

# Low Voltage Cast Iron Motors according to Indian standards



**ABB**

# Cast Iron Motors 71 to 132 according to Indian standards

The new generation of 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. They fulfill the requirements of Indian standard IS 12615 \*Energy Efficient Induction Motors - Three Phase Squirrel Cage\*.

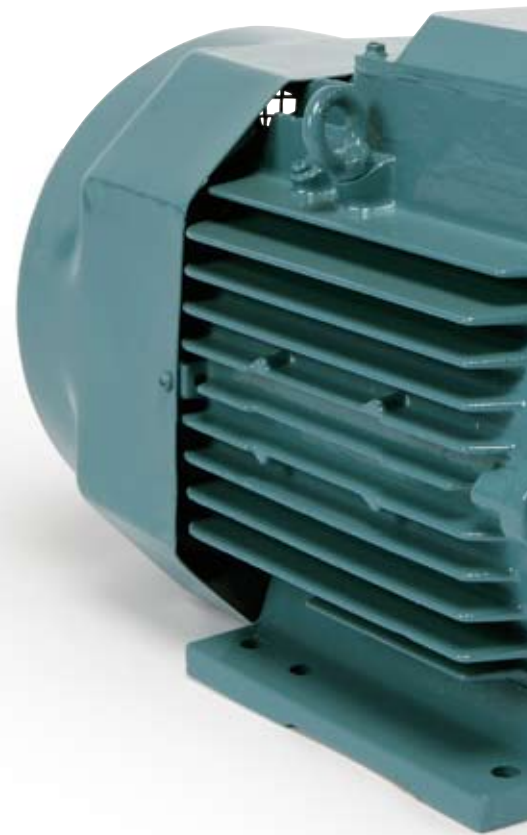
Attention was paid to four key focus areas:

- **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:

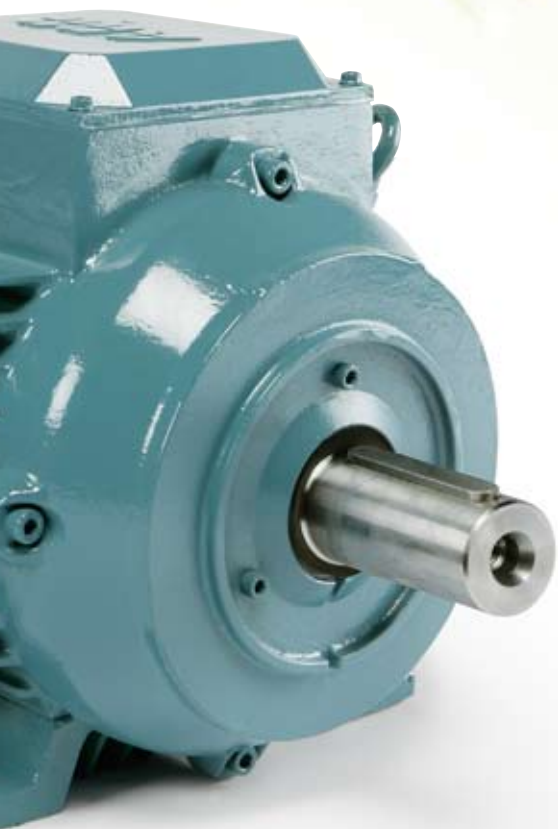
- Prepared for a wide range of variant codes – meets numerous types of applications
- High efficiency – low running costs and an environmentally friendly motor
- Permanently greased bearings
- Improved mechanical and electrical design – longer lifetime
- Foot-mounted motors have fixed feet
- Bigger terminal box which allows a fast connection and easy installation
- Improved surface treatment and painting to bear heavy environmental conditions





## Technical information and documentation

Individual dimension drawings can be found on the Internet at [www.abb.com/motors&generators](http://www.abb.com/motors&generators).



<b>Frame sizes</b>	<b>71 to 132</b>
<b>Output range</b>	<b>0.75 to 9.3 kW</b>
<b>Poles</b>	<b>2 to 8 poles</b>
<b>Voltage</b>	<b>415 V 50 Hz</b>

# Cast iron motors according to Indian standard

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

IP 55, IC 411; Insulation class F, temperature rise class B, ambient temperature 50°C

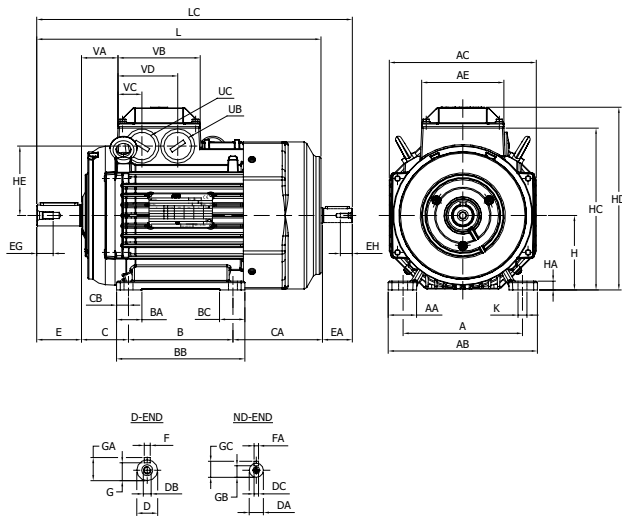
Output kW	Motor type	Product code	Speed r/min	Efficiency, IEC 60034-2 1996		Power factor cos φ 100%	Current		Torque			Moment of inertia J=1/4GD <sup>2</sup> kgm <sup>2</sup>	Weight Foot-mounted kg	Sound pressure level dB(A)	
				Full load 100%	3/4 load 75 %		I <sub>N</sub> A	I <sub>s</sub> /I <sub>N</sub>	T <sub>N</sub> Nm	T <sub>s</sub> /T <sub>N</sub>	T <sub>max</sub> /T <sub>N</sub>				
<b>3000 r/min = 2 poles</b>															
<b>415 V 50 Hz</b>															
0.37	M3BA	71 A	3GBA 071 311-••B	2740	72.7	72.0	0.84	0.9	4.0	1.29	2.2	3.0	0.00039	11	58
0.55	M3BA	71 B	3GBA 071 312-••B	2755	77.2	78.4	0.82	1.2	4.7	1.9	2.7	2.8	0.00051	11	58
0.75	M3BA	80 A	3GBA 081 311-••B	2840	77.0	77.8	0.82	1.6	3.7	2.52	2.6	3.4	0.0008	14	60
1.1	M3BA	80 B	3GBA 081 312-••B	2825	82.8	82.9	0.81	2.4	5.7	3.7	2.9	3.0	0.00101	16	60
1.5	M3BA	90 L	3GBA 091 312-••B	2890	85.8	86.7	0.89	2.8	6.8	4.9	2.6	3.2	0.00254	24	63
2.2	M3BA	90 LB	3GBA 091 313-••B	2875	85.6	86.5	0.89	4.1	6.5	7.3	2.7	3.0	0.0028	25	68
3.7	M3BA	100 LC	3GBA 101 313-••B	2900	87.7	88.0	0.90	6.6	7.0	12.2	3.0	3.4	0.00573	37	68
5.5	M3BA	132 SB	3GBA 131 312-••B	2890	89.2	89.7	0.89	9.7	7.0	18.2	2.4	3.5	0.01275	68	75
7.5	M3BA	132 SBB	3GBA 131 314-••B	2880	90.0	90.4	0.87	13.5	6.5	24.8	2.2	3.3	0.01359	70	75
9.3	M3BA	132 SD	3GBA 131 315-••B	2900	90.7	91.4	0.90	16.2	7.0	30.6	2.5	3.6	0.02065	84	75
<b>1500 r/min = 4 poles</b>															
<b>415 V 50 Hz</b>															
0.37	M3BA	71 C	3GBA 072 313-••B	1390	73.2	72.2	0.79	0.9	4.0	2.53	2.0	2.3	0.0011	12	45
0.55	M3BA	80 C	3GBA 082 313-••B	1405	78.0	78.3	0.78	1.3	4.6	3.7	2.3	2.8	0.00183	15	50
0.75	M3BA	80 D	3GBA 082 314-••B	1410	82.4	82.7	0.75	1.7	5.3	5.1	2.6	2.7	0.00205	17	50
1.1	M3BA	90 LB	3GBA 092 314-••B	1430	83.8	83.1	0.80	2.4	6.0	7.3	2.7	3.2	0.00491	26	50
1.5	M3BA	90 LD	3GBA 092 315-••B	1445	85.5	85.0	0.76	3.3	6.0	10	3.2	3.7	0.00538	28	50
2.2	M3BA	100 LC	3GBA 102 313-••B	1450	86.4	86.0	0.75	4.8	7.0	14.5	3.2	4.3	0.00948	36	54
3.7	M3BA	112 MB	3GBA 112 312-••B	1450	88.8	88.2	0.81	7.31	7.0	24.4	3.0	3.6	0.0125	34	64
5.5	M3BA	132 M	3GBA 132 312-••B	1460	89.6	89.8	0.80	10.8	7.0	36	2.5	3.3	0.03282	70	66
7.5	M3BA	132 MB	3GBA 132 313-••B	1460	90.4	90.6	0.79	14.8	6.5	49.1	2.1	3.2	0.03659	73	66
<b>1000 r/min = 6 poles</b>															
<b>415 V 50 Hz</b>															
0.37	M3BA	80 A	3GBA 083 311-••B	920	69.8	69.7	0.71	1.1	3.0	3.8	2.3	2.8	0.00187	15	47
0.55	M3BA	80 B	3GBA 083 312-••B	925	72.4	74.0	0.70	1.5	3.8	5.7	2.1	2.7	0.00239	17	47
0.75	M3BA	90 L	3GBA 093 312-••B	940	75.1	74.7	0.64	2.2	4.4	7.6	2.3	3.4	0.00444	25	44
1.1	M3BA	90 LB	3GBA 093 313-••B	925	77.3	77.8	0.69	2.9	4.1	11.3	2.3	2.6	0.00491	25	44
1.5	M3BA	100 L	3GBA 103 312-••B	955	81.5	81.3	0.68	3.8	4.4	15	2.2	2.7	0.00873	37	49
2.2	M3BA	112 M	3GBA 113 311-••B	945	82.4	83.3	0.72	5.2	4.4	22.2	2.2	2.4	0.0114	40	54
3.7	M3BA	132 MA	3GBA 133 312-••B	970	85.7	84.8	0.68	8.95	5.2	36.4	2.1	2.5	0.03336	69	57
5.5	M3BA	132 MC	3GBA 133 314-••B	970	87.8	87.4	0.70	12.5	5.0	54	1.8	2.7	0.0487	86	57
<b>750 r/min = 8 poles</b>															
<b>415 V 50 Hz</b>															
0.37	M3BA	90 LC	3GBA 094 314-••B	695	66.8	65.2	0.56	1.4	3.2	5.1	2.1	2.4	0.00539	28	43
0.55	M3BA	90 LD	3GBA 094 315-••B	695	77.1	76.7	0.57	2	3.2	7.6	2.0	2.4	0.00609	29	43
0.75	M3BA	100 LB	3GAA 104 312-••B	725	74.4	72.0	0.53	2.8	4.2	9.9	2.8	3.7	0.00871	34	46
1.1	M3BA	100 LC	3GAA 104 313-••B	695	76.6	76.9	0.66	3.1	4.2	15	2.0	2.6	0.00946	35	46
1.5	M3BA	112 MB	3GBA 114 312-••B	705	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 134 311-••B	720	81.2	81.0	0.60	6.2	4.0	29.3	1.9	2.6	0.03336	70	56

# Cast iron motors

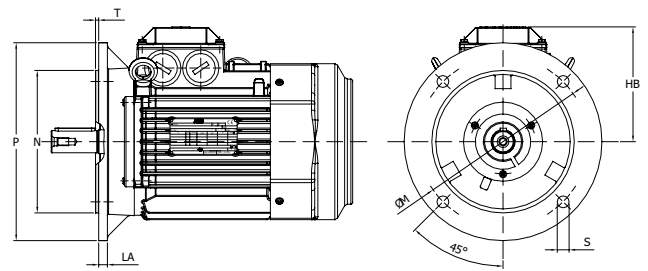
## Dimension drawings

# M3BA 71-132

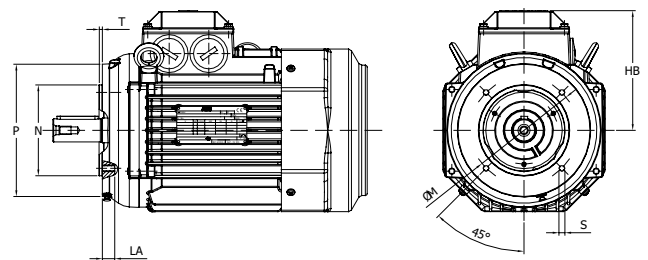
### Foot-mounted motor; IM B3 (IM 1001), IM 1002



### 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	136	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	168	193	69	10	356	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	94	12	381	426	M32x1.5	M32x1.5	49	110	32	80
112	24	31	15.5	21.5	112	12	229	257	94	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	113	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	113	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.

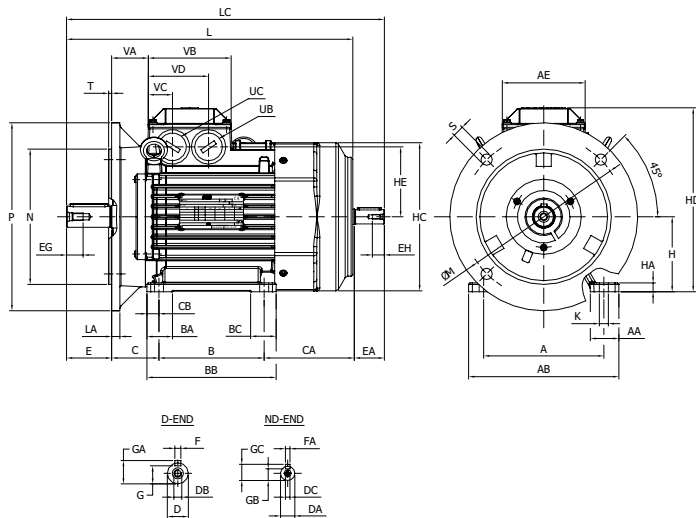
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# Cast iron motors

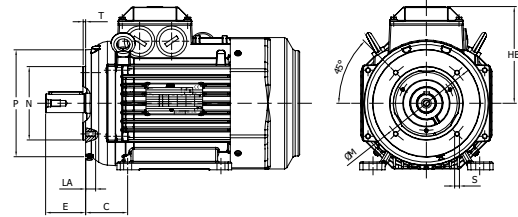
# M3BA 71-132

## 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	136	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	193	69	10	321	356	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	94	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  
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or contact ABB.

# Cast iron motors in brief

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	As standard, locked at 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 $\text{mm}^2$	4	6		10		
	Terminal box	Cable lugs, 6 terminals					
<b>Fan</b>	Material	Polypropylene. Reinforced with 20% glass fibre.					
<b>Fan cover</b>	Material	Steel					
	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>Stator winding</b>	Material	Copper					
	Insulation	Insulation class F. Temperature rise class B, unless otherwise stated.					
	Winding protection	Optional					
<b>Rotor winding</b>	Material	Pressure diecast aluminum					
<b>Balancing method</b>		Half key balancing as standard					
<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 plastic plugs, open on delivery					

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