2020
Technical Catalog

Contents

Contents

GAMAK reserves the right to modify the technical specifications provided in this catalog in whole or in part without prior notice.

Our Factory

In our workshop founded on a 38,000-square-meter area in Topkapı, Istanbul, we manufactured Turkey's first electric motor with a 90-type frame and 1.5 kW power in the early 1960s. In 1965, when we started mass production, our production capacity was limited to only 1,000 units per year. We built a new factory in the mid-1970s on a 330,000-square-meter area in Dudullu and began to manufacture all parts used in the production of electric motors in our 50,000-square-meter facility. Certain processes in the production of electric motors that were done manually in the past have become automated over time. While we still have several departments where production is based on competent workforce, production is now mainly automated and carried out by modern machinery. Our factory is now equipped to carry out operations such as pressing, mechanical processing, winding, assembly, molding, repair and maintenance. We also have an aluminum injection section, where motors with lighter bodies can be manufactured, and a special production department for custom demands and needs. Our laboratory is one of the few test stations in Europe. As one of only two companies in the world that carry out its own copper wire production, we also have a wire enamel department in our factory.

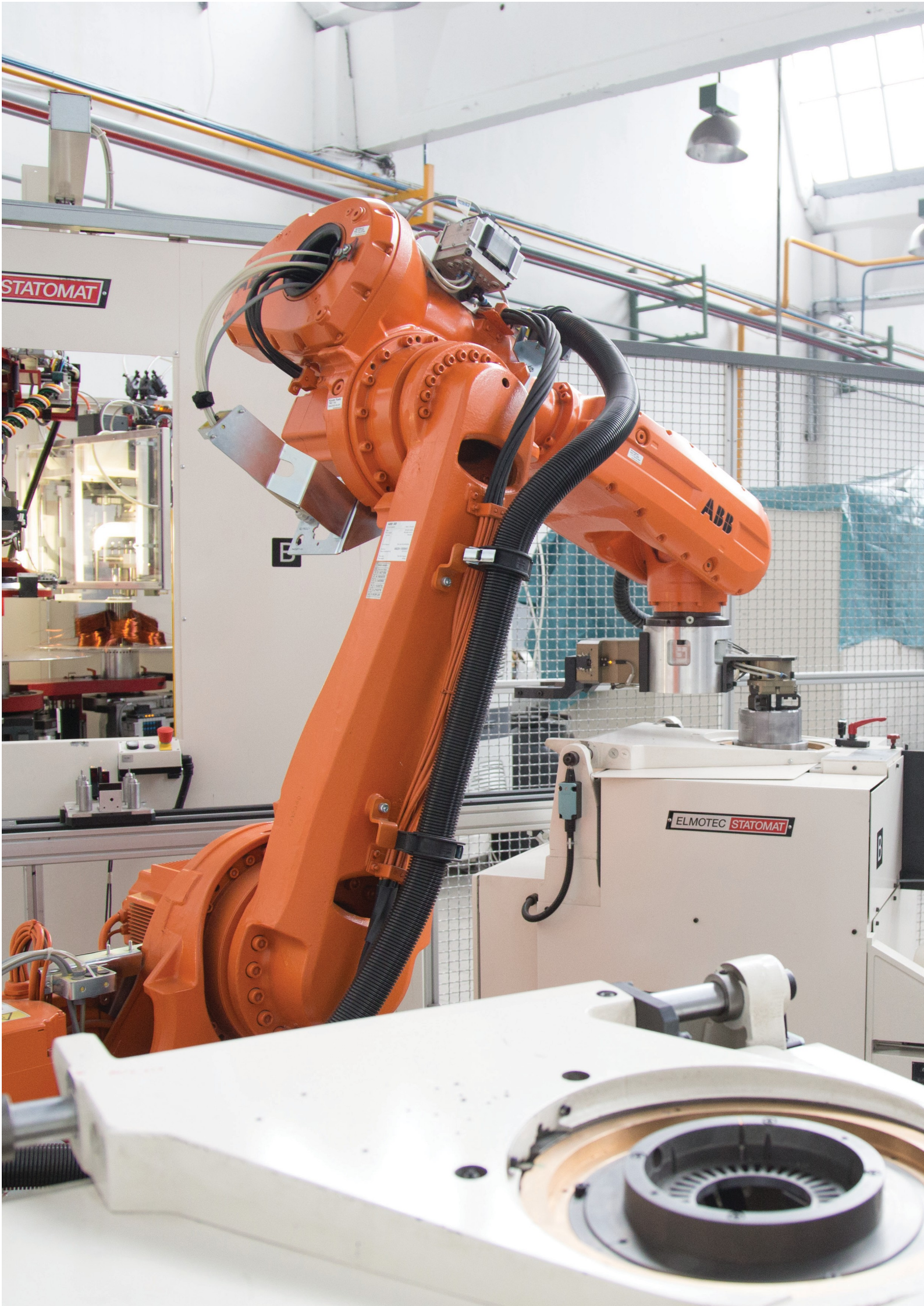
With one of the world's biggest electric motor plants, where all production is gathered under one roof, we have the capacity to produce 1 million motors annually with power capacities ranging from 0.06 to 3000 kW and types ranging from 56 to 630. We take our production and quality to the next level with our competent workforce and state-of-the-art machinery.

As one of the few companies in the world that can manufacture its own wire, we use our own wire, which is thinned in the range of 2 mm to 0.2 mm. At one of Europe's leading laboratories at our facility, we bring our products to standards that meet the highest efficiency categories. While we continue to produce high efficiency motors (IE2 - IE3), we also work to establish the infrastructure necessary for the production of new generation high efficiency motors (IE4) through our R&D investments. Thanks to this potential, we carry out our production in a fast, dynamic and flexible structure. With our ability to produce custom motors tailored to specific demands and requirements — which is a need most other companies cannot fulfill — we take part in important projects in our country and around the world, especially in public spaces. Every day, we compete with our only real competitor in the world: ourselves.

About Us

EXPORT

At GAMAK, we do not just settle for leadership in the domestic market but also work to increase our global market share. We export our European-standard motors (IE3) to over four dozen countries in almost every corner of the world, particularly in the EMEA region. We rank among the top 10 companies exporting electric motors to the EMEA region. In addition to our cutting-edge high efficiency motors, we also continue to produce and export IE1 - IE2 motors, which are preferred particularly in the Middle East and Africa. Thanks to the mobility we get from manufacturing all motor parts in our own factory, we can adapt our machinery to ensure that our production meets the standards required by various regions. This gives us a great advantage in meeting all export demands and allows us to stand out in the market.


STATOMAT
ABB
ELMOTEC STATOMAT

Bill of Materials

Standard Series Motors

- **Single Phase**
  - Permanent Capacitor
  - Capacitor Start/Capacitor Run

- **3-Phase**
  - Single-Speed
  - Two-Speed

Modular Elit Series Motors

- **Elit Single-Phase**
  - Elit Permanent Split Capacitor
  - Elit Capacitor Start/Capacitor Run
- **IE2 (2, 4, 6 Poles)**
- **IE3 (2, 4, 6 Poles)**

Special Series Motors

- **Smoke Extraction Motors**
  - Foot-Mounted Smoke Extraction Motors
  - Single-Speed
  - Two-Speed Ventilation
  - Pad-Mounted Smoke Extraction Motors
- **Explosion-Proof Motors**
- **Stone Crusher Motors**
- **Milking Machine Motors**

PRODUCT CODING

2	1	Dual-wound two-speed motors
V.	2	Two-speed motors suitable for applications where load torque rises proportionally with the square of the speed (if not specified, the motor is suitable for constant torque applications)
C	3	Compact motor (Big power in a small frame)
A	4	Aluminum alloy (If not specified, cast iron)
G	5	GAMAK 3-phase, squirrel cage (cage rotor) induction motor
M	6	Totally enclosed, surface-cooled
M	7	Totally enclosed, surface-cooled+closed circuit internal cooling
2E / 2EL	8	2E : IE2 High efficiency motors 3E: IE3 Premium efficiency motors EL : Signifies Elit frame
D	9	Smoke Extraction Motors
PAD	10	Pad-Mounted Smoke Extraction Motors
100	11	Shaft height (mm) (IEC 60 072-1)
L	12	Frame length S: Short - M: Medium - L: Long
4	13	Number of poles: 2: 3000 m^{-1} | 4: 1500 m^{-1} | 6: 1000 m^{-1} | 8000: 750 m^{-1}
a	14	Iron core length

Bill of Materials

BEARING DESIGNATION

S F N *A G M E L* **B F**

Prefix

S : Special Bearing Arrangement (56…450)
F : Fixed non-drive ending bearing (56…132)
N : Greasing nipples for re-lubrication, non-drive end bearing fixed, drive end cylindrical roller bearing (132…450)

Suffix

B : Common drive and non-drive end bearing with non drive end bearing fixed (132…450)
F : Drive end bearing fixed (56…450)

SINGLE-PHASE MOTORS

M S K D EL 100 L 4 a

M : Single-phase, squirrel cage (cage rotor) induction motor, totally enclosed, surface cooled
S : Capacitor start/capacitor run design (with electronic relay)
K : Capacitor start/capacitor run design (with mechanical switch)
D : Permanent Split Capacitor Design
EL : Elit Frame
100 : Shaft height (mm) (IEC 60 072-1)
L : Frame length (S:Short - M: Medium - L: Long)
4 : Number of Poles: 2 and 4 poles
a : Iron core length


GAMAK

Technical Information

Standards and Recommendations

This catalog has been prepared in accordance with the recommendations of the Turkish Standards Institution (TSE) and the International Electrotechnical Commission (IEC) to provide the necessary information on the mechanical and electrical values of asynchronous, 3-phase, squirrel cage (cage rotor) induction motor, totally enclosed motors with frame sizes ranging from 56 to 450, which are manufactured for general use in the industry.

GAMAK induction motors are designed, manufactured and inspected in accordance with the following standards and recommendations.

TS	IEC	DIN/EN	
TS EN 50 347	***60 072-1**	**DIN EN 50 437**	Dimensions and rated outputs of foot- and flange-mounted rotary electric machines
TS EN 50 347	**60 072-1**	**DIN EN 748-1**	Cylindrical shaft ends
TS EN 60 034-30-1	**60 034-30-1**	**DIN EN 60 034-1**	Rating and performance
TS EN 60 034-2	**60 034-2-1**	**DIN EN 60 034-2-1**	Methods for determining losses and efficiency of rotating electrical machinery from tests
TS 3209	**60 034-5**	**DIN EN 60 034-5**	Degrees of protection for enclosures
TS EN 60 034-6	**60 034-6**	**DIN EN 60 034-6**	Cooling methods
TS EN 60 034-7	**60 034-7**	**DIN EN 60 034-7**	Symbols for construction types and mounting arrangements
TS EN 60 034-8	**60 034-8**	**DIN EN 60 034-8**	Terminal markings and direction of rotation
TS EN 60 034-9	**60 034-9**	**DIN EN 60 034-9**	Noise limits
TS EN 60 034-11	**60 034-11**	**DIN EN 60 034-11**	Thermal protection rules
TS EN 60 034-12	**60 034-12**	**DIN EN 60 034-12**	Starting performance of 3-speed three-phase cage induction motors
TS EN 60 034-14	**60 034-14**	**DIN EN 60 034-14**	Mechanical vibration: Measurement, evaluation and limits of the vibration severity
TS EN 60 038	**60 038**	**DIN EN 60 038**	Electrical mains voltages
TS EN 60 085	**60 085**	**DIN EN 60 085**	Classification of materials used in insulation of electrical machinery according to their thermal stability properties in operation
TS EN 60 034-1	**60 034-1**	**DIN EN 60 034-1**	Rating and performance of rotating electrical machines
TS EN 60 034-26	**60 034-26**	**DIN EN 60 034-26**	Effects of voltage imbalance on 3-phase induction motors
TS EN 60 072-1	**60 072-1**	**DIN EN 748-1**	General Purpose 3-Phase Induction Motors with Standard Dimensions and Outputs. Frame Numbers 56 to 315 and Flange Numbers 65 to 740
-	**60 072-2**	**DIN EN 748-1**	General Purpose 3-Phase Induction Motors with Standard Dimensions and Outputs. Frame Numbers 355 to 1000 and Flange Numbers 1180 to 2360
-	**60 034-31**	**DIN IEC 60034-31**	Energy saving motor selection including variable-speed applications - Reference guide
TS EN 60 947-8	**60 947-8**	**-**	Control units for built-in thermal protection (PTC) for rotating electrical machines

(*) IEC 60 072-1 specifies only the dimensions and rated output of foot- and flange-mounted rotary electric machines, respectively, but does not associate the rated outputs with the frame sizes. However, TS EN 50 347 and DIN EN 50 347 specify the dimensions and rated outputs of foot- and flange-mounted rotary electric machines according to their frame sizes and also indicate the relationship between them.

Motor Frames, End Shields and Flanges

Materials used in motors frames, end shields and flanges are given in the table below according to their frame sizes.

Frame Size	Motor Frame	End Shields	Flanges		
			B5	B14/Small	B14/Large
56...100	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
112	Aluminum	Aluminum	Aluminum	Aluminum	Cast Iron
132	Aluminum or Cast Iron	Aluminum or Cast Iron	Aluminum or Cast Iron	Aluminum	Cast Iron
160	Aluminum or Cast Iron	Aluminum or Cast Iron	Cast Iron	Cast Iron	Cast Iron
180	Aluminum or Cast Iron	Aluminum or Cast Iron	Cast Iron	-	-
200	Aluminum or Cast Iron	Cast Iron	Cast Iron	-	-
225...450	Cast Iron	Cast Iron	Cast Iron	-	-

Feet of all motors except aluminum Elit motors are cast fixed to the frame. Motors with a frame size 132 to 180 have two integrally cast lifting eyes. In addition, motors with a frame size of 160 to 180 can be equipped with an optional DIN 580-compliant lifting eye.

All motors with a frame size of 200 to 630 come with a lifting eye (DIN 580-compliant).

Cable Entry

Cable entry to the terminal box is provided by cable glands manufactured in accordance with EN 60423 and DIN EN 50 262, or, if requested, by using etange (IP 68) cable glands.

Plastic Terminal Boxes

Frame Size	56-63	71-80-90	100-112	132	160-180
Cable Glands	M16	M20	M25	M32	M40
Number of Cable Glands	1	1	1	2	2
Cable Outer Diameter (mm)	5-10	10-14	13-18	18-25	22-32
Maximum Cable Cross Section (mm^2)	1.5	2.5	2.5	6	16

Aluminum Terminal Boxes

71-80-90-100-112	132	160-180	200-225	250-280- 315	355	400*-450*
M20	M25	M32	M50	M63	PQ70	PQ70
1	2	2	2	2	2	4
10-14	13-18	18-25	30 - 38	34 - 44	59	59
2.5	6	16	50	120	240	240

(*) The terminal box for 400 and 450 will be cast iron GG20.

Bearings

The motors are fitted with high quality noise tested single-row deep-groove radial ball-bearings (DIN 625) or cylindrical roller bearings (DIN 5412).

The single-row deep groove ball bearing design is offered as a standard for GAMAK electric motors. The radial and axial loads of the standard design bearings in the bearing arrangement shown in Figure 1, Figure 2, Figure 3, and Figure 4 on the next page are shown on the charts on the following page. For motors of a frame size of 132 and above, if the radial load applied to the shaft extension is above the values given on page 22, a cylindrical roller bearing design with a higher radial load bearing capacity should be preferred (Figure 5). If the axial force applied to the motor shaft extension exceeds the values given in the tables, please consult us as a special design may be required.

Standard Design with Single-Row Deep Groove Ball Bearing

Frame Size	Number of Poles	Drive End Bearing	Non-Drive End Bearing	Table No.
56	2-4	6200 ZZ		1
63	2-4	6201 ZZ		
71	2-4-6-8	6202 ZZ		
80	2-4-6-8	6204 ZZ		
90	2-4-6-8	6205 ZZ		
100-112	2-4-6-8	6206 ZZ		
132	2-4-6-8	6208 ZZ		
160	2-4-6-8	6309 ZZC3	6209 ZZC3	2-3
180	2-4-6-8	6310 ZZC3	6210 ZZC3	
200	2-4-6-8	6312 ZZC3	6212 ZZC3	
225	2-4-6-8	6313 ZZC3	6213 ZZC3	
250	2-4-6-8	6315 ZZC3	6215 ZZC3	
280	2	6315 ZZ C3		
	4-6-8	6316 ZZ C3		

Frame Size	Number of Poles	Drive End Bearing	Non-Drive End Bearing	Table No.
132	2-4-6-8	6208 C3		4
160	2-4-6-8	6309 C3		
180	2-4-6-8	6310 C3		
200	2-4-6-8	6312 C3		
225	2-4-6-8	6313 C3		
250	2-4-6-8	6315 C3		
280	2	6315 C3		
	4-6-8	6316 C3		
315	2	6316 C3		
	4-6-8	6318 C3		
355	2	6318 C3		
	4-6-8	6321 C3		
400	2	6318 C3		
	4-6-8	6324 C3		
450	2	6320 C3		
	4-6-8	6326 C3		

Bearing Arrangements

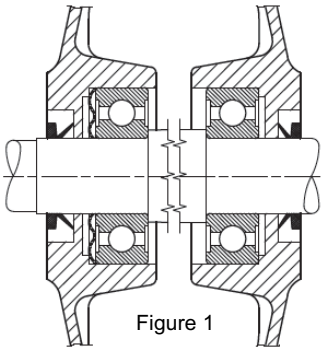


Figure 1

Drive End Floating Ball Bearing (Spring Loaded) — Non-Drive End Floating Ball Bearing

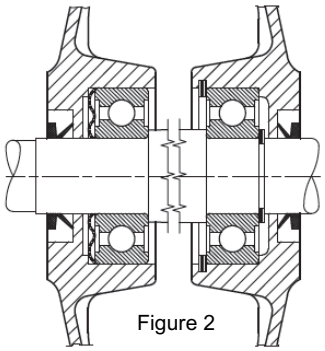


Figure 2

Drive End Floating Ball Bearing (Spring Loaded) — Non-Drive End Fixed Ball Bearing

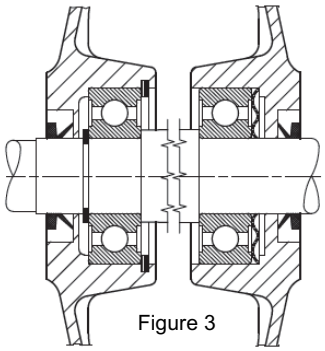


Figure 3

Drive End Fixed Bearing — Non-Drive End Floating Ball Bearing (Spring Loaded)

Greasing Nipples

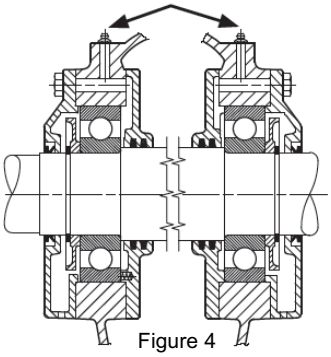


Figure 4

Drive End Floating Ball Bearing (Spring Loaded) — Non-Drive End Fixed Ball Bearing

- The axial clearance of bearings with single-row deep groove ball bearings is limited by the pre-stressed spring (bearing compression spring - Figure 1, 2, 3) or coil springs (Figure 4). This minimizes bearing vibrations and noise and increases bearing life.
- For motors with a frame size of 56…132 (Table 1) and 160…280 (Tables 2 and 3), permanently greased deep groove ball bearings with both sides enclosed (ZZ) are used by the manufacturer.
- In standard manufacturing, motors of 56…132 frame size are manufactured in non-locking style with ZZ enclosed bearings according to Table 1, and with the bearing compression spring positioned in the front as shown in Figure 1.
- In standard manufacturing, motors of 160…280 frame size are manufactured in rear-locking style with ZZ enclosed bearings according to Tables 2-3, and with the bearing compression spring positioned in the front as shown in Figure 2.
- In standard manufacturing, motors of 315…450 frame sizes are manufactured in rear- and front-locked type with locked front and rear oil dispensing disks and lubricating bearings according to Table 4. In type 315 and above, coil springs are used instead of bearing compression springs at the front. The bearings used are open-type ball bearings and have nipples for lubrication during operation.
- As per customer request, motors with a frame size of 56…280 can be manufactured using ZZ enclosed bearings with front-locking in accordance with Tables 1, 2 and 3, in shaft-down or mill-above mounting positions (V1-V3-V5-V6-V8-V9-V15-V18-V19-V36-V58-V69) and with the bearing compression spring positioned at the back as shown in Figure 3. The aim is to prevent the shaft from tilting in the axial direction in accordance with the requirements of the application. The bearing arrangement is expressed as a fixed bearing.
- As per customer request, motors of 132…280 frame sizes are manufactured in rear- and front-locked type with locked front and rear oil dispensing disks and lubricating bearings according to Table 4. The bearing compression spring is positioned at the front.
- Standard motors within 56...132 and 280...450 type groups are manufactured with paired bearings (either with an enclosed ZZ bearing structure or self-lubricating). The bearing used in the bearing arrangement with paired bearing is designed in a way to ensure that the bearing used in the back is identical to the one used on the front side.
- On request, paired bearing motors can be produced for 160…250 type motors to allow for higher permissible axial loads.
- If a customer requests a dual-outlet motor for 160...250 motor types, paired bearing design can be used in production.

Reinforced Design with Cylindrical Roller Bearing (For Higher Radial Loads)

If a belt/pulley drive is used for motors with frame sizes of 132 and above, please consult us as you may need to choose a cylindrical roller bearing design.

Frame Size	Number of Poles	Drive End Bearing	Non-Drive End Bearing	Table No.
132	2-4-6-8	NU 208 E	6208 C3	5
160	2-4-6-8	NU 309 E	6309 C3	
180	2-4-6-8	NU 310 E	6310 C3	
200	2-4-6-8	NU 312 E	6312 C3	
225	2-4-6-8	NU 313 E	6313 C3	
250	2-4-6-8	NU 315 E	6315 C3	
280	2	NU 315 E	6315 C3	
	4-6-8	NU 316 E	6316 C3	
315	2	NU 316 E	6316 C3	
	4-6-8	NU 318 E	6318 C3	
355	2	NU 318 E	6318 C3	
	4-6-8	NU 321 E	6321 C3	
400	2	NU 318 E	6318 C3	
	4-6-8	NU 324 E	6324 C3	
450	2	NU 320 E	6320 C3	
	4-6-8	NU 326 E	6326 C3	

Bearing Arrangement
Greasing Nipples

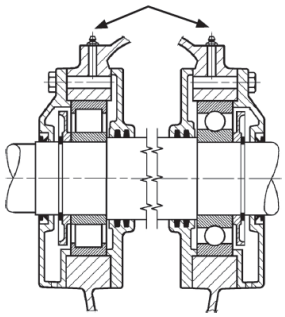


Figure 5

Drive End Cylindrical Roller bearing — Non-Drive End Fixed Ball Bearing

If the radial force is too small during operation in motors with a cylindrical roller bearing (NU series) design, there will be shifts between the rolling surfaces and rollers of the bearing, which can result in skidding of the rollers and thus shortening of the bearing life. Please consult us if radial load is very small or strong shock loads or vibration are expected as special bearing arrangements may be required. For motors with a frame size of 132…450, the reinforced design with cylindrical roller bearings is manufactured with greasing nipple (Figure 5). Permissible radial loads are given on page 22 and axial loads on page 25-26.

Bearing Maintenance

Lubricated Motor Relubrication Intervals (Hour)						
Number of Poles	Frame Size					
	132-160	80-200	225-250	280-315	355-400	50
2	5000	4000	3000	2500	2000	2000
4	10000	8000	6000	5000	4000	3000
≥6	15000	12000	9000	7000	5000	4000

The table given above is valid for GAMAK motor lubricated bearings to be used in clean environments at -20 / +40°C operating temperature, ←80% RH and with the shaft in horizontal position. The lubrication interval should be halved in case of vertical motor shaft operation. If the environment is dusty, the lubrication frequency should also be reduced by half.

Lubricated Motor Relubrication Intervals (Hour)									
Number of Poles	Frame Size								
	132	160	180	200	225-250	280	315-355	400	450
2	10	15	20	25	40	35	45	50	-
4						70	90	90	110
≥6									

The type-based quantity of lubrication, depending on the motor structure and operating speeds, is listed above.

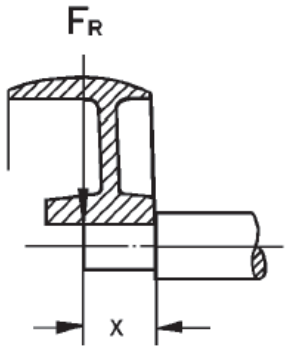
Permissible Radial Loads

Fr = Radial load (N)
X = Distance from the shoulder of the shaft to the line of application of the force (mm). Xmax is equal to shaft length. The pulley axis must remain within the shaft length.

P : Motor output (kW)
n : Full load speed (m^{-1})
D : Pulley diameter (mm)
k : Belt tension factor (approx.)

- k is 2 for flat belt with idler pulley drives
- k is 2.25 for V-belt drives
- k is 3 for flat and poly V-belt without ant idler pulley drive

$$F_r = 1{,}91 \frac{P.k}{D.n} 10^7 \quad (N)$$



Shaft Extension

In our standard manufacturing, the shaft extension of the motors is single-sided and equipped with the appropriate key (TS EN 50 347 / IEC 60 072-1). The free shaft-ends have threaded center-bore to DIN 332-2 form D. Motors can be manufactured with double shaft extension upon request. The run-out of the shaft, concentricity of mounting spigot and the perpendicularity of the face flange are within the permissible limits (Normal class) according to TS EN 50 347 / IEC 60 072-1. Motors with increased accuracy (Precision class) may be supplied on request.

Voltage and Frequency

50 Hz	60 Hz								
Rated voltage V	Line voltage V	Full Load Performance Values							
		Output	Speed	I_N	M_N	I_A/I_N	M_A/M_N	M_K/M_N	I_0
230	230	1	1.2	1	0.83	0.87	0.75	0.85	0.73
	*230	1.15	1.2	1.15	0.96	0.98	0.93	1	1.12
	250	1.1	1.2	1	0.91	0.96	0.83	0.94	0.85
	264	1.15	1.2	1	0.96	1	0.93	1	0.93
400	400	1	1.2	1	0.83	0.87	0.75	0.85	0.73
	400	1.15	1.2	1.15	0.96	0.98	0.93	1	1.12
	440	1.1	1.2	1	0.91	0.96	0.83	0.94	0.85
	460	1.15	1.2	1	0.96	1	0.93	1	0.93
	480	1.2	1.2	1	1	1.03	0.98	1.03	0.98
415	415	1	1.2	1	0.83	0.87	0.75	0.85	0.73
	*415	1.15	1.2	1.15	0.96	0.98	0.93	1	1.12
	460	1.1	1.2	1	0.92	0.98	0.90	0.96	0.87
	480	1.15	1.2	1	0.96	1	0.93	1	0.93
500	500	1	1.2	1	0.83	0.87	0.75	0.85	0.73
	*500	1.15	1.2	1.15	0.96	0.98	0.93	1	1.12
	550	1.1	1.2	1	0.92	0.98	0.90	0.96	0.87
	575	1.15	1.2	1	0.96	1	0.93	1	0.93
	600	1.2	1.2	1	1	1.03	0.98	1.03	0.98

**Special winding for 60 Hz*

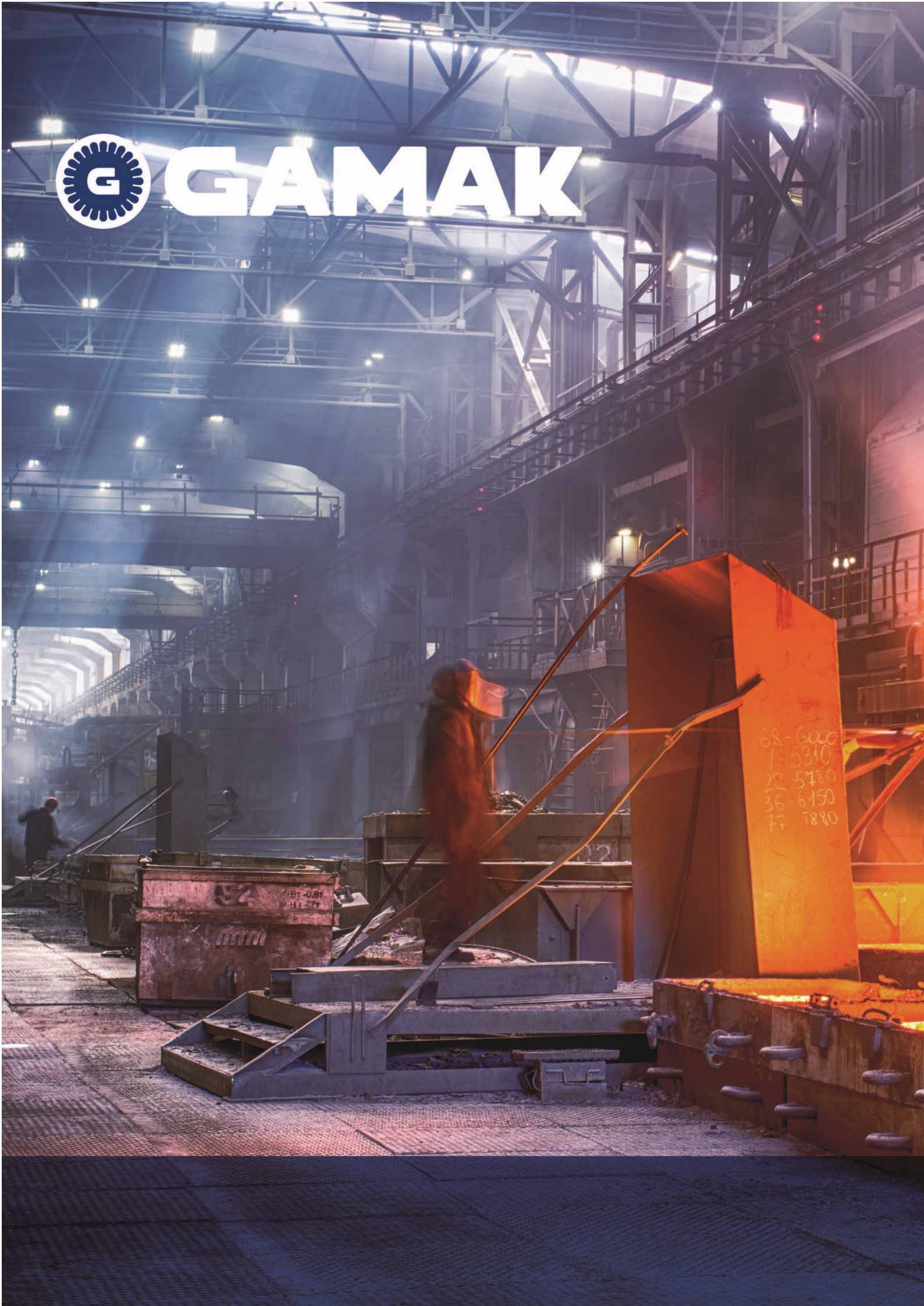
I_N: Rated Current I_0: No-Load Current M_A: Starting Torque I_A: Starting Current M_N: Rated Torque M_K: Breakdown Torque

The selection of motors specially wound according to the 60 Hz network should be based on the following standard forces. Up to 20% power increase is possible depending on the load and speed of the motors. Therefore, please consult us if higher outputs than the ones listed in the table below are required.

Standard Output (kW) at 50 Hz	Standard Output (kW) at 60 Hz	Standard Output (kW) at 50 Hz	Standard Output (kW) at 60 Hz	Standard Output (kW) at 50 Hz	Standard Output (kW) at 60 Hz
0.06	0.07	4	4.6	90	103
0.09	0.105	5.5	6.3	110	126
0.12	0.14	7.5	8.6	132	152
0.18	0.21	11	12.7	160	184
0.25	0.29	15	17.3	200	230
0.37	0.43	18.5	21.3	250	288
0.55	0.63	22	25.3	315	360
0.75	0.86	30	34.5	355	410
1.1	1.27	37	42.6	400	460
1.5	1.73	45	51.8	450	515
2.2	2.5	55	63.5	500	575
3	3.5	75	86.5		

Please consult us for output ratings to be attained above 500 kW rated output and for special windings at 60 Hz.

According to IEC Standard 60034-30, efficiency values for each power are determined in 50Hz and 60Hz operation. Please consult us about the efficiency rate of motors wound in 50Hz for 60Hz operation or if the motors are specially wound according to 60Hz.


GAMAK

Standard Series

3-Phase Motors

ALUMINUM FRAME

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
		Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-2-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ			
kW		m^{-1}	A	Nm		4/4	3/4	1/2					Mk/Mn	kgm^2	kg
0.09	AGM 56 2a	2800	0.26	0.31	0.79	63.4	63.1	55.8	4.1	-	2.7	-	2.8	0.00011	2.7
0.12	AGM 56 2b	2800	0.35	0.41	0.77	64.5	64.1	56.9	4.2	-	2.5	-	2.8	0.00012	2.8
0.18	AGM 63 2a	2820	0.50	0.61	0.81	64.4	64.2	57.7	4.6	-	2.9	-	2.9	0.00011	3.6
0.25	AGM 63 2b	2840	0.67	0.84	0.80	67.3	67.1	60.9	4.5	-	2.5	-	2.9	0.00013	4
0.37	C.AGM 63 2	2850	1.05	1.24	0.75	68.1	68.1	61.3	5.0	-	2.5	-	2.7	0.00018	4.7
0.37	AGM 71 2a	2800	1.05	1.26	0.74	68.9	68.7	66.7	5.0	-	2.4	-	2.6	0.00026	4.9
0.55	AGM 71 2b	2780	1.3	1.89	0.85	72.0	71.8	70.3	4.5	-	2.4	-	2.6	0.00034	6
0.75	C.AGM2E 71 2	2780	1.7	2.60	0.82	77.4	77.2	74.2	4.5	-	2.2	-	2.4	0.00039	7
0.75	AGM2E 80 2a	2860	1.7	2.60	0.82	77.8	77.7	74.6	6.2	-	2.5	-	3.0	0.00053	8
1.1	AGM2E 80 2b	2880	2.3	3.65	0.86	80.0	80.0	78.1	6.3	-	2.7	-	3.0	0.00066	8.8
1.5	AGM2E 90 S 2	2880	3.3	4.97	0.80	82.0	82.0	80.1	6.3	-	2.3	-	3.0	0.0011	11.5
2.2	AGM2E 90 L 2	2870	4.5	7.32	0.84	84.5	84.5	83.2	6.6	-	2.6	-	3.1	0.0014	13.9
3	AGM2E 100 L 2	2850	5.9	10.0	0.87	84.6	84.6	83.6	6.0	-	2.5	-	3.0	0.0025	20
4	AGM2E 112 M 2	2880	7.9	13.3	0.84	86.5	86.5	86.0	7.2	2.3	2.8	0.9	3.5	0.0039	21.5
5.5	AGM2E 132 S 2a	2900	10.3	18.1	0.88	87.3	87.3	86.5	7.3	2.4	2.5	0.8	3.1	0.011	37
7.5	AGM2E 132 S 2b	2910	13.6	24.6	0.90	88.5	88.5	87.9	7.2	2.3	3.0	1.0	3.4	0.014	44
11	AGM2E 160 M 2a	2945	19.5	35.7	0.91	89.5	89.5	88.6	7.7	2.5	3.4	1.1	3.6	0.030	67
15	AGM2E 160 M 2b	2945	26.5	48.6	0.90	90.4	90.4	89.7	7.5	2.4	3.0	1.0	3.5	0.041	81
18.5	AGM2E 160 L 2	2950	32.3	59.9	0.91	90.9	90.8	89.9	7.7	2.5	2.5	0.8	3.0	0.048	102
22	AGM2E 180 M 2	2950	38.3	71	0.91	91.3	91.3	90.8	8.2	2.6	3.0	1.0	3.5	0.066	135
30	AGM2E 200 L 2a	2970	52	96	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.13	160
37	AGM2E 200 L 2b	2970	65	119	0.89	92.6	92.6	91.7	8.3	2.7	2.7	0.9	3.0	0.15	190

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
	Type	Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A / M_N				
						IEC 60034-2-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
5.5	GM2E 132 S 2a	2900	10.3	18.1	0.88	87.3	87.3	86.5	7.3	2.4	2.8	0.9	3.5	0.0108	59
7.5	GM2E 132 S 2b	2910	13.6	24.6	0.90	88.5	88.5	87.9	7.2	2.3	3.0	1.0	3.4	0.0140	60
11	GM2E 160 M 2a	2945	19.5	35.7	0.91	89.5	89.5	88.6	7.7	2.5	3.4	1.1	3.6	0.030	100
15	GM2E 160 M 2b	2945	26.5	48.6	0.90	90.4	90.4	89.7	7.5	2.4	3.0	1.0	3.5	0.041	112
18.5	GM2E 160 L 2	2950	32.3	59.9	0.91	90.9	90.8	90.1	7.7	2.5	2.5	0.8	3.0	0.048	133
22	GM2E 180 M 2	2950	38.3	71	0.91	91.3	91.3	90.8	8.2	2.6	3.0	1.0	3.5	0.066	157
30	GM2E 200 L 2a	2970	52	96	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.130	222
37	GM2E 200 L 2b	2970	65	119	0.89	92.6	92.6	91.7	8.3	2.7	2.7	0.9	3.0	0.150	248
45	GM2E 225 M 2	2975	77	144	0.91	92.9	93.0	91.8	8.0	2.6	2.4	0.8	2.9	0.230	299
55	GM2E 250 M 2	2980	94	176	0.91	93.2	93.2	92.2	7.6	2.5	2.6	0.8	2.7	0.410	401
75	GM2E 280 S 2	2980	127	240	0.91	93.9	94.1	92.5	7.0	2.3	2.4	0.8	2.5	0.530	512
90	GM2E 280 M 2	2980	151	288	0.91	94.2	94.2	92.7	8.5	2.7	2.7	0.9	3.0	0.620	580
110	GM2E 315 S 2	2980	192	352	0.88	94.3	94.3	92.8	7.0	2.3	2.5	0.8	3.0	1.0	700
132	GM2E 315 M 2a	2980	224	423	0.90	94.6	94.5	93.3	8.0	2.6	2.5	0.8	3.0	1.2	770
160	GM2E 315 M 2b	2980	266	513	0.92	94.8	94.8	93.4	7.8	2.5	2.5	0.8	3.2	1.4	838
185	GMM2E 315 L 2a	2980	307	593	0.92	95.0	95.0	93.6	8.0	2.6	2.5	0.8	3.0	1.5	882
200	GMM2E 315 L 2b	2980	330	641	0.92	95.0	95.0	93.6	8.0	2.6	2.5	0.8	3.0	1.5	980
250	GMM2E 315 L 2c	2971	420	803	0.90	95.0	95.0	93.6	7.4	2.6	2.5	0.8	2.9	1.6	1050
250	GMM2E 355 M 2a	2980	420	801	0.90	95.0	95.0	93.6	8.0	2.6	2.0	0.6	2.3	3.3	1170
315	GMM2E 355 M 2b	2980	530	1009	0.90	95.1	95.1	93.7	8.0	2.6	2.0	0.6	2.3	4.1	1300
355	GMM2E 355 M 2c	2980	600	1138	0.90	95.2	95.2	93.8	8.0	2.6	2.0	0.6	2.3	4.5	1414
400	GMM2E 355 L 2a	2980	670	1282	0.91	95.2	95.2	93.8	8.0	2.6	2.0	0.6	2.3	4.7	1520
450	GMM 355 L 2b	2980	750	1442	0.91	95.2	95.2	93.8	7.0	2.3	2.0	0.6	2.6	5.3	1630
500	GMM 355 L 2c	2980	830	1602	0.91	95.2	95.2	93.8	7.0	2.3	2.0	0.6	2.6	5.9	1740
450	GMM 400 L 2a	2985	741	1440	0.92	95.3	95.3	93.9	7.0	2.3	1.5	0.5	2.2	7.1	2210
500	GMM 400 L 2b	2985	822	1600	0.92	95.4	95.4	93.9	7.0	2.3	1.5	0.5	2.2	7.9	2450
560	GMM 400 L 2c	2985	907	1791	0.93	95.9	95.9	94.3	7.0	2.3	1.5	0.5	2.2	8.8	2600
630	GMM 400 L 2d	2985	1017	2015	0.93	95.9	95.9	94.3	7.0	2.3	1.5	0.5	2.2	9.9	2820
710	GMM 400 L 2e	2985	675*	2271	0.92	96.0	96.0	94.4	7.0	2.3	1.5	0.5	2.2	11.2	3000
800	GMM 450 L 2a	2986	760*	2558	0.92	96.0	96.0	94.4	7.0	2.3	1.0	0.3	2.8	21	3600
900	GMM 450 LH 2b	2986	842*	2878	0.93	96.1	96.1	94.5	7.0	2.3	1.0	0.3	2.8	23	3800
1000	GMM 450 LH 2c	2986	923*	3198	0.94	96.2	96.2	94.5	7.0	2.3	1.0	0.3	2.8	26	4000

*Rated current at 690 V

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
	Type	Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A / M_N				
						IEC 60034-30-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
0.06	AGM 56 4a	1370	0.25	0.42	0.61	56.9	56.8	52.2	3.0		2.4	-	2.6	0.00011	2.5
0.09	AGM 56 4b	1375	0.36	0.63	0.58	62.5	62.3	55.1	3.1		2.2	-	2.4	0.00012	2.7
0.12	AGM 63 4a	1365	0.41	0.84	0.74	57.1	57.1	53.3	3.1		2.0	-	2.2	0.00017	3.7
0.18	AGM 63 4b	1340	0.60	1.28	0.73	59.7	59.7	55.8	2.9		2.0	-	2.0	0.00021	4.1
0.25	C.AGM 63 4	1350	0.95	1.77	0.63	60.7	60.7	56.8	3.0		2.0	-	2.0	0.00026	5.0
0.25	AGM 71 4a	1380	0.81	1.73	0.72	61.9	61.8	58.2	2.9		1.8	-	2.2	0.00040	5.1
0.37	AGM 71 4b	1390	1.15	2.54	0.68	68.1	68.1	67.1	3.7		2.2	-	2.5	0.00054	6.0
0.37	C.AGM 71 4	1385	1.50	2.55	0.52	68.6	68.6	67.6	3.4		1.9	-	2.1	0.00062	6.5
0.55	AGM 80 4a	1365	1.60	3.85	0.72	69.1	69.0	65.2	3.5	-	1.9	-	2.0	0.00083	8
0.75	AGM2E 80 4b	1410	1.92	5.08	0.71	79.6	79.6	77.6	4.4		2.2	-	2.5	0.0014	11
1.1	AGM2E 90 S 4	1420	2.60	7.4	0.74	82.0	82.0	80.5	5.5	-	3.0	-	3.3	0.0022	14
1.5	AGM2E 90 L 4	1430	3.50	10.0	0.75	83.0	83.0	81.5	5.9	-	3.3	-	3.5	0.0030	16
2.2	AGM2E 100 L 4a	1430	4.90	14.7	0.77	84.5	84.6	82.5	5.0	-	2.0	-	2.4	0.0044	20
3	AGM2E 100 L 4b	1435	6.70	20.0	0.76	85.5	85.7	84.0	6.2	-	2.9	-	3.4	0.0057	23
4	AGM2E 112 M 4	1440	8.40	26.5	0.79	86.7	86.8	85.3	6.6	2.1	2.5	0.8	3.3	0.0106	28
5.5	AGM2E 132 S 4	1450	11.5	36.2	0.79	87.7	87.6	87.2	7.0	2.3	2.8	0.9	3.5	0.021	42
7.5	AGM2E 132 M 4	1455	16.0	49.2	0.76	88.7	88.1	88.7	7.1	2.3	2.7	0.9	3.4	0.026	49
11	AGM2E 160 M 4	1460	21.3	71.9	0.83	90.0	90.1	89.3	6.9	2.2	2.8	0.9	3.1	0.067	86
15	AGM2E 160 L 4	1455	29.4	98.4	0.81	90.6	90.7	89.7	7.5	2.4	2.6	0.8	3.5	0.088	100
18.5	AGM2E 180 M 4	1470	34.5	120	0.85	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.13	119
22	AGM2E 180 L 4	1470	42.5	143	0.81	91.7	91.7	90.6	8.3	2.7	3.7	1.2	3.8	0.15	135
30	AGM2E 200 L 4	1470	55.0	195	0.85	92.5	92.6	92.1	8.0	2.6	3.1	1.0	3.6	0.22	184

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
	Type	Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-30-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
5.5	GM2E 132 S 4	1465	11.5	36.2	0.79	87.7	87.6	87.2	7.0	2.3	2.8	0.9	3.5	0.021	53
7.5	GM2E 132 M 4	1455	16	49.2	0.76	88.7	89.1	88.7	7.1	2.3	2.7	0.9	3.4	0.026	61
11	GM2E 160 M 4	1465	21.3	71.7	0.83	90.0	90.1	89.3	6.9	2.2	2.8	0.9	3.1	0.067	115
15	GM2E 160 L 4	1465	29.4	97.8	0.81	90.6	90.7	89.7	7.5	2.4	2.6	0.8	3.5	0.088	135
18.5	GM2E 180 M 4	1470	34.5	120	0.85	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.13	165
22	GM2E 180 L 4	1470	42.5	143	0.81	91.7	91.7	90.6	8.3	2.7	3.7	1.2	3.8	0.15	180
30	GM2E 200 L 4	1470	55	195	0.85	92.5	92.6	92.1	8.0	2.6	3.1	1.0	3.6	0.22	225
37	GM2E 225 S 4	1470	67	240	0.86	92.7	92.7	92.2	7.2	2.3	3.0	1.0	3.0	0.30	314
45	GM2E 225 M 4	1470	80	292	0.87	93.3	93.3	92.4	7.3	2.4	3.0	1.0	3.0	0.36	330
55	GM2E 250 M 4	1475	96	356	0.88	93.7	93.8	93.2	7.6	2.5	3.1	1.0	2.9	0.72	420
75	GM2E 280 S 4	1480	133	484	0.87	94.0	94.1	93.4	7.0	2.3	2.6	0.8	2.8	1.0	550
90	GM2E 280 M 4	1480	158	581	0.87	94.3	94.5	93.8	7.4	2.4	2.9	0.9	3.0	1.2	615
110	GM2E 315 S 4	1485	195	707	0.86	94.5	94.5	93.8	7.4	2.4	2.0	0.6	3.0	2.1	784
132	GM2E 315 M 4a	1485	230	849	0.87	94.7	94.5	93.8	7.4	2.4	2.1	0.7	3.0	2.5	861
160	GM2E 315 M 4b	1485	280	1029	0.87	94.9	94.9	94.0	7.0	2.3	2.0	0.6	2.9	2.8	882
185	GMM2E 315 L 4a	1485	323	1190	0.87	95.1	95.1	94.2	7.4	2.4	2.2	0.7	3.0	2.9	962
200	GMM2E 315 L 4b	1485	350	1286	0.87	95.1	95.1	94.2	8.0	2.6	2.5	0.8	3.0	3.1	1015
250	GM2E 315 LH 4c	1485	455	1608	0.83	95.1	95.1	94.2	6.4	2.1	2.1	0.7	2.8	5.5	1200
250	GMM2E 355 M 4a	1485	455	1608	0.83	95.1	95.1	94.2	6.4	2.1	2.1	0.7	2.8	5.5	1378
315	GMM2E 355 M 4b	1487	560	2023	0.85	95.4	95.1	94.2	6.4	2.1	2.0	0.6	2.8	6.0	1400
355	GMM2E 355 M 4c	1488	630	2278	0.85	95.4	95.2	94.3	7.0	2.3	2.0	0.6	2.8	6.5	1438
400	GMM2E 355 L 4a	1488	710	2567	0.85	95.4	95.2	94.3	7.0	2.3	2.0	0.6	2.8	7.2	1639
450	GMM 355 L 4b	1488	800	2888	0.85	95.4	95.1	94.5	7.0	2.3	2.5	0.8	2.6	8.2	1740
500	GMM 355 L 4c	1488	890	3209	0.85	95.4	95.1	94.5	7.0	2.3	2.4	0.8	2.6	9.1	1850
450	GMM 400 L 4a	1491	780	2882	0.87	95.6	95.5	94.8	7.0	2.3	1.9	0.6	2.6	14.7	2335
500	GMM 400 L 4b	1492	860	3200	0.88	95.6	95.6	94.8	7.0	2.3	1.9	0.6	2.6	16.9	2474
560	GMM 400 L 4c	1492	970	3586	0.87	95.6	95.6	95.1	7.0	2.3	1.9	0.6	2.6	20.0	2745
630	GMM 400 L 4d	1492	1090	4032	0.87	95.6	95.6	95.1	7.2	2.3	2.0	0.6	2.8	21.3	2814
710	GMM 400 L 4e	1492	710*	4544	0.87	96.0	96.0	95.2	7.2	2.3	2.0	0.6	3.0	23.8	3055
800	GMM 450 L 4a	1492	784*	5120	0.89	96.2	96.2	95.3	7.0	2.3	1.8	0.6	2.5	28.0	3700
900	GMM 450 LH 4b	1492	880*	5760	0.89	96.3	962	95.3	7.0	2.3	1.8	0.6	2.5	32.0	3900
1000	GMM 450 LH 4c	1492	976*	6400	0.89	96.4	96.4	95.3	7.0	2.3	1.8	0.6	2.5	35.0	4100

*Rated current at 690 V
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
	Type	Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-30-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
0.18	AGM 71 6a	915	0.61	1.88	0.68	63.0	62.9	58.7	3.2	-	1.7	-	2.1	0.00064	5
0.25	AGM 71 6b	915	0.83	2.61	0.68	63.8	63.7	59.6	3.2	-	1.7	-	2.1	0.00086	5.7
0.37	AGM 80 6a	910	1.1	3.88	0.67	72.9	72.8	70.1	3.6	-	2.1	-	2.4	0.0017	8.1
0.55	AGM 80 6b	890	1.5	5.90	0.75	70.4	70.3	68.2	3.5	-	1.9	-	2.0	0.0022	9.4
0.75	AGM2E 90 S 6	920	2.0	7.78	0.71	75.9	75.9	72.4	4.0	-	2.2	-	2.4	0.0034	12.2
1.1	AGM2E 90 L 6	930	2.9	11.3	0.70	78.1	78.1	75.1	4.0	-	2.2	-	2.4	0.0044	14
1.5	AGM2E 100 L 6	945	3.6	15.2	0.75	79.8	79.7	76.4	4.5	-	2.2	-	2.4	0.0077	19.1
2.2	AGM2E 112 M 6	950	5.4	22.1	0.72	81.8	81.7	78.5	4.7	-	2.2	-	2.5	0.013	26.5
3	AGM2E 132 S 6	960	6.9	29.8	0.75	83.3	83.2	80.4	5.0	1.6	2.2	0.7	2.6	0.028	44
4	AGM2E 132 M 6a	960	9.0	39.8	0.76	84.6	84.5	81.6	5.0	1.6	2.2	0.7	2.6	0.037	49
5.5	AGM2E 132 M 6b	960	12.3	54.7	0.75	86.0	86.0	83.1	5.0	1.6	2.2	0.7	2.6	0.060	62
7.5	AGM2E 160 M 6	960	15	74.6	0.83	87.2	87.2	84.5	6.5	2.1	2.5	0.8	3.0	0.08	75
11	AGM2E 160 L 6	965	22	109	0.81	88.7	88.7	85.7	6.5	2.1	2.5	0.8	3.0	0.12	102
15	AGM2E 180 L 6	965	29	148	0.83	89.7	89.7	86.8	6.5	2.1	2.4	0.8	3.0	0.20	165
18.5	AGM2E 200 L 6a	975	38	181	0.78	90.4	90.4	87.7	7.0	2.3	2.5	0.8	3.0	0.21	168
22	AGM2E 200 L 6b	975	43	215	0.81	90.9	90.9	88.4	7.0	2.3	2.5	0.8	3.0	0.26	185

CAST IRON FRAME

3	GM2E 132 S 6	960	6.9	29.8	0.75	83.3	83.2	80.4	5.0	1.6	2.2	0.7	2.6	0.028	56
4	GM2E 132 M 6a	960	9.0	39.8	0.76	84.6	84.5	81.6	5.0	1.6	2.2	0.7	2.6	0.037	62
5.5	GM2E 132 M 6b	960	12.3	54.7	0.75	86.0	86.0	83.1	5.0	1.6	2.2	0.7	2.6	0.06	75
7.5	GM2E 160 M 6	960	15	74.6	0.83	87.2	87.2	84.5	6.5	2.1	2.5	0.8	3.0	0.08	105
11	GM2E 160 L 6	965	22	109	0.81	88.7	88.7	85.7	6.5	2.1	2.5	0.8	3.0	0.12	132
15	GM2E 180 L 6	965	29	148	0.83	89.7	89.7	86.8	6.5	2.1	2.4	0.8	3.0	0.20	189
18.5	GM2E 200 L 6a	975	38	181	0.78	90.4	90.4	87.7	7.0	2.3	2.5	0.8	3.0	0.21	202
22	GM2E 200 L 6b	975	43	215	0.81	90.9	90.9	88.4	7.0	2.3	2.5	0.8	3.0	0.26	222
30	GM2E 225 M 6	980	58	292	0.81	91.7	91.7	89.6	7.0	2.3	3.0	1.0	2.6	0.57	285
37	GM2E 250 M 6	985	71	359	0.82	92.2	92.2	90.1	7.0	2.3	3.0	1.0	2.6	0.77	380
45	GM2E 280 S 6	989	87	434	0.80	92.7	92.7	90.9	7.0	2.3	3.3	1.1	2.6	1.2	500
55	GM2E 280 M 6	988	109	532	0.78	93.1	93.1	91.5	7.0	2.3	3.3	1.1	2.6	1.5	553
75	GM2E 315 S 6	990	139	723	0.83	93.7	93.7	92.4	7.0	2.3	2.0	0.6	2.5	2.4	727
90	GM2E 315 M 6a	990	166	868	0.83	94.0	94.0	92.6	7.0	2.3	2.0	0.6	2.5	2.9	805
110	GM2E 315 M 6b	990	198	1061	0.85	94.3	94.3	92.7	7.0	2.3	2.0	0.6	2.6	3.5	860
132	GMM2E 315 L 6a	990	240	1273	0.84	94.6	94.6	93.0	7.0	2.3	2.3	0.7	3.0	3.6	1020
160	GMM2E 315 L 6b	990	290	1543	0.84	94.8	94.8	93.2	7.0	2.3	2.3	0.7	2.7	4.2	1120
160	GMM2E 355 M 6a	990	305	1543	0.80	94.8	94.8	93.2	7.0	2.3	2.5	0.8	2.4	5.8	1035
200	GMM2E 355 M 6b	990	380	1929	0.80	95.0	95.0	93.5	7.0	2.3	2.5	0.8	2.4	6.8	1185
250	GMM2E 355 M 6c	990	470	2411	0.81	95.0	95.0	93.5	7.0	2.3	2.5	0.8	2.4	8.3	1390
315	GMM2E 355 L 6a	990	580	3038	0.83	95.0	95.0	93.5	7.0	2.3	2.5	0.8	2.4	10.7	1746
355	GMM2E 355 L 6b	990	650	3424	0.83	95.0	95.0	93.5	7.0	2.3	2.5	0.8	2.4	11.7	1890
355	GMM2E 400 L 6a	993	655	3414	0.82	95.4	95.0	93.5	7.0	2.3	2.0	0.6	2.6	19.6	2250
400	GMM2E 400 L 6b	993	740	3847	0.82	95.4	95.0	93.5	7.0	2.3	2.0	0.6	2.6	24.5	2575
450	GMM 400 L 6c	993	840	4327	0.81	95.4	95.4	93.9	6.5	2.1	1.8	0.6	2.6	26.6	2705
500	GMM 400 L 6d	993	920	4808	0.82	95.4	95.4	93.9	7.0	2.3	1.8	0.6	2.6	29.2	2855
560	GMM 400 L 6e	993	1010	5385	0.84	95.6	95.6	94.1	7.0	2.3	1.8	0.6	2.6	32.2	3030
630	GMM 450 L 6a	993	685*	6058	0.81	95.7	95.7	94.1	6.6	2.1	2.1	0.7	2.5	37.00	3800
710	GMM 450 L 6b	993	713*	6828	0.87	95.8	95.8	94.2	6.6	2.1	2.1	0.7	2.5	41.00	4000
800	GMM 450 LH 6c	993	794*	7963	0.88	96.0	96.0	94.4	6.6	2.1	2.1	0.7	2.5	46.00	4200

*Rated current at 690 V

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	Type	At Rated Output				Efficiency n %			Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
		Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	IEC 60034-2-1:2014			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
0.09	AGM 71 8a	690	0.4	1.25	0.56	56.5	56.5	47.4	2.3	-	1.7	-	1.9	0.00064	5.0
0.12	AGM 71 8b	670	0.6	1.71	0.51	56.7	56.7	47.7	2.2	-	1.9	-	2.0	0.00086	5.7
0.18	AGM 80 8a	695	0.9	2.47	0.48	60.3	60.3	54.7	3.0	-	2.8	-	3.0	0.0017	8.1
0.25	AGM 80 8b	680	1.1	3.51	0.50	63.0	63.0	57.6	2.9	-	2.6	-	2.8	0.0022	9.4
0.37	AGM 90 S 8	690	1.33	5.12	0.60	66.7	66.7	61.5	3.2	-	1.8	-	2.0	0.0029	11.3
0.55	AGM 90 L 8	670	1.82	7.8	0.63	69.6	69.6	64.6	3.0	-	1.4	-	1.7	0.0038	13.3
0.75	AGM 100 L 8a	700	2.4	10.2	0.62	72.2	72.2	67.3	3.4	-	1.8	-	2.1	0.0062	17.4
1.1	AGM 100 L 8b	700	3.3	15.0	0.67	72.2	72.2	67.4	3.2	-	1.7	-	1.8	0.008	19.1
1.5	AGM 112 M 8	700	4.4	20.5	0.65	75.8	75.7	71.7	3.6	-	1.9	-	2.2	0.013	21.5
2.2	AGM 132 S 8	700	5.4	30.0	0.76	77.2	77.1	73.1	3.8	1.2	2.2	0.7	2.4	0.024	32
3	AGM 132 M 8	690	7.3	41.5	0.76	78.1	78.0	74.2	3.6	1.2	2.2	0.7	2.2	0.033	40
4	AGM 160 M 8a	710	9.1	53.8	0.77	82.2	82.2	79.3	4.8	1.5	2.1	0.7	2.4	0.060	63
5.5	AGM 160 M 8b	720	12.5	72.9	0.77	82.6	82.6	79.6	5.3	1.7	2.2	0.7	2.7	0.083	73
7.5	AGM 160 L 8	715	17	100	0.75	84.6	84.6	81.5	5.8	1.9	2.4	0.8	2.9	0.12	102
11	AGM 180 L 8	720	24	146	0.78	85.2	85.2	82.1	6.8	2.2	2.7	0.9	3.0	0.20	138
15	AGM 200 L 8	725	32	198	0.78	87.2	87.2	84.2	6.0	1.9	2.1	0.7	2.9	0.29	155

CAST IRON FRAME

2.2	GM 132 S 8	700	5.4	30.0	0.76	77.2	77.1	73.1	3.8	1.2	2.1	0.7	2.4	0.024	47
3	GM 132 M 8	690	7.3	41.5	0.76	78.1	78.0	74.2	3.6	1.2	2.2	0.7	2.2	0.033	56
4	GM 160 M 8a	710	9.1	53.8	0.77	82.2	82.2	79.3	4.8	1.5	2.1	0.7	2.4	0.060	84
5.5	GM 160 M 8b	720	12.5	72.9	0.77	82.6	82.6	79.6	5.3	1.7	2.2	0.7	2.7	0.083	98
7.5	GM 160 L 8	715	17	100	0.75	84.6	84.6	81.5	5.8	1.9	2.4	0.8	2.9	0.12	120
11	GM 180 L 8	720	24	146	0.78	85.2	85.2	82.1	6.8	2.2	2.7	0.9	2.0	0.20	164
15	GM 200 L 8	725	32	198	0.78	87.2	87.2	84.2	6.0	1.9	2.1	0.7	2.9	0.29	205
18.5	GM 225 S 8	725	38	244	0.81	88.0	88.0	85.1	5.8	1.9	2.0	0.6	2.7	0.43	250
22	GM 225 M 8	725	45	290	0.81	87.1	87.1	84.8	5.8	1.9	2.0	0.6	2.6	0.52	277
30	GM 250 M 8	735	59	390	0.82	89.8	89.8	86.2	6.1	2.0	1.8	0.6	2.6	0.92	383
37	GM 280 S 8	730	73	484	0.82	89.8	89.8	86.2	4.7	1.5	2.0	0.6	2.0	1.3	465
45	GM 280 M 8	730	86	589	0.83	91.4	91.4	87.4	4.9	1.6	1.9	0.6	1.8	1.6	508
55	GM 315 S 8	740	110	710	0.78	92.2	91.4	87.4	5.7	1.8	1.8	0.6	1.9	2.0	708
75	GM 315 M 8a	740	150	968	0.78	91.6	91.4	87.4	5.9	1.9	1.9	0.6	2.0	2.5	745
90	GM 315 M 8b	740	171	1161	0.82	92.2	92.2	88.6	6.2	2.0	1.9	0.6	2.0	3.0	820
110	GMM 315 L 8a	740	209	1419	0.82	92.6	92.6	89.1	6.5	2.1	1.9	0.6	2.0	4.0	860
132	GMM 315 L 8b	740	265	1703	0.76	93.1	93.1	89.8	6.0	1.9	1.9	0.6	2.0	4.3	980
132	GMM 355 M 8a	740	270	1703	0.76	94.4	94.4	93.2	5.7	1.8	1.9	0.6	2.0	4.3	1222
160	GMM 355 M 8b	740	320	2065	0.77	94.4	94.4	93.2	5.9	1.9	1.9	0.6	2.0	8.9	1328
200	GMM 355 M 8c	740	420	2581	0.74	94.4	94.4	93.2	6.2	2.0	1.9	0.6	2.0	11	1590
250	GMM 355 L 8a	740	550	3226	0.70	94.0	94.0	93.4	6.5	2.1	1.9	0.6	2.0	13	2020
315	GMM 400 L 8a	745	660	4038	0.73	94.8	94.8	91.7	5.9	1.9	1.8	0.6	2.3	24.5	2555
355	GMM 400 L 8b	745	735	4550	0.73	95.0	95.0	91.9	6.0	1.9	1.8	0.6	2.3	26.6	2685
400	GMM 400 L 8c	745	810	5127	0.75	95.2	95.2	92.0	6.1	2.0	1.8	0.6	2.4	29	2835
450	GMM 400 L 8d	745	920	5768	0.74	95.2	95.2	92.0	6.2	2.0	1.8	0.6	2.5	32	3010
500	GMM 450 L 8a	744	541*	6418	0.81	95.4	95.4	93.9	6.6	2.1	2	0.6	2.4	37	3800
560	GMM 450 L 8b	744	603*	7188	0.81	95.6	95.6	94.1	6.6	2.1	2	0.6	2.4	41	4000
630	GMM 450 LH 8c	744	675*	8086	0.82	95.7	95.7	94.1	6.6	2.1	2	0.6	2.4	46	4200

*Rated current at 690 V

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
	Type	Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A / M_N				
						IEC 60034-30-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
55	GM3E 250 M 2	2985	92	176	0.92	94.3	94.5	93.3	8.7	2.8	2.9	0.9	3.0	0.47	480
75	GM3E 280 S 2	2985	127	240	0.90	94.7	94.6	94.0	8.0	2.6	2.9	0.9	3.2	0.62	554
90	GM3E 280 M 2	2985	148	288	0.92	95.0	95.0	93.7	8.2	2.6	2.9	0.9	3.0	0.74	645
110	GM3E 315 S 2	2985	186	352	0.90	95.2	95.2	94.0	8.0	2.6	2.5	0.8	3.0	1.2	742
132	GM3E 315 M 2	2985	223	422	0.90	95.4	95.4	94.1	8.0	2.6	2.4	0.8	3.5	1.4	812
160	GM3E 315 L 2a	2985	265	512	0.91	95.6	95.6	94.2	8.0	2.6	2.5	0.8	3.0	1.5	912
185	GMM3E 315 L 2b	2985	304	592	0.92	95.7	95.7	94.2	7.5	2.4	2.5	0.8	2.8	1.8	1110
200	GMM3E 315 L 2c	2985	324	640	0.93	95.8	95.8	94.6	7.5	2.4	2.5	0.8	2.8	1.8	1140
250	GMM3E 355 M 2a	2990	413	798	0.91	95.8	95.8	94.6	7.0	2.3	2.0	0.6	2.5	3.6	1170
315	GMM3E 355 M 2b	2990	516	1006	0.92	95.8	95.8	94.7	7.0	2.3	2.0	0.6	2.5	4.5	1360
355	GMM3E 355 M 2c	2990	575	1134	0.93	95.8	95.7	94.8	7.2	2.3	2.0	0.6	2.5	4.7	1420
400	GMM3E 355 L 2a	2990	660	1277	0.91	95.8	95.8	94.9	7.0	2.3	2.0	0.6	2.5	5.3	1630

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
	Type	Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A / M_N				
kW		m^{-1}	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K / M_N	kgm^2	kg
						4/4	3/4	1/2							
55	GM3E 250 M 4	1480	96	355	0.87	94.6	94.7	94.0	7.7	2.5	3.2	1.0	3.0	0.78	445
75	GM3E 280 S 4	1485	133	482	0.86	95.0	94.9	94.4	7.6	2.5	2.9	0.9	3.0	1.11	605
90	GM3E 280 M 4	1485	158	579	0.86	95.2	95.2	94.8	7.4	2.4	2.9	0.9	3.0	1.32	665
110	GM3E 315 S 4	1487	194	706	0.86	95.4	95.2	95.0	7.4	2.4	2.4	0.8	3.0	2.5	861
132	GM3E 315 M 4	1488	226	847	0.88	95.6	95.4	95.3	7.4	2.4	2.4	0.8	3.0	2.8	882
160	GM3E 315 L 4a	1488	275	1027	0.88	95.8	95.6	95.6	6.9	2.2	2.2	0.7	2.9	3.0	930
185	GMM3E 315 L 4b	1488	321	1187	0.87	95.9	95.9	95.8	6.9	2.2	2.2	0.7	2.9	3.1	1015
200	GMM3E 315 L 4c	1488	350	1284	0.86	96.0	95.8	95.8	7.5	2.4	2.5	0.8	3.1	3.3	1100
200	GM3E 315 LH 4b	1489	350	1282	0.86	96.0	96.0	95.8	7.5	2.5	2.5	0.8	3.1	4.6	1100
250	GM3E 315 LH 4c	1489	440	1602	0.85	96.1	96.1	95.8	7.6	2.5	2.3	0.8	3.1	4.8	1300
250	GMM3E 355 M 4a	1490	440	1602	0.85	96.0	96.0	95.9	8.0	2.6	2.2	0.7	3.0	6.0	1400
315	GMM3E 355 M 4b	1490	560	2019	0.85	96.0	96.0	95.9	8.0	2.6	2.2	0.7	3.0	6.5	1438
355	GMM3E 355 L 4a	1490	620	2275	0.86	96.0	96.0	95.9	8.0	2.6	2.2	0.7	3.0	7.2	1490
400	GMM3E 355 L 4b	1490	690	2564	0.87	96.0	96.0	95.9	7.2	2.3	2.2	0.7	3.0	7.9	1720

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ			
kW		m⁻¹	A	Nm		4/4	3/4	1/2					M_K/M_N	kgm^2	kg
37	GM3E 250 M 6	987	70	358	0.82	93.3	93.2	92.9	7.0	2.3	2.8	0.9	2.6	0.99	440
45	GM3E 280 S 6	990	88	434	0.79	93.7	93.7	92.9	6.9	2.2	3.0	1.0	2.8	1.50	553
55	GM3E 280 M 6	990	107	531	0.79	94.1	94.1	92.8	7.3	2.4	3.3	1.1	3.2	1.70	578
75	GM3E 315 S 6	992	140	722	0.82	94.6	94.6	94.4	7.2	2.3	2.7	0.9	3.0	2.9	805
90	GM3E 315 M 6a	992	166	866	0.82	94.9	94.9	94.5	7.2	2.3	2.7	0.9	3.0	3.5	860
110	GM3E 315 M 6b	992	198	1059	0.84	95.1	95.1	94.9	7.2	2.3	2.7	0.9	3.0	4.2	980
132	GMM3E 315 L 6	992	235	1271	0.85	95.4	95.4	95.2	7.2	2.3	2.7	0.9	3.0	4.3	1150
160	GMM3E 355 M 6a	993	296	1539	0.82	95.6	95.6	95.0	7.0	2.3	2.4	0.8	3.2	6.8	1185
200	GMM3E 355 M 6b	993	365	1923	0.83	95.8	95.8	95.3	7.0	2.3	2.4	0.8	3.2	8.3	1390
250	GMM3E 355 L 6a	993	460	2404	0.82	95.8	95.8	95.4	7.0	2.3	2.4	0.8	3.2	10.4	1716
315	GMM3E 355 L 6b	993	580	3029	0.82	95.8	95.7	95.5	7.0	2.3	2.4	0.8	3.2	11.7	1890
355	GMM3E 400 L 6a	995	610	3407	0.88	95.9	95.9	95.7	6.8	2.2	2.2	0.7	2.9	23.6	2450
400	GMM3E 400 L 6b	995	690	3839	0.87	95.9	95.9	95.7	6.8	2.2	2.2	0.7	2.9	26.6	2705

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated Output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %	Locked-Rotor Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A/M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2007 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
0.06/0.08	AGM 56 4/2a	1360/2750	0.40/0.46	0.42/0.28	0.49/0.50	42.7/48.5	2.6/2.9	1.9/2.1	2.0/2.2	0.00011	2.7
0.08/0.1	AGM 56 4/2b	1360/2750	0.43/0.48	0.56/0.35	0.58/0.56	44.6/52.4	2.8/3.1	2.0/2.2	2.1/2.3	0.00012	2.8
0.11/0.15	AGM 63 4/2a	1390/2800	0.50/0.50	0.76/0.51	0.68/0.73	45.6/57.3	2.8/3.5	1.8/1.9	1.9/2.3	0.00017	3.2
0.15/0.22	AGM 63 4/2b	1390/2800	0.67/0.64	1.03/0.75	0.66/0.81	47.6/59.3	2.7/3.7	1.9/1.8	2.3/2.2	0.00021	3.7
0.22/0.3	AGM 71 4/2a	1375/2750	0.70/0.85	1.5/1	0.73/0.84	60.3/59.4	3.0/3.3	1.5/1.4	1.9/1.8	0.00040	4.9
0.3/0.44	AGM 71 4/2b	1390/2800	0.95/1.2	2.1/1.5	0.72/0.81	61.3/63.3	3.0/3.1	1.5/1.3	2.0/1.8	0.00054	5.9
0.5/0.6	AGM 80 4/2a	1370/2780	1.4/1.6	3.5/2.1	0.79/0.86	63.3/61.4	3.0/3.5	1.4/1.5	1.7/2.0	0.00083	7.6
0.7/0.85	AGM 80 4/2b	1370/2800	2/2.3	4.9/2.9	0.75/0.76	65.3/68.3	3.3/4.0	1.7/2.0	2.0/2.3	0.0011	8.7
1/1.3	AGM 90 S 4/2	1370/2750	2.5/3.3	7/4.5	0.81/0.85	69.3/65.4	3.8/3.7	1.7/1.7	2.0/1.8	0.0019	11.5
1.3/1.8	AGM 90 L 4/2	1390/2800	3/4.3	8.9/6.1	0.85/0.86	72.2/68.4	4.4/4.2	2.0/1.9	2.2/2.0	0.0024	13.6
1.8/2.2	AGM 100 L 4/2a	1420/2840	4.1/5.5	12.1/7.4	0.82/0.80	75.2/70.4	4.9/4.5	2.0/2.1	2.3/2.4	0.0038	17.3
2.4/3	AGM 100 L 4/2b	1390/2820	5.2/6.8	16.5/10.2	0.83/0.84	78.2/74.3	4.7/4.9	2.0/2.1	2.2/2.3	0.0050	20.8
3.7/4.5	AGM 112 M 4/2	1430/2880	7.6/10	25/15	0.86/0.82	80.2/77.3	5.6/5.3	1.9/1.9	2.3/2.4	0.0092	28.7
4.5/5.5	AGM 132 S 4/2	1430/2860	9.5/14	30/18	0.84/0.77	79.3/74.4	5.4/5.1	2.0/1.9	2.2/2.2	0.019	39
6.3/7.5	AGM 132 M 4/2	1440/2880	12.6/17	42/25	0.88/0.81	80.3/77.4	5.6/6.0	2.3/2.4	2.5/2.6	0.026	47
7.5/10	C.AGM 132 M 4/2	1440/2890	15/21	50/33	0.85/0.86	81.3/78.4	6.4/6.4	2.5/2.1	3.1/3.1	0.032	56
9/11	AGM 160 M 4/2	1450/2900	18/23	59/36	0.86/0.88	84.3/78.4	6.2/6.3	2.3/2.4	2.4/2.6	0.054	74
12.5/15	AGM 160 L 4/2	1465/2930	24/29	81/49	0.85/0.88	86.3/83.4	5.6/6.9	2.2/2.4	2.2/2.5	0.072	104
17/20	AGM 180 L 4/2	1455/2930	33/39	112/65	0.85/0.90	85.4/80.5	6.2/7.2	2.5/2.7	2.6/3.0	0.13	143
21/25	AGM 200 L 4/2	1460/2920	40/46	137/82	0.89/0.90	83.5/85.5	6.6/6.8	2.4/2.6	2.4/2.7	0.19	185
25/30	C.AGM 200 L 4/2	1460/2915	45/56	164/98	0.91/0.90	86.4/84.5	6.4/6.6	2.0/2.2	2.3/2.6	0.23	205

CAST IRON FRAME

4.5/5.5	GM 132 S 4/2	1430/2860	9.5/14	30/18	0.84/0.77	79.3/74.4	5.4/5.1	2.0/1.9	2.2/2.2	0.019	51
6.3/7.5	GM 132 M 4/2	1440/2880	12.6/17	42/25	0.88/0.81	80.3/77.4	5.6/6.0	2.3/2.4	2.5/2.6	0.026	60
9/11	GM 160 M 4/2	1450/2900	18/23	59/36	0.86/0.88	84.3/78.4	6.2/6.3	2.3/2.4	2.4/2.6	0.054	105
12.5/15	GM 160 L 4/2	1465/2930	24/29	81/49	0.85/0.88	86.3/83.4	5.6/6.9	2.2/2.4	2.2/2.5	0.072	140
17/20	GM 180 L 4/2	1455/2930	33/39	112/65	0.85/0.90	85.4/80.5	6.2/7.2	2.5/2.7	2.6/3.0	0.13	170
21/25	GM 200 L 4/2	1460/2920	40/46	137/82	0.89/0.90	83.5/85.5	6.6/6.8	2.4/2.6	2.4/2.7	0.19	235
25/30	C.GM 200 L 4/2	1460/2915	45/56	164/98	0.91/0.90	86.4/84.5	6.4/6.6	2.0/2.2	2.3/2.6	0.23	255
31/37	GM 225 M 4/2	1460/2915	56/70	203/121	0.88/0.89	89.4/84.5	5.6/5.6	1.9/1.9	2.0/2.3	0.35	320
39/45	GM 250 M 4/2	1465/2935	72/78	254/146	0.87/0.94	88.5/87.5	6.1/6.9	2.3/2.6	2.3/2.8	0.54	395
46/55	C.GM 250 M 4/2	1465/2935	81/96	300/179	0.90/0.93	89.5/87.6	6.2/7.0	2.3/2.6	2.3/2.8	0.72	450
56/67	GM 280 M 4/2	1480/2970	100/121	361/215	0.88/0.91	90.5/86.6	8.0/8.6	2.8/2.6	2.8/3.3	1.1	615
72/32	C.GM 280 M 4/2	1480/2970	129/148	465/264	0.88/0.91	90.6/86.7	8.0/8.6	2.4/2.0	2.4/2.8	1.3	665
77/90	GM 315 S 4/2	1485/2980	148/153	495/288	0.81/0.93	91.6/89.6	7.0/7.5	2.2/2.1	2.5/2.6	0.96	720
94/110	GM 315 M 4/2a	1485/2980	181/186	605/353	0.80/0.93	92.6/90.7	8.6/8.8	2.4/2.3	2.7/2.8	1.2	805
12C/140	GM 315 M 4/2b	1485/2980	225/231	772/449	0.82/0.94	92.6/91.7	7.6/8.8	2.1/2.0	2.5/2.6	1.4	870
132/155	GMM 315 L 4/2a	1485/2980	247/255	849/497	0.82/0.94	92.7/91.7	8.6/8.8	2.2/2.1	2.5/2.6	1.42	920
143/168	GMM 315 L 4/2b	1485/2980	282/276	920/538	0.78/0.94	92.7/91.7	8.6/8.8	2.4/2.3	2.8/2.9	1.5	950

⚠ In constant torque applications, two-speed motors should be started at low speed, depending on torque characteristics. After reaching the rated speed, it can be switched to high speed.

⚠ In constant moment applications, Dahlander-connected motors are started D.O.L.-on-line, but upon request, it can be connected in a way to allow for Y/Δ starting.

Efficiency values are calculated using the inD.O.L. measuring method in accordance with IEC 60034-2-1: 2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %	Locked-Rotor Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A/M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2007 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
0.15/0.25	AGM 71 8/4	680/1380	0.65/0.7	2.1/1.7	0.71/0.81	45.7/62.3	2.3/3.1	1.5/1.4	1.8/1.7	0.00086	6.3
0.20/0.37	AGM 80 8/4a	690/1400	1.1/0.9	3.6/2.5	0.63/0.84	52.5/69.1	2.6/4.2	1.6/1.7	1.9/2.0	0.0017	8.1
0.35/0.55	AGM 80 8/4b	670/1370	1.4/1.5	5/3.8	0.62/0.77	56.5/67.2	2.6/3.7	1.8/1.7	2.0/2.0	0.0022	9.4
0.4/0.7	AGM 90 S 8/4	690/1380	1.6/1.7	5.5/4.8	0.59/0.83	59.4/69.2	2.9/3.7	1.6/1.4	2.0/1.6	0.0029	11.3
0.6/0.9	AGM 90 L 8/4	680/1365	2.1/2.2	8.4/6.3	0.68/0.84	59.4/68.3	2.8/3.8	1.4/1.5	1.7/1.7	0.0038	13.5
0.75/1.1	AGM 100 L 8/4a	690/1400	2.4/2.6	10.4/7.5	0.69/0.85	63.4/70.3	3.2/4.4	1.6/1.8	1.9/2.1	0.0062	17.7
1/1.6	AGM 100 L 8/4b	690/1395	3.4/3.5	13.8/11	0.63/0.90	65.4/71.3	3.1/4.3	1.8/1.7	2.1/2.0	0.0084	19.6
1.5/2.5	AGM 112 M 8/4	705/1400	4.4/5.1	20.3/17.1	0.67/0.88	71.3/78.2	3.8/4.2	1.9/1.7	2.4/2.2	0.013	26.5
2.2/3.4	AGM 132 S 8/4	700/1400	6.9/7.4	30/23	0.65/0.87	69.4/74.3	3.6/4.8	1.8/1.8	2.1/1.9	0.024	35
3.5/5.5	AGM 132 M 8/4	700/1400	10/11.2	48/38	0.68/0.90	72.4/77.4	3.8/5.3	1.8/1.7	2.0/2.0	0.033	43
4.5/6	AGM 160 M 8/4a	715/1425	11/12.7	60/40	0.74/0.87	78.3/76.4	4.3/5.1	1.7/1.7	2.0/2.2	0.060	63
5.5/7.5	AGM 160 M 8/4b	715/1435	13/15.7	73/50	0.75/0.86	79.3/78.4	5.2/6.1	2.2/2.2	2.4/2.4	0.083	73
7.5/11	AGM 160 L 8/4	720/1440	17/22	99/73	0.77/0.88	81.3/80.4	5.0/5.8	2.1/2.4	2.4/2.4	0.12	102
11/15	AGM 180 L 8/4	720/1450	24/30	146/99	0.78/0.86	83.4/82.4	5.8/7.0	2.3/2.6	2.7/2.9	0.20	138
16/24	C.AGM 200 L 8/4	725/1460	38/44	211/157	0.71/0.89	84.4/86.4	4.8/6.2	2.3/1.9	2.4/2.3	0.23	205

CAST IRON FRAME

2.2/3.4	GM 132 S 8/4	700/1400	6.9/7.4	30/23.2	0.65/0.87	69.4/74.3	3.6/4.8	1.8/1.8	2.1/1.9	0.024	47
3.5/5.5	GM 132 M 8/4	700/1400	10/11.2	48/38	0.68/0.90	72.4/77.4	3.8/5.3	1.8/1.7	2.0/2.0	0.033	56
4.5/6	GM 160 M 8/4a	715/1425	11/12.7	60/40	0.74/0.87	78.3/76.4	4.3/5.1	1.7/1.7	2.0/2.2	0.060	95
5.5/7.5	GM 160 M 8/4b	715/1435	13/15.7	73/50	0.75/0.86	79.3/78.4	5.2/6.1	2.2/2.2	2.4/2.4	0.083	105
7.5/11	GM 160 L 8/4	720/1440	17/22	99/73	0.77/0.88	81.3/80.4	5.0/5.8	2.1/2.4	2.4/2.4	0.12	134
11/15	GM 180 L 8/4	720/1450	24/30	146/99	0.78/0.86	83.4/82.4	5.8/7.0	2.3/2.6	2.7/2.9	0.20	165
16/24	C.GM 200 L 8/4	725/1460	38/44	211/157	0.71/0.89	84.4/86.4	4.8/6.2	2.3/1.9	2.4/2.3	0.23	255
18.5/32	GM 225 M 8/4	730/1460	49/58	242/209	0.63/0.89	84.4/87.5	3.9/5.4	2.2/2.0	2.1/2.2	0.35	320
23/40	C.GM 225 M 8/4	730/1470	59/72	301/260	0.65/0.90	85.4/87.5	4.4/5.7	2.4/2.2	2.2/2.3	0.44	360
30/48	C.GM 250 M 8/4	730/1470	77/84	392/312	0.65/0.91	84.5/89.5	4.3/6.4	2.2/2.1	1.9/2.4	0.72	450
37/55	GM 280 M 8/4	740/1480	95/97	478/355	0.65/0.90	85.5/89.5	4.5/6.4	1.6/1.6	1.4/1.8	1.1	615
45/66	C.GM 280 M 8/4	735/1480	110/122	585/426	0.66/0.85	87.5/90.6	4.7/6.6	1.8/2.1	1.6/2.1	1.3	665
55/75	GM 315 S 8/4	740/1485	113/133	710/482	0.76/0.89	90.5/89.6	5.5/6.7	2.0/1.9	1.9/2.0	2	695
65/90	GM 315 M 8/4a	740/1485	129/176	839/579	0.78/0.80	91.5/90.6	6.3/6.1	2.0/1.9	1.9/2.0	2.5	745
80/110	GM 315 M 8/4b	740/1485	163/195	1032/707	0.76/0.89	91.6/90.7	7.0/8.0	2.4/2.2	2.3/2.3	3	820
90/125	GMM 315 L 8/4	740/1485	179/220	1154/804	0.80/0.91	89.6/88.7	5.6/6.3	2.0/1.8	1.7/1.7	4	860

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⚠ In constant moment applications, Dahlander-connected motors are started D.O.L.-on-line, but upon request, it can be connected in a way to allow for Y/Δ starting.

Efficiency values are calculated using the inD.O.L. measuring method in accordance with IEC 60034-2-1: 2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A / M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
0.12/0.16	AGM 71 6/4a	920/1370	0.7/0.72	1.25/1.12	0.59/0.67	40.8/46.6	3.1/2.6	1.3/1.3	1.7/1.6	0.00064	5.4
0.18/0.22	AGM 71 6/4b	920/1370	0.8/0.9	1.87/1.53	0.71/0.65	44.7/52.5	3.2/2.8	1.4/1.4	1.7/1.6	0.00086	6.3
0.18/0.33	AGM 80 6/4a	930/1410	0.9/1.1	2.57/2.24	0.85/0.73	45.7/57.4	3.1/3.2	1.5/1.5	2.0/2.1	0.0017	8.1
0.3/0.4	AGM 80 6/4b	930/1425	1/1.2	3.08/2.68	0.85/0.77	47.7/59.4	3.4/4.3	1.8/2.0	2.2/2.5	0.0022	9.4
0.45/0.6	AGM 90 S 6/4	940/1430	1.5/1.8	4.6/4	0.70/0.79	60.4/59.4	3.3/3.8	1.4/1.6	1.8/2.1	0.0029	11.3
0.6/0.9	AGM 90 L 6/4	950/1420	2/2.5	6/6.1	0.69/0.80	61.4/63.4	3.9/3.3	1.7/1.5	2.4/1.9	0.0038	13.5
1.2/1.7	AGM 100 L 6/4	950/1425	3.4/4.2	12.1/11.4	0.74/0.85	67.3/67.4	3.7/4.1	1.8/1.7	2.0/1.9	0.0084	19.3
1.5/2.4	AGM 112 M 6/4	950/1435	4/5.6	15.1/16	0.74/0.79	71.3/76.2	4.6/4.8	1.9/1.7	2.4/2.2	0.013	26.5
2.2/3.3	AGM 132 S 6/4	965/1445	5.6/7.6	21.8/21.8	0.77/0.84	72.3/73.4	4.8/5.0	1.9/1.7	2.6/2.3	0.022	36
3.2/5	AGM 132 M 6/4	960/1450	7.6/11	31.8/32.9	0.77/0.80	77.3/80.3	5.6/6.1	2.3/1.9	2.5/2.2	0.043	49.5
5/7.5	AGM 160 M 6/4	970/1455	10.5//15	49.2/49.2	0.86/0.89	78.3/79.4	5.5/5.8	1.8/1.7	2.5/2.5	0.079	81
6.5/10	AGM 160 L 6/4	965/1450	13.3/19	64.3/65.9	0.87/0.90	79.3/82.4	5.4/6.4	1.8/1.9	2.4/2.5	0.11	95
9.5/15	AGM 180 L 6/4	970/1460	19/28	93.5/98.1	0.86/0.91	82.3/83.4	6.5/6.9	1.7/1.8	2.7/2.9	0.16	145
15/23	AGM 200 L 6/4	970/1470	31/43	148/149	0.82/0.88	83.4/86.4	7.1/7.5	2.1/1.9	3.0/3.0	0.26	185

CAST IRON FRAME

2.2/3.3	GM 132 S 6/4	965/1445	5.6/7.6	22/22	0.77/0.84	72.3/73.4	4.8/5.0	1.9/1.7	2.6/2.3	0.022	48
3.2/5	GM 132 M 6/4	960/1450	7.6/11	32/33	0.77/0.80	77.3/80.3	5.6/6.1	2.3/1.9	2.5/2.2	0.043	62
5/7.5	GM 160 M 6/4	970/1455	10.5/15	49/49	0.86/0.89	78.3/79.4	5.5/5.8	1.8/1.7	2.5/2.5	0.079	115
6.5/10	GM 160 L 6/4	965/1450	13.3/19	64/66	0.87/0.90	79.3/82.4	5.4/6.4	1.8/1.9	2.4/2.5	0.11	125
9.5/15	GM 180 L 6/4	970/1460	19/28	94/98	0.86/0.91	82.3/83.4	6.5/6.9	1.7/1.8	2.7/2.9	0.16	175
15/23	GM 200 L 6/4	970/1470	31/43	148/149	0.82/0.88	83.4/86.4	7.1/7.5	2.1/1.9	3.0/3.0	0.26	235
22/32	GM 225 M 6/4	980/1470	43/57	214/208	0.84/0.91	86.4/87.5	5.8/7.0	2.4/2.4	2.1/2.4	0.57	330
26/39	GM 250 M 6/4	980/1475	53/72	253/253	0.80/0.88	86.5/87.5	6.7/6.0	2.6/2.2	2.2/2.2	0.77	395
39/57	GM 280 S 6/4	985/1475	78/108	378/369	0.81/0.86	87.5/87.6	6.3/5.5	2.5/2.1	2.3/2.2	1.2	550
46/66	GM 280 M 6/4	990/1485	91/131	444/424	0.81/0.81	88.5/88.6	6.8/6.2	2.5/2.1	2.3/2.2	1.5	610
52/75	GM 315 S 6/4	990/1485	95/135	502/482	0.88/0.89	88.5/88.6	6.2/6.0	1.6/1.6	2.3/2.3	2.0	695
58/85	GM 315 M 6/4a	990/1480	110/158	559/548	0.84/0.85	89.6/89.6	7.9/5.5	1.8/1.6	2.0/1.9	2.5	745
75/110	GM 315 M 6/4b	990/1485	141/190	723/707	0.83/0.91	90.6/90.7	8.2/7.2	1.8/1.6	1.9/1.8	3.0	820
86/125	GMM 315 L 6/4	990/1485	160/210	830/804	0.83/0.92	91.6/91.7	8.0/6.0	1.8/1.6	1.9/1.8	4.0	860

⚠ In constant torque applications, two-speed motors should be started at low speed, depending on torque characteristics. After reaching the rated speed, it can be switched to high speed.

⚠ In constant moment applications, Dahlander-connected motors are started D.O.L.-on-line, but upon request, it can be connected in a way to allow for Y/Δ starting.

Efficiency values are calculated using the inD.O.L. measuring method in accordance with IEC 60034-2-1: 2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A / M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
0.035/0.14	V.AGM 63 4/2a	1400/2860	0.20/0.50	0.24/0.47	0.51/0.62	48.4/63.2	3.2/4.5	2.1/2.4	2.4/2.8	0.00011	3.3
0.05/0.19	V.AGM 63 4/2b	1420/2880	0.22/0.60	0.34/0.63	0.66/0.74	48.5/60.3	3.4/4.8	2.3/2.7	2.6/3.0	0.00013	3.7
0.08/0.37	V.AGM 71 4/2a	1380/2800	0.32/1.1	0.55/1.26	0.69/0.84	50.5/56.5	2.5/3.5	1.4/1.5	1.6/1.7	0.00026	5.1
0.12/0.5	V.AGM 71 4/2b	1380/2800	0.45/1.4	0.83/1.71	0.73/0.81	51.5/62.3	3.0/3.8	1.6/1.8	1.8/2.0	0.00034	6.3
0.17/0.75	V.AGM 80 4/2a	1400/2790	0.50/1.7	1.2/2.6	0.77/0.91	62.2/68.3	3.5/4.1	1.6/1.7	1.9/1.9	0.00053	7.8
0.25/1.0	V.AGM 80 4/2b	1410/2810	0.70/2.2	1.7/3.4	0.75/0.98	67.1/65.4	3.3/3.6	1.4/1.6	1.7/1.9	0.00066	8.9
0.33/1.3	V.AGM 90 S 4/2	1425/2860	0.90/2.8	2.2/4.3	0.74/0.87	70.1/75.2	3.7/4.4	1.6/1.8	2.0/1.9	0.0011	11.4
0.5/2.0	V.AGM 90 L 4/2	1415/2835	1.2/4.2	3.4/6.7	0.78/0.88	75.0/76.2	4.5/6.0	2.0/1.8	2.4/2.5	0.0014	13.8
0.66/2.7	V.AGM 100 L 4/2	1430/2845	1.5/5.2	4.4/9.1	0.81/0.95	76.0/77.2	4.9/4.7	1.7/1.9	2.3/2.1	0.0024	17.3
0.9/3.6	V.AGM 112 M 4/2	1440/2870	2/7.3	6.0/12	0.83/0.89	76.1/78.3	5.5/6.0	1.8/2.0	2.6/2.5	0.0039	27
1.25/5	V.AGM 132 S 4/2a	1440/2860	3/9.8	8.3/16.7	0.81/0.93	75.2/77.3	4.3/4.9	1.8/2.1	2.1/2.2	0.0090	33
1.7/6.5	V.AGM 132 S 4/2b	1440/2900	3.6/12.5	11.3/21.4	0.84/0.89	79.1/82.3	5.8/6.8	2.3/2.3	2.5/2.7	0.012	39
2.5/10	V.AGM 160 M 4/2a	1450/2910	5.3/19.5	16/33	0.84/0.90	79.2/80.4	5.0/5.3	2.1/2.5	2.2/2.7	0.026	62
3.3/13	V.AGM 160 M 4/2b	1460/2930	6.7/24	22/42	0.85/0.91	82.2/84.4	6.8/8.6	2.2/2.5	2.9/3.3	0.034	73
4.4/17	V.AGM 160 L 4/2	1460/2930	8.6/32	29/55	0.87/0.89	83.2/84.4	6.9/8.8	2.4/2.6	2.7/3.0	0.041	86
5/20	V.AGM 180 M 4/2	1475/2940	10/37	32/65	0.87/0.90	81.3/85.4	6.7/7.7	2.6/2.4	2.7/2.7	0.060	125
7.5/28	V.AGM 200 L 4/2a	1470/2960	15/50	49/90	0.85/0.92	83.3/86.5	6.4/7.5	2.3/2.1	2.3/2.4	0.10	165
8.5/33	V.AGM 200 L 4/2b	1470/2950	16/59	55/107	0.87/0.90	86.2/88.5	6.8/7.6	2.1/1.9	2.2/2.1	0.13	185

CAST IRON FRAME

1.25/5	V.GM 132 S 4/2a	1440/2860	3/9.8	8.3/16.7	0.78/0.93	75.2/77.3	4.3/4.9	1.8/2.1	2.1/2.2	0.0090	45
1.7/6.5	V.GM 132 S 4/2b	1440/2900	3.6/12.5	11.3/21.4	0.84/0.89	79.1/82.3	5.8/6.8	2.3/2.3	2.5/2.7	0.012	52
2.5/10	V.GM 160 M 4/2a	1450/2910	5.3/19.5	16.5/32.8	0.84/0.90	79.2/80.4	5.0/5.3	2.1/2.5	2.2/2.7	0.026	94
3.3/13	V.GM 160 M 4/2b	1460/2930	6.7/24	21.6/42.4	0.85/0.91	82.2/84.4	6.8/8.6	2.2/2.5	2.9/3.3	0.034	105
4.4/17	V.GM 160 L 4/2	1460/2930	8.6/32	28.8/55.4	0.87/0.89	83.2/84.4	6.9/8.8	2.4/2.6	2.7/3.0	0.041	118
5/20	V.GM 180 M 4/2	1475/2940	10/37	32.4/65	0.87/0.90	81.3/85.4	6.7/7.7	2.6/2.4	2.7/2.7	0.060	150
7.5/28	V.GM 200 L 4/2a	1470/2960	15/50	48.7/90.3	0.85/0.92	83.3/86.5	6.4/7.5	2.3/2.1	2.3/2.4	0.10	215
8.5/33	V.GM 200 L 4/2b	1470/2950	16/59	55/107	0.87/0.90	86.2/88.5	6.8/7.6	2.1/1.9	2.2/2.1	0.13	235
10/40	V.GM 225 M 4/2	1470/2955	20/72	65/129	0.82/0.91	86.3/86.5	5.5/6.5	2.0/1.8	2.1/2.4	0.19	315
12.5/48	V.GM 250 M 4/2	1480/2965	25/86	81/155	0.81/0.90	87.3/88.5	5.7/7.5	2.0/2.1	2.1/2.4	0.32	385
17/66	V.GM 280 S 4/2	1480/2970	33/115	110/212	0.83/0.91	88.3/89.6	6.2/7.9	2.0/2.1	2.2/2.6	0.50	560
20/78	V.GM 280 M 4/2	1480/2970	38/133	129/251	0.84/0.93	88.4/89.6	6.7/8.2	2.0/2.1	2.3/2.7	0.62	595
25/100	V.GM 315 S 4/2	1485/2975	48/172	161/321	0.84/0.92	88.4/89.7	6.5/7.9	1.4/1.7	2.4/2.7	0.96	720
30/120	V.GM 315 M 4/2a	1490/2980	58/205	192/385	0.82/0.92	89.4/90.7	8.0/8.8	1.6/1.9	2.6/2.9	1.20	805
37/150	V.GM 315 M 4/2b	1490/2980	68/252	237/481	0.84/0.92	91.4/91.7	6.5/8.2	1.6/1.9	2.5/2.8	1.40	870
45/175	V.GMM 315 L 4/2	1490/2980	83/295	288/561	0.84/0.92	91.5/91.7	6.7/8.2	1.6/1.9	2.5/2.8	1.42	920

⚠ In variable torque applications, two-speed motors should be started at low speed, depending on startup current characteristics. After reaching the rated speed, it can be switched to high speed.

⚠ In varying moment applications, Dahlander-connected motors are started D.O.L.-on-line.

Efficiency values are calculated using the inD.O.L. measuring method in accordance with IEC 60034-2-1: 2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A / M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
0.05/0.25	V.AGM 71 8/4a	680/1400	0.28/0.73	0.7/1.7	0.60/0.78	41.7/61.3	2.0/3.1	1.4/1.3	1.8/1.8	0.00040	4.9
0.065/0.33	V.AGM 71 8/4b	680/1400	0.36/1	0.9/2.3	0.58/0.76	43.6/61.3	2.0/3.2	1.4/1.4	1.8/1.9	0.00054	5.9
0.12/0.5	V.AGM 80 8/4a	680/1430	0.65/1.5	1.7/3.3	0.51/0.75	50.5/62.3	2.1/3.2	1.4/1.7	1.7/2.1	0.00083	7.6
0.18/0.75	V.AGM 80 8/4b	680/1405	0.90/2	2.5/5.1	0.54/0.81	51.5/65.3	2.1/3.5	1.6/1.7	1.8/2.1	0.0011	8.7
0.25/1	V.AGM 90 S 8/4	700/1410	1.2/2.8	3.4/6.8	0.51/0.69	57.4/73.2	2.7/4.6	1.6/2.1	2.1/2.4	0.0019	11.5
0.33/1.4	V.AGM 90 L 8/4	690/1390	1.3/3.3	4.6/9.6	0.60/0.79	59.4/76.2	2.6/4.3	1.7/1.8	1.9/2.1	0.0024	13.6
0.5/2	V.AGM 100 L 8/4a	700/1415	1.8/4.8	7/13	0.61/0.82	64.3/71.3	2.9/4.8	1.5/1.8	2.1/2.3	0.0038	17.3
0.6/2.5	V.AGM 100 L 8/4b	690/1410	2/5.5	8/17	0.66/0.86	64.3/74.3	3.2/5.2	1.5/1.9	2.0/2.3	0.0050	20.8
1/3.8	V.AGM 112 M 8/4	700/1425	3.2/8.3	14/25	0.63/0.83	70.2/78.3	3.4/5.2	1.4/2.0	2.0/2.5	0.0092	28.7
1.2/5	V.AGM 132 S 8/4	715/1450	3.8/10.5	16/33	0.60/0.84	74.2/80.3	3.7/5.4	2.1/2.2	2.4/2.6	0.019	39
1.7/7	V.AGM 132 M 8/4	710/1450	5.2/14.5	23/46	0.66/0.84	69.3/81.3	4.0/6.6	2.0/2.2	2.2/2.5	0.026	47
2.5/10	V.AGM 160 M 8/4	720/1460	7.4/20	33/65	0.64/0.87	74.3/81.4	3.7/6.4	1.8/2.3	2.2/3.0	0.054	74
3.5/14	V.AGM 160 L 8/4	720/1460	10.5/28	46/92	0.60/0.83	78.3/85.4	3.7/6.8	1.8/2.0	2.0/2.5	0.072	104
4/16	V.AGM 180 M 8/4	720/1465	11.4/32	53/104	0.63/0.82	79.3/86.4	3.8/6.0	1.8/2.3	1.8/2.4	0.11	128
5/20	V.AGM 180 L 8/4	720/1465	14/40	66/130	0.62/0.81	81.3/87.4	3.9/6.7	1.9/2.5	1.9/2.7	0.13	143
7/28	V.AGM 200 L 8/4	725/1465	16/51	92/183	0.73/0.88	84.2/88.4	4.5/6.6	1.9/2.1	1.9/2.4	0.19	185

CAST IRON FRAME

1.2/5	V.GM 132 S 8/4	715/1450	3.8/10.5	16/33	0.60/0.84	74.2/80.3	3.7/5.4	2.1/2.2	2.4/2.6	0.019	51
1.7/7	V.GM 132 M 8/4	710/1450	5.2/14.5	23/46	0.66/0.84	69.3/81.3	4.0/6.6	2.0/2.2	2.2/2.5	0.026	60
2.5/10	V.GM 160 M 8/4	720/1460	7.4/20	33/65	0.64/0.87	74.3/81.4	3.7/6.4	1.8/2.3	2.2/3.0	0.054	105
3.5/14	V.GM 160 L 8/4	720/1460	10.5/28	46/92	0.60/0.83	78.3/85.4	3.7/6.8	1.8/2.0	2.0/2.5	0.072	140
4/16	V.GM 180 M 8/4	720/1465	11.4/32	53/104	0.63/0.82	79.3/86.4	3.8/6.0	1.8/2.3	1.8/2.4	0.11	150
5/20	V.GM 180 L 8/4	720/1465	14/40	66/130	0.62/0.81	81.3/87.4	3.9/6.7	1.9/2.5	1.9/2.7	0.13	170
7/28	V.GM 200 L 8/4	725/1465	16/51	92/183	0.73/0.88	84.2/88.4	4.5/6.6	1.9/2.1	1.9/2.4	0.19	235
8/32	V.GM 225 S 8/4	730/1470	20/60	105/208	0.67/0.86	84.3/88.5	4.3/6.6	2.0/2.3	2.1/2.7	0.29	275
10/40	V.GM 225 M 8/4	725/1470	26/71	132/260	0.65/0.92	83.3/86.5	4.0/6.3	1.8/2.3	1.8/2.4	0.35	320
12.5/48	V.GM 250 M 8/4	735/1475	30/87	162/311	0.70/0.88	84.4/89.5	4.3/7.1	2.0/2.5	1.9/2.9	0.54	395
16.5/63	V.GM 280 S 8/4	730/1475	38/115	216/408	0.70/0.88	87.3/88.6	3.8/6.3	1.6/2.2	1.8/2.4	0.90	550
21/83	V.GM 280 M 8/4	735/1475	50/149	273/537	0.67/0.87	88.4/90.6	3.9/6.9	1.6/2.3	1.8/2.5	1.1	615
25/100	V.GM 315 S 8/4	740/1485	53/174	323/643	0.74/0.89	90.4/91.6	4.7/6.9	1.7/2.2	1.8/2.4	1.6	702
30/120	V.GM 315 M 8/4a	740/1480	69/223	387/774	0.68/0.83	90.4/92.6	5.3/8.1	1.8/2.6	2.0/2.9	2.1	784
33/132	V.GM 315 M 8/4b	740/1485	74/239	426/849	0.70/0.85	90.4/92.7	5.2/8.1	1.8/2.4	2.0/2.8	2.5	861
40/160	V.GMM 315 L 8/4	740/1485	86/274	516/1029	0.73/0.90	90.5/92.7	5.2/8.1	1.8/2.4	2.0/2.8	2.3	875

⚠ In variable torque applications, two-speed motors should be started at low speed, depending on startup current characteristics. After reaching the rated speed, it can be switched to high speed.

⚠ In varying moment applications, Dahlander-connected motors are started D.O.L.-on-line.

Efficiency values are calculated using the inD.O.L. measuring method in accordance with IEC 60034-2-1: 2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Moment M_N	Power Factor (Cos φ)	Efficiency n %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A / M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
0.05/0.18	V.AGM 71 6/4a	940/1340	0.34/0.72	0.51/1.28	0.42/0.56	48.5/63.2	2.0/2.1	1.4/1.3	1.9/1.6	0.00064	5.4
0.08/0.24	V.AGM 71 6/4b	940/1350	0.40/0.9	0.81/1.7	0.58/0.65	48.5/60.3	2.3/2.5	1.5/1.4	1.9/1.6	0.00086	6.3
0.15/0.45	V.AGM 80 6/4a	930/1370	0.54/1.3	1.54/3.14	0.77/0.81	50.5/60.4	3.2/3.2	1.7/1.4	2.1/1.5	0.0017	8.1
0.2/0.6	V.AGM 80 6/4b	960/1400	0.74/1.52	2.03/4.09	0.67/0.80	56.4/69.2	3.7/3.8	2.1/1.6	2.7/2.0	0.0022	9.5
0.3/0.9	V.AGM 90 S 6/4	940/1410	1.1/2.3	3.05/6.1	0.70/0.78	54.5/70.2	2.9/4.3	1.3/1.9	1.9/2.1	0.0019	11.5
0.37/1.1	V.AGM 90 L 6/4	935/1390	1.2/2.8	3.8/7.6	0.71/0.78	61.3/71.2	3.2/4.0	1.6/1.6	2.0/2.1	0.0024	13.6
0.6/1.6	V.AGM 100 L 6/4a	950/1420	1.85/4.1	6/10.8	0.73/0.79	62.4/69.3	3.6/5.2	1.6/2.1	2.2/2.3	0.0040	17.3
0.75/2.2	V.AGM 100 L 6/4b	950/1430	2.5/5.3	7.5/14.7	0.68/0.80	62.4/73.3	3.6/4.7	1.7/1.7	2.2/2.3	0.0052	20.8
1.17/3.3	V.AGM 112 M 6/4	955/1440	3.1/7.3	11/21.9	0.70/0.81	71.2/79.2	5.0/5.8	1.9/2.1	2.9/2.7	0.0092	28.7
1.5/4.5	V.AGM 132 S 6/4	940/1440	4.2/9.5	15.2/29.8	0.75/0.84	67.4/79.3	4.1/5.5	1.7/1.8	2.1/2.0	0.019	39
2/6.2	V.AGM 132 M 6/4	940/1440	5.2/13.3	20.3/41.1	0.77/0.86	70.3/76.4	4.0/5.2	1.7/2.0	1.9/2.2	0.026	47
3/9	V.AGM 160 M 6/4	945/1455	7/18	30.3/59.1	0.78/0.84	77.3/84.3	4.6/6.0	1.8/2.0	1.9/2.3	0.054	74
4/13	V.AGM 160 L 6/4	970/1455	9.5/26	39.4/85.3	0.75/0.84	79.3/84.4	4.0/5.5	1.9/2.1	1.9/2.2	0.072	104
5/15	V.AGM 180 M 6/4	970/1460	11.7/29	49/98	0.74/0.85	81.3/86.3	4.4/5.9	1.8/2.2	1.9/2.2	0.11	128
6/18.5	V.AGM 180 L 6/4	975/1455	14/36	59/121	0.75/0.85	80.3/85.4	5.4/5.5	2.4/2.1	2.5/2.3	0.13	143
7.5/25	V.AGM 200 L 6/4	980/1465	16.6/48	73/163	0.79/0.86	81.3/85.5	6.0/6.6	2.21/2.2	2.9/2.8	0.19	185
9/30	V.C.AGM 200 L 6/4	980/1470	19/51	88/195	0.78/0.94	86.3/88.4	6.7/7.0	2.6/2.3	2.9/2.5	0.23	205

CAST IRON FRAME

1.5/4.5	V.GM 132 S 6/4	940/1440	4.2/9.5	15.2/29.8	0.75/0.84	67.4/79.3	4.1/5.5	1.7/1.8	2.1/2.0	0.019	51
2/5.2	V.GM 132 M 6/4	940/1440	5.2/13.3	20.3/41.1	0.77/0.86	70.3/76.4	4.0/5.2	1.7/2.0	1.9/2.2	0.026	60
3/9	V.GM 160 M 6/4	945/1455	7/18	30.3/59.1	0.78/0.84	77.3/84.3	4.6/6.0	1.8/2.0	1.9/2.3	0.054	105
4/13	V.GM 160 L 6/4	970/1455	9.5/26	39.4/85.3	0.75/0.84	79.3/84.4	4.0/5.5	1.9/2.1	1.9/2.2	0.072	140
5/15	V.GM 180 M 6/4	970/1460	11.7/29	49.2/98.1	0.74/0.85	81.3/86.3	4.4/5.9	1.8/2.2	1.9/2.2	0.11	150
6/18.5	V. GM 180 L 6/4	975/1455	14/36	58.8/121.4	0.75/0.85	80.3/85.4	5.4/5.5	2.4/2.1	2.5/2.3	0.13	170
7.5/25	V. GM 200 L 6/4	980/1465	16.6/48	73/163	0.79/0.86	81.3/85.5	6.0/6.6	2.2/2.2	2.9/2.8	0.19	235
9/30	V.C.GM 200 L 6/4	940/1470	19/54	88/195	0.78/0.89	86.3/88.4	6.7/7.0	2.6/2.3	2.9/2.5	0.23	255
13/33	V. GM 225 S 6/4	980/1470	25/67	107/214	0.73/0.80	85.3/87.5	5.0/6.4	1.8/2.1	2.2/2.8	0.29	275
14/40	V. GM 225 M 6/4	980/1470	30/77	136/260	0.78/0.83	84.4/88.5	4.7/6.1	1.8/2.0	2.3/3.0	0.35	320
17/50	V. GM 250 M 6/4	980/1475	36/92	166/324	0.80/0.85	83.4/90.5	5.2/7.2	2.0/2.5	2.4/3.1	0.54	395
22/65	V. GM 280 S 6/4	985/1480	46/116	213/419	0.78/0.91	87.4/87.6	6.6/5.4	2.3/1.7	2.3/1.8	0.90	550
26/75	V. GM 280 M 6/4	990/1480	56/137	251/484	0.75/0.89	87.4/87.6	6.8/5.5	2.5/1.6	2.5/1.7	1.1	615
32/95	V. GM 315 S 6/4	990/1480	63/164	309/613	0.81/0.90	89.4/91.6	6.7/6.0	2.2/1.7	2.5/2.2	1.6	702
37/115	V. GM 315 M 6/4a	990/1485	74/200	357/740	0.79/0.88	89.5/92.6	8.0/7.0	2.5/1.8	2.9/2.6	2.1	784
45/132	V. GM 315 M 6/4b	990/1485	91/223	434/849	0.78/0.91	90.5/92.7	8.0/6.5	2.5/1.8	2.9/2.5	2.5	861
50/150	V. GMM 315 L 6/4	990/1485	98/257	482/965	0.80/0.90	90.5/92.7	7.0/6.2	2.2/1.7	2.6/2.3	2.3	875

⚠ In variable torque applications, two-speed motors should be started at low speed, depending on startup current characteristics. After reaching the rated speed, it can be switched to high speed.

⚠ In varying moment applications, Dahlander-connected motors are started D.O.L.-on-line.

Efficiency values are calculated using the inD.O.L. measuring method in accordance with IEC 60034-2-1: 2014. Additional losses are determined according to the results of the tests conducted with variable load values.

3-Phase Squirrel Cage Induction Motors

	OPTIONS	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	355	400	450
1	Mounting Arrangement																		
	B5, V1 (Aluminum)	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	B5 Cast Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0	0	0	0	0	R
	B14 / B14-2	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	B14 / B14-2 - Cast Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48.0	78.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Custom Winding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R
3	Custom Shaft																		
	By sketch	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	Non-drive end shaft outlet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R
4	IP 56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R
5	Cylindrical Roller Bearing (NU) - 2 P*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0	0	0	0	0	R
5	Cylindrical Roller Bearing (NU) - 4 6 8 P *	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0	0	0	0	0	R
6	H Isolation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	S	S	S	R
7	Forced Cooling	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R
8	Heater - 1AC 230 V - 1 AC 110 V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R
9	Canopy	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	R	R
10	Motor Protection																		
	1 x PTC	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	2 x PTC	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	3 x PTC	0	0	0	0	0	0	0	0	S	S	S	S	S	S	S	S	S	S
	3 x NC Thermostat	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	3 x PT 100 - in the winding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2 x PT100 - in the bearings	R	R	R	R	R	R	R	R	0	0	0	0	0	0	0	0	0	0
11	Greasable End Shield	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0	0	S	S	S	S
12	Isolated Non-Drive End Cover	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	0
13	Isolated Bearing	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
14	Paired Bearing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0	S	S	S	S	S
15	Metal Terminal Box	N/A	N/A	0	0	0	0	0	0	0	0	S	S	S	S	S	S	S	S
16	Water Drain Holes	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
17	Oil Seal	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
19	Vibration Monitoring Point	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
20	Metal Cable Gland	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	R	R
21	Encoder	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
22	Tropical Protection	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
25	Paint - with RAL code	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

Note: Some variant codes cannot be used together.

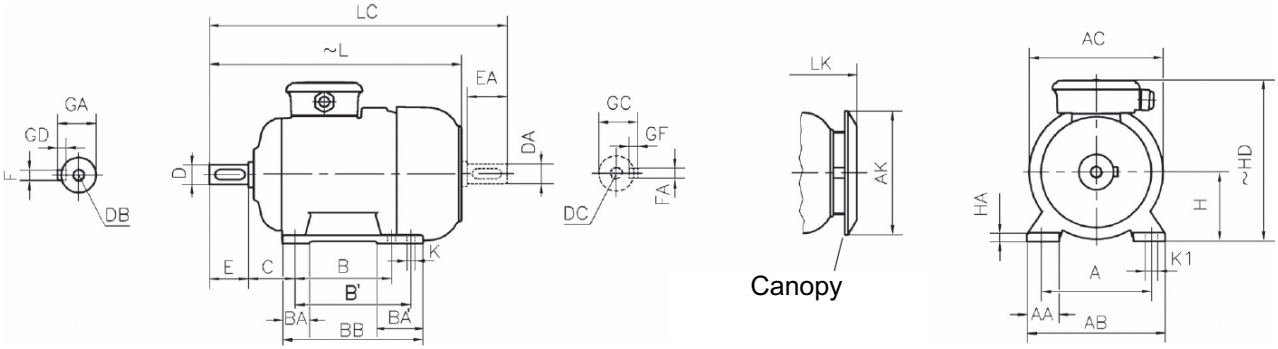
S = Standard feature

O = Optional feature

R = On request

N/A = Not applicable

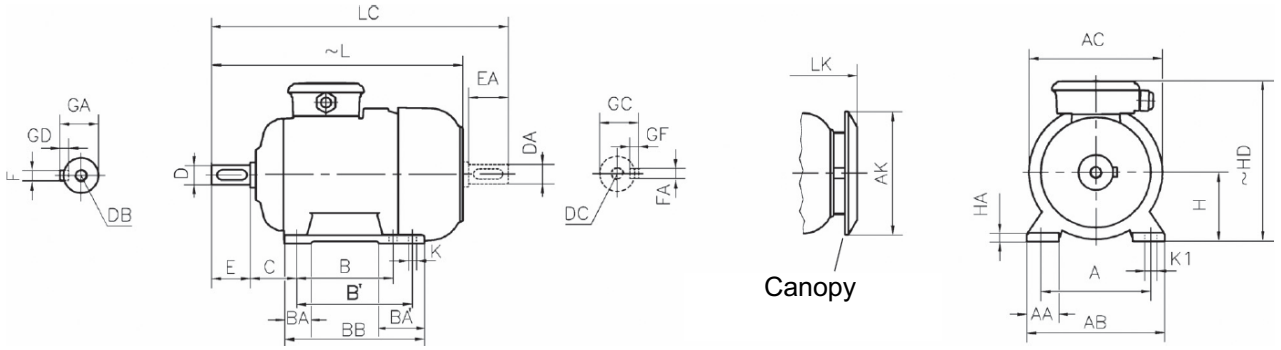
FOOT-MOUNTED (B3) - ALUMINUM FRAME



Frame size		Number of Poles	Foot-mounted motor dimensions: In B3, B6, B7, B8, B15, V5, V6 mounting arrangements																						
			H	HD ~	HA	A	AA	AB	ACØ	AKØ	K	K1	B	B'	BA	BA'	BB	L~	LC	LK~	C	E EA	DB DC	DØ DA0	GA GC	FxGD FAxGF
56		2-4	56	152	9	90	28	112	105	-	5.8	9	71	-	24	-	87	161	185	-	36	20	M4	9	10.2	3x3
63		2-4	63	160	10	100	31	125	121	116	7	11	80	-	27	-	103	216	243	245	40	23	M4	11	12.5	4x4
71		2-4-6-8	71	182	10	112	33	140	138	116	7	11	90	-	27	-	108	249	284	278	45	30	M5	14	16	5x5
80		2-4-6-8	80	198	10	125	38	160	156	151	10	15	100	-	33	-	125	279	324	308	50	40	M6	19	21.5	6x6
90	S	2-4-6-8	90	216	12	140	43	180	176	151	10	15	100	-	35	-	130	309	364	338	56	50	M8	24	27	8x7
	L												125	-			155	334	389	363						
100	L	2-4-6-8	100	234	13	160	47	200	194	189	12	18	140	-	39	-	175	376	442	413	63	60	M10	28	31	8x7
		421																406	472	443						
112	M	2-4-6-8	112	257	13	190	47	230	218	189	12	18	140	-	39	-	175	396	462	433	70	60	M10	28	31	8x7
132	S	2-4-6-8	132	300	15	216	49	260	257	239	12	18	140	-	46	-	180	460	546	497	89	80	M12	38	41	10x8
	M	2-4[4]											178	-			218	498	584	535						
																		523	614	560						
160	M	2-4-6-8	160	380	21.5	254	60	312	310	303	15	19	210	254	60	104	304	600	716	657	108	110	M16	42	45	12x8
	L	2-4[5]																644	760	701						
180	M	2-4-6-8	180	421	24	279	68	354	348	303	15	19	241	279	56	86	320	657	773	714	121	110	M16	48	51.5	14x9
	L																									
200	L	2-4-6-8	200	477	26	318	80	398	390	370	19	24	305	-	68	-	355	747	865	803	133	110	M20	55	59	16x10

[1] DB. DC: DIN 332-2 form D
[2] IE2 & IE3 motor type AGM2E 100 L 4b
[3] IE2 motor type AGM2E 132 M 6b
[4] IE2 motor type AGM2E 160 L 2, AGM2E 160 L 4

All dimensions are in millimeters.

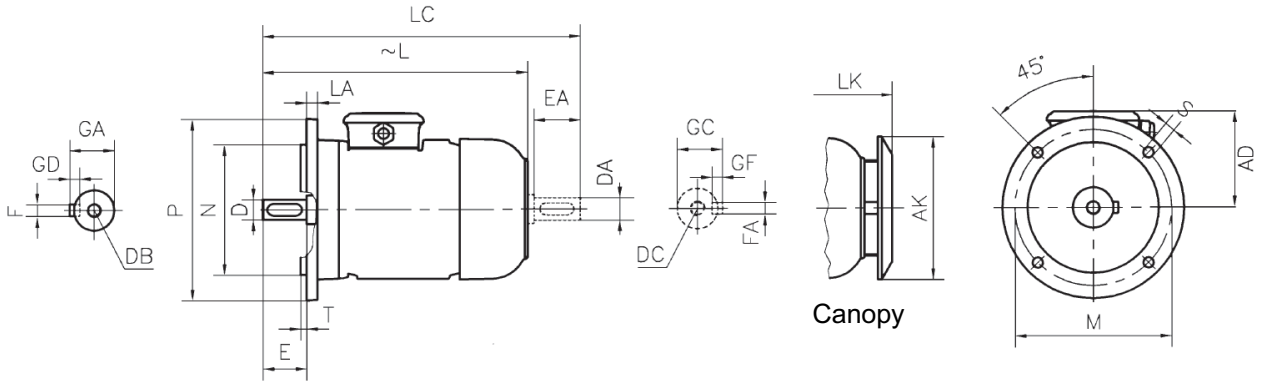


Frame size		Number of Poles	Foot-mounted motor dimensions: In B3, B6[1], B7[1], B8[1], B15, V5[1], V6[1] mounting arrangements																					
			H	HD ~	HA	A	AA	AB	ACØ	AKØ	KØ	B	B'	BA	BA'	BB	L ~	LC	LK ~	C	E EA	DB[2] DC	DØ DAØ	GA GC	FxGD FAxGF
132	S	2-4-6-8	132	300	15	216	52	260	257	239	12	140	-	46	84	218	498	584	535	89	80	M12	38	41	10x8
	M												178											
160	M	2-4-6-8	160	380	22	254	60	312	310	303	15	210	-	62	-	260	600	716	657	108	110	M16	42	45	12x8
	L											254	-			304	644	760	701					
180	M	2-4-6-8	180	421	24	279	68	354	348	303	15	241	279	57	85	319	657	773	714	121	110	M16	48	51.5	14x9
	L													62	-		660	811	752					
200	L	2-4-6-8	200	477	26	318	80	398	390	370	19	305	-	68	-	355	747	865	803	133	110	M20	55	59	16x10
225	S	4-8	225	510	30	356	82	438	434	370	19	286	311	76	92.5	363	795	943	851	149	140	M20	60	64	18x11
	M	2										311	-		-	371	790	908	846		110		55	59	16x10
		4-6-8															820	968	876		140		60	64	18x11
250	M	2	250	572	35	406	80	484	480	440	24	349	-	75	-	410	896	1044	952	168	140	M20	60	64	18x11
		4-6-8																					65	69	
280	S	2	280	630	40	457	120	550	544	440	24	368	419	85	128	474	958	1106	1014	190	140	M20	65	69	18x11
		4-6-8																					75	79.5	20x12
	M	2																					65	69	18x11
		4-6-8																					75	79.5	20x12
315	S	2	315	825	50	508	125	620	614	571	28	406	457	115	166	550	1120	1270	1197	216	140	M20	65	69	18x11
		4-6-8															1150	1330	1227		170		85	90	22x14
	M	2															1120	1270	1197		140		65	69	18x11
		4-6-8															1150	1330	1227		170		85	90	22x14
	L	2										508	-	125	-	600	1190	1340	1267		140		65	69	18x11
		4-6-8															1220	1400	1297		170		85	90	22x14
	LH	2		855													1270	855	1297		140		65	69	18x11
		4-6-8															1300	885	1327		170		85	90	22x14
355	M	2	355	980	50	610	150	740	732	571	28	560	-	140	-	680	1337	1517	1414	254	170	M20	80	85	22x14
		4-6-8															1377	1597	1454		210	M24	100	106	28x16
	L	2										630				750	1467	1647	1544		170	M20	80	85	22x14
		4-6-8															1507	1727	1584		210	M24	100	106	28x16
400	L	2	400	1100	50	686	165	860	850	571	35	800	-	170	-	934	1570	1740	1637	280	170	M20	80	85	22x14
		4-6-8															1610	1820	1677		210	M24	110	116	28x16
450	L	2	450	1201	62	800	180	975	960	571	45	900	-	200	-	1050	1768	1948	1845	280	170	M24	90	95	25x14
		4-6-8															1808	2028	1885		210		120	127	32x18
450	LH	2	450	1283	62	800	180	975	960	571	45	1250	-	300	-	1450	2268	2486	2345	280	170	M24	90	95	25x14
		4-6-8															2308	2528	2385		210		120	127	32x18

[1] Up to B6, B7, B8, V5 and V6 315 M Frame size.
[2] DB, DC: DIN 332-2 Form D

All dimensions are in millimeters.

FLANGE-MOUNTED (FORM A-B5) - ALUMINUM FRAME

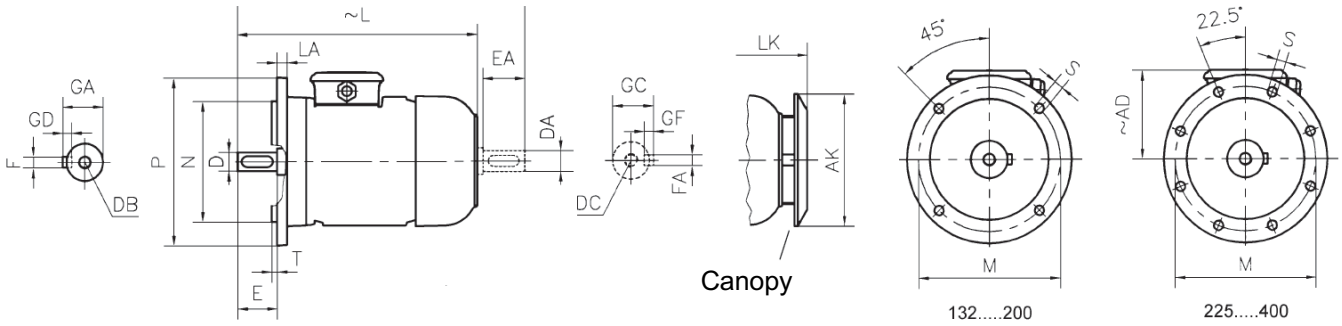


Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B5, V1, V3 mounting arrangements																
			Flange No.	ØM	ØN	ØP	Clearance Hole		T	LA	AD~	ØAK	L~	LC	LK~	E	DB[1]	ØD	GA	FxGD
							No.	ØS								EA	DC	ØDA	GC	FAxGF
56		2-4	FF100	100	80	120	4	7	3	8	96	-	161	185	-	20	M4	9	10.2	3x3
63		2-4	FF115	115	95	140	4	10	3	10	97	116	216	243	245	23	M4	11	12.5	4x4
71		2-4-6-8	FF 130	130	110	160	4	10	3.5	10	110	116	249	284	278	30	M5	14	16	5x5
80		2-4-6-8	FF 165	165	130	200	4	12	3.5	12	118	151	279	324	308	40	M6	19	21.5	6x6
90	S	2-4-6-8	FF 165	165	130	200	4	12	3.5	12	126	151	309	364	338	50	M8	24	27	8x7
	L												334	389	363					
100	L	2-4-6-8	FF 215	215	180	250	4	14.5	4	15	135	189	376	442	413	60	M10	28	31	8x7
		4[3]											406	472	443					
112	M	2-4-6-8	FF 215	215	180	250	4	14.5	4	15	146	189	396	462	433	60	M10	28	31	8x7
132	S	2-4-6-8	FF 265	265	230	300	4	14.5	4	20	168	239	460	546	497	80	M12	38	41	10x8
	M												498	584	535					
		6[5]											523	614	560					
160	M	2-4-6-8	FF300[2]	300	250	350	4	18.5	5	20	225	303	600	716	657	110	M16	42	45	12x8
	L	2-4[6]											644	760	701					
180	M	2-4-6-8	FF300[2]	300	250	350	4	18.5	5	20	241	303	660	773	714	110	M16	48	51.5	14x9
	L																			
200	L	2-4-6-8	FF350[2]	350	300	400	4	18.5	5	20	275	370	747	865	803	110	M20	55	59	16x10

1) DB, DC: DIN 332-2 Form D
2) Flanges are cast iron.
3) IE2 Motor Type AGM2E 100 L 4b
4) IE2 Motor Type AGM2E 132 M 6b
5) IE2 Motor Type AGM2E 160 L 2, AGM2E 1 60 L 4

All dimensions are in millimeters.



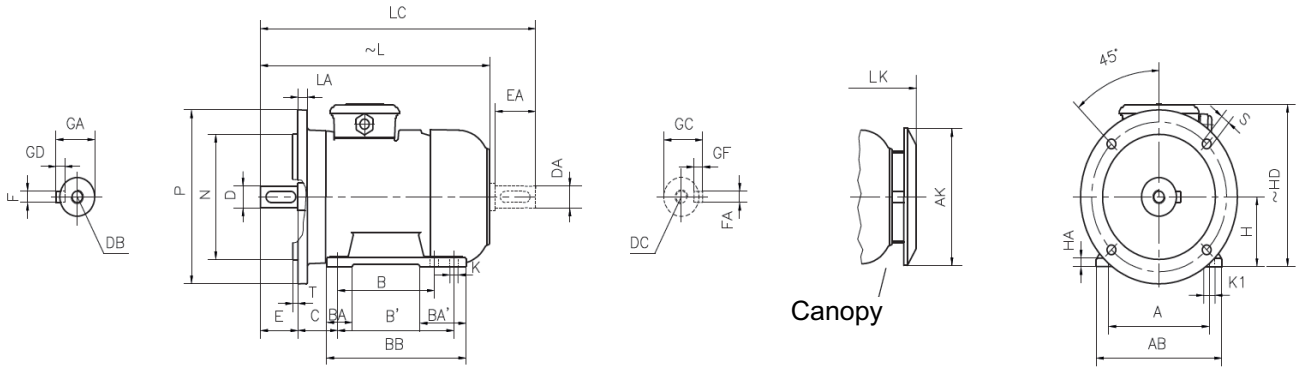
Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B5[1], V1, V3[1]) mounting arrangements																	
			Flange No.	ØM	ØN	ØP	Clearance Hole		T	LA	AD~	ØAK	L~	LC	LK~	E EA	DB[3] DC	ØD ØDA	GA GC	FxGD FAxGF
							No.	ØS												
132	S	2-4-6-8	FF 265	265	230	300	4	14.5	4	20	168	239	498	584	535	80	M12	38	41	10x8
	M																			
160	M	2-4-6-8	FF 300	300	250	350	4	18.5	5	20	225	303	600	716	657	110	M16	42	45	12x8
	L												644	760	701					
180	M	2-4-6-8	FF 300	300	250	350	4	18.5	5	20	241	303	659	773	714	110	M16	48	51.5	14x9
	L													811	752					
200	L	2-4-6-8	FF 350	350	300	400	4	18.5	5	20	275	370	747	865	803	110	M20	55	59	16x10
225	S	4-8	FF 400	400	350	450	8	18.5	5	20	285	370	795	943	851	140	M20	60	64	18x11
	M	2											790	908	846	110		55	59	16x10
		4-6-8											820	968	876	140		60	64	18x11
250	M	2	FF 500	500	450	550	8	18.5	5	24	322	440	896	1044	952	140	M20	60	64	18x11
		4-6-8																65	69	
280	S	2	FF 500	500	450	550	8	18.5	5	24	350	440	958	1106	1014	140	M20	65	69	18x11
		4-6-8																75	79.5	20x12
	M	2																65	69	18x11
		4-6-8																75	79.5	20x12
315	S	2	FF 600	600	550	660	8	24	6	24	510	571	1120	1270	1197	140	M20	65	69	18x11
		4-6-8											1150	1330	1227	170		85	90	22x14
	M	2											1120	1270	1197	140		65	69	18x11
		4-6-8											1150	1330	1227	170		85	90	22x14
	L	2											1190	1340	1267	140		65	69	18x11
		4-6-8											1220	1400	1297	170		85	90	22x14
	LH	2											1270	855	1297	140		65	69	18x11
		4-6-8											1300	885	1327	170		85	90	22x14
355	M	2	FF 740	740	680	800	8	24	6	32	625	571	1337	1517	1414	170	M20	80	85	22x14
		4-6-8											1377	1597	1454	210	M24	100	106	28x16
	L	2											1467	1647	1544	170	M20	80	85	22x14
		4-6-8											1507	1727	1584	210	M24	100	106	28x16
400	L	2	FF 940[3]	940	880	1000	8	28	6	32	700	571	1570	1740	1637	170	M20	80	85	22x14
		4-6-8											1610	1820	1677	210	M24	110	116	28x16
450	L	2	FF1080[3]	1080	1000	1150	8	28	6	32	751	571	1768	1948	1845	170	M24	90	95	25x14
		4-6-8											1808	2028	1885	210		120	127	32x18

[1] Up to B5 and V3, 315M Frame size.
[2] DB, DC: DIN 332-2 Form D
[3] IEC 60 072

All dimensions are in millimeters.

FOOT- AND FLANGE-MOUNTED (FORM C-B35) - ALUMINUM FRAME

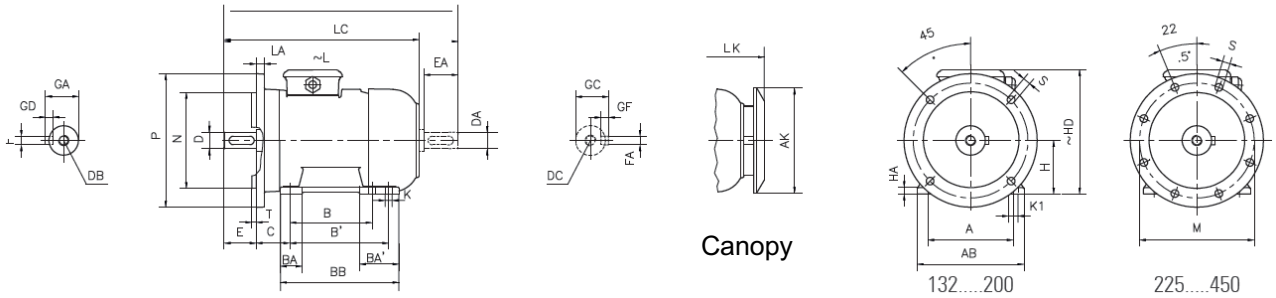


Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Foot- and flange-mounted motor dimensions: (Flange form A – DIN EN 50 347), in B35 structure form																												
			H	HD~	HA	A	AB	ØAK	K	K1	B	B'	BA	BA'	BB	Flange	ØM	ØN	ØP	No	ØS	T	LA	L~	LC	LK~	C	E EA	DB[1] DC	ØD ØDA	GA GC	FxGD FAxGF
56		2-4	56	152	9	90	112	-	5.8	9	71	-	24	-	87	FF100	100	80	120	4	7	3	8	161	185	-	36	20	M4	9	10.2	3x3
63		2-4	63	160	10	100	125	116	7	11	80	-	27	-	103	FF115	115	95	140	4	10	3	10	216	243	245	40	23	M4	11	12.5	4x4
71		2-4-6-8	71	182	10	112	140	116	7	11	90	-	27	-	108	FF130	130	110	160	4	10	3.5	10	249	284	278	45	30	M5	14	16	5x5
80		2-4-6-8	80	198	10	125	160	151	10	15	100	-	33	-	125	FF165	165	130	200	4	12	3.5	12	279	324	308	50	40	M6	19	21.5	6x6
90	S	2-4-6-8	90	216	12	140	180	151	10	15	100	-	35	-	130	FF165	165	130	200	4	12	3.5	12	309	364	338	56	50	M8	24	27	8x7
	L										125	-			155									334	389	363						
100	L	2-4-6-8	100	234	13	160	200	189	12	18	140	-	39	-	175	FF215	215	180	250	4	14.5	4	15	376	442	413	63	60	M10	28	31	8x7
		4[3]																						406	472	443						
112	M	2-4-6-8	112	257	13	190	230	189	12	18	140	-	39	-	175	FF215	215	180	250	4	14.5	4	15	396	462	433	70	60	M10	28	31	8x7
132	S	2-4-6-8	132	300	15	216	260	239	12	18	140	-	46	-	180	FF265	265	230	300	4	14.5	4	20	455	546	497	89	80	M12	38	41	10x8
	M	6[5]									178				218									498 523	584 614	535 560						
160	M	2-4-6-8	160	380	22	254	312	303	15	19	210	254	60	104	304	FF300[2]	300	250	350	4	18.5	5	20	600	716	657	108	110	M16	42	45	12x8
	L	2-4[6]																						644	760	701						
180	M L	2-4-6-8	180	421	24	279	354	303	15	19	241 -	279	56	86	320	FF300[2]	300	250	350	4	18.5	5	20	660	773	714	121	110	M16	48	51.5	14x9
200	L	2-4-6-8	200	477	26	318	398	370	19	24	305	-	68	-	355	FF350[2]	350	300	400	4	18.5	5	20	747	865	803	133	110	M20	55	59	16x10

1) DB, DC: DIN 332-2 Form D
2) Flanges are cast iron.
3) IE2 Motor Type AGM2E 100 L 4b
4) IE2 Motor Type AGM2E 132 M 6b
5) IE2 Motor Type AGM2E 160 L 2, AGM2E 160 L 4

All dimensions are in millimeters.



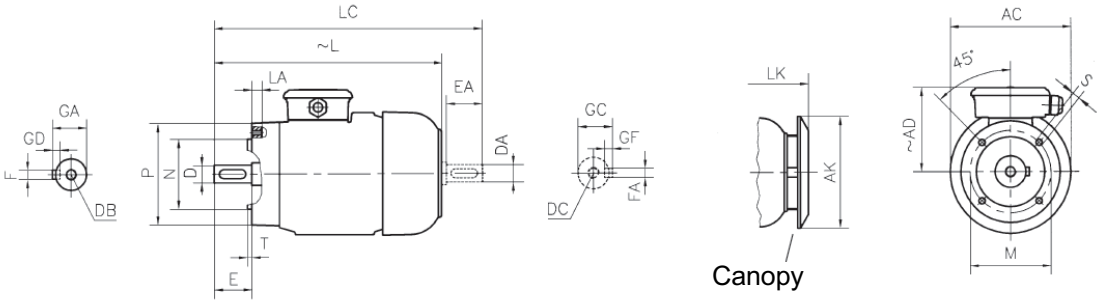
Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Foot- and flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B35 structure form																											
			H	HD~	HA	A	AB	ØAK	ØK	K1	B	B'	BA	BA'	BB	Flange	ØM	ØN	ØP	No	ØS	T	LA	L~	LC	LK~	C	E EA	DB[1] DC	ØD ØDA	GA GC	FxGD FAxGF
132	S	2-4-6-8	132	300	15	216	260	239	12	-	140	-	46	84	218	FF265	265	230	300	4	14.5	4	20	498	584	535	89	80	M12	38	41	10x8
	M										-	178																			
160	M	2-4-6-8	160	380	22	254	312	303	15	-	210	-	62	-	260	FF300	300	250	350	4	18.5	5	20	600	716	657	108	110	M16	42	45	12x8
	L										254	-			304									644	760	701						
180	M	2-4-6-8	180	421	24	279	354	303	15	-	241	279	57	85	319	FF300	300	250	350	4	18.5	5	20	657	773	714	121	110	M16	48	51.5	14x9
	L														329									695	811	752						
200	L	2-4-6-8	200	477	26	318	398	370	19	-	305	-	68	-	355	FF350	350	300	400	4	18.5	5	20	747	865	803	133	110	M20	55	59	16x10
225	S	4-8	225	510	30	356	438	370	19	-	286	311	311	92.5	363	FF400	400	350	450	8	18.5	5	20	795	943	851	149	140	M20	60	64	18x11
	M	2																						790	908	846		110		55	59	16x10
		4-6-8									311	-	76	-	371									820	968	876		140		60	64	18x11
250	M	2	250	572	35	406	484	440	24	-	349	-	75	-	410	FF500	500	450	550	8	18.5	5	24	896	1044	952	168	140	M20	60	64	18x11
		4-6-8																												65	69	
280	S	2	280	630	40	457	550	440	24	-	368	419	85	128	474	FF500	500	450	550	8	18.5	5	24	958	1106	1014	190	140	M20	65	69	18x11
		4-6-8																												75	79.5	20x12
	M	2																												65	69	18x11
		4-6-8																												75	79.5	20x12
315	S	2	315	825	50	508	620	571	28	-	406	457	115	166	550	FF600	600	550	660	8	24	6	24	1120	1270	1197	216	140	M20	65	69	18x11
		4-6-8																						1150	1330	1227		170		85	90	22x14
	M	2																						1120	1270	1197		140		65	69	18x11
		4-6-8																						1150	1330	1227		170		85	90	22x14
	L	2																						1190	1340	1267		140		65	69	18x11
		4-6-8									508	-	125	-	600									1220	1400	1297		170		85	90	22x14
	LH	2																						1270	855	1297		140		65	69	18x11
		4-6-8																						1300	885	1327		170		85	90	22x14
355	M	2	355	980	50	610	740	571	28	-	560	-	140	-	680	FF740	740	680	800	8	24	6	32	1337	1517	1414	254	170	M20	80	85	22x14
		4-6-8																						1377	1597	1454		210	M24	100	106	28x16
	L	2									630	-			750									1467	1647	1544		170	M20	80	85	22x14
		4-6-8																						1507	1727	1584		210	M24	100	106	28x16
400	L	2	400	1100	50	686	850	571	35	-	800	-	170	-	934	FF940[2]	940	880	1000	8	28	6	32	1570	1740	1637	280	170	M20	80	85	22x14
		4-6-8																						1600	1820	1677		210	M24	110	116	28x16
450	L	2	450	1201	62	800	975	571	45	-	900	-	200	-	1050	FF1080[2]	1080	1000	1150	8	28	6	32	1768	1948	1845	280	170	M24	90	95	25x14
		4-6-8																						1808	2028	1885		210		120	127	32x18
450	LH	2	450	1283	62	800	975	571	45	-	1250	-	300	-	1450	FF1080[2]	1080	1000	1150	8	28	6	32	2268	2486	2345	280	170	M24	90	95	25x14
		4-6-8																						2308	2528	2385		210		120	127	32x18

[1] DB, DC: DIN 332-2 Form D
[2] IEC 60 072

All dimensions are in millimeters.

FLANGE-MOUNTED (FORM C-B14) - ALUMINUM FRAME

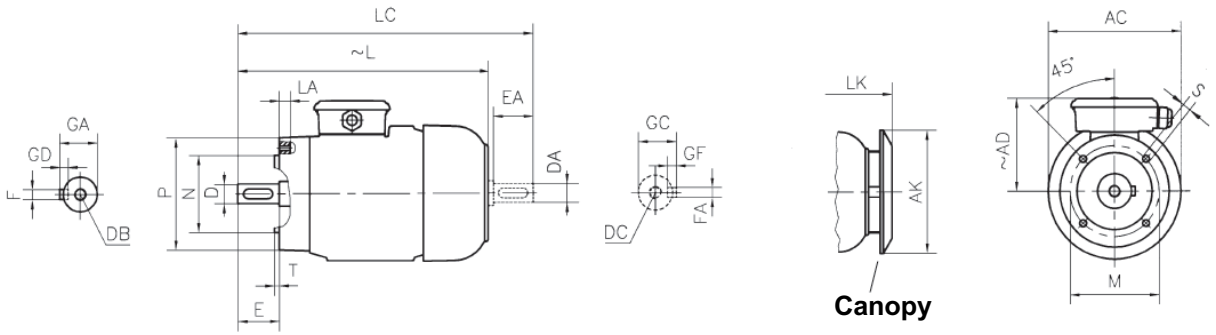


Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Flange-mounted motor dimensions: (Flange form C - DIN EN 50 347) in B14, V18, V19 mounting arrangements																	
			Flange No.	ØM	ØN	ØP	S	T	LA[4]	ØAC	ØAK	AD~	L~	LC	LK~	E EA	DB[1] DC	ØD ØDA	GA GC	FxGD FAxGF
56		2-4	FT 65	65	50	80	M5	2.5	10	105	-	96	161	185	-	20	M4	9	10.2	3x3
			FT 85	85	70	105	M6		12											
63		2-4	FT 75	75	60	90	M5	2.5	10	121	116	98	216	243	245	23	M4	11	12.5	4x4
			FT 100	100	80	120	M6	3	12											
71		2-4-6-8	FT 85	85	70	105	M6	2.5	12	138	116	110	249	284	278	30	M5	14	16	5x5
			FT 115	115	95	140	M8	3	16	-										
80		2-4-6-8	FT 100	100	80	120	M6	3	12	156	151	118	279	324	308	40	M6	19	21.5	6x6
			FT 130	130	110	160	M8	3.5	16	-										
90	S	2-4-6-8	FT 115	115	95	140	M8	3	16	176	151	126	309	364	338	50	M8	24	27	8x7
			FT 130	130	110	160		3.5												
	L	2-4-6-8	FT 115	115	95	140		3					334	389	363					
		2-4-6-8	FT 130	130	110	160		3.5												
100	L	2-4-6-8	FT 130	130	110	160	M8	3.5	16	194	189	135	376	442	413	60	M10	28	31	8x7
		4[3]											406	472	443					
		2-4-6-8	FT 165	165	130	200	M10		20	-			376	442	413					
		4[3]											406	472	443					
112	M	2-4-6-8	FT 130	130	110	160	M8	3.5	16	218	189	146	396	462	433	60	M10	28	31	8x7
		2-4-6-8	FT 165[2]	165	130	200	M10		20				396	462	433					
132	S	2-4-6-8	FT 165	165	130	200	M10	3.5	16	257	239	168	460	546	497	80	M12	38	41	10x8
			FT 215[2]	215	180	250	M12	4	18											
	M	2-4-6-8	FT 165	165	130	200	M10	3.5	16				493	584	535					
		6[5]	FT 215[2]	215	180	250	M12	4	18				523	614	560					
		2-4-6-8	FT 165	165	130	200	M10	3.5	16				493	584	535					
		6[5]	FT 215	215	180	250	M12	4	18				528	614	560					
160	M	2-4-6-8	FT 215	215[2]	180	250	M12	4	21	310	303	225	600	716	657	110	M16	42	45	12x8
	L	2-4-6-8																		
		2-4[6]											644	760	701					

[1] DB, DC: DIN 332-2 Form D
[2] Flanges are cast iron.
[3] IE2 Motor Type AGM2E 100 L 4b
[4] IE2 Motor Type AGM2E 160 L 2, AGM2E 1 60 L 4
[5] IE2 Motor Type AGM2E 160 L 2, AGM2E 1 60 L 4

All dimensions are in millimeters.



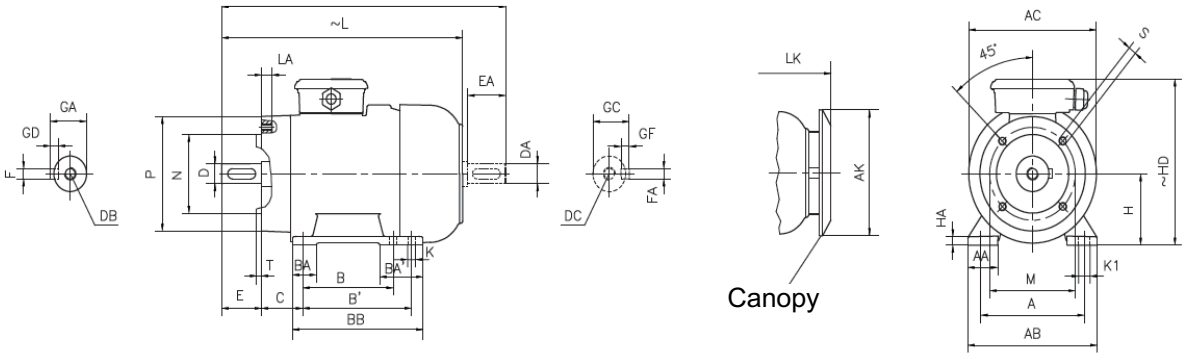
Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B5[1], V1, V3[1]) mounting arrangements																	
			Flange No.	MØ	NØ	PØ	S	T	LA[4]	ACØ	AKØ	AD~	L~	LC	LK~	E EA	DB[1] DC	DØ DAØ	GA GC	FxGD FAxGF
132	S	2-4-6-8	FT 165	165	130	200	M10	3.5	18	257	239	168	498	584	535	80	M12	38	41	10x8
	M		FT 215	215	180	250	M12	4												
	S		FT 165	165	130	200	M10	3.5												
	M		FT 215	215	180	250	M12	4												
160	M	2-4-6-8	FT 215	215	180	250	M12	4	21	310	303	225	600	716	657	110	M16	42	45	12x8
	L												644	760	701					

[1] DB, DC: DIN 332-2 Form D

All measurements are in millimeters.

FOOT- AND FLANGE-MOUNTED (FORM C-B34) - ALUMINUM FRAME

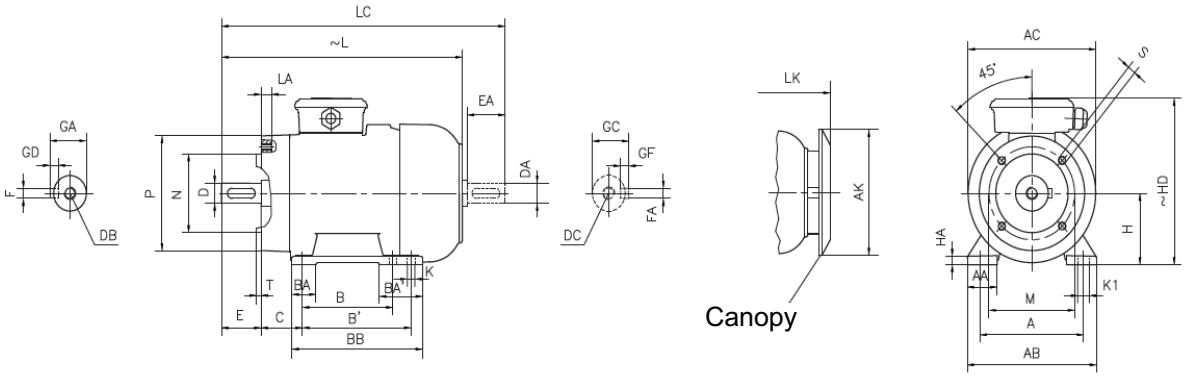


Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Foot- and flange-mounted motor dimensions: (Flange form C - DIN EN 50 347), in B34 structure form																														
			H	HD~	HA	A	AA	AB	ØAC	ØAK	K	K1	B	B'	BA	BA'	BB	Flange	ØM	ØN	ØP	S	T	LA[3]	L~	LC	LK~	C	E EA	DB DC	ØD ØDA	GA GC	FxGD FAxGF
56		2-4	56	152	9	90	28	112	105	-	5.8	9	71	-	24	-	87	FT65	65	50	80	M5	2.5	10	161	185	-	36	20	M4	9	10.2	3x3
																		FT85	85	70	105	M6		12									
63		2-4	63	161	10	100	31	125	121	116	7	11	80	-	27	-	103	FT75	75	60	90	M5	2.5	10	216	243	245	40	23	M4	11	12.5	4x4
																		FT100	100	80	120	M6	3	12									
71		2-4-6-8	71	181	10	112	33	140	138	116	7	11	90	-	27	-	108	FT85	85	70	105	M6	2.5	12	249	284	278	45	30	M5	14	16	5x5
									-									FT115	115	95	140	M8	3	16									
80		2-4-6-8	80	198	10	125	38	160	156	151	10	15	100	-	33	-	125	FT100	100	80	120	M6	3	12	279	324	308	50	40	M6	19	21.5	6x6
									-									FT130	130	110	160	M8	3.5	16									
90	S	2-4-6-8	90	216	12	140	43	180	176	151	10	15	100	-	35	-	130	FT115	115	95	140	M8	3	16	309	364	338	56	50	M8	24	27	8x7
																		FT130	130	110	160		3.5										
	L	2-4-6-8											125				155	FT115	115	95	140		3		334	389	363						
		2-4-6-8																FT130	130	110	160		3.5										
100	L	2-4-6-8 4[4]	100	234	13	160	47	200	194	189	12	18	140	-	39	-	175	FT130	130	110	160	M8	3.5	16	376 406	442 472	413 443	63	60	M10	28	31	8x7
		2-4-6-8 4[4]							-									FT165	165	130	200	M10		20	376 406	442 472	413 443						
112	M	2-4-6-8	112	257	13	190	47	230	218	189	12	18	140	-	39	-	175	FT130	130	110	160	M8	3.5	16	396	462	433	70	60	M10	28	31	8x7
		2-4-6-8																FT165[2]	165	130	200	M10		15	396	462	433						
132	S	2-4-6-8	132	300	15	216	49	260	257	239	12	18	140	-	46	-	180	FT165	165	130	200	M10	3.5	16	460	546	497	89	80	M12	38	41	10x8
																		FT215[2]	215	180	250	M12	4	18									
	M	2-4-6-8 6[5]											178				218	FT165	165	130	200	M10	3.5	16	498 523	584 614	535 560						
		2-4-6-8 6[5]																FT215[2]	215	180	250	M12	4	18	498 523	584 614	535 560						
160	M	2-4-6-8	160	380	22	254	60	312	310	303	15	19	210	-	60	104	304	FT215[2]	215	180	250	M12	4	21	600	716	657	108	110	M16	42	45	12x8
	L	2-4-6-8												254																			
		2-4[7]																							644	760	701						

[1] DB, DC: DIN 332-2 Form D
[2] Flanges are cast iron.
[3] Length of tapped hole
[4] IE2 Motor Type AGM2E 100 L 4b
[5] IE2 Motor Type AGM2E 132 M 6b
[6] IE2 Motor Type AGM2E 160 L 2, AGM2E 160 L 4

All dimensions are in millimeters.



Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Foot- and flange-mounted motor dimensions: (Flange form C - DIN EN 50 347), in B34 structure form																												
			H	HD~	HA	A	AA	AB	ACØ	AKØ	KØ	K1	B	B'	BA	BA'	BB	Flange	MØ	NØ	PØ	S	T	LA	L~	LC	LK~	C	E EA	DB2) DC	DØ DAØ	GA GC	FxGD FAxGF
132	S	2-4-6-8	132	300	15	216	52	260	257	239	12	-	140	-	46	84	218	FT165	165	130	200	M10	3.5	16	498	584	535	89	80	M12	38	41	10x8
																		FT215	215	180	250	M12	4	18									
	M											-		178				FT165	165	130	200	M10	3.5	16									
																		FT215	215	180	250	M12	4	18									
160	M	2-4-6-8	160	380	22	254	60	312	310	303	15	-	210	-	62	-	260	FT215	215	180	250	M12	4	21	600	716	657	108	110	M16	42	45	12x8
	L												254				304								644	760	701						

1) DB, DC: DIN 332-2 Form D
2) Length of tapped hole

All dimensions are in millimeters.


GAMAK

Standard Series

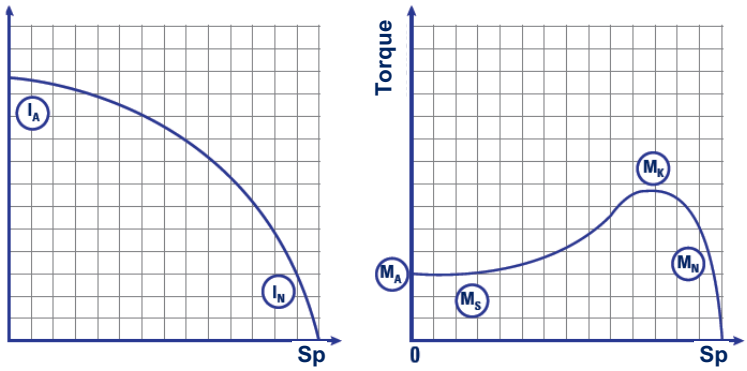
Single-Phase Motors

Centrifugal Switch

A centrifugal switch is an electric switch that operates using the centrifugal force created from a rotating shaft. When both capacitors are running at start-up, the starting capacitor is cut-out when the motor reaches a certain speed. The current is divided into two thanks to the special design double-contact centrifugal switch.

In applications where single-phase motors are overloaded, centrifugal power decreases with the motor speed. Therefore, the centrifugal switch is turned off, and the starting capacitor is reactivated. In the electronic start relay, the starting capacitor cannot be reactivated until the motor is de-energized.

RATINGS AND PERFORMANCE
Permanent Split Capacitor Motors



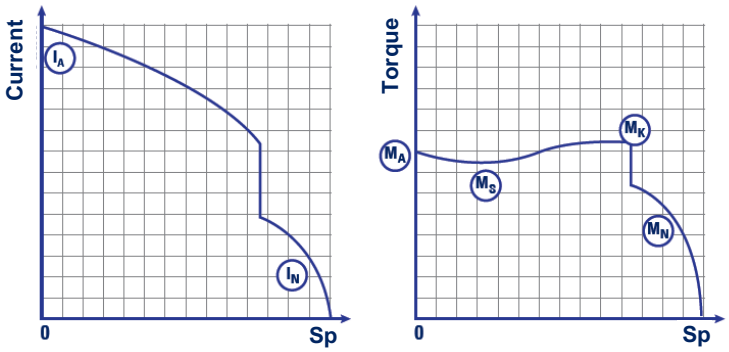
Single Phase, 230 V, 50 Hz

Duty Type : S1 (Continuous Running Duty)
Degree of Protection : IP 55
Insulation Class : F (155 °C)
Temperature Rise Limit : B (80 K)

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Permanent Circuit Capacitor	Moment of Inertia J	Approximate weight B3
		Speed	Current I_N	Moment M_N	Power Factor	Efficiency h	Locked-Rotor Current Ratio	Locked-Rotor Torque Ratio				
kW		m^{-1}	A	Nm	Cos φ	%	I_A/I_N	M_A/M_N	M_K/M_N	µF	kgm^2	kg
2-pole (3000 m^{-1})												
0.18	MD 63 2a	2860	1.3	0.6	0.94	64	4.2	0.85	2.4	8	0.00012	4.2
0.25	MD 63 2b	2870	1.65	0.8	0.95	69	4.0	0.75	2.3	8	0.00014	4.6
0.37	MD 71 2a	2885	2.5	1.2	0.96	67	4.0	0.65	2.2	15	0.00028	5.9
0.55	MD 71 2b	2865	3.6	1.8	0.95	70	3.9	0.72	2.3	20	0.00035	6.8
0.75	MD 80 2a	2770	5.0	2.6	0.96	68	3.3	0.88	1.9	30	0.00056	9.0
1.1	MD 80 2b	2770	7.0	3.8	0.95	72	3.8	0.93	2.0	35	0.00070	10.4
1.5	MD 90 S 2	2820	9.8	5.1	0.91	73	4.2	0.60	2.0	40	0.00113	13.3
2.2	MD 90 L 2	2800	13.5	7.5	0.94	75	3.4	0.50	1.7	50	0.00141	15.6
3	MD 100 L 2	2850	17.7	10.1	0.97	76	4.7	0.49	2.2	60	0.00260	22
4-pole (1500 m^{-1})												
0.12	MD63 4a	1430	1.1	0.8	0.91	52	2.6	0.69	2.1	8	0.00019	4.1
0.18	MD 63 4b	1390	1.5	1.2	0.93	56	2.3	0.84	1.8	10	0.00023	4.6
0.25	MD 71 4a	1425	1.8	1.7	0.93	65	3.2	0.73	2.1	10	0.00048	6.1
0.37	MD 71 4b	1435	2.6	2.5	0.91	68	2.8	0.65	1.9	15	0.00056	6.6
0.55	MD 80 4a	1410	3.8	3.7	0.90	70	3.4	0.51	1.7	20	0.00092	8.7
0.75	MD 80 4b	1405	5.2	5.1	0.90	70	3.5	0.55	1.8	30	0.00123	10.3
1.1	MD 90 S 4	1410	7.1	7.4	0.96	70	3.5	0.63	1.9	35	0.00209	13.3
1.5	MD 90 L4	1410	9.3	10.2	0.96	73	3.3	0.57	1.8	50	0.00265	15.7
2.2	MD 100 L4a	1425	13.4	14.7	0.93	77	4.1	0.40	1.8	60	0.00440	24
3	MD 100 L 4b	1425	18.5	20.1	0.88	80	3.6	0.30	1.7	60	0.00510	25

**If an Elit series motor is to be selected, it should be noted that the code "EL" indicates Elit Series.*
**Type 100 motors are supplied with standard frame.*

RATINGS AND PERFORMANCE
Capacitor Start/Capacitor Run Motors



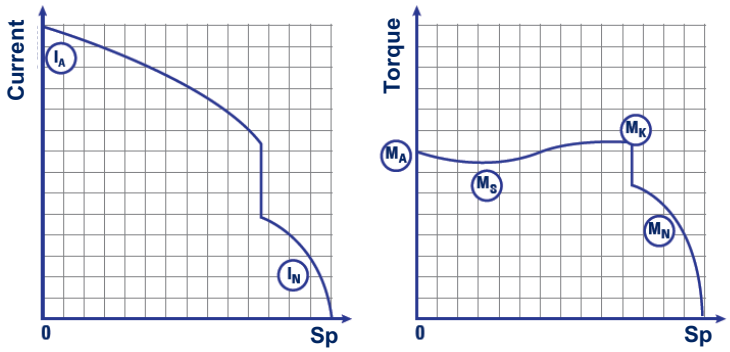
Single Phase, 230 V, 50 Hz

Duty Type : S1 (Continuous Running Duty)
Degree of Protection : IP 55
Insulation Class : F (155 °C)
Temperature Rise Limit : B (80 K)

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Starting Capacitor 300 V µF	Permanent Circuit Capacitor 400 V µF	Moment of Inertia J	Approximate weight B3
		Speed	Current I_N	Moment M_N	Power Factor	Efficiency h	Locked-Rotor Current Ratio	Locked-Rotor Torque Ratio					
kW		m^{-1}	A	Nm	Cos φ	%	I_A/I_N	M_A/M_N	M_K/M_N			kgm^2	kg
2-pole (3000 m^{-1})													
0.18	MSD 63 2a	2860	1.3	0.6	0.94	64	5.1	2.3	2.4	21-25	8	0.00012	4.5
0.25	MSD 63 2b	2870	1.65	0.8	0.94	70	4.9	2.1	2.3	30-36	8	0.00014	4.9
0.37	MSD 71 2a	2885	2.5	1.2	0.96	67	4.7	2.1	2.2	53-64	15	0.00028	6.2
0.55	MSD 71 2b	2865	3.6	1.8	0.95	70	4.7	2.2	2.3	88-106	20	0.00035	7.2
0.75	MSD 80 2a	2770	5.0	2.6	0.96	68	4.3	1.8	1.9	88-106	30	0.00056	9.4
1.1	MSD 80 2b	2770	7.0	3.8	0.95	72	4.6	1.9	2.0	130-156	35	0.00070	10.9
1.5	MSD 90 S2	2820	9.8	5.1	0.91	73	5.4	2.0	2.0	233-280/250V	40	0.00113	13.8
2.2	MSD 90 L2	2800	13.5	7.5	0.94	75	4.6	1.7	1.7	233-280/250V	50	0.00141	16.1
3	MSD 100 L2	2850	17.7	10.1	0.97	76	5.3	2.1	2.2	233-280/250V	60	0.00260	24
4	MSD 112 M2	2885	22.0	13.2	0.93	85	5.1	2.1	2.2	288-331/250V	60	0.00410	27
4-pole (1500 m^{-1})													
0.12	MSD 63 4a	1430	1.1	0.8	0.91	52	4.0	1.9	2.1	21-25	8	0.00019	5.1
0.18	MSD 63 4b	1390	1.5	1.2	0.93	56	3.6	1.8	1.8	30-36	8	0.00023	5.4
0.25	MSD 71 4a	1425	1.8	1.7	0.93	65	4.5	2.3	2.1	36-43	10	0.00048	6.1
0.37	MSD 71 4b	1435	2.6	2.5	0.91	68	3.8	2.0	1.9	53-64	15	0.00056	6.5
0.55	MSD 80 4a	1410	3.8	3.7	0.90	70	4.5	2.2	1.7	88-106	20	0.00092	9.1
0.75	MSD 80 4b	1405	5.2	5.1	0.90	70	4.5	2.5	1.8	108-130	30	0.00123	11
1.1	MSD 90 S 4	1410	7.1	7.4	0.96	70	4.8	2.4	1.9	145-174	35	0.00209	14.7
1.5	MSD 90 L4	1410	9.3	10.2	0.96	73	4.7	2.7	1.8	161-193	50	0.00265	15.7
2.2	MSD 100 L 4a	1425	13.4	14.7	0.93	77	4.6	2.3	1.8	288-331/250V	60	0.00440	25
3	MSD 100 L 4b	1425	18.5	20.1	0.88	80	4.0	2.7	1.7	288-331/250V	60	0.00510	26

**If an Elit series motor is to be selected, it should be noted that the code "EL" indicates Elit Series.*
**Type 100 motors are supplied with standard frame.*

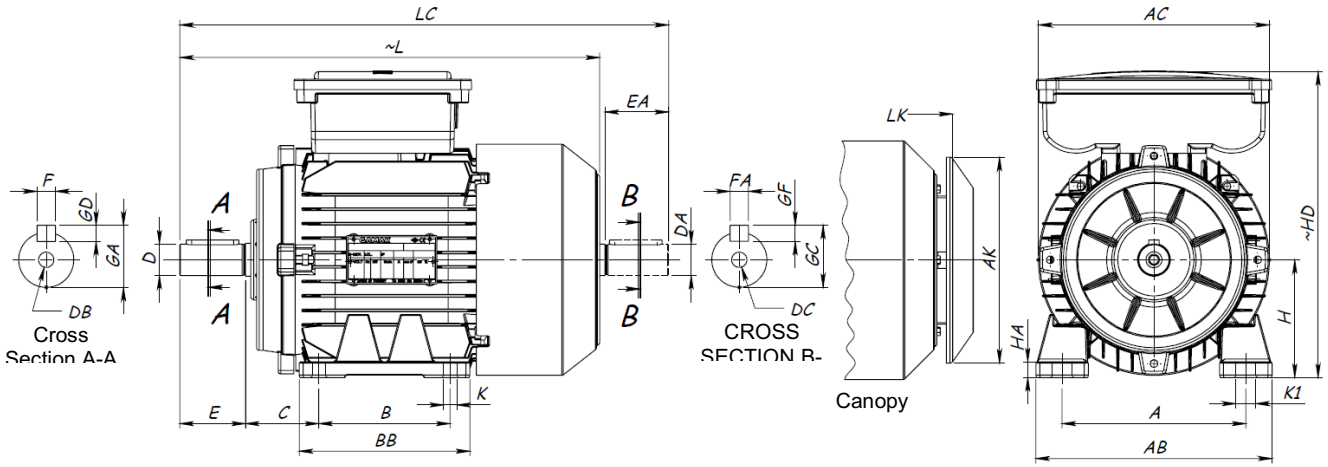
RATINGS AND PERFORMANCE
Capacitor Start/Capacitor Run Motors



Single Phase, 230 V, 50 Hz
Duty Type : S1 (Continuous Running Duty)
Degree of Protection : IP 55
Insulation Class : F (155 °C)
Temperature Rise Limit : B (80 K)

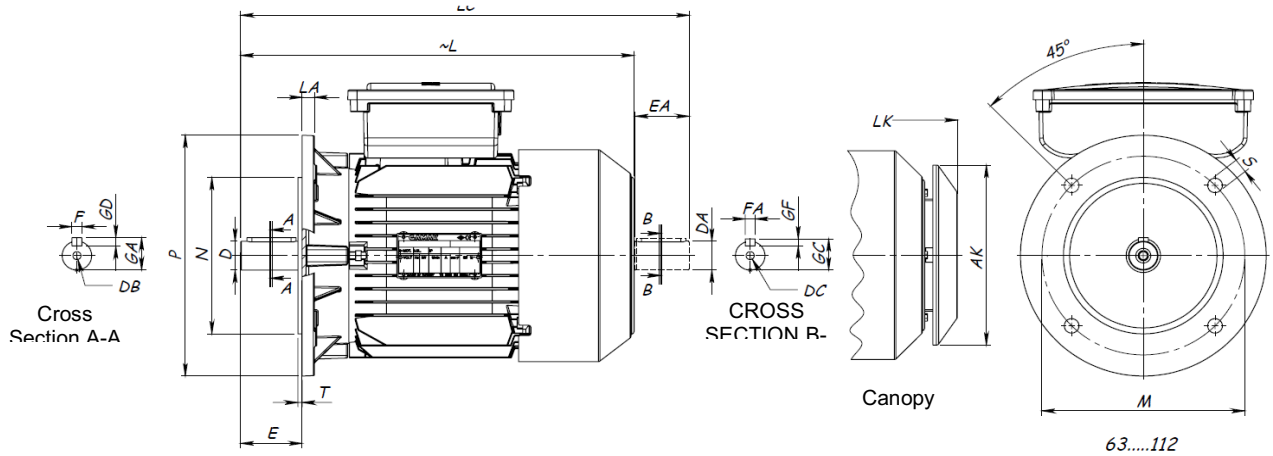
Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Starting Capacitor 300 V µF	Permanent Circuit Capacitor 400 V µF	Moment of Inertia J	Approximate weight B3
		Speed	Current I_N	Moment M_N	Power Factor	Efficiency h	Locked-Rotor Current Ratio	Locked-Rotor Torque Ratio					
kW		m^{-1}	A	Nm	Cos φ	%	I_A/I_N	M_A/M_N	M_K/M_N			kgm^2	kg
2-pole (3000 m^{-1})													
0.18	MKD 71 2-18	2860	1.3	0.6	0.94	64	4.9	2.3	2.4	21-25	8	0.00022	5.3
0.25	MKD 71 2-25	2870	1.65	0.8	0.94	70	4.9	2.2	2.3	30-36	8	0.00025	5.6
0.37	MKD 71 2a	2885	2.5	1.2	0.96	67	4.7	2.1	2.2	53-64	15	0.00028	5.8
0.37	MKD 80 2-37	2885	2.5	1.2	0.96	67	4.7	1.8	1.9	53-64	15	0.00034	6.2
0.55	MKD 80 2-55	2865	3.7	1.8	0.95	68	4.7	1.8	1.9	88-106	20	0.00043	7.5
0.75	MKD 80 2a	2770	5.0	2.6	0.96	68	4.5	1.8	1.9	88-106	30	0.00056	9.4
1.1	MKD 80 H 2b	2770	7.0	3.8	0.95	72	4.6	1.9	2.0	130-156	35	0.00070	10.9
0.75	MKD 90 S 2-75	2800	5.0	2.6	0.96	68	5.2	2.0	2.1	88-106	30	0.00066	10.1
1.1	MKD 90 S 2-110	2800	7.0	3.8	0.95	72	5.2	2.0	2.1	130-156	35	0.00093	12.2
1.5	MKD 90 SL 2a	2820	9.8	5.1	0.91	73	5.4	2.0	2.1	233-280/250V	40	0.00113	13.8
2.2	MKD 90 SL 2b	2800	13.5	7.5	0.94	75	5.0	1.7	1.7	233-280/250V	50	0.00141	14.9
3	MKD 100 L 2	2850	17.7	10.1	0.97	76	5.3	2.1	2.2	233-280/250V	60	0.00260	24
4	MKD 112 M 2	2885	22.0	13.2	0.93	85	5.1	2.1	2.2	288-331/250V	60	0.00410	27
4-pole (1500 m^{-1})													
0.12	MKD 71 4-12	1430	1.1	0.8	0.91	52	4.0	2.0	1.9	21-25	8	0.00035	5.1
0.18	MKD 71 4-18	1390	1.5	1.2	0.93	56	4.0	2.0	1.9	30-36	8	0.00039	5.4
0.25	MKD 71 4a	1425	1.8	1.7	0.93	65	4.4	2.2	2.1	36-43	10	0.00048	6.1
0.37	MKD 71 4b	1435	2.6	2.5	0.91	68	4.3	2.0	1.9	53-64	15	0.00056	6.5
0.37	MKD 80 4-37	1435	2.6	2.5	0.91	68	4.3	2.0	1.9	53-64	15	0.00071	7.8
0.55	MKD 80 4a	1410	3.8	3.7	0.90	70	4.5	2.2	2.1	88-106	20	0.00092	9.1
0.75	MKD 80 H 4b	1405	5.2	5.1	0.90	70	4.5	2.4	2.1	108-130	30	0.00123	11
0.55	MKD 90 S 4-55	1410	3.8	3.7	0.90	70	5.0	2.4	1.9	88-106	20	0.00187	10.7
0.75	MKD 90 S 4-75	1405	5.2	5.1	0.90	70	5.0	2.4	1.9	108-130	30	0.00239	12.1
1.1	MKD 90 SL 4a	1410	7.1	7.4	0.96	70	4.8	2.4	1.9	145-174	35	0.00209	14.7
1.5	MKD 90 SL 4b	1410	9.3	10.2	0.96	73	4.8	2.4	1.8	161-193	50	0.00265	15.7
2.2	MKD 100 L 4a	1425	13.4	14.7	0.93	77	4.8	2.3	1.8	288-331/250V	60	0.00440	25
3	MKD 100 L 4b	1425	18.5	20.1	0.88	80	4.5	1.8	1.7	288-331/250V	60	0.00510	26

**MKD motors are designed with Elit type frame.*



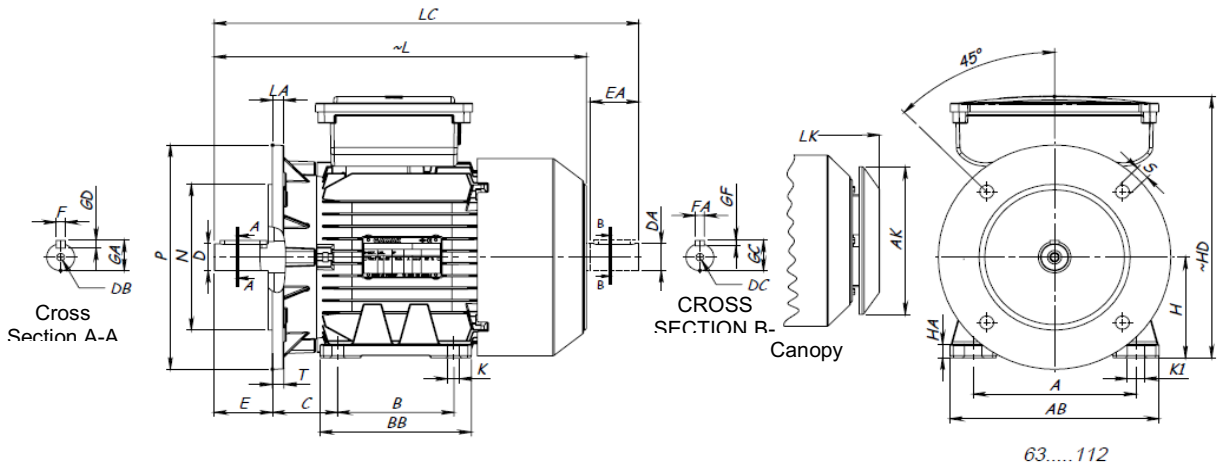
FOOT-MOUNTED MOTOR - B3, B6, B7, B8, B15, V5, V6

Frame size		Number of Poles	H	HD~	HD~	HA	A	AB	ACØ	AKØ	K	K1	B	BB	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAXGF
63		2-4	63	201	189	10	100	125	121	116	7	11	80	103	215	242	245	40	23	M4	11	12.5	4X4
71		2-4	71	208	196	10	112	140	138	116	7	11	90	108	247	282	277	45	30	M5	14	16	5X5
80		2-4	80	224	212	10	125	160	156	150	12	12	150	125	278	323	308	50	40	M6	19	21.5	6X6
90	S	2-4	90	242	230	12	140	180	176	150	10	15	100	130	308	363	338	56	50	M8	24	27	8X7
	L												125	155	333	388	363						
100	L	2-4	100	271	259	13	160	200	194	188	12	18	140	175	375	441	410	63	60	M10	28	31	8X7
112	M	2	112	294	-	13	190	230	218	188	12	18	140	175	392	458	432	70	60	M10	28	31	8X7
Tolerances			-0.5																		j6		



Flange-Mounted Motors (Form A - DIN EN 50 347) - B5, V1, V3

Frame size		Number of Poles	Flange No.	MØ	NØ	PØ	Clearance Hole		T	LA	AD1~	AD2~	AKØ	L~	LC	LK~	E EA	DB DC	DØ DAØ	GA GC	FxGD FAXGF
							Pcs	SØ													
63		2-4	FF 115	115	95	140	4	10	3	10	138	126	116	215	242	245	23	M4	11	12.5	4X4
71		2-4	FF 130	130	110	160	4	10	3.5	10	137	125	116	247	282	277	30	M5	14	16	5X5
80		2-4	FF 165	165	130	200	-	1F	3.5	12	144	132	150	278	323	308	40	M6	19	21.5	6X6
90	S	2-4	FF 165	165	130	200	4	12	3.5	12	152	140	150	308	363	338	50	M8	24	27	8X7
	SL													333	388	363					
100	L	2-4	FF 215	215	180	250	4	14.5	4	15	171	159	188	375	441	410	60	M10	28	31	8X7
112	M	2	FF 215	215	180	250	4	14.5	4	15	182	-	188	392	458	432	60	M10	28	31	8X7
Tolerance					j6														j6		

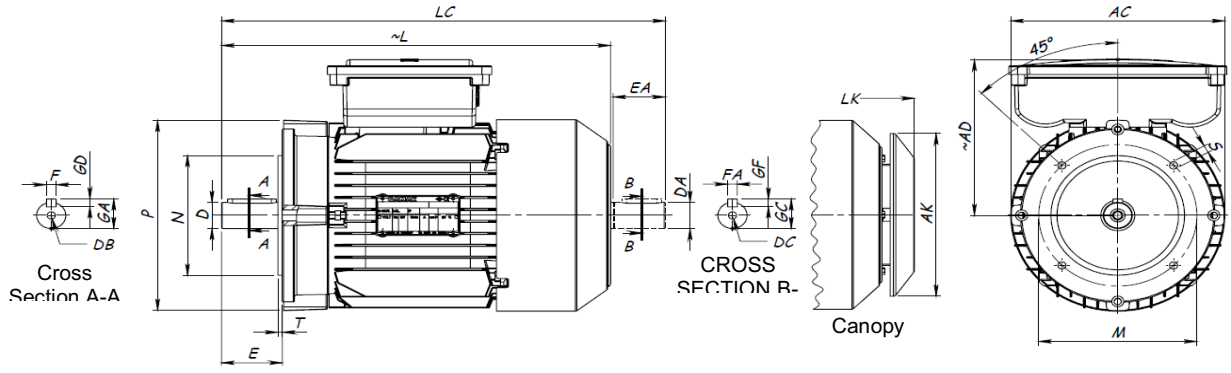


FOOT- AND FLANGE-MOUNTED MOTOR (FORM A- DIN EN 50 347) - B35

Note: The shaft shoulder and the flange seat are on the same plane.

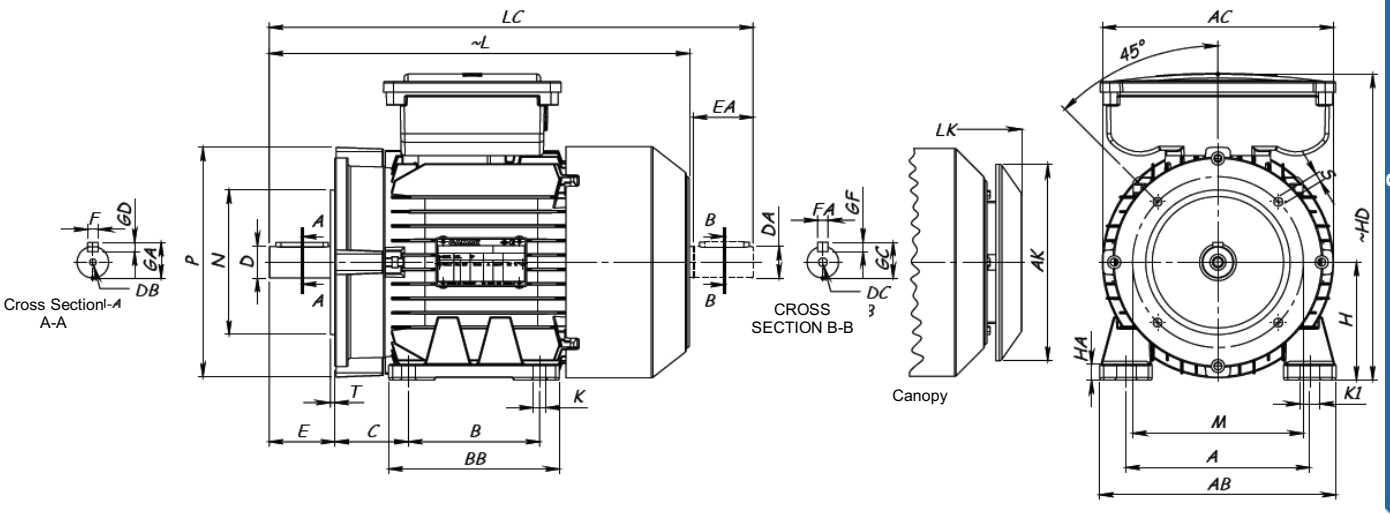
Frame size		Number of Poles	H	HD[1)]~	HD[2)]~	HA	A	AB	ØAK	K	K1	B	BB	Flange	ØM	ØN	ØN	No	ØS	T	LA	L~	LC	LK~	C	E EA	DB[3)] DC	ØD ØDA	GA GC	FxGD FAxGF
63		2-4	63	201	189	10	100	125	116	7	11	80	103	FF115	115	95	140	4	10	3	10	215	242	245	40	23	M4	11	12.5	4x4
71		2-4	71	208	196	10	112	140	116	7	11	90	108	FF130	130	110	160	4	10	3.5	10	247	282	277	45	30	M5	14	16	5x5
80		2-4	80	224	212	10	125	160	150	10	15	100	125	FF165	165	130	200	4	12	3.5	10	278	323	308	50	40	M6	19	21.5	6x6
90	S	2-4	90	242	230	12	140	180	150	10	15	100	130	FF165	165	130	200	4	12	3.5	12	308	363	338	56	50	M8	24	27	8x7
	L																					333	388	363						
100	L	2-4	100	271	259	13	160	200	188	12	18	140	175	FF215	215	180	250	4	14.5	4	15	375	441	410	63	60	M10	28	31	8x7
112	M	2	112	294	-	13	190	230	188	12	18	140	175	FF215	215	180	250	4	14.5	4	15	392	458	432	70	60	M10	28	31	8x7
Tolerances			-0.5																						0.5	j6			

In Capacitor Start/Capacitor Run Motors 2) in Permanent Split Capacitor Motors 3) DIN 332-2 form D All measurements are in millimeters.



FLANGE-MOUNTED MOTORS (FORM C - DIN EN 50 347) - B14, V18, V19

Frame size		Number of Poles	Flange No.	MØ	NØ	PØ	S	T	LS	ACØ	AKØ	AD1~	AD2~	L~	LC	LK~	E EA	DB3 DC	DØ DAØ	GA GC	FxGD FAXGF
63		2-4	FT 75	75	60	90	M5	2.5	10	121	116	138	126	215	242	245	23	M4	11	12.5	4X4
			FT 100	100	80	120	M6	3	12												
71		2-4	FT 85	85	11	105	M88	23	12	138	116	137	125	247	282	277	30	M5	14	16	5X5
			FT 115	115	11	140	M8	3	16	-											
80		2-4	FT 100	100	80	120	M6	3	12	156	150	144	132	278	323	308	40	M6	19	21.5	6X6
			FT 130	130	110	160	M8	3.5	16	-											
90	S	2-4	FT 115	115	95	140	M8	3	16	176	150	152	140	308	363	338	50	M8	24	27	8X7
			FT 130	130	110	160		3.5													
	L		FT 115	115	95	140		3						333	415	363					
			FT 130	130	110	160		3.5													
100	L	2-4	FT 130	130	110	160	M8	3.5	16	194	188	171	159	375	441	415	60	M10	28	31	8X7
			FT 165	165	130	200	M10		20	-											
112	M	2-4	FT 130	130	110	160	M8	3.5	16	218	188	182	-	392	458	432	60	M10	28	31	8X7
			FT 165	165	130	200	M10		12												
Tolerance					j6														j6		



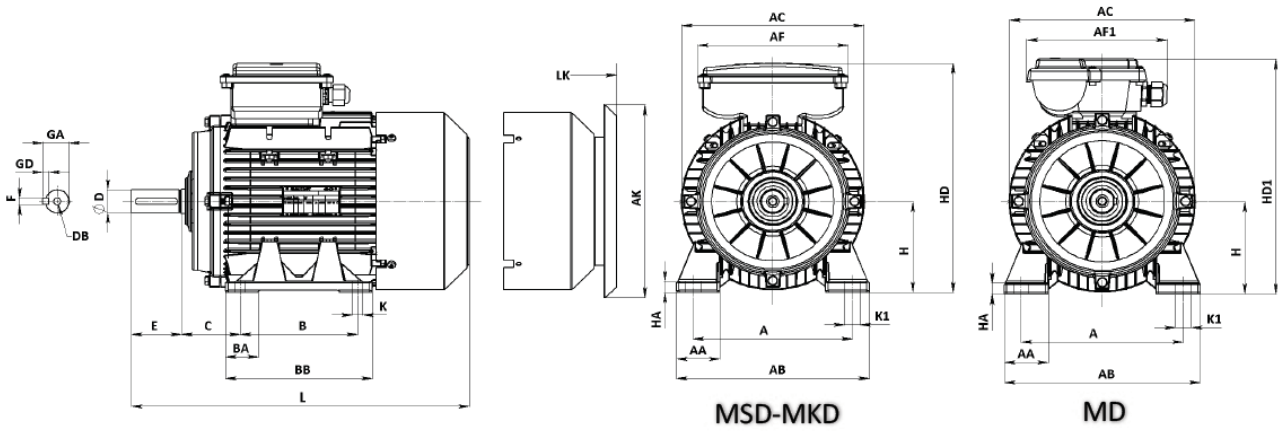
FOOT- AND FLANGE-MOUNTED MOTOR (Form C - DIN EN 50 347) - B34

Note: The shaft shoulder and the flange seat are on the same plane.

Frame size		Number of Poles	Foot-mounted motor dimensions: In B3, B6, B7, B8, B15, V5, V6 mounting arrangements																											
			H	HD[1)]~	HD[2)]~	HA	A	AB	ØAC	ØAK	K	K1	B	BB	Flange No.	LS	ØM	ØN	ØP	S	T	L~	LC	LK~	C	E EA	DB[3)] DC	ØD ØDA	GA GC	FxGD FAxGF
63		2-4	63	201	189	10	100	125	121	116	7	11	80	103	FT 75	10	75	60	90	M 5	2.5	215	245	245	40	23	M 4	11	12.5	4X4
															FT100	12	100	80	120	M 6	3								
71		2-4	71	208	196	10	112	140	138	116	7	11	90	108	FT 85	12	85	70	105	M 6	2.5	247	277	277	45	30	M 5	14	16	5X5
									-						FT115	16	115	95	140	M 8	3								
80		2-4	80	224	212	10	125	160	156	150	10	15	100	125	FT100	12	100	80	120	M 6	3	278	308	308	50	40	M 6	19	21.5	6X6
									-						FT130	16	130	110	160	M 8	3.5								
90	S	2-4	90	242	230	12	140	180	176	150	10	15	100	130	FT115	16	115	95	140	M 8	3	308	338	338	56	50	M 8	24	27	8X7
															FT130		130	110	160		3.5								
	L	2-4											125	155	FT115		115	95	140		3	333	363	363						
															FT130		130	110	160		3.5								
100	L	2-4	100	271	259	13	160	200	194	188	12	18	140	175	FT130	16	130	110	160	M 8	3.5	375	415	415	63	60	M10	28	31	8X7
									-						FT165	20	165	130	200	M10									
112	M	2-4	112	294	-	13	190	230	218	188	12	18	140	175	FT130	16	130	110	160	M 8	3.5	392	432	432	70	60	M10	28	31	8X7
															FT165	12	165	130	200	M10									
Tolerances			-0.5															j6									j6		

1) In Capacitor Start/Capacitor Run Motors 2) In Permanent Split Capacitor Motors 3) DIN 332-2 form D

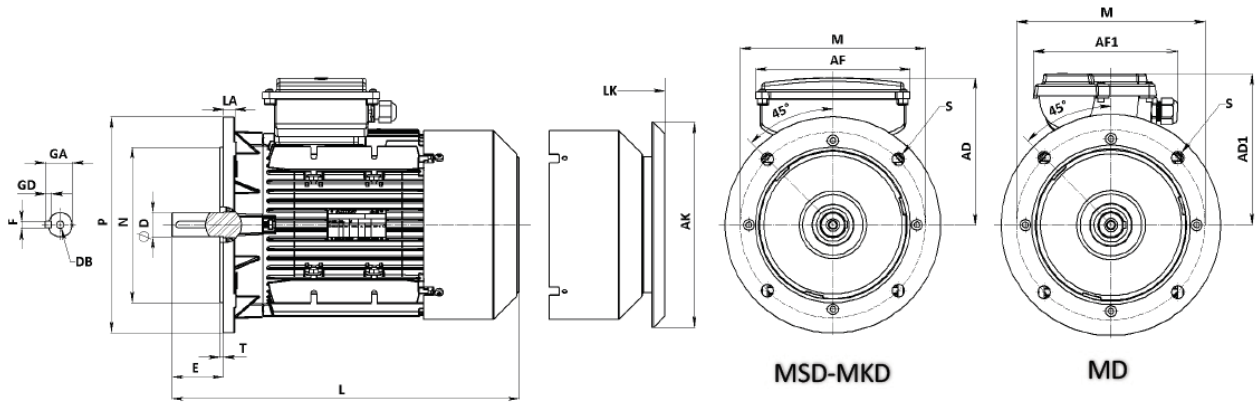
All measurements are in millimeters.



REMOVABLE FEET (B3) - ALUMINUM FRAME

Frame size		Number of Poles	Foot-mounted motor dimensions: In B3, B6, B7, B8, B15, V5, V6 mounting arrangements																								
			H	HD~	HD1~	HA	A	AA	AB	AC Ø	AF	AF1	AK Ø	K	K1	B	Bı	BA	BAı	BB	L	LK	E	C	DB	DØ	GA	FxGD
71		2-4	71	186	196	10	112	31	140	137	144		116	7	11	90	-	26.5	-	108	257	289	30	45	M5	14	16	5X5
80		2-4	80	205	212	10	125	33.5	160	156	180		151	10	15	100	-	32.5	-	125	306	337	40	50	M6	19	21.5	6X6
	H																				328	360						
90	S	2-4	90	242	237	12	140	40	180	175	180	164	151	10	15	100	-	35	-	130	315	344	40	56	M8	24	27	8X7
	SL																12.5		60	155	361	390						
	LH															125	-				396	425						
100	L	2-4	100	266	269	13	160	39	200	195	180		189	12	18	140	-	39	-	175	401	438	60	63	M10	28	31	8X7
	LH																				436.5	473.5						
112	M	2	112	282	284	13	190	52	230	217	180		189	12	18	140	-	52	-	175	410	447	60	70	M10	28	31	8X7
	MH																				445	505						

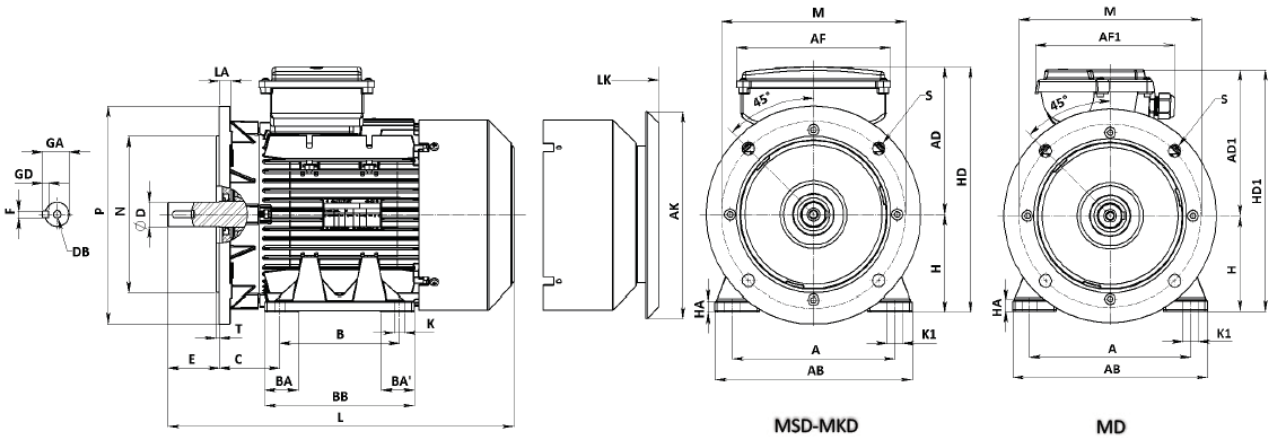
Consider HD1, AF1 measurements if Elit MD motor is selected.



FLANGE-MOUNTED (FORM A-B5) - ALUMINUM FRAME

Frame size		Flange No.	Flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B5, V1, V3 mounting arrangements																			
			MØ	NØ	PØ	Clearance Hole		T	LA	AD	AD1	AF	AF1	AKØ	L	LK	E	DB	DØ	GA	FxGD	Flange Type
						No.	SØ															
71		FF 130	130	110	160	4	10	3.5	10	115	125	144		116	257	289	30	M5	14	16	5X5	
80		FF 165	165	130	200	4	12	3.5	12	125	132	180		151	306	337	40	M6	19	21.5	6X6	
	H														328	360						
90	S	FF 165	165	130	200	4	12	3.5	12	152	147	180	164	151	315	344	50	M8	24	27	8X7	Aluminum
	SL														361	390						
	LH														396	425						
100	L	FF 215	215	180	250	4	14.5	4	15	167	169	180		189	401	438	60	M10	28	31	8X7	
	LH														436.5	473.5						
112	M	FF 215	215	180	250	4	14.5	4	15	170	172	180		189	410	447	60	M10	28	31	8X7	
	MH														445	505						

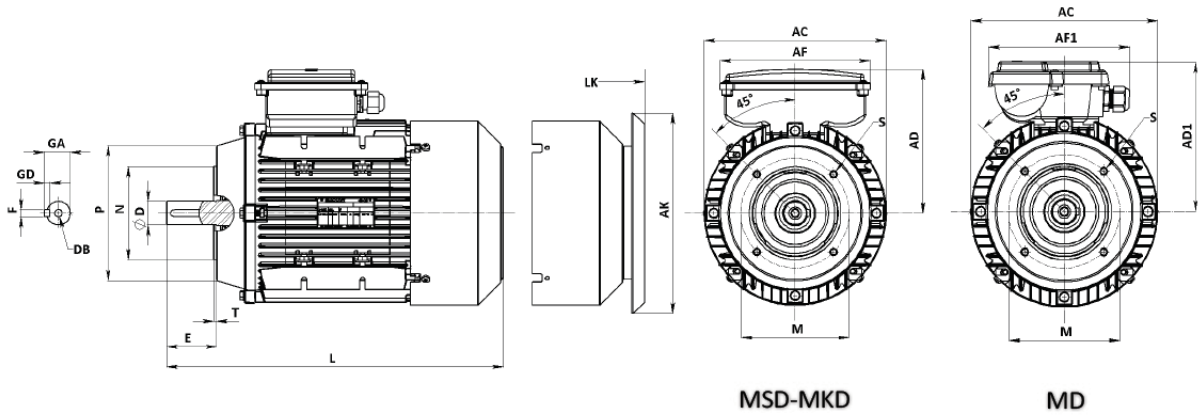
**Consider HD1, AF1 measurements if Elit MD motor is selected.*



FLANGE-MOUNTED (FORM A-B5) - ALUMINUM FRAME

Frame size		Number of Poles	Flange No.	Flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B5, V1, V3 mounting arrangements																																Flange Type
				H	HD~	HD1 ~	HA	A	AA	AB	AC Ø	AF	AF1	AK Ø	K	K1	B	B'	BA	BA'	BB	L	LK	E	C	DB	DØ	GA	FxGD	MØ	NØ	PØ	ØS	T	LA	AD	AD1	
71		2-4	FF 130	71	186	196	10	112	31	140	137	144		116	7	11	90	-	26.5	-	108	257	289	30	45	M5	14	16	5X5	130	110	160	10	3.5	10	115	125	
80		2-4	FF 165	80	205	212	10	125	33.5	160	156	180		151	10	15	100	-	32.5	-	125	306	337	40	50	M6	19	21.5	6X6	165	130	200	12	3.5	12	125	132	
	H																					328	360															
	S																100	-		-	130	315	344															
90	SL	2-4	FF 165	90	242	237	12	140	40	180	175	180	164	151	10	15		12.5	35	60	155	361	390	50	56	M8	24	27	8X7	165	130	200	12	3.5	12	152	147	Aluminum
	LH																	-				396	425															
	L		FF																			401	438															
100	LH	2-4	215	100	266	269	13	160	39	200	195	180		189	12	18	140	-	39	-	175	436.5	473.5	60	63	M10	28	31	8X7	215	180	250	14.5	4	15	167	169	
	M		FF																			410	447															
112	MH	2-4	215	112	282	284	13	190	52	230	217	180		189	12	18	140	-	52	-	175	445	505	60	70	M10	28	31	8X7	215	180	250	14.5	4	15	170	172	

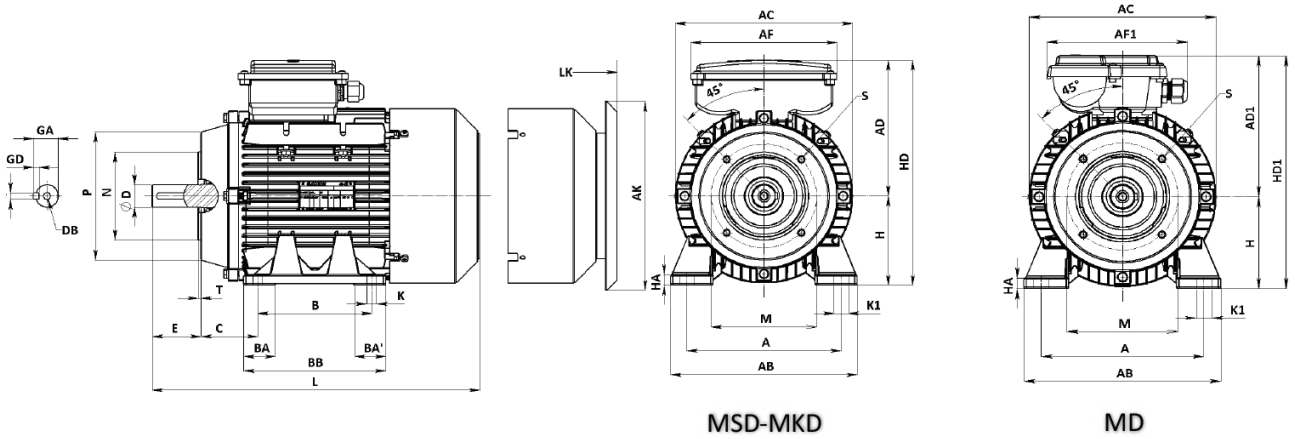
Consider HD1, AF1, AD1 measurements if Elit MD motor is selected.



FLANGE-MOUNTED (FORM C-B14) - ALUMINUM FRAME

Frame Size		Flange No.	Flange-mounted motor dimensions: (Flange form C - DIN EN 50 347) in B14, V18, V19 mounting arrangements																			
			MØ	NØ	PØ	S	T	LA	AD~	AD1~	AF	AF1	ACØ	AKØ	L~	LK~	E	DB	DØ	GA	FxGD	Flange Type
71		FT 85	85	70	105	M6	2.5	12	115	125	144	164	138	116	257	289	30	M5	14	16	5X5	Aluminum
		FT 115	115	95	140	M8	3	16					-									
80	H	FT 100	100	80	120	M6	3	12	125	132	180		156	151	306	337	40	M6	19	21.5	6X6	
		FT 130	130	110	160	M8	3.5	16					-									
		FT 100	100	80	120	M6	3	12					156		328	360						
		FT 130	130	110	160	M8	3.5	16					-									
90	S	FT 115	115	95	140	M8	3	16	152	147	180		176	151	315	344	50	M8	24	27	8X7	
		FT 130	130	110	160		3.5															
	SL	FT 115	115	95	140		3								361	390						
		FT 130	130	110	160		3.5															
	LH	FT 115	115	95	140		3								396	425						
		FT 130	130	110	160		3.5															
100	L	FT 130	130	110	160	M8	3.5	16	167	169	180		195	189	401	438	60	M10	28	31	8X7	
		FT 165	165	130	200	M10		20					-									
	LH	FT 130	130	110	160	M8		16					195		436.5	473.5						
		FT 165	165	130	200	M10		20					-									
112	M	FT 130	130	110	160	M8	3.5	16	170	172	180		218	189	410	447	60	M10	28	31	8X7	
		FT 165	165	130	200	M10		20														
	MH	FT 130	130	110	160	M8		16							445	505						
		FT 165	165	130	200	M10		20														

**Consider AD1, AF1 measurement if Elit MD motor is selected.*

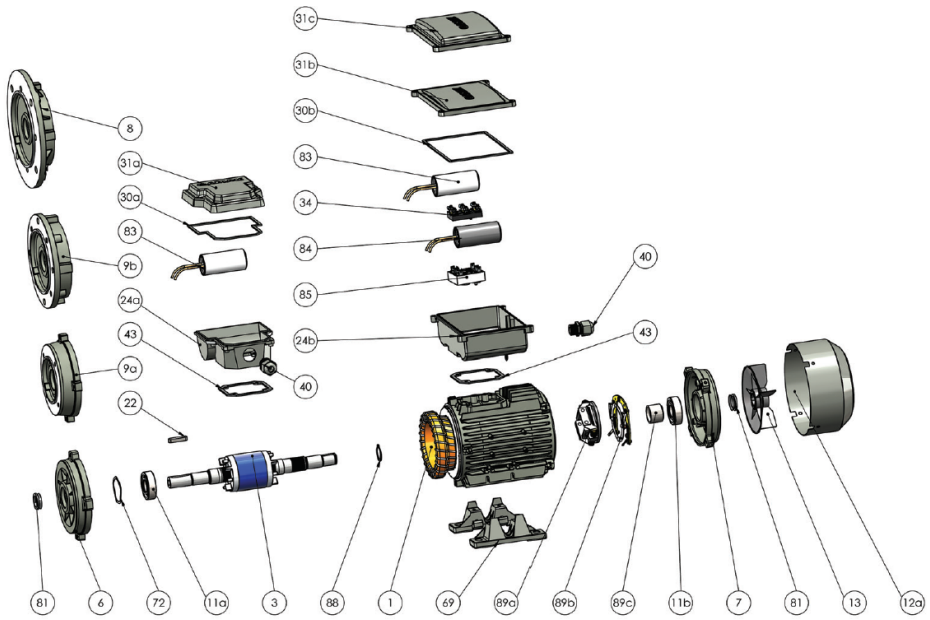


MSD-MKD MD

FLANGE-MOUNTED (FORM C-B34) - ALUMINUM FRAME

Frame Size		Flange No.	Flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B5, V1, V3 mounting arrangements																																				Flange Type
			H	HD~	HD1~	HA	A	AA	AB	AC Ø	AF	AF1	AK Ø	K	K1	B	B'	BA	BA'	BB	L	LK	E	C	DB	D Ø	GA	FxGD	MØ	NØ	PØ	S	T	LA	AC Ø	AK Ø	AD~	AD1~	
71		FT 85	71	186	196	10	112	31	140	137	144		116	7	11	90	-	26.5	-	108	257	289	30	45	M5	14	16	5X5	85	70	105	M6	3	12	138	116	115	125	
		FT 115																											115	95	140	M8	3	16	-				
80	H	FT 100	80	205	212	10	125	34	160	156	180		151	10	15	100	-	32.5	-	125	306	337	40	50	M6	19	22	6X6	100	80	120	M6	3	12	156	151	125	132	
		FT 130																											130	110	160	M8	4	16	-				
		FT 100																			328	360							100	80	120	M6	3	12	156				
		FT 130																											130	110	160	M8	4	16	-				
90	S	FT 115	90	242	237	12	140	40	180	175	180	164	151	10	15	100	-	35	-	130	315	344	50	56	M8	24	27	8X7	115	95	140	M8	3	16	176	151	152	147	Aluminum
		FT 130																											130	110	160		4						
	SL	FT 115														100	12.5			155	361	390							115	95	140		3						
		FT 130																											130	110	160		4						
	LH	FT 115														125	-				396	425							115	95	140		3						
		FT 130																											130	110	160		4						
100	L	FT 130	100	266	269	13	160	39	200	195	180		189	12	18	140	-	39	-	175	401	438	60	63	M10	28	31	8X7	130	110	160	M8	4	16	195	189	167	169	
		FT 165																											165	130	200	M10		20	-				
	LH	FT 130																			437	473.5							130	110	160	M8		16	195				
		FT 165																											165	130	200	M10		20	-				
112	M	FT 130	112	282	284	13	190	52	230	217	180		189	12	18	140	-	52	-	175	410	447	60	70	M10	28	31	8X7	130	110	160	M8	4	16	218	189	170	172	
		FT 165																											165	130	200	M10		20					
	MH	FT 130																			445	505							130	110	160	M8		16					
		FT 165																											165	130	200	M10		20					

**Consider HD1, AF1, AD1 measurements if Elit MD motor is selected.*



1 Stator complete with winding: Varnished and attached to the frame
3 Rotor complete with shaft, finish machined and balanced (excluding keys)
6 End Shield Drive End
7 End Shield Non-Drive End
8 Flange (Form A) B5
9a Flange (Form C) B14 FT100
9b Flange (Form C) B14-2 FT130
11a Drive end bearing
11b Non-drive end bearing
12a Fan
13 Fan
22 Shaft key
24a Terminal box - Permanent split capacitor design
24b Terminal box - Capacitor start/capacitor run design
29 Adaptor plate to motor frame gasket (63)
30a Terminal box to lid gasket - Permanent split capacitor design
30b Terminal box to lid gasket - Capacitor start/capacitor run design
31a Terminal box lid - Permanent split capacitor design
31b Terminal box lid - Capacitor start/capacitor run design
31c Terminal box lid - Capacitor start/capacitor run design (deep lid)
34 Terminal
40 Cable gland
43 Adaptor plate to motor frame gasket (100-112)
69 Removable feet
72 Corrugated disc spring
81 V-ring or optional oil seal
83 Permanent Circuit Capacitor
84 Starting capacitor
85 Electronic Startup Relay (Capacitor Start/Capacitor Run Motors)
88 MKD internal circlip
89a Centrifugal spring (rotor)
89b Centrifugal switch (stator)


GAMAK

Elit Series

Modular Motors

Removable Flange (in Type 132 only): B3 cover is turned into B5 or B14 flange by mounting of the proper plate directly without removing the motor's end shield drive end.

Removable Feet (in all aluminum bodies): For aluminum frame types, removable feet can be installed and removed in 80-200 frame types with the terminal box facing three directions and in type 71 bodies with the terminal box staying on top.

Motor Frames, End Shields and Flanges

Materials used in motor frames, end shields and flanges are given in the table below according to their frame sizes.

<table>
<tr><th rowspan="2">Frame Size</th><th rowspan="2">Frame</th><th rowspan="2">End Shields</th><th colspan="3">Flanges</th><th colspan="2">Removable Feet</th><th colspan="2">Removable Flange</th></tr>
<tr><th>B5</th><th>B14/Small</th><th>B14/Large</th><th>Alu. Frame</th><th>C. Iron Frame</th><th>Alu. Frame</th><th>C. Iron Frame</th></tr>
<tr><td>71</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td rowspan="6">✓</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>80</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>90</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>100</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>112</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>Aluminum</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>132</td><td rowspan="4">Aluminum or Cast Iron</td><td rowspan="4">Aluminum or Cast Iron</td><td rowspan="2">Aluminum or Cast Iron</td><td>Cast Iron</td><td>Cast Iron</td><td rowspan="4">-</td><td>✓</td><td rowspan="4">-</td></tr>
<tr><td>160</td><td rowspan="3">Cast Iron</td><td>-</td><td></td><td rowspan="3">-</td></tr>
<tr><td>180</td><td>-</td><td>-</td></tr>
<tr><td>200</td><td>-</td><td>-</td></tr>
<tr><td>225</td><td>-</td><td colspan="2">-</td><td colspan="3"></td></tr>
</table>

In Elit Series electric motors, all feet in the aluminum frame are cast separate from the frame. However, in cast iron frames, the feet are cast fixed to the frame.
Elit Series motors in size 132 do not have a removable flange option.

ALUMINUM FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio M_K/M_N	Moment of Inertia J	Approximate Weight B3
	Type	Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n % IEC 60034-2-1:2014			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/ Δ		kgm^2	kg
ALUMINUM FRAME															
0.75	C.AGM2EL 71 2	2780	1.75	2.6	0.80	77.4	77.2	74.2	4.5	-	2.2	-	2.4	0.00039	7.0
0.75	AGM2EL 80 2 a	2860	1.7	2.5	0.82	77.8	77.7	74.6	6.2	-	2.5	-	3.0	0.00053	8.2
1.1	AGM2EL 80 2 b	2880	2.3	3.7	0.86	80.0	80.0	78.1	6.3	-	2.7	-	3.0	0.00066	9.2
1.5	C.AGM2EL 80 2	2880	3.3	5.0	0.80	82.0	82.0	80.1	6.3		2.3		3.0	0.001	10.4
1.5	AGM2EL 90 S 2	2880	3.3	5.0	0.80	82.0	82.0	80.1	6.3	-	2.3	-	3.0	0.0011	11.9
2.2	AGM2EL 90 L 2	2870	4.5	7.3	0.84	84.5	84.5	83.2	6.6	-	2.6	-	3.1	0.0014	15.2
3	C.AGM2EL 90 L 2	2880	5.8	10.0	0.88	85.3	85.3	84.1	6.0	-	2.5	-	3.0	0.0019	18.1
3	AGM2EL 100 L 2	2880	5.8	10.0	0.88	85.3	85.3	84.1	6.0	-	2.5	-	3.0	0.0025	21.2
4	C.AGM2EL 100 L 2	2880	7.9	13.3	0.84	86.5	86.5	86.0	7.2	2.3	2.8	0.9	3.0	0.0031	22.5
4	AGM2EL 112 M 2	2880	7.9	13.3	0.84	86.5	86.5	86.0	7.2	2.3	2.8	0.9	3.5	0.0039	25.0
5.5	C.AGM2EL 112 M 2	2905	9.9	18.1	0.92	87.3	87.3	86.5	6.2	2.0	2.0	0.6	2.5	0.0045	28
5.5	AGM2EL 132 S 2a	2905	9.84	18.1	0.92	87.3	87.3	86.5	6.5	2.1	2.2	0.7	2.5	0.013	41
7.5	AGM2EL 132 S 2b	2910	13.6	24.6	0.90	88.5	88.5	87.9	7.2	2.3	2.8	0.9	3.0	0.014	50
11	C.AGM2EL 132 M 2	2945	19.4	35.7	0.91	89.5	89.5	88.6	6.5	2.1	2.1	0.7	2.6	0.021	63
11	AGM2EL 160 M 2a	2945	19.3	35.7	0.92	89.5	89.5	88.6	6.6	2.1	2.0	0.6	2.6	0.027	82
15	AGM2EL 160 M 2b	2945	26.1	48.6	0.92	90.4	90.4	89.7	7.2	2.3	2.1	0.7	2.8	0.035	94
18.5	AGM2EL 160 L 2	2950	32.3	59.9	0.91	90.9	90.8	90.1	7.7	2.5	2.5	0.8	3.0	0.043	110
22	C.AGM2EL 160 L 2	2950	37.4	71.2	0.93	91.3	91.3	90.8	7.1	2.3	2.3	0.7	2.9	0.050	120
22	AGM2EL 180 M 2	2950	38.3	71.2	0.91	91.3	91.3	90.8	8.2	2.6	3.0	1.0	3.5	0.066	122
30	C.AGM2EL 180 L 2	2970	52	96.5	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.09	157
30	AGM2EL 200 L 2a	2970	52	96.5	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.13	142
37	AGM2EL 200 L 2b	2970	65	119	0.89	92.6	92.6	91.7	8.3	2.7	2.7	0.9	3.0	0.15	172
45	C.AGM2EL 200 L 2	2975	77	144	0.91	92.9	93.0	91.8	8.0	2.6	2.7	0.9	2.9	0.23	191

ALUMINUM FRAME

Rated output	Type	At Rated Output				Efficiency n % IEC 60034-2-1:2014			Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Weight (Approx.) B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)				Locked-Rotor Current Ratio I_A/I_N		Torque M_A/M_N				
kW		m⁻¹	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm²	kg
4-pole (1500 m⁻¹)															
0.55	AGMEL 80 4a	1365	1.6	3.9	0.72	69.1	69.0	65.2	3.5	-	1.9	-	2.0	0.00083	7.7
0.75	AGM2EL 80 4b	1410	2.0	5.1	0.68	79.6	79.6	77.6	4.4	-	2.2	-	2.5	0.0014	10.9
1.1	C.AGM2EL 80 H 4	1420	2.6	7.4	0.74	82.0	82.0	80.5	5.5	-	3.0	-	3.3	0.0019	11.2
1.1	AGM2EL 90 S 4	1420	2.6	7.4	0.74	82.0	82.0	80.5	5.5	-	3.0	-	3.3	0.0022	13.4
1.5	AGM2EL 90 L 4	1430	3.5	10.0	0.75	83.0	83.0	81.5	5.9	-	3.0	-	3.3	0.003	16.1
2.2	C.AGM2EL 90 L 4	1420	5.1	14.8	0.74	84.5	84.6	82.5	5.0	-	2.2	-	2.6	0.004	18.1
2.2	AGM2EL 100 L 4a	1420	4.9	14.8	0.77	84.5	84.6	82.5	5.6	-	2.4	-	2.7	0.0044	23
3	AGM2EL 100 L 4b	1435	6.7	20.0	0.76	85.5	85.7	84.0	6.4	-	2.9	-	3.4	0.0057	26
4	C.AGM2EL 100 L 4	1440	8.5	26.5	0.78	86.7	86.8	85.3	6.6	2.1	2.5	0.8	3.3	0.0076	28
4	AGM2EL 112 M 4	1440	8.4	26.5	0.79	86.7	86.8	85.3	6.6	2.1	2.5	0.8	3.3	0.0106	30
5.5	C.AGM2EL 112 M 4	1465	11.3	35.9	0.80	87.9	88.0	87.2	7.0	2.3	2.8	0.9	3.5	0.015	36
5.5	AGM2EL 132 S 4	1450	11.2	35.9	0.81	87.9	88.0	87.2	7.0	2.3	2.8	0.9	3.5	0.021	38
7.5	AGM2EL 132 M 4	1450	15.4	48.9	0.79	89.0	89.1	88.1	7.1	2.3	2.7	0.9	3.4	0.026	47
11	C.AGM2EL 132 M 4	1460	21.8	71.9	0.81	90.0	90.1	89.3	6.8	2.2	2.4	0.8	3.0	0.039	90
11	AGM2EL 160 M 4	1460	21.6	71.9	0.82	90.0	90.1	89.3	6.8	2.2	2.4	0.8	3.0	0.061	86
15	AGM2EL 160 L 4	1470	29.4	97.4	0.81	90.6	90.7	89.7	7.4	2.4	2.8	0.9	3.2	0.082	94
18.5	C.AGM2EL 160 L 4	1470	34.8	120	0.84	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.10	115
18.5	AGM2EL 180 M 4	1470	34.5	120	0.85	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.13	129
22	AGM2EL 180 L 4	1470	42.5	143	0.81	91.7	91.7	90.6	8.3	2.7	2.7	0.9	3.8	0.15	140
30	C.AGM2EL 180 L 4	1470	53.7	195	0.87	92.5	92.6	92.1	7.8	2.5	2.8	0.9	2.8	0.21	176
30	AGM2EL 200 L 4	1470	53.5	195	0.87	92.5	92.6	92.1	7.8	2.5	2.8	0.9	2.8	0.227	215
37	C.AGM2EL 200 L 4	1470	67.0	240	0.86	92.7	92.7	92.2	7.2	2.3	3.0	1.0	3.0	0.30	225
6-pole (1000 m⁻¹)															
0.75	AGM2EL 90 S 6	920	2.0	7.8	0.71	75.9	75.9	72.4	4.0	-	2.2	-	2.4	0.0034	11.8
1.1	AGM2EL 90 L 6	930	2.9	11.3	0.71	78.1	78.1	75.1	4.0	-	2.2	-	2.4	0.0044	13.6
1.5	AGM2EL 100 L 6	945	3.6	15.2	0.75	79.8	79.7	76.4	4.5	-	2.2	-	2.4	0.0077	19.3
2.2	AGM2EL 112 M 6	950	5.4	22.1	0.72	81.8	81.7	78.5	4.7	-	2.2	-	2.5	0.013	26
3	AGM2EL 132 S 6	960	7.1	29.8	0.74	83.3	83.2	80.4	4.6	1.5	1.8	0.6	2.3	0.019	35
4	AGM2EL 132 M 6a	960	9.3	39.8	0.73	84.6	84.5	81.6	4.7	1.5	2.0	0.6	2.5	0.024	44
5.5	AGM2EL 132 M 6b	960	12.7	54.7	0.73	86.0	86.0	83.1	4.9	1.6	2.2	0.7	2.6	0.032	55
7.5	AGM2EL 160 M 6	975	16.0	73.5	0.78	87.2	87.2	84.5	6.3	2.0	2.6	0.8	3.5	0.076	82
11	AGM2EL 160 L 6	970	22.5	108	0.80	88.7	88.7	85.7	6.2	2.0	3.0	1.0	3.0	0.109	108
15	AGM2EL 180 L 6	965	29.0	148	0.83	89.7	89.7	86.8	6.5	2.1	2.4	0.8	3.0	0.20	147
18.5	AGM2EL 200 L 6a	980	37.1	180	0.80	90.4	90.4	87.7	7.2	2.3	2.3	0.7	3.2	0.234	167
22	AGM2EL 200 L 6b	980	43.4	214	0.80	91.1	91.1	88.4	6.7	2.3	2.3	0.7	2.8	0.283	187

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
	Type	Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
						4/4	3/4	1/2							
2-pole (3000 m^{-1})															
5.5	GM2EL 132 S 2a	2905	9.84	18.1	0.92	87.3	87.3	86.5	6.5	2.1	2.2	0.7	2.5	0.013	45.0
7.5	GM2EL 132 S 2b	2910	13.6	24.6	0.90	88.5	88.5	87.9	7.2	2.3	2.8	0.9	3.0	0.014	64.5
11	C.GM2EL 132 M2	2945	19.4	35.7	0.91	89.5	89.5	88.6	6.5	2.1	2.1	0.7	2.6	0.021	80.4
11	GM2EL 160 M 2a	2945	19.3	35.7	0.92	89.5	89.5	88.6	6.6	2.1	2.0	0.6	2.6	0.027	105
15	GM2EL 160 M 2b	2945	26.1	48.6	0.92	90.4	90.4	89.7	7.2	2.3	2.1	0.7	2.8	0.035	117
18.5	GM2EL 160 L2	2950	32.3	59.9	0.91	90.9	90.8	90.1	7.7	2.5	2.5	0.8	3.0	0.043	135
22	C.GM2EL 160 2	2950	37.4	71.2	0.93	91.3	91.3	90.8	7.1	2.3	2.3	0.7	2.9	0.050	145
22	GM2EL 180 M 2	2950	38.3	71.2	0.91	91.3	91.3	90.8	8.2	2.6	3.0	1.0	3.5	0.066	158
30	C.GM2EL 180 2	2970	52	96.5	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.09	193
30	GM2EL 200 L2a	2970	52	96.5	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.13	190
37	GM2EL 200 L2b	2970	65	119	0.89	92.6	92.6	91.7	8.3	2.7	2.7	0.9	3.0	0.15	220
45	C.GM2EL 200 L 2	2975	77	144	0.91	92.9	93.0	91.8	8.0	2.6	2.7	0.9	2.9	0.18	240
45	GM2EL 225 M 2	2975	75	144	0.93	92.9	93.0	91.8	8.0	2.6	2.4	0.8	2.9	0.23	375
55	C.GM2EL 225 M 2	2980	94	176	0.91	93.2	93.3	92.2	7.6	2.5	2.6	0.8	2.7	0.41	430
4-pole (1500 m^{-1})															
5.5	GM2EL 132 S 4	1465	11.2	35.9	0.81	87.9	88.0	87.2	7.0	2.3	2.8	0.9	3.5	0.021	48
7.5	GM2EL 132 M 4	1465	15.4	48.9	0.79	89.0	89.1	88.1	7.1	2.3	2.7	0.9	3.4	0.026	56
11	C.GM2EL 132 M 4	1460	21.8	71.9	0.81	90.0	90.1	89.3	6.8	2.2	2.4	0.8	3.0	0.039	61
11	GM2EL 160 M 4	1460	21.6	71.9	0.82	90.0	90.1	89.3	6.8	2.2	2.4	0.8	3.0	0.061	113
15	GM2EL 160 L 4	1470	29.4	97.4	0.81	90.6	90.7	89.7	7.4	2.4	2.8	0.9	3.2	0.082	132
18.5	C.GM2EL 160 L 4	1470	34.8	120	0.84	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.1	151
18.5	GM2EL 180 M 4	1460	34.5	120	0.85	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.13	165
22	GM2EL 180 L 4	1460	42.5	143	0.81	91.7	91.7	90.6	8.3	2.7	2.7	0.9	3.8	0.15	180
30	C.GM2EL 180 L 4	1470	53.7	195	0.87	92.5	92.6	92.1	7.8	2.5	2.8	0.9	2.8	0.21	215
30	GM2EL 200 L 4	1470	53.5	195	0.87	92.5	92.6	92.1	7.8	2.5	2.8	0.9	2.8	0.227	232
37	C.GM2EL 200 L 4	1470	67.0	240	0.86	92.7	92.7	92.2	7.2	2.3	3.0	1.0	3.0	0.28	273
37	GM2EL 225 S 4	1470	67.0	240	0.86	92.7	92.7	92.2	7.2	2.3	3.0	1.0	3.0	0.3	355
45	GM2EL 225 M 4	1470	80.0	292	0.87	93.3	93.3	92.4	7.3	2.4	3.0	1.0	3.0	0.36	375
55	C.GM2EL 225M 4	1475	96.0	356	0.88	93.7	93.8	93.2	7.6	2.5	3.1	1.0	2.9	0.72	405
6-pole (1000 m^{-1})															
3	GM2EL 132 S 6	960	7.1	29.8	0.74	83.3	83.2	80.4	4.6	1.5	1.8	0.6	2.3	0.019	50
4	GM2EL 132 M 6a	960	9.3	39.8	0.73	84.6	84.5	81.6	4.7	1.5	2.0	0.6	2.5	0.024	60
5.5	GM2EL 132 M 6b	960	12.7	54.7	0.73	86.0	86.0	83.1	4.9	1.6	2.2	0.7	2.6	0.032	70
7.5	GM2EL 160 M 6	975	16.0	73.5	0.78	87.2	87.2	84.5	6.3	2.0	2.6	0.8	3.5	0.076	105
11	GM2EL 160 L 6	970	22.5	108	0.80	88.7	88.7	85.7	6.2	2.0	3.0	1.0	3.0	0.109	133
15	GM2EL 180 L 6	965	29.0	148	0.83	89.7	89.7	86.8	6.5	2.1	2.4	0.8	3.0	0.200	186
18.5	GM2EL 200 L 6a	980	37.1	180	0.80	90.4	90.4	87.7	7.2	2.3	2.3	0.7	3.2	0.234	203
22	GM2EL 200 L 6b	980	43.4	214	0.80	91.1	91.1	88.4	6.7	2.3	2.3	0.7	2.8	0.283	231
30	GM2EL 225 M 6	980	58.0	292	0.81	91.7	91.7	89.6	7.0	2.3	3.0	1.0	2.6	0.570	330

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

ALUMINUM FRAME

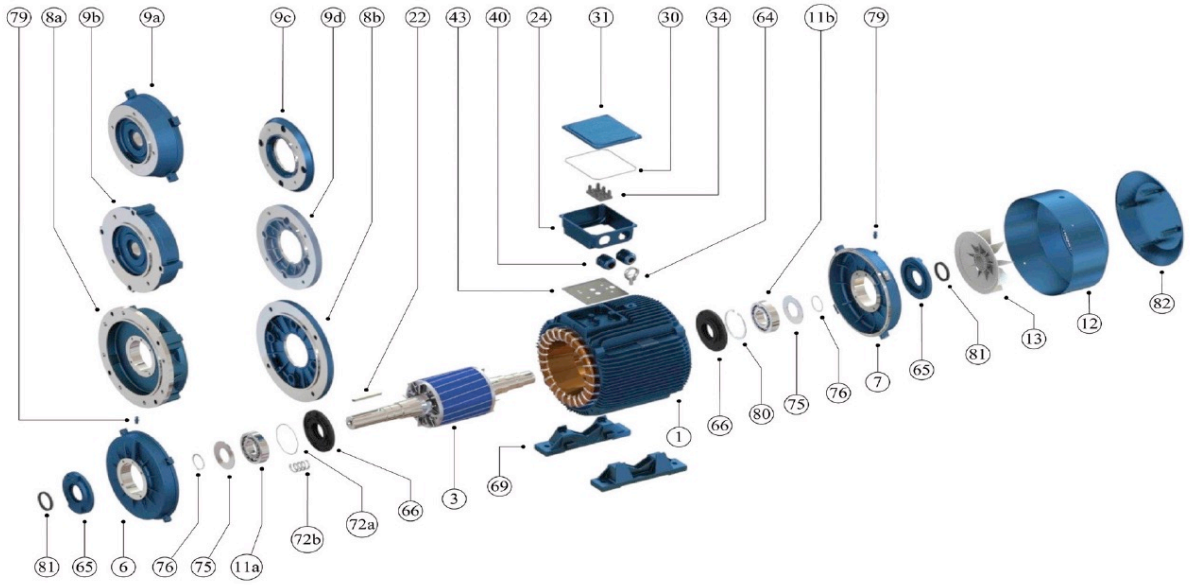
Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n % IEC 60034-2-1:2014			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
2-pole (3000 m^{-1})															
0.75	AGM3EL 80 2a	2880	1.6	2.49	0.84	80.7	80.6	78.5	6.2	-	2.5	-	3.2	0.00066	8.8
1.1	AGM3EL 80 2b	2900	2.3	3.62	0.83	82.7	82.5	80.6	5.9	-	2.6	-	3.7	0.0008	10.4
1.5	AGM3EL 90 S 2	2900	3.3	4.94	0.78	84.2	84.0	82.5	6.3	-	3.1	-	3.7	0.0014	13.5
2.2	AGM3EL 90 L 2	2900	4.45	7.24	0.83	85.9	85.4	85.0	6.6	-	2.9	-	3.5	0.0017	16
3	AGM3EL 100 L 2	2900	5.8	9.9	0.86	87.1	86.9	85.3	7.6	-	3.4	-	4	0.0031	22
4	AGM3EL 112 M 2	2920	7.4	13.1	0.89	88.1	88.0	87.2	7.2	2.3	2.8	0.9	3.5	0.0048	24.1
5.5	AGM3EL 132 S 2	2925	9.7	18.0	0.92	89.2	89.0	87.4	7.2	2.3	2.1	0.7	2.8	0.015	51
7.5	AGM3EL 132 M 2	2930	12.9	24.4	0.93	90.1	90.1	89.5	7.8	2.5	2.0	0.6	2.9	0.021	63
11	AGM3EL 160 M 2a	2955	19.0	35.5	0.92	91.2	91.2	90.4	7.1	2.3	2.0	0.6	2.6	0.031	90
15	AGM3EL 160 M 2b	2955	25.7	48.5	0.92	91.9	91.8	91.2	7.9	2.5	2.2	0.7	2.9	0.041	105
18.5	AGM3EL 160 L 2	2960	31.4	59.7	0.92	92.4	92.5	92.0	8.1	2.6	2.2	0.7	3.1	0.049	122
22	AGM3EL 180 M 2	2960	36.9	71	0.93	92.7	92.6	92.2	8.5	2.7	2.9	0.9	3.4	0.091	157
30	AGM3EL 200 L 2a	2980	52	96	0.89	93.3	93.3	92.8	8.5	2.7	2.8	0.9	3.5	0.15	161
37	AGM3EL 200 L 2b	2980	63	119	0.90	93.7	93.7	93.1	8.3	2.7	2.8	0.9	3.1	0.17	191
4-pole (1500 m^{-1})															
0.75	AGM3EL 80 H 4b	1425	1.85	5.0	0.71	82.5	82.5	80.8	5	-	2.5	-	2.8	0.0017	12.6
1.1	AGM3EL 90 S 4	1440	2.6	7.3	0.73	84.1	84.1	82.8	5.1	-	2.5	-	3.0	0.0025	13.8
1.5	AGM3EL 90 L 4	1435	3.3	10.0	0.77	85.3	85.3	84.0	6.5	-	3	-	3.4	0.0033	17
2.2	AGM3EL 100 L 4a	1445	5.0	14.5	0.73	86.7	86.8	85.0	5.9	-	2.7	-	3.4	0.0052	26.3
3	AGM3EL 100 L 4b	1445	6.6	19.8	0.75	87.7	87.8	86.1	6.4	-	3.2	-	3.8	0.0068	29.2
4	AGM3EL 112 M 4	1450	8.0	26.3	0.81	88.6	88.5	88.0	6.6	2.1	3.0	1.0	3.3	0.012	36
5.5	AGM3EL 132 S 4	1450	11.0	36.2	0.81	89.6	89.6	88.8	7.0	2.3	2.7	0.9	3.3	0.026	38.4
7.5	AGM3EL 132 M 4	1450	15.4	49.4	0.78	90.4	90.5	89.6	7.5	2.4	3.0	1.0	3.6	0.032	49.3
11	AGM3EL 160 M 4	1470	21.1	71.5	0.82	91.4	91.3	91.0	6.1	2.0	1.9	0.6	2.6	0.076	92
15	AGM3EL 160 L 4	1475	28.5	97.1	0.82	92.1	92.0	91.8	6.7	2.2	2.0	0.6	2.9	0.010	115
18.5	AGM3EL 180 M 4	1475	33.7	120	0.86	92.6	92.6	91.6	7.9	2.5	2.5	0.8	2.8	0.177	160
22	AGM3EL 180 L 4	1475	39.4	142	0.87	93.0	92.8	92.0	7.5	2.4	2.4	0.8	2.8	0.192	176
30	AGM3EL 200 L 4	1475	52.8	194	0.88	93.6	93.5	93.0	8.2	2.6	2.4	0.8	3.0	0.264	225
6-pole (1000 m^{-1})															
0.75	AGM3EL 90 S 6	950	2	7.5	0.69	78.9	78.9	76.9	4.0	-	2.0	-	2.3	0.0038	13.3
1.1	AGM3EL 90 L 6	950	2.9	11.1	0.68	81.0	81.0	78.3	4.0	-	2.0	-	2.4	0.0051	15.2
1.5	AGM3EL 100 L 6	955	3.6	15.0	0.73	82.5	82.3	80.3	5.1	-	2.4	-	3.0	0.011	22.8
2.2	AGM3EL 112 M 6	960	5.3	21.9	0.71	84.3	84.1	82.1	5.8	-	2.6	-	3.2	0.016	30
3	AGM3EL 132 S 6	970	7.3	29.5	0.69	85.8	85.6	85.2	5.4	1.7	2.1	0.7	2.9	0.023	39
4	AGM3EL 132 M 6a	975	10.2	39.2	0.65	86.8	86.7	86.4	5.6	1.8	2.5	0.8	3.1	0.028	49
5.5	AGM3EL 132 M 6b	975	13.7	53.9	0.66	88.0	87.8	87.5	5.9	1.9	2.6	0.8	3.3	0.036	63
7.5	AGM3EL 160 M 6	970	16.2	73.8	0.75	89.1	89.0	88.1	6.7	2.2	2.6	0.8	3.4	0.091	96
11	AGM3EL 160 L 6	975	22.7	107.7	0.77	90.3	90.3	89.0	7.1	2.3	2.5	0.8	3.4	0.130	122
15	AGM3EL 180 L 6	975	28.7	146.9	0.83	91.2	91.2	90.8	8.0	2.6	2.4	0.8	3.2	0.216	162
18.5	AGM3EL 200 L 6a	980	36.8	180.3	0.79	91.7	91.6	91.3	7.9	2.5	2.9	0.9	3.3	0.289	188
22	AGM3EL 200 L 6b	980	42.2	214.4	0.82	92.2	92.0	91.7	7.4	2.4	2.9	0.9	2.9	0.344	215

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

CAST IRON FRAME

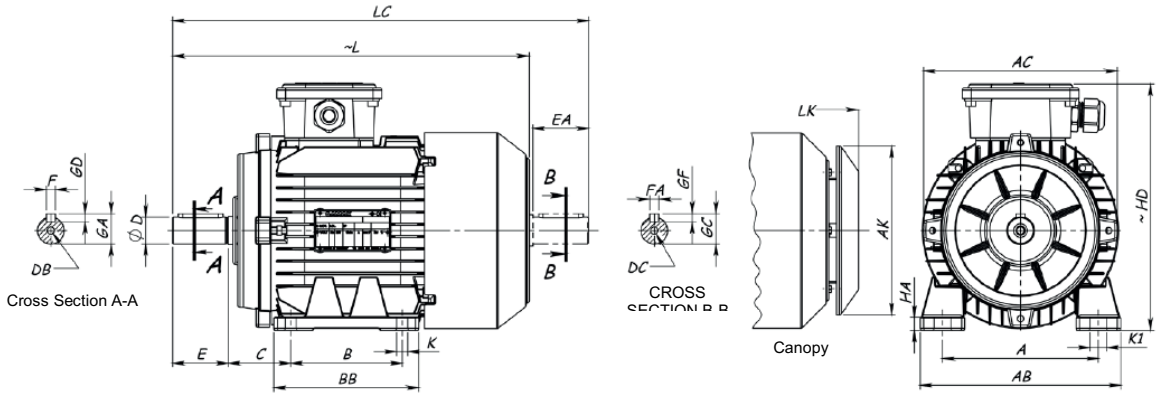
Rated output	Type	At Rated Output								Starting Data			Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-2-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N		
kW		m^{-1}	A	Nm		4/4	3/4	1/2						kgm^2	kg
2-pole (3000 m^{-1})															
5.5	GM3EL 132 S 2	2925	9.7	18	0.92	89.2	89.0	87.4	7.2	2.3	2.1	0.7	2.8	0.015	66.5
7.5	GM3EL 132 M 2	2930	12.9	24.4	0.93	90.1	90.1	89.5	7.8	2.5	2.0	0.6	2.9	0.021	80.4
11	GM3EL 160 M 2a	2955	19.0	35.5	0.92	91.2	91.2	90.4	7.1	2.3	2.0	0.6	2.6	0.031	113
15	GM3EL 160 M 2b	2955	25.7	48.5	0.92	91.9	91.8	91.2	7.9	2.5	2.2	0.7	2.9	0.041	128
18.5	GM3EL 160 L 2	2960	31.4	59.7	0.92	92.4	92.5	92.0	8.1	2.6	2.2	0.7	3.1	0.049	145
22	GM3EL 180 M 2	2960	36.9	71	0.93	92.7	92.6	92.2	8.5	2.7	2.9	0.9	3.4	0.091	193
30	GM3EL 200 L 2a	2980	52	96	0.89	93.3	93.3	92.8	8.5	2.7	2.9	0.9	3.5	0.15	210
37	GM3EL 200 L 2b	2980	63	119	0.90	93.7	93.7	93.1	8.3	2.7	2.8	0.9	3.1	0.17	240
45	GM3EL 225 M 2	2980	77	144	0.90	94.0	94.1	93.0	8.7	2.8	2.7	0.9	3.1	0.26	400
4-pole (1500 m^{-1})															
5.5	GM3EL 132 S 4	1450	11	36.2	0.81	89.6	89.6	88.8	7.0	2.3	2.7	0.9	3.3	0.026	48
7.5	GM3EL 132 M 4	1450	15.4	49.4	0.78	90.4	90.5	89.6	7.5	2.4	3.0	1.0	3.6	0.032	56
11	GM3EL 160 M 4	1470	21.1	71.5	0.82	91.4	91.3	91.0	6.1	2.0	1.9	0.6	2.6	0.076	124
15	GM3EL 160 L 4	1475	28.5	97.1	0.82	92.1	92.0	91.8	6.7	2.2	2.0	0.6	2.9	0.010	151
18.5	GM3EL 180 M 4	1475	33.7	119.8	0.86	92.6	92.6	91.6	7.9	2.5	2.5	0.8	2.8	0.177	194
22	GM3EL 180 L 4	1475	39.4	142.4	0.87	93.0	92.8	92.0	7.5	2.4	2.4	0.8	2.8	0.192	215
30	GM3EL 200 L 4	1475	52.8	194.2	0.88	93.6	93.5	93.0	8.2	2.6	2.4	0.8	3.0	0.264	273
37	GM3EL 225 S 4	1475	67	239.5	0.85	93.9	93.9	93.5	7.5	2.4	3.1	1.0	3.3	0.36	350
45	GM3EL 225 M 4	1475	80	291.3	0.86	94.2	94.2	93.4	7.4	2.4	3.0	1.0	3.1	0.44	380
6-pole (1000 m^{-1})															
3.0	GM3EL 132 S 6	970	7.3	29.5	0.69	85.8	85.6	85.2	5.4	1.7	2.1	0.7	2.9	0.023	53
4.0	GM3EL 132 M 6a	975	10.2	39.2	0.65	86.8	86.7	86.4	5.6	1.8	2.5	0.8	3.1	0.028	62
5.5	GM3EL 132 M 6b	975	13.7	53.9	0.66	88.0	87.8	87.5	5.9	1.9	2.6	0.8	3.3	0.036	71
7.5	GM3EL 160 M 6	970	16.2	73.8	0.75	89.1	89.0	88.1	6.7	2.2	2.6	0.8	3.4	0.091	119
11	GM3EL 160 L 6	975	22.7	107.7	0.77	90.3	90.3	89.0	7.1	2.3	2.5	0.8	3.4	0.130	145
15	GM3EL 180 L 6	975	28.7	146.9	0.83	91.2	91.2	90.8	8.0	2.6	2.4	0.8	3.2	0.216	201
18.5	GM3EL 200 L 6a	980	36.8	180.3	0.79	91.7	91.6	91.3	7.9	2.5	2.9	0.9	3.3	0.289	236
22	GM3EL 200 L 6b	980	42.2	214.4	0.82	92.2	92.0	91.7	7.4	2.4	2.9	0.9	2.9	0.344	262
30	GM3EL 225 M 6	985	58.0	290.8	0.80	92.9	92.9	92.1	7.0	2.3	3.3	1.1	2.7	0.69	350

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.



1 Stator complete with winding: Varnished and attached to the frame
3 Rotor complete with shaft, finish machined and balanced (excluding keys)
6 End Shield Drive End
7 End Shield Non-Drive End
8b Removable Flange (Form A - “FF”) - Flange number must be specified
8b Removable Flange (Form A - “FF”) - Flange number must be specified
9a Flange (Form C - “FT”) - Flange number must be specified
9b Flange (Form A - “FF”, Large type) - Flange number must be specified
9c Removable Flange (Form C - “FT”) - Flange number must be specified
9d Removable Flange (Form A - “FF”, Large type) - Flange number must be specified
11a Drive end bearing (ball or roller)
11b Non-drive end bearing
12 Fan cover (63…450)
13 Fan (63…450)
22 Shaft key
24 Terminal box
30 Terminal box to lid gasket
31 Terminal box
34 End plate - Terminal (including bridges, nuts and washers)
40 Cable gland
43 Terminal box to motor frame gasket
64 Lifting eye (200..450)
65 External bearing cap (motors with greasing nipplses)
66 Internal bearing cap (motors with greasing nipplses)
69 Removable feet
72a Corrugated disc spring (56...280)
72b Coil spring (315..450)
75 Grease retaining ring (motors with greasing nipplses)
76 External circlip for retaining ball-bearing and grease-retaining disc
79 (At D.E. and N.D.E. of motors with greasing nipples and at N.D.E. of framed 160..280)
80 Internal circlip fore retaining ball-bearing at non-drive end shield (160..280)
81 V-ring or optional oil seal
82 Canopy

*Removable Flange (in Type 132 only): B3 cover is turned into B5, B14 or B14/2 flange by mounting of the proper plate directly without removing the motor’s end shield drive end.



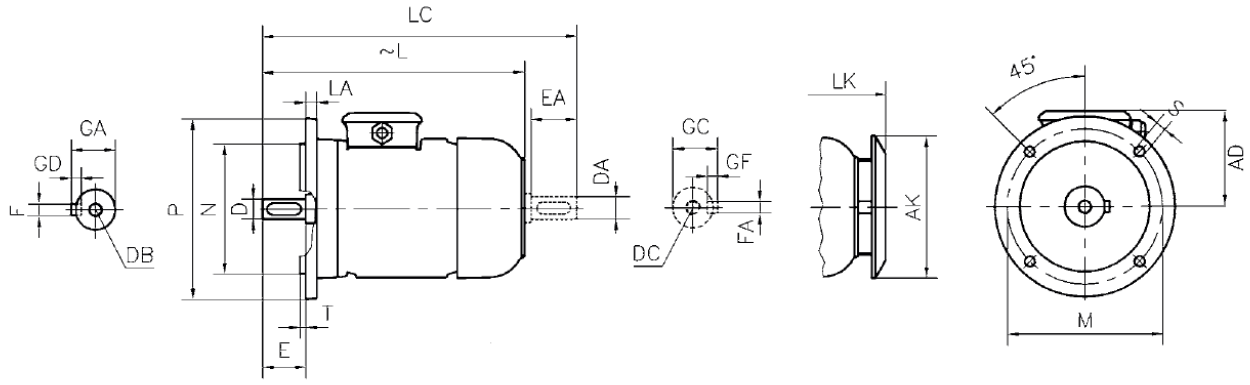
FOOT-MOUNTED MOTOR - B3, B6, B7, B8, B15, V5, V6

Aluminum Frame

Frame Size		Foot-mounted motor dimensions: In B3, B6, B8, B15, V5, V6 mounting arrangements																							
		Number of Poles	H	HD~	HA	A	AA	AB	ACØ	AKØ	K	K1	B	B'	BA	BA'	BB	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF
71		2-4-6-8	71	182	10	112	31	140	138	116	7	11	90	-	26.5	-	108	260	295	289	45	30	M5	14	16	5x5
80		2-4-6-8	80	197	10	125	33.5	160	156	151	10	15	100	-	32.5	-	125	306	351	337	50	40	M6	19	21.5	6x6
80	H																	333	376	360						
90	S	2-4-6-8	90	222	12	140	40	180	176	151	10	15	100	-	35	-	130	326	379	355	56	50	M8	24	27	8x7
	L													125	35	60	155	361	414	390						
100	L	2-4-6-8	100	240	13	160	39	200	195	189	12	18	140	-	39	-	175	401.5	464.5	438	63	60	M10	28	31	8x7
112	M	2-4-6-8	112	255	13	190	52	230	220	189	12	18	140	-	39	-	175	410	473	447	70	60	M10	28	31	8x7
132	S	2-4-6-8	132	307	15	216	51	260	262	239	12	18	140	-	55	-	180	483.5	569.5	520.5	89	80	M12	38	41	10x8
	M												178				218	528.5	614.5	565.5						
160	M	2-4-6-8	160	390	22	254	63	312	315	303	15	19	210	-	70	-	260	629.5	745.5	686.5	108	110	M16	42	45	12x8
	L												254				304	674.5	790.5	731.5						
180	M	2-4-6-8	180	430	24	279	74	354	354	303	15	19	241	-	75	-	291		802	743	121	110	M16	48	51.5	14x9
	L												279				329	723	839	780						
200	L	2-4-6-8	200	489	26	318	81	398	394	370	19	24	305	-	80	-	365	819	935	875	133	110	M20	55	59	16x10

Cast Iron Frame

Frame Size		Number of Poles	Foot-mounted motor dimensions: In B3, B6, B7, B8, B15, V5, V6 mounting arrangements																						
			H	HD ~	HA	A	AA	AB	ACØ	AKØ	K	B	B'	BA	BA'	BB	L ~	LC	LK ~	C	E EA	DB DC	DØ DAØ	GA GC	F x GD FA x GF
132	S	2-4-6-8	132	326	15	216	50	260	262	239	12	140		50		180	486	572	523	89	80	M12	38	41	10x8
	M											178				218	531	617	568						
160	M	2-4-6-8	160	390	22	254	63	312	315	303	15	210		62.3		260	629.5	745.5	686.5	108	110	M16	42	45	12x8
	L											254		70		304	674.5	790.5	731.5						
180	M	2-4-6-8	180	431	24	279	74	354	354	303	15	241		60		291	686	802	743	121	110	M16	48	51.5	14x9
	L											279		70		329	723	839	780						
200	L	2-4-6-8	200	489	26	318	81	398	394	370	19	305		72.5		355	819	937	875	133	110	M20	55	59	16x10
225	S	2	225	530	30	356	82	438	440	370	19	286	311	80	100	365	792	940	848	149	110	M20	55	59	16x10
		4-6-8																			140		60	64	18x11
	M	2														371	855	1033	881		110		55	59	16x10
		4-6-8																			140		60	64	18x11

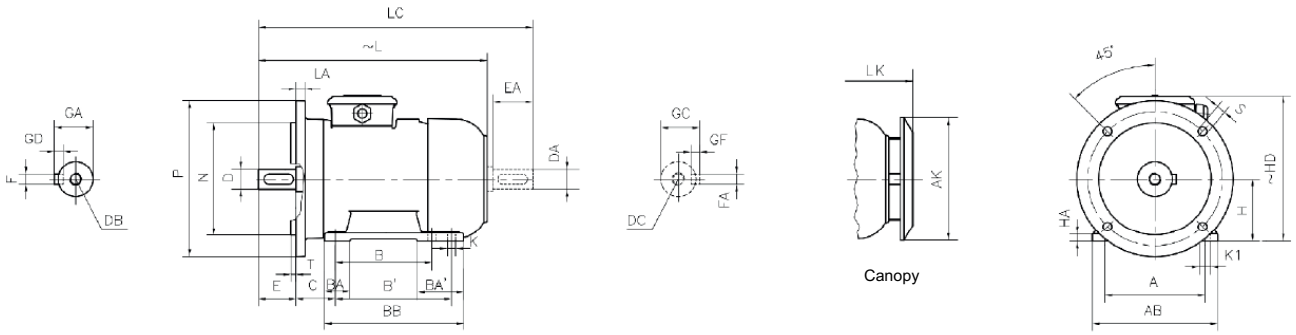


Aluminum Frame

Flange-mounted motor dimensions: (Flange form A- DIN EN 50 347), in B5, V1, V3 mounting arrangements																			
Frame Size		Flange No.	MØ	NØ	PØ	Clearance Hole		T	LA	AD	AKØ	L ~	LC	LK ~	E EA	DB DC	DØ DAØ	GA GC	F x GD FA x GF	Flange Type
						No.	SØ													
71		FF 130	130	110	160	4	10	3.5	10	110	116	260	295	289	30	M5	14	16	5x5	Aluminum
80		FF 165	165	130	200	4	12	3.5	10	117	151	308	351	337	40	M6	19	21.5	6x6	Aluminum
	H											333	376	362						
90	S	FF 165	165	130	200	4	12	3.5	10	132	151	326	379	355	50	M8	24	27	8x7	Aluminum
	L											361	414	384						
100	L	FF 215	215	180	250	4	14.5	4	15	141	189	401.5	464.5	438.5	60	M10	28	31	8x7	Aluminum
112	M	FF 215	215	180	250	4	14.5	4	15	144	189	410	473	447	60	M10	28	31	8x7	Aluminum
132	S	FF 265	265	230	300	4	14.5	4	20	175	239	483.5	569.5	523	80	M12	38	41	10x8	Aluminum
	M											528.5	614.5	568						
160	M	FF 300	300	250	350	4	18.5	5	20	230	303	629.5	745.5	686.5	110	M16	42	45	12x8	Cast Iron
	L											674.5	790.5	731.5						
180	M	FF 300	300	250	350	4	18.5	5	20	253	-	686	802	743	110	M16	48	51.5	14x9	Cast Iron
	L											723	839	780						
200	L	FF 350	350	300	400	4	18.5	5	20	289	-	819	935	875	110	M20	55	59	16x10	Cast Iron

Cast Iron Frame

Flange-mounted motor dimensions: (Flange form A- DIN EN 50 347), in B5, V1, V3 mounting arrangements																				
Frame Size		Flange No.	MØ	NØ	PØ	Clearance Hole		T	LA	AD	AKØ	L ~	LC	LK ~	E EA	DB DC	DØ DAØ	GA GC	F x GD FA x GF	Flange Type
						No.	SØ													
132	S	FF 265	265	230	300	4	14.5	4	20	194	239	486	572	523	80	M12	38	41	10x8	Cast Iron
	M											531	617	568						
160	M	FF 300	300	250	350	4	18.5	4	20	231	303	629.5	745.5	686.5	110	M16	42	45	12x8	Cast Iron
	L											674.5	790.5	731.5						
180	M	FF 300	300	250	350	4	18.5	5	20	253	-	686	802	743	110	M16	48	51.5	14x9	Cast Iron
	L											723	839	780						
200	L	FF 350	350	300	400	4	18.5	5	20	289	-	819	935	875	110	M20	55	59	16x10	Cast Iron
225	S	FF 400	400	350	450	8	18.5	5	20	304	370	790	938	846	140	M20	60	64	18x11	Cast Iron
	M											883	1001	439						



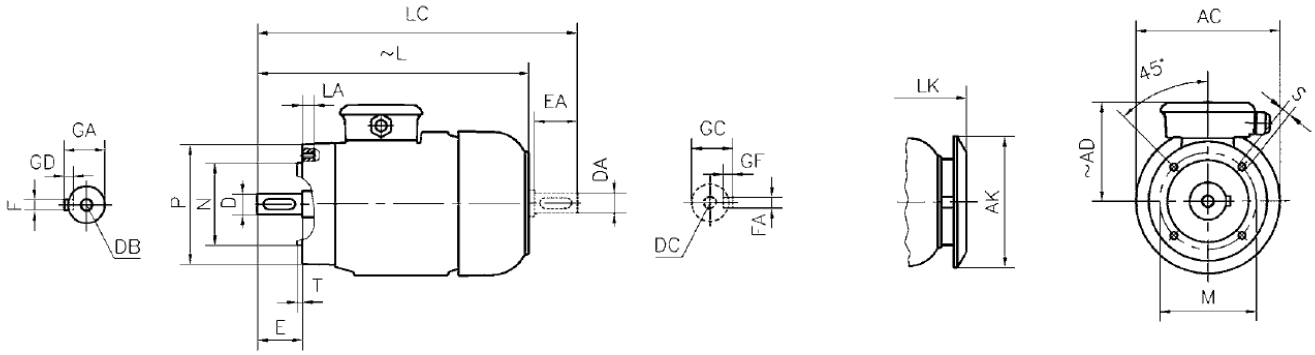
Note: The shaft shoulder and the flange seat are on the same plane.

Aluminum Frame

Frame Size		Foot- and flange-mounted motor dimensions: (Flange form A - DIN EN 50 347), in B35 mounting arrangement																												
		H	HD~	HA	A	AB	AKØ	K	K1	B	B'	BA	BA'	BB	Flange No.	MØ	NØ	PØ	No	SØ	T	LA	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF
71		71	182	10	112	140	116	7	11	90	-	26.5	-	108	FF 130	130	110	16	4	10	3.5	10	260	295	289	45	30	M5	14	16	5x5
80		80	197	10	125	160	151	10	15	100	-	32.5	-	125	FF 165	165	130	200	4	12	3.5	12	308	351	337	50	40	M6	19	21.5	6x6
	H																						333	376	362						
90	S	90	222	12	140	180	151	10	15	100	-	35	-	130	FF 165	165	130	200	4	12	3.5	12	326	389	355	56	50	M8	24	27	8x7
	L										125		60	155									361	414	390						
100	L	100	240	13	160	200	189	12	18	140	-	39	-	175	FF 215	215	180	250	4	14.5	4	15	401.5	434.5	438	60	60	M10	28	31	8x7
112	M	112	256	13	190	230	189	12	18	140	-	39	-	175	FF 215	215	180	250	4	14.5	4	15	410	473	447	70	60	M10	28	31	8x7
132	S	132	307	15	216	260	239	12	-	140	-	55	-	180	FF 265	265	230	300	4	14.5	4	20	483.5	569.5	520.5	89	80	M12	38	41	10x8
	M									178				218									528.5	614.5	565.5						
160	M	160	390	22	254	312	303	15	19	210	-	70	-	260	FF 300	300	250	350	4	18.5	4	20	629.5	745.5	686.5	108	110	M16	42	45	12x8
	L									254				304									674.5	790.5	731.5						
180	M	180	430	24	279	354	303	15	19	241	-	75	-	291	FF 300	300	250	350	4	18.5	5	20	686	802	743	121	110	M16	48	51.5	14x9
	L									279				329									723	839	780						
200	L	200	489	26	318	398	370	19	24	305	-	80	-	365	FF 350	350	300	400	4	18.5	5	20	819	935	875	133	110	M20	55	59	16x10

Cast Iron Frame

Foot- and flange-mounted motor dimensions: (Flange form A - DIN EN 347), in B35 mounting arrangement																														
Frame Size		H	HD~	HA	A	AB	AKØ	KØ	K1	B	B'	BA	BA'	BB	Flange No.	MØ	NØ	PØ	No	SØ	T	LA	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF
132	S	132	326	15	216	260	239	12	-	140	-	50	-	180	FF 265	265	230	300	4	14.5	4	20	486	572	523	89	80	M12	38	41	10x8
	M									178				218									531	617	568						
160	M	160	390	22	254	312	303	15	-	210	-	62.3	-	260	FF 300	300	250	350	4	18.5	4	20	629.5	745.5	686.5	108	110	M16	42	45	12x8
	L									254		70		304									674.5	790.5	731.5						
180	M	180	431	24	279	354	303	15	-	241	-	60	-	291	FF 300	300	250	350	4	18.5	5	20	686	802	743	121	110	M16	48	51.5	14x9
	L									279		70		329									723	839	780						
200	L	200	489	26	319	398	370	19	-	305	-	72.5	-	355	FF 350	350	300	400	4	18.5	5	20	819	935	875	133	110	M20	55	59	16x10
225	S	225	538	30	356	438	370	19	-	286	311	80	100	365	FF 400	400	350	450	4	18.5	5	20	792	940	848	149	110	M20	55	59	16x10
	M													371									885	1033	881						

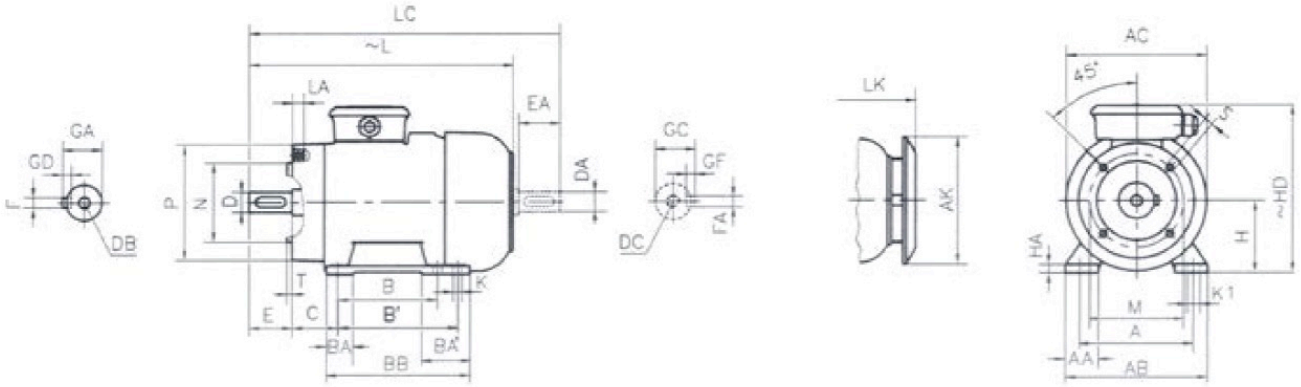


Aluminum Frame

Flange-mounted motor dimensions: (Flange form C - DIN EN 50 347) in B14, V18, V19 mounting arrangements																				
Frame Size		Flange No.	MØ	NØ	PØ	S	T	LA	ACØ	AKØ	AD	L~	LC	LK~	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF	Flange Type
71		FT 85	85	70	105	M6	2.5	12	138	116	110	260	295	289	30	M5	14	16	5x5	Aluminum
		FT 115	115	95	140	M8	3	16	-											
80		FT 100	100	80	120	M6	3	12	156	151	118	308	351	337	40	M6	19	21.5	6x6	Aluminum
		FT 130	130	110	160	M8	3.5	16	-											
	H	FT 100	100	80	120	M6	3	12	156			333	376	362						
		FT 130	130	110	160	M8	3.5	16	-											
90	S	FT 115	115	95	140	M8	3	16	176	151	133	326	379	355	50	M8	24	27	8x7	Aluminum
		FT 130	130	110	160		3.5													
	L	FT 115	115	95	140		3					361	414	390						
		FT 130	130	110	160		3.5													
100	L	FT 130	130	110	160	M8	3.5	16	195	189	141	401.5	464.5	438	60	M10	28	31	8x7	Aluminum
		FT 165	165	130	200	M10		20	-											
112	M	FT 130	130	110	160	M8	3.5	16	218	189	144	410	476	447	60	M10	28	31	8x7	Aluminum
		FT 165	165	130	200	M10		20												
132	S	FT 165	165	130	200	M10	3.5	20	262	239	175	483.5	569.5	520.5	80	M12	38	41	10x8	Aluminum
	M											528.5	614.5	565.5						
	S	FT 215	215	180	250	M12	4	20	262	239	175	483.5	569.5	520.5	80	M12	38	41	10x8	
	M											528.5	614.5	565.5						
160	M	FT 215	215	180	250	M12	4	20	315	303	230	629.5	745.5	686.5	110	M16	42	45	12x8	Cast Iron
	L											674.5	790.5	731.5						

Cast Iron Frame

Flange-mounted motor dimensions: (Flange form C - DIN EN 50 347) in B14, V18, V19 mounting arrangements																				
Frame Size		Flange No.	MØ	NØ	PØ	S	T	LA	ACØ	AKØ	AD~	L~	LC	LK~	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF	Flange Type
132	S	FT 165	165	130	200	M10	3.5	20	262	239	194	486	572	523	80	M12	38	41	10x8	Cast Iron
	M											531	617	568						
	S	FT 215	215	180	250	M12	4	20	262	239	194	486	572	523	80	M12	38	41	10x8	Cast Iron
	M											531	617	568						
160	M	FT 215	215	180	250	M12	4	20	315	303	230.5	629.5	745.5	686.5	110	M16	42	45	12x8	Cast Iron
	L											674.5	790.5	731.5						

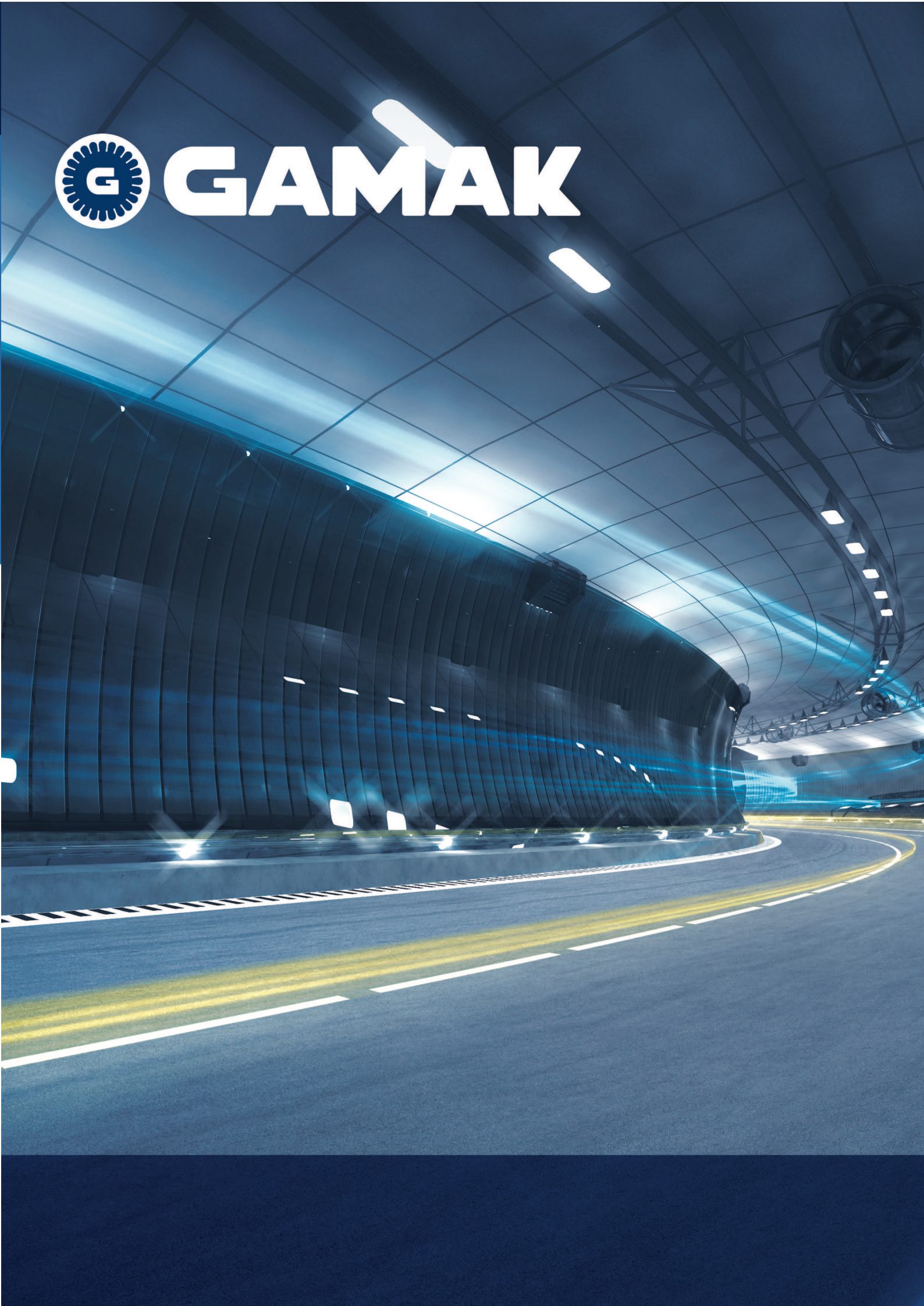


Aluminum Frame

Frame Size		Foot- and flange-mounted motor dimensions: (Flange form C - DIN EN 50 347), in B34 mounting arrangement																																
		H	HD~	HA	A	AA	AB	ACØ	AKØ	K	K1	B	B'	BA	BA'	BB	Flange No.	MØ	NØ	PØ	SØ	T	LA	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF	Flange Type
71		71	182	10	112	31	140	138	116	7	11	90	-	26.5	-	108	FT 85	85	70	105	M6	2.5	12	260	295	289	45	30	M5	14	16	5x5	Aluminum
								-									FT 115	115	95	140	M8	3	16										
80		80	197	10	125	33.5	160	156	151	10	15	100		32.5		125	FT 100	100	80	120	M6	3	12	308	351	337	50	40	M6	19	21.5	6x6	Aluminum
								-									FT 130	130	110	160	M8	3.5	16										
	H							156									FT 100	100	80	120	M6	3	12	333	376	362							
								-									FT 130	130	110	160	M8	3.5	16										
90	S	90	222	12	140	40	180	176	151	10	15	100	-	35	60	130	FT 115	115	95	140	M8	3	16	326	379	355	56	50	M8	24	27	8x7	Aluminum
																	FT 130	130	110	160		3.5											
	L												125			155	FT 115	115	95	140		3		361	414	390							
																	FT 130	130	110	160		3.5											
100	L	100	240	13	160	39	200	195	189	12	18	140	-	39	-	175	FT 130	130	110	160	M8	3.5	16	401.5	464.5	438	63	60	M10	28	31	8x7	Aluminum
								-									FT 165	165	130	200	M10		20										
112	M	112	256	13	190	52	230	218	189	12	18	140	-	39	-	175	FT 130	130	110	160	M8	3.5	16	410	473	447	70	60	M10	28	31	8x7	Aluminum
																	FT 165	165	130	200	M10		20										
132	S	132	307	15	216	51	260	262	239	12	-	140	-	55	-	180	165	165	130	200	M10	3.5	20	483.5	569.5	520.5	89	80	M12	38	41	10x8	Aluminum
	M											178				218								528.5	614.5	565.5							
	S											140				180	215	215	180	250	M12	4	20	483.5	569.5	520.5							
	M											178				218								528.5	614.5	565.5							
160	M	160	390	22	254	63	312	315	303	15	19	210	-	70	-	260	215	215	180	250	M12	4	20	629.5	745.5	686.5	108	110	M16	42	45	12x8	Cast Iron
	L											254				304								674.5	790.5	731.5							

Cast Iron Frame

Foot- and flange-mounted motor dimensions: (Flange form C-DIN EN 50 347), in B34 mounting arrangement																																	
Frame Size		H	HD~	HA	A	AA	AB	ACØ	AKØ	K	K1	B	B'	BA	BA'	BB	Flange No.	MØ	NØ	PØ	SØ	T	LA	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF	Flange Type
132	S	132	326	15	216	50	260	262	239	12	-	140		50	-	180	FT 165	165	130	200	M10	3.5	20	486	572	523	89	80	M12	38	41	10x8	Cast Iron
	M											178				218								531	617	568							
	S	132	326	15	216	50	260	262	239	12	-	140		50	-	180	FT 215	215	180	250	M12	4	20	486	572	523	89	80	M12	38	41	12x8	Cast Iron
	M											178				218								531	617	568							
160	M	160	390	22	254	63	312	315	303	15	-	210		69.3	-	260	FT 215	215	180	250	M12	4	20	629.5	745.5	686.5	108	110	M16	42	45	12x8	Cast Iron
	L					60						254		70		304								674.5	790.5	731.5							


GAMAK

Special Series

Smoke Extraction Motors

Smoke Extraction Motors have been certified after tests carried out in accordance with TS EN 12101-3. Tests were performed at Applus+ and Efectis test laboratories. As a result of the tests, GAMAK Smoke Extraction Motors have been certified for 2 hours of operation at 300°C. They are used to create a smoke-free area in fires so that fire extinguishing and rescue operations can be carried out easily, and living organisms in the environment are not affected. The smoke extraction motors operate in conjunction with jet fans both in emergency situations during fires and for ventilation requirements in confined environments. They are designed for S1 Continuous + S2 Short-Term (Emergency) operation.

Motors used in these ventilators operate in two modes:

S2: short time rating for emergency duty. Operating at pre-specified duration and temperature during fires.
S1 + S2: Continuous running duty + short-time rating for EMERGENCY duty - Continuous Running Duty is for ventilation purposes, for example, to discharge exhaust gases in road tunnels.

Smoke motors for Continuous Running Duty can be manufactured with high efficiency on request.

The motors' operation duration and temperature in EMERGENCY situations should be specified by the user in advance. The standards have been classified based on the temperature values and operating times shown in the table below.

For example. motors in the F300 class are manufactured to be suitable for 1-hour operation at 300°C. The operating temperature and duration of the Special Class specified in the table in the standards is determined by the user. Smoke extraction motors suitable for operation at different temperatures and durations are manufactured accordingly.

Mechanical Features:

- Motors can be manufactured as TEFC (totally enclosed, fan-cooled) or TEAO (totally enclosed air over). In applications where the motor is coupled directly to the fan, it is cooled with air (TEAO) passing over the motor. In snail-type fans, the motor must be fan cooled (TEFC). In non-ventilated motors, the terminal box is not installed, and the cables are directly removed for connection so as not to prevent air passing over the motor.
- All motor frames are cast iron.
- All motors are manufactured in Class H insulation, suitable for Class B temperature rise.
- The motors can be manufactured with a thermistor, but thermistors should be disabled in EMERGENCY operation.

Note: A motor used once in an EMERGENCY situation needs to be replaced.
Specifications for standard smoke motors also apply to **pad-mounted** motors.

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
	Type	Speed n	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-2-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
2-pole, 3000 m^{-1}															
0.37	GMD 71 2a	2800	1.05	1.26	0.74	68.9	68.7	66.7	5.0	-	2.4	-	2.6	0.00026	8.9
0.55	GMD 71 2b	2780	1.27	1.89	0.87	71.6	71.3	70.3	4.5	-	2.4	-	2.6	0.00034	10.0
0.75	GM2ED 80 2a	2860	1.60	2.50	0.87	77.8	77.7	74.6	6.2	-	2.5	-	2.9	0.00066	14.0
1.1	GM2ED 80 2 b	2900	2.30	3.62	0.84	82.0	81.9	79.1	6.3	-	2.7	-	3.3	0.00080	15.6
1.5	GM2ED 90 S 2	2900	3.40	4.94	0.76	83.0	83.0	81.6	6.3	-	3.1	-	2.5	0.0014	19.8
2.2	GM2ED 90 L 2	2900	4.48	7.24	0.84	84.5	84.5	83.2	6.6	-	2.9	-	3.5	0.0017	22.3
3	GM2ED 100 L 2	2900	6.00	9.9	0.85	85.3	85.3	84.1	7.6	-	3.4	-	4.0	0.0031	30.9
4	GM2ED 112 M 2	2910	7.40	13.1	0.90	86.5	86.5	86.0	7.2	2.3	2.8	0.9	3.0	0.0048	35
5.5	GM2ED 132 S 2a	2930	11	17.9	0.85	873.3	87.3	86.5	7.3	2.4	2.8	0.9	3.5	0.012	51
7.5	GM2ED 132 S 2b	2910	13.6	24.6	0.90	88.5	88.5	87.9	7.2	2.3	3.0	1.0	3.4	0.014	56
11	GM2ED 160 M 2a	2945	19.5	35.7	0.91	89.5	89.5	88.6	8.5	2.7	3.4	1.1	3.6	0.04	105
15	GM2ED 160 M 2b	2945	28.5	48.6	0.85	90.4	90.4	89.7	7.5	2.4	3.0	1.0	3.5	0.041	113
18.5	GM2ED 160 L 2	2950	32.3	59.9	0.91	90.9	90.8	90.1	8.2	2.6	3.0	1.0	3.2	0.051	135
22	GM2ED 180 M 2	2960	38.3	71	0.91	91.3	91.3	90.8	8.2	2.6	3.0	1.0	3.5	0.075	170
30	GM2ED 200 L 2a	2970	52	96	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.13	210
37	GM2ED 200 L 2b	2970	65	119	0.89	92.6	92.6	91.7	8.3	2.7	2.7	0.9	3.0	0.15	240
45	GM2ED 225 M 2	2975	77	144	0.91	92.9	93.0	91.8	8.7	2.8	2.7	0.9	3.1	0.23	343
55	GM2ED 250 M 2	2980	94	176	0.91	93.2	93.7	92.2	8.7	2.8	2.9	0.9	3.0	0.41	445
75	GM2ED 280 S 2	2980	127	240	0.91	93.9	94.1	92.5	8.0	2.6	2.9	0.9	3.2	0.62	585
90	GM2ED 280 M 2	2980	151	288	0.91	94.2	94.2	92.7	8.5	2.7	2.7	0.9	3.0	0.74	645
110	GM2ED 315 S 2	2980	186	353	0.91	94.3	94.3	92.8	8.0	2.6	2.5	0.8	3.0	1.2	742
132	GM2ED 315 M 2a	2980	223	423	0.90	94.6	94.5	92.9	8.0	2.6	2.5	0.8	3.0	1.4	812
160	GM2ED 315 M 2b	2980	266	513	0.92	94.8	94.8	93.4	8.0	2.6	2.5	0.8	3.0	1.5	912

All motors are cast iron.
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed n	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-2-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
4-pole, 1500 m^{-1}															
0.25	GMD 71 4a	1380	0.81	1.73	0.72	61.9	61.8	58.2	2.9		1.8		2.2	0.00040	8.9
0.37	GMD 71 4b	1390	1.15	2.54	0.68	68.1	68.1	67.1	3.7		2.2		2.5	0.00054	9.8
0.55	GMD 80 4a	1365	1.60	3.85	0.72	69.1	69.0	68.2	3.5		1.9		2.0	0.00083	12.7
0.75	GM2ED 80 4b	1410	2.1	5.08	0.65	79.6	79.6	77.6	5.0		2.6		2.8	0.0014	15.6
1.1	GM2ED 90 S 4	1430	2.60	7.35	0.75	82.0	82.0	80.5	5.5		2.3		3.3	0.0025	20.7
1.5	GM2ED 90 L 4	1430	3.50	10.02	0.75	83.0	83.0	81.5	5.9		3.3		3.5	0.0033	24
2.2	GM2ED 100 L 4a	1435	5	14.6	0.75	84.5	84.6	82.5	5.9		2.9		3.4	0.0052	31.6
3	GM2ED 100 L 4b	1435	6.6	20	0.77	85.5	85.7	84.0	6.2		2.9		3.4	0.0068	38
4	GM2ED 112 M 4	1455	8.2	26.3	0.81	86.7	86.8	85.3	6.6	2.1	2.5	0.8	3.3	0.012	49
5.5	GM2ED 132 S 4	1465	11.2	35.9	0.81	87.9	88.0	87.2	7.0	2.3	2.8	0.9	3.5	0.026	58
7.5	GM2ED 132 M 4	1465	15.4	48.9	0.79	89.0	89.1	88.1	7.1	2.3	2.7	0.9	3.4	0.032	69
11	GM2ED 160 M 4	1470	21.0	71.5	0.84	90.0	90.1	89.3	6.9	2.2	2.8	0.9	3.1	0.072	130
15	GM2ED 160 L 4	1470	29.3	97.4	0.82	90.6	90.7	89.7	7.5	2.4	2.6	0.8	3.5	0.092	141
18.5	GM2ED 180 M 4	1475	34.5	120	0.85	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.15	180
22	GM2ED 180 L 4	1475	42.5	142	0.82	91.7	91.7	90.6	8.3	2.7	3.7	1.2	3.8	0.17	190
30	GM2ED 200 L 4	1475	55	194	0.85	92.5	92.6	92.1	8.0	2.6	3.1	1.0	3.6	0.23	227
37	GM2ED 225 S 4	1475	67	240	0.86	92.7	92.7	92.2	7.2	2.3	3.0	1.0	3.0	0.35	314
45	GM2ED 225 M 4	1475	80	291	0.87	93.3	93.3	92.4	7.3	2.4	3.0	1.0	3.0	0.44	360
55	GM2ED 250 M 4	1480	96	355	0.88	93.7	93.8	93.2	7.6	2.5	3.1	1.0	2.9	0.78	445
75	GM2ED 280 S 4	1485	133	482	0.87	94.0	94.1	93.4	7.9	2.5	2.6	0.8	2.8	1.11	605
90	GM2ED 280 M 4	1485	158	579	0.87	94.3	94.5	93.8	7.4	2.4	2.9	0.9	3.0	1.32	665
110	GM2ED 315 S 4	1485	195	707	0.86	94.5	94.5	93.8	7.0	2.3	2.3	0.7	2.6	2.1	784
132	GM2ED 315 M 4a	1485	235	849	0.86	94.7	94.5	93.8	7.0	2.3	2.3	0.7	2.6	2.5	861
160	GM2ED 315 M 4b	1485	280	1029	0.87	95.0	94.9	94.0	7.0	2.3	2.3	0.7	2.6	2.7	882
6-pole, 1000 m^{-1}															
0.18	GMD 71 6a	915	0.61	1.88	0.68	63.0	62.9	58.7	3.2	-	1.7	-	2.1	0.00064	9.0
0.25	GMD 71 6b	915	0.83	2.61	0.68	63.8	63.7	59.6	3.2	-	1.7	-	2.1	0.00086	9.7
0.37	GMD 80 6a	910	1.1	3.88	0.67	72.9	72.8	70.1	3.6	-	2.1	-	2.4	0.0017	13.3
0.55	GMD 80 6b	890	1.5	5.90	0.75	70.4	70.3	68.2	3.5	-	1.9	-	2.0	0.0022	14.6
0.75	GM2ED 90 S 6	920	2	7.79	0.71	75.9	75.9	72.4	4.0	-	2.2	-	2.4	0.0038	19.6
1.1	GM2ED 90 L 6	940	2.9	11.18	0.70	78.1	78.1	75.1	4.0	-	2.2	-	2.4	0.0045	21.5
1.5	GM2ED 100 L 6	955	3.6	15	0.75	79.8	79.7	76.4	4.5	-	2.2	-	2.4	0.011	33.6
2.2	GM2ED 112 M 6	960	5.4	21.9	0.72	81.8	81.7	78.5	4.7	1.5	2.2	0.7	2.5	0.016	42.5
3	GM2ED 132 S 6	960	6.9	29.8	0.86	83.3	83.2	80.4	5.0	1.6	2.2	0.7	2.6	0.028	56
4	GM2ED 132 M 6a	960	9	39.8	0.84	84.6	84.5	81.6	5.0	1.6	2.2	0.7	2.6	0.043	62
5.5	GM2ED 132 M 6b	960	12.3	54.7	0.84	86.0	86.0	83.1	5.0	1.6	2.2	0.7	2.6	0.06	75
7.5	GM2ED 160 M 6	960	15	74.6	0.88	87.2	87.2	84.5	6.5	2.1	2.5	0.8	3.0	0.11	126
11	GM2ED 160 L 6	965	22	108.9	0.87	88.7	88.7	85.7	6.5	2.1	2.5	0.8	3.0	0.14	146
15	GM2ED 180 L 6	965	29	148	0.86	89.7	89.7	86.8	6.5	2.1	2.4	0.8	3.0	0.20	189
18.5	GM2ED 200 L 6a	975	36.5	181	0.88	90.4	90.4	87.7	7.0	2.3	2.5	0.8	3.0	0.26	222
22	GM2ED 200 L 6b	975	43	215	0.88	91.1	91.1	88.4	7.0	2.3	2.5	0.8	3.0	0.32	245
30	GM2ED 225 M 6	980	58	292	0.88	91.7	91.7	89.6	7.0	2.3	3.0	1.0	2.6	0.69	325
37	GM2ED 250 M 6	985	69	359	0.88	92.2	92.2	90.1	7.0	2.3	3.0	1.0	2.6	0.99	440
45	GM2ED 280 S 6	990	92	434	0.88	92.7	92.7	90.9	7.0	2.3	3.3	1.1	2.6	1.5	553
55	GM2ED 280 M 6	990	107	531	0.88	93.1	93.1	91.5	7.0	2.3	3.3	1.1	2.6	1.6	578
75	GM2ED 315 S 6	990	140	723	0.87	93.7	93.7	92.4	7.0	2.3	2.5	0.8	3.0	2.5	727
90	GM2ED 315 M 6a	990	166	868	0.87	94.0	94.0	92.6	7.0	2.3	2.5	0.8	3.0	3.1	805
110	GM2ED 315 M 6b	990	198	1061	0.88	94.3	94.3	92.7	7.0	2.3	2.5	0.8	3.0	3.2	860

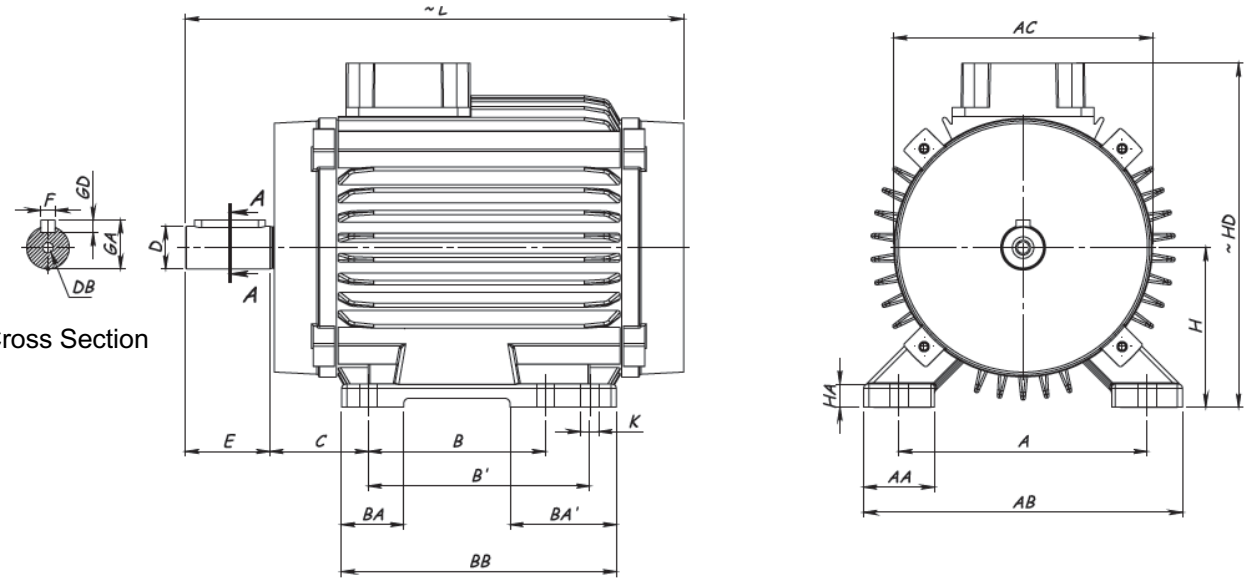
All motors are cast iron.
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A/M_N			
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014 4/4	D.O.L.	D.O.L.	M_K/M_N	kgm^2	kg
4/2 pole, 1500/3000 m^{-1}											
0.08/0.37	V.GMD 71 4/2a	1380/2800	0.32/1.1	0.55/1.26	0.69/0.84	50.5/56.5	2.5/3.5	1.4/1.5	1.6/1.7	0.00026	7.3
0.12/0.5	V.GMD 71 4/2b	1380/2800	0.45/1.4	0.83/1.71	0.73/0.81	51.5/62.3	3.0/3.8	1.6/1.8	1.8/2.0	0.00034	7.7
0.17/0.75	V.GMD 80 4/2a	1400/2790	0.50/1.7	1.2/2.6	0.77/0.91	62.2/68.3	3.5/4.1	1.6/1.7	1.9/1.9	0.00053	10.3
0.25/1	V.GMD 80 4/2b	1410/2810	0.70/2.2	1.7/3.4	0.75/0.98	67.1/65.4	3.3/3.6	1.4/1.6	1.7/1.9	0.00066	11.5
0.33/1.3	V.GMD 90 S 4/2	1425/2860	0.90/2.8	2.2/4.3	0.74/0.87	70.1/75.2	3.7/4.4	1.6/1.8	2.0/1.9	0.0011	13.8
0.5/2	V.GMD 90 L 4/2	1415/2835	1.2/4.2	3.4/6.7	0.78/0.88	75.0/76.2	4.5/6.0	2.0/1.8	2.4/2.5	0.0014	16.1
0.66/2.7	V.GMD 100 L 4/2	1430/2845	1.5/5.2	4.4/9.1	0.81/0.95	76.0/77.2	4.9/4.7	1.7/1.9	2.3/2.1	0.0024	21.9
0.9/3.6	V.GMD 112 M 4/2	1440/2870	2/7.3	6.0/12	0.83/0.89	76.1/78.3	5.5/6.0	1.8/2.0	2.6/2.5	0.0039	26
1.25/5	V.GMD 132 S 4/2a	1440/2860	3/9.8	8.3/16.7	0.81/0.93	75.2/77.3	4.3/4.9	1.8/2.1	2.1/2.2	0.0090	45
1.7/6.5	V.GMD 132 S 4/2b	1440/2900	3.6/12.5	11.3/21.4	0.84/0.89	79.1/82.3	5.8/6.8	2.3/2.3	2.5/2.7	0.012	52
2.5/10	V.GMD 160 M 4/2a	1450/2910	5.3/19.5	16/33	0.84/0.90	79.2/80.4	5.0/5.3	2.1/2.5	2.2/2.7	0.026	94
3.3/13	V.GMD 160 M 4/2b	1460/2930	6.7/24	22/42	0.85/0.91	82.2/84.4	6.8/8.6	2.2/2.5	2.9/3.3	0.034	105
4.4/17	V.GMD 160 L 4/2	1460/2930	8.6/32	29/55	0.87/0.89	83.2/84.4	6.9/8.8	2.4/2.6	2.7/3.0	0.041	118
5/20	V.GMD 180 M 4/2	1475/2940	10/37	32/65	0.87/0.90	81.3/85.4	6.7/7.7	2.6/2.4	2.7/2.7	0.060	150
7.5/28	V.GMD 200 L 4/2a	1470/2960	15/50	49/90	0.85/0.92	83.3/86.5	6.4/7.5	2.3/2.1	2.3/2.4	0.10	215
8.5/33	V.GMD 200 L 4/2b	1470/2950	16/59	55/107	0.87/0.90	86.2/88.5	6.8/7.6	2.1/1.9	2.2/2.1	0.13	235
10/40	V.GMD 225 M 4/2	1470/2955	20/72	65/129	0.82/0.91	86.3/86.5	5.5/6.5	2.0/1.8	2.1/2.4	0.19	315
12.5/48	V.GMD 250 M 4/2	1480/2965	25/86	81/155	0.81/0.90	87.3/88.5	5.7/7.5	2.0/2.1	2.1/2.4	0.32	385
17/66	V.GMD 280 S 4/2	1480/2970	33/115	110/212	0.83/0.91	88.3/89.6	6.2//7.9	2.0/2.1	2.2/2.6	0.50	560
20/78	V.GMD 280 M 4/2	1480/2970	38/133	129/251	0.84/0.93	88.4/89.6	6.7/8.2	2.0/2.1	2.3/2.7	0.62	595
25/100	V.GMD 315 S 4/2	1485/2975	48/172	161/321	0.84/0.92	88.4/89.7	6.5/7.9	1.4/1.7	2.4/2.7	0.96	720
30/120	V.GMD 315 M 4/2a	1490/2980	58/205	192/385	0.82/0.92	89.4/90.7	8.0/8.8	1.6/1.9	2.6/2.9	1.20	805
37/150	V.GMD 315 M 4/2b	1490/2980	68/252	237/481	0.84/0.92	91.4/91.7	6.5/8.2	1.6/1.9	2.5/2.8	1.40	870
8/4 pole, 750/1500 m^{-1}											
0.05/0.25	V.GMD 71 8/4a	680/1400	0.28/0.73	0.7/1.7	0.60/0.78	41.7/61.3	2.0/3.1	1.4/1.3	1.8/1.8	0.00040	8.9
0.065/0.33	V.GMD 71 8/4b	680/1400	0.36/1	0.9/2.3	0.58/0.76	43.6/61.3	2.0/3.2	1.4/1.4	1.8/1.9	0.00054	9.9
0.12/0.5	V.GMD 80 8/4a	680/1430	0.65/1.5	1.7/3.3	0.51/0.75	50.5/62.3	2.1/3.2	1.4/1.7	1.7/2.1	0.00083	12.8
0.18/0.75	V.GMD 80 8/4b	680/1405	0.90/2	2.5/5.1	0.54/0.81	51.5/65.3	2.1/3.5	1.6/1.7	1.8/2.1	0.0011	13.9
0.25/1	V.GMD 90 S 8/4	700/1410	1.2/2.8	3.4/6.8	0.51/0.69	57.4/73.2	2.7/4.6	1.6/2.1	2.1/2.4	0.0019	17.8
0.33/1.4	V.GMD 90 L 8/4	690/1390	1.3/3.3	4.6/9.6	0.60/0.79	59.4/76.2	2.6/4.3	1.7/1.8	1.9/2.1	0.0024	20.8
0.5/2	V.GMD 100 L 8/4a	700/1415	1.8/4.8	7/13	0.61/0.82	64.3/71.3	2.9/4.8	1.5/1.8	2.1/2.3	0.0038	27.8
0.6/2.5	V.GMD 100 L 8/4b	690/1410	2/5.5	8/17	0.66/0.86	64.3/74.3	3.2/5.2	1.5/1.9	2.0/2.3	0.0050	31
1/3.8	V.GMD 112 M 8/4	700/1425	3.2/8.3	14/25	0.63/0.83	70.2/78.3	3.4/5.2	1.4/2.0	2.0/2.5	0.0092	41
1.2/5	V.GMD 132 S 8/4	715/1450	3.8/10.5	16/33	0.60/0.84	74.2/80.3	3.7/5.4	2.1/2.2	2.4/2.6	0.019	51
1.7/7	V.GMD 132 M 8/4	710/1450	5.2/14.5	23/46	0.66/0.84	69.3/81.3	4.0/6.6	2.0/2.2	2.2/2.5	0.026	60
2.5/10	V.GMD 160 M 8/4	720/1460	7.4/20	33/65	0.64/0.87	74.3/81.4	3.7/6.4	1.8/2.3	2.2/3.0	0.054	105
3.5/14	V.GMD 160 L 8/4	720/1460	10.5/28	46/92	0.60/0.83	78.3/85.4	3.7/6.8	1.8/2.0	2.0/2.5	0.072	140
4/16	V.GMD 180 M 8/4	720/1465	11.4/32	53/104	0.63/0.82	79.3/86.4	3.8/6.0	1.8/2.3	1.8/2.4	0.11	150
5/20	V.GMD 180 L 8/4	720/1465	14/40	66/130	0.62/0.81	81.3/87.4	3.9/6.7	1.9/2.5	1.9/2.7	0.13	170
7/28	V.GMD 200 L 8/4	725/1465	16/51	92/183	0.73/0.88	84.2/88.4	4.5/6.6	1.9/2.1	1.9/2.4	0.19	235
8/32	V.GMD 225 S 8/4	730/1470	20/60	105/208	0.67/0.86	84.3/86.5	4.3/6.6	2.0/2.3	2.1/2.7	0.29	275
1Q/40	V.GMD 225 M 8/4	725/1470	26/71	132/260	0.65/0.92	84.4/89.5	4.0/6.3	1.8/2.3	1.8/2.4	0.35	320
12.5/48	V.GMD 250 M 8/4	735/1475	30/87	162/311	0.70/0.88	87.3/88.6	4.3/7.1	2.0/2.5	1.9/2.9	0.54	395
16.5/63	V.GMD 280 S 8/4	730/1475	38/115	216/408	0.70/0.88	88.4/90.6	3.8/6.3	1.6/2.2	1.8/2.4	0.90	550
21/83	V.GMD 280 M 8/4	735/1475	50/149	273/537	0.67/0.87	90.4/91.6	3.9/6.9	1.6/2.3	1.8/2.5	1.1	615
25/100	V.GMD 315 S 8/4	740/1480	53/174	323/643	0.74/0.89	90.4/92.6	4.7/6.9	1.7/2.2	1.8/2.4	1.6	702
30/8120	V.GMD 315 M 8/4a	740/1485	69/223	387/774	0.68/0.83	90.4/92.7	5.3/8.1	1.8/2.6	2.0/2.9	2.1	784
33/132	V.GMD 315 M 8/4b	740/1485	74/239	426/849	0.70/0.85	90.5/92.7	5.2/8.1	1.8/2.4	2.0/2.8	2.5	861

All motors are cast iron.
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

Rated output	Type	At rated output					Starting Data		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A/M_N	M_K/M_N		
kW		m^{-1}	A	Nm		IEC 60034-2-1:2014 4/4	D.O.L.	D.O.L.		kgm^2	kg
6/4 pole, 1000/1500 m^{-1} |											
0.05/0.18	V.GMD 71 6/4a	940/1340	0.34/0.72	0.51/1.28	0.42/0.56	48.5/63.2	2.0/2.1	1.4/1.3	1.9/1.6	0.00064	9.4
0.08/0.24	V.GMD 71 6/4b	940/1350	0.40/0.9	0.81/1.7	0.58/0.65	48.5/60.3	2.3/2.5	1.5/1.4	1.9/1.6	0.00086	10.3
0.15/0.45	V.GMD 80 6/4a	930/1370	0.54/1.3	1.54/3.14	0.77/0.81	50.5/60.4	3.2/3.2	1.7/1.4	2.1/1.5	0.0017	13.3
0.2/0.6	V.GMD 80 6/4b	960/1400	0.74/1.52	2.03/4.09	0.67/0.80	56.4/69.2	3.7/3.8	2.1/1.6	2.7/2.0	0.0022	14.7
0.3/0.9	V.GMD 90 S 6/4	940/1410	1.1/2.3	3.05/6.1	0.70/0.78	54.5/70.2	2.9/4.3	1.3/1.9	1.9/2.1	0.0019	17.8
0.37/1.1	V.GMD 90 L 6/4	935/1390	1.2/2.8	3.8/7.6	0.71/0.78	61.3/71.2	3.2/4.0	1.6/1.6	2.0/2.1	0.0024	20.8
0.6/1.6	V.GMD 100 L 6/4a	950/1420	1.85/4.1	6/10.8	0.73/0.79	62.4/69.3	3.6/5.2	1.6/2.1	2.2/2.3	0.0040	27.8
0.75/2.2	V.GMD 100 L 6/4b	950/1430	2.5/5.3	7.5/14.7	0.68/0.80	62.4/73.3	3.6/4.7	1.7/1.7	2.2/2.3	0.0052	31.3
1.1/3.3	V.GMD 112 M 6/4	955/1440	3.1/7.3	11/21.9	0.70/0.81	71.2/79.2	5.0/5.8	1.9/2.1	2.9/2.7	0.0092	41
1.5/4.5	V.GMD 132 S 6/4	940/1440	4.2/9.5	15.2/29.8	0.75/0.84	67.4/79.3	4.1/5.5	1.7/1.8	2.1/2.0	0.019	51
2/6.2	V.GMD 132 M 6/4	940/1440	5.2/13.3	20.3/41.1	0.77/0.86	70.3/76.4	4.0/5.2	1.7/2.0	1.9/2.2	0.026	60
39	V.GMD 160 M 6/4	945/1455	7/18	30.3/59.1	0.78/0.84	77.3/84.3	4.6/6.0	1.8/2.0	1.9/2.3	0.054	105
4/13	V.GMD 160 L 6/4	970/1455	9.5/26	39.4/85.3	0.75/0.84	79.3/84.4	4.0/5.5	1.9/2.1	1.9/2.2	0.072	140
5/15	V.GMD 180 M 6/4	970/1460	11.7/29	49/98	0.74/0.85	81.3/86.3	4.4/5.9	1.8/2.2	1.9/2.2	0.11	150
6/18.5	V.GMD 180 L 6/4	975/1455	14/36	59/121	0.75/0.85	80.3/85.4	5.4/5.5	2.4/2.1	2.5/2.3	0.13	170
7.5/25	V.GMD 200 L 6/4	980/1465	16.6/48	73/163	0.79/0.86	81.3/85.5	6.0/6.6	2.2/2.2	2.9/2.8	0.19	235
13/33	V.GMD 225 S 6/4	980/1470	25/67	107/214	0.73/0.80	85.3/87.5	5.0/6.4	1.8/2.1	2.2/2.8	0.29	275
14/40	V.GMD 225 M 6/4	980/1470	30/77	136/260	0.78/0.83	84.4/88.5	4.7/6.1	1.8/2.0	2.3/3.0	0.35	320
17/50	V.GMD 250 M 6/4	980/1474	36/92	166/324	0.80/0.85	83.4/90.5	5.2/7.2	2.0/2.5	2.4/3.1	0.54	395
22/65	V.GMD 280 S 6/4	985/1480	46/116	213/419	0.78/0.91	87.4/87.6	6.6/5.4	2.3/1.7	2.3/1.8	0.90	550
26/75	V.GMD 280 M 6/4	990/1480	56/137	251/484	0.75/0.89	87.4/87.6	6.8/5.5	2.5/1.6	2.5/1.7	1.1	615
3295	V.GMD 315 S 6/4	990/1480	63/164	309/613	0.81/0.90	89.4/91.6	6.7/6.0	2.2/1.7	2.5/2.2	1.6	702
37/115	V.GMD 315 M 6/4a	990/1485	74/200	357/740	0.79/0.88	89.5/92.6	8.07/7.4	2.5/1.8	2.9/2.6	2.1	784
45/132	V.GMD 315 M 6/4b	990/1485	91/223	434/849	0.78/0.91	90.5/92.7	8.0/6.5	2.5/1.8	2.9/2.5	2.5	861

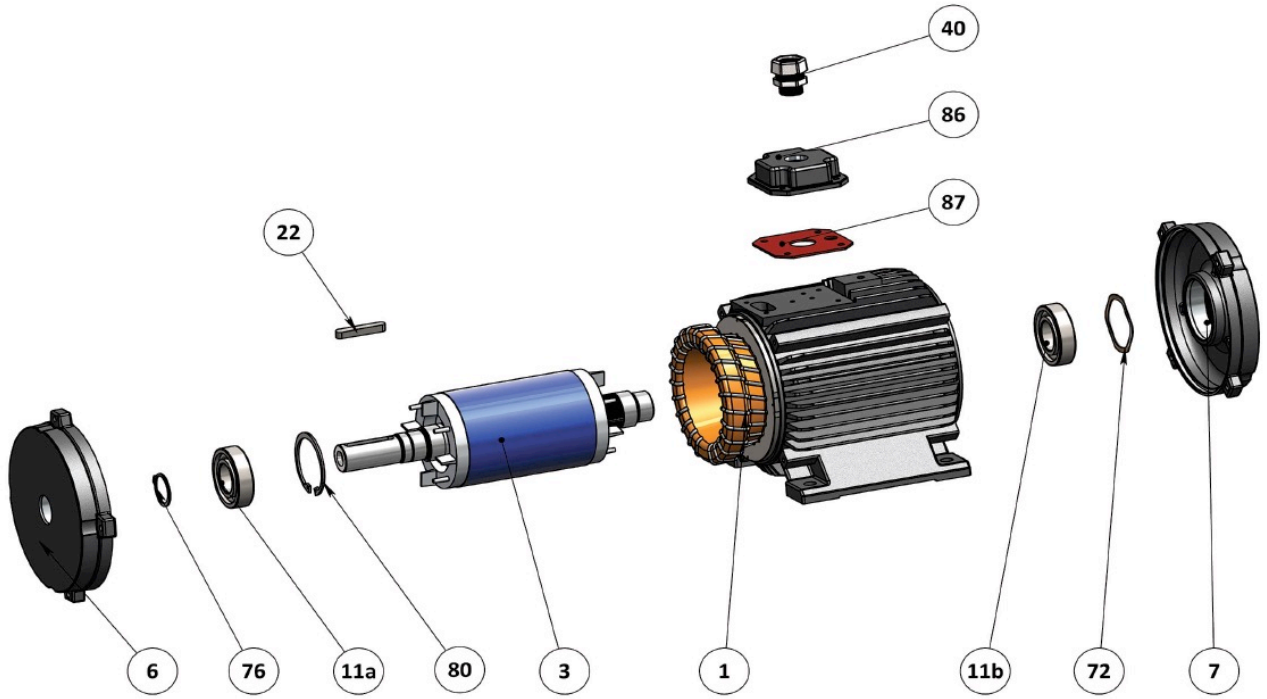
All motors are cast iron.
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.



Cross Section

FOOT-MOUNTED (B3) - CAST IRON FRAME

Frame Size		Number of Poles	H	HD~	HA	A	AA	AB	ACØ	KØ	B	B'	BA	BA'	BB	L~	C	E	DB	DØ	GA	FxGD
71		2-4-6-8	71	162	10	112	34	140	138	7	90	-	26.5	-	108	210	45	30	M5	14	16	5x5
80		2-4-6-8	80	177	12	125	40	160	152	10	100	-	30	-	125	237	50	40	M6	19	21.5	6x6
90	S	2-4-6-8	90	196	13	140	40	180	172	10	100	-	35	-	130	259	56	50	M8	24	27	8x7
	L	4[1]									125				155	290						
																310						
100	L	2-4-6-8	100	214	14	160	40	200	190	12	140	-	37.5	-	175	322	63	60	M10	28	31	8x7
		4[2]														349						
112	M	2-4-6-8	112	236	14	190	47.5	235	214	12	140		42.5	-	175	343.5	70	60	M10	28	31	8x7
		4[3]														362.5						
132	S	2-4-6-8	132	291	15	216	52	260	257	12	140	-	46	84	218	430	89	80	M12	38	41	10x8
	M										-	178										
160	M	2-4-6-8	160	377	21.5	254	60	312	310	15	210	-	62	-	260	527.5	108	110	M16	48	45	12x8
	L										254	-			304	571.5						
180	M	2-4-6-8	180	416	24	279	68	354	348	15	241	279	57	85	319	583.5	121	110	M16	46	51.5	14x9
	L										279	-	62	-	329	621.5						
200	L	2-4-6-8	200	455	26	318	80	398	390	19	305	-	68	-	355	669.5	133	110	M20	55	59	16x10
225	S	4-8	225	487	30	356	82	438	434	19	286	311	76	92.5	363	709	149	140	M20	60	64	18x11
		2									311	-		-	371	704		110		55	59	16x10
	M	4-6-8														734		140		60	64	18x11
250	M	2	250	505	35	406	80	484	480	24	349	-	75	-	410	814.5	168	140	M20	60	64	18x11
		4-6-8																		65	69	
280	S	2	280	563	40	457	120	550	544	24	368	-	85	128	474	872.5	190	140	M20	65	69	18x11
		4-6-8																		75	79.5	20x12
	M	2									-	419								65	69	18x11
		4-6-8																		75	79.5	20x12
315	S	2	315	656	50	508	125	620	614	28	406	-	115	166	550	1020	216	140	M20	65	69	18x11
		4-6-8														1050		170		85	90	22x14
	M	2									-	457				1020		140		65	69	18x11
		4-6-8														1050		170		85	90	22x14



1 Stator complete with winding: Varnished and attached to the frame
3 Rotor complete with shaft, finish machined and balanced (excluding keys)
6 End shield drive end
7 End shield non-drive end
11a Drive end ball-bearing
11b Non-drive end ball-bearing
22 Shaft key
40 Cable gland
72 Corrugated disc spring
76 External circlip
80 Internal circlip
86 Smoke motor terminal cover
87 Smoke motor terminal cover gasket

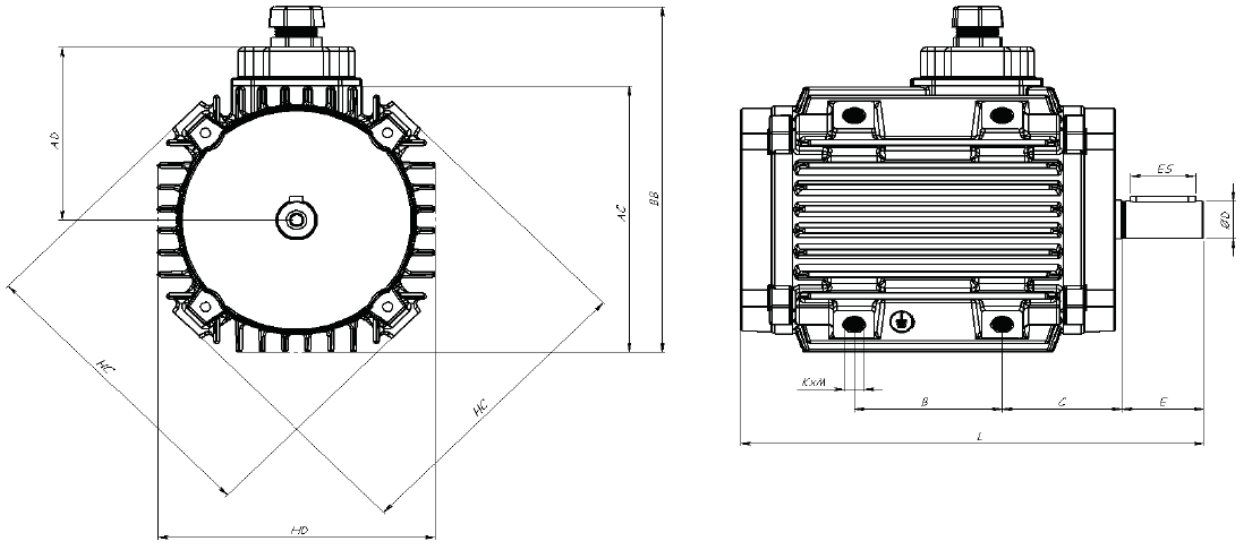

L
B2 層
L 159 – L 168

Rated output	At Rated Output								Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
	Type	Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency n %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-2-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
2-pole (3000 m^{-1})															
0.75	GM2EPAD 80 2a	2860	1.7	2.6	0.82	77.8	77.7	74.6	6.2	-	2.5	-	3.0	0.00053	13.9
1.1	GM2EPAD 80 2b	2880	2.3	3.7	0.86	80.0	80.0	78.1	6.3	-	2.7	-	3.0	0.00066	14.8
1.5	GM2EPAD 90 S 2	2880	3.3	5.0	0.80	82.0	82.0	80.1	6.3	-	2.3	-	3.0	0.00110	18.0
2.2	GM2EPAD 90 L 2	2870	4.5	7.3	0.84	84.5	84.5	83.2	6.6	-	2.6	-	3.1	0.00140	22.9
3.0	GM2EPAD 100 L 2	2880	5.8	9.9	0.88	85.3	85.3	84.1	6.0	-	2.5	-	3.0	0.00250	30.4
4-pole (1500 m^{-1})															
0.55	GMPAD 80 4a	1365	1.6	3.9	0.72	69.1	69.0	65.2	3.5	-	1.9	-	2.0	0.00083	14.8
0.75	GM2EPAD 80 4b	1410	1.9	5.1	0.71	79.6	79.6	77.6	4.4	-	2.2	-	2.5	0.00140	16.5
1.1	GM2EPAD 90 S 4	1420	2.6	7.4	0.74	82.0	82.0	80.5	5.5	-	3.0	-	3.3	0.00220	19.1
1.5	GM2EPAD 90 L 4	1430	3.5	10.0	0.75	83.0	83.0	81.5	5.9	-	3.3	-	3.5	0.00300	22.4
2.2	GM2EPAD 100 L 4a	1430	4.9	14.7	0.77	84.5	84.6	82.5	5.0	-	2.0	-	2.4	0.00440	32.4
3.0	GM2EPAD 100 L 4b	1435	6.7	20.0	0.76	85.5	85.7	84.0	6.2	-	2.9	-	3.4	0.00570	36.4
6-pole (1000 m^{-1})															
0.37	GMPAD 80 6a	910	1.1	3.9	0.67	72.9	72.8	70.1	3.6	-	2.1	-	2.4	0.0017	14.8
0.55	GMPAD 80 6b	890	1.5	5.9	0.75	70.4	70.3	68.2	3.5	-	1.9	-	2.0	0.0022	16.5
0.75	GM2EPAD 90 S 4	920	2.0	7.8	0.71	75.9	75.9	72.4	4.0	-	2.2	-	2.4	0.0034	17.7
1.1	GM2EPAD 90 L 4	930	2.9	11.3	0.70	78.1	78.1	75.1	4.0	-	2.2	-	2.4	0.0044	21.8
1.5	GM2EPAD 100 L 6	945	3.6	15.2	0.75	79.8	79.7	76.4	4.5	-	2.2	-	2.4	0.0077	28.8

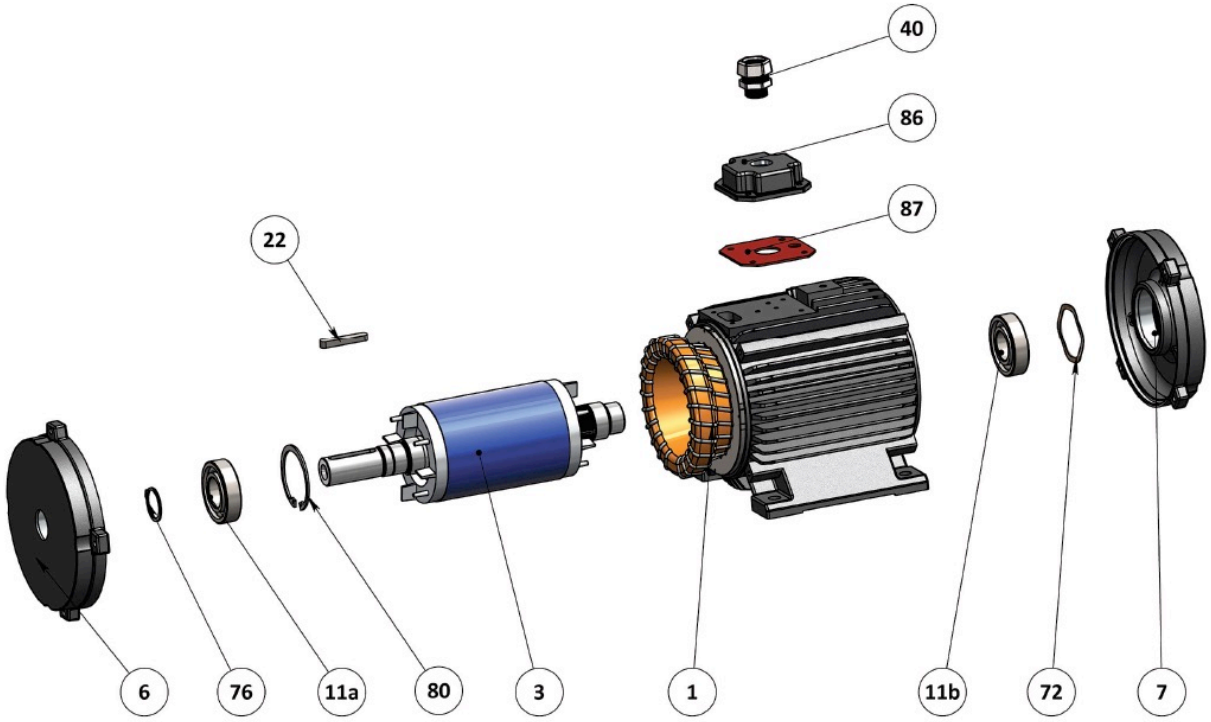
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

At Rated Output						Starting Data					
Rated output	Type	Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %	Locked-Rotor Current Ratio I_A/I_N	Locked-Rotor Torque Ratio M_A/M_N	Breakdown Torque Ratio M_K/M_N	Moment of Inertia J	Approximate Weight B3
kW		m^{-1}	A	Nm		IEC 60034-30-1: 2014	D.O.L.	D.O.L.		kgm^2	kg
						4/4					
4/2 pole (1500/3000 m^{-1})											
0.17/0.75	V.GMPAD 80 4/2a	1400 / 2790	0.5 / 1.7	1.2 / 2.6	0.77 / 0.91	62.2 / 68.3	3.5 / 4.1	1.6 / 1.7	1.9 / 1.9	0.00053	13.65
0.25/1	V.GMPAD 80 4/2b	1410 / 2810	0.7 / 2.2	1.7 / 3.4	0.75 / 0.98	67.1 / 65.4	3.3 / 3.6	1.4 / 1.6	1.7 / 1.9	0.00066	14.6
0.33/1.3	V.GMPAD 90 S 4/2	1425 / 2860	0.9 / 2.8	2.2 / 4.3	0.74 / 0.87	70.1 / 75.2	3.7 / 4.4	1.6 / 1.8	2.0 / 1.9	0.00110	17.7
0.5/2	V.GMPAD 90 L 4/2	1415 / 2835	1.2 / 4.2	3.4 / 6.7	0.78 / 0.88	75.0 / 76.2	4.5 / 6.0	2.0 / 1.8	2.4 / 2.5	0.00140	20.6
0.66/2.7	V.GMPAD 100 L 4/2	1430 / 2845	1.5 / 5.2	4.4 / 9.1	0.81 / 0.95	76.0 / 77.2	4.9 / 4.7	1.7 / 1.9	2.3 / 2.1	0.00240	23.1
8/4 pole (750/1500 m^{-1})											
0.12/0.5	V.GMPAD 80 8/4a	680 / 1430	0.7 / 1.5	1.7 / 3.3	0.51 / 0.75	50.5 / 62.3	2.1 / 3.2	1.4 / 1.7	1.7 / 2.1	0.00083	13.4
0.18/0.75	V.GMPAD 80 8/4b	680 /1405	0.9 / 2.0	2.5 / 5.1	0.54 / 0.81	51.5 / 65.3	2.1 / 3.5	1.6 / 1.7	1.8 / 2.1	0.00110	14.1
0.25/0.1	V.GMPAD 90 S 8/4	700 / 1410	1.2 / 2.8	3.4 / 6.8	0.51 / 0.69	57.4 / 73.2	2.7 / 4.6	1.6 / 2.1	2.1 / 2.4	0.00190	18.5
0.33/1.4	V.GMPAD 90 L 8/4	690 / 1390	1.3 / 3.3	4.6 / 9.6	0.60 / 0.79	59.4 / 76.2	2.6 / 4.3	1.7 / 1.8	1.9 / 2.1	0.00240	20.4
0.5/2	V.GMPAD 100 L 8/4a	700 / 1415	1.8 / 4.8	7.0 / 13.0	0.61 / 0.82	64.3 / 71.3	2.9 / 4.8	1.5 / 1.8	2.1 / 2.3	0.00380	22.8
0.6/2.5	V.GMPAD 100 L 8/4b	690 / 1410	2.0 / 5.5	8.0 / 17.0	0.66 / 0.86	64.3 / 74.3	3.2 / 5.2	1.5 / 1.9	2.0 / 2.3	0.00500	23.3
6/4 pole (1000/1500 m^{-1})											
0.15/0.45	V.GMPAD 80 6/4a	930 / 1370	0.5 / 1.3	1.5 / 3.1	0.77 / 0.81	50.5 / 60.4	3.2 / 3.2	1.7 / 1.4	2.1 / 1.5	0.00170	13.3
0.2/0.6	V.GMPAD 80 6/4b	960 / 1400	0.7 / 1.5	2.0 / 4.1	0.67 / 0.80	56.4 / 69.2	3.7 / 3.8	2.1 / 1.6	2.7 / 2.0	0.00220	14.3
0.3/0.9	V.GMPAD 90 S 6/4	940 / 1410	1.1 / 2.3	3.1 / 6.1	0.70 / 0.78	54.5 / 70.2	2.9 / 4.3	1.3 / 1.9	1.9 / 2.1	0.00190	17.7
0.37/1.1	V.GMPAD 90 L 6/4	935 / 1390	1.2 / 2.8	3.8 / 7.6	0.71 / 0.78	61.3 / 71.2	3.2 / 4.0	1.6 / 1.6	2.0 / 2.1	0.00240	21.8
0.6/1.6	V.GMPAD 100 L 6/4a	950 / 1420	1.9 / 4.1	6.0 / 10.8	0.73 / 0.79	62.4 / 69.3	3.6 / 5.2	1.6 / 2.1	2.2 / 2.3	0.00400	28.8
0.75/2.2	V.GMPAD 100 L 6/4b	950 / 1430	2.5 / 5.3	7.5 / 14.7	0.68 / 0.80	62.4 / 73.3	3.6 / 4.7	1.7 / 1.7	2.2 / 2.3	0.00520	30.0

In variable torque applications, two-speed motors should be started at low speed, depending on startup current characteristics. After reaching the rated speed, it can be switched to high speed.

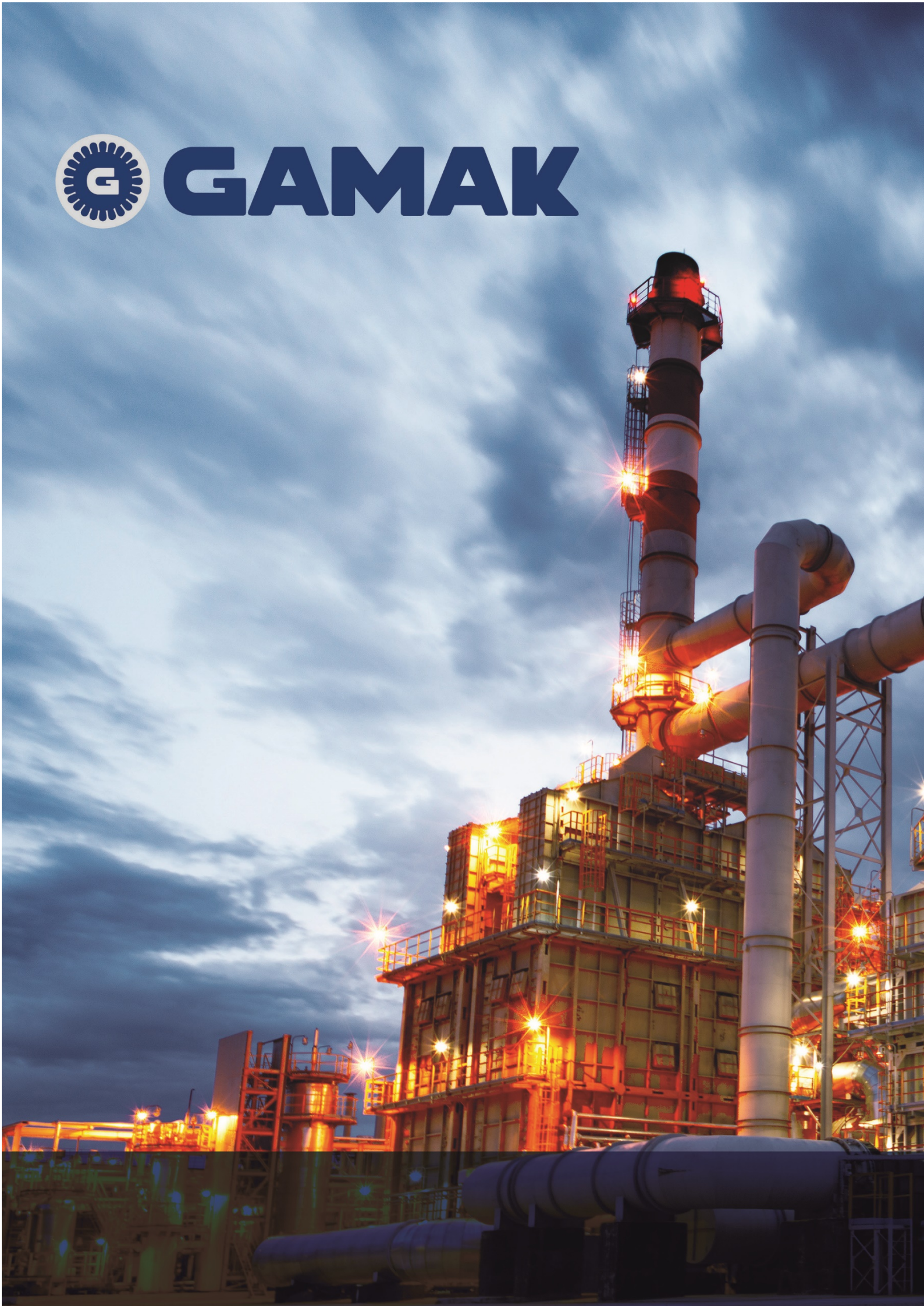


FRAME	AC	AD	B	BB	C	E	ØD	ES	HC	HD	L	KxM
80	156	103	80	207	60	40	19	40	170	156	253	M12x-1.5x18
90-S	176	113	65	227	73.5	50	24	40	190	176	256.5	M12x-1.5x18
90-L	176	113	90	227	73.5	50	24	40	190	170	283	M12x-1.5x18
100-L	197.5	125	100	251	83	60	28	50	210	200	322	M12x-1.5x18

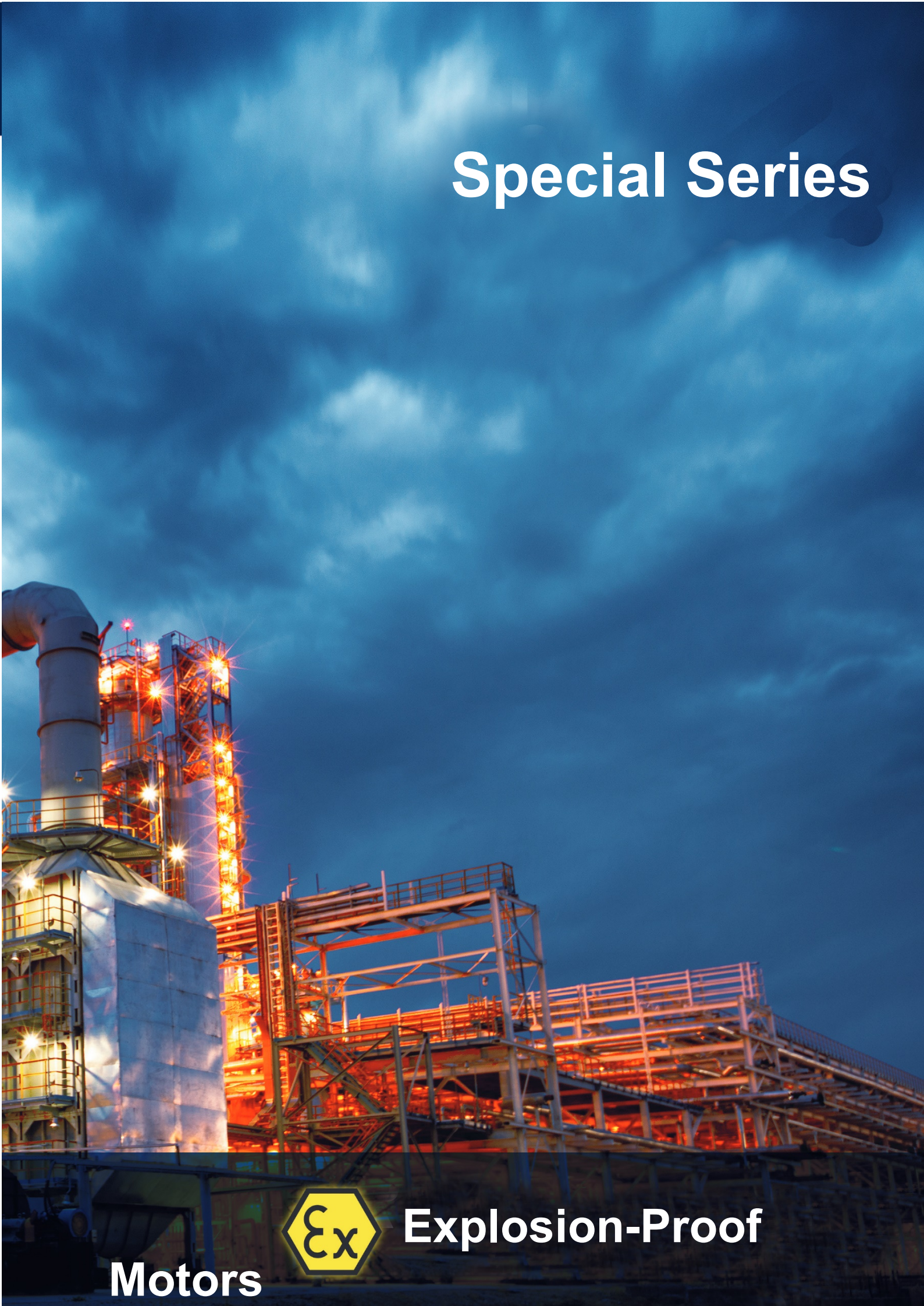


1 Stator complete with winding: Varnished and attached to the frame
3 Rotor complete with shaft, finish machined and balanced (excluding keys)
6 End shield drive end
7 End shield non-drive end
11a Drive end ball-bearing
11b Non-drive end ball-bearing
22 Shaft key
40 Cable gland
72 Corrugated disc spring
76 External circlip
80 Internal circlip
86 Smoke motor terminal cover
87 Smoke motor terminal cover gasket

GAMAK



Special Series



Explosion-Proof Motors

GAMAK EXPLOSION-PROOF MOTORS

- This 3-phase, squirrel-cage, induction electric motor group classified as 71-80-90 S -90 L - 100 L - 112 M - 132 S -132 M -160 M -160 L -180 M -180 L -200 L -225 MS - 250 M according to IEC standards is designed with specific design criteria suitable for related types and has a 2-, 4-, 6- or 8-pole electrical design. It can be operated with direct feeding.
- Casing components in D-class ex-proof motors are made of cast iron.
- The product is designed for operation in flammable and explosive dust and gas environments. In addition to the stator and pinned rotor group that make up the motor, there are also frame, end shield drive end, end shield non-drive end, terminal box, terminal box cover and cable gland-blind plug inlets. The terminal block group contains electrical connections for motor operation, and related cable connections are located in the terminal box.
- Mounting arrangement is prepared in B3 structure.
- Explosion-proof motors in the series can be produced in F or H insulation classes on request. In accordance with relevant standards, the copper and insulation varnish forming the stator can withstand up to 155°C in F class insulation, while in H class insulation this resistance limit is 180°C. The insulation resistance is not associated with the maximum surface temperature.
- All GAMAK explosion-proof motors are manufactured with thermistor protection elements with an opening limit of 130°C. Thus, if the temperature of the winding heads in the motor reaches the relevant degree, the thermistor prevents electric current from reaching the motor, and thus the motor is not overheated. It is the user's responsibility to make the thermistor connections.
- To limit the risks of static electrification in products, the paint thickness on the protection casing is limited to 200 microns, and the rotating plastic propeller raw material is selected from special raw materials with a surface resistance lower than E9 ohms.
- The operating temperature range of the motors in the series is limited to -20 to +40°C.
- The motor should not be painted by the end user.
- It is the end user's responsibility to make the grounding connections.
- The rated duty values of the motors are 220/380 380/400 400/690 50-60 Hz.
- Motors are designed to be suitable for the S1 duty cycle. Maximum surface temperature tests must be performed and verified for different duty cycles (S2-S3, etc.).
- The motors are certified as II 2G Exd IIC T4 Gb for gas environments and II 2D Extb T135 Db for dust environments.

- All technical information about the product, the responsibilities of the end user and definitions regarding the quality management system are included in the user manual provided with the motor. After commissioning, all responsibility related to the product belongs to the end user.

- Motor labels use the following product codes: C (compact motor), GM (1-2-3), Exd (71-80-160...), (S-M-L-MS), (2-4-6-8) and (a-b-c)

  GM : GAMAK explosion-proof motor
  1-2-3 : Energy efficiency class (IE1-IE2-IE3)
  Exd : Motor with Class d protection
  71-80-90 :Motor type defined according to IEC standards
  S-M-L-SM : Frame length
  2-4-6-8 : Number of poles
  a-b-c : Package size

2-pole - 3000 m⁻¹

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m⁻¹	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm²	kg
						4/4	3/4	1/2							
CAST IRON FRAME															
0.37	GMExd 71 2 b	2800	1.1	1.26	0.72	70.8	70.6	68.5	5.0	-	2.4	-	2.6	0.00026	16.4
0.55	GMExd 71 2a	2780	1.3	1.89	0.85	73.5	73.2	70.1	4.5	-	2.4	-	2.6	0.00034	18.0
0.75	C.GM1Exd 71 2	2,760	1.9	2.60	0.82	75.1	75.1	72.1	4.5	-	2.2	-	2.4	0.00039	18.4
0.75	GM1Exd 80 2a	2800	1.9	2.56	0.82	75.3	75.2	72.6	6.2	-	2.5	-	2.8	0.00053	24.0
1.1	GM1Exd 80 2b	2800	2.6	3.75	0.84	78.1	78.0	75.3	6.3	-	2.7	-	2.5	0.00066	26.0
1.5	C.GM1Exd 80 2b	2,825	3.5	5.07	0.83	78.6	78.6	76.9	6.3	-	2.3	-	2.7	0.00083	28.0
1.5	GM1Exd 90 S 2	2835	3.5	5.05	0.83	79.2	79.0	77.3	6.3	-	2.3	-	2.5	0.0011	30.0
2.2	GM1Exd 90 L 2	2840	4.9	7.4	0.83	81.6	81.6	80.2	6.6	-	2.6	-	3.0	0.0014	34.0
3	C.GM1Exd 90 L 2	2840	6.5	10.1	0.84	83.7	83.6	21.5	6.0	-	2.5	-	2.9	0.0025	36.6
4	GM1Exd 112 M 2	2850	8.2	13.4	0.87	85.2	85.1	84.6	6.0	1.9	2.6	0.80	3.0	0.0039	52.0
5.5	C.GM1Exd 112 M 2	2870	11	18.3	0.88	86.1	86.1	85.3	7.0	2.3	2.8	0.9	3.3	0.0108	57.0
55	GM2E 250 M 2	2970	100	177	0.90	93.3	93.3	92.9	6.8	2.2	2.4	0.8	2.5	0.410	517
75	C.GM2E 250 M 2	2970	134	241	0.91	93.9	93.9	93.4	6.8	2.2	2.2	0.7	2.4	0.410	570

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

4-pole - 1500 m⁻¹

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m⁻¹	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm²	kg
						4/4	3/4	1/2							
CAST IRON FRAME															
0.25	GM1Exd 71 4a	1380	0.87	1.73	0.69	63.6	63.5	62.7	2.9	-	1.8	-	2.2	0.00040	16.4
0.37	GM1Exd 71 4b	1390	1.20	2.54	0.67	73.0	73.0	68.5	3.7	-	2.2	-	2.5	0.00054	18.0
0.37	C.GM1Exd 71 4	1385	1.50	3.79	0.77	70.5	70.5	68.7	3.4	-	1.9	-	2.1	0.00062	18.4
0.55	GM1Exd 80 4a	1365	1.60	3.85	0.74	70.9	70.8	69.5	3.5	-	1.9	-	2.0	0.00083	26.0
0.75	GM1Exd 80 4b	1370	2.10	5.23	0.75	72.2	72.2	70.1	3.5	-	1.9	-	2.0	0.00110	28.3
1.1	C.GM1Exd 80 4b	1365	3.10	7.70	0.73	74.0	70.5	69.9	4.0	-	2.1	-	2.1	0.00134	27.8
1.1	GM1Exd 90 S 4	1380	2.70	7.6	0.81	76.8	76.7	75.1	4.3	-	2.2	-	2.4	0.0019	29
1.5	GM1Exd 90 L 4	1385	3.60	10.3	0.81	78.6	78.5	76.2	4.6	-	2.4	-	2.6	0.0024	33
2.2	C.GM1Exd 90 L 4	1430	3.50	10.0	0.75	83.0	83.0	81.3	5.9	-	3.3	-	3.5	0.0030	37
4	GM1Exd 112 M 4	1425	8.60	26.8	0.83	84.7	84.7	82.6	5.5	1.8	2.5	0.8	2.9	0.0092	59
55	GM1Exd 250 M 4	1470	102	357	0.88	93.0	93.0	91.4	6.8	2.2	2.8	0.9	2.4	0.54	513
75	C.GM1Exd 250 M 4	1470	140	487	0.87	93.3	93.3	91.1	7.0	2.3	2.9	0.9	2.7	0.72	580

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

6-pole - 1000 m^{-1}

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
						4/4	3/4	1/2							
CAST IRON FRAME															
0.18	GMExd 71 6a	915	0.62	1.88	0.68	64.8	64.8	61.3	3.2	-	1.7	-	2.1	0.00064	16.4
0.25	GMExd 71 6b	915	0.85	2.61	0.66	65.6	65.6	62.5	3.2	-	1.7	-	2.1	0.00086	18
0.37	GMExd 80 6a	910	1.15	3.88	0.65	74.9	74.9	72.3	3.6	-	2.1	-	2.4	0.0017	25
0.55	GMExd 80 6b	890	1.5	5.90	0.77	72.3	72.3	70.4	3.5	-	1.9	-	2.0	0.0022	27
0.75	GM1Exd 90 S 6	900	2.2	7.96	0.70	74.0	74.0	72.1	3.4	-	1.6	-	1.7	0.0029	29
1.1	GM1Exd 90 L 6	910	3.0	11.5	0.73	76.8	76.7	73.8	3.5	-	1.8	-	1.9	0.0038	33
2.2	GM1Exd 112 M 6	940	5.3	22.4	0.76	82.6	82.6	80.0	4.6	-	2.1	-	2.4	0.013	57
37	GM1Exd 250 M 6	980	75	361	0.82	91.6	91.6	90.1	6.5	2.1	2.6	0.8	2.2	0.77	535
45	C.GM1Exd 250 M 6	980	90	439	0.83	91.8	91.8	90.3	6.5	2.1	3.0	1.0	2.2	0.99	298

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

8-pole - 750 m^{-1}

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
						4/4	3/4	1/2							
CAST IRON FRAME															
0.09	GMExd 71 8a	690	0.4	1.23	0.53	58.2	58.2	56.1	2.3	-	1.7	-	1.9	0.00064	16.4
0.12	GMExd 71 8b	670	0.6	1.66	0.53	58.4	58.4	56.4	2.2	-	1.9	-	2.0	0.00086	18
0.18	GMExd 80 8a	695	1.0	2.47	0.46	62.0	62.0	60.0	3.0	-	2.8	-	3.0	0.0017	25
0.25	GMExd 80 8b	680	1.2	3.51	0.49	64.8	64.7	61.3	2.9	-	2.6	-	2.8	0.0022	27
0.37	GMExd 90 S 8	690	1.40	5.05	0.59	68.5	68.5	66.0	3.2	-	1.8	-	2.0	0.0029	30
0.55	GMExd 90 L 8	670	1.92	7.8	0.61	71.4	71.4	70.1	3.0	-	1.4	-	1.7	0.0038	36
1.5	GMExd 112 M 8	700	4.6	20.3	0.64	77.6	77.6	75.8	3.6	-	1.9	-	2.2	0.013	59
30	GMExd 250 M 8	735	62	390	0.80	91.4	91.5	90.2	6.1	2.0	1.8	0.6	2.6	0.92	544

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

2-pole - 3000 m^{-1}

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-30-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
CAST IRON FRAME															
0.75	GM2Exd 71 2	2780	1.7	2.60	0.82	77.4	77.2	74.2	4.5	-	2.2	-	2.4	0.00039	18.4
0.75	GM2Exd 80 2a	2860	1.7	2.60	0.82	77.8	77.7	74.6	6.2	-	2.5	-	3.0	0.00053	24.3
1.1	GM2Exd 80 2b	2880	2.3	3.65	0.86	80.0	80.0	78.1	6.3	-	2.7	-	3.0	0.00066	26
1.5	C.GM2Exd 80 2	2880	3.3	4.97	0.80	82.0	82.0	80.1	6.3	-	2.3	-	3.0	0.00110	28
1.5	GM2Exd 90 S 2	2880	3.3	4.97	0.80	82.0	82.0	80.1	6.3	-	2.3	-	3.0	0.0011	30
2.2	GM2Exd 90 L 2	2870	4.5	7.32	0.84	84.5	84.5	83.2	6.6	-	2.6	-	3.1	0.0014	35
3	GM2Exd 100 L 2	2880	5.8	9.9	0.88	85.3	85.3	84.1	6.0	-	2.5	-	3.0	0.0025	46
4	GM2Exd 112 M 2	2880	7.9	13.3	0.84	86.5	86.5	86.0	7.2	2.3	2.8	0.90	3.5	0.0039	54
5.5	C.GM2Exd 112 M 2	2900	10.3	18.1	0.88	87.3	87.3	86.5	7.3	2.4	2.5	0.8	3.1	0.0108	57
5.5	GM2Exd 132 S 2a	2900	10.3	18.1	0.88	87.3	87.3	86.5	7.3	2.4	2.5	0.8	3.1	0.011	84
7.5	GM2Exd 132 S 2b	2910	13.6	24.6	0.90	88.5	88.5	87.9	7.2	2.3	3.0	1.0	3.4	0.014	94
11	GM2Exd 160 M 2a	2945	19.5	35.7	0.91	89.5	89.5	88.6	7.7	2.5	3.4	1.1	3.6	0.030	143
15	GM2Exd 160 M 2b	2945	26.5	48.6	0.90	90.4	90.4	89.7	7.5	2.4	3.0	1.0	3.5	0.041	154
18.5	GM2Exd 160 L 2	2950	32.3	59.9	0.91	90.9	90.8	89.9	7.7	2.5	2.5	0.8	3.0	0.048	176
22	GM2Exd 180 M 2	2950	38.3	71	0.91	91.3	91.3	90.8	8.2	2.6	3.0	1.0	3.5	0.066	260
30	GM2Exd 200 L 2a	2970	52	96	0.91	92.0	92.0	91.2	8.3	2.7	2.7	0.9	3.0	0.13	361
37	GM2Exd 200 L 2b	2970	65	119	0.89	92.6	92.6	91.7	8.3	2.7	2.7	0.9	3.0	0.15	381
45	GM2Exd 225 M 2	2975	77	144	0.91	92.9	93.0	91.8	8.0	2.6	2.4	0.8	2.9	0.230	441
55	GM2Exd 250 M 2	2980	94	176	0.91	93.2	93.2	92.2	7.6	2.5	2.6	0.8	2.7	0.410	553

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

4-pole - 1500 m^{-1}

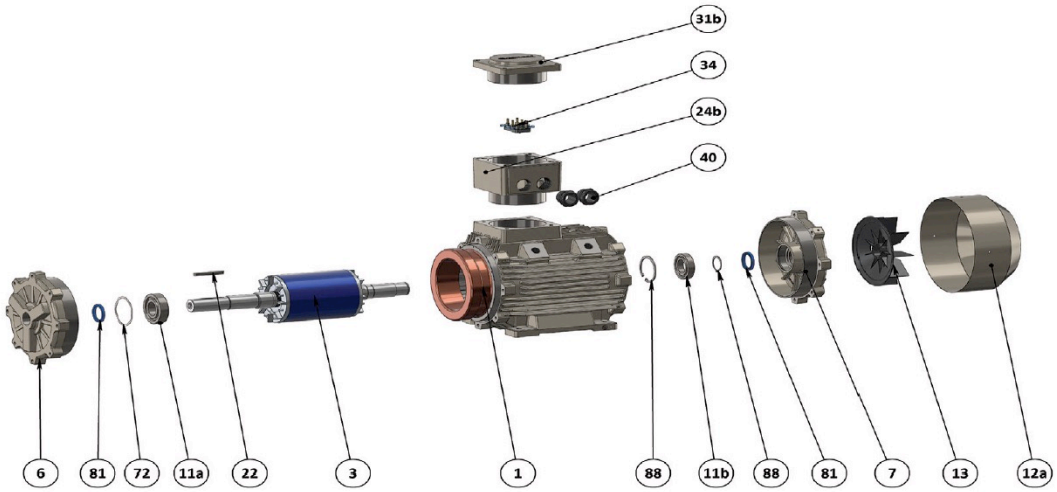
Rated output	Type	Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N		Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
						IEC 60034-30-1:2014									
kW		m^{-1}	A	Nm		4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
CAST IRON FRAME															
0.55	GM2Exd 80 4a	1365	1.60	3.85	0.72	69.1	69.0	65.2	3.5	-	1.9	-	2.0	0.00083	26
0.75	GM2Exd 80 4b	1410	1.92	5.08	0.71	79.6	79.6	77.6	4.4	-	2.2	-	2.5	0.0014	28.3
1.1	GM2Exd 90 S 4	1420	2.60	7.4	0.74	82.0	82.0	80.5	5.5	-	3.0	-	3.3	0.0022	32
1.5	GM2Exd 90 L 4	1430	3.50	10.0	0.75	83.0	83.0	81.5	5.9	-	3.3	-	3.5	0.0030	37
2.2	GM2Exd 100 L 4a	1440	4.90	14.7	0.77	84.5	84.6	82.5	5.0	-	2.0	-	2.4	0.0044	50
4	GM2Exd 112 M 4	1450	8.40	26.5	0.79	86.7	86.8	85.3	6.6	2.1	2.5	0.8	3.3	0.0106	61
5.5	GM2Exd 132 S 4	1455	11.5	36.2	0.79	87.7	87.6	87.2	7.0	2.3	2.8	0.9	3.5	0.021	92
7.5	GM2Exd 132 M 4	1460	16.0	49.2	0.76	88.7	88.8	88.2	7.1	2.3	2.7	0.9	3.4	0.026	110
11	GM2Exd 160 M 4	1455	21.3	71.9	0.83	90.0	90.1	89.3	6.9	2.2	2.8	0.9	3.1	0.067	157
15	GM2Exd 160 L 4	1460	29.4	98.4	0.81	90.6	90.7	89.7	7.5	2.4	2.6	0.8	3.5	0.088	181
18.5	GM2Exd 180 M 4	1455	34.5	120	0.85	91.3	91.4	90.4	7.7	2.5	3.2	1.0	3.4	0.13	268
22	GM2Exd 180 L 4	1470	42.5	143	0.81	91.7	91.7	90.6	8.3	2.7	3.7	1.2	3.8	0.15	294
30	GM2Exd 200 L 4	1470	55.0	195	0.85	92.5	92.6	92.1	8.0	2.6	3.1	1.0	3.6	0.22	308
37	GM2Exd 225 S 4	1470	67	240	0.86	92.7	92.7	92.2	7.2	2.3	3.0	1.0	3.0	0.30	412
45	GM2Exd 225 M 4	1470	80	292	0.87	93.3	93.3	92.4	7.3	2.4	3.0	1.0	3.0	0.36	441
55	GM2Exd 250 M 4	1475	96	356	0.88	93.7	93.8	93.2	7.6	2.5	3.1	1.0	2.9	0.72	598

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

6-pole - 1000 m^{-1}

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
						IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ			
kW		m^{-1}	A	Nm		4/4	3/4	1/2					M_K/M_N	kgm^2	kg
CAST IRON FRAME															
0.75	GM2Exd 90 S 6	920	2.0	7.78	0.71	75.9	75.9	72.4	4.0	-	2.2	-	2.4	0.0034	30
1.1	GM2Exd 90 L 6	930	2.9	11.3	0.70	78.1	78.1	75.1	4.0	-	2.2	-	2.4	0.0044	36
1.5	GM2Exd 100 L 6	945	3.6	15.2	0.75	79.8	79.7	76.4	4.5	-	2.2	-	2.4	0.0077	46
2.2	GM2Exd 112 M 6	950	5.4	22.1	0.72	81.8	81.7	78.5	4.7	-	2.2	-	2.5	0.013	59
3	GM2Exd 132 S 6	960	6.9	29.8	0.75	83.3	83.2	80.4	5.0	1.6	2.2	0.7	2.6	0.028	81
4	GM2Exd 132 M 6a	960	9.0	39.8	0.76	84.5	84.5	81.6	5.0	1.6	2.2	0.7	2.6	0.037	92
5.5	GM2Exd 132 M 6b	960	12.3	54.7	0.75	86.0	86.0	83.1	5.0	1.6	2.2	0.7	2.6	0.060	103
7.5	GM2Exd 160 M 6	960	15	74.6	0.83	87.2	87.2	84.5	6.5	2.1	2.5	0.8	3.0	0.08	157
11	GM2Exd 160 L 6	965	22	109	0.81	88.7	88.7	85.7	6.5	2.1	2.5	0.8	3.0	0.12	181
15	GM2Exd 180 L 6	965	29	148	0.83	89.7	89.7	86.8	6.5	2.1	2.4	0.8	3.0	0.20	277
18.5	GM2Exd 180 L 6a	975	38	181	0.78	90.4	90.4	87.7	7.0	2.3	2.5	0.8	3.0	0.21	328
22	GM2Exd 200 L 6b	975	43	215	0.81	90.9	90.9	88.4	7.0	2.3	2.5	0.8	3.0	0.26	353
30	GM2Exd 220 M 6	980	58	292	0.81	91.7	91.7	89.6	7.0	2.3	3.0	1.0	2.6	0.57	422
37	GM2Exd 250 M 6	985	71	359	0.82	92.2	92.2	90.1	7.0	2.3	3.0	1.0	2.6	0.77	535

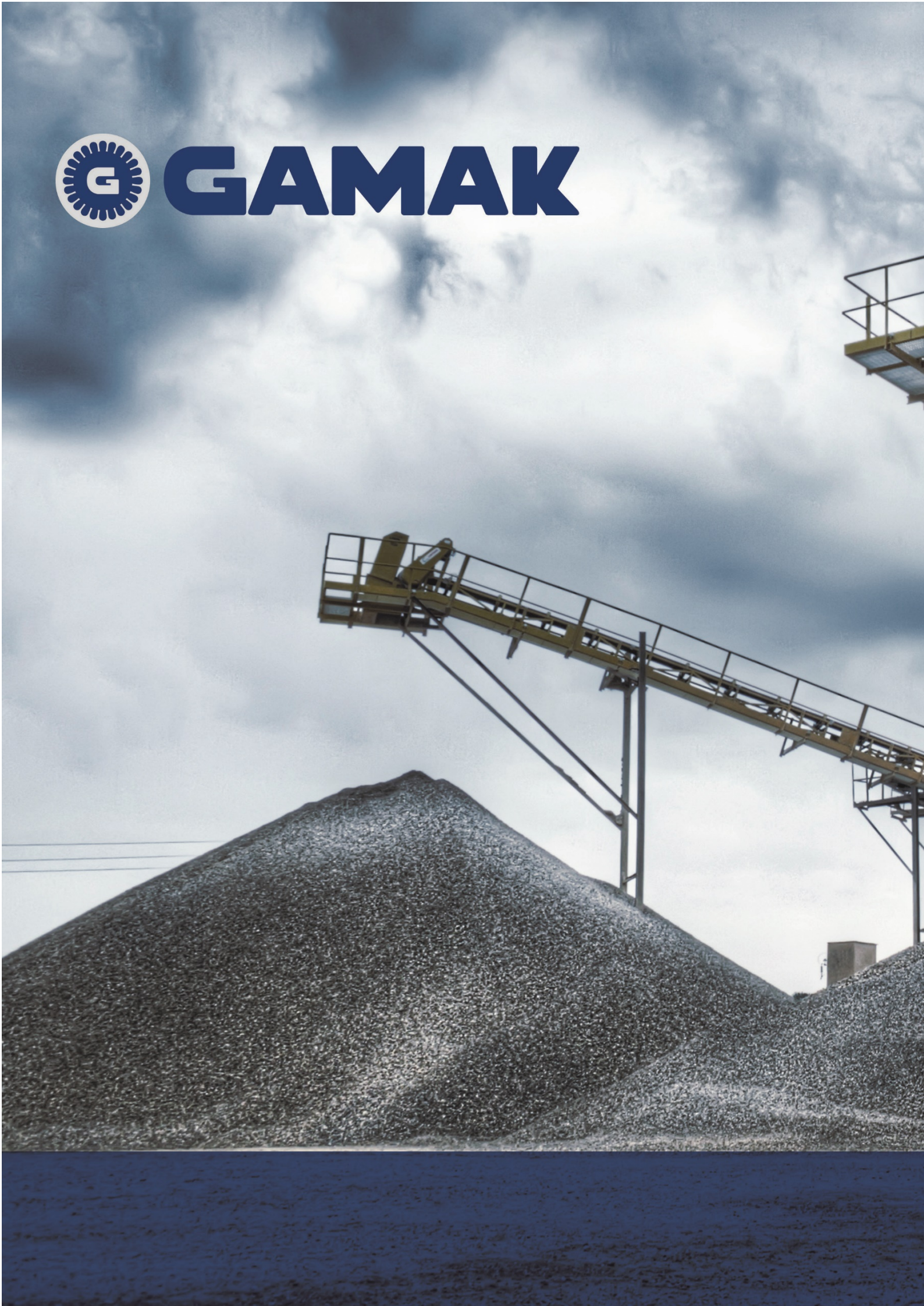
Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.



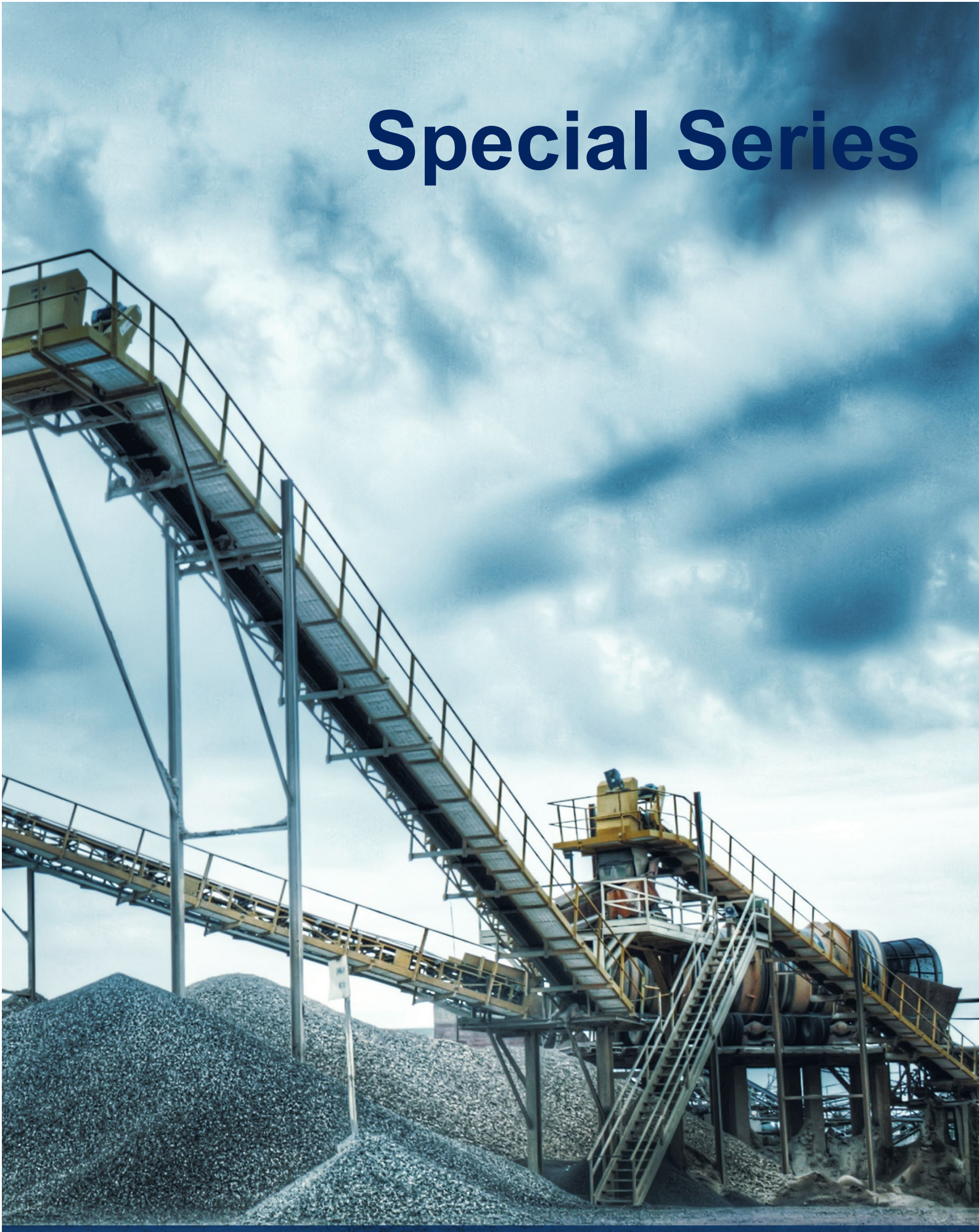
1 Stator complete with winding: Varnished and attached to the frame
3 Rotor complete with shaft, finish machined and balanced (excluding keys)
6 End shield drive end
7 End shield non-drive end
11a Drive end bearing
11b Non-drive end bearing
12a Fan cover
13 Fan
22 Shaft key
24 Terminal box
31b Terminal box lid
34 Terminal
40 Cable gland
72 Corrugated disc spring
80 Internal circlip
81 V-ring or optional oil seal
88 MKD internal circlip

*Removable Flange (in Type 132 only): B3 cover is turned into B5, B14 or B14/2 flange by mounting of the proper plate directly without removing the motor's end shield drive end.

GAMAK



Special Series



Stone Crusher Motors

STONE CRUSHER MOTORS

GAMAK Stone crusher motors are designed in Types 315 and 355, ranging from 132 kW to 355 kW to withstand the harsh working conditions required by the industry. Stone crusher motors are designed with fixed feet and a cast iron frame. The motors can also be manufactured in Type 315, with LHT code structure and removable feet upon request.

IP65 protection, required especially in extremely dusty environments, is provided by its special seal and bearing design. Lubricated NU bearing used at pulley shaft outlet, H-class insulation, reinforced shaft design with increased strength against excessive fatigue and torsion (100 millimeter shaft diameter), cast iron frame resistant to impacts and falls and thermistor protection come as standard features. It also meets speed control requirements thanks to its electrical design suitable for usage with driver. General application areas are as follows:

- Stone Crushing
- Feeders and Feeder Conveyors
- Crushers
- Screening Machines
- Breakers
- Vibration

Fixed Feet 4-pole - 1500 m⁻¹

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m⁻¹	A	Nm		IEC 60034-30-1:2014 4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm²	kg
CAST IRON FRAME															
132	GM2E 315 M 4a	1485	230	849	0.87	94.7	94.5	93.8	7.4	2.4	2.1	0.7	3.0	2.6	861
160	GM2E 315 M 4b	1485	280	1029	0.87	94.9	94.9	94.0	7.0	2.3	2.0	0.6	2.9	3.0	882
185	GM2E 315 L 4a	1485	323	1190	0.87	95.1	95.1	94.2	7.4	2.4	2.2	0.7	3.0	3.1	962
200	GM2E 315 LH 4b	1485	350	1286	0.87	95.1	95.1	94.2	8.0	2.6	2.5	0.8	3.0	4.6	1015
250	GM2E 315 LH 4c	1485	448	1608	0.85	95.1	95.1	94.2	8.1	2.7	2.3	0.8	3.1	5.0	1,240
250	GMM2E 355 M 4a	1485	445	1608	0.85	95.1	95.1	94.2	6.4	2.1	2.1	0.6	2.8	5.5	1378
315	GMM2E 355 M 4b	1487	560	2023	0.85	95.4	95.1	94.2	6.4	2.1	2.0	0.6	2.8	6.0	1400
355	GMM2E 355 M 4c	1488	630	2278	0.85	95.4	95.2	94.3	7.0	2.3	2.0	0.6	2.8	6.5	1438

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

Removable Feet 4-pole - 1500 m⁻¹

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m⁻¹	A	Nm		IEC 60034-30-1:2014 4/4	3/4	1/2	D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm²	kg
CAST IRON FRAME															
185	GM2E 315 LHT 4b	1485	323	1190	0.87	95.1	95.1	94.2	7.4	2.4	2.2	0.7	3.0	2.9	962
200	GM2E 315 LHT 4b	1485	350	1286	0.87	95.1	95.1	94.2	8.0	2.6	2.5	0.8	3.0	3.1	1015
250	GM2E 315 LHT 4c	1485	448	1608	0.85	95.1	95.1	94.2	8.1	2.7	2.3	0.8	3.1	3.9	1,240

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.
The symbol “T” signifies that the motor has removable feet.

Fixed Feet 4-pole - 1500 m^{-1}

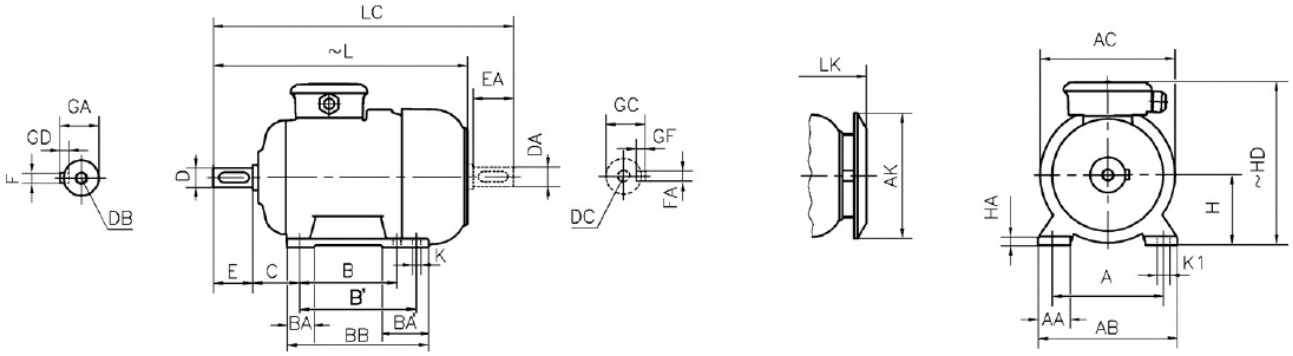
Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
						4/4	3/4	1/2							
CAST IRON FRAME															
132	GM3E 315 M 4a	1487	230	848	0.87	95.6	95.4	95.3	7.5	2.5	2.4	0.8	3.0	3.5	882
160	GM3E 315 L4 - 100	1488	275	1027	0.88	95.8	95.6	95.6	6.9	2.3	2.2	0.7	2.9	3.9	930
185	GMM3E 315 L 4a	1488	321	1187	0.87	96.0	96.0	95.8	6.9	2.3	2.2	0.7	2.9	4.0	1015
200	GM3E 315 LH 4b	1489	350	1282	0.86	96.0	96.0	95.8	7.5	2.5	2.5	0.8	3.1	4.6	1100
250	GM3E 315 LH 4c	1489	440	1602	0.85	96.1	96.1	95.8	7.6	2.5	2.3	0.8	3.1	4.8	1300
250	GMM3E 355 M 4a	1490	430	1602	0.87	96.1	96.0	96.0	7.2	2.4	2.2	0.7	3.0	6.0	1400
315	GMM3E 355 M 4b	1490	540	2019	0.88	96.1	96.0	95.9	7.2	2.4	2.2	0.7	3.0	6.5	1438
355	GMM3E 355 M 4c	1490	610	2275	0.87	96.2	96.0	96.1	7.2	2.4	2.2	0.7	3.0	7.2	1490

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.

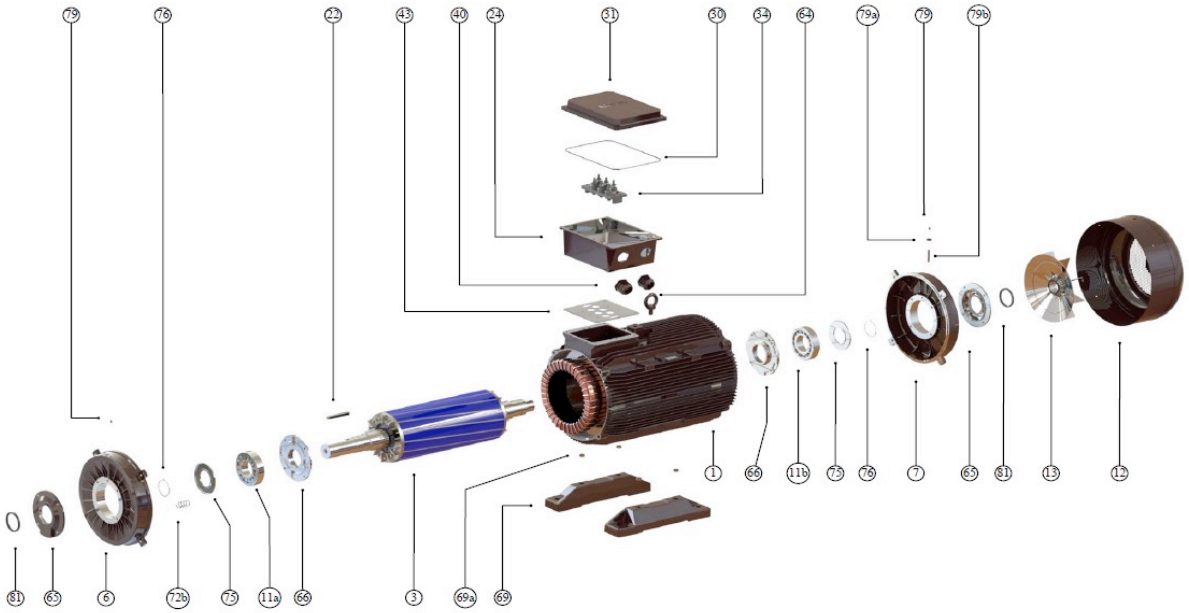
Removable Feet 4-pole - 1500 m^{-1}

Rated output	Type	At Rated Output							Starting Data				Breakdown Torque Ratio	Moment of Inertia J	Approximate Weight B3
		Speed	Current I_N	Torque M_N	Power Factor (Cos φ)	Efficiency η %			Locked-Rotor Current Ratio I_A/I_N		Locked-Rotor Torque Ratio M_A/M_N				
kW		m^{-1}	A	Nm		IEC 60034-30-1:2014			D.O.L.	Y/Δ	D.O.L.	Y/Δ	M_K/M_N	kgm^2	kg
						4/4	3/4	1/2							
CAST IRON FRAME															
180	GM3E 315 LHT 4 - 100	1488	275	1027	0.88	95.8	95.6	95.6	6.9	2.3	2.2	0.7	2.9	3.9	930
185	GMM3E 315 LHT 4a	1488	321	1187	0.87	96.0	96.0	95.8	6.9	2.3	2.2	0.7	2.9	4.0	1015
200	GM3E 315 LHT 4b	1489	350	1282	0.86	96.0	96.0	95.8	7.5	2.5	2.5	0.8	3.1	4.6	1100
250	GM3E 315 LHT 4c	1489	440	1602	0.85	96.1	96.1	95.8	7.5	2.5	2.3	0.8	3.1	4.8	1300

Efficiency values are calculated using the indirect measuring method in accordance with IEC 60034-2-1:2014. Additional losses are determined according to the results of the tests conducted with variable load values.
The symbol “T” signifies that the motor has removable feet.



Foot-mounted motor dimensions: in B3, B6, B7, B8, B15, V5, V6 mounting arrangements																									
Frame Size		Number of Poles	H	HD~	HA	A	AA	AB	ACØ	AKØ	K	B	B'	BA	BA'	BB	L~	LC	LK~	C	E EA	DB DC	DØ DAØ	GA GC	FxGD FAxGF
315	M	4	315	825	50	508	125	620	614	571	28	406	-	115	166	550	1150	1330	1227	216	210	M24	100	106	28x16
	L											-	457				1220	1400	1297						
	LHT*/LH			855					617			508		125	-	600	1,381	1,561	1297	228					
355	M		355	980		610	150	740	732			560	-	140	-	680	1377	1597	1454	254					



1 Stator complete with winding: Varnished and attached to the frame
3 Rotor complete with shaft, finish machined and balanced (excluding keys)
6 End shield drive end
7 End shield non-drive end
11a Drive end ball-bearing (cylindrical roller)
11b Non-drive end bearing
12 Fan cover (63…450)
13 Fan
22 Shaft key
30 Terminal box to lid gasket
31 Terminal box lid
34 End plate - Terminal (including bridges, nuts and washers)
40 Cable gland
43 Terminal box to motor frame gasket
64 Lifting eye (200..450)
65 External bearing cap (motors with greasing nipples)
66 Internal bearing cap (motors with greasing nipples)
69 Removable feet
69a Guide bush
72b Coil spring (315..450)
75 Grease retaining ring (motors with greasing nipples)
76 External circlip for retaining ball-bearing and grease-retaining disc
79 (At D.E. and N.D.E. of motors with greasing nipples and at N.D.E. of framed 160..280)
79a Greasing nipple pipe holder
79b Greasing nipple connector part
81 V-ring or optional oil seal
81 V-ring or optional oil seal

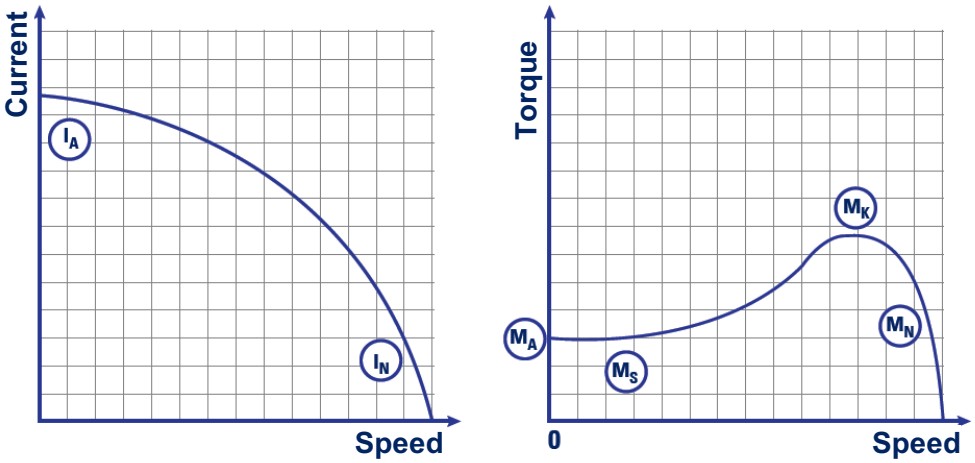
*Removable Flange (in Type 132 only): B3 cover is turned into B5, B14 or B14/2 flange by mounting of the proper plate directly without removing the motor's end shield drive end.

GAMAK

Special Series

Milking Machine Motors

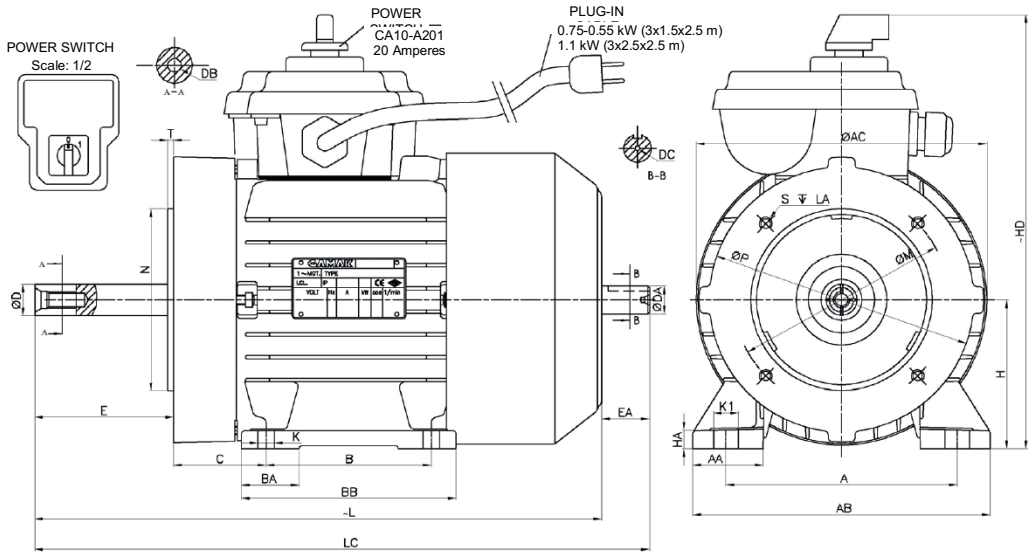
Fixed Feet 4-pole - 1500 m⁻¹



Rated Output	Type	Speed	Current I_N	Torque M_N	Power Factor	Efficiency η	Locked-Rotor Current Ratio	Locked-Rotor Torque Ratio	Breakdown Torque Ratio	Permanent Circuit Capacitor	Moment of Inertia J	Approximate Weight B3
kW		m^{-1}	A	Nm	Cos φ	%	I_A/I_N	M_A/M_N	M_K/M_N	µF	kgm^2	kg
0.55	MD.F 90 S 4 - 8	1410	4.8	3.8	0.79	63	3.2	0.5	1.9	25	0.00076	11.6
0.75	MD.F 90 S 4 - 13	1410	5.1	5.1	0.91	70	3.6	0.5	1.9	30	0.00160	13.6
1.1	MD.F 90 S 4 - 17	1400	7.2	7.2	0.95	70	3.6	0.6	1.9	35	0.00209	16.8
1.5	MD.F 90 L 4	1400	9.4	9.4	0.96	72	3.6	0.6	1.8	50	0.00265	19.1

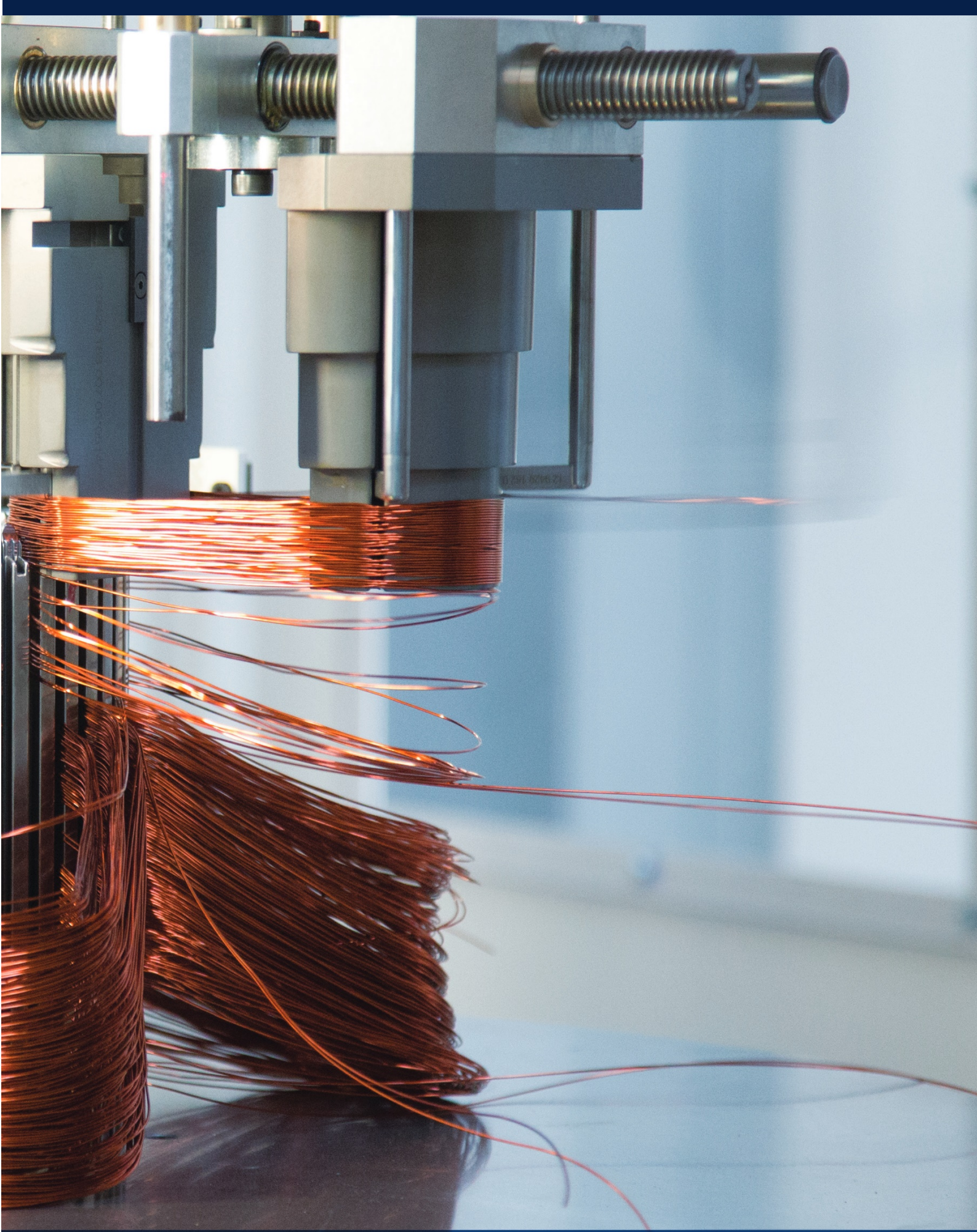
Optional features can be added on customer request.

Fixed Feet 4-pole - 1500 m⁻¹

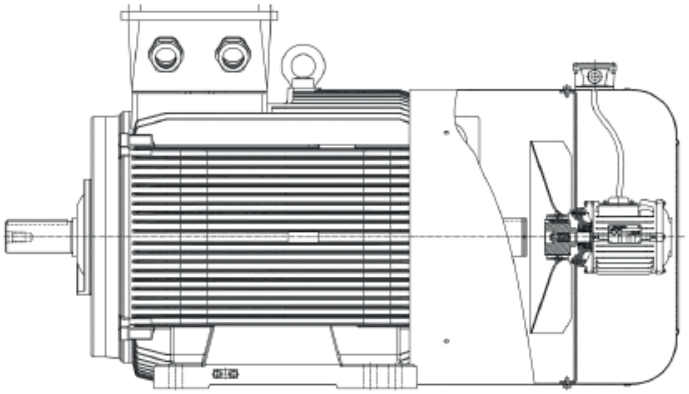


Frame Size	Number of Poles	Foot- and Flange-Mounted Motor Dimensions: (Flange form C-DIN EN 50 347), in B34 mounting arrangement																													
		H	~HD	HA	A	AA	AB	ØAC	ØAK	K	K1	B	B'	BA	BA'	BB	Flange	ØM	ØN	ØP	S	T	LA	~L	LC	C	E	EA	DB	DC	ØD	ØDA
90 S	4	90	260	12	140	43	180	176	-	10	15	100	-	35	-	130	FT130	130	110	160	M8	3.5	16	332 343	361 372	343	73 84	29	M10	3.15	19 22	17

GAMAK



General Information



Frame Size		Number of Poles	L (mm)
71		2-4-6-8	372
80		2-4-6-8	406
90	S	2-4-6-8	444
	L		469
100	L	2-4-6-8	522
112	M	2-4-6-8	537
132	S	2-4-6-8	607
	M		645
160	M	2-4-6-8	831
	L		
180	M	2-4-6-8	904
	L		
200	L	2-4-6-8	1,021

Frame Size		Number of Poles	L (mm)
132	S	2-4-6-8	649
	M		
160	M	2-4-6-8	831
	L		875
180	M	2-4-6-8	904
	L		942
200	L	2-4-6-8	1,021
225	S	4-8	1,093
	M	2	1,093
		4-6-8	118
250	M	2	1150
		4-6-8	
280	S	2	
		4-6-8	
	M	2	
		4-6-8	1219

Frame Size		Number of Poles	L (mm)
315	S	2	1405
		4-6-8	1435
	M	2	1405
		4-6-8	1435
	L	2	1435
		4-6-8	1475
355	M	2	1,505
		4-6-8	1,617
	L	2	1,657
		4-6-8	1,687
400	L	2	1727
		4-6-8	1,944
450	L	2	1,944
		4-6-8	1,984

Not: Please consult us for 450 LH frame.

3000 m⁻¹, 2-pole motors

Power (kW)	Frame Size	Mechanical Speed Limit (m⁻¹)	Maximum Operating Frequency (m⁻¹)
0.09...5.5	56...112	6000	100
5.5...11	132	5,600	90
11...22	160	4,800	80
22 - 30	180	4,600	76
30...55	200 - 225	4,500	75
55...500	250 - 355	3600	60
450…1000	400 - 450	3,400	56

1500 m⁻¹, 4-pole motors

Power (kW)	Frame Size	Mechanical Speed Limit (m⁻¹)	Maximum Operating Frequency (m⁻¹)
0.06...11	56 - 132	4200	140
11...55	160 - 225	4200	140
55...110	250 - 280	3600	120
110...250	315	2800	93
250...500	355	2,400	80
450…1000	400 - 450	2,200	73

1000 m⁻¹, 6-pole motors

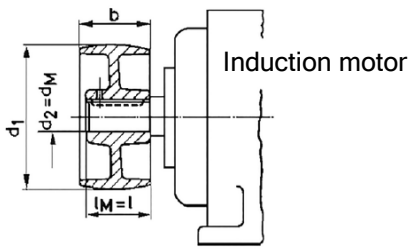
Power (kW)	Frame Size	Mechanical Speed Limit (m⁻¹)	Maximum Operating Frequency (m⁻¹)
0.18...5.5	71...132	3900	195
7.5...15	160...180	3600	180
18.5...37	200...225	3200	160
37 - 75	250 - 280	3000	150
75...160	315	2600	130
160...355	355	2,400	120
355...8,000	400	2,200	110

1500 m⁻¹, 4-pole motors

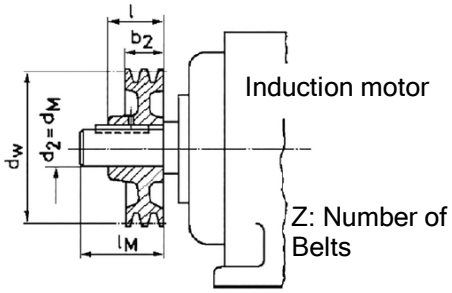
Power (kW)	Frame Size	Mechanical Speed Limit (m⁻¹)	Maximum Operating Frequency (m⁻¹)
0.09...11	71...180	3200	213
15...45	200...280	3000	200
55...132	315	2600	173
132...315	355	2,400	160
315...630	400 - 450	2,200	147

Connection of narrow V-belt pulleys with induction motors is given in DIN 2211. The radial load applied by the pulleys of the following dimensions to the motor shaft extension is recommended for GAMAK motors as it is within the radial force limit foreseen for the respective motor. The shape of pulleys may differ from those shown in the picture, but the dimensions are as shown in the chart.

Straight belt pulleys



Narrow V-belt pulleys



The flat side of the pulley hub must be positioned on the same side as the motor.

Straight Belt Pulleys DIN111				Power (kW) of 3-Phase induction at 50 Hz P_n Motor speed m^{-1}				Narrow V-Belt Pulleys DIN 2211 T1					
d1	b	l	3000	1,500	1000	750	Frame Size	Shaft Extension dMxlM	Profile	dw	Z	b2	l
50	25	23	0.18	0.12	-	-	63	11X23	-	-	-	-	-
			0.25	0.18	-	-							
63	32	30	0.37	0.25	-	-	71	14X30	-	-	-	-	-
			0.55	0.37	-	-							
80	40	40	0.75	0.55	0.37	-	80	19X40	-	63	1	16	28
			1.1	0.75	0.55	-							
100	50	50	1.5	1.1	0.75	-	90 S	14X50	SPZ	71	1	16	28
125	63		2.2	-	-	-	90 L			80			
				1.5	1.1	-				90			
160	80	60	3	-	-	0.75	100 L	28X60	SPZ	100	1	16	40
			-	2.2	1.5	1.1				112			
			-	3	-	-					2	28	
160	80	60	4	-	-	-	112 M	28X60	SPZ	125	1	16	40
			-	-	2.2	1.5				140			
			-	4	-	-					2	28	
200	100	80	5.5	-	-	-	132 S	38X30	SPZ	140	2	28	40
			7.5	5.5	3	2.2							
224			-	-	4	3	132 M				3	40	50
			-	7.5	5.5	-							
250	125	110	11	-	-	4	160 M	42X110	SPZ	160	3	40	50
			15	11	7.5	5.5							
			18.5	15	11	7.5	160 L			180	4	52	52
280	140	110	22	-	-	-	180 M	48X110	SPZ	180	4	52	52
			-	18.5	-	-			SPA			65	65
			-	22	15	11	180 L						
315	160	110	30	-	-	-	200 L	55X110	SPA	200	4	65	65
			37	-	-	-							
	200		-	30	18.5	15				250			
			-	-	22	-							
355	200	140	-	37	-	18.5	225 S	60X140	SPA	250	5	80	70
315		110	45	-	-	-	225 M	55X110			4	65	65
355		140	-	45	30	22		60X140	SPB	280		82	82
355	200	140	55	-	-	-	250 M	60X140	SPA	250	5	80	70
400			-	55	37	30		65X140	SPB	280		101	90
400	200	140	*75	-	-	-	280 S	65X140	-	-	-	-	
450	224	140	-	75	45	37		75X140	SPB	315	6	120	100
400	200	140	*90	-	-	-	280 M	65X140	-	-	-	-	-
450	224	140	-	90	55	45		75X140	SPC	355	4	110.5	100
400	200	140	*110	-	-	-	315 S	65X140	-	-	-	-	
500	250	170	-	110	75	55		85X170	SPC	355	5	136	110
400	200	140	-132	-	-	-	315 M	65X140	-	-	-	-	
500	250	170	-	132	110	75		85X170	SPC	400	6	161.5	120

Efficiency (η) and power factor (Cos φ) values given below should be used in conjunction with performance ratings. Listed values are average. Please consult us for exact values for a specific motor.

% Efficiency (η)					Power Factor (Cos φ)				
1/4	1 / 2	3 / 4	**4 / 4**	5 / 5	1 / 4	1 / 2	3 / 4	**4 / 4**	5 / 5
92	94.5	96	**96**	95.5	0.70	0.86	0.91	**0.92**	0.93
90	93.5	95	**95**	94.5	0.65	0.84	0.90	**0.91**	0.92
89	92.5	94	**94**	93.5	0.63	0.83	0.89	**0.90**	0.91
88	91.5	93	**93**	92.5	0.61	0.80	0.88	**0.89**	0.90
87	91	92	**92**	91.5	0.57	0.78	0.86	**0.88**	0.89
86	90	91	**91**	90	0.53	0.76	0.85	**0.87**	0.87
85	89	90	**90**	89	0.51	0.75	0.84	**0.86**	0.86
84	88	89	**89**	88	0.49	0.73	0.83	**0.85**	0.86
80	87	88	**88**	87	0.47	0.71	0.81	**0.84**	0.85
79	86	87	**87**	86	0.45	0.69	0.80	**0.83**	0.84
78	85	86	**86**	85	0.43	0.67	0.79	**0.82**	0.83
76	84	85	**85**	83	0.41	0.66	0.77	**0.81**	0.82
74	83	84	**84**	82	0.40	0.65	0.76	**0.80**	0.81
72	82	83	**83**	81	0.38	0.63	0.75	**0.79**	0.80
70	81	82	**82**	80	0.36	0.61	0.74	**0.78**	0.80
68	80	81	**81**	79	0.34	0.59	0.72	**0.77**	0.79
66	79	80	**80**	78	0.32	0.58	0.71	**0.76**	0.78
64	77	79	**79**	77	0.30	0.56	0.69	**0.75**	0.78
62	75	78	**78**	76	0.29	0.55	0.68	**0.74**	0.77
60	74	77	**77**	75	0.28	0.54	0.67	**0.73**	0.76
58	73	76	**76**	74	0.27	0.52	0.63	**0.72**	0.76
56	72	75	**75**	73	0.26	0.50	0.62	**0.71**	0.76
55	71	74	**74**	72	0.25	0.49	0.61	**0.70**	0.75
54	70	73	**73**	71	0.24	0.48	0.59	**0.69**	0.74
53	68	72	**72**	70	0.23	0.47	0.58	**0.68**	0.74
52	67	71	**71**	69	0.23	0.46	0.57	**0.67**	0.73
51	66	70	**70**	68	0.22	0.45	0.56	**0.66**	0.72
50	65	69	**69**	67	0.22	0.44	0.55	**0.65**	0.71
49	64	68	**68**	66	0.22	0.43	0.54	**0.64**	0.70

FAULTS, POSSIBLE CAUSES AND SOLUTIONS

MECHANICAL FAILURES							POSSIBLE CAUSES	SOLUTIONS
The bearing is too hot	The bearing makes a whistling sound	The bearing is rattling	Friction noise	Overheating	Radial vibration	Axial vibration		
■							Excessive grease in the bearing	Remove excessive grease
■							Dirty bearing	Clean or replace the bearing Check sealing
■							The sealing ring is too tight on the shaft	Reposition the felt gasket in its place or replace it with a new one
■							The belt is too tight	Reduce belt tension
■							The clutch is not holding properly	Reposition the machine
■							Ambient temperature >40°C	Use special high temperature grease
■	■						Poor lubrication	Lubricate as per instructions
■	■						Insufficient bearing clearance	*Use bearings with larger clearance
■	■						Rust on bearing	Replace housing, check sealing
■	■	■					The bearing is not properly positioned	Check the bearing installation and ensure that the outer ring is not too tight
		■					Too much bearing clearance	*Use bearings with smaller clearance
		■					Foreign objects in the bearing	Clean or replace the bearing
		■					Traces on bearing or bearing ring	Replace housing and prevent vibrations when the motor is not operating
			■				Revolving parts rub	Re-align to eliminate the cause
				■			Insufficient cooling	Check the motor surface, ventilation holes of the propeller enclosure and, if necessary, the propeller
					■		Motor rotor imbalance	Rebalance rotor
					■	■	Rotor shaking due to sloping shaft	Consult the manufacturer
					■	■	Imbalance of transmission elements	Balance transmission elements
					■	■	Insufficient alignment	Reposition the motor and construction equipment, and ensure thermal balance between the two
					■	■	Incompatible transmission (e.g. gear box)	Check and eliminate the cause
					■	■	Fixation surface not stable	Check and eliminate the cause
						■	Blows from heavy construction equipment	Check and eliminate the cause

Sometimes it is difficult to identify faults in bearings. Replace bearings in case of doubt.

* Consult the manufacturer

FAULTS, POSSIBLE CAUSES AND SOLUTIONS											
ELECTRICAL FAILURES										POSSIBLE CAUSES	SOLUTIONS
Motor not starting	Motor not aligned well	Rattling noise at startup	Rattling noise during operation	Rattling noise at twice slip frequencies	Overheating during no-load operation	Overheating during operation at full load	Winding sections are overheating	Speed drops when loaded	Protection loosening		
■	■		■			■		■	■	Overload	Reduce load or select a larger motor
■						■		■		Excessive startup and/or overturning load torque	Reduce load torque or select a motor of higher torque behavior
■	■							■		High-frequency or too low line voltage	Improve supply conditions
					■	■				Low-frequency or too high line voltage	Improve supply conditions
■	■	■	■			■		■	■	Phase disconnected	Check switch and supply circuit
■	■	■	■				■	■	■	Stator winding incorrectly connected	Check winding connection
	■	■	■				■		■	Inter-winding or phase short circuit in stator winding	Check winding and insulation resistance Consult the manufacturer
■				■						Insufficient connection in the cage	Consult the manufacturer
						■				Excessive startup temperature	Decrease starting frequency or recalculate motor identification
	■					■			■	Excessive starting time	Simplify startup or recalculate motor identification
■										Faulty contact in switch	Renew broken connections
■										Capacitor failure	Check the voltage of the capacitor, and change capacitor if necessary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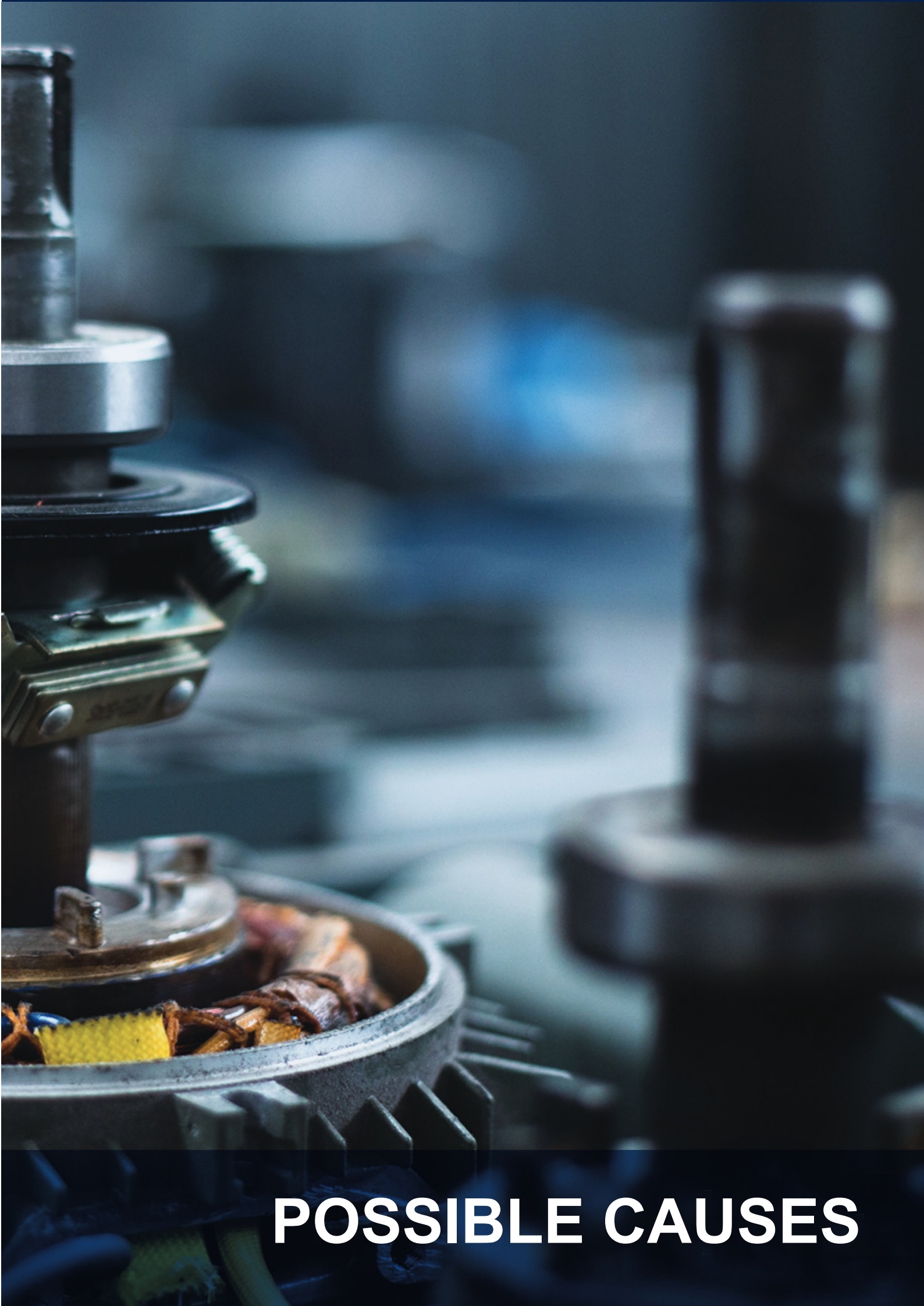

POSSIBLE CAUSES

Index