

Catalog

Low voltage General performance IE2 high efficiency motors

General performance IE2 high efficiency motors Sizes 71 to 355



ABB's General performance IE2 high efficiency motors are best suited for applications where simplicity and off-the-shelf availability are paramount. With ABB quality and support these motors have the features appreciated by volume customers and serial OEM's. Motors have IE2 efficiency.

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General performance motors in brief

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General performance cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IE2

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE2 efficiency class according to IEC 60034-30; 2008

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_l/T_n	T_b/T_n		
3000 r/min 415V, 50Hz													
0.37	E2BA71A2	2660	72.2	72.2	72	0.80	0.92	3.9	1.3	2.2	2.3	0.00039	11
0.55	E2BA71B2	2680	74.8	74.8	74	0.85	1.2	4.3	2	2.4	2.5	0.00051	11
0.75	E2BA80B2	2895	77.4	77.4	73	0.74	1.8	6.5	2.5	2.4	4.2	0.001	16
1.1	E2BA80C2	2870	79.6	79.6	78	0.80	2.4	6.5	3.7	2.7	3.5	0.0012	18
1.5	E2BA90SLB2	2900	81.3	81.3	79.9	0.86	3	6.5	4.9	2.5	2.6	0.00254	24
2.2	E2BA90SLC2	2885	83.2	83.2	82.2	0.87	4.2	7.0	7.3	1.9	2.5	0.0028	25
3.7	E2BA100LC2	2905	85.5	85.5	85	0.86	7	7.0	12.2	2.9	3.2	0.00575	37
5.5	E2BA132SMB2	2865	87	87	85.8	0.86	10.2	7.0	18.3	2	2.7	0.01275	68
7.5	E2BA132SMC2	2890	88.1	88.1	86.3	0.84	14.1	7.0	24.80	2	3.6	0.01359	70
11	M2BAX160MLA2	2925	89.4	89.7	88.2	0.88	19.6	7.0	36	2.4	3.0	0.0415	105
15	M2BAX160MLB2	2930	90.3	90.7	90.0	0.90	25.9	7.0	49	2.4	3.0	0.0544	120
18.5	M2BAX160MLC2	2934	90.9	91.2	90.4	0.90	31.7	7.0	60	2.6	3.1	0.0581	131
22	M2BAX180MLA2	2936	91.3	91.7	91.0	0.91	37.3	7.0	72	3.0	3.5	0.0679	152
30	M2BAX200MLA2	2940	92.0	92.4	91.5	0.90	50.7	7.0	97	2.5	3.2	0.1077	198
37	M2BAX200MLB2	2950	92.5	92.8	91.7	0.89	62.9	7.0	120	3.0	3.8	0.1332	232
45	M2BAX225SMA2	2956	92.9	92.6	92.0	0.90	75.7	7.0	145	2.4	3.2	0.2443	295
55	M2BAX250SMA2	2960	93.2	93.8	92.8	0.90	91.7	7.0	177	2.6	3.0	0.3160	344
75	E2HX280SMB2	2970	93.8	93.8	92.8	0.92	121	7.0	241	2.3	2.7	1.025	690
90	E2HX280SMC2	2970	94.1	94.1	93.1	0.92	145	7.0	289	2.3	2.5	1.2	685
110	E2BA315SMA2	2980	94.3	94.3	93.3	0.90	180	7.0	353	2.4	2.7	1.41	935
125	E2BA315SMB2k	2980	94.5	94.5	93.5	0.90	204	7.0	401	2.4	2.7	1.61	975
132	E2BA315SMB2	2980	94.6	94.6	93.6	0.90	216	7.0	423	2.4	2.7	1.610	975
160	E2BA315MLA2	2980	94.8	94.8	93.8	0.90	261	7.0	513	2.3	3.0	1.950	1150
200	E2BA315MLC2	2980	95.0	95.0	94.0	0.90	325	7.0	641	2.6	3.0	2.55	1275
250	E2BA355SMA2	2980	95.0	95.0	94.0	0.90	407	7.0	801	1.6	3.0	4.250	1645
315	E2BA355MLA2	2980	95.0	95.0	94.0	0.91	507	7.0	1009	1.7	3.0	5.75	1895
355	E2BA355MLC2	2982	95.0	95.0	94.0	0.90	578	7.0	1137	1.7	3.2	6.525	2000

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_l / T_n = Locked rotor torque
 T_b / T_n = Breakdown torque

IE-class concerns motors from 0.37 kW to 355 kW

General performance cast iron motors

Technical data for totally enclosed squirrel cage three phase motors

IE2

IP 55 - IC 411 - Insulation class F, temperature rise class B
IE2 efficiency class according to IEC 60034-30; 2008

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 _i /T _n	T _b /T _n		
1500 r/min 415V, 50Hz													
0.37	E2BA71B4	1380	70.1	70.1	68.7	0.83	0.9	4	2.6	1.6	2.1	0.00088	11
0.55	E2BA80A4	1415	75.1	75.1	71.4	0.73	1.4	5	3.7	2	2.8	0.00144	15
0.75	E2BA80D4	1430	79.6	79.6	76.2	0.73	1.8	6	5	2.7	3.2	0.00205	17
1.1	E2BA90SLC4	1435	81.4	81.4	80.9	0.80	2.4	6	7.3	2.7	3.4	0.0044	25
1.5	E2BA90SLD4	1430	82.8	82.8	81	0.83	3	6	10	2.5	3	0.00538	27
2.2	E2BA100LC4	1450	84.3	84.3	82.6	0.78	4.7	7.0	14.5	2.9	3.6	0.00948	36
3.7	E2BA112MB4	1440	86.3	86.3	85.9	0.81	7.4	7.0	24.5	2.5	2.9	0.0125	44
5.5	E2BA132SMB4	1460	87.7	87.7	86.8	0.80	10.9	7.0	36	1.8	2.4	0.03282	70
7.5	E2BA132SMC4	1450	88.7	88.7	86	0.81	14.5	7.0	49.4	1.6	2.4	0.03659	73
9.3	M2BAX160MLJ4	1460	89.3	89.8	88.0	0.84	17.4	7.0	61	2.3	2.9	0.0738	107
11	M2BAX160MLA4	1463	89.8	90.4	89.4	0.85	20.2	7.0	72	2.3	2.9	0.0840	115
15	M2BAX160MLB4	1463	90.6	91.2	90.2	0.84	27.6	7.0	98	2.5	3.1	0.1025	134
18.5	M2BAX180MLA4	1464	91.2	91.8	90.9	0.84	33.8	7.0	121	2.9	3.5	0.1217	155
22	M2BAX180MLB4	1465	91.6	92.1	91.2	0.83	40.5	7.0	143	2.5	3.2	0.1396	171
30	M2BAX200MLA4	1474	92.3	92.5	91.8	0.84	54.1	7.0	194	2.7	3.5	0.2572	229
37	M2BAX225SMA4	1478	92.7	93.1	92.2	0.85	65.7	6.5	239	2.3	2.7	0.3605	267
45	M2BAX225SMB4	1478	93.1	93.5	92.6	0.84	80.5	7.0	291	2.4	2.9	0.4314	304
55	M2BAX250SMA4	1478	93.5	93.7	92.9	0.85	96.8	7.0	355	2.7	3.0	0.5331	342
75	E2HX280SMB4	1478	94.0	94.0	93.0	0.87	128	7.0	485	2.4	2.7	1.11	670
90	E2HX280SMC4	1479	94.2	94.2	93.2	0.85	156	7.0	581	2.6	2.8	1.425	730
110	E2BA315SMA4	1486	94.5	94.5	93.5	0.88	184	7.0	707	2.3	2.8	2.387	930
125	E2BA315SMB4k	1486	94.6	94.6	93.6	0.86	214	7.0	803	2.0	2.7	2.65	960
132	E2BA315SMB4	1486	94.7	94.7	93.7	0.86	225	7.0	848	2.3	2.7	2.65	960
160	E2BA315MLA4	1485	94.9	94.9	93.9	0.87	270	7.0	1029	2.3	2.6	3.375	1110
200	E2BA315MLC4	1485	95.1	95.1	94.1	0.88	332	7.0	1286	2.4	2.8	4.25	1260
250	E2BA355SMA4	1486	95.1	95.1	94.1	0.87	420	7.0	1607	2.0	2.5	6.625	1620
315	E2BA355MLA4	1486	95.1	95.1	94.1	0.87	530	7.0	2024	2.5	3.0	8.25	1870
355	E2BA355MLB4	1486	95.1	95.1	94.1	0.87	597	7.0	2281	2.2	3.0	10	2110

Efficiency values are given according to IEC 60034-2-1; 2007.
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I_s / I_n = Starting current
T_i / T_n = Locked rotor torque
T_b / T_n = Breakdown torque

IE-class concerns motors from 0.37 kW to 355 kW

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IE2 efficiency class according to IEC 60034-30; 2008

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 _l /T _n	T _b /T _n		
1000 r/min 415V, 50Hz													
0.37	E2BA80A6	915	69	69	64.4	0.69	1.1	6	3.9	1.8	2.2	0.00187	15
0.55	E2BA80B6	920	72.9	72.9	70.6	0.71	1.5	6	5.7	1.8	2.2	0.00239	17
0.75	E2BA90SLC6	960	75.9	75.9	69.7	0.60	2.3	6	7.5	2.3	3.1	0.00444	25
1.1	E2BA90SLE6	930	78.1	78.1	75.4	0.66	3	6	11.3	1.9	2.3	0.0054	28
1.5	E2BA100L6	950	79.8	79.8	76.8	0.69	3.8	6	15	2.2	2.7	0.00873	37
2.2	E2BA112MB6	950	81.8	81.8	79.3	0.69	5.4	7	22.1	1.7	2.3	0.0125	44
3.7	E2BA132SMB6	970	84.3	84.3	82.4	0.70	8.8	7	36.4	1.5	2.2	0.03336	69
5.5	E2BA132SMF6	965	86	86	85	0.71	12.5	7	54.4	2.5	2.8	0.0487	86
7.5	M2BAX160MLA6	967	87.2	88.0	86.8	0.79	15.3	6.5	74	1.9	2.6	0.0890	122
9.3	M2BAX160MLJ6	968	88.0	88.6	87.8	0.79	18.9	6.5	92	2.1	2.8	0.1190	141
11	M2BAX160MLB6	970	88.7	89.2	88.5	0.78	22.3	7.0	108	2.3	3.0	0.1293	147
15	M2BAX180MLA6	972	89.7	90.1	89.4	0.76	30.9	7.0	147	2.3	3.2	0.1522	173
18.5	M2BAX200MLA6	972	90.4	90.8	90.0	0.79	36.5	6.0	182	1.7	2.5	0.1980	190
22	M2BAX200MLB6	973	90.9	91.2	90.6	0.79	43.1	6.0	216	1.7	2.5	0.2384	212
30	M2BAX225SMA6	985	91.7	92.0	91.2	0.83	55.2	6.5	291	2.3	2.8	0.5687	284
37	M2BAX250SMA6	985	92.2	92.4	91.9	0.82	68.5	6.0	359	2.0	2.6	0.8042	337
45	E2HX280SMA6	988	92.7	92.7	90.7	0.84	80	7.0	435	2.2	2.4	1.8	590
55	E2HX280SMB6	988	93.1	93.1	91.1	0.84	98	7.0	532	2.2	2.4	2.025	600
75	E2BA315SMA6	989	93.7	93.7	91.7	0.85	131	7.0	724	2.4	2.7	3.887	932
90	E2BA315SMB6	990	94.0	94	92.0	0.85	157	7.0	868	2.4	2.8	4.8	1005
110	E2BA315SMC6	990	94.3	94.3	92.3	0.85	191	7.0	1061	2.5	3.0	5.45	1072
125	E2BA315MLC6k	990	94.4	94.4	92.4	0.86	214	7.0	1206	2.5	3.0	7.05	1305
132	E2BA315MLC6	988	94.6	94.6	92.6	0.86	226	7.0	1276	2.3	2.6	7.05	1305
160	E2BA355SMA6	989	94.8	94.8	92.8	0.85	276	7.0	1545	2.0	2.7	9.80	1675
200	E2BA355SMB6	990	95.0	95.0	93.0	0.84	349	7.0	1929	2.5	2.8	12.625	1800
250	E2BA355MLA6	988	95.0	95.0	93.0	0.85	431	7.0	2416	2.3	2.7	13.75	1940
315	E2BA355MLB6	990	95.0	95.0	93.0	0.84	549	7.0	3039	2.5	2.8	15.06	2040

Efficiency values are given according to IEC 60034-2-1; 2007.
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I_s / I_n = Starting current
T_l / T_n = Locked rotor torque
T_b / T_n = Breakdown torque

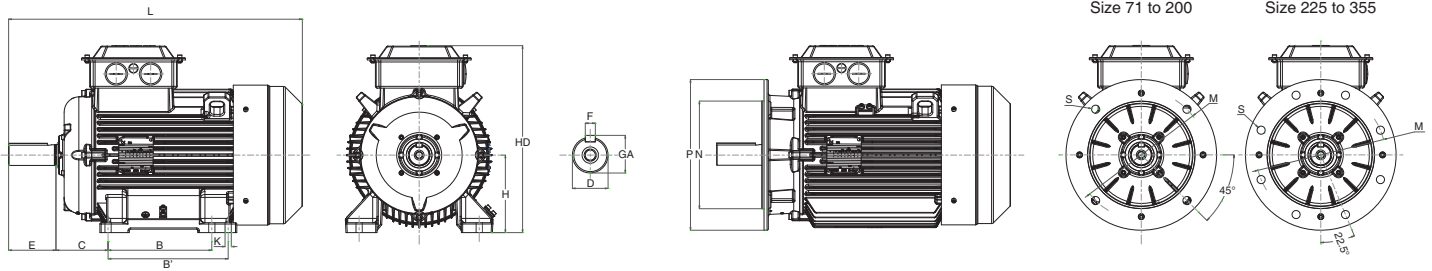
IE-class concerns motors from 0.37 kW to 355 kW

General performance IE2 high efficiency motors Sizes 71 - 355

Dimension drawings

Foot-mounted motor IM1001, B3

Flange-mounted motor IM3001, B5



IM 1001. IM B3

IM 3001. IM B5

IM 1001. IM B3

IM 3001. IM 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
	2	4-6	2	4-6	2	4-6	2	4-6	2	4-6											
General performance cast iron motors																					
71	14	14	16	16	5	5	30	30	264	264	112	90	-	45	178	7	71	130	110	160	10
80	19	19	21.5	21.5	6	6	40	40	321	321	125	100	-	50	195	10	80	165	130	200	12
90	24	24	27	27	8	8	50	50	357	357	140	100	125	56	219	10	90	165	130	200	12
100	28	28	31	31	8	8	60	60	381	381	160	140	-	63	247	12	100	215	180	250	15
112	28	28	31	31	8	8	60	60	403	403	190	140	-	70	259	12	112	215	180	250	15
132	38	38	41	41	10	10	80	80	533	533	216	140	178	89	300	12	132	265	230	300	15
160	42	42	45	45	12	12	110	110	586	586 1), 1')	254	210	254	108	414	14.5	160	300	250	350	19
180	48	48	51.5	51.5	14	14	110	110	683	683 2)	279	241	279	121	434	14.5	180	300	250	350	19
200	55	55	59	59	16	16	110	110	728	728 3)	318	267	305	133	474	18.5	200	350	300	400	19
225	55	60	59	64	16	18	110	140	854	854 4)	356	286	311	149	540	18.5	225	400	350	450	19
250	60	65	64	69	18	18	140	140	882	882	406	311	349	168	585	24	250	500	450	550	19
280	65	75	69	79.5	18	20	140	140	1040	1040	457	368	419	190	728	24	280	500	450	550	19
315SM	65	80	69	85	18	22	140	170	1169	1199	508	406	457	216	872	28	315	600	550	660	24
315ML	65	90	69	95	18	25	140	170	1215	1245	508	457	508	216	872	28	315	600	550	660	24
355SM	75	100	79.5	106	20	28	140	210	1399	1469	610	500	560	254	965	28	355	740	680	800	24
355ML	75	100	79.5	106	20	28	140	210	1504	1574	610	560	630	254	965	28	355	740	680	800	24

Motor	D	GA	F	E	L Max	A	B	B'	C	HD	K	H	M	N	P	S
355MLB4	100	106	28	210	1680	610	560	630	254	965	28	355	740	680	800	24
355MLC2	75	79.5	20	140	1610	610	560	630	254	965	28	355	740	680	800	24

Above table gives the main dimensions in mm.

- 1) M2BAX160MLC2, B4, J6 L = 626
- 1') M2BAX160MLB6 L = 646
- 2) M2BAX180MLB4, A6 L = 703
- 3) M2BAX200MLB2, A4, B6 L = 768
- 4) M2BAX225SMB4, A6 L = 884

General performance IE2 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					
	Surface Treatment	Aliphatic polyurethane enamel paint $\geq 70\mu\text{m}$					
Feet		Fixed feet					
	Material	Cast Iron Grade 150:ISO 185					
Bearing end shields	Material	Cast Iron Grade 150:ISO 185					
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G					
	Surface Treatment	Aliphatic polyurethane enamel paint $\geq 70\mu\text{m}$					
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	Inner Bearing Cover	As stranded, locked at D-end					
Bearing seals	D-end	V-ring					
	N-end	Labyrinth seal					
Lubrication		Permanently lubricated shielded bearings. Grease temp. range -40 to +160°C					
Terminal Box Cover	Material	Sheet of steel, Cold rolled					
	Surface Treatment	Similar to stator					
	Screws	Steel					
Connections	Threaded opening	2 x M16	2 x M25		2 x M32		
	Max Cu area mm ²	4	6		10		
	Terminal Box	Cable lugs, 6 terminals					
	Screws	M4			M5		
Fan	Material	Polypropylene, Reinforced with 20% glass fibre					
Fan Cover	Material	Steel					
	Paint colour shade	Black RAL 9011					
	Surface Treatment	Polyster Powder coated $\geq 50\mu\text{m}$					
Stator winding	Material	Copper					
	Insulation class	Insulation class F, Temperature rise class B, unless otherwise stated					
	Winding protection	Optional					
Rotor winding	Material	Pressure die cast aluminum					
Balancing method		Half Key balancing as standard					
Key ways		Closed Key Way					
Enclosure		IP 55					
Cooling method		IC 411					
Drain holes		Drain holes with closable plastic plugs, open on delivery					
Lifting lugs		Bolted to the Stator					

General performance IE2 cast iron motors in brief

Size	M2BA	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	Aliphatic polyurethane enamel paint $\geq 70\mu\text{m}$				
Feet		Integrated with stator				
	Material	Cast iron grade 200 : ISO 185				
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	Aliphatic polyurethane enamel paint $\geq 70\mu\text{m}$				
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	D-end	V-ring				
	N-end	V-ring				
Lubrication		Permanently lubricated shielded bearings				
Terminal Box	Material	Sheet of Steel, Cold Rolled				
	Surface Treatment	Similar to stator				
	Screws	Steel 8.8				
Connections	Threaded opening	(2 x M40 + M16)*		(2 x M50 + M16)		
	Max Al-area mm ²	70		120		
	Terminal Box	6 terminals for connection with cable lugs (not included)				
	Screws	M6		M10		
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	Similar to stator				
Stator winding	Material	Copper				
	Insulation	Insulation class F				
Rotor winding	Material	Diecast aluminum				
Balancing method		Half Key Balancing				
Key ways		Open Key Way				
Enclosure		IP 55				
Cooling method		IC 411				
Drain holes		Drain holes with closable plastic plugs, open on delivery				
Lifting lugs		Integrated with the stator				

General performance IE2 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, IS:210				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface Treatment	Aliphatic polyurethane paint $\geq 80\mu\text{m}$				
Feet		Integrated with stator				
	Material	Cast iron grade 150, IS:210				
Bearing end shields	Material	Cast iron grade 150, IS:210				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface Treatment	Aliphatic polyurethane paint $\geq 80\mu\text{m}$				
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 stranded, locked at D-end				
Bearing seals	D-end	Oil Seal				
	N-end					
Lubrication		Regreasable Bearings, Regreasing nipple M10X1				
Terminal Box	Material	Cast iron grade 150, IS:210				
	Surface Treatment	Similar to stator				
	Screws	Steel				
Connections	Threaded opening	2 x 2" BSC	2 x 2-1/2" BSC			
	Max Al-area mm ²	185	240			
	Terminal Box	6 terminals for connection with cable lugs (not included)				
	Screws	M12	M16			
Fan	Material	Polypropylene, Reinforced with 20% glass fibre			Aluminium	
Fan Cover	Material	Sheet of steel, Cold Rolled				
	Paint colour shade	Munsell blue 8B 4.5/3.25 / NCS 4822 B05G				
	Surface Treatment	Similar to stator				
Stator winding	Material	Copper				
	Insulation	Insulation class F				
Rotor winding	Material	Diecast aluminum				
Balancing method		Half Key Balancing				
Key ways		Open Key Way				
Enclosure		IP 55				
Cooling method		IC 411				
Drain holes		Drain holes with closable plastic plugs, open on delivery				
Lifting lugs		Bolted to the Stator				



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