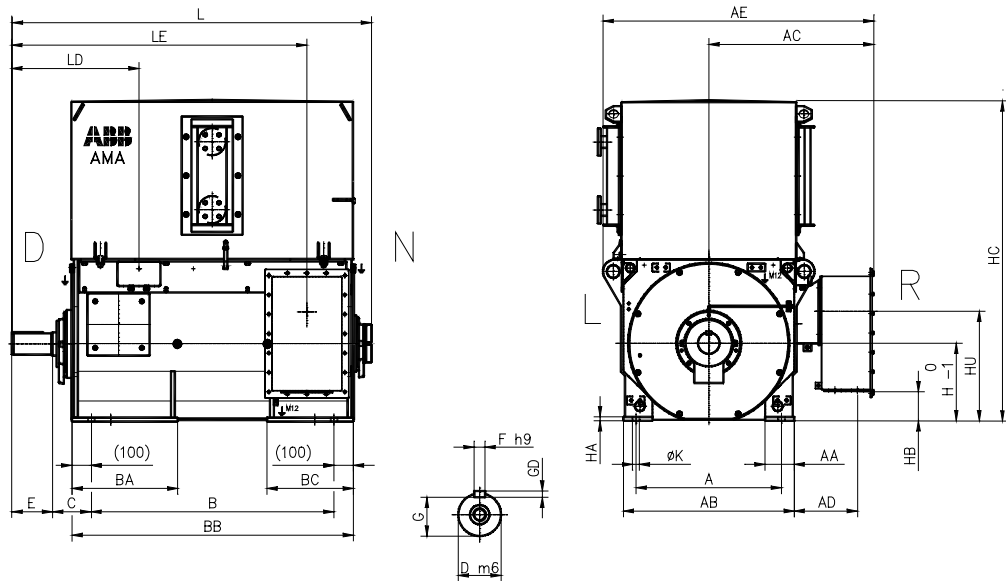
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# Engineered motors, AMA, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 1001, IC81W / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
400L	2	750	1250	200	85	170	22	76	400	35	1825	150	880	920	380
400L	≥ 4	750	1250	200	110	210	28	100	400	35	1865	150	880	920	380
450L	2	850	1400	200	90	170	25	81	450	42	1975	150	980	970	380
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2025	150	980	970	380
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2305	150	1080	1140	505

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1470	545	1450	445	14	20	50	1670	615	1480	565	6319M/C3	6319M/C3
400L	≥ 4	1470	545	1450	445	16	20	50	1670	655	1520	565	6324/C3	6319/C3
450L	2	1570	575	1600	465	14	25	150	1870	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1570	575	1600	465	18	25	150	1870	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1785	645	1800	495	20	35	60	2070	860	1910	765	6330/C3	6324/C3

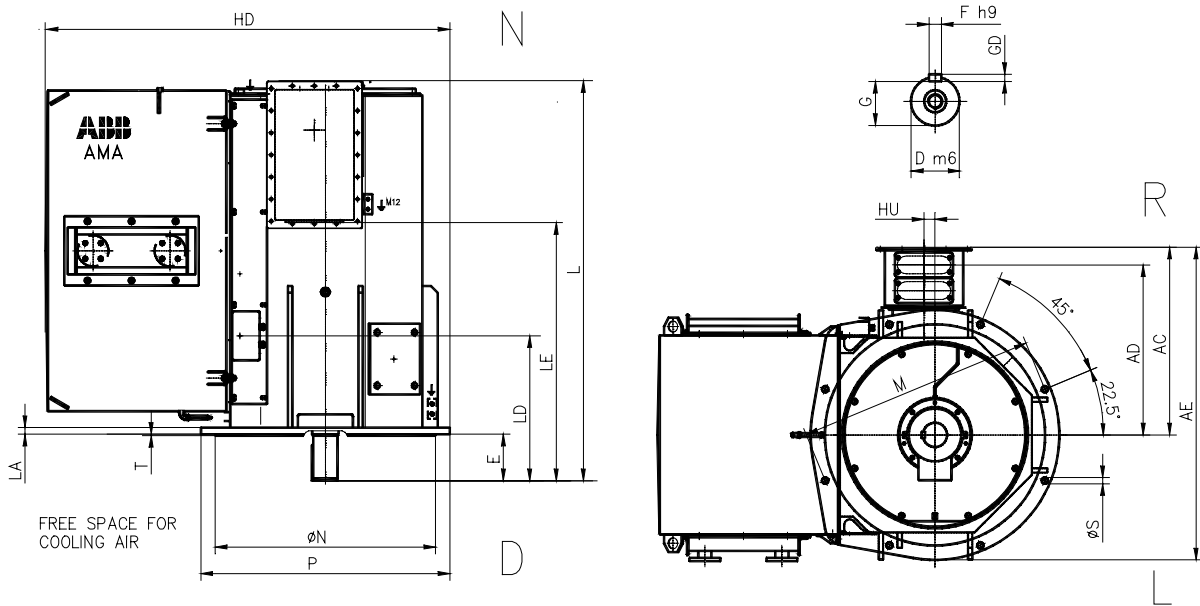
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# Engineered motors, AMA, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 4011, IC81W / IP55



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
400L	$\geq 4$	1080	1000js6	1130	28	110	210	28	100	1835	1865	30	655	1065
450L	$\geq 4$	1180	1120h8	1230	28	125	210	32	114	2035	2020	40	750	1215
500L	$\geq 4$	1320	1250h8	1370	28	140	250	36	128	2255	2290	47	860	1265

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
400L	$\geq 4$	6	915	820	1480	16	50	6324/C3	7319B
450L	$\geq 4$	7	965	870	1580	18	50	6326/C3	7322B
500L	$\geq 4$	8	1140	1045	1825	20	50	6330/C3	7324B

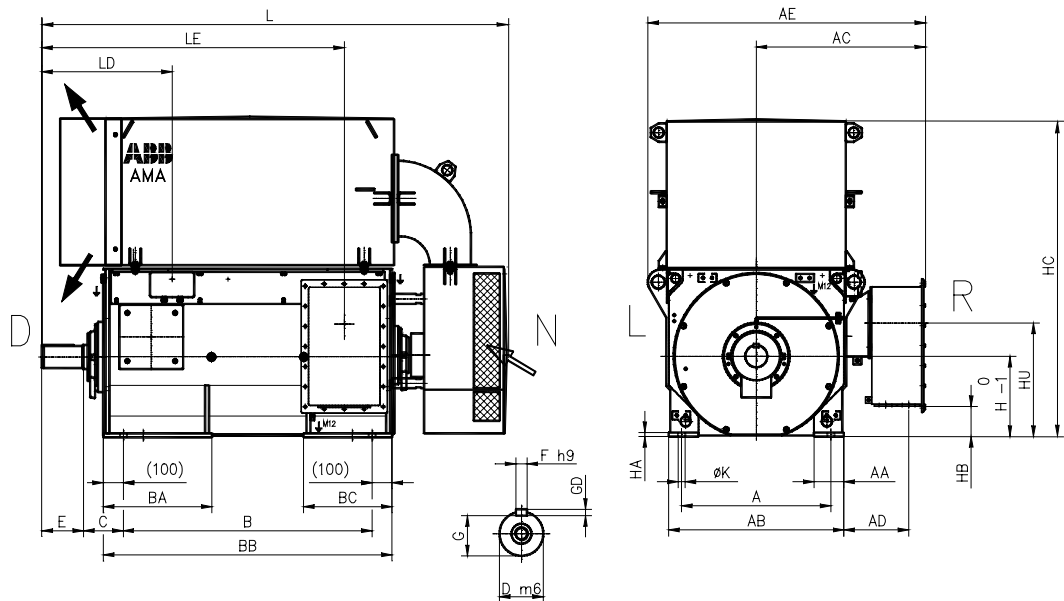
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# Engineered motors, AMA, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 1001, IC611 / IP55



AMA	Poles	A	B	C	D	E	F	G	H	K	L	AA	AB	AC	AD
400L	2	750	1250	200	85	170	22	76	400	35	2290	150	880	920	380
400L	≥ 4	750	1250	200	110	210	28	100	400	35	2330	150	880	920	380
450L	2	850	1400	200	90	170	25	81	450	42	2480	150	980	970	380
450L	≥ 4	850	1400	200	125	210	32	114	450	42	2520	150	980	970	380
500L	≥ 4	950	1600	200	140	250	36	128	500	42	2830	150	1080	1140	505

AMA	Poles	AE	BA	BB	BC	GD	HA	HB	HC	LD	LE	HU	D-end bearing	N-end bearing
400L	2	1470	545	1450	445	14	20	50	1590	615	1480	565	6319M/C3	6319M/C3
400L	≥ 4	1470	545	1450	445	16	20	50	1590	655	1520	565	6324/C3	6319/C3
450L	2	1570	575	1600	465	14	25	150	1760	710	1630	665	6319M/C3	6319M/C3
450L	≥ 4	1570	575	1600	465	18	25	150	1760	750	1670	665	6326/C3	6322/C3
500L	≥ 4	1785	645	1800	495	20	35	60	1960	860	1910	765	6330/C3	6324/C3

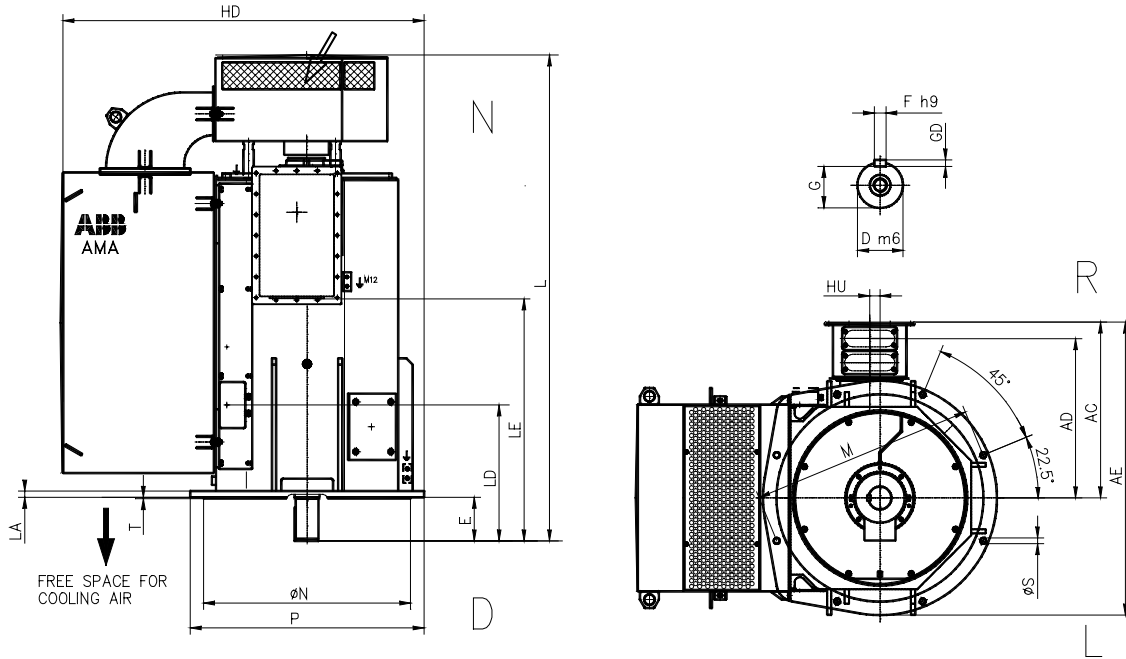
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# Engineered motors, AMA, for LV variable speed drives

## Dimension drawings

Antifriction bearings,  $0 < U_N \leq 1.0$  kV, IM 4011, IC611 / IP55



AMA	Poles	M	N	P	S	D	E	F	G	HD	L	LA	LD	LE
400L	≥ 4	1080	1000js6	1130	28	110	210	28	100	1755	2330	30	655	1065
450L	≥ 4	1180	1120h8	1230	28	125	210	28	114	1925	2520	40	750	1215
500L	≥ 4	1320	1250h8	1370	28	140	250	28	128	2145	2830	47	860	1265

AMA	Poles	T	AC	AD	AE	GD	HU	D-end bearing	N-end bearing
400L	≥ 4	6	915	820	1480	16	50	6324/C3	7319B
450L	≥ 4	7	965	870	1580	18	50	6326/C3	7322B
500L	≥ 4	8	1140	1045	1825	20	50	6330/C3	7324B

The above table gives the main dimensions in mm.

The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.