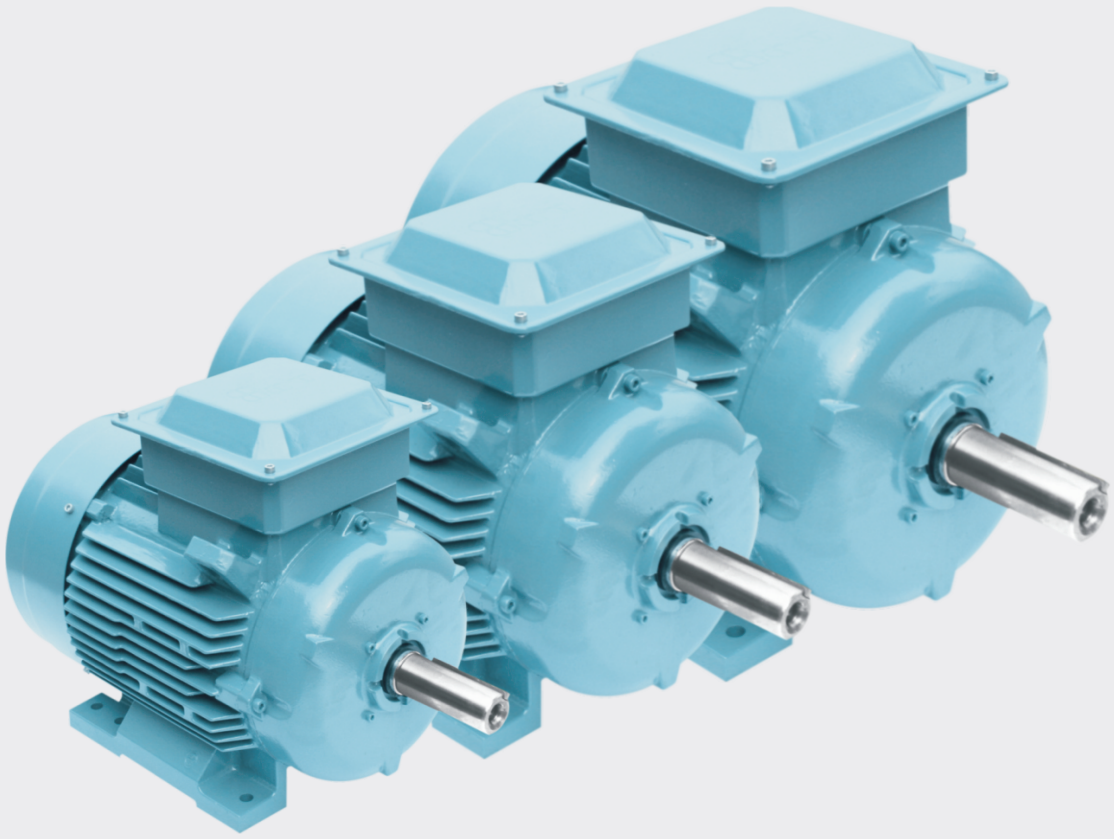
Power and productivity
for a better world™

CATALOG

Low voltage

General performance
IE4 efficiency cast iron motors



With expertise, and a comprehensive portfolio of products and life-cycle services, we help value-minded industrial customers improve their energy efficiency and productivity.

General performance IE4 efficiency cast iron motors sizes 160 to 250

Technical data

Ie4 cast iron 415V, 50Hz motors, 3000, 1500 & 1000 r/min

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE4 efficiency class according to IEC 60034-30-1; 2014

Output KW	Frame Size	Speed r/min	Efficiency Full load 100%	Efficiency 3/4 load 75%	Efficiency 1/2 load 50%	Power factor cos Ø	Current I_n, A	Current I_s / I_n	Torque T_n Nm	Torque T_s / T_n	Torque T_b / T_n	Moment of inertia J=1/4GD² kgm²	Weight kg
3000 r/min				415V, 50Hz									
9.3	M2BAX160MLJ2	2940	92.2	92.3	91.4	0.88	16.00	7.70	30.21	2.5	3.4	0.048	125
11	M2BAX160MLA2	2945	92.6	92.6	91.8	0.89	18.80	7.70	35.68	2.5	3.4	0.055	132
15	M2BAX160MLB2	2945	93.3	93.6	93.1	0.89	25.10	8.00	48.65	2.8	3.5	0.061	144
18.5	M2BAX160MLC2	2950	93.7	93.9	93.5	0.89	31.00	8.50	59.90	2.8	3.5	0.074	170
22	M2BAX180MLA2	2950	94.0	94.3	93.9	0.89	36.70	7.70	71.23	2.0	3.3	0.125	235
30	M2BAX200MLA2	2955	94.5	94.6	94.1	0.88	50.60	7.00	96.97	2.0	3.0	0.180	250
37	M2BAX200MLB2	2955	94.8	94.4	94.9	0.88	62.20	7.00	119.60	2.2	3.0	0.212	280
45	M2BAX225SMA2	2960	95.0	95.2	94.5	0.88	75.00	7.50	145.21	2.7	3.0	0.342	368
55	M2BAX250SMA2	2961	95.3	95.4	94.8	0.88	91.50	7.00	177.42	1.9	3.0	0.647	472

Output KW	Frame Size	Speed r/min	Efficiency Full load 100%	Efficiency 3/4 load 75%	Efficiency 1/2 load 50%	Power factor cos Ø	Current I_n, A	Current I_s / I_n	Torque T_n Nm	Torque T_s / T_n	Torque T_b / T_n	Moment of inertia J=1/4GD² kgm²	Weight kg
1500 r/min				415V, 50Hz									
9.3	M2BAX160MLJ4	1475	93.0	93.1	93.2	0.78	18.00	8.00	60.22	2.7	3.4	0.095	138
11	M2BAX160MLA4	1475	93.3	93.3	92.4	0.78	21.00	8.00	71.23	2.7	3.4	0.104	145
15	M2BAX160MLB4	1475	93.9	94.0	93.1	0.78	29.00	7.50	97.14	2.6	2.9	0.121	170
18.5	M2BAX180MLA4	1476	94.2	94.4	94.0	0.80	34.20	7.50	119.72	2.6	2.9	0.228	224
22	M2BAX180MLB4	1478	94.5	94.8	94.5	0.81	40.00	7.50	142.18	2.6	2.9	0.240	234
30	M2BAX200MLA4	1478	94.9	95.0	94.8	0.82	53.80	7.80	193.88	2.5	2.8	0.428	322
37	M2BAX225SMA4	1478	95.2	95.5	95.3	0.83	65.10	8.00	239.12	2.7	3.2	0.638	405
45	M2BAX225SMB4	1480	95.4	95.6	95.3	0.83	79.10	8.00	290.42	2.7	3.3	0.638	408
55	M2BAX250SMA4	1480	95.7	95.7	95.3	0.83	97.20	7.50	354.96	2.4	3.1	0.910	443

Output KW	Frame Size	Speed r/min	Efficiency Full load 100%	Efficiency 3/4 load 75%	Efficiency 1/2 load 50%	Power factor cos Ø	Current I_n, A	Current I_s / I_n	Torque T_n Nm	Torque T_s / T_n	Torque T_b / T_n	Moment of inertia J=1/4GD² kgm²	Weight kg
1000 r/min				415V, 50Hz									
7.5	M2BAX160MLA6	975	91.3	91.4	90.4	0.74	15.70	7.00	73.47	2.0	3.1	0.109	145
9.3	M2BAX160MLJ6	976	91.9	92.1	91.2	0.74	19.40	7.00	91.01	2.0	3.0	0.118	149
11	M2BAX160MLB6	976	92.3	92.4	91.6	0.74	23.00	7.00	107.65	2.2	3.3	0.304	230
15	M2BAX180MLA6	977	92.9	93.4	93.0	0.75	30.00	7.00	146.65	2.0	2.9	0.237	223
18.5	M2BAX200MLA6	985	93.4	93.5	92.8	0.77	35.70	7.80	179.40	2.6	3.2	0.441	236
22	M2BAX200MLB6	986	93.7	93.8	93.2	0.78	42.00	8.00	213.12	2.7	3.3	0.537	280
30	M2BAX225SMA6	986	94.2	94.4	94.0	0.80	55.50	7.50	290.62	2.6	3.0	0.807	350
37	M2BAX250SMA6		94.5									1.567	445

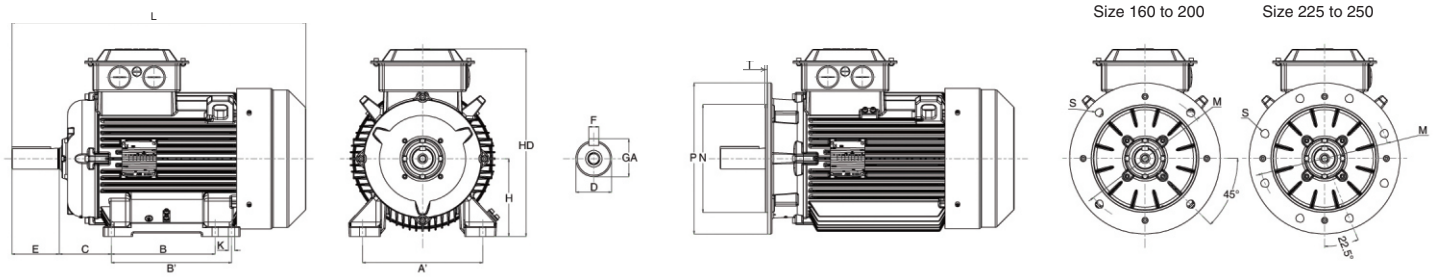
Efficiency values are given according to IEC 60034-2-1; 2014.
Please note that the values are not comparable without knowing the testing method.
ABB has calculated the efficiency values according to indirect method, stray load losses (additional losses) determined from measuring.

I_s / I_n = Starting current
T_s / T_n = Locked rotor torque
T_b / T_n = Breakdown torque

IE-class concerns motors from 7.5 kW to 55 kW

Dimension drawings

General performance IE4 efficiency cast iron motors



Foot-mounted motor IM1001, B3 and Flange-mounted motor IM 3001, B5

Motor	D Poles		GA Poles		F Poles		E Poles		L max Poles													
Size	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6	A	B	B'	C	HD	K	H	M	N	P	S	T
General performance cast iron motors																						
160ML	42	42	45	45	12	12	110	110	696[1]	696[1]	254	210	254	108	414	14.5	160	300	250	350	18.5	5
180ML	48	48	51.5	51.5	14	14	110	110	798	798	279	241	279	121	454	14.5	180	300	250	350	18.5	5
200ML	55	55	59	59	16	16	110	110	809[2]	809[2]	318	267	305	133	515	18.5	200	350	300	400	18.5	5
225SM	55	60	59	64	16	18	110	140	942	972	356	286	311	149	560	18.5	225	400	350	450	18.5	5
250SM	60	65	64	69	18	18	140	140	913	913	406	311	349	168	613	24	250	500	450	550	18.5	5

Above table gives the main dimensions in mm.

1) M2BAX 160ML C2, B4, B6: L = 746

Motors in Brief

General performance IE4 cast iron

Size		160	180	200	225	250
Stator	Material	Cast Iron Grade 200:ISO 185				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface Treatment	C3 medium according to ISO / EN 12944-5				
Bearing end shields	Material	Cast iron grade 200 : ISO 185				
	Paint colour shade	Munsell blue 8B 4.5/3.25/NCS 4822 B05G				
	Surface Treatment	C3 medium according to ISO / EN 12944-5				
Bearings	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
Axially-locked	Inner Bearing Cover	As standard , locked at D-end				
Bearing seals		Axial seal standard, radial on request				
Lubrication		Permanently lubricated shielded bearings				
Measuring nipple		Not included				
Rating plate	Material	Aluminum				
Terminal Box	Frame material	Sheet of Steel, cold rolled				
	Cover material	Sheet of Steel, cold rolled				
	Cover screws material	Steel 8.8				
Connections	Cable entries	2xM40, 1xM16		2xM50, 1xM16		
	Terminals	6 terminals for connection with cable lugs (not included)				
	Cable gland	Suitable opening in terminal box, cable glands as option				
Fan	Material	Polypropylene, Reinforced with 20% glass fibre				
Fan Cover	Material	Sheet of steel, cold rolled				
	Paint Colour shade	Munsell blue 8B 4.5/3.25/NCS 4822 B05G				
	Surface Treatment	C3 medium according to ISO/EN 12944-5				
Stator winding	Material	Copper				
	Insulation	Insulation class F, Temperature rise class B unless otherwise stated.				
	Winding protection	3 PTC thermistors as option				
Rotor winding	Material	Pressure diecast aluminum				
Balancing method		Half Key Balancing as Standard				
Key ways		Open Key Way				
Enclosure		IP 55, Higher protection on request				
Cooling method		IC 411				

ABB India Limited
32, Industrial Area,
N.I.T., Faridabad - 121 001
Tel: +91 129 2448100
Fax: +91 129 4023006
Helpline No. : 1800 425 0707

Regional Marketing Offices :

North	East	West	South
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Lucknow Tel: +91 522 2209436 Fax: +91 522 2209478	Bhubaneshwar 1st Floor, Plot no. A-51/1, Bhoi Nagar, Sachivaiya Marg, Unit-9, Bhubaneshwar Tel.: +91 674654/8701 - 715	Vadodara Tel: +91 265 2642141-42 Fax: +91 265 2638911	Hyderabad Tel: +91 40 27906736 / 29 Fax: +91 40 27906648
Ludhiana Tel: +91 161 4656831 Fax: +91 161 4656830		Ahmedabad Tel: +91 79 29085095	Kochi Tel: +91 484 2421481
Dehradun Tel: +91 135 2760654 Fax: +91 135 2760655		Nagpur Tel: +91 712 6461145, 46, 48, 49 Fax: +91 712 2290283	Visakhapatnam Tel: +91 891 2795837 Fax: +91 891 2538188
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