

# ABB High Voltage Induction Motors

Technical catalogue



**ABB**



# High Voltage Induction Motors

From 100 to 2800 kW

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

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# 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 750 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

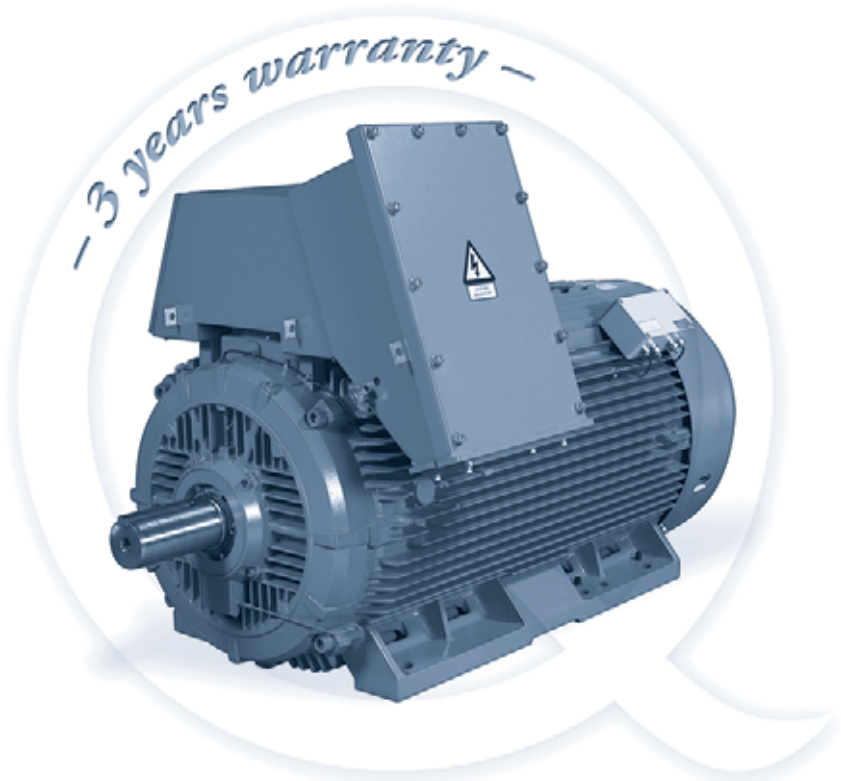
motors. All the engineered motors are configured and optimized for each order and application.

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 - 450, 110 to 750 kW



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

- > **Motors**
- >> **High Voltage Motors**
- >>> **Process Performance**  
**Cast Iron Motors, 315-450**

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# Mechanical design

This is a standard motor catalogue with limited optional features and accessories. In case you need an

engineered cast iron motor, please contact your local ABB Sales office for further information.

## Stator frame

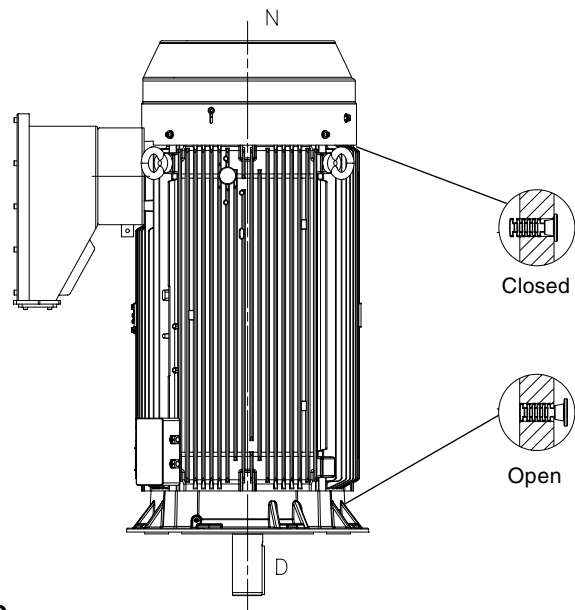
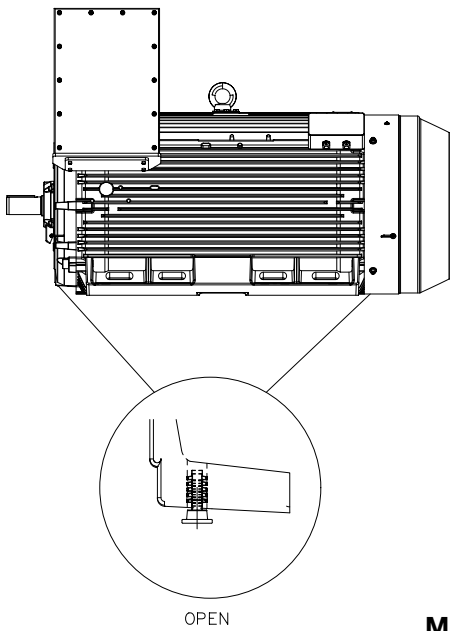
The motor frames including feet and bearing housing are made of cast iron. Terminal box is made of structural steel. Integrally cast feet allow a very rigid mounting and minimal vibration.

Motors can be supplied for foot mounting (horizontal), foot and flange mounting (horizontal) or flange mounting (vertical, available for 4-8 pole only).

## Drain holes

All the 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 315-450

As standard with drain holes and closable plugs.

M000241

# Terminal boxes

The high voltage terminal box up to 6.6 kV is shown below. The main technical data are listed below.

### Technical data:

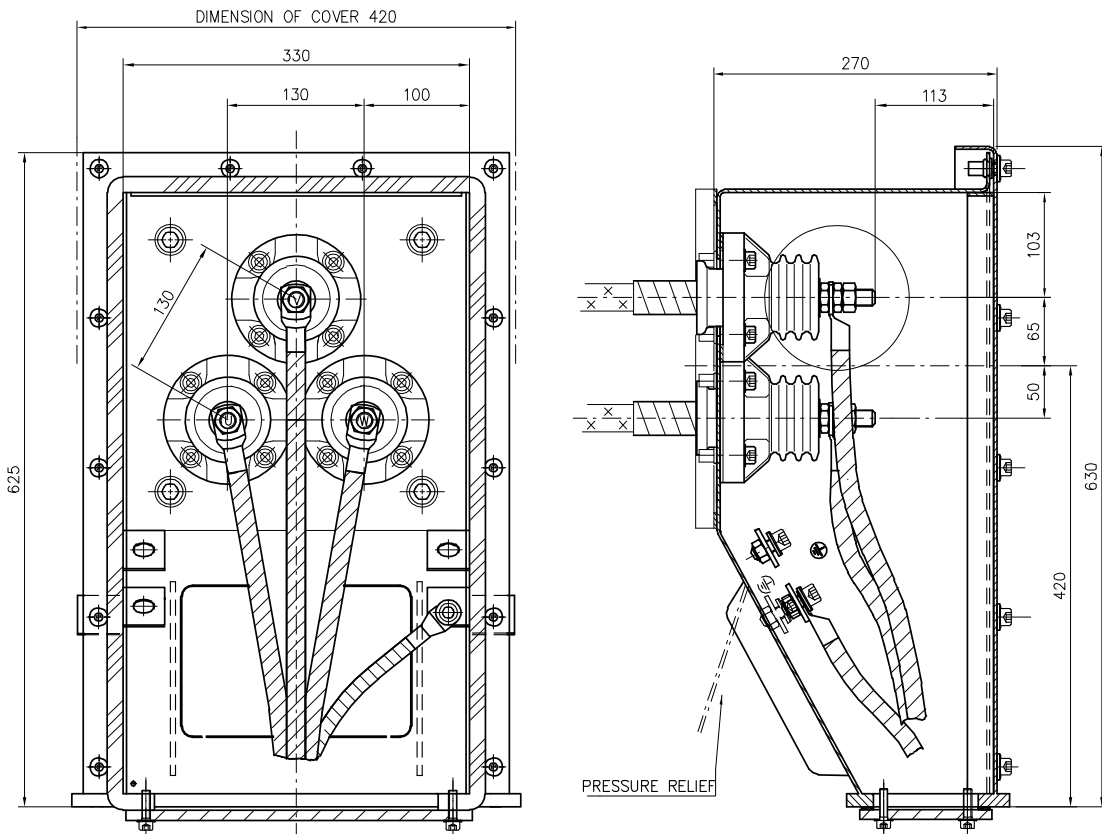
Voltage (max.)	6.6 kV
Current (max.)	400 A
No of cables (max.)	1 per phase
Cross section of cables (max.)	300 mm <sup>2</sup> /cable
Cable gland	blind gland (1 pcs)
Clearance (min.)	60 mm
Creepage (min.)	90 mm
Gross volume	47.3 dm <sup>3</sup>
Usable volume	42.1 dm <sup>3</sup>
Connection screws	M16 (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 up to 6.6 kV.

The high voltage terminal box up to 11 kV is shown below. The main technical data are listed below.

**Technical data:**

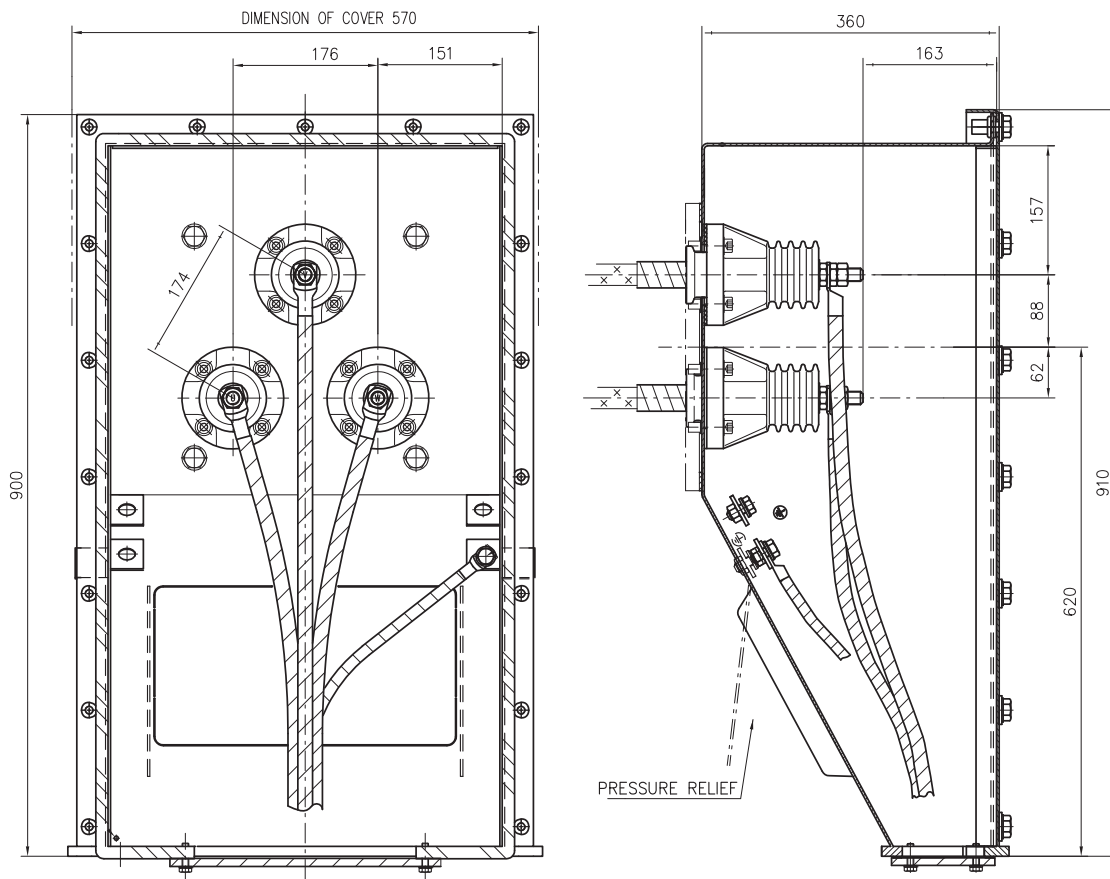
Voltage (max.)	11 kV
Current (max.)	400 A
No of cables (max.)	1 per phase
Cross section of cables (max.)	300 mm <sup>2</sup> /cable
Cable gland	blind gland (1 pcs)
Clearance (min.)	110 mm
Creepage (min.)	150mm
Gross volume	122 dm <sup>3</sup>
Usable volume	116 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts tightening torque	40 Nm
Ground connections	M12 (both in- and outside)
Weight	62 kg
Protection Standard	IP 66 DIN 42962 TEIL 2, C2
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 up to 11 kV.



The high voltage star point terminal box up to 6.6 kV is shown below (option, variant code 750). The main technical data are listed below.

**Technical data:**

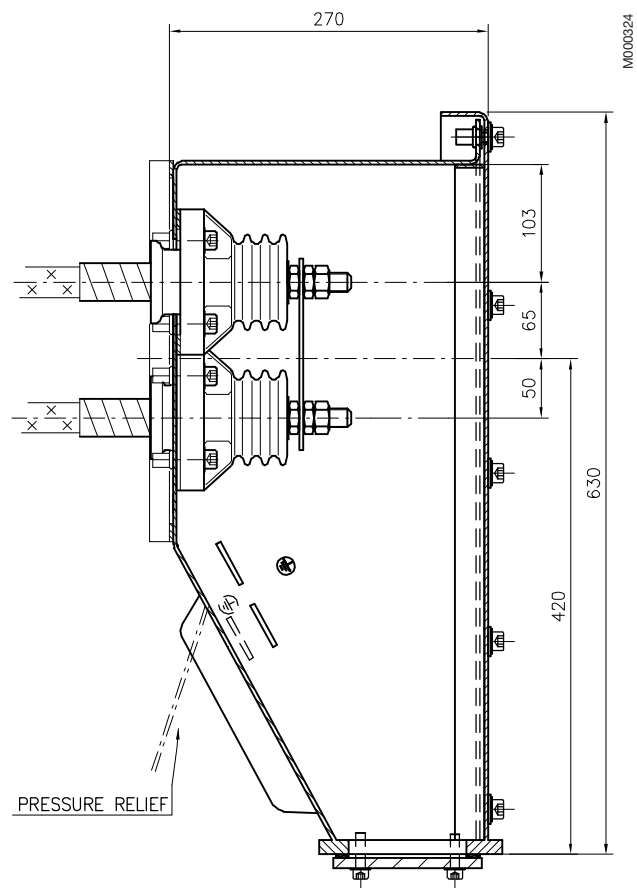
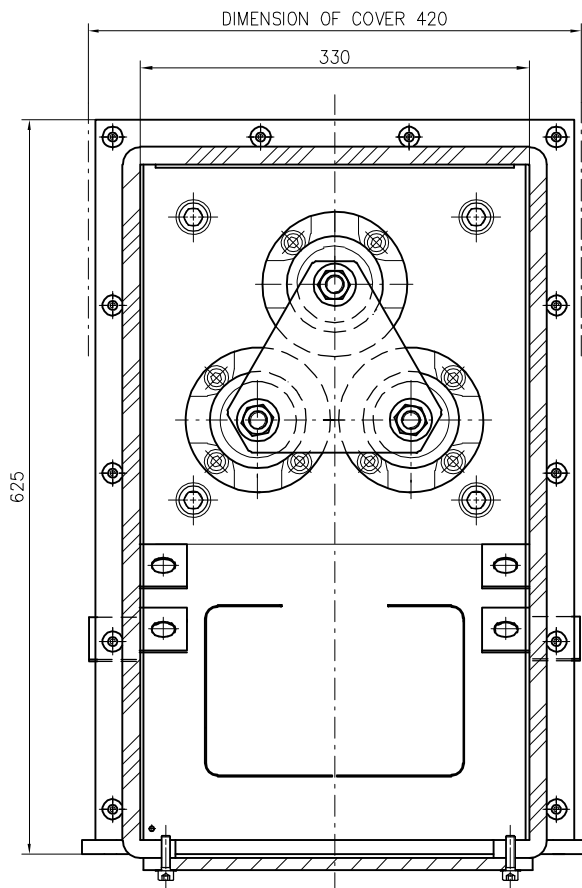
Voltage (max.)	6.6 kV
Current (max.)	400 A
Cable gland	blind gland (1 pcs)
Creepage (min.)	90 mm
Gross volume	47.3 dm <sup>3</sup>
Usable volume	42.1 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts tightening torque	40 Nm
Ground connections	M12 (both in- and outside)
Weight	33 kg
Protection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

The high voltage star point terminal box up to 11 kV is shown below (option, variant code 750). The main technical data are listed below.

**Technical data:**

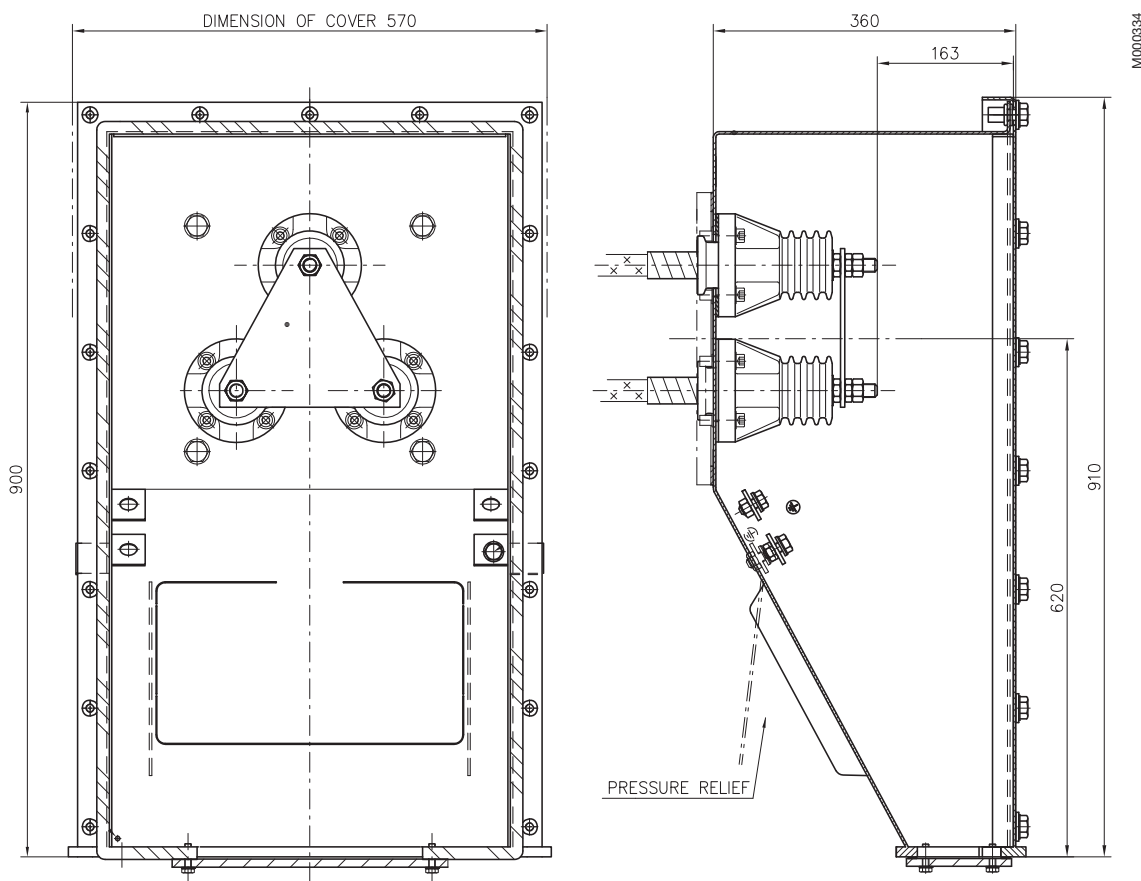
Voltage (max.)	11 kV
Current (max.)	400 A
Cable gland	blind gland (1 pcs)
Creepage (min.)	110 mm
Gross volume	122 dm <sup>3</sup>
Usable volume	116 dm <sup>3</sup>
Connection screws	M16 (3 pcs)
Connection nuts tightening torque	40 Nm
Ground connections	M12 (both in- and outside)
Weight	62 kg
Protection	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

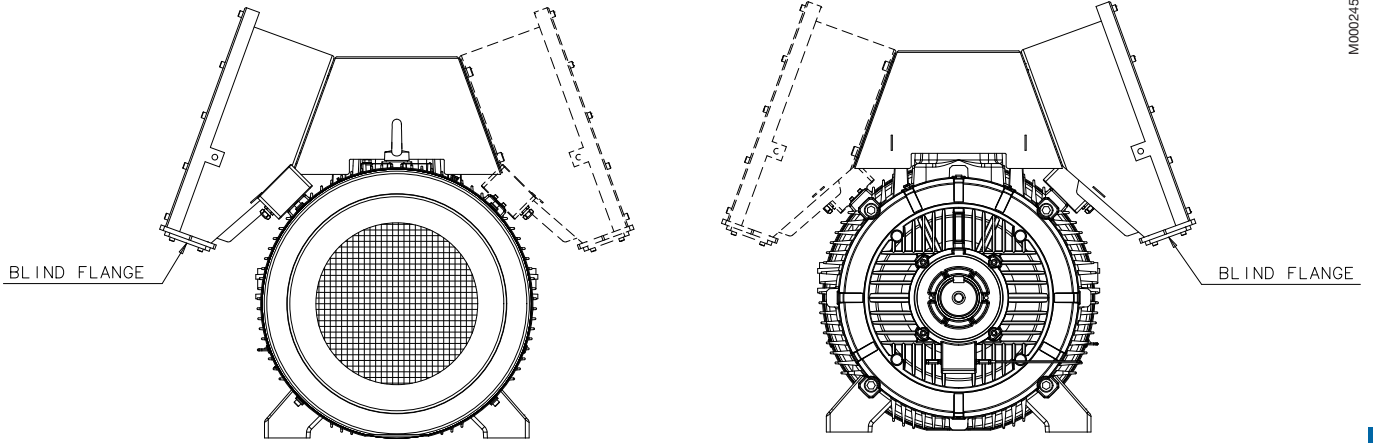
**Other features:**

- 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

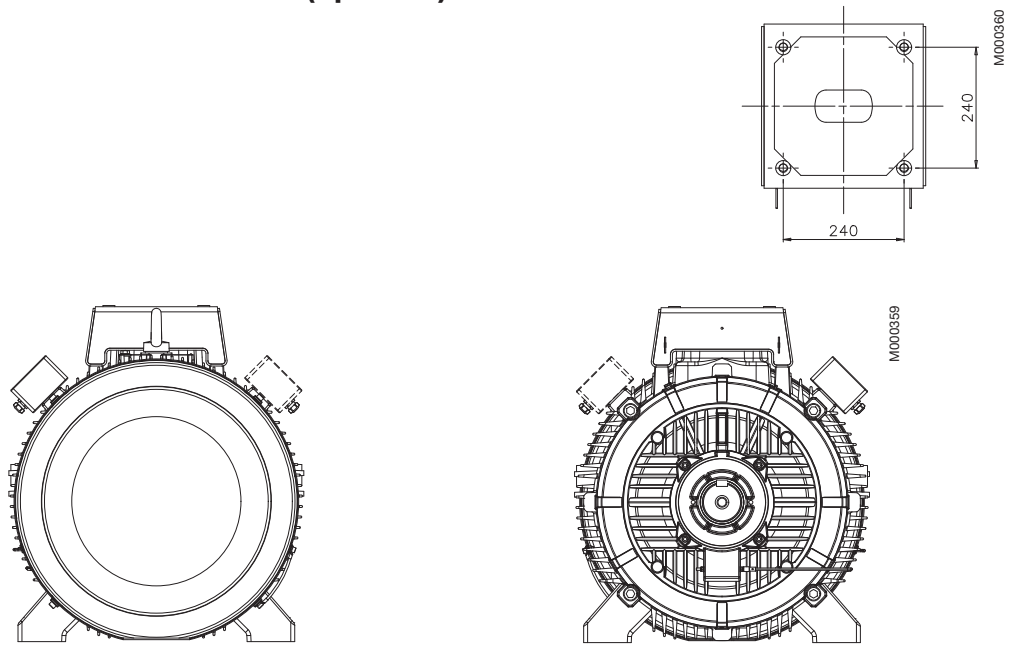


High voltage star point terminal box up to 11 kV.

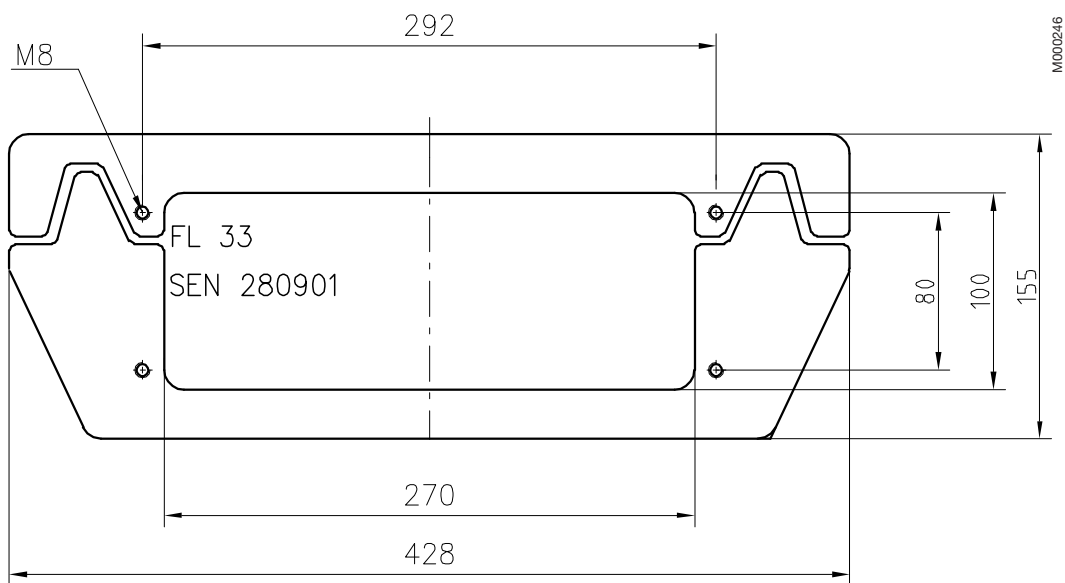
## Star point terminal box (optional)



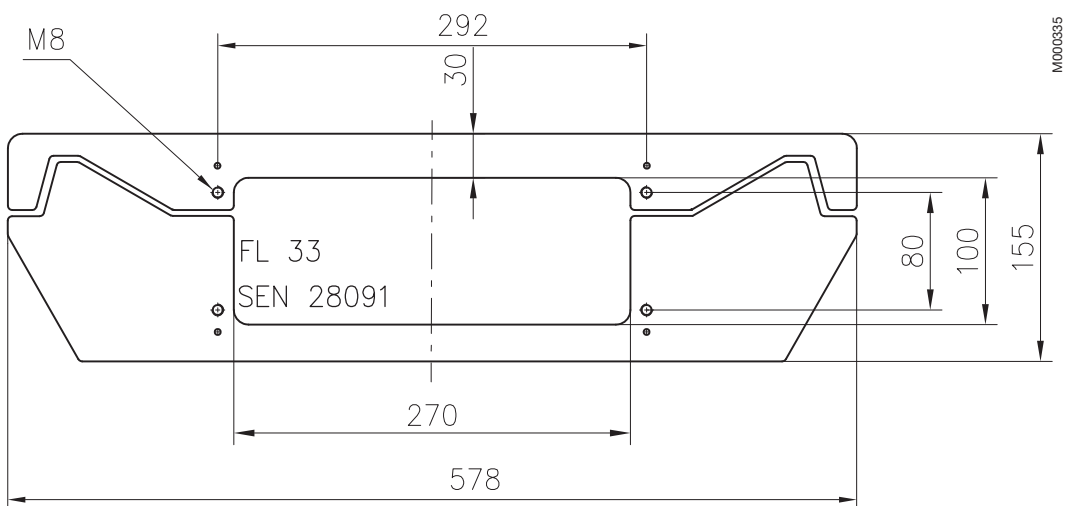
## Delivery without main terminal box (optional)



## Dimensions for terminal box inlet, blind flange



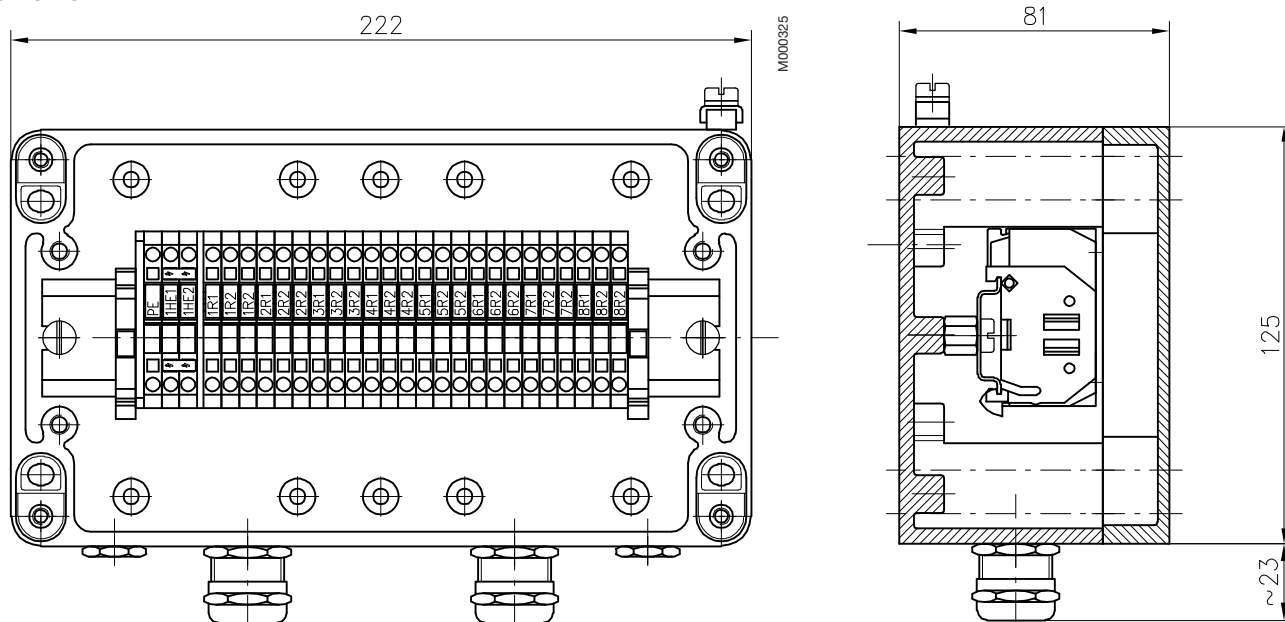
Blind flange up to 6.6 kV.



Blind flange up to 11 kV.

# 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)

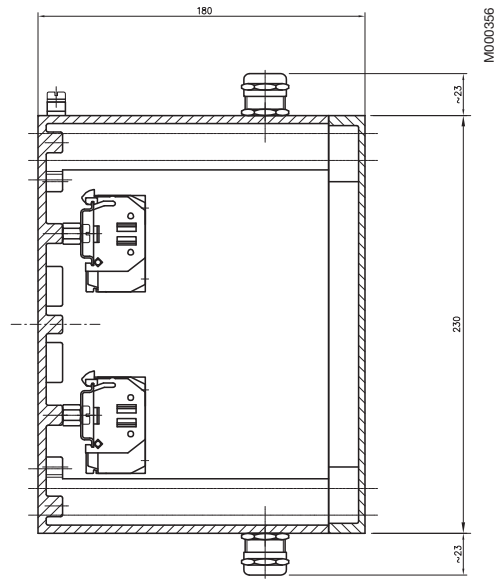
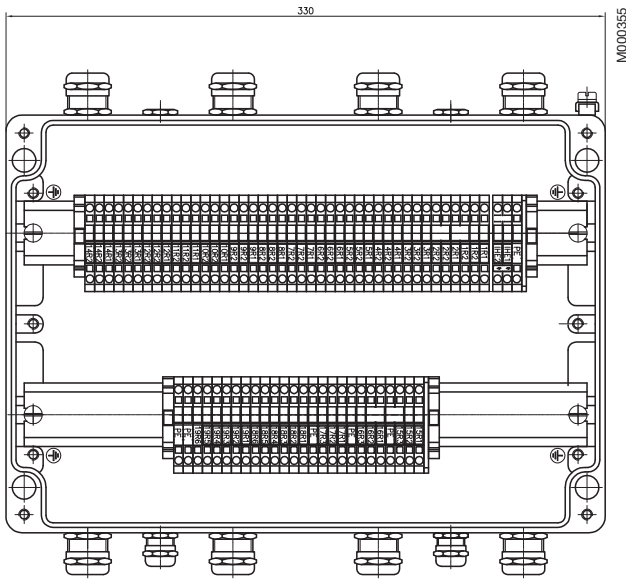
### Specification:

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



- one box as default
  - stator Pt-100 (6 pcs)
  - bearing Pt-100 (optional, variant code 107)
  - heating element (optional, variant code 450/451)
  - dial type thermometers for bearings (optional, variant code 651/652)\*
  - Pt-100 (12 pcs) inside stator slots (optional, variant code 653)\*
  - Provision for vibration sensors (optional, variant code 654)\*

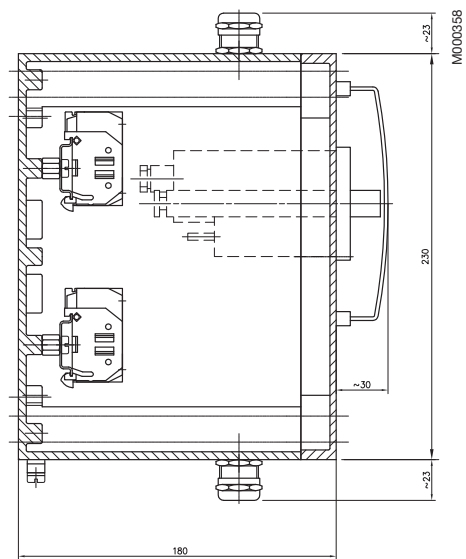
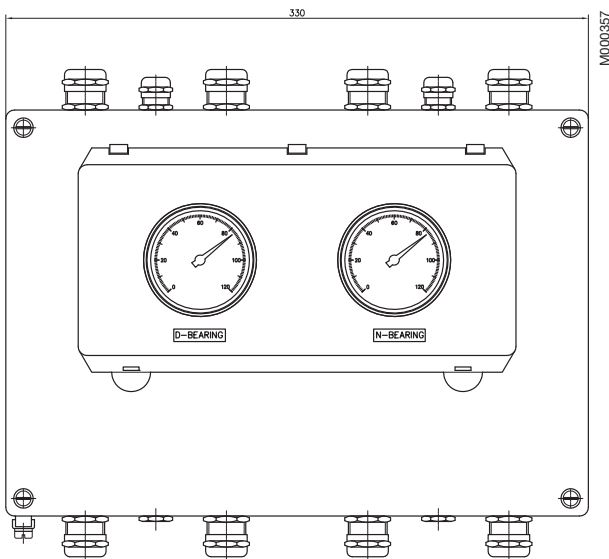
\* The bigger auxiliary box is needed if any of these variant codes is selected.

**Other features:**

- equipped with assembly rail ARH 22 (DIN-35)
- main dimensions 125x222x81, 222x330x180
- degree of protection IP66 (IEC 529)
- gasket material polyurethane
- temperature resistance -50 - +140°C (material), +80 °C (continuous use)
- weight 1.6 – 5.6 kg

**Specification:**

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



**Option with bearing dial type thermometers**

- Measuring range 0...120 °C
- Degree of protection : IP65 (IEC529)
- Temperature durability of display -40...+60 °C

- Temperature durability of capillary tube -40...+100 °C
- With or without contacts (optional, variant codes 652/651)

# Bearings

The motors are normally fitted with single-row deep groove ball bearings as listed in the table below.

## 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
	4-8	6324/C3	6319/C3
450	2	6317M/C3	6317M/C3
	4-8	6326M/C3	6322/C3

If the bearing at the D-end is replaced with a roller bearing (NU-), higher radial forces can be handled. 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	4-8	NU 324/C3
450	4-8	NU 326/C3

## Axially-locked bearings

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

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. Note! NU-bearing is axially locked at N-end.

## Transport locking

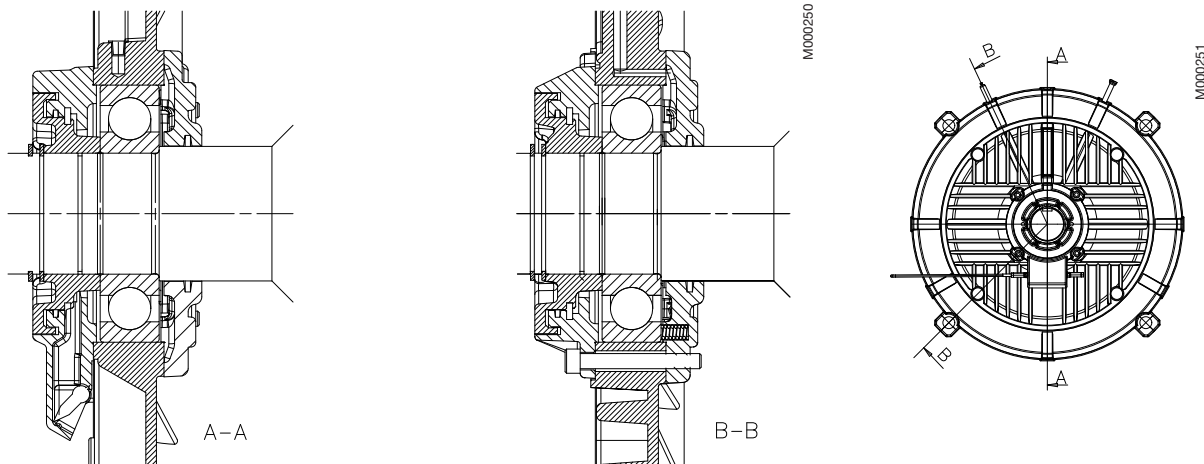
Motors with roller bearings are fitted with a transport lock to prevent damage to the bearings during transport. All high voltage motors are fitted with a warning sign when the transport lock is fitted to prevent operational damage and alert operators.

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

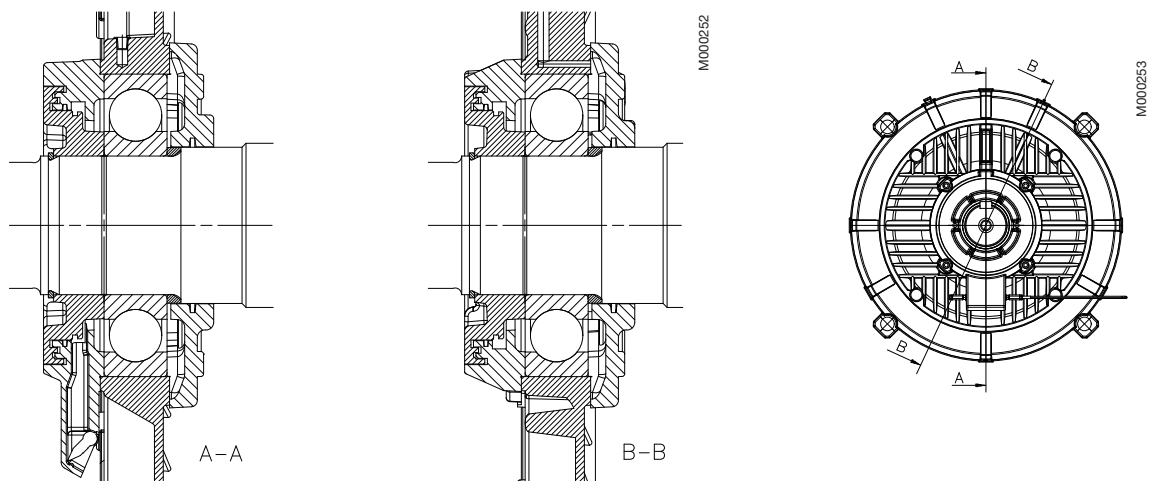
# Bearing seals

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 20 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 the 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:</b> lubrication intervals in duty hours				
315	25	5900	8800	8800
315	40 <sup>1)</sup>	3000	6600	8800
355	25	4400	8800	8800
355	40 <sup>1)</sup>	2200	5100	8800
400	25	3000	6600	8800
400	40 <sup>1)</sup>	1500	3600	8000
450	25	3000	6600	8800
450	40 <sup>1)</sup>	1500	3600	8000

<sup>1)</sup> For generation code B motors, same lubrication intervals are valid for 50°C ambient.

Frame size	Ambient °C	3000 r/min	1500 r/min	<1000 r/min
<b>Roller bearings:</b> lubrication intervals in duty hours				
315	25	-	4400	8800
315	40 <sup>1)</sup>	-	2200	5100
355	25	-	4400	4400
355	40 <sup>1)</sup>	-	2200	2200
400	25	-	3000	4400
400	40 <sup>1)</sup>	-	1500	2200
450	25	-	3000	4400
450	40 <sup>1)</sup>	-	1500	2200

<sup>1)</sup> For generation code B motors, same lubrication intervals are valid for 50°C ambient.

## 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 dust or dirt cannot get inside the bearing.

The table below gives lubrication intervals for different speeds (according to the L1-principle). The values are valid for motors using the synthetic base oil mentioned in ABB's High Voltage Process Performance Motors Manual.

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:</b> lubrication intervals in duty hours				
315	25	-	6600	8800
315	40 <sup>1)</sup>	-	3600	4400
355	25	-	4400	8800
355	40 <sup>1)</sup>	-	2200	4400
400	25	-	3000	6600
400	40 <sup>1)</sup>	-	1500	3600
450	25	-	3000	6600
450	40 <sup>1)</sup>	-	1500	3600

<sup>1)</sup> For generation code B motors, same lubrication intervals are valid for 50°C ambient.

## Pulley diameter

When the desired bearing life has been determined, the minimum permissible pulley diameter can be calculated using  $F_R$ , as follows:

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

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 loadings on shaft

The tables 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.

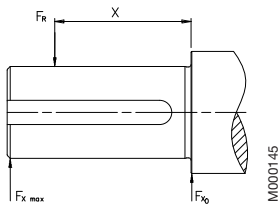
Motors are foot-mounted IM 1001 (B3) version with force directed sideways. In some cases the strength of the shaft affects the permissible forces.

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:

$$F_R = F_{X_0} - \frac{X}{E} (F_{X_0} - F_{X_{max}})$$

E = length of shaft extension in basic version



## Permissible radial forces

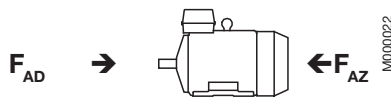
Motor size	Poles	Length of shaft extension E (mm)	Ball bearings		Roller bearings	
			40,000 hours $F_{X0}$ (N)	$F_{X_{max}}$ (N)	40,000 hours $F_{X0}$ (N)	$F_{X_{max}}$ (N)
315LK	2	140	4850	4300	-	-
	4	170	7900	6850	25000	9500
	6	170	9050	7850	30000	9500
355LK	2	140	2350	2150	-	-
	4	210	9900	8600	25000	12000
	6	210	11500	9950	40000	12000
400L / LK	2	170	550	500	-	-
	4	210	8130	7160	25000	15000
	6-8	210	10190	8900	45000	15000
450L	2	170	-	-	-	-
	4	210	8950	7950	25000	20800
	6-8	210	10430	9250	50000	20800

## 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.

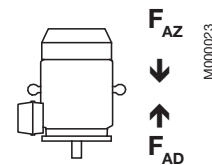
Given axial forces  $F_{AD}$ , assumes D-bearing locked by means of locking ring.

### Mounting arrangement IM B3



Motor size	40,000 hours					
	2-pole		4-pole		6-8-pole	
	$F_{AD}$	$F_{AZ}$	$F_{AD}$	$F_{AZ}$	$F_{AD}$	$F_{AZ}$
	N	N	N	N	N	N
315LK	2050	4050	4150	6150	5050	7050
355LK	850	4650	4350	8150	5650	9450
400L / LK	200	5200	2990	8990	3970	9970
450L	-	-	3200	9200	4220	10220

### Mounting arrangement IM V1



Motor size	40,000 hours					
	2-pole		4-pole		6-8-pole	
	$F_{AD}$	$F_{AZ}$	$F_{AD}$	$F_{AZ}$	$F_{AD}$	$F_{AZ}$
	N	N	N	N	N	N
315LK	-	-	7650	3750	9150	4350
355LK	-	-	10900	3850	12700	4600
400L / LK	-	-	11550	2780	15100	2480
450L	-	-	15420	800	19080	380

# Vibration limits / Balancing

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

The following table lists the vibration values that the motors 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
Regreasing amount	60 g
Regreasing intervals valid with following running speed and ambient temperatures:	1500 rpm
At 25 °C	4400 h
At 40 °C	2400 h
Grease	KLUBERPLEX BEM 41-132
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.

### 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 temperatures 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 temperatures will not be higher than the catalogue data.

### 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 temperatures of the motor will not be higher than the catalogue data.

Note: 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 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													
<b>M3BM</b>	<b>315LKA</b>	<b>3GBM 312 810</b>	<b>- AQA 003 etc.</b>													
			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

**45** = 450

### Position 7

Speed (Pole pairs)

**1** = 2 poles

**2** = 4 poles

**3** = 6 poles

**4** = 8 poles

### Position 8 to 10

Serial number

### Position 11

- (dash)

### Position 12

Mounting arrangement

**A** = Horizontal

**B** = Vertical (for 4-8 pole only)

**H** = Foot- and flange-mounted, terminal box top-mounted

### Position 13

Voltage and frequency code

See table below

### Position 14

Generation code

**A** = Motor designed for 40°C ambient

**B** = Motor designed for 50°C ambient

**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

<b>Q</b> 50 Hz	<b>R</b> 50 Hz	<b>S</b> 50 Hz	<b>T</b> 50 Hz	<b>Y</b> 50 Hz
3000 V	3300 V	6600 V	6000 V	10000 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, ambient temperature 40°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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	94.4	94.3	0.92	0.92	29	6.3	5	
160	M3BM 315 LKB	3GBM 311 820-•QA	2971	94.6	94.6	0.92	0.92	35	6.5	6	
200 <sup>5)</sup>	M3BM 355 LKA	3GBM 351 811-•QA	2974	94.6	94.5	0.90	0.90	45	5.6	9	
250 <sup>5)</sup>	M3BM 355 LKB	3GBM 351 821-•QA	2975	95.1	95.0	0.90	0.90	56	6.1	11	
315 <sup>5)</sup>	M3BM 355 LKC	3GBM 351 831-•QA	2973	95.5	95.7	0.91	0.92	69	6.0	11	
325 <sup>5)</sup>	M3BM 355 LKD	3GBM 351 842-•QA	2974	95.6	95.7	0.91	0.92	71	6.2	11	
355 <sup>5)</sup>	M3BM 355 LKE	3GBM 351 850-•QA	2983	95.9	95.9	0.91	0.91	78	6.4	15	
355 <sup>5)</sup>	M3BM 400 LA	3GBM 401 510-•QA	2980	95.7	95.6	0.90	0.90	79	6.3	16	
400 <sup>5)</sup>	M3BM 400 LB	3GBM 401 520-•QA	2978	95.9	96.0	0.91	0.91	88	6.2	15	
450 <sup>5)</sup>	M3BM 400 LC	3GBM 401 530-•QA	2978	96.1	96.2	0.91	0.92	98	6.4	16	
500 <sup>5)</sup>	M3BM 400 LKA	3GBM 401 810-•QA	2983	96.4	96.4	0.91	0.91	109	6.2	19	
560 <sup>5)</sup>	M3BM 400 LKB	3GBM 401 820-•QA	2983	96.5	96.6	0.91	0.92	122	6.1	19	
<b>3000 r/min = 2 poles</b>			<b>3300 V 50 Hz</b>								
160	M3BM 315 LKA	3GBM 311 811-•RA	2976	94.7	94.6	0.91	0.91	32	6.4	6	
200 <sup>5)</sup>	M3BM 355 LKA	3GBM 351 811-•RA	2978	94.6	94.4	0.90	0.89	41	6.3	9	
250 <sup>5)</sup>	M3BM 355 LKB	3GBM 351 821-•RA	2975	95.1	95.0	0.90	0.90	51	6.1	10	
315 <sup>5)</sup>	M3BM 355 LKC	3GBM 351 831-•RA	2975	95.6	95.6	0.91	0.92	63	6.4	11	
335 <sup>5)</sup>	M3BM 355 LKD	3GBM 351 841-•RA	2975	95.7	95.8	0.91	0.92	67	6.5	11	
355 <sup>5)</sup>	M3BM 400 LA	3GBM 401 510-•RA	2979	95.8	95.7	0.90	0.90	71	6.3	14	
400 <sup>5)</sup>	M3BM 400 LB	3GBM 401 520-•RA	2978	95.9	95.9	0.91	0.91	80	6.2	14	
445 <sup>5)</sup>	M3BM 400 LC	3GBM 401 531-•RA	2977	96.1	96.2	0.91	0.92	88	6.2	14	
500 <sup>5)</sup>	M3BM 400 LKA	3GBM 401 810-•RA	2983	96.4	96.5	0.91	0.92	99	6.0	16	
560 <sup>5)</sup>	M3BM 400 LKB	3GBM 401 820-•RA	2983	96.5	96.6	0.91	0.92	111	6.1	17	
<b>3000 r/min = 2 poles</b>			<b>6000 V 50 Hz</b>								
250 <sup>5)</sup>	M3BM 355 LKA	3GBM 351 811-•TA	2975	94.9	95.0	0.91	0.92	28	6.1	5	
280 <sup>5)</sup>	M3BM 355 LKB	3GBM 351 821-•TA	2982	95.3	95.3	0.91	0.90	31	6.2	6	
300 <sup>5)</sup>	M3BM 355 LKC	3GBM 351 830-•TA	2982	95.5	95.5	0.91	0.91	33	6.3	6	
315 <sup>5)</sup>	M3BM 400 LA	3GBM 401 510-•TA	2981	95.2	95.1	0.89	0.88	35	6.4	8	
355 <sup>5)</sup>	M3BM 400 LB	3GBM 401 520-•TA	2979	95.6	95.6	0.91	0.91	39	6.3	7	
385 <sup>5)</sup>	M3BM 400 LC	3GBM 401 531-•TA	2979	95.7	95.8	0.91	0.91	42	6.4	8	
410 <sup>5)</sup>	M3BM 400 LD	3GBM 401 541-•TA	2979	95.9	96.0	0.92	0.92	45	6.6	8	
450 <sup>5)</sup>	M3BM 400 LKA	3GBM 401 810-•TA	2983	96.0	96.1	0.91	0.91	49	6.0	9	
500 <sup>5)</sup>	M3BM 400 LKB	3GBM 401 820-•TA	2984	96.2	96.3	0.91	0.92	55	6.4	10	
530 <sup>5)</sup>	M3BM 400 LKC	3GBM 401 830-•TA	2984	96.4	96.5	0.92	0.92	58	6.5	10	
<b>3000 r/min = 2 poles</b>			<b>6600 V 50 Hz</b>								
280 <sup>5)</sup>	M3BM 355 LKA	3GBM 351 811-•SA	2982	95.3	95.3	0.91	0.91	28	6.1	5	
315 <sup>5)</sup>	M3BM 400 LA	3GBM 401 510-•SA	2980	95.3	95.2	0.90	0.89	32	6.4	7	
355 <sup>5)</sup>	M3BM 400 LB	3GBM 401 520-•SA	2980	95.5	95.5	0.91	0.91	36	6.3	7	
390 <sup>5)</sup>	M3BM 400 LC	3GBM 401 531-•SA	2980	95.8	95.8	0.91	0.91	39	6.7	7	
415 <sup>5)</sup>	M3BM 400 LD	3GBM 401 541-•SA	2979	95.9	96.0	0.91	0.92	41	6.6	7	
450 <sup>5)</sup>	M3BM 400 LKA	3GBM 401 810-•SA	2983	96.1	96.1	0.91	0.91	45	6.1	8	
500 <sup>5)</sup>	M3BM 400 LKB	3GBM 401 820-•SA	2984	96.2	96.3	0.91	0.91	50	6.5	9	
530 <sup>5)</sup>	M3BM 400 LKC	3GBM 401 830-•SA	2984	96.4	96.5	0.92	0.92	52	6.5	9	

<sup>1)</sup> 315LK, 355LK, 400L, 400LK: The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

<sup>2)</sup> 315LK, 355LK, 400L, 400LK: 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> Efficiency based on typical additional load losses acc. to measurements.

<sup>5)</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, ambient temperature 40°C

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> $\text{kgm}^2$	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia $\text{kgm}^2$	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)
		$T_N$	$T_S$	$T_{max}$								
		Nm	$T_N$	$T_N$								
<b>3000 r/min = 2 poles</b>		<b>3000 V 50 Hz</b>										
132	M3BM 315 LKA	424	1.2	2.7	0.17	10	7	16	2.0	230	1230	78
160	M3BM 315 LKB	514	1.3	2.7	0.17	12	7	16	2.1	240	1270	78
200 <sup>5)</sup>	M3BM 355 LKA	642	0.8	2.5	0.13	15	10	22	2.9	280	1680	78
250 <sup>5)</sup>	M3BM 355 LKB	802	0.9	2.7	0.13	18	8	16	3.2	300	1780	78
315 <sup>5)</sup>	M3BM 355 LKC	1012	1.0	2.5	0.13	22	8	16	4.5	390	2160	78
325 <sup>5)</sup>	M3BM 355 LKD	1044	1.1	2.6	0.13	23	8	13	4.2	420	2240	78
355 <sup>5)</sup>	M3BM 355 LKE	1137	0.9	2.7	0.12	24	8	16	4.7	390	2220	78
355 <sup>5)</sup>	M3BM 400 LA	1138	1.0	2.6	0.13	24	9	20	6.9	460	2420	79
400 <sup>5)</sup>	M3BM 400 LB	1283	1.0	2.5	0.13	27	9	20	8.0	520	2670	79
450 <sup>5)</sup>	M3BM 400 LC	1443	1.1	2.6	0.14	30	8	20	9.2	580	2900	79
500 <sup>5)</sup>	M3BM 400 LKA	1601	0.8	2.6	0.11	32	9	16	8.8	560	2980	79
560 <sup>5)</sup>	M3BM 400 LKB	1793	0.9	2.6	0.11	36	9	16	9.9	620	3220	79
<b>3000 r/min = 2 poles</b>		<b>3300 V 50 Hz</b>										
160	M3BM 315 LKA	513	0.9	2.9	0.14	12	8	16	1.9	210	1190	78
200 <sup>5)</sup>	M3BM 355 LKA	641	0.9	2.8	0.13	15	9	20	2.9	280	1680	78
250 <sup>5)</sup>	M3BM 355 LKB	802	0.9	2.7	0.13	18	8	16	3.2	300	1780	78
315 <sup>5)</sup>	M3BM 355 LKC	1011	1.1	2.7	0.14	22	7	15	4.5	390	2140	78
335 <sup>5)</sup>	M3BM 355 LKD	1075	1.1	2.7	0.13	23	7	14	4.8	410	2250	78
355 <sup>5)</sup>	M3BM 400 LA	1138	0.9	2.6	0.13	24	9	20	6.9	460	2440	79
400 <sup>5)</sup>	M3BM 400 LB	1283	1.0	2.5	0.13	27	9	20	8.0	520	2660	79
445 <sup>5)</sup>	M3BM 400 LC	1427	1.1	2.5	0.13	29	8	16	7.8	580	2910	79
500 <sup>5)</sup>	M3BM 400 LKA	1601	0.8	2.5	0.11	32	10	16	9.4	590	3100	79
560 <sup>5)</sup>	M3BM 400 LKB	1793	0.9	2.6	0.11	36	9	16	9.9	620	3220	79
<b>3000 r/min = 2 poles</b>		<b>6000 V 50 Hz</b>										
250 <sup>5)</sup>	M3BM 355 LKA	803	1.0	2.6	0.15	18	8	16	4.2	370	2010	78
280 <sup>5)</sup>	M3BM 355 LKB	897	0.9	2.6	0.13	20	9	18	4.1	350	2000	78
300 <sup>5)</sup>	M3BM 355 LKC	961	0.9	2.6	0.13	21	9	18	4.4	370	2090	78
315 <sup>5)</sup>	M3BM 400 LA	1009	1.0	2.7	0.14	22	9	20	6.4	430	2260	79
355 <sup>5)</sup>	M3BM 400 LB	1138	1.0	2.6	0.14	24	9	20	7.5	490	2500	79
385 <sup>5)</sup>	M3BM 400 LC	1234	1.1	2.6	0.14	26	8	17	6.7	520	2630	79
410 <sup>5)</sup>	M3BM 400 LD	1314	1.2	2.6	0.14	27	8	17	7.5	570	2810	79
450 <sup>5)</sup>	M3BM 400 LKA	1441	0.8	2.6	0.12	30	10	16	8.3	530	2820	79
500 <sup>5)</sup>	M3BM 400 LKB	1600	0.8	2.7	0.12	32	9	16	9.4	590	3050	79
530 <sup>5)</sup>	M3BM 400 LKC	1696	0.9	2.7	0.12	34	9	16	9.9	620	3170	79
<b>3000 r/min = 2 poles</b>		<b>6600 V 50 Hz</b>										
280 <sup>5)</sup>	M3BM 355 LKA	897	0.9	2.6	0.14	20	10	16	4.4	370	2080	78
315 <sup>5)</sup>	M3BM 400 LA	1009	1.0	2.7	0.14	22	9	20	6.4	430	2260	79
355 <sup>5)</sup>	M3BM 400 LB	1138	1.0	2.6	0.14	24	9	20	7.5	490	2490	79
390 <sup>5)</sup>	M3BM 400 LC	1250	1.1	2.7	0.14	26	8	16	6.7	520	2620	79
415 <sup>5)</sup>	M3BM 400 LD	1330	1.2	2.6	0.15	28	8	16	7.5	570	2800	79
450 <sup>5)</sup>	M3BM 400 LKA	1441	0.8	2.6	0.12	30	10	16	8.6	550	2880	79
500 <sup>5)</sup>	M3BM 400 LKB	1600	0.9	2.7	0.12	32	9	16	9.4	590	3050	79
530 <sup>5)</sup>	M3BM 400 LKC	1696	0.9	2.7	0.12	34	9	16	9.9	620	3170	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, ambient temperature 40°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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	94.4	94.1	0.84	0.80	27	6.3	10
132	M3BM 315 LKB	3GBM 312 820-•QA	1484	94.4	94.5	0.85	0.83	32	5.3	10
160	M3BM 315 LKC	3GBM 312 830-•QA	1485	94.7	94.7	0.87	0.85	37	6.3	11
200	M3BM 315 LKD	3GBM 312 841-•QA	1485	94.9	95.0	0.87	0.85	46	6.1	14
250	M3BM 355 LKA	3GBM 352 810-•QA	1490	95.4	95.2	0.84	0.80	60	6.2	22
315	M3BM 355 LKB	3GBM 352 820-•QA	1489	95.6	95.6	0.84	0.82	75	6.1	25
355	M3BM 355 LKC	3GBM 352 830-•QA	1488	95.8	95.8	0.85	0.82	84	6.1	27
400	M3BM 355 LKD	3GBM 352 841-•QA	1489	96.0	96.0	0.86	0.84	93	5.9	29
450	M3BM 400 LA	3GBM 402 510-•QA	1490	96.4	96.5	0.86	0.84	105	6.5	32
500	M3BM 400 LB	3GBM 402 520-•QA	1489	96.2	96.2	0.85	0.83	117	6.3	35
560	M3BM 400 LKA	3GBM 402 810-•QA	1491	96.4	96.4	0.85	0.83	131	6.1	43
630	M3BM 400 LKB	3GBM 402 820-•QA	1491	96.6	96.5	0.85	0.83	147	6.2	48
710	M3BM 450 LA	3GBM 452 510-•QA	1493	96.7	96.6	0.88	0.86	160	6.5	44
750	M3BM 450 LB	3GBM 452 520-•QA	1492	96.7	96.7	0.88	0.87	169	6.1	44
<b>1500 r/min = 4 poles</b>				<b>3300 V 50 Hz</b>						
132	M3BM 315 LKA	3GBM 312 810-•RA	1488	94.6	94.4	0.82	0.77	30	6.3	13
160	M3BM 315 LKB	3GBM 312 820-•RA	1484	94.8	94.9	0.84	0.82	35	5.5	12
200	M3BM 315 LKC	3GBM 312 831-•RA	1485	94.9	95.0	0.87	0.85	42	6.2	13
250	M3BM 355 LKA	3GBM 352 810-•RA	1489	95.3	95.2	0.84	0.81	55	6.1	19
315	M3BM 355 LKB	3GBM 352 820-•RA	1490	95.5	95.5	0.83	0.80	69	6.5	26
355	M3BM 355 LKC	3GBM 352 830-•RA	1489	95.8	95.7	0.84	0.81	77	6.4	27
400	M3BM 355 LKD	3GBM 352 841-•RA	1490	96.0	95.9	0.86	0.83	85	6.1	28
450	M3BM 400 LA	3GBM 402 510-•RA	1489	96.4	96.5	0.85	0.84	95	6.2	28
500	M3BM 400 LB	3GBM 402 520-•RA	1490	96.2	96.2	0.85	0.83	107	6.5	34
560	M3BM 400 LKA	3GBM 402 810-•RA	1491	96.4	96.4	0.85	0.83	119	6.1	39
630	M3BM 400 LKB	3GBM 402 820-•RA	1491	96.5	96.5	0.85	0.83	133	6.1	43
630	M3BM 450 LA	3GBM 452 510-•RA	1493	96.5	96.4	0.88	0.86	130	6.3	36
710	M3BM 450 LB	3GBM 452 520-•RA	1492	96.6	96.6	0.88	0.86	146	6.3	39
<b>1500 r/min = 4 poles</b>				<b>6000 V 50 Hz</b>						
250	M3BM 355 LKA	3GBM 352 810-•TA	1486	95.2	95.3	0.84	0.81	30	5.8	10
315	M3BM 355 LKB	3GBM 352 821-•TA	1489	95.8	95.7	0.83	0.79	38	6.4	15
355	M3BM 400 LA	3GBM 402 510-•TA	1489	95.9	96.0	0.86	0.84	42	6.2	13
400	M3BM 400 LB	3GBM 402 520-•TA	1489	96.1	96.2	0.86	0.84	47	6.4	14
450	M3BM 400 LC	3GBM 402 530-•TA	1489	95.9	96.0	0.86	0.85	52	6.3	15
500	M3BM 400 LKA	3GBM 402 810-•TA	1491	96.2	96.2	0.85	0.83	58	6.0	19
560	M3BM 400 LKB	3GBM 402 820-•TA	1491	96.3	96.3	0.86	0.84	65	5.9	20
600	M3BM 400 LKC	3GBM 402 830-•TA	1492	96.4	96.4	0.85	0.82	70	6.5	24
630	M3BM 450 LA	3GBM 452 510-•TA	1493	96.4	96.4	0.87	0.85	72	6.5	21
710	M3BM 450 LB	3GBM 452 520-•TA	1493	96.6	96.5	0.88	0.86	80	6.4	22
<b>1500 r/min = 4 poles</b>				<b>6600 V 50 Hz</b>						
250	M3BM 355 LKA	3GBM 352 810-•SA	1488	95.3	95.2	0.83	0.80	28	6.2	11
315	M3BM 355 LKB	3GBM 352 820-•SA	1487	95.6	95.6	0.84	0.81	34	6.4	12
355	M3BM 400 LA	3GBM 402 510-•SA	1489	95.9	96.0	0.86	0.84	38	6.2	11
400	M3BM 400 LB	3GBM 402 520-•SA	1489	96.0	96.1	0.86	0.84	42	6.3	13
450	M3BM 400 LC	3GBM 402 530-•SA	1489	95.9	95.9	0.86	0.84	48	6.5	14
500	M3BM 400 LKA	3GBM 402 810-•SA	1491	96.2	96.1	0.85	0.83	53	6.1	18
560	M3BM 400 LKB	3GBM 402 820-•SA	1491	96.3	96.3	0.86	0.84	59	5.9	18
600	M3BM 400 LKC	3GBM 402 830-•SA	1491	96.4	96.4	0.85	0.83	64	6.3	21
630	M3BM 450 LA	3GBM 452 510-•SA	1493	96.4	96.4	0.87	0.85	65	6.5	19
710	M3BM 450 LB	3GBM 452 520-•SA	1492	96.6	96.5	0.88	0.86	73	6.3	20

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

To check validity against other starting requirements, contact ABB.

<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> Efficiency based on typical additional load losses acc. to measurements.

**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, ambient temperature 40°C

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	2.6	0.21	41	7	20	1.9	220	1190	73											
132	M3BM 315 LKB	849	1.4	2.2	0.21	49	9	20	1.9	220	1190	73											
160	M3BM 315 LKC	1029	1.7	2.5	0.21	58	6	16	2.8	260	1190	73											
200	M3BM 315 LKD	1286	1.0	2.7	0.15	71	8	15	2.9	270	1220	73											
250	M3BM 355 LKA	1603	1.3	2.5	0.16	87	8	18	5.5	400	1860	74											
315	M3BM 355 LKB	2021	1.3	2.4	0.16	107	8	16	6.3	450	1990	74											
355	M3BM 355 LKC	2278	1.4	2.4	0.16	119	7	14	6.8	480	2090	74											
400	M3BM 355 LKD	2565	1.0	2.5	0.13	132	9	16	8.1	540	2270	74											
450	M3BM 400 LA	2885	1.5	2.4	0.16	147	7	12	12.1	660	2880	74											
500	M3BM 400 LB	3206	1.5	2.3	0.16	161	7	12	12.1	660	2870	79											
560	M3BM 400 LKA	3587	1.0	2.6	0.12	177	9	14	13.7	730	3210	79											
630	M3BM 400 LKB	4035	1.0	2.6	0.12	196	8	12	14.9	790	3380	79											
710	M3BM 450 LA	4542	0.9	2.6	0.10	217	10	20	25.6	1050	4580	83											
750	M3BM 450 LB	4800	0.8	2.4	0.10	228	11	20	25.6	1050	4580	83											
<b>1500 r/min = 4 poles</b>												<b>3300 V 50 Hz</b>											
132	M3BM 315 LKA	847	1.7	2.6	0.21	49	7	20	1.9	220	1190	73											
160	M3BM 315 LKB	1029	1.5	2.2	0.21	58	8	20	2.1	240	1260	73											
200	M3BM 315 LKC	1286	1.0	2.7	0.15	71	8	15	2.9	270	1210	73											
250	M3BM 355 LKA	1603	1.3	2.4	0.16	87	8	20	5.5	400	1860	74											
315	M3BM 355 LKB	2019	1.5	2.5	0.17	107	7	16	6.3	450	1970	74											
355	M3BM 355 LKC	2277	1.5	2.5	0.17	119	7	14	6.8	480	2070	74											
400	M3BM 355 LKD	2564	1.0	2.5	0.13	132	9	16	8.1	540	2250	74											
450	M3BM 400 LA	2886	1.4	2.2	0.16	147	7	12	11.3	620	2760	74											
500	M3BM 400 LB	3205	1.5	2.4	0.16	161	7	11	12.1	660	2850	79											
560	M3BM 400 LKA	3587	1.0	2.6	0.12	177	9	14	13.7	730	3200	79											
630	M3BM 400 LKB	4036	1.0	2.5	0.12	196	9	12	14.9	790	3380	79											
630	M3BM 450 LA	4031	0.8	2.6	0.10	196	11	20	23.5	980	4350	83											
710	M3BM 450 LB	4543	0.8	2.5	0.10	217	10	20	25.6	1050	4570	83											
<b>1500 r/min = 4 poles</b>												<b>6000 V 50 Hz</b>											
250	M3BM 355 LKA	1606	1.3	2.3	0.17	87	8	20	4.1	380	2010	74											
315	M3BM 355 LKB	2021	1.1	2.7	0.14	107	8	20	4.8	420	2200	74											
355	M3BM 400 LA	2277	1.4	2.3	0.17	119	7	17	10.8	600	2590	74											
400	M3BM 400 LB	2565	1.5	2.4	0.17	132	7	14	11.6	640	2720	74											
450	M3BM 400 LC	2887	1.5	2.3	0.17	147	7	12	12.4	670	2840	79											
500	M3BM 400 LKA	3203	1.0	2.5	0.13	161	9	16	12.9	700	3040	79											
560	M3BM 400 LKB	3588	1.0	2.5	0.13	177	9	14	14.1	750	3220	79											
600	M3BM 400 LKC	3841	1.1	2.7	0.12	188	8	12	14.9	790	3330	79											
630	M3BM 450 LA	4030	0.8	2.6	0.10	196	10	20	22.8	960	4230	83											
710	M3BM 450 LB	4543	0.8	2.6	0.10	217	10	20	25.6	1050	4530	83											
<b>1500 r/min = 4 poles</b>												<b>6600 V 50 Hz</b>											
250	M3BM 355 LKA	1605	1.4	2.5	0.17	87	7	20	4.1	380	2010	74											
315	M3BM 355 LKB	2023	1.4	2.5	0.17	107	7	20	5.0	440	2280	74											
355	M3BM 400 LA	2277	1.4	2.3	0.17	119	7	17	10.8	600	2600	74											
400	M3BM 400 LB	2566	1.5	2.3	0.17	132	7	14	11.6	640	2710	74											
450	M3BM 400 LC	2886	1.6	2.4	0.17	147	6	12	12.4	670	2830	79											
500	M3BM 400 LKA	3202	1.0	2.6	0.13	161	9	15	12.9	700	3040	79											
560	M3BM 400 LKB	3588	1.0	2.5	0.13	177	9	14	14.1	750	3210	79											
600	M3BM 400 LKC	3842	1.1	2.6	0.13	188	8	12	14.9	790	3330	79											
630	M3BM 450 LA	4030	0.8	2.6	0.10	196	10	20	22.8	960	4230	83											
710	M3BM 450 LB	4543	0.8	2.5	0.10	217	11	20	25.6	1050	4530	83											

# 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, ambient temperature 40°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		Power factor		Current		
				Full load	3/4 load	Full load	3/4 load	I <sub>N</sub>	I <sub>S</sub>	I <sub>0</sub>
				100%	75%	100%	75%	A	A	A
<b>1000 r/min = 6 poles</b>				<b>3000 V 50 Hz</b>						
110	M3BM 315 LKA	3GBM 313 810-•QA	987	94.1	94.4	0.80	0.77	28	5.3	11
132	M3BM 315 LKB	3GBM 313 820-•QA	986	94.4	94.7	0.80	0.77	33	5.5	13
150	M3BM 315 LKC	3GBM 313 831-•QA	991	95.0	94.9	0.76	0.69	40	6.2	21
160	M3BM 355 LKA	3GBM 353 810-•QA	992	95.0	95.0	0.75	0.70	43	5.6	21
200	M3BM 355 LKB	3GBM 353 820-•QA	990	95.4	95.5	0.79	0.75	51	5.4	21
250	M3BM 355 LKC	3GBM 353 830-•QA	991	95.7	95.8	0.79	0.75	64	5.6	27
315	M3BM 400 L	3GBM 403 500-•QA	991	95.8	96.0	0.82	0.79	77	6.0	28
355	M3BM 400 LA	3GBM 403 510-•QA	991	96.0	96.2	0.82	0.80	86	5.9	30
400	M3BM 400 LB	3GBM 403 520-•QA	991	96.1	96.3	0.82	0.80	97	6.2	34
450	M3BM 400 LKA	3GBM 403 811-•QA	994	96.2	96.2	0.79	0.75	113	6.1	48
500	M3BM 400 LKB	3GBM 403 821-•QA	994	96.3	96.4	0.81	0.77	123	5.9	48
530	M3BM 400 LKC	3GBM 403 831-•QA	994	96.4	96.4	0.78	0.73	135	6.5	62
560	M3BM 450 LA	3GBM 453 510-•QA	994	96.5	96.5	0.84	0.81	133	6.0	46
630	M3BM 450 LB	3GBM 453 520-•QA	995	96.7	96.7	0.84	0.81	148	6.4	52
710	M3BM 450 LC	3GBM 453 530-•QA	995	96.7	96.8	0.84	0.81	168	6.5	60
<b>1000 r/min = 6 poles</b>				<b>3300 V 50 Hz</b>						
112	M3BM 315 LKA	3GBM 313 811-•RA	991	94.6	94.6	0.79	0.74	26	5.8	12
132	M3BM 315 LKB	3GBM 313 820-•RA	987	94.5	94.7	0.80	0.76	31	5.6	13
150	M3BM 315 LKC	3GBM 313 831-•RA	991	95.0	94.9	0.76	0.69	36	6.2	19
160	M3BM 355 LKA	3GBM 353 810-•RA	992	95.0	94.9	0.75	0.69	39	5.7	20
200	M3BM 355 LKB	3GBM 353 820-•RA	990	95.4	95.5	0.79	0.75	46	5.4	19
250	M3BM 355 LKC	3GBM 353 830-•RA	990	95.6	95.8	0.80	0.76	57	5.4	23
315	M3BM 400 L	3GBM 403 500-•RA	990	95.8	96.0	0.82	0.80	70	5.7	24
355	M3BM 400 LA	3GBM 403 510-•RA	991	95.9	96.1	0.82	0.80	79	6.0	27
400	M3BM 400 LB	3GBM 403 520-•RA	991	96.1	96.3	0.82	0.80	88	6.1	30
450	M3BM 400 LKA	3GBM 403 811-•RA	994	96.3	96.3	0.80	0.76	102	6.0	41
500	M3BM 400 LKB	3GBM 403 821-•RA	994	96.3	96.4	0.81	0.77	112	5.9	44
530	M3BM 400 LKC	3GBM 403 831-•RA	994	96.4	96.4	0.79	0.74	122	6.5	54
560	M3BM 450 LA	3GBM 453 510-•RA	994	96.5	96.5	0.84	0.82	120	6.1	41
630	M3BM 450 LB	3GBM 453 520-•RA	995	96.7	96.7	0.84	0.81	135	6.5	48
710	M3BM 450 LC	3GBM 453 530-•RA	995	96.7	96.8	0.84	0.81	152	6.5	54
<b>1000 r/min = 6 poles</b>				<b>6000 V 50 Hz</b>						
220	M3BM 355 LKA	3GBM 353 810-•TA	992	95.2	95.3	0.80	0.76	28	6.3	12
250	M3BM 355 LKB	3GBM 353 821-•TA	992	95.3	95.5	0.81	0.78	31	5.7	12
280	M3BM 400 L	3GBM 403 500-•TA	991	95.7	95.8	0.80	0.76	35	5.6	14
315	M3BM 400 LA	3GBM 403 510-•TA	992	95.9	95.9	0.80	0.76	39	5.8	16
355	M3BM 400 LB	3GBM 403 520-•TA	991	96.0	96.1	0.80	0.77	44	5.6	17
400	M3BM 400 LKA	3GBM 403 811-•TA	993	96.1	96.1	0.81	0.77	50	5.5	19
450	M3BM 400 LKB	3GBM 403 821-•TA	992	96.1	96.2	0.81	0.79	55	5.4	20
475	M3BM 400 LKC	3GBM 403 831-•TA	993	96.3	96.3	0.81	0.77	59	5.8	23
500	M3BM 450 LA	3GBM 453 510-•TA	995	96.3	96.3	0.83	0.80	60	6.3	22
560	M3BM 450 LB	3GBM 453 520-•TA	995	96.5	96.5	0.84	0.81	66	6.3	23
630	M3BM 450 LC	3GBM 453 530-•TA	994	96.5	96.6	0.84	0.81	75	6.3	26
650	M3BM 450 LD	3GBM 453 540-•TA	994	96.6	96.6	0.85	0.82	76	6.4	26
<b>1000 r/min = 6 poles</b>				<b>6600 V 50 Hz</b>						
250	M3BM 355 LKA	3GBM 353 811-•SA	994	95.5	95.5	0.79	0.74	29	6.6	13
280	M3BM 400 L	3GBM 403 500-•SA	991	95.7	95.7	0.79	0.75	32	5.6	13
315	M3BM 400 LA	3GBM 403 510-•SA	992	95.9	95.9	0.79	0.75	36	6.1	16
355	M3BM 400 LB	3GBM 403 520-•SA	991	96.0	96.0	0.80	0.76	40	5.9	16
400	M3BM 400 LKA	3GBM 403 811-•SA	993	96.1	96.1	0.80	0.77	45	5.7	18
450	M3BM 400 LKB	3GBM 403 821-•SA	992	96.2	96.2	0.81	0.78	50	5.4	19
475	M3BM 400 LKC	3GBM 403 831-•SA	993	96.3	96.3	0.81	0.77	53	5.8	21
500	M3BM 450 LA	3GBM 453 510-•SA	994	96.3	96.3	0.84	0.82	54	6.1	18
560	M3BM 450 LB	3GBM 453 520-•SA	994	96.4	96.5	0.85	0.82	60	6.1	20
630	M3BM 450 LC	3GBM 453 530-•SA	994	96.5	96.6	0.85	0.83	67	6.1	22

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

To check validity against other starting requirements, contact ABB.

<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...8-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).

<sup>4)</sup> Efficiency based on typical additional load losses acc. to measurements.

**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, ambient temperature 40°C

Output kW	Motor type	Torque			Power factor $\cos \varphi_k$	Load inertia <sup>1)</sup> $\text{kgm}^2$	Starting time cold <sup>2)</sup> s	Maximum stalling time hot s	Rotor inertia $\text{kgm}^2$	Rotor weight kg	Motor weight kg	Sound pressure level LP <sup>3)</sup> dB(A)											
		$T_N$ Nm	$T_S$ $T_N$	$T_{max}$ $T_N$																			
<b>1000 r/min = 6 poles</b>												<b>3000 V 50 Hz</b>											
110	M3BM 315 LKA	1065	1.5	2.2	0.22	111	9	20	2.8	270	1170	65											
132	M3BM 315 LKB	1278	1.6	2.3	0.22	131	8	20	3.2	290	1240	65											
150	M3BM 315 LKC	1445	1.4	2.9	0.17	148	8	18	3.3	300	1270	65											
160	M3BM 355 LKA	1541	1.5	2.4	0.18	157	8	20	4.6	350	1660	70											
200	M3BM 355 LKB	1928	1.4	2.2	0.18	192	9	20	5.7	410	1850	70											
250	M3BM 355 LKC	2410	1.5	2.3	0.18	236	8	20	6.9	480	2040	70											
315	M3BM 400 L	3036	1.6	2.2	0.18	291	7	18	14.6	670	2500	75											
355	M3BM 400 LA	3422	1.6	2.2	0.18	324	7	18	17.4	770	2740	75											
400	M3BM 400 LB	3854	1.7	2.3	0.18	360	7	18	20.1	870	2970	75											
450	M3BM 400 LKA	4323	1.2	2.5	0.14	400	9	22	17.9	870	3090	78											
500	M3BM 400 LKB	4805	1.2	2.4	0.14	439	9	22	20.5	960	3320	78											
530	M3BM 400 LKC	5090	1.4	2.7	0.13	463	8	20	21.1	980	3390	78											
560	M3BM 450 LA	5379	1.1	2.5	0.14	486	10	20	29.2	1040	3990	78											
630	M3BM 450 LB	6049	1.2	2.6	0.14	539	9	20	34.5	1190	4370	78											
710	M3BM 450 LC	6817	1.3	2.6	0.14	598	8	20	36.7	1250	4520	78											
<b>1000 r/min = 6 poles</b>												<b>3300 V 50 Hz</b>											
112	M3BM 315 LKA	1080	1.2	2.7	0.17	113	9	20	3.0	280	1200	65											
132	M3BM 315 LKB	1277	1.6	2.4	0.22	131	8	20	3.2	290	1240	65											
150	M3BM 315 LKC	1445	1.4	2.9	0.17	148	8	18	3.3	300	1270	65											
160	M3BM 355 LKA	1540	1.5	2.5	0.18	157	8	20	4.6	350	1660	70											
200	M3BM 355 LKB	1928	1.4	2.2	0.18	192	9	20	5.7	410	1850	70											
250	M3BM 355 LKC	2412	1.4	2.2	0.18	236	9	20	6.9	480	2040	70											
315	M3BM 400 L	3037	1.5	2.1	0.18	291	8	18	14.6	670	2500	75											
355	M3BM 400 LA	3421	1.6	2.2	0.18	324	7	18	17.4	770	2730	75											
400	M3BM 400 LB	3855	1.7	2.2	0.18	360	7	18	20.1	870	2970	75											
450	M3BM 400 LKA	4324	1.2	2.4	0.13	400	9	22	18.5	890	3160	78											
500	M3BM 400 LKB	4805	1.2	2.4	0.14	439	9	22	20.5	960	3320	78											
530	M3BM 400 LKC	5090	1.3	2.7	0.14	463	8	20	21.1	980	3380	78											
560	M3BM 450 LA	5379	1.1	2.5	0.14	486	9	20	30.3	1070	4070	78											
630	M3BM 450 LB	6049	1.2	2.6	0.14	539	8	20	34.5	1190	4370	78											
710	M3BM 450 LC	6817	1.3	2.6	0.14	598	8	20	36.7	1250	4520	78											
<b>1000 r/min = 6 poles</b>												<b>6000 V 50 Hz</b>											
220	M3BM 355 LKA	2118	1.7	2.5	0.21	210	7	16	8.1	540	2160	70											
250	M3BM 355 LKB	2406	1.1	2.4	0.16	203	9	14	8.0	530	2150	70											
280	M3BM 400 L	2697	1.3	2.2	0.16	261	9	20	10.5	590	2530	75											
315	M3BM 400 LA	3033	1.4	2.3	0.16	291	8	20	11.8	640	2700	75											
355	M3BM 400 LB	3421	1.4	2.2	0.16	324	8	20	12.7	680	2820	75											
400	M3BM 400 LKA	3848	0.9	2.4	0.11	360	12	22	11.9	730	3090	78											
450	M3BM 400 LKB	4331	0.8	2.3	0.11	400	12	22	13.2	780	3260	78											
475	M3BM 400 LKC	4569	0.9	2.5	0.11	420	10	22	14.0	820	3380	78											
500	M3BM 450 LA	4801	1.2	2.7	0.14	439	9	20	28.2	1010	3880	78											
560	M3BM 450 LB	5377	1.2	2.6	0.14	486	9	20	32.4	1130	4180	78											
630	M3BM 450 LC	6050	1.4	2.5	0.16	539	7	20	37.2	1260	4480	78											
650	M3BM 450 LD	6242	1.2	2.6	0.14	554	9	20	36.7	1250	4470	78											
<b>1000 r/min = 6 poles</b>												<b>6600 V 50 Hz</b>											
250	M3BM 355 LKA	2403	1.3	2.8	0.16	236	8	14	8.3	540	2190	70											
280	M3BM 400 L	2697	1.3	2.2	0.17	261	9	20	10.1	570	2470	75											
315	M3BM 400 LA	3031	1.5	2.4	0.16	291	8	20	11.8	640	2700	75											
355	M3BM 400 LB	3419	1.4	2.3	0.16	324	8	20	12.7	680	2820	75											
400	M3BM 400 LKA	3847	0.9	2.4	0.11	360	11	22	11.9	730	3080	78											
450	M3BM 400 LKB	4331	0.9	2.3	0.11	400	11	22	13.2	780	3260	78											
475	M3BM 400 LKC	4569	0.9	2.5	0.11	420	10	22	14.0	820	3370	78											
500	M3BM 450 LA	4802	1.1	2.5	0.14	439	10	20	29.2	1040	3950	78											
560	M3BM 450 LB	5379	1.1	2.5	0.14	486	9	20	32.4	1130	4170	78											
630	M3BM 450 LC	6051	1.2	2.5	0.14	539	9	20	36.7	1250	4470	78											

# 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, ambient temperature 40°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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	94.8	95.0	0.79	0.76	51	5.3	21
220	M3BM 400 LB	3GBM 404 520-•QA	742	95.0	95.1	0.79	0.75	56	5.5	24
250	M3BM 400 LC	3GBM 404 530-•QA	742	95.2	95.3	0.80	0.76	63	5.4	25
280	M3BM 400 LD	3GBM 404 540-•QA	741	95.1	95.4	0.80	0.77	70	5.2	26
300	M3BM 400 LE	3GBM 404 550-•QA	741	95.3	95.5	0.80	0.77	75	5.4	29
315	M3BM 400 LKA	3GBM 404 810-•QA	744	95.5	95.6	0.77	0.73	82	5.2	37
355	M3BM 400 LKB	3GBM 404 820-•QA	744	95.6	95.7	0.78	0.74	91	5.1	39
375	M3BM 400 LKC	3GBM 404 830-•QA	744	95.8	95.7	0.76	0.71	98	5.6	47
400	M3BM 450 LA	3GBM 454 510-•QA	746	96.0	95.9	0.78	0.74	102	5.9	46
450	M3BM 450 LB	3GBM 454 520-•QA	746	96.1	96.0	0.78	0.73	115	6.0	53
500	M3BM 450 LC	3GBM 454 530-•QA	746	96.2	96.1	0.78	0.74	127	6.1	58
530	M3BM 450 LD	3GBM 454 540-•QA	746	96.2	96.1	0.78	0.73	135	6.1	62
<b>750 r/min = 8 poles</b>				<b>3300 V 50 Hz</b>						
200	M3BM 400 LA	3GBM 404 510-•RA	742	94.7	95.0	0.79	0.76	46	5.2	19
220	M3BM 400 LB	3GBM 404 520-•RA	742	94.9	95.1	0.80	0.76	51	5.3	20
250	M3BM 400 LC	3GBM 404 530-•RA	741	95.0	95.3	0.80	0.78	57	5.0	21
280	M3BM 400 LD	3GBM 404 540-•RA	741	95.2	95.5	0.80	0.77	64	5.5	25
300	M3BM 400 LE	3GBM 404 550-•RA	741	95.2	95.4	0.80	0.77	69	5.5	27
315	M3BM 400 LKA	3GBM 404 810-•RA	744	95.6	95.6	0.77	0.72	74	5.3	34
355	M3BM 400 LKB	3GBM 404 820-•RA	744	95.6	95.7	0.78	0.74	83	5.1	36
375	M3BM 400 LKC	3GBM 404 830-•RA	744	95.7	95.7	0.77	0.72	89	5.5	42
400	M3BM 450 LA	3GBM 454 510-•RA	745	96.0	95.9	0.78	0.74	93	5.9	42
450	M3BM 450 LB	3GBM 454 520-•RA	745	96.1	96.0	0.78	0.73	104	5.9	47
500	M3BM 450 LC	3GBM 454 530-•RA	745	96.2	96.1	0.79	0.75	114	5.8	49
530	M3BM 450 LD	3GBM 454 540-•RA	745	96.2	96.1	0.80	0.75	121	5.8	52
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>						
160	M3BM 400 LA	3GBM 404 510-•TA	741	94.1	94.2	0.76	0.71	21	5.2	10
180	M3BM 400 LB	3GBM 404 520-•TA	740	94.2	94.4	0.77	0.72	24	5.0	11
200	M3BM 400 LC	3GBM 404 530-•TA	740	94.5	94.6	0.77	0.73	26	5.1	12
220	M3BM 400 LD	3GBM 404 540-•TA	740	94.5	94.7	0.78	0.74	29	5.0	12
250	M3BM 400 LE	3GBM 404 551-•TA	740	94.8	94.9	0.77	0.72	33	5.3	15
280	M3BM 400 LKA	3GBM 404 810-•TA	743	95.3	95.3	0.77	0.72	37	5.3	17
315	M3BM 400 LKB	3GBM 404 820-•TA	743	95.4	95.4	0.76	0.71	42	5.4	20
355	M3BM 450 LA	3GBM 454 510-•TA	746	95.7	95.6	0.78	0.74	45	5.8	20
400	M3BM 450 LB	3GBM 454 520-•TA	746	95.8	95.7	0.79	0.74	51	5.8	23
450	M3BM 450 LC	3GBM 454 530-•TA	745	96.0	95.9	0.80	0.76	56	5.7	24
500	M3BM 450 LD	3GBM 454 540-•TA	745	96.1	96.0	0.80	0.76	62	5.7	26
<b>750 r/min = 8 poles</b>				<b>6600 V 50 Hz</b>						
160	M3BM 400 LA	3GBM 404 510-•SA	741	94.2	94.2	0.76	0.71	20	5.4	9
180	M3BM 400 LB	3GBM 404 520-•SA	741	94.3	94.3	0.76	0.70	22	5.3	11
200	M3BM 400 LC	3GBM 404 530-•SA	740	94.3	94.6	0.78	0.74	24	4.8	10
220	M3BM 400 LD	3GBM 404 540-•SA	740	94.6	94.7	0.77	0.72	26	5.2	12
250	M3BM 400 LE	3GBM 404 551-•SA	741	94.8	94.8	0.76	0.71	30	5.5	14
280	M3BM 400 LKA	3GBM 404 810-•SA	743	95.3	95.3	0.76	0.71	34	5.4	16
315	M3BM 400 LKB	3GBM 404 820-•SA	743	95.4	95.4	0.76	0.71	38	5.4	18
355	M3BM 450 LA	3GBM 454 510-•SA	745	95.7	95.6	0.79	0.75	41	5.7	18
400	M3BM 450 LB	3GBM 454 520-•SA	745	95.8	95.8	0.80	0.75	46	5.7	19
450	M3BM 450 LC	3GBM 454 530-•SA	745	95.9	95.9	0.80	0.76	51	5.6	21
500	M3BM 450 LD	3GBM 454 540-•SA	745	96.0	96.1	0.81	0.77	56	5.5	22

<sup>1)</sup> The given values of load inertia assume three starts from cold and two starts from warm conditions in succession against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage. To check validity against other starting requirements, contact ABB.

<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...8-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).

<sup>4)</sup> Efficiency based on typical additional load losses acc. to measurements.

**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, ambient temperature 40°C

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	2.4	0.15	388	10	22	13.6	630	2380	75
220	M3BM 400 LB	2831	1.1	2.5	0.14	423	10	22	15.0	680	2500	75
250	M3BM 400 LC	3219	1.1	2.4	0.14	476	10	22	17.7	780	2740	75
280	M3BM 400 LD	3610	1.1	2.3	0.14	528	10	22	19.1	830	2840	75
300	M3BM 400 LE	3866	1.1	2.4	0.14	562	9	22	20.5	870	2970	75
315	M3BM 400 LKA	4041	1.2	2.2	0.17	587	11	20	20.0	880	3090	75
355	M3BM 400 LKB	4557	1.2	2.1	0.17	655	11	20	22.0	950	3270	75
375	M3BM 400 LKC	4810	1.3	2.3	0.17	688	10	20	23.3	990	3390	75
400	M3BM 450 LA	5123	1.1	2.5	0.14	730	11	20	30.8	1080	4050	76
450	M3BM 450 LB	5763	1.2	2.5	0.14	811	10	20	33.0	1140	4210	76
500	M3BM 450 LC	6404	1.2	2.5	0.14	892	10	20	37.3	1260	4510	76
530	M3BM 450 LD	6787	1.2	2.6	0.14	940	10	20	39.5	1330	4640	76
<b>750 r/min = 8 poles</b>												
<b>3300 V 50 Hz</b>												
200	M3BM 400 LA	2575	1.0	2.3	0.15	388	11	22	13.6	630	2380	75
220	M3BM 400 LB	2833	1.1	2.4	0.14	423	10	22	15.0	680	2500	75
250	M3BM 400 LC	3223	1.0	2.2	0.14	476	11	22	17.7	780	2730	75
280	M3BM 400 LD	3607	1.1	2.4	0.14	528	9	22	19.1	830	2850	75
300	M3BM 400 LE	3865	1.1	2.4	0.14	562	9	22	20.5	870	2950	75
315	M3BM 400 LKA	4041	1.2	2.2	0.17	587	11	20	20.0	880	3110	75
355	M3BM 400 LKB	4557	1.2	2.1	0.17	655	11	20	22.0	950	3260	75
375	M3BM 400 LKC	4811	1.3	2.3	0.17	688	10	20	23.3	990	3380	75
400	M3BM 450 LA	5124	1.1	2.5	0.14	730	11	20	30.8	1080	4050	76
450	M3BM 450 LB	5764	1.2	2.5	0.14	811	10	20	33.0	1140	4200	76
500	M3BM 450 LC	6406	1.1	2.4	0.14	892	10	20	37.3	1260	4510	76
530	M3BM 450 LD	6790	1.1	2.4	0.14	940	10	20	39.5	1330	4630	76
<b>750 r/min = 8 poles</b>												
<b>6000 V 50 Hz</b>												
160	M3BM 400 LA	2062	1.1	2.5	0.16	315	10	22	10.2	560	2390	75
180	M3BM 400 LB	2322	1.0	2.4	0.16	352	11	22	10.7	580	2460	75
200	M3BM 400 LC	2580	1.1	2.4	0.15	388	10	22	12.1	640	2630	75
220	M3BM 400 LD	2840	1.0	2.3	0.15	423	10	22	13.0	680	2750	75
250	M3BM 400 LE	3225	1.2	2.5	0.15	476	9	22	14.4	740	2930	75
280	M3BM 400 LKA	3597	1.0	2.4	0.13	528	11	20	15.0	790	3230	75
315	M3BM 400 LKB	4047	1.0	2.5	0.13	587	10	20	15.9	830	3350	75
355	M3BM 450 LA	4547	1.1	2.4	0.15	655	11	20	28.6	1020	3850	76
400	M3BM 450 LB	5124	1.1	2.4	0.15	730	11	20	30.8	1080	4000	76
450	M3BM 450 LC	5766	1.1	2.3	0.15	811	11	20	35.2	1200	4300	76
500	M3BM 450 LD	6406	1.1	2.3	0.15	892	11	20	39.5	1330	4600	76
<b>750 r/min = 8 poles</b>												
<b>6600 V 50 Hz</b>												
160	M3BM 400 LA	2061	1.1	2.6	0.16	315	10	22	10.7	580	2450	75
180	M3BM 400 LB	2319	1.1	2.6	0.16	352	10	22	10.7	580	2450	75
200	M3BM 400 LC	2583	1.0	2.3	0.15	388	11	22	12.1	640	2630	75
220	M3BM 400 LD	2838	1.1	2.5	0.15	423	10	22	13.0	680	2750	75
250	M3BM 400 LE	3223	1.2	2.6	0.15	476	9	22	14.4	740	2920	75
280	M3BM 400 LKA	3596	1.0	2.5	0.13	528	10	20	15.0	790	3230	75
315	M3BM 400 LKB	4047	1.0	2.5	0.13	587	10	20	15.9	830	3350	75
355	M3BM 450 LA	4548	1.1	2.4	0.15	655	11	20	29.7	1050	3920	76
400	M3BM 450 LB	5125	1.1	2.3	0.15	730	11	20	31.9	1110	4070	76
450	M3BM 450 LC	5767	1.1	2.3	0.15	811	12	20	35.2	1200	4300	76
500	M3BM 450 LD	6408	1.1	2.2	0.15	892	12	20	39.5	1330	4590	76

# 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, ambient temperature 40°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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>10000 V 50 Hz</b>								
355	M3BM 450 LA	3GBM 452 510-•YA	1492	95.3	95.0	0.83	0.80	26	5.7	10		
400	M3BM 450 LB	3GBM 452 520-•YA	1492	95.5	95.3	0.82	0.79	29	5.7	11		
450	M3BM 450 LC	3GBM 452 530-•YA	1492	95.7	95.5	0.83	0.79	33	6.0	13		
500	M3BM 450 LD	3GBM 452 540-•YA	1493	95.9	95.7	0.83	0.79	36	6.2	14		
560	M3BM 450 LE	3GBM 452 550-•YA	1493	96.1	95.9	0.83	0.79	41	6.5	16		
<b>1000 r/min = 6 poles</b>				<b>10000 V 50 Hz</b>								
315	M3BM 450 LA	3GBM 453 510-•YA	994	95.4	95.2	0.77	0.72	25	5.7	11		
355	M3BM 450 LB	3GBM 453 520-•YA	994	95.5	95.4	0.77	0.72	28	5.7	13		
400	M3BM 450 LC	3GBM 453 530-•YA	994	95.7	95.6	0.77	0.72	31	5.9	15		
450	M3BM 450 LD	3GBM 453 540-•YA	994	95.9	95.7	0.77	0.71	35	6.0	17		

<sup>1)</sup> **4-pole motors:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 85% of the rated torque at the rated speed and at 80% of the rated voltage.

**6-pole motors:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

To check validity against other starting requirements, contact ABB.

<sup>2)</sup> **4-pole motors:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 85% of the rated torque at the rated speed and at rated voltage.

**6-pole motors:** 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> Efficiency based on typical additional load losses acc. to measurements.

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, ambient temperature 40°C

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>10000 V 50 Hz</b>									
355	M3BM 450 LA	2272	0.7	2.5	0.11	119	14	20	11.9	660	3610	83
400	M3BM 450 LB	2559	0.7	2.6	0.11	132	13	20	12.3	680	3690	83
450	M3BM 450 LC	2879	0.8	2.6	0.11	147	11	20	13.2	710	3800	83
500	M3BM 450 LD	3199	0.8	2.7	0.11	161	10	20	14.0	740	3960	83
560	M3BM 450 LE	3582	0.9	2.8	0.11	177	9	20	15.2	790	4180	83
<b>1000 r/min = 6 poles</b>			<b>10000 V 50 Hz</b>									
315	M3BM 450 LA	3027	0.8	2.6	0.12	291	11	20	14.0	740	3850	78
355	M3BM 450 LB	3412	0.9	2.6	0.12	324	10	20	14.8	780	4000	78
400	M3BM 450 LC	3844	0.9	2.7	0.12	360	10	20	15.7	810	4150	78
450	M3BM 450 LD	4323	0.9	2.7	0.11	400	9	20	17.0	860	4380	78

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# 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, ambient temperature 50°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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>3300 V 50 Hz</b>									
180 <sup>5)</sup>	M3BM 355 LKA	3GBM 351 810-•RB	2979	94.5	94.4	0.90	0.90	37	5.4	7			
200 <sup>5)</sup>	M3BM 355 LKB	3GBM 351 820-•RB	2980	95.0	94.9	0.91	0.91	40	5.4	7			
224 <sup>5)</sup>	M3BM 355 LKC	3GBM 351 830-•RB	2980	95.2	95.2	0.91	0.92	45	5.4	7			
250 <sup>5)</sup>	M3BM 355 LKD	3GBM 351 840-•RB	2980	95.4	95.4	0.91	0.92	50	5.4	8			
265 <sup>5)</sup>	M3BM 355 LKE	3GBM 351 850-•RB	2978	95.4	95.5	0.91	0.92	53	5.4	8			
280 <sup>5)</sup>	M3BM 400 LKA	3GBM 401 810-•RB	2982	95.4	95.4	0.91	0.91	56	5.4	10			
315 <sup>5)</sup>	M3BM 400 LKB	3GBM 401 820-•RB	2982	95.7	95.6	0.90	0.90	64	5.4	12			
355 <sup>5)</sup>	M3BM 400 LKC	3GBM 401 830-•RB	2983	95.9	95.9	0.91	0.91	71	5.4	12			
400 <sup>5)</sup>	M3BM 400 LKD	3GBM 401 840-•RB	2983	96.2	96.3	0.92	0.92	79	5.4	11			
450 <sup>5)</sup>	M3BM 400 LKE	3GBM 401 850-•RB	2982	96.3	96.4	0.92	0.93	89	5.4	12			
<b>3000 r/min = 2 poles</b>				<b>6600 V 50 Hz</b>									
224 <sup>5)</sup>	M3BM 400 LKA	3GBM 401 810-•SB	2982	94.9	94.6	0.88	0.88	23	5.5	5			
250 <sup>5)</sup>	M3BM 400 LKB	3GBM 401 820-•SB	2982	95.1	94.9	0.88	0.88	26	5.4	5			
280 <sup>5)</sup>	M3BM 400 LKC	3GBM 401 830-•SB	2982	95.2	95.2	0.91	0.91	28	5.4	5			
315 <sup>5)</sup>	M3BM 400 LKD	3GBM 401 840-•SB	2982	95.3	95.4	0.91	0.91	32	5.4	5			
355 <sup>5)</sup>	M3BM 400 LKE	3GBM 401 850-•SB	2982	95.6	95.8	0.91	0.92	36	5.4	5			
400 <sup>5)</sup>	M3BM 400 LKF	3GBM 401 860-•SB	2982	95.9	96.1	0.91	0.93	40	5.4	6			

<sup>1)</sup> **355LK:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 75% of the rated torque at the rated speed and at 80% of the rated voltage.

**400LK:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 70% of the rated torque at the rated speed and at 80% of the rated voltage.

To check validity against other starting requirements, contact ABB.

<sup>2)</sup> **355LK:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 75% of the rated torque at the rated speed and at rated voltage.

**400LK:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 70% 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> Efficiency based on typical additional load losses acc. to measurements.

<sup>5)</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, ambient temperature 50°C

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>3300 V 50 Hz</b>	
180 <sup>5)</sup>	M3BM 355 LKA	577	0.5	2.5	0.11	13	14	20	3.2	290	1750	78	
200 <sup>5)</sup>	M3BM 355 LKB	641	0.6	2.5	0.11	15	14	20	3.9	340	1990	78	
224 <sup>5)</sup>	M3BM 355 LKC	718	0.6	2.5	0.10	16	13	20	4.8	360	2080	78	
250 <sup>5)</sup>	M3BM 355 LKD	801	0.6	2.5	0.10	18	13	20	5.5	390	2220	78	
265 <sup>5)</sup>	M3BM 355 LKE	850	0.6	2.4	0.10	19	13	20	5.5	390	2220	78	
280 <sup>5)</sup>	M3BM 400 LKA	897	0.4	2.5	0.09	20	18	25	5.6	430	2450	79	
315 <sup>5)</sup>	M3BM 400 LKB	1009	0.5	2.5	0.09	22	16	25	6.0	440	2510	79	
355 <sup>5)</sup>	M3BM 400 LKC	1137	0.5	2.5	0.09	24	15	25	7.6	500	2750	79	
400 <sup>5)</sup>	M3BM 400 LKD	1281	0.6	2.5	0.09	27	14	20	10.0	570	3100	79	
450 <sup>5)</sup>	M3BM 400 LKE	1441	0.6	2.4	0.10	30	14	20	10.8	600	3200	79	
<b>3000 r/min = 2 poles</b>												<b>6600 V 50 Hz</b>	
224 <sup>5)</sup>	M3BM 400 LKA	717	0.8	2.4	0.13	16	12	20	7.3	480	2530	79	
250 <sup>5)</sup>	M3BM 400 LKB	801	0.8	2.4	0.12	18	11	20	6.4	480	2530	79	
280 <sup>5)</sup>	M3BM 400 LKC	897	0.5	2.5	0.10	20	17	25	6.7	460	2500	79	
315 <sup>5)</sup>	M3BM 400 LKD	1009	0.5	2.5	0.10	19	14	20	6.7	460	2510	79	
355 <sup>5)</sup>	M3BM 400 LKE	1137	0.5	2.5	0.10	24	15	20	7.7	510	2740	79	
400 <sup>5)</sup>	M3BM 400 LKF	1281	0.6	2.4	0.10	27	14	20	10.4	580	3090	79	

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# 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, ambient temperature 50°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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>3300 V 50 Hz</b>								
132	M3BM 315 LKA	3GBM 312 810-•RB	1486	94.5	94.5	0.85	0.83	29	5.3	10	
140	M3BM 315 LKB	3GBM 312 820-•RB	1486	94.7	94.7	0.85	0.83	30	5.4	10	
160	M3BM 315 LKC	3GBM 312 830-•RB	1485	94.8	94.9	0.85	0.83	34	5.2	11	
180	M3BM 355 LKA	3GBM 352 810-•RB	1490	94.9	94.6	0.83	0.79	40	5.4	15	
200	M3BM 355 LKB	3GBM 352 820-•RB	1490	95.2	94.9	0.84	0.81	44	5.3	15	
224	M3BM 355 LKC	3GBM 352 830-•RB	1490	95.4	95.2	0.84	0.82	49	5.3	16	
250	M3BM 355 LKD	3GBM 352 840-•RB	1490	95.6	95.4	0.84	0.82	54	5.4	18	
280	M3BM 355 LKE	3GBM 352 850-•RB	1490	95.6	95.5	0.85	0.82	60	5.2	20	
315	M3BM 355 LKF	3GBM 352 860-•RB	1490	95.8	95.7	0.85	0.83	68	5.4	22	
335	M3BM 355 LKG	3GBM 352 870-•RB	1490	96.0	96.0	0.85	0.83	72	5.7	23	
355	M3BM 400 LKA	3GBM 402 810-•RB	1489	95.8	95.8	0.85	0.83	76	5.0	23	
400	M3BM 400 LKB	3GBM 402 820-•RB	1490	96.1	96.0	0.85	0.83	86	5.3	27	
450	M3BM 400 LKC	3GBM 402 830-•RB	1490	96.3	96.3	0.86	0.84	95	5.4	28	
500	M3BM 400 LKD	3GBM 402 840-•RB	1490	96.4	96.4	0.86	0.85	105	5.5	29	
560	M3BM 450 LA	3GBM 452 510-•RB	1491	96.3	96.3	0.86	0.86	117	5.4	31	
600	M3BM 450 LB	3GBM 452 520-•RB	1491	96.4	96.4	0.87	0.86	125	5.4	32	
<b>1500 r/min = 4 poles</b>			<b>6600 V 50 Hz</b>								
224	M3BM 355 LKA	3GBM 352 810-•SB	1487	95.2	95.2	0.84	0.82	24	5.4	8	
250	M3BM 355 LKB	3GBM 352 820-•SB	1487	95.4	95.4	0.85	0.82	27	5.4	9	
280	M3BM 400 LKA	3GBM 402 810-•SB	1491	95.2	95.0	0.84	0.81	31	5.4	11	
315	M3BM 400 LKB	3GBM 402 820-•SB	1491	95.4	95.3	0.85	0.82	34	5.3	11	
355	M3BM 400 LKC	3GBM 402 830-•SB	1490	95.8	95.8	0.86	0.85	37	5.3	11	
400	M3BM 400 LKD	3GBM 402 840-•SB	1491	96.0	96.0	0.87	0.85	42	5.4	12	
450	M3BM 400 LKE	3GBM 402 850-•SB	1490	96.1	96.2	0.87	0.86	47	5.3	13	
500	M3BM 450 LA	3GBM 452 510-•SB	1491	96.1	96.0	0.86	0.85	53	5.4	14	
560	M3BM 450 LB	3GBM 452 520-•SB	1491	96.3	96.2	0.86	0.85	59	5.4	16	

<sup>1)</sup> **315LK:** The given values of load inertia assume three starts from cold and two starts from warm conditions in succession against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

**355LK:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 80% of the rated torque at the rated speed and at 80% of the rated voltage.

**400LK, 450L:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 75% of the rated torque at the rated speed and at 80% of the rated voltage.

To check validity against other starting requirements, contact ABB.

<sup>2)</sup> **315LK:** 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.

**355LK:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 80% of the rated torque at the rated speed and at rated voltage.

**400LK, 450L:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 75% 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> Efficiency based on typical additional load losses acc. to measurements.

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, ambient temperature 50°C

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>3300 V 50 Hz</b>	
132	M3BM 315 LKA	848	0.8	2.5	0.15	49	11	20	2.0	220	1180	73	
140	M3BM 315 LKB	900	0.9	2.5	0.15	52	10	20	2.0	230	1220	73	
160	M3BM 315 LKC	1029	0.8	2.4	0.15	58	11	20	2.3	240	1250	73	
180	M3BM 355 LKA	1153	1.0	2.4	0.15	65	11	20	5.6	370	1760	74	
200	M3BM 355 LKB	1282	1.0	2.4	0.15	71	11	20	6.4	400	1850	74	
224	M3BM 355 LKC	1435	1.0	2.3	0.15	79	11	20	7.2	430	1940	74	
250	M3BM 355 LKD	1602	1.0	2.4	0.15	87	10	20	8.0	460	2030	74	
280	M3BM 355 LKE	1795	1.0	2.3	0.15	97	10	20	8.4	470	2060	74	
315	M3BM 355 LKF	2019	1.0	2.3	0.15	107	10	20	9.6	520	2200	74	
335	M3BM 355 LKG	2147	1.1	2.4	0.15	113	9	20	10.4	550	2290	74	
355	M3BM 400 LKA	2277	0.7	2.2	0.11	119	13	20	9.6	560	2680	79	
400	M3BM 400 LKB	2564	0.7	2.3	0.11	132	12	18	12.0	600	2800	79	
450	M3BM 400 LKC	2884	0.7	2.3	0.11	147	12	18	11.9	660	3030	79	
500	M3BM 400 LKD	3204	0.8	2.3	0.11	161	11	18	18.0	760	3360	79	
560	M3BM 450 LA	3586	1.0	2.3	0.13	177	10	20	23.5	970	4280	83	
600	M3BM 450 LB	3843	1.0	2.2	0.13	188	10	20	30.7	1070	4590	83	
<b>1500 r/min = 4 poles</b>												<b>6600 V 50 Hz</b>	
224	M3BM 355 LKA	1438	1.1	2.3	0.16	79	9	20	4.8	390	2050	74	
250	M3BM 355 LKB	1606	1.1	2.3	0.16	87	9	20	5.5	420	2190	74	
280	M3BM 400 LKA	1793	1.0	2.4	0.15	97	10	20	9.7	560	2560	79	
315	M3BM 400 LKB	2018	0.7	2.3	0.12	107	13	20	9.6	560	2600	79	
355	M3BM 400 LKC	2275	0.7	2.3	0.12	119	13	20	13.8	650	2900	79	
400	M3BM 400 LKD	2562	0.7	2.4	0.11	132	12	20	16.2	710	3130	79	
450	M3BM 400 LKE	2884	0.7	2.3	0.11	147	12	20	17.4	750	3240	79	
500	M3BM 450 LA	3202	1.1	2.2	0.15	161	9	20	28.6	1030	4380	83	
560	M3BM 450 LB	3586	1.1	2.2	0.15	177	9	20	30.7	1080	4550	83	

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# 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, ambient temperature 50°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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>3300 V 50 Hz</b>								
112	M3BM 315 LKA	3GBM 313 810-•RB	990	94.6	94.7	0.79	0.75	26	5.2	11		
125	M3BM 315 LKB	3GBM 313 820-•RB	990	94.7	94.9	0.79	0.75	29	5.1	13		
132	M3BM 315 LKC	3GBM 313 830-•RB	991	94.9	95.0	0.78	0.73	31	5.4	14		
140	M3BM 355 LKA	3GBM 353 810-•RB	993	95.2	95.2	0.78	0.74	33	5.0	14		
160	M3BM 355 LKB	3GBM 353 820-•RB	993	95.5	95.5	0.79	0.75	37	5.2	16		
180	M3BM 355 LKC	3GBM 353 830-•RB	993	95.6	95.6	0.78	0.74	42	5.2	18		
200	M3BM 355 LKD	3GBM 353 840-•RB	993	95.8	95.8	0.79	0.75	46	5.2	20		
224	M3BM 355 LKE	3GBM 353 850-•RB	993	95.9	95.9	0.79	0.74	52	5.3	22		
250	M3BM 355 LKF	3GBM 353 860-•RB	992	95.8	95.9	0.79	0.75	58	5.1	24		
280	M3BM 355 LKG	3GBM 353 870-•RB	993	96.0	96.1	0.79	0.74	65	5.3	28		
355	M3BM 400 LKA	3GBM 403 811-•RB	994	96.1	96.1	0.81	0.78	80	5.3	30		
400	M3BM 400 LKB	3GBM 403 821-•RB	994	96.3	96.3	0.81	0.78	89	5.5	34		
425	M3BM 400 LKC	3GBM 403 831-•RB	993	96.3	96.4	0.82	0.79	94	5.5	34		
450	M3BM 450 LA	3GBM 453 510-•RB	993	96.3	96.4	0.84	0.83	96	5.4	29		
500	M3BM 450 LB	3GBM 453 520-•RB	993	96.4	96.5	0.85	0.83	107	5.5	32		
560	M3BM 450 LC	3GBM 453 530-•RB	993	96.5	96.6	0.85	0.84	119	5.5	34		
<b>1000 r/min = 6 poles</b>				<b>6600 V 50 Hz</b>								
150	M3BM 355 LKA	3GBM 353 810-•SB	991	94.9	94.9	0.77	0.72	18	5.2	8		
160	M3BM 355 LKB	3GBM 353 820-•SB	991	95.0	95.0	0.78	0.73	19	5.2	9		
180	M3BM 355 LKC	3GBM 353 830-•SB	990	95.1	95.2	0.78	0.74	21	5.0	9		
200	M3BM 355 LKD	3GBM 353 840-•SB	990	95.3	95.3	0.77	0.72	24	5.2	11		
280	M3BM 400 LKA	3GBM 403 811-•SB	993	95.6	95.5	0.78	0.74	33	5.2	14		
315	M3BM 400 LKB	3GBM 403 821-•SB	993	95.8	95.7	0.79	0.75	37	5.3	15		
355	M3BM 400 LKC	3GBM 403 831-•SB	993	96.0	95.9	0.79	0.75	41	5.4	17		
375	M3BM 400 LKD	3GBM 403 841-•SB	993	96.1	96.0	0.80	0.76	43	5.4	17		
400	M3BM 450 LA	3GBM 453 510-•SB	994	96.1	96.2	0.84	0.82	43	5.5	14		
450	M3BM 450 LB	3GBM 453 520-•SB	994	96.2	96.3	0.84	0.83	48	5.3	15		
500	M3BM 450 LC	3GBM 453 530-•SB	994	96.3	96.4	0.85	0.83	54	5.4	16		
530	M3BM 450 LD	3GBM 453 540-•SB	993	96.3	96.5	0.85	0.84	56	5.4	16		

<sup>1)</sup> **315LK, 355LK:** The given values of load inertia assume three starts from cold and two starts from warm conditions in succession against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

**400LK, 450L:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 80% of the rated torque at the rated speed and at 80% of the rated voltage.

To check validity against other starting requirements, contact ABB.

<sup>2)</sup> **315LK, 355LK:** 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.

**400LK, 450L:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 80% 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...8-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).

<sup>4)</sup> Efficiency based on typical additional load losses acc. to measurements.

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, ambient temperature 50°C

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)
		$T_N$	$T_S$	$T_{max}$								
		Nm	$T_N$	$T_N$								
<b>1000 r/min = 6 poles</b>						<b>3300 V 50 Hz</b>						
112	M3BM 315 LKA	1080	1.1	2.3	0.18	113	11	20	3.7	290	1230	65
125	M3BM 315 LKB	1206	1.1	2.3	0.17	125	11	20	3.9	300	1270	65
132	M3BM 315 LKC	1272	1.2	2.5	0.17	131	10	20	4.1	310	1300	65
140	M3BM 355 LKA	1347	0.8	2.2	0.13	139	14	20	5.6	370	1740	70
160	M3BM 355 LKB	1539	0.9	2.3	0.13	157	14	20	6.8	410	1880	70
180	M3BM 355 LKC	1731	0.9	2.3	0.13	175	13	20	7.2	430	1920	70
200	M3BM 355 LKD	1924	0.9	2.3	0.13	192	13	20	8.0	460	2020	70
224	M3BM 355 LKE	2154	0.9	2.3	0.13	213	12	20	8.8	490	2110	70
250	M3BM 355 LKF	2406	0.9	2.2	0.13	236	12	20	9.2	500	2140	70
280	M3BM 355 LKG	2694	0.9	2.3	0.13	261	12	20	10.4	550	2270	70
355	M3BM 400 LKA	3412	1.0	2.3	0.14	324	11	22	17.9	860	3100	78
400	M3BM 400 LKB	3843	1.1	2.4	0.14	360	10	22	21.1	980	3390	78
425	M3BM 400 LKC	4085	1.1	2.2	0.13	380	11	22	21.0	980	3390	78
450	M3BM 450 LA	4327	1.2	2.2	0.16	400	10	20	33.6	1050	4010	78
500	M3BM 450 LB	4807	1.2	2.2	0.16	439	9	20	31.8	1110	4160	78
560	M3BM 450 LC	5385	1.2	2.2	0.16	486	9	20	45.4	1290	4590	78
<b>1000 r/min = 6 poles</b>						<b>6600 V 50 Hz</b>						
150	M3BM 355 LKA	1446	1.0	2.4	0.15	148	11	20	4.8	390	2040	70
160	M3BM 355 LKB	1543	1.0	2.4	0.15	157	11	20	5.0	410	2090	70
180	M3BM 355 LKC	1737	0.9	2.3	0.15	175	12	20	5.3	420	2130	70
200	M3BM 355 LKD	1929	1.0	2.4	0.15	192	11	20	5.7	440	2230	70
280	M3BM 400 LKA	2693	1.0	2.2	0.14	261	11	22	9.6	630	2740	78
315	M3BM 400 LKB	3030	1.1	2.2	0.14	291	11	22	10.9	680	2920	78
355	M3BM 400 LKC	3414	1.1	2.3	0.14	324	10	22	12.6	750	3150	78
375	M3BM 400 LKD	3606	1.1	2.2	0.14	340	10	22	14.3	830	3380	78
400	M3BM 450 LA	3844	1.2	2.2	0.17	360	10	20	30.8	1080	4030	78
450	M3BM 450 LB	4325	1.2	2.2	0.17	400	10	20	39.5	1170	4250	78
500	M3BM 450 LC	4805	1.2	2.2	0.17	439	10	20	43.9	1260	4470	78
530	M3BM 450 LD	5096	1.2	2.2	0.16	463	9	20	43.9	1260	4470	78

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# 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, ambient temperature 50°C

Output kW	Motor type	Product code	Speed r/min	Efficiency <sup>4)</sup>		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>3300 V 50 Hz</b>								
160	M3BM 400 LKA	3GBM 404 810-•RB	744	94.8	94.7	0.76	0.71	39	5.0	19	
180	M3BM 400 LKB	3GBM 404 820-•RB	744	95.0	95.0	0.77	0.73	43	4.9	19	
200	M3BM 400 LKC	3GBM 404 830-•RB	744	95.2	95.2	0.78	0.73	47	5.0	21	
224	M3BM 400 LKD	3GBM 404 840-•RB	744	95.3	95.3	0.78	0.74	53	5.3	23	
250	M3BM 400 LKE	3GBM 404 850-•RB	745	95.5	95.5	0.78	0.73	59	5.5	26	
280	M3BM 400 LKF	3GBM 404 860-•RB	745	95.7	95.6	0.78	0.74	65	5.4	29	
315	M3BM 400 LKG	3GBM 404 870-•RB	744	95.7	95.7	0.78	0.74	73	5.4	33	
355	M3BM 450 LA	3GBM 454 510-•RB	745	96.0	95.8	0.79	0.75	82	5.4	35	
400	M3BM 450 LB	3GBM 454 520-•RB	745	96.1	95.9	0.79	0.74	92	5.5	40	
450	M3BM 450 LC	3GBM 454 530-•RB	745	96.2	96.0	0.79	0.74	104	5.5	45	
<b>750 r/min = 8 poles</b>			<b>6600 V 50 Hz</b>								
160	M3BM 400 LKA	3GBM 404 810-•SB	744	94.5	94.4	0.75	0.70	20	5.0	10	
180	M3BM 400 LKB	3GBM 404 820-•SB	744	94.7	94.7	0.76	0.71	22	5.0	10	
200	M3BM 400 LKC	3GBM 404 830-•SB	744	95.0	94.9	0.76	0.71	24	5.1	12	
224	M3BM 400 LKD	3GBM 404 840-•SB	744	95.1	95.0	0.76	0.70	27	5.3	13	
250	M3BM 400 LKE	3GBM 404 850-•SB	744	95.2	95.1	0.76	0.71	30	5.3	15	
280	M3BM 400 LKF	3GBM 404 860-•SB	744	95.3	95.2	0.75	0.69	34	5.4	17	
315	M3BM 450 LA	3GBM 454 510-•SB	745	95.7	95.5	0.79	0.75	36	5.4	16	
355	M3BM 450 LB	3GBM 454 520-•SB	745	95.8	95.7	0.79	0.75	41	5.4	17	
400	M3BM 450 LC	3GBM 454 530-•SB	745	95.9	95.8	0.79	0.75	46	5.3	19	

<sup>1)</sup> **400LK:** The given values of load inertia assume three starts from cold and two starts from warm conditions in succession against quadratic load torque with 90% of the rated torque at the rated speed and at 80% of the rated voltage.

**450L:** The given values of load inertia assume two starts from cold and one start from warm conditions in succession against quadratic load torque with 85% of the rated torque at the rated speed and at 80% of the rated voltage.

To check validity against other starting requirements, contact ABB.

<sup>2)</sup> **400LK:** 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.

**450L:** Starting time with given values of the load inertia from cold condition in succession against quadratic load torque with 85% 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...8-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).

<sup>4)</sup> Efficiency based on typical additional load losses acc. to measurements.

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, ambient temperature 50°C

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>3300 V 50 Hz</b>						
160	M3BM 400 LKA	2052	1.0	2.1	0.17	315	13	20	12.6	590	2400	75
180	M3BM 400 LKB	2310	1.0	2.1	0.17	352	14	20	14.4	640	2520	75
200	M3BM 400 LKC	2566	1.1	2.1	0.17	388	13	20	14.7	690	2640	75
224	M3BM 400 LKD	2873	1.1	2.2	0.17	430	12	20	20.7	800	2910	75
250	M3BM 400 LKE	3206	1.2	2.3	0.17	476	11	20	24.3	900	3140	75
280	M3BM 400 LKF	3591	1.2	2.2	0.17	528	11	20	26.1	950	3280	75
315	M3BM 400 LKG	4041	1.2	2.2	0.17	587	11	20	27.9	990	3380	75
355	M3BM 450 LA	4548	1.2	2.2	0.16	655	12	20	34.4	1180	4280	76
400	M3BM 450 LB	5125	1.2	2.3	0.16	730	11	20	42.4	1240	4430	76
450	M3BM 450 LC	5766	1.2	2.3	0.16	811	11	20	46.8	1330	4660	76
<b>750 r/min = 8 poles</b>						<b>6600 V 50 Hz</b>						
160	M3BM 400 LKA	2054	1.0	2.3	0.17	315	13	20	10.8	590	2600	75
180	M3BM 400 LKB	2312	1.0	2.2	0.17	352	14	20	12.6	650	2770	75
200	M3BM 400 LKC	2568	1.0	2.3	0.16	388	13	20	14.4	710	2950	75
224	M3BM 400 LKD	2876	1.1	2.3	0.16	430	12	20	16.8	780	3180	75
250	M3BM 400 LKE	3210	1.1	2.3	0.16	476	12	20	18.0	820	3300	75
280	M3BM 400 LKF	3596	1.1	2.4	0.16	528	11	20	18.6	840	3360	75
315	M3BM 450 LA	4035	1.2	2.2	0.16	587	12	20	36.6	1120	4070	76
355	M3BM 450 LB	4548	1.2	2.2	0.16	655	12	20	34.4	1180	4220	76
400	M3BM 450 LC	5126	1.2	2.2	0.16	730	12	20	37.7	1270	4450	76

1

# HV Process performance cast iron motors - Variant codes

Code 1)	Variant	Motor size			
		315	355	400	450
<b>Balancing</b>					
423	Balanced without key	P	P	P	P
424	Full key balancing.	P	P	P	P
<b>Bearings and lubrication</b>					
036	Transport lock for bearings.	P	P	P	P
037	Roller bearing at D-end.	P	P	P	P
107	Pt100 2-wire in bearings.	P	P	P	P
178	Stainless steel/acid proof bolts.	P	P	P	P
398	Motor designed for ambient temperature -20°C to -40°C	P	P	P	P
651	Dial type thermometers (2 pcs) for bearings, without contacts	P	P	P	P
652	Dial type thermometers (2 pcs) for bearings, with contacts	P	P	P	P
654	Provision for vibration sensors (M8x1)	P	P	P	P
<b>Cooling system</b>					
044	Unidirectional fan, clockwise seen from D-end.	NA	P	P	P
045	Unidirectional fan, counter clockwise seen from D-end.	NA	P	P	P
068	Metal fan.	P	P	P	P
<b>Coupling</b>					
035	Assembly of customer supplied coupling-half.	P	P	P	P
<b>Drain holes</b>					
065	Plugged existing drain holes.	P	P	P	P
448	Draining holes with metal plugs.	P	P	P	P
<b>Hazardous environments</b>					
See catalogue "Motors for Hazardous Environments", BU/Ex-motors EN, for details.					
<b>Heating elements</b>					
450	Heating element, 100-120 V.	P	P	P	P
451	Heating element, 200-240 V.	P	P	P	P
<b>Painting</b>					
114	Special paint colour, standard grade.	P	P	P	P
<b>Protection</b>					
005	Metal protective roof, vertical motor, shaft down.	P	P	P	P
158	Degree of protection IP 65.	P	P	P	P
403	Degree of protection IP 56.	P	P	P	P
<b>Rating &amp; instruction plates</b>					
002	Restamping output and voltage, continuous duty.	P	P	P	P
135	Mounting of additional identification plate, stainless	P	P	P	P
<b>Standards and regulations</b>					
010	Fulfilling CSA Safety Certificate.	P	P	P	P
778	GOST Export/Import Certificate (Russia).	P	P	P	P
<b>Stator winding temperature sensors</b>					
653	Pt-100 (12 pcs) inside stator slots	P	P	P	P
<b>Terminal box</b>					
021	Terminal box LHS (seen from D-end).	P	P	P	P
447	Top mounted separate auxiliary box for heating elements.	P	P	P	P
655	No terminal box, three (3) leads out 1.5 m (5 ft)	P	P	P	P
656	No terminal box, six (6) leads out 1.5 m (5 ft)	P	P	P	P
750	Star point terminal box.	P	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	P
147	Type test with report for motor from specific delivery patch, customer witnessed.	P	P	P	P
762	Noise level test.	P	P	P	P
<b>Variable speed drives</b>					
701	Insulated bearing at N-end.	P	P	P	P
<b>Foundation and installation</b>					
	Foundation studs	P	P	P	P
	Sole plates without anchor bolts	P	P	P	P
	Sole plates with anchor bolts	P	P	P	P
	Slide rails for belt drives	P	P	P	P

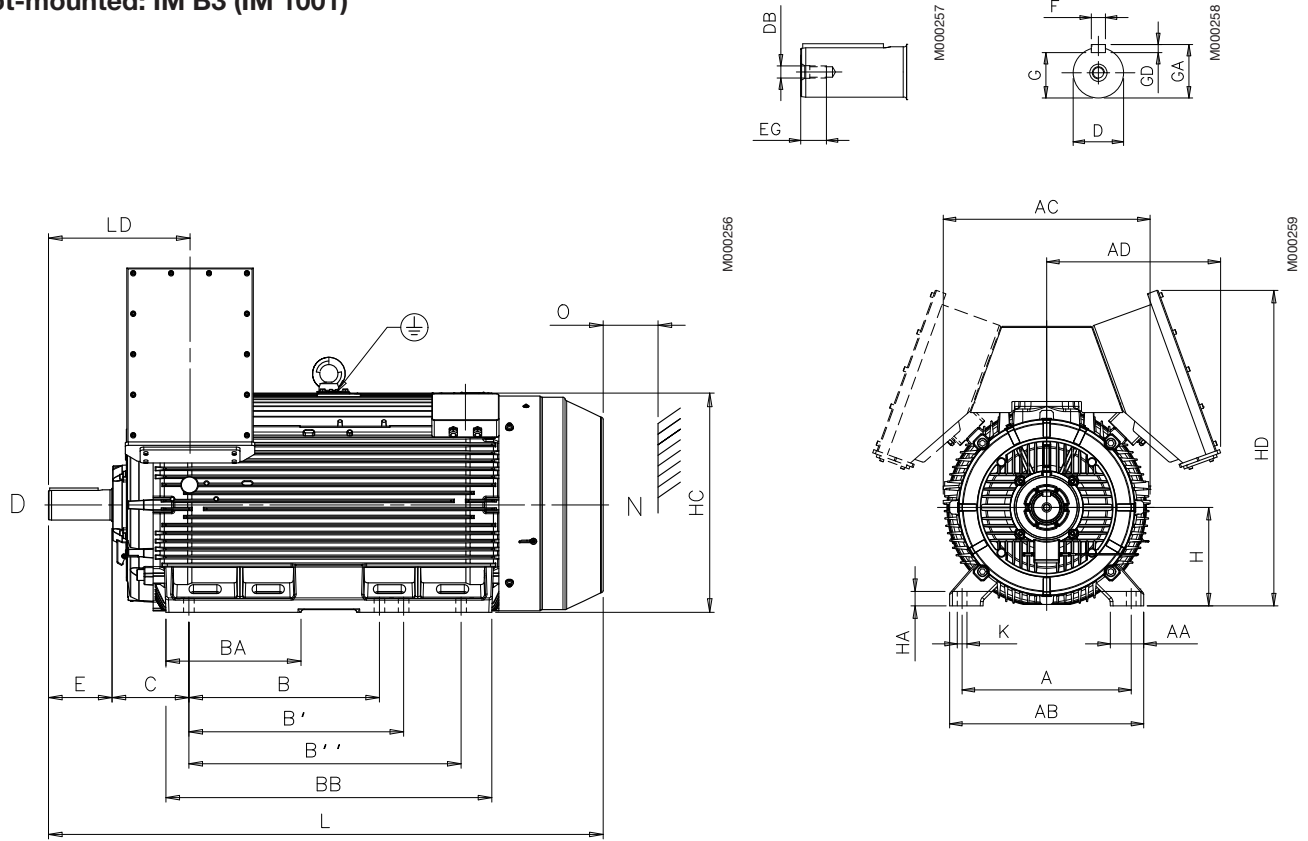
1) Certain variant codes cannot be used simultaneously. P = New manufacture only. NA = Not applicable.



# HV Process performance cast iron motors Sizes 315-450

## Dimension drawings

Foot-mounted: IM B3 (IM 1001)



Motor size	Poles	A	AA	AB	AC	AD	AD*	B	B'	B''	BA	BB	C	D	DB	E	EG
315 LK	2	508	100	590	654	555	-	508	560	710	336	851	216	65	M20	140	42
315 LK	4-6	508	100	590	654	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	4-8	710	150	840	834	627	-	900	1000	-	410	1156	224	110	M24	210	50
400 LK	2	710	150	840	834	627	-	900	1000	1120	410	1316	224	80	M20	170	42
400 LK	4-8	710	150	840	834	627	-	900	1000	1120	410	1316	224	110	M24	210	50
450 L	2	800	160	950	966	613	790	1000	1120	1250	451	1421	250	80	M20	170	42
450 L	4-8	800	160	950	966	613	790	1000	1120	1250	451	1421	250	120	M24	210	50

Motor size	Poles	F	G	GA	GD	H	HA	HC	HD	HD*	K	L	LD	O
315 LK	2	18	58	69	11	315	40	644	1055	-	28	1490	355	115
315 LK	4-6	25	81	95	14	315	40	644	1055	-	28	1521	385	115
355 LK	2	20	62.5	74.5	12	355	52	725	1138	-	35	1764	398	250
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	300
400 L	4-8	28	100	116	16	400	45	814	1225	-	35	1891	498	200
400 LK	2	22	71	85	14	400	45	814	1225	-	35	2011	478	300
400 LK	4-8	28	100	116	16	400	45	814	1225	-	35	2051	518	200
450 L	2	22	71	85	14	450	81	933	1378	1502	42	2147	485	300
450 L	4-8	32	109	127	18	450	81	933	1378	1502	42	2187	525	200

\* For 10 kV only

Tolerances:

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

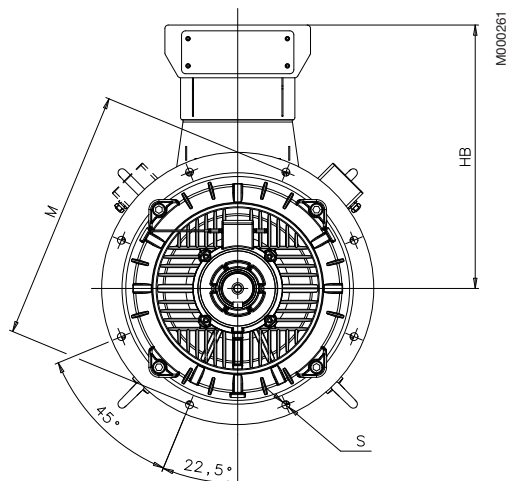
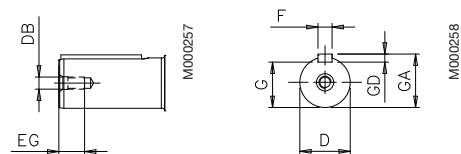
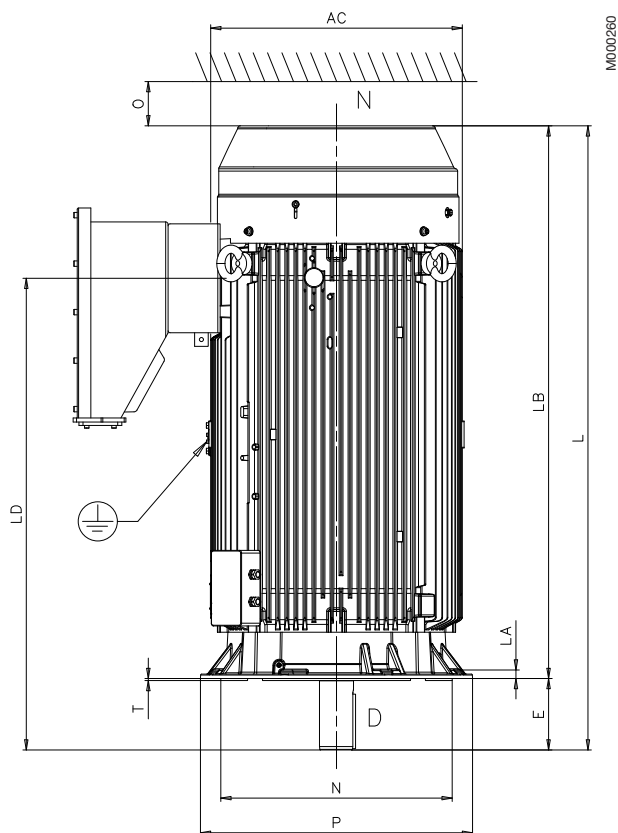
Above table gives the main dimensions in mm.

For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact us.

# HV Process performance cast iron motors Sizes 315-450

## Dimension drawings

Flange-mounted; IM V1 (IM 3011)



Motor size	Poles	AC	D	DB	E	EG	F	G	GA	GD	HB	HB*
315 LK	4-6	645	90	M24	170	52	25	81	95	14	731	-
355 LK	4-6	740	100	M24	210	51	28	90	106	16	774	-
400 L	4-8	827	110	M24	210	50	28	100	116	16	816	-
400 LK	4-8	810	110	M24	210	50	28	100	116	16	816	-
450 L	4-8	966	120	M24	210	50	32	109	127	18	887	982

Motor size	Poles	L	LA	LB	LD	M	N	O	P	S	T
315 LK	4-6	1521	25	1351	1115	600	550	115	660	23	6
355 LK	4-6	1834	25	1624	1386	740	680	130	800	23	6
400 L	4-8	1891	26	1681	1400	940	880	200	1000	28	6
400 LK	4-8	2051	26	1841	1540	940	880	200	1000	28	6
450 L	4-8	2187	33	1977	1645	1080	1000	200	1149	28	6

\* For 10 kV only

Tolerances:

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

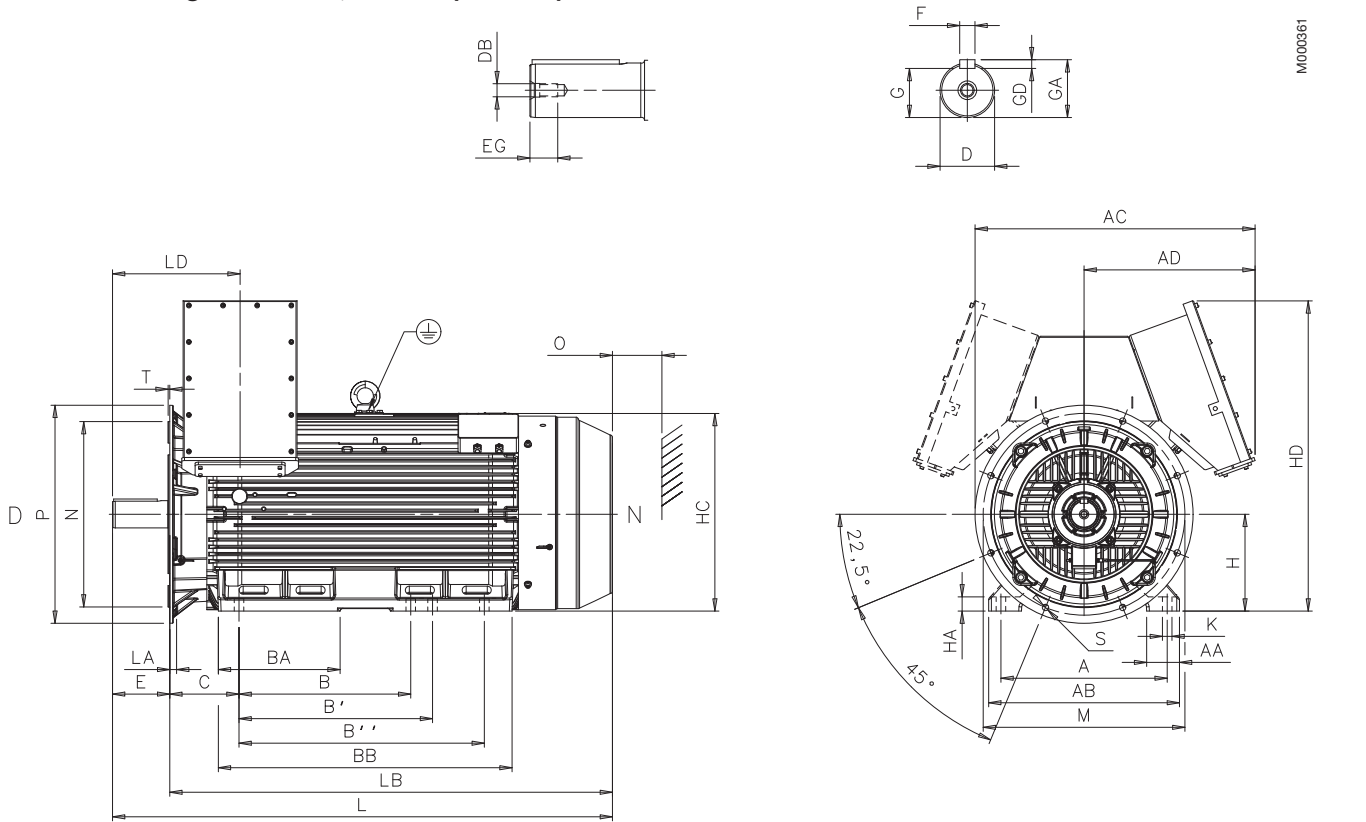
Above table gives the main dimensions in mm.

For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact us.

# HV Process performance cast iron motors Sizes 315-450

## Dimension drawings

Foot- and flange-mounted; IM B35 (IM 2001)



Motor size	Poles	A	AA	AB	AC	AD	AD*	B	B'	B''	BA	BB	C	D	DB	E	EG	F	G	GA
315LK	2	508	100	590	885	555	-	508	560	710	336	851	216	65	M20	140	42	18	58	69
315LK	4-6	508	100	590	885	555	-	508	560	710	336	851	216	90	M24	170	52	25	81	95
355LK	2	610	120	700	1027	627	-	630	710	900	447	1077	254	70	M20	140	42	20	62.5	74.5
355LK	4-6	610	120	700	1027	627	-	630	710	900	447	1077	254	100	M24	210	51	28	90	106
400L	2	710	150	840	1127	627	-	900	1000	-	410	1156	224	80	M20	170	42	22	71	85
400L	4-8	710	150	840	1127	627	-	900	1000	-	410	1156	224	110	M24	210	50	28	100	116
400LK	2	710	150	840	1127	627	-	900	1000	1120	410	1316	224	80	M20	170	42	22	71	85
400LK	4-8	710	150	840	1127	627	-	900	1000	1120	410	1316	224	110	M24	210	50	28	100	116
450L	2	800	160	950	1188	613	790	1000	1120	1250	451	1421	250	80	M20	170	42	22	71	85
450L	4-8	800	160	950	1188	613	790	1000	1120	1250	451	1421	250	120	M24	210	50	32	109	127

Motor size	Poles	GD	H	HA	HC	HD	HD*	K	L	LD	O	LA	LB	M	N	P	S	T
315LK	2	11	315	40	643	1055	-	28	1490	355	115	25	1350	600	550	660	23	6
315LK	4-6	14	315	40	643	1055	-	28	1521	385	115	25	1350	600	550	660	23	6
355LK	2	12	355	52	725	1138	-	35	1764	398	250	25	1624	740	680	800	23	6
355LK	4-6	16	355	52	725	1138	-	35	1834	468	130	25	1624	740	680	800	23	6
400L	2	14	400	45	814	1225	-	35	1851	458	300	26	1681	940	880	1000	28	6
400L	4-8	16	400	45	814	1225	-	35	1891	498	200	26	1681	940	880	1000	28	6
400LK	2	14	400	45	814	1225	-	35	2011	478	300	26	1841	940	880	1000	28	6
400LK	4-8	16	400	45	814	1225	-	35	2051	518	200	26	1841	940	880	1000	28	6
450L	2	14	450	81	933	1378	1502	42	2147	485	300	33	1977	1080	1000	1149	28	6
450L	4-8	18	450	81	933	1378	1502	42	2187	525	200	33	1977	1080	1000	1149	28	6

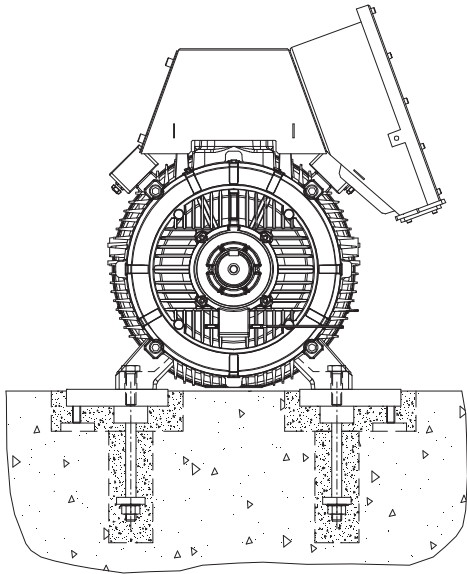
\* for 10 kV only

Above table gives the main dimensions in mm.

For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact us.

# Accessories

## Foundation studs

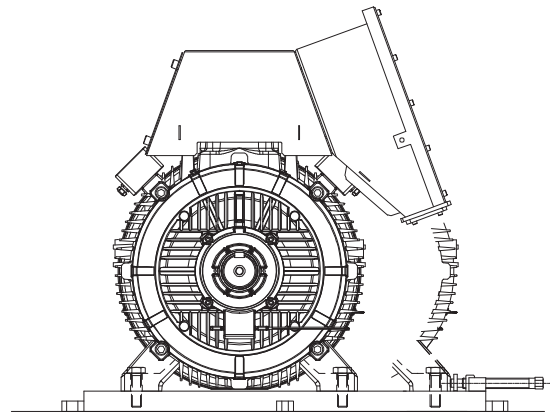


M000262

Frame size	Set code
315	FOST315-M3
355	FOST355-M3
400	FOST400-M3
450	FOST450-M3

The set code has to be mentioned on order.

## Slide rails

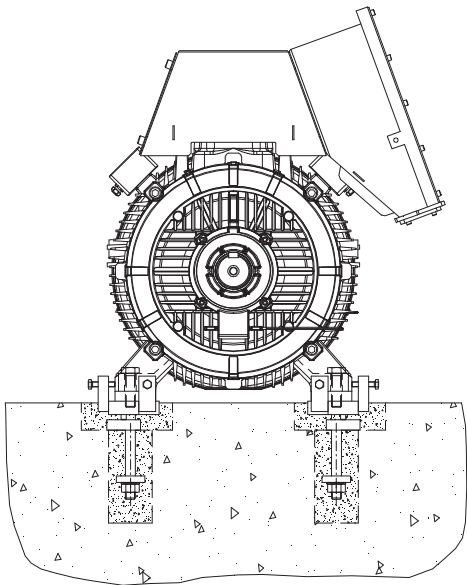


M000263

Frame size	Set code
315	SLRA315-M3
355	SLRA355-M3
400	SLRA400-M3
450	SLRA450-M3

The set code has to be mentioned on order.

## Sole plates

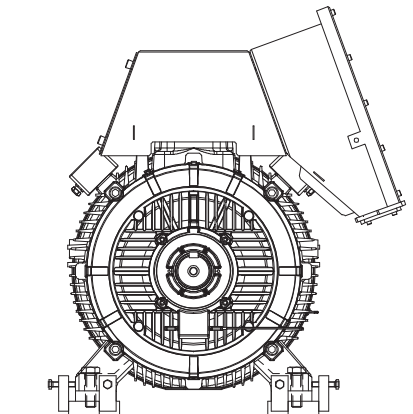


M000327

Frame size	Set code
315	SOPL315A-M3
355	SOPL355A-M3
400 L	SOPL400A-M3
400 LK	SOPL400A-M3LK
450	SOPL450A-M3

The set code has to be mentioned on order.

## Sole plates



M000327

Frame size	Set code
315	SOPL315-M3
355	SOPL355-M3
400 L	SOPL400-M3
400 LK	SOPL400-M3LK
450	SOPL450-M3

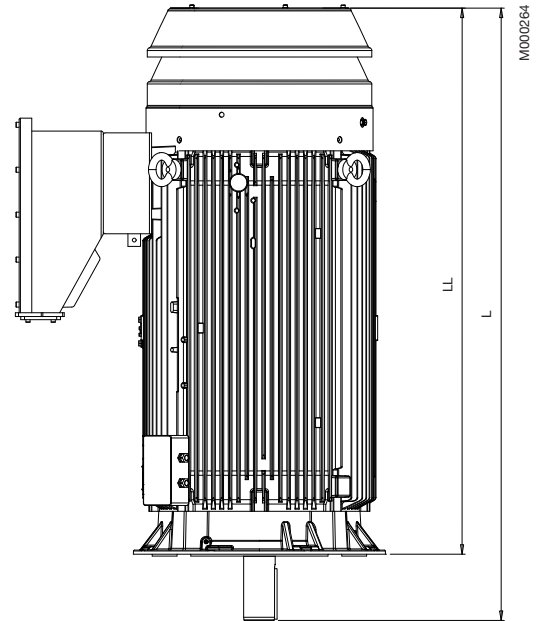
The set code has to be mentioned on order.

# Accessories

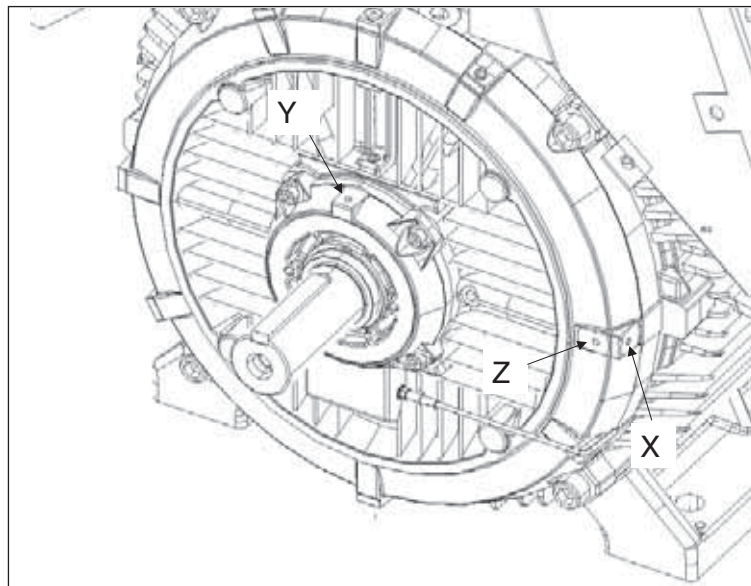
## Protective roof

Variant code 005

Motor size	Pole no	L	LL
315 LK	4-6	1591	1421
355 LK	4-6	1951	1741
400 L	4-6	2008	1798
400 LK	4-6	2168	1958
450 L	4-6	2389	2179



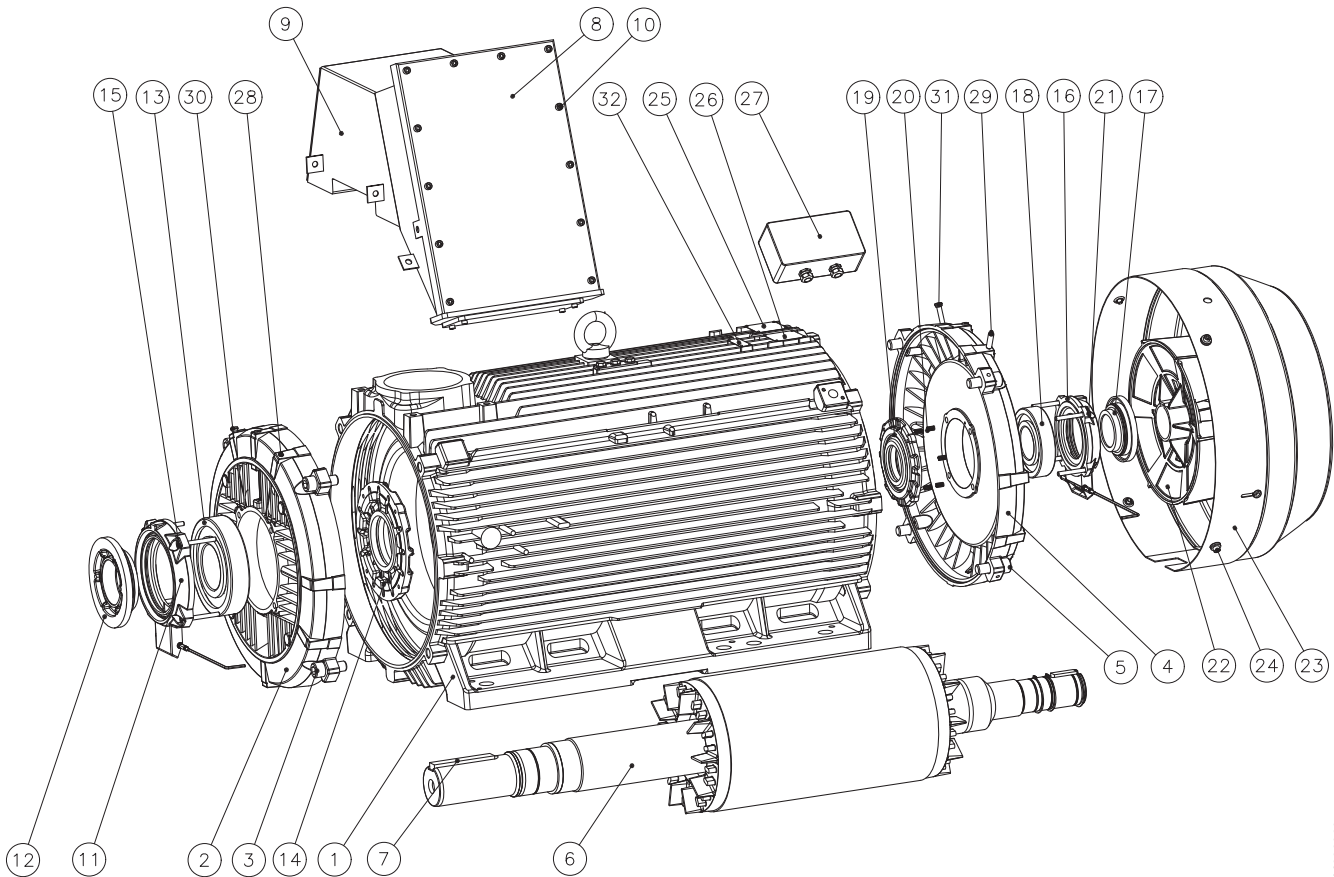
## Provision for vibration sensors



Provision for vibration sensors M8x1. XYZ-directions. Available only for D-end.

# 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            | 32 | Additional identification plate       |

M0000663

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

Motor size		315	355	400	450	
<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	6316M/C3	6316M/C3	6317M/C3	6317M/C3
		4-8 pole	6319/C3	6322/C3	6324/C3	6326M/C3
	N-end	2 pole	6316M/C3	6316M/C3	6317M/C3	6317M/C3
		4-8 pole	6316/C3	6316/C3	6319/C3	6322/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	Blue 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 reinforced polypropylene, aluminum, steel or glass reinforced polyamide fan with metal hub. Direction of rotation / fans (IC411) - glass reinforced polypropylene bidirectional - aluminum birectional - steel bidirectional - glass reinforced polyamide 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	1x400 W	
<b>Drain holes</b>		Standard, open on delivery.				
<b>Enclosure</b>		IP 55, higher protection as option.				
<b>Cooling method</b>		IC 411				

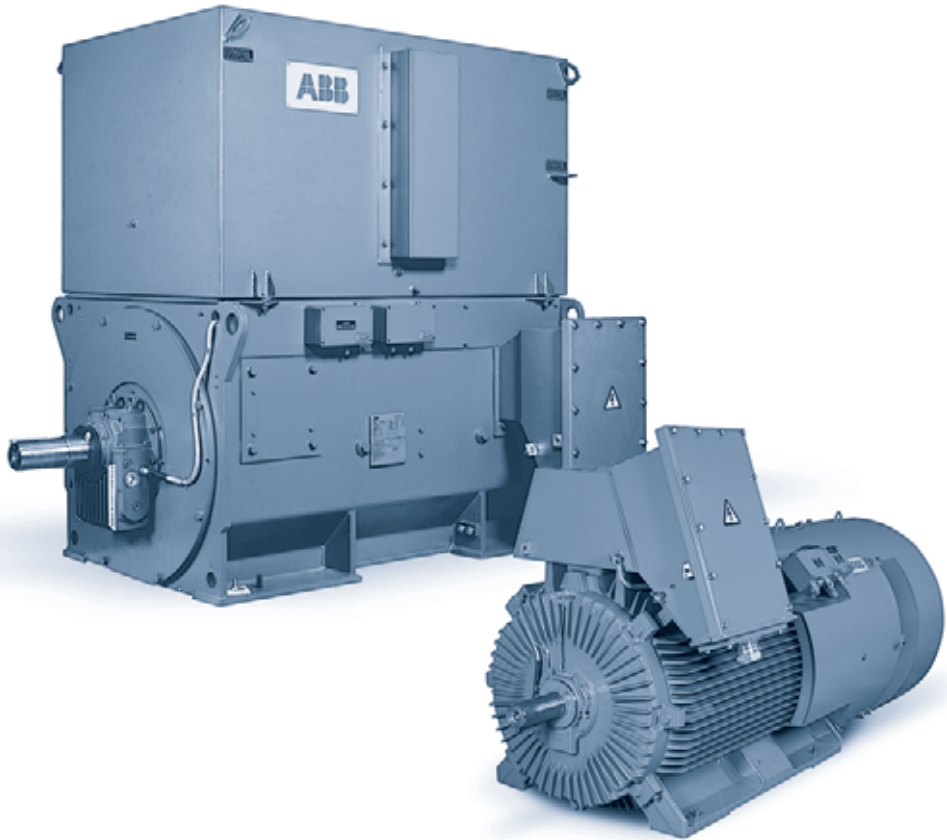






# Engineered Motors

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



2

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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.

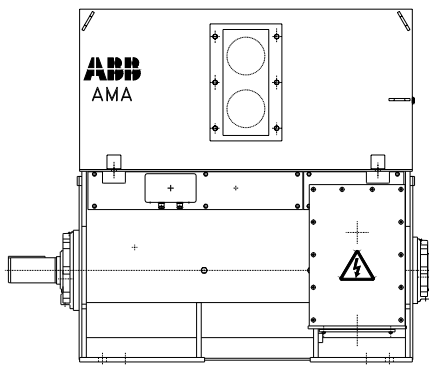
The table below shows the available output power, voltage range and pole numbers.

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

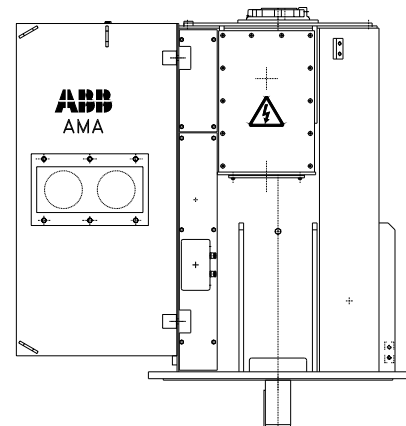
Output ranges of ABB motors (Temperature rise class B, insulation class F). Other voltages on request.

## Mounting arrangement

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

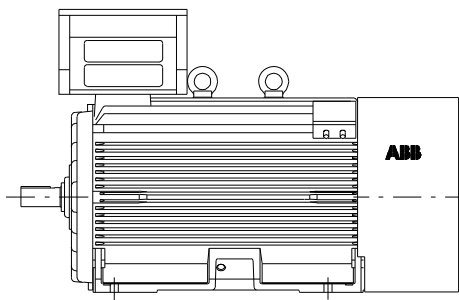


Code I: IM B3  
Code II: IM 1001  
Horizontal foot mounted



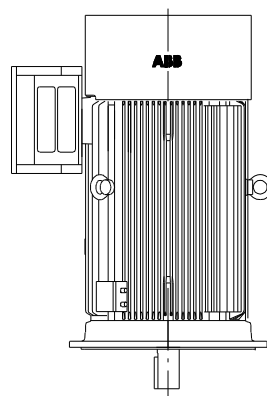
Code I: IM V1  
Code II: IM 4011  
Vertical flange mounted  
(free shaft end facing downwards)

## 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

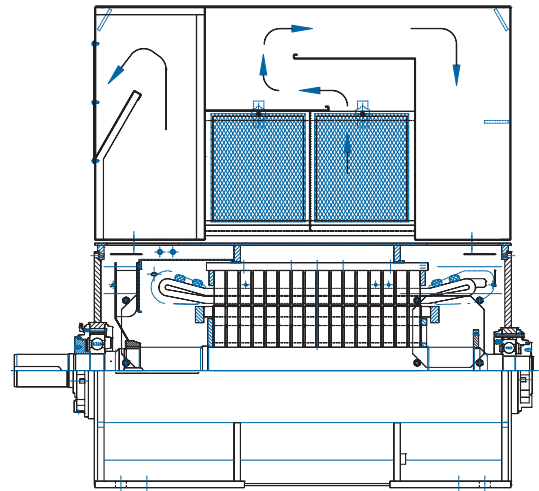
Flange and free shaft end facing downwards  
(Vertical solid shaft, flange mounted)

# Enclosure and Cooling

Standard combinations used for AMA-motors are:

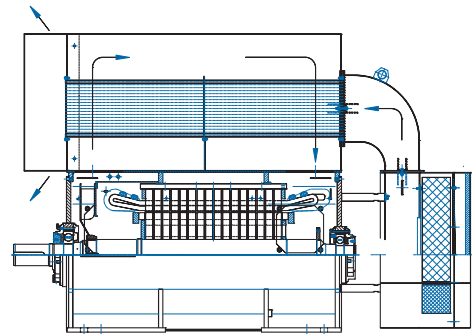
## IC 01 / IP 24W

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.



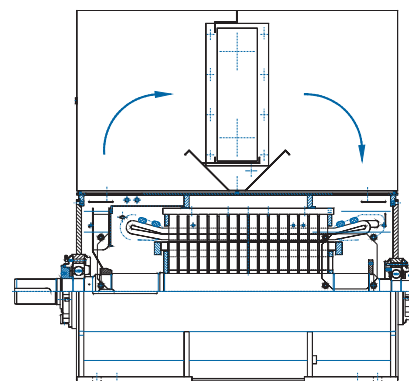
## IC 611 / IP 55

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

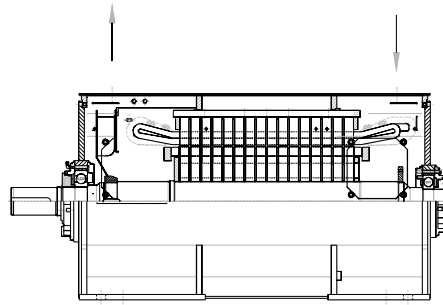
This fully enclosed motor is fitted with an air-to-water heat exchanger. A shaft mounted fan is fitted inside the casing to supply the internal cooling circuit. Motor is protected against dust and splashing water from any direction.



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

## IC 31 / IP 55

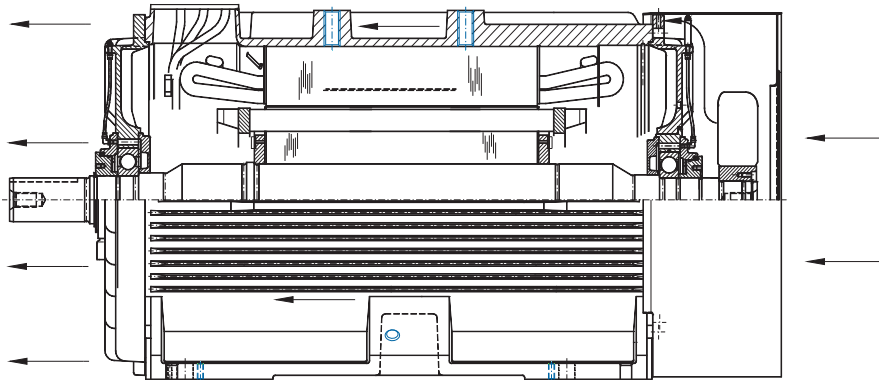
This version is fitted with an inlet and outlet pipe to use remote cooling air. Essentially this is the AMA-motor frame without any upper cover. The motor is protected against dust and splashing water from any direction.



## 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 **C**urrent **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

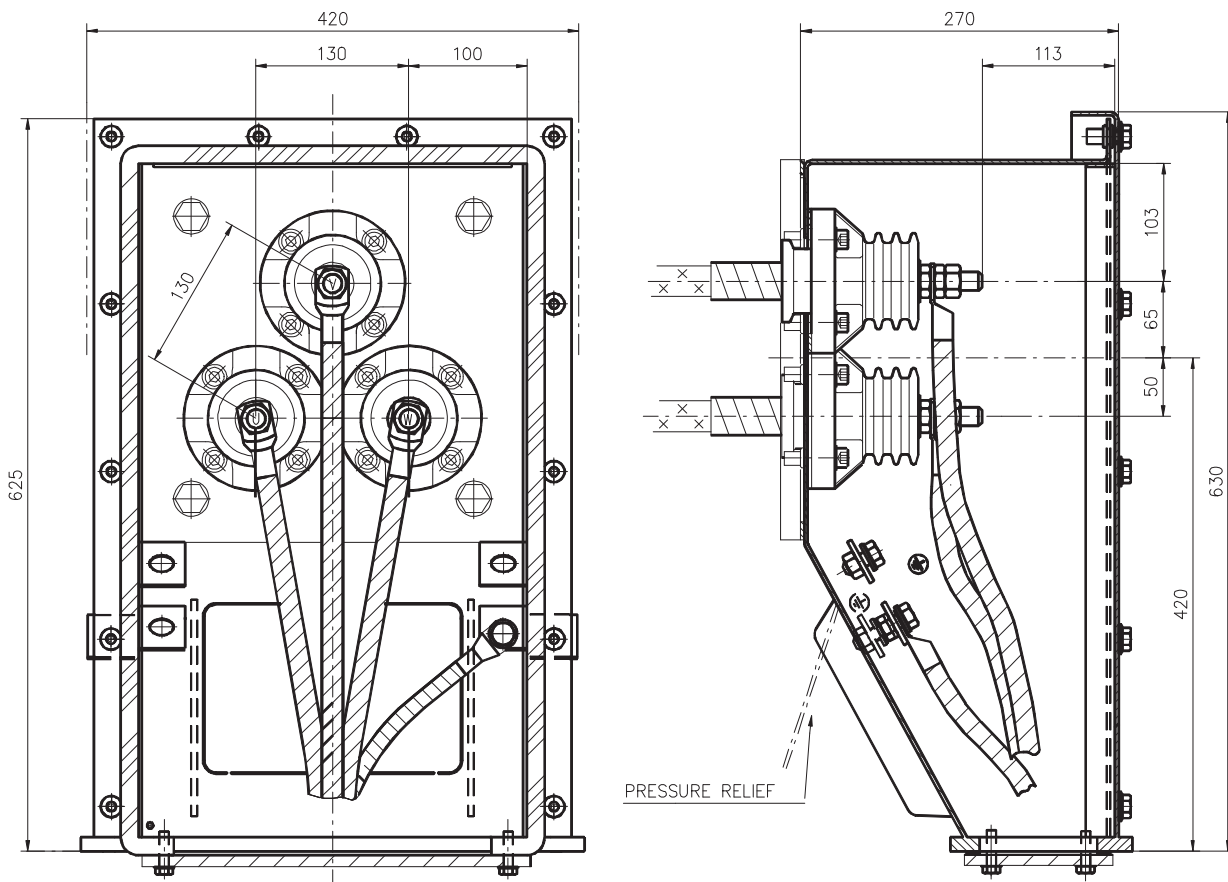


Figure above: High voltage terminal box. Dimensions in mm.



# 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	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

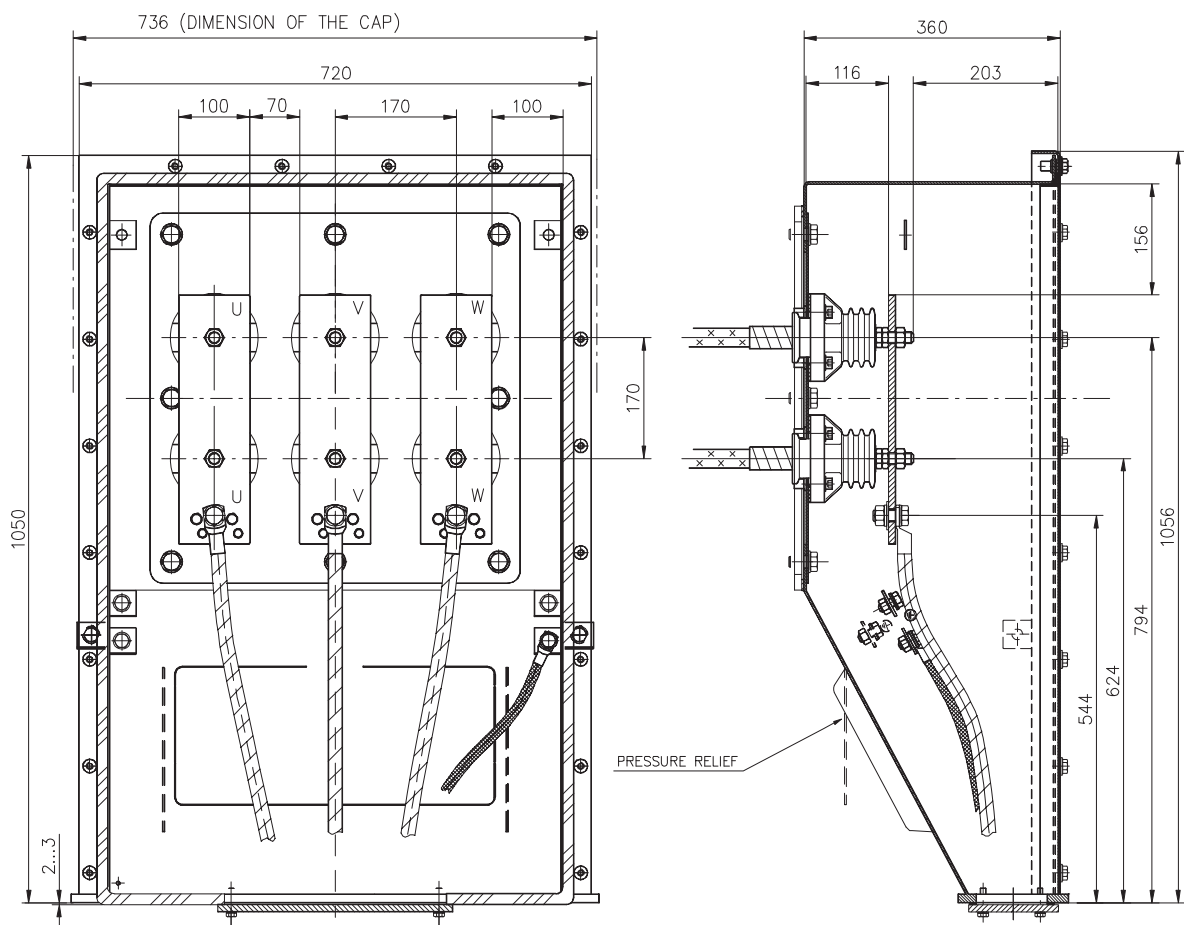


Figure above: High voltage terminal box. Dimensions in mm.

# 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

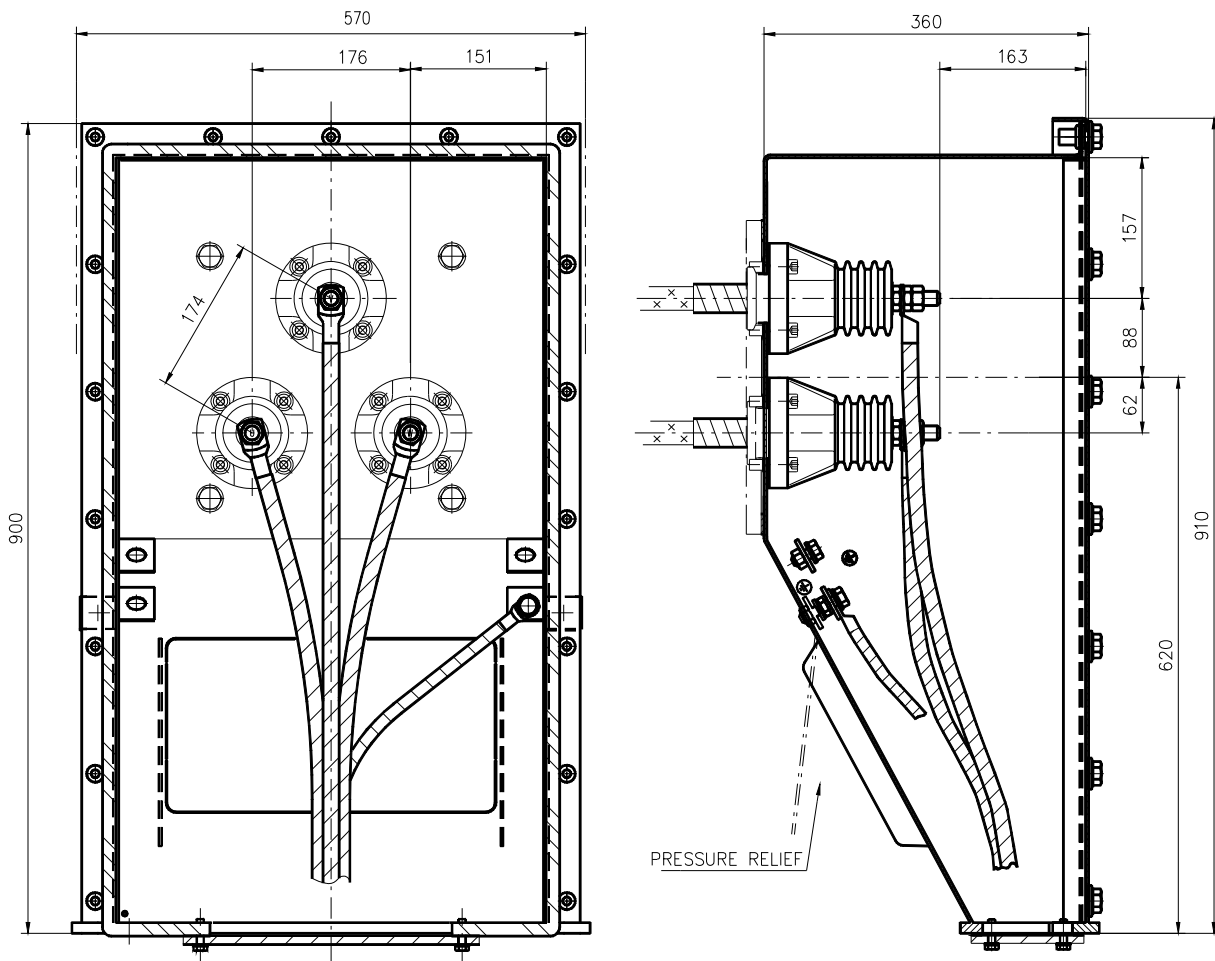


Figure above: High voltage terminal box. Dimensions in mm.

## Dimensions for terminal box inlet, blind flange

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

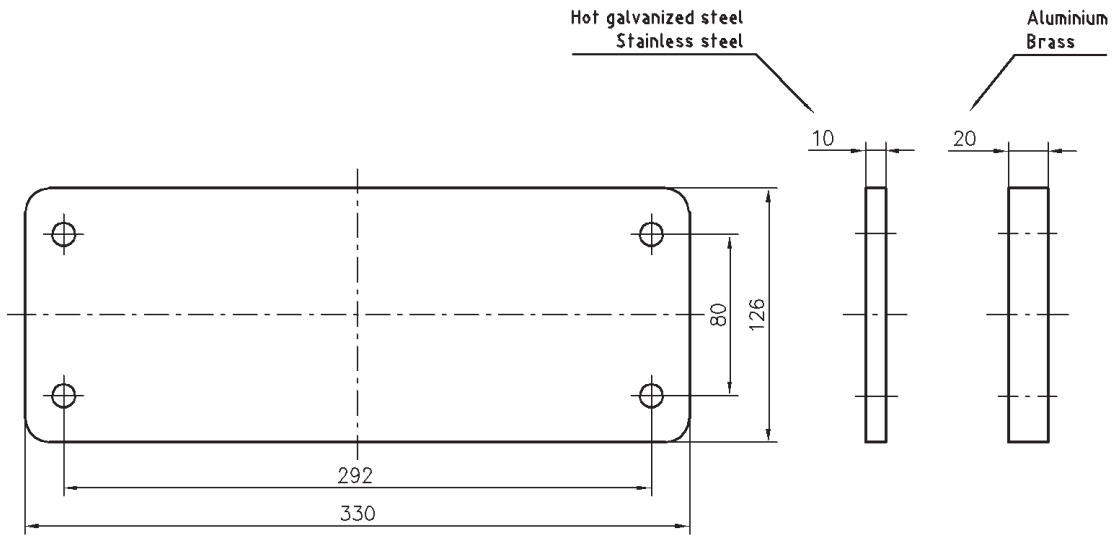


Figure above: Blind flange FL 33 for main terminal box.

## Auxiliary boxes

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

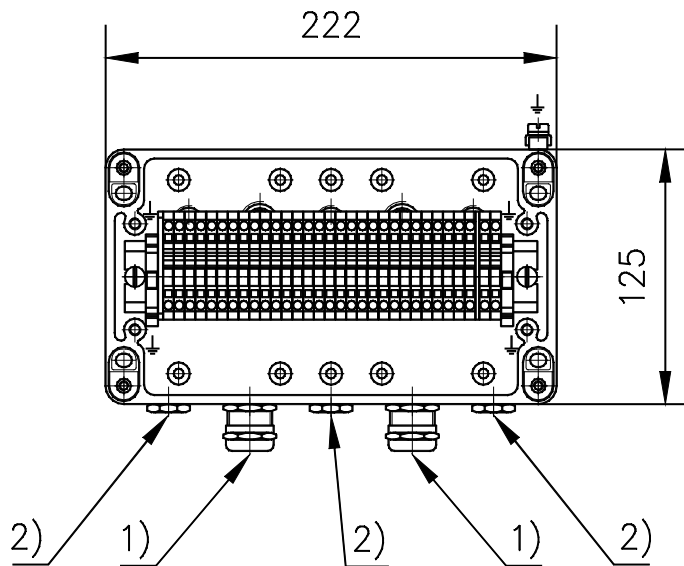
As standard motors in hazardous area are equipped with two auxiliary terminal boxes, one for monitoring devices and one for space heaters.

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

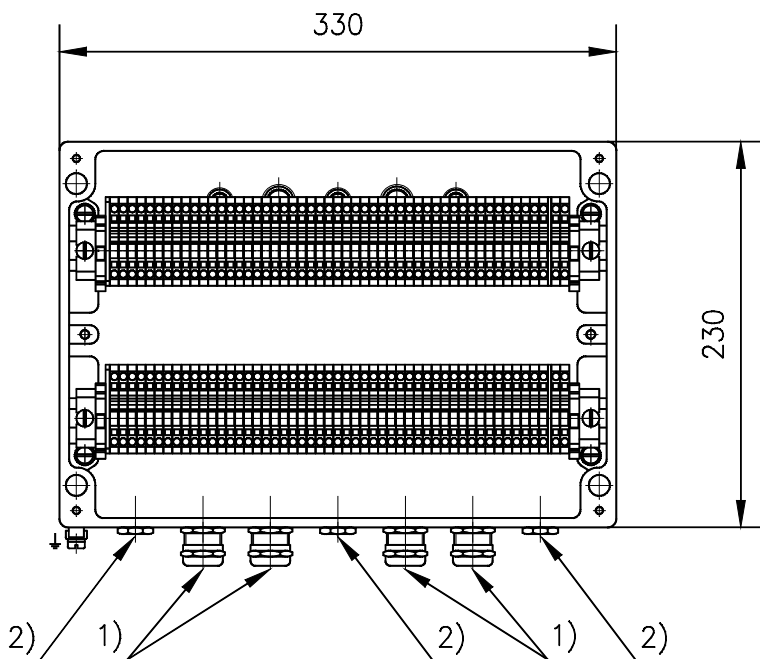
Table above: Standard auxiliary terminal boxes.

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 62.

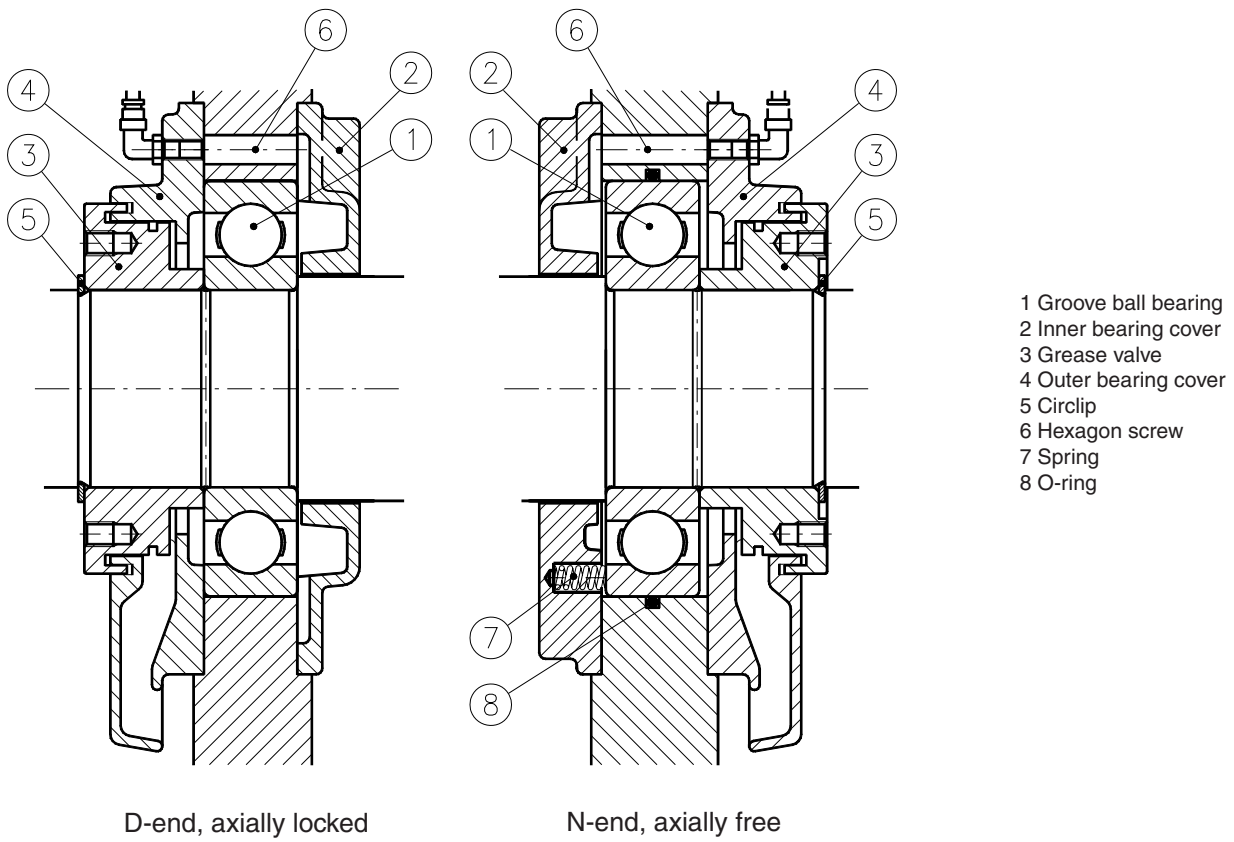
The standard bearing solution is designed to carry the weight of the typical coupling half and the weight of the motor rotor only. Any additional radial or axial force caused by driven equipment may need the bearings to be specially constructed.

Table below: Standard bearings for horizontal motors.

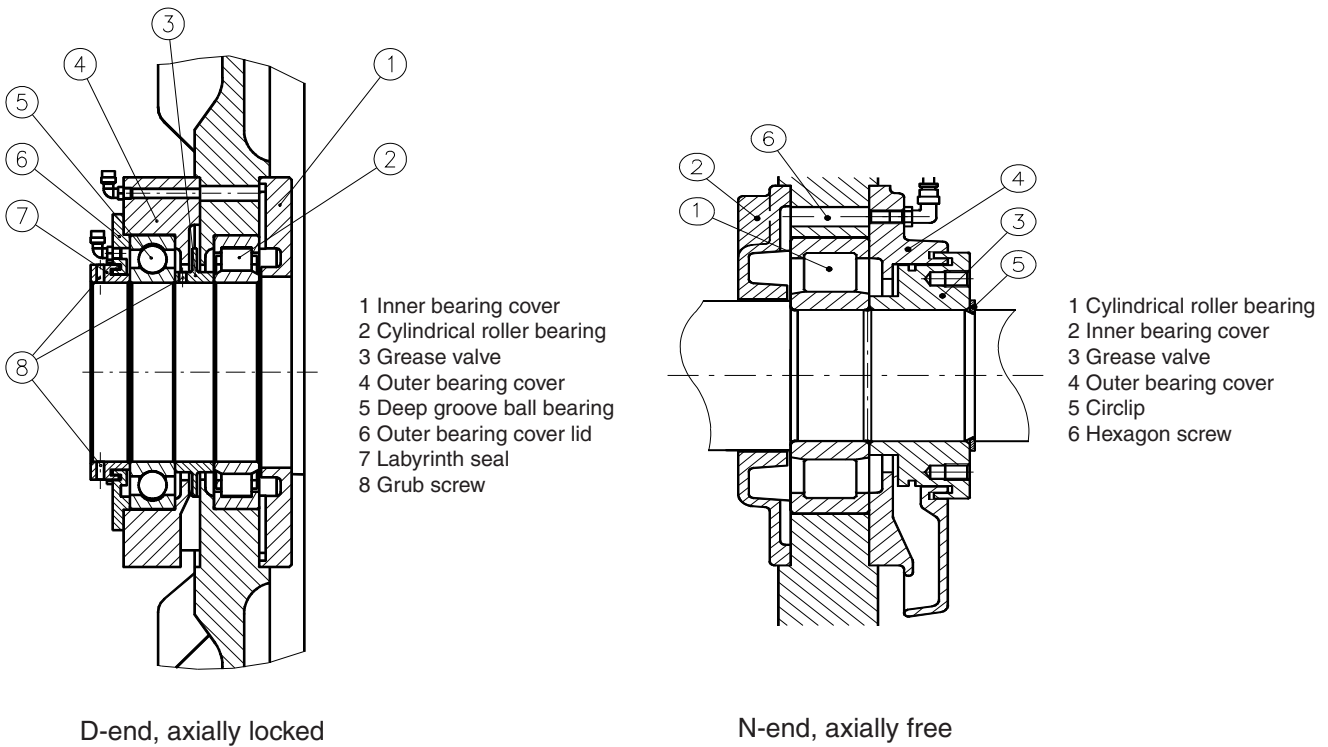
Frame size	Poles	D-end	N-end
HXR 355	2	6317M/C3	6317M/C3
HXR 355	≥ 4	6322/C3	6319/C3
HXR 400	2	6317M/C3	6317M/C3
HXR 400	≥ 4	6324/C3	6319/C3
HXR 450	2	6317M/C3	6317M/C3
HXR 450	≥ 4	6324/C3	6322/C3
HXR 500	2	6319M/C3	6319M/C3
HXR 500	≥ 4	6326/C3	6324/C3
HXR 560	≥ 4	6034/C3 + NU1034/C3	NU322/C3
HXR 560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

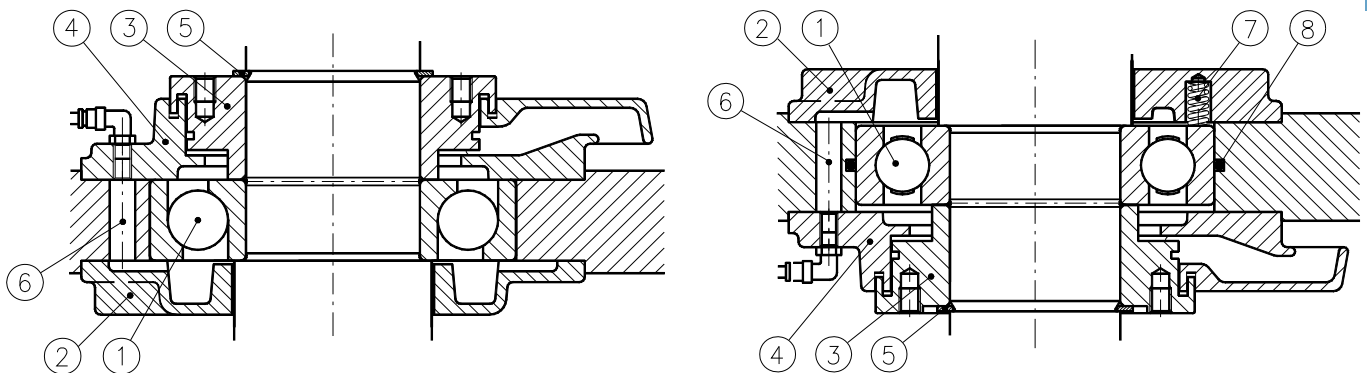
Table below: Standard bearings for vertical motors.

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 63.

## 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	2963	93.1	92.5	0.91	0.90	23	5.8	6	322	0.7	2.4	2.7	1570	85
125	HXR 355LA2	26	2967	93.8	93.4	0.91	0.90	28	6.1	7	402	0.7	2.6	2.7	1570	85
160	HXR 355LA2	27	2967	94.5	94.3	0.92	0.91	35	6.1	8	515	0.7	2.5	3.0	1650	85
200	HXR 355LA2	28	2967	94.9	94.8	0.93	0.92	44	6.1	9	644	0.7	2.5	3.0	1650	85
224	HXR 355LA2	29	2968	95.1	95.1	0.92	0.90	49	6.1	11	721	0.7	2.5	3.0	1650	85
250	HXR 355LB2	30	2969	95.4	95.3	0.92	0.90	55	6.2	13	804	0.7	2.5	3.1	1700	85
280	HXR 355LB2	31	2971	95.6	95.6	0.91	0.90	62	6.4	15	900	0.7	2.6	3.3	1750	85
315	HXR 355LD2	32	2970	95.8	95.9	0.93	0.92	68	6.5	14	1013	0.7	2.6	3.7	1890	85
355	HXR 400LC2	34	2981	96.2	95.9	0.90	0.89	79	6.8	20	1137	0.6	2.7	5.7	2590	82
400	HXR 400LD2	35	2980	96.3	96.1	0.91	0.89	88	6.7	21	1282	0.6	2.7	6.0	2630	82
450	HXR 400LE2	36	2982	96.5	96.4	0.90	0.89	100	6.7	24	1441	0.6	2.5	6.8	2810	82
500	HXR 400LF2	37	2982	96.6	96.5	0.90	0.89	110	6.7	26	1601	0.6	2.5	7.3	2930	82
560	HXR 400LG2	38	2982	96.8	96.7	0.91	0.89	123	6.9	28	1793	0.7	2.6	7.8	3050	82
630	HXR 450LG2	39	2984	96.7	96.5	0.92	0.90	136	7.3	32	2016	0.6	2.9	11.9	4000	85
710	HXR 450LJ2	40	2983	96.9	96.8	0.93	0.92	151	7.3	31	2273	0.7	2.8	13.9	4390	85
800	HXR 500LH2	42	2989	96.8	96.5	0.91	0.89	175	7.4	44	2556	0.6	3.0	23.7	5820	86
900	HXR 500LK2	43	2986	96.9	96.8	0.93	0.92	192	7.0	38	2878	0.6	2.7	25.8	6110	86
1000	HXR 500LL2	44	2988	97.1	96.9	0.92	0.91	215	7.2	46	3196	0.6	2.8	27.7	6380	86
1120	HXR 500LP2	45	2988	97.2	97.0	0.91	0.90	243	7.3	54	3579	0.7	2.8	31.4	6860	86
1250	HXR 500LR2	46	2989	97.4	97.3	0.93	0.92	265	7.5	53	3993	0.6	2.9	32.8	7220	86
1400	HXR 560LM2	704	2989	97.4	97.2	0.92	0.91	300	7.3	70	4473	0.6	2.9	45.6	9810	87
1600	HXR 560LR2	705	2990	97.6	97.4	0.93	0.92	339	7.3	72	5111	0.6	2.9	53.0	10790	87
1730	HXR 560LS2	706	2991	97.6	97.5	0.92	0.91	370	7.6	84	5524	0.6	3.0	58.0	11360	87

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# 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	6.1	10	642	1.0	2.4	4.7	1620	77
125	HXR 355LA4	132	1485	94.3	93.9	0.84	0.80	30	6.0	12	804	1.0	2.3	4.8	1620	77
160	HXR 355LA4	133	1485	94.8	94.5	0.85	0.82	38	6.1	14	1029	1.0	2.3	4.8	1630	77
200	HXR 355LA4	134	1484	95.0	94.9	0.85	0.82	48	5.9	17	1287	1.0	2.2	4.8	1630	77
224	HXR 355LA4	135	1485	95.3	95.2	0.85	0.82	53	6.0	18	1441	1.0	2.2	5.1	1670	77
250	HXR 355LB4	136	1485	95.5	95.4	0.85	0.82	59	6.1	21	1607	1.0	2.2	5.4	1720	77
280	HXR 355LB4	137	1486	95.7	95.6	0.84	0.81	67	6.2	24	1799	1.0	2.2	5.7	1770	77
315	HXR 355LC4	138	1487	95.9	95.8	0.84	0.81	75	6.2	27	2023	1.0	2.2	6.3	1870	77
355	HXR 355LE4	139	1487	96.1	96.1	0.85	0.82	84	6.2	29	2279	1.0	2.1	7.2	2020	77
400	HXR 400LC4	140	1491	96.4	96.3	0.86	0.83	93	6.1	31	2562	0.8	2.2	11.4	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	6.5	40	3586	0.9	2.2	15.2	3070	76
630	HXR 400LH4	144	1491	97.0	97.0	0.88	0.86	143	6.5	43	4034	0.9	2.2	16.8	3270	76
710	HXR 450LG4	145	1492	97.1	97.1	0.88	0.86	160	6.4	48	4545	0.8	2.3	26.7	4170	77
800	HXR 450LJ4	146	1492	97.2	97.2	0.88	0.86	180	6.4	52	5120	0.8	2.2	29.4	4420	77
900	HXR 450LL4	147	1492	97.3	97.3	0.88	0.86	201	6.5	58	5760	0.9	2.2	33.0	4740	77
1000	HXR 500LJ4	148	1491	97.2	97.3	0.90	0.88	220	6.5	58	6404	0.7	2.4	48.5	6010	77
1120	HXR 500LK4	149	1492	97.4	97.4	0.90	0.89	245	6.3	62	7167	0.7	2.3	53.1	6310	77
1250	HXR 500LL4	150	1492	97.4	97.5	0.90	0.89	274	6.2	68	7998	0.7	2.2	55.8	6510	77
1400	HXR 500LP4	151	1493	97.6	97.6	0.89	0.88	308	6.4	83	8953	0.7	2.3	63.7	7090	77
1600	HXR 560LK4	627	1494	97.7	97.7	0.90	0.88	351	6.7	95	10229	0.7	2.4	89.4	9410	82
1800	HXR 560LP4	628	1495	97.8	97.7	0.89	0.87	399	6.9	119	11500	0.7	2.5	107.7	10330	82
2000	HXR 560LS4	629	1495	97.9	97.9	0.89	0.87	440	7.1	127	12777	0.7	2.5	127.5	11350	82
2240	HXR 560LT4	630	1496	98.0	97.9	0.87	0.85	504	7.2	161	14298	0.7	2.4	139.7	11980	82

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# 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	0.74	42	5.2	19	1546	1.1	2.0	5.4	1660	75
180	HXR 355LB6	247	988	94.9	94.9	0.79	0.74	46	5.4	21	1740	1.2	2.0	5.7	1700	75
200	HXR 355LC6	248	988	95.1	95.1	0.80	0.76	50	5.2	21	1934	1.2	1.9	6.3	1800	75
224	HXR 355LC6	249	988	95.3	95.3	0.80	0.76	57	5.4	24	2165	1.2	1.9	6.6	1850	75
250	HXR 355LD6	250	988	95.4	95.5	0.80	0.76	63	5.4	26	2416	1.2	1.9	7.3	1940	75
280	HXR 355LE6	251	989	95.6	95.6	0.80	0.76	71	5.7	30	2704	1.3	2.0	7.9	2040	75
315	HXR 355LF6	252	991	96.0	95.9	0.78	0.73	81	5.8	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	32	3417	1.1	2.0	18.4	2710	75
400	HXR 400LF6	254	993	96.3	96.3	0.83	0.80	96	6.0	36	3848	1.1	2.0	20.9	2900	75
450	HXR 400LH6	255	993	96.4	96.4	0.83	0.79	109	6.1	41	4327	1.0	2.0	24.2	3140	75
500	HXR 400LK6	256	994	96.6	96.5	0.82	0.78	122	6.3	50	4804	1.0	2.1	28.2	3460	75
560	HXR 450LF6	257	993	96.8	96.8	0.85	0.83	131	5.8	42	5388	1.0	2.0	34.9	3970	76
630	HXR 450LH6	258	993	96.8	96.9	0.86	0.83	146	5.9	47	6060	1.0	2.0	38.9	4200	76
710	HXR 450LK6	259	993	97.0	97.0	0.86	0.83	165	6.0	53	6828	1.0	2.0	44.2	4540	76
800	HXR 450LM6	260	994	97.1	97.1	0.85	0.83	186	6.1	62	7689	1.0	2.0	50.7	4930	76
900	HXR 500LG6	261	994	97.1	97.2	0.86	0.84	207	6.0	66	8648	0.9	2.1	58.3	5680	77
1000	HXR 500LJ6	262	994	97.2	97.3	0.87	0.85	228	5.9	68	9611	0.9	2.0	66.3	6080	77
1120	HXR 500LN6	263	994	97.4	97.4	0.86	0.84	256	6.1	83	10754	0.9	2.1	81.6	6860	77
1250	HXR 500LQ6	264	995	97.5	97.5	0.86	0.83	288	6.3	98	11998	0.9	2.2	89.1	7250	77
1400	HXR 500LS6	265	995	97.5	97.5	0.84	0.81	328	6.5	122	13431	0.9	2.3	97.9	7690	77
1600	HXR 560LN6	631	995	97.6	97.6	0.87	0.84	363	6.5	118	15348	0.8	2.3	142.1	10060	81
1800	HXR 560LR6	632	996	97.7	97.7	0.87	0.84	409	6.7	135	17262	0.8	2.4	169.5	11060	81
2000	HXR 560LU6	633	996	97.8	97.8	0.88	0.86	445	6.7	133	19171	0.7	2.4	207.4	12330	81

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# 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	4.9	20	2577	0.9	1.9	15.2	2460	75
224	HXR 400LC8	361	741	95.1	95.3	0.82	0.78	55	5.0	21	2886	1.0	1.9	16.9	2580	75
250	HXR 400LE8	362	741	95.4	95.6	0.83	0.79	61	5.0	23	3221	1.0	1.9	19.4	2770	75
280	HXR 400LF8	363	742	95.5	95.7	0.83	0.79	68	5.0	26	3606	1.0	1.9	21.9	2950	75
315	HXR 400LH8	364	742	95.7	95.9	0.82	0.78	78	5.2	31	4052	1.0	2.0	24.3	3140	75
355	HXR 400LJ8	365	742	95.8	96.0	0.82	0.79	86	5.1	33	4568	1.0	1.9	26.9	3330	75
400	HXR 450LD8	366	743	95.9	96.0	0.83	0.80	96	5.3	35	5143	0.9	2.0	30.1	3610	78
450	HXR 450LE8	367	743	96.0	96.1	0.83	0.80	108	5.3	40	5786	0.9	2.0	31.5	3700	75
500	HXR 450LG8	368	743	96.2	96.3	0.83	0.80	120	5.5	44	6423	1.0	2.0	38.2	4100	75
560	HXR 450LH8	369	744	96.3	96.3	0.83	0.79	135	5.5	52	7192	0.9	2.0	40.9	4260	75
630	HXR 450LL8	370	744	96.4	96.4	0.82	0.79	153	5.7	60	8085	1.0	2.1	48.9	4720	75
710	HXR 500LF8	371	745	96.4	96.4	0.82	0.78	173	5.6	68	9101	0.9	2.0	55.2	5470	75
800	HXR 500LH8	372	745	96.5	96.5	0.82	0.78	194	5.6	75	10253	0.9	2.0	61.2	5780	75
900	HXR 500LK8	373	745	96.7	96.6	0.82	0.78	218	5.7	85	11532	0.9	2.0	69.2	6170	75
1000	HXR 500LN8	374	745	96.6	96.6	0.82	0.79	242	5.5	90	12822	1.0	1.9	80.4	6740	75
1120	HXR 500LP8	375	745	96.8	96.8	0.83	0.80	268	5.7	97	14353	0.9	1.9	85.2	6910	75
1250	HXR 500LR8	376	745	96.9	96.9	0.82	0.79	301	5.7	113	16013	0.9	1.9	94.9	7430	75
1400	HXR 560LN8	634	746	97.3	97.3	0.82	0.78	339	5.9	137	17918	0.8	2.1	144.0	10050	78
1600	HXR 560LR8	635	747	97.5	97.4	0.82	0.78	387	6.1	154	20460	0.9	2.0	173.3	11020	78
1800	HXR 560LU8	636	747	97.6	97.5	0.81	0.77	440	6.0	180	23009	0.8	2.0	211.5	12390	78

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# 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	94.0	0.71	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	27	2895	1.0	2.0	18.7	2710	75
200	HXR 400LE10	457	594	94.6	94.3	0.72	0.65	57	4.8	31	3215	1.0	2.0	19.8	2800	75
224	HXR 400LF10	458	594	94.7	94.6	0.72	0.66	63	4.8	34	3601	1.0	2.0	22.0	2970	75
250	HXR 400LH10	459	594	94.9	94.7	0.72	0.66	70	4.9	37	4018	1.0	2.0	24.5	3160	75
280	HXR 400LK10	460	594	95.1	94.9	0.73	0.67	78	4.9	41	4499	1.0	2.0	28.4	3450	75
315	HXR 450LG10	461	595	95.8	95.8	0.76	0.70	83	5.2	41	5059	1.0	2.1	38.3	4090	75
355	HXR 450LJ10	462	595	95.9	96.0	0.76	0.71	93	5.2	45	5701	1.0	2.0	42.4	4330	75
400	HXR 450LK10	463	595	96.1	96.1	0.76	0.70	105	5.3	52	6422	1.0	2.1	46.5	4570	75
450	HXR 450LM10	464	595	96.2	96.1	0.75	0.70	120	5.4	60	7222	1.0	2.1	51.9	4900	75
500	HXR 500LH10	465	595	96.5	96.6	0.78	0.73	128	5.2	59	8026	0.9	2.1	62.9	5860	75
560	HXR 500LK10	466	595	96.5	96.6	0.79	0.74	142	5.1	62	8990	0.9	2.0	70.9	6220	75
630	HXR 500LM10	467	595	96.6	96.7	0.79	0.74	159	5.2	70	10113	0.9	2.0	78.9	6610	75
710	HXR 500LN10	468	595	96.6	96.7	0.79	0.75	179	5.0	75	11402	0.9	1.9	82.9	6820	75
800	HXR 500LP10	469	594	96.6	96.8	0.79	0.76	201	4.9	82	12851	0.9	1.9	86.9	7010	75
900	HXR 500LR10	470	595	96.7	96.8	0.79	0.75	227	5.2	98	14448	0.9	2.0	99.0	7600	75
1000	HXR 560LN10	637	597	97.0	97.0	0.77	0.73	256	5.0	114	16006	0.7	1.9	145.4	10030	77
1120	HXR 560LQ10	638	597	97.1	97.0	0.77	0.72	289	5.3	135	17921	0.8	2.0	159.7	10520	77
1250	HXR 560LS10	639	597	97.1	97.1	0.78	0.74	318	5.1	139	20006	0.7	1.9	181.2	11270	77
1400	HXR 560LU10	640	597	97.2	97.0	0.75	0.69	368	6.0	187	22384	0.9	2.2	213.3	12390	77
<b>500 r/min = 12 poles</b>																
<b>3000 V 50 Hz</b>																
140	HXR 400LD12	541	494	93.6	93.4	0.68	0.61	42	4.3	25	2707	1.0	1.8	18.6	2710	75
160	HXR 400LE12	542	494	93.8	93.7	0.69	0.62	48	4.2	27	3094	1.0	1.8	20.3	2830	75
180	HXR 400LG12	543	494	94.0	93.9	0.70	0.64	53	4.1	29	3482	1.0	1.7	22.8	3030	75
200	HXR 400LH12	544	494	94.0	93.8	0.70	0.64	59	4.2	32	3867	1.0	1.8	25.4	3210	75
224	HXR 400LK12	545	494	94.1	93.8	0.68	0.61	67	4.3	39	4327	1.0	1.8	27.7	3390	75
250	HXR 450LH12	546	495	94.9	94.7	0.71	0.65	72	4.3	38	4827	0.9	1.8	39.7	4180	75
280	HXR 450LJ12	547	494	95.0	94.9	0.72	0.66	79	4.2	40	5408	0.8	1.7	42.5	4370	75
315	HXR 450LL12	548	495	95.1	95.0	0.72	0.66	89	4.3	46	6081	0.9	1.8	49.3	4750	75
355	HXR 450LM12	549	495	95.1	95.0	0.71	0.66	101	4.3	53	6853	0.9	1.8	52.0	4910	75
400	HXR 500LJ12	550	495	95.5	95.4	0.71	0.65	113	4.4	60	7717	0.9	1.8	66.5	6040	75
450	HXR 500LL12	551	495	95.6	95.5	0.72	0.66	126	4.4	65	8683	0.9	1.8	72.6	6340	75
500	HXR 500LN12	552	495	95.7	95.6	0.72	0.67	139	4.4	71	9648	0.9	1.8	80.6	6740	75
560	HXR 500LQ12	553	495	95.6	95.5	0.72	0.66	157	4.4	81	10803	0.9	1.8	88.5	7100	75
630	HXR 500LR12	554	495	95.7	95.6	0.72	0.67	175	4.4	88	12157	0.9	1.8	92.6	7300	75
710	HXR 500LS12	555	495	95.8	95.7	0.72	0.66	199	4.5	103	13695	0.9	1.8	104.5	7890	75
800	HXR 560LM12	641	496	96.5	96.6	0.77	0.72	207	4.5	94	15407	0.7	1.9	133.9	9610	75
900	HXR 560LQ12	642	496	96.6	96.6	0.78	0.74	230	4.4	99	17335	0.7	1.8	158.8	10450	75
1000	HXR 560LS12	643	496	96.7	96.7	0.77	0.72	257	4.8	119	19247	0.7	2.0	180.2	11210	75
1120	HXR 560LU12	644	497	96.9	96.8	0.75	0.69	296	5.1	148	21512	0.8	2.0	213.4	12320	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 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 355LB2	8663	2966	94.3	94.0	0.89	0.86	18	6.6	6	515	0.8	2.9	2.2	1670	85
180	HXR 355LB2	8664	2962	94.3	94.2	0.90	0.88	20	6.2	6	580	0.7	2.7	2.2	1670	85
200	HXR 355LB2	8665	2966	94.7	94.6	0.90	0.88	23	6.5	6	644	0.7	2.8	2.3	1720	85
224	HXR 355LB2	8666	2968	94.9	94.8	0.89	0.87	25	6.6	7	721	0.7	2.8	2.4	1760	85
250	HXR 355LC2	8667	2971	95.2	95.1	0.89	0.88	28	6.7	7	804	0.9	2.5	3.7	1810	85
280	HXR 355LD2	53	2978	95.5	95.4	0.90	0.88	31	6.9	8	898	0.7	2.7	3.7	1840	85
315	HXR 400LC2	8668	2976	95.6	95.4	0.89	0.87	36	6.7	9	1011	0.8	2.5	6.0	2540	82
355	HXR 400LC2	55	2981	95.9	95.8	0.91	0.89	39	6.9	10	1137	0.7	2.8	5.7	2530	82
400	HXR 400LD2	56	2981	96.2	96.1	0.92	0.91	44	6.9	10	1281	0.6	2.7	6.1	2640	82
450	HXR 400LF2	57	2982	96.5	96.4	0.92	0.91	49	6.9	11	1441	0.6	2.7	7.1	2880	82
500	HXR 400LG2	58	2983	96.6	96.5	0.91	0.90	55	6.9	12	1601	0.6	2.6	7.4	2940	82
560	HXR 450LF2	59	2984	96.5	96.3	0.93	0.91	60	7.4	13	1792	0.7	3.0	11.5	3870	85
630	HXR 450LH2	60	2984	96.7	96.6	0.93	0.92	67	7.2	14	2016	0.7	2.8	13.0	4170	85
690	HXR 450LK2	61	2984	96.8	96.7	0.93	0.92	74	7.3	15	2208	0.7	2.8	14.2	4410	85
710	HXR 500LG2	62	2988	96.6	96.3	0.91	0.90	77	7.3	19	2269	0.6	2.9	22.4	5570	86
800	HXR 500LH2	63	2987	96.7	96.5	0.92	0.91	86	7.3	19	2557	0.6	2.8	23.8	5760	86
900	HXR 500LL2	64	2988	96.9	96.7	0.92	0.91	97	7.2	21	2877	0.6	2.8	27.0	6230	86
1000	HXR 500LN2	65	2987	97.1	97.0	0.93	0.93	106	7.1	20	3197	0.6	2.7	30.3	6690	86
1120	HXR 500LQ2	66	2988	97.2	97.1	0.92	0.91	121	7.3	26	3579	0.6	2.7	32.2	6970	86
1250	HXR 560LM2	707	2986	97.1	97.0	0.92	0.91	134	7.4	32	3997	0.6	3.0	46.2	9680	87
1400	HXR 560LN2	708	2989	97.3	97.2	0.92	0.90	151	7.4	36	4473	0.6	2.9	48.4	10030	87
1600	HXR 560LS2	709	2991	97.5	97.3	0.91	0.89	174	7.4	43	5109	0.6	2.8	59.2	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	8671	1487	94.6	94.3	0.82	0.77	20	5.6	8	1028	0.9	2.2	4.0	1720	77
180	HXR 355LA4	8672	1486	94.7	94.5	0.81	0.77	23	5.4	9	1157	0.8	2.0	4.0	1730	77
200	HXR 355LA4	8673	1486	94.9	94.8	0.83	0.79	25	5.3	10	1285	0.8	2.1	4.0	1730	77
224	HXR 355LC4	8674	1486	95.0	94.9	0.82	0.79	28	5.3	11	1440	0.8	2.1	4.0	1730	77
250	HXR 355LC4	8675	1486	95.3	95.3	0.83	0.80	30	5.5	11	1606	0.8	2.1	4.4	1830	77
280	HXR 355LC4	159	1487	95.4	95.3	0.84	0.81	34	6.5	13	1798	1.1	2.3	6.0	1780	77
315	HXR 355LE4	160	1488	95.6	95.6	0.85	0.81	37	6.5	14	2021	1.1	2.3	7.2	1970	77
355	HXR 400LC4	8676	1486	96.0	96.0	0.86	0.84	41	5.2	13	2281	0.7	2.0	7.2	2530	76
400	HXR 400LD4	8677	1487	96.2	96.2	0.86	0.83	47	5.5	15	2568	0.8	2.1	7.9	2660	76
450	HXR 400LD4	163	1490	96.5	96.5	0.87	0.85	52	6.2	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	6.3	19	3587	0.9	2.2	15.7	3100	76
630	HXR 450LE4	166	1492	96.9	96.8	0.87	0.84	72	6.6	24	4031	0.8	2.4	22.9	3810	77
710	HXR 450LG4	167	1492	97.0	97.0	0.88	0.86	80	6.4	24	4545	0.8	2.3	26.7	4130	77
800	HXR 450LJ4	168	1492	97.2	97.2	0.88	0.87	90	6.3	25	5121	0.8	2.2	30.3	4450	77
900	HXR 500LF4	170	1491	97.1	97.1	0.89	0.87	100	6.1	28	5763	0.8	2.2	40.0	5430	77
1000	HXR 500LG4	171	1492	97.2	97.2	0.89	0.87	112	6.2	32	6401	0.8	2.2	44.0	5690	77
1120	HXR 500LJ4	172	1493	97.3	97.3	0.88	0.86	125	6.6	37	7165	0.8	2.3	49.5	6080	77
1250	HXR 500LP4	173	1493	97.5	97.5	0.88	0.86	140	6.5	42	7994	0.8	2.3	63.3	7030	77
1400	HXR 500LR4	174	1493	97.6	97.6	0.88	0.86	157	6.5	47	8952	0.7	2.3	68.7	7420	77
1600	HXR 560LM4	645	1495	97.7	97.6	0.89	0.86	178	6.9	54	10223	0.7	2.5	95.6	9670	82
1800	HXR 560LR4	646	1495	97.8	97.7	0.89	0.87	199	6.9	58	11499	0.7	2.5	122.4	10970	82
2000	HXR 560LT4	647	1496	97.9	97.8	0.88	0.86	224	7.0	68	12767	0.7	2.3	137.5	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> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>																
<b>6000 V 50 Hz</b>																
125	HXR 355LC6	8685	991	94.4	93.9	0.74	0.67	17	6.0	10	1204	1.0	2.8	4.8	1810	75
160	HXR 355LC6	8686	988	94.5	94.4	0.78	0.73	21	5.0	10	1546	0.8	2.2	4.8	1810	75
180	HXR 355LD6	8687	988	94.6	94.6	0.78	0.73	23	4.9	11	1740	0.7	2.1	4.8	1820	75
200	HXR 355LD6	8688	987	94.7	94.8	0.79	0.74	26	4.7	12	1934	0.7	2.0	5.0	1870	75
224	HXR 355LD6	8689	990	95.0	94.9	0.79	0.74	29	5.9	13	2161	1.3	2.2	7.3	1910	75
250	HXR 355LE6	271	989	95.2	95.2	0.80	0.76	31	5.7	13	2414	1.3	2.0	7.9	2000	75
280	HXR 400LC6	273	991	95.7	95.7	0.82	0.77	35	5.9	15	2698	1.0	2.2	11.2	2490	75
315	HXR 400LC6	274	991	95.8	95.8	0.83	0.79	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	12.9	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	28.3	3520	76
560	HXR 450LF6	279	993	96.6	96.7	0.86	0.83	65	6.0	21	5388	1.1	2.0	35.0	3920	76
630	HXR 450LH6	280	993	96.7	96.8	0.86	0.83	73	6.0	24	6060	1.1	2.0	38.9	4160	76
710	HXR 450LK6	281	994	96.9	96.9	0.84	0.81	84	6.4	30	6822	1.1	2.1	45.3	4520	76
800	HXR 500LH6	283	994	97.0	96.9	0.83	0.80	95	5.8	36	7685	0.8	2.1	59.2	5690	77
900	HXR 500LJ6	284	994	97.0	97.1	0.84	0.81	107	5.7	38	8647	0.8	2.0	63.0	5890	77
1000	HXR 500LK6	285	994	97.1	97.2	0.84	0.82	117	5.8	40	9609	0.9	2.0	69.0	6180	77
1120	HXR 500LN6	286	994	97.3	97.3	0.84	0.80	132	6.1	48	10755	0.9	2.1	80.4	6760	77
1250	HXR 500LR6	287	995	97.4	97.4	0.85	0.82	145	6.2	52	11995	0.8	2.2	92.5	7350	77
1400	HXR 560LM6	648	996	97.5	97.4	0.86	0.82	161	6.8	58	13423	0.8	2.5	134.5	9720	81
1600	HXR 560LR6	649	996	97.6	97.5	0.85	0.81	186	6.9	71	15334	0.8	2.5	161.0	10670	81
1800	HXR 560LU6	650	996	97.6	97.7	0.87	0.85	203	6.7	66	17260	0.8	2.4	204.3	12160	81

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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>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	94.7	0.76	0.71	27	4.8	13	2575	1.0	1.9	12.8	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	0.80	0.76	32	4.7	13	3224	1.0	1.8	15.1	2900	75
280	HXR 400LH8	381	741	95.2	95.3	0.79	0.75	36	4.8	15	3607	1.0	1.9	17.3	3150	75
315	HXR 400LJ8	382	741	95.2	95.2	0.78	0.74	41	4.8	18	4057	1.0	1.9	17.8	3220	75
355	HXR 450LD8	383	743	95.5	95.6	0.84	0.81	43	5.3	15	4565	0.9	2.0	30.1	3570	75
400	HXR 450LF8	384	743	95.8	95.8	0.83	0.80	48	5.4	18	5140	0.9	2.1	34.1	3810	75
450	HXR 450LG8	385	743	95.9	95.9	0.84	0.80	54	5.4	20	5783	0.9	2.0	36.8	3970	75
500	HXR 450LK8	386	744	96.1	96.1	0.84	0.80	60	5.6	22	6420	1.0	2.1	46.3	4530	75
560	HXR 450LM8	387	744	96.2	96.2	0.84	0.80	67	5.6	25	7190	0.9	2.1	51.7	4850	75
630	HXR 450LN8	388	745	96.4	96.2	0.81	0.77	77	6.2	33	8075	1.0	2.4	53.1	4930	75
710	HXR 500LJ8	389	745	96.3	96.2	0.83	0.80	85	5.9	33	9102	0.9	2.2	67.0	5970	75
800	HXR 500LK8	390	745	96.4	96.3	0.83	0.80	96	5.9	37	10257	0.9	2.2	69.1	6080	75
900	HXR 500LL8	391	745	96.4	96.4	0.84	0.80	107	5.7	40	11542	0.9	2.1	73.1	6270	75
1000	HXR 500LP8	392	745	96.6	96.5	0.84	0.80	119	5.9	45	12819	0.9	2.2	85.0	6860	75
1120	HXR 500LS8	393	745	96.7	96.7	0.84	0.80	132	6.1	50	14352	0.9	2.2	105.0	7830	78
1250	HXR 560LM8	651	746	97.1	97.2	0.82	0.78	151	5.7	59	16002	0.8	2.0	136.9	9700	78
1400	HXR 560LQ8	652	747	97.2	97.2	0.81	0.76	172	6.6	76	17907	1.0	2.4	158.1	10390	78
1600	HXR 560LU8	653	747	97.4	97.2	0.79	0.74	199	6.4	93	20454	0.9	2.4	206.0	12110	78

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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>600 r/min = 10 poles</b>																
<b>6000 V 50 Hz</b>																
224	HXR 450LD10	8696	595	95.1	95.0	0.74	0.68	31	5.3	16	3596	1.0	2.1	30.1	3550	75
250	HXR 450LE10	472	595	95.2	95.2	0.75	0.69	34	5.2	17	4015	1.0	2.1	32.8	3710	75
280	HXR 450LF10	473	595	95.3	95.4	0.76	0.70	37	5.2	18	4497	1.0	2.1	35.6	3860	75
315	HXR 450LG10	474	595	95.5	95.5	0.76	0.70	42	5.2	21	5059	1.0	2.1	38.3	4030	75
355	HXR 450LJ10	475	594	95.6	95.7	0.78	0.72	46	5.2	21	5703	1.0	2.0	43.8	4340	75
400	HXR 450LK10	476	595	95.7	95.7	0.76	0.71	53	5.3	26	6422	1.1	2.1	46.5	4500	75
450	HXR 450LM10	477	595	95.8	95.8	0.76	0.70	60	5.4	30	7222	1.0	2.1	51.9	4820	75
500	HXR 500LJ10	479	594	96.2	96.3	0.78	0.74	64	5.0	28	8038	1.0	1.9	64.6	5890	75
560	HXR 500LL10	480	594	96.3	96.4	0.79	0.74	71	5.1	31	9001	1.0	1.9	74.6	6370	75
630	HXR 500LM10	481	595	96.3	96.3	0.79	0.75	80	5.1	34	10116	0.9	2.0	78.9	6540	75
710	HXR 500LP10	482	595	96.3	96.4	0.79	0.75	89	5.0	37	11405	0.9	1.9	84.9	6830	75
800	HXR 500LQ10	483	594	96.4	96.5	0.80	0.76	100	4.9	41	12852	0.9	1.9	90.9	7120	75
900	HXR 500LS10	484	596	96.4	96.3	0.75	0.69	120	5.3	60	14414	1.0	2.0	101.1	7610	75
1000	HXR 560LN10	654	597	96.9	96.8	0.78	0.73	128	5.0	57	16006	0.7	1.9	145.4	9910	77
1120	HXR 560LR10	655	597	97.0	96.8	0.75	0.70	147	5.8	75	17910	0.9	2.2	174.0	10900	77
1250	HXR 560LU10	656	597	97.0	96.9	0.77	0.72	161	5.7	77	19991	0.8	2.1	209.7	12070	77
<b>500 r/min = 12 poles</b>																
<b>6000 V 50 Hz</b>																
140	HXR 400LG12	8698	493	92.9	92.4	0.63	0.56	23	3.7	15	2710	0.8	1.9	16.5	3020	75
160	HXR 450LF12	8699	496	93.3	92.7	0.62	0.55	26	4.2	17	3082	0.8	2.0	27.1	3970	75
180	HXR 400LJ12	558	496	94.0	93.4	0.65	0.57	29	4.7	18	3469	1.1	2.1	26.2	3200	75
200	HXR 450LF12	8700	494	94.2	94.0	0.67	0.61	30	3.6	17	3863	0.6	1.6	27.1	3970	75
224	HXR 450LG12	560	495	94.4	94.3	0.71	0.65	32	4.3	17	4324	0.9	1.8	38.4	4040	75
250	HXR 450LJ12	561	495	94.6	94.4	0.71	0.65	36	4.3	19	4824	0.8	1.8	43.8	4360	75
280	HXR 450LK12	562	495	94.7	94.5	0.71	0.66	40	4.3	21	5405	0.9	1.8	46.6	4520	75
315	HXR 450LL12	563	495	94.8	94.6	0.72	0.66	45	4.3	23	6081	0.9	1.8	49.3	4680	75
355	HXR 500LJ12	565	495	95.1	94.9	0.71	0.65	50	4.5	27	6851	0.9	1.9	64.6	5890	75
400	HXR 500LK12	566	495	95.0	94.8	0.71	0.66	57	4.5	30	7720	0.9	1.9	68.6	6080	75
450	HXR 500LL12	567	495	95.1	95.0	0.72	0.66	63	4.5	33	8687	0.9	1.8	74.6	6380	75
500	HXR 500LN12	568	495	95.3	95.1	0.72	0.67	70	4.5	36	9651	0.9	1.8	82.6	6770	75
560	HXR 500LQ12	569	495	95.3	95.1	0.72	0.66	79	4.5	41	10806	0.9	1.8	90.5	7160	75
630	HXR 500LS12	570	495	95.4	95.2	0.71	0.66	89	4.6	47	12153	1.0	1.9	102.5	7740	75
710	HXR 560LM12	657	496	96.3	96.3	0.77	0.73	92	4.6	42	13669	0.7	1.9	137.5	9600	75
800	HXR 560LP12	658	496	96.4	96.3	0.76	0.70	106	5.1	54	15388	0.8	2.1	151.7	10060	75
900	HXR 560LS12	659	497	96.5	96.5	0.76	0.70	118	5.2	59	17308	0.8	2.2	180.2	11060	75
1000	HXR 560LU12	660	497	96.7	96.6	0.77	0.72	130	4.8	60	19215	0.8	1.9	209.8	12020	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 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 450LF2	8669	2983	95.5	95.2	0.91	0.89	27	6.7	7	1281	0.6	2.6	11.5	3790	85
450	HXR 450LF2	17	2984	95.8	95.5	0.90	0.88	30	7.0	8	1440	0.7	2.7	11.9	3870	85
500	HXR 450LG2	18	2985	96.0	95.8	0.91	0.89	33	7.1	8	1600	0.6	2.8	12.5	4010	85
560	HXR 500LF2	19	2987	96.0	95.6	0.90	0.88	37	7.2	10	1790	0.6	2.9	20.7	5300	86
630	HXR 500LG2	20	2987	96.2	95.9	0.92	0.90	41	7.2	10	2014	0.6	2.8	22.8	5570	86
710	HXR 500LJ2	21	2988	96.5	96.2	0.91	0.89	47	7.3	11	2269	0.6	2.8	24.7	5850	86
800	HXR 500LL2	22	2988	96.7	96.5	0.92	0.91	52	7.2	11	2557	0.6	2.7	27.6	6300	86
900	HXR 500LM2	23	2989	96.8	96.6	0.90	0.89	59	7.5	15	2875	0.6	2.8	29.3	6490	86
1120	HXR 560LM2	711	2990	97.0	96.7	0.91	0.89	74	7.5	19	3577	0.6	2.9	46.0	9690	87
1250	HXR 560LQ2	712	2990	97.1	96.9	0.91	0.89	82	7.5	21	3992	0.6	2.8	52.5	10400	87
<b>1500 r/min = 4 poles</b>				<b>10000 V 50 Hz</b>												
355	HXR 450LC4	8678	1491	95.8	95.5	0.83	0.79	26	6.0	10	2273	0.8	2.3	11.8	3460	77
400	HXR 450LD4	8679	1491	96.0	95.8	0.84	0.81	29	5.9	11	2561	0.8	2.2	12.9	3620	77
450	HXR 450LE4	8680	1491	96.2	96.1	0.85	0.82	32	6.0	11	2882	0.8	2.2	14.0	3780	77
500	HXR 450LF4	8681	1492	96.4	96.2	0.85	0.82	35	6.1	13	3201	0.8	2.2	15.0	3940	77
560	HXR 450LG4	8682	1492	96.6	96.4	0.85	0.81	40	6.4	15	3584	0.9	2.3	16.1	4100	77
630	HXR 450LJ4	8683	1493	96.7	96.5	0.83	0.79	45	6.6	18	4031	0.9	2.4	17.0	4270	77
710	HXR 500LF4	126	1491	96.6	96.5	0.86	0.83	50	5.7	16	4547	0.8	2.1	36.4	5460	77
800	HXR 500LG4	127	1492	96.8	96.8	0.87	0.85	55	6.2	17	5120	0.8	2.2	39.3	5660	77
900	HXR 500LK4	128	1493	97.0	97.0	0.87	0.85	61	6.5	19	5758	0.8	2.3	46.8	6240	77
1000	HXR 500LL4	129	1493	97.1	97.1	0.87	0.84	68	6.3	22	6397	0.8	2.2	49.0	6430	77
1120	HXR 560LL4	661	1494	97.4	97.3	0.87	0.85	76	6.6	25	7159	0.7	2.5	71.7	9530	82
1250	HXR 560LN4	662	1495	97.4	97.4	0.87	0.84	85	6.9	29	7985	0.7	2.6	78.9	9950	82
1400	HXR 560LR4	663	1495	97.6	97.5	0.87	0.84	95	7.0	33	8942	0.7	2.7	87.7	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	8690	993	95.5	95.2	0.79	0.73	24	5.1	11	3030	0.7	2.1	14.4	3680	76
355	HXR 450LE6	8691	992	95.6	95.4	0.79	0.74	27	5.3	12	3419	0.8	2.3	15.9	3910	76
400	HXR 450LH6	8692	994	95.9	95.7	0.77	0.71	31	5.7	15	3844	0.8	2.4	17.6	4160	76
450	HXR 450LJ6	8693	993	96.1	95.9	0.79	0.74	34	5.4	16	4326	0.8	2.2	18.7	4310	76
500	HXR 450LK6	237	994	96.3	96.0	0.80	0.75	37	6.3	17	4801	0.9	2.4	28.9	4540	76
560	HXR 500LF6	238	995	96.4	96.3	0.82	0.77	41	6.3	18	5375	0.9	2.4	41.1	5420	77
630	HXR 500LG6	239	995	96.6	96.5	0.82	0.78	46	6.2	19	6048	0.8	2.3	44.0	5610	77
710	HXR 500LH6	240	995	96.7	96.6	0.83	0.79	51	6.1	21	6817	0.9	2.2	46.9	5800	77
800	HXR 500LL6	241	995	96.9	96.8	0.82	0.77	58	6.5	25	7676	0.9	2.4	54.0	6280	77
900	HXR 500LM6	242	995	97.0	96.9	0.81	0.76	66	6.3	29	8635	0.8	2.3	58.1	6560	77
1000	HXR 560LL6	664	996	97.2	97.1	0.84	0.79	71	6.3	28	9588	0.7	2.5	94.5	9480	81
1120	HXR 560LN6	665	996	97.3	97.2	0.84	0.79	79	6.5	32	10737	0.7	2.5	104.6	9960	81
1250	HXR 560LQ6	666	996	97.3	97.2	0.82	0.78	90	6.5	38	11980	0.7	2.6	113.8	10380	81
1400	HXR 560LR6	667	997	97.4	97.2	0.79	0.72	106	7.1	53	13410	0.8	2.8	118.0	10620	81
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
315	HXR 500LD8	8694	745	94.8	94.3	0.77	0.71	25	5.8	13	4038	0.9	2.4	35.5	4990	75
355	HXR 500LE8	351	745	94.9	94.6	0.79	0.73	28	5.7	13	4552	0.9	2.3	37.0	5090	75
400	HXR 500LF8	352	745	95.2	94.9	0.78	0.72	31	5.7	15	5128	0.9	2.3	39.9	5290	75
450	HXR 500LG8	353	745	95.5	95.2	0.78	0.72	35	5.8	17	5767	0.9	2.3	44.3	5580	75
500	HXR 500LH8	354	745	95.7	95.4	0.79	0.74	38	5.8	18	6409	0.9	2.3	47.3	5770	75
560	HXR 500LJ8	355	745	95.8	95.6	0.80	0.75	42	5.8	19	7180	0.9	2.3	50.3	5960	75
630	HXR 500LK8	356	745	96.0	95.8	0.80	0.75	47	5.7	21	8078	0.9	2.2	53.3	6160	75
710	HXR 500LM8	357	745	96.1	96.0	0.80	0.76	53	5.6	23	9105	0.9	2.2	57.7	6440	75
800	HXR 500LP8	358	744	96.2	96.2	0.81	0.77	59	5.5	25	10261	0.9	2.1	63.6	6830	75
900	HXR 560LM8	668	746	96.7	96.6	0.77	0.72	70	5.5	33	11518	0.8	2.2	97.9	9570	78
1000	HXR 560LN8	669	747	96.9	96.8	0.76	0.70	78	5.8	40	12789	0.8	2.3	106.0	9940	78
1120	HXR 560LR8	670	746	97.0	96.9	0.78	0.72	86	5.7	41	14332	0.8	2.2	120.8	10660	78
<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	5.1	27	8959	0.8	2.1	95.7	9390	77
630	HXR 560LN10	672	596	95.7	95.5	0.72	0.65	53	5.3	29	10086	1.0	2.1	105.9	9870	77
710	HXR 560LR10	673	597	96.0	95.7	0.71	0.65	60	5.0	33	11359	0.8	2.1	118.6	10480	77

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## 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	95.1	94.9	0.86	0.84	148	5.4	43	2021	0.6	2.3	7.1	3000	85
710	AMA 400L2A	1080	2977	95.4	95.3	0.86	0.85	165	5.5	46	2277	0.6	2.3	7.5	3130	85
800	AMA 400L2A	1081	2977	95.5	95.5	0.87	0.86	184	5.5	47	2566	0.6	2.3	8.0	3220	85
900	AMA 400L2A	1082	2978	95.8	95.8	0.87	0.86	206	5.6	52	2886	0.6	2.3	8.5	3340	85
1000	AMA 400L2A	1083	2979	96.0	96.0	0.87	0.85	230	5.8	61	3206	0.7	2.4	8.9	3450	85
1120	AMA 450L2A	1084	2979	96.0	95.9	0.86	0.85	259	5.1	69	3590	0.5	2.2	11.6	4270	86
1250	AMA 450L2A	1085	2980	96.2	96.1	0.85	0.83	295	5.1	84	4005	0.5	2.2	12.3	4420	86
1400	AMA 450L2A	1086	2982	96.4	96.3	0.85	0.83	328	5.4	93	4484	0.5	2.3	13.8	4710	86
1600	AMA 500L2A	1087	2983	96.3	96.3	0.89	0.89	357	5.0	80	5121	0.4	2.1	21.1	5370	87
1800	AMA 500L2A	1088	2986	96.5	96.4	0.88	0.86	409	5.5	113	5757	0.5	2.3	22.4	5520	87
2000	AMA 500L2A	1089	2983	96.6	96.6	0.90	0.89	443	5.0	94	6402	0.4	2.1	23.8	5710	87
2240	AMA 500L2A	1162	2986	96.8	96.8	0.88	0.87	504	5.5	128	7164	0.5	2.2	26.3	6090	87
<b>1500 r/min = 4 poles</b>																
<b>3000 V 50 Hz</b>																
630	AMA 400L4A	1090	1486	95.1	95.1	0.88	0.86	145	5.0	41	4049	0.6	2.0	15.6	3050	79
710	AMA 400L4A	1091	1488	95.4	95.4	0.86	0.83	166	5.6	56	4558	0.7	2.3	16.6	3150	79
800	AMA 400L4A	1092	1487	95.5	95.5	0.87	0.84	186	5.5	60	5136	0.7	2.2	17.6	3220	79
900	AMA 400L4A	1093	1488	95.7	95.7	0.86	0.83	210	5.5	69	5778	0.7	2.2	18.5	3330	79
1000	AMA 400L4A	1094	1488	95.9	95.9	0.87	0.84	231	5.8	75	6417	0.8	2.3	20.5	3520	79
1120	AMA 400L4A	1095	1487	95.9	96.0	0.87	0.85	257	5.4	75	7191	0.7	2.2	21.3	3550	79
1250	AMA 450L4A	1096	1488	95.8	95.8	0.87	0.85	288	5.5	85	8023	0.7	2.1	31.5	4210	81
1400	AMA 450L4A	1097	1488	96.0	96.1	0.88	0.86	318	5.5	87	8984	0.7	2.1	35.0	4470	81
1600	AMA 450L4A	1098	1488	96.2	96.3	0.88	0.86	364	5.6	102	10265	0.8	2.1	38.4	4720	81
1800	AMA 500L4A	1099	1491	96.1	96.1	0.89	0.87	406	5.5	106	11531	0.7	2.0	55.9	5570	82
2000	AMA 500L4A	1100	1491	96.3	96.3	0.88	0.87	453	5.5	121	12811	0.7	2.0	58.8	5730	82
2240	AMA 500L4A	1101	1491	96.4	96.4	0.88	0.87	506	5.7	135	14344	0.7	2.1	64.6	6030	82
2500	AMA 500L4A	1163	1490	96.5	96.6	0.89	0.89	556	5.5	125	16024	0.8	2.0	70.2	6380	82

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## 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>3000 V 50 Hz</b>																
450	AMA 400L6A	1102	988	94.8	95.0	0.84	0.81	109	5.0	40	4350	0.8	2.0	17.0	2950	78
500	AMA 400L6A	1103	989	95.0	95.1	0.81	0.77	124	5.0	51	4829	0.7	2.0	18.1	3050	78
560	AMA 400L6A	1104	988	95.1	95.2	0.83	0.80	136	5.0	51	5411	0.8	1.9	19.4	3130	78
630	AMA 400L6A	1105	990	95.3	95.4	0.82	0.78	155	5.2	62	6080	0.8	2.0	21.7	3320	78
710	AMA 400L6A	1106	990	95.4	95.5	0.81	0.77	175	5.3	73	6851	0.8	2.0	22.9	3410	78
800	AMA 400L6A	1107	990	95.6	95.7	0.83	0.79	193	5.4	74	7720	0.8	2.0	25.4	3600	78
900	AMA 450L6A	1108	991	95.8	96.0	0.86	0.83	210	5.2	67	8670	0.6	2.0	39.8	4220	79
1000	AMA 450L6A	1109	992	96.0	96.1	0.85	0.82	236	5.4	82	9629	0.7	2.0	42.0	4340	79
1120	AMA 450L6A	1110	991	95.9	96.1	0.86	0.84	260	5.4	80	10792	0.7	2.1	44.4	4450	79
1250	AMA 450L6A	1111	992	96.2	96.3	0.84	0.81	296	5.5	104	12033	0.7	2.1	48.6	4700	79
1400	AMA 500L6A	1112	992	96.3	96.4	0.87	0.85	320	5.6	95	13474	0.7	2.1	68.5	5560	79
1600	AMA 500L6A	1113	993	96.4	96.5	0.87	0.85	367	5.8	115	15393	0.8	2.2	75.6	5850	79
1800	AMA 500L6A	1164	992	96.4	96.6	0.88	0.87	406	5.5	106	17328	0.7	2.0	83.0	6140	79
2000	AMA 500L6A	1165	993	96.6	96.7	0.86	0.84	461	5.8	149	19225	0.7	2.2	91.0	6450	79
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
280	AMA 400L8A	1114	741	94.6	94.6	0.82	0.78	69	5.2	28	3611	0.9	2.1	19.1	2920	77
315	AMA 400L8A	1115	740	94.5	94.7	0.84	0.81	76	4.9	28	4066	0.9	1.9	20.5	3000	77
355	AMA 400L8A	1116	741	94.8	94.9	0.83	0.79	87	5.3	35	4576	1.0	2.1	21.9	3100	77
400	AMA 400L8A	1117	740	94.9	95.1	0.83	0.80	97	5.2	37	5158	0.9	2.1	23.3	3200	77
450	AMA 400L8A	1118	740	94.9	95.1	0.83	0.80	109	5.2	41	5804	0.9	2.0	24.8	3290	77
500	AMA 400L8A	1119	741	95.1	95.2	0.83	0.79	121	5.3	47	6447	1.0	2.1	26.2	3380	77
560	AMA 400L8A	1120	741	95.1	95.3	0.84	0.80	135	5.2	50	7221	1.0	2.0	29.0	3570	77
630	AMA 450L8A	1121	743	95.5	95.6	0.81	0.77	155	5.5	66	8097	0.8	2.2	42.7	4050	77
710	AMA 450L8A	1122	742	95.7	95.9	0.85	0.82	167	5.4	58	9136	0.8	2.0	48.3	4300	77
800	AMA 450L8A	1123	742	95.8	96.0	0.85	0.83	188	5.4	63	10293	0.8	2.0	53.7	4540	77
900	AMA 450L8A	1124	743	96.0	96.2	0.85	0.82	211	5.7	74	11572	0.9	2.2	59.1	4790	77
1000	AMA 500L8A	1125	742	95.9	96.2	0.87	0.85	231	5.0	67	12870	0.7	2.0	79.5	5500	77
1120	AMA 500L8A	1126	743	96.2	96.4	0.87	0.85	258	5.4	79	14394	0.7	2.1	89.0	5810	77
1250	AMA 500L8A	1127	743	96.2	96.4	0.86	0.83	291	5.5	96	16065	0.8	2.1	96.7	6080	77
1400	AMA 500L8A	1166	743	96.2	96.5	0.87	0.84	323	5.6	101	17997	0.8	2.1	105.9	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	93.4	93.4	0.73	0.67	56	4.5	30	3227	0.8	2.0	17.6	2820	76
224	AMA 400L10A	1129	592	93.6	93.6	0.75	0.69	61	4.4	31	3615	0.7	1.9	19.1	2920	76
250	AMA 400L10A	1130	592	93.8	93.8	0.75	0.70	68	4.4	33	4035	0.7	1.9	20.5	3020	76
280	AMA 400L10A	1131	592	93.9	94.0	0.75	0.70	76	4.4	38	4517	0.8	1.9	21.9	3110	76
315	AMA 400L10A	1132	593	94.1	94.0	0.74	0.67	87	4.8	46	5071	0.9	2.0	24.8	3290	76
355	AMA 400L10A	1133	593	94.3	94.3	0.75	0.69	97	4.6	49	5718	0.9	1.9	26.3	3400	76
400	AMA 400L10A	1134	593	94.5	94.3	0.73	0.67	111	4.9	59	6437	0.9	2.0	29.1	3590	76
450	AMA 450L10A	1135	592	94.7	94.9	0.82	0.78	112	4.7	45	7254	0.8	1.9	42.7	4040	76
500	AMA 450L10A	1136	593	94.9	95.0	0.81	0.77	125	4.9	52	8055	0.9	2.0	45.4	4160	76
560	AMA 450L10A	1137	593	95.0	95.2	0.82	0.78	139	4.9	56	9021	0.9	2.0	50.8	4400	76
630	AMA 450L10A	1138	593	95.2	95.3	0.82	0.79	154	4.9	60	10149	0.9	2.0	58.9	4770	76
710	AMA 500L10A	1139	595	95.6	95.6	0.81	0.76	177	5.6	79	11397	0.8	2.2	80.2	5450	76
800	AMA 500L10A	1140	595	95.7	95.7	0.82	0.77	197	5.3	82	12849	0.8	2.1	84.7	5600	76
900	AMA 500L10A	1141	594	95.8	95.9	0.83	0.80	216	5.5	83	14457	0.8	2.1	98.4	6060	76
1000	AMA 500L10A	1167	594	95.8	96.0	0.85	0.82	237	5.2	84	16073	0.8	2.0	107.4	6350	76
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>												
140	AMA 400L12A	1142	493	92.3	92.0	0.70	0.64	41	4.1	23	2711	0.8	1.9	19.2	2910	76
160	AMA 400L12A	1143	493	92.5	92.3	0.72	0.66	46	4.0	25	3101	0.8	1.8	20.6	3010	76
180	AMA 400L12A	1144	493	92.7	92.5	0.72	0.66	52	4.0	27	3488	0.8	1.8	22.1	3100	76
200	AMA 400L12A	1145	493	92.9	92.6	0.71	0.65	58	4.0	31	3874	0.8	1.9	23.5	3200	76
224	AMA 400L12A	1146	493	93.0	92.6	0.70	0.64	66	4.2	37	4335	0.9	2.0	24.9	3290	76
250	AMA 400L12A	1147	493	92.9	92.7	0.71	0.65	72	4.1	39	4842	0.8	1.9	26.4	3370	76
280	AMA 400L12A	1148	494	93.1	92.8	0.70	0.64	82	4.2	46	5418	0.9	2.0	29.2	3560	76
315	AMA 450L12A	1149	495	94.3	94.1	0.72	0.65	90	4.7	51	6082	0.9	2.1	42.9	4020	76
355	AMA 450L12A	1150	495	94.4	94.2	0.71	0.64	101	4.7	58	6855	0.9	2.1	45.6	4150	76
400	AMA 450L12A	1151	494	94.5	94.4	0.73	0.67	111	4.6	60	7726	0.8	2.0	51.0	4380	76
450	AMA 450L12A	1152	494	94.4	94.4	0.74	0.69	123	4.4	63	8698	0.8	1.9	53.7	4480	76
500	AMA 450L12A	1153	494	94.6	94.5	0.74	0.68	137	4.6	72	9659	0.8	2.0	59.0	4720	76
560	AMA 500L12A	1154	494	95.0	95.0	0.77	0.72	148	4.5	70	10816	0.7	1.9	79.9	5440	76
630	AMA 500L12A	1155	495	95.1	95.1	0.77	0.72	166	4.5	78	12165	0.7	1.9	88.9	5750	76
710	AMA 500L12A	1156	494	95.2	95.3	0.77	0.72	186	4.4	85	13715	0.7	1.8	93.3	5930	76
800	AMA 500L12A	1169	495	95.3	95.3	0.77	0.72	209	4.6	98	15444	0.7	1.9	106.8	6350	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	8600	2979	94.8	94.7	0.88	0.86	73	5.7	20	2020	0.6	2.4	7.5	3050	85
710	AMA 400L2A	80	2977	95.1	95.1	0.87	0.85	83	5.5	23	2277	0.6	2.3	7.5	3070	85
800	AMA 400L2A	81	2977	95.4	95.4	0.88	0.86	92	5.5	24	2566	0.6	2.3	8.0	3190	85
900	AMA 400L2A	82	2978	95.6	95.6	0.87	0.86	103	5.5	26	2886	0.6	2.3	8.5	3300	85
1000	AMA 400L2A	83	2979	95.8	95.8	0.87	0.85	115	5.8	31	3206	0.7	2.4	8.9	3410	85
1120	AMA 450L2A	84	2979	95.9	95.8	0.86	0.85	130	5.1	35	3590	0.5	2.2	11.6	4220	86
1250	AMA 450L2A	85	2980	96.1	96.0	0.84	0.82	148	5.3	43	4005	0.5	2.2	12.3	4350	86
1400	AMA 450L2A	86	2982	96.3	96.2	0.85	0.83	164	5.4	46	4484	0.5	2.3	13.8	4650	86
1600	AMA 500L2A	87	2986	96.2	96.1	0.87	0.85	183	5.4	52	5118	0.4	2.2	21.0	5250	87
1800	AMA 500L2A	88	2986	96.4	96.4	0.88	0.86	204	5.5	56	5757	0.5	2.3	22.4	5460	87
2000	AMA 500L2A	89	2986	96.6	96.5	0.87	0.85	228	5.5	64	6396	0.5	2.3	23.7	5640	87
2240	AMA 500L2A	477	2986	96.7	96.7	0.88	0.87	252	5.5	64	7164	0.5	2.2	26.3	6010	87
<b>1500 r/min = 4 poles</b>																
<b>6000 V 50 Hz</b>																
630	AMA 400L4A	8607	1487	94.7	94.8	0.89	0.87	72	5.1	20	4046	0.6	2.0	16.6	3060	79
710	AMA 400L4A	91	1487	95.1	95.2	0.86	0.83	84	5.5	29	4558	0.7	2.2	16.5	3080	79
800	AMA 400L4A	92	1487	95.3	95.4	0.86	0.84	93	5.4	31	5136	0.7	2.2	17.5	3180	79
900	AMA 400L4A	93	1487	95.5	95.6	0.86	0.83	105	5.5	34	5778	0.7	2.2	18.5	3280	79
1000	AMA 400L4A	94	1488	95.7	95.7	0.85	0.82	118	5.8	42	6417	0.8	2.3	19.5	3380	79
1250	AMA 450L4A	96	1488	95.7	95.7	0.87	0.85	144	5.5	43	8023	0.7	2.1	31.5	4150	81
1400	AMA 450L4A	97	1488	95.9	96.0	0.88	0.86	160	5.5	45	8985	0.7	2.0	34.9	4410	81
1600	AMA 500L4A	98	1491	95.8	95.8	0.88	0.87	181	5.5	49	10249	0.7	2.0	52.8	5310	82
1800	AMA 500L4A	99	1491	96.0	96.0	0.89	0.87	203	5.6	53	11531	0.7	2.0	55.8	5470	82
2000	AMA 500L4A	100	1491	96.1	96.2	0.88	0.86	227	5.5	62	12811	0.7	2.1	58.6	5630	82
2240	AMA 500L4A	101	1491	96.3	96.4	0.88	0.86	255	5.6	70	14344	0.7	2.1	64.2	5950	82
2500	AMA 500L4A	479	1490	96.4	96.5	0.88	0.86	284	5.6	75	16020	0.8	2.0	67.1	6130	82

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## 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>6000 V 50 Hz</b>																
450	AMA 400L6A	8612	988	94.7	94.8	0.84	0.81	54	4.7	19	4351	0.7	1.9	15.2	3000	78
500	AMA 400L6A	103	989	94.7	94.8	0.82	0.78	62	5.1	26	4829	0.8	2.0	18.1	2980	78
560	AMA 400L6A	104	988	94.8	95.0	0.83	0.80	68	5.1	25	5410	0.8	2.0	19.4	3070	78
630	AMA 400L6A	105	990	95.1	95.2	0.82	0.78	77	5.3	31	6080	0.8	2.0	21.7	3260	78
710	AMA 400L6A	106	990	95.2	95.3	0.82	0.77	88	5.3	37	6851	0.8	2.0	22.9	3360	78
800	AMA 450L6A	107	991	95.5	95.7	0.86	0.84	93	5.3	30	7707	0.7	2.0	37.6	4030	79
900	AMA 450L6A	108	991	95.7	95.8	0.86	0.84	105	5.3	34	8670	0.7	2.0	39.8	4160	79
1000	AMA 450L6A	109	992	95.9	96.0	0.85	0.82	118	5.5	41	9629	0.7	2.1	42.0	4290	79
1125	AMA 450L6A	110	991	95.8	96.1	0.86	0.84	130	5.4	40	10840	0.7	2.1	44.4	4400	79
1250	AMA 450L6A	111	993	96.1	96.2	0.82	0.78	152	5.9	62	12024	0.8	2.3	48.6	4670	79
1400	AMA 500L6A	112	992	96.1	96.2	0.87	0.85	161	5.5	48	13475	0.7	2.0	68.3	5450	79
1600	AMA 500L6A	113	992	96.2	96.4	0.88	0.86	182	5.6	51	15400	0.8	2.0	75.6	5740	79
1800	AMA 500L6A	481	992	96.3	96.5	0.89	0.87	203	5.5	53	17328	0.8	2.0	83.0	6040	79
2000	AMA 500L6A	482	993	96.4	96.6	0.87	0.84	230	6.1	74	19224	0.8	2.3	91.6	6380	79
<b>750 r/min = 8 poles</b>																
<b>6000 V 50 Hz</b>																
280	AMA 400L8A	114	740	93.9	94.1	0.83	0.79	35	5.1	14	3611	0.9	2.1	19.1	2860	77
315	AMA 400L8A	115	740	94.0	94.3	0.84	0.81	38	4.8	14	4067	0.8	1.9	20.5	2960	77
355	AMA 400L8A	116	741	94.3	94.5	0.83	0.79	44	5.3	17	4577	0.9	2.1	21.9	3050	77
400	AMA 400L8A	117	740	94.4	94.7	0.83	0.80	49	5.1	19	5159	0.9	2.0	23.3	3140	77
450	AMA 400L8A	118	740	94.5	94.8	0.84	0.80	55	5.1	21	5805	0.9	2.0	24.8	3240	77
500	AMA 400L8A	119	741	94.7	94.9	0.83	0.80	61	5.2	24	6447	1.0	2.0	26.2	3330	77
560	AMA 450L8A	120	743	95.1	95.2	0.82	0.77	69	5.3	29	7198	0.8	2.1	40.0	3880	77
630	AMA 450L8A	121	743	95.2	95.4	0.81	0.77	78	5.4	33	8098	0.8	2.1	42.7	4000	77
710	AMA 450L8A	122	742	95.4	95.7	0.85	0.82	84	5.3	29	9136	0.8	2.1	48.3	4240	77
800	AMA 450L8A	123	742	95.6	95.8	0.86	0.83	94	5.4	32	10293	0.8	2.0	53.7	4480	77
900	AMA 500L8A	124	742	95.6	95.9	0.86	0.84	105	5.0	32	11585	0.7	2.0	70.6	5130	77
1000	AMA 500L8A	125	742	95.7	96.1	0.87	0.85	115	5.0	33	12870	0.7	2.0	79.5	5430	77
1120	AMA 500L8A	126	743	95.9	96.2	0.87	0.85	129	5.3	39	14395	0.7	2.1	89.0	5700	77
1250	AMA 500L8A	127	743	96.0	96.2	0.86	0.83	146	5.4	48	16062	0.8	2.0	96.7	5990	77
1400	AMA 500L8A	483	743	96.1	96.3	0.86	0.84	162	5.5	51	17994	0.8	2.1	105.9	6290	77

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## 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>6000 V 50 Hz</b>																
200	AMA 400L10A	8621	592	93.0	92.8	0.70	0.63	30	4.0	17	3225	0.7	2.0	15.4	2970	76
224	AMA 400L10A	8622	591	92.9	93.0	0.72	0.66	32	3.7	17	3618	0.6	1.7	15.4	2970	76
250	AMA 400L10A	8623	593	93.4	93.2	0.72	0.65	36	4.6	20	4026	0.8	2.1	20.9	3150	76
280	AMA 400L10A	8624	592	93.4	93.4	0.74	0.68	39	4.2	20	4516	0.7	1.9	20.9	3150	76
315	AMA 400L10A	132	593	93.7	93.6	0.74	0.68	44	4.7	23	5071	0.9	2.0	24.8	3240	76
355	AMA 400L10A	133	593	93.8	93.8	0.75	0.69	49	4.6	24	5719	0.8	1.9	26.3	3330	76
400	AMA 450L10A	134	592	94.2	94.5	0.82	0.78	50	4.7	20	6448	0.8	1.9	40.1	3850	76
450	AMA 450L10A	135	592	94.3	94.6	0.82	0.78	56	4.7	22	7254	0.8	1.9	42.7	3970	76
500	AMA 450L10A	136	593	94.5	94.7	0.81	0.77	62	4.9	26	8055	0.9	2.0	45.4	4090	76
560	AMA 450L10A	137	593	94.7	94.9	0.82	0.78	69	4.9	28	9021	0.9	2.0	50.8	4330	76
630	AMA 500L10A	138	595	95.3	95.3	0.82	0.77	78	5.5	33	10115	0.8	2.2	75.8	5230	76
710	AMA 500L10A	139	594	95.3	95.4	0.83	0.79	86	5.4	35	11405	0.8	2.2	80.4	5380	76
800	AMA 500L10A	140	594	95.5	95.7	0.83	0.79	97	5.3	37	12856	0.8	2.1	84.9	5560	76
900	AMA 500L10A	141	594	95.7	95.8	0.84	0.80	108	5.5	41	14457	0.8	2.1	98.4	6010	76
1000	AMA 500L10A	484	594	95.6	95.8	0.84	0.81	119	5.3	44	16067	0.8	2.1	107.4	6270	76
<b>500 r/min = 12 poles</b>																
<b>6000 V 50 Hz</b>																
140	AMA 400L12A	8625	494	91.4	90.7	0.67	0.59	22	4.1	14	2708	0.9	2.1	19.6	3050	76
160	AMA 400L12A	8626	493	91.5	91.2	0.70	0.63	24	3.8	14	3101	0.7	1.8	19.6	3050	76
180	AMA 400L12A	8627	493	91.8	91.4	0.69	0.63	27	3.8	16	3487	0.8	1.8	20.9	3140	76
200	AMA 400L12A	8628	492	91.9	91.7	0.70	0.65	30	3.7	16	3879	0.7	1.7	22.1	3240	76
224	AMA 400L12A	146	493	92.1	91.8	0.71	0.64	33	4.1	19	4336	0.8	1.9	24.9	3220	76
250	AMA 400L12A	147	493	92.2	92.1	0.72	0.66	36	4.0	20	4843	0.8	1.8	26.4	3320	76
280	AMA 450L12A	148	495	93.6	93.4	0.72	0.65	40	4.8	23	5406	0.9	2.2	40.2	3850	76
315	AMA 450L12A	149	495	93.8	93.6	0.72	0.65	45	4.8	25	6083	0.9	2.2	42.9	3970	76
355	AMA 450L12A	150	495	93.9	93.8	0.72	0.65	50	4.8	29	6855	0.9	2.1	45.6	4090	76
400	AMA 450L12A	151	494	94.1	94.0	0.74	0.67	55	4.7	30	7726	0.9	2.1	51.0	4320	76
450	AMA 450L12A	152	494	93.8	93.9	0.75	0.69	61	4.5	31	8699	0.8	1.9	53.7	4410	76
500	AMA 500L12A	153	495	94.7	94.7	0.76	0.70	67	4.7	34	9650	0.8	2.0	75.2	5250	76
560	AMA 500L12A	154	494	94.6	94.7	0.77	0.72	73	4.6	35	10816	0.8	1.9	79.9	5370	76
630	AMA 500L12A	155	495	94.8	94.8	0.78	0.72	82	4.7	39	12164	0.8	2.0	88.9	5670	76
710	AMA 500L12A	156	494	95.0	95.1	0.78	0.73	92	4.6	42	13715	0.8	1.9	93.3	5850	76
800	AMA 500L12A	579	495	95.1	95.2	0.78	0.72	104	4.8	49	15444	0.8	2.0	106.8	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	8601	2980	93.9	93.5	0.87	0.84	40	5.9	13	1794	0.6	2.6	10.5	3820	86
630	AMA 450L2A	8602	2983	94.4	94.0	0.87	0.83	44	6.4	15	2017	0.6	2.8	11.2	3970	86
710	AMA 450L2A	8603	2982	94.7	94.4	0.88	0.85	49	6.2	15	2274	0.6	2.7	11.9	4110	86
800	AMA 450L2A	8604	2982	94.9	94.7	0.87	0.84	56	6.3	18	2562	0.6	2.7	11.9	4120	86
900	AMA 450L2A	8605	2981	95.2	95.1	0.88	0.86	62	5.7	16	2883	0.6	2.4	12.7	4270	86
1000	AMA 500L2A	202	2985	95.2	94.9	0.87	0.85	69	5.5	20	3199	0.5	2.3	18.7	4810	87
1120	AMA 500L2A	203	2985	95.5	95.2	0.88	0.86	77	5.5	21	3583	0.5	2.3	20.0	5000	87
1250	AMA 500L2A	204	2985	95.7	95.5	0.88	0.87	85	5.5	22	3999	0.5	2.2	21.4	5190	87
1400	AMA 500L2A	205	2986	95.9	95.8	0.88	0.87	95	5.5	24	4477	0.5	2.2	22.7	5370	87
1600	AMA 500L2A	497	2985	96.1	96.0	0.88	0.86	109	5.5	28	5118	0.5	2.2	24.1	5560	87
<b>1500 r/min = 4 poles</b>				<b>10000 V 50 Hz</b>												
630	AMA 450L4A	8608	1490	94.5	94.1	0.87	0.84	44	6.5	16	4038	0.7	2.7	26.3	4050	81
710	AMA 450L4A	8609	1489	94.6	94.4	0.88	0.85	49	5.8	16	4555	0.6	2.4	26.3	4050	81
800	AMA 450L4A	8610	1488	94.9	94.7	0.89	0.87	54	5.9	16	5134	0.7	2.4	27.8	4180	81
900	AMA 450L4A	8611	1488	95.0	94.9	0.88	0.86	62	6.0	19	5776	0.7	2.5	27.3	4180	81
1000	AMA 500L4A	210	1491	94.3	94.2	0.86	0.83	71	5.3	24	6405	0.6	2.0	43.4	4760	82
1120	AMA 500L4A	211	1491	94.6	94.5	0.87	0.85	78	5.3	23	7175	0.6	2.0	46.4	4910	82
1250	AMA 500L4A	212	1491	95.1	95.0	0.88	0.86	86	5.5	25	8007	0.7	2.0	49.1	5080	82
1400	AMA 500L4A	213	1491	95.5	95.4	0.90	0.89	94	5.6	22	8965	0.6	2.0	55.7	5400	82
1600	AMA 500L4A	214	1491	95.7	95.7	0.90	0.89	107	5.7	26	10246	0.7	2.0	58.9	5570	82
1800	AMA 500L4A	498	1490	95.7	95.8	0.88	0.86	124	5.5	35	11536	0.6	2.1	57.9	5560	82
2000	AMA 500L4A	499	1491	95.9	95.9	0.85	0.82	141	5.8	47	12811	0.7	2.3	60.6	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.

# HV Modular motors

10000 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> Nm	T <sub>max</sub> Nm			
<b>1000 r/min = 6 poles</b>																
<b>10000 V 50 Hz</b>																
450	AMA 450L6A	8613	992	94.8	94.3	0.81	0.76	34	6.5	15	4331	1.0	2.7	30.6	4070	79
500	AMA 450L6A	8614	991	94.8	94.6	0.83	0.78	37	5.9	15	4816	0.9	2.4	30.6	4070	79
560	AMA 450L6A	8615	990	94.9	94.8	0.84	0.80	41	5.4	15	5401	0.8	2.2	30.6	4070	79
630	AMA 450L6A	8616	989	94.8	94.9	0.85	0.82	45	5.0	15	6084	0.8	2.0	30.8	4070	79
710	AMA 450L6A	8617	989	95.1	95.1	0.84	0.81	51	5.3	18	6852	0.8	2.1	32.3	4200	79
800	AMA 450L6A	8618	989	95.2	95.3	0.85	0.83	57	4.9	19	7721	0.7	1.9	32.6	4200	79
900	AMA 500L6A	221	994	95.4	95.5	0.87	0.84	63	5.6	21	8649	0.6	2.1	64.0	5210	79
1000	AMA 500L6A	222	994	95.6	95.6	0.86	0.84	70	5.6	23	9609	0.6	2.1	67.5	5350	79
1120	AMA 500L6A	223	994	95.7	95.8	0.86	0.82	79	5.6	28	10760	0.6	2.1	70.9	5500	79
1250	AMA 500L6A	500	994	95.9	95.9	0.85	0.82	88	5.6	31	12009	0.6	2.1	74.6	5660	79
1400	AMA 500L6A	501	993	95.9	96.0	0.88	0.85	96	6.0	30	13460	0.8	2.2	75.8	5670	79
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
630	AMA 500L8A	8619	744	95.1	95.1	0.83	0.78	46	6.0	19	8082	1.0	2.1	74.4	5180	77
710	AMA 500L8A	225	746	95.5	95.4	0.82	0.77	52	5.7	22	9094	0.7	2.2	79.3	5330	77
800	AMA 500L8A	226	745	95.6	95.6	0.82	0.78	59	5.7	25	10248	0.7	2.2	83.7	5480	77
900	AMA 500L8A	227	745	95.7	95.7	0.82	0.77	66	5.7	28	11529	0.7	2.2	88.1	5620	77
1000	AMA 500L8A	502	745	95.8	95.9	0.83	0.78	73	5.7	30	12810	0.7	2.2	96.9	5920	77
1120	AMA 500L8A	503	745	95.8	95.9	0.84	0.81	80	5.6	30	14359	0.8	2.0	97.6	5920	77
<b>600 r/min = 10 poles</b>																
<b>10000 V 50 Hz</b>																
450	AMA 500L10A	228	595	94.2	94.2	0.81	0.75	34	5.8	16	7223	0.9	2.4	70.6	5000	76
500	AMA 500L10A	229	595	94.4	94.4	0.82	0.77	37	5.9	17	8028	0.9	2.4	75.3	5150	76
560	AMA 500L10A	230	595	94.6	94.7	0.82	0.77	42	5.9	19	8983	0.9	2.4	80.5	5300	76
630	AMA 500L10A	231	595	94.8	94.8	0.82	0.77	47	5.9	21	10107	0.9	2.4	85.0	5450	76
710	AMA 500L10A	504	595	94.9	94.9	0.82	0.77	53	5.9	24	11391	0.9	2.4	89.5	5600	76
<b>500 r/min = 12 poles</b>																
<b>10000 V 50 Hz</b>																
315	AMA 500L12A	8629	495	93.1	93.0	0.74	0.67	26	4.5	15	6077	0.6	2.2	57.7	4860	76
355	AMA 500L12A	8630	495	93.4	93.2	0.73	0.66	30	4.6	17	6847	0.7	2.2	61.4	5010	76
400	AMA 500L12A	8631	495	93.8	93.6	0.74	0.67	33	4.7	18	7714	0.7	2.2	68.8	5300	76
450	AMA 500L12A	235	495	93.8	93.7	0.76	0.70	36	5.3	19	8678	0.8	2.3	84.2	5430	76
500	AMA 500L12A	236	495	94.0	93.9	0.76	0.70	40	5.2	21	9644	0.8	2.3	88.7	5570	76
560	AMA 500L12A	507	495	94.1	94.0	0.76	0.70	45	5.2	24	10802	0.8	2.3	93.1	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	95.7	95.9	0.86	0.84	165	5.1	45	2280	0.6	2.2	6.1	2880	82
800	AMA 400L2W	1002	2974	95.9	96.1	0.88	0.86	183	5.1	45	2568	0.6	2.2	6.5	2980	82
900	AMA 400L2W	1003	2974	96.0	96.2	0.88	0.87	204	5.2	47	2890	0.6	2.1	7.0	3070	82
1000	AMA 400L2W	1004	2977	96.2	96.4	0.89	0.87	225	5.4	53	3208	0.6	2.2	7.3	3190	82
1120	AMA 400L2W	1005	2976	96.3	96.5	0.88	0.87	253	5.6	60	3593	0.7	2.3	7.9	3310	82
1250	AMA 450L2W	1006	2977	96.4	96.5	0.88	0.86	283	4.9	69	4010	0.5	2.1	12.1	4080	83
1400	AMA 450L2W	1007	2978	96.5	96.7	0.86	0.85	323	4.9	84	4489	0.5	2.1	12.8	4220	83
1600	AMA 450L2W	1008	2979	96.7	96.9	0.87	0.86	367	5.1	92	5129	0.5	2.1	14.3	4520	83
1800	AMA 500L2W	1009	2986	96.8	96.8	0.85	0.82	421	5.5	141	5756	0.5	2.3	19.7	5110	84
2000	AMA 500L2W	1010	2984	96.8	96.9	0.89	0.87	447	5.2	112	6400	0.5	2.2	21.1	5300	84
2240	AMA 500L2W	1011	2987	97.1	97.0	0.84	0.81	526	5.8	183	7162	0.5	2.4	22.4	5500	84
2500	AMA 500L2W	1168	2984	97.1	97.2	0.89	0.88	553	5.3	126	8000	0.5	2.2	25.1	5880	84
<b>1500 r/min = 4 poles</b>				<b>3000 V 50 Hz</b>												
710	AMA 400L4W	1012	1488	95.6	95.7	0.80	0.75	178	5.4	80	4556	0.7	2.3	14.0	2850	79
800	AMA 400L4W	1013	1488	95.8	95.9	0.81	0.77	197	5.4	82	5134	0.7	2.3	15.0	2960	79
900	AMA 400L4W	1014	1488	96.0	96.1	0.82	0.77	221	5.5	91	5775	0.7	2.3	16.0	3070	79
1000	AMA 400L4W	1015	1487	96.0	96.2	0.85	0.83	234	5.2	78	6423	0.7	2.1	17.0	3160	79
1120	AMA 400L4W	1016	1487	96.1	96.3	0.84	0.81	265	5.4	94	7192	0.7	2.2	18.0	3260	79
1250	AMA 400L4W	1017	1487	96.2	96.4	0.83	0.80	298	5.5	109	8025	0.7	2.2	19.0	3370	79
1400	AMA 450L4W	1018	1486	96.0	96.3	0.87	0.86	321	4.9	85	8996	0.7	1.9	29.4	4000	80
1600	AMA 450L4W	1019	1486	96.2	96.5	0.88	0.88	361	5.0	86	10281	0.7	1.9	33.0	4260	80
1800	AMA 450L4W	1020	1487	96.4	96.7	0.89	0.88	404	5.4	99	11559	0.8	2.0	36.5	4520	80
2000	AMA 500L4W	1021	1490	96.4	96.6	0.89	0.88	450	5.0	106	12822	0.6	1.8	53.5	5330	81
2240	AMA 500L4W	1022	1490	96.5	96.7	0.88	0.88	505	5.0	121	14360	0.6	1.8	56.4	5490	81
2500	AMA 500L4W	1023	1490	96.6	96.8	0.89	0.88	559	5.3	133	16020	0.7	1.9	62.6	5790	81
2800	AMA 500L4W	1157	1490	96.8	97.0	0.89	0.89	621	5.5	142	17940	0.7	2.0	68.6	6140	81

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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> 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	94.9	95.3	0.84	0.82	120	4.5	40	4841	0.7	1.8	15.5	2780	77
560	AMA 400L6W	1025	987	95.2	95.4	0.84	0.80	135	4.9	49	5416	0.8	2.0	16.7	2880	77
630	AMA 400L6W	1026	987	95.1	95.5	0.85	0.82	150	4.7	50	6096	0.7	1.9	18.0	2960	77
710	AMA 400L6W	1027	988	95.4	95.7	0.85	0.82	169	5.2	59	6861	0.8	2.1	20.4	3150	77
800	AMA 400L6W	1028	988	95.5	95.8	0.84	0.81	192	5.3	69	7729	0.9	2.1	21.6	3250	77
900	AMA 400L6W	1029	988	95.6	95.9	0.85	0.82	213	5.2	71	8697	0.9	2.0	24.0	3440	77
1000	AMA 450L6W	1030	992	96.1	96.2	0.81	0.77	245	5.4	101	9626	0.7	2.1	37.4	4020	78
1120	AMA 450L6W	1031	991	96.1	96.4	0.86	0.84	260	5.2	81	10796	0.7	2.0	40.0	4140	78
1250	AMA 450L6W	1032	990	96.0	96.4	0.87	0.85	289	4.9	80	12059	0.7	1.9	42.3	4250	78
1400	AMA 450L6W	1033	990	96.1	96.5	0.87	0.86	322	5.0	89	13502	0.7	2.0	46.8	4490	78
1600	AMA 500L6W	1034	991	96.3	96.6	0.88	0.87	362	5.2	94	15418	0.7	1.9	65.5	5300	79
1800	AMA 500L6W	1035	992	96.4	96.7	0.88	0.86	408	5.6	113	17334	0.8	2.1	72.8	5570	79
2000	AMA 500L6W	1158	991	96.5	96.8	0.89	0.88	446	5.4	105	19271	0.8	2.0	80.2	5890	79
2250	AMA 500L6W	1159	991	96.6	96.9	0.89	0.88	502	5.5	121	21673	0.8	2.0	87.6	6190	79
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
315	AMA 400L8W	1036	738	94.3	94.7	0.83	0.81	77	4.6	27	4075	0.9	1.8	17.5	2730	75
355	AMA 400L8W	1037	739	94.5	94.8	0.83	0.80	86	4.7	31	4585	0.8	1.9	19.0	2830	75
400	AMA 400L8W	1038	739	94.7	95.1	0.84	0.81	97	4.8	35	5166	0.9	1.9	20.4	2930	75
450	AMA 400L8W	1039	739	94.9	95.2	0.84	0.81	108	4.7	37	5814	0.8	1.8	21.8	3040	75
500	AMA 400L8W	1040	739	94.9	95.3	0.84	0.82	120	4.7	41	6460	0.9	1.8	23.3	3120	75
560	AMA 400L8W	1041	739	95.0	95.3	0.84	0.81	135	4.8	47	7233	0.9	1.8	24.7	3220	75
630	AMA 400L8W	1042	739	95.0	95.4	0.84	0.82	151	4.7	50	8139	0.9	1.8	27.5	3400	75
710	AMA 450L8W	1043	742	95.6	95.8	0.83	0.80	171	5.3	66	9137	0.8	2.1	40.7	3850	76
800	AMA 450L8W	1044	741	95.6	96.0	0.86	0.84	188	4.8	58	10310	0.7	1.8	46.1	4090	76
900	AMA 450L8W	1045	741	95.6	96.1	0.86	0.84	210	4.8	63	11597	0.7	1.8	51.5	4310	76
1000	AMA 450L8W	1046	743	96.0	96.2	0.83	0.80	240	5.7	93	12854	0.9	2.2	56.7	4550	76
1120	AMA 500L8W	1047	739	95.7	96.2	0.87	0.86	258	4.5	66	14463	0.7	1.8	75.5	5240	77
1250	AMA 500L8W	1048	741	96.0	96.4	0.87	0.86	287	4.7	76	16105	0.7	1.8	84.9	5550	77
1400	AMA 500L8W	1049	742	96.2	96.5	0.87	0.85	323	5.2	96	18015	0.8	2.0	93.7	5830	77
1600	AMA 500L8W	1160	742	96.2	96.5	0.87	0.86	367	5.0	101	20601	0.8	1.9	102.6	6130	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> Nm	T <sub>max</sub> Nm			
<b>600 r/min = 10 poles</b>				<b>3000 V 50 Hz</b>												
224	AMA 400L10W	1050	591	93.4	93.6	0.75	0.70	61	4.2	30	3621	0.7	1.8	16.2	2660	75
250	AMA 400L10W	1051	591	93.6	93.9	0.77	0.72	67	4.1	31	4042	0.7	1.8	17.6	2750	75
280	AMA 400L10W	1052	591	93.7	94.0	0.77	0.73	74	4.1	33	4528	0.7	1.7	19.0	2850	75
315	AMA 400L10W	1053	591	93.9	94.2	0.77	0.72	84	4.1	38	5092	0.7	1.8	20.5	2940	75
355	AMA 400L10W	1054	592	94.1	94.2	0.76	0.71	96	4.5	46	5724	0.8	1.8	23.4	3120	75
400	AMA 400L10W	1055	592	94.3	94.5	0.76	0.72	107	4.3	49	6454	0.8	1.7	24.8	3240	75
450	AMA 400L10W	1056	592	94.5	94.6	0.75	0.70	121	4.6	59	7253	0.9	1.8	27.7	3420	75
500	AMA 450L10W	1057	591	94.6	95.1	0.82	0.79	123	4.3	45	8073	0.7	1.7	40.5	3840	76
560	AMA 450L10W	1058	592	94.8	95.2	0.82	0.79	138	4.4	52	9037	0.8	1.8	43.2	3960	76
630	AMA 450L10W	1059	592	94.9	95.3	0.83	0.80	154	4.4	56	10167	0.8	1.8	48.6	4200	76
710	AMA 450L10W	1060	592	95.0	95.4	0.83	0.81	172	4.4	60	11458	0.8	1.8	56.7	4560	76
800	AMA 500L10W	1061	594	95.6	95.8	0.82	0.78	196	5.1	79	12857	0.7	2.0	76.8	5200	77
900	AMA 500L10W	1062	593	95.7	96.0	0.84	0.81	215	4.8	75	14483	0.7	1.9	81.5	5390	77
1000	AMA 500L10W	1063	594	95.8	96.0	0.84	0.81	238	5.0	83	16082	0.7	1.9	95.0	5810	77
1120	AMA 500L10W	1161	594	95.9	96.1	0.83	0.79	270	5.2	104	17996	0.8	2.0	103.7	6100	77
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>												
160	AMA 400L12W	1064	491	92.2	92.3	0.73	0.68	45	3.7	23	3111	0.8	1.6	17.6	2740	75
180	AMA 400L12W	1065	492	92.5	92.6	0.74	0.69	51	3.8	25	3496	0.7	1.7	19.2	2840	75
200	AMA 400L12W	1066	492	92.7	92.8	0.74	0.69	56	3.8	27	3883	0.8	1.7	20.6	2940	75
224	AMA 400L12W	1067	492	92.9	92.9	0.73	0.68	63	3.8	31	4347	0.8	1.7	22.1	3030	75
250	AMA 400L12W	1068	493	93.1	92.9	0.72	0.67	71	4.0	37	4847	0.8	1.8	23.5	3130	75
280	AMA 400L12W	1069	492	92.9	93.0	0.73	0.68	79	3.8	39	5434	0.8	1.7	24.9	3200	75
315	AMA 400L12W	1070	493	93.2	93.1	0.73	0.67	89	4.0	46	6107	0.8	1.8	27.8	3400	75
355	AMA 450L12W	1071	494	94.3	94.4	0.74	0.68	98	4.3	51	6866	0.8	1.9	40.7	3820	76
400	AMA 450L12W	1072	494	94.4	94.5	0.74	0.68	111	4.3	58	7736	0.8	1.9	43.4	3940	76
450	AMA 450L12W	1073	494	94.5	94.6	0.75	0.70	122	4.2	60	8706	0.7	1.8	48.8	4180	76
500	AMA 450L12W	1074	493	94.4	94.6	0.76	0.71	134	4.0	63	9680	0.7	1.7	51.5	4270	76
560	AMA 450L12W	1075	493	94.5	94.7	0.75	0.70	151	4.2	72	10836	0.7	1.8	56.8	4520	76
630	AMA 500L12W	1076	493	94.8	95.1	0.78	0.74	163	4.1	70	12197	0.6	1.7	76.4	5190	77
710	AMA 500L12W	1077	493	95.0	95.2	0.78	0.74	183	4.2	79	13742	0.6	1.7	85.3	5500	77
800	AMA 500L12W	1078	493	95.1	95.4	0.79	0.75	206	4.0	86	15492	0.6	1.7	89.7	5680	77
900	AMA 500L12W	1170	494	95.2	95.4	0.78	0.74	231	4.2	99	17415	0.6	1.7	103.1	6100	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 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	95.4	95.6	0.86	0.84	83	5.0	23	2280	0.6	2.1	6.1	2820	82
800	AMA 400L2W	2	2974	95.6	95.9	0.88	0.86	92	5.1	23	2569	0.6	2.1	6.5	2920	82
900	AMA 400L2W	3	2974	95.8	96.1	0.88	0.88	102	5.2	24	2890	0.6	2.1	7.0	3030	82
1000	AMA 400L2W	4	2977	96.0	96.3	0.89	0.87	113	5.4	27	3208	0.6	2.2	7.3	3140	82
1120	AMA 400L2W	5	2976	96.2	96.4	0.88	0.87	127	5.6	30	3594	0.7	2.3	7.9	3260	82
1250	AMA 450L2W	6	2977	96.3	96.4	0.88	0.87	142	5.0	34	4010	0.5	2.1	12.1	4020	83
1400	AMA 450L2W	7	2978	96.4	96.6	0.86	0.85	162	5.0	42	4489	0.5	2.1	12.8	4170	83
1600	AMA 450L2W	8	2979	96.6	96.8	0.87	0.86	183	5.1	46	5129	0.5	2.1	14.3	4460	83
1800	AMA 500L2W	9	2984	96.6	96.7	0.88	0.87	202	5.2	52	5761	0.4	2.2	19.8	5030	84
2000	AMA 500L2W	10	2984	96.8	96.9	0.89	0.87	224	5.3	56	6400	0.5	2.2	21.1	5230	84
2240	AMA 500L2W	11	2984	96.9	97.0	0.89	0.87	250	5.4	63	7168	0.5	2.2	22.4	5420	84
2500	AMA 500L2W	578	2984	97.0	97.1	0.89	0.88	277	5.4	63	8000	0.5	2.2	25.1	5790	84
<b>1500 r/min = 4 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L4W	8637	1487	95.4	95.6	0.86	0.84	83	5.4	27	4558	0.7	2.2	15.1	2900	79
800	AMA 400L4W	13	1486	95.5	95.8	0.87	0.85	92	5.1	28	5142	0.6	2.0	15.1	2910	79
900	AMA 400L4W	14	1486	95.6	96.0	0.87	0.85	103	5.1	30	5785	0.7	2.0	16.1	3010	79
1000	AMA 400L4W	15	1484	95.5	96.0	0.89	0.89	112	4.8	26	6435	0.6	1.9	17.2	3100	79
1120	AMA 400L4W	16	1484	95.6	96.1	0.89	0.88	126	4.9	30	7206	0.7	1.9	18.2	3200	79
1250	AMA 450L4W	17	1487	95.7	96.0	0.86	0.84	145	5.0	43	8029	0.6	2.0	27.7	3810	80
1400	AMA 450L4W	18	1486	95.9	96.2	0.87	0.86	160	5.0	42	8996	0.7	1.9	29.4	3940	80
1600	AMA 450L4W	19	1486	96.1	96.4	0.89	0.88	180	5.1	43	10281	0.7	1.9	33.0	4210	80
1800	AMA 500L4W	20	1489	96.1	96.3	0.89	0.88	203	5.0	49	11540	0.6	1.8	50.5	5070	81
2000	AMA 500L4W	21	1490	96.2	96.4	0.89	0.88	225	5.1	53	12822	0.6	1.9	53.5	5230	81
2240	AMA 500L4W	22	1490	96.3	96.6	0.89	0.88	252	5.1	60	14359	0.7	1.9	56.4	5390	81
2500	AMA 500L4W	23	1490	96.5	96.8	0.89	0.88	281	5.3	68	16021	0.7	2.0	62.2	5710	81
2800	AMA 500L4W	472	1490	96.7	96.9	0.89	0.88	312	5.5	73	17941	0.7	2.0	68.3	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	8642	986	94.7	95.2	0.84	0.82	60	4.3	19	4842	0.6	1.7	13.7	2830	77
560	AMA 400L6W	25	987	94.8	95.2	0.84	0.81	68	5.0	25	5416	0.8	2.0	16.7	2810	77
630	AMA 400L6W	26	987	94.9	95.3	0.85	0.82	75	4.9	25	6096	0.8	1.9	18.0	2910	77
710	AMA 400L6W	27	988	95.2	95.5	0.85	0.82	85	5.3	30	6861	0.9	2.1	20.4	3100	77
800	AMA 400L6W	28	988	95.3	95.6	0.84	0.81	96	5.4	35	7730	0.9	2.1	21.6	3190	77
900	AMA 450L6W	29	991	95.6	95.9	0.86	0.83	106	5.3	35	8674	0.7	2.1	35.5	3830	78
1000	AMA 450L6W	30	990	95.8	96.2	0.87	0.85	115	5.1	34	9643	0.7	1.9	37.8	3950	78
1120	AMA 450L6W	31	991	96.0	96.3	0.86	0.84	130	5.3	40	10796	0.7	2.0	40.0	4080	78
1250	AMA 450L6W	32	990	95.9	96.3	0.87	0.85	144	5.0	40	12059	0.7	1.9	42.3	4190	78
1400	AMA 450L6W	33	990	96.0	96.4	0.87	0.86	161	5.1	44	13502	0.7	2.0	46.8	4430	78
1600	AMA 500L6W	34	991	96.1	96.5	0.88	0.87	181	5.3	47	15418	0.8	2.0	65.5	5210	79
1800	AMA 500L6W	35	991	96.2	96.6	0.89	0.88	203	5.3	51	17344	0.8	2.0	72.8	5500	79
2000	AMA 500L6W	473	991	96.3	96.7	0.89	0.88	224	5.3	53	19272	0.8	2.0	80.1	5800	79
2250	AMA 500L6W	474	991	96.4	96.8	0.89	0.89	251	5.4	59	21678	0.8	2.0	87.4	6090	79
<b>750 r/min = 8 poles</b>				<b>6000 V 50 Hz</b>												
315	AMA 400L8W	36	739	93.8	94.3	0.84	0.81	39	4.6	14	4070	0.8	1.8	17.6	2690	75
355	AMA 400L8W	37	739	93.8	94.3	0.84	0.81	43	4.6	16	4586	0.8	1.8	19.0	2790	75
400	AMA 400L8W	38	739	94.3	94.7	0.84	0.81	49	4.7	17	5166	0.8	1.8	20.4	2880	75
450	AMA 400L8W	39	739	94.3	94.8	0.84	0.82	54	4.6	19	5815	0.8	1.8	21.8	2980	75
500	AMA 400L8W	40	739	94.4	94.9	0.84	0.82	60	4.6	21	6461	0.8	1.8	23.3	3070	75
560	AMA 400L8W	41	739	94.6	95.0	0.84	0.81	68	4.7	24	7234	0.9	1.8	24.7	3160	75
630	AMA 450L8W	42	742	95.1	95.5	0.83	0.80	76	5.2	29	8109	0.8	2.1	38.0	3670	76
710	AMA 450L8W	43	742	95.2	95.6	0.83	0.80	86	5.3	33	9138	0.8	2.1	40.7	3800	76
800	AMA 450L8W	44	741	95.3	95.8	0.86	0.84	94	4.7	29	10311	0.7	1.8	46.1	4030	76
900	AMA 450L8W	45	741	95.5	95.9	0.86	0.84	105	4.8	32	11598	0.7	1.8	51.5	4270	76
1000	AMA 500L8W	46	739	95.3	95.9	0.87	0.86	116	4.5	32	12914	0.7	1.8	66.7	4870	77
1120	AMA 500L8W	47	739	95.4	96.0	0.87	0.86	129	4.5	33	14464	0.7	1.8	75.5	5170	77
1250	AMA 500L8W	48	741	95.7	96.2	0.87	0.86	144	4.7	38	16101	0.7	1.8	85.0	5440	77
1400	AMA 500L8W	49	742	96.0	96.3	0.87	0.85	161	5.2	48	18011	0.8	2.0	93.9	5750	77
1600	AMA 500L8W	475	742	96.0	96.4	0.87	0.86	184	5.0	51	20596	0.7	1.9	102.8	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	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>												
224	AMA 400L10W	8651	591	93.0	93.1	0.72	0.66	32	3.7	17	3618	0.6	1.7	13.9	2800	75
250	AMA 400L10W	8652	591	93.2	93.3	0.72	0.66	36	3.7	19	4037	0.6	1.8	14.8	2900	75
280	AMA 400L10W	8653	592	93.2	93.4	0.74	0.68	39	4.1	20	4520	0.7	1.8	18.1	2890	75
315	AMA 400L10W	8654	591	93.5	93.7	0.75	0.70	43	4.0	21	5086	0.6	1.8	20.6	3080	75
355	AMA 400L10W	54	592	93.6	93.8	0.76	0.71	48	4.4	23	5725	0.8	1.8	23.4	3070	75
400	AMA 400L10W	55	592	93.7	94.0	0.77	0.72	53	4.3	24	6455	0.8	1.7	24.8	3170	75
450	AMA 450L10W	56	591	94.0	94.6	0.83	0.80	56	4.2	20	7268	0.7	1.7	37.9	3650	76
500	AMA 450L10W	57	591	94.2	94.7	0.83	0.80	62	4.3	22	8074	0.7	1.7	40.5	3770	76
560	AMA 450L10W	58	592	94.4	94.8	0.82	0.79	69	4.4	26	9038	0.8	1.8	43.2	3890	76
630	AMA 450L10W	59	592	94.5	95.0	0.83	0.80	77	4.4	28	10167	0.8	1.8	48.6	4120	76
710	AMA 500L10W	60	594	95.2	95.5	0.83	0.79	86	5.0	33	11414	0.7	2.0	72.4	4980	77
800	AMA 500L10W	61	594	95.3	95.6	0.84	0.81	96	4.9	35	12869	0.7	1.9	77.0	5130	77
900	AMA 500L10W	62	593	95.4	95.8	0.84	0.81	108	4.7	37	14484	0.7	1.9	81.5	5320	77
1000	AMA 500L10W	63	594	95.6	95.9	0.84	0.81	119	4.9	41	16082	0.7	1.9	95.0	5760	77
1120	AMA 500L10W	476	594	95.5	95.9	0.85	0.82	133	4.8	44	18019	0.7	1.8	104.0	6020	77
<b>500 r/min = 12 poles</b>				<b>6000 V 50 Hz</b>												
160	AMA 400L12W	8655	493	91.6	91.3	0.69	0.63	24	3.8	14	3101	0.7	1.8	18.1	2880	75
180	AMA 400L12W	8656	493	91.7	91.4	0.69	0.63	27	3.7	16	3490	0.7	1.7	18.1	2880	75
200	AMA 400L12W	8657	493	91.9	91.5	0.68	0.61	31	3.8	18	3875	0.8	1.8	19.4	2980	75
224	AMA 400L12W	8658	492	92.0	91.8	0.70	0.63	34	3.7	19	4344	0.7	1.7	20.6	3070	75
250	AMA 400L12W	68	492	92.1	92.1	0.73	0.67	36	3.9	19	4848	0.8	1.8	23.5	3060	75
280	AMA 400L12W	69	492	92.2	92.3	0.74	0.69	40	3.7	20	5435	0.7	1.6	24.9	3150	75
315	AMA 450L12W	70	494	93.7	93.7	0.74	0.68	44	4.4	23	6091	0.8	1.9	38.0	3640	76
355	AMA 450L12W	71	494	93.8	93.9	0.75	0.69	49	4.4	25	6866	0.8	1.9	40.7	3760	76
400	AMA 450L12W	72	494	93.9	94.0	0.74	0.68	55	4.4	29	7736	0.8	1.9	43.4	3880	76
450	AMA 450L12W	73	494	94.1	94.2	0.76	0.70	61	4.3	30	8706	0.8	1.8	48.8	4120	76
500	AMA 450L12W	74	493	93.7	94.1	0.77	0.72	67	4.1	31	9681	0.7	1.7	51.5	4200	76
560	AMA 500L12W	75	494	94.4	94.6	0.78	0.73	73	4.4	34	10831	0.7	1.9	71.8	4960	77
630	AMA 500L12W	76	493	94.4	94.8	0.79	0.75	81	4.2	35	12197	0.7	1.8	76.4	5110	77
710	AMA 500L12W	77	493	94.6	94.9	0.79	0.75	91	4.3	39	13741	0.7	1.8	85.3	5410	77
800	AMA 500L12W	78	493	94.8	95.1	0.79	0.75	102	4.2	43	15491	0.6	1.7	89.7	5600	77
900	AMA 500L12W	580	494	95.0	95.2	0.79	0.75	115	4.4	49	17414	0.7	1.8	103.1	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	8632	2978	94.7	94.8	0.87	0.85	44	5.3	13	2020	0.5	2.3	10.9	3620	83
710	AMA 450L2W	8633	2975	94.6	94.8	0.88	0.86	49	4.8	13	2279	0.5	2.0	10.9	3620	83
800	AMA 450L2W	8634	2973	94.8	95.1	0.88	0.88	55	4.5	12	2570	0.4	1.9	11.7	3770	83
900	AMA 450L2W	8635	2975	95.2	95.4	0.89	0.87	61	4.9	15	2889	0.5	2.1	12.5	3920	83
1000	AMA 450L2W	8636	2980	95.8	95.9	0.89	0.87	68	5.4	16	3204	0.5	2.3	12.9	4070	83
1120	AMA 500L2W	162	2985	95.8	95.7	0.87	0.84	78	5.5	24	3583	0.5	2.3	17.4	4580	84
1250	AMA 500L2W	163	2985	96.0	96.0	0.88	0.86	86	5.5	24	3999	0.5	2.3	18.8	4770	84
1400	AMA 500L2W	164	2985	96.2	96.2	0.88	0.86	95	5.5	26	4479	0.5	2.2	20.1	4960	84
1600	AMA 500L2W	165	2984	96.3	96.4	0.90	0.89	107	5.3	24	5120	0.5	2.2	21.5	5160	84
1800	AMA 500L2W	485	2985	96.5	96.6	0.90	0.88	120	5.5	28	5758	0.5	2.2	22.5	5340	84
<b>1500 r/min = 4 poles</b>																
<b>10000 V 50 Hz</b>																
710	AMA 450L4W	8638	1488	95.1	95.0	0.88	0.85	49	5.8	15	4557	0.6	2.4	22.5	3720	80
800	AMA 450L4W	8639	1488	95.2	95.1	0.87	0.83	56	5.8	19	5135	0.6	2.5	22.5	3730	80
900	AMA 450L4W	8640	1488	95.5	95.5	0.88	0.86	62	6.0	19	5776	0.7	2.5	25.2	3970	80
1000	AMA 450L4W	8641	1487	95.4	95.6	0.88	0.87	68	5.4	19	6424	0.6	2.3	25.2	3970	80
1120	AMA 500L4W	170	1491	95.2	95.2	0.88	0.86	77	5.6	22	7172	0.5	2.2	44.2	4670	81
1250	AMA 500L4W	171	1491	95.6	95.7	0.89	0.87	85	5.6	24	8004	0.6	2.1	46.9	4840	81
1400	AMA 500L4W	172	1491	95.8	95.9	0.89	0.87	95	5.7	26	8964	0.6	2.2	49.8	4990	81
1600	AMA 500L4W	173	1491	96.0	96.1	0.88	0.86	109	5.5	31	10245	0.5	2.1	52.4	5150	81
1800	AMA 500L4W	174	1489	96.0	96.1	0.88	0.87	123	5.6	33	11544	0.7	2.2	55.0	5310	81
2000	AMA 500L4W	486	1491	96.2	96.3	0.87	0.85	138	6.0	43	12810	0.7	2.4	58.2	5460	81
2240	AMA 500L4W	487	1490	96.1	96.3	0.88	0.86	152	5.7	42	14359	0.7	2.2	58.5	5460	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 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>																
500	AMA 450L6W	8643	991	95.2	95.1	0.83	0.78	37	6.0	15	4816	0.9	2.4	28.4	3870	78
560	AMA 450L6W	8644	990	95.2	95.2	0.84	0.80	40	5.4	15	5401	0.8	2.2	28.4	3870	78
630	AMA 450L6W	8645	989	95.1	95.3	0.85	0.82	45	5.0	15	6084	0.8	2.0	28.5	3870	78
710	AMA 450L6W	8646	990	95.4	95.5	0.84	0.81	51	5.4	18	6852	0.8	2.1	30.1	3990	78
800	AMA 450L6W	8647	989	95.3	95.6	0.85	0.83	57	4.8	18	7726	0.7	1.9	30.3	4000	78
900	AMA 450L6W	8648	989	95.3	95.6	0.85	0.82	64	4.8	21	8690	0.7	1.9	30.4	4000	78
1000	AMA 500L6W	181	994	95.7	95.9	0.87	0.85	69	5.6	21	9610	0.6	2.1	61.7	4970	79
1120	AMA 500L6W	182	994	95.8	96.1	0.87	0.85	77	5.6	24	10763	0.6	2.1	65.2	5120	79
1250	AMA 500L6W	183	993	95.9	96.1	0.87	0.85	86	5.6	27	12018	0.7	2.1	68.1	5260	79
1400	AMA 500L6W	488	993	96.0	96.3	0.87	0.85	96	5.6	30	13460	0.7	2.1	71.8	5420	79
1600	AMA 500L6W	489	992	95.9	96.3	0.88	0.87	109	5.5	30	15397	0.7	2.0	72.8	5430	79
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
710	AMA 500L8W	8649	744	95.3	95.5	0.84	0.81	51	5.8	19	9107	0.8	2.1	71.8	4930	77
800	AMA 500L8W	185	745	95.5	95.7	0.84	0.80	58	5.6	22	10255	0.7	2.1	76.3	5080	77
900	AMA 500L8W	186	745	95.7	95.8	0.84	0.80	65	5.5	25	11538	0.7	2.0	80.8	5230	77
1000	AMA 500L8W	187	745	95.7	95.9	0.83	0.79	72	5.6	28	12819	0.8	2.1	85.2	5380	77
1120	AMA 500L8W	490	745	95.9	96.1	0.84	0.81	80	5.5	30	14359	0.7	2.0	94.1	5670	77
1250	AMA 500L8W	491	744	95.8	96.1	0.86	0.83	88	5.5	29	16039	0.8	2.0	94.8	5680	77
<b>600 r/min = 10 poles</b>																
<b>10000 V 50 Hz</b>																
500	AMA 500L10W	188	594	94.2	94.4	0.82	0.78	37	5.5	16	8034	0.9	2.2	67.4	4750	77
560	AMA 500L10W	189	594	94.4	94.6	0.83	0.79	41	5.4	17	9002	0.8	2.1	71.9	4900	77
630	AMA 500L10W	190	594	94.5	94.8	0.84	0.80	46	5.2	18	10130	0.8	2.1	76.3	5050	77
710	AMA 500L10W	191	595	94.7	95.0	0.83	0.79	52	5.3	21	11404	0.8	2.1	81.6	5200	77
800	AMA 500L10W	492	595	94.8	95.1	0.83	0.79	58	5.3	24	12849	0.8	2.1	86.1	5350	77
<b>500 r/min = 12 poles</b>																
<b>10000 V 50 Hz</b>																
355	AMA 500L12W	8659	494	93.1	93.3	0.76	0.70	29	4.1	15	6859	0.6	1.9	54.3	4610	77
400	AMA 500L12W	8660	494	93.4	93.5	0.75	0.69	33	4.2	17	7725	0.6	2.0	58.0	4760	77
450	AMA 500L12W	8661	495	93.8	93.8	0.76	0.70	37	4.3	18	8690	0.6	2.0	65.4	5050	77
500	AMA 500L12W	195	495	93.8	93.9	0.78	0.72	39	4.9	19	9654	0.7	2.1	80.8	5180	77
560	AMA 500L12W	196	494	93.9	94.1	0.78	0.73	44	4.8	21	10815	0.7	2.0	85.3	5330	77
630	AMA 500L12W	495	494	94.1	94.2	0.78	0.73	49	4.7	24	12169	0.7	2.0	89.7	5470	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 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	95.7	95.9	0.86	0.84	165	5.1	45	2280	0.6	2.2	6.1	2880	82
800	AMA 400L2L	1002	2974	95.9	96.1	0.88	0.86	183	5.1	45	2568	0.6	2.2	6.5	2980	82
900	AMA 400L2L	1003	2974	96.0	96.2	0.88	0.87	204	5.2	47	2890	0.6	2.1	7.0	3070	82
1000	AMA 400L2L	1004	2977	96.2	96.4	0.89	0.87	225	5.4	53	3208	0.6	2.2	7.3	3190	82
1120	AMA 400L2L	1005	2976	96.3	96.5	0.88	0.87	253	5.6	60	3593	0.7	2.3	7.9	3310	82
1250	AMA 450L2L	1006	2977	96.4	96.5	0.88	0.86	283	4.9	69	4010	0.5	2.1	12.1	4080	83
1400	AMA 450L2L	1007	2978	96.5	96.7	0.86	0.85	323	4.9	84	4489	0.5	2.1	12.8	4220	83
1600	AMA 450L2L	1008	2979	96.7	96.9	0.87	0.86	367	5.1	92	5129	0.5	2.1	14.3	4520	83
1800	AMA 500L2L	1009	2986	96.8	96.8	0.85	0.82	421	5.5	141	5756	0.5	2.3	19.7	5110	84
2000	AMA 500L2L	1010	2984	96.8	96.9	0.89	0.87	447	5.2	112	6400	0.5	2.2	21.1	5300	84
2240	AMA 500L2L	1011	2987	97.1	97.0	0.84	0.81	526	5.8	183	7162	0.5	2.4	22.4	5500	84
2500	AMA 500L2L	1168	2984	97.1	97.2	0.89	0.88	553	5.3	126	8000	0.5	2.2	25.1	5880	84
<b>1500 r/min = 4 poles</b>																
<b>3000 V 50 Hz</b>																
710	AMA 400L4L	1012	1488	95.6	95.7	0.80	0.75	178	5.4	80	4556	0.7	2.3	14.0	2850	79
800	AMA 400L4L	1013	1488	95.8	95.9	0.81	0.77	197	5.4	82	5134	0.7	2.3	15.0	2960	79
900	AMA 400L4L	1014	1488	96.0	96.1	0.82	0.77	221	5.5	91	5775	0.7	2.3	16.0	3070	79
1000	AMA 400L4L	1015	1487	96.0	96.2	0.85	0.83	234	5.2	78	6423	0.7	2.1	17.0	3160	79
1120	AMA 400L4L	1016	1487	96.1	96.3	0.84	0.81	265	5.4	94	7192	0.7	2.2	18.0	3260	79
1250	AMA 400L4L	1017	1487	96.2	96.4	0.83	0.80	298	5.5	109	8025	0.7	2.2	19.0	3370	79
1400	AMA 450L4L	1018	1486	96.0	96.3	0.87	0.86	321	4.9	85	8996	0.7	1.9	29.4	4000	80
1600	AMA 450L4L	1019	1486	96.2	96.5	0.88	0.88	361	5.0	86	10281	0.7	1.9	33.0	4260	80
1800	AMA 450L4L	1020	1487	96.4	96.7	0.89	0.88	404	5.4	99	11559	0.8	2.0	36.5	4520	80
2000	AMA 500L4L	1021	1490	96.4	96.6	0.89	0.88	450	5.0	106	12822	0.6	1.8	53.5	5330	81
2240	AMA 500L4L	1022	1490	96.5	96.7	0.88	0.88	505	5.0	121	14360	0.6	1.8	56.4	5490	81
2500	AMA 500L4L	1023	1490	96.6	96.8	0.89	0.88	559	5.3	133	16020	0.7	1.9	62.6	5790	81
2800	AMA 500L4L	1157	1490	96.8	97.0	0.89	0.89	621	5.5	142	17940	0.7	2.0	68.6	6140	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 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>3000 V 50 Hz</b>																
500	AMA 400L6L	1024	986	94.9	95.3	0.84	0.82	120	4.5	40	4841	0.7	1.8	15.5	2780	77
560	AMA 400L6L	1025	987	95.2	95.4	0.84	0.80	135	4.9	49	5416	0.8	2.0	16.7	2880	77
630	AMA 400L6L	1026	987	95.1	95.5	0.85	0.82	150	4.7	50	6096	0.7	1.9	18.0	2960	77
710	AMA 400L6L	1027	988	95.4	95.7	0.85	0.82	169	5.2	59	6861	0.8	2.1	20.4	3150	77
800	AMA 400L6L	1028	988	95.5	95.8	0.84	0.81	192	5.3	69	7729	0.9	2.1	21.6	3250	77
900	AMA 400L6L	1029	988	95.6	95.9	0.85	0.82	213	5.2	71	8697	0.9	2.0	24.0	3440	77
1000	AMA 450L6L	1030	992	96.1	96.2	0.81	0.77	245	5.4	101	9626	0.7	2.1	37.4	4020	78
1120	AMA 450L6L	1031	991	96.1	96.4	0.86	0.84	260	5.2	81	10796	0.7	2.0	40.0	4140	78
1250	AMA 450L6L	1032	990	96.0	96.4	0.87	0.85	289	4.9	80	12059	0.7	1.9	42.3	4250	78
1400	AMA 450L6L	1033	990	96.1	96.5	0.87	0.86	322	5.0	89	13502	0.7	2.0	46.8	4490	78
1600	AMA 500L6L	1034	991	96.3	96.6	0.88	0.87	362	5.2	94	15418	0.7	1.9	65.5	5300	79
1800	AMA 500L6L	1035	992	96.4	96.7	0.88	0.86	408	5.6	113	17334	0.8	2.1	72.8	5570	79
2000	AMA 500L6L	1158	991	96.5	96.8	0.89	0.88	446	5.4	105	19271	0.8	2.0	80.2	5890	79
2250	AMA 500L6L	1159	991	96.6	96.9	0.89	0.88	502	5.5	121	21673	0.8	2.0	87.6	6190	79
<b>750 r/min = 8 poles</b>																
<b>3000 V 50 Hz</b>																
315	AMA 400L8L	1036	738	94.3	94.7	0.83	0.81	77	4.6	27	4075	0.9	1.8	17.5	2730	75
355	AMA 400L8L	1037	739	94.5	94.8	0.83	0.80	86	4.7	31	4585	0.8	1.9	19.0	2830	75
400	AMA 400L8L	1038	739	94.7	95.1	0.84	0.81	97	4.8	35	5166	0.9	1.9	20.4	2930	75
450	AMA 400L8L	1039	739	94.9	95.2	0.84	0.81	108	4.7	37	5814	0.8	1.8	21.8	3040	75
500	AMA 400L8L	1040	739	94.9	95.3	0.84	0.82	120	4.7	41	6460	0.9	1.8	23.3	3120	75
560	AMA 400L8L	1041	739	95.0	95.3	0.84	0.81	135	4.8	47	7233	0.9	1.8	24.7	3220	75
630	AMA 400L8L	1042	739	95.0	95.4	0.84	0.82	151	4.7	50	8139	0.9	1.8	27.5	3400	75
710	AMA 450L8L	1043	742	95.6	95.8	0.83	0.80	171	5.3	66	9137	0.8	2.1	40.7	3850	76
800	AMA 450L8L	1044	741	95.6	96.0	0.86	0.84	188	4.8	58	10310	0.7	1.8	46.1	4090	76
900	AMA 450L8L	1045	741	95.6	96.1	0.86	0.84	210	4.8	63	11597	0.7	1.8	51.5	4310	76
1000	AMA 450L8L	1046	743	96.0	96.2	0.83	0.80	240	5.7	93	12854	0.9	2.2	56.7	4550	76
1120	AMA 500L8L	1047	739	95.7	96.2	0.87	0.86	258	4.5	66	14463	0.7	1.8	75.5	5240	77
1250	AMA 500L8L	1048	741	96.0	96.4	0.87	0.86	287	4.7	76	16105	0.7	1.8	84.9	5550	77
1400	AMA 500L8L	1049	742	96.2	96.5	0.87	0.85	323	5.2	96	18015	0.8	2.0	93.7	5830	77
1600	AMA 500L8L	1160	742	96.2	96.5	0.87	0.86	367	5.0	101	20601	0.8	1.9	102.6	6130	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

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	93.4	93.6	0.75	0.70	61	4.2	30	3621	0.7	1.8	16.2	2660	75
250	AMA 400L10L	1051	591	93.6	93.9	0.77	0.72	67	4.1	31	4042	0.7	1.8	17.6	2750	75
280	AMA 400L10L	1052	591	93.7	94.0	0.77	0.73	74	4.1	33	4528	0.7	1.7	19.0	2850	75
315	AMA 400L10L	1053	591	93.9	94.2	0.77	0.72	84	4.1	38	5092	0.7	1.8	20.5	2940	75
355	AMA 400L10L	1054	592	94.1	94.2	0.76	0.71	96	4.5	46	5724	0.8	1.8	23.4	3120	75
400	AMA 400L10L	1055	592	94.3	94.5	0.76	0.72	107	4.3	49	6454	0.8	1.7	24.8	3240	75
450	AMA 400L10L	1056	592	94.5	94.6	0.75	0.70	121	4.6	59	7253	0.9	1.8	27.7	3420	75
500	AMA 450L10L	1057	591	94.6	95.1	0.82	0.79	123	4.3	45	8073	0.7	1.7	40.5	3840	76
560	AMA 450L10L	1058	592	94.8	95.2	0.82	0.79	138	4.4	52	9037	0.8	1.8	43.2	3960	76
630	AMA 450L10L	1059	592	94.9	95.3	0.83	0.80	154	4.4	56	10167	0.8	1.8	48.6	4200	76
710	AMA 450L10L	1060	592	95.0	95.4	0.83	0.81	172	4.4	60	11458	0.8	1.8	56.7	4560	76
800	AMA 500L10L	1061	594	95.6	95.8	0.82	0.78	196	5.1	79	12857	0.7	2.0	76.8	5200	77
900	AMA 500L10L	1062	593	95.7	96.0	0.84	0.81	215	4.8	75	14483	0.7	1.9	81.5	5390	77
1000	AMA 500L10L	1063	594	95.8	96.0	0.84	0.81	238	5.0	83	16082	0.7	1.9	95.0	5810	77
1120	AMA 500L10L	1161	594	95.9	96.1	0.83	0.79	270	5.2	104	17996	0.8	2.0	103.7	6100	77
<b>500 r/min = 12 poles</b>				<b>3000 V 50 Hz</b>												
160	AMA 400L12L	1064	491	92.2	92.3	0.73	0.68	45	3.7	23	3111	0.8	1.6	17.6	2740	75
180	AMA 400L12L	1065	492	92.5	92.6	0.74	0.69	51	3.8	25	3496	0.7	1.7	19.2	2840	75
200	AMA 400L12L	1066	492	92.7	92.8	0.74	0.69	56	3.8	27	3883	0.8	1.7	20.6	2940	75
224	AMA 400L12L	1067	492	92.9	92.9	0.73	0.68	63	3.8	31	4347	0.8	1.7	22.1	3030	75
250	AMA 400L12L	1068	493	93.1	92.9	0.72	0.67	71	4.0	37	4847	0.8	1.8	23.5	3130	75
280	AMA 400L12L	1069	492	92.9	93.0	0.73	0.68	79	3.8	39	5434	0.8	1.7	24.9	3200	75
315	AMA 400L12L	1070	493	93.2	93.1	0.73	0.67	89	4.0	46	6107	0.8	1.8	27.8	3400	75
355	AMA 450L12L	1071	494	94.3	94.4	0.74	0.68	98	4.3	51	6866	0.8	1.9	40.7	3820	76
400	AMA 450L12L	1072	494	94.4	94.5	0.74	0.68	111	4.3	58	7736	0.8	1.9	43.4	3940	76
450	AMA 450L12L	1073	494	94.5	94.6	0.75	0.70	122	4.2	60	8706	0.7	1.8	48.8	4180	76
500	AMA 450L12L	1074	493	94.4	94.6	0.76	0.71	134	4.0	63	9680	0.7	1.7	51.5	4270	76
560	AMA 450L12L	1075	493	94.5	94.7	0.75	0.70	151	4.2	72	10836	0.7	1.8	56.8	4520	76
630	AMA 500L12L	1076	493	94.8	95.1	0.78	0.74	163	4.1	70	12197	0.6	1.7	76.4	5190	77
710	AMA 500L12L	1077	493	95.0	95.2	0.78	0.74	183	4.2	79	13742	0.6	1.7	85.3	5500	77
800	AMA 500L12L	1078	493	95.1	95.4	0.79	0.75	206	4.0	86	15492	0.6	1.7	89.7	5680	77
900	AMA 500L12L	1170	494	95.2	95.4	0.78	0.74	231	4.2	99	17415	0.6	1.7	103.1	6100	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 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>3000 r/min = 2 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L2L	1	2973	95.4	95.6	0.86	0.84	83	5.0	23	2280	0.6	2.1	6.1	2820	82
800	AMA 400L2L	2	2974	95.6	95.9	0.88	0.86	92	5.1	23	2569	0.6	2.1	6.5	2920	82
900	AMA 400L2L	3	2974	95.8	96.1	0.88	0.88	102	5.2	24	2890	0.6	2.1	7.0	3030	82
1000	AMA 400L2L	4	2977	96.0	96.3	0.89	0.87	113	5.4	27	3208	0.6	2.2	7.3	3140	82
1120	AMA 400L2L	5	2976	96.2	96.4	0.88	0.87	127	5.6	30	3594	0.7	2.3	7.9	3260	82
1250	AMA 450L2L	6	2977	96.3	96.4	0.88	0.87	142	5.0	34	4010	0.5	2.1	12.1	4020	83
1400	AMA 450L2L	7	2978	96.4	96.6	0.86	0.85	162	5.0	42	4489	0.5	2.1	12.8	4170	83
1600	AMA 450L2L	8	2979	96.6	96.8	0.87	0.86	183	5.1	46	5129	0.5	2.1	14.3	4460	83
1800	AMA 500L2L	9	2984	96.6	96.7	0.88	0.87	202	5.2	52	5761	0.4	2.2	19.8	5030	84
2000	AMA 500L2L	10	2984	96.8	96.9	0.89	0.87	224	5.3	56	6400	0.5	2.2	21.1	5230	84
2240	AMA 500L2L	11	2984	96.9	97.0	0.89	0.87	250	5.4	63	7168	0.5	2.2	22.4	5420	84
2500	AMA 500L2L	578	2984	97.0	97.1	0.89	0.88	277	5.4	63	8000	0.5	2.2	25.1	5790	84
<b>1500 r/min = 4 poles</b>																
<b>6000 V 50 Hz</b>																
710	AMA 400L4L	8637	1487	95.4	95.6	0.86	0.84	83	5.4	27	4558	0.7	2.2	15.1	2900	79
800	AMA 400L4L	13	1486	95.5	95.8	0.87	0.85	92	5.1	28	5142	0.6	2.0	15.1	2910	79
900	AMA 400L4L	14	1486	95.6	96.0	0.87	0.85	103	5.1	30	5785	0.7	2.0	16.1	3010	79
1000	AMA 400L4L	15	1484	95.5	96.0	0.89	0.89	112	4.8	26	6435	0.6	1.9	17.2	3100	79
1120	AMA 400L4L	16	1484	95.6	96.1	0.89	0.88	126	4.9	30	7206	0.7	1.9	18.2	3200	79
1250	AMA 450L4L	17	1487	95.7	96.0	0.86	0.84	145	5.0	43	8029	0.6	2.0	27.7	3810	80
1400	AMA 450L4L	18	1486	95.9	96.2	0.87	0.86	160	5.0	42	8996	0.7	1.9	29.4	3940	80
1600	AMA 450L4L	19	1486	96.1	96.4	0.89	0.88	180	5.1	43	10281	0.7	1.9	33.0	4210	80
1800	AMA 500L4L	20	1489	96.1	96.3	0.89	0.88	203	5.0	49	11540	0.6	1.8	50.5	5070	81
2000	AMA 500L4L	21	1490	96.2	96.4	0.89	0.88	225	5.1	53	12822	0.6	1.9	53.5	5230	81
2240	AMA 500L4L	22	1490	96.3	96.6	0.89	0.88	252	5.1	60	14359	0.7	1.9	56.4	5390	81
2500	AMA 500L4L	23	1490	96.5	96.8	0.89	0.88	281	5.3	68	16021	0.7	2.0	62.2	5710	81
2800	AMA 500L4L	472	1490	96.7	96.9	0.89	0.88	312	5.5	73	17941	0.7	2.0	68.3	6020	81

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## 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	8642	986	94.7	95.2	0.84	0.82	60	4.3	19	4842	0.6	1.7	13.7	2830	77
560	AMA 400L6L	25	987	94.8	95.2	0.84	0.81	68	5.0	25	5416	0.8	2.0	16.7	2810	77
630	AMA 400L6L	26	987	94.9	95.3	0.85	0.82	75	4.9	25	6096	0.8	1.9	18.0	2910	77
710	AMA 400L6L	27	988	95.2	95.5	0.85	0.82	85	5.3	30	6861	0.9	2.1	20.4	3100	77
800	AMA 400L6L	28	988	95.3	95.6	0.84	0.81	96	5.4	35	7730	0.9	2.1	21.6	3190	77
900	AMA 450L6L	29	991	95.6	95.9	0.86	0.83	106	5.3	35	8674	0.7	2.1	35.5	3830	78
1000	AMA 450L6L	30	990	95.8	96.2	0.87	0.85	115	5.1	34	9643	0.7	1.9	37.8	3950	78
1120	AMA 450L6L	31	991	96.0	96.3	0.86	0.84	130	5.3	40	10796	0.7	2.0	40.0	4080	78
1250	AMA 450L6L	32	990	95.9	96.3	0.87	0.85	144	5.0	40	12059	0.7	1.9	42.3	4190	78
1400	AMA 450L6L	33	990	96.0	96.4	0.87	0.86	161	5.1	44	13502	0.7	2.0	46.8	4430	78
1600	AMA 500L6L	34	991	96.1	96.5	0.88	0.87	181	5.3	47	15418	0.8	2.0	65.5	5210	79
1800	AMA 500L6L	35	991	96.2	96.6	0.89	0.88	203	5.3	51	17344	0.8	2.0	72.8	5500	79
2000	AMA 500L6L	473	991	96.3	96.7	0.89	0.88	224	5.3	53	19272	0.8	2.0	80.1	5800	79
2250	AMA 500L6L	474	991	96.4	96.8	0.89	0.89	251	5.4	59	21678	0.8	2.0	87.4	6090	79
<b>750 r/min = 8 poles</b>																
<b>6000 V 50 Hz</b>																
315	AMA 400L8L	36	739	93.8	94.3	0.84	0.81	39	4.6	14	4070	0.8	1.8	17.6	2690	75
355	AMA 400L8L	37	739	93.8	94.3	0.84	0.81	43	4.6	16	4586	0.8	1.8	19.0	2790	75
400	AMA 400L8L	38	739	94.3	94.7	0.84	0.81	49	4.7	17	5166	0.8	1.8	20.4	2880	75
450	AMA 400L8L	39	739	94.3	94.8	0.84	0.82	54	4.6	19	5815	0.8	1.8	21.8	2980	75
500	AMA 400L8L	40	739	94.4	94.9	0.84	0.82	60	4.6	21	6461	0.8	1.8	23.3	3070	75
560	AMA 400L8L	41	739	94.6	95.0	0.84	0.81	68	4.7	24	7234	0.9	1.8	24.7	3160	75
630	AMA 450L8L	42	742	95.1	95.5	0.83	0.80	76	5.2	29	8109	0.8	2.1	38.0	3670	76
710	AMA 450L8L	43	742	95.2	95.6	0.83	0.80	86	5.3	33	9138	0.8	2.1	40.7	3800	76
800	AMA 450L8L	44	741	95.3	95.8	0.86	0.84	94	4.7	29	10311	0.7	1.8	46.1	4030	76
900	AMA 450L8L	45	741	95.5	95.9	0.86	0.84	105	4.8	32	11598	0.7	1.8	51.5	4270	76
1000	AMA 500L8L	46	739	95.3	95.9	0.87	0.86	116	4.5	32	12914	0.7	1.8	66.7	4870	77
1120	AMA 500L8L	47	739	95.4	96.0	0.87	0.86	129	4.5	33	14464	0.7	1.8	75.5	5170	77
1250	AMA 500L8L	48	741	95.7	96.2	0.87	0.86	144	4.7	38	16101	0.7	1.8	85.0	5440	77
1400	AMA 500L8L	49	742	96.0	96.3	0.87	0.85	161	5.2	48	18011	0.8	2.0	93.9	5750	77
1600	AMA 500L8L	475	742	96.0	96.4	0.87	0.86	184	5.0	51	20596	0.7	1.9	102.8	6040	77

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# 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	8651	591	93.0	93.1	0.72	0.66	32	3.7	17	3618	0.6	1.7	13.9	2800	75
250	AMA 400L10L	8652	591	93.2	93.3	0.72	0.66	36	3.7	19	4037	0.6	1.8	14.8	2900	75
280	AMA 400L10L	8653	592	93.2	93.4	0.74	0.68	39	4.1	20	4520	0.7	1.8	18.1	2890	75
315	AMA 400L10L	8654	591	93.5	93.7	0.75	0.70	43	4.0	21	5086	0.6	1.8	20.6	3080	75
355	AMA 400L10L	54	592	93.6	93.8	0.76	0.71	48	4.4	23	5725	0.8	1.8	23.4	3070	75
400	AMA 400L10L	55	592	93.7	94.0	0.77	0.72	53	4.3	24	6455	0.8	1.7	24.8	3170	75
450	AMA 450L10L	56	591	94.0	94.6	0.83	0.80	56	4.2	20	7268	0.7	1.7	37.9	3650	76
500	AMA 450L10L	57	591	94.2	94.7	0.83	0.80	62	4.3	22	8074	0.7	1.7	40.5	3770	76
560	AMA 450L10L	58	592	94.4	94.8	0.82	0.79	69	4.4	26	9038	0.8	1.8	43.2	3890	76
630	AMA 450L10L	59	592	94.5	95.0	0.83	0.80	77	4.4	28	10167	0.8	1.8	48.6	4120	76
710	AMA 500L10L	60	594	95.2	95.5	0.83	0.79	86	5.0	33	11414	0.7	2.0	72.4	4980	77
800	AMA 500L10L	61	594	95.3	95.6	0.84	0.81	96	4.9	35	12869	0.7	1.9	77.0	5130	77
900	AMA 500L10L	62	593	95.4	95.8	0.84	0.81	108	4.7	37	14484	0.7	1.9	81.5	5320	77
1000	AMA 500L10L	63	594	95.6	95.9	0.84	0.81	119	4.9	41	16082	0.7	1.9	95.0	5760	77
1120	AMA 500L10L	476	594	95.5	95.9	0.85	0.82	133	4.8	44	18019	0.7	1.8	104.0	6020	77
<b>500 r/min = 12 poles</b>																
<b>6000 V 50 Hz</b>																
160	AMA 400L12L	8655	493	91.6	91.3	0.69	0.63	24	3.8	14	3101	0.7	1.8	18.1	2880	75
180	AMA 400L12L	8656	493	91.7	91.4	0.69	0.63	27	3.7	16	3490	0.7	1.7	18.1	2880	75
200	AMA 400L12L	8657	493	91.9	91.5	0.68	0.61	31	3.8	18	3875	0.8	1.8	19.4	2980	75
224	AMA 400L12L	8658	492	92.0	91.8	0.70	0.63	34	3.7	19	4344	0.7	1.7	20.6	3070	75
250	AMA 400L12L	68	492	92.1	92.1	0.73	0.67	36	3.9	19	4848	0.8	1.8	23.5	3060	75
280	AMA 400L12L	69	492	92.2	92.3	0.74	0.69	40	3.7	20	5435	0.7	1.6	24.9	3150	75
315	AMA 450L12L	70	494	93.7	93.7	0.74	0.68	44	4.4	23	6091	0.8	1.9	38.0	3640	76
355	AMA 450L12L	71	494	93.8	93.9	0.75	0.69	49	4.4	25	6866	0.8	1.9	40.7	3760	76
400	AMA 450L12L	72	494	93.9	94.0	0.74	0.68	55	4.4	29	7736	0.8	1.9	43.4	3880	76
450	AMA 450L12L	73	494	94.1	94.2	0.76	0.70	61	4.3	30	8706	0.8	1.8	48.8	4120	76
500	AMA 450L12L	74	493	93.7	94.1	0.77	0.72	67	4.1	31	9681	0.7	1.7	51.5	4200	76
560	AMA 500L12L	75	494	94.4	94.6	0.78	0.73	73	4.4	34	10831	0.7	1.9	71.8	4960	77
630	AMA 500L12L	76	493	94.4	94.8	0.79	0.75	81	4.2	35	12197	0.7	1.8	76.4	5110	77
710	AMA 500L12L	77	493	94.6	94.9	0.79	0.75	91	4.3	39	13741	0.7	1.8	85.3	5410	77
800	AMA 500L12L	78	493	94.8	95.1	0.79	0.75	102	4.2	43	15491	0.6	1.7	89.7	5600	77
900	AMA 500L12L	580	494	95.0	95.2	0.79	0.75	115	4.4	49	17414	0.7	1.8	103.1	6040	77

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## 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>3000 r/min = 2 poles</b>				<b>10000 V 50 Hz</b>												
630	AMA 450L2L	8632	2978	94.7	94.8	0.87	0.85	44	5.3	13	2020	0.5	2.3	10.9	3620	83
710	AMA 450L2L	8633	2975	94.6	94.8	0.88	0.86	49	4.8	13	2279	0.5	2.0	10.9	3620	83
800	AMA 450L2L	8634	2973	94.8	95.1	0.88	0.88	55	4.5	12	2570	0.4	1.9	11.7	3770	83
900	AMA 450L2L	8635	2975	95.2	95.4	0.89	0.87	61	4.9	15	2889	0.5	2.1	12.5	3920	83
1000	AMA 450L2L	8636	2980	95.8	95.9	0.89	0.87	68	5.4	16	3204	0.5	2.3	12.9	4070	83
1120	AMA 500L2L	162	2985	95.8	95.7	0.87	0.84	78	5.5	24	3583	0.5	2.3	17.4	4580	84
1250	AMA 500L2L	163	2985	96.0	96.0	0.88	0.86	86	5.5	24	3999	0.5	2.3	18.8	4770	84
1400	AMA 500L2L	164	2985	96.2	96.2	0.88	0.86	95	5.5	26	4479	0.5	2.2	20.1	4960	84
1600	AMA 500L2L	165	2984	96.3	96.4	0.90	0.89	107	5.3	24	5120	0.5	2.2	21.5	5160	84
1800	AMA 500L2L	485	2985	96.5	96.6	0.90	0.88	120	5.5	28	5758	0.5	2.2	22.5	5340	84
<b>1500 r/min = 4 poles</b>				<b>10000 V 50 Hz</b>												
710	AMA 450L4L	8638	1488	95.1	95.0	0.88	0.85	49	5.8	15	4557	0.6	2.4	22.5	3720	80
800	AMA 450L4L	8639	1488	95.2	95.1	0.87	0.83	56	5.8	19	5135	0.6	2.5	22.5	3730	80
900	AMA 450L4L	8640	1488	95.5	95.5	0.88	0.86	62	6.0	19	5776	0.7	2.5	25.2	3970	80
1000	AMA 450L4L	8641	1487	95.4	95.6	0.88	0.87	68	5.4	19	6424	0.6	2.3	25.2	3970	80
1120	AMA 500L4L	170	1491	95.2	95.2	0.88	0.86	77	5.6	22	7172	0.5	2.2	44.2	4670	81
1250	AMA 500L4L	171	1491	95.6	95.7	0.89	0.87	85	5.6	24	8004	0.6	2.1	46.9	4840	81
1400	AMA 500L4L	172	1491	95.8	95.9	0.89	0.87	95	5.7	26	8964	0.6	2.2	49.8	4990	81
1600	AMA 500L4L	173	1491	96.0	96.1	0.88	0.86	109	5.5	31	10245	0.5	2.1	52.4	5150	81
1800	AMA 500L4L	174	1489	96.0	96.1	0.88	0.87	123	5.6	33	11544	0.7	2.2	55.0	5310	81
2000	AMA 500L4L	486	1491	96.2	96.3	0.87	0.85	138	6.0	43	12810	0.7	2.4	58.2	5460	81
2240	AMA 500L4L	487	1490	96.1	96.3	0.88	0.86	152	5.7	42	14359	0.7	2.2	58.5	5460	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 totally enclosed squirrel cage three phase motors

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

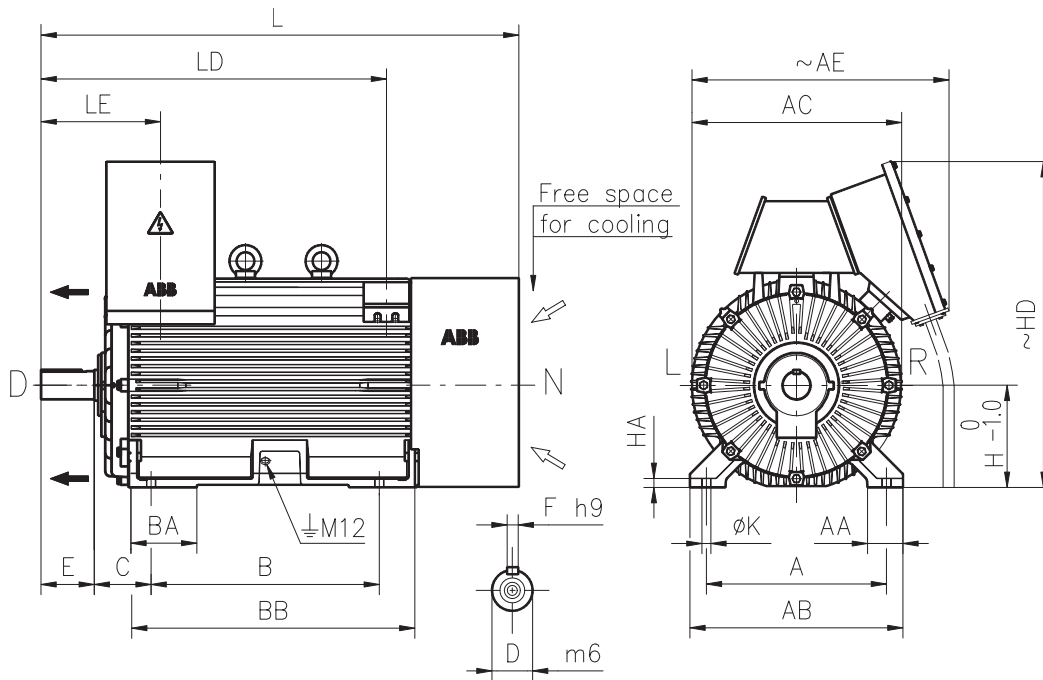
Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I <sub>N</sub> A	I <sub>s</sub> A	I <sub>0</sub> A	T <sub>N</sub> 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>																
500	AMA 450L6L	8643	991	95.2	95.1	0.83	0.78	37	6.0	15	4816	0.9	2.4	28.4	3870	78
560	AMA 450L6L	8644	990	95.2	95.2	0.84	0.80	40	5.4	15	5401	0.8	2.2	28.4	3870	78
630	AMA 450L6L	8645	989	95.1	95.3	0.85	0.82	45	5.0	15	6084	0.8	2.0	28.5	3870	78
710	AMA 450L6L	8646	990	95.4	95.5	0.84	0.81	51	5.4	18	6852	0.8	2.1	30.1	3990	78
800	AMA 450L6L	8647	989	95.3	95.6	0.85	0.83	57	4.8	18	7726	0.7	1.9	30.3	4000	78
900	AMA 450L6L	8648	989	95.3	95.6	0.85	0.82	64	4.8	21	8690	0.7	1.9	30.4	4000	78
1000	AMA 500L6L	181	994	95.7	95.9	0.87	0.85	69	5.6	21	9610	0.6	2.1	61.7	4970	79
1120	AMA 500L6L	182	994	95.8	96.1	0.87	0.85	77	5.6	24	10763	0.6	2.1	65.2	5120	79
1250	AMA 500L6L	183	993	95.9	96.1	0.87	0.85	86	5.6	27	12018	0.7	2.1	68.1	5260	79
1400	AMA 500L6L	488	993	96.0	96.3	0.87	0.85	96	5.6	30	13460	0.7	2.1	71.8	5420	79
1600	AMA 500L6L	489	992	95.9	96.3	0.88	0.87	109	5.5	30	15397	0.7	2.0	72.8	5430	79
<b>750 r/min = 8 poles</b>																
<b>10000 V 50 Hz</b>																
710	AMA 500L8L	8649	744	95.3	95.5	0.84	0.81	51	5.8	19	9107	0.8	2.1	71.8	4930	77
800	AMA 500L8L	185	745	95.5	95.7	0.84	0.80	58	5.6	22	10255	0.7	2.1	76.3	5080	77
900	AMA 500L8L	186	745	95.7	95.8	0.84	0.80	65	5.5	25	11538	0.7	2.0	80.8	5230	77
1000	AMA 500L8L	187	745	95.7	95.9	0.83	0.79	72	5.6	28	12819	0.8	2.1	85.2	5380	77
1120	AMA 500L8L	490	745	95.9	96.1	0.84	0.81	80	5.5	30	14359	0.7	2.0	94.1	5670	77
1250	AMA 500L8L	491	744	95.8	96.1	0.86	0.83	88	5.5	29	16039	0.8	2.0	94.8	5680	77
<b>600 r/min = 10 poles</b>																
<b>10000 V 50 Hz</b>																
500	AMA 500L10L	188	594	94.2	94.4	0.82	0.78	37	5.5	16	8034	0.9	2.2	67.4	4750	77
560	AMA 500L10L	189	594	94.4	94.6	0.83	0.79	41	5.4	17	9002	0.8	2.1	71.9	4900	77
630	AMA 500L10L	190	594	94.5	94.8	0.84	0.80	46	5.2	18	10130	0.8	2.1	76.3	5050	77
710	AMA 500L10L	191	595	94.7	95.0	0.83	0.79	52	5.3	21	11404	0.8	2.1	81.6	5200	77
800	AMA 500L10L	492	595	94.8	95.1	0.83	0.79	58	5.3	24	12849	0.8	2.1	86.1	5350	77
<b>500 r/min = 12 poles</b>																
<b>10000 V 50 Hz</b>																
355	AMA 500L12L	8659	494	93.1	93.3	0.76	0.70	29	4.1	15	6859	0.6	1.9	54.3	4610	77
400	AMA 500L12L	8660	494	93.4	93.5	0.75	0.69	33	4.2	17	7725	0.6	2.0	58.0	4760	77
450	AMA 500L12L	8661	495	93.8	93.8	0.76	0.70	37	4.3	18	8690	0.6	2.0	65.4	5050	77
500	AMA 500L12L	195	495	93.8	93.9	0.78	0.72	39	4.9	19	9654	0.7	2.1	80.8	5180	77
560	AMA 500L12L	196	494	93.9	94.1	0.78	0.73	44	4.8	21	10815	0.7	2.0	85.3	5330	77
630	AMA 500L12L	495	494	94.1	94.2	0.78	0.73	49	4.7	24	12169	0.7	2.0	89.7	5470	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.

# 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.

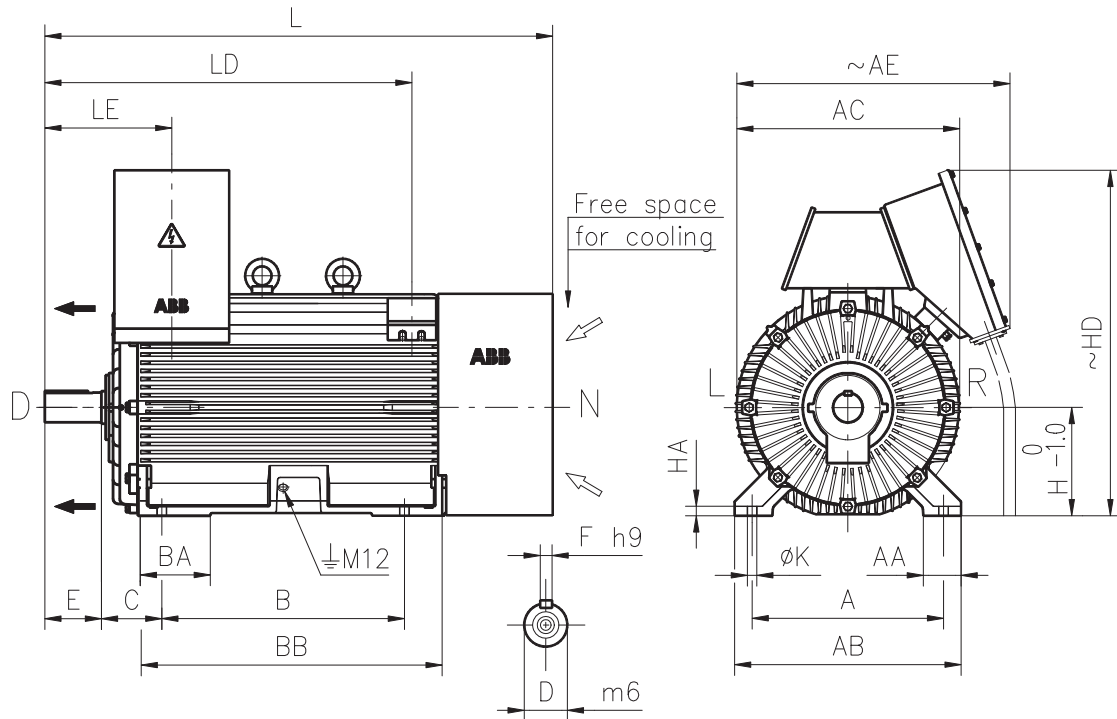
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# 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	$\geq 4$	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	$\geq 4$	900	1250	280	120	210	32	500	1280	1630	2455	42	1840	500
560L	$\geq 4$	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	$\geq 4$	160	950	940	320	1300	40	6324/C3	6322/C3
500L	2	170	1050	1050	375	1570	45	6319M/C3	6319M/C3
500L	$\geq 4$	170	1050	1050	375	1570	45	6326/C3	6324/C3
560L	$\geq 4$	230	1170	1190	620	1940	50	6034/C3 + NU1034/C3	NU322/C3

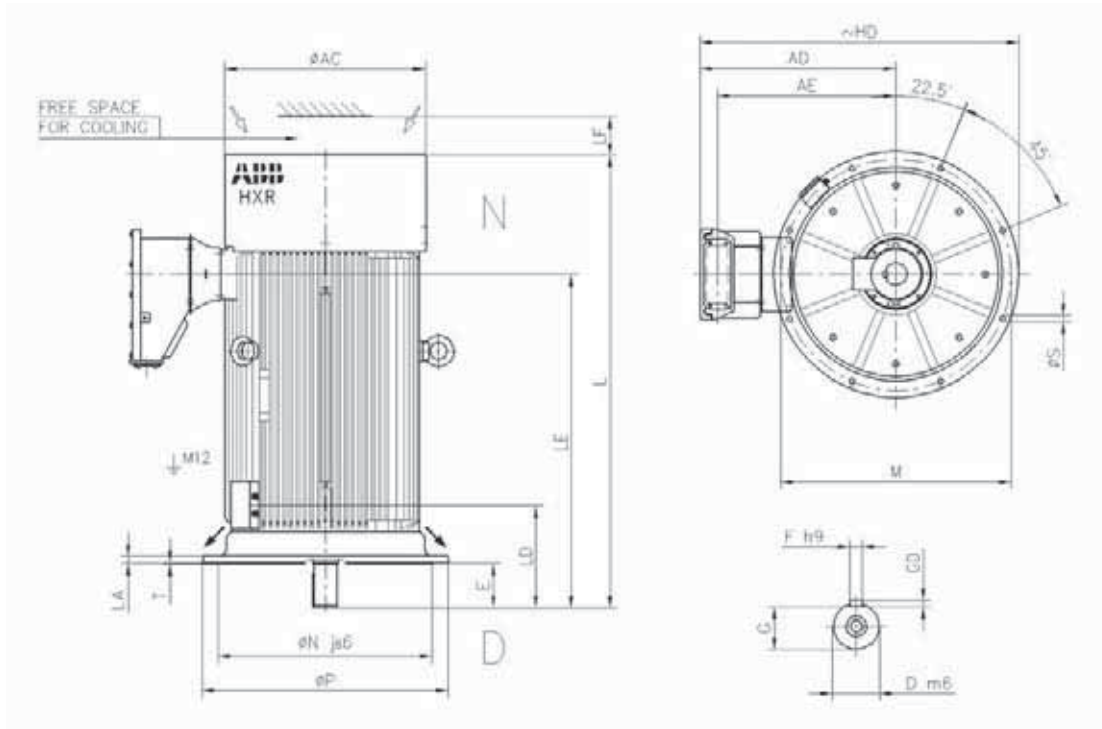
The above table gives the main dimensions in mm.

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.

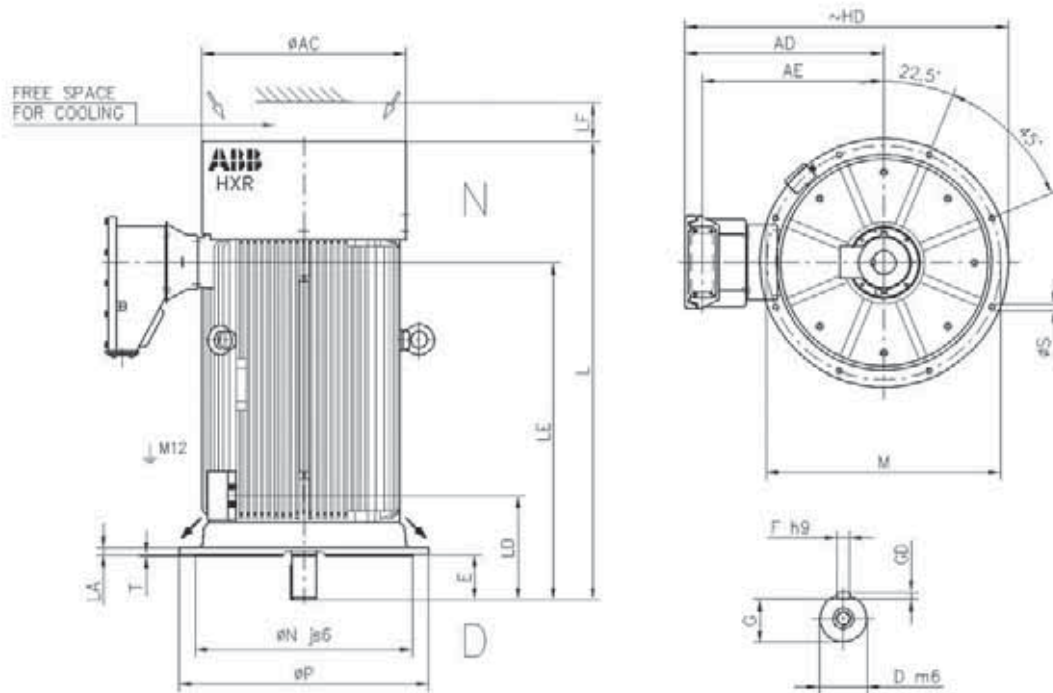
The above table gives the main dimensions in mm.

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.

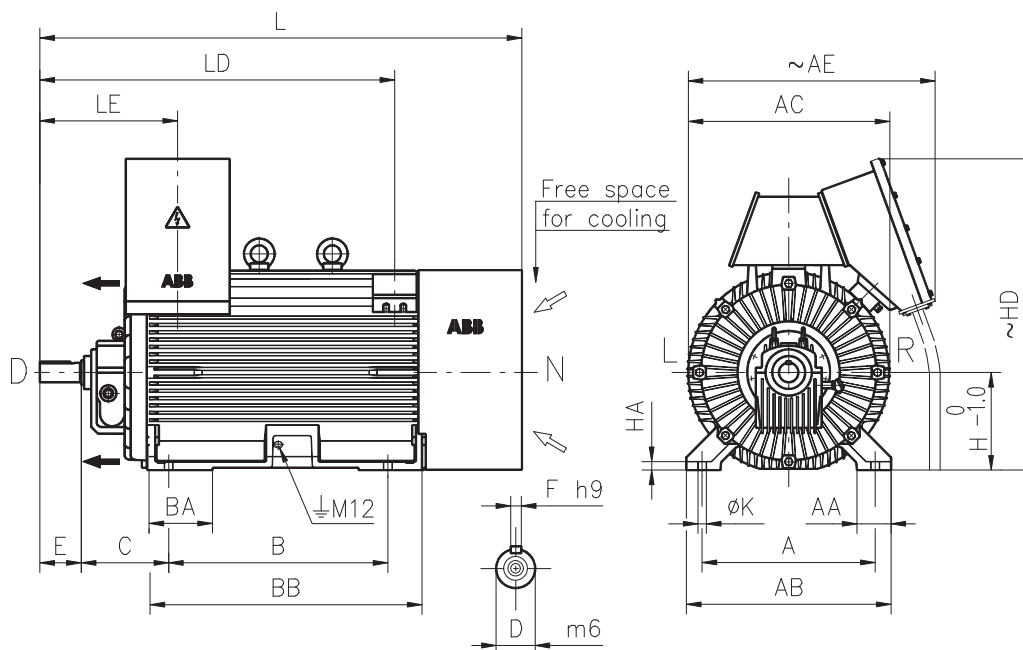
The above table gives the main dimensions in mm.

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.

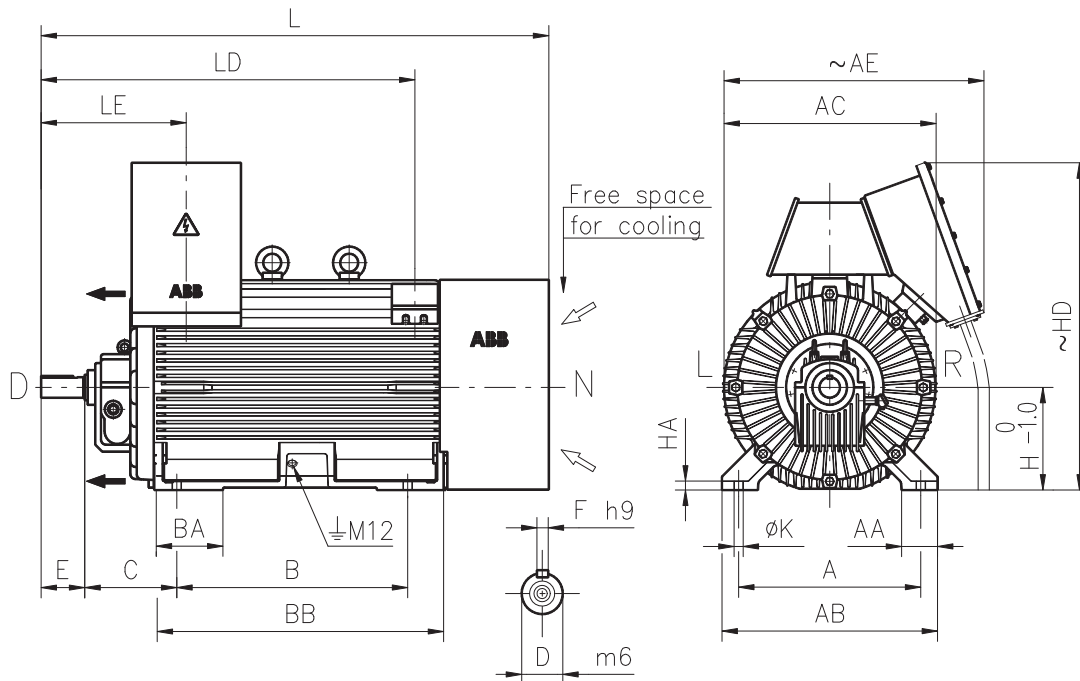
The above table gives the main dimensions in mm.

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.

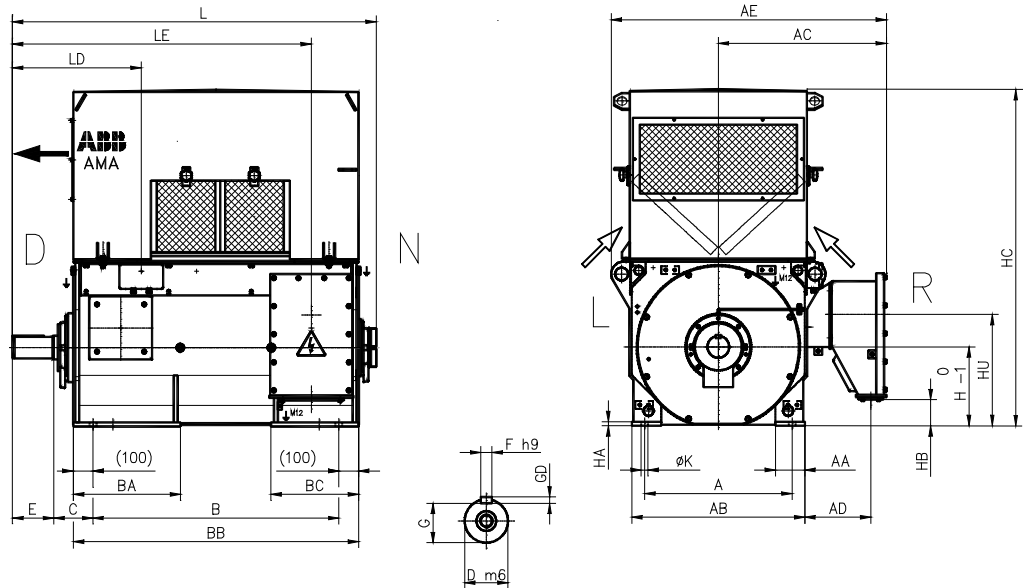
The above table gives the main dimensions in mm.

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

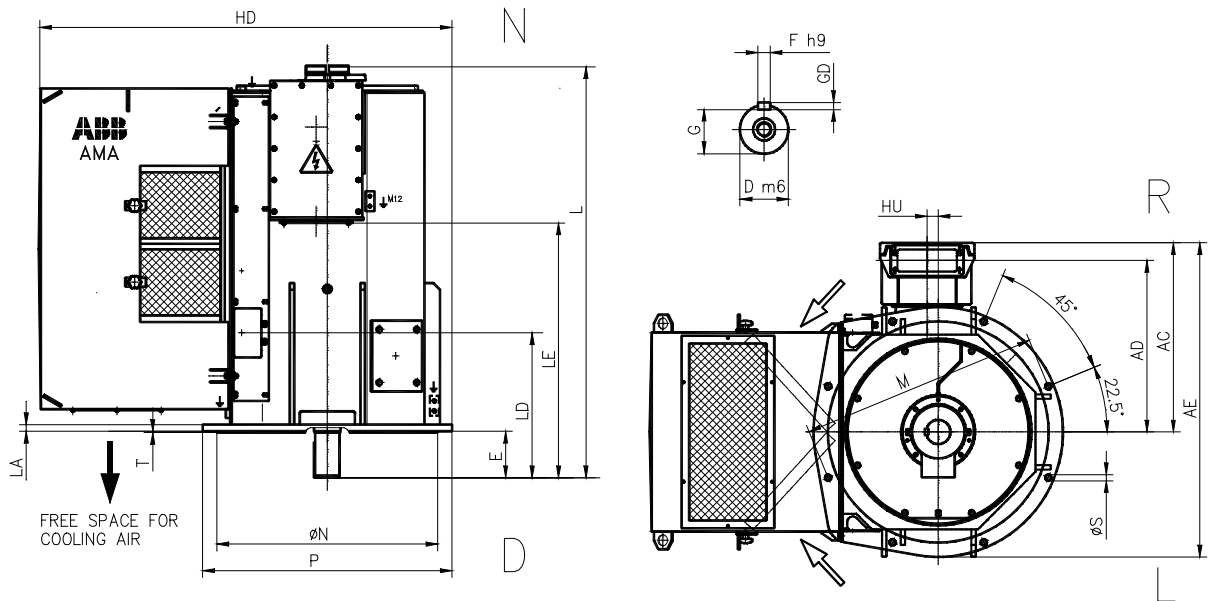
The above table gives the main dimensions in mm.

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

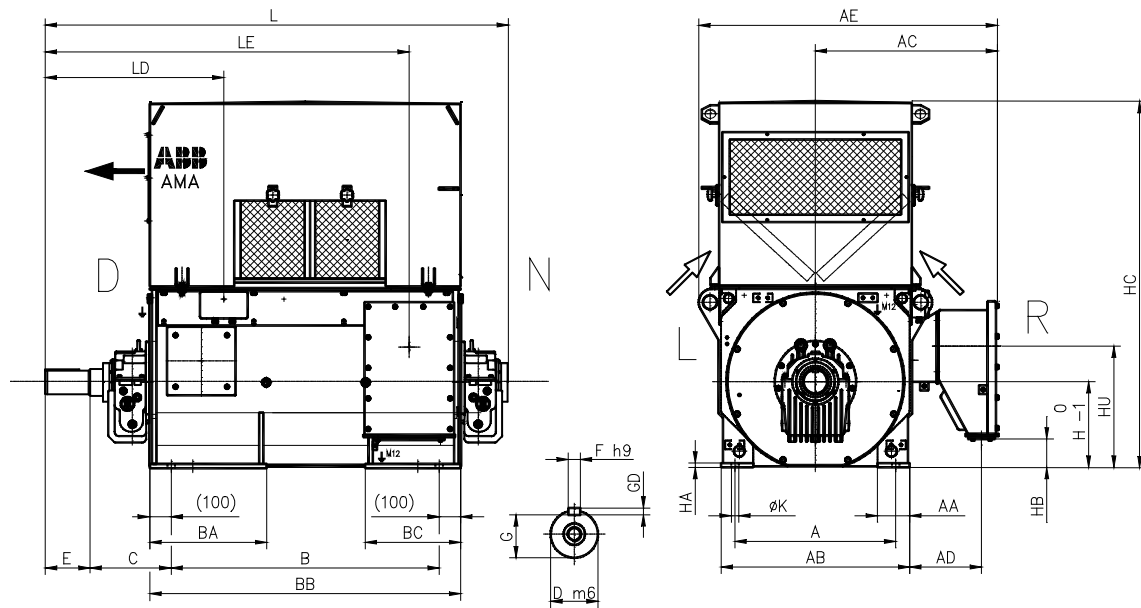
The above table gives the main dimensions in mm.

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.

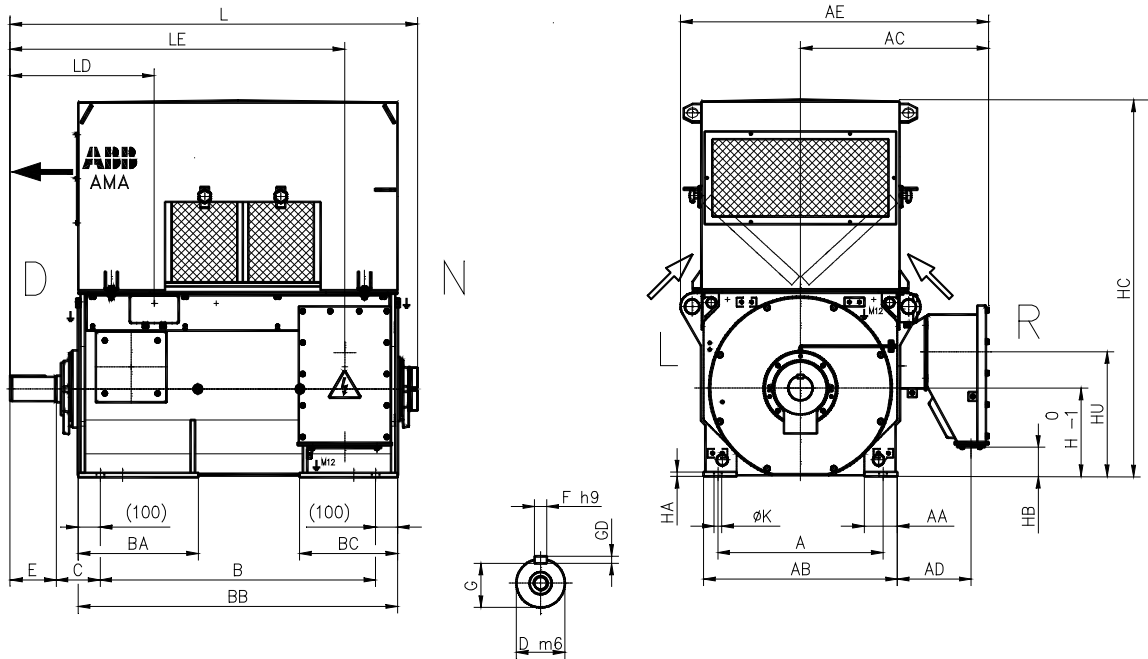
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# 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

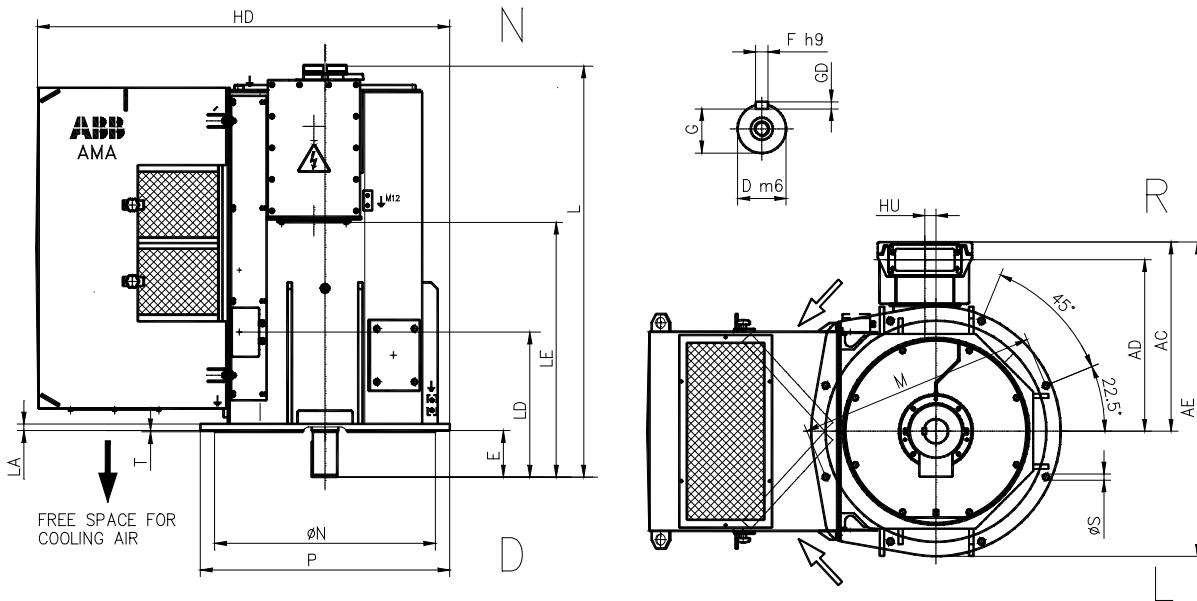
The above table gives the main dimensions in mm.

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, 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

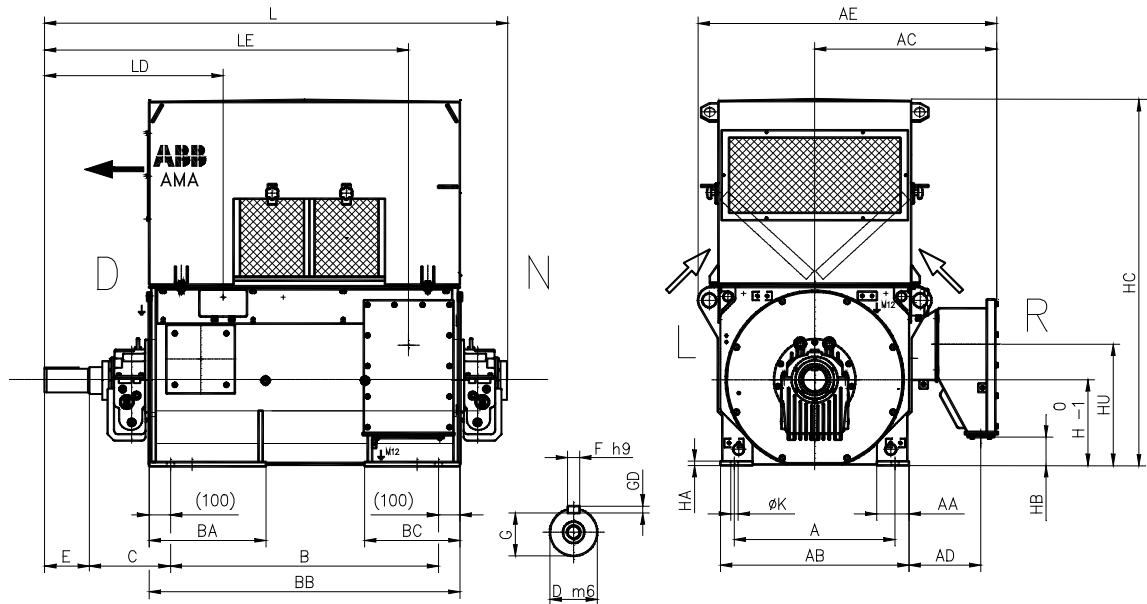
The above table gives the main dimensions in mm.

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.

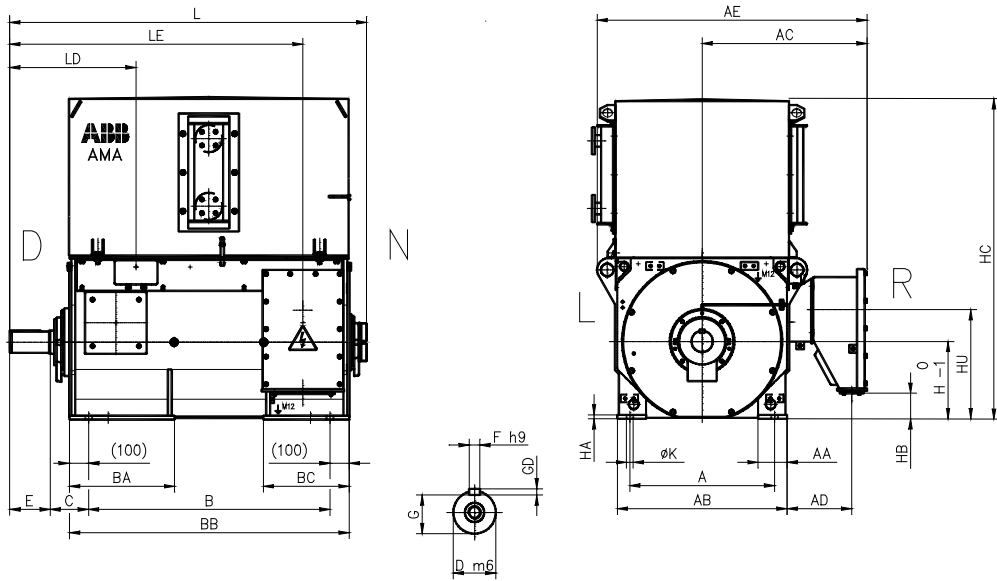
The above table gives the main dimensions in mm.

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

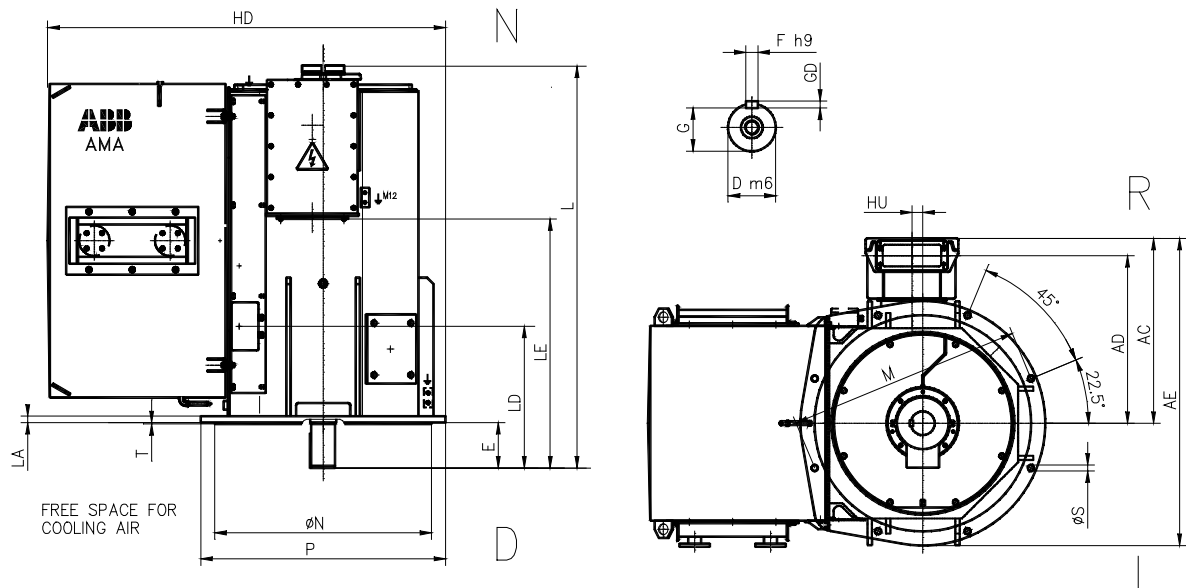
The above table gives the main dimensions in mm.

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	$\geq 4$	1080	1000js6	1130	28	110	210	28	100	1835	1860	30	655	1150
450L	$\geq 4$	1180	1120h8	1230	28	125	210	32	114	2035	2020	40	750	1300
500L	$\geq 4$	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	$\geq 4$	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

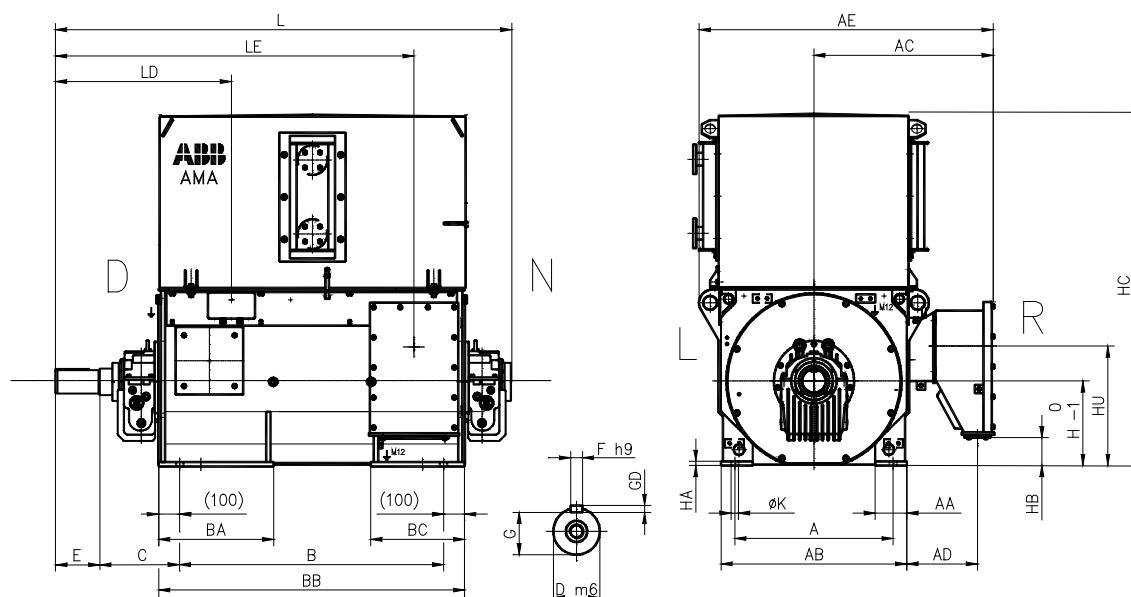
The above table gives the main dimensions in mm.

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, 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.

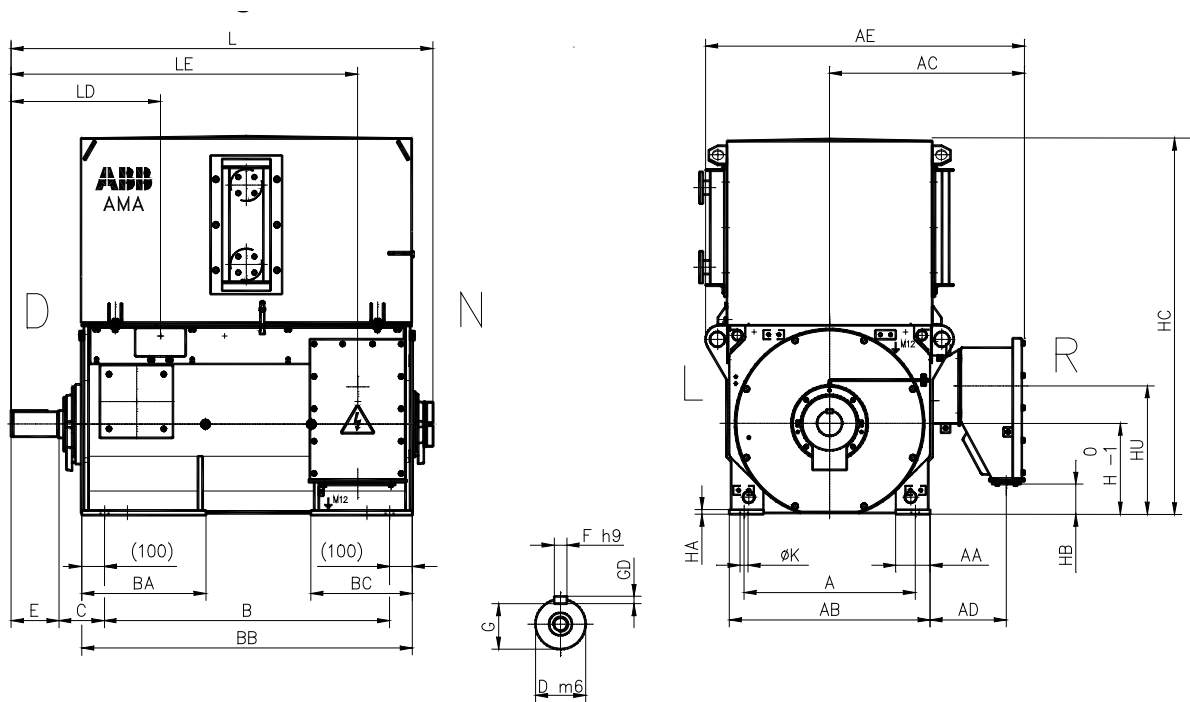
The above table gives the main dimensions in mm.

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

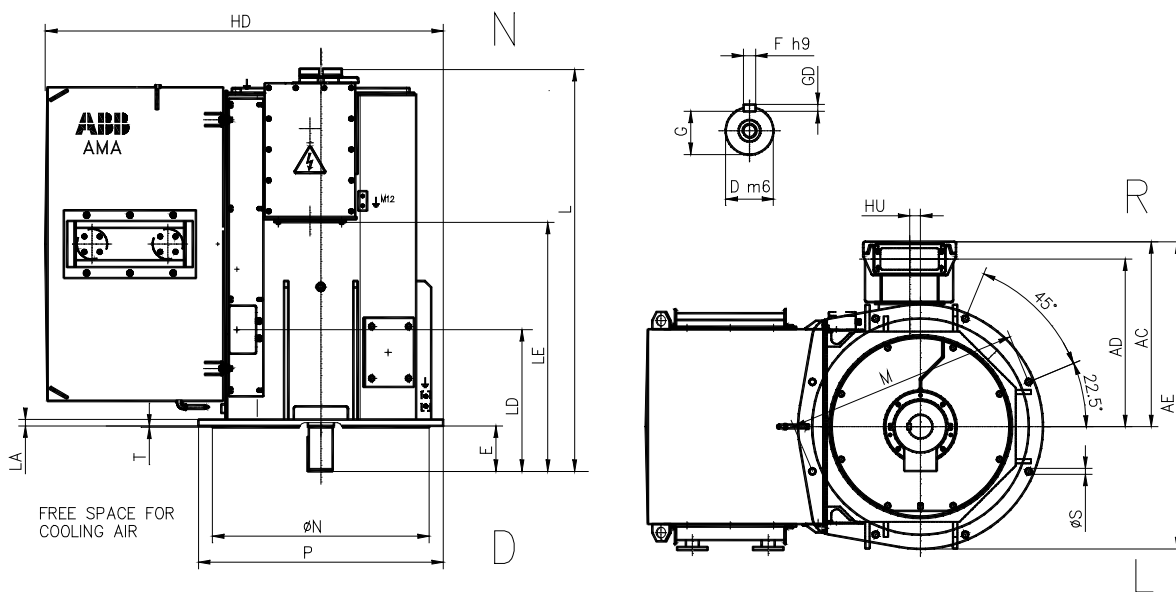
The above table gives the main dimensions in mm.

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.

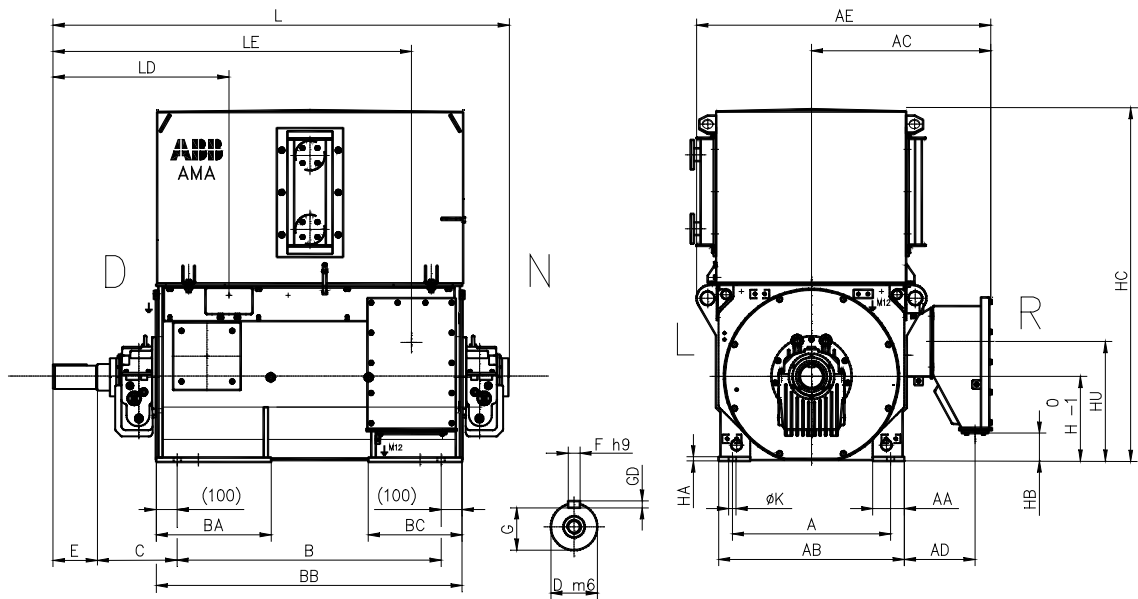
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# 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

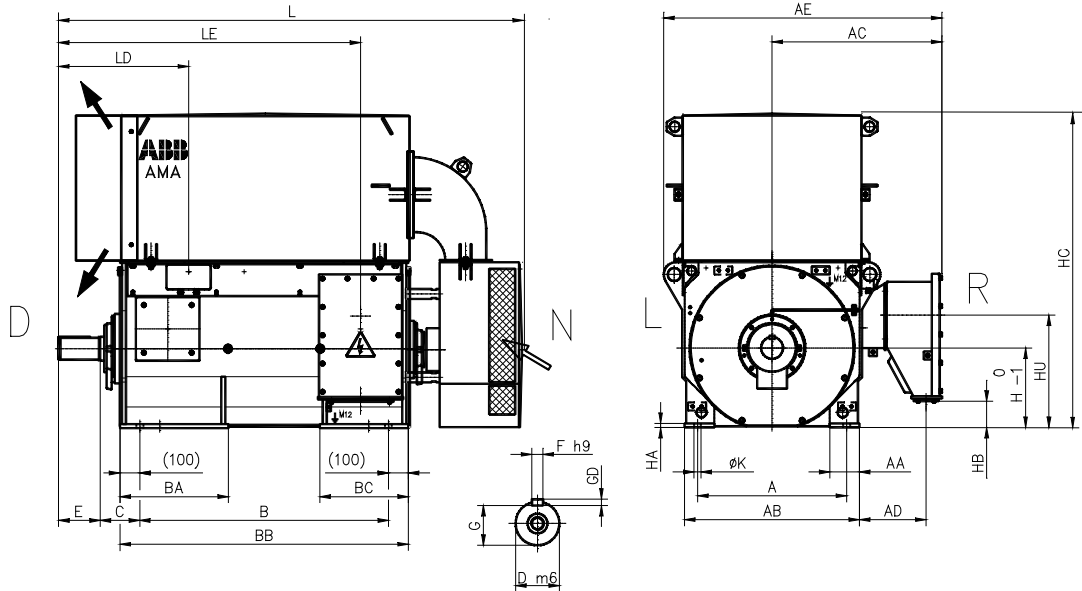
The above table gives the main dimensions in mm.

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,  $1 < U_N \leq 6.6 \text{ kV}$ , 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

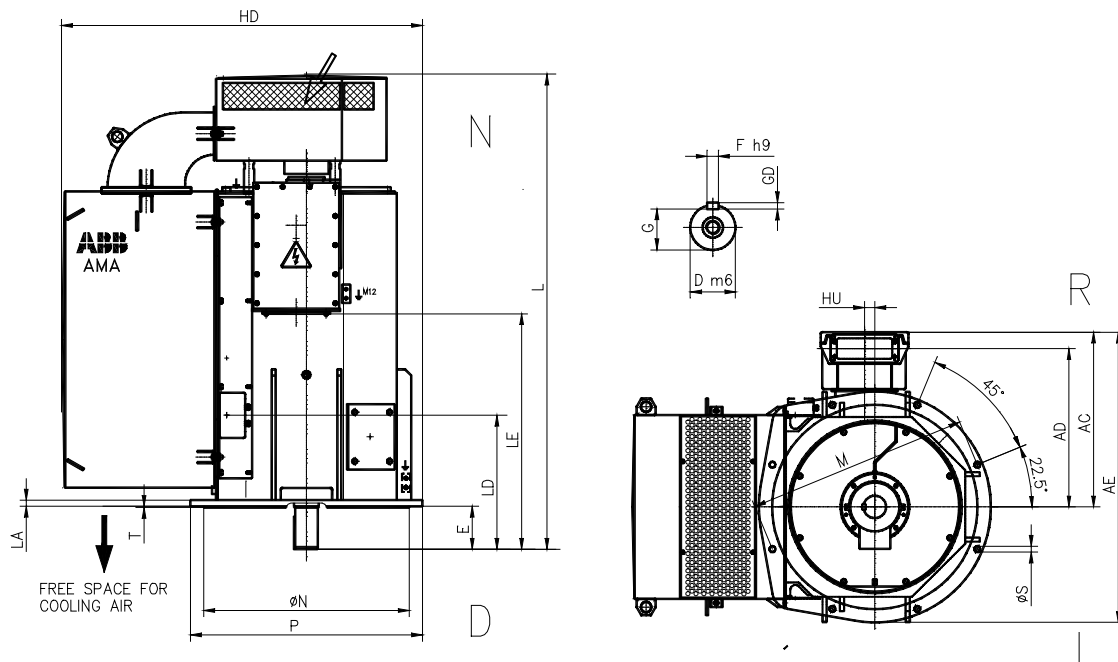
The above table gives the main dimensions in mm.

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

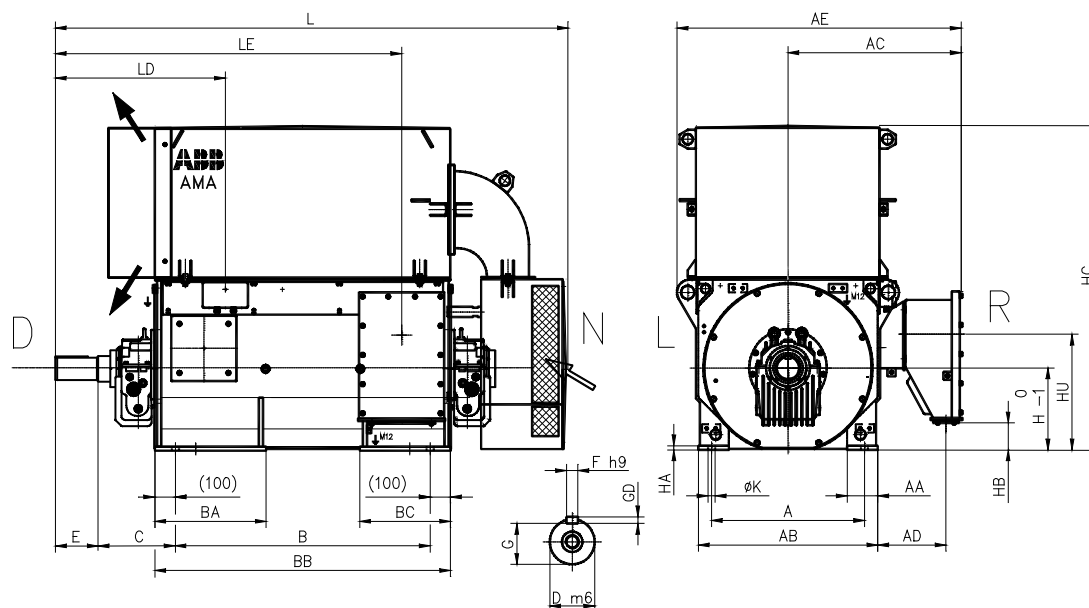
The above table gives the main dimensions in mm.

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.

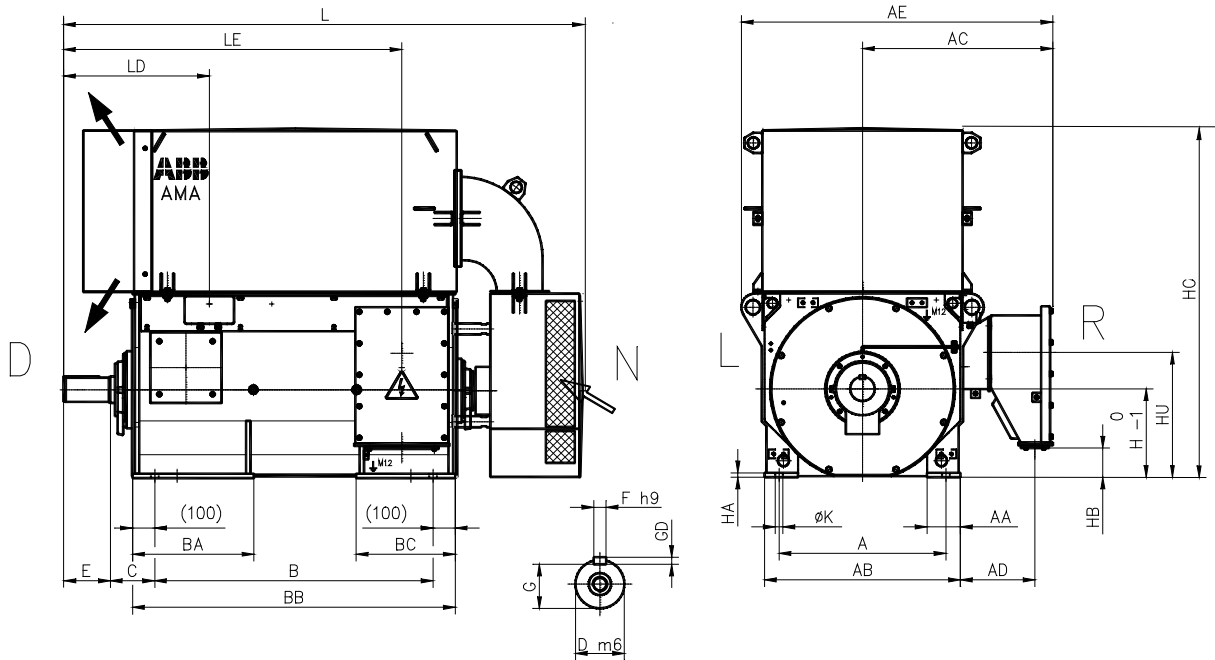
The above table gives the main dimensions in mm.

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

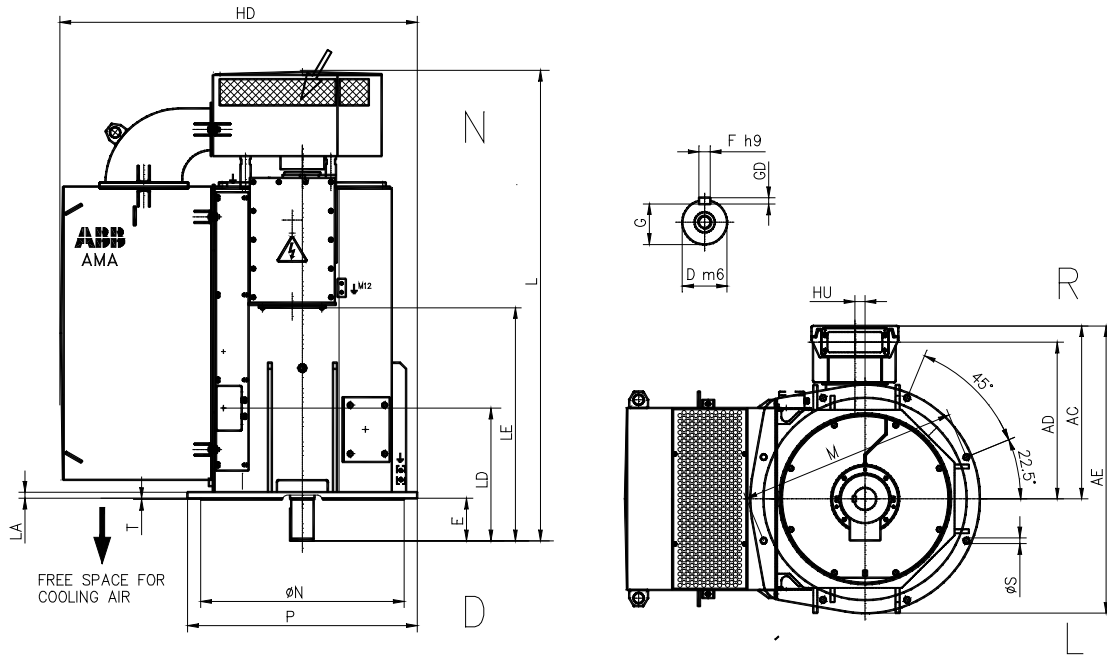
The above table gives the main dimensions in mm.

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

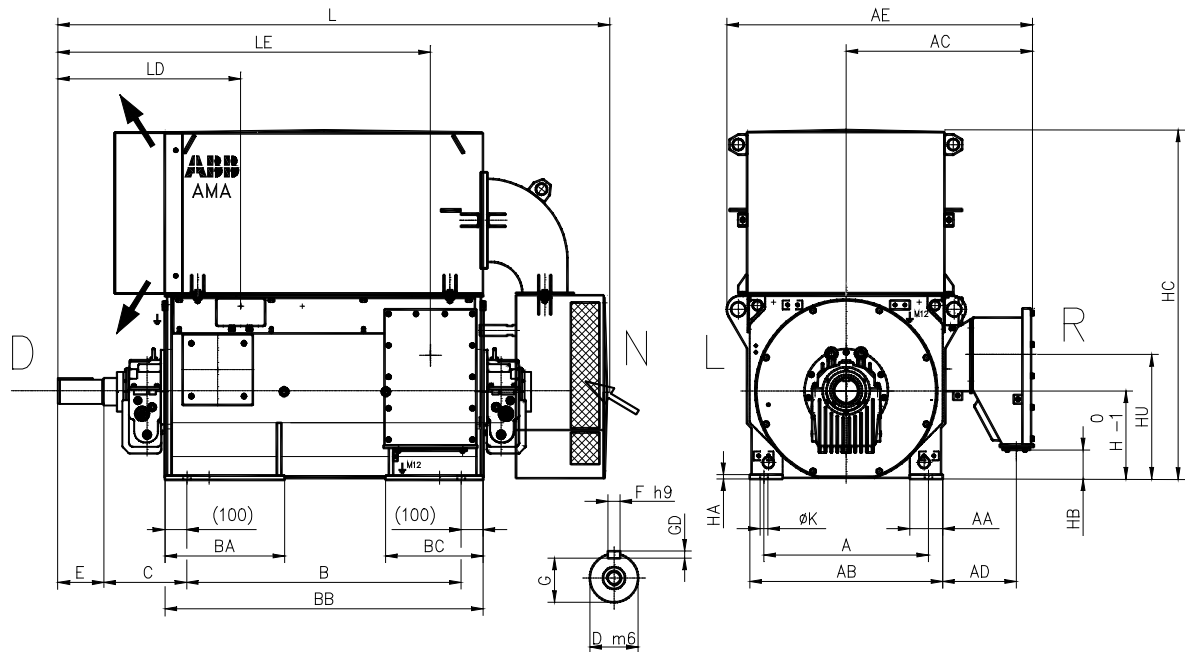
The above table gives the main dimensions in mm.

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.

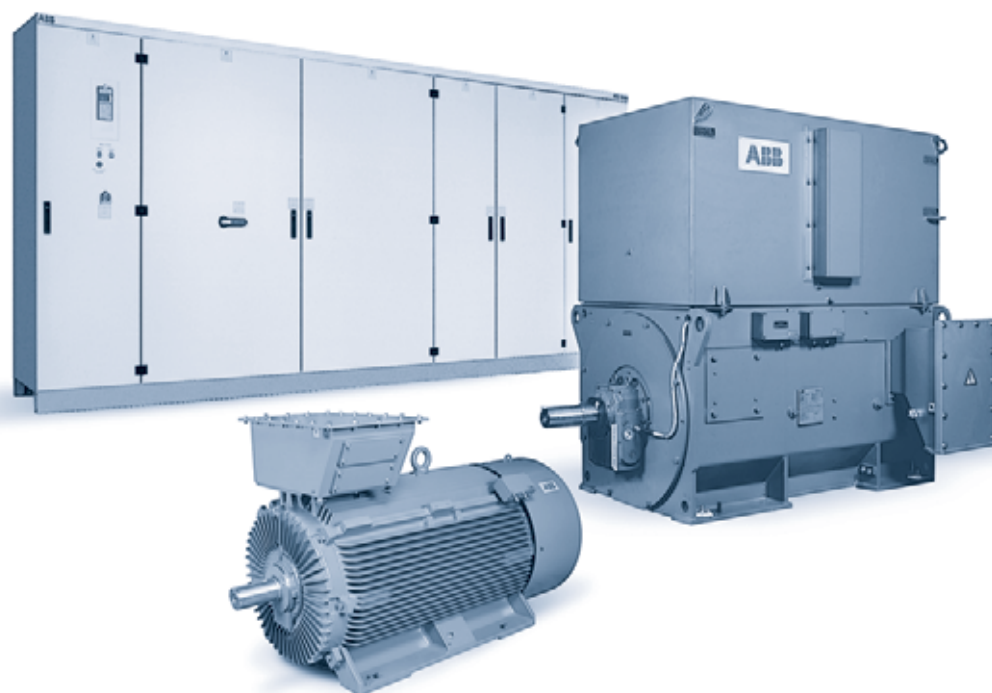






# Engineered Motors for Low Voltage Variable Speed Drives

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



3

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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 132.

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

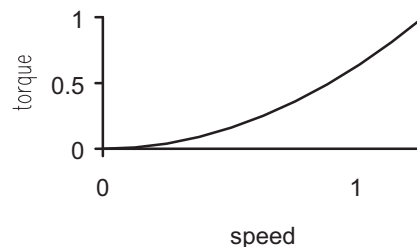


Table above: Rating plate values for a pump drive.

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.

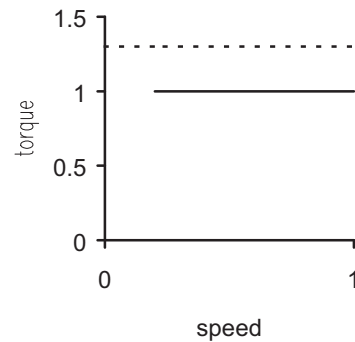


Figure above: Load torque curve for a constant torque drive.

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.

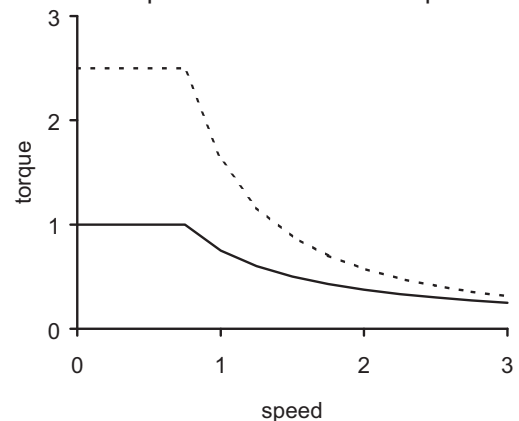


Figure above: Load torque curve for a constant torque drive.

### Frequency Converter & By-pass Drive

In some applications, the frequency converter is fed directly from the mains, the direct-on-line (DOL) method. In these applications, the motor should be checked to ensure it is:

- suitable for direct-on-line operation (rated frequency and voltage vs. the network)
- capable of starting the load (starting torque curve vs. load curve, inertia).

To be suitable for DOL operation the field weakening point choice and that the operational speed is defined by the net frequency. The load torque must be checked as the power requirement will change if the operating speed changes and the motor capacity must be checked. For example, the pump loads can be much higher if the operating speed is increased because of the higher frequency.

In many cases the starting torque available with the frequency converter which may affect the ability of the

motor to start the load. During frequency converter operation, the motor is normally capable of starting with a higher mass of inertia and higher starting torque. In some cases the load torque can be decreased by, for example, closing the valves of the pump (or fan).

The starting current is normally much higher than the rated current (often 600%), thus during by-pass starting the voltage drop in the network might exceed given limits. In all cases the transients in DOL-starts must be considered, such as, forces to the foundation and the shaft torques.

The table below shows the rating plate values for converter supply and DOL operation. In this example, the rated frequency is the same for both applications. If the motor is designed for by-pass operation it is equipped with two rating plates: one for converter supply and one for by-pass (DOL).

CONVERTER SUPPLY	
S1	
0 -	680 kW
0 -	660 V
0 -	50 Hz
0 -	728 A
0 -	995 rpm
0 -	0.84 PF

BY-PASS	
	800 kW
	660 V
	50 Hz
	849 A
	994 rpm
	0.85 PF

Table above: Rating plate values for a by-pass drive.

## Rating plate

ABB		ABB Oy	
		Made in Helsinki, Finland	
Type	AMA 500L6L BAFTH	No	4567890
Year	2006	Phases	3~
Connection	D	Duty	S1
IP	55	Insul.cl.	F
		Weight	6500 kg
		IC	86W
		IM	1001
S1, CONVERTER SUPPLY, ACS			
0 -	600 -	600	kW
0 -	490 -	690	V
880 -	880 -	580	A
0 -	0,85 -	0,91	PF
0 -	20,8 -	70,9	Hz
0 -	406 -	1400,9	rpm
IEC 60034-1			

# 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	95.3	0.85	649	237	4045	2.4	16.3	3150	82
710	AMA 400L4A	VSD10086	1485	95.3	0.88	703	183	4566	2.0	17.3	3240	82
800	AMA 400L4A	VSD10087	1485	95.5	0.88	792	213	5144	2.0	18.3	3350	82
900	AMA 400L4A	VSD10088	1486	95.8	0.88	897	266	5783	2.2	19.3	3460	82
1000	AMA 400L4A	VSD10089	1484	95.7	0.89	980	220	6437	1.8	20.3	3560	82
1120	AMA 450L4A	VSD10090	1487	95.5	0.86	1136	330	7192	1.9	29.5	4130	83
1250	AMA 450L4A	VSD10091	1488	95.8	0.87	1247	344	8022	2.0	32.9	4390	83
1400	AMA 450L4A	VSD10092	1489	96.1	0.87	1396	415	8978	2.2	36.4	4630	83
1600	AMA 500L4A	VSD10093	1490	95.8	0.89	1559	396	10251	2.2	55	5620	84
1800	AMA 500L4A	VSD10094	1489	95.8	0.90	1739	337	11547	1.9	57.9	5780	84
2000	AMA 500L4A	VSD10095	1491	96.3	0.91	1915	449	12810	2.3	66.7	6270	84
2240	AMA 500L4A	VSD10096	1490	96.3	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	94.8	0.84	474	163	4355	1.7	16.8	2970	82
500	AMA 400L6A	VSD10098	987	95.0	0.84	525	182	4836	1.8	18	3070	82
560	AMA 400L6A	VSD10099	987	95.2	0.85	577	178	5417	1.7	20.4	3270	82
630	AMA 400L6A	VSD10100	988	95.3	0.84	656	229	6086	1.9	21.6	3340	82
710	AMA 400L6A	VSD10101	989	95.6	0.84	741	275	6852	2.0	24	3540	82
800	AMA 450L6A	VSD10102	989	95.5	0.87	804	241	7725	2.0	34.6	4020	82
900	AMA 450L6A	VSD10103	989	95.7	0.87	903	270	8690	2.0	36.8	4140	82
1000	AMA 450L6A	VSD10104	990	95.8	0.87	1008	321	9650	2.1	39	4270	82
1120	AMA 450L6A	VSD10105	990	96.0	0.87	1117	340	10806	2.1	43.3	4520	82
1250	AMA 500L6A	VSD10106	991	96.2	0.88	1231	334	12050	2.0	66.8	5600	82
1400	AMA 500L6A	VSD10107	992	96.3	0.87	1391	438	13483	2.3	70.4	5750	82
1600	AMA 500L6A	VSD10108	990	96.2	0.89	1570	382	15439	1.8	73.9	5900	82
1800	AMA 500L6A	VSD10109	991	96.4	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	94.3	0.80	310	129	3618	1.9	18.5	2940	81
315	AMA 400L8A	VSD10111	738	94.4	0.81	345	135	4073	1.8	19.8	3040	81
355	AMA 400L8A	VSD10112	740	94.7	0.80	389	162	4583	2.0	22.6	3230	81
400	AMA 400L8A	VSD10113	740	94.9	0.80	439	188	5161	2.0	23.9	3330	81
450	AMA 400L8A	VSD10114	739	94.8	0.81	489	194	5813	1.9	25.3	3400	81
500	AMA 400L8A	VSD10115	740	95.0	0.81	542	217	6455	1.9	28	3600	81
560	AMA 450L8A	VSD10116	741	95.4	0.83	590	219	7212	1.9	39.3	3980	81
630	AMA 450L8A	VSD10117	742	95.6	0.82	668	262	8109	2.0	41.9	4110	81
710	AMA 450L8A	VSD10118	741	95.6	0.83	745	272	9144	1.9	44.5	4210	81
800	AMA 450L8A	VSD10119	742	95.8	0.83	839	313	10296	2.0	49.7	4460	81
900	AMA 500L8A	VSD10120	743	96.0	0.84	934	345	11563	2.0	74	5390	81
1000	AMA 500L8A	VSD10121	743	96.1	0.84	1037	379	12848	2.0	78.4	5550	81
1120	AMA 500L8A	VSD10122	743	96.2	0.83	1165	432	14389	2.0	82.7	5700	81
1250	AMA 500L8A	VSD10123	744	96.4	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	95.9	0.86	720	237	4563	2.1	14.8	2980	82
800	AMA 400L4W	VSD10048	1485	96.0	0.88	788	213	5143	2.0	16.8	3180	82
900	AMA 400L4W	VSD10049	1486	96.2	0.88	893	267	5783	2.2	17.8	3300	82
1000	AMA 400L4W	VSD10050	1484	96.1	0.89	976	220	6437	1.8	18.8	3400	82
1120	AMA 450L4W	VSD10051	1487	96.1	0.86	1129	330	7191	1.9	27.4	3930	82
1250	AMA 450L4W	VSD10052	1488	96.4	0.87	1240	344	8022	2.0	30.8	4190	82
1400	AMA 450L4W	VSD10053	1489	96.5	0.87	1389	415	8977	2.2	34.3	4420	82
1600	AMA 500L4W	VSD10054	1491	96.5	0.89	1548	396	10251	2.2	52.6	5380	83
1800	AMA 500L4W	VSD10055	1489	96.5	0.90	1727	337	11547	1.9	55.5	5540	83
2000	AMA 500L4W	VSD10056	1491	96.8	0.91	1904	449	12809	2.3	64.3	6030	83
2240	AMA 500L4W	VSD10057	1490	96.8	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	95.3	0.84	523	182	4836	1.8	16.5	2910	81
560	AMA 400L6W	VSD10059	987	95.5	0.85	576	178	5416	1.7	18.9	3100	81
630	AMA 400L6W	VSD10060	988	95.6	0.84	654	229	6086	1.9	20.1	3170	81
710	AMA 400L6W	VSD10061	988	95.6	0.85	734	247	6862	1.8	21.3	3270	81
800	AMA 400L6W	VSD10062	988	95.7	0.84	827	275	7733	1.8	22.5	3380	81
900	AMA 450L6W	VSD10063	989	96.0	0.87	900	270	8689	2.0	34.6	3940	81
1000	AMA 450L6W	VSD10064	990	96.1	0.87	1005	321	9650	2.1	36.8	4070	81
1250	AMA 450L6W	VSD10066	988	96.1	0.88	1230	296	12084	1.8	43.3	4440	81
1328	AMA 450L6W	VSD10065	988	96.0	0.88	1320	340	12841	1.8	41.1	4310	81
1400	AMA 500L6W	VSD10067	989	96.3	0.88	1376	334	13514	1.8	63.4	5350	82
1600	AMA 500L6W	VSD10068	990	96.5	0.88	1579	438	15430	2.0	67.0	5500	82
1800	AMA 500L6W	VSD10069	991	96.6	0.88	1763	479	17349	2.0	77.5	5940	82
2000	AMA 500L6W	VSD10070	990	96.5	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	94.6	0.81	344	135	4073	1.8	18.3	2870	81
355	AMA 400L8W	VSD10072	740	95.0	0.80	388	162	4582	2.0	21.1	3070	81
400	AMA 400L8W	VSD10073	740	95.1	0.80	439	188	5161	2.0	22.4	3160	81
450	AMA 400L8W	VSD10074	740	95.1	0.81	490	204	5806	2.0	25.2	3330	81
500	AMA 400L8W	VSD10075	740	95.1	0.81	541	217	6455	1.9	26.5	3430	81
560	AMA 450L8W	VSD10076	741	95.7	0.83	589	219	7212	1.9	37.1	3780	81
630	AMA 450L8W	VSD10077	742	95.8	0.82	666	261	8108	2.0	39.7	3910	81
710	AMA 450L8W	VSD10078	741	95.7	0.83	744	272	9144	1.9	42.3	4000	81
800	AMA 450L8W	VSD10079	741	95.8	0.84	834	288	10309	1.8	44.9	4130	81
900	AMA 450L8W	VSD10080	742	96.0	0.83	942	350	11585	1.9	50.1	4380	81
1000	AMA 500L8W	VSD10081	742	96.1	0.84	1029	345	12862	1.8	70.6	5140	81
1120	AMA 500L8W	VSD10082	742	96.2	0.84	1151	379	14408	1.8	75.0	5300	81
1250	AMA 500L8W	VSD10083	742	96.2	0.84	1289	432	16079	1.8	79.3	5450	81
1400	AMA 500L8W	VSD10084	742	96.3	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

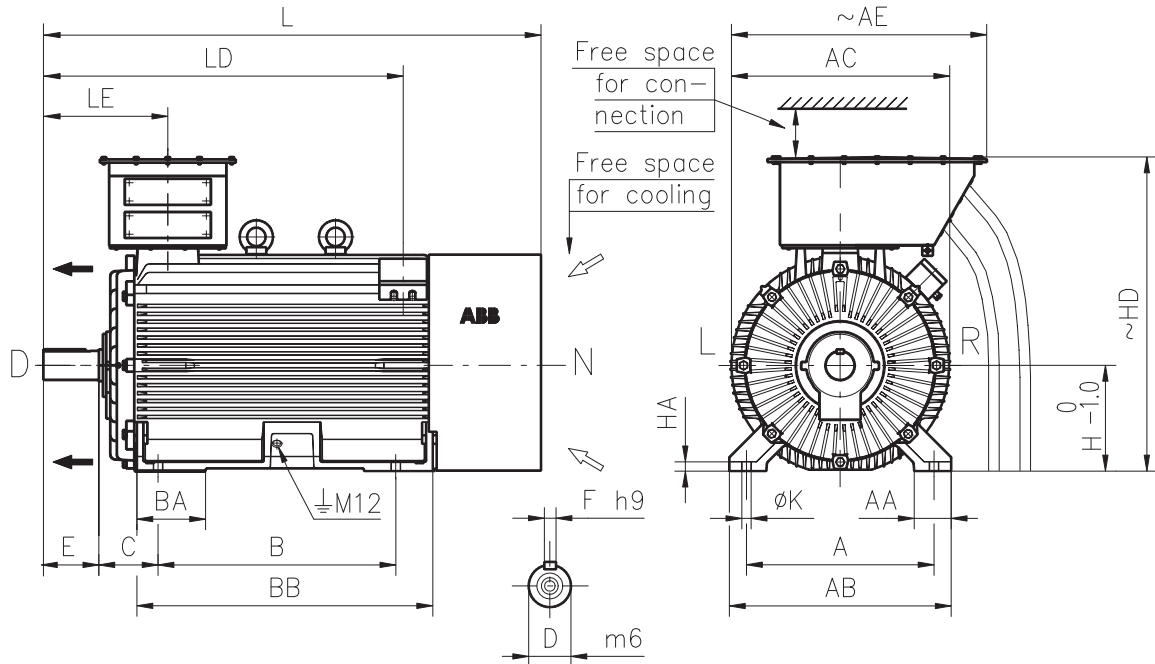
Output kW	Motor type	Product ID	Speed r/min	Efficiency	Power factor	Current		Torque		Rotor inertia kgm <sup>2</sup>	Motor weight kg	Sound pressure level L <sub>p</sub> dB(A)
				Full load 100%	Full load 100%	I <sub>N</sub> A	I <sub>0</sub> A	T <sub>N</sub> Nm	T <sub>max</sub> T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>				<b>690 V 50 Hz</b>								
710	AMA 400L4L	VSD10047	1486	95.9	0.86	720	237	4563	2.1	14.8	2980	80
800	AMA 400L4L	VSD10048	1485	96.0	0.88	788	213	5143	2.0	16.8	3180	80
900	AMA 400L4L	VSD10049	1486	96.2	0.88	893	267	5783	2.2	17.8	3300	80
1000	AMA 400L4L	VSD10050	1484	96.1	0.89	976	220	6437	1.8	18.8	3400	80
1120	AMA 450L4L	VSD10051	1487	96.1	0.86	1129	330	7191	1.9	27.4	3930	80
1250	AMA 450L4L	VSD10052	1488	96.4	0.87	1240	344	8022	2.0	30.8	4190	80
1400	AMA 450L4L	VSD10053	1489	96.5	0.87	1389	415	8977	2.2	34.3	4420	80
1600	AMA 500L4L	VSD10054	1491	96.5	0.89	1548	396	10251	2.2	52.6	5380	80
1800	AMA 500L4L	VSD10055	1489	96.5	0.90	1727	337	11547	1.9	55.5	5540	80
2000	AMA 500L4L	VSD10056	1491	96.8	0.91	1904	449	12809	2.3	64.3	6030	80
2240	AMA 500L4L	VSD10057	1490	96.8	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	95.3	0.84	523	182	4836	1.8	16.5	2910	80
560	AMA 400L6L	VSD10059	987	95.5	0.85	576	178	5416	1.7	18.9	3100	80
630	AMA 400L6L	VSD10060	988	95.6	0.84	654	229	6086	1.9	20.1	3170	80
710	AMA 400L6L	VSD10061	988	95.6	0.85	734	247	6862	1.8	21.3	3270	80
800	AMA 400L6L	VSD10062	988	95.7	0.84	827	275	7733	1.8	22.5	3380	80
900	AMA 450L6L	VSD10063	989	96.0	0.87	900	270	8689	2.0	34.6	3940	80
1000	AMA 450L6L	VSD10064	990	96.1	0.87	1005	321	9650	2.1	36.8	4070	80
1250	AMA 450L6L	VSD10066	988	96.1	0.88	1230	296	12084	1.8	43.3	4440	80
1328	AMA 450L6L	VSD10065	988	96.0	0.88	1320	340	12841	1.8	41.1	4310	80
1400	AMA 500L6L	VSD10067	989	96.3	0.88	1376	334	13514	1.8	63.4	5350	80
1600	AMA 500L6L	VSD10068	990	96.5	0.88	1579	438	15430	2.0	67.0	5500	80
1800	AMA 500L6L	VSD10069	991	96.6	0.88	1763	479	17349	2.0	77.5	5940	80
2000	AMA 500L6L	VSD10070	990	96.5	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	94.6	0.81	344	135	4073	1.8	18.3	2870	80
355	AMA 400L8L	VSD10072	740	95.0	0.80	388	162	4582	2.0	21.1	3070	80
400	AMA 400L8L	VSD10073	740	95.1	0.80	439	188	5161	2.0	22.4	3160	80
450	AMA 400L8L	VSD10074	740	95.1	0.81	490	204	5806	2.0	25.2	3330	80
500	AMA 400L8L	VSD10075	740	95.1	0.81	541	217	6455	1.9	26.5	3430	80
560	AMA 450L8L	VSD10076	741	95.7	0.83	589	219	7212	1.9	37.1	3780	80
630	AMA 450L8L	VSD10077	742	95.8	0.82	666	261	8108	2.0	39.7	3910	80
710	AMA 450L8L	VSD10078	741	95.7	0.83	744	272	9144	1.9	42.3	4000	80
800	AMA 450L8L	VSD10079	741	95.8	0.84	834	288	10309	1.8	44.9	4130	80
900	AMA 450L8L	VSD10080	742	96.0	0.83	942	350	11585	1.9	50.1	4380	80
1000	AMA 500L8L	VSD10081	742	96.1	0.84	1029	345	12862	1.8	70.6	5140	80
1120	AMA 500L8L	VSD10082	742	96.2	0.84	1151	379	14408	1.8	75.0	5300	80
1250	AMA 500L8L	VSD10083	742	96.2	0.84	1289	432	16079	1.8	79.3	5450	80
1400	AMA 500L8L	VSD10084	742	96.3	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

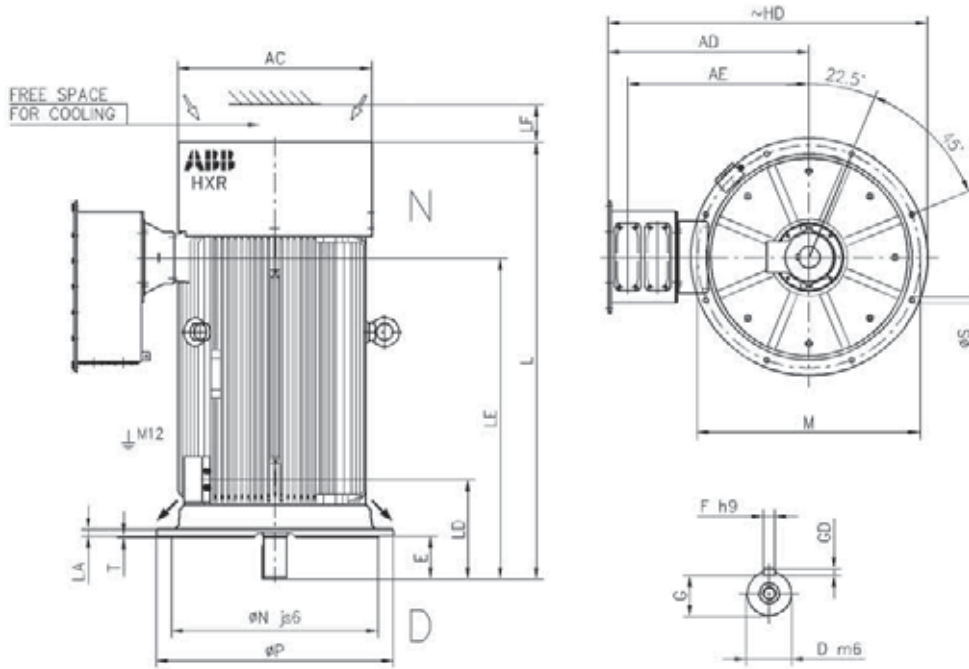
The above table gives the main dimensions in mm.

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

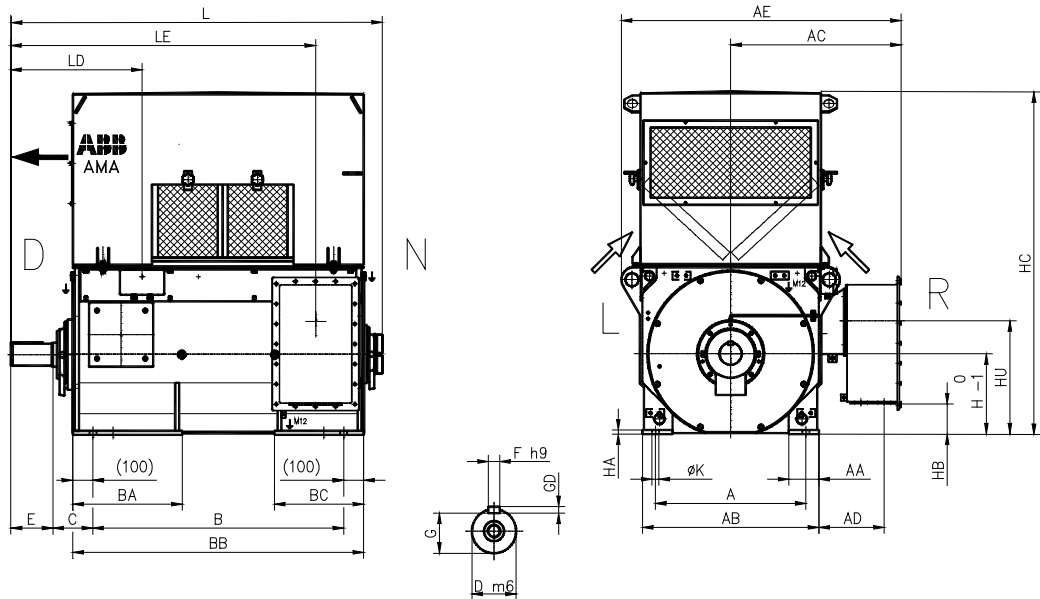
The above table gives the main dimensions in mm.

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, 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

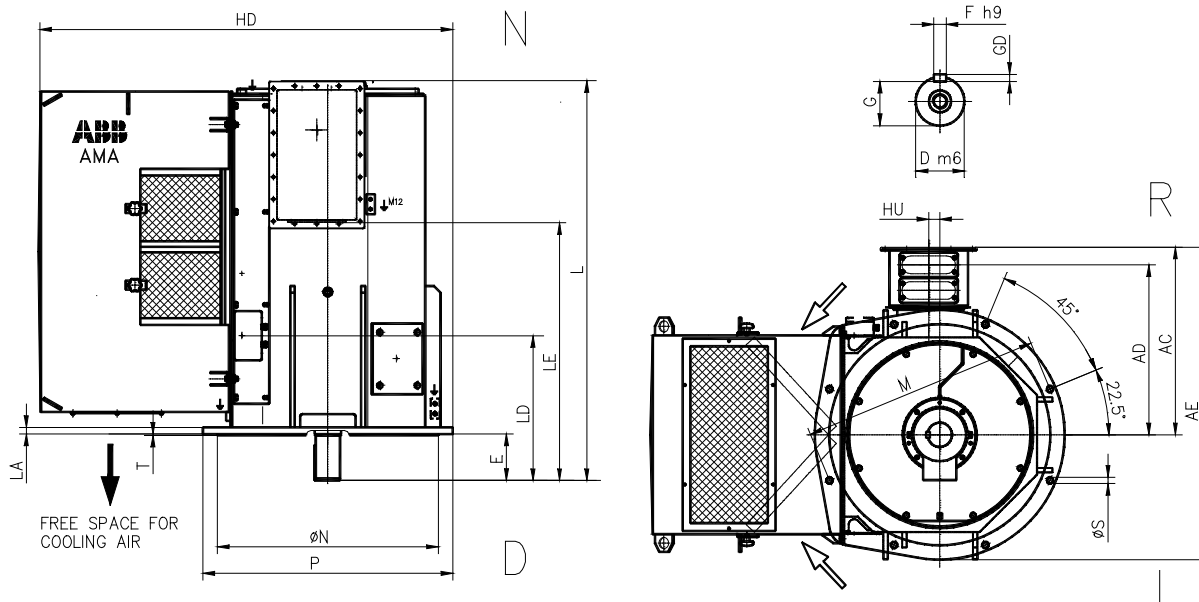
The above table gives the main dimensions in mm.

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, 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

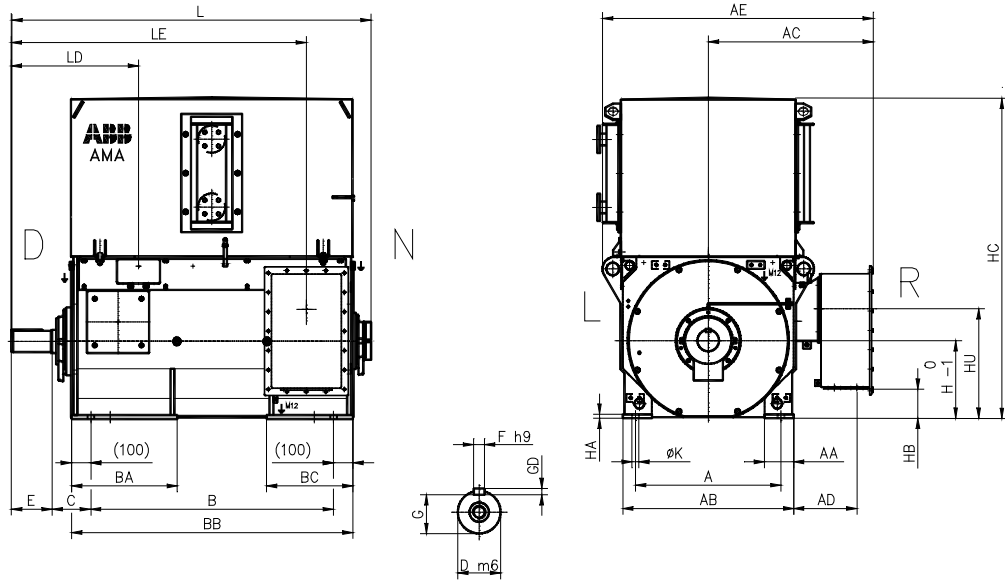
The above table gives the main dimensions in mm.

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, 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

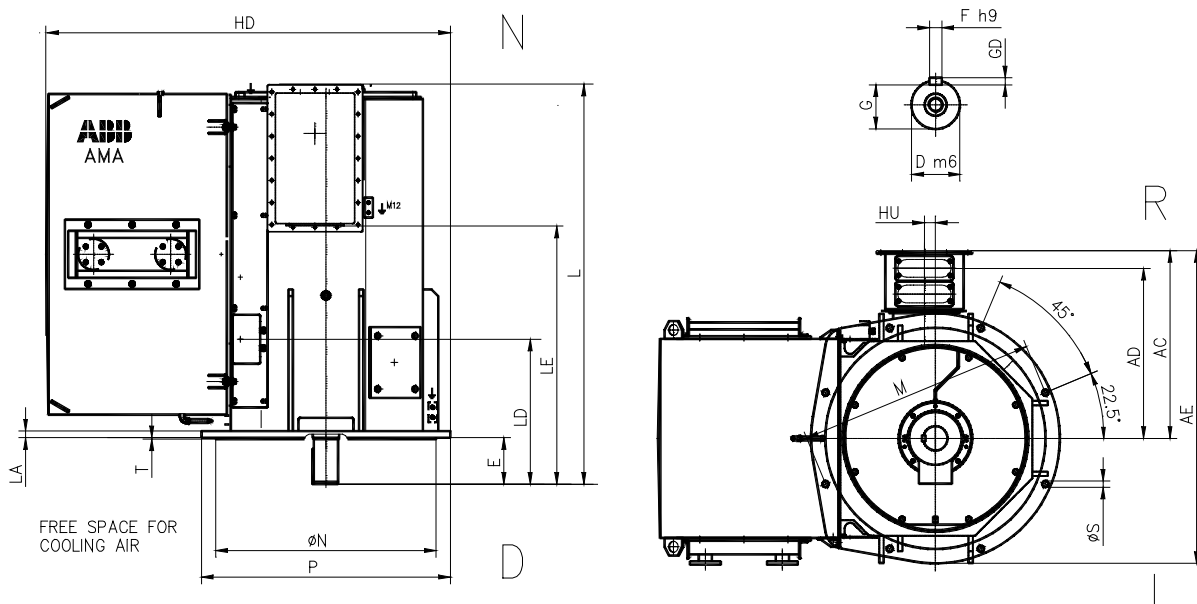
The above table gives the main dimensions in mm.

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, 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	≥ 4	1080	1000js6	1130	28	110	210	28	100	1835	1865	30	655	1065
450L	≥ 4	1180	1120h8	1230	28	125	210	32	114	2035	2020	40	750	1215
500L	≥ 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	≥ 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.

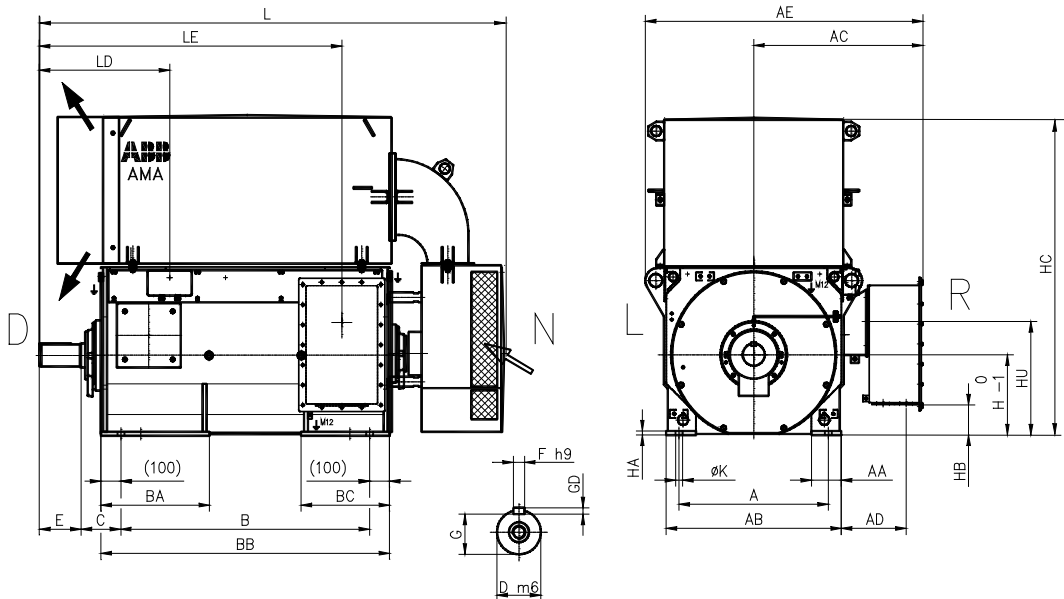
The customer is responsible for the preparation of the foundation. Certified outline drawing is delivered with each purchase order. The motor's rotational direction will be as specified in the order.



# 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

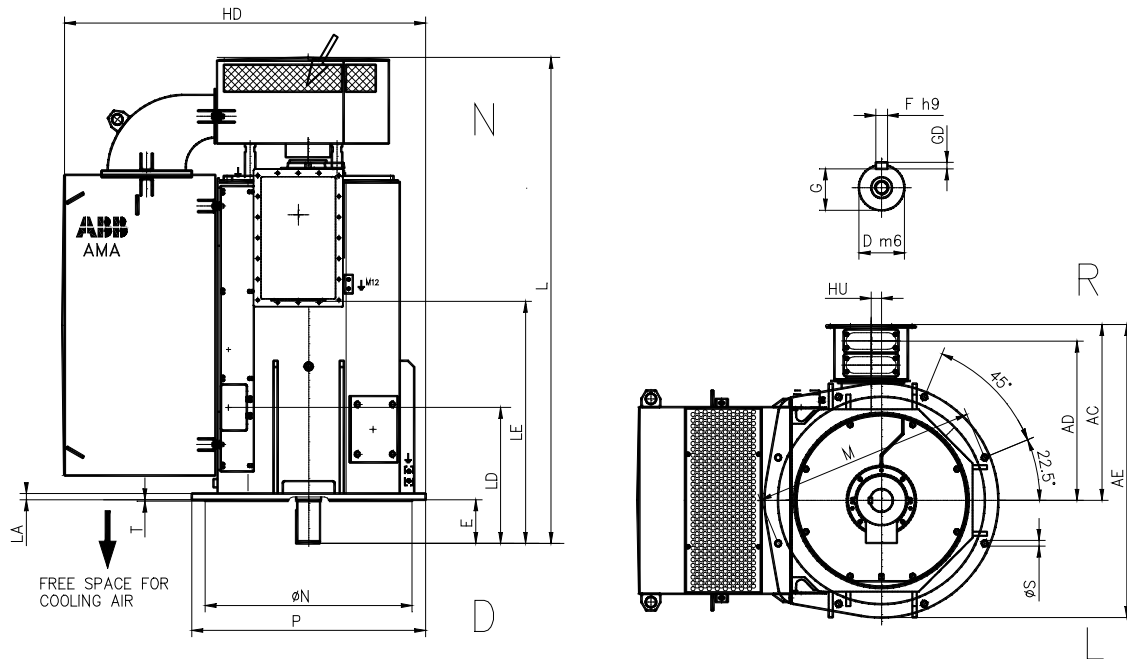
The above table gives the main dimensions in mm.

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, 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
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The above table gives the main dimensions in mm.

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# ABB Motors' total product offer

ABB offers several comprehensive ranges of AC motors and generators. We manufacture synchronous motors for even the most demanding applications, and a full range of low and high voltage induction motors. Our in-depth knowledge of virtually every type of industrial processing ensures we always specify the best solution for your needs.



## Low voltage motors and generators

### General purpose motor for standard applications

- Aluminum motors
- Steel motors
- Cast iron motors
- Open drip proof motors
- Global motors
- Brake motors
- Single phase motors
- Servomotors

### Process performance motors for more demanding applications

- Aluminum motors
- Cast iron motors (IEC and NEMA)
- Motors for high ambient temperatures
- Permanent magnet motors
- High speed motors
- Wind turbine generators
- Smoke venting motors
- Water cooled motors
- Motors for roller table drives

### Motors for hazardous areas

- Flameproof motors
- Increased safety motors
- Non-sparking motors
- Dust ignition proof motors

### Marine motors

- Aluminum motors
- Steel motors
- Cast iron motors
- Open drip proof motors

## High voltage and synchronous motors and generators

- High voltage cast iron motors
- Induction modular motors
- Slip ring motors
- Motors for hazardous areas
- Synchronous motors and generators
- DC motors and generators

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