

Technical data, 400 V 50 Hz

IE3 Process performance aluminum motors

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

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014			Power factor Cosφ	Current		Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level L _{PA} dB	
				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
3000 r/min = 2 poles				400 V 50 Hz			CENELEC-design								
0.75	M3AA 80MB 2	3GAA081320---K	2894	83.1	82.8	80.0	0.74	1.74	7.9	2.4	3.7	4.2	0.0008	9.5	57
1.1	M3AA 80MC 2	3GAA081330---K	2883	83.9	83.6	82.0	0.81	2.3	7.9	3.6	3.7	4.2	0.001	10.5	56
1.5	M3AA 90LB 2	3GAA091520---K	2906	86.1	86.6	86.5	0.89	2.8	7.9	4.9	2.3	3.3	0.0027	17	60
2.2	M3AA 90LC 2	3GAA091530---K	2900	87.4	88.8	88.9	0.89	4	8.3	7.2	2.9	3.5	0.0032	20	60
3	M3AA 100LC 2	3GAA101530---K	2896	87.9	88.9	88.7	0.90	5.4	8.4	9.8	3.2	3.9	0.0057	28	62
4	M3AA 112MB 2	3GAA111320---K	2888	88.5	89.8	90.0	0.91	7.1	8.4	13.2	3.2	4.0	0.0104	38	68
5.5	M3AA 132SB 2	3GAA131120---K	2901	89.3	90.0	90.2	0.91	9.7	7.9	18.1	2.3	3.4	0.0154	58	68
7.5	M3AA 132SC 2	3GAA131130---K	2909	90.7	91.8	92.0	0.90	13.1	8.3	24.6	3.0	3.9	0.0173	63	70
11	M3AA 160MLA 2	3GAA161410---K	2943	91.2	92.0	91.6	0.91	19.1	7.2	35.7	2.6	3.6	0.057	106	69
15	M3AA 160MLB 2	3GAA161420---K	2947	91.9	92.2	91.8	0.88	26.7	8.2	48.6	3.2	4.2	0.063	123	69
18.5	M3AA 160MLC 2	3GAA161430---K	2949	92.4	93.0	92.6	0.90	32.1	9.0	59.9	3.3	3.9	0.076	137	73
22	M3AA 180MLA 2	3GAA181410---K	2956	92.7	93.1	92.7	0.90	37.7	7.8	71.0	3.0	3.8	0.11	176	73
30	M3AA 200MLA 2	3GAA201410---K	2962	93.3	93.5	92.8	0.87	53.2	7.6	96.8	3.1	3.8	0.159	225	72
37	M3AA 200MLB 2	3GAA201420---K	2961	93.7	94.1	93.8	0.88	64.4	8.2	119	3.0	3.3	0.196	241	72
45	M3AA 225SMA 2	3GAA221210---K	2968	94.0	94.0	93.0	0.87	79.6	7.3	145	3.2	3.1	0.296	326	76
55	M3AA 250SMA 2	3GAA251210---K	2968	94.3	93.7	93.6	0.89	94.8	6.8	177	2.4	3.0	0.426	351	76
75	M3AA 280SMA 2	3GAA281210---K	2971	94.7	95.1	94.8	0.90	127	7.9	241.06	2.8	3.3	0.644	412	81
90	M3AA 280SMB 2	3GAA281220---K	2975	95	95.2	94.6	0.87	156	8.5	288.6	2.91	3.6	0.514	420.0	81.0

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014			Power factor Cosφ	Current		Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level L _{PA} dB	
				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
3000 r/min = 2 poles				400 V 50 Hz			High-output design								
2.75	M3AA 90LD 2	3GAA091540---K	2872	87.1	88.2	88.0	0.83	5.4	7.5	9.1	4.4	5.0	0.00407	20	65
4	M3AA 100LD 2	3GAA101540---K	2910	88.1	89.7	89.7	0.91	7.12	8.6	13.1	3.9	4.8	0.00787	40	67
5.5	M3AA 112MC 2	3GAA111330---K	2909	89.2	90.6	90.8	0.91	9.67	8.6	18.1	4.3	5.5	0.0132	48	73
9.2	M3AA 132SD 2	3GAA131140---K	2910	90.7	91.7	91.7	0.90	15.9	8.2	29.9	3.4	4.3	0.0168	71	75
11	M3AA 132SME 2	3GAA131250---K	2922	91.2	91.8	91.5	0.90	19.8	10.6	36.0	4.5	5.4	0.0231	90	75
15	M3AA 132SMF 2	3GAA131260---K	2908	91.9	93.2	93.5	0.91	25.8	9.8	49.3	4.4	5.5	0.023	90	75
22	M3AA 160MLD 2	3GAA161440---K	2944	92.7	93.5	93.4	0.90	38	8.4	71.4	3.2	3.7	0.071	131	74
30	M3AA 180MLB 2	3GAA181420---K	2957	93.3	94.0	93.9	0.88	52.7	8.7	96.9	3.0	3.8	0.104	162	74
37	¹⁾ M3AA 180MLC 2	3GAA181430---K	2950	93.7	94.2	94.2	0.86	66	8.4	119.5	3.4	4.4	0.117	176	74
45	M3AA 200MLC 2	3GAA201430---K	2956	94.0	94.6	94.8	0.89	77.2	7.8	145.2	2.9	3.3	0.216	250	77
55	M3AA 225SMB 2	3GAA221220---K	2964	94.3	94.4	93.9	0.86	97.4	7.2	177.3	3.14	3.22	0.299	288	79
75	¹⁾ M3AA 225SMC 2	3GAA221230---K	2966	94.7	95	94.7	0.86	132	7.5	241.7	3.08	3.06	0.361	328	79
75	¹⁾ M3AA 250SMB 2	3GAA251220---K	2971	94.7	95.1	94.8	0.90	127	7.9	241.1	2.8	3.3	0.644	405	81
90	¹⁾ M3AA 250SMC 2	3GAA251230---K	2975	95	95.2	94.6	0.87	156	8.5	288.6	2.91	3.6	0.514	414	81

¹⁾ Temperature rise class F

Technical data, 400 V 50 Hz

IE3 Process performance aluminum motors

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

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014			Power factor Cosφ	Current			Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level L _{PA} dB
				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 = 4 poles				400 V 50 Hz				CENELEC-design							
0.75	M3AA 80ME 4	3GAA082350-...K	1440	84.0	83.9	81.9	0.76	1.68	7.9	4.9	3.3	3.7	0.0027	13.5	54
1.1	M3AA 90LC 4	3GAA092530-...K	1442	85.6	85.1	83.4	0.80	2.3	7.9	7.2	3.3	3.9	0.0055	19	56
1.5	M3AA 90LD 4	3GAA092540-...K	1439	85.3	84.7	82.8	0.78	3.2	8.2	9.9	3.5	4.0	0.0055	19	51
2.2	M3AA 100LE 4	3GAA102550-...K	1454	89.1	89.5	88.6	0.83	4.3	8.9	14.5	3.1	4.1	0.0144	36	54
3	M3AA 100LF 4	3GAA102560-...K	1452	88.8	89.2	88.3	0.83	5.9	9.0	19.7	3.5	4.2	0.0144	36	54
4	M3AA 112MB 4	3GAA112320-...K	1451	88.6	89.4	89.0	0.77	8.6	7.6	26.3	3.1	4.1	0.018	44	59
5.5	M3AA 132MB 4	3GAA132320-...K	1464	89.6	90.2	89.5	0.78	11.4	7.0	35.9	2.8	3.9	0.0295	68	70
7.5	M3AA 132MC 4	3GAA132330-...K	1464	90.6	91.0	90.9	0.81	14.7	7.7	48.9	2.5	3.6	0.0414	68	64
11	M3AA 160MLA 4	3GAA162410-...K	1477	91.4	91.8	91.1	0.82	21.1	7.6	71.3	2.6	3.3	0.11	126	61
15	M3AA 160MLB 4	3GAA162420-...K	1474	92.1	92.2	91.3	0.81	29	7.8	97.2	3.0	3.6	0.135	140	61
18.5	M3AA 180MLA 4	3GAA182410-...K	1481	92.6	93.2	92.9	0.83	34.9	7.2	119.3	2.8	3.0	0.219	177	60
22	M3AA 180MLB 4	3GAA182420-...K	1480	93.3	94.1	94.1	0.82	41.5	8.2	141.0	2.8	3.1	0.217	176	62
30	M3AA 200MLA 4	3GAA202410-...K	1481	93.6	93.9	93.4	0.84	55	7.5	193.4	2.7	3.2	0.385	246	63
37	M3AA 225SMA 4	3GAA222210-...K	1481	93.9	94.1	93.4	0.82	69.8	8.0	235.4	3.3	3.5	0.433	315	67
45	M3AA 225SMB 4	3GAA222220-...K	1482	94.2	94.4	94.0	0.84	82.3	8.0	290.0	3.1	3.5	0.525	316	66
55	M3AA 250SMA 4	3GAA252210-...K	1485	95.4	95.9	95.7	0.85	97.8	7.9	353.0	3.0	3.3	0.933	376	67
75	M3AA 280SMA 4	3GAA282210-...K	1483	95	95.3	95	0.82	139	7.8	485.8	3.28	3.46	0.796	409	73

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014			Power factor Cosφ	Current			Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level L _{PA} dB
				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 = 4 poles				400 V 50 Hz				High-output design							
5.5	M3AA 112MC 4	3GAA112330-...K	1454	89.6	90.0	88.6	0.78	11.2	8.0	39.2	3.9	4.3	0.0234	50	64
9.2	M3AA 132MD 4	3GAA132340-...K	1464	91.0	91.7	91.3	0.80	18	8.5	60	3.0	4.0	0.0392	65	75
11	M3AA 132SME 4	3GAA132250-...K	1464	91.4	92.0	91.6	0.79	21.8	8.2	71.56	3.1	4.1	0.0468	88	75
15	M3AA 132SMF 4	3GAA132260-...K	1464	92.1	92.6	92.1	0.79	29.7	9.0	97.52	3.4	4.5	0.0545	88	75
18.5	M3AA 160MLC 4	3GAA162430-...K	1476	92.6	93.1	92.7	0.77	37.2	8.3	119.9	3.3	3.6	0.12	135	67
28	M3AA 180MLC 4	3GAA182430-...K	1482	93.4	93.3	93.3	0.77	56.5	8.2	180.4	3.0	3.6	0.191	176	62
37	¹⁾ M3AA 200MLB 4	3GAA202420-...K	1482	93.9	94.1	93.7	0.82	69.3	7.8	237.9	3.1	3.3	0.362	244	68
53	M3AA 225SMC 4	3GAA222230-...K	1483	94.5	94.7	94.2	0.83	97	8.7	341.34	3.15	3.41	0.532	318	71
75	M3AA 250SMB 4	3GAA252220-...K	1483	95	95.3	95	0.82	139	7.8	485.8	3.28	3.46	0.796	389	73

¹⁾ Temperature rise class F

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IE3 Process performance aluminum motors

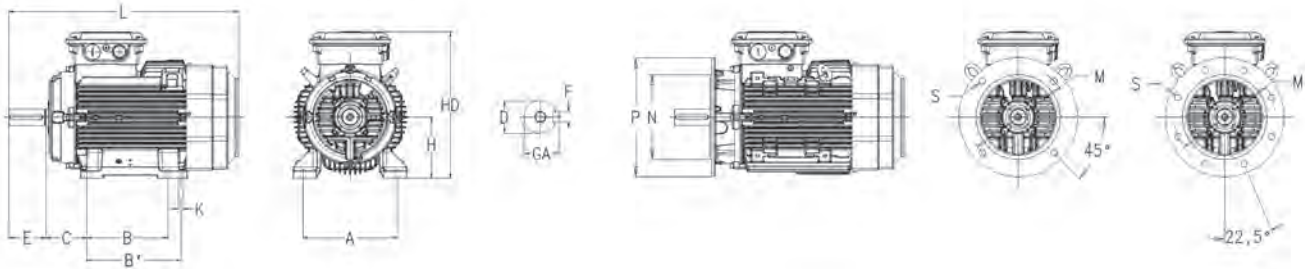
IP 55 - IC 411 - Insulation class F, temperature rise class B
IE3 efficiency class according to IEC 60034-30-1: 2014

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014			Power factor Cosφ	Current		Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level L _{PA} dB	
				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
1000 r/min = 6 poles				400 V 50 Hz				CENELEC-design							
0.75	M3AA 90LD 6	3GAA093540-...K	937	80.3	80.5	79.5	0.76	1.78	4.6	7.6	2.1	2.3	0.0055	19	55
1.1	M3AA 100LE 6	3GAA103550-...K	963	84.0	85.0	84.0	0.69	2.6	5.6	10.9	2.3	3.1	0.0138	35	49
1.5	M3AA 100LF 6	3GAA103560-...K	969	85.7	85.9	84.2	0.65	3.7	7.0	14.7	3.3	4.1	0.0138	35	49
2.2	M3AA 112MC 6	3GAA113330-...K	967	87.2	87.9	87.1	0.69	5.2	6.5	21.7	2.4	3.5	0.0187	43	68
3	M3AA 132MC 6	3GAA133330-...K	978	88.5	88.8	87.7	0.69	7	6.2	29.2	2.0	3.0	0.0402	66	61
4	M3AA 132MD 6	3GAA133340-...K	973	88.5	89.3	89.1	0.72	9.1	5.6	39.2	1.9	2.7	0.0402	67	61
5.5	M3AA 132ME 6	3GAA133350-...K	973	89.5	90.2	89.6	0.74	12	5.8	53.9	2.0	2.9	0.039	63	61
7.5	M3AA 160MLA 6	3GAA163410-...K	980	90.8	91.5	91.0	0.78	15.2	7.9	73.0	1.7	3.3	0.114	125	59
11	M3AA 160MLB 6	3GAA163420-...K	979	91.2	91.8	91.1	0.74	23.5	8.5	107.0	2.2	3.9	0.131	139	59
15	M3AA 180MLA 6	3GAA183410-...K	987	92.2	92.5	91.5	0.77	30.4	5.5	146.0	1.7	2.7	0.225	175	59
18.5	M3AA 200MLA 6	3GAA203410-...K	990	92.8	93.2	92.6	0.77	37.3	7.5	178.0	2.6	3.2	0.448	218	63
22	M3AA 200MLB 6	3GAA203420-...K	990	93.3	93.7	93.1	0.79	43	7.8	212.0	2.6	3.2	0.531	245	63
30	M3AA 225SMA 6	3GAA223210-...K	989	94.1	94.7	94.5	0.81	56.8	7.9	289.0	2.8	3.1	0.813	310	63
37	M3AA 250SMA 6	3GAA253210-...K	991	94.4	94.9	94.7	0.83	68	7.7	356.0	2.7	2.9	1.49	367	63
45	M3AA 280SMA 6	3GAA283210-...K	991	93.7	93.8	93.1	0.79	87.3	8.0	433.2	3.1	3.2	1.33	398	68

Output kW	Motor type	Product code	Speed r/min	Efficiency IEC 60034-30-1: 2014			Power factor Cosφ	Current		Torque		Moment of inertia J = 1/4 GD ² kgm ²	Weight kg	Sound pressure Level L _{PA} dB	
				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
1000 r/min = 6 poles				400 V 50 Hz				High-output design							
18.5	M3AA 180MLB 6	3GAA183420-...K	980	91.7	92.1	91.5	0.72	40.3	6.8	180	2.3	3.2	0.191	168	65
37	M3AA 225SMB 6	3GAA223220-...K	985	93.3	93.8	93.5	0.80	71.5	7.0	358.7	2.7	3.0	0.813	307	68
45	M3AA 250SMB 6	3GAA253220-...K	991	93.7	93.8	93.1	0.79	87.3	8.0	433.2	3.1	3.2	1.33	389	68
55	M3AA 250SMC 6	3GAA253230-...K	989	94.1	94.8	94.6	0.80	105	7.1	531.1	3.0	3.1	1.49	390	68

Dimension drawings

Process performance IE3 aluminum motors



Motor size	Poles	D	GA	F	E	L max	A	B	B1	HD	HD	K	M	N	P	S
80	MB2, MC2	19	21.5	6	40	265.5	125	100		50	193.5	10	165	130	200	12
80	ME4	19	21.5	6	40	293.5	125	100		50	193.5	10	165	130	200	12
90	2-6	24	27	8	50	331.5	140	125		56	217	10	165	130	200	12
100	2-6	28	31	8	60	432	160	140		63	237	12	215	180	250	15
112	2-6 ¹⁾	28	31	8	60	431	190	140		70	260	12	215	180	250	15
112	4 ²⁾	28	31	8	60	477	190	140		70	260	12	215	180	250	15
132	2-6 ¹⁾	38	41	10	80	487	216	140	178	89	298	12	265	230	300	14.5
132	2-4 ^{3), 4)}	38	41	10	80	550	216	140	212	89	321	12	265	230	300	14.5
132	4 ⁵⁾	38	41	10	80	590	216	140	212	89	321	12	265	230	300	14.5
160	2-6	42	45	12	110	681	254	210	254	108	370	15	300	250	350	19
180	2-6	48	51.5	14	110	726	279	241	279	121	405	15	300	250	350	19
200	2-6	55	59	16	110	821	318	267	305	133	532	18	400	350	400	19
225	2	55	59	16	110	850	356	286	311	149	553	18	400	350	450	19
225	4-6	60	64	18	140	880	356	286	311	149	553	18	400	350	450	19
250	2	60	64	18	140	884	406	311	349	168	601	22	500	450	550	19
250	4-6	65	69	18	140	884	406	311	349	168	601	22	500	450	550	19

¹⁾ all types except ²⁾ 4p 5,5kW (HO) ³⁾ 2p 11/15kW (HO)

⁴⁾ 4p 11kW (HO) ⁵⁾ 4p 15kW (HO)

IMB14 (IM3601)

Motor size	M	N	P	S	Motor size	M	N	P	S
63	75	60	90	5	100	130	110	160	8
71	85	70	105	6	112	130	110	160	8
80	100	80	120	6	132	165	130	200	10
90	115	95	140	8	132SM_	165	130	200	10

Tolerances		Tolerances	
A, B	±0,8	F	ISO h9
D	ISO j6 ≤ Ø 28 mm	H	-0,5
	ISO k6 < Ø 38 mm	N	ISO js6
	ISO m6 ≥ Ø 55 mm	C	±0,8

The table gives the main dimension in mm. For detailed drawings please see our web pages www.abb.com/motors&generators.

Motors in brief

Aluminum motors, sizes 56 - 132

Motor size	M3AA	56-63	71	80	90	100	112	132
Stator and end shields	Material	Die-cast aluminum alloy						
	Paint colour shade	Munsell blue 8B 4.5/3.25						
	Corrosion class	C3 according to IEO/EN 12944-5						
Feet	Integrated aluminum feet							
Bearings	D-end	6201-2Z/C3	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6306-2Z/C3	6306-2Z/C3	6208-2Z/C3 6308-2Z/C3 ¹⁾ E2.6208-2Z/C3 ²⁾ E2.6308-2Z/C3 ³⁾
	N-end	6201-2Z/C3	6202-2Z/C3	6203-2Z/C3	6204-2Z/C3	6205-2Z/C3	6205-2Z/C3	6206-2Z/C3 E2.6206-2Z/C3 ⁴⁾
Axially-locked bearings	Inner bearing cover	ND-end retaining ring	Locked at D-end					
Bearing seal	D-end	V-ring						
	N-end	Labyrinth seal						
Lubrication	Permanent grease lubrication. Grease temperature range -40°C to +160°C							
Measuring nipples for condition monitoring of the bearings	Not included							
Rating plate	Material	Aluminum						
Terminal box	Material	Die-cast aluminum alloy, integrated to stator						
	Cover screws material	Zinc-electroplated steel						
Connections	Openings	2x(M16+M16)	2x(M20 + M20)		2x(M20+M25)		2x(M20+M25) ⁵⁾ 2x(M40+M32+M12) ⁶⁾	
	Terminals	6 terminals for connection with cable lugs (not included)						
	Cable glands	Optional						
Fan	Material	Glass-fiber reinforced polypropylene						
Fan cover	Material	Polypropylene						
	Paint colour shade	Munsell blue 8B 4.5/3.25						
	Corrosion class	C3						
Stator winding	Material	Copper						
	Insulation	Insulation class F						
	Winding protection	Optional						
Rotor winding	Material	Die-cast aluminum						
Balancing	Half key balancing							
Key ways	Closed key way							
Drain holes	Without drain holes		Drain holes with closable plastic plugs, open on delivery					
External earthing bolt	As option							
Enclosure	IP 55							
Cooling method	IC 411							

¹⁾ (SM) except 4p 11&15kW HO

²⁾ 2p 9,2kw HO

³⁾ 2p 15kW HO

⁴⁾ HO 2p 9,2&15kW

⁵⁾ S, SB, M, MA

⁶⁾ SC, MC, SMA-SME

Motors in brief

Aluminum motors, sizes 160 - 280

Motor size	M3AA	160	180	200	225	250	280
Stator and end shields	Material	Die-cast aluminum alloy		Extruded aluminum alloy			
	Paint colour shade	Munsell blue 8B 4.5/3.25					
	Corrosion class	C3 medium according IEO/EN 12944-5					
Feet		Separate aluminum feet		Separate cast iron feet			
Bearings	D-end	6309-2Z/C3	6310-2Z/C3	6312-2Z/C3	6313-2Z/C3	6315-2Z/C3	6315/C3 ¹⁾ 6316/C3 ²⁾
	N-end	6209-2Z/C3	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3	6213-2Z/C3	6213/C3
Axially-locked bearings	Inner bearing cover	Locked at D-end					
Bearing seal	D-end	Axial seal					
	N-end	Axial seal					
Lubrication		Permanently lubricated shielded bearings					Regreasable
Measuring nipples for condition monitoring of the bearings		Not included					
Rating plate	Material	Aluminum					
Terminal box	Material	Die-cast aluminum alloy, integrated		Deep-drawn steel sheet, bolted to stator to stator			
	Cover screws material	Zinc-electroplated steel					
Connections	Openings	(2xM40+M16+(2xM40)		2xFL13, 2xM40 + 1xM16		2xFL21	
		Knock-out					
	Terminals	6 terminals for connection with cable lugs (not included)					
	Cable glands	Optional					
Fan	Material	Glass-fiber reinforced polypropylene					
Fan cover	Material	Steel					
	Paint colour shade	Munsell blue 8B 4.5/3.25					
	Corrosion class	C3					
Stator winding	Material	Copper					
	Insulation	Insulation class F					
	Winding protection	3 PTC thermistors, 150 °C					
Rotor winding	Material	Die-cast aluminum					
Balancing		Half key balancing					
Key ways		Closed key way					
Drain holes		Drain holes with closable plastic plugs, open on delivery					
External earthing bolt		As option					
Enclosure		IP 55					
Cooling method		IC411					

¹⁾ SC, MC, SMA-SME

²⁾ 4-8 poles