Industrial Performance Motors

New Aluminum and Cast Iron Motors

Low Voltage Industrial Performance Motors

Flexibility

Industrial performance motors offer the flexibility needed by most of our OEM customers. Motors are available in several frame materials, with all pole numbers and the necessary variant codes. Output range starts from 0.1 kW with aluminum range and goes up to 630 kW in steel frames. Motors fulfill EFF1 efficiency class requirements.

Industrial performance motors come with 2 years warranty. They are perfect for all applications and are VSD-compliant. The range fulfills the demands of OEM's, end users and distributors.

ABB is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 110,000 people.

Industrial Performance Motors

This catalogue contains technical data for the new motor types only.
All other frame sizes are presented in our General purpose motors catalogue EN 12-2006.
A complete new catalogue for Industrial performance motors will be published later in 2008.

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

Efficiency values now acc. to new efficiency measuring method standard IEC/EN 60034-2-1; 2007 September

The new standard IEC/EN 60034-2-1, which came into force September 2007, introduces new rules concerning the testing methods to be used for determining losses and efficiency.

It offers two ways of determining the efficiency; direct method and indirect method. The new standard specifies following parameters for determining the efficiency according to indirect method:

– reference temperature
– three options for determining additional load losses: measurement, estimation and mathematical.

Under the new standard ABB uses the indirect calculation method, additional load losses determined from measuring.

The motor documentation must state which method is used.

The motor efficiencies do not change, only the testing method is changed. The efficiency figure quoted may be lower than the efficiency figure by the old method. Therefore EFF1 motors are still EFF1 motors even if the new efficiency figure is below the existing EFF1/EFF2 curve.

The efficiency values on the technical data pages in this catalogue are given according to both new and old calculation methods.

The table below shows the differences between old and new standard.

Old efficiency testing standard EN/IEC 60034-2: 1996
Direct method
Indirect method: • PLL (= additional losses) estimated at 0.5 % of input power at rated load
Winding losses in stator and rotor determined at 95°C.
New efficiency testing standard IEC/EN 60034-2-1: 2007 September
Direct method
Indirect method: • Measurement; PLL calculated from load tests • Estimation; PLL at 2.5% - 1.0% of input power at rated load between 0.1 kW and 1000 kW • Mathematical calculation; Eh star - alternative indirect method with mathematical calculation of PLL
Winding losses in stator and rotor determined at [25°C + actual temperature rise measured]

EU motor efficiency level classification

A Europe-wide agreement ensures that the efficiency levels of electric motors manufactured in Europe are clearly displayed. In contrast to the American legislation on motor efficiency the European agreement does not establish mandatory efficiency levels.

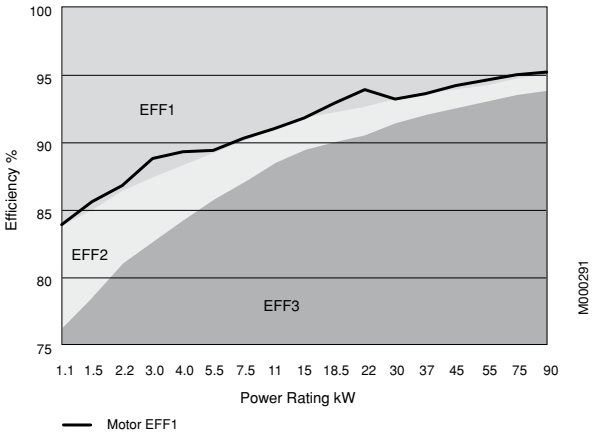
It basically establishes three classes giving motor manufacturers an incentive to qualify for a higher class.

Output kW	2-pole Boarderline		4-pole Boarderline	
	EFF2/EFF3	EFF1/EFF2	EFF2/EFF3	EFF1/EFF2
1.1	76.2	82.8	76.2	83.8
1.5	78.5	84.1	78.5	85.0
2.2	81.0	85.6	81.0	86.4
3	82.6	86.7	82.6	87.4
4	84.2	87.6	84.2	88.3
5.5	85.7	88.6	85.7	89.2
7.5	87.0	89.5	87.0	90.1
11	88.4	90.5	88.4	91.0
15	89.4	91.3	89.4	91.8
18.5	90.0	91.8	90.0	92.2
22	90.5	92.2	90.5	92.6
30	91.4	92.9	91.4	93.2
37	92.0	93.3	92.0	93.6
45	92.5	93.7	92.5	93.9
55	93.0	94.0	93.0	94.2
75	93.6	94.6	93.6	94.7
90	93.9	95.0	93.9	95.0

These efficiency levels apply to 2- and 4-pole, three phase squirrel cage induction motors rated for 400 V, 50 Hz with S1 duty class with the output 1.1 to 90 kW, which account for the largest volume on the market.

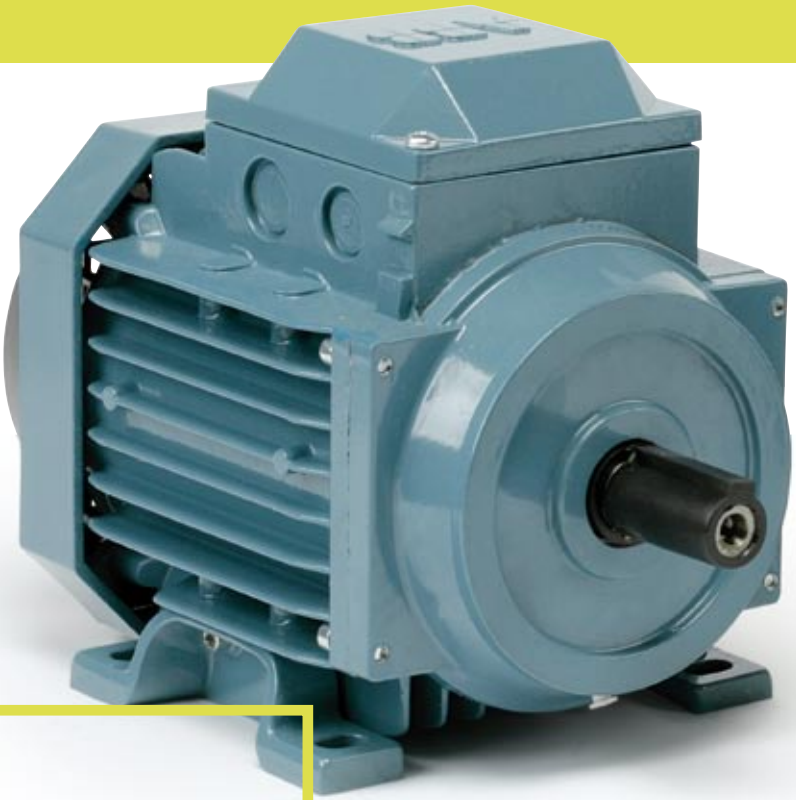
The efficiency of motors from different manufacturers are collated in a database, EURODEEM, published by the European Commission. It is accessible over the Internet at http://iamest.jrc.it/projects/eem/eurodeem.htm.

ABB three phase induction motors, 400 V 50 Hz, EU efficiency levels, 4 pole



Industrial Performance Aluminum Motors

New Aluminum Motors
M3AA 80 to 132



Frame sizes	**80 to 132**
Output range	**0.75 to 22 kW**
Poles	**2 to 8 poles**

Voltage up to 690 V

Industrial Performance Aluminum Motors 80 to 132 New Design

1

Industrial performance motors offer the flexibility needed by most of our OEM customers. The motors are available in several frame materials, with all pole numbers and the variant codes needed by the customers. Motors fulfill the EFF1 efficiency class requirements and are VSD-compliant.

The new generation of Industrial performance aluminium motors is based on the new product design which has been developed in response to market demands and is based on customer feedback, and with a strong environmental focus in mind.

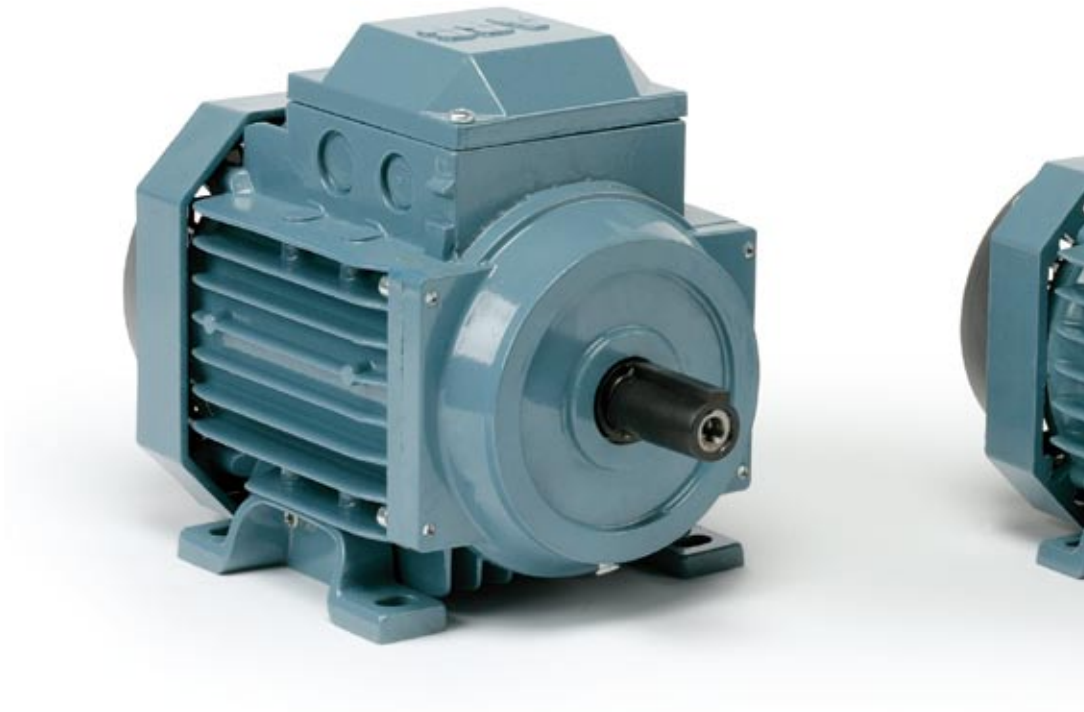
Attention was paid to four key focus areas:

- **The right product**
- **World-wide availability**
- **Quality**
- **On-time delivery**

Totally new design with extensive features and benefits

The new product range M3AA 80 to 132 is a completely new generation that will replace the existing M3VA/M3AA 80 to132 with the main features:

- Prepared for a wide range of variant codes – meets numerous types of applications
- High efficiency – low running costs and an environmentally friendly motor
- Permanent greased bearings throughout range
- Improved mechanical and electrical design – longer lifetime
- The large range of two-piece flanges has been kept so you can select the best fitting to the machine; the existing rings and cast iron ring holders are valid.



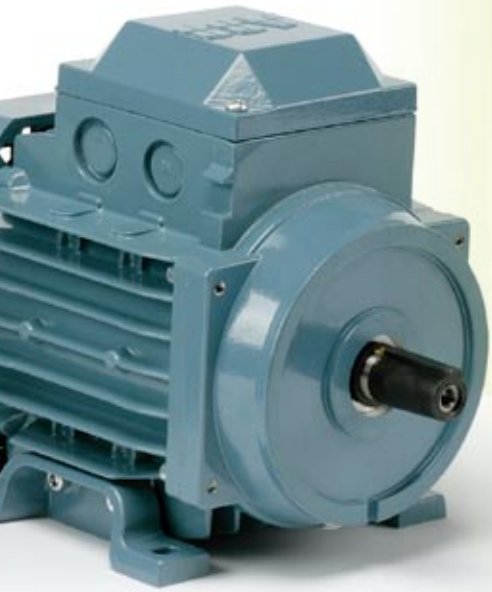
- The motors have plastic fan covers as standard.
- Foot-mounted motors have fixed feet.
- Feet can be fixed to the flange-mounted motors B5 as a modification.

Technical information and documentation

Data sheets and individual dimension drawings can be found on the Internet at www.abb.com/motors&generators, Online Motor Data Search. The technical data in this leaflet will be included in the main product catalogue “Industrial performance motors”, to be published later in 2008.

Variant codes

For variant codes please contact your nearest ABB sales office.



Industrial performance aluminum motors

Technical data for totally enclosed squirrel cage three phase motors

EFF 1

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

1

Output kW	Motor type	Product code	Speed r/min	Efficiency. IEC 60034-2-1: 2007		Efficiency. IEC 60034-2: 1996		Power fctor cos φ 100%	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight Foot-mounted kg	Sound pressure level dB(A)
				Full load 100 %	3/4 load 75 %	Full load 100 %	3/4 load 75 %		I_N A	$\frac{I_S}{I_N}$	T_N Nm	$\frac{T_s}{T_N}$	$\frac{T_{max}}{T_N}$			
3000 r/min = 2 poles			**400 V 50 Hz**												**Basic design**	
1.1	**M3AA 80C**	3GAA 081 313-••E	2890	82.3	82.5	83.5	83.4	0.80	2.4	7.1	3.6	3.6	3.8	0.0011	11	60
1.5	**M3AA 90 L**	3GAA 091 312-••E	2900	84.1	84.7	84.5	85.0	0.88	2.9	7.2	5	2.7	3.6	0.0024	16	63
2.2	**M3AA 90 LB**	3GAA 091 313-••E	2880	84.1	85.3	85.8	87.1	0.87	4.4	6.8	7.3	2.4	3.0	0.0027	18	63
3	**M3AA 100 LB**	3GAA 101 312-••E	2890	86.2	85.8	87.0	86.5	0.93	5.5	7.5	9.9	2.4	2.6	0.005	25	62
4	**M3AA 112 MB**	3GAA 111 312-••E	2900	87.1	88	88.8	89.3	0.91	7.2	8.8	13.2	3.3	3.9	0.0062	30	68
5.5	**M3AA 132 SB**	3GAA 131 312-••E	2910	87.8	85.4	88.7	87.5	0.87	10.6	7.5	18.1	2.7	3.8	0.016	42	73
7.5	**M3AA 132 SC**	3GAA 131 313-••E	2900	88.8	88.4	89.7	89.3	0.91	13.6	8	24.7	3.6	3.9	0.022	56	77
11	**M3AA 132 SMB**	3GAA 131 315-••E	2895	89.9	89.3	90.9	90.4	0.89	19.9	8.5	36.3	3.5	4.5	0.01865	77	68
15	**M3AA 132 SMC**	3GAA 131 316-••E	2900	90.5	90.8	91.6	91.8	0.88	27.5	8.5	49.4	3.3	4.0	0.02	81	69
18.5	**M3AA 132 SME**	3GAA 131 317-••E	2890	91.1	91.5	91.0	91.8	0.88	40	9	72.6	3.8	3.8	0.02559	95	68
3000 r/min = 2 poles			**400 V 50 Hz**												**High-output design**	
2.7 [1]	**M3AA 90 LB**	3GAA 091 003-••E	2860	79.9	81.2	80.7	83.5	0.86	5.7	7.0	9.0	2.6	3.0	0.0027	18	68
4 [1]	**M3AA 100 LB**	3GAA 101 002-••E	2900	84.3	83.9	85.0	84.3	0.86	8.1	7.5	13	2.7	3.6	0.005	25	68
5.5 [1]	**M3AA 112 MB**	3GAA 111 102-••E	2850	86.4	87	87.0	87.3	0.90	10.1	7.2	18.4	3.4	3.4	0.0062	30	68
11	**M3AA 132 SMA**	3GAA 131 005-••E	2875	88.5	89.2	89.5	89.7	0.90	19.9	8.1	36.5	2.8	3.4	0.0165	63	69
15	**M3AA 132 SMC**	3GAA 131 006-••E	2900	90.5	90.8	91.6	91.8	0.88	27.5	8.5	49.4	3.3	4.0	0.02	81	69
18.5	**M3AA 132 SMD**	3GAA 131 007-••E	2890	90.0	90.8	90.5	91.2	0.90	33.5	8.5	61.2	3.4	3.7	0.02356	89	69
22 [1]	**M3AA 132 SME**	3GAA 131 008-••E	2895	90.0	90.5	91.0	91.5	0.88	40	9.0	72.6	3.8	3.8	0.02559	95	69
1500 r/min = 4 poles			**400 V 50 Hz**												**Basic design**	
0.75	**M3AA 80 D**	3GAA 082 314-••E	1410	81.3	80.7	82.2	81.4	0.75	1.7	5.3	5.1	2.6	2.7	0.001200	12	60
1.1	**M3AA 90 LB**	3GAA 092 314-••E	1425	83	82.2	83.9	82.8	0.79	2.4	6.5	7.4	3.2	3.5	0.0048	17	50
1.5	**M3AA 90 LD**	3GAA 092 315-••E	1445	84.1	84.6	85.0	85.3	0.82	3.1	6.8	9.9	3.5	4.0	0.0048	17	50
2.2	**M3AA 100 LC**	3GAA 102 313-••E	1455	85.8	85.1	86.6	86.2	0.81	4.6	8.5	14.4	2.6	3.4	0.009	25	54
3	**M3AA 100 LD**	3GAA 102 314-••E	1440	86.4	86.1	87.4	87.0	0.82	6.3	8.0	19.9	3.1	3.3	0.011	29	63
4	**M3AA 112 MB**	3GAA 112 312-••E	1445	87.4	87.6	88.3	88.4	0.82	8.3	7.5	26.4	2.7	3.3	0.126	34	64
5.5	**M3AA 132 M**	3GAA 132 312-••E	1460	88.8	89.2	89.5	89.7	0.82	10.7	6.4	36	2.2	2.8	0.038	48	66
7.5	**M3AA 132 MA**	3GAA 132 314-••E	1460	89.0	89.3	90.2	90.4	0.84	15.3	7.2	49.1	2.5	3.0	0.048	59	63
11	**M3AA 132 SMB**	3GAA 132 315-••E	1460	90.8	91	91.4	91.8	0.81	22	7.5	74.9	2.9	3.5	0.0433	83	65
15	**M3AA 132 SMD**	3GAA 132 316-••E	1465	91.2	90.9	92	91.7	0.80	30	7.8	97.8	3.2	4.0	0.05166	92	67
1500 r/min = 4 poles			**400 V 50 Hz**												**High-output design**	
1.85 [1]	**M3AA 90 L**	3GAA 092 003-••E	1390	78.3	77.4	79.5	78.1	0.80	4.4	4.5	13	2.2	2.4	0.0043	16	50
2.2 [1]	**M3AA 90 LB**	3GAA 092 004-••E	1390	79.7	80.6	80.3	81.0	0.83	4.85	4.5	15	2.2	2.4	0.0048	17	50
4 [1]	**M3AA 100 LC**	3GAA 102 003-••E	1420	79.9	80.8	81.0	81.7	0.82	8.65	5.5	27	2.5	2.8	0.009	25	54
5.5 [1]	**M3AA 112 MB**	3GAA 112 102-••E	1420	83.6	84.1	84.0	84.5	0.80	12.5	6.0	36.9	2.7	3.1	0.126	34	64
11	**M3AA 132 SMA**	3GAA 132 005-••E	1455	88.4	88.6	88.9	89.3	0.81	22.5	6.5	72.2	2.3	3.0	0.0381	76	69
15	**M3AA 132 SMC**	3GAA 132 006-••E	1455	89.2	89.4	89.8	90	0.80	30.5	7.3	98.5	2.4	3.0	0.0485	88	69
18.5 [1]	**M3AA 132 SMD**	3GAA 132 007-••E	1445	89.3	88.5	90.2	89.7	0.81	37.5	6.7	122.3	2.3	2.6	0.05166	92	69

[1] Temperature rise class F.

[2] Efficiency values are given according to both IEC/EN 60034-2-1; 2007 and IEC 60034-2; 1996. Please note that the values are not comparable without knowing the testing method. ABB has calculated the new efficiency values acc. to indirect method, stray losses (additional losses) determined from measuring.

Industrial performance aluminum motors

Technical data for totally enclosed squirrel cage three phase motors

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

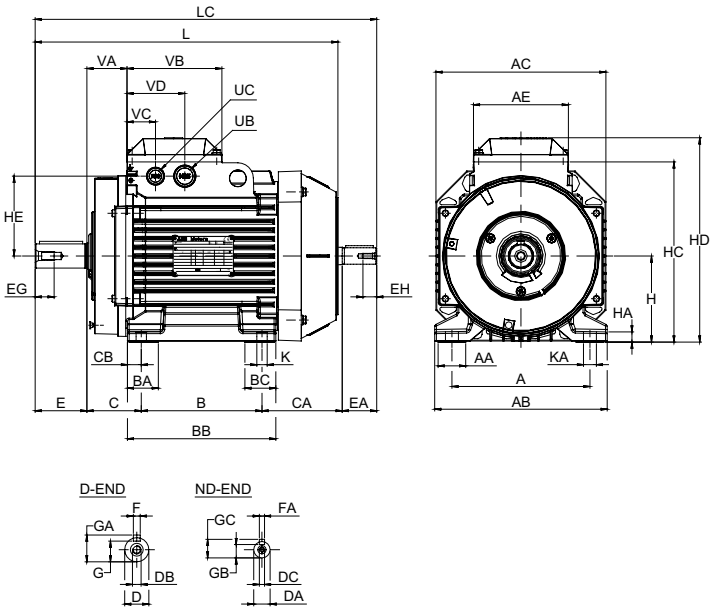
Output kW	Motor type	Product code	Speed r/min	Efficiency. IEC 60034-2-1: 2007 Full load 100 %	Efficiency. IEC 60034-2-1: 2007 3/4 load 75 %	Efficiency. IEC 60034-2: 1996 Full load 100 %	Efficiency. IEC 60034-2: 1996 3/4 load 75 %	Power fctor cos φ 100%	Current I_N A	Current $\frac{I_S}{I_N}$	Torque T_N Nm	Torque $\frac{T_s}{T_N}$	Torque $\frac{T_{max}}{T_N}$	Moment of inertia J=1/4GD² kgm²	Weight Foot-mounted kg	Sound pressure level dB(A)
1000 r/min = 6 poles			**400 V 50 Hz**											**Basic design**		
0.75	**M3AA 90 LB**	3GAA 093 313-••E	960	76.8	76.1	77.9	76.7	0.62	2.3	4.8	7.5	3.3	3.8	0.0048	17	50
1.1	**M3AA 90 LD**	3GAA 093 314-••E	930	78.6	79.3	79.9	80.2	0.73	2.8	4.2	11.3	2.4	2.6	0.0048	17	50
1.5	**M3AA 100 LC**	3GAA 103 312-••E	965	81.0	81.9	81.7	82.2	0.65	4.2	4.9	14.9	3.1	3.6	0.009	25	54
2.2	**M3AA 112 MB**	3GAA 113 312-••E	960	82.9	81.7	83.4	82	0.66	5.9	4.5	21.9	2.3	2.8	0.126	34	64
3	**M3AA 132 S**	3GAA 133 311-••E	965	85.8	86.1	86.3	86.8	0.68	7.5	4.6	29.7	1.9	2.3	0.031	39	57
4	**M3AA 132 MA**	3GAA 133 312-••E	960	84.9	84.5	86.1	85.9	0.65	10.5	4.9	39.7	2.3	2.7	0.038	46	61
5.5	**M3AA 132 MC**	3GAA 133 314-••E	965	87.9	86.3	88.5	86.5	0.68	13.2	5.6	54	1.9	2.8	0.049	59	61
1000 r/min = 6 poles			**400 V 50 Hz**											**High-output design**		
1.3 [1]	**M3AA 90 LB**	3GAA 093 003-••E	910	68.3	68.5	69.0	69.0	0.71	3.85	4.0	13.5	1.9	2.2	0.0048	17	50
2.2 [1]	**M3AA 100 LC**	3GAA 103 002-••E	940	76.4	72.1	77.0	72.8	0.71	5.9	4.5	22	1.9	2.3	0.009	25	54
3 [1]	**M3AA 112 MB**	3GAA 113 102-••E	920	78.2	79	78.83	79.7	0.75	7.3	3.8	31.1	1.9	2.2	0.126	34	64
750 r/min = 8 poles			**400 V 50 Hz**											**Basic design**		
0.75	**M3AA 100 LB**	3GAA 104 312-••E	705	73.2	72.7	74.0	73.0	0.67	2.2	4.1	10.2	2.2	3.6	0.0082	23	46
1.1	**M3AA 100 LC**	3GAA 104 313-••E	705	75.8	75.5	76.3	76.0	0.64	3.2	3.5	14.9	2.5	2.9	0.009	26	46
1.5	**M3AA 112 MB**	3GAA 114 312-••E	710	77.8	78.2	78.4	78.6	0.60	4.9	3.6	20.2	2.3	2.7	0.01	28	54
2.2	**M3AA 132 S**	3GAA 134 311-••E	720	80.2	80.5	81.0	81.2	0.60	6.7	3.5	29.3	2.0	2.2	0.038	46	56
3	**M3AA 132 M**	3GAA 134 312-••E	715	82.3	82.6	83.0	83.2	0.60	9.0	3.0	40.2	1.7	1.8	0.045	53	56
750 r/min = 8 poles			**400 V 50 Hz**											**High-output design**		
0.75 [1]	**M3AA 90 LB**	3GAA 094 003-••E	680	63.1	59.8	64.0	60.0	0.60	3.1	3.0	10	1.8	2.0	0.0048	17	46
1.5 [1]	**M3AA 100 LC**	3GAA 104 003-••E	670	70.0	65.2	71.0	65.9	0.70	4.4	3.3	21	1.8	2.2	0.009	26	46
2 [1]	**M3AA 112 MB**	3GAA 114 102-••E	685	73.2	72.5	74.0	73.0	0.69	5.8	3.4	27.9	2.1	2.3	0.01	28	54

[1] Temperature rise class F.

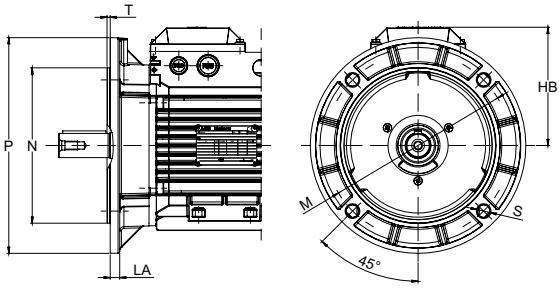
[2] Efficiency values are given according to both IEC/EN 60034-2-1; 2007 and IEC 60034-2; 1996. Please note that the values are not comparable without knowing the testing method. ABB has calculated the new efficiency values acc. to indirect method, stray losses (additional losses) determined from measuring.

Dimension drawings

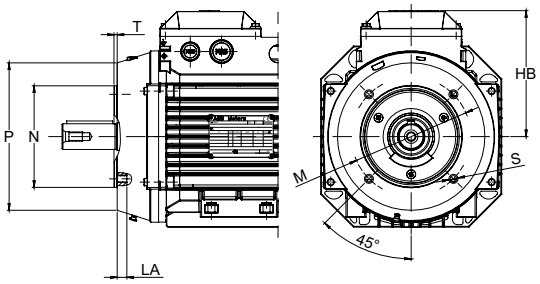
Foot-mounted motor;
IM B3 (IM 1001), IM 1002



Flange-mounted motor, large flange;
IM B5 (IM 3001), IM 3002



Flange-mounted motor, small flange;
IM B14 (IM 3601)



IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	B	BA	BB	BC	C	CA	CB	D	DA	DB	DC	E	EA	EG	EH	F	FA
80	125	27	154	150	97	100	32	125	32	50	80.5	12.5	19	14	M6	M5	40	30	16	12.5	6	5
90S	140	27	170	177	110	100	32	125	32	56	83.5	12.5	24	14	M8	M5	50	30	19	12.5	8	5
90L	140	27	170	177	110	125	32	150	32	56	83.5	12.5	24	14	M8	M5	50	30	19	12.5	8	5
90LD	140	27	170	177	110	125	32	150	32	56	105.5	12.5	24	14	M8	M5	50	30	19	12.5	8	5
100	160	32	200	197	110	140	36	172	36	63	93	16	28	19	M10	M6	60	40	22	16	8	6
112	190	32	230	197	110	140	36	172	36	70	126	16	28	19	M10	M6	60	40	22	16	8	6

Motor size	G	GA	GB	GC	H	HA	HC	HD	HE	K	KA	L	LC	UB	UC	VA	VB	VC	VD
80	15.5	21.5	11	16	80	10	164.5	193.5	68	10	14	265.5	300.5	M20	M20	37.5	97	30.5	66.5
90S	20	27	11	16	90	10	189	217	82.5	10	14	284.5	319.5	M25	M20	43.5	110	33	67
90L	20	27	11	16	90	10	189	217	82.5	10	14	309.5	344.5	M25	M20	43.5	110	33	67
90LD	20	27	11	16	90	10	189	217	82.5	10	14	331.5	366.5	M25	M20	43.5	110	33	67
100	24	31	15.5	21.5	100	12	209	237	92.5	12	15	351	396	M25	M20	46.5	110	33	67
112	24	31	15.5	21.5	112	12	221	249	92.5	12	15	393	436	M25	M20	46.5	110	33	67

IM B5 (IM 3001), IM 3002

Motor size	HB	LA	M	N	P	S	T
80	113.5	9.5	165	130	200	12	3.5
90S	127	10	165	130	200	12	3.5
90L	127	10	165	130	200	12	3.5
90LD	127	10	165	130	200	12	3.5
100	137	11	215	180	250	15	4
112	137	11	215	180	250	15	4

IM B14 (IM 3601), IM 3602

Motor size	HB	LA	M	N	P	S	T
80	113.5	11	100	80	120	M6	3
90S	127	13	115	95	140	M8	3
90L	127	13	115	95	140	M8	3
90LD	127	13	115	95	140	M8	3
100	137	14	130	110	160	M8	3.5
112	137	14	130	110	160	M8	3.5

Tolerances:

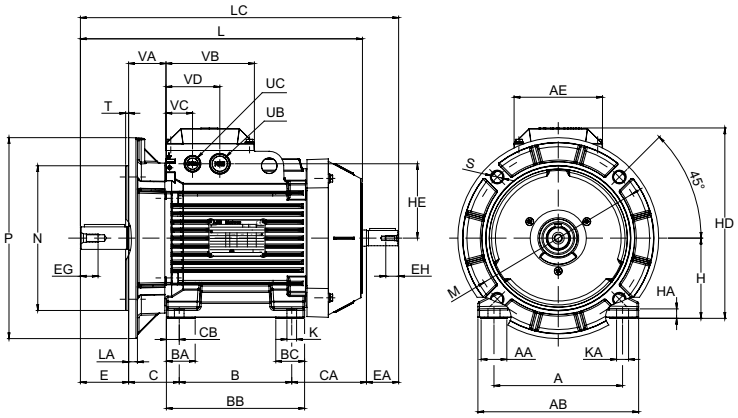
A,B	+ - 0.8	**H**	+0 -0.5
D, DA	ISO j6	**N**	ISO j6
F, FA	ISO h9	**C, CA**	+- 0.8

Above table gives the main dimensions in mm.

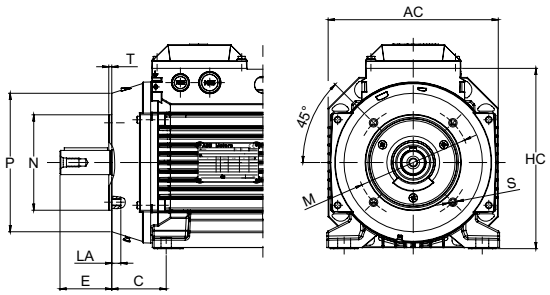
For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

Dimension drawings

Foot- and flange-mounted motor;
IM B35 (IM 2001), IM 2002, large flange



Foot- and flange-mounted motor;
IM B34 (IM 2101), IM 2102, small flange



1

IM B35 (IM 2001), IM 2002; IM B34 (IM2101), IM 2102

Motor size	A	AA	AB	AC	AE	B	BA	BB	BC	C	CA	CB	D	DA	DB	DC	E	EA	EG	EH	F	FA
80	125	27	154	150	97	100	32	125	32	50	80.5	12.5	19	14	M6	M5	40	30	16	12.5	6	5
90S	140	27	170	177	110	100	32	125	32	56	83.5	12.5	24	14	M8	M5	50	30	19	12.5	8	5
90L	140	27	170	177	110	125	32	150	32	56	83.5	12.5	24	14	M8	M5	50	30	19	12.5	8	5
90LD	140	27	170	177	110	125	32	150	32	56	105.5	12.5	24	14	M8	M5	50	30	19	12.5	8	5
100	160	32	200	197	110	140	36	172	36	63	93	16	28	19	M10	M6	60	40	22	16	8	6
112	190	32	230	197	110	140	36	172	36	70	126	16	28	19	M10	M6	60	40	22	16	8	6

Motor size	G	GA	GB	GC	H	HA	HC	HD	HE	K	KA	L	LC	UB	UC	VA	VB	VC	VD
80	15.5	21.5	11	16	80	10	164.5	193.5	68	10	14	265.5	300.5	M20	M20	37.5	97	30.5	66.5
90S	20	27	11	16	90	10	189	217	82.5	10	14	284.5	319.5	M25	M20	43.5	110	33	67
90L	20	27	11	16	90	10	189	217	82.5	10	14	309.5	344.5	M25	M20	43.5	110	33	67
90LD	20	27	11	16	90	10	189	217	82.5	10	14	331.5	366.5	M25	M20	43.5	110	33	67
100	24	31	15.5	21.5	100	12	209	237	92.5	12	15	351	396	M25	M20	46.5	110	33	67
112	24	31	15.5	21.5	112	12	221	249	92.5	12	15	393	436	M25	M20	46.5	110	33	67

IM B35 (IM 2001), IM 2002

Motor size	HB	LA	M	N	P	S	T
80	113.5	9.5	165	130	200	12	3.5
90S	127	10	165	130	200	12	3.5
90L	127	10	165	130	200	12	3.5
90LD	127	10	165	130	200	12	3.5
100	137	11	215	180	250	15	4
112	137	11	215	180	250	15	4

IM B34 (IM 2101), IM 2102

Motor size	HB	LA	M	N	P	S	T
80	113.5	11	100	80	120	M6	3
90S	127	13	115	95	140	M8	3
90L	127	13	115	95	140	M8	3
90LD	127	13	115	95	140	M8	3
100	137	14	130	110	160	M8	3.5
112	137	14	130	110	160	M8	3.5

Tolerances:

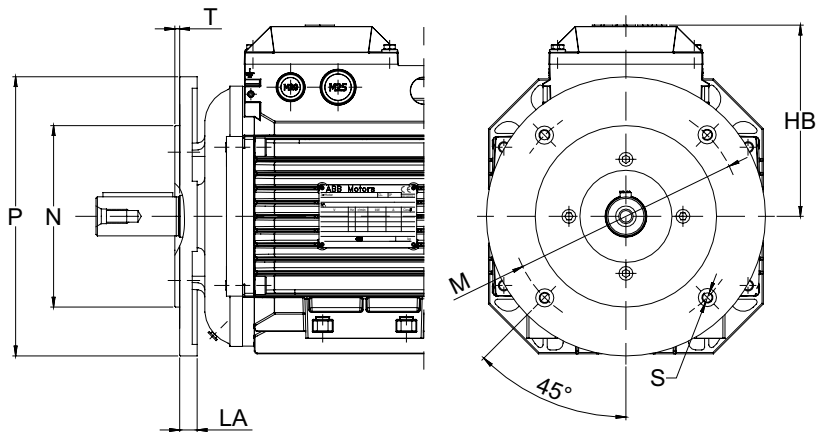
A,B	+ - 0.8	**H**	+0 -0.5
D, DA	ISO j6	**N**	ISO j6
F, FA	ISO h9	**C, CA**	+- 0.8

Above table gives the main dimensions in mm.

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

Dimension drawings

Special design with two-piece flanges



Motor size	IEC Flange	Flange dimensions HB	P	M	N	LA	S[2]	T	Variant code [1] FF	FT
80	FT85	110	105	85	70	7.5	M6	2.5	-	218
	FF100 / FT100	110	120	100	80	7.5	M6	3	220	219
	FF115 / FT115	110	140	115	95	9.5	M8	3	223	224
	FF130 / FT130	110	160	130	110	9.5	M8	3.5	226	227
	FF165 / FT165	110	200	165	130	10.5	M10	3.5	233	234
90	FT85	127	105	85	70	7.5	M6	2.5	-	218
	FF100 / FT100	127	120	100	80	7.5	M6	3	220	219
	FF115 / FT115	127	140	115	95	9.5	M8	3	223	224
	FF130 / FT130	127	160	130	110	9.5	M8	3.5	226	227
	FF165 / FT165	127	200	165	130	10.5	M10	3.5	233	234
100	FF130 / FT130	137	160	130	110	9.5	M8	3.5	226	227
	FF165 / FT165	137	200	165	130	10.5	M10	3.5	233	234
	FF215 / FT215	137	250	215	180	12.5	M12	4	243	244
112 [3]	FF130 / FT130	137	160	130	110	9.5	M8	3.5	226	227
	FF165 / FT165	137	200	165	130	10.5	M10	3.5	233	234
	FF215 / FT215	137	250	215	180	12.5	M12	4	243	244
132	FF215 / FT 215	164	250	215	180	12.5	M12	4	243	244
	FF265 / FT265	164	300	265	230	16	M12	4	253	254

Data for smaller frame sizes on request.

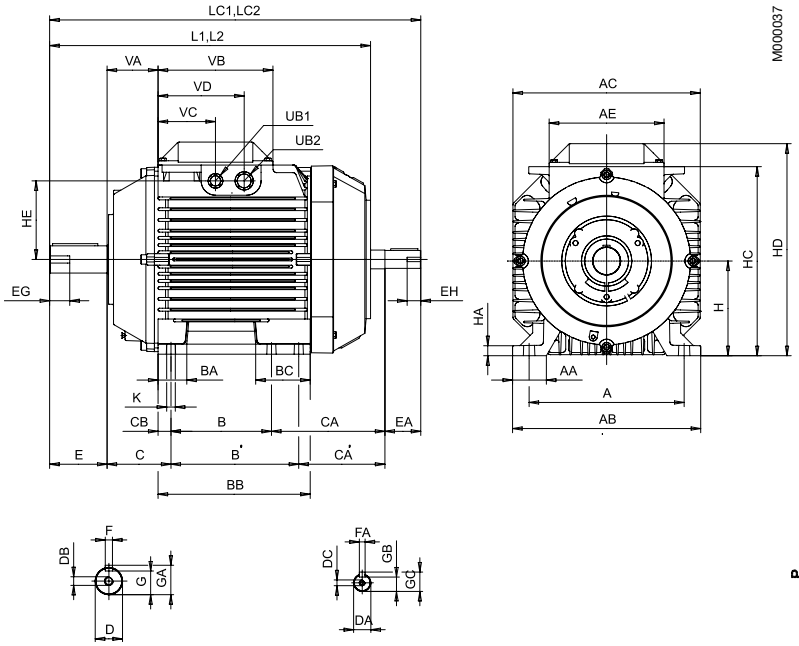
[1] Variant code 200 ‘Flange ring holder’ must be added when using the variant codes mentioned below.
[2] Flanges with clearance (FF) or tapped (FT) holes for indicated screws.

Tolerances:
N ISO j6

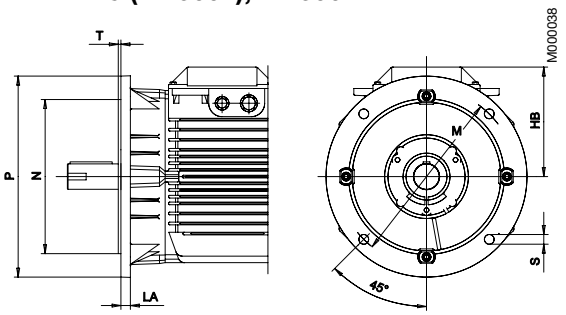
Above table gives the main dimensions in mm.
For detailed drawings please see our web-pages ‘www.abb.com/motors&generators’ or contact ABB.

Dimension drawings

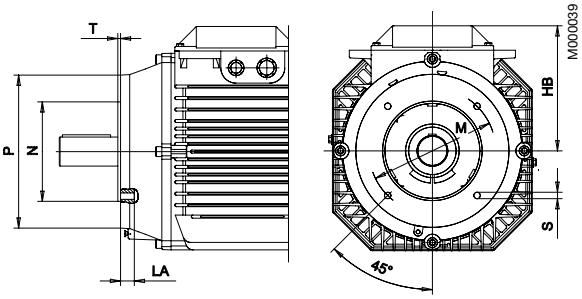
Foot-mounted motor; IM B 3 (IM 1001), IM 1002



Flange-mounted motor, large flange; IM B 5 (IM 3001), IM 3002



Flange-mounted motor, small flange; IM B 14 (IM 3601), IM 3602



IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	BC	C	CA	CA'	CB	D	DA	DB	DC	E	EA	EG	EH	F	FA
132 [1]	216	47	262	261	160	140	178[A]	40	212	76	89	158	120	18	38	24	M12	M8	80	50	28	19	10	8
132 [2]	216	43.5	262	261	160	140[A]	178	71.5	210	71.5	89	261	223	16	38	24	M12	M8	80	50	28	19	10	8

Motor size	G	GA	GB	GC	H	HA	HC	HD	HE	HF	K	KA	L	LC	UB	UC	UD	VA	VB	VC	VD	VE
132 [1]	33	41	20	27	132	14	263.5	295.5	109.5	-	12	15	447[G]	517	M20	M25	-	71	160	80	120	-
132 [2]	33	41	20	27	132	14	287	321	123.5	143.5	12	15	550	620	M40	M32	M12	71	160	42	102	136

IM B5 (IM3001), IM 3002

Motor size	HB	LA	M	N	P	S	T
132 [1]	163.5	14	265	230	300	14.5	4
132 [2]	189	14	265	230	300	14.5	4

IM B14 (IM3601), IM 3602

Motor size	HB	LA	M	N	P	S	T
132 [1]	163.5	14.5	165	130	200	M10	3.5
132 [2]	189	14.5	165	130	200	M10	3.5

Tolerances

A, B	ISO js14
C, CA	+2 -2
D	ISO k6
DA	ISO j6
F, FA	ISO h9
H	+0 -0.5
N	ISO j6

[1] 132 S, SB, M, MA,
[2] 132 SC, MC, SMA, SMB, SMC, SMD, SME

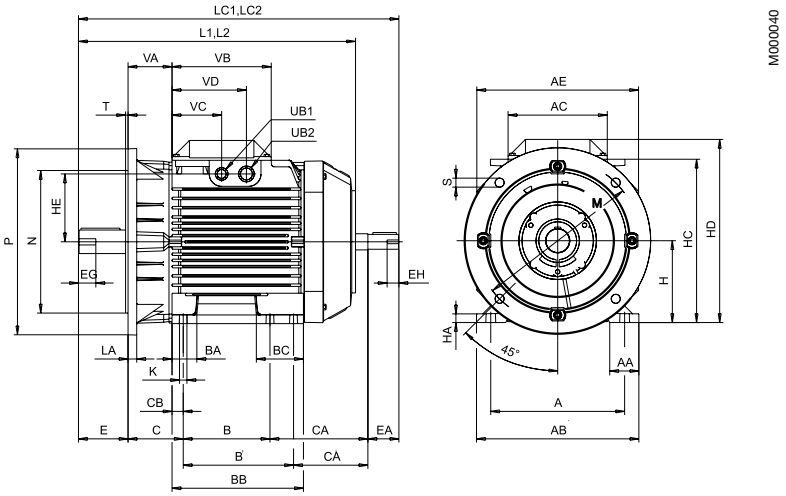
[A] Not according to IEC
[G] For variant code 053 increased by 5.5 mm

Above table gives the main dimensions in mm.

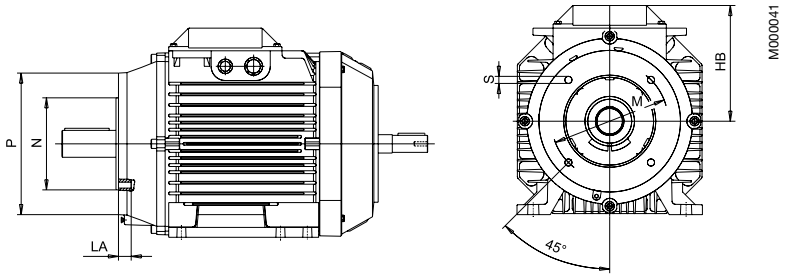
For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

Dimension drawings

Foot- and flange-mounted motor; IM B 35 (IM 2001), IM 2002, large flange



Foot- and flange-mounted motor; IM B 34 (IM 2101), IM 2102, small flange



IM B35 (IM 2001), IM 2002; IM B34 (IM2101), IM2102

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	BC	C	CA	CA'	CB	D	DA	DB	DC	E	EA	EG	EH	F	FA
132 [1]	216	47	262	160	261	140	178[A]	40	212	76	89	158	120	18	38	24	M12	M8	80	50	28	19	10	8
132 [2]	216	43.5	262	160	261	140[A]	178	71.5	210	71.5	89	261	223	16	38	24	M12	M8	80	50	28	19	10	8

Motor size	G	GA	GB	GC	H	HA	HC	HD	HE	HF	K	KA	L	LC	UB	UC	UD	VA	VB	VC	VD	VE
132 [1]	33	41	20	27	132	14	263.5	295.5	109.5	-	12	15	447[G]	517	M20	M25	-	71	160	80	120	-
132 [2]	33	41	20	27	132	14	287	321	123.5	143.5	12	15	550	620	M40	M32	M12	71	160	42	102	136

IM B35 (IM2001), IM2002

Motor size	HB	LA	M	N	P	S	T
132 [1]	163.5	14	265	230	300	14.5	4
132 [2]	189	14	265	230	300	14.5	4

IM B34 (IM2101), IM2102

Motor size	HB	LA	M	N	P	S	T
132 [1]	163.5	14.5	165	130	200	M10	3.5
132 [2]	189	14.5	165	130	200	M10	3.5

Tolerances

A, B	ISO js14
C, CA	+2 -2
D	ISO k6
DA	ISO j6
F, FA	ISO h9
H	+0 -0.5
N	ISO j6

[1] 132 S, SB, M, MA,
[2] 132 SMA, SMB, SMC, SMD

[A] Not according to IEC
[G] For variant code 053 increased by 5.5 mm

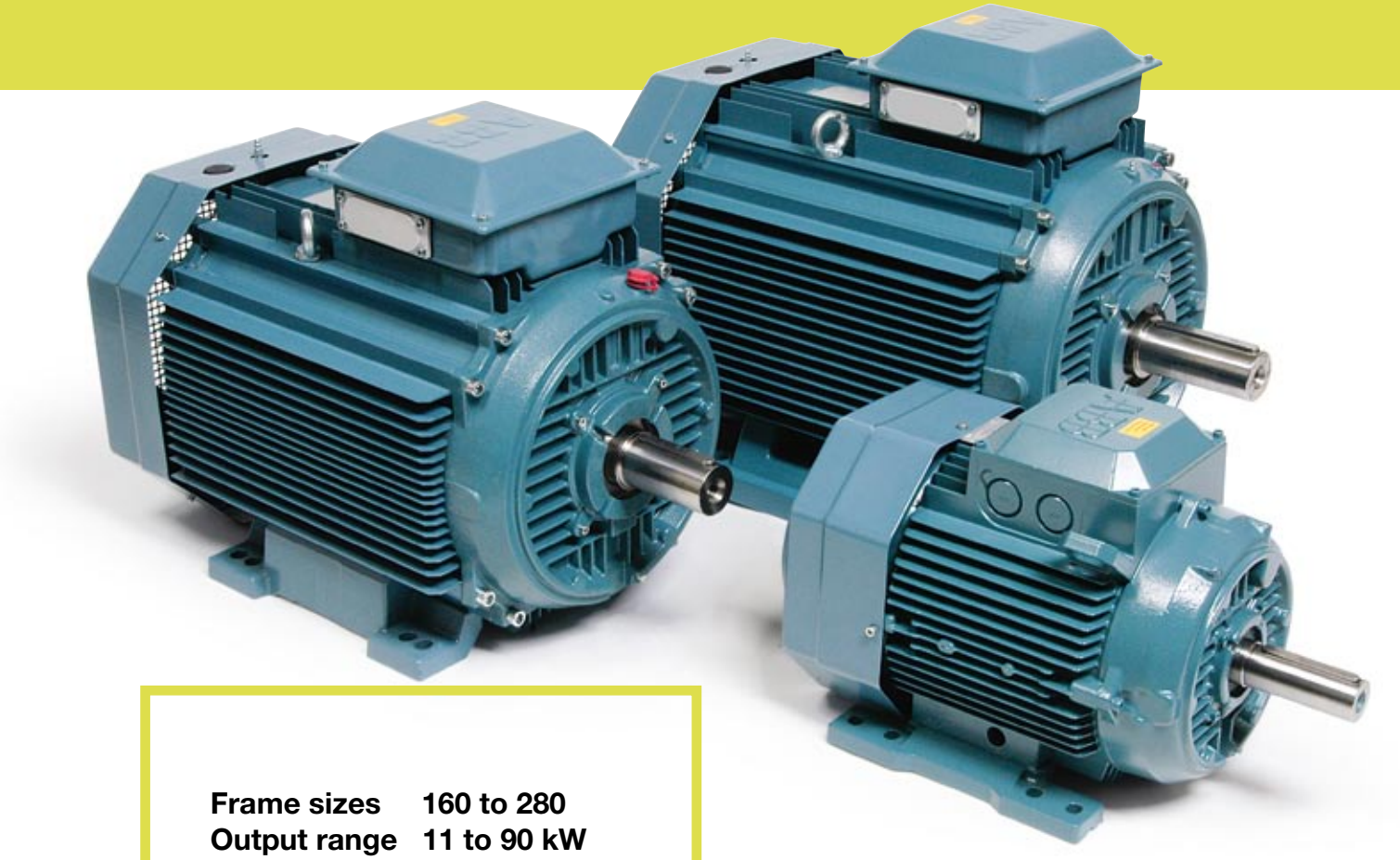
Above table gives the main dimensions in mm.
For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

Industrial performance aluminum motors in brief

Size		80	90	100	112	132
Stator and feet	Material	Diecast aluminum alloy				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface treatment	Polyester powder paint, ≥ 30µm	Polyester powder paint, ≥ 30µm			
Feet		Fixed feet	Fixed feet			
	Material	Aluminum alloy, integrated with stator.	Aluminum alloy, integrated with stator.			
Bearing end shields	Material	Diecast aluminum alloy				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface treatment	Polyester powder paint, ≥ 30µm	Polyester powderpaint, ≥ 30µm			
Bearings	D-end	6204-2Z/C3	6205-2Z/C3	6306-2Z/C3	6306-2Z/C3	6208-2Z/C3[1)] 6308-2Z/C3[2)]
	N-end	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6205-2Z/C3	6206-2Z/C3
		[1)] 132 S, SB, SC, M, MA, MC. [2)] 132 SMA, SMB, SMC, SMD, SME				
Axially-locked bearings	Inner bearing cover	D-end				
Bearing seals	D-end	V-ring				
	N-end	Labyrinth seal.				
Lubrication		Permanently lubricated shielded bearings.				
		Grease temperature range -40°C to +160°C.				
Terminal box	Material	Diecast aluminum alloy, base integrated with stator.				
	Surface treatment	Similar to stator.				
	Screws	Steel 5G. Galvanised.				
Connections	Knock-out openings	M3AA 71-80: 2x(M20+M20)	2x(M20+M25)			2x(M20+M25)[1)] 2x(M40+M32+M12)[2)]
		[1)] types S, SB, M, MA. [2)] types SC, MC, SMA, SMB, SMC, SMD, SME				
	Max Cu-area mm2	4	6			
	Terminal box	Cable lugs, 6 terminals	Screw terminals, 6 terminals			Cable lugs, 6 terminals
Fan	Material	Polypropylene. Reinforced with 20% glass fibre.				
Fan cover	Material	Polypropylene				
Stator winding	Material	Copper.				
	Impregnation	Polyester varnish. Tropicalised.				
	Insulation class	Insulation class F. Temperature rise class B, unless otherwise stated.				
Stator winding temperature sensors		Optional.				
Rotor winding	Material	Diecast aluminum				
Balancing method		Half key balancing				
Key ways		Closed keyway				
Heating elements	On request	25 W				
Enclosure		IP 55.				
Cooling method		IC 411.				
Drain holes		Drain holes with closable plastic plugs, open on delivery.				
Eye bolts			Part of the frame			

Industrial Performance Aluminum Motors

New Aluminum Motors
M3AA 160 to 280



Frame sizes	**160 to 280**
Output range	**11 to 90 kW**
Poles	**2 to 8 poles**

Voltage up to 690 V
2-speed motors as today

Industrial Performance Aluminum Motors 160 to 280 New Design

Industrial performance motors offer the flexibility needed by most of our OEM customers. The motors are available in several frame materials, with all pole numbers and the variant codes needed by the customers. The motors fulfill the EFF1 efficiency class requirements and are VSD-compliant.

The new generation of Industrial performance aluminium motors is based on the new product design, which has been developed in response to market demands and is based on customer feedback, failure modes and effects analysis (FMEA) and a strong environmental focus.

Based on the information from and result of the analysis, attention was paid to four key focus areas:

- **Right product**
- **World wide availability**
- **Quality**
- **On time delivery**

Totally new design with extensive features and benefits

The new product range M3AA 160 to 280 is a completely new generation that will replace the existing M3AA 160 to 280 and M3AP 160 to 250 with the main features:

- Prepared for a wide range of variant codes – meets numerous types of applications
- High efficiency – low running costs and an environmentally friendly motor
- Reduced bearing and winding temperature – increased lifetime
- Shorter delivery times
- Robust and reliable – cast iron end shields, suitable for tougher demands and longer lifetime
- Improved mechanical and electrical design – longer lifetime, fewer unforeseen running stops and reduced maintenance costs
- Thermistors as standard
- Permanent greased bearings throughout the range
- Improved and harmonized shaft sealing

Technical information and documentation

Data sheets and individual dimension drawings will be available during Q2/2008 on the Internet at: www.abb.com/motors&generators, Online Motor Data Search.
The technical data in this leaflet will be included in the main Industrial performance motor product catalogue to be published during 2008.

Variant codes

For variant codes please contact your nearest ABB sales office.

Industrial performance aluminum motors

Technical data for totally enclosed squirrel cage three phase motors

EFF 1

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

Output kW		Type designation		Product code	Speed r/min	Efficiency, IEC 60034-2-1; 2007[2] Full load 100%	Efficiency, IEC 60034-2-1; 2007[2] 3/4 load 75 %	Efficiency, IEC 60034-2;1996 Full load 100%	Efficiency, IEC 60034-2;1996 3/4 load 75 %	Power factor cos φ	Current I_N A	Current $\frac{I_S}{I_N}$	Torque T_N Nm	Torque $\frac{T_S}{T_N}$	Torque $\frac{T_{max}}{T_N}$	Moment of inertia J=1/4 GD² kgm²	Weight kg	Sound pressure level LP dB(A)
2-poles = 3000 r/min					**400 V 50 Hz**												**Basic design**	
11		**M3AA**	**160 MLA**	3GAA 161 031-••G	2929	89.8	90.3	91.1	91.6	0.91	19.2	7.7	36	2.6	3.0	0.045	91	69
15		**M3AA**	**160 MLB**	3GAA 161 032-••G	2933	90.7	91.2	92.0	92.5	0.91	26	7.8	49	2.7	3.1	0.049	98	69
18.5		**M3AA**	**160 MLC**	3GAA 161 033-••G	2936	91.3	91.7	92.6	93.0	0.90	32.5	7.3	60	2.3	3.1	0.054	106	69
22		**M3AA**	**180 MLA**	3GAA 181 031-••G	2950	91.6	91.8	92.6	92.8	0.88	39	7.9	71	2.8	3.2	0.078	132	69
30		**M3AA**	**200 MLA**	3GAA 201 031-••G	2952	92.3	92.5	93.4	93.6	0.90	52	7.9	97	2.8	3.0	0.163	198	72
37		**M3AA**	**200 MLB**	3GAA 201 032-••G	2949	92.7	93.0	93.8	94.1	0.90	64	7.7	120	2.6	3.0	0.181	211	72
45		**M3AA**	**225 SMA**	3GAA 221 031-••G	2965	93.6	93.7	94.4	94.5	0.88	79	7.4	145	2.3	2.6	0.25	264	74
55		**M3AA**	**250 SMA**	3GAA 251 031-••G	2968	93.9	93.9	94.6	94.6	0.88	96	7.1	177	2.2	2.8	0.517	305	75
75		**M3AA**	**280 SMA**	3GAA 281 031-••G	2969	94.5	94.6	95.2	95.3	0.89	129	7.4	241	2.5	2.8	0.593	390	75
90	[1]	**M3AA**	**280 SMB**	3GAA 281 032-••G	2971	94.6	94.7	95.5	95.6	0.89	154	8.1	289	2.9	2.9	0.654	425	75
2-poles = 3000 r/min					**400 V 50 Hz**												**High-output design**	
22		**M3AA**	**160 MLD**	3GAA 161 034-••G	2926	91.4	92.1	92.9	93.6	0.92	37.5	7.7	72	2.6	2.9	0.064	123	69
30	[1]	**M3AA**	**160 MLE**	3GAA 161 035-••G	2926	91.8	92.5	93.3	94.0	0.92	51	7.8	98	2.8	2.9	0.074	137	69
30		**M3AA**	**180 MLB**	3GAA 181 032-••G	2951	92.2	92.5	93.5	93.8	0.88	53	8.2	97	3.0	3.3	0.093	150	69
45		**M3AA**	**200 MLC**	3GAA 201 033-••G	2949	93.0	93.4	94.2	94.6	0.90	77	7.8	146	2.6	2.9	0.198	225	72
55	[1]	**M3AA**	**200 MLD**	3GAA 201 034-••G	2950	93.3	93.6	94.6	95.0	0.90	94	8.2	178	2.7	3.1	0.198	241	72
55		**M3AA**	**225 SMB**	3GAA 221 032-••G	2963	93.9	94.0	94.7	94.8	0.88	96	7.4	177	2.3	2.5	0.28	286	74
75	[1]	**M3AA**	**225 SMC**	3GAA 221 033-••G	2965	94.5	94.7	95.4	95.6	0.87	132	7.9	242	2.6	2.6	0.316	313	74
75		**M3AA**	**250 SMB**	3GAA 251 032-••G	2969	94.5	94.6	95.2	95.3	0.89	129	7.5	241	2.5	2.8	0.593	352	75
80	[1]	**M3AA**	**225 SMD**	3GAA 221 034-••G	2966	94.7	94.9	95.6	95.8	0.87	140	8.1	258	2.8	2.7	0.336	336	74
90	[1]	**M3AA**	**250 SMC**	3GAA 251 033-••G	2971	94.6	94.7	95.5	95.6	0.89	154	8.1	289	2.9	2.9	0.654	387	75

[1] Temperature rise class F

[2] Efficiency values are given according to both IEC/EN 60034-2-1; 2007 and IEC 60034-2; 1996. Please note that the values are not comparable without knowing the testing method. ABB has calculated the new efficiency values acc. to indirect method. stray losses (additional losses) determined from measuring.

Industrial performance aluminum motors

Technical data for totally enclosed squirrel cage three phase motors

EFF I

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

Output kW	Type designation		Product code	Speed r/min	Efficiency, IEC 60034-2-1; 2007[2]		Efficiency, IEC 60034-2;1996		Power factor	Current		Torque			Moment of inertia	Weight	Sound pressure level
					Full load 100%	3/4 load 75 %	Full load 100%	3/4 load 75 %	cos φ	I_N A	$\frac{I_S}{I_N}$	T_N Nm	$\frac{T_S}{T_N}$	$\frac{T_{max}}{T_N}$	J=1/4 GD² kgm²	kg	LP dB(A)
4-poles = 1500 r/min				**400 V 50 Hz**										**Basic design**			
11	**M3AA**	**160 MLA**	3GAA 162 031-••G	1470	90.7	91.2	91.5	92.0	0.84	21	6.8	71	2.4	2.9	0.083	100	62
15	**M3AA**	**160 MLB**	3GAA 162 032-••G	1470	91.4	92.0	92.2	92.8	0.84	28.5	7.0	98	2.5	2.9	0.099	118	62
18.5	**M3AA**	**180 MLA**	3GAA 182 031-••G	1478	91.9	92.3	92.8	93.2	0.84	35	7.7	120	2.6	3.1	0.169	147	62
22	**M3AA**	**180 MLB**	3GAA 182 032-••G	1478	92.1	92.4	93.1	93.4	0.84	41	7.6	142	2.7	3.1	0.198	164	62
30	**M3AA**	**200 MLA**	3GAA 202 031-••G	1480	92.9	93.1	93.5	93.7	0.84	55	7.2	194	2.4	2.8	0.317	219	63
37	**M3AA**	**225 SMA**	3GAA 222 031-••G	1478	93.2	93.4	93.8	94.0	0.84	68	7.6	239	2.5	2.7	0.367	240	66
45	**M3AA**	**225 SMB**	3GAA 222 032-••G	1480	93.6	93.7	94.2	94.3	0.85	82	7.8	290	2.5	2.8	0.451	273	66
55	**M3AA**	**250 SMA**	3GAA 252 031-••G	1480	94.0	94.2	94.5	94.7	0.84	100	7.3	355	2.6	2.7	0.778	314	67
75	**M3AA**	**280 SMA**	3GAA 282 031-••G	1480	94.3	94.6	94.8	95.1	0.84	137	7.7	484	2.7	2.7	0.879	390	67
90 [1]	**M3AA**	**280 SMB**	3GAA 282 032-••G	1476	94.2	94.6	95.0	95.3	0.85	162	7.5	582	2.7	2.5	0.954	403	67
4-poles = 1500 r/min				**400 V 50 Hz**										**High-output design**			
18.5	**M3AA**	**160 MLC**	3GAA 162 033-••G	1464	91.4	92.1	92.4	93.1	0.84	34.5	7.0	121	2.6	2.9	0.11	127	62
22	**M3AA**	**160 MLD**	3GAA 162 034-••G	1463	91.3	92.1	92.5	93.3	0.84	41	7.0	144	2.5	2.9	0.126	140	62
30	**M3AA**	**180 MLC**	3GAA 182 033-••G	1475	92.4	92.7	93.3	93.8	0.83	57	7.7	194	2.7	3.2	0.22	177	62
37	**M3AA**	**200 MLB**	3GAA 202 032-••G	1478	93.0	93.4	93.7	94.1	0.85	68	7.4	239	2.4	2.7	0.351	235	63
45 [1]	**M3AA**	**200 MLC**	3GAA 202 033-••G	1478	93.3	93.7	94.2	94.6	0.83	84	7.8	291	2.6	2.9	0.374	246	63
55	**M3AA**	**225 SMC**	3GAA 222 033-••G	1475	93.5	93.8	94.2	94.6	0.86	99	7.5	356	2.4	2.5	0.485	287	66
73 [1]	**M3AA**	**225 SMD**	3GAA 222 034-••G	1474	93.2	93.5	94.0	94.3	0.84	134	8.1	473	2.6	2.6	0.553	314	66
75	**M3AA**	**250 SMB**	3GAA 252 032-••G	1480	94.4	94.6	94.9	95.1	0.84	136	7.8	484	2.8	2.7	0.879	351	67
90 [1]	**M3AA**	**250 SMC**	3GAA 252 033-••G	1476	94.3	94.7	95.0	95.4	0.85	162	7.6	582	2.8	2.6	0.954	377	67

[1] Temperature rise class F

[2] Efficiency values are given according to both IEC/EN 60034-2-1; 2007 and IEC 60034-2; 1996. Please note that the values are not comparable without knowing the testing method. ABB has calculated the new efficiency values acc. to indirect method. stray losses (additional losses) determined from measuring.

Industrial performance aluminum motors

Technical data for totally enclosed squirrel cage three phase motors

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

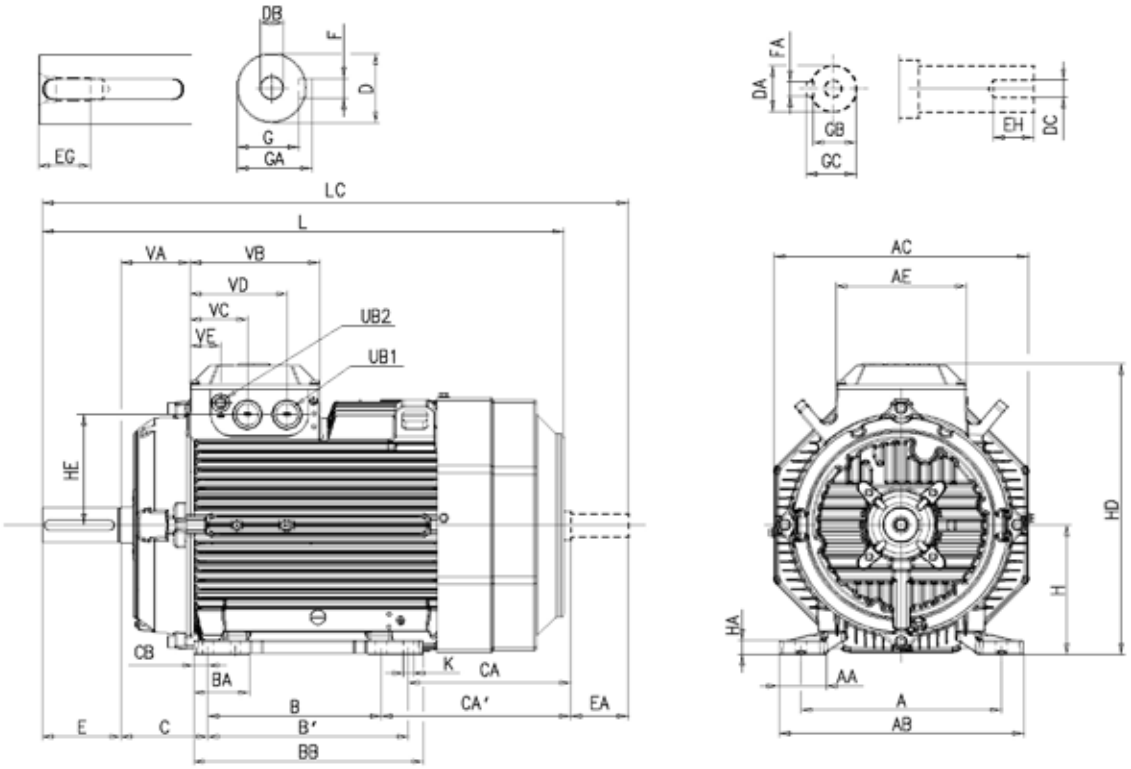
Output kW	Type designation		Product code	Speed r/min	Efficiency, IEC 60034-2-1; 2007[2]		Efficiency, IEC 60034-2;1996		Power factor	Current		Torque			Moment of inertia J=1/4 GD²	Weight kg	Sound pressure level LP
					Full load 100%	3/4 load 75 %	Full load 100%	3/4 load 75 %	cos φ	I_N A	$\frac{I_S}{I_N}$	T_N Nm	$\frac{T_S}{T_N}$	$\frac{T_{max}}{T_N}$	kgm²		dB(A)
6-poles = 1000 r/min				**400 V 50 Hz**													**Basic design**
7.5	**M3AA**	**160 MLA**	3GAA 163 031-••G	975	88.3	88.7	89.9	90.3	0.78	15.6	6.8	73	2.0	3.0	0.087	99	59
11	**M3AA**	**160 MLB**	3GAA 163 032-••G	974	89.4	89.9	91.0	91.5	0.78	23	7.7	108	2.4	3.3	0.116	126	59
15	**M3AA**	**180 MLA**	3GAA 183 031-••G	981	90.1	90.7	91.9	92.5	0.77	31	6.4	146	2.0	2.7	0.196	163	59
18.5	**M3AA**	**200 MLA**	3GAA 203 031-••G	987	91.0	91.2	91.9	92.1	0.80	36.5	7.0	179	2.3	2.9	0.398	197	63
22	**M3AA**	**200 MLB**	3GAA 203 032-••G	987	91.5	91.8	92.4	92.7	0.82	42	7.0	213	2.2	2.8	0.464	218	63
30	**M3AA**	**225 SMA**	3GAA 223 031-••G	986	92.1	92.4	92.9	93.2	0.82	57	6.6	290	2.2	2.7	0.675	266	63
37	**M3AA**	**250 SMA**	3GAA 253 031-••G	990	92.4	92.5	93.4	93.5	0.81	71	6.9	357	2.5	2.7	1.154	295	63
45	**M3AA**	**280 SMA**	3GAA 283 031-••G	989	93.1	93.4	94.1	94.4	0.84	83	7.0	435	2.2	2.4	1.393	378	63
55 [1]	**M3AA**	**280 SMB**	3GAA 283 032-••G	987	93.0	93.3	94.0	94.3	084	102	7.1	532	2.4	2.5	1.524	404	63
6-poles = 1000 r/min				**400 V 50 Hz**													**High-output design**
15	**M3AA**	**160 MLC**	3GAA 163 033-••G	974	89.0	89.6	90.8	91.4	0.78	31	6.5	147	1.9	2.8	0.134	139	59
18.5	**M3AA**	**180 MLB**	3GAA 183 032-••G	975	89.7	90.5	91.7	92.5	0.77	38.5	5.9	181	1.8	2.4	0.218	176	59
30	**M3AA**	**200 MLC**	3GAA 203 033-••G	985	91.9	92.2	92.9	93.2	0.82	57	7.0	291	2.3	2.8	0.547	246	63
37	**M3AA**	**225 SMB**	3GAA 223 032-••G	985	92.5	92.8	93.3	93.6	0.81	71	6.7	359	2.3	2.8	0.728	281	63
45	**M3AA**	**250 SMB**	3GAA 253 032-••G	989	92.9	93.2	94.0	94.3	0.84	83	7.0	435	2.6	2.7	1.939	341	63
8-poles = 750 r/min				**400 V 50 Hz**													**Basic design**
4	**M3AA**	**160 MLA**	3GAA 164 031-••G	728	84.3	84.3	85.4	85.4	0.65	10.5	5.1	52	1.6	2.8	0.069	85	59
5.5	**M3AA**	**160 MLB**	3GAA 164 032-••G	727	85.5	85.7	86.6	86.8	0.64	14.5	5.0	72	1.6	2.8	0.087	99	59
7.5	**M3AA**	**160 MLC**	3GAA 164 033-••G	728	86.7	86.9	88.0	88.2	0.65	19.2	5.0	98	1.6	2.5	0.134	138	59
11	**M3AA**	**180 MLA**	3GAA 184 031-••G	728	87.7	88.5	88.9	89.7	0.68	26.5	4.4	144	1.5	2.0	0.218	175	59
15	**M3AA**	**200 MLA**	3GAA 204 031-••G	738	89.9	90.3	90.5	90.9	0.73	33	5.4	194	1.8	2.3	0.468	217	60
18.5	**M3AA**	**225 SMA**	3GAA 224 031-••G	739	90.9	91.2	91.5	91.8	0.73	40	5.4	239	2.1	2.5	0.686	267	63
22	**M3AA**	**225 SMB**	3GAA 224 032-••G	738	91.4	91.7	92.0	92.3	0.74	46.5	5.5	285	2.1	2.4	0.739	280	63
30	**M3AA**	**250 SMA**	3GAA 254 031-••G	741	91.6	91.6	92.6	92.6	0.75	63	6.0	387	2.0	2.5	1.404	340	63
37	**M3AA**	**280 SMA**	3GAA 284 031-••G	740	91.9	92.1	92.9	93.1	0.76	76	5.8	478	2.0	2.4	1.535	403	63

[1] Temperature rise class F

[2] Efficiency values are given according to both IEC/EN 60034-2-1; 2007 and IEC 60034-2; 1996. Please note that the values are not comparable without knowing the testing method. ABB has calculated the new efficiency values acc. to indirect method. stray losses (additional losses) determined from measuring.

Dimension drawings

Foot-mounted motor; IM B3 (IM 1001), IM 1002



IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	C	CA	CA'	CB	D	DA	DB	DC	E	EA	EG	EH	F
160 [2]	254	54	310	323	180	210	254	84	294	108	164	125.5	20	42	32	M16	M12	110	80	36	28	12
160 [3]	254	54	310	323	180	210	254	84	294	108	262	223.5	20	42	32	M16	M12	110	80	36	28	12
180	279	68	341	354	180	241	279	78	319	121	263	225	30	48	32	M16	M12	110	80	36	28	14

Motor size	FA	G	GA	GB	GC	H	HA	HC	HD	HE	K	L	LC	UB1[1]	UB2[1]	VA	VB	VC	VD	VE
160 [2]	10	37	45	27	35	160	20	342	370	139	15	584	671.5	2*M40	M16	88.5	180	80	135.5	43
160 [3]	10	37	45	27	35	160	20	342	370	139	15	681	768.5	2*M40	M16	88.5	180	80	135.5	43
180	10	42.5	51.5	27	35	180	20	369	405	154	15	726	815	2*M40	M16	88.5	180	80	135.5	43

Tolerances

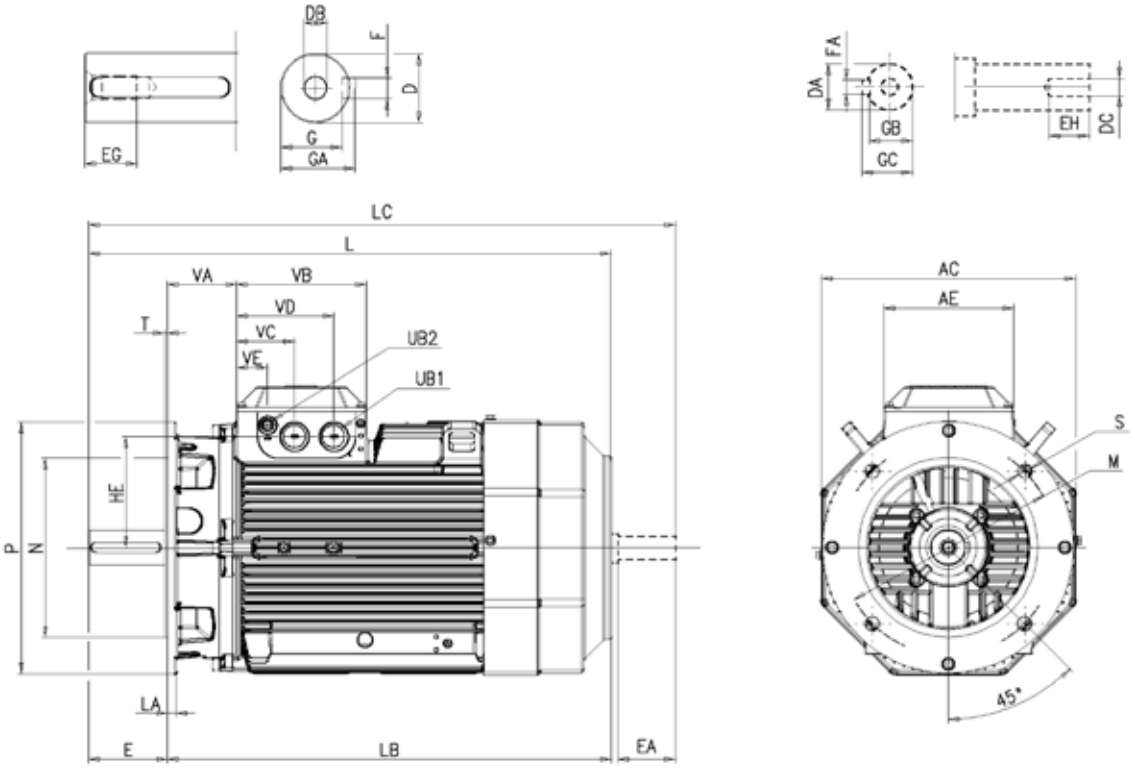
A, B	ISO js14
C, CA	± 0.8
D, DA	ISO k6
F, FA	ISO h9
H	+0 -0.5

[1] Knockout openings.
[2] MLA 4- and 6-pole, MLA and MLB 8-pole
[3] High-output, MLB 6-pole, MLC 8-pole

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

Dimension drawings

Flange-mounted motor; IM B5 (IM 3001), IM 3002



IM B5 (IM 3001), IM 3002

Motor size	AC	AE	D	DA	DB	DC	E[4]	EA	EG	EH	F	FA	G	GA	GB	GC	HB	HE
160 [3]	323	180	42	32	M16	M12	110	80	36	28	12	10	37	45	27	35	210	139
160 [4]	323	180	42	32	M16	M12	110	80	36	28	12	10	37	45	27	35	210	139
180	354	180	48	32	M16	M12	110	80	36	28	14	10	42.5	51.5	27	35	225	154

Motor size	L	LA	LB	LC	M	N	P	S	T	UB1[1]	UB2[1]	VA	VB	VC	VD	VE
160 [3]	584	20	474	671.5	300	250	350	19	5	2*M40	M16	88.5	180	43	80	135.5
160 [4]	681	20	571	768.5	300	250	350	19	5	2*M40	M16	88.5	180	43	80	135.5
180	726	20	616	815	300	250	350	19	5	2*M40	M16	88.5	180	43	80	135.5

Tolerances
D. DA ISO k6
F. FA ISO h9
N ISO j6

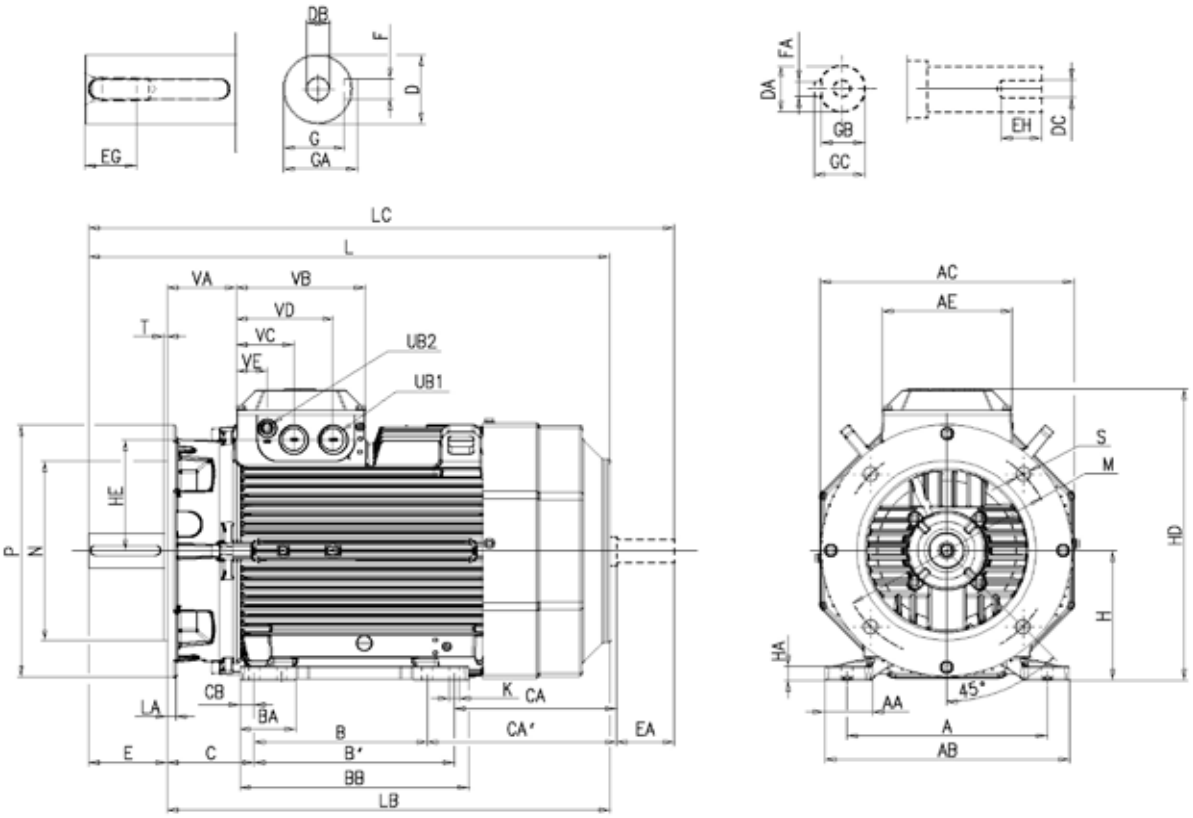
[1] Knockout openings.
[2] MLA 4- and 6-pole, MLA and MLB 8-pole
[3] High-output, MLB 6-pole, MLC 8-pole
[4] Shoulder of shaft extension and contact surface of flange are in same plane.

Above table gives the main dimensions in mm.

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

Dimension drawings

Foot- and flange-mounted motor; IM B35 (IM 2001), IM 2002



IM B35 (IM 2001), IM 2002

Motor size	A	AA	AB	AC	AE	B[8]	B'[8]	BA	BB	C	CA	CA'	CB	D	DA	DB	DC
160 [2]	254	54	310	323	180	210	254	84	294	108	163.5	125.5	20	42	32	M16	M12
160 [3]	254	54	310	323	180	210	254	84	294	108	261.5	223.5	20	42	32	M16	M12
180	279	68	341	354	180	241	279	78	319	121	263	225	30	48	32	M16	M12

Motor size	E	EA	EG	EH	F	FA	G	GA	GB	GC	H	HA	HC	HD	HE	K	L
160 [2]	110	80	36	28	12	10	37	45	27	35	160	20	342	370	139	14.5	584
160 [3]	110	80	36	28	12	10	37	45	27	35	160	20	342	370	139	14.5	681
180	110	80	36	28	14	10	42.5	51.5	27	35	180	20	369	405	154	14.5	726

Motor size	LA	LB	LC	M	N	P	S	T	UB1[1]	UB2[1]	VA	VB	VC	VD	VE
160 [2]	20	474	671.5	300	250	350	19	5	2*M40	M16	88.5	180	80	135.5	43
160 [3]	20	571	768.5	300	250	350	19	5	2*M40	M16	88.5	180	80	135.5	43
180	20	616	815	300	250	350	19	5	2*M40	M16	88.5	180	80	135.5	43

Tolerances

A, B	ISO js14
C, CA	+0 -2
D, DA	ISO k6
F, FA	ISO h9
H	+0 - 0.5
N	ISO j6

[1] Knockout openings.
[2] MLA 4- and 6-pole, MLA and MLB 8-pole
[3] High-output, MLB 6-pole, MLC 8-pole
[4] Shoulder of shaft extension and contact surface of flange are in same plane.

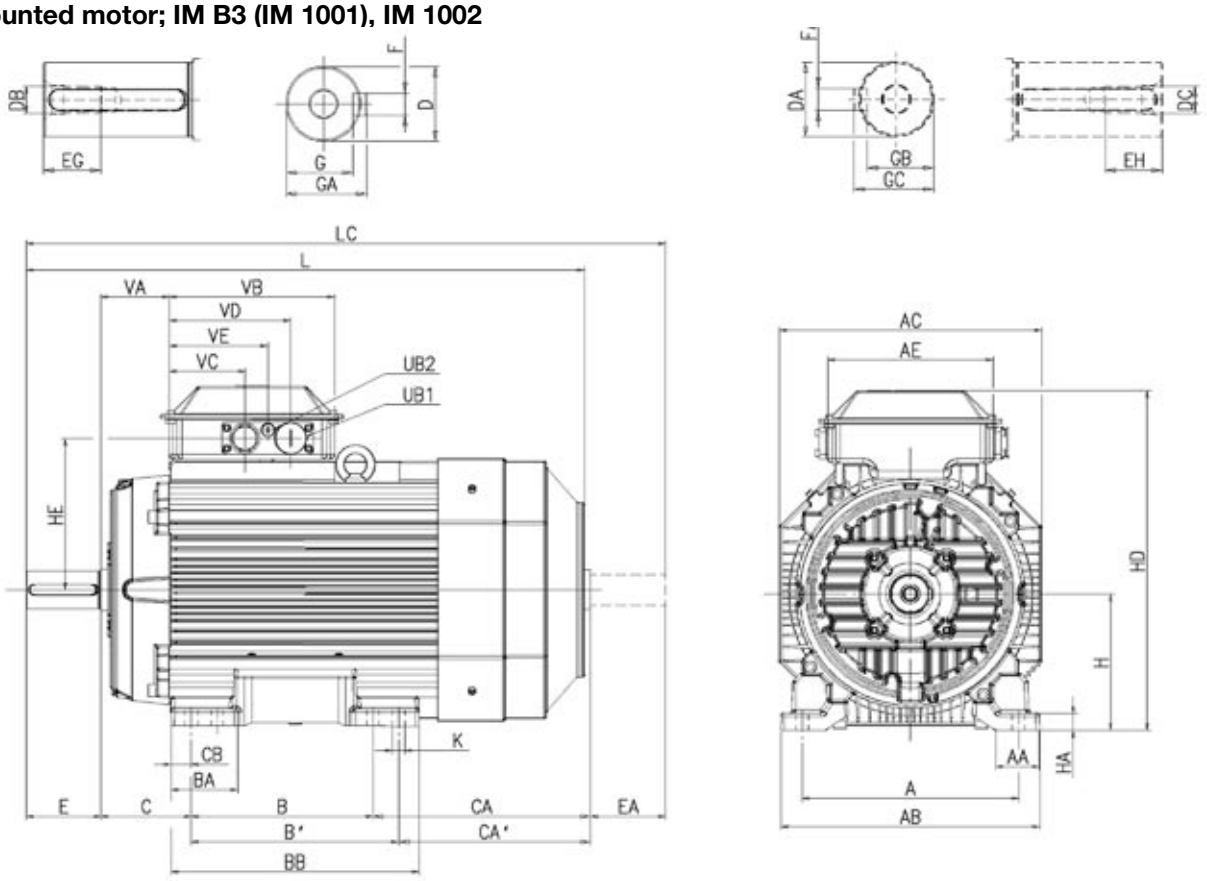
Above table gives the main dimensions in mm.

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

Industrial performance aluminum motors M3AA 200 - 225

Dimension drawings

Foot-mounted motor; IM B3 (IM 1001), IM 1002



IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	C	CA	CA'	CB	D	DA	DB	DC	E	EA	EG	EH	F	FA
200	318	64	380	386	243	267	305	112	365	133	314	276	30	55	45	M20	M16	110	110	42	36	16	14
225-2 p	356	69	418	425	243	286	311	102	365	149	314	289	24.5	55	55	M20	M20	110	110	42	42	16	14
225 4-8 p	356	69	418	425	243	286	311	102	365	149	314	289	24.5	60	55	M20	M20	140	110	42	42	18	16

Motor size	G	GA	GB	GC	H	HA	HD[2]	HD[3]	HE[2]	HE[3]	K	L	LC	UB[1]	VA	VB	VC[2]	VC[3]	VD[2]	VD[3]	VE[2]	VE[2]
200	49	59	39.5	48.5	200	25	500	532	224	239	18	821	934	2xFL13	101	243	112	77	179	167	145	122
225-2 p	49	59	49	59	225	25	547	579	244.5	260	18	850	971	2xFL13	93.5	243	112	77	179	167	145	122
225 4-8 p	53	64	49	59	225	25	547	579	244.5	260	18	880	1001	2xFL13	93.5	243	112	77	179	167	145	122

Tolerances

A,B	ISO js14
C, CA	± 0.8
D 55-65	ISO m6
DA 45-55	ISO k6
F, FA	ISO h9
H	+0 -0.5

1) Flange opening is provided with pipe flange FL 13, with tapped lead-in holes plugged with sealing plugs.
Single- and two-speed motors: 2 x M40 + M16.
Motors for 230VD 50Hz have pipe flange FL21 and 2 x M63 + M16

2) For flange opening FL13: 2 x M40 + M16

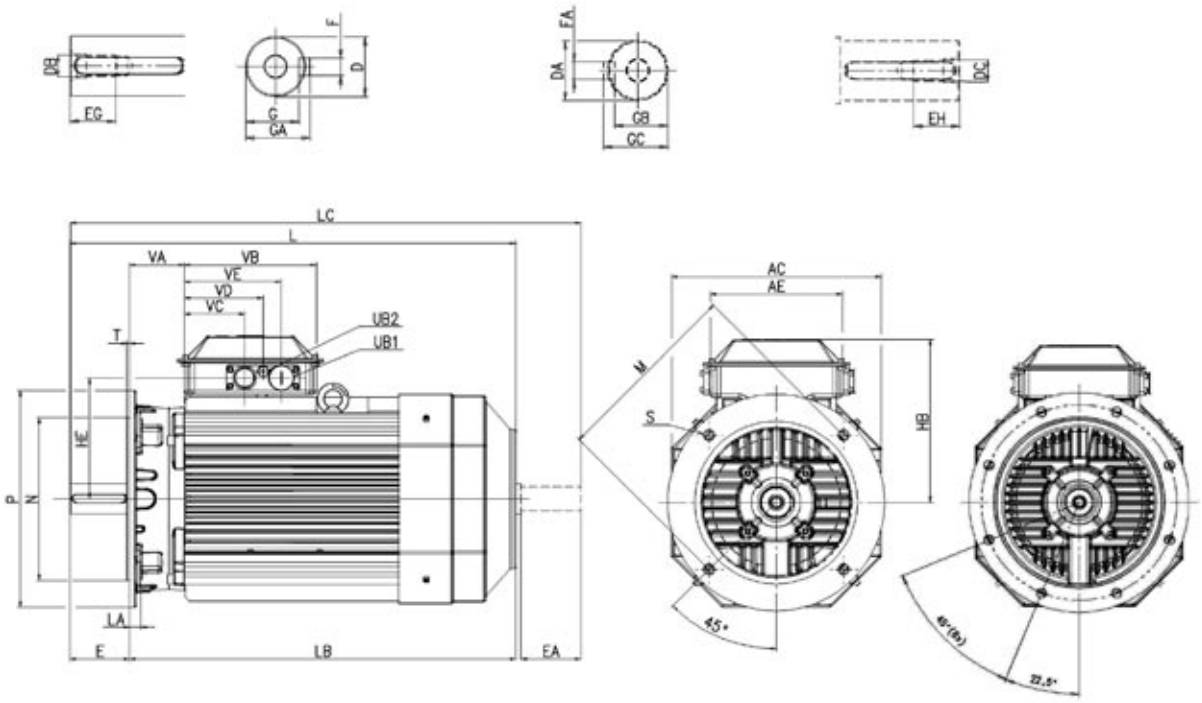
3) For extra large flange opening FL21: 2 x M63 + M16

Above table gives the main dimensions in mm.

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

Dimension drawings

Flange-mounted motor; IM B5 (IM 3001), IM 3002



M3AA 200 M3AA 225

IM B5 (IM 3001), IM 3002

Motor size	AC	AE	D	DA	DB	DC	ED	EA	EG	EH	F	FA	G	GA	GB	GC	HB[3]	HB[4]	HE[3]	HE[4]
200	386	243	55	45	M20	M16	110	110	42	36	14	16	49	59	39.5	48.5	300	332	224	239
225-2 p	425	243	55	55	M20	M20	110	110	42	42	16	16	49	59	49	59	300	332	244	260
225 4-8 p	425	243	60	55	M20	M20	140	110	42	42	16	16	53	64	49	59	322	354	244	260

Motor size	L	LA	LB	LC	M	N	P	S	T	UB[A]	VA	VB	VC[3]	VC[4]	VD[3]	VD[4]	VE[3]	VE[4]
200 [3]	821	20	711	934	350	300	400	19	5	2xFL13	101	243	112	77	179	167	145	122
225-2 p	850	22	740	971	400	350	450	19	5	2xFL13	93.5	243	112	77	179	167	145	122
225 4-8 p	880	22	740	1001	400	350	450	19	5	2xFL13	93.5	243	112	77	179	167	145	122

Tolerances

D 55-65	ISO m6
DA 45-55	ISO k6
F, FA	ISO h9
N	ISO j6

1) Shoulder of shaft extension and contact surface of flange are in the same plane.
2) Flange opening is provided with pipe flange FL 13, with tapped lead-in holes plugged with sealing plugs. Single- and two-speed motors: 2 x M40 + M16. Motors for 230VD 50Hz have pipe flange FL21 and 2 x M63 + M16
3) For flange opening FL13: 2 x M40 + M16
4) For extra large flange opening FL21: 2 x M63 + M16

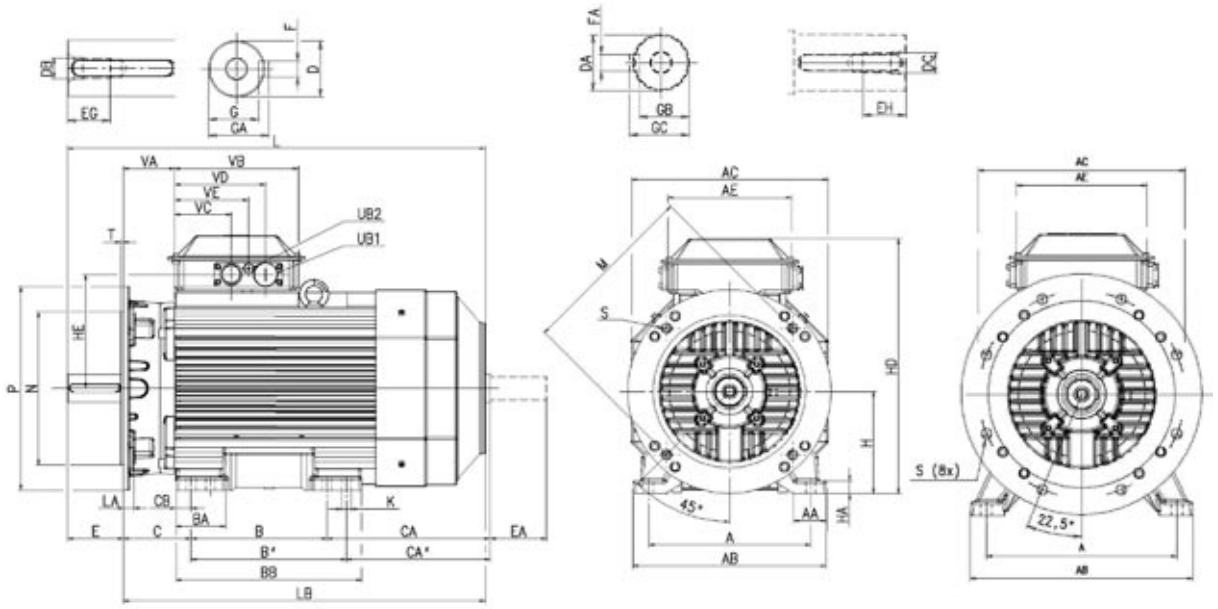
Above table gives the main dimensions in mm.

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

Industrial performance aluminum motors M3AA 200 - 225

Dimension drawings

Foot- and flange-mounted motor; IM B35 (IM 2001), IM 2002



M3AA 200 M3AA 225

IM B35 (IM 2001), IM 2002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	C	CA	CA'	CB	D	DA	DB	DC	E[1]	EA	EG	EH	F	FA	G	GA	GB	GC
200	318	64	380	386	243	267	305	112	365	133	314	276	30	55	45	M20	M16	110	110	42	36	16	14	49	59	39.5	48.5
225-2 p	356	69	418	425	243	286	311	102	365	149	314	289	24.5	55	55	M20	M20	110	110	42	42	16	14	49	59	49	59
225 4-8 p	356	69	418	425	243	286	311	102	365	149	314	289	24.5	60	55	M20	M20	140	110	42	42	18	16	53	64	49	59

Motor size	H	HA	HD[3]	HD[4]	HE[3]	HE[4]	K	L	LA	LB	LC	M	N	P	S	T	UB[2]	VA	VB	VC[3]	VC[4]	VD[3]	VD[4]	VE[3]	VE[4]
200	200	25	500	532	223	239	18	821	20	711	934	350	300	400	19	5	2xFL13	101	243	112	77	179	167	145	122
225-2 p	225	25	547	579	244	260	18	850	22	740	971	400	350	450	19	5	2xFL13	93.5	243	112	77	179	167	145	122
225 4-8 p	225	25	547	579	244	260	18	880	22	740	1001	400	350	450	19	5	2xFL13	93.5	243	112	77	179	167	145	122

Tolerances

A,B	ISO js14
C, CA	± 0.8
D 55-65	ISO m6
DA 45-55	ISO k6
F, FA	ISO h9
H	+0 -0.5
N	ISO j6

[1] Shoulder of shaft extension and contact surface of flange are in the same plane.

[2] Flange opening is provided with pipe flange FL 13, with tapped lead-in holes plugged with sealing plugs. Single- and two-speed motors: 2 x M40 + M16. Motors for 230VD 50Hz have pipe flange FL21 and 2 x M63 + M16

[3] For flange opening FL13: 2 x M40 + M16

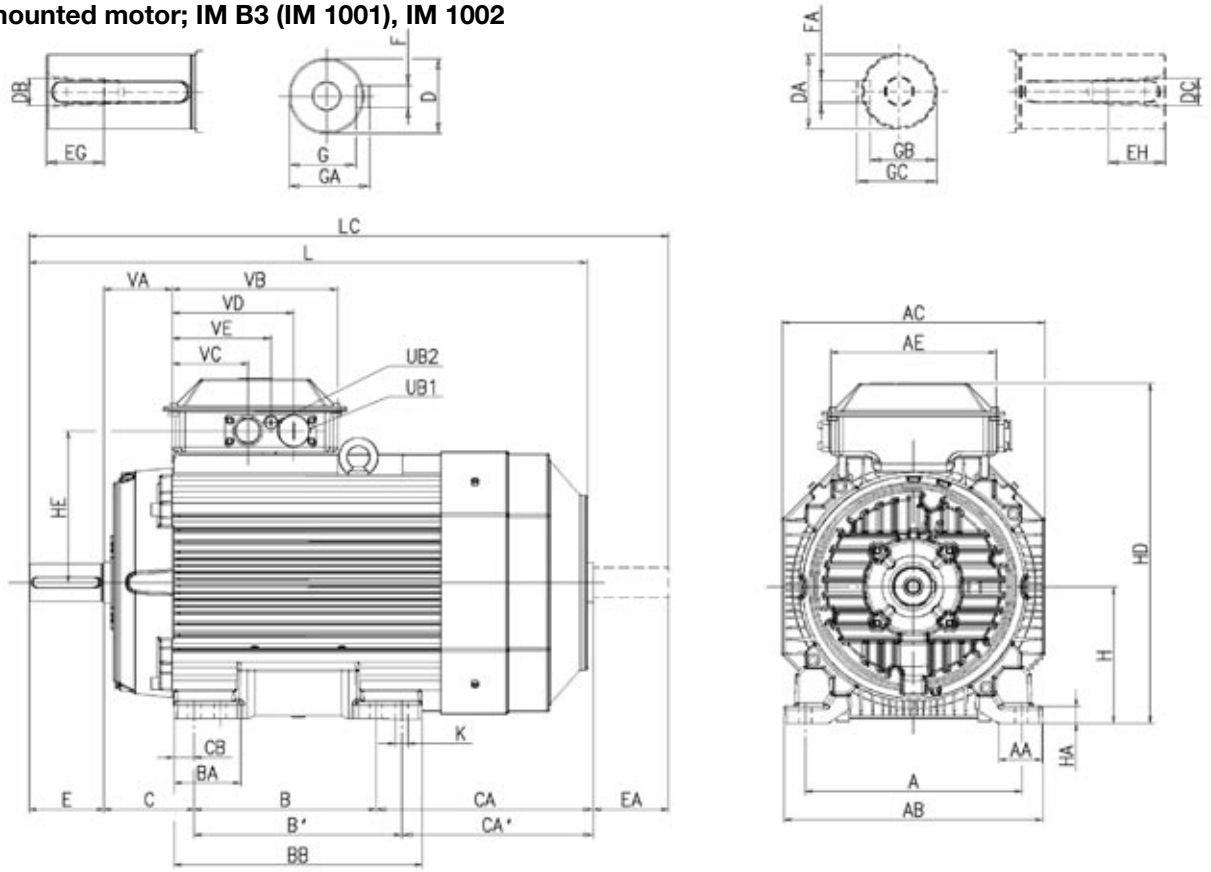
[4] For extra large flange opening FL21: 2 x M63 + M16

Above table gives the main dimensions in mm.

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

Dimension drawings

Foot-mounted motor; IM B3 (IM 1001), IM 1002



IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	C	CA	CA'	CB	D	DA	DB	DC	E[D)]	EA	EG	EH	F	FA
250 -2 p	406	78	473	471	243	311	349	106	409	168	281	243	40	60	55	M20	M20	140	110	42	42	18	16
250 4-8 p	406	78	473	471	243	311	349	106	409	168	281	243	30	65	55	M20	M20	140	110	42	42	18	16
280 -2 p	457	102.5	522	471	243	368	419	92	489	190	202	151	37.5	65	55	M20	M20	140	110	42	42	18	16
280 4-8 p	457	102.5	522	471	243	368	419	92	489	190	202	151	37.5	75	55	M20	M20	140	110	42	42	20	16

Motor size	G	GA	GB	GC	H	HA	HD[2)]	HD[3)]	HE[2)]	HE[3)]	K	L	LC	UB[1)]	VA	VB	VC[3)]	VC[4)]	VD[3)]	VD[4)]	VE[3)]	VE[4)]
250 -2 p	53	64	49	59	250	30	594	627	268	284	22	884	1010	2xFL13	93.5	243	112	77	179	167	145	122
250 4-8 p	58	69	49	59	250	30	594	627	268	284	22	884	1010	2xFL13	93.5	243	112	77	179	167	145	122
280 -2 p	58	69	49	59	280	40	-	657	-	284	24	884	1010	2xFL21	93.5	243	-	77	-	167	-	122
280 4-8 p	67.5	79.5	49	59	280	40	-	657	-	284	24	884	1010	2xFL21	93.5	243	-	77	-	167	-	122

Tolerances

A,B	ISO js14
C, CA	± 0.8
D 55-65	ISO m6
DA 45-55	ISO k6
F, FA	ISO h9
H	+0 -0.5

1) Flange opening is provided with pipe flange FL 13, with tapped lead-in holes plugged with sealing plugs. .
Single- and two-speed motors: 2 x M40 + M16.
Motors for 230VD 50Hz have pipe flange FL21 and 2 x M63 + M16

2) For flange opening FL13: 2 x M40 + M16

3) For extra large flange opening FL21: 2 x M63 + M16

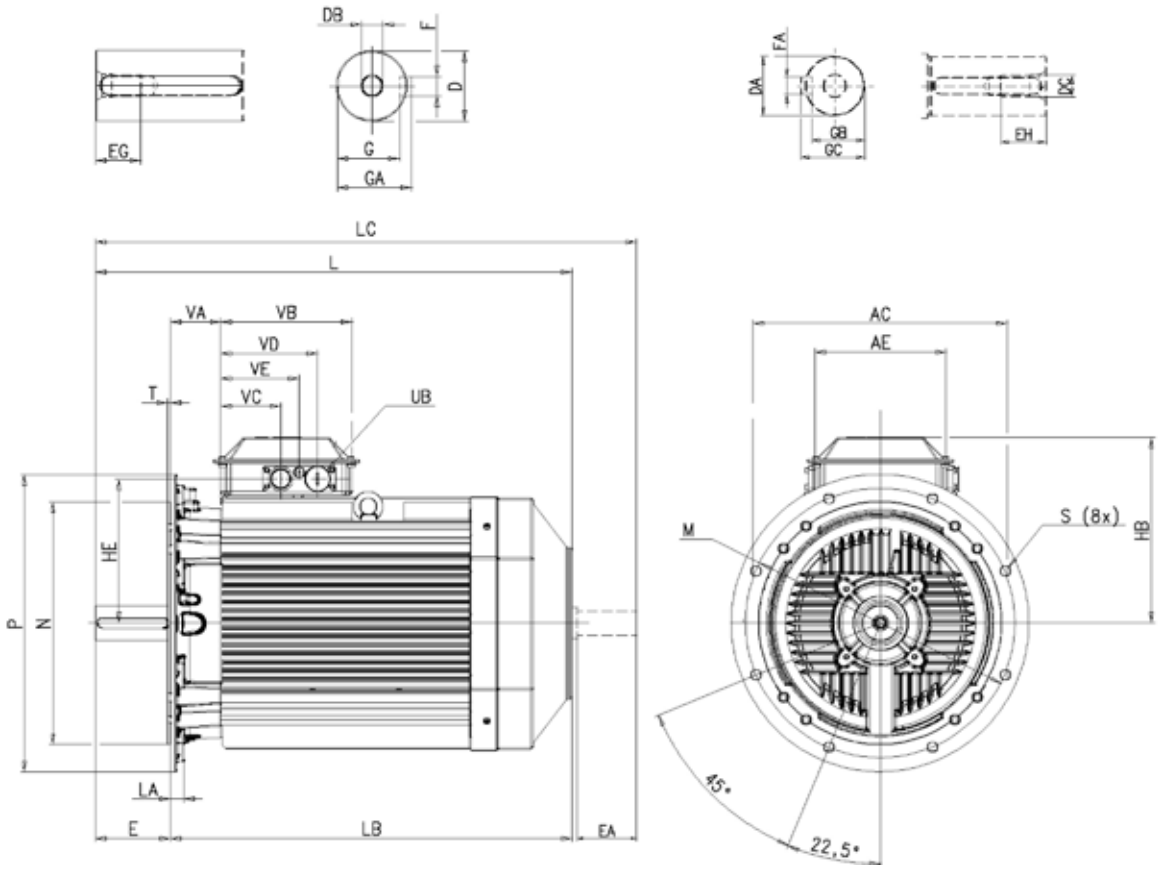
Above table gives the main dimensions in mm.

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

Industrial performance aluminum motors M3AA 250 - 280

Dimension drawings

Flange-mounted motor; IM B5 (IM 3001), IM 3002



IM B5 (IM 3001), IM 3002

Motor size	AC	AE	D	DA	DB	DC	E[D)]	EA	EG	EH	F	FA	G	GA	GB	GC	HB[3)]	HB[4)]	HE[3)]	HE[4)]
250 -2 p	471	243	60	55	M20	M20	140	110	42	42	18	16	53	64	49	59	344	377	268	284
250 4-8 p	471	243	65	55	M20	M20	140	110	42	42	18	16	58	69	49	59	344	377	268	284
280 -2 p	471	243	65	55	M20	M20	140	110	42	42	18	16	58	69	49	59	-	377	-	284
280 4-8 p	471	243	75	55	M20	M20	140	110	42	42	20	16	67.5	79.5	49	59	-	377	-	284

Motor size	L	LA	LB	LC	M	N	P	S	T	UB[2)]	VA	VB	VC[3)]	VC[4)]	VD[3)]	VD[4)]	VE[3)]	VE[4)]
250 -2 p	884	24	744	1010	500	450	550	19	5	2xFL13	93.5	243	112	77	179	167	145	122
250 4-8 p	884	24	744	1010	500	450	550	19	5	2xFL13	93.5	243	112	77	179	167	145	122
280 -2 p	884	24	744	1010	500	450	550	19	5	2xFL21	93.5	243	-	77	-	167	-	122
280 4-8 p	884	24	744	1010	500	450	550	19	5	2xFL21	93.5	243	-	77	-	167	-	122

Tolerances

D 55-65	ISO m6
DA 45-55	ISO k6
F, FA	ISO h9
N	ISO j6

[1)] Shoulder of shaft extension and contact surface of flange are in the same plane.

[2)] Flange opening is provided with pipe flange FL 13, with tapped lead-in holes plugged with sealing plugs. Single- and two-speed motors: 2 x M40 + M16. Motors for 230VD 50Hz have pipe flange FL21 and 2 x M63 + M16

[3)] For flange opening FL13: 2 x M40 + M16

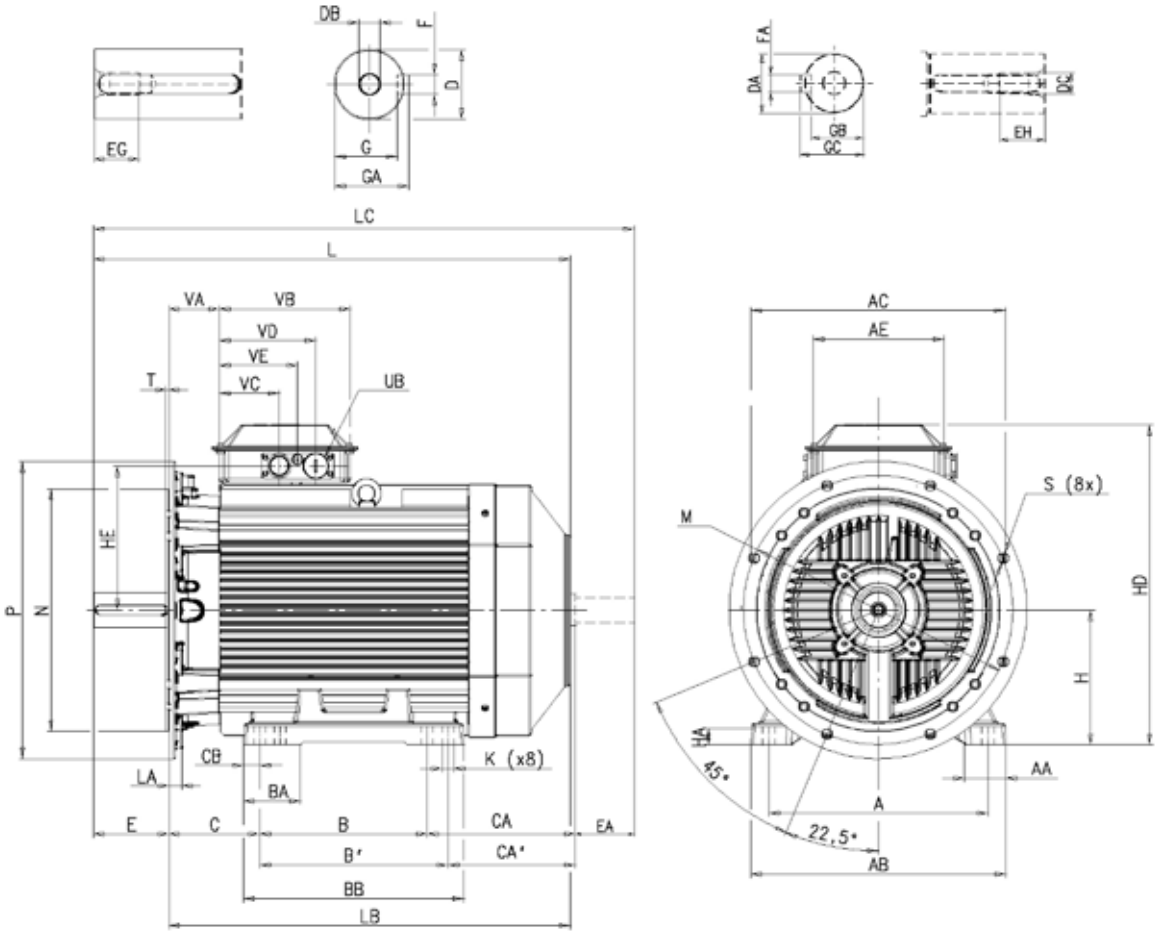
[4)] For extra large flange opening FL21: 2 x M63 + M16

Above table gives the main dimensions in mm.

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

Dimension drawings

Foot- and flange-mounted motor; IM B35 (IM 2001), IM 2002



IM B35 (IM 2001), IM 2002

Motor size	A	AA	AB	AC	AE	B	B'	BA	BB	C	CA	CA'	CB	D	DA	DB	DC	E[D)]	EA	EG	EH	F	FA	G	GA	GB	GC
250 -2 p	406	78	474	471	243	311	349	106	409	168	281	243	40	60	55	M20	M20	140	110	42	42	18	16	53	64	49	59
250 4-8 p	406	78	474	471	243	311	349	106	409	168	281	243	30	65	55	M20	M20	140	110	42	42	18	16	58	69	49	59
280 -2 p	457	103	525	471	243	368	419	92	489	190	202	151	38	65	55	M20	M20	140	110	42	42	18	16	58	69	49	59
280 4-8 p	457	103	525	471	243	368	419	92	489	190	202	151	38	75	55	M20	M20	140	110	42	42	20	16	68	80	49	59

Motor size	H	HA	HD[3)]	HD[4)]	HE[3)]	HE[4)]	K	L	LA	LB	LC	M	N	P	S	T	UB[2)]	VA	VB	VC[3)]	VC[4)]	VD[3)]	VD[4)]	VE[3)]	VE[4)]
250 -2 p	250	30	594	627	268	284	22	884	24	744	1010	500	450	550	19	5	2xFL13	93	243	112	77	179	167	145	122
250 4-8 p	250	30	594	627	268	284	22	884	24	744	1010	500	450	550	19	5	2xFL13	93	243	112	77	179	167	145	122
280 -2 p	280	40	-	657	-	284	24	884	24	744	1010	500	450	550	19	5	2xFL21	93	243	-	77	-	167	-	122
280 4-8 p	280	40	-	657	-	284	24	884	24	744	1010	500	450	550	19	5	2xFL21	93	243	-	77	-	167	-	122

Tolerances

A,B	ISO js14
C, CA	± 0.8
D 55-65	ISO m6
DA 45-55	ISO k6
F, FA	ISO h9
H	+0 -0.5
N	ISO js6

1) Shoulder of shaft extension and contact surface of flange are in the same plane.

2) Flange opening is provided with pipe flange FL 13, with tapped lead-in holes plugged with sealing plugs.
Single- and two-speed motors: 2 x M40 + M16.
Motors for 230VD 50Hz have pipe flange FL21 and 2 x M63 + M16

3) For flange opening FL13: 2 x M40 + M16

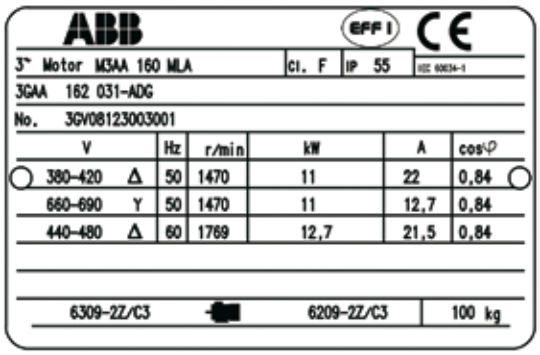
4) For extra large flange opening FL21: 2 x M63 + M16

Above table gives the main dimensions in mm.

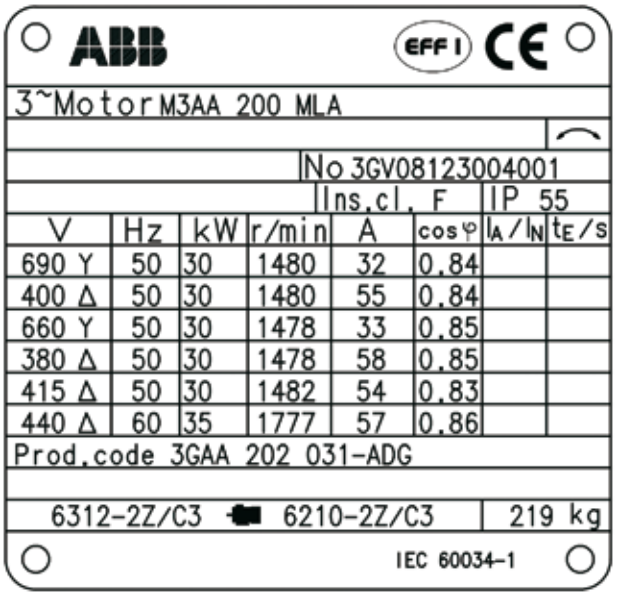
For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

Rating plates

Motor sizes 160 to 180



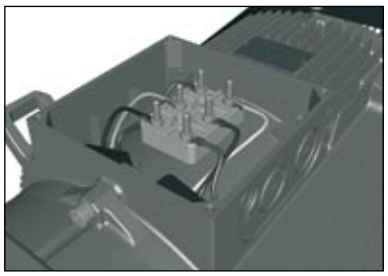
Motor sizes 200 to 280



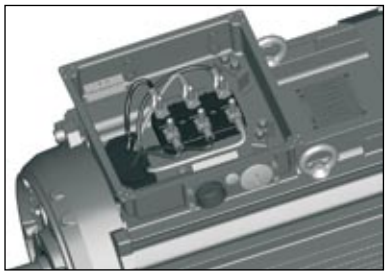
2

Terminal box

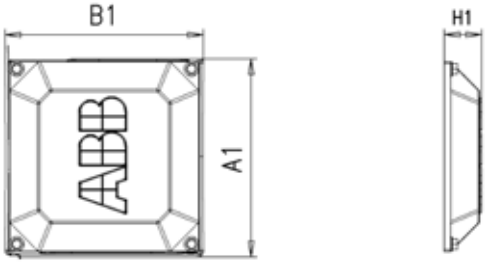
Terminal box for motor sizes 160 to 180



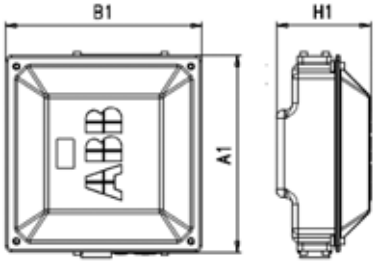
Terminal box for motor sizes 200 to 280



Dimension drawing for motor sizes 160 to 180



Dimension drawing for motor sizes 200 to 280



Motor size	A1	B1	H1
M3AA 160 to 180	180	180	36

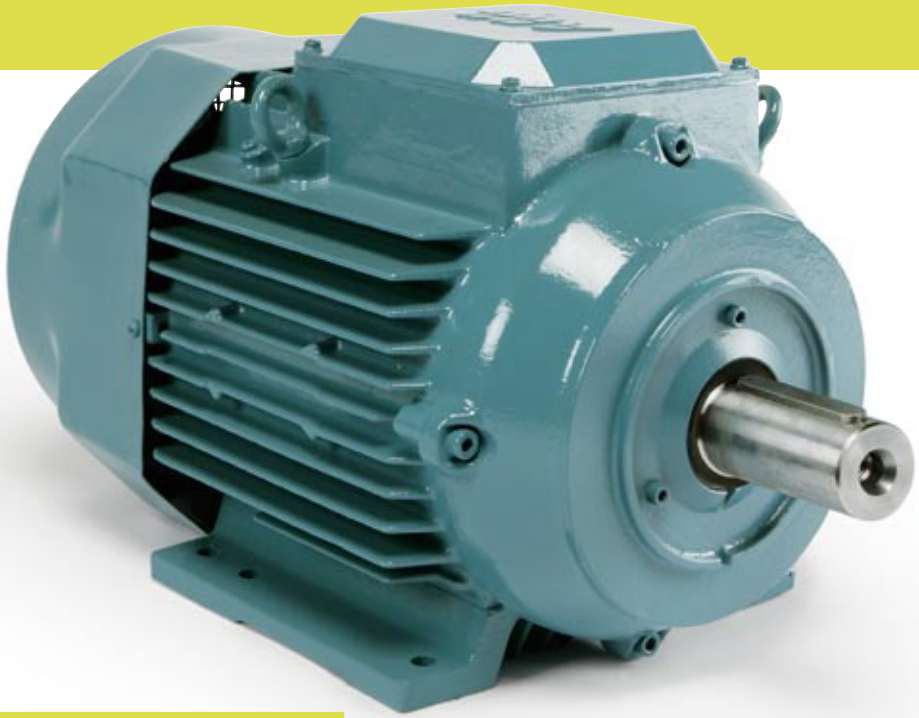
Motor size	A1	B1	H1
M3AA 200 to 280	269	269	129

Industrial performance aluminum motors in brief

Size	M3AA	160	180	200	225	250	280
Stator	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, ≥ 100 µm					
Feet	Material	Aluminum alloy, bolted to the stator		Cast iron, bolted to the stator			
Bearing end shields	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 paint,thickness ≥ 100 µm		Two-pack epoxy paint, thickness ≥ 100 µm			
Bearings	D-end	6309-2Z/C3	6310-2Z/C3	6312-2Z/C3	6313-2Z/C3	6315-2Z/C3	6316/C3[1)]
	N-end	6209-2Z/C3	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3	6213-2Z/C3	6213/C3
		[1)] 6315/C3 for 2-pole motors					
Axially-locked bearings	Inner bearing cover	D-end					
Bearing seals		Axial seal as standard					
Lubrication		Permanently lubricated shielded bearings. Wide temperature range grease.					Relubrication. Grease temp. range -40 to 150°C.
Terminal box	Material	Diecast aluminum alloy,base integrated with stator.		Deep-drawn steel sheet, bolted to stator.			
	Surface treatment	Similar to stator.		Phosphated. Polyester paint.			
	Screws	Steel 8.8, zinc electroplated and chromated					
Connections	Knock-out openings Flange-openings	(2 x M40 + M16) + (2 x M40)		2 x FL13, 2 x M40 2 x FL 21, 2 x M63 (voltage code S)			2 x FL21 2 x M63 1 x M16
	Screws	M6		M10			
	Max Cu-area mm2	35		70			
Terminal box		6 terminals for connection with cable lugs (not included)					
Fan	Material	Polypropylene. Reinforced with 20% glass fibre.					
Fan cover	Material	Hot dip galvanized steel					
	Paint colour shade	Blue, Munsell 8B 4.5/3.25 / NCS 4822 B05G					
	Surface treatment	Polyester powder paint, thickness ≥ 100 µm					
Stator winding	Material	Copper.					
	Impregnation	Polyester varnish. Tropicalised.					
	Insulation class	Insulation class F. Temperature rise class B, unless otherwise stated.					
Stator winding temperature sensors		PTC thermistors, 150°C, 3 in series.					
Rotor winding	Material	Diecast aluminum.					
Balancing method		Half key balancing.					
Key ways		Closed keyway					
Heating elements	On request	25 W	50 W				
Enclosure		IP 55					
Cooling method		IC 411					

Industrial Performance Cast Iron Motors

New Cast Iron Motors
M3BA 71 to 132



3

Frame sizes	**71 to 132**
Output range	**0.75 to 7.5 kW**
Poles	**2 to 8 poles**

Voltage up to 690 V

Industrial Performance
Cast Iron Motors 71 to 132
New Design

Industrial performance motors offer the flexibility needed by most of our OEM customers. The motors are available in several frame materials, with all pole numbers and the variant codes needed by the customers. Motors fulfill the EFF1 efficiency class requirements and are VSD-compliant.

The new generation of Industrial performance cast iron motors is based on the new product design, which has been developed in response to market demands and is based on customer feedback.

Attention was paid to four key focus areas:

- **The right product**
- **World-wide availability**
- **Quality**
- **On-time delivery**

Totally new design with extensive features and benefits

The new products M3BA 71 to 132 belong to a completely new range with the main features:

- Prepared for a wide range of variant codes – meets numerous types of applications
- High efficiency – low running costs and an environmentally friendly motor
- Permanent greased bearings
- Improved mechanical and electrical design – longer lifetime
- Foot-mounted motors have fixed feet.

Technical information and documentation

Data sheets and individual dimension drawings can be found on the Internet at www.abb.com/motors&generators, Online Motor Data Search. The technical data of the new motor sizes as presented in this leaflet will be included in the main product catalogue “Industrial performance motors”, to be published later in 2008. For all other sizes please consult the existing product catalogue: ‘Catalogue BU/General purpose motors EN 12-2006’

Variant codes

For variant codes please contact your nearest ABB sales office.

Industrial performance cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

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

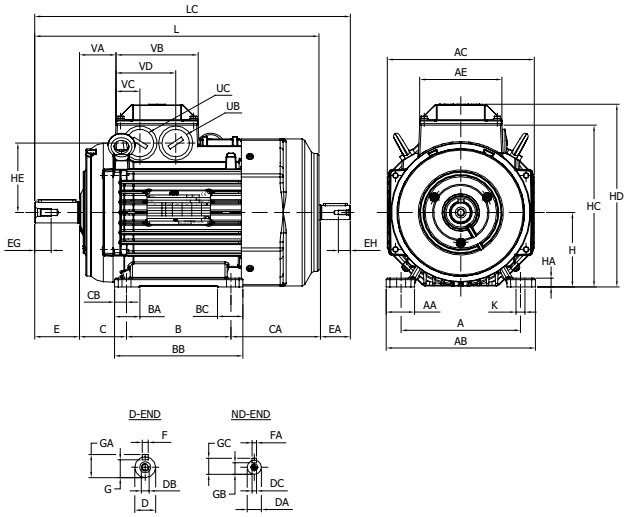
Output kW	Motor type	Product code		Speed r/min	Efficiency, IEC 60034-2-1; 2007		Efficiency, IEC 60034-2; 1996		Power fctor cos φ 100%	Current		Torque			Moment of inertia J=1/4GD² kgm²	Weight Foot-mounted kg	Sound pressure level dB(A)
					Full load 100 %	3/4 load 75 %	Full load 100 %	3/4 load 75 %		I_N A	$\frac{I_S}{I_N}$	T_N Nm	$\frac{T_s}{T_N}$	$\frac{T_{max}}{T_N}$			
3000 r/min = 2 poles				**400 V 50 Hz**												**Basic design**	
0.75	**M3BA 80 B**	3GBA	081 321-••B	2900	80.8	80.1	81.2	80.6	0.70	1.9	7.6	2.5	3.7	3.4	0.00101	16	60
1.1	**M3BA 80 C**	3GBA	081 322-••B	2890	82.3	82.5	83.5	83.4	0.80	2.4	7.1	3.6	3.6	3.8	0.0012	18	60
1.5	**M3BA 90 L**	3GBA	091 322-••B	2900	83.3	84.1	84.0	85.0	0.88	2.9	7.2	5.0	2.7	3.6	0.00254	24	63
2.2	**M3BA 90 LB**	3GBA	091 323-••B	2880	84.1	86.2	85.8	87.1	0.87	4.4	6.8	7.3	2.4	3.0	0.0028	25	68
3	**M3BA 100 LB**	3GBA	101 322-••B	2920	86.4	86.2	87.6	87.5	0.91	5.9	10.0	9.9	3.3	3.6	0.00528	36	68
4	**M3BA 112 MB**	3GBA	111 322-••B	2885	86.9	87.3	87.6	87.8	0.92	7.4	7.0	13.2	2.4	2.6	0.00575	37	67
5.5	**M3BA 132 SB**	3GBA	131 322-••B	2880	88.1	89	88.8	89.5	0.90	10	6.8	18.2	2.3	3.2	0.01275	68	75
7.5	**M3BA 132 SBB**	3GBA	131 324-••B	2870	88.9	89.5	89.7	90.3	0.89	13.7	6.7	25	2.1	3.1	0.01359	70	75
1500 r/min = 4 poles				**400 V 50 Hz**												**Basic design**	
0.75	**M3BA 80 D**	3GBA	082 324-••B	1410	81.3	80.7	82.2	81.4	0.75	1.7	5.3	5.1	2.6	2.7	0.00205	17	50
1.1	**M3BA 90 LB**	3GBA	092 324-••B	1440	83.1	82.2	83.9	82.8	0.78	2.5	7.0	7.3	3.2	3.6	0.00491	26	50
1.5	**M3BA 90 LD**	3GBA	092 325-••B	1440	84.4	84.6	85.2	85.3	0.79	3.25	6.0	10	2.9	3.4	0.00538	28	50
2.2	**M3BA 100 LC**	3GBA	102 323-••B	1450	86.0	85.6	86.6	86.3	0.77	4.8	7.0	14.5	3.0	4.0	0.00948	36	54
3	**M3BA 100 LD**	3GBA	102 324-••B	1450	87.1	87.5	87.7	88.0	0.83	6.1	7.0	19.7	2.5	3.1	0.0011	38	66
4	**M3BA 112 MB**	3GBA	112 322-••B	1445	87.9	88.2	88.3	88.9	0.84	7.92	7.4	26.5	2.6	3.2	0.0125	34	64
5.5	**M3BA 132 M**	3GBA	132 322-••B	1455	88.8	89.3	89.5	90.2	0.82	10.9	6.7	36	2.3	3.1	0.03282	70	66
7.5	**M3BA 132 MB**	3GBA	132 323-••B	1460	89.8	90.2	90.4	90.8	0.81	14.9	6.2	49.1	2.0	2.9	0.03659	73	66
1000 r/min = 6 poles				**400 V 50 Hz**												**Basic design**	
0.75	**M3BA 90 LB**	3GBA	093 443-••B	955	76.0	75.1	77.7	75.6	0.56	2.4	4.8	7.5	3.4	3.9	0.00491	25	44
1.1	**M3BA 90 LD**	3GBA	093 444-••B	935	79.1	79.9	79.9	80.2	0.74	2.7	4.5	11.2	2.4	2.6	0.0054	28	44
1.5	**M3BA 100 L**	3GBA	103 442-••B	955	80.2	79.9	81.5	81.3	0.68	3.8	4.4	15	2.2	2.7	0.00873	37	49
2.2	**M3BA 112 MB**	3GAA	113 442-••B	960	82.7	82.3	83.4	83.1	0.68	5.5	4.7	21.9	2.0	2.6	0.0125	44	76
3	**M3BA 132 MA**	3GBA	133 441-••B	975	84.7	83.4	85.5	84.2	0.61	8.1	5.8	29.4	2.6	3.2	0.03336	69	57
4	**M3BA 132 MA**	3GBA	133 442-••B	965	85.8	85	86.3	85.8	0.70	9.5	5.0	39.5	2.0	2.3	0.03336	69	57
5.5	**M3BA 132 MC**	3GBA	133 444-••B	970	86.9	86.1	87.8	87.4	0.70	12.6	5.0	54	1.8	2.7	0.0487	86	57
750 r/min = 8 poles				**400 V 50 Hz**												**Basic design**	
0.75	**M3BA 100 LB**	3GAA	104 442-••B	725	73.7	71.8	74.4	72	0.53	2.8	4.2	9.9	2.8	3.7	0.00871	34	46
1.1	**M3BA 100 LC**	3GAA	104 443-••B	695	75.9	76.2	76.6	76.9	0.66	3.1	3.7	14.8	1.7	2.5	0.00946	35	46
1.5	**M3BA 112 MB**	3GBA	114 442-••B	705	77.8	77.1	78.4	77.9	0.58	4.7	4.0	20.3	2.5	2.7	0.0125	42	52
2.2	**M3BA 132 S**	3GBA	134 441-••B	720	80.9	80.7	81.2	81	0.60	6.2	4.0	29.3	1.9	2.6	0.03336	70	56
3	**M3BA 132 M**	3GBA	134 442-••B	710	81.9	82.3	82.7	83	0.66	7.9	3.6	40.5	1.8	1.9	0.04003	75	56

The data for missing types will come later.

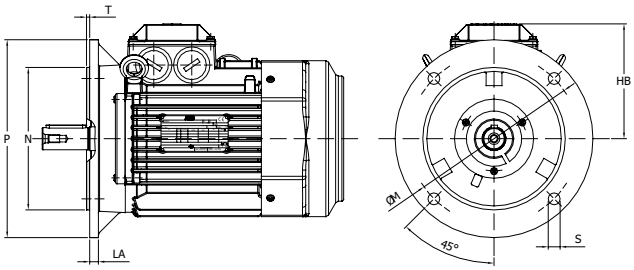
[1)] Efficiency values are given according to both IEC/EN 60034-2-1; 2007 and IEC 60034-2; 1996. Please note that the values are not comparable without knowing the testing method. ABB has calculated the new efficiency values acc. to indirect method, stray losses (additional losses) determined from measuring.

Dimension drawings

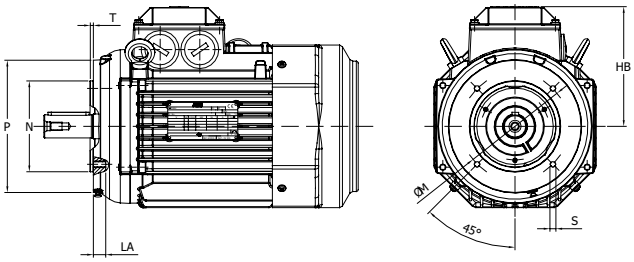
Foot-mounted motor; IM B3 (IM 1001), IM 1002



Flange-mounted motor, large flange; IM B5 (IM 3001), IM 3002



Flange-mounted motor, small flange; IM B14 (IM 3601)



IM B3 (IM 1001), IM 1002

Motor size	A	AA	AB	AC	AE	AF	B	BA	BB	BC	C	CA	CB	D-Tol.	DA	DB	DC	E	EA	EG	EH	F	FA
71	112	24	136	139	97	139	90	24	110	24	45	104	10	14-j6	11	M5	M4	30	23	12.5	10	5	4
80	125	28	154	157	97	157	100	28	125	28	50	111	12.5	19-j6	14	M6	M5	40	30	16	12.5	6	5
90S	140	30	170	177	110	177	100	30	150	55	56	156.5	12.5	24-j6	14	M8	M5	50	30	19	12.5	8	5
90L	140	30	170	177	110	177	125	30	150	55	56	131.5	12.5	24-j6	14	M8	M5	50	30	19	12.5	8	5
100	160	38	200	197	110	197	140	34	172	34	63	123	16	28-j6	19	M10	M6	60	40	22	16	8	6
112	190	41	230	197	110	197	140	34	172	34	70	138	16	28-j6	19	M10	M6	60	40	22	16	8	6
132S	216	47	262	268.5	160	261	140	40	212	76	89	228	16	38-k6	24	M12	M8	80	50	28	19	10	8
132M	216	47	262	268.5	160	261	178	40	212	76	89	190	16	38-k6	24	M12	M8	80	50	28	19	10	8

Motor size	G	GA	GB	GC	H	HA	HC	HD	HE	K	L	LC	UB	UC	VA	VB	VC	VD
71	11	16	8.5	12.5	71	9	151	176	62	7	264	292	M16x1.5	M16x1.5	34	97	27.5	69.5
80	15.5	21.5	11	16	80	10	166	191	67	10	296	331	M25x1.5	M25x1.5	37	97	27.5	69.5
90	20	27	11	16	90	11	189	217	79	10	357	392.5	M25x1.5	M25x1.5	46	110	35	77
100	24	31	15.5	21.5	100	12	217	245	93	12	381	426	M32x1.5	M32x1.5	49	110	32	80
112	24	31	15.5	21.5	112	12	229	257	93	12	403	448	M32x1.5	M32x1.5	49	110	32	80
132	33	41	20	27	132	14	272	298	116	12	533	587	M32x1.5	M32x1.5	71	160	77	125

IM B5 (IM3001), IM 3002

Motor size	HB	LA	M	N	P	S	T
71	105	9	130	110	160	10	3.5
80	111	10	165	130	200	12	3.5
90	127	10	165	130	200	12	3.5
100	145	11	215	180	250	15	4
112	145	11	215	180	250	15	4
132	166	12.5	265	230	300	15	4

IM B14 (IM3601), IM 3602

Motor size	HB	LA	M	N	P	S	T
71	105	10	85	70	105	M6	2.5
80	111	10	100	80	120	M6	3
90	127	10	115	95	140	M8	3
100	145	10	130	110	160	M8	3.5
112	145	10	130	110	160	M8	3.5
132	166	12	165	130	200	M10	3.5

Tolerances:

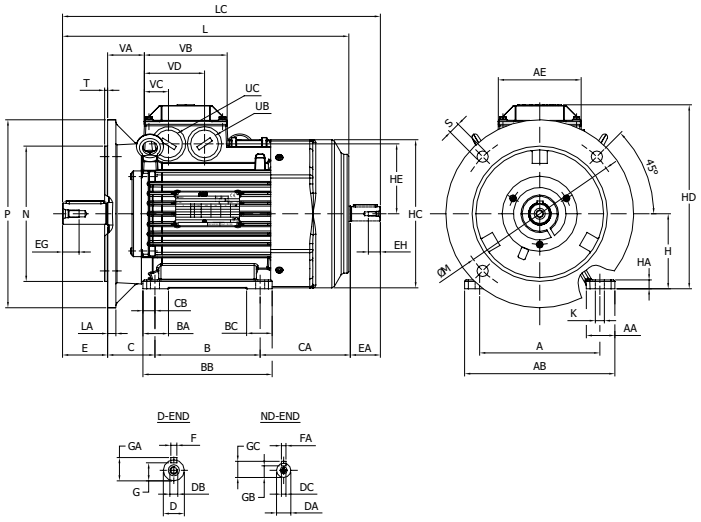
A,B	+ - 0.8	H	+0 -0.5
D, DA	ISO j6	N	ISO j6
F, FA	ISO h9	C, CA	+- 0.8

Above table gives the main dimensions in mm.

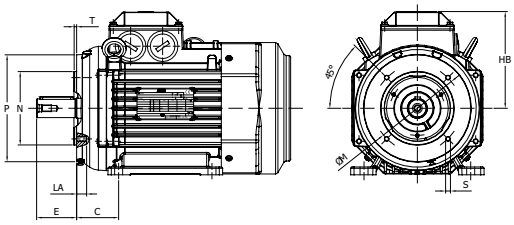
For detailed drawings please see our web-pages 'www.abb.com/motors&generators' or contact ABB.

Dimension drawings

Foot- and flange-mounted motor;
IM B35 (IM 2001), IM 2002, large flange



Foot- and flange-mounted motor;
IM B34 (IM 2101), IM 2102, small flange



IM B35 (IM 2001), IM 2002; IM B34 (IM 2101), IM 2102

Motor size	A	AA	AB	AE	AF	B	BA	BB	BC	C	CA	CB	D-Tol.	DA	DB	DC	E	EA	EG	EH	F	FA
71	112	24	136	97	139	90	24	110	24	45	104	10	14-j6	11	M5	M4	30	23	12.5	10	5	4
80	125	28	154	97	157	100	28	125	28	50	111	12.5	19-j6	14	M6	M5	40	30	16	12.5	6	5
90S	140	30	170	110	177	100	30	150	55	56	156.5	12.5	24-j6	14	M8	M5	50	30	19	12.5	8	5
90L	140	30	170	110	177	125	30	150	55	56	131.5	12.5	24-j6	14	M8	M5	50	30	19	12.5	8	5
100	160	38	200	110	197	140	34	172	34	63	123	16	28-j6	19	M10	M6	60	40	22	16	8	6
112	190	41	230	110	197	140	34	172	34	70	138	16	28-j6	19	M10	M6	60	40	22	16	8	6
132S	216	47	262	160	261	140	40	212	76	89	228	16	38-k6	24	M12	M8	80	50	28	19	10	8
132M	216	47	262	160	261	178	40	212	76	89	190	16	38-k6	24	M12	M8	80	50	28	19	10	8

Motor size	G	GA	GB	GC	H	HA	HC	HD	HE	K	L	LC	UB	UC	VA	VB	VC	VD
71	11	16	8.5	12.5	71	9	139	176	62	7	264	292	M16x1.5	M16x1.5	34	97	27.5	69.5
80	15.5	21.5	11	16	80	10	157	191	67	10	296	331	M25x1.5	M25x1.5	37	97	27.5	69.5
90	20	27	11	16	90	11	177	217	79	10	357	392.5	M25x1.5	M25x1.5	46	110	35	77
100	24	31	15.5	21.5	100	12	177	245	93	12	381	426	M32x1.5	M32x1.5	49	110	32	80
112	24	31	15.5	21.5	112	12	197	257	93	12	403	448	M32x1.5	M32x1.5	49	110	32	80
132	33	41	20	27	132	14	268.5	298	116	12	533	587	M32x1.5	M32x1.5	71	160	77	125

IM B35 (IM 2001), IM 2002

Motor size	LA	M	N	P	S	T
71	9	130	110	160	10	3.5
80	10	165	130	200	12	3.5
90	10	165	130	200	12	3.5
100	11	215	180	250	15	4
112	11	215	180	250	15	4
132	12.5	265	230	300	15	4

IM B34 (IM 2101), IM 2102

Motor size	LA	M	N	P	S	T
71	10	85	70	105	M6	2.5
80	10	100	80	120	M6	3
90	10	115	95	140	M8	3
100	10	130	110	160	M8	3.5
112	10	130	110	160	M8	3.5
132	12	165	130	200	M10	3.5

Tolerances:

A,B	+ - 0.8	**H**	+0 -0.5
D, DA	ISO j6	**N**	ISO j6
F, FA	ISO h9	**C, CA**	+- 0.8

Above table gives the main dimensions in mm.

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

Industrial performance cast iron motors in brief

Size		71	80	90	100	112	132
Stator	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, ≥ 60µm					
Feet		Fixed feet					
	Material	Cast iron EN-GJL-150/GG 15/GRS 150					
Bearing end shields	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, ≥ 60µm					
Bearings	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
Axially-locked bearings	Inner bearing cover	As standard, locked at D-end					
Bearing seals	D-end	V-ring					
	N-end	Labyrinth seal					
Lubrication		Permanently lubricated shielded bearings					
		Grease temperature range -40 to +160°C					
Terminal box	Material	Cast iron EN-GJL-150/GG 15/GRS 150					
	Surface treatment	Similar to stator					
	Screws	Steel 5G, coated with zinc and yellow chromated					
Connections	Threaded openings	2 x M16	2 x M25		2 x M32		
	Max Cu-area mm²	4	6		10		
	Terminal box	Cable lugs, 6 terminals					
Fan	Material	Polypropylene. Reinforced with 20% glass fibre.					
Fan cover	Material	Steel					
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G					
	Surface treatment	Two-pack epoxy-paint, ≥ 60µm					
Stator winding	Material	Copper					
	Insulation	Insulation class F. Temperature rise class B, unless otherwise stated.					
	Winding protection	Optional					
Rotor winding	Material	Pressure diecast aluminum					
Balancing method		Half key balancing as standard					
Key ways		Closed keyway					
Heating elements	On request	8 W	25 W				
Enclosure		IP 55					
Cooling method		IC 411					
Drain holes		Drain holes with closable plastic plugs, open on delivery					

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