

# IEC Low Voltage Induction Motors 400 V 50 Hz

Motors for all applications



**Industrial**<sup>IT</sup>  
—enabled™

**ABB**

## Making you more competitive

ABB has been manufacturing motors for over 100 years. Our products are designed to be reliable, efficient and cost effective, and we can supply motors for practically any application. A full range of services is available through our worldwide service organization, with the latest eBusiness systems providing round-the-clock access, easy ordering and fast delivery.



### Industrial<sup>IT</sup>

As a key element of its business strategy, ABB has committed to a broad program of product development and positioning under the Industrial<sup>IT</sup> umbrella. This initiative is geared towards increasing standardization of ABB products as the 'building blocks' of larger solutions, while incorporating functionality that will allow multiple products to interact seamlessly as components of real-time automation and information systems. Motors and generators represent one of the fundamental building blocks in the Industrial<sup>IT</sup> architecture.

*ABB ([www.abb.com](http://www.abb.com)) is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impacts. The ABB Group of companies operates in around 100 countries and employs around 120,000 people.*

## General Purpose Motors

ABB's General purpose motors are readily available from central stock locations and distributors throughout the world. While designed for standard and straightforward uses, the motors can be modified to meet most specifications. Built to the highest manufacturing standards, the General purpose motors use the best materials sourced from around the world. This brings a quality and reliability that can see motors operating for over 30 years. Competitively priced, the motors meet EFF2 energy efficient classification, with EFF1 as option.

## Process Performance Motors

ABB's Process performance motor is engineered to meet the most demanding applications found in industries including pulp and paper, water treatment, food and beverage, metals and building materials. Such is the high design specification of the motor, when used in conjunction with applications in these industries, ABB is able to provide a 3-year warranty.

Built to the highest manufacturing standards, the process performance motors use the best materials sourced from around the world. This brings a quality and reliability that can see motors operating for over 30 years. Competitively priced, the motors meet EFF1 energy efficient classification.



## Availability

Through our extended support and services such as an efficient global stock concept, we provide you with easy ordering and quick delivery.

- EDI based ordering
- Over 300,000 motors stocked worldwide
- Most frequently used OEM motors stocked in depth
- 2 to 72 hours delivery for stocked motors
- Modifications within 24 hours

## BusinessOnline

BusinessOnline, at <http://online.abb.com/motors> gives you real-time, on-line access to your own personal portal to ABB motors and drives. You can choose, configure and order products, determine their availability and stock levels, follow their progress through the order-processing and delivery chains, and access a wealth of support services and technical information such as drawings, test results and technical documentation.

# IEC Low Voltage Induction Motors

## 400 V 50 Hz

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

### Detailed product information

This combination catalogue is intended to give brief summary on technical data and dimensions for our General purpose and Process performance motors. More detailed information on the ranges can be found from following product catalogues:

Drive<sup>IT</sup> General Purpose Motors GB  
Drive<sup>IT</sup> Process Performance Motors GB

Contact your local Sales office for the catalogue or download it from our web site [www.abb.com/motors&drives](http://www.abb.com/motors&drives).

# Ordering information

## Sample order

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

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

Motor type	M3AA 112 MA
Pole number	4
Mounting arrangement (IM-code)	IM B3 (IM 1001)
Rated output	3 kW
Product code	3GAA 112021-ADA
Variant codes if needed	

## Motor size

A	B	C	D, E, F	
M3AA	112 MA	3GAA 112 021 - ADE, 003, ...		
		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
				A Motor type B Motor size C Product code D Code for mounting arrangement E Voltage and frequency code F Generation code followed by variant codes

## Explanation of the product code

### Positions 1 and 2

**3G** = Business area LV Motors

### Position 3-4

Enclosure and stator frame material

**3GVA, 3GAA, 3GAP** = Totally enclosed motor with aluminum stator frame

**3GQA, 3GBA, 3GBP** = Totally enclosed motor with cast iron stator frame

**3GCA** = Totally enclosed motor with steel stator frame

### Position 4

Type of rotor

**A** = Squirrel cage

**P** = Process performance motor

### Positions 5 and 6

IEC size

<b>05</b> = 56	<b>16</b> = 160
<b>06</b> = 63	<b>18</b> = 180
<b>07</b> = 71	<b>20</b> = 200
<b>08</b> = 80	<b>22</b> = 225
<b>09</b> = 90	<b>25</b> = 250
<b>10</b> = 100	<b>28</b> = 280
<b>11</b> = 112	<b>31</b> = 315
<b>13</b> = 132	<b>35</b> = 355
	<b>40</b> = 400

### Position 7

Pole pairs

<b>1</b> = 2 poles
<b>2</b> = 4 poles
<b>3</b> = 6 poles
<b>4</b> = 8 poles
<b>5</b> = 10 poles
<b>6</b> = 12 poles
<b>7</b> = > 12 poles
<b>8</b> = Two-speed motors
<b>9</b> = Multi-speed motors

### Positions 8 to 10

Running number

### Position 11

- (dash)

### Position 12

Mounting arrangement

**A** = Foot-mounted motor, top mounted terminal box.

**B** = Flange-mounted motor. Large flange.

**C** = Flange-mounted motor. Small flange.

**F** = Foot- and flange-mounted motor. Special flange.

**H** = Foot- and flange-mounted motor.

Large flange with clearance holes.

**J** = Foot- and flange-mounted motor.

Small flange with tapped holes.

**L** = Foot-mounted, terminal box on LHS seen from D-end.

**N** = Flange-mounted (CI ring flange FF)

**P** = Foot-and flange-mounted motor (CI ring flange FF)

**R** = Foot-mounted, terminal box on RHS seen from D-end.

**S** = Foot- and flange-mounted, terminal box RHS seen from D-end.

**T** = Foot- and flange-mounted, terminal box LHS seen from D-end.

**V** = Flange-mounted motor. Special flange.

### Position 13

Voltage and frequency: See tables below

### Position 14

Version A,B,C... =

Generation code followed by variant codes

Single speed motors	Code	Single speed motors	Code
380 VY 50 Hz	<b>A</b>	200 VD 60 Hz	<b>P</b>
380 VD 50 Hz	<b>B</b>	440 VY 50 Hz / 480 VY 60 Hz	<b>Q</b>
400 VD 50 Hz (mid range value)	<b>D</b>	380 VY/220VD 60 Hz	<b>R</b>
500 VD 50 Hz (mid range value)	<b>E</b>	400 VY 50 Hz (mid range value)	<b>S</b>
500 VY 50 Hz (mid range value)	<b>F</b>	660 VD 50 Hz	<b>T</b>
415 VY 50 Hz	<b>G</b>	690 VD 50 Hz (mid range value)	<b>U</b>
415 VD 50 Hz	<b>H</b>	220 VDD/440 VD Hz (Manilla)	<b>V</b>
690 VY 60 Hz	<b>J</b>	660 VY 60 Hz	<b>W</b>
440 VD 50 Hz (mid range value)	<b>K</b>	other	<b>X</b>
230 VYY/460 VY 60 Hz	<b>M</b>	600 VD 60 Hz	<b>Y</b>
460 VY/230 VD 60 Hz	<b>N</b>	575 VD 60 Hz	<b>Z</b>

## Motors for other voltages

Motors wound for a given voltage at 50 Hz can also be used for other voltages. Recalculation factors for current and torque values are given below; efficiency, power factor and speed remain approximately the same.

Guaranteed values available on request.

Motor wound for	230V	400V	500V	690 V				
Connected to 50 Hz	220V	230V	380V	415V	500V	550V	660V	690V
% of values at 400V, 50 Hz								
Output	100	100	100	100	100	100	100	100
$I_N$	182	174	105	98	80	75	61	58
$I_S/I_N$	90	100	90	106	100	119	90	100
$T_S/T_N$	90	100	90	106	100	119	90	100
$T_{max}/T_N$	90	100	90	106	100	119	90	100

Note! The table above not valid for M2AA 160-250.

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# General purpose aluminum motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>max</sub> /T <sub>N</sub>			
<b>3000 r/min = 2 poles</b>														
<b>400 V 50 Hz</b>														
<b>Basic design</b>														
<b>EFF 2</b>														
0.09	M2VA 56 A	3GVA 051 001-••	2820	59.8	53.3	0.69	0.32	3.9	0.31	2.9	2.7	0.00011	3.2	48
0.12	M2VA 56 B	3GVA 051 002-••	2840	67.2	63.8	0.64	0.41	4.1	0.41	3.2	2.8	0.00012	3.4	48
0.18	M2VA 63 A	3GVA 061 001-••	2820	73.7	70.6	0.64	0.56	4.2	0.62	3.5	3.1	0.00013	3.9	54
0.25	M2VA 63 B	3GVA 061 002-••	2810	77.5	75.8	0.71	0.66	4.5	0.87	3.6	3.3	0.00016	4.4	54
0.37	M2VA 71 A	3GVA 071 001-••	2840	77.1	76.5	0.72	1	5.5	1.25	3.8	3.9	0.0004	5.5	58
0.55	M2VA 71 B	3GVA 071 002-••	2830	79.2	78.2	0.76	1.35	5.7	1.86	3.6	3.7	0.00045	6.5	58
0.75	M2VA 80 A	3GVA 081 001-••	2870	81.2	79.3	0.75	1.8	6.2	2.49	2.9	3.6	0.000722	9	60
1.1	M2VA 80 B	3GVA 081 002-••	2850	81.4	79.5	0.78	2.5	6.1	3.69	2.3	3.5	0.000763	11	60
1.5	M2AA 90 S	3GAA 091 001-••E	2870	80.1	76.2	0.82	3.35	5.5	5	2.4	3.0	0.0019	13	63
2.2	M2AA 90 L	3GAA 091 002-••E	2880	83.6	83.9	0.87	4.37	7.0	7.5	2.7	3.0	0.0024	16	63
3	M2AA 100 L	3GAA 101 001-••E	2900	86.0	84.1	0.88	5.95	7.5	10	2.7	3.6	0.0041	21	65
4	M2AA 112 M	3GAA 111 001-••A	2850	86.0	86.0	0.91	7.4	7.5	13.4	2.8	3.0	0.01	25	63
5.5	M2AA 132 SA	3GAA 131 001-••A	2855	86.0	86.0	0.88	10.5	6.8	18.3	2.7	3.6	0.014	37	69
7.5	M2AA 132 SB	3GAA 131 002-••A	2855	87.0	87.0	0.90	13.9	7.2	25	3.2	3.8	0.016	42	69
11	M2AA 160 MA	3GAA 161 111-••A	2915	88.4	88.0	0.89	20.5	6.1	36	2.1	2.5	0.039	73	73
15	M2AA 160 M	3GAA 161 112-••A	2900	89.4	89.7	0.90	27	6.0	49	2.3	2.5	0.047	84	73
18.5	M2AA 160 L	3GAA 161 113-••A	2915	90.4	90.7	0.91	32.5	6.7	60	2.5	2.7	0.053	94	73
22	M2AA 180 M	3GAA 181 111-••A	2925	91.5	91.7	0.89	39	8.0	72	3.0	3.2	0.06	111	75
30	M2AA 200 LA	3GAA 201 011-••A	2945	92.0	92.1	0.88	53	7.8	97	3.1	3.4	0.094	139	75
37	M2AA 200 L	3GAA 201 012-••A	2945	92.5	92.6	0.89	65	8.0	120	2.8	3.3	0.115	170	75
45	M2AA 225 M	3GAA 221 011-••A	2940	93.0	93.0	0.88	80	7.7	146	2.8	3.0	0.21	209	75
55	M2AA 250 M	3GAA 251 011-••A	2960	93.5	93.8	0.90	95	7.3	177	2.8	3.0	0.31	277	74

<b>3000 r/min = 2 poles</b>														
<b>400 V 50 Hz</b>														
<b>Basic design</b>														
<b>EFF I</b>														
1.1	M3VA 80 C	3GVA 081 313-••	2850	81.4	81.2	0.85	2.3	8.1	3.69	4.2	3.5	0.001093	11	60
1.5	M3AA 90 L	3GAA 091 312-••E	2900	85.9	86.5	0.87	3	7.7	5	2.7	3.6	0.0024	16	63
2.2	M3AA 90 LB	3GAA 091 313-••E	2880	85.8	87.1	0.87	4.4	7.4	7.3	3.0	3.6	0.0027	18	63
3	M3AA 100 LB	3GAA 101 312-••E	2920	87.6	87.5	0.86	5.9	10.0	9.9	3.9	4.9	0.005	25	62
4	M3AA 112 M	3GAA 111 022-••C	2860	87.7	89.4	0.93	7.1	7.5	13.4	2.7	3.1	0.012	33	63
5.5	M3AA 132 SA	3GAA 131 023-••C	2900	88.6	88.9	0.88	10.1	9.0	18.1	3.8	4.6	0.016	42	69
7.5	M3AA 132 SB	3GAA 131 024-••C	2915	90.9	91.3	0.90	13.3	11.0	24.6	5.1	5.2	0.022	56	69
11	M3AA 160 MA	3GAA 161 101-••C	2930	91.2	91.2	0.88	20	6.3	36	2.5	3.1	0.039	105	69
15	M3AA 160 M	3GAA 161 102-••C	2920	91.7	91.7	0.90	26.5	6.4	49	2.3	2.7	0.047	84	69
18.5	M3AA 160 L	3GAA 161 103-••C	2920	92.4	93.1	0.91	32	7.0	60	2.4	2.8	0.053	94	69
22	M3AA 180 M	3GAA 181 101-••C	2930	92.8	93.3	0.89	38.5	7.2	71	2.7	3.0	0.077	119	69
30	M3AA 200 MLA	3GAA 201 001-••C	2955	93.2	93.2	0.88	53	8.7	97	2.4	3.1	0.15	175	72
37	M3AA 200 MLB	3GAA 201 002-••C	2950	93.6	93.7	0.89	64	7.5	120	2.5	3.0	0.18	200	72
45	M3AA 225 SMB	3GAA 221 001-••C	2960	93.9	93.6	0.88	79	7.9	145	2.6	3.0	0.26	235	74
55	M3AA 250 SMA	3GAA 251 001-••C	2970	94.4	94.1	0.89	95	7.4	177	2.2	2.8	0.49	285	75
75	M3AA 280 SMA	3GAA 281 001-••C	2970	94.7	95.1	0.90	127	8.2	241	2.6	3.2	0.57	375	75
90	<sup>1)</sup> M3AA 280 SMB	3GAA 281 002-••C	2970	95.4	94.8	0.90	152	8.3	290	2.7	3.4	0.59	390	75

<b>3000 r/min = 2 poles</b>														
<b>400 V 50 Hz</b>														
<b>High-output design</b>														
0.37	M2VA 63 BB	3GVA 061 003-••	2800	73.6	73.1	0.81	0.9	3.5	1.29	2.3	2.2	0.00036	4.9	54
0.68	M2VA 71 BB	3GVA 071 003-••	2800	78.9	77.4	0.82	1.59	5.2	2.33	3.2	3.3	0.00045	6.5	58
0.75	M2VA 71 BC	3GVA 071 004-••	2800	78.5	77.9	0.85	1.7	5.1	2.57	3.1	3.2	0.00045	6.5	58
1.5	M2VA 80 C	3GVA 081 003-••	2840	82.4	82.2	0.83	3.16	5.5	5.13	2.8	3.1	0.001093	11.5	60
2.7	<sup>1)</sup> M3AA 90 LB	3GAA 091 003-••E	2860	80.7	83.5	0.86	5.7	7.0	9	2.6	3.0	0.0027	18	63
4	<sup>1)</sup> M3AA 100 LB	3GAA 101 002-••E	2900	85.0	84.3	0.86	8.1	7.5	13	2.7	3.6	0.005	25	68
5.5	<sup>1)</sup> M3AA 112 MB	3GAA 111 002-••C	2855	86.5	86.5	0.93	9.9	7.3	18.4	2.6	3.5	0.012	33	63
9.2	<sup>1)</sup> M3AA 132 SBB	3GAA 131 004-••C	2840	86.8	88.3	0.92	16.8	8.5	31	3.3	3.6	0.02	50	69
11	<sup>1)</sup> M3AA 132 SC	3GAA 131 003-••C	2835	87.0	87.0	0.93	19.6	8.0	37	3.2	3.3	0.022	56	69
22	<sup>1)</sup> M3AA 160 LB	3GAA 161 104-••C	2920	92.1	93.2	0.91	38	7.7	72	2.8	3.0	0.058	100	69
30	M3AA 180 LB	3GAA 181 102-••C	2945	93.7	94.0	0.89	53	8.4	97	3.1	3.4	0.092	137	70
45	M3AA 200 MLC	3GAA 201 003-••C	2950	93.8	94.0	0.89	78	8.9	146	3.1	3.4	0.19	205	72
55	<sup>1)</sup> M3AA 200 MLD	3GAA 201 004-••C	2940	94.0	94.4	0.89	95	7.9	179	3.1	3.1	0.2	215	72
55	M3AA 225 SMC	3GAA 221 002-••C	2960	94.3	94.2	0.89	95	7.8	177	2.7	3.0	0.29	260	74
80	<sup>1)</sup> M3AA 225 SMD	3GAA 221 003-••C	2960	94.7	94.8	0.86	143	7.5	258	2.9	3.1	0.3	275	74
75	M3AA 250 SMB	3GAA 251 002-••C	2970	94.7	94.4	0.90	127	8.2	241	2.7	3.2	0.57	375	75
95	<sup>1)</sup> M3AA 250 SMC	3GAA 251 003-••C	2965	95.4	95.6	0.90	160	8.5	306	2.8	3.4	0.59	345	75

<sup>1)</sup> Temperature rise class F

Efficiency classes fixed for ranges 1.1 to 90 kW (available only by 2- and 4-poles).

# General purpose aluminum motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			

1500 r/min = 4 poles			400 V 50 Hz					Basic design					EFF 2	
0.06	M2VA 56 A	3GVA 052 001-...	1340	51.1	45.8	0.67	0.26	2.5	0.43	2.2	2.2	0.00017	3.2	36
0.09	M2VA 56 B	3GVA 052 002-...	1370	55.5	50.2	0.62	0.38	2.8	0.63	2.9	2.9	0.00018	3.4	36
0.12	M2VA 63 A	3GVA 062 001-...	1400	63.7	58.4	0.59	0.46	3.1	0.82	2.6	2.6	0.00019	4	40
0.18	M2VA 63 B	3GVA 062 002-...	1380	65.6	62.1	0.64	0.63	3.1	1.25	2.5	2.6	0.00026	4.5	40
0.25	M2VA 71 A	3GVA 072 001-...	1410	70.4	69.1	0.71	0.74	4.3	1.71	2.7	2.9	0.00066	5.5	45
0.37	M2VA 71 B	3GVA 072 002-...	1420	74.6	72.1	0.69	1.05	4.4	2.51	2.6	2.8	0.00089	6.5	45
0.55	M2VA 80 A	3GVA 082 001-...	1390	75.3	73.1	0.76	1.4	4.6	3.75	2.6	2.9	0.001257	9	50
0.75	M2VA 80 B	3GVA 082 002-...	1410	78.2	75.6	0.74	1.9	4.7	5.08	3.5	3.9	0.001565	10.5	50
1.1	M2AA 90 S	3GAA 092 001-...E	1410	77.5	76.4	0.81	2.59	5.0	7.5	2.2	2.7	0.0032	13	50
1.5	M2AA 90 L	3GAA 092 002-...E	1420	80.3	78.1	0.79	3.45	5.0	10	2.4	2.9	0.0043	16	50
2.2	M2AA 100 LA	3GAA 102 001-...E	1430	83.0	82.7	0.81	4.8	5.5	15	2.4	2.9	0.0069	21	64
3	M2AA 100 LB	3GAA 102 002-...E	1430	85.0	83.9	0.81	6.48	5.5	20	2.5	2.9	0.0082	24	66
4	M2AA 112 M	3GAA 112 001-...A	1435	84.5	85.5	0.80	8.6	7.0	27	2.8	3.0	0.015	27	56
5.5	M2AA 132 S	3GAA 132 001-...A	1450	87.0	87.0	0.83	11.1	7.3	36	2.2	3.0	0.031	40	59
7.5	M2AA 132 M	3GAA 132 002-...A	1450	88.0	88.0	0.83	14.8	7.9	49	2.5	3.2	0.038	48	59
11	M2AA 160 M	3GAA 162 111-...A	1460	88.4	88.8	0.81	22	6.5	72	2.4	2.6	0.067	75	62
15	M2AA 160 L	3GAA 162 112-...A	1460	90.0	90.5	0.82	29	7.2	98	2.8	2.8	0.088	92	62
18.5	M2AA 180 M	3GAA 182 111-...A	1460	90.8	91.3	0.81	36.5	7.5	121	3.1	3.5	0.102	110	64
22	M2AA 180 L	3GAA 182 112-...A	1460	91.1	91.5	0.82	42	8.0	144	3.0	3.1	0.127	128	64
30	M2AA 200 L	3GAA 202 011-...A	1470	92.0	92.1	0.80	59	7.8	195	3.0	3.4	0.225	177	67
37	M2AA 225 S	3GAA 222 011-...A	1475	92.8	93.0	0.85	68	8.0	240	3.2	3.0	0.35	216	68
45	M2AA 225 M	3GAA 222 012-...A	1475	93.0	93.1	0.84	84	8.5	291	3.5	3.2	0.41	237	68
55	M2AA 250 M	3GAA 252 011-...A	1475	93.7	94.0	0.84	98	7.3	355	2.7	2.8	0.5	286	66

1500 r/min = 4 poles			400 V 50 Hz					Basic design					EFF I	
1.1	M3AA 90 L	3GAA 092 312-...E	1420	83.9	84.3	0.80	2.4	6.1	7.4	2.9	3.4	0.0043	16	50
1.5	M3AA 100 LA	3GAA 102 311-...E	1440	85.6	85.5	0.82	3.2	6.9	10	2.8	3.4	0.0069	21	54
2.2	M3AA 100 LC	3GAA 102 313-...E	1450	86.8	86.5	0.77	4.8	8.5	14.5	4.0	4.6	0.009	25	54
3	M3AA 112 MA	3GAA 112 021-...C	1455	87.5	87.8	0.81	6.2	7.9	19.7	2.7	3.7	0.018	34	56
4	M3AA 112 M	3GAA 112 022-...C	1455	89.3	89.6	0.76	8.6	8.5	26.3	3.3	4.3	0.018	34	56
5.5	M3AA 132 S	3GAA 132 023-...C	1460	89.3	90.5	0.84	10.6	7.6	36	2.2	3.4	0.038	48	59
7.5	M3AA 132 M	3GAA 132 024-...C	1450	90.1	91.4	0.87	14	7.8	49	2.2	3.1	0.048	59	59
11	M3AA 160 M	3GAA 162 101-...C	1460	91.5	92.2	0.81	21.5	7.1	72	3.0	3.0	0.091	94	62
15	M3AA 160 L	3GAA 162 102-...C	1460	91.8	92.5	0.82	29	7.3	98	2.7	3.0	0.102	103	62
18.5	M3AA 180 M	3GAA 182 101-...C	1470	92.3	92.9	0.84	35	7.0	120	2.9	2.9	0.161	124	62
22	M3AA 180 L	3GAA 182 102-...C	1470	93.1	93.9	0.85	40	7.1	143	3.1	3.3	0.225	161	63
30	M3AA 200 MLB	3GAA 202 001-...C	1475	93.4	94.0	0.84	55	7.5	194	2.5	2.8	0.34	205	63
37	M3AA 225 SMA	3GAA 222 001-...C	1480	93.6	93.7	0.84	68	7.5	239	3.1	3.4	0.37	215	66
45	M3AA 225 SMB	3GAA 222 002-...C	1480	94.2	94.4	0.83	83	7.6	290	3.4	3.0	0.42	230	66
55	M3AA 250 SMA	3GAA 252 001-...C	1480	94.6	94.9	0.86	98	7.6	355	3.1	3.4	0.72	275	67
75	M3AA 280 SMA	3GAA 282 001-...C	1480	94.8	95.1	0.86	132	7.1	486	3.4	3.5	0.88	380	67
90	M3AA 250 SMB	3GAA 282 002-...C	1475	95.0	95.3	0.87	157	7.7	583	3.3	3.2	0.95	405	67

1500 r/min = 4 poles			400 V 50 Hz					High-output design						
0.25	M2VA 63 BB	3GVA 062 003-...	1370	70.3	67.4	0.67	0.78	3.2	1.75	2.5	2.1	0.0003	5	40
0.45	M2VA 71 BB	3GVA 072 003-...	1390	75.5	75.3	0.76	1.15	4.1	3.11	2.1	2.3	0.00089	6.5	45
0.55	M2VA 71 C	3GVA 072 004-...	1410	77.3	76.9	0.73	1.45	4.8	3.74	2.7	2.9	0.0011	7	45
0.95	M2VA 80 C	3GVA 082 003-...	1410	78.9	77.9	0.75	2.35	4.3	6.44	2.9	3.3	0.001948	11	50
1.85	<sup>1)</sup> M3AA 90 L	3GAA 092 003-...E	1390	79.5	78.1	0.80	4.4	4.5	13	2.2	2.4	0.0043	16	50
2.2	<sup>1)</sup> M3AA 90 LB	3GAA 092 004-...E	1390	80.3	81.0	0.83	4.85	4.5	15	2.2	2.4	0.0048	17	50
4	<sup>1)</sup> M3AA 100 LC	3GAA 102 003-...E	1420	81.0	81.7	0.82	8.65	5.5	27	2.5	2.8	0.009	25	60
5.5	<sup>1)</sup> M3AA 112 MB	3GAA 112 002-...C	1425	84.5	85.5	0.83	11.4	7.1	37	2.8	3.1	0.018	34	56
9.2	<sup>1)</sup> M3AA 132 MBA	3GAA 132 004-...C	1445	87.8	89.2	0.87	17.5	7.2	61	2.7	2.7	0.048	59	59
11	<sup>1)</sup> M3AA 132 MB	3GAA 132 003-...C	1450	88.8	89.9	0.86	21	7.7	72	2.5	2.5	0.048	59	59
18.5	<sup>1)</sup> M3AA 160 LB	3GAA 162 103-...C	1450	90.5	92.0	0.84	36	6.3	122	2.8	2.9	0.102	103	63
30	<sup>1)</sup> M3AA 180 LB	3GAA 182 103-...C	1465	92.5	93.3	0.84	56	7.9	195	2.5	2.8	0.225	161	63
37	<sup>1)</sup> M3AA 200 MLB	3GAA 202 002-...C	1475	93.4	94.0	0.84	68	7.9	236	3.6	3.2	0.34	205	63
48	<sup>1)</sup> M3AA 200 MLC	3GAA 202 003-...C	1470	93.6	94.2	0.84	89	8.0	311	3.9	3.2	0.38	270	63
55	<sup>1)</sup> M3AA 225 SMC	3GAA 222 003-...C	1480	94.6	95.0	0.84	100	7.5	355	3.3	2.9	0.49	265	66
73	<sup>1)</sup> M3AA 225 SMD	3GAA 222 004-...C	1475	94.2	94.6	0.85	132	8.1	473	4.5	3.2	0.56	290	66
75	<sup>1)</sup> M3AA 250 SMB	3GAA 252 002-...C	1480	94.8	95.3	0.86	132	7.2	486	3.4	3.5	0.88	335	67
95	<sup>1)</sup> M3AA 250 SMC	3GAA 252 003-...C	1475	94.8	95.5	0.88	165	7.6	616	2.9	2.8	0.95	360	67

<sup>1)</sup> Temperature rise class F

Efficiency classes fixed for ranges 1.1 to 90 kW (available only by 2- and 4-poles).

# General purpose aluminum motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>1000 r/min = 6 poles</b>														
<b>400 V 50 Hz</b>														
<b>Basic design</b>														
0.09	M2VA 63 A	3GVA 063 001-••	910	47.1	42.5	0.56	0.51	2.1	0.95	2.1	2.1	0.0002	4	38
0.12	M2VA 63 B	3GVA 063 002-••	910	57.5	54.0	0.58	0.54	2.1	1.27	2.1	2.1	0.00027	4.5	38
0.18	M2VA 71 A	3GVA 073 001-••	920	61.1	57.7	0.69	0.64	2.9	1.88	2.1	2.2	0.00063	5.5	42
0.25	M2VA 71 B	3GVA 073 002-••	920	64.9	62.3	0.65	0.86	3.2	2.61	2.5	2.7	0.00081	6.5	42
0.37	M2VA 80 A	3GVA 083 001-••	925	72.9	70.8	0.72	1.04	3.8	3.82	3.1	3.4	0.001842	9	47
0.55	M2VA 80 B	3GVA 083 002-••	925	73.3	71.9	0.71	1.55	3.4	5.68	2.9	3.1	0.002176	10	47
0.75	M3AA 90 S	3GAA 093 001-••E	930	71.5	70.7	0.67	2.36	4.0	7.5	1.9	2.3	0.0032	13	44
1.1	M3AA 90 L	3GAA 093 002-••E	930	74.4	72.5	0.69	3.25	4.0	11	2.1	2.4	0.0043	16	44
1.5	M3AA 100 L	3GAA 103 001-••E	950	80.0	77.0	0.71	3.92	4.5	15	1.9	2.3	0.0082	23	49
2.2	M3AA 112 M	3GAA 113 001-••C	940	80.5	81.0	0.74	5.4	5.6	22	2.1	2.7	0.015	27	54
3	M3AA 132 S	3GAA 133 001-••C	960	84.5	84.8	0.75	6.9	6.5	30	2.1	3.0	0.031	39	61
4	M3AA 132 MA	3GAA 133 002-••C	960	85.5	86.1	0.78	8.7	7.1	40	2.6	2.8	0.038	46	61
5.5	M3AA 132 MB	3GAA 133 003-••C	955	86.0	87.0	0.78	11.9	7.0	55	2.8	2.8	0.045	54	61
7.5	M3AA 160 M	3GAA 163 101-••C	970	89.3	90.4	0.79	15.4	6.7	74	2.0	2.8	0.089	88	59
11	M3AA 160 L	3GAA 163 102-••C	970	89.8	90.5	0.78	23	7.5	109	2.3	3.3	0.107	102	59
15	M3AA 180 L	3GAA 183 101-••C	970	90.8	91.5	0.78	31	7.0	148	2.1	3.0	0.217	151	59
18.5	M3AA 200 MLA	3GAA 203 001-••C	985	91.1	91.7	0.81	36	6.8	179	2.5	2.7	0.37	165	63
22	M3AA 200 MLB	3GAA 203 002-••C	980	91.7	92.2	0.81	43	7.2	214	2.5	2.7	0.43	185	63
30	M3AA 225 SMB	3GAA 223 001-••C	985	92.8	93.0	0.83	56	7.8	291	3.5	3.0	0.64	225	63
37	M3AA 250 SMA	3GAA 253 001-••C	985	93.7	93.9	0.83	69	7.5	359	3.4	2.8	1.16	280	63
45	M3AA 280 SMA	3GAA 283 001-••C	985	94.1	94.6	0.84	82	7.3	436	2.8	2.8	1.49	375	63
<b>1000 r/min = 6 poles</b>														
<b>400 V 50 Hz</b>														
<b>High-output design</b>														
0.15	M2VA 63 BB	3GVA 063 003-••	900	56.9	52.1	0.54	0.74	2.2	1.61	2.2	2.3	0.00032	5	38
0.32	M2VA 71 C	3GVA 073 003-••	920	64.8	61.6	0.63	1.15	3.2	3.33	2.6	2.8	0.0011	7	42
1.3	<sup>1)</sup> M3AA 90 LB	3GAA 093 003-••E	910	69.0	69.0	0.71	3.85	4.0	13.5	1.9	2.2	0.0048	18	44
2.2	<sup>1)</sup> M3AA 100 LC	3GAA 103 002-••E	940	77.0	72.8	0.71	5.9	4.5	22	1.9	2.3	0.009	26	49
3	<sup>1)</sup> M3AA 112 MB	3GAA 113 002-••C	935	80.0	81.2	0.76	7.2	5.5	31	2.5	2.7	0.018	33	54
6.3	<sup>1)</sup> M3AA 132 MC	3GAA 133 004-••C	960	84.9	85.0	0.75	14.5	7.3	63	2.3	3.1	0.049	59	61
14	<sup>1)</sup> M3AA 160 LB	3GAA 163 103-••C	960	89.4	89.7	0.77	29.5	7.6	139	2.7	3.1	0.127	117	62
18.5	<sup>1)</sup> M3AA 180 LB	3GAA 183 102-••C	965	90.6	91.7	0.81	37	6.2	183	2.0	2.6	0.237	160	59
30	<sup>1)</sup> M3AA 200 MLC	3GAA 203 003-••C	980	91.7	92.4	0.81	56	7.5	292	3.3	3.0	0.49	200	63
37	M3AA 225 SMC	3GAA 223 002-••C	985	93.2	93.9	0.83	69	7.4	359	3.3	2.8	0.75	252	63
45	<sup>1)</sup> M3AA 250 SMB	3GAA 253 002-••C	985	94.1	94.1	0.84	83	7.5	436	3.7	3.2	1.49	320	63

<sup>1)</sup> Temperature rise class F



# General purpose aluminum motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>750 r/min = 8 poles</b>														
<b>400 V 50 Hz</b>														
<b>Basic design</b>														
0.055	M2VA 63 B	3GVA 064 002-••	680	38.3	31.8	0.48	0.45	1.8	0.78	2.1	2.1	0.00027	4.5	36
0.09	M2VA 71 A	3GVA 074 001-••	690	45.8	37.5	0.57	0.52	2.2	1.25	2.3	2.3	0.00063	5.5	40
0.12	M2VA 71 B	3GVA 074 002-••	690	46.4	38.1	0.55	0.69	2.2	1.67	2.5	2.5	0.00081	6.5	40
0.18	M2VA 80 A	3GVA 084 001-••	700	59.9	54.5	0.60	0.75	3.1	2.46	3.2	3.6	0.001842	9	45
0.25	M2VA 80 B	3GVA 084 002-••	700	70.7	67.4	0.62	0.85	3.1	3.52	2.9	3.1	0.002176	10	45
0.37	M3AA 90 S	3GAA 094 001-••E	700	61.5	43.4	0.56	1.6	3.0	5	1.9	2.4	0.0032	13	43
0.55	M3AA 90 L	3GAA 094 002-••E	690	62.9	56.4	0.57	2.35	3.0	7.5	1.7	2.1	0.0043	16	43
0.75	M3AA 100 LA	3GAA 104 001-••E	700	72.0	63.6	0.59	2.55	3.5	10	2.1	2.7	0.0069	20	46
1.1	M3AA 100 LB	3GAA 104 002-••E	700	73.0	68.8	0.64	3.35	3.5	15	2.1	2.7	0.0082	23	46
1.5	M3AA 112 M	3GAA 114 001-••C	695	74.5	74.6	0.65	4.5	4.1	21	1.9	2.5	0.016	28	52
2.2	M3AA 132 S	3GAA 134 001-••C	720	80.5	80.2	0.67	5.9	5.3	29	1.9	2.5	0.038	46	56
3	M3AA 132 M	3GAA 134 002-••C	720	82.0	82.0	0.68	7.8	5.5	40	2.4	2.6	0.045	53	56
4	M3AA 160 MA	3GAA 164 101-••C	715	84.1	84.7	0.69	10	5.2	54	2.1	2.4	0.072	75	59
5.5	M3AA 160 M	3GAA 164 102-••C	710	84.7	85.6	0.70	13.4	5.4	74	2.4	2.6	0.091	88	59
7.5	M3AA 160 L	3GAA 164 103-••C	715	86.3	87.3	0.70	18.1	5.4	100	2.4	2.8	0.131	118	59
11	M3AA 180 L	3GAA 184 101-••C	720	88.7	89.6	0.76	23.5	5.9	146	2.4	2.6	0.224	147	59
15	M3AA 200 MLA	3GAA 204 001-••C	740	91.1	91.6	0.82	29	7.4	194	2.5	3.0	0.45	175	60
18.5	M3AA 225 SMA	3GAA 224 001-••C	730	91.1	91.6	0.79	37	6.9	242	2.8	3.3	0.61	210	63
22	M3AA 225 SMB	3GAA 224 002-••C	730	91.5	92.2	0.77	45	6.4	288	2.6	2.8	0.68	225	63
30	M3AA 250 SMA	3GAA 254 001-••C	735	92.8	93.1	0.79	59	7.3	390	2.2	2.9	1.25	280	63
37	M3AA 280 SMA	3GAA 284 001-••C	735	93.2	93.5	0.81	71	7.2	481	2.0	2.9	1.52	375	63
<b>750 r/min = 8 poles</b>														
<b>400 V 50 Hz</b>														
<b>High-output design</b>														
0.18	M2VA 71 C	3GVA 074 003-••	680	51.3	49.9	0.61	0.8	2.2	2.6	2.5	2.2	0.0011	7	40
0.75	<sup>1)</sup> M3AA 90 LB	3GAA 094 003-••E	680	64.0	60.0	0.65	2.65	3.0	10	1.8	2.0	0.0048	18	43
1.5	<sup>1)</sup> M3AA 100 LC	3GAA 104 003-••E	670	71.0	65.9	0.70	4.4	3.3	21	1.8	2.2	0.009	26	46
1.9	<sup>1)</sup> M3AA 112 MB	3GAA 114 002-••C	690	74.0	74.8	0.67	5.6	4.3	26.5	2.0	2.6	0.018	33	52
3.8	<sup>1)</sup> M3AA 132 MB	3GAA 134 003-••C	710	80.5	80.7	0.69	9.9	5.2	51	2.3	2.6	0.049	59	56
8.5	<sup>1)</sup> M3AA 160 LB	3GAA 164 104-••C	700	83.5	85.0	0.70	21	5.1	115	2.4	2.5	0.131	118	62
15	<sup>1)</sup> M3AA 180 LB	3GAA 184 102-••C	720	88.0	89.0	0.76	32.5	6.0	199	2.5	2.6	0.24	155	62
18.5	M3AA 200 MLB	3GAA 204 002-••C	735	91.4	91.8	0.81	36	7.2	237	2.5	3.0	0.54	200	60
30	<sup>1)</sup> M3AA 225 SMC	3GAA 224 003-••C	735	91.8	92.5	0.79	64	6.9	390	2.9	3.3	0.8	255	63
37	M3AA 250 SMB	3GAA 254 002-••C	735	93.2	93.5	0.81	74	7.8	481	3.1	3.5	1.52	320	63

<sup>1)</sup> Temperature rise class F

# General purpose steel motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>			<b>Basic design</b>						<b>EFF I</b>		
75	M2CA 280 SA	3GCA 281 110-••A	2977	94.9	94.6	0.88	131	7.5	241	2.3	3.3	0.8	480	77
90	M2CA 280 SMA	3GCA 281 210-••A	2975	95.1	94.9	0.90	152	7.6	289	2.3	2.9	0.9	545	77
110	M2CA 315 SA	3GCA 311 110-••A	2982	95.1	94.4	0.86	194	7.6	352	2.0	3.0	1.2	695	80
132	M2CA 315 SMA	3GCA 311 210-••A	2982	95.4	94.9	0.88	228	7.4	423	2.2	3.0	1.4	770	80
160	M2CA 315 MB	3GCA 311 320-••A	2981	96.1	95.6	0.89	269	7.5	513	2.3	3.0	1.7	840	80
200	M2CA 315 LA	3GCA 311 510-••A	2978	96.3	95.9	0.90	334	7.8	641	2.6	3.0	2.1	975	80
200	M2CA 355 SA	3GCA 351 110-••A	2977	95.5	95.1	0.92	330	6.6	641	1.3	2.8	3.2	1220	83
250	M2CA 355 MA	3GCA 351 310-••A	2980	96.1	95.7	0.92	410	6.6	801	1.3	3.0	3.8	1320	83
280	M2CA 355 MB	3GCA 351 320-••A	2978	96.1	95.9	0.92	470	5.7	897	1.1	2.7	3.8	1320	83
315	M2CA 355 LA	3GCA 351 510-••A	2980	96.6	96.4	0.93	510	7.7	1009	1.3	3.3	4.8	1530	83
355	M2CA 355 LB	3GCA 351 520-••A	2977	96.0	95.9	0.92	575	7.0	1138	1.0	3.1	4.8	1550	83
400 <sup>1)</sup>	M2CA 400 MLA	3GCA 401 410-••A	2982	96.6	96.5	0.92	655	7.6	1281	0.8	3.0	7.2	2300	85
450 <sup>1)</sup>	M2CA 400 MLB	3GCA 401 420-••A	2980	96.6	96.5	0.92	730	7.4	1442	0.8	3.0	7.2	2300	85
500 <sup>1)</sup>	M2CA 400 LKA	3GCA 401 510-••A	2984	96.6	96.5	0.91	815	7.2	1600	0.7	3.4	8.5	2700	85
560 <sup>1)</sup>	M2CA 400 LKB	3GCA 401 520-••A	2983	96.7	96.6	0.92	910	7.3	1792	0.7	3.4	8.5	2700	85
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>								
110	M2CA 280 MB	3GCA 281 320-••A	2977	95.8	95.5	0.90	184	7.9	353	2.4	3.0	1.15	580	77
132	M2CA 280 MC	3GCA 281 330-••A	2976	96.0	95.7	0.91	222	7.7	424	2.6	3.0	1.4	755	77
160	M2CA 280 MD	3GCA 281 340-••A	2975	96.0	95.7	0.91	266	7.9	514	2.8	3.1	1.55	810	77
250	M2CA 315 LB	3GCA 311 520-••A	2980	96.5	96.2	0.90	420	8.1	801	2.8	2.9	2.65	1230	80
315	M2CA 315 LC	3GCA 311 530-••A	2982	96.8	96.6	0.90	528	8.9	1009	3.4	3.1	3.3	1410	80
<b>1500 r/min = 4 poles</b>			<b>400 V 50 Hz</b>			<b>Basic design</b>								
75	M2CA 280 SA	3GCA 282 110-••A	1483	95.0	94.9	0.84	137	6.8	483	2.4	2.8	1.15	445	68
90	M2CA 280 SMA	3GCA 282 210-••A	1484	95.2	95.1	0.85	163	7.1	579	2.7	2.9	1.4	490	68
110	M2CA 315 SA	3GCA 312 110-••A	1487	95.4	95.1	0.85	198	6.9	706	2.1	2.8	2	675	71
132	M2CA 315 SMA	3GCA 312 210-••A	1486	95.6	95.5	0.85	238	6.7	848	2.2	2.7	2.3	730	71
160	M2CA 315 MB	3GCA 312 320-••A	1486	96.0	95.9	0.86	282	7.2	1028	2.4	2.9	2.9	850	71
200	M2CA 315 LA	3GCA 312 510-••A	1486	96.2	96.2	0.86	351	7.2	1285	2.5	2.9	3.5	970	71
200	M2CA 355 SA	3GCA 352 110-••A	1487	95.8	95.6	0.87	345	7.0	1284	2.1	2.7	5.5	1220	80
250	M2CA 355 MA	3GCA 352 310-••A	1487	96.5	96.4	0.87	430	7.2	1605	2.3	2.8	6.5	1350	80
315	M2CA 355 LA	3GCA 352 510-••A	1488	96.5	96.4	0.87	545	7.4	2021	2.4	2.8	7.8	1550	80
355	M2CA 355 LB	3GCA 352 520-••A	1489	96.5	96.4	0.88	605	7.2	2276	1.4	3.0	7.8	1550	80
400 <sup>1)</sup>	M2CA 355 LKD	3GCA 352 540-••A	1489	96.7	96.5	0.88	680	7.5	2565	1.5	3.0	10	1900	85
450	M2CA 400 MLA	3GCA 402 410-••A	1489	96.7	96.6	0.90	740	6.9	2886	1.2	2.8	13	2400	85
500	M2CA 400 MLB	3GCA 402 420-••A	1489	96.8	96.7	0.89	830	7.3	3206	1.3	2.9	13	2400	85
560	M2CA 400 LKA	3GCA 402 510-••A	1489	96.9	96.8	0.90	925	6.6	3591	1.1	2.6	14	2700	85
630 <sup>1)</sup>	M2CA 400 LKB	3GCA 402 520-••A	1489	96.9	96.8	0.87	1080	6.9	4040	1.2	2.8	15	2800	85
<b>1500 r/min = 4 poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>								
110	M2CA 280 MB	3GCA 282 320-••A	1483	95.3	95.2	0.86	195	7.5	708	2.7	2.8	1.7	550	68
132	M2CA 280 MC	3GCA 282 330-••A	1483	95.6	95.5	0.86	235	7.1	850	2.8	2.9	2.3	775	70
160	M2CA 280 MD	3GCA 282 340-••A	1483	95.8	95.7	0.86	283	7.1	1030	2.8	3.1	2.5	820	70
250	M2CA 315 LB	3GCA 312 520-••A	1487	96.1	96.0	0.85	445	7.4	1605	2.5	2.9	4.4	1200	78
315	M2CA 315 LC	3GCA 312 530-••A	1487	96.4	96.2	0.85	560	7.8	2023	2.6	3.2	5.5	1380	78

<sup>1)</sup> Temperature rise class F

Efficiency classes fixed for ranges 1.1 to 90 kW (available only by 2- and 4-poles).

# General purpose steel motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)	
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>				
<b>1000 r/min = 6 poles</b>															
<b>400 V 50 Hz</b>															
<b>Basic design</b>															
45	M2CA 280 SA	3GCA 283 110-...A	990	94.1	94.0	0.82	85	6.6	434	2.5	2.5	1.65	440	66	
55	M2CA 280 SMA	3GCA 283 210-...A	989	94.4	94.3	0.83	102	6.6	531	2.5	2.5	2	475	66	
75	M2CA 315 SA	3GCA 313 110-...A	992	94.9	94.7	0.80	143	7.1	722	2.3	2.7	2.9	630	72	
90	M2CA 315 SMA	3GCA 313 210-...A	991	95.3	95.2	0.83	165	7.1	867	2.3	2.7	3.8	720	72	
110	M2CA 315 MB	3GCA 313 320-...A	991	95.3	95.1	0.83	201	7.3	1060	2.5	2.8	4.5	805	75	
132	M2CA 315 LA	3GCA 313 510-...A	990	95.4	95.3	0.84	241	6.7	1273	2.4	2.7	5.4	910	75	
132	M2CA 355 SA	3GCA 353 110-...A	992	95.3	95.1	0.85	235	6.8	1270	1.7	2.6	8.7	1200	75	
160	M2CA 355 SB	3GCA 353 120-...A	992	95.9	95.7	0.85	280	6.8	1540	1.8	2.7	10	1320	75	
200	M2CA 355 MA	3GCA 353 310-...A	993	95.9	95.7	0.85	350	7.5	1923	2.0	2.8	13	1550	75	
250	<sup>1)</sup> M2CA 355 MB	3GCA 353 320-...A	991	95.9	95.8	0.80	475	7.3	2409	2.2	3.0	13	1550	75	
315	M2CA 355 LKD	3GCA 353 540-...A	991	96.2	96.1	0.84	565	7.3	3035	2.0	3.0	15	1900	82	
355	M2CA 400 MLA	3GCA 403 410-...A	992	96.4	96.3	0.85	625	6.4	3417	1.2	2.7	17	2400	82	
400	<sup>1)</sup> M2CA 400 MLB	3GCA 403 420-...A	992	96.5	96.4	0.85	700	6.4	3850	1.2	2.7	17	2400	82	
450	M2CA 400 LKA	3GCA 403 510-...A	993	96.5	96.4	0.85	790	6.8	4327	1.3	2.8	19	2700	82	
500	<sup>1)</sup> M2CA 400 LKB	3GCA 403 520-...A	992	96.5	96.4	0.85	880	6.8	4813	1.3	2.8	19	2700	82	
<b>1000 r/min = 6 poles</b>															
<b>400 V 50 Hz</b>															
<b>High-output design</b>															
75	M2CA 280 MB	3GCA 283 320-...A	990	94.5	94.4	0.83	139	7.3	723	2.8	2.7	2.6	545	67	
90	M2CA 280 MC	3GCA 283 330-...A	989	94.9	94.8	0.83	168	7.4	869	2.9	2.9	3.1	815	67	
110	M2CA 280 MD	3GCA 283 340-...A	990	95.2	95.1	0.83	202	7.9	1061	3.1	3.0	4.1	835	67	
160	M2CA 315 LB	3GCA 313 520-...A	991	95.6	95.4	0.83	292	7.7	1542	2.9	3.1	7.3	1200	80	
200	M2CA 315 LC	3GCA 313 530-...A	991	95.8	95.7	0.83	364	7.4	1927	2.8	2.9	9.2	1380	80	
<b>750 r/min = 8 poles</b>															
<b>400 V 50 Hz</b>															
<b>Basic design</b>															
37	M2CA 280 SA	3GCA 284 110-...A	741	93.4	93.1	0.78	74	7.3	477	1.8	3.1	1.85	460	65	
45	M2CA 280 SMA	3GCA 284 210-...A	741	94.0	93.8	0.78	90	7.6	580	1.9	3.2	2.2	500	65	
55	M2CA 315 SA	3GCA 314 110-...A	741	94.0	93.7	0.80	107	7.1	710	1.8	2.8	2.9	630	70	
75	M2CA 315 SMA	3GCA 314 210-...A	740	94.5	94.2	0.81	142	7.1	968	1.8	2.8	3.8	715	70	
90	M2CA 315 MB	3GCA 314 320-...A	740	94.7	94.5	0.82	169	7.3	1161	1.9	2.8	4.5	800	77	
110	M2CA 315 LA	3GCA 314 510-...A	740	94.8	94.7	0.83	202	7.0	1420	1.9	2.7	5.4	900	77	
110	M2CA 355 SA	3GCA 354 110-...A	742	94.6	94.0	0.80	215	5.6	1415	1.4	2.2	8.7	1200	75	
132	M2CA 355 MA	3GCA 354 310-...A	743	95.0	94.5	0.77	265	5.8	1696	1.5	2.3	10	1350	75	
160	M2CA 355 MB	3GCA 354 320-...A	742	95.2	94.8	0.79	310	6.4	2059	1.8	2.5	13	1550	75	
200	M2CA 355 LKD	3GCA 354 540-...A	743	95.5	95.1	0.74	414	6.6	2570	1.8	2.7	15	1900	80	
250	M2CA 400 MLA	3GCA 404 410-...A	744	96.0	95.7	0.77	490	7.2	3209	1.6	2.9	17	2400	80	
315	<sup>1)</sup> M2CA 400 LKA	3GCA 404 510-...A	744	96.2	95.9	0.79	605	6.9	4043	1.5	2.8	19	2700	80	
<b>750 r/min = 8 poles</b>															
<b>400 V 50 Hz</b>															
<b>High-output design</b>															
55	M2CA 280 MB	3GCA 284 320-...A	741	94.4	94.2	0.79	108	7.8	709	1.9	3.2	2.85	575	62	

<sup>1)</sup> Temperature rise class F

# General purpose cast iron motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>max</sub> /T <sub>N</sub>			
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>			<b>Basic design</b>						<b>EFF 2</b>		
0.37	M2QA 71 M2A	3GQA 071 301-...A	2780	70.0	68.0	0.81	0.94	6.1	1.27	2.2	3.0	0.0003	10	56
0.55	M2QA 71 M2B	3GQA 071 302-...A	2785	73.0	72.4	0.82	1.33	6.1	1.89	2.2	2.7	0.00037	11	56
0.75	M2QA 80 M2A	3GQA 081 301-...A	2840	75.0	75.5	0.85	1.7	6.1	2.52	2.2	3.0	0.00091	16	57
1.1	M2QA 80 M2B	3GQA 081 302-...A	2855	78.0	77.9	0.85	2.4	7.0	3.68	2.2	2.2	0.00107	17	58
1.5	M2QA 90 S2A	3GQA 091 101-...A	2850	79.0	79.0	0.87	3.15	7.0	5.03	2.2	2.5	0.00135	21	61
2.2	M2QA 90 L2A	3GQA 091 501-...A	2850	81.5	81.8	0.86	4.53	7.0	7.37	2.2	3.5	0.00163	24	61
3	M2QA 100 L2A	3GQA 101 501-...A	2860	83.0	83.2	0.88	5.93	7.0	10.02	2.2	3.0	0.00402	33	65
4	M2QA 112 M2A	3GQA 111 301-...A	2900	85.0	84.6	0.90	7.55	7.0	13.17	2.2	3.2	0.00671	42	67
5.5	M2QA 132 S2A	3GQA 131 101-...A	2920	87.5	87.9	0.89	10.2	7.0	17.99	2.2	3.0	0.01241	58	70
7.5	M2QA 132 S2B	3GQA 131 102-...A	2920	88.5	90.1	0.90	13.6	7.0	24.53	2.2	3.5	0.01491	63	70
11	M2QA 160 M2A	3GQA 161 301-...A	2930	90.0	90.5	0.89	19.8	6.5	35.85	2.5	3.1	0.0436	112	72
15	M2QA 160 M2B	3GQA 161 302-...A	2920	90.0	90.1	0.89	27	6.5	49.06	2.5	2.6	0.0551	122	72
18.5	M2QA 160 L2A	3GQA 161 501-...A	2930	90.5	90.9	0.90	32.8	6.5	60	2.5	2.7	0.06549	142	72
22	M2QA 180 M2A	3GQA 181 301-...A	2940	90.8	91.0	0.90	38.9	6.5	71	2.3	2.5	0.08805	170	72
30	M2QA 200 L2A	3GQA 201 501-...A	2955	91.4	91.1	0.90	52	6.5	96	2.2	2.6	0.14821	235	81
37	M2QA 200 L2B	3GQA 201 502-...A	2955	92.2	91.8	0.90	64	6.5	119	2.3	2.6	0.16822	254	81
45	M2QA 225 M2A	3GQA 221 301-...A	2970	92.6	92.2	0.89	78	7.0	144	2.5	2.7	0.29345	328	81
55	M2QA 250 M2A	3GQA 251 301-...A	2960	93.4	91.7	0.89	96	7.5	177	2.4	2.7	0.3784	390	84
75	M2BAT 280 SMA	3GBA 281 210-...D	2974	94.1	93.6	0.87	134	6.7	241	1.7	2.6	0.7	570	78
90	M2BAT 280 SMB	3GBA 281 220-...D	2970	94.5	94.2	0.89	156	6.4	289	1.7	2.5	0.82	610	78
110	M2BAT 315 SMA	3GBA 311 210-...D	2979	94.1	93.4	0.85	198	6.3	353	1.5	2.5	1.05	820	83
132	M2BAT 315 SMB	3GBA 311 220-...D	2977	94.7	94.1	0.87	232	6.3	423	1.7	2.5	1.25	870	83
160	M2BAT 315 SMC	3GBA 311 230-...D	2976	95.1	94.8	0.88	273	6.2	513	1.7	2.4	1.5	960	83
200	M2BAT 315 MLA	3GBA 311 410-...D	2980	95.7	95.3	0.88	345	7.9	641	2.6	3.1	1.95	1130	83
250	M2BAT 355 S	3GBA 351 100-...D	2983	95.7	95.3	0.89	424	6.8	800	1.5	2.8	2.7	1500	83
<b>3000 r/min = 2 poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>								
5.5	<sup>1)</sup> M2QA 112 L2A	3GQA 111 501-...A	2900	82.0	<sup>2)</sup>	0.90	10.8	7.0	18.1	2.0	2.1	<sup>2)</sup>	<sup>2)</sup>	70
9.2	<sup>1)</sup> M2QA 132 M2A	3GQA 131 301-...A	2910	85.5	<sup>2)</sup>	0.88	17.7	7.5	30.2	2.0	2.2	<sup>2)</sup>	<sup>2)</sup>	81
11	<sup>1)</sup> M2QA 132 M2B	3GQA 131 302-...A	2900	88.0	<sup>2)</sup>	0.90	20.1	8.0	36.2	2.2	2.2	<sup>2)</sup>	<sup>2)</sup>	73
22	<sup>1)</sup> M2QA 160 L2B	3GQA 161 502-...A	2930	88.0	<sup>2)</sup>	0.90	40.1	6.5	71.7	2.3	2.8	<sup>2)</sup>	<sup>2)</sup>	75
30	<sup>1)</sup> M2QA 180 L2A	3GQA 181 501-...A	2950	90.8	<sup>2)</sup>	0.90	53.0	6.5	97.1	2.3	2.8	<sup>2)</sup>	<sup>2)</sup>	75
45	<sup>1)</sup> M2QA 200 L2C	3GQA 201 503-...A	2955	92.0	<sup>2)</sup>	0.90	78.4	7.0	145.4	2.2	2.6	<sup>2)</sup>	<sup>2)</sup>	81
55	<sup>1)</sup> M2QA 225 M2B	3GQA 221 302-...A	2975	92.6	<sup>2)</sup>	0.89	96.3	7.0	176.5	2.5	2.8	<sup>2)</sup>	<sup>2)</sup>	81
75	<sup>1)</sup> M2QA 250 M2B	3GQA 251 302-...A	2970	91.0	<sup>2)</sup>	0.89	133.7	7.0	241.1	2.4	2.8	<sup>2)</sup>	<sup>2)</sup>	85
110	M2BAT 280 SMC	3GBA 281 230-...D	2973	95.0	94.8	0.90	187	6.7	353	1.9	2.6	1.05	660	78

<sup>1)</sup> Temperature rise class F

<sup>2)</sup> On request.

Efficiency classes fixed for ranges 1.1 to 90 kW (available only by 2- and 4-poles).

# General purpose cast iron motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> / T <sub>N</sub>	T <sub>max</sub> / T <sub>N</sub>			
<b>1500 r/min = 4 poles</b>			<b>400 V 50 Hz</b>			<b>Basic design</b>						<b>EFF 2</b>		
0.25	M2QA 71 M4A	3GQA 072 301-••A	1395	65.5	63.3	0.72	0.77	5.2	1.71	2.1	2.7	0.00053	11	43
0.37	M2QA 71 M4B	3GQA 072 302-••A	1395	68.5	69.4	0.75	1.04	5.2	2.53	2.1	2.7	0.00066	11	45
0.55	M2QA 80 M4A	3GQA 082 301-••A	1410	73.5	71.4	0.72	1.5	5.2	3.73	2.4	2.7	0.00145	16	46
0.75	M2QA 80 M4B	3GQA 082 302-••A	1415	74.5	75.2	0.75	1.93	6.0	5.06	2.4	2.6	0.00174	17	46
1.1	M2QA 90 S4A	3GQA 092 101-••A	1400	77.5	77.8	0.78	2.65	6.0	7.5	2.3	2.4	0.00254	21	52
1.5	M2QA 90 L4A	3GQA 092 501-••A	1390	78.5	79.2	0.79	3.5	6.0	10.31	2.3	2.6	0.00317	25	52
2.2	M2QA 100 L4A	3GQA 102 501-••A	1430	81.5	82.3	0.81	4.85	6.0	14.69	2.3	2.7	0.00679	32	53
3	M2QA 100 L4B	3GQA 102 502-••A	1420	82.8	82.5	0.83	6.3	6.5	20.18	2.3	2.8	0.00862	36	53
4	M2QA 112 M4A	3GQA 112 301-••A	1430	85.0	84.6	0.82	8.29	6.5	26.71	2.3	2.8	0.01306	45	56
5.5	M2QA 132 S4A	3GQA 132 101-••A	1430	86.0	87.1	0.85	10.9	6.5	36.73	2.3	2.9	0.02673	60	59
7.5	M2QA 132 M4A	3GQA 132 301-••A	1440	88.5	88.3	0.85	14.4	6.5	49.74	2.3	2.7	0.03432	73	59
11	M2QA 160 M4A	3GQA 162 301-••A	1460	89.5	90.0	0.85	20.9	6.5	71	2.4	2.8	0.06543	116	66
15	M2QA 160 L4A	3GQA 162 501-••A	1460	90.0	90.4	0.86	28	6.5	98	2.3	2.6	0.09349	137	66
18.5	M2QA 180 M4A	3GQA 182 301-••A	1470	91.0	90.9	0.86	34.1	6.5	120	2.3	3.4	0.16049	170	66
22	M2QA 180 L4A	3GQA 182 501-••A	1470	91.5	90.0	0.88	39.4	6.5	142	2.4	3.0	0.18046	186	66
30	M2QA 200 L4A	3GQA 202 501-••A	1470	92.2	91.8	0.88	53	6.5	194	2.2	2.9	0.2819	254	71
37	M2QA 225 S4A	3GQA 222 101-••A	1480	92.6	91.2	0.85	67	7.0	238	2.2	2.7	0.37	308	73
45	M2QA 225 M4A	3GQA 222 301-••A	1480	92.8	91.7	0.87	80	7.0	290	2.2	2.7	0.42	335	73
55	M2QA 250 M4A	3GQA 252 301-••A	1480	93.4	91.3	0.87	98	7.0	354	2.4	2.7	0.78	450	76
75	M2BAT 280 SMA	3GBA 282 210-••D	1483	94.2	94.2	0.83	138	6.3	483	2.1	2.6	1.05	560	71
90	M2BAT 280 SMB	3GBA 282 220-••D	1481	94.6	94.7	0.86	162	6.4	580	2.1	2.4	1.32	600	71
110	M2BAT 315 SMA	3GBA 312 210-••D	1486	94.6	94.2	0.84	203	6.4	707	1.7	2.3	1.9	800	78
132	M2BAT 315 SMB	3GBA 312 220-••D	1485	94.9	94.7	0.85	239	6.1	849	1.9	2.4	2.2	855	78
160	M2BAT 315 SMC	3GBA 312 230-••D	1486	95.4	95.2	0.85	286	6.7	1028	2.1	2.6	2.6	930	78
200	M2BAT 315 MLA	3GBA 312 410-••D	1485	95.7	95.6	0.86	354	6.4	1286	2.1	2.5	3.2	1030	78
250	M2BAT 355 S	3GBA 352 100-••D	1488	95.6	95.3	0.85	448	6.7	1604	2.0	2.6	5.4	1500	82
<b>1500 r/min = 4 poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>								
5.5	<sup>1)</sup> M2QA 112 L4A	3GQA 112 501-••A	1430	84.0	<sup>2)</sup>	0.83	11.4	7.0	36.7	2.2	2.2	<sup>2)</sup>	<sup>2)</sup>	64
9.2	<sup>1)</sup> M2QA 132 M4B	3GQA 132 302-••A	1430	84.0	<sup>2)</sup>	0.85	18.6	6.5	61.4	2.2	2.2	<sup>2)</sup>	<sup>2)</sup>	71
11	<sup>1)</sup> M2QA 132 M4C	3GQA 132 303-••A	1430	84.5	<sup>2)</sup>	0.85	22.1	6.5	73.4	2.2	2.2	<sup>2)</sup>	<sup>2)</sup>	73
18.5	<sup>1)</sup> M2QA 160 L4B	3GQA 162 502-••A	1460	87.0	<sup>2)</sup>	0.86	35.7	6.5	121	2.2	2.4	<sup>2)</sup>	<sup>2)</sup>	66
30	<sup>1)</sup> M2QA 180 L4B	3GQA 182 502-••A	1470	89.0	<sup>2)</sup>	0.88	55.3	6.5	194.9	2.2	2.6	<sup>2)</sup>	<sup>2)</sup>	70
37	<sup>1)</sup> M2QA 200 L4B	3GQA 202 502-••A	1470	89.2	<sup>2)</sup>	0.88	68.0	6.5	240.4	2.2	2.6	<sup>2)</sup>	<sup>2)</sup>	72
55	<sup>1)</sup> M2QA 225 M4B	3GQA 222 302-••A	1480	91.0	<sup>2)</sup>	0.87	100.3	7.0	354.9	2.3	2.4	<sup>2)</sup>	<sup>2)</sup>	75
75	<sup>1)</sup> M2QA 250 M4B	3GQA 252 302-••A	1480	90.4	<sup>2)</sup>	0.87	137.6	7.0	483.9	2.3	2.4	<sup>2)</sup>	<sup>2)</sup>	77
110	M2BAT 280 SMC	3GBA 282 230-••D	1484	95.1	95.1	0.85	196	7.1	708	2.7	2.8	1.7	660	71

<sup>1)</sup> Temperature rise class F

<sup>2)</sup> On request.

Efficiency classes fixed for ranges 1.1 to 90 kW (available only by 2- and 4-poles).

# General purpose cast iron motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)	
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>				
<b>1000 r/min = 6 poles</b>			<b>400 V 50 Hz</b>				<b>Basic design</b>								
0.18	M2QA 71 M6A	3GQA 073 301-••A	910	55.0	50.1	0.65	0.73	4.0	1.89	1.8	2.4	0.00056	10	42	
0.25	M2QA 71 M6B	3GQA 073 302-••A	890	60.0	58.3	0.65	0.93	4.0	2.68	1.8	2.5	0.00074	11	42	
0.37	M2QA 80 M6A	3GQA 083 301-••A	930	63.0	63.2	0.66	1.29	5.0	3.8	1.9	2.0	0.00159	17	45	
0.55	M2QA 80 M6B	3GQA 083 302-••A	925	65.0	65.1	0.68	1.8	5.0	5.68	1.9	1.8	0.00196	18	45	
0.75	M2QA 90 S6A	3GQA 093 101-••A	920	71.0	70.2	0.72	2.12	5.0	7.79	2.0	2.3	0.00292	21	48	
1.1	M2QA 90 L6A	3GQA 093 501-••A	920	73.0	73.1	0.74	2.94	5.0	11.42	2.0	2.6	0.00379	25	48	
1.5	M2QA 100 L6A	3GQA 103 501-••A	940	76.0	75.3	0.77	3.78	5.5	15.24	2.0	2.4	0.00999	32	51	
2.2	M2QA 112 M6A	3GQA 113 301-••A	940	80.0	81.2	0.76	5.23	5.5	22.35	2.0	2.3	0.03116	40	54	
3	M2QA 132 S6A	3GQA 133 101-••A	960	82.5	83.5	0.78	6.73	6.5	29.84	2.0	2.4	0.03116	55	56	
4	M2QA 132 M6A	3GQA 133 301-••A	960	84.0	84.2	0.77	8.93	6.5	39.79	2.0	2.9	0.04074	65	56	
5.5	M2QA 132 M6B	3GQA 133 302-••A	960	86.0	85.6	0.79	11.7	6.5	54	2.0	3.0	0.05332	75	56	
7.5	M2QA 160 M6A	3GQA 163 301-••A	970	88.0	88.3	0.78	15.8	6.0	73	2.0	2.3	0.09231	119	61	
11	M2QA 160 L6A	3GQA 163 501-••A	970	88.5	88.6	0.78	23	6.0	108	2.2	2.4	0.1297	140	62	
15	M2QA 180 L6A	3GQA 183 501-••A	980	89.0	89.1	0.82	29.7	6.0	146	2.3	2.9	0.2418	180	63	
18.5	M2QA 200 L6A	3GQA 203 501-••A	980	90.3	90.2	0.82	36.1	6.0	180	2.2	2.5	0.34174	231	64	
22	M2QA 200 L6B	3GQA 203 502-••A	980	90.4	90.3	0.83	42.3	6.0	214	2.1	3.2	0.46837	254	64	
30	M2QA 225 M6A	3GQA 223 301-••A	980	90.8	89.2	0.78	61	6.6	292	2.2	2.9	0.62691	308	66	
37	M2QA 250 M6A	3GQA 253 301-••A	980	92.2	92.4	0.88	66	6.8	360	2.3	2.6	0.97	382	68	
45	M2BAT 280 SMA	3GBA 283 210-••D	990	93.5	93.3	0.82	85	6.7	434	2.4	2.4	1.6	540	71	
55	M2BAT 280 SMB	3GBA 283 220-••D	989	93.8	93.7	0.83	103	6.4	531	2.4	2.4	1.9	580	71	
75	M2BAT 315 SMA	3GBA 313 210-••D	992	94.2	94.0	0.80	145	6.3	722	1.9	2.3	2.8	780	75	
90	M2BAT 315 SMB	3GBA 313 220-••D	991	94.8	94.7	0.83	166	6.5	867	1.9	2.3	3.6	870	75	
110	M2BAT 315 SMC	3GBA 313 230-••D	991	95.1	95.0	0.82	206	6.7	1060	2.1	2.6	4.4	930	75	
132	M2BAT 315 MLA	3GBA 313 410-••D	991	95.3	95.2	0.83	242	6.5	1272	2.2	2.5	5.3	1040	75	
160	M2BAT 355 S	3GBA 353 100-••D	992	95.3	95.2	0.83	293	6.2	1540	1.8	2.3	7.3	1500	77	
<b>1000 r/min = 6 poles</b>			<b>400 V 50 Hz</b>				<b>High-output design</b>								
3	<sup>1)</sup> M2QA 112 M6B	3GQA 113 302-••A	950	77.0	<sup>2)</sup>	0.76	7.4	6.5	30.1	1.9	2.1	<sup>2)</sup>	<sup>2)</sup>	56	
6.5	<sup>1)</sup> M2QA 132 M6C	3GQA 133 303-••A	970	83.0	<sup>2)</sup>	0.78	14.5	6.5	64	1.9	2.1	<sup>2)</sup>	<sup>2)</sup>	59	
14	<sup>1)</sup> M2QA 160 L6B	3GQA 163 502-••A	970	85.5	<sup>2)</sup>	0.78	30.3	6.0	137.8	2.1	2.2	<sup>2)</sup>	<sup>2)</sup>	64	
18.5	<sup>1)</sup> M2QA 180 L6B	3GQA 183 502-••A	980	86.0	<sup>2)</sup>	0.82	37.9	6.0	180.3	2.2	2.7	<sup>2)</sup>	<sup>2)</sup>	65	
30	<sup>1)</sup> M2QA 200 L6C	3GQA 203 503-••A	980	87.4	<sup>2)</sup>	0.78	63.5	6.0	292.3	2.0	2.6	<sup>2)</sup>	<sup>2)</sup>	66	
37	<sup>1)</sup> M2QA 225 M6B	3GQA 223 302-••A	980	87.8	<sup>2)</sup>	0.78	78.0	6.6	360.5	2.1	2.6	<sup>2)</sup>	<sup>2)</sup>	68	
45	<sup>1)</sup> M2QA 250 M6B	3GQA 253 302-••A	980	89.2	<sup>2)</sup>	0.88	82.8	6.8	438.5	2.2	2.6	<sup>2)</sup>	<sup>2)</sup>	71	
75	M2BAT 280 SMC	3GBA 283 230-••D	989	94.5	94.5	0.83	139	6.9	724	2.6	2.5	2.6	660	71	

<sup>1)</sup> Temperature rise class F

<sup>2)</sup> On request.

# General purpose cast iron motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)	
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>max</sub> /T <sub>N</sub>				
<b>750 r/min = 8 poles</b>			<b>400 V 50 Hz</b>			<b>Basic design</b>									
0.18	M2QA 80 M8A	3GQA 084 301-...A	700	51.0	50.1	0.60	0.85	3.3	2.46	1.8	1.9	0.00111	16	42	
0.25	M2QA 80 M8B	3GQA 084 302-...A	700	54.5	53.3	0.60	1.11	3.6	3.41	1.8	1.9	0.00326	17	42	
0.37	M2QA 90 S8A	3GQA 094 101-...A	700	62.5	62.1	0.60	1.42	4.4	5.05	1.8	1.9	0.00541	21	46	
0.55	M2QA 90 L8A	3GQA 094 501-...A	700	63.5	63.3	0.60	2.07	4.7	7.5	1.8	2.0	0.00756	24	46	
0.75	M2QA 100 L8A	3GQA 104 501-...A	700	70.0	70.1	0.64	2.42	5.0	10.23	1.8	2.2	0.00971	31	53	
1.1	M2QA 100 L8B	3GQA 104 502-...A	700	71.5	70.3	0.65	3.45	5.0	15.01	1.8	2.4	0.01186	34	53	
1.5	M2QA 112 M8A	3GQA 114 301-...A	700	75.0	75.4	0.68	4.27	5.0	20.46	1.8	2.4	0.01559	42	55	
2.2	M2QA 132 S8A	3GQA 134 101-...A	710	81.0	81.8	0.70	5.6	5.5	29.59	1.8	2.5	0.03625	56	55	
3	M2QA 132 M8A	3GQA 134 301-...A	710	81.0	81.4	0.75	7.13	5.5	40.35	1.8	2.2	0.04141	64	56	
4	M2QA 160 M8A	3GQA 164 301-...A	720	84.0	84.0	0.73	9.42	5.5	53	2.1	2.6	0.0676	105	58	
5.5	M2QA 160 M8B	3GQA 164 302-...A	720	85.5	85.6	0.74	12.6	5.5	72	2.1	2.8	0.09524	125	58	
7.5	M2QA 160 L8A	3GQA 164 501-...A	720	86.5	85.8	0.74	16.9	5.5	99	2.1	2.5	0.12122	142	58	
11	M2QA 180 L8A	3GQA 184 501-...A	730	87.7	87.0	0.77	23.5	5.4	143	2.0	2.8	0.23645	176	61	
15	M2QA 200 L8A	3GQA 204 501-...A	730	89.0	89.4	0.76	32	5.5	196	2.3	2.8	0.37103	235	63	
18.5	M2QA 225 S8A	3GQA 224 101-...A	740	90.0	89.1	0.75	39.6	5.5	238	2.1	2.7	0.53287	290	65	
22	M2QA 225 M8A	3GQA 224 301-...A	740	90.5	88.2	0.75	46.8	6.0	283	2.2	2.7	0.65825	302	65	
30	M2QA 250 M8A	3GQA 254 301-...A	740	91.3	90.1	0.79	60	6.5	387	2.3	2.4	0.975	392	67	
37	M2BAT 280 SMA	3GBA 284 210-...D	741	93.5	93.3	0.78	74	7.3	477	1.8	3.0	1.85	570	65	
45	M2BAT 280 SMB	3GBA 284 220-...D	741	94.0	93.8	0.78	90	7.6	580	1.9	3.2	2.2	610	65	
55	M2BAT 315 SMA	3GBA 314 210-...D	740	94.1	94.0	0.81	104	7.1	710	1.6	2.7	3.2	820	65	
75	M2BAT 315 SMB	3GBA 314 220-...D	740	94.4	94.3	0.82	140	7.1	968	1.7	2.7	4.1	910	65	
90	M2BAT 315 SMC	3GBA 314 230-...D	740	94.8	94.7	0.82	167	7.4	1161	1.8	2.7	4.9	980	65	
110	M2BAT 315 MLA	3GBA 314 410-...D	740	95.1	95.1	0.83	202	7.3	1420	1.8	2.7	5.8	1100	72	
132	M2BAT 355 S	3GBA 354 100-...D	743	95.0	94.9	0.81	247	6.5	1697	1.3	2.3	7.3	1500	75	
<b>750 r/min = 8 poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>									
2	<sup>1)</sup> M2QA 112 M8B	3GQA 114 302-...A	700	72.0	<sup>2)</sup>	0.68	5.9	5.2	27.7	1.7	1.9	<sup>2)</sup>	<sup>2)</sup>	58	
3.8	<sup>1)</sup> M2QA 132 M8B	3GQA 134 302-...A	710	78.0	<sup>2)</sup>	0.75	9.4	5.5	51.1	1.7	1.9	<sup>2)</sup>	<sup>2)</sup>	59	
8.5	<sup>1)</sup> M2QA 160 L8B	3GQA 164 502-...A	720	83.5	<sup>2)</sup>	0.74	19.9	5.5	112.7	2.0	2.4	<sup>2)</sup>	<sup>2)</sup>	61	
15	<sup>1)</sup> M2QA 180 L8B	3GQA 184 502-...A	730	84.7	<sup>2)</sup>	0.77	33.2	5.4	196.2	1.9	2.6	<sup>2)</sup>	<sup>2)</sup>	63	
18.5	<sup>1)</sup> M2QA 200 L8B	3GQA 204 502-...A	730	86.0	<sup>2)</sup>	0.76	40.9	5.4	242	1.9	2.6	<sup>2)</sup>	<sup>2)</sup>	65	
30	<sup>1)</sup> M2QA 225 M8B	3GQA 224 302-...A	740	87.5	<sup>2)</sup>	0.75	66.0	6.3	387.1	2.1	2.6	<sup>2)</sup>	<sup>2)</sup>	67	
37	<sup>1)</sup> M2QA 250 M8B	3GQA 254 302-...A	740	88.3	<sup>2)</sup>	0.79	76.6	6.5	477.5	2.2	2.5	<sup>2)</sup>	<sup>2)</sup>	69	
55	M2BAT 280 SMC	3GBA 284 230-...D	741	94.4	94.3	0.79	108	7.8	709	1.9	3.2	2.85	690	65	

<sup>1)</sup> Temperature rise class F

<sup>2)</sup> On request.

# General purpose motors - Variant codes

Code Variant	Aluminum motors					Steel, cast iron motors				
	56-80	90-100	112-132	160-180	200-280	71-132	160-250	280-315	355-400	
<b>Bearings and Lubrication</b>										
037	Roller bearing at D-end. Transport lock included.	NA	M	NA	M	M	NA	M	M	M/R
039	Cold resistant grease.	M	M	M	M	M	M	M	M	M
040	Heat resistant grease.	M	M	S	S	S	M	M	M/NA	M/NA
041	Bearings regreasable via grease nipples.	NA	M	M	M	S/M	NA/M	M	S/NA	S/NA
043	SPM nipples.	NA	R	M	M	M	NA/M	M	M	M
057	2RS bearings at both ends.	M	M	M	M/R	M/R	S	NA	NA	NA
<b>Branch standard design</b>										
178	Stainless steel/acid proof bolts.	M	M	M	M	M	M	M	M/P	M/P
<b>Cooling system</b>										
053	Metal fan cover.	S	S	M	S	S	S	S	S	S
068	Aluminum fan.	NA/M	M	M	M	M	M	M	M	M
075	Cooling method IC418 (without fan).	P	P	R	R	R	NA	NA	P/NA	P/NA
183	Separate motor cooling (fan axial, N-end).	NA/M	R	NA	M/R	M/R	P/M	M/P	NA	NA
<b>Drain holes</b>										
066	Modified drain hole position. Specify IM designation.	M	M	M	M	M	NA	NA	M	M
<b>Earthing bolt</b>										
067	External earthing bolt.	M	M	M	M	M	M	M	M	M
<b>Heating elements</b>										
450	Heating element 100-120 V.	M	M	M	M	M	M	M	M/P	M/P
451	Heating element 200-240 V.	M	M	M	M	M	M	M	M	M
<b>Mounting arrangements</b>										
007	IM 3001 flange mounted, from IM 1001 (B5 from B3).	NA/M	M	NA	NA/R	M/R	NA	NA	NA	NA
008	IM 2101 foot/flange mounted, from IM 1001 (B34 from B3).	NA/M	M	M	R	NA/R	M	M/NA	NA	NA
009	IM 2001 foot/flange mounted, from IM 1001 (B35 from B3).	M	M	M	M	M	M	M	M	M
047	IM 3601 flange mounted, from IM 3001 (B14 from B5).	M	M	M	R	R/NA	M	M/NA	NA	NA
048	IM 3001 flange mounted, from IM 3601 (B5 from B14).	M	M	M	NA	NA	NA	NA	NA	NA
<b>Painting</b>										
114	Special paint colour, standard grade.	M	M	M	M	M	M	M	M	M
179	Special paint specification.	NA	R	R	R	R	NA	NA	P/NA	P/NA
<b>Protection</b>										
005	Protective roof, vertical motor, shaft down. Vertically mounted motors with shaft extension downwards.	M	M	M	M	M	M	M	M	M
072	Radial seal at D-end.	P	M	R	R	R	M	M	M	M
158	Degree of protection IP65 or IP65X. Dust proof version.	P	P	M	M	M	M	M	NA	NA
211	Weather protected, IP xx W.	NA	P	NA	NA	NA	M	M	NA	NA
403	Degree of protection IP56.	P	P	M	M	M	M	M	M/NA	M/NA
<b>Rating &amp; instruction plates</b>										
002	Restamping voltage, frequency and output, continuous duty.	M	M	M	M	M	M	M	M	M
003	Individual serial number.	P	M	M	M	M	S	S	S	S
098	Stainless rating plate.	M	M	M	M/R	M/R	S	S	S	S
138	Mounting of additional identification plate, aluminum.	M	M	M	M	M	M	M	M	M
<b>Stator winding temperature sensors</b>										
122	Bimetal detectors, break type (NCC), (3 in series), 150°C.	M	M	M	M	M	M	M	M	M
436	PTC - thermistors (3 in series), 150 °C.	M	M	M	M	S/M	M	S	S	S
439	PTC - thermistors (2x3 in series), 150 °C.	M	M	M	M	M	M	M	M	M
445	Pt100 (1 per phase).	NA	R	M	M	M	M	M	M/NA	M/NA
<b>Terminal box</b>										
021	Terminal box left-hand side, seen from D-end.	NA/M	M	NA	NA	P/R/NA	P	P	P	P/NA
180	Terminal box right-hand side, seen from D-end.	NA/M	M	NA	NA	P/R/NA	P	P	NA	NA
230	Standard gable glands.	M	M	M	M	M	M	M	S/NA	S/NA
731	Two standard cable glands.	NA/M	M	M	M	M	M	M	NA/S	NA/S
<b>Testing</b>										
145	Type test report from test of identical motor. 400V 50 Hz.	M	M	M	M	M	M	M	M	M
148	Routine test report.	P	M	M	M	M	M	M	M	M

Certain variant codes cannot be used together.

**Note! This list is an extract of a wide range of possible modifications. Please see the General Purpose or Process Performance Motor Catalogue for a complete list of variant codes.**

S = Included as standard.

M = On modification of a stocked motor, or on new manufacture, the number per order may be limited.

P = New manufacture only.

R = On request.

NA= Not applicable.



# Motors in brief, Basic design

Size	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	355	400
<b>General purpose motors, aluminum</b>																	
Bearings	D-end 6201-2Z/C3   6202-2Z/C3   6203-2Z/C3   6204-2Z/C3   6205-2Z/C3   6206-2Z/C3   6208-2Z/C3   6209-2Z/C3   6210-2Z/C3   6212/C3   6213/C3   6215/C3   6216/C3   6217/C3   6218/C3   6219/C3   6220/C3   6221/C3   6222/C3   6223/C3   6224/C3   6225/C3   6226/C3   6227/C3   6228/C3   6229/C3   6230/C3   6231/C3   6232/C3   6233/C3   6234/C3   6235/C3   6236/C3   6237/C3   6238/C3   6239/C3   6240/C3   6241/C3   6242/C3   6243/C3   6244/C3   6245/C3   6246/C3   6247/C3   6248/C3   6249/C3   6250/C3   6251/C3   6252/C3   6253/C3   6254/C3   6255/C3   6256/C3   6257/C3   6258/C3   6259/C3   6260/C3   6261/C3   6262/C3   6263/C3   6264/C3   6265/C3   6266/C3   6267/C3   6268/C3   6269/C3   6270/C3   6271/C3   6272/C3   6273/C3   6274/C3   6275/C3   6276/C3   6277/C3   6278/C3   6279/C3   6280/C3   6281/C3   6282/C3   6283/C3   6284/C3   6285/C3   6286/C3   6287/C3   6288/C3   6289/C3   6290/C3   6291/C3   6292/C3   6293/C3   6294/C3   6295/C3   6296/C3   6297/C3   6298/C3   6299-2Z/C3   M2AA 200: 6209-2Z/C3; M2AA 225: 6210/C3; M2AA 250: 6212/C3																
	N-end 2) 6315/C3 for 2-pole motors																
	N-end 3) M3AA 112: M-6, M-8, M3AA 132: SA-2, S-4, S-6, MA-6, MB-6, S-8 and M-8. M2AA 200: 6209-2Z/C3; M2AA 225: 6210/C3; M2AA 250: 6212/C3																
	All M3AA motor sizes 112-132 not included in 2).																
Axially-locked bearings	Spring washer at N-end.																
Lubrication	D-end Permanently lubricated bearings.																
Connections	Cable entries 1xM16xPg11   2xM20xPg16   4xM25 Screw Terminal box M4 Optional.																
Winding protection	Standard at D-end.																
Drain holes	Standard at both ends.																
<b>General purpose motors, cast iron</b>																	
Bearings	D-end, 2 pole 6202 DDU C3   6204 DDU C3   6205 DDU C3   6206 DDU C3   6207 DDU C3   6208 DDU C3   6209 DDU C3   6210 DDU C3   6212 DDU C3   6213 ZZ C3   6214 ZZ C3   6215 ZZ C3   6216 ZZ C3   6217 ZZ C3   6218 ZZ C3   6219 ZZ C3   6220 ZZ C3   6221 ZZ C3   6222 ZZ C3   6223 ZZ C3   6224 ZZ C3   6225 ZZ C3   6226 ZZ C3   6227 ZZ C3   6228 ZZ C3   6229 ZZ C3   6230 ZZ C3   6231 ZZ C3   6232 ZZ C3   6233 ZZ C3   6234 ZZ C3   6235 ZZ C3   6236 ZZ C3   6237 ZZ C3   6238 ZZ C3   6239 ZZ C3   6240 ZZ C3   6241 ZZ C3   6242 ZZ C3   6243 ZZ C3   6244 ZZ C3   6245 ZZ C3   6246 ZZ C3   6247 ZZ C3   6248 ZZ C3   6249 ZZ C3   6250 ZZ C3   6251 ZZ C3   6252 ZZ C3   6253 ZZ C3   6254 ZZ C3   6255 ZZ C3   6256 ZZ C3   6257 ZZ C3   6258 ZZ C3   6259 ZZ C3   6260 ZZ C3   6261 ZZ C3   6262 ZZ C3   6263 ZZ C3   6264 ZZ C3   6265 ZZ C3   6266 ZZ C3   6267 ZZ C3   6268 ZZ C3   6269 ZZ C3   6270 ZZ C3   6271 ZZ C3   6272 ZZ C3   6273 ZZ C3   6274 ZZ C3   6275 ZZ C3   6276 ZZ C3   6277 ZZ C3   6278 ZZ C3   6279 ZZ C3   6280 ZZ C3   6281 ZZ C3   6282 ZZ C3   6283 ZZ C3   6284 ZZ C3   6285 ZZ C3   6286 ZZ C3   6287 ZZ C3   6288 ZZ C3   6289 ZZ C3   6290 ZZ C3   6291 ZZ C3   6292 ZZ C3   6293 ZZ C3   6294 ZZ C3   6295 ZZ C3   6296 ZZ C3   6297 ZZ C3   6298 ZZ C3   6299 ZZ C3   6300 ZZ C3   6301 ZZ C3   6302 ZZ C3   6303 ZZ C3   6304 ZZ C3   6305 ZZ C3   6306 ZZ C3   6307 ZZ C3   6308 ZZ C3   6309 ZZ C3   6310 ZZ C3   6311 ZZ C3   6312 ZZ C3   6313 ZZ C3   6314 ZZ C3   6315 ZZ C3   6316 ZZ C3   6317 ZZ C3   6318 ZZ C3   6319 ZZ C3   6320 ZZ C3   6321 ZZ C3   6322 ZZ C3   6323 ZZ C3   6324 ZZ C3   6325 ZZ C3   6326 ZZ C3   6327 ZZ C3   6328 ZZ C3   6329 ZZ C3   6330 ZZ C3   6331 ZZ C3   6332 ZZ C3   6333 ZZ C3   6334 ZZ C3   6335 ZZ C3   6336 ZZ C3   6337 ZZ C3   6338 ZZ C3   6339 ZZ C3   6340 ZZ C3   6341 ZZ C3   6342 ZZ C3   6343 ZZ C3   6344 ZZ C3   6345 ZZ C3   6346 ZZ C3   6347 ZZ C3   6348 ZZ C3   6349 ZZ C3   6350 ZZ C3   6351 ZZ C3   6352 ZZ C3   6353 ZZ C3   6354 ZZ C3   6355 ZZ C3   6356 ZZ C3   6357 ZZ C3   6358 ZZ C3   6359 ZZ C3   6360 ZZ C3   6361 ZZ C3   6362 ZZ C3   6363 ZZ C3   6364 ZZ C3   6365 ZZ C3   6366 ZZ C3   6367 ZZ C3   6368 ZZ C3   6369 ZZ C3   6370 ZZ C3   6371 ZZ C3   6372 ZZ C3   6373 ZZ C3   6374 ZZ C3   6375 ZZ C3   6376 ZZ C3   6377 ZZ C3   6378 ZZ C3   6379 ZZ C3   6380 ZZ C3   6381 ZZ C3   6382 ZZ C3   6383 ZZ C3   6384 ZZ C3   6385 ZZ C3   6386 ZZ C3   6387 ZZ C3   6388 ZZ C3   6389 ZZ C3   6390 ZZ C3   6391 ZZ C3   6392 ZZ C3   6393 ZZ C3   6394 ZZ C3   6395 ZZ C3   6396 ZZ C3   6397 ZZ C3   6398 ZZ C3   6399 ZZ C3   6400 ZZ C3																
Axially-locked bearings	As standard, locked at D-end.																
Lubrication	Greased for life																
Connections	Cable entries 2xM16x1.5   2xM25x1.5   2xM32x1.5 Screw Terminal box 6 terminals for connection with cable lugs (not included). Optional.																
Winding protection	3 PTC thermistors as standard, 150 °C.																
Drain holes	Standard																
<b>General purpose motors, steel</b>																	
Bearings	D-end, 2 pole 6316/C4   6317/M/C4   6318/C4   6319/C3   6320/C3   6321/C3   6322/C3   6323/C3   6324/C3   6325/C3   6326/C3   6327/C3   6328/C3   6329/C3   6330/C3   6331/C3   6332/C3   6333/C3   6334/C3   6335/C3   6336/C3   6337/C3   6338/C3   6339/C3   6340/C3   6341/C3   6342/C3   6343/C3   6344/C3   6345/C3   6346/C3   6347/C3   6348/C3   6349/C3   6350/C3   6351/C3   6352/C3   6353/C3   6354/C3   6355/C3   6356/C3   6357/C3   6358/C3   6359/C3   6360/C3   6361/C3   6362/C3   6363/C3   6364/C3   6365/C3   6366/C3   6367/C3   6368/C3   6369/C3   6370/C3   6371/C3   6372/C3   6373/C3   6374/C3   6375/C3   6376/C3   6377/C3   6378/C3   6379/C3   6380/C3   6381/C3   6382/C3   6383/C3   6384/C3   6385/C3   6386/C3   6387/C3   6388/C3   6389/C3   6390/C3   6391/C3   6392/C3   6393/C3   6394/C3   6395/C3   6396/C3   6397/C3   6398/C3   6399/C3   6400/C3																
Axially-locked bearings	As standard, locked at D-end.																
Lubrication	Regreasing nipples, M10x1.																
SPM-nipples	On request.																
Connections	Cable entries 2xM63+2xM20 Screw Terminal box M12 6 terminals for connection with cable lugs (not incl.). PTC thermistors 150 °C, 3 in series, as standard.																
Winding protection	Standard.																
Drain holes	Standard.																





# Process performance cast iron and aluminum motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)	
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>				
<b>1000 r/min = 6 poles</b>				<b>400 V 50 Hz</b>				<b>Basic design</b>							
0.18	M2BA 71 M6 A	3GBA 073 310...A	880	57.0	50.4	0.63	0.73	4.0	1.95	1.7	2.4	0.0006	10	42	
0.25	M2BA 71 M6 B	3GBA 073 320...A	880	61.5	58.3	0.65	0.91	4.0	2.71	1.7	2.5	0.0007	11	42	
0.37	M2BA 80 M6 A	3GBA 083 310...A	920	68.0	63.2	0.65	1.21	5.0	3.84	1.7	2.0	0.0016	17	45	
0.55	M2BA 80 M6 B	3GBA 083 320...A	920	70.0	65.1	0.66	1.72	5.0	5.71	1.7	1.8	0.002	18	45	
0.75	M2BA 90 S6 A	3GBA 093 110...A	920	74.0	70.2	0.71	2.08	5.0	7.79	2.0	2.3	0.0029	21	48	
1.1	M2BA 90 L6 A	3GBA 093 510...A	920	75.0	73.1	0.73	2.9	5.0	11.42	2.0	2.6	0.0038	25	48	
1.5	M2BA 100 L6 A	3GBA 103 510...A	930	79.0	75.5	0.73	3.76	5.5	15.4	2.0	2.4	0.01	32	51	
2.2	M2BA 112 M6 A	3GBA 113 310...A	940	83.0	81.1	0.73	5.24	5.5	22.35	2.0	2.3	0.0156	40	54	
3	M2BA 132 S6 A	3GBA 133 110...A	960	84.5	82.4	0.77	6.67	6.5	29.84	2.0	2.4	0.0312	55	56	
4	M2BA 132 M6 A	3GBA 133 310...A	960	85.0	84.1	0.76	8.94	6.5	39.79	2.0	2.9	0.0407	65	56	
5.5	M2BA 132 M6 B	3GBA 133 320...A	950	87.0	85.9	0.78	11.7	6.5	55	2.0	3.0	0.0533	75	56	
7.5	M3BP 160 M	3GBP 163 101...A	970	89.3	89.3	0.79	15.4	6.7	74	2.0	2.8	0.089	115	59	
11	M3BP 160 L	3GBP 163 102...A	970	89.8	89.8	0.78	23	7.1	109	2.2	2.9	0.107	135	59	
15	M3BP 180 L	3GBP 183 101...A	970	90.8	90.8	0.78	31	7.0	148	2.1	3.0	0.217	177	59	
18.5	M3BP 200 MLA	3GBP 203 001...A	985	91.1	91.1	0.81	36	7.0	179	2.5	2.7	0.37	245	63	
22	M3BP 200 MLB	3GBP 203 002...A	980	91.7	91.7	0.81	43	7.2	214	2.5	2.7	0.43	260	63	
30	M3BP 225 SMB	3GBP 223 001...A	985	92.8	92.8	0.83	56	6.6	291	2.5	2.7	0.64	320	63	
37	M3BP 250 SMA	3GBP 253 001...A	985	93.7	93.7	0.83	69	7.3	359	2.8	2.8	1.16	415	63	
45	M3BP 280 SMA	3GBP 283 210...G	990	94.4	94.3	0.84	82	7.0	434	2.5	2.5	1.85	605	66	
55	M3BP 280 SMB	3GBP 283 220...G	990	94.6	94.6	0.84	101	7.0	531	2.7	2.6	2.2	645	66	
75	M3BP 315 SMA	3GBP 313 210...G	992	95.0	94.7	0.82	141	7.4	722	2.4	2.8	3.2	830	70	
90	M3BP 315 SMB	3GBP 313 220...G	992	95.5	95.3	0.84	163	7.5	866	2.4	2.8	4.1	930	70	
110	M3BP 315 SMC	3GBP 313 230...G	991	95.6	95.5	0.83	202	7.4	1060	2.5	2.9	4.9	1000	70	
132	M3BP 315 MLA	3GBP 313 410...G	991	95.8	95.7	0.83	240	7.5	1272	2.7	3.0	5.8	1150	68	
160	M3BP 355 SMA	3GBP 353 210...G	993	96.0	95.8	0.83	293	7.0	1539	2.0	2.6	7.9	1520	75	
200	M3BP 355 SMB	3GBP 353 220...G	993	96.1	96.0	0.83	360	7.2	1923	2.2	2.7	9.7	1680	75	
250	M3BP 355 SMC	3GBP 353 230...G	993	96.4	96.2	0.82	458	7.4	2404	2.6	2.9	11.3	1820	75	
315	M3BP 355 MLB	3GBP 353 420...G	992	96.3	96.1	0.82	578	7.0	3032	2.5	2.7	13.5	2180	75	
355	M3BP 355 LKA	3GBP 353 810...G	992	96.4	96.2	0.82	655	7.6	3417	2.7	2.9	15.5	2500	75	
400	<sup>1)</sup> M3BP 355 LKB	3GBP 353 820...G	992	96.3	96.2	0.82	740	7.2	3851	2.6	2.6	16.5	2600	75	
400	M3BP 400 LA	3GBP 403 510...G	993	96.7	96.6	0.82	730	7.1	3847	2.3	2.7	17	2900	76	
400	M3BP 400 LKA	3GBP 403 810...G	993	96.7	96.6	0.82	730	7.1	3847	2.3	2.7	17	2900	76	
450	M3BP 400 LB	3GBP 403 520...G	994	96.9	96.7	0.82	818	7.4	4323	2.4	2.8	20.5	3150	76	
450	M3BP 400 LKB	3GBP 403 820...G	994	96.9	96.7	0.82	818	7.4	4323	2.4	2.8	20.5	3150	76	
500	M3BP 400 LC	3GBP 403 530...G	993	96.9	96.8	0.83	900	7.2	4808	2.5	2.7	22	3300	76	
500	M3BP 400 LKC	3GBP 403 830...G	993	96.9	96.8	0.83	900	7.2	4808	2.5	2.7	22	3300	76	
560	M3BP 400 LD	3GBP 403 540...G	993	96.9	96.8	0.85	985	7.4	5385	2.4	3.0	24	3400	77	
560	M3BP 400 LKD	3GBP 403 840...G	993	96.9	96.8	0.85	985	7.4	5385	2.4	3.0	24	3400	77	
2.2	<sup>2)</sup> M3AP 112 M	3GAA 113 001...C	940	80.5	81.0	0.74	5.4	5.6	22	2.1	2.7	0.015	27	54	
3	<sup>2)</sup> M3AP 132 S	3GAA 133 001...C	960	84.5	84.8	0.75	6.9	6.5	30	2.1	3.0	0.031	39	61	
4	<sup>2)</sup> M3AP 132 MA	3GAA 133 002...C	960	85.5	86.1	0.78	8.7	7.1	40	2.6	2.8	0.038	46	61	
5.5	<sup>2)</sup> M3AP 132 MB	3GAA 133 003...C	955	86.0	87.0	0.78	11.9	7.0	55	3.0	2.8	0.045	54	61	
7.5	<sup>2)</sup> M3AP 160 M	3GAA 163 101...C	970	89.3	89.3	0.79	15.4	6.7	74	2.0	2.8	0.089	96	59	
11	<sup>2)</sup> M3AP 160 L	3GAA 163 102...C	970	89.8	89.8	0.78	23	7.1	109	2.2	2.9	0.107	110	59	
15	<sup>2)</sup> M3AP 180 L	3GAA 183 101...C	970	90.8	90.8	0.78	31	7.0	148	2.1	3.0	0.217	160	59	
18.5	<sup>2)</sup> M3AP 200 MLA	3GAA 203 001...C	985	91.1	91.1	0.81	36	7.0	179	2.5	2.7	0.37	182	63	
22	<sup>2)</sup> M3AP 200 MLB	3GAA 203 002...C	980	91.7	91.7	0.81	43	7.2	214	2.5	2.7	0.43	202	63	
30	<sup>2)</sup> M3AP 225 SMB	3GAA 223 001...C	985	92.8	92.8	0.83	56	6.6	291	2.5	2.7	0.64	247	63	
37	<sup>2)</sup> M3AP 250 SMA	3GAA 253 001...C	985	93.7	93.7	0.83	69	7.3	359	2.8	2.8	1.16	306	63	
45	<sup>2)</sup> M3AP 280 SMA	3GAA 283 001...C	985	94.1	94.1	0.84	82	7.3	436	2.8	2.8	1.49	389	63	
<b>1000 r/min = 6 poles</b>				<b>400 V 50 Hz</b>				<b>High-output design</b>							
14	<sup>1)</sup> M3BP 160 LB	3GBP 163 103...A	960	89.1	89.1	0.77	29.5	7.6	139	2.7	3.1	0.127	148	62	
18.5	<sup>1)</sup> M3BP 180 LB	3GBP 183 102...A	965	90.6	90.6	0.79	37.5	6.2	183	2.0	2.6	0.237	185	59	
30	<sup>1)</sup> M3BP 200 MLC	3GBP 203 003...A	980	91.7	91.7	0.81	56	7.5	292	3.3	3.0	0.49	275	63	
37	<sup>1)</sup> M3BP 225 SMC	3GBP 223 002...A	985	93.2	93.2	0.83	69	7.7	359	3.1	3.0	0.75	345	63	
45	<sup>1)</sup> M3BP 250 SMB	3GBP 253 002...A	985	94.1	94.1	0.84	83	7.5	436	3.7	3.2	1.49	460	63	
75	M3BP 280 SMC	3GBP 283 230...G	990	95.1	95.2	0.84	137	7.3	723	2.8	2.7	2.85	725	66	
160	M3BP 315 LKA	3GBP 313 810...G	992	95.7	95.6	0.83	293	7.5	1540	2.6	2.8	7.3	1410	74	
180	M3BP 315 LKB	3GBP 313 820...G	992	95.8	95.7	0.83	330	7.4	1733	2.6	2.8	8.3	1520	74	
200	M3BP 315 LKC	3GBP 313 830...G	989	95.7	95.7	0.84	362	6.8	1931	2.5	2.6	9.2	1600	74	
3	<sup>1)2)</sup> M3AP 112 MB	3GAA 113 002...C	935	80.0	81.2	0.76	7.2	5.5	31	2.5	2.7	0.018	33	54	
6.3	<sup>1)2)</sup> M3AP 132 MC	3GAA 133 004...C	960	84.9	85.0	0.75	14.5	7.3	63	2.3	3.1	0.049	59	61	
14	<sup>1)2)</sup> M3AP 160 LB	3GAA 163 103...C	960	89.1	89.1	0.77	29.5	7.6	139	2.7	3.1	0.127	125	62	
18.5	<sup>1)2)</sup> M3AP 180 LB	3GAA 183 102...C	965	90.6	90.6	0.79	37.5	6.2	183	2.0	2.6	0.237	169	59	
30	<sup>1)2)</sup> M3AP 200 MLC	3GAA 203 003...C	980	91.7	91.7	0.81	56	7.5	292	3.3	3.0	0.49	217	63	
37	<sup>2)</sup> M3AP 225 SMC	3GAA 223 002...C	985	93.2	93.9	0.83	69	7.4	359	3.3	2.8	0.75	274	63	
45	<sup>1)2)</sup> M3AP 250 SMB	3GAA 253 002...C	985	94.1	94.1	0.84	83	7.5	436	3.7	3.2	1.49	346	63	

<sup>1)</sup> Temperature rise class F

<sup>2)</sup> When ordering, the following variant code has to be added to the product code: 199 = Extreme heavy duty design. Type designation M3AP.

# Process performance cast iron and aluminum motors

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

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

Output kW	Type designation	Product code	Speed r/min	Efficiency		Power factor cos φ	Current		Torque			Moment of inertia J=1/4 GD <sup>2</sup> kgm <sup>2</sup>	Weight kg	Sound pressure level LP dB(A)
				Full load 100%	3/4 load 75%		I <sub>N</sub> A	I <sub>s</sub> I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> T <sub>N</sub>	T <sub>max</sub> T <sub>N</sub>			
<b>750 r/min = 8 poles</b>														
<b>400 V 50 Hz</b>														
<b>Basic design</b>														
4	M3BP 160 MA	3GBP 164 101-...A	715	84.1	84.7	0.69	10	5.2	54	2.1	2.4	0.072	100	59
5.5	<sup>1)</sup> M3BP 160 M	3GBP 164 102-...A	710	84.7	85.5	0.70	13.4	5.4	74	2.4	2.6	0.091	113	59
7.5	<sup>1)</sup> M3BP 160 L	3GBP 164 103-...A	715	86.3	87.2	0.70	18.1	5.4	100	2.4	2.8	0.131	126	59
11	M3BP 180 L	3GBP 184 101-...A	720	88.7	89.2	0.76	23.5	5.9	146	2.4	2.6	0.224	177	59
15	M3BP 200 MLA	3GBP 204 001-...A	740	91.1	91.1	0.82	29	7.4	194	1.8	3.0	0.45	250	60
18.5	M3BP 225 SMA	3GBP 224 001-...A	730	91.1	91.1	0.79	37	6.2	242	1.9	2.7	0.61	305	63
22	M3BP 225 SMB	3GBP 224 002-...A	730	91.5	91.5	0.77	45	6.0	288	1.9	2.7	0.68	320	63
30	M3BP 250 SMA	3GBP 254 001-...A	735	92.8	92.8	0.79	59	6.9	390	1.9	2.9	1.25	415	63
37	M3BP 280 SMA	3GBP 284 210-...G	741	93.4	93.3	0.78	74	7.3	477	1.7	3.0	1.85	605	65
45	M3BP 280 SMB	3GBP 284 220-...G	741	94.0	93.8	0.78	90	7.6	580	1.8	3.1	2.2	645	65
55	M3BP 315 SMA	3GBP 314 210-...G	742	94.1	94.0	0.81	104	7.1	708	1.6	2.7	3.2	830	62
75	M3BP 315 SMB	3GBP 314 220-...G	741	94.4	94.3	0.82	141	7.1	968	1.7	2.7	4.1	930	62
90	M3BP 315 SMC	3GBP 314 230-...G	741	94.8	94.7	0.82	167	7.4	1161	1.8	2.7	4.9	1000	64
110	M3BP 315 MLA	3GBP 314 410-...G	740	95.0	95.0	0.83	203	7.3	1420	1.8	2.7	5.8	1150	72
132	M3BP 355 SMA	3GBP 354 210-...G	744	95.5	95.3	0.80	250	7.5	1694	1.5	2.6	7.9	1520	69
160	M3BP 355 SMB	3GBP 354 220-...G	744	95.6	95.5	0.80	305	7.6	2054	1.6	2.6	9.7	1680	69
200	M3BP 355 SMC	3GBP 354 230-...G	743	95.7	95.6	0.80	378	7.4	2570	1.6	2.6	11.3	1820	69
250	M3BP 355 MLB	3GBP 354 420-...G	743	95.9	95.8	0.80	476	7.5	3213	1.6	2.7	13.5	2180	72
315	<sup>1)</sup> M3BP 355 LKB	3GBP 354 820-...G	742	95.8	95.8	0.79	600	7.9	4054	1.7	2.7	16.5	2600	75
315	M3BP 400 LA	3GBP 404 510-...G	744	96.4	96.3	0.81	582	7.0	4043	1.2	2.6	17	2900	71
315	M3BP 400 LKA	3GBP 404 810-...G	744	96.4	96.3	0.81	582	7.0	4043	1.2	2.6	17	2900	71
355	M3BP 400 LB	3GBP 404 520-...G	743	96.4	96.3	0.82	650	6.8	4563	1.2	2.5	21	3200	71
355	M3BP 400 LKB	3GBP 404 820-...G	743	96.4	96.3	0.82	650	6.8	4563	1.2	2.5	21	3200	71
400	M3BP 400 LC	3GBP 404 530-...G	744	96.6	96.5	0.82	735	7.4	5134	1.3	2.7	24	3400	71
400	M3BP 400 LKC	3GBP 404 830-...G	744	96.6	96.5	0.82	735	7.4	5134	1.3	2.7	24	3400	71
1.5	<sup>2)</sup> M3AP 112 M	3GAA 114 001-...C	695	74.5	74.6	0.65	4.5	4.1	21	1.9	2.5	0.016	28	52
2.2	<sup>2)</sup> M3AP 132 S	3GAA 134 001-...C	720	80.5	80.2	0.67	5.9	5.3	29	1.9	2.5	0.038	46	56
3	<sup>2)</sup> M3AP 132 M	3GAA 134 002-...C	720	82.0	82.0	0.68	7.8	5.5	40	2.4	2.6	0.045	53	56
4	<sup>2)</sup> M3AP 160 MA	3GAA 164 101-...C	715	84.1	84.7	0.69	10	5.2	54	2.1	2.4	0.072	83	59
5.5	<sup>2)</sup> M3AP 160 M	3GAA 164 102-...C	710	84.7	85.5	0.70	13.4	5.4	74	2.4	2.6	0.091	96	59
7.5	<sup>2)</sup> M3AP 160 L	3GAA 164 103-...C	715	86.3	87.2	0.70	18.1	5.4	100	2.4	2.8	0.131	126	59
11	<sup>2)</sup> M3AP 180 L	3GAA 184 101-...C	720	88.7	89.2	0.76	23.5	5.9	146	2.4	2.6	0.224	156	59
15	<sup>2)</sup> M3AP 200 MLA	3GAA 204 001-...C	740	91.1	91.1	0.82	29	7.4	194	1.8	3.0	0.45	192	60
18.5	<sup>2)</sup> M3AP 225 SMA	3GAA 224 001-...C	730	91.1	91.1	0.79	37	6.2	242	1.9	2.7	0.61	232	63
22	<sup>2)</sup> M3AP 225 SMB	3GAA 224 002-...C	730	91.5	91.5	0.77	45	6.0	288	1.9	2.7	0.68	247	63
30	<sup>2)</sup> M3AP 250 SMA	3GAA 254 001-...C	735	92.8	92.8	0.79	59	6.9	390	1.9	2.9	1.25	306	63
37	<sup>2)</sup> M3AP 280 SMA	3GAA 284 001-...C	735	93.2	93.2	0.81	71	7.2	481	2.0	2.9	1.52	389	63
<b>750 r/min = 8 poles</b>														
<b>400 V 50 Hz</b>														
<b>High-output design</b>														
8.5	<sup>1)</sup> M3BP 160 LB	3GBP 164 104-...A	700	83.5	85.0	0.70	21	5.1	115	2.4	2.5	0.131	128	62
15	<sup>1)</sup> M3BP 180 LB	3GBP 184 102-...A	720	88.0	89.2	0.76	32.5	6.0	199	2.5	2.6	0.24	185	62
18.5	<sup>1)</sup> M3BP 200 MLB	3GBP 204 002-...A	735	91.4	91.4	0.81	36	6.7	237	1.7	2.8	0.54	275	60
30	<sup>1)</sup> M3BP 225 SMC	3GBP 224 003-...A	735	91.8	92.5	0.79	64	6.9	390	2.9	3.3	0.8	345	63
37	M3BP 250 SMB	3GBP 254 002-...A	735	93.2	93.5	0.81	74	7.8	481	3.1	3.5	1.52	460	63
55	M3BP 280 SMC	3GBP 284 230-...G	741	94.4	94.3	0.80	105	7.9	709	1.9	3.1	2.85	725	65
132	M3BP 315 LKA	3GBP 314 810-...G	740	95.1	95.2	0.83	243	7.3	1703	1.8	2.6	7.3	1410	74
150	M3BP 315 LKB	3GBP 314 820-...G	741	95.3	95.3	0.83	275	7.7	1933	1.9	2.7	8.3	1520	74
160	M3BP 315 LKC	3GBP 314 830-...G	740	95.3	95.4	0.83	292	7.7	2065	1.9	2.8	9.2	1600	75
1.9	<sup>1)2)</sup> M3AP 112 MB	3GAA 114 002-...C	690	74.0	74.8	0.67	5.6	4.3	26.5	2.0	2.6	0.018	33	52
3.8	<sup>1)2)</sup> M3AP 132 MB	3GAA 134 003-...C	710	80.5	80.7	0.69	9.9	5.2	51	2.3	2.6	0.049	59	56
8.5	<sup>1)2)</sup> M3AP 160 LB	3GAA 164 104-...C	700	83.5	85.0	0.70	21	5.1	115	2.4	2.5	0.131	126	62
15	<sup>1)2)</sup> M3AP 180 LB	3GAA 184 102-...C	720	88.0	89.2	0.76	32.5	6.0	199	2.5	2.6	0.24	164	62
18.5	<sup>2)</sup> M3AP 200 MLB	3GAA 204 002-...C	735	91.4	91.4	0.81	36	6.7	237	1.7	2.8	0.54	217	60
30	<sup>1)2)</sup> M3AP 225 SMC	3GAA 224 003-...C	735	91.8	92.5	0.79	64	6.9	390	2.9	3.3	0.8	177	63
37	<sup>2)</sup> M3AP 250 SMB	3GAA 254 002-...C	735	93.2	93.5	0.81	74	7.8	481	3.1	3.5	1.52	346	63

<sup>1)</sup> Temperature rise class F

<sup>2)</sup> When ordering, the following variant code has to be added to the product code: 199 = Extreme heavy duty design. Type designation M3AP.

# Process performance motors - Variant codes

Code Variant	Aluminum motors			Cast iron motors			
	112-132	160-180	200-280	71-132	160-250	280-400	
<b>Bearings and Lubrication</b>							
037	Roller bearing at D-end. Transport lock included.	NA	M	M	NA	M	M
039	Cold resistant grease.	M	M	M	M	M	M
040	Heat resistant grease.	S	S	S	M	S	M
041	Bearings regreasable via grease nipples.	M	S	S	NA	S	S
043	SPM nipples.	M	S	S	M	S	S
057	2RS bearings at both ends.	M	M	M	S	M	NA
<b>Branch standard design</b>							
178	Stainless steel/acid proof bolts.	S	S	S	M	M	M
<b>Cooling system</b>							
053	Metal fan cover.	S	S	S	S	S	S
068	Aluminum fan.	M	M	M	M	M	M
075	Cooling method IC418 (without fan).	R	R	R	M	R	P
183	Separate motor cooling (fan axial, N-end).	NA	M	M	M	M	P
<b>Drain holes</b>							
066	Modified drain hole position. Specify IM designation.	M	M	M	M	M	M
<b>Earthing bolt</b>							
067	External earthing bolt.	M	M	M	M	S	S
<b>Heating elements</b>							
450	Heating element 100-120 V.	M	M	M	M	M	M
451	Heating element 200-240 V.	M	M	M	M	M	M
<b>Mounting arrangements</b>							
007	IM 3001 flange mounted, from IM 1001(B5 from B3).	NA	NA	M	NA	NA	NA
008	IM 2101 foot/flange mounted, from IM 1001(B34 from B3).	M	NA	NA	M	NA	NA
009	IM 2001 foot/flange mounted, from IM 1001 (B35 from B3).	M	M	M	M	M	M
047	IM 3601 flange mounted, from IM 3001 (B14 from B5).	M	NA	NA	M	R/NA	NA
048	IM 3001 flange mounted, from IM 3601 (B5 from B14).	M	NA	NA	M	NA	NA
<b>Painting</b>							
114	Special paint colour, standard grade.	M	M	M	M	M	M
179	Special paint specification.	R	R	R	R	R	R
<b>Protection</b>							
005	Protective roof, vertical motor, shaft down. Vertically mounted motors with shaft extension downwards.	M	M	M	M	M	M
072	Radial seal at D-end.	NA	NA	NA	M	M	M
158	Degree of protection IP65 or IP65X. Dust proof version.	M	M	M	M	M	M
211	Weather protected, IP xx W.	NA	NA	NA	M	M	R
403	Degree of protection IP56.	NA	NA	NA	M	M	M
<b>Rating &amp; instruction plates</b>							
002	Restamping voltage, frequency and output, continuous duty. All data to be specified.	M	M	M	M	M	M
003	Individual serial number.	M	M	M	M	S	S
098	Stainless rating plate.	S	S	S	S	S	S
138	Mounting of additional identification plate, aluminum.	M	M	M	M	NA	NA
<b>Stator winding temperature sensors</b>							
122	Bimetal detectors, break type (NCC), (3 in series), 150°C.	M	M	M	M	M	M
436	PTC - thermistors (3 in series), 150 °C.	M	M	S	S	S	S
439	PTC - thermistors (2x3 in series), 150 °C.	M	M	M	M	M	M
445	PT100 (1 per phase).	M	M	M	M	M	M
<b>Terminal box</b>							
021	Terminal box left-hand side, seen from D-end.	NA	NA	P	P	P	P
180	Terminal box on right-hand side, seen from D-end.	NA	NA	P	P	P	P
230	Standard gable glands.	M	M	M	M	M	S
731	Two standard cable glands.	M	M	M	M	M	S
743	Painted steel flange for cable glands.	NA	NA	NA	NA	M	M
<b>Testing</b>							
145	Type test report from test of identical motor. 400V 50 Hz.	M	M	M	M	M	M
148	Routine test report.	M	M	M	M	M	M
<b>Variable speed drives</b>							
701	Insulated bearing at N-end.	NA	NA	NA	NA	M/R	M
704	EMC cable gland.	NA	NA	NA	NA	M	M

Certain variant codes cannot be used together.

**Note! This list is an extract of a wide range of possible modifications. Please see the General Purpose or Process Performance Motor Catalogue for a complete list of variant codes.**

S = Included as standard.

M = On modification of a stocked motor, or on new manufacture, the number per order may be limited.

P = New manufacture only.

R = On request.

NA = Not applicable.

# Motors in brief, Basic design

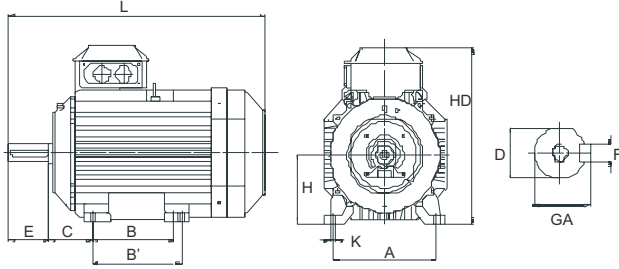
Size	71	80	90	100	112	132	160	180	200	225	250	280	315	355	400									
<b>Process performance motors, cast iron</b>																								
Bearings	D-end, 2 pole D-end, 4-8 pole N-end, 2 pole N-end, 4-8 pole	6202 2RSC3 6202 2RSC3	6204 2RSC3 6204 2RSC3	6205 2RSC3 6205 2RSC3	6206 2RSC3 6206 2RSC3	6207 2RSC3 6206 2RSC3	6208 2RSC3 6207 2RSC3	6309/C3 6309/C3	6310/C3 6309/C3	6312/C3 6310/C3	6313/C3 6312/C3	6315/C3 6313/C3	6316/C3 6316/C3 6316/C3	6316/C3 6319/C3 6316/C3 6316/C3	6316M/C3 6322/C3 6316M/C3 6316/C3	6317M/C3 6324/C3 6317M/C3 6319/C3								
Axially-locked bearings	As standard, locked at D-end.																							
Lubrication	Greased for life																							
SPM-nipples	Optional																							
Connections	Cable entries Screw Terminalbox Cable glands	2xM16 M4	2xM25	2xM32 M5	6 terminals for connection with cable lugs (not included). Optional											2xM63 M10	2xM63+2xM20 M12	Cable glands included as standard. 3 PTC thermistors as standard, 155 °C.						
Winding protection	3 PTC thermistors as standard, 150 °C.																							
Drain holes	Optional.																							
<b>Process performance motors, aluminum</b>																								
Bearings	D-end N-end	6306-2Z/C3 6206-2Z/C3														6308-2Z/C3 6208-2Z/C3	6309/C3 6309/C3	6310/C3 6309/C3	6312/C3 6310/C3	6313/C3 6312/C3	6315/C3 6313/C3	6316/C3 <sup>1)</sup> 6313/C3	6315/C3 for 2-pole motors.	
Axially-locked bearings	Inner bearing cover	D-end <sup>1)</sup> <sup>1)</sup> Foot motor. A spring washer at the N-end presses the motor towards the D-end. Flange motor. Inner bearing cover and spring-washer at the N-end.																						
Lubrication	Permanently lubricated shielded bearings. Valve lubrication.																							
SPM-nipples	Optional.																							
Connections	Cable entries Screw Terminalbox	4x(M25+M20) M5 6 terminals for connection with cable lugs (not included).														2x(2xM40+M16) M6	1x(2xM40+M16) M10	1x2xM63+M16						
Winding protection	Optional.																							
Drain holes	Standard at both ends. PTC thermistors, 150°C, 3 in series.																							



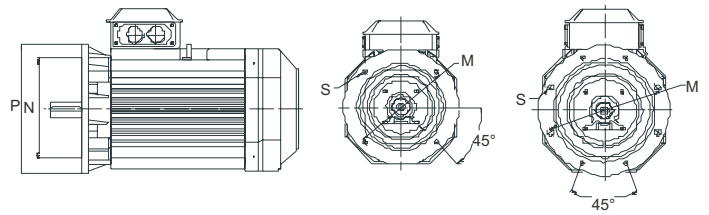


# Dimension drawings

Foot-mounted motor IM 1001, B3



Flange-mounted motor IM 3001, B5



Motor size	IM 1001, IM B3 and IM 3001, IM B5								IM 1001, IM B3						IM 3001, IM B5						
	D poles		GA poles		F poles		E poles		L max poles		A	B	B'	C	HD	K	H	M	N	P	S
	2	4-8	2	4-8	2	4-8	2	4-8	2	4-8											

## Cast iron frame, general purpose motors

<b>M2QA 71 M</b>	14	14	16	16	5	5	30	30	255	255	112	90	-	45	200	7	71	130	110	160	10
<b>80 M</b>	19	19	21.5	21.5	6	6	40	40	285	285	125	100	-	50	225	10	80	165	130	200	12
<b>90 S</b>	24	24	27	27	8	8	50	50	310	310	140	100	-	56	240	10	90	165	130	200	12
<b>90 L</b>	24	24	27	27	8	8	50	50	335	335	140	125	-	56	240	10	90	165	130	200	12
<b>100 L</b>	28	28	31	31	8	8	60	60	380	380	160	140	-	63	275	12	100	215	180	250	15
<b>112 M</b>	28	28	31	31	8	8	60	60	380	380	190	140	-	70	290	12	112	215	180	250	15
<b>132 S</b>	38	38	41	41	10	10	80	80	465	465	216	140	-	89	335	12	132	265	230	300	15
<b>132 M</b>	38	38	41	41	10	10	80	80	505	505	216	178	-	89	335	12	132	265	230	300	15
<b>160 M</b>	42	42	55	55	12	12	110	110	600	600	254	210	-	108	415	15	160	300	250	350	19
<b>160 L</b>	42	42	55	55	12	12	110	110	645	645	254	254	-	108	415	15	160	300	250	350	19
<b>180 M</b>	48	48	51.5	51.5	14	14	110	110	670	670	279	241	-	121	450	15	180	300	250	350	19
<b>180 L</b>	-	48	-	51.5	-	14	-	110	-	710	279	279	-	121	450	15	180	300	250	350	19
<b>200 L</b>	55	55	59	59	16	16	110	110	770	770	318	305	-	133	510	19	200	350	300	400	19
<b>225 S</b>	-	60	-	64	-	18	-	140	-	820	356	286	-	149	560	19	225	400	350	450	19
<b>225 M</b>	55	60	59	64	16	18	110	140	815	840	356	311	-	149	560	19	225	400	350	450	19
<b>250 M</b>	60	55	64	69	18	18	140	140	930	930	406	349	-	168	645	24	250	500	450	550	18
<b>M2BAT 280 SM</b>	65	75	69	79.5	18	20	140	140	1088	1088	457	368	419	190	745	24	280	500	450	550	18
<b>315 SM</b>	65	80	69	85	18	22	140	170	1218	1248	508	406	457	216	840	30	315	600	550	660	23
<b>315 ML</b>	65	90	69	95	18	25	140	170	1269	1299	508	457	508	216	840	30	315	600	550	660	23
<b>355 S</b>	70	100	74.5	106	20	28	140	210	1344	1414	610	500	-	254	955	35	355	740	680	800	23

## Cast iron frame, process performance motors

<b>M2BA 71</b>	14	14	16	16	5	5	30	30	255	255	112	90	-	45	190	7	71	130	110	160	10
<b>80</b>	19	19	21.5	21.5	6	6	40	40	285	285	125	100	-	50	225	10	80	165	130	200	12
<b>90 S</b>	24	24	27	27	8	8	50	50	310	310	140	100	-	56	240	10	90	165	130	200	12
<b>90 L</b>	24	24	27	27	8	8	50	50	335	335	140	125	-	56	240	10	90	165	130	200	12
<b>100</b>	28	28	31	31	8	8	60	60	380	380	160	140	-	63	275	12	100	215	180	250	15
<b>112</b>	28	28	31	31	8	8	60	60	380	380	190	140	-	70	290	12	100	215	180	250	15
<b>132 S</b>	38	38	41	41	10	10	80	80	465	465	216	140	-	89	335	12	132	265	230	300	15
<b>132 M</b>	38	38	41	41	10	10	80	80	505	505	216	178	-	89	335	12	132	265	230	300	15
<b>M3BP 160 M/MA, L2-6, LB2</b>	42	42	45	45	12	12	110	110	602.5	602.5	254	210	254	108	382	14.5	160	300	250	350	19
<b>160 L8, LB6-8</b>	42	42	45	45	12	12	110	110	643.5	643.5	254	210	254	108	382	14.5	160	300	250	350	19
<b>180 M, L6-8, LB2</b>	48	48	51.5	51.5	14	14	110	110	680	680	279	241	279	121	422	14.5	180	300	250	350	19
<b>180 L4, LB4-8</b>	48	48	51.5	51.5	14	14	110	110	700.5	700.5	279	241	279	121	422	14.5	180	300	250	350	19
<b>200 ML</b>	55	55	59	59	16	16	110	110	774	774	318	267	305	133	506	18.5	200	350	300	400	19
<b>225 SM</b>	55	60	59	64	16	18	110	140	836	866	356	286	311	149	552	18.5	225	400	350	450	19
<b>250 SM</b>	60	65	64	69	18	18	140	140	845	875	406	311	349	168	605	24	250	500	450	550	19
<b>280 SM</b>	65	75	69	79.5	18	20	140	140	1088	1088	457	368	419	190	762	24	280	500	450	550	18
<b>315 SM</b>	65	80	69	85	18	22	140	170	1174	1204	508	406	457	216	852	28	315	600	550	660	23
<b>315 ML</b>	65	90	69	95	18	25	140	170	1285	1315	508	457	508	216	852	28	315	600	550	660	23
<b>315 LK</b>	65	95	69	95	18	25	140	170	1491	1521	508	508	560	216	880	28	315	600	550	660	23
<b>355 SM</b>	70	100	74.5	106	20	28	140	210	1409	1479	610	500	560	254	958	35	355	740	680	800	23
<b>355 ML</b>	70	100	74.5	106	20	28	140	210	1514	1584	610	560	630	254	958	35	355	740	680	800	23
<b>355 LK</b>	70	100	74.5	106	20	28	140	210	1764	1834	610	630	710	254	958	35	355	740	680	800	23
<b>400 L</b>	80	110	85	126	22	28	170	210	1851	1891	710	900	1000	224	1045	35	400	940	880	1000	28
<b>400 LK</b>	80	100	85	106	22	28	170	210	1851	1891	686	710	800	280	1045	35	400	740	680	800	24

## IM 3601, IM B14

Motor size	M	N	P	S
71	85	70	105	M6
80	100	80	120	M6
90	115	95	140	M8
100	130	110	160	M8
112	130	130	160	M8

## Tolerances:

<b>A, B</b>	± 0,8
<b>D, DA</b>	ISO k6 < Ø 50mm ISO m6 > Ø 50mm
<b>F, FA</b>	ISO h9
<b>H</b>	+0 -0.5
<b>N</b>	ISO j6
<b>C, CA</b>	± 0,8

Above table gives the main dimensions in mm.

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

# ABB Motors' total product offer

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

## Low voltage motors and generators

### General purpose motors for standard applications

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

### Process performance motors for more demanding applications

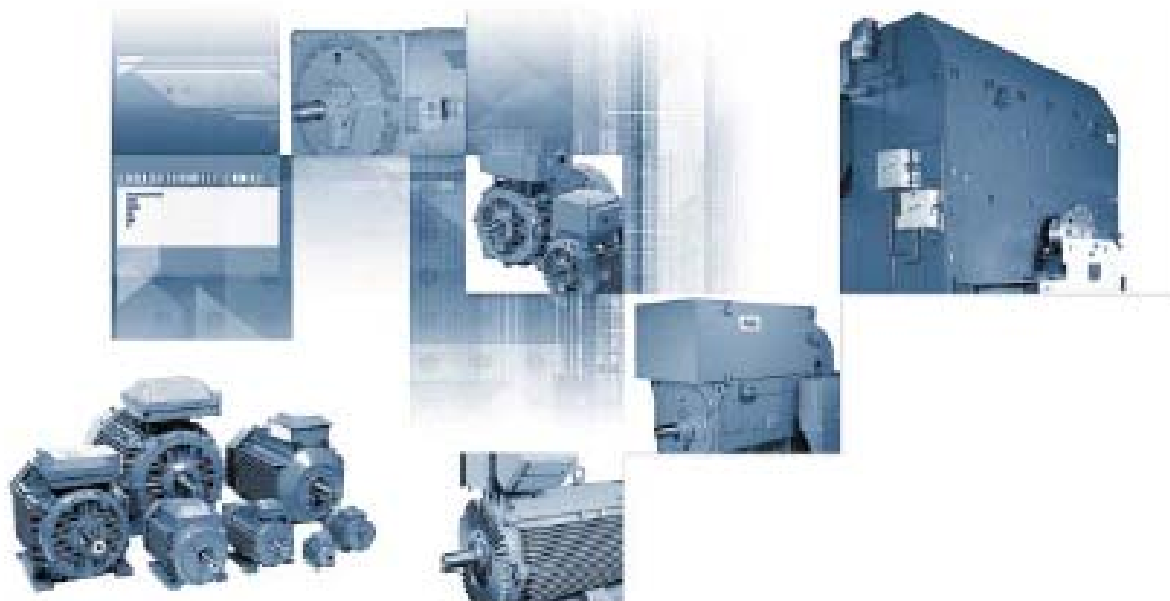
- Aluminum motors
- Cast iron motors

### Other applications

- Motors for hazardous areas
- Marine motors
- Permanent magnet motors
- High speed motors
- Wind turbine generators
- NEMA motors
- Water cooled motors
- Motors for roller table drives
- Slip ring motors
- Wood dryer motors
- Fan application motors

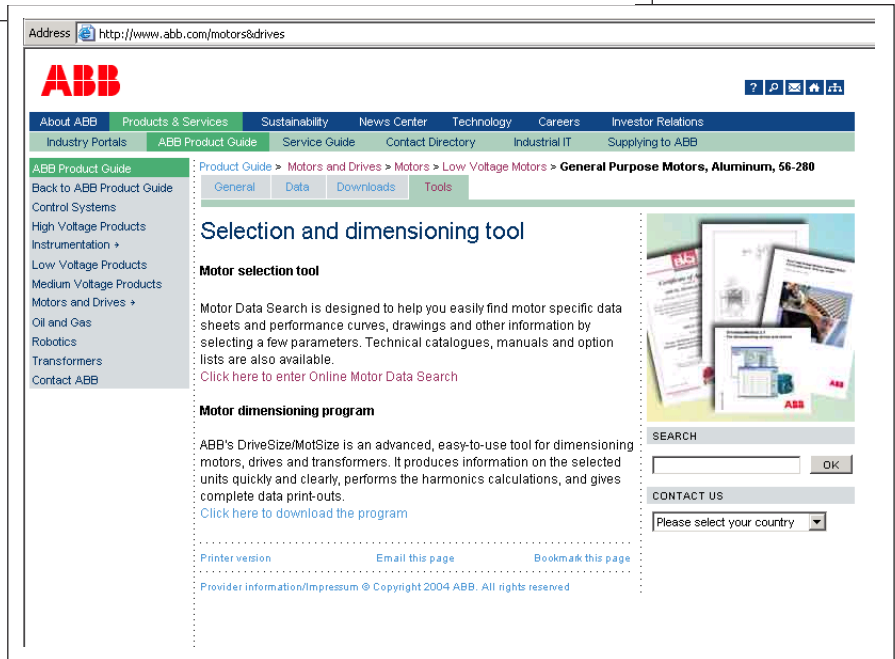
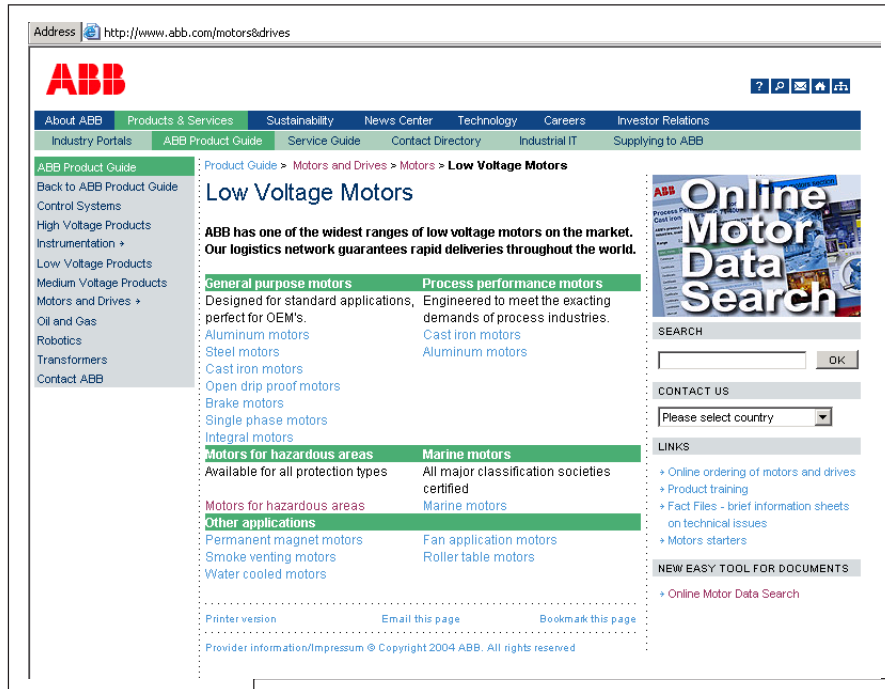
## High voltage and synchronous motors and generators

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



# Visit our web site

www.abb.com/motors&drives



- Motors & Drives**
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  - Water cooled motors
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  - Wind turbine generators
  - Library of documents
  - => Technical documents
  - Local contacts

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Manufacturing sites (\*) and some of the largest sales companies.

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