

Catalog

Low voltage
General performance
IE3 efficiency cast iron motors

General performance IE3 efficiency cast iron motors Sizes 71 to 355



ABB's General performance IE3 efficiency motors are best suited for industries where quality, robustness and reliability are paramount. With ABB quality and support these motors have features appreciated by industry customers. Motors have IE3 efficiency.

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General performance IE3 efficiency cast iron motors

Technical data for totally enclosed squirrel cage three phase induction motors

IE3

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

Output KW	Frame Size	Speed r/min	Efficiency			Power factor cos Ø	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										
0.37	M2BAX71MC2	2790	75.5	75.4	72.7	0.81	0.84	4.6	1.3	2.2	2.5	0.00033	9
0.55	M2BAX71MB2	2785	78.1	78.4	76.4	0.80	1.22	4.6	1.9	2.3	2.6	0.00041	10
0.75	M2BAX80MC2	2875	80.7	80.0	76.7	0.80	1.62	6.2	2.5	3.0	3.6	0.00080	14
1.1	M2BAX80MD2	2865	82.7	83.4	81.9	0.84	2.2	6.7	3.7	3.0	3.6	0.00119	17
1.5	M2BAX90SB2	2885	84.2	84.6	83.0	0.86	2.9	6.1	5.0	2.9	3.3	0.00224	21
2.2	M2BAX90SLA2	2890	85.9	86.7	85.8	0.88	4.0	7.0	7.3	3.0	3.5	0.00304	25
3.7	M2BAX100LKB2	2900	87.8	88.1	86.8	0.88	6.7	7.5	12.1	3.5	3.9	0.00756	42
5.5	M2BAX132SMA2	2900	89.2	89.6	88.9	0.86	10.0	6.6	18.0	2.3	3.4	0.1630	69
7.5	M2BAX132SMB2	2905	90.1	90.5	89.7	0.86	13.5	6.3	24.6	2.5	3.5	0.01820	74
9.3	M2BAX160MLJ2	2940	90.7	90.8	89.7	0.89	16.2	7.7	30.1	2.8	3.8	0.053	115
11	M2BAX160MLA2	2942	91.2	91.5	90.8	0.90	18.7	7.7	35.7	2.8	3.6	0.057	118
15	M2BAX160MLB2	2944	91.9	92.1	91.3	0.88	26.0	7.7	48.6	3.0	4.0	0.063	126
18.5	M2BAX160MLC2	2995	92.4	92.9	92.5	0.90	31.2	7.7	59.8	3.0	3.9	0.076	144
22	M2BAX180MLA2	2955	92.7	93.2	92.7	0.90	37.1	7.7	71.0	3.0	3.7	0.110	181
30	M2BAX200MLA2	2957	93.3	93.6	93.2	0.89	51.0	7.0	96.8	2.9	3.3	0.182	230
37	M2BAX200MLB2	2958	93.7	94.1	93.6	0.90	61.8	7.0	119.3	2.9	3.4	0.222	257
45	M2BAX225SMA2	2966	94.0	94.1	93.3	0.87	77.3	7.0	144.7	2.9	3.4	0.296	287
55	M2BAX250SMA2	2968	94.3	94.3	93.5	0.89	92.5	6.7	176.9	2.8	3.1	0.426	344
75	E3HX280SMB2	2970	94.7	94.7	93.7	0.90	122	7.7	241	2.5	2.8	1.025	700
90	E3HX280SMC2	2970	95.0	95.0	94.0	0.90	146	7.7	289	2.0	2.6	1.214	740
110	E3BA315SMA2	2980	95.2	95.2	94.2	0.88	183	7.7	353	2.6	2.9	1.65	935
125	E3BA315SMB2K	2980	95.3	95.3	94.3	0.89	205	7.7	401	2.6	2.9	1.8	970
132	E3BA315SMB2	2980	95.4	95.4	94.4	0.89	216	7.7	423	2.5	2.7	1.8	970
160	E3BA315MLA2	2980	95.6	95.6	94.6	0.90	259	7.7	513	2.6	2.9	2.3	1150
200	E3BA315MLC2	2980	95.8	95.8	94.8	0.90	323	7.7	641	2.6	3	2.55	1310
250	E3BA355SMA2	2980	95.8	95.8	94.8	0.90	403	7.7	801	2.5	3	4.75	1905
315	E3BA355MLA2	2980	95.8	95.8	94.8	0.91	503	7.7	1009	2.0	2.9	5.75	1950
355	E3BA355MLC2	2982	95.8	95.8	94.8	0.90	573	7.7	1137	2.5	3	6.52	2260

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 0.37 kW to 355 kW

General performance IE3 efficiency cast iron motors

Technical data for totally enclosed squirrel cage three phase induction motors

IE3

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

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											
0.37	M2BAX71MC4	1435	73.0	69.8	62.7	0.65	1.08	4.6	2.5	2.7	3.0	0.00082	10
0.55	M2BAX80MC4	1430	78.0	77.4	73.8	0.72	1.36	5.3	3.7	2.7	2.8	0.00195	15
0.75	M2BAX80MLA4	1445	82.5	81.1	77.1	0.70	1.81	4.5	5.0	3.5	3.9	0.00309	20
1.1	M2BAX90SB4	1435	84.1	83.7	81.0	0.73	2.5	5.5	7.4	3.3	3.7	0.00397	22
1.5	M2BAX90SLA4	1431	85.3	85.2	82.9	0.75	3.3	6.0	10.1	3.5	3.9	0.00486	25
2.2	M2BAX100LB4	1450	86.7	86.9	85.1	0.76	4.6	6.8	14.5	3.1	3.7	0.00919	34
3.7	M2BAX112MLA4	1455	88.4	88.5	87.0	0.77	7.6	7.0	24.4	3.5	3.9	0.01540	50
5.5	M2BAX132SMA4	1464	89.6	90.6	89.2	0.80	10.7	6.3	36.1	2.2	3.0	0.03510	72
7.5	M2BAX132MLA4	1467	90.4	90.9	90.3	0.80	14.4	6.1	49.2	2.2	3.5	0.04110	84
9.3	M2BAX160MLJ4	1475	91.0	90.9	89.5	0.79	18.2	7.5	60.0	3.0	4.0	0.105	130
11	M2BAX160MLA4	1475	91.4	91.5	90.5	0.80	21.2	7.5	71.0	2.9	3.8	0.110	134
15	M2BAX160MLB4	1475	92.1	92.2	91.3	0.80	28.8	7.5	96.9	3.0	3.9	0.135	159
18.5	M2BAX160MLA4	1479	92.6	93.0	92.5	0.82	34.0	7.5	119.2	2.8	3.3	0.219	192
22	M2BAX180MLB4	1479	93.0	93.5	93.0	0.82	40.7	7.5	141.8	3.0	3.5	0.243	205
30	M2BAX200MLA4	1482	93.6	93.8	93.2	0.83	53.4	7.5	192.9	3.0	3.3	0.385	259
37	M2BAX225SMA4	1482	93.9	94.2	93.8	0.83	68.1	6.8	238.3	2.9	3.2	0.427	274
45	M2BAX225SMB4	1482	94.2	94.6	94.3	0.83	81.6	6.8	290.0	2.7	3.1	0.525	307
55	M2BAX250SMA4	1482	94.6	94.7	94.1	0.84	98.5	7.0	354.2	3.0	3.4	0.694	358
75	E3HX280SMB4	1478	95.0	95.0	94.0	0.85	129	7.7	485	2.6	2.8	1.495	690
90	E3HX280SMC4	1479	95.2	95.2	94.2	0.85	155	7.7	581	2.6	2.8	1.725	750
110	E3BA315SMA4	1486	95.4	95.4	94.4	0.84	191	7.7	707	2.5	2.8	2.988	1030
125	E3BA315SMB4K	1486	95.5	95.5	94.5	0.84	217	7.7	803	2.5	2.8	3.887	1175
132	E3BA315SMB4	1486	95.6	95.6	94.6	0.85	226	7.7	848	2.5	2.8	3.887	1175
160	E3BA315MLA4	1485	95.8	95.8	94.8	0.84	277	7.7	1029	2.6	2.9	4.637	1350
200	E3BA315MLC4	1485	96.0	96.0	95.0	0.86	337	7.7	1286	2.6	2.8	5.03	1420
250	E3BA355SMA4	1486	96.0	96.0	95.0	0.87	416	7.7	1607	2.5	3.0	8.502	1915
315	E3BA355MLA4	1486	96.0	96.0	95.0	0.85	537	7.7	2024	2.5	3.0	10.115	2285
355	E3BA355MLB4	1486	96.0	96.0	95.0	0.86	598	7.7	2281	2.5	3.0	11.065	2430

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

General performance IE3 efficiency cast iron motors

Technical data for totally enclosed squirrel cage three phase induction motors

IE3

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1; 2014

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										
0.37	M2BAX80MC6	931	71.9	70.6	65.6	0.65	1.10	3.9	3.8	2.5	2.8	0.00220	15
0.55	M2BAX80MLA6	941	75.9	74.9	70.4	0.64	1.58	4.4	5.6	3.1	3.3	0.00349	19
0.75	M2BAX90SLA6	948	78.9	77.5	73.2	0.62	2.1	3.9	7.6	2.5	3.0	0.00487	25
1.1	M2BAX90LB6	951	81.0	79.7	75.4	0.62	3.0	3.1	11.2	3.3	3.6	0.00676	30
1.5	M2BAX100LKA6	954	82.5	82.6	80.2	0.67	3.8	4.1	15.2	2.2	2.4	0.00994	37
2.2	M2BAX112MLA6	957	84.3	84.4	82.5	0.67	5.4	4.6	22.2	2.1	2.7	0.01390	47
3.7	M2BAX132SMB6	967	86.5	87.0	86.0	0.69	8.6	4.7	37.0	1.6	2.7	0.03540	72
5.5	M2BAX132MLA6	970	88.0	88.3	87.3	0.69	12.6	4.7	54.7	1.6	2.8	0.05330	97
7.5	M2BAX160MLA6	972	89.1	90.2	90.0	0.75	15.7	6.5	73.3	2.1	3.1	0.089	119
9.3	M2BAX160MLJ6	977	89.8	90.3	89.7	0.75	20.3	6.0	90.7	2.0	3.1	0.128	153
11	M2BAX160MLB6	977	90.3	91.0	90.7	0.74	22.9	6.0	107.5	1.8	2.8	0.138	160
15	M2BAX160MLA6	979	91.2	91.6	91.0	0.77	30.3	5.0	146.2	1.5	2.6	0.212	190
18.5	M2BAX200MLA6	988	91.7	91.8	90.9	0.81	34.5	7.0	178.6	2.4	3.1	0.496	238
22	M2BAX200MLB6	989	92.2	92.2	91.1	0.81	41.6	7.5	212.2	2.6	3.6	0.585	263
30	M2BAX225SMA6	989	92.9	93.0	92.0	0.78	59.2	7.0	290.3	2.6	3.4	0.724	285
37	M2BAX250SMA6	990	93.3	93.7	93.4	0.82	68.0	6.0	356.6	2.3	2.5	1.300	379
45	E3HX280SMA6	988	93.7	93.7	91.7	0.84	80	7.7	435	2.3	2.6	2.3	655
55	E3HX280SMB6	988	94.1	94.1	92.1	0.84	97	7.7	532	2.5	2.6	2.45	680
75	E3BA315SMA6	989	94.6	94.6	92.6	0.84	131	7.7	724	2.5	2.6	4.725	925
90	E3BA315SMB6	990	94.9	94.9	92.9	0.84	157	7.7	868	2.5	2.8	5.425	1010
110	E3BA315SMC6	990	95.1	95.1	93.1	0.84	192	7.7	1061	2.6	2.8	7.425	1230
125	E3BA315MLC6K	990	95.2	95.2	93.2	0.84	217	7.7	1206	2.5	2.7	7.05	1305
132	E3BA315MLC6	988	95.4	95.4	93.4	0.84	229	7.7	1276	2.2	2.5	8.05	1305
160	E3BA355SMA6	989	95.6	95.6	93.6	0.84	277	7.7	1545	2.6	2.8	10.925	1670
200	E3BA355SMB6	990	95.8	95.8	93.8	0.85	342	7.7	1929	2.5	2.8	12.625	1820
250	E3BA355MLA6	988	95.8	95.8	93.8	0.84	432	7.7	2416	2.3	2.6	13.75	1975
315	E3BA355MLB6	990	95.8	95.8	93.8	0.84	545	7.7	3039	1.4	2.8	15.975	3000

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.

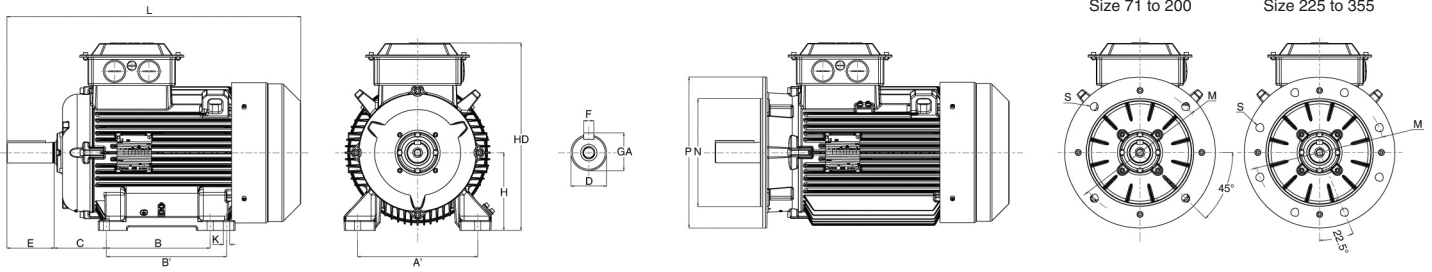
I_s / I_n = Starting current
 T_s / T_n = Locked rotor torque
 T_b / T_n = Breakdown torque

General performance IE3 efficiency cast iron motors

Dimension drawings

Foot-mounted motor IM1001, B3

Flange-mounted motor IM3001, 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												
Process performance cast iron motors																						
71	14	14	16	16	5	5	30	30	257	257	112	90	-	45	175	7	71	130	110	160	10	3.5
80M	19	19	21.5	21.5	6	6	40	40	309	309	125	100	-	50	192	10	80	165	130	200	12	3.5
80ML	19	19	21.5	21.5	6	6	40	40	334	334	125	100	112	50	192	10	80	165	130	200	12	3.5
90S	24	24	27	27	8	8	50	50	335	335	140	100	-	56	217	10	90	165	130	200	12	3.5
90SL	24	24	27	27	8	8	50	50	351	351	140	100	125	56	217	10	90	165	130	200	12	3.5
90L	24	24	27	27	8	8	50	50	386	386	140	-	125	56	217	10	90	165	130	200	12	3.5
100L	28	28	31	31	8	8	60	60	376	376	160	140	-	63	240	12	100	215	180	250	14.5	4
100LK	28	28	31	31	8	8	60	60	410	410	160	140	160	63	240	12	100	215	180	250	14.5	4
112M	28	28	31	31	8	8	60	60	411	411	190	140	-	70	252	12	112	215	180	250	14.5	4
112ML	28	28	31	31	8	8	60	60	456	456	190	140	159	70	252	12	112	215	180	250	14.5	4
132SM	38	38	41	41	10	10	80	80	521	521	216	140	178	89	301	12	132	265	230	300	14.5	4
132ML	38	38	41	41	10	10	80	80	586	586	216	178	203	89	301	12	132	265	230	300	14.5	4
160ML	42	42	45	45	12	12	110	110	639 ¹	639 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	728	728	279	241	279	121	454	14.5	180	300	250	350	18.5	5
200ML	55	55	59	59	16	16	110	110	809	809	318	267	305	133	515	18.5	200	350	300	400	18.5	5
225SM	55	60	59	64	16	18	110	140	812	842	356	286	311	149	560	18.5	225	400	350	450	18.5	5
250SM	60	65	64	69	18	18	140	140	853	853	406	311	349	168	613	24	250	500	450	550	18.5	5
280SM	65	75	69	79.5	18	20	140	140	1040	1040	457	368	419	190	728	24	280	500	450	550	19	5
315SM	65	80	69	85	18	22	140	170	1169	1245	508	406	457	216	872	28	315	600	550	660	24	6
315ML	65	90	69	95	18	25	140	170	1215	1325	508	457	508	216	872	28	315	600	550	660	24	6
355SM	75	100	79.5	106	20	28	140	210	1504	1574	610	500	560	254	965	28	355	740	680	800	24	6
355ML	75	100	79.5	106	20	28	140	210	1610	1680	610	560	630	254	965	28	355	740	680	800	24	6

Above table gives the main dimensions in mm.

1) M2BAX 160ML C2, B4, B6: L = 696

General performance IE3 cast iron motors in brief

Size		71	80	90	100	112	132
Stator	Material	Cast Iron Grade 150:ISO 185					
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G					
	Corrosion class	C3 medium according to ISO / EN 12944-5					
Bearing end shields	Material	Cast iron grade 150 : ISO 185					
	Paint colour shade	Munsell blue 8B 4.5/3.25/NCS 4822 B05G					
	Corrosion class	C3 medium according to ISO / EN 12944-5					
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	Retaining ring	As standard , locked at D-end					
Bearing seals		Axial seal as standard, radial on request					
Lubrication		Permanently lubricated shielded bearings					
Measuring nipple		Not included					
Rating plate	Material	Aluminum					
Terminal Box	Frame material	Cast iron, integral to Stator frame					
	Cover material	Sheet of Steel, cold rolled					
	Cover screws material	Steel 8.8					
Connections	Cable entries	2xM16	2xM25		2xM32		
	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					
	Corrosion class	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					

General performance IE3 cast iron motors in brief

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				
	Corrosion class	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				
	Corrosion class	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				
	Corrosion class	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				

General performance IE3 cast iron motors in brief

Size		280 2-6 Pole	315 2 Pole	315 4-6 Pole	355 2 Pole	355 4-6 Pole
Stator	Material	Cast Iron Grade 150, ISO: 210				
	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 150, ISO: 210				
	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	6316/C3	6316/C3	6319/C3	6319/C3	6322/C3
	N-end	6315/C3	6316/C3	6316/C3	6319/C3	6319/C3
Axially-locked	Inner Bearing Cover	As standard, locked at D-end				
Bearing seals		Radial as standard, on D-end only				
Lubrication		Regreasable bearing, Regreasing nipple M10x1				
Measuring nipple		-				
Rating plate	Material	Steel				
Terminal Box	Frame material	Cast iron grade 150, ISO: 210				
	Cover material	Cast iron grade 150, ISO: 210				
	Screws Steel					
Connections	Threaded	2 x 2" BSC	2 x 2-1/2" BSC			
	Terminals	6 terminals for connection with cable lugs (not included)				
	Cable gland	Cable flanges as standard, cable glands as option				
Fan	Material	PP*		Aluminium		
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	-				
Rotor winding	Material	Pressure diecast aluminum				
Balancing method		Half Key Balancing as Standard				
Key ways		Open Key Way				
Enclosure		IP 55				
Cooling method		IC 411				

*Polypropylene, Reinforced with 20% glass fibre.



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
14, Mathura Road, Faridabad - 121 003 Tel: +91 129 - 2275592/9627 Fax: +91 129 - 2275019	Omega Building, 17th Floor, Bengal Intelligent Park, Block EP & GP, Sector V, Salt Lake City, Kolkata 700 091 Tel: +91 33 66213135 Fax: +91 33 66213187	ABB House Dr. S B Path Ballard Estate, Mumbai 400 038 Tel: +91 22 66159888 Fax: +91 22 66314203	No. 49, 5th Floor, West Wing, Khanija Bhawan, Race Course Road, Bangalore 560 001 Tel: +91 80 22949250 / 6677
Chandigarh Unit No. 513, 5th Floor, C-Wing Elante Office : Plot No. 178-178A Industrial Area, Phase - I Chandigarh Tel: +91 172 5214400	Jamshedpur Kashikunj Building, Road No. 2, Bistpur Jamshedpur - 831011 Tel: +91 657 6619201	Bhopal Plot No. 34, Sector A, Near Bhopal Medical Centre, Indrapuri, Bhopal 462 021 Tel: +91 755 6463603	Chennai 1st Floor, "Prestige Palladium Bayen", Opp. BSNL Shop No. 129- 140, Greams Road, Chennai 600008 Tel.: +91 44 4222829 / 550 / 551
Jaipur 204-205, IInd Floor, North Wing Kailash Tower, Gandhi Nagar Mod Tonk Road, Jaipur Tel: +91 141 2744023-24	Raipur 4th & 5th Floor, Maruti Heights Aamanaka, G.E. Road, Raipur - 492 099 Tel: +91 771 4213200 Fax: +91 771 4213222	Pune Tel: +91 20 66243838 Fax: +91 20 66016255	Coimbatore Tel: +91 422 2305934 Fax: +91 422 2300371
Lucknow Tel: +91 522 2209436 Fax: +91 522 2209478		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	Bhubaneswar 1st Floor, Plot no. A-51/1, Bhoi Nagar, Sachivaiya Marg, Unit-9, Bhubaneswar Tel.: +91 674654/8701 - 715	Nagpur Tel: +91 712 6461145, 46, 48, 49 Fax: +91 712 2290283	Kochi Tel: +91 484 2421481
Dehradun Tel: +91 135 2760654 Fax: +91 135 2760655		Indore Tel: +91 9981146044	Visakhapatnam Tel: +91 891 2795837 Fax: +91 891 2538188

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