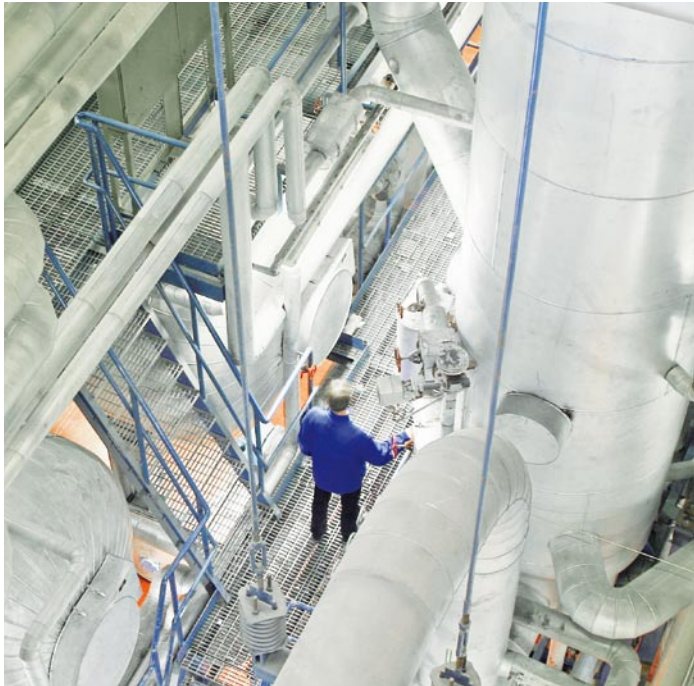




Catalog

# Low voltage General performance motors

We provide motors and generators, services and expertise to save energy and improve customers' processes over the total lifecycle of our products, and beyond.





# General performance motors

## Sizes 56 to 250, from 0.06 to 55 kW



ABB's General performance motors are best suited for applications where simplicity and off-the-shelf availability are paramount. With ABB quality and support these motors have the features appreciated by volume customers and serial OEM's. Motors have IE1 efficiency.

Motor range for aluminum motors is 56 to 250, 0.06 to 55 kW and cast iron motors 71 to 250, 0.25 to 55 kW.

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# Ordering information

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

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

<b>Motor type</b>	<b>M2AA 112 M</b>
<b>Pole number</b>	<b>4</b>
<b>Mounting arrangement (IM-code)</b>	<b>IM B3 (IM 1001)</b>
<b>Rated output</b>	<b>4 kW</b>
<b>Product code</b>	<b>3GAA 112 101-ADE</b>
<b>Variant codes if needed</b>	

## Motor size

A	B	C	D, E, F	
<b>M2AA</b>	<b>112 M</b>	<b>3GAA 112 101 - ADE, 122, 451, etc.</b>		
		1	2	3
		4	5	6
		7	8	9
		10	11	12
		13	14...	
A Motor type		D Code for mounting arrangement	E Voltage and frequency code	F Generation code followed by variant codes
B Motor size				
C Product code				

## Explanation of the product code

### Positions 1 to 4

**3GAA** = Totally enclosed motor with aluminum stator frame  
**3GBA** = Totally enclosed motor with cast iron frame

### Position 4

Type of rotor  
**A** = Squirrel cage rotor

### Positions 5 and 6

IEC size

<b>05</b> = 56	<b>13</b> = 132
<b>06</b> = 63	<b>16</b> = 160
<b>07</b> = 71	<b>18</b> = 180
<b>08</b> = 80	<b>20</b> = 200
<b>09</b> = 90	<b>22</b> = 225
<b>10</b> = 100	<b>25</b> = 250
<b>11</b> = 112	

### Position 7

Pole pairs  
**1** = 2 poles  
**2** = 4 poles  
**3** = 6 poles

### Positions 8 to 10

Running number

### Position 11

- (dash)

### Position 12

#### Mounting arrangement

**A** = Foot-mounted motor  
**B** = Flange-mounted motor. Large flange with clearance holes.  
**C** = Flange-mounted motor. Small flange with tapped holes.  
**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.  
**N** = Flange-mounted (CI ring flange FF)  
**P** = Foot- and flange-mounted motor (CI ring flange FF)

### Position 13

#### Voltage and frequency

##### Single-speed motors

**B** 380 VΔ 50 Hz  
**D** 400 VΔ, 415 VΔ, 690 VY 50 Hz  
**E** 500 VΔ 50 Hz  
**F** 500 VY 50 Hz  
**S** 230 VΔ, 400 VY, 415 VY 50 Hz \*)  
**T** 660 VΔ 50 Hz  
**U** 690 VΔ 50 Hz  
**X** Other rated voltage, connection or frequency, 690 V maximum

### Position 14

Version A,B,C... = Generation code followed by variant codes

\*) M2AA 200 is not available for voltages less than 380 VD

# General performance aluminum motors

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

IE1

IP 55 - IC 411 - Insulation class F, temperature rise class B  
IE1 efficiency class according to IEC 60034-30; 2008

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-2-1; 2007			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 L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>l</sub> / T <sub>N</sub>	T <sub>b</sub> / T <sub>N</sub>			
<b>3000 r/min = 2-poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.09	M2AA 56 A	3GAA 051 001-••A	2820	59.8	53.3	47.9	0.69	0.31	3.9	0.3	2.9	2.7	0.00011	3.2	48
0.12	M2AA 56 B	3GAA 051 002-••A	2840	67.2	63.8	55.6	0.64	0.4	4.1	0.4	3.2	2.8	0.00012	3.4	48
0.18	M2AA 63 A	3GAA 061 001-••C	2820	75.0	72.0	66.1	0.62	0.55	4.2	0.6	3.5	3.1	0.00013	3.9	54
0.25	M2AA 63 B	3GAA 061 002-••C	2810	78.6	77.0	69.6	0.69	0.66	4.5	0.8	3.6	3.3	0.00016	4.4	54
0.37	M2AA 71 A	3GAA 071 001-••E	2800	71.6	72.3	70.2	0.76	0.98	5.1	1.3	3.0	2.9	0.00035	4.9	58
0.55	M2AA 71 B	3GAA 071 002-••E	2790	78.4	79.8	78.7	0.78	1.29	5.3	1.9	2.9	2.8	0.00045	5.9	58
0.75	M2AA 80 A	3GAA 081 001-••E	2820	78.8	79.6	77.9	0.79	1.73	5.1	2.5	3.4	3.0	0.00069	8.5	60
1.1	M2AA 80 B	3GAA 081 002-••E	2760	78.1	80.0	79.7	0.83	2.4	5.7	3.8	2.5	2.6	0.0009	10.5	60
1.5	M2AA 90 S	3GAA 091 001-••E	2895	78.5	77.2	71.6	0.75	3.6	6.4	4.9	2.3	3.0	0.0019	13	63
2.2	M2AA 90 L	3GAA 091 002-••E	2890	83.6	84.4	83.0	0.82	4.6	7.2	7.2	2.7	2.8	0.0024	16	63
3	M2AA 100 L	3GAA 101 001-••E	2905	85.4	85.8	84.4	0.81	6.2	7.5	9.8	2.6	3.2	0.0041	21	65
4	M2AA 112 M	3GAA 111 101-••E	2885	85.7	86.7	86.5	0.85	7.9	7.4	13.2	2.6	2.8	0.0061	26	67
5.5	M2AA 132 SA	3GAA 131 001-••E	2845	85.8	86.4	86.0	0.87	10.6	6.8	18.4	2.8	3.2	0.014	38	75
7.5	M2AA 132 SB	3GAA 131 002-••E	2860	87.0	88.0	86.0	0.89	13.9	7.2	25.0	3.0	3.4	0.016	43	73
11	M2AA 160 MLA	3GAA 161 041-••G	2921	88.2	89.0	88.1	0.89	20.2	6.3	35.9	1.7	2.7	0.038	82	73
15	M2AA 160 MLB	3GAA 161 042-••G	2929	89.3	90.2	89.3	0.90	26.9	7.1	48.9	2.2	3.1	0.048	96	73
18.5	M2AA 160 MLC	3GAA 161 043-••G	2935	89.8	90.1	89.4	0.91	32.6	7.2	60.1	2.2	3.2	0.054	104	73
22	M2AA 180 MLA	3GAA 181 041-••G	2928	90.4	90.6	89.6	0.90	39	7.1	71.7	2.8	3.1	0.059	118	75
30	M2AA 200 MLA	3GAA 201 041-••G	2948	91.1	91.1	89.8	0.88	54	7.7	97.1	2.8	3.6	0.093	160	75
37	M2AA 200 MLB	3GAA 201 042-••G	2949	91.6	92.0	91.6	0.92	63.3	7.7	119	2.5	3.4	0.118	185	75
45	M2AA 225 SMA	3GAA 221 041-••G	2948	92.1	92.3	91.8	0.91	77.4	7.7	145	2.7	2.9	0.198	236	75
55	M2AA 250 SMA	3GAA 251 041-••G	2964	92.4	92.4	91.5	0.91	94.4	7.3	177	2.3	2.3	0.281	295	75
<b>3000 r/min = 2-poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>									
11	M2AA 132 SMA	3GAA 131 005-••E	2890	89.0	90.4	90.6	0.87	20.5	7.5	36.3	2.5	3.1	0.0165	63	69
15	M2AA 132 SMC	3GAA 131 006-••E	2905	89.9	90.2	89.3	0.87	27.6	9.1	49.3	3.3	4.0	0.02	81	69
18.5	M2AA 132 SMD	3GAA 131 007-••E	2870	89.3	90.5	90.7	0.88	33.9	8.2	61.5	2.9	3.5	0.02356	89	68

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I<sub>s</sub> / I<sub>N</sub> = Starting current  
T<sub>l</sub> / T<sub>N</sub> = Locked rotor torque  
T<sub>b</sub> / T<sub>N</sub> = Breakdown torque

Efficiency values are given according to IEC 60034-2-1; 2007.

Please note that the values are not comparable without knowing the testing method.

ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.

# General performance aluminum motors

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

IE1

IP 55 - IC 411 - Insulation class F, temperature rise class B  
IE1 efficiency class according to IEC 60034-30; 2008

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-2-1; 2007			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 L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>l</sub> /T <sub>N</sub>	T <sub>b</sub> /T <sub>N</sub>			
<b>1500 r/min = 4-poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.06	M2AA 56 A	3GAA 052 001-••A	1340	51.1	45.8	36.0	0.67	0.25	2.5	0.4	2.2	2.2	0.00017	3.2	36
0.09	M2AA 56 B	3GAA 052 002-••A	1370	55.5	50.2	40.5	0.62	0.37	2.8	0.6	2.9	2.9	0.00018	3.4	36
0.12	M2AA 63 A	3GAA 062 001-••C	1400	65.5	60.4	51.7	0.57	0.46	3.1	0.8	2.7	2.8	0.00019	4	40
0.18	M2AA 63 B	3GAA 062 002-••C	1380	67.3	63.9	56.7	0.62	0.62	3.1	1.2	2.5	2.6	0.00026	4.5	40
0.25	M2AA 71 A	3GAA 072 001-••E	1365	65.1	66.0	62.7	0.76	0.72	4.0	1.7	2.0	2.1	0.00066	5.2	45
0.37	M2AA 71 B	3GAA 072 002-••E	1355	69.7	71.9	71.1	0.79	0.96	3.8	2.6	2.0	2.2	0.0008	5.9	45
0.55	M2AA 80 A	3GAA 082 001-••E	1375	74.1	75.9	75.0	0.78	1.37	4.5	3.8	1.9	2.2	0.0013	8.5	50
0.75	M2AA 80 B	3GAA 082 002-••E	1400	75.5	77.0	75.7	0.76	1.88	4.5	5.1	1.9	2.4	0.0019	10	50
1.1	M2AA 90 S	3GAA 092 001-••E	1420	77.2	78.1	76.0	0.77	2.6	4.8	7.3	2.0	2.6	0.0032	13	50
1.5	M2AA 90 L	3GAA 092 002-••E	1420	81.3	81.9	80.1	0.75	3.5	5.8	10.0	2.8	3.0	0.0043	16	50
2.2	M2AA 100 LA	3GAA 102 001-••E	1430	82.3	83.4	82.5	0.78	4.9	5.6	14.6	2.2	2.6	0.0069	21	64
3	M2AA 100 LB	3GAA 102 002-••E	1430	84.6	85.7	84.2	0.78	6.5	6.4	20.0	2.5	3.0	0.0082	24	66
4	M2AA 112 M	3GAA 112 101-••E	1430	86.0	87.1	86.8	0.80	8.3	6.4	26.7	2.3	2.6	0.01	29	60
5.5	M2AA 132 S	3GAA 132 001-••E	1450	86.5	87.0	86.1	0.75	12.2	5.6	36.2	2.1	2.6	0.031	42	66
7.5	M2AA 132 M	3GAA 132 002-••E	1450	88.6	89.2	88.4	0.75	16.2	6.1	49.3	2.3	2.7	0.038	49	66
11	M2AA 160 MLA	3GAA 162 041-••G	1459	88.2	89.0	88.4	0.81	22.2	6.5	71.9	2.3	2.6	0.068	84	65
15	M2AA 160 MLB	3GAA 162 042-••G	1462	89.2	89.8	89.2	0.82	29.6	7.1	97.9	2.6	3.3	0.085	98	65
18.5	M2AA 180 MLA	3GAA 182 041-••G	1465	89.8	90.3	89.8	0.82	36.2	7.7	120	2.6	3.1	0.103	116	65
22	M2AA 180 MLB	3GAA 182 042-••G	1463	90.4	90.9	90.5	0.83	42.3	7.7	143	2.9	3.5	0.122	131	65
30	M2AA 200 MLA	3GAA 202 041-••G	1475	91.1	91.5	91.0	0.83	57.2	7.3	194	2.4	3.0	0.22	187	67
37	M2AA 225 SMA	3GAA 222 041-••G	1477	91.6	91.9	91.4	0.84	69.4	6.9	239	2.3	2.7	0.317	231	68
45	M2AA 225 SMB	3GAA 222 042-••G	1478	92.1	92.4	91.9	0.84	83.9	7.4	290	2.4	3.0	0.374	257	68
55	M2AA 250 SMA	3GAA 252 041-••G	1478	92.4	92.7	92.2	0.85	101	7.4	355	2.7	2.7	0.485	297	68
<b>1500 r/min = 4-poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>									
11	M2AA 132 SMA	3GAA 132 005-••E	1460	88.6	89.1	88.1	0.78	22.9	7.0	71.9	2.1	2.9	0.0381	76	69
15	M2AA 132 SMC	3GAA 132 006-••E	1455	89.2	89.7	89.3	0.78	31.1	7.2	98.4	2.4	3.3	0.0485	88	69

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I<sub>s</sub> / I<sub>N</sub> = Starting current  
T<sub>l</sub> / T<sub>N</sub> = Locked rotor torque  
T<sub>b</sub> / T<sub>N</sub> = Breakdown torque

Efficiency values are given according to IEC 60034-2-1; 2007.

Please note that the values are not comparable without knowing the testing method.

ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.

# General performance aluminum motors

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

IE1

IP 55 - IC 411 - Insulation class F, temperature rise class B  
IE1 efficiency class according to IEC 60034-30; 2008

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-2-1; 2007			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 L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>l</sub> / T <sub>N</sub>	T <sub>b</sub> / T <sub>N</sub>			
<b>1000 r/min = 6-poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.09	M2AA 63 A	3GAA 063 001-••C	910	47.1	42.5	32.1	0.56	0.49	2.1	0.9	2.1	2.1	0.0002	4	38
0.12	M2AA 63 B	3GAA 063 002-••C	910	57.5	54.0	46.2	0.58	0.51	2.1	1.3	2.1	2.1	0.00027	4.5	38
0.18	M2AA 71 A	3GAA 073 001-••E	895	60.4	60.0	55.0	0.73	0.58	3.1	1.9	1.9	2.0	0.00092	5.5	42
0.25	M2AA 71 B	3GAA 073 002-••E	895	64.0	63.6	59.5	0.71	0.79	3.3	2.6	2.2	2.2	0.0012	6.5	42
0.37	M2AA 80 A	3GAA 083 001-••E	910	69.9	71.4	68.8	0.73	1.04	3.6	3.8	1.6	2.0	0.002	9	47
0.55	M2AA 80 B	3GAA 083 002-••E	905	72.1	73.4	71.2	0.69	1.59	3.3	5.8	1.8	1.9	0.0026	10	47
0.75	M2AA 90 S	3GAA 093 001-••E	925	71.5	70.9	65.9	0.64	2.3	3.6	7.7	2.1	2.4	0.0032	13	44
1.1	M2AA 90 L	3GAA 093 002-••E	915	72.9	73.4	70.0	0.63	3.4	3.2	11.4	1.9	2.1	0.0043	16	44
1.5	M2AA 100 L	3GAA 103 001-••E	950	79.6	79.9	77.5	0.69	3.9	4.2	15.0	2.0	2.3	0.0082	23	49
2.2	M2AA 112 M	3GAA 113 101-••E	960	82.8	82.5	79.5	0.66	5.8	5.1	21.8	2.3	2.8	0.01	28	54
3	M2AA 132 S	3GAA 133 001-••E	960	82.5	82.9	80.9	0.68	7.7	4.3	29.8	1.8	2.3	0.031	39	57
4	M2AA 132 MA	3GAA 133 002-••E	965	83.6	83.2	80.8	0.65	10.6	5.1	39.5	2.1	2.5	0.038	46	61
5.5	M2AA 132 MB	3GAA 133 003-••E	960	83.8	84.3	82.9	0.71	13.3	5.3	54.7	2.0	2.4	0.045	54	57
7.5	M2AA 160 MLA	3GAA 163 041-••G	968	85.4	86.3	85.8	0.77	16.4	6.4	73.9	1.8	3.0	0.071	84	61
11	M2AA 160 MLB	3GAA 163 042-••G	968	87.0	87.7	87.0	0.77	23.7	7.7	108	2.1	3.2	0.102	110	61
15	M2AA 180 MLA	3GAA 183 041-••G	968	88.1	88.6	87.7	0.75	32.7	7.7	147	2.3	3.8	0.139	137	61
18.5	M2AA 200 MLA	3GAA 203 041-••G	975	89.1	90.0	89.9	0.77	38.9	5.9	181	1.9	2.5	0.218	186	65
22 <sup>1)</sup>	M2AA 200 MLB	3GAA 203 042-••G	969	89.3	90.5	90.7	0.76	46.7	5.4	216	1.8	2.3	0.218	198	65
30	M2AA 225 SMA	3GAA 223 041-••G	985	90.6	91.0	90.4	0.83	57.5	7.0	290	2.4	2.8	0.547	257	65
37	M2AA 250 SMA	3GAA 253 041-••G	985	91.2	91.6	91.0	0.82	71.4	6.7	358	2.3	2.7	0.728	291	65
<b>1000 r/min = 6-poles</b>			<b>400 V 50 Hz</b>			<b>High-output design</b>									
7.5	M2AA 132 SMA	3GAA 133 006-E	950	84.7	86.1	86.3	0.73	17.5	4.9	75.3	1.7	2.1	0.0485	88	69

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

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I<sub>s</sub> / I<sub>N</sub> = Starting current  
T<sub>l</sub> / T<sub>N</sub> = Locked rotor torque  
T<sub>b</sub> / T<sub>N</sub> = Breakdown torque

Efficiency values are given according to IEC 60034-2-1; 2007.

Please note that the values are not comparable without knowing the testing method.

ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.

# General performance cast iron motors

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

IE1

IP 55 - IC 411 - Insulation class F, temperature rise class B  
IE1 efficiency class according to IEC 60034-30; 2008

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-2-1; 2007			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 L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>l</sub> / T <sub>N</sub>	T <sub>b</sub> / T <sub>N</sub>			
<b>3000 r/min = 2-poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.37	M2BA 71 A	3GBA 071 101-••B	2705	69.2	73.5	73.7	0.80	0.96	3.9	1.3	2.2	2.3	0.00039	11	58
0.55	M2BA 71 B	3GBA 071 102-••B	2680	73.2	77.3	79.3	0.85	1.27	4.3	1.95	2.4	2.49	0.00051	11	56
0.75	M2BA 80 A	3GBA 081 101-••B	2820	78.1	79.1	77.9	0.81	1.71	5.9	2.5	2.3	2.7	0.0008	14	60
1.1	M2BA 80 B	3GBA 081 102-••B	2805	79.5	81.2	81.2	0.82	2.4	5.7	3.7	2.7	2.8	0.00101	16	60
1.5	M2BA 90 S	3GBA 091 101-••B	2890	82.2	82.5	80.3	0.81	3.2	7.2	4.9	2.5	3.0	0.00199	22	63
2.2	M2BA 90 L	3GBA 091 102-••B	2875	83.4	84.5	83.5	0.84	4.5	6.6	7.3	2.3	2.4	0.00254	24	63
3	M2BA 100 L	3GBA 101 101-••B	2910	83.2	83.4	81.4	0.83	6.2	7.0	9.8	2.7	3.2	0.00445	32	65
4	M2BA 112 M	3GBA 111 101-••B	2880	84.9	86.2	85.9	0.89	7.6	7.5	13.2	2.4	2.6	0.00531	37	67
5.5	M2BA 132 SA	3GBA 131 101-••B	2885	85.4	85.0	83.0	0.82	11.3	6.6	18.2	2.3	3.35	0.01029	61	75
7.5	M2BA 132 SB	3GBA 131 102-••B	2890	86.5	86.3	84.3	0.81	15.4	7.6	24.7	2.7	3.5	0.01275	68	73
11	M2BA 160 MLA	3GBA 161 041-••G	2921	88.2	89.0	88.1	0.89	20.2	6.3	35.9	1.7	2.7	0.038	118	73
15	M2BA 160 MLB	3GBA 161 042-••G	2929	89.3	90.2	89.3	0.90	26.9	7.1	48.9	2.2	3.1	0.048	132	73
18.5	M2BA 160 MLC	3GBA 161 043-••G	2935	89.8	90.1	89.4	0.91	32.6	7.2	60.1	2.2	3.2	0.054	140	73
22	M2BA 180 MLA	3GBA 181 041-••G	2928	90.4	90.6	89.6	0.90	39	7.1	71.7	2.8	3.1	0.059	167	75
30	M2BA 200 MLA	3GBA 201 041-••G	2948	91.1	91.1	89.8	0.88	54	7.7	97.1	2.8	3.6	0.093	213	75
37	M2BA 200 MLB	3GBA 201 042-••G	2949	91.6	92.0	91.6	0.92	63.3	7.7	119	2.5	3.4	0.118	239	75
45	M2BA 225 SMA	3GBA 221 041-••G	2948	92.1	92.3	91.8	0.91	77.4	7.7	145	2.7	2.9	0.198	296	75
55	M2BA 250 SMA	3GBA 251 041-••G	2964	92.4	92.4	91.5	0.91	94.4	7.3	177	2.3	2.3	0.281	338	75
<b>1500 r/min = 4-poles</b>			<b>400 V 50 Hz</b>			<b>CENELEC-design</b>									
0.25	M2BA 71 A	3GBA 072 101-••B	1365	68.3	70.8	69.7	0.81	0.65	3.5	1.74	1.9	2.0	0.00074	10	45
0.37	M2BA 71 B	3GBA 072 102-••B	1380	72.4	74.5	74.6	0.83	0.88	4.0	2.5	1.6	2.1	0.00088	11	45
0.55	M2BA 80 A	3GBA 082 101-••B	1415	74.5	73.8	70.0	0.73	1.45	5.0	3.7	2.0	2.8	0.00144	15	45
0.75	M2BA 80 B	3GBA 082 102-••B	1410	77.0	77.0	73.7	0.72	1.95	5.0	5.0	1.9	2.6	0.00198	16	50
1.1	M2BA 90 S	3GBA 092 101-••B	1410	78.4	79.6	78.4	0.79	2.5	4.8	7.4	1.9	2.3	0.0033	22	50
1.5	M2BA 90 L	3GBA 092 102-••B	1410	80.4	81.4	80.0	0.78	3.4	5.4	10.1	2.5	3.2	0.0044	25	50
2.2	M2BA 100 LA	3GBA 102 101-••B	1425	83.2	84.3	83.5	0.80	4.7	5.4	14.7	2.1	2.8	0.00873	34	64
3	M2BA 100 LB	3GBA 102 102-••B	1430	83.2	84.1	83.2	0.80	6.5	6.2	20.0	2.2	2.8	0.009	35	67
4	M2BA 112 M	3GBA 112 101-••B	1420	83.8	85.2	85.1	0.82	8.4	6.2	26.8	2.2	2.7	0.0106	39	60
5.5	M2BA 132 S	3GBA 132 101-••B	1460	87.8	87.8	85.9	0.76	11.8	6.0	35.9	1.8	2.7	0.02635	60	66
7.5	M2BA 132 M	3GBA 132 102-••B	1445	86.7	88.0	88.0	0.80	15.6	5.7	49.5	1.9	2.4	0.03282	70	66
11	M2BA 160 MLA	3GBA 162 041-••G	1459	88.2	89.0	88.4	0.81	22.2	6.5	71.9	2.3	2.6	0.068	120	65
15	M2BA 160 MLB	3GBA 162 042-••G	1462	89.2	89.8	89.2	0.82	29.6	7.1	97.9	2.6	3.3	0.085	134	65
18.5	M2BA 180 MLA	3GBA 182 041-••G	1465	89.8	90.3	89.8	0.82	36.2	7.7	120	2.6	3.1	0.103	115	65
22	M2BA 180 MLB	3GBA 182 042-••G	1463	90.4	90.9	90.5	0.83	42.3	7.7	143	2.9	3.5	0.122	165	65
30	M2BA 200 MLA	3GBA 202 041-••G	1475	91.1	91.5	91.0	0.83	57.2	7.3	194	2.4	3.0	0.22	240	67
37	M2BA 225 SMA	3GBA 222 041-••G	1477	91.6	91.9	91.4	0.84	69.4	6.9	239	2.3	2.7	0.317	292	68
45	M2BA 225 SMB	3GBA 222 042-••G	1478	92.1	92.4	91.9	0.84	83.9	7.4	290	2.4	3.0	0.374	317	68
55	M2BA 250 SMA	3GBA 252 041-••G	1478	92.4	92.7	92.2	0.85	101	7.4	355	2.7	2.7	0.485	341	68

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I<sub>s</sub> / I<sub>N</sub> = Starting current  
T<sub>l</sub> / T<sub>N</sub> = Locked rotor torque  
T<sub>b</sub> / T<sub>N</sub> = Breakdown torque

Efficiency values are given according to IEC 60034-2-1; 2007.

Please note that the values are not comparable without knowing the testing method.

ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.



# General performance cast iron motors

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

IE1

IP 55 - IC 411 - Insulation class F, temperature rise class B  
IE1 efficiency class according to IEC 60034-30; 2008

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-2-1; 2007			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 L <sub>PA</sub> dB
				Full load 100%	3/4 load 75%	1/2 load 50%		I <sub>N</sub> A	I <sub>s</sub> / I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>l</sub> / T <sub>N</sub>	T <sub>b</sub> / T <sub>N</sub>			
1000 r/min = 6-poles			400 V 50 Hz			CENELEC-design									
0.18	M2BA 71 A	3GBA 073 101-••B	900	63.7	63.8	59.0	0.71	0.57	3.1	1.9	2.0	2.1	0.00089	10	42
0.25	M2BA 71 B	3GBA 073 102-••B	895	67.2	67.2	62.6	0.69	0.77	3.4	2.6	2.2	2.3	0.0011	12	42
0.37	M2BA 80 A	3GBA 083 101-••B	915	71.0	71.1	67.0	0.69	1.09	3.6	3.8	1.8	2.2	0.00187	15	47
0.55	M2BA 80 B	3GBA 083 102-••B	920	73.9	75.0	72.8	0.71	1.51	3.8	5.7	1.8	2.2	0.00239	17	47
0.75	M2BA 90 S	3GBA 093 101-••B	925	70.0	68.9	64.0	0.65	2.3	3.6	7.7	2.0	2.2	0.0033	22	44
1.1	M2BA 90 L	3GBA 093 102-••B	915	73.3	73.5	70.2	0.68	3.1	3.8	11.4	2.3	2.6	0.0044	25	44
1.5	M2BA 100 LA	3GBA 103 101-••B	945	76.0	77.6	76.5	0.69	4.1	4.0	15.1	2.0	2.4	0.00727	32	49
2.2	M2BA 112 M	3GBA 113 101-••B	945	81.2	82.2	80.7	0.71	5.5	5.1	22.2	2.0	2.4	0.0114	38	54
3	M2BA 132 S	3GBA 133 101-••B	970	83.5	83.8	81.9	0.69	7.5	7.0	29.5	1.6	2.2	0.03164	69	57
4	M2BA 132 MA	3GBA 133 102-••B	975	85.7	84.6	81.3	0.63	10.6	5.6	39.1	2.4	2.9	0.03336	70	57
5.5	M2BA 132 MB	3GBA 133 103-••B	960	86.3	87.3	86.7	0.73	12.6	4.6	54.7	1.7	2.1	0.0413	77	57
7.5	M2BA 160 MLA	3GBA 163 041-••G	968	85.4	86.3	85.8	0.77	16.4	6.4	73.9	1.8	3.0	0.071	120	61
11	M2BA 160 MLB	3GBA 163 042-••G	968	87.0	87.7	87.0	0.77	23.7	7.7	108	2.1	3.2	0.102	156	61
15	M2BA 180 MLA	3GBA 183 041-••G	968	88.1	88.6	87.7	0.75	32.7	7.7	147	2.3	3.8	0.139	138	61
18.5	M2BA 200 MLA	3GBA 203 041-••G	975	89.1	90.0	89.9	0.77	38.9	5.9	181	1.9	2.5	0.218	184	65
22 <sup>1)</sup>	M2BA 200 MLB	3GBA 203 042-••G	969	89.3	90.5	90.7	0.76	46.7	5.4	216	1.8	2.3	0.218	185	65
30	M2BA 225 SMA	3GBA 223 041-••G	985	90.6	91.0	90.4	0.83	57.5	7.0	290	2.4	2.8	0.547	317	65
37	M2BA 250 SMA	3GBA 253 041-••G	985	91.2	91.6	91.0	0.82	71.4	6.7	358	2.3	2.7	0.728	335	65

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

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I<sub>s</sub> / I<sub>N</sub> = Starting current  
T<sub>l</sub> / T<sub>N</sub> = Locked rotor torque  
T<sub>b</sub> / T<sub>N</sub> = Breakdown torque

Efficiency values are given according to IEC 60034-2-1; 2007.

Please note that the values are not comparable without knowing the testing method.

ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.

# General performance motors – variant codes

The following variant codes are available, more information from ABB. M = modification, NA = not applicable, S = standard

Code <sup>1)</sup>	Variant code	Aluminum motors						Cast iron motors		
		M2AA 56-250		90	100	112	132	160-250	M2BA 71-250	
		56-63	71-80							
<b>Bearings and Lubrication</b>										
037	Roller bearing at D-end.	NA	NA	M	M	M	M	M	NA	M
039	Cold resistant grease.	NA	M	M	M	M	M	NA	M	NA
040	Heat resistant grease.	NA	M	M	M	M	M	NA	M	S
041	Bearings regreasable via grease nipples.	NA	NA	NA	NA	NA	NA	NA	NA	S
057	2RS bearings at both ends.	NA	M	M	M	M	M	NA	NA	NA
188	63-series bearings.	NA	NA	M	S	S	M	M	NA	M
<b>Branch standard designs</b>										
178	Stainless steel / acid proof bolts.	NA	M	M	M	M	M	NA	M	M
217	Cast iron D-end shield	NA	NA	M	M	M	M	S	NA	NA
<b>Cooling system</b>										
053	Metal fan cover	S	M	M	M	M	M	S	NA	NA
068	Light alloy metal fan	NA	M	M	M	M	M	NA	M	M
<b>Drain holes</b>										
065	Plugged existing drain holes.	M	M	M	M	M	M	M	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, 100-120V.	M	M	M	M	M	M	M	M	M
451	Heating element, 200-240V.	M	M	M	M	M	M	M	M	M
<b>Mounting arrangements</b>										
008	IM 2101 foot/flange mounted, IEC flange, from IM 1001 (B34 from B3).	M	M	M	M	M	M	NA	M	NA
009	IM 2001 foot/flange mounted, IEC flange, from IM 1001 (B35 from B3).	M	M	M	M	M	M	M	M	M
047	IM 3601 flange mounted, IEC flange, from IM 3001 (B14 from B5).	M	M	M	M	M	M	NA	M	NA
048	IM 3001 flange mounted, IEC flange, from IM 3601 (B5 from B14).	M	M	M	M	M	M	NA	M	NA
066	Modified for non-standard mounting position (please specify IM xxxx), (must be ordered for all mounting arrangements excluding IM B3 (1001), IM B5 (3001), IM B35 (2001), B34 (2101) & B14 (3601).	M	M	M	M	M	M	M	M	M
200	Flange ring holder	NA	M	M	M	M	M	NA	NA	NA
218	Flange ring FT 85	NA	M	M	NA	NA	NA	NA	NA	NA
219	Flange ring FT 100	NA	M	M	NA	NA	NA	NA	NA	NA
220	Flange ring FF 100	NA	M	M	NA	NA	NA	NA	NA	NA
223	Flange ring FF 115	NA	M	M	NA	NA	NA	NA	NA	NA
224	Flange ring FT 115	NA	M	M	M	M	NA	NA	NA	NA
226	Flange ring FF 130	NA	M	M	M	M	NA	NA	NA	NA
227	Flange ring FT 130	NA	M	M	M	M	NA	NA	NA	NA
229	Flange FT 130	NA	NA	NA	M	M	NA	NA	NA	NA
233	Flange ring FF 165	NA	M	M	M	M	NA	NA	NA	NA
234	Flange ring FT 165	NA	M	M	M	M	NA	NA	NA	NA
235	Flange FF 165	NA	NA	M	NA	NA	NA	NA	NA	NA
236	Flange FT 165	NA	NA	NA	NA	NA	M	NA	NA	NA
243	Flange ring FF 215	NA	NA	NA	M	M	M	NA	NA	NA
244	Flange ring FT 215	NA	NA	NA	M	M	M	NA	NA	NA
245	Flange FF 215	NA	NA	NA	M	M	NA	NA	NA	NA
253	Flange ring FF 265	NA	NA	NA	NA	NA	M	NA	NA	NA
254	Flange ring FT 265	NA	NA	NA	NA	NA	M	NA	NA	NA
255	Flange ring FT 265	NA	NA	NA	NA	NA	M	NA	NA	NA
260	Flange FT 115	NA	M	M	M	M	M	NA	NA	NA

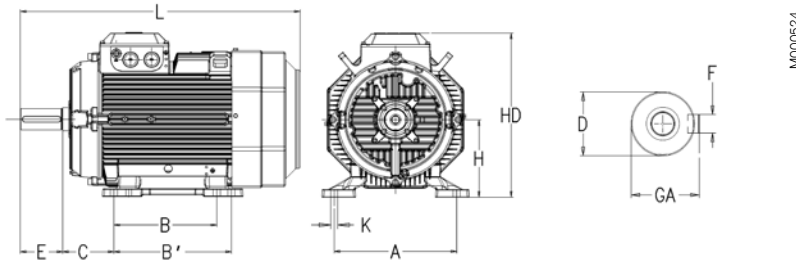
Code <sup>1)</sup>	Variant code	Aluminum motors							Cast iron motors	
		M2AA 56-63	M2AA 71-80	90	100	112	132	160-250	M2BA 71-132	M2BA 160-250
<b>Painting</b>										
114	Special paint colour, standard grade.	NA	M	M	M	M	M	NA	M	M
<b>Protection</b>										
005	Metal protective roof, vertical motor, shaft down.	M	M	M	M	M	M	M	M	M
072	Radial seal at D-end.	NA	M	M	M	M	M	NA	M	NA
076	Draining holes with plugs in open position.	NA	NA	NA	NA	NA	NA	NA	NA	S
403	Degree of protection IP56.	M	M	M	M	M	M	NA	M	M
784	Gamma seal at D-end	NA	NA	M	M	M	M	NA	NA	NA
<b>Rating &amp; instruction plates</b>										
002	Restamping voltage, frequency and output, continuous duty.	M	M	M	M	M	M	M	M	M
095	Restamping output (maintained voltage, frequency), intermittent duty.	M	M	M	M	M	M	M	M	M
098	Stainless rating plate.	M	M	M	M	M	M	M	M	S
138	Mounting of additional identification plate, aluminum.	M	M	M	M	M	M	NA	M	M
161	Additional rating plate delivered loose.	M	M	M	M	M	M	NA	M	M
198	Aluminum rating plate.	S	S	S	S	S	M	NA	NA	NA
<b>Stator winding temperature sensors</b>										
122	Bimetal detectors, break type (NCC), (3 in series), 150°C, in stator winding.	M	M	M	M	M	M	M	M	M
435	PTC - thermistors (3 in series), 130°C, in stator winding.	M	M	M	M	M	M	M	M	M
436	PTC - thermistors (3 in series), 150°C, in stator winding.	M	M	M	M	M	M	S	M	M
441	PTC - thermistors (3 in series, 130°C & 3 in series, 150°C), in stator winding.	NA	NA	NA	NA	NA	NA	M	NA	M
445	Pt-100 2-wire in stator winding, 1 per phase	NA	NA	NA	NA	NA	NA	M	NA	NA
<b>Terminal box</b>										
015	Motor supplied in D connection.	NA	M	M	M	M	M	NA	NA	NA
017	Motor supplied in Y connection.	NA	M	M	M	M	M	NA	NA	NA
230	Standard metal cable glands.	NA	M	M	M	M	M	M	M	M
375	Standard plastic cable gland	NA	M	M	M	M	M	NA	NA	NA
731	Two standard metal cable glands.	M	NA	NA	NA	NA	NA	NA	NA	NA
<b>Testing</b>										
145	Type test report from a catalogue motor, 400V 50Hz.	M	M	M	M	M	M	M	M	M
146	Type test with report for one motor from specific delivery batch	M	NA	NA	NA	NA	NA	NA	M	NA
147	Type test with report for one motor from specific delivery batch, customer witnessed.	M	NA	NA	NA	NA	NA	NA	M	NA
148	Routine test report.	M	M	M	M	M	M	M	M	M

# General performance aluminum motors

## Dimension drawings

M2AA 56 - 250

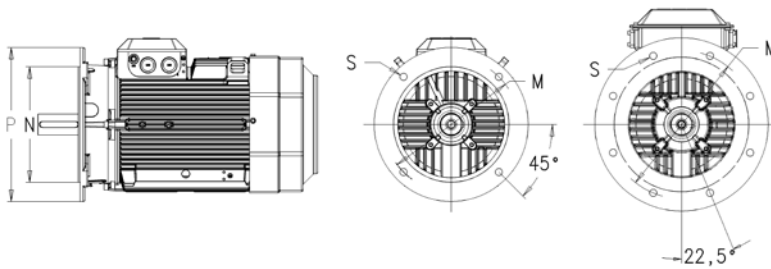
### Foot-mounted motor IM1001, B3



### Flange-mounted motor IM 3001, B5

Sizes 56-200

Sizes 225-250



#### IM 1001, IM B3 and IM 3001, IM B5

#### IM 1001, IM B3

#### IM 3001, IM B5

Motor size	D poles		GA poles		F poles		E poles		L max poles		A	B	B'	C	HD	K	H	M	N	P	S
	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6											
56	9	9	10,2	10,2	3	3	20	20	197	197	90	71	-	36	159	5,8	56	100	80	120	7
63	11	11	12,5	12,5	4	4	23	23	214	214	100	80	-	40	171	7	63	115	95	140	10
71	14	14	16	16	5	5	30	30	240	240	112	90	-	45	180	7	71	130	110	160	10
80	19	19	21,5	21,5	6	6	40	40	265,5	265,5	125	100	-	50	193,5	10	80	165	130	200	12
90 S	24	24	27	27	8	8	50	50	284,5	284,5	140	100	-	56	217	10	90	165	130	200	12
90 L	24	24	27	27	8	8	50	50	309,5	309,5	140	125	-	56	217	10	90	165	130	200	12
100	28	28	31	31	8	8	60	60	351	351	160	140	-	63	237	12	100	215	180	250	15
112	28	28	31	31	8	8	60	60	393	393	190	140	-	70	249	12	112	215	180	250	15
132 <sup>1)</sup>	38	38	41	41	10	10	80	80	447	447	216	140	178	89	295,5	12	132	265	230	300	14,5
132 <sup>2)</sup>	38	38	41	41	10	10	80	80	550	550	216	140	178	89	321	15	132	265	230	300	14,5
160	42	42	45	45	12	12	110	110	584	584 <sup>3)</sup>	254	210	254	108	370	14,5	160	300	250	350	19
180	48	48	51,5	51,5	14	14	110	110	681	681	279	241	279	121	390	14,5	180	300	250	350	19
200	55	55	59	59	16	16	110	110	726	726	318	267	305	133	425	18,5	200	350	300	400	19
225	55	60	59	64	16	18	110	140	821	851	356	286	311	149	525 <sup>4)</sup>	18	225	400	350	450	19
250	60	65	64	69	18	18	140	140	880	880	406	311	349	168	572 <sup>4)</sup>	22	250	500	450	550	19

### IM 3601, IM B14

Motor size	M	N	P	S
56	65	50	80	M5
63	75	60	90	M5
71	85	70	105	M6
80	100	80	120	M6
90	115	95	140	M8
100	130	110	160	M8
112	130	110	160	M8
132 <sup>1)</sup>	165	130	200	M10
132 <sup>2)</sup>	165	130	200	M10

#### Tolerances

A,B	±0,8
D	ISO k6 < Ø 50 mm
	ISO m6 > Ø 50 mm
F	ISO h9
H	-0,5
N	ISO j6
C	±0,8

<sup>1)</sup> M2AA 132 SA, SB, S, M, MA

<sup>2)</sup> M2AA 132 SMA, SMC, SMD

<sup>3)</sup> 160MLB 6-pole L=681

<sup>4)</sup> For voltage code S add 32 mm to listed HD-dimension

Above table gives the main dimensions in mm. For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

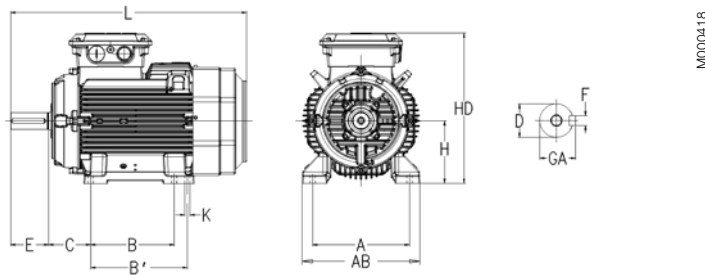


# General performance cast iron motors

## Dimension drawings

M2BA 71 - 250

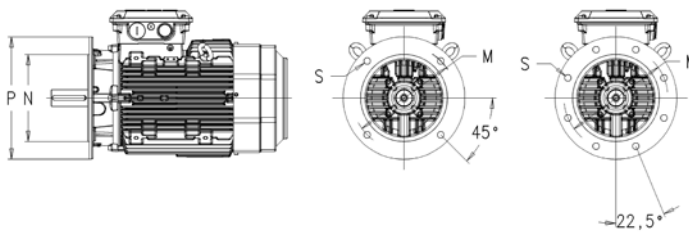
### Foot-mounted motor IM1001, B3



### Flange-mounted motor IM 3001, B5

Sizes 71-200

Sizes 225-250



#### IM 1001, IM B3 and IM 3001, IM B5

#### IM 1001, IM B3

#### IM 3001, IM B5

Motor size	D poles		GA poles		F poles		E poles		L max poles		A	B	B'	C	HD	K	H	M	N	P	S
	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6											
71	14	14	16	16	5	5	30	30	264	264	112	90	-	45	178	7	71	130	110	160	10
80	19	19	21.5	21.5	6	6	40	40	321	321	125	100	-	50	195	10	80	165	130	200	12
90S	24	24	27	27	8	8	50	50	357	357	140	100	-	56	219	10	90	165	130	200	12
90L	24	24	27	27	8	8	50	50	357	357	140	125	-	56	219	10	90	165	130	200	12
100	28	28	31	31	8	8	60	60	381	381	160	140	-	63	247	12	100	215	180	250	15
112	28	28	31	31	8	8	60	60	403	403	190	140	-	70	259	12	112	215	180	250	15
132S	38	38	41	41	10	10	80	80	533	533	216	140	-	89	300	12	132	265	230	300	15
132M	38	38	41	41	10	10	80	80	533	533	216	178	-	89	300	12	132	265	230	300	15
160	42	42	45	45	12	12	110	110	584	584 <sup>1)</sup>	254	210	254	108	413	14.5	160	300	250	350	19
180	48	48	51.5	51.5	14	14	110	110	681	681	279	241	279	121	433	14.5	180	300	250	350	19
200	55	55	59	59	16	16	110	110	726	726	318	267	305	133	473 <sup>2)</sup>	18.5	200	350	300	400	19
225	55	60	59	64	16	18	110	140	821	851	356	286	311	149	539	18.5	225	400	350	450	19
250	60	65	64	69	18	18	140	140	879	879	406	311	349	168	584	24	250	500	450	550	19

### 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	110	160	M8
132	165	130	200	M10

#### Tolerances

A,B	±0,8
D	ISO k6 < Ø 50 mm
	ISO m6 > Ø 50 mm
F	ISO h9
H	-0,5
N	ISO j6
C	±0,8

<sup>1)</sup> 160MLB 6-pole L=681

<sup>2)</sup> 200, voltage code S HD=478

Above table gives the main dimensions in mm. For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

# General performance aluminum motors in brief

Motor size		56	63	71	80	90	100	112	132
<b>Stator</b>	Material	Diecast aluminum alloy.							
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G							
	Surface treatment	Epoxy polyester powder paint, $\geq 30\mu\text{m}$							
<b>Feet</b>		Fixed feet.							
	Material	Aluminum alloy							
<b>Bearing end shields</b>	Material	Diecast aluminum alloy							
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G							
	Surface treatment	Epoxy polyester powder paint, $\geq 30\mu\text{m}$				Polyester powder paint, $\geq 30\mu\text{m}$			
<b>Bearings</b>	D-end	6201-2Z/C3	6202-2Z/C3	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6306-2Z/C3	6306-2Z/C3	6208-2Z/C3 <sup>1)</sup>
	N-end	6201-2Z/C3	6201-2Z/C3	6202-2Z/C3	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6205-2Z/C3	6206-2Z/C3
<b>Axially-locked bearings</b>		D-end internal retaining ring				D-end inner bearing cover			
<b>Bearing seals</b>	D-end	V-ring							
<b>Lubrication</b>		Permanently lubricated shielded bearings. Grease temperature range -40 to +160°C							
<b>Terminal box</b>	Material	Diecast aluminum alloy, base integrated with stator.							
	Surface treatment	Similar to stator.							
	Screws	Steel 5G, galvanised.							
<b>Connections</b>	Knock-out openings	1 x M16 x Pg11		2 x (M20 + M20)		2 x (M20 + M25) <sup>2)</sup>			
	Max Cu-area mm <sup>2</sup>	2.5		4		6			10 <sup>3)</sup>
	Terminal box	Cable lugs, 6 terminals				Screw terminal, 6 terminals			Cable lugs, 6 terminals
<b>Fan</b>	Material	Polypropylene. Reinforced with 20% glass fibre.							
<b>Fan cover</b>	Material	Polypropylene.							
	Paint colour shade	Black							
<b>Stator winding</b>	Material	Copper.							
	Impregnation	Polyester varnish. Tropicalised.							
	Insulation class	Insulation class F. Temperature rise class B, unless otherwise stated.							
<b>Stator winding temperature sensors</b>		Optional.							
<b>Rotor winding</b>	Material	Diecast aluminum.							
<b>Balancing method</b>		Half key balancing.							
<b>Key ways</b>		Closed keyway							
<b>Heating elements</b>	On request	8 W			25 W				
<b>Enclosure</b>		IP 55.							
<b>Cooling method</b>		IC 411.							
<b>Drain holes</b>		Drain holes with closable plugs, open on delivery.							
<b>Lifting lugs</b>		Integrated with the stator							

M2AA 132 SMA, SMC, SMD;

<sup>1)</sup> 6308-2Z/C3

<sup>2)</sup> 2\*(M40+M32+M12)

<sup>3)</sup> 35

# General performance aluminum motors in brief

Size	M2AA	160	180	200	225	250
<b>Stator</b>	Material	Diecast aluminum alloy			Extruded aluminum alloy.	
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface treatment	Polyester powder paint, $\geq 100\mu\text{m}$				
<b>Feet</b>		Bolt on feet, bolted to the stator.				
	Material	Aluminum alloy	Cast iron			
<b>Bearing end shields</b>	Material	Cast iron EN-GJL-200/GG 20/GRS 200				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface treatment	Two-pack epoxy pain paint, $\geq 100\mu\text{m}$				
<b>Bearings</b>	D-end	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3	6213-2Z/C3	6215-2Z/C3
	N-end	6209-2Z/C3	6209-2Z/C3	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3
<b>Axially-locked</b>	Inner bearing cover	D-end				
<b>Bearing seals</b>		Axial seal				
<b>Lubrication</b>		Permanently lubricated shielded bearings. Wide temperature grease.				
<b>Terminal box</b>	Material	Diecast aluminum alloy, base integrated with stator.			Deep-drawn steel sheet, bolted to stator.	
	Surface treatment	Polyester powder paint, $\geq 100\mu\text{m}$			Phosphated. Polyester paint.	
	Screws	Steel 8.8, zinc electroplated and chromated				
<b>Connections</b>	Knock-out openings				2 x FL13, 2 x M40	
	Flange-openings	(2 x M40 + M16) + (2 x M40)			2 x FL 21, 2 x M63 (voltage code S)	
	Max Cu-area mm <sup>2</sup>	35			70	
	Terminal box	6 terminals for connection with cable lugs (not included)				
	Screws	M6			M10	
<b>Fan</b>	Material	Polypropylene. Reinforced with 20% glass fibre.				
<b>Fan cover</b>	Material	Hot dip galvanized steel				
	Paint colour shade	Black, NCS 8801-B09G				
	Surface treatment	Polyester powder paint, $\geq 100\mu\text{m}$				
<b>Stator winding</b>	Material	Copper.				
	Impregnation	Polyester varnish.				
	Insulation class	Insulation class F. Temperature rise class B, unless otherwise stated.				
<b>Stator winding temperature sensors</b>		Optional.				
<b>Rotor winding</b>	Material	Diecast aluminum.				
<b>Balancing method</b>		Half key balancing.				
<b>Key ways</b>		Closed keyway				
<b>Heating elements</b>	Optional	25 W	50 W			
<b>Enclosure</b>		IP 55.				
<b>Cooling method</b>		IC 411.				
<b>Drain holes</b>		Drain holes with closable plastic plugs, open on delivery.				
<b>Lifting lugs</b>		Integrated with the stator			Bolted to the stator	

# General performance cast iron motors in brief

Motor size		71	80	90	100	112	132
<b>Stator</b>	Material	Cast iron EN-GJL-150/GG 15/GRS 150					
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G					
	Surface treatment	Two-pack epoxy paint, $\geq 60\mu\text{m}$					
<b>Feet</b>		Fixed feet.					
	Material	Cast iron EN-GJL-150/GG 15/GRS 150					
<b>Bearing end shields</b>	Material	Cast iron EN-GJL-150/GG 15/GRS 150					
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G					
	Surface treatment	Two-pack epoxy paint, $\geq 60\mu\text{m}$					
<b>Bearings</b>	D-end	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6206-2Z/C3	6206-2Z/C3	6208-2Z/C3
	N-end	6202-2Z/C3	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6205-2Z/C3	6208-2Z/C3
<b>Axially-locked bearings</b>	Inner bearing cover	D-end					
<b>Bearing seals</b>	D-end	V-ring					
	N-end	Labyrinth seal					
<b>Lubrication</b>		Permanently lubricated shielded bearings. Grease temperature range $-40$ to $+160^\circ\text{C}$					
<b>Terminal box</b>	Material	Cast iron EN-GJL-150/GG 15/GRS 150					
	Surface treatment	Similar to stator.					
	Screws	Steel 5G, coated with zinc and yellow chromated.					
<b>Connections</b>	Threaded openings	2 x M16	2 x M25		2 x M32		
	Max Cu-area mm <sup>2</sup>	4	6		10		
	Terminal box	Cable lugs, 6 terminals					
<b>Fan</b>	Material	Polypropylene. Reinforced with 20% glass fibre.					
	Material	Steel					
	Paint colour shade	Black RAL 9011					
<b>Fan cover</b>	Surface treatment	Two-pack epoxy paint, $\geq 60\mu\text{m}$					
<b>Stator winding</b>	Material	Copper.					
	Impregnation	Polyester varnish. Tropicalised.					
	Insulation class	Insulation class F. Temperature rise class B, unless otherwise stated.					
<b>Stator winding temperature sensors</b>		Optional.					
<b>Rotor winding</b>	Material	Diecast aluminum.					
<b>Balancing method</b>		Half key balancing as stated					
<b>Key ways</b>		Closed keyway					
<b>Heating elements</b>	On request	8 W	25 W				
<b>Enclosure</b>		IP 55.					
<b>Cooling method</b>		IC 411.					
<b>Drain holes</b>		Drain holes with closable plugs, open on delivery.					
<b>Lifting lugs</b>		Integrated with the stator					



# General performance cast iron motors in brief

Size	M2BA	160	180	200	225	250
<b>Stator</b>	Material	Cast iron EN-GJL-200/GG 20/GRS 200				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface treatment	Two-pack epoxy pain paint, $\geq 100\mu\text{m}$				
<b>Feet</b>		Integrated with stator				
	Material	Cast-iron				
<b>Bearing end shields</b>	Material	Cast iron EN-GJL-200/GG 20/GRS 200				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface treatment	Two-pack epoxy pain paint, $\geq 100\mu\text{m}$				
<b>Bearings</b>	D-end	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3	6213-2Z/C3	6215-2Z/C3
	N-end	6209-2Z/C3	6209-2Z/C3	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3
<b>Axially-locked</b>	Inner bearing cover	D-end				
<b>Bearing seals</b>	D-end	Axial seal				
	N-end					
<b>Lubrication</b>		Permanently lubricated shielded bearings.				
<b>Terminal box</b>	Material	Cast iron, base integrated with stator.				
	Surface treatment	Two-pack epoxy pain paint, $\geq 100\mu\text{m}$				
	Screws	Steel 8.8, zinc electroplated and chromated				
<b>Connections</b>	Threaded openings	(2 x M40 + M16)			Code S M50+M40+M16	(2 x M63 + M16)
	Max Cu-area mm <sup>2</sup>	35	Code S: 70		70	
	Terminal box	6 terminals for connection with cable lugs (not included)				
	Screws	M6				M10
<b>Fan</b>	Material	Polypropylene. Reinforced with 20% glass fibre.				
<b>Fan cover</b>	Material	Hot dip galvanized steel				
	Paint colour shade	Black, NCS 8801-B09G				
	Surface treatment	Polyester powder paint, $\geq 100\mu\text{m}$				
<b>Stator winding</b>	Material	Copper.				
	Impregnation	Polyester varnish.				
	Insulation class	Insulation class F. Temperature rise class B, unless otherwise stated.				
<b>Stator winding temperature sensors</b>		Optional.				
<b>Rotor winding</b>	Material	Diecast aluminum.				
<b>Balancing method</b>		Half key balancing.				
<b>Key ways</b>		Closed keyway				
<b>Heating elements</b>	On request	25 W	50 W			
<b>Enclosure</b>		IP 55.				
<b>Cooling method</b>		IC 411.				
<b>Drain holes</b>		Drain holes with closable plastic plugs, open on delivery.				
<b>Lifting lugs</b>		Integrated with the stator (round motor bolted)				

# 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 Process performance motors for more demanding applications

- Cast iron motors
- Premium efficiency motors
- NEMA motors

## Industrial performance motors - flexibility for most customer applications

- Aluminum motors
- Steel motors
- Cast iron motors

## General performance motors - out-of-the-box simplicity for high volume customers

- Aluminum motors
- Cast iron motors

## Motors for hazardous areas

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

## Marine motors

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

## Motors for additional applications

- Open drip proof motors
- Brake motors
- Single phase motors
- High ambient motors
- Permanent magnet motors
- High speed motors
- Wind turbine generators
- Smoke venting motors
- Water cooled motors
- Motors for roller table drives
- Servomotors

## High voltage and synchronous motors and generators

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

**Motors & Generators**

**> Motors**

**>> Low Voltage Motors**

Process performance motors  
 Industrial performance motors

**>>> General performance motors**

>>>> Aluminum motors  
 >>>> Cast iron motors  
 Motors for hazardous areas  
 Marine motors  
 Motors for additional applications

The screenshot shows the ABB website's 'Motors for All Applications' page. The header includes the ABB logo and navigation links like 'Home', 'About ABB', 'Products & services', 'News center', 'Careers', and 'Investor relations'. The main content area features a grid of motor categories with small images and text links: 'Low Voltage Motors', 'High Voltage Induction Motors', 'Motors for Hazardous Areas', 'Synchronous Motors', 'DC Motors', 'Motor Services', 'Servomotors and servodrives', and 'Traction Motors'. A central text block states: 'ABB offers a comprehensive range of motors. Our products are second to none for quality, reliability and performance. ABB supplies motors for every application - making you more competitive!'. The right sidebar contains a search bar, user preferences (Products & Services only, Rate this page, E-mail this page), a country selection dropdown (Other countries, English), and links to 'ABB contact for Other countries', 'FeedbackMaster motors&generators', 'Document Library', and 'Channel partner and Service network'.

The screenshot shows the ABB website's 'Low voltage motors' page. The header is identical to the previous page. The main content area features a large image of a blue motor and text: 'ABB launches low voltage AC motors with improved energy efficiency and lifecycle value. At the same time, the company has rearranged its standard motor portfolio into three ranges. The International Electrotechnical Commission (IEC) standards relating to energy efficient motors is expected to bring greater consistency to motor testing worldwide. Please read more about IEC 60034-2-1 (efficiency measurement methods) and IEC 60034-30 (efficiency classes)'. Below this, there are three columns of motor types: 'Standard motors' (Process performance motors, General performance motors) and 'Other applications' (Motors for hazardous areas, Marine motors). The right sidebar is similar to the previous page but includes additional links: 'Online ordering of motors and drives', 'Product training', 'FactFiles - brief information sheets on technical issues', and 'Motor starters'.

The screenshot shows the ABB website's 'General performance motors' page. The header is identical. The main content area features a large image of several blue motors and text: 'ABB's General performance motors are best suited for applications where simplicity and off-the-shelf availability are paramount. With ABB quality and support these motors have the features appreciated by volume customers and serial OEM's. Motors are of IE1 efficiency. ABB will launch new motors gradually. Please always check the availability with your nearest ABB sales office.' Below this, there are two columns of motor types: 'Aluminum motors' (Motor type M2AA, IEC sizes 56 to 250, 0.06 to 55 kW) and 'Cast iron motors' (Motor type M2BA, IEC sizes 71 to 250, 0.25 to 55 kW). The right sidebar is similar to the previous pages.

# Contact us

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

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