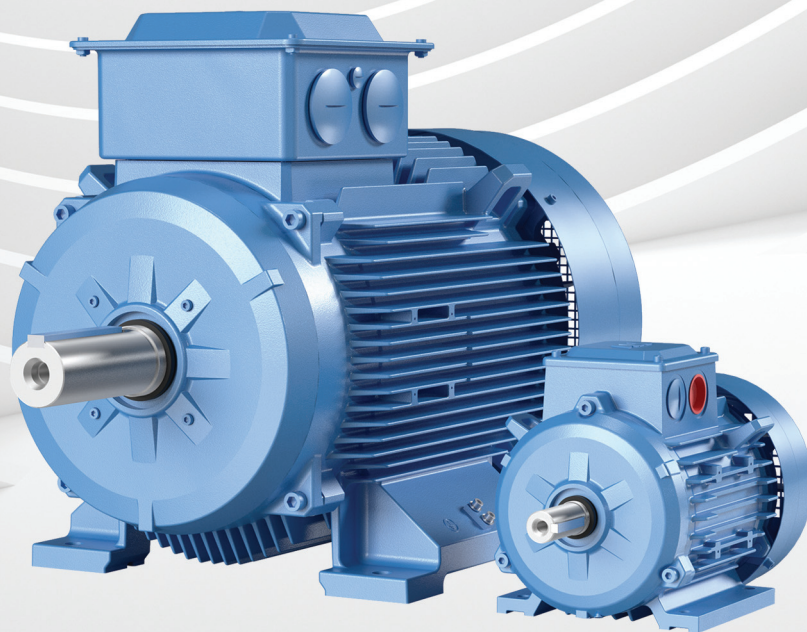

MOTORS AND GENERATORS

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

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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 IS 12615:2018

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos ϕ	Current		Torque			Moment of inertia J=1/4GD ² kgm ²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
		3000 r/min											
		415V, 50Hz											
9.3	M2BAX160MLJ2	2940	92.2	92.3	91.4	0.88	16.00	7.70	30.2	2.5	3.4	0.048	125
11	M2BAX160MLA2	2945	92.6	92.6	91.8	0.89	18.80	7.70	35.7	2.5	3.4	0.055	132
15	M2BAX160MLB2	2945	93.3	93.6	93.1	0.89	25.10	8.00	48.7	2.8	3.5	0.061	144
18.5	M2BAX160MLC2	2950	93.7	93.9	93.5	0.89	31.00	8.50	59.9	2.8	3.5	0.074	170
22	M2BAX180MLA2	2950	94.0	94.3	93.9	0.89	36.70	7.70	71.2	2.0	3.3	0.125	235
30	M2BAX200MLA2	2960	94.5	94.6	94.1	0.88	50.60	7.00	97.0	2.0	3.0	0.180	250
37	M2BAX200MLB2	2955	94.8	95.2	95.1	0.88	62.20	7.00	119.6	2.2	3.0	0.212	280
45	M2BAX225SMA2	2960	95.0	95.2	94.5	0.88	75.00	7.50	145.2	2.7	3.0	0.342	368
55	M2BAX250SMA2	2961	95.3	95.4	94.8	0.88	91.50	7.00	177.4	1.9	3.0	0.647	472

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos ϕ	Current		Torque			Moment of inertia J=1/4GD ² kgm ²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
		1500 r/min											
		415V, 50Hz											
9.3	M2BAX160MLJ4	1475	93.0	93.1	92.2	0.78	18.00	8.00	60.2	2.7	3.4	0.095	138
11	M2BAX160MLA4	1475	93.3	93.3	92.4	0.78	21.00	8.00	71.2	2.7	3.4	0.104	145
15	M2BAX160MLB4	1475	93.9	94.0	93.1	0.78	29.00	7.50	97.1	2.6	2.9	0.121	170
18.5	M2BAX180MLA4	1476	94.2	94.4	94.0	0.80	34.20	7.50	119.7	2.6	2.9	0.228	224
22	M2BAX180MLB4	1478	94.5	94.8	94.5	0.81	40.00	7.50	142.2	2.6	2.9	0.240	234
30	M2BAX200MLA4	1478	94.9	95.0	94.8	0.82	53.80	7.80	193.9	2.5	2.8	0.428	322
37	M2BAX225SMA4	1478	95.2	95.5	95.3	0.83	65.10	8.00	239.1	2.7	3.2	0.638	405
45	M2BAX225SMB4	1480	95.4	95.6	95.3	0.83	79.10	8.00	290.4	2.7	3.3	0.638	408
55	M2BAX250SMA4	1480	95.7	95.7	95.3	0.83	97.20	7.50	355.0	2.4	3.1	0.910	443

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos ϕ	Current		Torque			Moment of inertia J=1/4GD ² kgm ²	Weight kg
			Full load 100%	3/4 load 75%	1/2 load 50%		I _n , A	I _s /I _n	T _n Nm	T _s /T _n	T _b /T _n		
		1000 r/min											
		415V, 50Hz											
7.5	M2BAX160MLA6	975	91.3	91.4	90.4	0.74	15.70	7.00	73.5	2.0	3.1	0.109	145
9.3	M2BAX160MLJ6	976	91.9	92.1	91.2	0.74	19.40	7.00	91.0	2.0	3.0	0.118	149
11	M2BAX160MLB6	976	92.3	92.4	91.6	0.74	23.00	7.00	107.7	2.2	3.3	0.304	230
15	M2BAX180MLA6	977	92.9	93.4	93.0	0.75	30.00	7.00	146.6	2.0	2.9	0.237	223
18.5	M2BAX200MLA6	985	93.4	93.5	92.8	0.77	35.70	7.80	179.4	2.6	3.2	0.441	236
22	M2BAX200MLB6	986	93.7	93.8	93.2	0.78	42.00	8.00	213.1	2.7	3.3	0.537	280
30	M2BAX225SMA6	986	94.2	94.4	94.0	0.79	56.00	7.50	290.6	2.6	3.0	0.807	350
37	M2BAX250SMA6	986	94.5	94.7	94.1	0.79	70.50	7.50	358.2	2.5	2.7	1.680	470

Note : All performance figures are subject to IS tolerances

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

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

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

I_s / I_n = Starting current

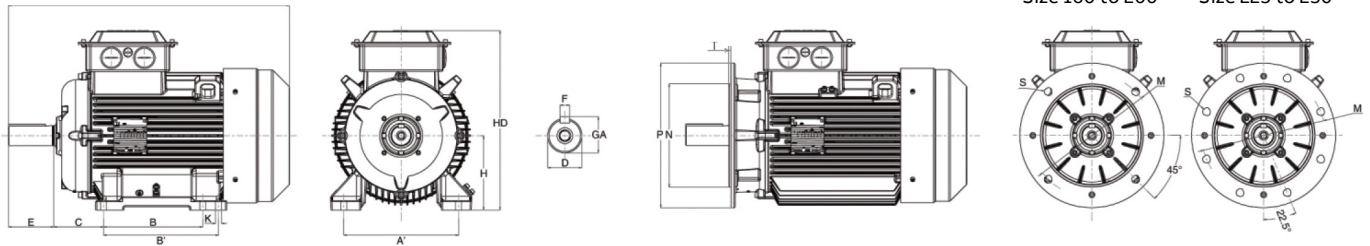
T_s / T_n = Locked rotor torque

T_b / T_n = Breakdown

Dimension drawings

General performance IE4 efficiency cast iron motors

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



Motor Size	D Poles		GA Poles		F Poles		E Poles		L max Poles		A	B	B'	C	HD	K	H	M	N	P	S	T
	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6												
General performance cast iron motors																						
160ML	42	42	45	45	12	12	110	110	696 ¹	696 ¹	254	210	254	108	414	15	160	300	250	350	19	5
180ML	48	48	51.5	51.5	14	14	110	110	798	798	279	241	279	121	454	15	180	300	250	350	19	5
200ML	55	55	59	59	16	16	110	110	809 ²	809 ²	318	267	305	113	515	19	200	350	300	400	19	5
225SM	55	60	59	64	16	18	110	140	942	972	356	286	311	149	560	19	225	400	350	450	19	5
250SM	60	65	64	69	18	18	140	140	931	910	406	311	349	168	613	24	250	500	450	550	19	5

Above table gives the main dimensions in mm.

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

2) M2BAX 200ML B2, A4, B6 = 899

Motors in brief

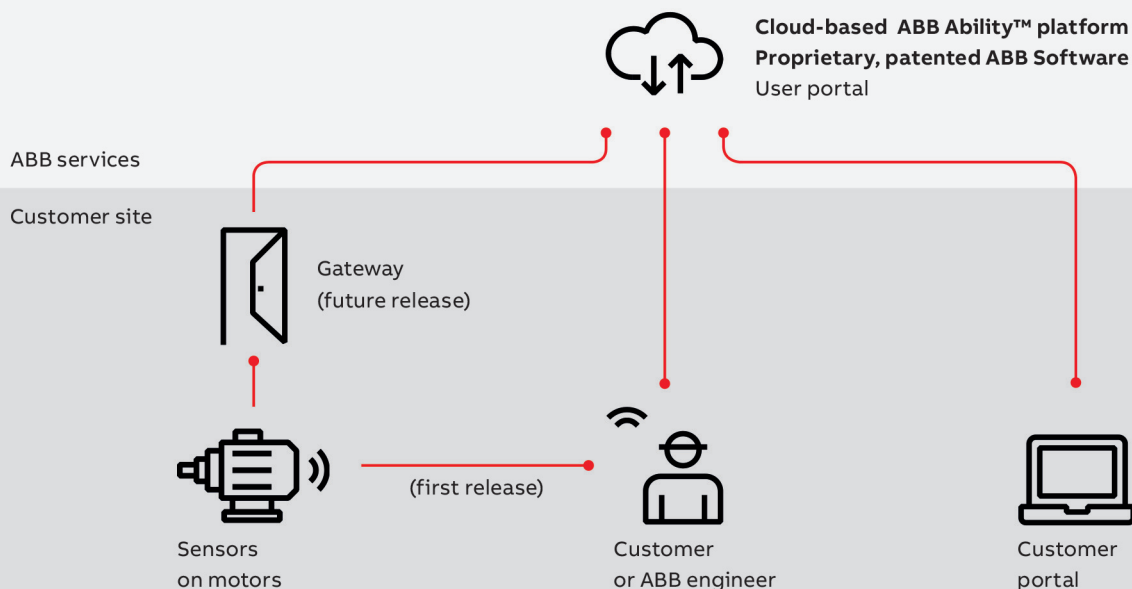
General performance IE4 cast iron

Output		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	6309-2Z/C3	6310-2Z/C3	6312-2Z/C3	6313-2Z/C3	6315-2Z/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	Aluminium				
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 of connection (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 aluminium				
Balancing method		Half Key Balancing as Standard				
Key ways		Open Key Way				
Enclosure		IP 55, Higher protection on request				
Cooling method		IC 411				

ABB Ability™ Smart Sensor

Condition monitoring solution for low voltage motors

ABB Ability™ Smart Sensor is a condition monitoring solution that makes predictive maintenance possible for almost all low voltage motors. By monitoring and analyzing data on motor operating parameters, it enables motor users to optimize their maintenance. The solution helps to reduce downtime by as much as 70 percent, extend motor lifetimes by up to 30 percent and reduce energy consumption by up to 10%.



ABB's condition monitoring solution for LV motors. The ABB Ability™ Smart Sensor transmits data via a smartphone (first release) or gateway to a secure cloud service. Algorithms in the cloud analyze the data and convert it into meaningful information, which is then sent to the user's smartphone and customer portal.

For more information please visit:
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