

Squirrel-cage motors

1LA and 1LG

selection and ordering data

3

Aluminium housing (0.06 to 53 kW)

Basic version

Energy-saving motor

- 3/2 • 1LA7, 1LA5 – 2-, 4-pole – 50 Hz, “Improved Efficiency” eff2 acc. to CEMEP
- 3/3 • 1LA7, 1LA5 – 6-, 8-pole – 50 Hz
- 3/4 • 1LA9 – 2-, 4-pole – 50 Hz, “High Efficiency” eff1 acc. to CEMEP

- 3/5 • 1LA9 – 6-pole – 50 Hz

Energy-saving motor acc. to EPACT

- 3/6 • 1LA9 – 2-, 4-, 6-pole – 60 Hz

With increased power

- 3/8 • 1LA9 – 2-, 4-pole – 50 Hz

Pole-change motors

- 3/9 • 1LA7, 1LA5 – 4-/2-, 8-/4-pole – 50 Hz, pole-change
- 3/10 • 1LA7, 1LA5 – 4-/2-, 6-/4-, 8-/4-pole – 50 Hz, pole-change for fan applications
- 3/11 • 1LA7, 1LA5 – 8-/6-/4-pole – 50 Hz, 3 speed pole-change motors for fan applications

Cast iron housing (0.75 to 1000 kW)

Basic version

Energy-saving motor

- 3/12 • 1LA6, 1LG4, 1LA8 – 2-, 4-pole – 50 Hz, “Improved Efficiency” eff2 acc. to CEMEP
- 3/14 • 1LA6, 1LG4, 1LA8 – 6-, 8-pole – 50 Hz
- 3/16 • 1LG6 – 2-, 4-pole – 50 Hz, “High Efficiency” eff1 acc. to CEMEP

- 3/17 • 1LG6 – 6-, 8-pole – 50 Hz

Energy-saving motor acc. to EPACT

- 3/18 • 1LG6 – 2-, 4-, 6-pole – 60 Hz

With increased power

- 3/20 • 1LG4 – 2-, 4-, 6-, 8-pole – 50 Hz

Pole-change motors (available soon)

For operation with SIMOVERT® MASTERDRIVES

With standard insulation for ≤ 500 V

- 3/21 • 1LA8 – 2-, 4-, 6-, 8-pole – 50 Hz

With special insulation for 690 V

- 3/22 • 1LA7, 1LA5 – 2-, 4-, 6-pole – 50 Hz
- 3/23 • 1LG6, 1LA8 – 2-, 4-, 6-, 8-pole – 50 Hz

Special designs

- 3/25 • Windings and motor protection; Paint finish
- 3/26 • Version for hazardous areas, distributed drive technology; marine version
- 3/27 • Modular installation; additional modules; converter installation; Mechanical design
- 3/28 • Mechanical design; Notes on safety and commissioning/certification

1LA5 to 1LA8, 1LG4 and 1LG6 motors

Frame sizes	56 to 450
Output range	0.06 to 1000 kW
Temperature class F	used as class B
Converter compatible	Voltage peak times $t_s > 0.1 \mu s$ at $U \leq 500 V$

Stock types available for immediate delivery.
For types, see price list M 11.

Energy-saving motors according to CEMEP

Number of poles: 2 and 4
Output range 1.1 to 90 kW
Eff1 High Efficiency
Eff2 Improved Efficiency
Efficiency determined in accordance with IEC 60 034-2

Motor type identified on nameplate and packaging. $\frac{1}{4}$ and $\frac{3}{4}$ efficiency levels are documented. Licensed manufacturers only are permitted to apply identification. Optimization of these motor series has resulted in significant energy savings.

Energy-saving motors according to EPACT


Number of poles: 2, 4 and 6
Output range 1 to 200 HP
Minimum efficiency levels authorized under US law
Efficiency levels determined according to IEEE 112b

Nominal efficiency level and NEMA MG-1-12 are stamped on the rating plate.

Squirrel-cage motors

1LA · Aluminium housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Efficiency Class 	Operating data at rated output				Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 ap- prox. kg		
				Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f.	Rated current at 400 V A							Rated torque Nm	
Energy-saving motor to CEMEP "Improved Efficiency" eff2, IP 55 degree of protection, temperature class F															
3000 rpm, 2-pole, 50 Hz															
0.09 0.12	56 M	1LA7 050-2AA .. 1LA7 053-2AA ..		2830 2800	63.0 65.0	62.0 64.0	0.81 0.83	0.26 0.32	0.30 0.41	2.0 2.1	3.7 3.7	2.3 2.4	16 16	0.00015 0.00015	3 3
0.18 0.25	63 M	1LA7 060-2AA .. 1LA7 063-2AA ..		2820 2830	63.0 65.0	62.0 65.0	0.82 0.82	0.50 0.68	0.61 0.84	2.0 2.0	3.7 4.0	2.2 2.2	16 16	0.00018 0.00022	4 4
0.37 0.55	71 M	1LA7 070-2AA .. 1LA7 073-2AA ..		2740 2800	66.0 71.0	65.0 70.0	0.82 0.82	1.00 1.36	1.3 1.9	2.3 2.5	3.5 4.3	2.3 2.6	16 16	0.00029 0.00041	5 6
0.75 1.1	80 M	1LA7 080-2AA .. 1LA7 083-2AA ..	2	2855 2845	73.0 77.0	72.0 77.0	0.86 0.87	1.73 2.40	2.5 3.7	2.3 2.6	5.6 6.1	2.4 2.7	16 16	0.00079 0.0010	9 11
1.5 2.2	90 S 90 L	1LA7 090-2AA .. 1LA7 096-2AA ..	2	2860 2880	79.0 82.0	80.0 82.0	0.85 0.85	3.25 4.55	5.0 7.3	2.4 2.8	5.5 6.3	2.7 3.1	16 16	0.0014 0.0018	13 16
3	100 L	1LA7 106-2AA ..	2	2890	84.0	84.0	0.85	6.10	9.9	2.8	6.8	3.0	16	0.0035	22
4	112 M	1LA7 113-2AA ..	2	2905	86.0	86.0	0.86	7.80	13	2.6	7.2	2.9	16	0.0059	29
5.5 7.5	132 S 132 M	1LA7 130-2AA .. 1LA7 131-2AA ..	2	2925 2930	86.5 88.0	86.5 88.0	0.89 0.89	10.3 13.8	18 24	2.0 2.3	5.9 6.9	2.8 3.0	16 16	0.015 0.019	39 48
11 15 18.5	160 M 160 M 160 L	1LA7 163-2AA .. 1LA7 164-2AA .. 1LA7 166-2AA ..	2	2940 2940 2940	89.5 90.0 91.0	89.5 90.2 91.2	0.88 0.90 0.91	20.0 26.5 32.5	36 49 60	2.1 2.2 2.4	6.5 6.6 7.0	2.9 3.0 3.1	16 16 16	0.034 0.043 0.051	68 77 86
22	180 M	1LA5 183-2AA ..	2	2940	91.7	91.7	0.88	39.0 ¹⁾	71	2.5	6.9	3.2	16	0.077	113
30 37	200 L	1LA5 206-2AA .. 1LA5 207-2AA ..	2	2945 2945	92.3 92.8	92.3 92.8	0.89 0.89	53.0 65.0 ¹⁾	97 120	2.4 2.4	7.2 7.7	2.8 2.8	16 16	0.14 0.16	162 182
45	225 M	1LA5 223-2AA ..	2	2960	93.6	93.6	0.89	78.0 ¹⁾	145	2.8	7.7	3.4	16	0.20	212
1500 rpm, 4-pole, 50 Hz															
0.06 0.09	56 M	1LA7 050-4AB .. 1LA7 053-4AB ..		1350 1350	56.0 58.0	55.0 57.0	0.77 0.77	0.20 0.29	0.42 0.64	1.9 1.9	2.6 2.6	1.9 1.9	13 13	0.00027 0.00027	3 3
0.12 0.18	63 M	1LA7 060-4AB .. 1LA7 063-4AB ..		1350 1350	55.0 60.0	54.0 60.0	0.75 0.77	0.42 0.56	0.85 1.3	1.9 1.9	2.8 3.0	2.0 1.9	13 13	0.00029 0.00037	4 4
0.25 0.37	71 M	1LA7 070-4AB .. 1LA7 073-4AB ..		1350 1370	60.0 65.0	60.0 65.0	0.79 0.8	0.76 1.03	1.8 2.6	1.9 1.9	3.0 3.3	1.9 2.1	13 13	0.00052 0.00077	5 6
0.55 0.75	80 M	1LA7 080-4AA .. 1LA7 083-4AA ..		1395 1395	67.0 72.0	67.0 72.0	0.82 0.81	1.45 1.86	3.8 5.1	2.2 2.3	3.9 4.2	2.2 2.3	16 16	0.0014 0.0017	9 10
1.1 1.5	90 S 90 L	1LA7 090-4AA .. 1LA7 096-4AA ..	2	1415 1420	77.0 79.0	77.0 79.0	0.81 0.81	2.55 3.40	7.4 10	2.3 2.4	4.6 5.3	2.4 2.6	16 16	0.0024 0.0033	13 16
2.2 3	100 L	1LA7 106-4AA .. 1LA7 107-4AA ..	2	1420 1420	82.0 83.0	82.5 83.5	0.82 0.82	4.70 6.40	15 20	2.5 2.7	5.6 5.6	2.8 3.0	16 16	0.0047 0.0055	21 24
4	112 M	1LA7 113-4AA ..	2	1440	85.0	85.5	0.83	8.20	27	2.7	6.0	3.0	16	0.012	31
5.5 7.5	132 S 132 M	1LA7 130-4AA .. 1LA7 133-4AA ..	2	1455 1455	86.0 87.0	86.0 87.5	0.81 0.82	11.4 15.2	36 49	2.5 2.7	6.3 6.7	3.1 3.2	16 16	0.018 0.023	41 49
11 15	160 M 160 L	1LA7 163-4AA .. 1LA7 166-4AA ..	2	1460 1460	88.5 90.0	89.0 90.2	0.84 0.84	21.5 28.5	72 98	2.2 2.6	6.2 6.5	2.7 3.0	16 16	0.043 0.055	73 85
18.5 22	180 M 180 L	1LA5 183-4AA .. 1LA5 186-4AA ..	2	1460 1460	90.5 91.2	90.5 91.2	0.83 0.84	35.0 ¹⁾ 41.0 ¹⁾	121 144	2.3 2.3	7.5 7.5	3.0 3.0	16 16	0.13 0.15	113 123
30	200 L	1LA5 207-4AA ..	2	1465	91.8	91.8	0.86	55.0	196	2.6	7.0	3.2	16	0.24	160
37 45	225 S 225 M	1LA5 220-4AA .. 1LA5 223-4AA ..	2	1470 1470	92.9 93.4	92.9 93.4	0.87 0.87	66.0 ¹⁾ 80.0 ¹⁾	240 292	2.8 2.8	7.0 7.7	3.2 3.3	16 16	0.32 0.36	209 235

Higher outputs under "1LA/1LG · Cast iron housing" on Pages 3/12 and 3/13.

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier						
	50 Hz		60 Hz				IM B 3	Price supplement					
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	460 VY	460 VΔ		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With stan- dard flange	IM B 14 With special flange	IM B 35
1LA7 050 to 1LA7 096	1	6	3	-	1	6	0	1	1	4	2	3	6
1LA7 106 to 1LA7 166	1	6	3	5	1	6	0	1	1	4	2	3	6
1LA5 183 to 1LA5 223	1	6	3	5	1	6	0	1	1	4	-	-	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

Squirrel-cage motors

1LA · Aluminium housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f. 3/4- %	Rated current at 400 V A	Rated torque Nm								
Energy-saving motor, IP 55 degree of protection, temperature class F															
1000 rpm, 6-pole, 50 Hz															
0.09	63 M	1LA7 063-6AB ..	850	45.0	41.5	0.66	0.44	1.0	1.8	2.0	1.9	13	0.00037	4	
0.18	71 M	1LA7 070-6AA ..	835	56.0	51.5	0.75	0.62	2.1	2.1	2.3	1.9	16	0.00055	5	
0.25		1LA7 073-6AA ..	830	61.0	59.3	0.76	0.78	2.9	2.2	2.7	2.0	16	0.00080	6	
0.37	80 M	1LA7 080-6AA ..	920	62.0	60.5	0.72	1.20	3.8	1.9	3.1	2.1	16	0.0014	9	
0.55		1LA7 083-6AA ..	910	67.0	66.5	0.74	1.60	5.8	2.1	3.4	2.2	16	0.0017	10	
0.75	90 S	1LA7 090-6AA ..	915	69.0	69.0	0.76	2.05	7.8	2.2	3.7	2.2	16	0.0024	13	
1.1	90 L	1LA7 096-6AA ..	915	72.0	72.0	0.77	2.85	11	2.3	3.8	2.3	16	0.0033	16	
1.5	100 L	1LA7 106-6AA ..	925	74.0	74.0	0.75	3.90	15	2.3	4.0	2.3	16	0.0047	21	
2.2	112 M	1LA7 113-6AA ..	940	78.0	78.5	0.78	5.20	22	2.2	4.6	2.5	16	0.0091	26	
3	132 S	1LA7 130-6AA ..	950	79.0	79.5	0.76	7.20	30	1.9	4.2	2.2	16	0.015	38	
4	132 M	1LA7 133-6AA ..	950	80.5	80.5	0.76	9.40	40	2.1	4.5	2.4	16	0.019	44	
5.5	132 M	1LA7 134-6AA ..	950	83.0	83.0	0.76	12.8	55	2.3	5.0	2.6	16	0.025	52	
7.5	160 M	1LA7 163-6AA ..	960	86.0	86.0	0.74	17.0	75	2.1	4.6	2.5	16	0.044	74	
11	160 L	1LA7 166-6AA ..	960	87.5	87.5	0.74	24.5	109	2.3	4.8	2.6	16	0.063	95	
15	180 L	1LA5 186-6AA ..	970	89.5	89.5	0.77	31.5	148	2.0	5.2	2.4	16	0.15	126	
18.5	200 L	1LA5 206-6AA ..	975	90.2	90.2	0.77	38.5	181	2.7	5.5	2.8	16	0.24	164	
22		1LA5 207-6AA ..	975	90.8	90.8	0.77	45.5	215	2.8	5.5	2.9	16	0.28	186	
30	225 M	1LA5 223-6AA ..	978	91.8	91.8	0.77	61.0 ¹⁾	293	2.8	5.7	2.9	16	0.36	217	
750 rpm, 8-pole, 50 Hz															
0.12	71 M	1LA7 070-8AB ..	630	53.0	54.5	0.68	0.36	1.4	1.9	2.2	1.7	13	0.00080	6	
0.09		1LA7 073-8AB ..	645	53.0	49.5	0.64	0.51	1.8	2.2	2.2	2.0	13	0.00080	6	
0.18	80 M	1LA7 080-8AB ..	675	51.0	49.5	0.68	0.75	2.5	1.7	2.3	1.9	13	0.0014	9	
0.25		1LA7 083-8AB ..	685	55.0	50.5	0.64	1.03	3.5	2.0	2.6	2.2	13	0.0017	10	
0.37	90 S	1LA7 090-8AB ..	675	63.0	62.0	0.75	1.13	5.2	1.6	2.9	1.8	13	0.0023	11	
0.55	90 L	1LA7 096-8AB ..	675	66.0	65.0	0.76	1.58	7.8	1.7	3.0	1.9	13	0.0031	13	
0.75	100 L	1LA7 106-8AB ..	680	66.0	65.0	0.76	2.15	11	1.6	3.0	1.9	13	0.0051	19	
1.1		1LA7 107-8AB ..	680	72.0	72.0	0.76	2.90	15	1.8	3.3	2.1	13	0.0063	22	
1.5	112 M	1LA7 113-8AB ..	705	74.0	74.0	0.76	3.90	20	1.8	3.7	2.1	13	0.013	24	
2.2	132 S	1LA7 130-8AB ..	700	75.0	75.0	0.74	5.70	30	1.9	3.9	2.3	13	0.014	38	
3	132 M	1LA7 133-8AB ..	700	77.0	77.5	0.74	7.60	41	2.1	4.1	2.4	13	0.019	44	
4	160 M	1LA7 163-8AB ..	715	80.0	80.0	0.72	10.0	53	2.2	4.5	2.6	13	0.036	64	
5.5	160 M	1LA7 164-8AB ..	710	83.5	83.5	0.73	13.0	74	2.3	4.7	2.7	13	0.046	74	
7.5	160 L	1LA7 166-8AB ..	715	85.5	85.5	0.72	17.7	100	2.7	5.3	3.0	13	0.064	94	
11	180 L	1LA5 186-8AB ..	725	87.0	87.0	0.75	24.5	145	2.0	5.0	2.2	13	0.21	128	
15	200 L	1LA5 207-8AB ..	725	87.5	87.5	0.78	31.5	198	2.1	5.0	2.2	13	0.37	179	
18.5	225 S	1LA5 220-8AB ..	725	89.2	89.2	0.79	38.0	244	2.1	4.5	2.2	13	0.37	187	
22	225 M	1LA5 223-8AB ..	725	90.6	90.6	0.79	44.5	290	2.2	4.8	2.3	13	0.45	217	

Higher outputs under "1LA/1LG · Cast iron housings" on Pages 3/14 and 3/15.

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier						
	50 Hz			60 Hz			IM B 3	Price supplement					
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ / 460 VY	460 VΔ / 460 VY	460 VΔ /	IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35	
1LA7 063 to 1LA7 096	1	6	3	–	1	6	0	1	1	4	2	3	6
1LA7 106 to 1LA7 166	1	6	3	5	1	6	0	1	1	4	2	3	6
1LA5 186 to 1LA5 223	1	6	3	5	1	6	0	1	1	4	–	–	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

Squirrel-cage motors



1LA · Aluminium housing · Basic version

Selection and ordering data

■ 50 Hz

The motors can also be used for 60 Hz according to EPACT, see Pages 3/6 and 3/7.

For further details, see "Technical information", "Motors for the US market".

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Efficiency Class 	Operating data at rated output				Starting torque For direct-on-line starting as multiple of the rated torque	Starting current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 ap- prox. kg	
				Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f.	Rated current at 400 V A							Rated torque Nm
Energy-saving motor to CEMEP "High Efficiency" eff1, IP 55 degree of protection, temperature class F														
3000 rpm, 2-pole, 50 Hz														
0.09 0.12	56 M	1LA9 050-2KA .. 1LA9 053-2KA ..		2830	68.0 68.0 69.0 69.0	0.79 0.81	0.24 0.31	0.30 0.40	2.9 2.6	4.5 4.3	3.0 2.8	16 16	0.00015 0.00020	3 4
0.18 0.25	63 M	1LA9 060-2KA .. 1LA9 063-2KA ..		2840 2830	70.0 70.0 70.0 70.0	0.78 0.82	0.48 0.63	0.61 0.84	2.5 2.3	4.8 4.9	3.1 2.5	16 16	0.00022 0.00026	4 5
0.37 0.55	71 M	1LA9 070-2KA .. 1LA9 073-2KA ..		2840 2835	74.0 74.0 75.0 75.0	0.77 0.75	0.94 1.42	1.2 1.9	3.1 3.0	6.5 6.3	3.1 2.9	16 16	0.00041 0.00050	6 7
0.75 1.1	80 M	1LA9 080-2KA .. 1LA9 083-2KA ..	1	2870 2860	80.0 80.0 84.0 84.0	0.84 0.89	1.65 2.15	2.5 3.7	3.5 3.2	8.3 7.0	3.2 3.2	16 16	0.0010 0.0013	7 12
1.5 2.2	90 S 90 L	1LA9 090-2KA .. 1LA9 096-2KA ..	1	2890 2890	85.0 85.0 86.5 86.5	0.87 0.87	2.95 4.25	5.0 7.3	3.5 3.5	7.0 7.0	3.5 3.5	16 16	0.0018 0.0022	15 18
3	100 L	1LA9 106-2KA ..	1	2890	87.0 87.0	0.88	5.70	9.9	3.1	7.0	3.2	16	0.0044	24
4	112 M	1LA9 113-2KA ..	1	2905	88.5 88.5	0.89	7.40	13	2.6	7.0	3.2	16	0.0077	35
5.5 7.5	132 S 132 M	1LA9 130-2KA .. 1LA9 131-2KA ..	1	2930 2930	89.5 89.5 90.5 90.5	0.90 0.92	9.90 13.0	18 24	2.4 2.5	7.0 7.0	3.2 3.1	16 16	0.019 0.024	43 56
11 15 18.5	160 M 160 M 160 L	1LA9 163-2KA .. 1LA9 164-2KA .. 1LA9 166-2KA ..	1	2945 2945 2940	91.0 91.0 91.5 91.5 92.3 92.5	0.90 0.90 0.92	19.4 26.3 31.5	36 49 60	2.3 2.3 2.3	7.0 7.0 7.0	3.1 3.1 3.1	16 16 16	0.044 0.051 0.065	73 82 102
22	180 M	1LA9 183-2WA ..	1	2945	93.0 93.2	0.89	38.0 ¹⁾	71	2.5	7.2	3.3	16	0.090	131
30 37	200 L	1LA9 206-2WA .. 1LA9 207-2WA ..	1	2950 2950	93.5 93.5 94.0 94.1	0.89 0.89	52.0 64.0 ¹⁾	97 120	2.4 2.4	7.0 7.0	3.2 3.3	16 16	0.16 0.20	185 214
1500 rpm, 4-pole, 50 Hz														
0.06 0.09	56 M	1LA9 050-4KA .. 1LA9 053-4KA ..		1380 1390	61.0 61.0 62.0 62.0	0.66 0.68	0.22 0.31	0.42 0.62	2.7 2.7	3.1 3.2	2.8 2.8	16 16	0.00027 0.00035	3 4
0.12 0.18	63 M	1LA9 060-4KA .. 1LA9 063-4KA ..		1395 1340	66.0 66.0 62.0 62.0	0.65 0.68	0.41 0.62	0.82 1.3	2.6 2.9	3.5 3.2	2.6 2.5	16 16	0.00037 0.00045	4 5
0.25 0.37	71 M	1LA9 070-4KA .. 1LA9 073-4KA ..		1410 1385	70.0 70.0 71.0 71.0	0.64 0.73	0.81 1.03	1.7 2.6	3.2 2.8	4.3 4.2	3.1 3.0	16 16	0.00076 0.00095	6 7
0.75 0.55	80 M	1LA9 080-4KA .. 1LA9 083-4KA ..		1410 1400	77.0 77.0 81.0 81.0	0.78 0.75	1.32 1.80	3.7 5.1	2.8 3.6	5.6 5.8	2.9 3.5	16 16	0.0017 0.0024	10 12
1.1 1.5	90 S 90 L	1LA9 090-4KA .. 1LA9 096-4KA ..	1	1440 1440	84.0 84.0 85.0 85.0	0.77 0.77	2.45 3.30	7.3 9.9	2.7 3.1	6.4 6.7	3.2 3.4	16 16	0.0033 0.0040	15 18
2.2 3	100 L	1LA9 106-4KA .. 1LA9 107-4KA ..	1	1435 1435	86.5 86.5 87.5 87.7	0.82 0.81	4.55 6.10	15 20	3.1 3.5	7.0 7.0	3.6 3.9	16 16	0.0062 0.0077	25 30
4	112 M	1LA9 113-4KA ..	1	1440	88.5 89.0	0.81	8.10	27	2.8	6.9	3.2	16	0.014	37
5.5 7.5	132 S 132 M	1LA9 130-4KA .. 1LA9 133-4KA ..	1	1455 1455	89.5 89.5 90.3 90.5	0.84 0.84	10.6 14.3	36 49	2.9 3.0	7.0 7.0	3.6 3.6	16 16	0.023 0.029	45 60
11 15	160 M 160 L	1LA9 163-4KA .. 1LA9 166-4KA ..	1	1460 1460	91.5 92.0 92.0 92.3	0.85 0.86	20.5 27.5	72 98	2.7 2.9	6.9 7.0	3.2 3.3	16 16	0.055 0.072	81 107
18.5 22	180 M 180 L	1LA9 183-4WA .. 1LA9 186-4WA ..	1	1465 1465	92.5 93.0 93.0 93.4	0.84 0.84	34.5 ¹⁾ 40.5 ¹⁾	121 143	2.5 2.6	7.0 7.3	3.2 3.4	16 16	0.15 0.19	126 146
30	200 L	1LA9 207-4WA ..	1	1465	93.5 94.0	0.87	53.0	196	2.6	7.0	3.2	16	0.32	199

Higher outputs under "1LG · Cast iron housing" on Page 3/16.

Order No. supplements

See Page 3/5.

1) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

Squirrel-cage motors

1LA · Aluminium housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Efficiency Class	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current	Stalling torque	Torque Class	Moment of inertia J	Weight IM B 3 ap- prox. kg	
				Rated speed	Efficiency η at 4/4- load	Power factor p.f.	Rated current at 400 V	Rated torque							rpm
Energy-saving motor, IP 55 degree of protection, temperature class F															
1000 rpm, 6-pole, 50 Hz															
0.75	90 S	1LA9 090-6KA ..		925	75.5	75.5	0.72	2.00	7.7	2.5	4.4	2.5	16	0.0033	16
1.1	90 L	1LA9 096-6KA ..		940	82.0	82.0	0.70	2.80	11	3.2	5.7	3.2	16	0.0050	19
1.5	100 L	1LA9 106-6KA ..		950	85.0	85.0	0.70	3.65	15	3.4	6.2	3.4	16	0.0065	25
2.2	112 M	1LA9 113-6KA ..		955	84.0	84.0	0.70	5.40	22	2.7	6.2	3.0	16	0.014	37
4	132 M	1LA9 133-6KA ..		950	84.0	84.0	0.81	8.50	40	2.5	6.3	2.7	16	0.025	49
5.5		1LA9 134-6KA ..		960	86.0	86.0	0.77	12.0	55	3.3	7.3	3.6	16	0.030	64
7.5	160 M	1LA9 163-6KA ..		965	88.0	88.0	0.72	17.1	74	2.2	5.5	2.5	16	0.063	98
11	160 L	1LA9 166-6KA ..		960	88.5	88.5	0.78	23.0	109	2.9	6.9	3.2	16	0.072	105
15	180 L	1LA9 186-6WA ..		970	91.0	91.0	0.75	31.5	148	2.0	6.5	2.5	16	0.19	144
18.5	200 L	1LA9 206-6WA ..		975	91.0	91.0	0.77	38.0	181	2.5	6.2	2.5	16	0.28	186
22		1LA9 207-6WA ..		975	91.5	91.5	0.77	45.0	215	2.5	6.2	2.5	16	0.36	217

Higher outputs under "1LG · Cast iron housing" on Page 3/17.

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier						
	50 Hz			60 Hz			IM B 3	Price supplement					
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	460 VΥ	460 VΔ		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35
1LA9 050 to 1LA9 096	1	6	3	—	1	6	0	1	1	4	2	3	6
1LA9 106 to 1LA9 166	1	6	3	5	1	6	0	1	1	4	2	3	6
1LA9 183 to 1LA9 207	1	6	3	5	1	6	0	1	1	4	—	—	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

1LA · Aluminium housing · Basic version

Selection and ordering data

■ 60 Hz

The motors can also be used for 50 Hz "High Efficiency" eff1, see Pages 3/4 and 3/5.

For further details, see "Technical information", "Motors for the US market".

Rated output HP	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque	Starting current	Stalling torque	Torque Class	Moment of inertia J	Weight Design IM B 3 approx. kg
			Rated speed rpm	Nominal efficiency %	Power factor p.f.	Rated current at 460 V A	Rated torque Nm						
CC 032A													
3600 rpm, 2-pole, 60 Hz													
0.12	56 M	1LA9 050-2KA ..	3440	70.0	0.74	0.23	0.25	3.6	5.5	3.8	16	0.00015	3
0.16		1LA9 053-2KA ..	3440	71.0	0.76	0.28	0.33	3.2	5.4	3.4	16	0.00020	4
0.25	63 M	1LA9 060-2KA ..	3440	71.0	0.79	0.40	0.50	2.8	4.9	3.3	16	0.00022	4
0.33		1LA9 063-2KA ..	3430	72.0	0.83	0.53	0.70	2.5	5.0	2.7	16	0.00026	5
0.5	71 M	1LA9 070-2KA ..	3445	72.0	0.75	0.86	1.00	3.3	7.5	3.4	16	0.00041	6
0.75		1LA9 073-2KA ..	3445	73.0	0.73	1.30	1.50	3.6	7.2	3.7	16	0.00050	7
1	80 M	1LA9 080-2KA ..	3485	75.5	0.82	1.52	2.05	4.4	9.6	4.4	16	0.0010	10
1.5		1LA9 083-2KA ..	3480	82.5	0.88	1.90	3.00	3.8	8.6	3.8	16	0.0013	12
2	90 S	1LA9 090-2KA ..	3510	84.0	0.86	2.60	4.10	4.1	8.6	4.1	16	0.0018	15
3	90 L	1LA9 096-2KA ..	3510	85.5	0.85	3.80	6.00	4.1	8.5	5.1	16	0.0022	18
4	100 L	1LA9 106-2KA ..	3510	86.5	0.87	5.00	8.20	3.4	8.6	3.7	16	0.0044	24
5	112 M	1LA9 113-2KA ..	3525	87.5	0.88	6.00	10	2.8	9.2	4.0	16	0.0077	35
7.5	132 S	1LA9 130-2KA ..	3540	88.5	0.90	8.70	15	2.7	8.5	3.8	16	0.019	43
10		1LA9 131-2KA ..	3540	89.5	0.92	11.4	20	2.8	8.3	3.7	16	0.024	56
15	160 M	1LA9 163-2KA ..	3555	90.2	0.90	17.0	30	2.5	8.5	3.7	16	0.043	73
20	160 M	1LA9 164-2KA ..	3555	90.2	0.90	23.2	40	2.5	8.5	3.7	16	0.051	82
25	160 L	1LA9 166-2KA ..	3550	91.0	0.92	27.7	50	2.4	8.5	3.5	16	0.062	102
30	180 M	1LA9 183-2WA ..	3545	91.0	0.86	35.5	59	2.6	8.6	3.5	16	0.093	131
40	200 L	1LA9 206-2WA ..	3555	91.7	0.88	46.5	81	2.5	8.4	3.6	16	0.16	185
50		1LA9 207-2WA ..	3555	92.4	0.88	57.0	100	2.7	8.4	3.7	16	0.2	214
1800 rpm, 4-pole, 60 Hz													
0.08	56 M	1LA9 050-4KA ..	1715	63.0	0.65	0.18	0.33	2.7	3.4	3.0	16	0.00027	3
0.12		1LA9 053-4KA ..	1725	64.0	0.67	0.26	0.50	2.8	3.5	3.0	16	0.00035	4
0.16	63 M	1LA9 060-4KA ..	1720	69.0	0.65	0.34	0.67	2.7	3.9	2.8	16	0.00037	4
0.25		1LA9 063-4KA ..	1660	65.0	0.67	0.52	1.0	3.0	3.6	3.1	16	0.00045	5
0.33	71 M	1LA9 070-4KA ..	1730	69.0	0.60	0.76	1.4	3.6	4.9	3.4	16	0.00076	6
0.5		1LA9 073-4KA ..	1725	70.0	0.68	0.98	2.1	3.3	4.9	3.4	16	0.00096	7
0.75	80 M	1LA9 080-4KA ..	1725	75.5	0.74	1.24	3.0	3.4	6.8	3.6	16	0.0017	10
1		1LA9 083-4KA ..	1720	82.5	0.72	1.59	4.2	4.0	7.3	3.9	16	0.0024	12
1.5	90 S	1LA9 090-4KA ..	1755	84.0	0.76	2.15	6.0	3.1	7.7	3.9	16	0.0032	15
2	90 L	1LA9 096-4KA ..	1755	84.0	0.76	2.95	8.2	3.6	8.1	4.2	16	0.0040	18
3	100 L	1LA9 106-4KA ..	1750	87.5	0.79	4.00	12	3.4	8.4	4.3	16	0.0061	25
4		1LA9 107-4KA ..	1750	87.5	0.79	5.50	17	3.8	8.7	4.6	16	0.0077	30
5	112 M	1LA9 113-4KA ..	1755	87.5	0.79	6.70	20	3.2	8.6	3.9	16	0.014	37
7.5	132 S	1LA9 130-4KA ..	1760	89.5	0.81	9.50	30	3.2	8.7	4.1	16	0.023	45
10	132 M	1LA9 133-4KA ..	1760	89.5	0.82	12.8	41	3.4	8.7	4.1	16	0.029	60
15	160 M	1LA9 163-4KA ..	1765	91.0	0.85	17.9	60	2.6	8.1	3.2	16	0.055	81
20	160 L	1LA9 166-4KA ..	1765	91.0	0.85	24.5	81	2.8	8.5	3.5	16	0.072	107
25	180 M	1LA9 183-4WA ..	1770	92.4	0.83	30.5	100	2.8	8.4	3.6	16	0.15	126
30	180 L	1LA9 186-4WA ..	1770	92.4	0.83	36.0	119	3.1	8.8	3.9	16	0.19	146
40	200 L	1LA9 207-4WA ..	1770	93.0	0.86	47.0	162	3.0	8.3	3.6	16	0.32	199

Higher outputs under "1LG · Cast iron housing" on Page 3/18.

● With CC No. CC 032A

Order No. supplements

See Page 3/7.

Squirrel-cage motors

1LA · Aluminium housing · Basic version

Selection and ordering data

Rated output	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque	Torque Class	Moment of inertia J	Weight IM B 3 approx. kg
			Rated speed rpm	Nominal efficiency %	Power factor p.f.	Rated current at 460 V A	Rated torque Nm						
Energy-saving motor according to EPACT, IP 55 degree of protection, temperature class F													CC 032A
1200 rpm, 6-pole, 60 Hz													
1 ●	90 S	1LA9 090-6KA ..	1140	80.0	0.66	1.78	6.3	3.0	5.6	3.0	16	0.0035	15
1.5 ●	90 L	1LA9 096-6KA ..	1150	85.5	0.64	2.55	9.2	3.7	6.4	3.7	16	0.0050	19
2	100 L	1LA9 106-6KA ..	1160	86.5	0.68	3.20	13	3.5	7.2	3.8	16	0.0065	25
3 ●	112 M	1LA9 113-6KA ..	1160	87.5	0.66	4.80	18	2.9	7.5	3.7	16	0.014	37
5 ●	132 M	1LA9 133-6KA ..	1160	87.5	0.77	6.90	31	3.0	7.9	3.6	16	0.025	49
7.5 ●	132 M	1LA9 134-6KA ..	1160	89.5	0.73	10.6	45	3.7	8.4	4.3	16	0.034	64
10 ●	160 M	1LA9 163-6KA ..	1165	89.5	0.70	15.0	62	2.4	6.4	2.8	16	0.049	98
15 ●	160 L	1LA9 166-6KA ..	1165	90.2	0.77	19.9	90	3.1	8.3	3.8	16	0.057	105
20 ●	180 L	1LA9 186-6WA ..	1175	90.2	0.75	28.0	122	2.2	7.2	2.8	16	0.19	144
25 ●	200 L	1LA9 206-6WA ..	1175	91.7	0.75	34.0	150	2.8	7.1	2.8	16	0.28	186
30 ●		1LA9 207-6WA ..	1175	91.7	0.75	40.0	179	2.8	7.2	2.8	16	0.36	217

Higher outputs under "1LG · Cast iron housing" on Page 3/19.

- With CC No. CC 032A

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier						
	50 Hz			60 Hz			IM B 3	Price supplement					
	230 VΔ / 400 VΔ / 500 VY	400 VY	500 VΔ	500 VY	460 VY	460 VΔ	IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35	
1LA9 050 to 1LA9 096	1	6	3	–	1	6	0	1	1	4	2	3	6
1LA9 106 to 1LA9 166	1	6	3	5	1	6	0	1	1	4	2	3	6
1LA9 183 to 1LA9 207	1	6	3	5	1	6	0	1	1	4	–	–	6

Other voltage and/or frequency, voltage identifier "9".

Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

1LA · Aluminium housing · With increased power

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
IP 55 degree of protection, temperature class F, used as class F													
3000 rpm, 2-pole, 50 Hz													
0.20	56 M	1LA9 053-2LA ..	2830	69.0	0.82	0.50	0.67	2.1	4.5	2.3	16	0.00020	4
0.33	63 M	1LA9 060-2LA ..	2775	68.0	0.80	0.88	1.1	2.3	4.4	2.2	16	0.00022	4
0.45		1LA9 063-2LA ..	2720	68.0	0.84	1.15	1.6	2.2	4.2	2.3	16	0.00026	5
0.65	71 M	1LA9 070-2LA ..	2720	72.0	0.83	1.57	2.3	2.4	4.5	2.5	16	0.00041	6
0.94		1LA9 073-2LA ..	2735	73.0	0.82	2.30	3.3	2.5	4.8	2.4	16	0.00050	7
1.45	80 M	1LA9 080-2LA ..	2820	76.0	0.83	3.30	4.9	3.1	6.7	3.1	16	0.0010	10
1.75		1LA9 083-2LA ..	2840	77.0	0.82	4.00	5.9	3.7	7.4	3.5	16	0.0013	12
2.9	90 S	1LA9 090-2LA ..	2825	81.0	0.82	6.30	9.8	3.2	6.5	3.0	16	0.0018	15
3.8	90 L	1LA9 096-2LA ..	2810	81.0	0.85	7.90	13	3.1	6.5	2.7	16	0.0022	18
4.4	100 L	1LA9 106-2LA ..	2880	82.0	0.83	9.30	15	3.0	7.8	3.2	16	0.0044	24
6.5	112 M	1LA9 113-2LA ..	2900	85.0	0.83	13.3	21	3.0	8.6	3.8	16	0.0077	35
8.5	132 S	1LA9 130-2LA ..	2895	84.0	0.87	16.8	28	1.9	6.7	2.2	16	0.019	43
11		1LA9 131-2LA ..	2905	86.0	0.85	21.7	36	2.5	7.5	2.9	16	0.024	56
17	160 M	1LA9 163-2LA ..	2910	87.0	0.85	33.0	56	2.1	6.3	2.5	16	0.044	73
20	160 M	1LA9 164-2LA ..	2910	88.0	0.88	37.5	66	2.3	6.9	2.7	16	0.051	82
24.5	160 L	1LA9 166-2LA ..	2920	89.0	0.87	45.5	80	2.8	8.2	3.3	16	0.065	102
33	180 M	1LA9 183-2AA ..	2940	92.0	0.86	60.0	107	2.5	7.4	3.3	16	0.090	131
44	200 L	1LA9 206-2AA ..	2945	92.0	0.86	80.0	143	2.4	7.8	3.2	16	0.16	185
53		1LA9 207-2AA ..	2945	92.5	0.87	95.0	172	2.6	8.2	3.3	16	0.20	214
1500 rpm, 4-pole, 50 Hz													
0.14	56 M	1LA9 053-4LA ..	1385	62.0	0.74	0.44	0.97	2.3	3.5	2.2	16	0.00035	4
0.21	63 M	1LA9 060-4LA ..	1335	60.0	0.77	0.66	1.5	2.1	2.9	2.1	16	0.00037	4
0.29		1LA9 063-4LA ..	1330	60.0	0.71	0.98	2.1	2.3	2.9	2.3	16	0.00045	5
0.45	71 M	1LA9 070-4LA ..	1340	64.0	0.71	1.50	3.2	2.3	3.4	2.3	16	0.00076	6
0.60		1LA9 073-4LA ..	1340	70.0	0.75	1.65	4.3	2.3	3.6	2.3	16	0.00095	7
0.90	80 M	1LA9 080-4LA ..	1340	70.0	0.81	2.30	6.4	2.3	4.1	2.4	16	0.0017	10
1.25		1LA9 083-4LA ..	1340	70.0	0.83	3.10	8.9	2.7	4.5	2.4	16	0.0024	12
1.8	90 S	1LA9 090-4LA ..	1380	77.0	0.86	3.90	12	2.4	5.1	2.4	16	0.0033	15
2.5	90 L	1LA9 096-4LA ..	1390	76.0	0.81	5.90	17	2.5	5.1	2.3	16	0.0040	18
4.0	100 L	1LA9 107-4LA ..	1410	77.0	0.81	9.20	27	2.7	6.0	3.0	16	0.0062	25
5.5	112 M	1LA9 113-4LA ..	1440	82.0	0.80	12.1	36	3.0	6.8	3.0	16	0.014	37
8.6	132 S	1LA9 130-4LA ..	1440	84.0	0.83	17.8	57	2.3	6.8	2.7	16	0.023	45
11		1LA9 133-4LA ..	1450	85.0	0.83	22.5	72	2.8	7.4	3.1	16	0.029	60
17	160 M	1LA9 163-4LA ..	1455	88.0	0.84	33.0	112	2.9	7.5	2.8	16	0.055	81
22	160 L	1LA9 166-4LA ..	1455	88.0	0.82	44.0	144	3.1	8.3	3.4	16	0.072	107
26	180 M	1LA9 183-4AA ..	1460	90.5	0.83	50.0	170	2.4	7.5	3.2	16	0.15	126
32	180 L	1LA9 186-4AA ..	1465	91.3	0.84	60.0	209	2.5	7.9	3.4	16	0.19	146
43	200 L	1LA9 207-4AA ..	1465	91.7	0.85	79.0	280	2.7	7.8	3.5	16	0.32	199

Higher outputs under "1LG · Cast iron housing" on Page 3/20.

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier						
	50 Hz			60 Hz			IM B 3	Price supplement					
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	460 VY	460 VΔ	IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With stand- ard flange	IM B 14 With special flange	IM B 35	
1LA9 050 to 1LA9 096	1	6	3	—	1	6	0	1	1	4	2	3	6
1LA9 106 to 1LA9 166	1	6	3	5	1	6	0	1	1	4	2	3	6
1LA9 183 to 1LA9 207	1	6	3	5	1	6	0	1	1	4	—	—	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

1LA · Aluminium housing · Pole-change motors

Selection and ordering data

Pole change motors

The torque classification for pole-changing motors only applies once the lowest speed

has been activated until the operating speed when it is

switched over to the next highest speed.

The motors can only be started direct-on-line. For circuit diagrams, see Catalog M 10 and SD 01.

Rated output 1500 rpm 3000 rpm kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output				Starting torque		Starting current		Stalling torque		Torque Class	Moment of inertia J	Weight IM B 3
			Rated speed	Rated current at 400 V		For direct-on-line starting as multiple of the rated torque		torque		torque					
			rpm	A	A	rpm	rpm	rpm	rpm	rpm	rpm	KL	kg m ²	approx. kg	
Two speed pole-change, IP 55 degree of protection, temperature class F															
1500/3000 rpm, 4-/2-pole, 50 Hz, version with one winding in Dahlander circuit															
0.1 0.15	63 M	1LA7 060-0AA .. 1LA7 063-0AA ..	1330/2650 1330/2700	0.41 0.51	0.51 0.58	1.8 2.0	1.8 2.0	2.7 3.0	2.9 3.3	1.8 2.0	1.8 2.0	10 10	0.00029 0.00037	4 4	
0.21 0.3	71 M	1LA7 070-0AA .. 1LA7 073-0AA ..	1375/2700 1380/2770	0.70 0.89	1.1 1.3	1.6 1.8	1.6 1.8	3.0 3.7	3.1 3.8	1.8 2.0	1.8 2.0	10 10	0.00052 0.00076	5 7	
0.48 0.7	80 M	1LA7 080-0AA .. 1LA7 083-0AA ..	1390/2810 1390/2810	1.25 1.75	1.6 2.1	1.7 1.8	1.7 1.8	3.9 4.3	4.0 4.3	2.0 2.1	2.0 2.1	10 10	0.0014 0.0017	9 10	
1.1 1.5	90 S 90 L	1LA7 090-0AA .. 1LA7 096-0AA ..	1390/2810 1390/2860	2.70 3.40	3.6 4.5	1.6 1.9	1.8 1.9	4.2 4.9	4.3 5.3	1.9 2.0	2.0 2.1	13 13	0.0024 0.0033	13 16	
2 2.6	100 L	1LA7 106-0AA .. 1LA7 107-0AA ..	1410/2870 1400/2850	4.25 5.50	5.5 7.6	1.8 2.3	1.8 2.4	5.0 5.6	5.5 5.6	2.0 2.4	2.1 2.4	13 13	0.0048 0.0055	21 24	
3.7 4.4	112 M	1LA7 113-0AA ..	1420/2885	8.00	10.5	2.0	2.2	5.6	5.8	2.2	2.3	13	0.011	31	
4.7 6.5	132 S 132 M	1LA7 130-0AA .. 1LA7 133-0AA ..	1450/2920 1450/2930	9.70 13.6	12.5 16.7	1.7 2.0	1.6 2.1	6.3 6.9	6.5 7.5	2.2 2.5	2.2 2.6	10 10	0.018 0.023	41 50	
9.3 13	160 M	1LA7 163-0AA .. 1LA7 166-0AA ..	1455/2930 1455/2930	18.3 25.6	23.4 32.0	2.0 2.5	1.8 2.8	6.7 7.6	7.4 8.5	2.6 3.0	2.4 3.0	10 10	0.043 0.060	74 92	
15 18	180 M	1LA5 183-0AA ..	1470/2950	29.0	37.5	2.1	2.2	6.7	7.5	2.7	3.2	13	0.13	113	
18 21.5	180 L	1LA5 186-0AA ..	1465/2950	34.5	42.0	2.0	2.2	6.4	7.3	2.6	3.1	13	0.15	123	
26 31	200 L	1LA5 207-0AA ..	1465/2940	48.5	61.0	2.6	2.6	6.7	7.5	2.8	3.3	13	0.24	160	
750 rpm 1500 rpm															
750/1500 rpm, 8-/4-pole, 50 Hz, version with one winding in Dahlander circuit															
0.35 0.5	90 S 90 L	1LA7 090-0AB .. 1LA7 096-0AB ..	675/1365 675/1380	1.19 1.60	1.41 2.10	1.3 1.4	1.3 1.5	2.5 3.0	3.2 3.5	1.6 1.7	1.6 1.8	10 10	0.0023 0.0031	11 13	
0.7 0.9	100 L	1LA7 106-0AB .. 1LA7 107-0AB ..	690/1380 680/1400	2.10 2.50	3.25 3.65	1.7 1.8	1.6 1.6	3.3 3.5	3.5 3.6	2.0 2.0	1.9 1.9	10 10	0.0051 0.0063	20 22	
1.4 1.8	112 M	1LA7 113-0AB ..	690/1410	4.00	5.20	1.4	1.5	3.6	4.4	1.7	1.8	10	0.013	25	
2.5 3.6	132 S 132 M	1LA7 130-0AB .. 1LA7 133-0AB ..	720/1430 720/1430	6.30 8.20	7.20 10.0	2.0 2.0	1.3 1.3	4.3 4.3	5.4 5.4	2.3 2.3	1.8 1.8	10 10	0.018 0.023	41 49	
3.5 5.6	160 M	1LA7 163-0AB .. 1LA7 166-0AB ..	725/1450 725/1450	11.7 18.5	13.9 21.5	2.0 2.2	1.4 1.7	4.0 4.2	5.4 5.9	2.3 2.4	1.8 2.0	10 10	0.043 0.060	73 91	
11 17	180 L	1LA5 186-0AB ..	725/1455	27.0	35.0	1.9	2.0	5.2	6.2	2.2	2.2	13	0.21	123	
17 27	200 L	1LA5 207-0AB ..	730/1465	40.5	50.5	2.4	2.3	5.4	6.6	2.5	2.5	13	0.37	160	

Higher outputs available soon.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier						
	50 Hz, direct switch-on				IM B 3	Price supplement					
	230 V	400 V	500 V	690 V		IM B 5	IM V 1 Without protec- tive cover	IM V 1 With protec- tive cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35
1LA7 060 to 1LA7 166	1	6	5	0	0	1	1	4	2	3	6
1LA5 183 to 1LA5 207	1	6	5	0	0	1	1	4	-	-	6

Other voltage and/or frequency, voltage identifier "9". Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

1LA · Aluminium housing · Pole-change motors

Selection and ordering data

Rated output 1500 rpm 3000 rpm kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output				Starting torque		Starting current		Stalling torque		Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Rated current at 400 V 1500 rpm A	Rated current at 400 V 3000 rpm A	For direct-on-line starting as multiple of the rated torque 1500 rpm 3000 rpm	For direct-on-line starting as multiple of the rated torque 1500 rpm 3000 rpm	For direct-on-line starting as multiple of the rated torque 1500 rpm 3000 rpm	For direct-on-line starting as multiple of the rated torque 1500 rpm 3000 rpm						
Two speed pole-change for driving fans, IP 55 degree of protection, temperature class F															
1500/3000 rpm, 4-/2-pole, 50 Hz, version with one winding in Dahlander circuit															
0.15 0.25	80 M	1LA7 080-0BA .. 1LA7 083-0BA ..	1400/2745 1385/2780	0.39 0.61	1.76 2.40	1.8 1.8	1.6 1.9	3.8 3.8	4.0 4.2	2.0 2.0	2.0 2.0	10 10	0.0014 0.0017	10 11	
0.33 0.5	90 S 90 L	1LA7 090-0BA .. 1LA7 096-0BA ..	1420/2835 1420/2835	0.76 1.08	3.50 4.80	1.9 2.2	1.8 2.2	4.5 5.1	4.3 5.0	2.1 2.5	2.0 2.5	10 10	0.0024 0.0033	13 16	
0.65 0.8	100 L	1LA7 106-0BA .. 1LA7 107-0BA ..	1430/2865 1425/2860	1.44 1.70	5.40 7.00	1.7 1.8	2.2 2.3	5.0 5.7	5.5 6.1	2.3 2.6	2.3 2.6	10 10	0.0048 0.0055	21 24	
1.1 1.45	112 M 132 S	1LA7 113-0BA .. 1LA7 130-0BA ..	1445/2885 1455/2920	2.50 3.00	10.7 12.8	2.1 2.0	2.2 2.1	6.2 6.8	6.2 6.5	2.4 2.8	2.4 2.8	10 10	0.011 0.018	31 41	
2 2.9	132 M 160 M	1LA7 133-0BA .. 1LA7 163-0BA ..	1455/2930 1455/2930	4.00 5.70	16.0 22.0	1.9 1.8	2.1 1.8	7.6 6.9	7.5 7.4	2.6 2.5	2.6 2.4	10 10	0.023 0.043	50 74	
4.3 17	160 L	1LA7 166-0BA ..	1455/2930	8.40	31.0	1.9	2.2	7.1	8.5	2.5	2.6	10	0.060	92	
1000/1500 rpm, 6-/4-pole, 50 Hz, version with one winding in Dahlander circuit															
0.12 0.18	80 M	1LA7 080-1BD .. 1LA7 083-1BD ..	940/1430 930/1420	0.51 0.73	1.38 1.62	1.7 1.5	1.7 1.7	2.8 2.5	4.0 4.0	1.8 1.8	2.0 2.0	10 10	0.0014 0.0017	9 10	
0.29 0.38	90 S 90 L	1LA7 090-1BD .. 1LA7 096-1BD ..	950/1430 955/1430	1.07 1.33	2.10 2.65	1.5 1.8	1.5 1.8	3.4 3.8	4.3 4.9	2.0 2.3	2.0 2.3	10 10	0.0027 0.0033	13 16	
0.6 0.75	100 L	1LA7 106-1BD .. 1LA7 107-1BD ..	950/1410 950/1420	1.75 2.30	3.80 4.55	1.8 1.6	1.8 1.9	4.2 3.9	5.2 5.2	2.2 2.0	2.2 2.2	10 10	0.0049 0.0057	21 24	
0.9 1.2	112 M 132 S	1LA7 113-1BD .. 1LA7 130-1BD ..	980/1450 975/1460	3.00 3.50	6.70 8.40	2.0 1.9	2.1 1.7	4.5 5.1	6.1 6.1	2.5 2.5	2.5 2.2	10 10	0.012 0.018	31 41	
1.7 2.5	132 M 160 M	1LA7 133-1BD .. 1LA7 163-1BD ..	975/1460 980/1470	4.55 6.4	11.4 14.4	2.1 1.9	1.9 2.0	5.1 5.6	6.6 7.3	2.6 1.9	2.5 2.0	10 10	0.023 0.043	49 74	
3.7 5.5	160 L 180 M	1LA7 166-1BD .. 1LA5 183-1BD ..	980/1470 965/1470	9.3 11.8	23.3 31.5	1.9 1.8	2.4 1.9	5.7 4.3	8.1 5.9	2.3 1.9	3.0 2.6	10 10	0.060 0.081	92 116	
6.5 9.5	180 L 200 L	1LA5 186-1BD .. 1LA5 207-1BD ..	965/1460 980/1470	13.8 20.0	36.5 49.0	1.8 1.9	1.9 1.5	4.3 5.3	5.6 5.5	2.1 2.1	2.6 2.1	10 10	0.094 0.16	123 160	
750/1500 rpm, 8-/4-pole, 50 Hz, version with one winding in Dahlander circuit															
0.1 0.15	80 M	1LA7 080-0BB .. 1LA7 083-0BB ..	680/1375 685/1380	0.57 0.77	1.28 1.76	1.4 1.4	1.7 1.8	2.3 2.4	4.1 4.2	1.7 1.7	1.8 1.8	10 10	0.0014 0.0017	9 10	
0.22 0.33	90 S 90 L	1LA7 090-0BB .. 1LA7 096-0BB ..	695/1370 700/1375	1.25 1.80	2.40 3.30	1.3 1.5	1.5 1.8	2.4 2.6	3.7 4.2	1.8 1.8	2.0 2.0	10 10	0.0024 0.0033	13 16	
0.5 0.65	100 L	1LA7 106-0BB .. 1LA7 107-0BB ..	710/1415 700/1400	2.50 2.80	4.30 5.30	1.1 1.1	1.9 1.9	3.1 3.1	5.2 5.4	1.8 1.8	2.1 2.1	10 10	0.0047 0.0054	21 24	
0.9 1.1	112 M 132 S	1LA7 113-0BB .. 1LA7 130-0BB ..	720/1440 720/1455	4.70 3.30	8.00 10.3	1.6 2.0	2.6 2.3	3.2 4.3	6.5 6.4	2.4 2.5	2.6 2.9	10 10	0.012 0.018	31 41	
1.4 2.2	132 M 160 M	1LA7 133-0BB .. 1LA7 163-0BB ..	720/1455 725/1465	4.40 6.50	13.3 19.7	2.2 1.7	1.9 2.0	4.6 4.1	6.8 7.0	2.7 2.0	2.5 2.6	10 10	0.023 0.043	49 73	
3.3 4.5	160 L 180 M	1LA7 166-0BB .. 1LA5 183-0BB ..	730/1470 730/1470	9.30 13.6	28.6 32.3	2.0 1.4	2.6 2.3	4.7 3.8	8.1 7.0	2.2 2.1	3.1 2.9	10 10	0.060 0.13	91 113	
5 7.5	180 L 200 L	1LA5 186-0BB .. 1LA5 207-0BB ..	730/1470 732/1470	15.0 20.5	36.5 52.0	1.5 1.9	2.3 2.5	3.8 4.3	7.0 7.1	2.1 2.2	2.7 2.5	10 10	0.15 0.24	123 160	

Higher outputs available soon.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier						
	50 Hz, direct switch-on				IM B 3	Price supplement					
	230 V	400 V	500 V	690 V	IM B 3	IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35
1LA7 080 to 1LA7 166	1	6	5	0	0	1	1	4	2	3	6
1LA5 183 to 1LA5 207	1	6	5	0	0	1	1	4	-	-	6

Other voltage and/or frequency, voltage identifier "9".

Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

1LA · Aluminium housing · Pole-change motors

Selection and ordering data

Rated output	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output			Starting torque			Starting current			Torque Classe	Moment of inertia J	Weight Design IM B 3			
			Rated speeds	Rated current at 400 V		For direct-on-line starting as multiple of the rated torque			current								
750 rpm kW	1000 rpm kW	1500 rpm kW	rpm	750 rpm A	1000 rpm A	1500 rpm A	750 rpm	1000 rpm	1500 rpm	750 rpm	1000 rpm	1500 rpm	KL	kg m ²	ap-prox. kg		
3 Speed motors for driving fans, IP 55 degree of protection, temperature class F																	
750/1000/1500 rpm, 8-/6-/4-pole, 50 Hz, version with two windings, of which 750/1500 rpm in Dahlander circuit																	
0.15	0.22	0.7	90 S	1LA7 090-1BJ ..	705/960/1430	0.72	0.82	1.74	1.3	1.3	1.5	2.5	2.9	4.3	10	0.0028	12
0.22	0.3	0.95	90 L	1LA7 096-1BJ ..	705/955/1435	1.06	1.13	2.30	1.3	1.3	1.4	2.5	3.1	4.0	10	0.0035	15
0.37	0.55	1.5	100 L	1LA7 106-1BJ ..	700/955/1400	1.66	1.71	3.25	0.9	1.4	1.5	2.8	3.8	4.7	7	0.0048	20
0.45	0.7	1.8		1LA7 107-1BJ ..	700/955/1400	1.85	2.15	3.90	0.9	1.4	1.7	2.8	3.8	4.7	7	0.0058	22
0.6	0.85	2.4	112 M	1LA7 113-1BJ ..	715/970/1445	2.75	2.80	5.10	1.1	1.3	1.9	3.1	4.4	6.0	7	0.011	29
0.75	1.1	3.1	132 S	1LA7 130-1BJ ..	730/980/1460	2.70	3.40	7.20	1.7	1.7	1.5	3.7	4.5	5.5	10	0.018	39
1	1.5	4.4	132 M	1LA7 133-1BJ ..	730/980/1460	3.55	4.50	9.70	1.8	1.9	1.6	3.9	4.9	5.8	10	0.024	46
1.6	2.2	6.6	160 M	1LA7 163-1BJ ..	730/980/1470	5.10	6.50	14.2	1.4	1.7	1.7	3.9	5.1	7.0	7	0.040	67
2.4	3.5	10	160 L	1LA7 166-1BJ ..	730/980/1470	7.60	9.40	20.7	1.6	1.8	2.0	4.1	5.3	7.7	7	0.054	85
3	4.5	13	180 M	1LA5 183-1BJ ..	730/980/1470	8.40	10.2	25.5	1.2	1.8	1.3	3.2	5.0	5.4	7	0.081	116
3.7	5.5	16	180 L	1LA5 186-1BJ ..	725/975/1469	10.3	12.1	31.0	1.1	1.9	1.3	3.2	5.0	5.4	7	0.094	123
5	8	22	200 L	1LA5 207-1BJ ..	730/975/1465	13.4	16.6	42.0	1.2	1.9	1.3	3.6	5.0	5.4	7	0.16	160

Higher outputs available soon.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier							
	50 Hz, direct switch-on				IM B 3	Price supplement						
	230 V	400 V	500 V	690 V		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35	
1LA7 090 to 1LA7 166	1	6	5	0	0	1	1	4	2	3	6	
1LA5 183 to 1LA5 207	1	6	5	0	0	1	1	4	-	-	6	

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

1LA/1LG · Cast iron housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Efficiency Class EFF2	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 ap- prox. kg	
				Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f. %	Rated current at 400 V A	Rated torque Nm							
Energy-saving motor to CEMEP "Improved Efficiency" eff2, IP 55 degree of protection, temperature class F															
3000 rpm, 2-pole, 50 Hz															
3	100 L	1LA6 106-2AA ..	2	2890	84.0	84.0	0.85	6.1	9.9	2.8	6.8	3.0	16	0.0035	34
4	112 M	1LA6 113-2AA ..	2	2905	86.0	86.0	0.86	7.8	13	2.6	7.2	2.9	16	0.0059	43
5.5	132 S	1LA6 130-2AA ..	2	2925	86.5	86.5	0.89	10.3	18	2.0	5.9	2.8	16	0.015	53
7.5		1LA6 131-2AA ..	2	2930	88.0	88.0	0.89	13.8	24	2.3	6.9	3.0	16	0.019	58
11	160 M	1LA6 163-2AA ..	2	2940	89.5	89.5	0.88	20.0	36	2.1	6.5	2.9	16	0.034	96
15	160 M	1LA6 164-2AA ..	2	2940	90.0	90.2	0.90	26.5	49	2.2	6.6	3.0	16	0.043	105
18.5	160 L	1LA6 166-2AA ..	2	2940	91.0	91.2	0.91	32.5	60	2.4	7.0	3.1	16	0.051	115
22	180 M	1LG4 183-2AA ..	2	2945	91.6	91.6	0.86	40.5	71	2.5	6.4	3.4	16	0.068	145
30	200 L	1LG4 206-2AA ..	2	2950	91.8	91.9	0.88	54.0	97	2.3	6.5	3.0	16	0.13	205
37		1LG4 207-2AA ..	2	2955	92.9	93.2	0.89	65.0	120	2.5	7.2	3.3	16	0.15	225
45	225 M	1LG4 223-2AA ..	2	2960	93.6	93.9	0.88	79.0	145	2.4	6.7	3.1	16	0.22	285
55	250 M	1LG4 253-2AB ..	2	2970	93.6	93.8	0.88	96.0	177	2.1	6.7	3.1	13	0.40	375
75	280 S	1LG4 280-2AB ..	2	2975	94.5	94.3	0.88	130	241	2.5	7.5	3.1	13	0.72	500
90	280 M	1LG4 283-2AB ..	2	2975	95.1	95.2	0.89	154	289	2.6	7.2	3.1	13	0.83	540
110	315 S	1LG4 310-2AB ..		2982	94.6	93.8	0.88	190	352	2.4	7.2	3.1	13	1.2	720
132	315 M	1LG4 313-2AB ..		2982	95.1	94.8	0.90	225	423	2.4	6.9	3.0	13	1.4	775
160	315 L	1LG4 316-2AB ..		2982	95.5	95.3	0.91	265	512	2.4	7.0	3.0	13	1.6	900
200	315 L	1LG4 317-2AB ..		2982	95.9	95.8	0.92	325	641	2.3	6.7	2.9	13	2.1	1015
250	315	1LA8 315-2AC ..		2979	96.2	96.2	0.90	415	801	1.8	7.0	2.8	10	2.7	1300
315		1LA8 317-2AC ..		2979	96.6	96.6	0.91	520	1010	1.8	7.0	2.8	10	3.3	1500
355	355	1LA8 353-2AC ..	▲	2980	96.6	96.6	0.90	590	1140	1.7	6.5	2.5	10	4.8	1900
400		1LA8 355-2AC ..	▲	2980	96.7	96.7	0.91	660	1280	1.7	6.5	2.5	10	5.3	2000
500		1LA8 357-2AC ..	▲	2982	97.1	97.1	0.91	820	1600	1.8	6.5	2.6	10	6.4	2200
560	400	1LA8 403-2AC ..	▲	2985	97.1	97.1	0.91	910	1790	1.6	7.0	2.8	10	8.6	2800
630		1LA8 405-2AC ..	▲	2985	97.1	97.1	0.91	1020	2020	1.6	7.0	2.8	10	9.6	3000
710		1LA8 407-2AC ..	▲	2985	97.3	97.3	0.91	670	2270	1.7	7.0	2.8	10	11	3200
800	450	1LA8 453-2AE ..	▲	2986	97.2	97.2	0.91	760	2560	0.9	7.0	3.0	5	19	4000
900		1LA8 455-2AE ..	▲	2986	97.3	97.3	0.92	840	2880	0.9	7.0	2.8	5	21	4200
1000		1LA8 457-2AE ..	▲	2986	97.4	97.4	0.93	920	3200	0.9	7.0	2.7	5	23	4400

● Rated current at 690 V. ▲ With axial fan for clockwise rotation. ■ Also supplied for 400 VΔ (voltage identifier "9" and order code L1Y).

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier							
	50 Hz			60 Hz			IM B 3 Price supplement							
	230 VΔ / 400 VΔ / 500 VY	500 VΔ	690 VΔ	460 VY	460 VΔ	(Outputs at 60 Hz see "Technical information")	IM B 5	IM V 1 With-out protective cover	IM V 1 With protective cover	IM B 14 With stand-ard flange	IM B 14 With special flange	IM B 35		
1LA6 106 to 1LA6 166	1	6	3	5	—	1	6	0	1	1	4	2	3	6
1LG4 183 to 1LG4 313	1	6	3	5	—	1	6	0	1	1	4	—	—	6
1LG4 316 to 1LG4 317	—	6	—	5	—	—	6	0	—	8	4	—	—	6
1LA8 315 to 1LA8 405	—	6	—	5	—	—	9 L2F	0	—	8	4	—	—	6
1LA8 407 to 1LA8 457	—	—	—	5	0	—	On request	0	—	8	4	—	—	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".


For possible 2-pole motors, see "Technical information", "Outputs at 60 Hz".

Voltage	1LG4										1LA8												
	183	206	207	223	253	280	283	310	313	316	317	315	317	353	355	357	403	405	407	453	455	457	
230 V	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
400 V																							
500 V																							
690 V																							

Squirrel-cage motors

1LA/1LG · Cast iron housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Efficiency Class 	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 ap- prox. kg	
				Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f. %	Rated current at 400 V A	Rated torque Nm							
Energy-saving motor to CEMEP "Improved Efficiency" eff2, IP 55 degree of protection, temperature class F															
1500 rpm, 4-pole, 50 Hz															
2.2	100 L	1LA6 106-4AA ..	2	1420	82.0	82.5	0.82	4.7	15	2.5	5.6	2.8	16	0.0047	33
3		1LA6 107-4AA ..	2	1420	83.0	83.5	0.82	6.4	20	2.7	5.6	3.0	16	0.0055	36
4	112 M	1LA6 113-4AA ..	2	1440	85.0	85.5	0.83	8.2	27	2.7	6.0	3.0	16	0.012	45
5.5	132 S	1LA6 130-4AA ..	2	1455	86.0	86.0	0.81	11.4	36	2.5	6.3	3.1	16	0.018	55
7.5	132 M	1LA6 133-4AA ..	2	1455	87.0	87.5	0.82	15.2	49	2.7	6.7	3.2	16	0.023	62
11	160 M	1LA6 163-4AA ..	2	1460	88.5	89.0	0.84	21.5	72	2.2	6.2	2.7	16	0.043	100
15	160 L	1LA6 166-4AA ..	2	1460	90.0	90.2	0.84	28.5	98	2.6	6.5	3.0	16	0.055	114
18.5	180 M	1LG4 183-4AA ..	2	1465	90.4	90.8	0.84	35.0	121	2.4	6.7	3.1	16	0.10	140
22	180 L	1LG4 186-4AA ..	2	1465	91.0	91.5	0.84	41.5	143	2.5	6.9	3.2	16	0.12	155
30	200 L	1LG4 207-4AA ..	2	1465	91.6	92.0	0.85	56.0	196	2.5	6.7	3.4	16	0.19	205
37	225 S	1LG4 220-4AA ..	2	1475	92.2	92.6	0.85	68.0	240	2.5	6.7	3.1	16	0.37	265
45	225 M	1LG4 223-4AA ..	2	1475	93.1	93.6	0.86	81.0	291	2.7	7.2	3.2	16	0.45	300
55	250 M	1LG4 253-4AA ..	2	1480	93.5	93.8	0.85	100	355	2.4	6.1	2.8	16	0.69	390
75	280 S	1LG4 280-4AA ..	2	1485	94.2	94.1	0.85	136	482	2.5	7.1	3.0	16	1.2	535
90	280 M	1LG4 283-4AA ..	2	1485	94.6	94.6	0.86	160	579	2.5	7.4	3.0	16	1.4	580
110	315 S	1LG4 310-4AA ..		1488	94.6	94.6	0.85	198	706	2.5	6.4	2.8	16	1.9	730
132	315 M	1LG4 313-4AA ..		1488	95.2	95.2	0.85	235	847	2.7	6.8	2.9	16	2.3	810
160	315 L	1LG4 316-4AA ..		1486	95.7	95.8	0.86	280	1028	2.7	6.8	2.8	16	2.9	955
200	315 L	1LG4 317-4AA ..		1486	95.9	96.2	0.88	340	1285	2.6	6.5	2.8	16	3.5	1060
250	315	1LA8 315-4AB ..		1488	96.0	96.0	0.88	425	1600	1.9	6.5	2.8	13	3.6	1300
315		1LA8 317-4AB ..		1488	96.3	96.3	0.88	540	2020	2.0	6.8	2.8	13	4.4	1500
355	355	1LA8 353-4AB ..		1488	96.3	96.3	0.87	610	2280	2.1	6.5	2.6	13	6.1	1900
400		1LA8 355-4AB ..		1488	96.4	96.4	0.87	690	2570	2.1	6.5	2.6	13	6.8	2000
500		1LA8 357-4AB ..		1488	96.8	96.8	0.88	850	3210	2.1	6.5	2.4	13	8.5	2200
560	400	1LA8 403-4AB ..		1492	96.8	96.8	0.88	950	3580	1.9	6.5	2.7	13	13	2800
630		1LA8 405-4AB ..		1492	97.0	97.0	0.88	1060	4030	1.9	6.8	2.7	13	14	3000
710		1LA8 407-4AB ..		1492	97.0	97.0	0.89	690 ■■	4540	1.9	6.8	2.7	13	16	3200
800	450	1LA8 453-4AC ..		1492	97.0	97.0	0.88	780 ■■	5120	1.6	7.0	2.6	10	23	4000
900		1LA8 455-4AC ..		1492	97.1	97.1	0.88	880 ■■	5760	1.6	7.0	2.6	10	26	4200
1000		1LA8 457-4AC ..		1492	97.1	97.1	0.89	970 ■	6400	1.7	7.0	2.6	10	28	4400

● Rated current at 690 V.

■ Also supplied for 400 VΔ (voltage identifier "9" and order code L1Y).

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier							
	50 Hz			60 Hz			IM B 3	Price supplement						
	230 VΔ / 400 VΔ / 500 VY	500 VΔ	690 VΔ	460 VY	460 VΔ	(Outputs at 60 Hz see "Technical information")		IM B 5	IM V 1 With- out pro- tec- tive cover	IM V 1 With protec- tive cover	IM B 14 With stan- dard flange	IM B 14 With special flange	IM B 35	
1LA6 106 to 1LA6 166	1	6	3	5	—	1	6	0	1	1	4	2	3	6
1LG4 183 to 1LG4 313	1	6	3	5	—	1	6	0	1	1	4	—	—	6
1LG4 316 to 1LG4 317	—	6	—	5	—	—	6	0	—	8	4	—	—	6
1LA8 315 to 1LA8 405	—	6	—	5	—	—	9 L2F	0	—	8	4	—	—	6
1LA8 407 to 1LA8 457	—	—	—	5	0	—	—	0	—	8	4	—	—	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

■ Parallel supply cables required (see "Technical information", "Connections, circuits and terminal blocks")

Voltage	1LG4										1LA8													
	183	186	207	220	223	253	280	283	310	313	316	317	315	317	353	355	357	403	405	407	453	455	457	
230 V	■	■	■	■	■	■	■	■	■	■														
400 V											■			■	■	■	■	■	■					
500 V															■	■			■	■	■	■	■	■
690 V																							■	■

Squirrel-cage motors

1LA/1LG · Cast iron housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 ap- prox. kg
			Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f. 3/4- load %	Rated current at 400 V A	Rated torque Nm								
Energy-saving motor, IP 55 degree of protection, temperature class F															
1000 rpm, 6-pole, 50 Hz															
1.5	100 L	1LA6 106-6AA ..	925	74.0	74.0	0.75	3.9	15	2.3	4.0	2.3	16	0.0047	33	
2.2	112 M	1LA6 113-6AA ..	940	78.0	78.5	0.78	5.2	22	2.2	4.6	2.5	16	0.0091	40	
3	132 S	1LA6 130-6AA ..	950	79.0	79.5	0.76	7.2	30	1.9	4.2	2.2	16	0.015	50	
4	132 M	1LA6 133-6AA ..	950	80.5	80.5	0.76	9.4	40	2.1	4.5	2.4	16	0.019	57	
5.5	132 M	1LA6 134-6AA ..	950	83.0	83.0	0.76	12.8	55	2.3	5.0	2.6	16	0.025	66	
7.5	160 M	1LA6 163-6AA ..	960	86.0	86.0	0.74	17.0	75	2.1	4.6	2.5	16	0.044	103	
11	160 L	1LA6 166-6AA ..	960	87.5	87.5	0.74	24.5	109	2.3	4.8	2.6	16	0.063	122	
15	180 L	1LG4 186-6AA ..	965	88.9	90.3	0.83	29.5	148	2.3	5.3	2.5	16	0.18	150	
18.5	200 L	1LG4 206-6AA ..	975	89.8	90.2	0.81	36.5	181	2.5	5.6	2.5	16	0.24	195	
22	200 L	1LG4 207-6AA ..	975	90.3	91.0	0.81	43.5	215	2.6	5.7	2.5	16	0.29	205	
30	225 M	1LG4 223-6AA ..	978	91.8	92.8	0.83	57.0	293	2.7	5.6	2.5	16	0.49	280	
37	250 M	1LG4 253-6AA ..	980	92.3	93.0	0.83	70.0	361	2.7	6.0	2.3	16	0.76	370	
45	280 S	1LG4 280-6AA ..	985	92.4	93.1	0.85	83.0	436	2.4	6.1	2.4	16	1.12	475	
55	280 M	1LG4 283-6AA ..	985	92.7	93.3	0.86	100	533	2.5	6.3	2.5	16	1.37	510	
75	315 S	1LG4 310-6AA ..	988	93.5	93.7	0.84	138	725	2.5	6.5	2.8	16	2.1	685	
90	315 M	1LG4 313-6AA ..	988	93.9	94.2	0.84	164	870	2.6	6.8	2.9	16	2.5	750	
110	315 L	1LG4 316-6AA ..	988	94.3	94.6	0.86	196	1063	2.5	6.8	2.9	16	3.2	890	
132	315 L	1LG4 317-6AA ..	988	94.8	95.0	0.86	235	1276	3.1	7.3	3.0	16	4.0	980	
160	315 L	1LG4 318-6AA ..	988	95.0	95.1	0.86	285	1547	3.0	7.5	3.0	16	4.7	1180	
200	315	1LA8 315-6AB ..	989	95.7	95.8	0.86	345	1930	2.0	6.3	2.5	13	6.0	1300	
250	315	1LA8 317-6AB ..	989	95.9	98.0	0.86	430	2410	2.0	6.3	2.5	13	7.3	1500	
315	355	1LA8 355-6AB ..	993	96.2	96.2	0.86	540	3030	2.2	6.5	2.8	13	13	2000	
400	355	1LA8 357-6AB ..	993	96.5	96.5	0.86	690	3850	2.2	6.5	2.8	13	16	2200	
450	400	1LA8 403-6AB ..	992	96.5	96.5	0.86	780	4330	2.2	6.5	2.8	13	21	2800	
500	400	1LA8 405-6AB ..	992	96.5	96.5	0.86	860	4810	2.3	6.5	2.8	13	24	3000	
560	400	1LA8 407-6AB ..	992	96.7	96.7	0.86	960	5390	2.3	6.5	2.8	13	27	3200	
630	450	1LA8 453-6AB ..	993	96.8	96.8	0.86	1100	6060	2.0	6.5	2.6	13	35	4000	
710	450	1LA8 455-6AB ..	993	96.8	96.8	0.86	710 ■	6830	2.0	6.5	2.5	13	39	4200	
800	450	1LA8 457-6AB ..	993	97.0	97.1	0.86	790 ■	7690	2.0	6.5	2.5	13	44	4500	

● Rated current at 690 V

■ Also supplied for 400 VΔ (voltage identifier "9" and order code L1Y).

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier							
	50 Hz			60 Hz			IM B 3	Price supplement						
	230 VΔ / 400 VΔ / 500 VY	500 VΔ	690 VΔ	460 VY	460 VΔ	(Outputs at 60 Hz see "Technical information")		IM B 5	IM V 1 With- out pro- tec- tive cover	IM V 1 With protec- tive cover	IM B 14 With stan- dard flange	IM B 14 With special flange	IM B 35	
1LA6 106 to 1LA6 166	1	6	3	5	—	1	6	0	1	1	4	2	3	6
1LG4 183 to 1LG4 313	1	6	3	5	—	1	6	0	1	1	4	—	—	6
1LG4 316 to 1LG4 318	—	6	—	5	—	—	6	0	—	8	4	—	—	6
1LA8 315 to 1LA8 453	—	6	—	5	—	—	9 L2F	0	—	8	4	—	—	6
1LA8 455 to 1LA8 457	—	—	—	5	0	—	On request	0	—	8	4	—	—	6

Other voltage and/or frequency, voltage identifier "9". Order codes are required for this purpose (see "Technical information", "Voltage, currents and frequencies").

For other designs, see "Technical information", "Designs".

■ Parallel supply cables required (see "Technical information", "Connections, circuits and terminal blocks")

Voltage	1LG4											1LA8											
	186	206	207	223	253	280	283	310	313	316	317	318	315	317	355	357	403	405	407	453	455	457	
230 V				■																			
400 V															■	■		■	■				
500 V															■					■	■	■	

Squirrel-cage motors

1LA/1LG · Cast iron housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f. 3/4- %										
Energy-saving motor, IP 55 degree of protection, temperature class F															
750 rpm, 8-pole, 50 Hz															
0.75	100 L	1LA6 106-8AB . .	680	66.0	65.0	0.76	2.15	11	1.6	3.0	1.9	13	0.0051	29	
1.1		1LA6 107-8AB . .	680	72.0	72.0	0.76	2.90	15	1.8	3.3	2.1	13	0.0063	32	
1.5	112 M	1LA6 113-8AB . .	705	74.0	74.0	0.76	3.90	20	1.8	3.7	2.1	13	0.013	39	
2.2	132 S	1LA6 130-8AB . .	700	75.0	75.0	0.74	5.70	30	1.9	3.9	2.3	13	0.014	50	
3	132 M	1LA6 133-8AB . .	700	77.0	77.5	0.74	7.60	41	2.1	4.1	2.4	13	0.019	57	
4	160 M	1LA6 163-8AB . .	715	80.0	80.0	0.72	10.0	53	2.2	4.5	2.6	13	0.036	91	
5.5	160 M	1LA6 164-8AB . .	710	83.5	83.5	0.73	13.0	74	2.3	4.7	2.7	13	0.046	102	
7.5	160 L	1LA6 166-8AB . .	715	85.5	85.5	0.72	17.7	100	2.7	5.3	3.0	13	0.064	122	
11	180 L	1LG4 186-8AB . .	725	87.5	88.3	0.73	25.0	145	1.7	4.2	2.1	13	0.17	150	
15	200 L	1LG4 207-8AB . .	725	87.7	88.4	0.76	32.5	198	2.2	4.9	2.6	13	0.29	205	
18.5	225 S	1LG4 220-8AB . .	730	89.4	90.4	0.78	38.5	242	2.3	5.5	2.7	13	0.48	270	
22	225 M	1LG4 223-8AB . .	730	89.7	90.7	0.79	45.0	288	2.3	5.6	2.8	13	0.55	290	
30	250 M	1LG4 253-8AB . .	730	91.4	92.2	0.81	58.0	392	2.3	5.5	2.6	13	0.84	385	
37	280 S	1LG4 280-8AB . .	735	92.0	92.8	0.81	72.0	481	2.2	5.0	2.1	13	1.11	475	
45	280 M	1LG4 283-8AB . .	735	92.4	93.3	0.81	87.0	585	2.2	5.1	2.1	13	1.35	515	
55	315 S	1LG4 310-8AB . .	740	93.0	93.4	0.81	106	710	2.2	5.8	2.6	13	2.1	680	
75	315 M	1LG4 313-8AB . .	738	93.3	94.0	0.83	140	971	2.2	5.7	2.6	13	2.5	745	
90	315 L	1LG4 316-8AB . .	738	93.4	94.0	0.83	168	1165	2.2	5.8	2.7	13	3.1	865	
110	315 L	1LG4 317-8AB . .	738	94.0	94.4	0.83	205	1423	2.4	6.1	2.8	13	3.9	1020	
132	315 L	1LG4 318-8AB . .	738	94.2	94.6	0.83	245	1708	2.5	6.5	2.9	13	4.5	1100	
160	315	1LA8 315-8AB . .	739	94.9	95.1	0.82	295	2070	2.1	6.0	2.3	13	6.0	1300	
200		1LA8 317-8AB . .	739	95.2	95.6	0.82	370	2580	2.1	6.0	2.3	13	7.3	1500	
250	355	1LA8 355-8AB . .	741	95.7	96.0	0.82	460	3220	2.1	6.1	2.4	13	13	2000	
315		1LA8 357-8AB . .	741	96.0	96.0	0.82	580	4060	2.1	6.1	2.4	13	16	2200	
355	400	1LA8 403-8AB . .	742	96.1	96.2	0.82	650	4570	2.0	6.5	2.6	13	21	2800	
400		1LA8 405-8AB . .	742	96.2	96.4	0.82	730	5150	2.1	6.5	2.6	13	24	3000	
450		1LA8 407-8AB . .	742	96.3	96.3	0.82	820	5790	2.1	6.5	2.6	13	27	3200	
500	450	1LA8 453-8AB . .	744	96.4	96.4	0.81	920	6420	2.0	6.6	2.4	13	35	4000	
560		1LA8 455-8AB . .	744	96.5	96.4	0.81	1040	7190	2.0	6.6	2.4	13	39	4200	
630		1LA8 457-8AB . .	744	96.6	96.6	0.81	1160	8090	2.0	6.6	2.4	13	44	4500	

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier							
	50 Hz			60 Hz			IM B 3	Price supplement						
	230 V Δ / 400 V Δ / 500 VY	500 V Δ	690 V Δ	460 VY	460 V Δ	(Outputs at 60 Hz see "Technical information")		IM B 5	IM V 1	IM V 1	IM B 14	IM B 14	IM B 35	
	400 VY	690 VY						With-out protective cover	With protective cover	With standard flange	With special flange			
1LA6 106 to 1LA6 166	1	6	3	5	-	1	6	0	1	1	4	2	3	6
1LG4 183 to 1LG4 313	1	6	3	5	-	1	6	0	1	1	4	-	-	6
1LG4 316 to 1LG4 318	-	6	-	5	-	-	6	0	-	8	4	-	-	6
1LA8 315 to 1LA8 457	-	6	-	5	-	-	9 L2F	0	-	8	4	-	-	6

Other voltage and/or frequency, voltage identifier "9".

For other designs, see "Technical information", "Designs".

Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

Parallel supply cables required (see "Technical information", "Connections, circuits and terminal blocks")

Voltage	1LA8									
	315	317	355	357	403	405	407	453	455	457
400 V				■			■	■	■	■
500 V								■	■	

Squirrel-cage motors



1LG · Cast iron housing · Basic version

Selection and ordering data

■ 60 Hz

The motors can also be used for 60 Hz according to EPACT, see Pages 3/18 and 3/19.

For further details, see "Technical information", "Motors for the US market".

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Efficiency Class 	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg	
				Rated speed rpm	Efficiency η at 4/4-load %	3/4-load %	Power factor p.f.	Rated current at 400 V A							Rated torque Nm
Energy-saving motor to CEMEP "High Efficiency" eff1, IP 55 degree of protection, temperature class F															
3000 rpm, 2-pole, 50 Hz															
22	180 M	1LG6 183-2AA . .	1	2955	94.1	94.5	0.88	38.5 ¹⁾	71	2.5	7.2	3.4	16	0.086	180
30	200 L	1LG6 206-2AA . .	1	2960	93.5	93.4	0.88	53.0 ¹⁾	97	2.4	7.0	3.3	16	0.15	225
37		1LG6 207-2AA . .	1	2960	94.1	94.0	0.89	64.0 ¹⁾	119	2.5	7.2	3.3	16	0.18	255
45	225 M	1LG6 223-2AA . .	1	2965	94.9	95.1	0.89	77.0 ¹⁾	145	2.5	7.3	3.2	16	0.27	330
55	250 M	1LG6 253-2AA . .	1	2975	95.3	95.3	0.90	93.0	177	2.4	6.8	3.0	16	0.47	420
75	280 S	1LG6 280-2AB . .	1	2975	95.2	95.2	0.89	128 ¹⁾	241	2.5	7.0	3.0	13	0.83	530
90	280 M	1LG6 283-2AB . .	1	2978	95.6	95.7	0.90	150 ¹⁾	289	2.6	7.6	3.1	13	1.0	615
110	315 S	1LG6 310-2AB . .		2982	95.8	95.7	0.91	182 ¹⁾	352	2.4	6.9	2.8	13	1.4	790
132	315 M	1LG6 313-2AB . .		2982	96.0	95.9	0.91	220 ¹⁾	423	2.6	7.1	2.9	13	1.6	915
160	315 L	1LG6 316-2AB . .		2982	96.4	96.4	0.92	260	512	2.5	7.1	2.9	13	2.1	1055
200	315 L	1LG6 317-2AB . .		2982	96.5	96.5	0.93	320	641	2.5	6.9	2.8	13	2.5	1245
1500 rpm, 4-pole, 50 Hz															
18.5	180 M	1LG6 183-4AA . .	1	1470	92.6	93.2	0.83	34.5 ¹⁾	120	2.5	6.4	3.0	16	0.12	155
22	180 L	1LG6 186-4AA . .	1	1470	93.2	93.5	0.84	40.5 ¹⁾	143	2.5	6.7	3.1	16	0.14	180
30	200 L	1LG6 207-4AA . .	1	1470	93.3	93.4	0.85	55.0 ¹⁾	195	2.6	6.7	3.3	16	0.23	225
37	225 S	1LG6 220-4AA . .	1	1480	94.0	94.4	0.85	67.0 ¹⁾	239	2.7	6.8	3.0	16	0.40	290
45	225 M	1LG6 223-4AA . .	1	1480	94.5	94.7	0.85	81.0 ¹⁾	290	2.8	6.9	3.0	16	0.49	330
55	250 M	1LG6 253-4AA . .	1	1485	95.1	95.3	0.87	96.0	354	2.6	7.5	3.0	16	0.86	460
75	280 S	1LG6 280-4AA . .	1	1485	95.1	95.2	0.87	130 ¹⁾	482	2.5	6.8	2.9	16	1.39	575
90	280 M	1LG6 283-4AA . .	1	1486	95.4	95.5	0.86	158 ¹⁾	578	2.7	7.5	3.1	16	1.71	675
110	315 S	1LG6 310-4AA . .		1488	95.9	96.0	0.87	190 ¹⁾	706	2.7	7.1	2.9	16	2.3	810
132	315 M	1LG6 313-4AA . .		1488	96.1	96.2	0.88	225 ¹⁾	847	2.7	7.3	2.9	16	2.9	965
160	315 L	1LG6 316-4AA . .		1490	96.3	96.4	0.88	275	1026	3.0	7.4	3.0	16	3.5	1105
200	315 L	1LG6 317-4AA . .		1490	96.4	96.5	0.88	340	1282	3.2	7.6	3.0	16	4.2	1305

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier				
	50 Hz			60 Hz			IM B 3	Price supplement			
	230 V Δ / 400 V Υ	400 V Δ / 690 V Υ	500 V Υ	500 V Δ	460 V Υ	460 V Δ		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LG6 183 to 1LG6 313	1	6	3	5	1	6	0	1	1	4	6
1LG6 316 to 1LG6 317	-	6	-	5	-	6	0	-	8	4	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

Squirrel-cage motors

1LG · Cast iron housing · Basic version

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η at 4/4- load %	Power factor p.f. 3/4- %										
Energy-saving motor, IP 55 degree of protection, temperature class F															
1000 rpm, 6-pole, 50 Hz															
15	180 L	1LG6 186-6AA ..	975	90.9	91.7	0.81	29.5	147	2.4	5.5	2.5	16	0.20	175	
18.5	200 L	1LG6 206-6AA ..	978	91.2	91.8	0.81	36.0	181	2.4	5.6	2.4	16	0.29	210	
22		1LG6 207-6AA ..	978	91.9	92.5	0.82	42.0	215	2.4	5.6	2.4	16	0.36	240	
30	225 M	1LG6 223-6AA ..	980	93.2	93.7	0.83	56.0 ¹⁾	292	2.8	6.5	2.9	16	0.63	325	
37	250 M	1LG6 253-6AA ..	985	93.7	94.1	0.83	69.0	359	2.9	6.8	2.5	16	0.93	405	
45	280 S	1LG6 280-6AA ..	988	94.4	94.6	0.85	81.0	435	3.0	6.8	2.7	16	1.37	520	
55		1LG6 283-6AA ..	988	94.6	94.8	0.85	99.0	532	3.3	7.3	2.9	16	1.65	570	
75	315 S	1LG6 310-6AA ..	990	95.0	95.0	0.83	138	723	2.8	7.3	3.0	16	2.5	760	
90	315 M	1LG6 313-6AA ..	990	95.3	95.4	0.85	160	868	2.7	7.3	2.9	16	3.2	935	
110	315 L	1LG6 316-6AA ..	990	95.6	95.7	0.85	196	1061	2.9	7.4	2.9	16	4.0	1010	
132	315 L	1LG6 317-6AA ..	990	95.8	95.8	0.85	235	1273	3.1	7.8	3.1	16	4.7	1180	
160	315 L	1LG6 318-6AA ..	990	95.8	95.9	0.86	280	1543	3.2	7.8	3.1	16	5.4	1245	
750 rpm, 8-pole, 50 Hz															
11	180 L	1LG6 186-8AB ..	725	88.7	89.6	0.76	23.5	145	1.9	4.6	2.2	13	0.206	165	
15	200 L	1LG6 207-8AB ..	725	89.3	89.8	0.80	30.5	198	2.3	5.3	2.6	13	0.367	235	
18.5	225 S	1LG6 220-8AB ..	730	91.1	91.8	0.81	36.0	242	2.3	5.6	2.6	13	0.551	295	
22		1LG6 223-8AB ..	730	91.6	92.1	0.81	43.0	288	2.4	5.8	2.8	13	0.658	335	
30	250 M	1LG6 253-8AB ..	735	92.8	93.3	0.82	57.0	390	2.5	6.0	2.8	13	1.06	435	
37	280 S	1LG6 280-8AB ..	738	93.1	93.3	0.81	71.0	479	2.3	5.7	2.3	13	1.35	510	
45		1LG6 283-8AB ..	738	93.7	94.0	0.81	86.0	582	2.6	6.1	2.5	13	1.63	560	
55	315 S	1LG6 310-8AB ..	740	94.3	94.4	0.82	102	710	2.5	6.3	2.9	13	2.5	750	
75	315 M	1LG6 313-8AB ..	740	94.5	94.7	0.83	138	968	2.5	6.7	2.9	13	3.1	840	
90	315 L	1LG6 316-8AB ..	740	94.7	95.1	0.84	164	1161	2.4	6.3	2.8	13	3.9	1005	
110	315 L	1LG6 317-8AB ..	740	94.8	95.1	0.84	200	1420	2.4	6.4	2.6	13	4.5	1100	
132	315 L	1LG6 318-8AB ..	740	94.9	95.2	0.84	240	1704	2.5	6.7	2.9	13	5.3	1270	

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier				
	50 Hz			60 Hz			IM B 3	Price supplement			
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	460 VΥ	460 VΔ		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LG6 186 to 1LG6 313	1	6	3	5	1	6	0	1	1	4	6
1LG6 316 to 1LG6 318	-	6	-	5	-	6	0	-	8	4	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

Squirrel-cage motors

1LG · Cast iron housing · Basic version

Selection and ordering data

■ 60 Hz

The motors can also be used for 50 Hz "High Efficiency" eff1, see Pages 3/16 and 3/17.

For further details, see "Technical information", "Motors for the US market".

Rated output HP	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Nominal efficiency η %	Power factor p.f.	Rated current at 460 V A	Rated torque Nm						
Energy-saving motors according to EPACT, IP 55 degree of protection													CC 032A
3600 rpm, 2-pole, 60 Hz													
30 ●	180 M	1LG6 183-2AA ..	3560	93.6	0.88	34	60	2.7	7.9	3.7	16	0.086	180
40 ●	200 L	1LG6 206-2AA ..	3565	92.4	0.88	46	80	2.7	7.8	3.7	16	0.151	225
50 ●		1LG6 207-2AA ..	3565	92.4	0.89	57	100	2.8	7.8	3.7	16	0.182	255
60 ●	225 M	1LG6 223-2AA ..	3570	94.1	0.89	67	120	2.8	8.3	3.6	16	0.266	330
75 ●		1LG6 228-2AA .. ¹⁾	3570	94.1	0.90	83	150	3.3	8.7	3.7	16	0.319	390
75 ●	250 M	1LG6 253-2AA ..	3578	93.6	0.89	84	149	2.7	7.5	3.2	16	0.466	420
100 ●		1LG6 258-2AA .. ¹⁾	3580	94.1	0.89	112	199	2.8	8.4	3.5	16	0.565	470
100 ●	280 S	1LG6 280-2AB ..	3580	95.0	0.89	110	199	2.8	7.9	3.4	13	0.832	530
125 ●	280 M	1LG6 283-2AB ..	3580	95.0	0.90	136	249	2.9	8.3	3.4	13	1.00	615
150 ●		1LG6 288-2AA .. ¹⁾	3580	95.0	0.90	164	299	3.1	8.5	3.6	16	1.160	660
150 ●	315 S	1LG6 310-2AB ..	3585	94.5	0.91	164	298	2.6	7.5	3.1	13	1.39	790
175 ●	315 M	1LG6 313-2AB ..	3586	95.0	0.91	190	348	3.0	8.3	3.3	13	1.62	915
200 ●		1LG6 316-2AB ..	3588	95.4	0.91	215	397	3.0	8.4	3.5	13	2.09	1055
250 ●	315 L	1LG6 317-2AB ..	3588	95.4	0.93	265	496	3.2	8.6	3.4	13	2.46	1245
300 ●	315 L	1LG6 318-2AA .. ¹⁾	3591	95.4	0.92	320	595	4.1	10.0	3.9	16	2.74	1330
1800 rpm, 4-pole, 60 Hz													
25 ●	180 M	1LG6 183-4AA ..	1775	92.4	0.82	31	100	2.9	7.1	3.3	16	0.122	155
30 ●	180 L	1LG6 186-4AA ..	1775	92.4	0.83	36.5	121	2.8	7.4	3.4	16	0.144	180
40 ●	200 L	1LG6 207-4AA ..	1775	93.0	0.84	48	160	3.0	7.7	3.7	16	0.234	225
50 ●	225 S	1LG6 220-4AA ..	1785	93.6	0.84	60	200	3.1	7.5	3.4	16	0.398	290
60 ●	225 M	1LG6 223-4AA ..	1785	94.1	0.85	70	240	3.3	7.9	3.5	16	0.486	330
75 ●		1LG6 228-4AA .. ¹⁾	1785	94.1	0.85	88	299	3.0	7.8	3.3	16	0.660	355
75 ●	250 M	1LG6 253-4AA ..	1790	94.5	0.86	86	298	2.9	8.2	3.4	16	0.856	460
100 ●		1LG6 258-4AA .. ¹⁾	1788	94.5	0.86	116	398	3.0	8.1	3.3	16	0.990	495
100 ●	280 S	1LG6 280-4AA ..	1788	95.0	0.86	114	398	2.9	7.6	3.2	16	1.39	575
125 ●	280 M	1LG6 283-4AA ..	1790	95.0	0.86	144	497	3.0	8.2	3.4	16	1.71	675
150 ●		1LG6 288-4AA .. ¹⁾	1788	95.0	0.86	172	598	3.1	8.4	3.5	16	1.88	710
150 ●	315 S	1LG6 310-4AA ..	1791	95.0	0.87	170	597	3.1	7.8	3.2	16	2.31	810
175 ●	315 M	1LG6 313-4AA ..	1791	95.4	0.87	198	696	3.2	8.4	3.3	16	2.88	965
200 ●		1LG6 316-4AA ..	1792	95.4	0.87	225	795	3.7	9.0	3.6	16	3.46	1105
250 ●	315 L	1LG6 317-4AA ..	1792	95.8	0.87	280	994	4.0	9.1	3.7	16	4.22	1305
300 ●	315 L	1LG6 318-4AA .. ¹⁾	1792	95.8	0.87	335	1193	4.0	9.3	3.7	16	4.50	1345

● With CC No. CC 032A

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier				
	50 Hz			60 Hz			IM B 3	Price supplement			
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	460 VY	460 VΔ		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LG6 183 to 1LG6 313	1	6	3	5	1	6	0	1	1	4	6
1LG6 316 to 1LG6 318	-	6	-	5	-	6	0	-	8	4	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) Only 60 Hz data according to EPACT shown on the rating plate.

Squirrel-cage motors

1LG · Cast iron housing · Basic version

Selection and ordering data

Rated output HP	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	Torque Class KL	Moment of inertia <i>J</i> kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Nominal efficiency <i>η</i> %	Power factor p.f.	Rated current at 460 V A	Rated torque Nm						
Energy-saving motors according to EPACT, IP 55 degree of protection													CC 032A
1200 rpm, 6-pole, 60 Hz													
20 ●	180 L	1LG6 186-6AA ..	1178	91.0	0.80	25.5	121	2.9	6.5	3.0	16	0.203	175
25 ●	200 L	1LG6 206-6AA ..	1180	91.7	0.79	32	151	2.9	6.5	2.7	16	0.285	210
30 ●		1LG6 207-6AA ..	1180	91.7	0.80	38.5	181	2.9	6.4	2.7	16	0.362	240
40 ●	225 M	1LG6 223-6AA ..	1184	93.0	0.82	49	240	3.4	7.2	3.4	16	0.629	325
50 ●		1LG6 228-6AA ..¹⁾	1184	93.0	0.83	61	301	3.2	7.6	3.4	16	0.760	355
50 ●	250 M	1LG6 253-6AA ..	1186	93.0	0.82	61	300	3.4	7.4	2.9	16	0.934	405
60 ●		1LG6 258-6AA ..¹⁾	1186	93.6	0.82	73	361	3.4	7.7	2.9	16	1.07	435
60 ●	280 S	1LG6 280-6AA ..	1190	94.1	0.83	72	360	3.6	7.7	3.1	16	1.37	520
75 ●		1LG6 283-6AA ..	1190	94.5	0.83	89	449	3.9	8.3	3.3	16	1.65	570
100 ●	280 M	1LG6 288-6AA ..¹⁾	1190	94.5	0.84	118	599	4.0	8.4	3.3	16	1.94	615
100 ●	315 S	1LG6 310-6AA ..	1191	94.5	0.82	120	598	3.3	8.4	3.4	16	2.50	760
125 ●		1LG6 313-6AA ..	1191	94.5	0.84	148	747	3.0	7.9	3.1	16	3.20	935
150 ●	315 L	1LG6 316-6AA ..	1192	95.0	0.84	176	897	3.3	8.5	3.3	16	4.02	1010
175 ●	315 L	1LG6 317-6AA ..	1192	95.4	0.84	205	1046	3.8	8.9	3.6	16	4.71	1180
200 ●		1LG6 318-6AA ..	1192	95.4	0.84	235	1195	4.0	9.4	4.0	16	5.39	1245

● With CC No. CC 032A

Order No. supplements

Motor type	Penultimate position: Voltage identifier						Final position: Design identifier				
	50 Hz			60 Hz			IM B 3	Price supplement			
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	460 VΥ	460 VΔ		IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LG6 186 to 1LG6 313	1	6	3	5	1	6	0	1	1	4	6
1LG6 316 to 1LG6 318	-	6	-	5	-	6	0	-	8	4	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) Only 60 Hz data according to EPACT shown on the rating plate.

Squirrel-cage motors

1LG · Cast iron housing · With increased power

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output				Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg		
			Rated speed rpm	Efficiency η at 4/4- load %	3/4- load %	Power factor p.f.							Rated current at 400 V A	Rated torque Nm
IP 55 degree of protection, temperature class F														
3000 rpm, 2-pole, 50 Hz														
30	180 M	1LG4188-2AA ..	2950	92.8	92.9	0.86	54 ⁴⁾	97	2.4	7.1	3.4	16	0.086	175
45	200 L	1LG4208-2AA ..	2955	93.6	93.7	0.89	78 ⁴⁾	145	2.5	6.9	3.2	16	0.18	255
55	225 M	1LG4228-2AA ..	2960	94.8	95.0	0.89	94 ⁴⁾	177	2.6	7.3	3.2	16	0.27	335
75	250 M	1LG4258-2AA ..	2970	94.5	94.5	0.88	130 ⁴⁾	241	2.4	7.1	3.1	16	0.48	420
110	280 M	1LG4288-2AB ..	2975	95.5	95.6	0.90	184 ⁴⁾	353	2.5	7.0	3.0	13	1.00	630
1500 rpm, 4-pole, 50 Hz														
30	180 L	1LG4188-4AA ..	1465	91.7	91.9	0.80	59 ⁴⁾	196	2.6	6.3	2.9	16	0.14	180
37	200 L	1LG4208-4AA ..	1465	92.5	92.8	0.83	70 ⁴⁾	241	2.6	6.5	3.0	16	0.23	230
55	225 M	1LG4228-4AA ..	1475	93.4	93.9	0.86	99 ⁴⁾	356	2.5	6.5	2.7	16	0.49	330
75	250 M	1LG4258-4AA ..	1482	94.3	94.4	0.85	136 ⁴⁾	483	2.5	7.0	3.0	16	0.86	460
110	280 M	1LG4288-4AA ..	1488	95.2	94.9	0.84	198 ⁴⁾	706	2.8	7.9	3.3	16	1.71	680
1000 rpm, 6-pole, 50 Hz														
18.5	180 L	1LG4188-6AA ..	970	89.6	90.3	0.80	37.5 ⁴⁾	182	2.3	4.9	2.4	16	0.20	175
30	200 L	1LG4208-6AA ..	975	90.9	91.3	0.80	60 ⁴⁾	294	2.6	5.8	2.6	16	0.36	245
37	225 M	1LG4228-6AA ..	978	92.2	93.0	0.83	70 ⁴⁾	361	2.5	5.9	2.8	16	0.62	325
45	250 M	1LG4258-6AA ..	982	93.3	93.8	0.83	84	438	2.7	6.3	2.3	16	0.93	405
75	280 M	1LG4288-6AA ..	985	93.8	94.3	0.85	136 ⁴⁾	727	3.0	6.8	2.8	16	1.65	570
750 rpm, 8-pole, 50 Hz														
15	180 L	1LG4188-8AB ..	720	87.8	88.5	0.73	34 ⁴⁾	199	2.0	4.5	2.4	13	0.21	165
18.5	200 L	1LG4208-8AB ..	725	88.3	89.2	0.78	39	244	2.4	5.2	2.6	13	0.37	230
30	225 M	1LG4228-8AB ..	730	90.4	91.2	0.79	61 ⁴⁾	392	2.6	5.6	2.8	13	0.66	340
37	250 M	1LG4258-8AB ..	730	91.9	92.8	0.82	71	484	2.4	5.6	2.6	13	1.06	430
55	280 M	1LG4288-8AB ..	735	92.9	93.7	0.81	106	715	2.4	5.6	2.3	13	1.63	565

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier								
	50 Hz		60 Hz		IM B 3	Price supplement			IM B 5		IM V 1		IM B 35
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	460 VΥ	460 VΔ (Outputs at 60 Hz see "Technical informa- tion")					Without protective cover	With protective cover	
1LG4 188 to 1LG4 288	1	6	3	5	1	6	0	1	1	4	6		

Other voltage and/or frequency, voltage identifier "9".

For other designs, see "Technical information", "Designs".

Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

1) Not possible for 2- and 4-pole motors from 1LA8 407 upwards and for 6-pole motors from 1LA8 455 upwards.

2) Only for 2- and 4-pole motors from 1LA8 407 upwards and for 6-pole motors from 1LA8 455 upwards.

3) Operation of motors with standard insulation is only possible with converter circuit (du/dt filter or sine filter).

4) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

Squirrel-cage motors for use on SIMOVERT MASTERDRIVES

1LA · With standard insulation for ≤ 500 V

Selection and ordering data

Rated voltage

For motors connected to converters, the tolerance to DIN EN 60034-1 is generally applicable, a rated voltage

range is not usually specified (voltage identifiers 4, 5, 7 and 8).

1LA8 motors

It is important to note the following in the case of these motors:

The motors are designed with standard rotors and are suitable for mains and converter-fed operation. They are fitted with an insulated NDE bearing as standard.

For outputs from 900 kW upwards, operation on two parallel inverters without interphase transformers is possible, on request.

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque	Starting current	Stalling torque	Torque Class	Moment of inertia J	Weight Design IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
IP 55 degree of protection, temperature class F, 2-, 4-, 6-, 8-pole, 50 Hz													
3000 rpm, 2-pole, 50 Hz													
250	315	1LA8 315-2PC ..	2979	96.3	0.90	415	801	1.8	7.0	2.8	10	2.7	1300
315		1LA8 317-2PC ..	2979	96.7	0.91	520	1010	1.8	7.0	2.8	10	3.3	1500
355	355	1LA8 353-2PC ..	2980	96.6	0.90	590	1140	1.7	6.5	2.5	10	4.8	1900
400		1LA8 355-2PC ..	2980	96.7	0.91	660	1280	1.7	6.5	2.5	10	5.3	2000
500		1LA8 357-2PC ..	2982	97.1	0.91	820	1600	1.8	6.5	2.6	10	6.4	2200
560	400	1LA8 403-2PC ..	2985	97.1	0.91	910	1790	1.6	7.0	2.8	10	8.6	2800
630		1LA8 405-2PC ..	2985	97.1	0.91	1020	2020	1.6	7.0	2.8	10	9.6	3000
710		1LA8 407-2PC ..	2985	97.3	0.91	670 ● ■	2270	1.7	7.0	2.8	10	11	3200
800	450	1LA8 453-2PE ..	2986	97.2	0.91	760 ●	2560	0.9	7.0	3.0	5	19	4000
900		1LA8 455-2PE ..	2986	97.3	0.92	840 ●	2880	0.9	7.0	2.8	5	21	4200
1000		1LA8 457-2PE ..	2986	97.4	0.93	920 ●	3200	0.9	7.0	2.7	5	23	4400
1500 rpm, 4-pole, 50 Hz													
250	315	1LA8 315-4PB ..	1486	96.0	0.88	425	1600	1.9	6.5	2.8	13	3.6	1300
315		1LA8 317-4PB ..	1488	96.3	0.88	540	2020	2.0	6.8	2.8	13	4.4	1500
355	355	1LA8 353-4PB ..	1488	96.3	0.87	610	2280	2.1	6.5	2.6	13	6.1	1900
400		1LA8 355-4PB ..	1488	96.3	0.87	690	2570	2.1	6.5	2.6	13	6.8	2000
500		1LA8 357-4PB ..	1488	96.8	0.88	850	3210	2.1	6.5	2.4	13	8.5	2200
560	400	1LA8 403-4PB ..	1492	96.8	0.88	950	3580	1.9	6.5	2.7	13	13	2800
630		1LA8 405-4PB ..	1492	97.0	0.88	1060	4030	1.9	6.8	2.7	13	14	3000
710		1LA8 407-4PB ..	1492	97.0	0.89	690 ● ■	4540	1.9	6.8	2.7	13	16	3200
800	450	1LA8 453-4PC ..	1492	97.0	0.88	780 ● ■	5120	1.6	7.0	2.6	10	23	4000
900		1LA8 455-4PC ..	1492	97.1	0.88	880 ● ■	5760	1.6	7.0	2.6	10	26	4200
1000		1LA8 457-4PC ..	1492	97.1	0.89	970 ●	6400	1.7	7.0	2.6	10	28	4400
1000 rpm, 6-pole, 50 Hz													
200	315	1LA8 315-6PB ..	989	95.7	0.86	345	1930	2.0	6.3	2.5	13	6.0	1300
250		1LA8 317-6PB ..	989	95.9	0.86	430	2410	2.0	6.3	2.5	13	7.3	1500
315	355	1LA8 355-6PB ..	993	96.2	0.86	540	3040	2.2	6.5	2.8	13	13	2000
400		1LA8 357-6PB ..	993	96.5	0.86	690	3850	2.2	6.5	2.8	13	16	2200
450	400	1LA8 403-6PB ..	992	96.5	0.86	780	4330	2.2	6.5	2.8	13	21	2800
500		1LA8 405-6PB ..	992	96.5	0.86	860	4810	2.3	6.5	2.8	13	24	3000
560		1LA8 407-6PB ..	992	96.7	0.86	960	5390	2.3	6.5	2.8	13	27	3200
630	450	1LA8 453-6PB ..	993	96.8	0.86	1100	6060	2.0	6.5	2.6	13	35	4000
710		1LA8 455-6PB ..	993	96.8	0.86	710 ● ■	6830	2.0	6.5	2.5	13	39	4200
800		1LA8 457-6PB ..	993	97.0	0.86	790 ● ■	7690	2.0	6.5	2.5	13	44	4500
750 rpm, 8-pole, 50 Hz													
160	315	1LA8 315-8PB ..	739	94.9	0.82	295	2070	2.1	6.0	2.3	13	6.0	1300
200		1LA8 317-8PB ..	739	95.2	0.82	370	2580	2.1	6.0	2.3	13	7.3	1500
250	355	1LA8 355-8PB ..	741	95.7	0.82	460	3220	2.1	6.1	2.4	13	13	2000
315		1LA8 357-8PB ..	741	96.0	0.82	580	4060	2.1	6.1	2.4	13	16	2200
355	400	1LA8 403-8PB ..	742	96.1	0.82	650	4570	2.0	6.5	2.6	13	21	2800
400		1LA8 405-8PB ..	742	96.2	0.82	730	5150	2.1	6.5	2.6	13	24	3000
450		1LA8 407-8PB ..	742	96.3	0.82	820	5790	2.1	6.5	2.6	13	27	3200
500	450	1LA8 453-8PB ..	744	96.4	0.81	920	6420	2.0	6.6	2.4	13	35	4000
560		1LA8 455-8PB ..	744	96.5	0.81	1040	7190	2.0	6.6	2.4	13	39	4200
630		1LA8 457-8PB ..	744	96.6	0.81	1160	8090	2.0	6.6	2.4	13	44	4500

● Rated current at 690 V.

■ Also supplied for 400 VΔ (voltage identifier "9" and order code L1Y).

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz (no rated voltage range)				IM B 3	Price supplement		
	400 VΔ	400 VΔ / 690 VY ³⁾	500 VΔ	690 VΔ ³⁾		IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LA8 315 to 1LA8 405	4	8	5	-	0	8	4	6
1LA8 407 to 1LA8 457	4 ¹⁾	8 ¹⁾	5	7 ²⁾	0	8	4	6

For other designs, see "Technical information", "Designs".

For footnotes, see Page 3/20.

Squirrel-cage motors for use on SIMOVERT MASTERDRIVES

1LA · With standard insulation for 690 V

Selection and ordering data

Rated voltage

For motors connected to converters, the tolerance to DIN VDE 60034-1 is generally applicable, a rated voltage

range is not specified (voltage identifier 8).

1LA7, 1LA5 motors

It is important to note the following in the case of these motors:

In contrast to the standard version, for the windings and motor protection, options C11, C12, C13, Y52, A10, A23 and for the mechanical design options

D31, D40, K45, K46, H15 are not possible. Also, versions for Zone 2, 21 and 22 are not possible.

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η %	Power factor p.f.	Rated current at 690 V A	Rated torque Nm						
Aluminium housing, IP 55 degree of protection, temperature class F													
3000 rpm, 2-pole, 50 Hz													
3	100 L	1LA7 106-2PM8.	2890	84.0	0.85	3.50	9.9	2.8	6.8	3.0	16	0.0035	21
4	112 M	1LA7 113-2PM8.	2905	86.0	0.86	4.55	13	2.6	7.2	2.9	16	0.0059	27
5.5	132 S	1LA7 130-2PM8.	2925	86.5	0.89	6.00	18	2.0	5.9	2.8	16	0.015	37
7.5		1LA7 131-2PM8.	2930	88.0	0.89	8.00	24	2.3	6.9	3.0	16	0.019	42
11	160 M	1LA7 163-2PM8.	2940	89.5	0.88	11.6	36	2.1	6.5	2.9	16	0.034	63
15	160 M	1LA7 164-2PM8.	2940	90.0	0.90	15.4	49	2.2	6.6	3.0	16	0.043	72
18.5	160 L	1LA7 166-2PM8.	2940	91.0	0.91	18.6	60	2.4	7.0	3.1	16	0.051	82
22	180 M	1LA5 183-2PM8.	2940	91.7	0.88	23.0	71	2.5	6.9	3.2	16	0.077	113
30	200 L	1LA5 206-2PM8.	2945	92.3	0.89	30.5	97	2.4	7.2	2.8	16	0.14	162
37		1LA5 207-2PM8.	2945	92.8	0.89	37.7	120	2.4	7.7	2.8	16	0.16	182
45	225 M	1LA5 223-2PM8.	2960	93.6	0.89	45.0	145	2.8	7.7	3.4	16	0.2	212
1500 rpm, 4-pole, 50 Hz													
2.2	100 L	1LA7 106-4PM8.	1420	82.0	0.82	2.75	15	2.5	5.6	2.8	16	0.0047	20
3		1LA7 107-4PM8.	1420	82.6	0.82	3.70	20	2.7	5.6	3.0	16	0.0055	23
4	112 M	1LA7 113-4PM8.	1440	85.0	0.83	4.75	27	2.7	6.0	3.0	16	0.012	29
5.5	132 S	1LA7 130-4PM8.	1455	86.0	0.81	6.60	36	2.5	6.3	3.1	16	0.018	39
7.5	132 M	1LA7 133-4PM8.	1455	87.0	0.82	8.80	49	2.7	6.7	3.2	16	0.023	46
11	160 M	1LA7 163-4PM8.	1460	88.5	0.84	12.4	72	2.2	6.2	2.7	16	0.043	67
15	160 L	1LA7 166-4PM8.	1460	90.0	0.84	16.6	98	2.6	6.5	3.0	16	0.055	81
18.5	180 M	1LA5 183-4PM8.	1460	90.5	0.83	20.5	121	2.3	7.5	3.0	16	0.13	113
22	180 L	1LA5 186-4PM8.	1460	91.2	0.84	24.0	144	2.3	7.5	3.0	16	0.15	123
30	200 L	1LA5 207-4PM8.	1465	91.8	0.86	32.0	196	2.6	7.0	3.2	16	0.24	160
37	225 S	1LA5 220-4PM8.	1470	92.9	0.87	38.5	241	2.8	7.0	3.2	16	0.32	209
45	225 M	1LA5 223-4PM8.	1470	93.4	0.87	46.5	293	2.8	7.7	3.3	16	0.36	235
1000 rpm, 6-pole, 50 Hz													
1.5	100 L	1LA7 106-6PM8.	925	74.0	0.75	2.25	15	2.3	4.0	2.3	16	0.0047	20
2.2	112 M	1LA7 113-6PM8.	940	78.0	0.78	3.05	22	2.2	4.6	2.5	16	0.0091	24
3	132 S	1LA7 130-6PM8.	950	79.0	0.76	4.20	30	1.9	4.2	2.2	16	0.015	34
4	132 M	1LA7 133-6PM8.	950	80.5	0.76	5.50	40	2.1	4.5	2.4	16	0.019	41
5.5	132 M	1LA7 134-6PM8.	950	83.0	0.76	7.30	55	2.3	5.0	2.6	16	0.025	50
7.5	160 M	1LA7 163-6PM8.	960	86.0	0.74	9.90	75	2.1	4.6	2.5	16	0.044	70
11	160 L	1LA7 166-6PM8.	960	87.5	0.74	14.2	109	2.3	4.8	2.6	16	0.063	89
15	180 L	1LA5 186-6PM8.	970	89.5	0.77	18.2	148	2.0	5.2	2.4	16	0.15	126
18.5	200 L	1LA5 206-6PM8.	975	90.2	0.77	22.5	181	2.7	5.5	2.8	16	0.24	164
22		1LA5 207-6PM8.	975	90.8	0.77	26.5	215	2.8	5.5	2.9	16	0.28	186
30	225 M	1LA5 223-6PM8.	978	91.8	0.77	35.5	294	2.8	5.7	2.9	16	0.36	217

Order No. supplements

Motor type	Final position: Design identifier						
	IM B 3	IM B 5	Price supplement		IM B 14	IM B 14	IM B 35
			IM V 1	IM V 1	IM B 14	IM B 14	
			Without protective cover	With protective cover	With standard flange	With special flange	
1LA7 106 to 1LA7 166	0	1	1	4	2	3	6
1LA5 183 to 1LA5 223	0	1	1	4	-	-	6

For other designs, see "Technical information", "Designs".

Squirrel-cage motors for use on SIMOVERT MASTERDRIVES

1LA/1LG · With standard insulation for 690 V

Selection and ordering data

Rated voltage

For motors connected to converters, the tolerance to DIN EN 60034-1 is generally applicable, a rated voltage

range is not specified (voltage identifier 7, 8).

1LG6 motors

It is important to note the following in the case of these motors:

In contrast to the standard version, for windings and motor protection, options C11, C12, C13, Y52, A10, and for versions for Zone 2, 21 and 22 options M34, M35, M38, M39, M72,

M73 and for the mechanical design options D30, D31, D40, K45, K46, H15 are not possible. Option K30 "VIK version" can be ordered on request.

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque	Starting current	Stalling torque	Torque Class	Moment of inertia J	Weight Design IM B 3 approx. kg
			Rated speed	Effi- ciency η	Power factor p.f.	Rated current at 690 V	Rated torque						
Cast iron housing, IP 55 degree of protection, temperature class F													
3000 rpm, 2-pole, 50 Hz													
22	180 M	1LG6 183-2PM8 .	2955	93.7	0.88	22.5	71	2.5	7.2	3.4	16	0.086	180
30	200 L	1LG6 206-2PM8 .	2960	93.1	0.89	30.5	97	2.4	7.0	3.3	16	0.15	225
37		1LG6 207-2PM8 .	2960	93.6	0.89	37	119	2.5	7.2	3.3	16	0.18	255
45	225 M	1LG6 223-2PM8 .	2965	94.4	0.89	45	145	2.5	7.3	3.2	16	0.27	330
55	250 M	1LG6 253-2PM8 .	2975	95.0	0.90	54	177	2.4	6.8	3.0	16	0.47	420
75	280 S	1LG6 280-2PM8 .	2975	95.0	0.89	74	241	2.5	7.0	3.0	13	0.83	530
90		1LG6 283-2PM8 .	2978	95.3	0.90	88	289	2.6	7.6	3.1	13	1.00	615
110	315 S	1LG6 310-2PM8 .	2982	95.5	0.91	106	352	2.4	6.9	2.8	13	1.39	790
132	315 M	1LG6 313-2PM8 .	2982	95.8	0.91	126	423	2.6	7.1	2.9	13	1.62	915
160		1LG6 316-2PM8 .	2982	96.2	0.92	152	512	2.5	7.1	2.9	13	2.1	1055
200	315 L	1LG6 317-2PM8 .	2982	96.2	0.93	188	641	2.5	6.9	2.8	13	2.5	1245
240	315	1LA8 315-2PM8 .	2978	96.1	0.90	230	770	1.8	7.0	3.0	10	2.7	1300
300		1LA8 317-2PM8 .	2978	96.5	0.91	285	962	1.9	7.0	3.0	10	3.3	1500
345	355	1LA8 353-2PM8 .	2981	96.4	0.90	335	1105	1.7	7.0	2.6	10	4.8	1900
390		1LA8 355-2PM8 .	2981	96.6	0.91	370	1249	1.7	6.7	2.6	10	5.3	2000
485		1LA8 357-2PM8 .	2982	97.0	0.91	460	1553	1.8	7.0	2.6	10	6.4	2200
545	400	1LA8 403-2PM8 .	2986	97.1	0.91	520	1743	1.5	7.0	3.0	10	8.6	2800
610		1LA8 405-2PM8 .	2986	97.1	0.92	570	1951	1.6	7.0	2.9	10	9.6	3000
680		1LA8 407-2PM7 .	2986	97.2	0.92	640	2175	1.7	7.0	3.0	10	11	3200
775	450	1LA8 453-2PM7 .	2987	97.2	0.92	730	2478	0.9	7.0	2.8	5	19	4000
875		1LA8 455-2PM7 .	2987	97.3	0.92	820	2798	0.9	7.0	2.8	5	21	4200
970		1LA8 457-2PM7 .	2987	97.4	0.93	900	3101	0.9	7.0	2.8	5	23	4400
1500 rpm, 4-pole, 50 Hz													
18.5	180 M	1LG6 183-4PM8 .	1470	92.1	0.83	20	120	2.5	6.4	3.0	16	0.12	155
22	180 L	1LG6 186-4PM8 .	1470	92.7	0.84	23.5	143	2.5	6.7	3.1	16	0.14	180
30	200 L	1LG6 207-4PM8 .	1470	92.7	0.85	32	195	2.6	6.7	3.3	16	0.23	225
37	225 S	1LG6 220-4PM8 .	1480	93.6	0.85	39	239	2.7	6.8	3.0	16	0.40	290
45	225 M	1LG6 223-4PM8 .	1480	94.1	0.85	47	290	2.8	6.9	3.0	16	0.49	330
55	250 M	1LG6 253-4PM8 .	1485	94.8	0.87	56	354	2.6	7.5	3.0	16	0.86	460
75	280 S	1LG6 280-4PM8 .	1485	94.7	0.87	76	482	2.5	6.8	2.9	16	1.39	575
90	280 M	1LG6 283-4PM8 .	1486	95.1	0.86	92	578	2.7	7.5	3.1	16	1.71	675
110	315 S	1LG6 310-4PM8 .	1488	95.6	0.87	110	706	2.7	7.1	2.9	16	2.3	810
132	315 M	1LG6 313-4PM8 .	1488	95.9	0.88	130	847	2.7	7.3	2.9	16	2.9	965
160		1LG6 316-4PM8 .	1490	96.1	0.88	158	1026	3.0	7.4	3.0	16	3.5	1105
200	315 L	1LG6 317-4PM8 .	1490	96.1	0.88	198	1282	3.2	7.6	3.0	16	4.2	1305
235	315	1LA8 315-4PM8 .	1485	95.8	0.87	235	1511	1.8	7.0	2.8	13	3.6	1300
290		1LA8 317-4PM8 .	1485	96.0	0.88	285	1865	1.8	7.0	2.8	13	4.4	1500
340	355	1LA8 353-4PM8 .	1488	96.0	0.87	340	2182	1.9	7.0	2.6	13	6.1	1900
385		1LA8 355-4PM8 .	1488	96.2	0.87	385	2471	2.0	7.0	2.6	13	6.8	2000
480		1LA8 357-4PM8 .	1488	96.5	0.87	480	3081	2.1	7.0	2.5	13	8.5	2200
545	400	1LA8 403-4PM8 .	1491	96.6	0.88	540	3491	1.9	7.0	2.6	13	13	2800
615		1LA8 405-4PM8 .	1491	96.8	0.88	600	3939	1.9	7.0	2.7	13	14	3000
690		1LA8 407-4PM7 .	1491	96.9	0.89	670	4420	1.9	7.0	2.6	13	16	3200
785	450	1LA8 453-4PM7 .	1492	96.8	0.88	770	5025	1.5	6.9	2.5	10	23	4000
880		1LA8 455-4PM7 .	1492	97.0	0.87	870	5633	1.6	7.0	2.6	10	26	4200
980		1LA8 457-4PM7 .	1492	97.1	0.89	950	6273	1.7	7.0	2.6	10	28	4400

• Insulated NDE bearing is recommended (order code L27)

Order No. supplements

Motor type	Final position: Design identifier		Price supplement		
	IM B 3	IM B 5	IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LG6 183 to 1LG6 313	0	1	1	4	6
1LG6 316 to 1LG6 318	0	-	8	4	6
1LA8 315 to 1LA8 457	0	-	8	4	6

For other designs, see "Technical information", "Designs".

Squirrel-cage motors for use on SIMOVERT MASTERDRIVES

1LA/1LG · With standard insulation for 690 V

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η %	Power factor p.f.	Rated current at 690 V A	Rated torque Nm						
Cast iron housing, IP 55 degree of protection, temperature class F													
1000 rpm, 6-pole, 50 Hz													
15	180 L	1LG6 186-6PM8 .	975	90.0	0.81	17.2	147	2.4	5.5	2.5	16	0.20	175
18.5	200 L	1LG6 206-6PM8 .	978	90.5	0.81	21	181	2.4	5.6	2.4	16	0.29	210
22	200 L	1LG6 207-6PM8 .	978	91.4	0.82	24.5	215	2.4	5.6	2.4	16	0.36	240
30	225 M	1LG6 223-6PM8 .	980	92.6	0.83	32.5	292	2.8	6.5	2.9	16	0.63	325
37	250 M	1LG6 253-6PM8 .	985	93.1	0.83	40	359	2.9	6.8	2.5	16	0.93	405
45	280 S	1LG6 280-6PM8 .	988	93.9	0.85	47	435	3.0	6.8	2.7	16	1.37	520
55	280 M	1LG6 283-6PM8 .	988	93.9	0.85	58	532	3.3	7.3	2.9	16	1.65	570
75	315 S	1LG6 310-6PM8 .	990	94.6	0.83	80	723	2.8	7.3	3.0	16	2.5	760
90	315 M	1LG6 313-6PM8 .	990	94.9	0.85	93	868	2.7	7.3	2.9	16	3.2	935
110	315 L	1LG6 316-6PM8 .	990	95.2	0.85	114	1061	2.9	7.4	2.9	16	4.0	1010
132		1LG6 317-6PM8 .	990	95.4	0.85	136	1273	3.1	7.8	3.1	16	4.7	1180
160		1LG6 318-6PM8 .	990	95.3	0.86	164	1543	3.2	7.8	3.1	16	5.4	1245
190	315	1LA8 315-6PM8 .	990	95.5	0.85	196	1833	2.1	7.0	2.7	13	6.0	1300
235		1LA8 317-6PM8 .	990	95.7	0.86	240	2267	2.2	7.0	2.7	13	7.3	1500
300	355	1LA8 355-6PM8 .	992	96.2	0.86	305	2888	2.2	7.0	2.8	13	13	2000
380		1LA8 357-6PM8 .	992	96.4	0.86	385	3658	2.3	7.0	2.9	13	16	2200
435	400	1LA8 403-6PM8 .	993	96.4	0.85	445	4184	2.1	7.0	2.8	13	21	2800
485		1LA8 405-6PM8 .	993	96.5	0.86	490	4664	2.1	7.0	2.8	13	24	3000
545		1LA8 407-6PM8 .	993	96.6	0.86	550	5241	2.1	7.0	2.7	13	27	3200
615	450	1LA8 453-6PM8 .	993	96.8	0.84	630	5915	2.0	7.0	2.7	13	35	4000
690		1LA8 455-6PM7 .	993	96.8	0.85	700	6636	1.9	7.0	2.5	13	39	4200
780		1LA8 457-6PM7 .	993	96.9	0.85	790	7502	2.0	7.0	2.6	13	44	4500
750 rpm, 8-pole, 50 Hz													
11	180 L	1LG6 186-8PM8 .	725	88.1	0.76	13.8	145	1.9	4.6	2.2	13	0.21	165
15	200 L	1LG6 207-8PM8 .	725	88.2	0.80	17.8	198	2.3	5.3	2.6	13	0.37	235
18.5	225 S	1LG6 220-8PM8 .	730	89.9	0.81	21.5	242	2.3	5.6	2.6	13	0.55	295
22	225 M	1LG6 223-8PM8 .	730	90.6	0.81	25	288	2.4	5.8	2.8	13	0.66	335
30	250 M	1LG6 253-8PM8 .	735	91.9	0.82	33.5	390	2.5	6.0	2.8	13	1.06	435
37	280 S	1LG6 280-8PM8 .	738	92.6	0.81	41.5	479	2.3	5.7	2.3	13	1.35	510
45	280 M	1LG6 283-8PM8 .	738	93.3	0.81	50	582	2.6	6.1	2.4	13	1.63	560
55	315 S	1LG6 310-8PM8 .	740	93.8	0.82	60	710	2.5	6.3	2.9	13	2.5	750
75	315 M	1LG6 313-8PM8 .	740	93.9	0.83	81	968	2.5	6.7	2.9	13	3.1	840
90	315 L	1LG6 316-8PM8 .	740	94.2	0.84	95	1161	2.4	6.3	2.8	13	3.9	1005
110		1LG6 317-8PM8 .	740	94.3	0.84	116	1420	2.4	6.4	2.6	13	4.5	1100
132		1LG6 318-8PM8 .	740	94.4	0.84	140	1704	2.5	6.7	2.9	13	5.3	1270
145	315	1LA8 315-8PM8 .	740	94.6	0.79	162	1871	2.2	6.4	2.5	13	6.0	1300
180		1LA8 317-8PM8 .	740	94.9	0.80	198	2323	2.2	6.4	2.5	13	7.3	1500
230	355	1LA8 355-8PM8 .	743	95.5	0.80	250	2956	2.1	6.8	2.4	13	13	2000
290		1LA8 357-8PM8 .	743	95.7	0.81	315	3727	2.1	6.8	2.4	13	16	2200
335	400	1LA8 403-8PM8 .	743	96.0	0.80	365	4306	1.9	6.6	2.6	13	21	2800
375		1LA8 405-8PM8 .	743	96.1	0.80	410	4820	1.9	6.9	2.7	13	24	3000
425		1LA8 407-8PM8 .	743	96.2	0.79	470	5463	1.9	6.8	2.7	13	27	3200
485	450	1LA8 453-8PM8 .	745	96.5	0.78	540	6217	1.9	6.8	2.5	13	35	4000
545		1LA8 455-8PM8 .	745	96.6	0.78	610	6986	2.0	6.8	2.5	13	39	4200
600		1LA8 457-8PM8 .	745	96.7	0.79	660	7691	2.0	6.8	2.5	13	44	4500

• Insulated NDE bearing is recommended (order code L27)

Order No. supplements

Motor type	Final position: Design identifier			Price supplement		
	IM B 3	IM B 5		IM V 1 Without protective cover	IM V 1 With protective cover	IM B 35
1LG6 183 to 1LG6 313	0	1		1	4	6
1LG6 316 to 1LG6 318	0	-		8	4	6
1LA8 315 to 1LA8 457	0	-		8	4	6

For other designs, see "Technical information", "Designs".

Squirrel-cage motors 1LA/1LG · Special designs

Selection and ordering data

Additional order suffix -Z with order code	Special designs	Motor type – Size					
		Aluminium			Cast iron		
		1LA7	1LA5	1LA9	1LA6	1LG4/1LG6	1LA8

Windings and motor protection

C11	Used as class F (up to KT 40 °C) with service factor	56 – 160 ⁴⁾	180 – 225 ⁴⁾	56 – 200 ³⁾	100 – 160	180 – 315 ⁴⁾	315 – 450
C12	Used as class F (up to KT 40 °C) With increased power ¹⁾	56 – 160 ⁴⁾	180 – 225 ⁴⁾	56 – 200 ³⁾	100 – 160	180 – 315 ⁴⁾	315 – 450 Not possible with converter-fed operation
C13	Used as class F With increased cooling air temperature	56 – 160 ⁴⁾	180 – 225 ⁴⁾	56 – 200 ³⁾	100 – 160	180 – 315 ⁴⁾	315 – 450
Y52 ●	Used as class F – other requirements and output KT... °C or AH... m above sl	56 – 160 ⁴⁾	180 – 225 ⁴⁾	56 – 200	100 – 160	180 – 315 ⁴⁾	315 – 450 Not possible with converter-fed operation
A10	PTC thermistor version for alarm on converter-fed operation in Zones 2, 21, 22 ²⁾	56 – 160 ⁴⁾	–	56 – 200	100 – 160	180 – 315 ⁴⁾	–
A11	Motor protection by means of PTC thermistor with 3 embedded temperature sensors for tripping ²⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	–
A12	Motor protection by means of PTC thermistor with 6 embedded temp. sensors for alarm and tripping ²⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	Standard design
A23	Motor temperature sensing with embedded KTY 84-130 temperature sensors ²⁾	56 – 160 ⁴⁾	180 – 225 ⁴⁾	56 – 200	100 – 160	180 – 315	315 – 450
A25	Motor temperature sensing with 2 embedded KTY 84-130 temperature sensors ²⁾	–	–	–	–	180 – 315	–

Paint finish

	Standard paintwork in RAL 7030 stone grey					Standard version	
K26	Special paintwork in RAL 7030 stone grey	Standard version (without order code)				180 – 315	315 – 450
M16	Special paintwork in RAL 1002 sand yellow	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
M17	Special paintwork in RAL 1013 pearl white					With order code Y54 and special paintwork RAL	With order code Y54 and special paintwork RAL
M18	Special paintwork in RAL 3000 flame red						
K27	Special paintwork in RAL 6011 mignonette green						
M19	Special paintwork in RAL 6021 pale green						
M20	Special paintwork in RAL 7001 silver grey						
K28	Special paintwork in RAL 7031 bluish grey						
L42	Special paintwork in RAL 7032 pebble grey						
M21	Special paintwork in RAL 7035 light grey						
M22	Special paintwork in RAL 9001 cream						
M23	Special paintwork in RAL 9002 grey white						
L43	Special paintwork in RAL 9005 jet black						
Y54 ●	Special paintwork in other colors: RAL 1015, 1019, 2003, 2004, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6019, 7000, 7004, 7011, 7016, 7022, 7033	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
Y53 ●	Standard paintwork in other colors	–	–	–	–	180 – 315	315 – 450
K23	Unpainted (only cast iron parts primed)	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K24	Unpainted, only primed	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	–

- Additional plain text required.

1) The rating plate only shows the 50 Hz data.

2) For appropriate tripping unit, see Catalog NS K. In the case of pole-change motors with separate windings, twice the number of temperature sensors is required. When used in areas subject to explosion hazards, a certified tripping unit is necessary.

3) Not possible for the version with increased power.

4) Not possible for motors with special insulation for 690 V.

RAL No.	Name of color	RAL No.	Name of color
1015	Light ivory	5017	Traffic blue
1019	Grey beige	5018	Turquoise blue
2003	Pastel orange	5019	Capri blue
2004	Pure orange	6019	Pastel green
3007	Wine red	7000	Squirrel grey
5007	Black blue	7004	Signal grey
5009	Azure blue	7011	Iron grey
5010	Gentian blue	7016	Anthracite grey
5012	Light blue	7022	Umbrage grey
5015	Sky blue	7033	Cement grey

Squirrel-cage motors

1LA/1LG · Special designs

Selection and ordering data

Additional order suffix -Z with order code	Special designs	Motor type – Size					
		Aluminium			Cast iron		
		1LA7	1LA5	1LA9	1LA6	1LG4/1LG6	1LA8

Version for zones according to ATEX ¹⁾

M72 ²⁾	Version for Zone 2 for mains-fed operation EEx nA II T3 acc. to EN 50 021, Ex nA II T3 acc. to IEC 60 079-15	63 – 160	–	63 – 160 ⁴⁾	100 – 160	180 – 315 ⁴⁾	315 – 450
M73 ²⁾³⁾⁵⁾	Version for Zone 2 for converter-fed operation EEx nA II T3 acc. to EN 50 021, Ex nA II T3 acc. to IEC 60 079-15	63 – 160	–	63 – 160 ⁴⁾	100 – 160	180 – 315 ⁴⁾	315 – 450
M34 ⁶⁾	Version for Zone 21 for mains-fed operation	56 – 160	180 – 225	56 – 200 ⁴⁾	100 – 160	180 – 315 ⁴⁾	–
M38 ⁵⁾⁶⁾	Version for Zone 21 for converter-fed operation	56 – 160	180 – 225	56 – 200 ⁴⁾	100 – 160	180 – 315 ⁴⁾	–
M35 ⁷⁾	Version for Zone 22 for mains-fed operation	56 – 160	180 – 225	56 – 200 ⁴⁾	100 – 160	180 – 315 ⁴⁾	–
M39 ⁵⁾⁷⁾	Version for Zone 22 for converter-fed operation	56 – 160	180 – 225	56 – 200 ⁴⁾	100 – 160	180 – 315 ⁴⁾	–

Distributed drive systems

G55 ¹⁰⁾	ECOFAST motor plug Han-Drive 10e for 230 VΔ /400 VY	56 – 132	–	56 – 132 ¹¹⁾	–	–	–
H90 ⁸⁾	MICROSTARTER direct-on-line starter with 24 V DC activation, with M25 metric cable entry	63 – 112	–	–	–	–	–
H91 ⁸⁾	MICROSTARTER direct-on-line starter with 24 V DC activation, with HAN Q8 plug connectors	63 – 112	–	–	–	–	–
H92 ⁸⁾	MICROSTARTER direct-on-line starter with AS-Interface connection, with M25 metric cable entry	63 – 112	–	–	–	–	–
H93 ⁸⁾	MICROSTARTER direct-on-line starter with AS-Interfaceconnection, with HAN Q8 plug connectors (ECOFAST)	63 – 112	–	–	–	–	–
H94 ⁸⁾	MICROSTARTER reversing starter with AS-Interface connection, with M25 metric cable entry	63 – 112	–	–	–	–	–
H95 ⁸⁾	MICROSTARTER reversing starter with AS-Interface connection, with HAN Q8 plug connectors (ECOFAST)	63 – 112	–	–	–	–	–

Marine version – “Operation below deck” ^{9) 12) 14)}

E11	Certified according to GL (Germanischer Lloyd), Germany, KT 45 °C, temperature class F used as F	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450 ¹³⁾
E21	Certified according to LRS (Lloyds Register of Shipping), Great Britain, KT 45 °C, temperature class F used as F	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450 ¹³⁾
E31	Certified according to BV (Bureau Veritas), France, KT 45 °C, temperature class F used as F	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450 ¹³⁾
E51	Certified according to DNV (Det Norske Veritas), Norway, KT 45 °C, temperature class F used as F	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450 ¹³⁾

- 1) Modular installation and additional modules not possible; Anti-condensation heater not possible up to size 200L. The versions for the Zones are not possible for motors with special insulation for 690 V.
- 2) The motors have no rated voltage range.
- 3) To comply with the standard, the motor and converter must be tested as a unit. For 1LA8 motors, please specify constant torque drive or pump/compressor drive.

- 4) Not possible for the version with increased power.
- 5) PTC thermistors for temperature class B are included with this option.
- 6) Version for conductive dust particles, IP 65 degree of protection.
- 7) Version only for non-conductive dust particles, IP 55 degree of protection.

- 8) The MICROSTARTER always contains one PTC thermistor with temperature sensors (option A11) and the associated evaluation electronics. It is possible for pole-changing motors with two separate windings and motors other than 1LA7 to be used, on request.
- 9) Factory test certificate 2.3 in accordance with EN 10204 is supplied. Individual acceptance test must be specified in plain text on ordering if required (price supplement).

- 10) Not possible for pole-changing motors.
- 11) Not possible for 1LA9 BG 132 motors with increased power.
- 12) Derating may be necessary in the case of (E) Exn (Zone 2) motors and 1LA9 motors with increased power.
- 13) The 1LA8 motors do not have a prototype test certificate (individual acceptance test required).
- 14) Utilization of temperature class F according to B can cause derating.

Squirrel-cage motors 1LA/1LG · Special designs

Selection and ordering data

Additional order suffix -Z with order code	Special designs	Motor type – Size					
		Aluminium			Cast iron		
		1LA7	1LA5	1LA9	1LA6	1LG6/1PP6	1LA8
Modular assembly¹⁾							
H57²⁾	Externally mounted 1XP8 001–1 rotary pulse encoder (HTL)	100 – 160	180 – 225	–	100 – 160	180 – 315	–
H58²⁾	Externally mounted 1XP8 001–2 rotary pulse encoder (TTL)	100 – 160	180 – 225	–	100 – 160	180 – 315	–
G17²⁾	Externally mounted separately-driven fan	100 – 160	180 – 225	–	100 – 160	180 – 315 ⁴⁾	–
H61²⁾	Externally mounted separately driven fan and 1XP8 001–1 rotary pulse encoder	100 – 160	180 – 225	–	100 – 160	180 – 315	–
G26²⁾	Externally mounted brake	63 – 160	180 – 225	–	–	180 – 315 ⁴⁾	–
H62²⁾	Externally mounted brake and 1XP8 001–1 rotary pulse encoder	100 – 160	180 – 225	–	–	180 – 315	–
H63²⁾	Externally mounted brake and separately driven fan	100 – 160	180 – 225	–	–	180 – 315 ⁴⁾	–
H64²⁾	Externally mounted brake, separately driven fan and 1XP8 001–1 rotary pulse encoder	100 – 160	180 – 225	–	–	180 – 315	–
K82	Manual brake release with lever	63 – 160	180 – 225	–	–	180 – 315	–
C00	Brake supply voltage 24 V DC	63 – 160	180 – 225	–	–	180 – 315	–
C01	Brake supply voltage 400 V AC, 50 Hz	63 – 160	180 – 225	–	–	180 – 315	–

Additional externally mounted units^{1) 4)}

H70	Externally mounted LL861 900 220 rotary pulse encoder	100 – 160	180 – 225	–	100 – 160	180 – 315	315 – 450
H71	Pre-assembly and mounting of LL861 900 220 rotary pulse encoder, which is to supply	100 – 160	180 – 225	–	100 – 160	180 – 315	315 – 450
H78	Prepared for mounting of LL861 900 220 rotary pulse encoder	100 – 160	180 – 225	–	100 – 160	180 – 315	315 – 450
H72	Mounting of HOG 9 D 1024 I rotary pulse encoder	100 – 160	180 – 225	–	100 – 160	180 – 315	315 – 450
H74	Pre-assembly and mounting of HOG 9 rotary pulse encoder, which is to supply	100 – 160	180 – 225	–	100 – 160	180 – 315	315 – 450
H79	Prepared for mounting HOG 9 D 1024 I rotary pulse encoder	100 – 160	180 – 225	–	100 – 160	180 – 315	315 – 450
H73	Mounting of HOG 10 D 1024 I rotary pulse encoder	100 – 160	180 – 225	–	–	180 – 315	315 – 450
H75	Pre-assembly and mounting of HOG 10 rotary pulse encoder, which is to supply	100 – 160	180 – 225	–	–	180 – 315	315 – 450
H80	Prepared for mounting HOG 10 D 1024 I rotary pulse encoder	100 – 160	180 – 225	–	–	180 – 315	315 – 450

Converter installation

H15³⁾	Prepared for mounting the MMI	56 – 132	–	–	–	–	–
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Mechanical design

K06	Two-part plate on terminal block	–	–	–	–	200 – 315 ⁵⁾	315 – 355, for 400 and 450 standard version
K09	Terminal box on RHS (view onto drive end)	80 – 160	180 – 225	80 – 200	100 – 160	180 – 315	Standard version
K10	Terminal box on LHS (view onto drive end)	80 – 160	180 – 225	80 – 200	100 – 160	180 – 315	315 – 450
K11	Terminal box on top, feet screwed on	–	–	–	–	180 – 315	–
K83	Rotation of terminal box by 90°, inserted from drive end	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K84	Rotation of terminal box by 90°, inserted from non-drive end	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K85	Rotation of terminal box by 180°	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
M46	Bolt-type screw terminal for cable connection, accessories pack (3 units)	–	–	–	–	250 – 315 ⁵⁾	–
M47	Saddle terminals for cable lug free connection	–	–	–	–	250 – 315 ⁶⁾	–
D02	Cooling air temperature – 50 °C to 40 °C	–	–	–	–	180 – 315	–
D03	Cooling air temperature – 40 °C to 40 °C	–	–	–	–	180 – 315	–

1) Second shaft end not possible. Further externally mounted units are not possible in combination with the modular assembly system.

2) Order codes cannot be combined.

3) Converter mounting is possible in accordance with the COMBIMASTER spectrum for motors with 230 VΔ / 400 VY voltages. For further details, see Catalogs DA 51.3 and DA 64. Not possible for motors with special insulation for 690 V.

4) For 1LG4/1LG6 motors, G17, G26 and H63 can also be combined with all rotary pulse encoders under "Additional externally mounted units".

5) Not possible for design for zones and VIK.

6) Standard for design for zones and VIK.

Squirrel-cage motors

1LA/1LG · Special designs

Selection and ordering data

Additional order suffix –Z with order code	Special designs	Motor type – Size					
		Aluminium			Cast iron		
		1LA7	1LA5	1LA9	1LA6	1LG4/1LG6	1LA8

Mechanical design (continued)

D04	Cooling air temperature – 30 °C to 40 °C	–	–	–	–	180 – 315	–
D30	Electrical acc. to NEMA MG1-12 ¹⁰⁾	56 – 160	180 – 225	56 – 200 ¹¹⁾	100 – 160	180 – 315 ¹¹⁾	–
D31	Designed to UL with "Recognition Mark" ¹⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	–
D40	Canadian standards (CSA) ²⁾ ¹⁰⁾	56 – 160	180 – 200	56 – 200	100 – 160	180 – 315	315 – 450
K01	Vibrational severity grade R	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 400
K16	Second standard shaft end ³⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K17	Radial sealing ring on drive end with flange types ⁴⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	–
K20	Bearing for increased cantilever forces ⁵⁾	100 – 160	180 – 225	100 – 200	100 – 160	180 – 315	315 – 355
K36	Special bearing for drive end and non drive end, bearing size 63	–	–	–	–	180 – 250, 280 – 315 ⁶⁾ standard type	–
K40	Regreasing device	100 – 160	180 – 225	100 – 200 ⁷⁾	100 – 160	180 – 250, standard version from 280 upwards	–
L04	Located bearing non drive end	56 – 132, 160 standard version	–	56 – 132	100 – 132, 160 standard version	–	–
K94	Located bearing drive end	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	–
L27	Insulated bearing cartridge	–	–	–	–	225 – 315	Standard for operation with SIMOVERT MASTER-DRIVES
M44	Earth brushes for converter-fed operation	–	–	–	–	280 – 315	–
L13	External earthing	56 – 160	180 – 225	56 – 200	100 – 160	Standard version	–
K30	VIK design ⁸⁾	56 – 160	–	56 – 160	100 – 160	180 – 315 ⁹⁾	315 – 355
K31	Extra rating plate, loose	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K32	With two additional lifting rings for IM V 1 / IM V 3	–	180 – 225	–	–	–	–
Y82 ●	Extra rating plate and/or with additional data	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K37	Low noise version for 2-pole motors with clockwise rotation ⁶⁾	132 – 160	180 – 225	180 – 200	132 – 160	180 – 315	315, for 355 – 450 standard version
K38	Low noise version for 2-pole motors with anti-clockwise rotation ⁶⁾	132 – 160	180 – 225	180 – 200	132 – 160	180 – 315	315 – 450
K45	Anti-condensation heater for 230 V ¹⁰⁾ ¹²⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
K46	Anti-condensation heater for 115 V ¹⁰⁾ ¹²⁾	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	315 – 450
L36	Sheet metal fan cover	–	–	–	–	180 – 315	–
L99	Wire-lattice pallet	56 – 160	180	56 – 180	–	–	–

Notes on safety and commissioning/certification

B00	Without notes on safety and commissioning Notice of renouncement is required from the customer	56 – 160	180 – 225	56 – 200	–	–	–
B01	Complete with one set of safety and commissioning notes per wire-lattice pallet	56 – 160	180	56 – 180	–	–	–
B02	Factory test certificate 2.3 acc. to EN 10 204	56 – 160	180 – 225	56 – 200	100 – 160	180 – 315	Standard version

- Additional plain text required.

- Possible up to 600 V.
- The rated voltage is shown on the rating plate. Separately driven fan and brake are not CSA certified.
- For motors from size 315 of a vertical design, if a version with a second shaft end is required, please enquire. Not possible for version with protective cover.
- Not possible for type IM V3.
- Not possible for: 2-pole 1LG4/1LG6 motors of size 315L in vertical design; 2-pole 1LA8 motors, sizes 315 to 355; 1LA8 motors in vertical design. Vibrational severity grade R on request.
- For 2-pole motors 1LG4/1LG6 sizes 280 and 315 not possible.
- Not possible for 1LA9 134–6.
- Modular installation and additional modules not possible. Anti-condensation heater not possible up to size 200L. For 2-pole motors 1LG4/1LG6 size 315, additional low noise version is required, order code K37 or K38. For 1LA8 motors, note power and dimensions. For 2- and 4-pole motors 1LA8 357, the terminal block cannot be rotated by 4 x 90°. For motors with special insulation for 690 V, on request.
- Not possible for 2-pole 1LG4/1LG6 motors, size 315L, vertical designs; Vibrational severity grade R on request.
- Not possible for motors with special insulation for 690 V.
- For designs in EPACT or UL standard version (no order code required).
- For 1LA motors in "non sparking" version, built-in anti-condensation heater is not possible up to size 200L.

Squirrel-cage motors

1MA · increased safety

EEx e II degree of protection

Selection and ordering data



4/2

Aluminium housing

- 2-, 4-, 6-pole – 50 Hz

4/3

Cast iron housing

4/4

- 2-pole – 50 Hz

4/5

- 4-pole – 50 Hz

- 6-pole – 50 Hz

4/6

Special designs

4/6

- Windings and motor protection

4/7

- Paint finish

4/7

- Mechanical design

4/7

- Certification

4/7

- Marine version

4

1MA motors Increased safety

Frame size	63 to 355
Output range	0.12 to 400 kW
Temp. class	T1 to T3
Temp. class F	Utilization acc. to B

For special versions (other frequencies, outputs, cooling air temperatures, installation altitudes, etc.), certification costs may be incurred.

For motor types that have not yet been acceptance tested by the PTB, changes may arise in the technical specifications.

Squirrel-cage motors

1MA · EEx e II degree of protection · Aluminium housing

Selection and ordering data

Rated output kW	Temperature classes	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output				Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque	t _e time For temperature classes		Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg	
				Rated speed rpm	Efficiency η ¹⁾ %	Power factor p.f.	Rated current at 380 V to 420 V A				Rated torque Nm	T1 s				T3 s
Temperature classes T1 to T3, IP 55 degree of protection, temperature class F																
ATEX																
3000 rpm, 2-pole, 50 Hz																
0.18	T1-T3	63 M	1MA7 060-2BA ..	2810	66	0.74	0.55	0.61	2.3	4.4	2.3	30	27	16	0.00018	4
0.25	T1-T3		1MA7 063-2BA ..	2800	68	0.85	0.70	0.85	2.2	4.4	2.3	19	16	16	0.00023	4
0.37	T1-T3	71 M	1MA7 070-2BA ..	2825	73	0.80	0.93	1.3	2.3	5.6	3.0	28	25	16	0.00035	6
0.55	T1-T3		1MA7 073-2BA ..	2785	72	0.84	1.4	1.9	3	5.2	2.6	18	13	16	0.00045	7
0.75	T1-T3	80 M	1MA7 080-2BA ..	2845	73	0.85	1.81	2.5	2.5	6.2	2.7	13	11	16	0.00085	9
1.1	T1-T3		1MA7 083-2BA ..	2855	79	0.85	2.5	3.7	2.8	6.4	3	12	10	16	0.0011	11
1.3	T1-T3	90 S	1MA7 090-2BA ..	2850	78	0.88	2.9	4.4	2.6	6.2	2.8	12	11	16	0.0015	13
1.85	T1-T3	90 L	1MA7 096-2BA ..	2860	81	0.88	3.95	6.2	2.8	7.2	2.8	9	8	16	0.002	16
2.5	T1-T3	100 L	1MA7 106-2BA ..	2865	82	0.87	5.3	8.3	2.6	7.4	2.8	9	8	16	0.0038	21
3.3	T1-T3	112 M	1MA7 113-2BB ..	2875	84	0.89	6.7	11	2.1	6.6	2.3	10	9	13	0.0055	27
4.6	T1-T3	132 S	1MA7 130-2BB ..	2895	84	0.89	9.3	15	1.9	6.1	2.5	11	11	13	0.016	38
5.5	T3		1MA7 131-2BB .. ²⁾	2920	85	0.89	10.7	18	2.2	7.8	2.7	12	11	13	0.021	44
6.5	T1,T2			2890	85	0.91	12.6	21	1.9	6.6	2.3	10	7	13	0.021	44
7.5	T3	160 M	1MA7 163-2BB .. ²⁾	2940	86	0.85	15.3	24	2.2	7.6	3.1	18	17	13	0.034	67
9.5	T1,T2			2910	86	0.88	18.6	31	1.7	6.1	2.4	15	-	13	0.034	67
10	T3	160 M	1MA7 164-2BB .. ²⁾	2925	87	0.91	19.1	33	2.1	7.4	2.9	18	8	13	0.04	72
13	T1,T2			2885	87	0.92	24.5	43	1.6	5.7	2.2	16	-	13	0.04	72
12.5	T3	160 L	1MA7 166-2BB .. ²⁾	2940	89	0.93	23.0	41	2.3	7.6	3	21	9	13	0.052	82
16	T1,T2			2910	87	0.93	30.0	53	1.8	5.8	2.3	15	-	13	0.052	82
1500 rpm, 4-pole, 50 Hz																
0.12	T1-T3	63 M	1MA7 060-4BB ..	1375	55	0.66	0.52	0.83	1.9	2.6	1.9	35	30	13	0.0003	4
0.18	T1-T3		1MA7 063-4BB ..	1330	57	0.75	0.62	1.3	1.9	2.7	1.9	30	25	13	0.0004	4
0.25	T1-T3	71 M	1MA7 070-4BB ..	1310	60	0.77	0.80	1.8	1.9	3.1	1.9	50	40	13	0.0006	6
0.37	T3		1MA7 073-4BB ..	1355	67	0.74	1.10	2.6	1.9	3.7	2.1	35	29	13	0.00083	7
0.55	T1-T3	80 M	1MA7 080-4BA ..	1390	73	0.73	1.59	3.8	2.4	4.6	2.5	24	21	16	0.0015	9
0.75	T1-T3		1MA7 083-4BA ..	1395	73	0.75	2.05	5.1	2.6	4.8	2.6	19	16	16	0.0018	11
1	T1-T3	90 S	1MA7 090-4BA ..	1420	77	0.78	2.5	6.7	2.2	5.4	2.5	16	14	16	0.0028	13
1.35	T1-T3	90 L	1MA7 096-4BA ..	1415	78	0.82	3.1	9.1	2.3	5.9	2.5	15	13	16	0.0035	16
2	T1-T3	100 L	1MA7 106-4BA ..	1420	80	0.82	4.5	14	2.5	6.4	2.7	13	11	16	0.0048	20
2.5	T1-T3		1MA7 107-4BA ..	1415	81	0.83	5.5	17	2.6	6.4	2.7	12	10	16	0.0058	23
3.6	T1-T3	112 M	1MA7 113-4BA ..	1435	85	0.83	7.5	24	2.6	7.2	2.9	10	9	16	0.011	29
5	T1-T3	132 S	1MA7 130-4BA ..	1445	86	0.82	10.4	33	2.7	6.6	3.2	10	9	16	0.021	42
6.8	T1-T3	132 M	1MA7 133-4BA ..	1460	87	0.82	14.0	44	3	7.7	3.6	10	9	16	0.027	61
10	T1-T3	160 M	1MA7 163-4BB ..	1455	88	0.87	19.7	66	2.3	6.5	2.7	17	10	13	0.052	67
13.5	T1-T3	160 L	1MA7 166-4BB ..	1465	89	0.84	27	88	2.4	6.9	3	18	9	13	0.057	107
1000 rpm, 6-pole, 50 Hz																
0.25	T1-T3	71 M	1MA7 073-6BA ..	850	63	0.72	0.81	2.8	2.2	3	2.1	130	70	16	0.0009	7
0.37	T1-T3	80 M	1MA7 080-6BA ..	920	68	0.7	1.14	3.6	2.3	3.6	2.4	60	55	16	0.0015	9
0.55	T1-T3		1MA7 083-6BA ..	930	69	0.67	1.75	5.6	2.4	4	2.4	30	27	16	0.0025	13
0.65	T1-T3	90 S	1MA7 090-6BA ..	915	70	0.75	1.8	6.8	2.3	3.9	2.4	35	30	16	0.0028	14
0.95	T1-T3	90 L	1MA7 096-6BA ..	910	72	0.75	2.6	9.9	2.3	4.1	2.4	22	19	16	0.0038	16
1.3	T1-T3	100 L	1MA7 106-6BA ..	935	77	0.73	3.35	13	2.4	4.8	2.5	26	26	16	0.0063	20
1.9	T1-T3	112 M	1MA7 113-6BB ..	940	79	0.76	4.7	19	2.3	5	2.5	19	16	13	0.011	24
2.6	T1-T3	132 S	1MA7 130-6BB ..	945	79	0.75	6.5	26	1.8	4.4	2.4	21	18	13	0.015	36
3.5	T1-T3	132 M	1MA7 133-6BB ..	955	81	0.72	9.0	35	2.3	5.1	2.8	16	13	13	0.019	41
4.8	T1-T3	132 M	1MA7 134-6BB ..	950	83	0.76	11.4	48	2.4	5.6	2.8	13	11	13	0.025	50
6.6	T1-T3	160 M	1MA7 163-6BB ..	960	85	0.75	14.9	65	2.7	6.4	3.1	18	9	13	0.041	70
9.7	T1-T3	160 L	1MA7 166-6BB ..	965	88	0.76	21.0	96	2.8	7.7	2.2	15	8	13	0.055	105

• Used as class F.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier					
	50 Hz	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange
1MA7 060 to 1MA7 096	1	6 ⁴⁾	3 ⁵⁾	-	0	1	4	2	3	6
1MA7 106 to 1MA7 166	1	6	3	5	0	1	4	2	3	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs". For footnotes, see Page 4/3.

Squirrel-cage motors

1MA · EEx e II degree of protection · Cast iron housing

Selection and ordering data

Rated output kW	Temperature classes	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output				Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	t _e time For temperature classes		Torque Class KL	Moment of inertia J	Weight Design IM B 3 approx. kg
				Rated speed rpm	Efficiency η ¹⁾ %	Power factor p.f.	Rated current at 380 V to 420 V A					T1 s	T3 s			
Temperature classes T1 to T3, IP 55 degree of protection, temperature class F																
3000 rpm, 2-pole, 50 Hz																
2.5	T1-T3	100 L	1MA6 106-2BA ..	2865	82	0.86	5.3	8.3	2.6	7.4	2.8	9	8	16	0.0038	34
3.3	T1-T3	112 M	1MA6 113-2BB ..	2875	84	0.89	6.7	11	2.1	6.6	2.3	10	9	13	0.0055	43
4.6	T1-T3	132 S	1MA6 130-2BB ..	2895	84	0.88	9.3	15	1.9	6.1	2.5	11	11	13	0.016	53
5.5	T3	132 S	1MA6 131-2BB .. ²⁾	2920	85	0.89	10.7	18	2.2	7.8	2.7	12	11	13	0.021	58
6.5	T1,T2	132 S		2890	85	0.91	12.6	21	1.9	6.6	2.3	10	7	13	0.021	58
7.5	T3	160 M	1MA6 163-2BB .. ²⁾	2940	86	0.85	15.3	24	2.2	7.6	3.1	8	17	13	0.034	96
9.5	T1,T2	160 M		2910	86	0.88	18.6	31	1.7	6.1	2.4	15	-	13	0.034	96
10	T3	160 M	1MA6 164-2BB .. ²⁾	2925	87	0.91	19.1	33	2.1	7.4	2.9	18	8	13	0.04	105
13	T1,T2	160 M		2885	87	0.92	24.5	43	1.6	5.7	2.2	16	-	13	0.04	105
12.5	T3	160 L	1MA6 166-2BB .. ²⁾	2940	89	0.93	23.0	41	2.3	7.5	3.0	23	9	13	0.052	115
16	T1,T2	160 L		2910	87	0.93	30.0	53	1.8	5.8	2.3	5	-	13	0.052	115
15	T3	180 M	1MA6 183-2BC ..	2955	92	0.87	29	49	2	6.9	3.3	30	14	10	0.077	170
19	T1,T2			2935	91.1	0.88	36.5	62	1.6	5.5	2.6	24	-	10		
20	T3	200 L	1MA6 206-2BC ..	2960	91.2	0.86	39	64	1.9	6	2.9	35	14	10	0.14	245
25	T1,T2			2950	90.6	0.87	49	81	1.5	4.8	2.3	28	-	10		
24	T3		1MA6 207-2BC ..	2965	92	0.87	46	77	2	6.4	3	35	10	10	0.16	246
31	T1,T2			2950	91.4	0.88	60	100	1.5	4.9	2.3	26	-	10		
28	T3	225 M	1MA6 223-2BC ..	2970	93.6	0.9	51	90	1.8	6.4	2.7	30	13	10	0.24	310
38	T1,T2		1MA6 223-2AC ..	2970	93.9	0.89	69 ³⁾	122	1.8	7	2.7	16	-	10		
36	T3	250 M	1MA6 253-2BC ..	2975	93.5	0.91	64	116	1.5	6.6	2.7	30	11	10	0.45	415
47	T1,T2		1MA6 253-2AC ..	2975	93.9	0.9	85	151	1.5	6.5	2.7	18	-	10		
47	T3	280 S	1MA6 280-2BD ..	2983	94.5	0.9	84	150	1.5	7.1	2.9	30	23	7	0.79	570
64	T1,T2	280 S	1MA6 280-2AD ..	2980	94.3	0.89	115	205	1.5	7.8	2.9	19	-	7		
58	T3	280 M	1MA6 283-2BD ..	2982	94.7	0.91	104	186	1.5	7.2	2.8	27	11	7	0.92	610
76	T1,T2	280 M	1MA6 283-2AD ..	2978	94.8	0.9	134	244	1.5	7.5	2.8	15	-	7		
68	T3	315 S	1MA6 310-2BD ..	2985	94	0.91	120	218	1.4	7.1	2.8	50	21	7	1.3	790
95	T1,T2	315 S	1MA6 310-2AD ..	2985	94.6	0.9	169	304	1.5	7.3	2.9	30	-	7		
80	T3	315 M	1MA6 313-2BD ..	2985	94.8	0.91	142	256	1.6	7	2.8	40	19	7	1.5	850
112	T1,T2	315 M	1MA6 313-2AD ..	2985	94.8	0.91	198 ³⁾	358	1.4	7.5	2.7	21	-	7		
100	T3	315 L	1MA6 316-2BD ..	2984	94.9	0.92	174	320	1.4	6.8	2.7	40	11	7	1.8	990
135	T1,T2		1MA6 316-2AD ..	2984	95.2	0.91	234	432	1.6	7.4	2.9	17	-	7		
125	T3		1MA6 317-2BD ..	2985	95.5	0.91	214	400	1.5	7.3	2.5	30	7	7	2.3	1100
165	T1,T2		1MA6 317-2AD ..	2986	95.7	0.91	280	528	1.8	9.3	2.9	7	-	7		
150	T3	315	1MA8 315-2BD .. [▲]	2982	95.3	0.91	260	480	1.1	6.5	2.6	13	7	7	2.7	1300
200	T1,T2		1MA8 315-2AD .. [▲]	2980	96.2	0.92	345	640	1	5.8	2.5	23	-	7		
190	T3		1MA8 317-2BD .. [▲]	2982	96.5	0.92	325	608	1.2	6.4	2.7	10	7	7	3.3	1500
255	T1,T2		1MA8 317-2AD .. [▲]	2982	96.7	0.92	435	816	1.2	6.9	2.8	12	-	7		
220	T3	355	1MA8 353-2BE .. [▲]	2982	96.3	0.91	375	704	0.9	6	2.5	9	5	5	4.8	1900
300	T1,T2		1MA8 353-2AE .. [▲]	2982	96.6	0.91	520	960	1	6.4	2.7	14	-	5		
250	T3		1MA8 355-2BE .. [▲]	2985	96.5	0.92	430	800	1	6.4	2.6	8	5	5	5.3	2000
335	T1,T2		1MA8 355-2AE .. [▲]	2985	96.8	0.9	590 ⁶⁾	1070	1	6.8	2.7	12	-	5		
300	T3		1MA8 357-2BE .. [▲]	2985	96.8	0.92	510	960	1	6.4	2.6	8	5	5	6.4	2200
400	T1,T2		1MA8 357-2AE .. [▲]	2982	96.9	0.92	680	1280	1	6.3	2.5	10	-	5		

● Utilization in accordance with temperature class F – ■ VIK is not possible. ▲ With axial fan for clockwise rotation.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier						
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement	IM B 5	IM V 1	IM B 14	IM B 14	IM B 35
1MA6 106 to 1MA6 166	1	6	3	5	0	1	4	2	3	6	
1MA6 183 to 1MA6 313	1	6	3	5	0	1	4	-	-	6	
1MA6 316 to 1MA6 317	-	6	3	5	0	-	4	-	-	6	
1MA8 315 to 1MA8 357	-	6 ⁷⁾	On request	On request	0	-	4	-	-	6	

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) With reference to 75 °C.

2) For voltage identifier "9", separate versions for T1, T2 and T3. For order code A11, only possible for one power output in each case.

3) For connection to 230 V, parallel supply cables are required.

4) For 1MA7 06 motors, 690 VY version is not possible.

5) For 1MA7 060-4, 500 VY version is not possible.

6) For connection to 400/500 V, parallel supply cables are required (see "Technical information",

"Connections, circuits and terminal blocks").

7) Rated voltage range for 1MA8 on request.

Squirrel-cage motors

1MA · EEx e II degree of protection · Cast iron housing

Selection and ordering data

Rated output kW	Temperature classes	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current For direct-on-line starting as multiple of the rated current	Stalling torque	t _e time For temperature classes		Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
				Rated speed rpm	Efficiency η ¹⁾ %	Power factor p.f.	Rated current at 380 V to 420 V A	Rated torque Nm				T1 s	T3 s			
Temperature classes T1 to T3, IP 55 degree of protection, temperature class F																
1500 rpm, 4-pole, 50 Hz																
2	T1-T3	100 L	1MA6 106-4BA ..	1420	80	0.81	4.5	14	2.5	6.4	2.7	13	11	16	0.0048	33
2.5	T1-T3	100 L	1MA6 107-4BA ..	1415	81	0.83	5.5	17	2.6	6.4	2.7	12	10	16	0.0058	36
3.6	T1-T3	112 M	1MA6 113-4BA ..	1435	85	0.83	7.5	24	2.6	7.2	2.9	10	9	16	0.011	45
5	T1-T3	132 S	1MA6 130-4BA ..	1445	86	0.82	10.4	33	2.7	6.6	3.2	10	9	16	0.021	55
6.8	T1-T3	132 M	1MA6 133-4BA ..	1465	87	0.82	14.0	44	3.0	7.6	3.6	11	9	16	0.027	62
10	T1-T3	160 M	1MA6 163-4BB ..	1455	88	0.87	19.7	66	2.3	6.5	2.7	17	10	13	0.052	100
13.5	T1-T3	160 L	1MA6 166-4BB ..	1465	89	0.84	27	88	2.4	6.8	3.0	18	9	13	0.057	114
15	T3	180 M	1MA6 183-4BC ..	1465	90.7	0.80	31	97	1.8	6.1	2.9	18	11	10	0.13	165
17	T1,T2	180 M		1460	90.0	0.82	35.5	111	1.6	5.3	2.4	13	10	10		
17.5	T3	180 L	1MA6 186-4BC ..	1475	91.6	0.80	36	114	1.8	6.4	3	16	11	10	0.15	177
20	T1,T2	180 L		1465	90.6	0.82	41 ²⁾	130	1.6	5.6	2.6	13	10	10		
24	T3	200 L	1MA6 207-4BC ..	1475	92.1	0.79	47	155	2.1	7.1	3	14	6	10	0.24	240
27	T1,T2			1470	91.6	0.81	53	175	1.8	6.3	2.6	12	10	10		
30	T3	225 S	1MA6 220-4BC ..	1481	93.3	0.83	59	193	1.6	6.7	2.7	13	13	10	0.44	300
33	T1,T2	225 S		1480	93.1	0.84	64 ²⁾	213	1.4	6.2	2.5	11	10	10		
36	T3	225 M	1MA6 223-4BC ..	1484	93.8	0.84	70 ²⁾	232	1.7	6.9	2.8	12	12	10	0.52	330
40	T1,T2	225 M		1480	93.6	0.85	77 ²⁾	258	1.5	6.2	2.5	10	10	10		
44	T3	250 M	1MA6 253-4BC ..	1485	94	0.85	83	283	1.7	7.3	2.5	18	11	10	0.79	435
50	T1,T2			1485	93.8	0.86	94	322	1.5	6.4	2.1	15	10	10		
58	T3	280 S	1MA6 280-4BC ..	1488	94.6	0.84	111	372	1.7	6.3	2.5	30	7	10	1.4	610
68	T1,T2	280 S		1485	94.5	0.85	131	437	1.5	5.3	2.1	23	10	10		
70	T3	280 M	1MA6 283-4BC ..	1488	94.8	0.85	130	449	1.7	7	2.5	26	6	10	1.6	660
80	T1,T2	280 M		1485	94.8	0.87	150 ²⁾	514	1.5	6	2.2	20	10	10		
84	T3	315 S	1MA6 310-4BD ..	1492	95.4	0.84	158	538	1.7	7.7	2.8	28	8	7	2.2	830
100	T1,T2	315 S		1490	95.3	0.85	188	641	1.4	6.5	2.4	24	7	7		
100	T3	315 M	1MA6 313-4BD ..	1492	95.8	0.85	185	640	1.6	7.2	2.5	29	7	7	2.7	910
120	T1,T2	315 M		1488	95.7	0.86	222 ²⁾	770	1.3	6	2.1	24	7	7		
115	T3	315 L	1MA6 316-4BD ..	1490	95.6	0.86	214	740	1.7	7.5	2.5	28	5	7	3.2	1060
135	T1,T2			1488	95.5	0.87	248	868	1.4	6.4	2.1	21	7	7		
135	T3		1MA6 317-4BD ..	1492	95.8	0.86	245	868	1.7	7.8	2.8	26	7	7	4.2	1200
165	T1,T2			1485	95.8	0.87	305	1061	1.5	6.3	2.3	17	7	7		
170	T3	315	1MA8 315-4BD ..	1490	96.2	0.86	310	1090	1.3	6.4	2.7		8	7	3.6	1300
200	T1,T2			1486	95.7	0.85	365	1290	1.1	5.4	2.3	21	7	7		
215	T3		1MA8 317-4BD ..	1490	96.5	0.87	390	1380	1.4	6.9	2.7		7	7	4.4	1500
245	T1,T2			1486	96.4	0.88	440	1570	1.2	6.0	2.4	19	7	7		
240	T3	355	1MA8 353-4BE ..	1490	96.5	0.88	430	1540	0.9	6.3	2.5		8	5	6.1	1900
275	T1,T2			1488	96.4	0.89	485 ³⁾	1760	0.8	5.5	2.2	21	5	5		
275	T3		1MA8 355-4BE ..	1490	96.7	0.88	490 ³⁾	1760	0.9	7.1	2.6		7	5	6.8	2000
315	T1,T2			1488	96.6	0.88	560 ³⁾	2020	0.8	6.2	2.3	22	5	5		
350	T3		1MA8 357-4BE ..	1490	96.9	0.88	620	2240	1	7.6	2.6		5	5	8.5	2200
400	T1,T2			1488	96.8	0.89	710	2570	0.9	6.7	2.3	15	5	5		

■ VIK is not possible.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier					
	50 Hz 230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	IM B 3	Price supplement IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35
1MA6 106 to 1MA6 166	1	6	3	5	0	1	4	2	3	6
1MA6 183 to 1MA6 313	1	6	3	5	0	1	4	-	-	6
1MA6 316 to 1MA6 317	-	6	3	5	0	-	4	-	-	6
1MA8 315 to 1MA8 357	-	6 ⁴⁾	3	On request	0	-	4	-	-	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) With reference to 75 °C.

2) For connection to 230 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

3) For connection to 400 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

4) Rated voltage range for 1MA8 on request.

Squirrel-cage motors

1MA · EEx e II degree of protection · Cast iron housing

Selection and ordering data

Rated output kW	Temperature classes	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output				Starting torque For direct-on-line starting as multiple of the rated current torque	Starting current multiple of the rated current torque	Stalling torque	t _e time For temperature classes		Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg	
				Rated speed rpm	Efficiency η ¹⁾ %	Power factor p.f.	Rated current at 380 V to 420 V A				Rated torque Nm	T1 s				T3 s
Temperature classes T1 to T3, IP 55 degree of protection, temperature class F																
1000 rpm, 6-pole, 50 Hz																
1.3	T1-T3	100 L	1MA6 106-6BA ..	935	77	0.73	3.35	13	2.4	4.8	2.5	26	26	16	0.0063	33
1.9	T1-T3	112 M	1MA6 113-6BB ..	940	79	0.76	4.7	19	2.3	5.0	2.5	19	16	13	0.011	40
2.6	T1-T3	132 S	1MA6 130-6BB ..	945	79	0.75	6.5	26	1.8	4.4	2.4	21	18	13	0.015	50
3.5	T1-T3	132 M	1MA6 133-6BB ..	955	81	0.72	8.9	35	2.3	5.1	2.8	16	13	13	0.019	57
4.8	T1-T3	132 M	1MA6 134-6BB ..	950	83	0.76	11.4	48	2.4	5.6	2.8	13	11	13	0.025	66
6.6	T1-T3	160 M	1MA6 163-6BB ..	960	85	0.76	14.9	65	2.7	6.5	3.1	18	9	13	0.041	103
9.7	T1-T3	160 L	1MA6 166-6BB ..	965	88	0.76	21.0	96	2.8	7.7	2.2	15	8	13	0.055	122
13.2	T1-T3	180 L	1MA6 186-6BC ..	975	89.6	0.78	28.5	129	1.6	5.4	2.5	22	18	10	0.20	177
16.5	T1-T3	200 L	1MA6 206-6BC ..	980	90.5	0.81	34.5	161	1.7	5.4	2.6	23	19	10	0.29	220
20	T1-T3		1MA6 207-6BC ..	980	90.8	0.82	41	195	1.7	5.6	2.6	22	17	10	0.33	235
27	T1-T3	225 M	1MA6 223-6BC ..	975	92.5	0.82	54	263	1.6	5.6	2.5	15	15	10	0.57	305
33	T1-T3	250 M	1MA6 253-6BC ..	985	93	0.83	66	320	1.6	5.3	2.4	16	16	10	0.89	410
40	T1-T3	280 S	1MA6 280-6BC ..	990	93.3	0.85	77	386	1.5	6.2	2.6	13	13	10	1.3	540
46	T3	280 M	1MA6 283-6BC ..	988	93.5	0.86	86	445	1.6	6.5	2.5	12	10		1.5	580
50	T1,T2	280 M		987	93.3	0.86	96	484	1.5	5.8	2.3	14	10			
64	T3	315 S	1MA6 310-6BC ..	991	94.3	0.84	124	617	1.7	6.2	2.5	14	10		2.4	770
68	T1,T2	315 S		990	94.2	0.85	131	656	1.6	5.9	2.3	22	10			
76	T3	315 M	1MA6 313-6BC ..	991	94.6	0.84	146	732	1.7	6.4	2.5	8	10		2.9	830
82	T1,T2	315 M		990	94.5	0.84	158	791	1.6	5.9	2.3	18	10			
92	T3	315 L	1MA6 316-6BC ..	991	95	0.85	172	887	1.7	6.5	2.5	9	10		3.5	970
98	T1,T2			990	94.8	0.85	185	945	1.6	6.1	2.3	20	10			
110	T3		1MA6 317-6BC ..	991	95.2	0.84	210	1060	1.7	6.8	2.5	6	10		4.3	1060
120	T1,T2			990	95	0.85	230	1160	1.6	6.2	2.3	16	10			
125	T3		1MA6 318-6BC ..	991	95.2	0.86	220	1210	1.6	7	2.5	6	10		4.9	1100
135	T1,T2			990	95	0.86	240	1300	1.5	6.5	2.3	17	10			
160	T3	315	1MA8 315-6BD ..	991	95.7	0.86	290	1540	1.3	6.8	2.6	9	7		6.0	1300
175	T1,T2			990	95.6	0.88	315	1690	1.2	6.3	2.4	24	7			
200	T3		1MA8 317-6BD ..	991	96.1	0.87	360	1930	1.4	6.4	2.7	7	7		7.3	1500
215	T1,T2			990	96	0.88	380	2070	1.3	6	2.5	25	7			
250	T3	355	1MA8 355-6BD ..	994	96.4	0.86	455	2400	1.3	6	2.5	7	7		13	1900
275	T1,T2			993	96.2	0.86	495 ²⁾	2640	1.2	5.8	2.3	25	7			
315	T3		1MA8 357-6BD ..	995	96.6	0.86	570 ²⁾	3020	1.4	7.2	2.6	5	7		16	2200
340	T1,T2			994	96.5	0.86	610 ²⁾	3270	1.3	6.7	2.4	15	7			

● Certified for 400 V rated voltage only.

■ VIK is not possible.

Order No. supplements

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier							
	50 Hz	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement					
							IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35	
1MA6 106 to 1MA6 166	1	6	3	5	0	1	4	2	3	6		
1MA6 183 to 1MA6 313	1	6	3	5	0	1	4	–	–	6		
1MA6 316 to 1MA6 317	–	6	3	5	0	–	4	–	–	6		
1MA8 315 to 1MA8 357	–	6 ³⁾	3	On request	0	–	4	–	–	6		

Other voltage and/or frequency, voltage identifier "9". Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) With reference to 75 °C.

2) For connection to 400 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

3) Rated voltage range for 1MA8 on request.

Squirrel-cage motors

1MA · EEx e II degree of protection

Order codes for special versions

Additional order suffix -Z with order code	Special designs	Motor type – Size		
		Aluminium housing 1MA7	Cast iron housing 1MA6	1MA8

Windings and motor protection;

Y52 ●	Used as class F and output KT...°C or AH...m above sea level	63 – 160 Please enquire. Certification costs may be incurred.	100 – 315 Please enquire. Certification costs may be incurred.	–
A11	Motor protection by means of PTC thermistor with 3 embedded temperature sensors for tripping 1)	63 – 160	100 – 315 ²⁾	–
A12	Motor protection by means of PTC thermistor with 6 embedded temperature sensors for alarm and tripping 1)	63 – 160	100 – 315 ²⁾	Standard design

Paint finish

	Standard paintwork in RAL 7030 stone grey	–	225 – 315 standard design	Standard design
K26	Special paintwork in RAL 7030 stone grey	Standard design (without order code)	225 – 315, standard design for 100 to 200 (without order code)	315 – 355
M16	Special paintwork in RAL 1002 sand yellow	63 – 160	100 – 200 For 225 – 315 with order code Y54 and special paintwork RAL . . .	315 – 355 With order code Y54 and special paintwork RAL . . .
M17	Special paintwork in RAL 1013 pearl white			
M18	Special paintwork in RAL 3000 flame red			
K27	Special paintwork in RAL 6011 mignonette green			
M19	Special paintwork in RAL 6021 pale green			
M20	Special paintwork in RAL 7001 silver grey			
K28	Special paintwork in RAL 7031 bluish grey			
L42	Special paintwork in RAL 7032 pebble grey			
M21	Special paintwork in RAL 7035 light grey			
M22	Special paintwork in RAL 9001 cream			
M23	Special paintwork in RAL 9002 grey white	63 – 160	100 – 315	315 – 355
L43	Special paintwork in RAL 9005 jet black			
Y54 ●	Special paintwork in other colors: RAL 1015, 1019, 2003, 2004, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6019, 7000, 7004, 7011, 7016, 7022, 7033			
Y53 ●	Standard paintwork in other colors: And standard paintwork RAL....	–	225 – 315	315 – 355
K23	Unpainted (only cast iron parts primed)	63 – 160	100 – 315	315 – 355
K24	Unpainted, only primed	63 – 160	100 – 200	–

RAL No.	Name of color	RAL No.	Name of color
1015	Light ivory	5017	Traffic blue
1019	Grey beige	5018	Turquoise blue
2003	Pastel orange	5019	Capri blue
2004	Pure orange	6019	Pastel green
3007	Wine red	7000	Squirrel grey
5007	Black blue	7004	Signal grey
5009	Azure blue	7011	Iron grey
5010	Gentian blue	7016	Anthrax grey
5012	Light blue	7022	Umbrage grey
5015	Sky blue	7033	Cement grey

● Additional plain text required.

1) For appropriate certified 3RN1 tripping unit, see Catalog NS K.

2) Not permitted as sole protection from size 180 upwards; motor protection contactor required.

Squirrel-cage motors 1MA · EEx e II degree of protection

Order codes for special versions

Additional order suffix –Z with order code	Special designs	Motor type – Size		
		Aluminium housing 1MA7	Cast iron housing 1MA6	1MA8

Mechanical design;

K06	Two-part plate on terminal block	–	225 – 315	– for 1MA8 357, 2- and 4-pole, standard version
K09	Terminal box on LHS (view onto drive end)	80 – 160	100 – 315	Standard design
K10	Terminal box on LHS (view onto drive end)	80 160	100 – 315	315 – 355
K83	Rotation of terminal box by 90°, inserted from non-drive end	63 – 160	100 – 315	315 – 355
K84	Rotation of terminal box by 90°, inserted from drive end	63 – 160	100 – 315	315 – 355
K85	Rotation of terminal box by 180°	63 – 160	100 – 315	315 – 355
K01	Vibrational severity grade R	63 – 160	100 – 315	315 – 355
K16	Second standard shaft end ¹⁾	63 – 160	100 – 315	315 – 355
K17	Radial sealing ring on drive end with flange types ²⁾	63 – 160	100 – 315	–
K20	Bearing for increased cantilever forces ³⁾	100 – 160	100 – 315	315 – 355
K40	Regreasing device	100 – 160	100 – 250, standard version from 280 upwards	
L04	Locating bearing non drive end	63 – 132, 160 standard version	100 – 132, 160 standard version	–
K94	Locating bearing drive end	63 – 160	100 – 200	–
K30	VIK design ⁴⁾	63 – 160	100 – 315	315 – 355
K31	Extra rating plate, loose	63 – 160	100 – 315	315 – 355
Y82 ●	Extra rating plate and/or with additional data	63 – 160	100 – 315	315 – 355
And order codes				
K37	Low noise version for 2-pole motors with clockwise rotation ⁵⁾	132 – 160	132 – 315	Standard design
K38	Low noise version for 2-pole motors with anti-clockwise rotation ⁵⁾	132 – 160	132 – 315	315 – 355
K45	Anti-condensation heater for 230 V	–	225 – 315	315 – 355
K46	Anti-condensation heater for 115 V	–	225 – 315	315 – 355
L99	Wire-lattice pallet	63 – 160	100 – 180	–

Certification

B02	Factory test certificate 2.3 acc. to EN 10 204	63 – 160	100 – 315	–
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Marine version – “Operation below deck” ^{6) 7)}

E11	Certified according to GL (Germanischer Lloyd) Germany, KT 45 °C, Temperature class F used as F	63 – 160	100 – 315	–
E21	Certified according to LRS (Lloyds Register of Shipping) Great Britain, KT 45 °C, Temperature class F used as F	63 – 160	100 – 315	–
E31	Certified according to BV (Bureau Veritas) France, KT 45 °C, Temperature class F used as F	63 – 160	100 – 315	–
E51	Certified according to DNV (Det Norske Veritas) Norway, KT 45 °C, Temperature class F used as F	63 – 160	100 – 315	–

● Additional plain text required.

1) Motors of size 180 M in vertical designs for version with second shaft end are available on request.
Low noise version (2-pole) not possible from size 132 S to 315 L.
Not possible for version with protective cover.

2) Not possible for size IM V 3, only for 4-pole to 6-pole motors for size 180 M upwards.

3) Not possible for:
2-pole 1MA6 motors, size 315 L, vertical designs;
2-pole 1MA8 motors and 1MA8 motors, vertical designs.
Vibrational severity grade R
On request for 1MA6 motors from size 225 M upwards.

4) For sizes 315 S to 315 L, low noise version also required.
For 1MA8 motors, note power and dimensions.
For 2- and 4-pole motors 1MA8 357, the terminal block cannot be rotated by 4 x 90°.

5) 1MA6/1MA7 motors are up to 80 mm longer than normal.
Second shaft end not possible.

6) Factory test certificate 2.3 in accordance with EN 10204 is supplied. Individual acceptance test must be specified in plain text on ordering if required (price supplement).

7) For 1MA motors of class F used as class B, derating may be necessary.

Squirrel-cage motors

1MA · EEx e II degree of protection

Notes

4

Squirrel-cage motors

1MJ · flameproof enclosure

EEx de IIC degree of protection

Selection and ordering data

- 5/2 • 2-pole – 50 Hz
- 5/3 • 4-pole – 50 Hz
- 5/4 • 6-pole – 50 Hz
- 5/5 • 8-pole – 50 Hz

Special designs

- 5/6 • Motor protection
- 5/6 • Paint finish
- 5/7 • Mechanical design
- 5/7 • Certification
- 5/7 • Marine version

5

1MJ motors Flameproof enclosure

Frame size	71 to 450
Output range	0.25 to 900 kW
Temp. class	T1 to T4
Temp. class F	Utilization acc. to B
Converter compatible	$t_s > 0.1 \mu s$ at $U \leq 500 V$ Voltage peak times

The motors comply with the highest explosion group IIC.

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
Temperature classes T1 to T4, IP 55 degree of protection, temperature class F													ATEX⁴⁾
3000 rpm, 2-pole, 50 Hz													
0.37	71 M	1MJ6 070-2CA ..	2750	67	0.81	0.98	1.3	2.3	4.3	2.3	16	0.00035	19
0.55		1MJ6 073-2CA ..	2790	71	0.81	1.38	1.9	2.5	5.3	2.6	16	0.00045	20
0.75	80 M	1MJ6 080-2CA ..	2840	72	0.86	1.75	2.5	2.4	6.3	2.3	16	0.00085	24
1.1		1MJ6 083-2CA ..	2835	74	0.87	2.45	3.7	2.6	6.3	2.3	16	0.0011	26
1.5	90 L	1MJ6 096-2CA ..	2850	78	0.84	3.3	5.0	2.5	6.7	2.5	16	0.0015	32
2.2		1MJ6 097-2CA ..	2860	80	0.86	4.6	7.4	2.8	7.1	2.8	16	0.0020	35
3	100 L	1MJ6 106-2CA ..	2885	82	0.85	6.2	9.9	2.8	7.7	3.0	16	0.0038	44
4	112 M	1MJ6 113-2CA ..	2895	84	0.88	7.8	13	2.4	7.6	2.8	16	0.0055	57
5.5	132 S	1MJ6 130-2CA ..	2925	85	0.89	10.5	18	2.0	5.9	2.6	16	0.015	75
7.5		1MJ6 131-2CA ..	2930	87	0.89	14	24	2.3	6.9	2.6	16	0.019	82
11	160 M	1MJ6 163-2CA ..	2940	88	0.88	20.5	36	2.1	6.5	2.6	16	0.034	123
15	160 M	1MJ6 164-2CA ..	2940	89	0.91	26.5	49	2.2	6.6	3.1	16	0.043	134
18.5	160 L	1MJ6 166-2CA ..	2940	91	0.91	32.5	60	2.4	7.0	3.3	16	0.051	161
22	180 M	1MJ6 183-2CA ..	2940	92	0.88	39	71	2.5	6.9	3.2	16	0.077	175
30	200 L	1MJ6 206-2CA ..	2940	92.3	0.89	53	97	2.4	6.5	2.8	16	0.14	250
37		1MJ6 207-2CA ..	2945	92.8	0.90	64	120	2.4	7.7	2.8	16	0.16	266
45	225 M	1MJ6 223-2CB ..	2955	93.9	0.90	77 ¹⁾	145	2.3	6.9	2.7	13	0.24	335
55	250 M	1MJ6 253-2CB ..	2965	94.0	0.91	93	177	2.1	6.9	2.8	13	0.45	445
75	280 S	1MJ6 280-2CC ..	2975	94.7	0.90	128	241	1.9	7.0	2.7	10	0.79	600
90	280 M	1MJ6 283-2CC ..	2975	95.1	0.91	150 ¹⁾	289	2.0	7.0	2.7	10	0.92	640
110	315 S	1MJ6 310-2CC ..	2980	94.8	0.90	186	353	1.8	7.0	2.8	10	1.3	840
132	315 M	1MJ6 313-2CC ..	2980	95.1	0.90	225 ¹⁾	423	1.9	7.0	2.8	10	1.5	900
160	315 M	1MJ8 313-2AB ..	2980	95.7	0.88	280	513	2.2	6.9	2.5	13	2.3	1100
200	315 L	1MJ8 316-2AB ..	2980	96.2	0.89	335	641	2.3	6.9	2.6	13	2.8	1200
250	355	1MJ8 353-2AC ..	2980	96.2	0.89	423 ²⁾	801	2.1	6.7	2.6	10	3.5	1700
315		1MJ8 356-2AC ..	2980	96.6	0.89	530 ²⁾	1009	2.1	6.7	2.6	10	4.2	2000
355	355	1MJ1 355-2AD ..	2978	96.5	0.91	580	1138	1.0	6.4	2.7	7	4.3	2400
400		1MJ1 357-2AD ..	2978	96.6	0.91	655	1282	0.95	6.1	2.6	7	4.3	2400
450	400	1MJ1 403-2AE ..	2984	96.7	0.90	745	1440	0.8	6.2	2.8	5	6.0	2800
500		1MJ1 405-2AE ..	2982	96.8	0.91	820	1601	0.8	5.9	2.55	5	7.0	3000
560		1MJ1 407-2AE ..	2983	97.0	0.91	915	1792	0.85	6.2	2.7	5	7.0	3000
630	450	1MJ1 453-2AE ..	2986	96.9	0.91	600 ●	2014	0.75	6.2	2.7	5	11.0	4000
710		1MJ1 455-2AE ..	2986	97.0	0.91	670 ●	2270	0.8	6.3	2.8	5	11.0	4000
800		1MJ1 457-2AE ..	2986	97.1	0.91	760 ●	2557	0.8	6.3	2.8	5	13.0	4200
900		1MJ1 458-2AE ..	2985	97.2	0.91	850 ●	2879	0.85	6.4	2.7	5	13.0	4200

● Rated current at 690 V.

Order No. supplements

Motor type	Penultimate position: Voltage identifier					Final position: Design identifier					
	50 Hz 230 VΔ / 400 VY	400 VΔ	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement				
							IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35
1MJ6 070 to 1MJ6 097	1	–	6	3	–	0	1	4	2	3 ³⁾	6
1MJ6 106 to 1MJ6 166	1	–	6	3	5	0	1	4	–	–	6
1MJ6 183 to 1MJ6 207	1	–	6	3	5	0	1	4	–	–	6
1MJ6 223 to 1MJ6 313	–	4	6	3	5	0	1	4	–	–	6
1MJ8 313 to 1MJ8 316	–	–	6	3	5	0	1	4	–	–	6
1MJ8 353 to 1MJ8 356	–	–	6	3	5	0	–	4	–	–	6
1MJ1 355 to 1MJ1 458	–	–	6	3	5	0	–	4	–	–	6

Other voltage and/or frequency, voltage identifier "9".

Order codes are required for this purpose

(see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 400 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

2) The motors have two terminal blocks.

3) Only up to 1MJ6 083.

4) For 1MJ6 22 to 1MJ6 31 available from 01.02.03.

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η %	Power factor p.f. 	Rated current at 400 V A	Rated torque Nm							
Temperature classes T1 to T4, IP 55 degree of protection, temperature class F														ATEX⁵⁾
1500 rpm, 4-pole, 50 Hz														
0.25	71 M	1MJ6 070-4CB ..	1325	60	0.77	0.78	1.8	1.8	3.2	1.8	13	0.0006	20	
0.37		1MJ6 073-4CB ..	1375	64	0.74	1.13	2.5	2	3.6	2	13	0.0008	21	
0.55	80 M	1MJ6 080-4CA ..	1395	71	0.79	1.42	3.7	2.3	4.7	2.4	16	0.0015	24	
0.75		1MJ6 083-4CA ..	1395	73	0.79	1.88	5.1	2.5	5	2.6	16	0.0018	26	
1.1	90 L	1MJ6 096-4CA ..	1410	73	0.81	2.7	7.5	2.1	4.9	2.5	16	0.0028	32	
1.5		1MJ6 097-4CA ..	1420	77	0.8	3.5	10	2.2	5.8	2.6	16	0.0035	35	
2.2	100 L	1MJ6 106-4CA ..	1420	78	0.8	5.1	15	2.2	6	2.6	16	0.0048	44	
3		1MJ6 107-4CA ..	1415	80	0.82	6.6	20	2.7	6.4	3	16	0.0058	47	
4	112 M	1MJ6 113-4CA ..	1435	83	0.82	8.5	27	2.8	7.2	3	16	0.011	58	
5.5	132 S	1MJ6 130-4CA ..	1450	86	0.83	11.1	36	2.4	6.9	3.3	16	0.018	76	
7.5	132 M	1MJ6 133-4CA ..	1450	86	0.84	15	49	2.7	7.7	3.3	16	0.024	85	
11	160 M	1MJ6 163-4CA ..	1455	87	0.85	21.5	72	2.4	6.6	2.9	16	0.040	128	
15	160 L	1MJ6 166-4CA ..	1455	89	0.85	28.5	98	2.8	7.4	3.2	16	0.052	158	
18.5	180 M	1MJ6 183-4CA ..	1460	90.5	0.84	35	121	2.3	7.1	3	16	0.13	175	
22	180 L	1MJ6 186-4CA ..	1460	91.2	0.85	41	144	2.3	7.1	3	16	0.15	189	
30	200 L	1MJ6 207-4CA ..	1465	91.8	0.86	55	196	2.6	7.4	3.2	16	0.24	247	
37	225 S	1MJ6 220-4CA ..	1475	93	0.86	67 ¹⁾	240	2.5	7	3.1	16	0.44	325	
45	225 M	1MJ6 223-4CA ..	1475	93.4	0.87	80 ¹⁾	292	2.6	7	3.2	16	0.52	355	
55	250 M	1MJ6 253-4CA ..	1480	94	0.87	97	355	2.6	6.7	2.5	16	0.79	465	
75	280 S	1MJ6 280-4CA ..	1485	94.7	0.86	132	482	2.5	6.7	2.7	16	1.4	630	
90	280 M	1MJ6 283-4CA ..	1485	95	0.86	160 ¹⁾	579	2.5	6.8	2.8	16	1.6	680	
110	315 S	1MJ6 310-4CA ..	1486	94.8	0.86	194	707	2.5	6.7	2.7	16	2.2	870	
132	315 M	1MJ6 313-4CA ..	1486	95.5	0.86	232 ¹⁾	848	2.7	7.2	3	16	2.7	950	
160	315 M	1MJ8 313-4AC ..	1485	95.6	0.86	285	1029	2.4	6.8	2.5	13	3.3	1120	
200	315 L	1MJ8 316-4AB ..	1485	95.7	0.85	355	1286	2.5	6.9	2.4	13	4.0	1200	
225	355	1MJ8 353-4AC ..	1485	96.2	0.85	400	1447	2.1	6.6	2.3	13	5.5	1800	
250		1MJ8 354-4AD ..	1490	96.5	0.86	435 ²⁾	1602	1.2	6.5	2.4	7	6	1800	
280		1MJ8 356-4AC ..	1485	96.3	0.85	495 ²⁾	1801	2.1	6.6	2.3	13	6.5	2100	
315		1MJ8 357-4AD ..	1490	96.6	0.87	540 ²⁾	2019	1.2	6.5	2.4	7	7	2100	
355	355	1MJ1 353-4AD ..	1491	96.6	0.86	620	2272	1.05	6.1	2.4	7	7.5	2500	
400		1MJ1 355-4AD ..	1491	96.7	0.86	695	2560	1.05	6.0	2.35	7	9.0	2700	
450		1MJ1 357-4AD ..	1491	96.8	0.86	785	2880	1.1	6.2	2.4	7	9.0	2700	
500	400	1MJ1 403-4AD ..	1492	96.8	0.87	855 ¹⁾	3200	1.1	6.2	2.6	7	13	3100	
560		1MJ1 405-4AD ..	1492	96.9	0.88	950 ¹⁾	3583	1.1	6.2	2.55	7	15	3300	
630		1MJ1 407-4AD ..	1492	97.0	0.88	1070 ¹⁾ 2)4)	4031	1.1	6.3	2.6	7	15	3300	
710	450	1MJ1 453-4AD ..	1493	97.0	0.89	1190 ¹⁾ 2)4)	4540	0.95	6.3	2.5	7	24.5	4300	
800		1MJ1 455-4AD ..	1493	97.1	0.88	1355 ¹⁾ 2)4)	5114	1.0	6.6	2.6	7	24.5	4300	
900		1MJ1 457-4AD ..	1493	97.2	0.88	880 ¹⁾	5755	1.05	6.6	2.5	7	29.0	4800	

● Rated current at 690 V.

Order No. supplements

Motor type	Penultimate position: Voltage identifier					Final position: Design identifier						
	230 VΔ / 400 VΥ	400 VΔ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	IM B 3	Price supplement					
							IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35	
1MJ6 070 to 1MJ6 097	1	–	6	3	–	0	1	4	2	3 ³⁾	6	
1MJ6 106 to 1MJ6 166	1	–	6	3	5	0	1	4	–	–	6	
1MJ6 183 to 1MJ6 207	1	–	6	3	5	0	1	4	–	–	6	
1MJ6 220 to 1MJ6 313	–	4	6	3	5	0	1	4	–	–	6	
1MJ8 313 to 1MJ8 316	–	–	6	3	5	0	1	4	–	–	6	
1MJ8 353 to 1MJ8 357	–	–	6	3	5	0	–	4	–	–	6	
1MJ1 353 to 1MJ1 457	–	–	6	3	5	0	–	4	–	–	6	

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information",
"Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 400 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

2) The motors have two terminal blocks.

3) Only up to 1MJ6 083.

4) For connection to 500 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

5) For 1MJ6 22 to 1MJ6 31 available from 01.02.03.

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current As multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated cur- rent at 400 V A	Rated torque Nm						
Temperature classes T1 to T4, IP 55 degree of protection, temperature class F													
1000 rpm, 6-pole, 50 Hz													
0.25	71 M	1MJ6 073-6CA ..	870	63	0.7	0.82	2.7	2.2	3.1	2.2	16	0.0009	16
0.37	80 M	1MJ6 080-6CA ..	910	64	0.71	1.18	3.9	1.9	3.3	2	16	0.0015	35
0.55		1MJ6 083-6CA ..	900	64	0.74	1.67	5.8	2	3.5	2.1	16	0.0018	23
0.75	90 L	1MJ6 096-6CA ..	910	69	0.76	2.1	8.0	2.2	3.9	2.3	16	0.0028	32
1.1		1MJ6 097-6CA ..	905	72	0.75	2.95	12	2.4	4.3	2.4	16	0.0035	32
1.5	100 L	1MJ6 106-6CA ..	930	75	0.73	4.0	15	2.3	4.5	2.5	16	0.0063	39
2.2	112 M	1MJ6 113-6CA ..	945	76	0.76	5.5	22	2.2	4.8	2.5	16	0.011	52
3	132 S	1MJ6 130-6CA ..	945	78	0.75	7.4	30	2	4.8	2.2	16	0.015	78
4	132 M	1MJ6 133-6CA ..	945	79	0.76	9.6	40	2	5	2.4	16	0.019	85
5.5	132 M	1MJ6 134-6CA ..	950	83	0.76	12.6	55	2.2	5.4	2.5	16	0.025	92
7.5	160 M	1MJ6 163-6CA ..	960	86	0.72	17.5	75	2.1	5.1	2.5	16	0.041	134
11	160 L	1MJ6 166-6CA ..	960	87	0.74	24.5	109	2.3	5.5	2.5	16	0.049	167
15	180 L	1MJ6 186-6CA ..	970	89	0.83	29.5	148	2.6	6.3	2.4	16	0.20	190
18.5	200 L	1MJ6 206-6CA ..	975	90.2	0.82	36	181	2.6	6.3	2.3	16	0.29	240
22		1MJ6 207-6CA ..	975	90.8	0.83	42.5	215	2.5	5.7	2.3	16	0.33	255
30	225 M	1MJ6 223-6CA ..	978	92	0.84	56 ¹⁾	293	2.6	5.7	2.2	16	0.57	330
37	250 M	1MJ6 253-6CA ..	980	92.4	0.84	69	361	2.6	6	2.1	16	0.89	440
45	280 S	1MJ6 280-6CA ..	982	93	0.86	81	438	2.4	6	2.3	16	1.3	560
55	280 M	1MJ6 283-6CA ..	984	93.6	0.86	99	534	2.5	6.2	2.4	16	1.5	600
75	315 S	1MJ6 310-6CA ..	988	93.8	0.85	136	725	2.4	6.2	2.5	16	2.4	810
90	315 M	1MJ6 313-6CA ..	988	94.2	0.85	162	870	2.4	6.2	2.5	16	2.9	870
110	315 M	1MJ8 313-6AC ..	990	95.3	0.86	195	1061	2.1	6.8	2.3	10	4.8	1150
132	315 M	1MJ8 314-6AC ..	990	95.4	0.87	228	1273	2.1	6.6	2.3	10	4.8	1150
160	315 L	1MJ8 316-6AC ..	990	95.5	0.87	275	1543	2.1	6.6	2.3	10	6.0	1250
200	355	1MJ8 353-6AD ..	990	95.6	0.86	350	1929	1.1	6.5	2.2	7	8	1900
250		1MJ8 356-6AD ..	990	95.8	0.85	440	2412	1.1	6.5	2.2	7	9	2200
280	355	1MJ1 353-6AD ..	993	96.3	0.84	500	2693	1.05	5.8	2.4	7	10.5	2500
315		1MJ1 355-6AD ..	993	96.4	0.84	560	3029	1.0	5.7	2.35	7	12.5	2700
355		1MJ1 357-6AD ..	993	96.5	0.85	630	3415	1.0	5.6	2.3	7	12.5	2700
400	400	1MJ1 403-6AD ..	994	96.5	0.84	715	3844	1.0	5.6	2.3	7	18	3200
450		1MJ1 405-6AD ..	994	96.6	0.84	800 ¹⁾	4323	1.0	5.5	2.25	7	21.5	3500
500		1MJ1 407-6AD ..	994	96.7	0.84	890 ¹⁾	4805	1.05	5.7	2.3	7	21.5	3500
560	450	1MJ1 453-6AD ..	995	96.9	0.85	980 ¹⁾²⁾	5374	0.95	5.8	2.3	7	34.0	4600
630		1MJ1 455-6AD ..	995	97.0	0.85	1105 ¹⁾²⁾⁴⁾	6046	0.95	5.7	2.3	7	34.0	4600
710		1MJ1 457-6AD ..	995	97.1	0.85	1240 ¹⁾²⁾⁴⁾	6813	0.95	5.7	2.25	7	40.0	4900
780		1MJ1 458-6AD ..	995	97.2	0.85	790 [●]	7486	1.0	6.0	2.4	7	40.0	4900

● Rated current at 690 V.

Order No. supplements

Motor type	Penultimate position: Voltage identifier					Final position: Design identifier						
	50 Hz	230 VΔ / 400 VY	400 VΔ	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement				
							IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange	IM B 35	
1MJ6 073 to 1MJ6 097	1	—	6	3	—	0	1	4	2	3 ³⁾	6	
1MJ6 106 to 1MJ6 166	1	—	6	3	5	0	1	4	—	—	6	
1MJ6 186 to 1MJ6 207	1	—	6	3	5	0	1	4	—	—	6	
1MJ6 223 to 1MJ6 313	—	4	6	3	5	0	1	4	—	—	6	
1MJ8 313 to 1MJ8 316	—	—	6	3	5	0	1	4	—	—	6	
1MJ8 353 to 1MJ8 356	—	—	6	3	5	0	—	4	—	—	6	
1MJ1 353 to 1MJ1 458	—	—	6	3	5	0	—	4	—	—	6	

Other voltage and/or frequency, voltage identifier "9".

Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 400 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

2) The motors have two terminal blocks.

3) Only up to 1MJ6 083.

4) For connection to 500 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

5) For 1MJ6 22 to 1MJ6 31 available from 01.02.03.

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Selection and ordering data

Rated output kW	Size	Order No. Order No. supplement for voltage and design, see table below	Operating data at rated output					Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current current	Stalling torque torque	Torque Class KL	Moment of inertia J kg m ²	Weight Design IM B 3 approx. kg
			Rated speed rpm	Efficiency η	Power factor p.f.	Rated current at 400 V A	Rated torque Nm							
Temperature classes T1 to T4, IP 55 degree of protection, temperature class F														ATEX⁵⁾
750 rpm, 8-pole, 50 Hz														
0.37	90 L	1MJ6 096-8CB ..	655	61	0.76	1.16	5.3	1.4	2.8	1.7	13	0.0025	28	
0.55		1MJ6 097-8CB ..	655	65	0.76	1.62	7.9	1.5	2.9	1.7	13	0.0035	30	
0.75	100 L	1MJ6 106-8CB ..	665	65	0.77	2.15	11	1.6	3.5	1.8	13	0.0053	40	
1.1		1MJ6 107-8CB ..	685	74	0.74	2.9	16	1.8	3.9	2	13	0.0070	48	
1.5	112 M	1MJ6 113-8CB ..	700	74	0.73	4.0	21	1.8	4.4	2	13	0.013	52	
2.2	132 S	1MJ6 130-8CB ..	695	74	0.72	6.0	30	1.7	4.2	2.1	13	0.014	78	
3	132 M	1MJ6 133-8CB ..	700	76	0.72	7.9	40	1.9	4.4	2.2	13	0.019	85	
4	160 M	1MJ6 163-8CB ..	715	81	0.72	9.9	54	2.1	4.8	2.3	13	0.035	119	
5.5	160 M	1MJ6 164-8CB ..	710	83	0.72	13.3	74	2.3	5.1	2.5	13	0.043	134	
7.5	160 L	1MJ6 166-8CB ..	715	84	0.72	17.9	100	2.6	5.8	2.8	13	0.062	159	
11	180 L	1MJ6 186-8CB ..	725	87	0.7	26	145	2	5	2.2	13	0.21	191	
15	200 L	1MJ6 207-8CB ..	725	87.5	0.78	32	198	2.1	5	2.2	13	0.37	263	
18.5	225 S	1MJ6 220-8CB ..	725	88.6	0.8	37.5	244	2.1	5	2.2	13	0.58	325	
22	225 M	1MJ6 223-8CB ..	725	90.1	0.81	43.5	290	2.1	5	2.2	13	0.66	350	
30	250 M	1MJ6 253-8CB ..	730	91.6	0.81	58	392	2.1	5	2.1	13	1.1	465	
37	280 S	1MJ6 280-8CB ..	732	92.7	0.82	70	483	2.2	5.5	2.2	13	1.4	570	
45	280 M	1MJ6 283-8CB ..	734	92.8	0.83	84	585	2.2	5.5	2.2	13	1.6	620	
55	315 S	1MJ6 310-8CB ..	738	93.1	0.82	104	712	2.2	6	2.4	13	2.3	780	
75	315 M	1MJ6 313-8CB ..	738	93.6	0.82	140	970	2.3	6.2	2.5	13	3.0	890	
90	315 M	1MJ8 313-8AB ..	740	94.4	0.79	175	1161	1.7	6.1	2	10	4.8	1150	
110	315 M	1MJ8 314-8AB ..	740	94.4	0.79	210	1420	1.7	6.1	2	10	4.8	1150	
132	315 L	1MJ8 316-8AB ..	740	94.4	0.8	255	1704	1.8	6.1	2	10	6.0	1250	
160	355	1MJ8 353-8AD ..	740	95.1	0.83	292	2065	1.3	5.3	2.2	7	12	1900	
200		1MJ8 356-8AD ..	740	95.4	0.83	365	2581	1.3	5.3	2.2	7	14.7	2250	
250	355	1MJ1 355-8AD ..	743	95.9	0.83	455	3213	1.1	5.4	2.25	7	12.5	2700	
280		1MJ1 357-8AD ..	743	96.0	0.82	515	3597	1.15	5.4	2.3	7	12.5	2700	
315	400	1MJ1 403-8AD ..	744	96.1	0.82	580	4043	1.0	5.4	2.35	7	17.5	3200	
355		1MJ1 405-8AD ..	744	96.2	0.82	645	4557	1.0	5.3	2.3	7	21.0	3500	
400		1MJ1 407-8AD ..	744	96.3	0.82	735	5136	0.95	5.2	2.25	7	21.0	3500	
450	450	1MJ1 453-8AE ..	745	96.6	0.84	800 ¹⁾	5769	0.85	5.3	2.25	5	35.5	4600	
500		1MJ1 455-8AE ..	745	96.7	0.83	900 ¹⁾	6411	0.85	5.2	2.2	5	35.5	4600	
560		1MJ1 457-8AE ..	745	96.7	0.84	1000 ¹⁾²⁾⁴⁾	7178	0.85	5.4	2.25	5	42.0	4900	
630		1MJ1 458-8AE ..	745	96.8	0.83	1130 ¹⁾²⁾⁴⁾	8075	0.9	5.3	2.25	5	42.0	4900	

Order No. supplements

Motor type	Penultimate position: Voltage identifier					Final position: Design identifier						
	50 Hz	230 VΔ / 400 VY	400 VΔ	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement	IM B 5	IM V 1 With protective cover	IM B 14 With standard flange	IM B 14 With special flange
1MJ6 096 and 1MJ6 097	1	—	6	3	—	0	1	4	2	3 ³⁾	6	6
1MJ6 106 to 1MJ6 166	1	—	6	3	5	0	1	4	—	—	6	6
1MJ6 186 to 1MJ6 207	1	—	6	3	5	0	1	4	—	—	6	6
1MJ6 220 to 1MJ6 313	—	4	6	3	5	0	1	4	—	—	6	6
1MJ8 313 to 1MJ8 316	—	—	6	3	5	0	1	4	—	—	6	6
1MJ8 353 to 1MJ8 356	—	—	6	3	5	0	—	4	—	—	6	6
1MJ1 355 to 1MJ1 458	—	—	6	3	5	0	—	4	—	—	6	6

Other voltage and/or frequency, voltage identifier "9".
Order codes are required for this purpose (see "Technical information", "Voltages, currents and frequencies").

For other designs, see "Technical information", "Designs".

1) For connection to 400 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

2) The motors have two terminal blocks.

3) Only up to 1MJ6 083.

4) For connection to 500 V, parallel supply cables are required (see "Technical information", "Connections, circuits and terminal blocks").

5) For 1MJ6 22 to 1MJ6 31 available from 01.02.03.

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Order codes for special designs

Additional order suffix -Z with order code	Special designs	Motor type – Size		
		1MJ6	1MJ8	1MJ1

Motor protection

Order code	Description	1MJ6	1MJ8	1MJ1
A11	Motor protection with PTC thermistor and 3 embedded temperature sensors for tripping ¹⁾	71 – 315 ●	315 – 355	355 – 450
A12	Motor protection with PTC thermistor and 6 embedded temperature sensors for alarm and tripping ¹⁾	71 – 315 ▲	315 – 355 ▲	355 – 450 ▲
A15	Motor protection with PTC thermistor for converter-fed operation with 3 embedded temperature sensors for tripping ¹⁾	71 – 315 ●	315 – 355	355 – 450
A16	Motor protection with PTC thermistor for converter-fed operation with 6 embedded temperature sensors for alarm and tripping ¹⁾	71 – 315 ▲	315 – 355 ▲	355 – 450 ▲

● Anti-condensation heating (order codes K45, K46) up to size 160 L not available additionally.

▲ Anti-condensation heating (order codes K45, K46) not available additionally. Exception: 1MJ6 31.

Paint finish

Order code	Description	1MJ6	1MJ8	1MJ1
K26	Special paintwork in RAL 7030 stone grey	225 – 315, standard design for 71 – 200 (without order code)	315 – 355	355 – 450
M16	Special paintwork in RAL 1002 sand yellow	71 – 200, For 225 – 315 with order code Y54 and special paintwork RAL . . .	315 – 355 with order code Y54 and special paintwork RAL . . .	355 – 450 With order code Y54 and special paintwork RAL . . .
M17	Special paintwork in RAL 1013 pearl white			
M18	Special paintwork in RAL 3000 flame red			
K27	Special paintwork in RAL 6011 mignonette green			
M19	Special paintwork in RAL 6021 pale green			
M20	Special paintwork in RAL 7001 silver grey			
K28	Special paintwork in RAL 7031 bluish grey			
L42	Special paintwork in RAL 7032 pebble grey			
M21	Special paintwork in RAL 7035 light grey			
M22	Special paintwork in RAL 9001 cream			
M23	Special paintwork in RAL 9002 grey white	71 – 315	315 – 355	355 – 450
L43	Special paintwork in RAL 9005 jet black			
Y54 ●	Special paintwork in other colors: RAL 1015, 1019, 2003, 2004, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6019, 7000, 7004, 7011, 7016, 7022, 7033	225 – 315	315 – 355	355 – 450
Y53 ●	Standard paintwork in other colours	71 – 315	315 – 355	355 – 450
K23	Unpainted (only cast iron parts primed)	71 – 315	315 – 355	355 – 450
K24	Unpainted, only primed	71 – 200	–	–

● Additional plain text required.

1) For appropriate certified 3RN1 tripping unit, see Catalog NS K.

RAL No.	Name of colour	RAL No.	Name of colour
1015	Light ivory	5017	Traffic blue
1019	Grey beige	5018	Turquoise blue
2003	Pastel orange	5019	Capri blue
2004	Pure orange	6019	Pastel green
3007	Wine red	7000	Squirrel grey
5007	Black blue	7004	Signal grey
5009	Azure blue	7011	Iron grey
5010	Gentian blue	7016	Anthracite grey
5012	Light blue	7022	Umbrage grey
5015	Sky blue	7033	Cement grey

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Order codes for special designs

Additional order suffix –Z with order code	Special designs	Motor type – Size		
		1MJ6	1MJ8	1MJ1
Mechanical design				
K09	Terminal box on RHS (view onto drive end)	90 – 315	315 – 355	355 – 450
K10	Terminal box on LHS (view onto drive end)	90 – 315	315 – 355	355 – 450
K83	Rotation of terminal box by 90°, inserted from non-drive end	71 – 315	315 – 355	355 – 450
K84	Rotation of terminal box by 90°, inserted from non-drive end	71 – 315	315 – 355	355 – 450
K85	Rotation of terminal box by 180°	71 – 315	315 – 355	355 – 450
K01	Vibrational severity grade R	71 – 315	315 – 355	355 – 450
K16	Second standard shaft end ¹⁾	71 – 315	315 – 355	355 – 450
K17	Radial sealing ring on drive end with flange types ²⁾	71 – 315	315 – 355	355 – 450
K20	Bearings for increased cantilever forces	180 – 250 Vibrational severity grade R on request.	–	–
K40	Regreasing device	180 – 250, standard version from 280 upwards	Standard design	Standard design
K30	VIK version ³⁾	71 – 315	315 – 355	355
K31	Extra rating plate, loose	71 – 315	315 – 355	355 – 450
Y82 ●	Extra rating plate	71 – 315	315 – 355	355 – 450
And order codes				
K37	Low noise version for 2-pole motors with clockwise rotation ⁴⁾	132 – 315	315 – 355	355 – 450
K38	Low noise version for 2-pole motors with anti-clockwise rotation ⁴⁾	132 – 315	315 – 355	355 – 450
K45	Anti-condensation heater for 230 V	71 – 315 ● ▲	315 – 355 ▲	355 – 450 ▲
K46	Anti-condensation heater for 115 V	71 – 315 ● ▲	315 – 355 ▲	355 – 450 ▲
L99	Wire-lattice pallet	71 – 160	–	–

● PTC thermistor (order codes A11, A15) up to size 160 L not available additionally.

▲ 6 PTC thermistors (order codes A12, A16) not available additionally. Exception: 1MJ6 31.

Certification

B02	Factory test certificate 2.3 acc. to EN 10 204	71 – 200	–	–
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Marine version – “Operation below deck” ^{5) 6)}

E11	Certified according to GL (Germanischer Lloyd) Germany, KT 45 °C, Temperature class F used as F	71 – 315	–	–
E21	Certified according to LRS (Lloyds Register of Shipping) Great Britain, KT 45 °C, Temperature class F used as F	71 – 315	–	–
E31	Certified according to BV (Bureau Veritas) France, KT 45 °C, Temperature class F used as F	71 – 315	–	–
E51	Certified according to DNV (Det Norske Veritas) Norway, KT 45 °C, Temperature class F used as F	71 – 315	–	–

● Additional plain text required.
1) For 1MJ6 and vertical designs from BG 180 M upwards available on request, low-noise version (2-pole) not possible. Version with protective cover not possible.

2) Not possible for size IM V 3, only for 4-pole to 8-pole motors for size 180 M upwards.
3) For 2-pole motors from size 315 S upwards, additional low-noise version is required. Order code K37 or K38.

4) The motors are up to 80 mm longer than normal. Second shaft end not possible.
5) Factory test certificate 2.3 in accordance with EN 10 204 is supplied. Individual acceptance test must be specified in plain text on ordering if required (price supplement).

6) For 1MJ motors of class F used as class B, derating may be necessary.

Squirrel-cage motors

1MJ · EEx de IIC degree of protection

Notes

5

Squirrel-cage motors

Sector solutions

Selection and ordering data



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Marine motors

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Smoke extraction motors

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Low-voltage motors for use in smoke and heat extraction machinery

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Technical design

Selection and ordering data

Temperature/time classes F200 and F300

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- Forced-air cooled squirrel-cage motors 1PP7, 1PP5, 1PP6, 2-pole, 4-pole, sizes 80 to 315

6/8

- Forced-air cooled squirrel-cage motors 1PP7, 1PP5, 1PP6, 6-pole, sizes 80 to 315

6/9

- Self-cooled squirrel-cage motors 1LA7, 1LA5, 1LG6, 2-pole, 4-pole, sizes 80 to 315

6/10

- Self-cooled squirrel-cage motors 1LA7, 1LA5, 1LG6, 6-pole, sizes 80 to 315

Temperature-time class F400

6/11

- Forced-air cooled squirrel-cage motors 1PP6 2-pole, 4-pole, sizes 100 to 315

6/12

- Forced-air cooled squirrel-cage motors 1PP6 6-pole sizes 100 to 315

6/13

- Self-cooled squirrel-cage motors 1LA6, 1LG6, 2-pole, 4-pole, sizes 100 to 315

6/14

- Self-cooled squirrel-cage motors 1LA6, 1LG6, 6-pole, sizes 100 to 315

Order codes for special designs

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- Windings and motor protection

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- Paint finish

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- Mechanical design

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- Notes on safety and commissioning/certification

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- Additional suffixes

Squirrel-cage motors

Sector solutions · Marine motors

Overview

Low-voltage motors in the marine version can be used as auxiliary drives below deck on ships and in the offshore industry. The thermal utilization of the motors is matched to the generally higher ambient temperatures on board ship. If the application demands compliance with additional regulations, e.g. protection against explosion hazards, the appropriate motor series must be chosen – ADD from previous sections of this catalogue.

The classification authorities categorize the auxiliary drives on board ships into “essential services” and “non-essential services”. Acceptance testing by a representative of the relevant classification authority is required for motors used in essential auxiliary drives, depending on their output.

In special cases, in addition to the acceptance test, supervision of construction may also be required. Supervision of construction involves monitoring of the separate manufacturing stages of a motor by an inspector from the classification authority.

The charges of the classification authority incurred for acceptance testing or acceptance testing with supervision of construction will be invoiced separately.

Approved motor series types with aluminium (Alu) and cast iron (C iron) housings to the IP55 and IP56 (non-heavy sea) degrees of protection in accordance with Sections 3, 4 and 5. ²⁾

Motors	Sizes																		Output range ¹⁾ kW	
	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	355	400	450		
1LA7/1PP7	Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu										0.06 – 18.5	
1LA5/1PP5										Alu	Alu	Alu							11 – 45	
1LA9/1PP9	Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu								0.06 – 53	
1LA6										C iron	C iron	C iron	C iron						0.75 – 18.5	
1LG4/1PP4										C iron	C iron	C iron	C iron	C iron	C iron				11 – 200	
1LG6/1PP6										C iron	C iron	C iron	C iron	C iron	C iron				11 – 200	
1LA8/1PQ8 ³⁾																C iron	C iron	C iron	C iron	160 – 1000
1MA7		Alu	Alu	Alu	Alu	Alu	Alu	Alu	Alu										0.12 – 16	
1MA6										C iron	C iron	C iron	C iron	C iron	C iron	C iron	C iron	C iron	1.3 – 165	
1MJ6										C iron	C iron	C iron	C iron	C iron	C iron	C iron	C iron	C iron	0.25 – 132	

Standards and specifications

Due to the particular climatic conditions, marine motors also comply with the IEC 92-301 standard (electrical installation on board ship) in addition to the regulations for standard motors. In addition, the motors are manufactured and type approved in accordance with the regulations of the following marine classification authorities:

BV Bureau Veritas (France)
 GL Germanischer Lloyd (Germany)
 LRS Lloyds Register of Shipping (Great Britain)
 DNV Det Norske Veritas (Norway)

Furthermore, the motors can be produced in accordance with the regulations of the following classification authorities (however without a type approval certificate):

ABS American Bureau of Shipping (USA)
 RINa Registro Italiano Navale (Italy)
 CCS Chinese Classification Authority (China), only applicable to 1LA8/1PQ8

Regulations of the individual classification authorities:

IEC/EN / classification authority	Coolant temperature KT °C	Temperature-rise limit for temperature class F K	Acceptance testing for drives for essential services above ³⁾ kW	Supervision of construction for drives for essential services kW	Order code for type approved motors of temperature class F utilization to F ³⁾
IEC/EN 60034-1	40	105	–	–	–
GL	45	100	≥ 50	–	E11
LRS	45	95	≥ 100	≥ 100	E21
BV	45	100	≥ 50	–	E31
DNV	45	95	≥ 300	–	E51
ABS	50	95	≥ 100	≥ 100	–
RINa	45	95	≥ 50	–	–
CCS	45	95	≥ 50	–	–

1) Output data with reference to 50 Hz mains operation at KT 45 °C in temperature class F, used as F.

2) Derating may be necessary in the case of 1MA and 1MJ motors, (E) Exn (Zone 2) motors and 1LA9 motors with increased power.

3) The 1LA8 and 1PQ8 motors do not have a type approval certificate (individual acceptance test required).

4) Individual acceptance tests are not required below the specified outputs.

5) Utilization of temperature class F according to B can cause derating.

Mechanical versions

In general, all marine motors have an external earthing terminal. The rating plate features the relevant marine classification authority complete with the associated cooling air temperature. In addition, a factory test certificate 2.3 to EN 10 204 is supplied that includes the certificate number of the marine classification authority.

Standard version to IP55 degree of protection, optionally IP56 (non-heavy sea) can be ordered with order code **K52**.

Motors can be supplied, depending on the motor series, in corrosion-resistant aluminium housing and in rugged cast iron version. The motors with an aluminium housing in the flange version have a rugged cast iron flange.

Increased cooling air temperature

The motors in temperature class F have a thermal reserve. Derating may be necessary with cooling air temperatures higher than $KT45^{\circ}\text{C}$ (price supplement). When ordering, specify Order No. with **-Z** and plain text. The permissible output power can be determined using the following table.

Reduction factor	Cooling air temperature $KT^{\circ}\text{C}$			
	45	50	55	60
	1.00	0.96	0.92	0.87

Higher efficiency

The efficiency of marine motors is similar to that of energy-saving motors. This ensures energy-saving operation on board ship.

Windings and motor protection

For coil and bearing monitoring, the motors can be equipped with PTC thermistors, temperature sensors and resistance thermometers. Motors can be equipped with anti-condensation heating if winding are to be exposed to condensation.

Paint finish

The special paint finish range for the "worldwide" climate group according to DIN IEC 60 721-2-1 offers high corrosion protection and is especially suitable for installation of motors in a corrosive sea atmosphere or in rooms that are constantly damp. Special paint finish is standard for all 1LA5, 1LA6, 1LA7, 1LA9, 1MA7 motors as well as 1MA6/1MJ6 up to size 200L.

Special paint finish can be ordered for 1LG4/6 and 1MA6 in sizes 225S – 315M depending on the RAL colour shade as an option.

Ordering example

Squirrel-cage motor IP 55, 1500 rpm, 55 kW, efficiency class EFF1, 400VΔ/690 VY, 50 Hz, IM B3 type, marine version essential drive with acceptance test and certificate from Germanischer Lloyd, cooling-air temperature 45°C , special paint finish RAL 5007

In order, specify:

1LG6 253-4AA60-Z
E11+Y54

Plain text (E-line):
GL-individual acceptance test,
special paint finish RAL 5007

Certificates



Squirrel-cage motors

Sector solutions · Smoke extraction motors

Overview

Low-voltage motors for use in smoke and heat extraction machinery to EN 12 101-3

The new low-voltage motors with squirrel-cage rotors for use in smoke and heat extraction machinery in accordance with EN 12 101-3 are mainly designed for driving Smoke Extraction fans, so they are also known as smoke extraction motors. They are mainly used in buildings that demand smoke monitoring due to their shape and design. Some typical application examples are tunnels, single and multi-storey shopping centres, industrial buildings and warehouses, building complexes and atriums, theatres, enclosed car parks and stairways.

The dual function motors function in

- operation under normal conditions as a fan motor.
- fault operation (at high ambient temperatures, specified minimum operating times) to keep access and escape routes smoke-free, to aid fire fighting by creating a smoke-free layer, to delay and/or prevent spread of a fire, to protect devices and equipment, to reduce the heat stress of components during a fire, and to reduce secondary fire damage due to thermal decomposition products and hot gases.

Temperature/time classification to EN 12 101-3

- **F200** or 200 °C for 120 min
- **F300** or 300 °C for 60 min
- **F400** or 400 °C for 120 min

Testing and test certification

The smoke extraction motor series listed in the selection tables have been tested by the "Research and test laboratory of the Department of Climate Control and Building Services of the Technical University of Munich" in accordance with EN 12 101-3.

F200/F300 was generally tested at 300 °C for 120 min.

The relevant test certificates were issued.

Supervised construction approvals for smoke extraction units – Certification procedure

• Use of smoke extraction motors in smoke extraction fans with existing supervised construction approval in accordance with EN 12 101-3.

1. Application by the fan manufacturer to the DIBT (Deutsches Institut für Bautechnik – German Institute for Building Installation Systems) in Berlin for installing the motors tested to EN 12 101-3 in an already existing approval for the smoke extraction fans.
2. DIBT requests an expert opinion concerning the suitability of the tested motors from the fan testing authority.
3. DIBT includes the motors in the supervised construction approvals after receiving a satisfactory expert opinion.

• Initial approval of smoke extraction units

In this case, complete assemblies (motor + fan) must be tested at an approved test center (e.g. TU Munich) before submission of an application for the supervised construction approval to the DIBT.

Technical design

Motor series

The smoke extraction motors based on basic series 1LA and 1LG

- Basic series 1PP.; forced-air cooled, version without internal fan, located in air flow of the driven fan
- Sub-series 1LA. or 1LG.; self-cooled, version with internal fan (metal)

The motors are manufactured with cast iron or aluminium housings in accordance with their fire protection classes.

Standards and specifications

Also applicable:

Permanently installed fire fighting equipment EN 12 101-3: Equipment for controlling smoke and heat flow, Part 3, Specification for smoke and heat extraction units.

Voltage and frequency

Rated voltages according to IEC 60034-1

230 VΔ 50 Hz

400 VΔ 50 Hz and
400 VΥ 50 Hz

500 VΔ 50 Hz and
500 VΥ 50 Hz

690 VΥ 50 Hz

Abnormal voltages and 60 Hz, on request.

Labelling

- Rating plate
For the listed rated voltages with 50 Hz performance data.
- Fault plate showing:
Number and year of issue of the European standard, temperature/time class, minimum operating time.

All labels, corrosion resistant, second set of labels loose.

Rated output, operating mode, number of poles

The rated output applies for continuous operation (normal operation) to IEC 60034-1, at a frequency of 50 Hz, cooling air temperature up to 40 °C, installation height up to 1000 m above sea level. For a higher cooling air temperature and installation altitude, derating is required (for reduction factors, see "Technical information").

Fault operation:

In contrast to normal operation, there is fault operation to EN 12 101-3.

At the end of the fault time, the motor may be inoperable. Deinstallation of the motor followed by an overhaul or replacement with a new motor is therefore mandatory.

Any "thermal motor protection" implemented must be deactivated in the event of a fault.

No. of poles: 2, 4 and 6; more poles and pole-change, on request.

Insulation arrangement

Special insulation arrangements, matched to the respective temperature/time classes. Maximum thermal utilization according to temperature class F.

Insulation of the smoke extraction motors is designed to permit operation with a converter at voltages ≤ 500 V without restrictions. This also applies for operation with a PWM converter with Voltage peak times $t_s > 0.1 \mu s$ at the motor terminals.

Converter-fed operation is not permitted in the event of emergency situation.

Technical design (continued)

Water drain holes

Always provided; but sealed in accordance with IP55 degree of protection.

Bearing plates

All bearing plates are cast iron.

Connection method

Protruding non-metallic sheathed cable, without terminal block, with cover plate or funnel cap. Cable length is dependent on the axle height.

Sizes 80 to 112: 0.5 m

Sizes 132 to 225: 1.5 m

Sizes 250 to 315: 3.0 m

Special designs of connecting cables, on request.

Position of the connecting cable

• Sizes 80 to 160:

– On the top at NDE as standard. Optionally left or right on the NDE (for foot-mounted type with screw mounted feet).

• Sizes 180 to 315:

– Flange foot-mounted types: On the top at NDE as standard. Optionally left or right at NDE.

– All foot-mounted types: On the top at DE as standard with connecting cable looped through in the direction of NDE. Optionally left or right on the DE with connecting cables looped through in the direction of NDE (for foot-mounted types with screw-mounted feet).

Earthing by means of protruding cable

Bearing, grease

Special bearing arrangements matched to the respective temperature class.

In accordance with fire protection classes F200/F300, F400, and the individual sizes, grooved ball bearing Series of 62 or 63 clearance.

Fixed bearing at DE.

Nominal bearing service life L_{10h} (fan drive) at least 20000 hours at maximum permitted rated load.

Motors in sizes 80 to 250 are usually permanently greased.

Paint finish

The motors are given a two-part paint finish as standard (worldwide) in the color shade RAL 7030.

Minimum necessary cooling air quantities during normal operation

1LA7/1PP7 motors, sizes 80 to 160; 1LA5/1PP5, sizes 180 to 225; 1LA6/1PP6, sizes 100 to 160

Size	Air flow required in m ³ /min for number of poles		
	2	4	6
80	1.74	0.90	0.60
90	3.12	1.56	1.08
100	3.96	1.86	1.26
112	4.98	3.0	1.98
132	8.04	5.04	3.36
160	12.90	9.54	6.36
180	10.98	10.98	7.267
200	15.12	13.02	8.58
225	12.12	13.02	8.58

In the motor version without an integral fan (1PP5, 6, 7), the motor lies in the air flow of the driven fan which must

drive the minimum cooling air quantity over the motor housing.

1LG6/1PP6 motors, sizes 180 to 315:

Size	Air flow required in m ³ /min for number of poles		
	2	4	6
180	12.0	13.0	8.5
200	20.5	17.0	11.0
225	20.5	18.5	12.5
250	25.5	22.5	17.0
280	24.5	28.0	21.5
315	47.0	36.0	26.5

With larger quantities of cooling air, the operating temperature of the motor can be reduced.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Overview

Technical design (continued)

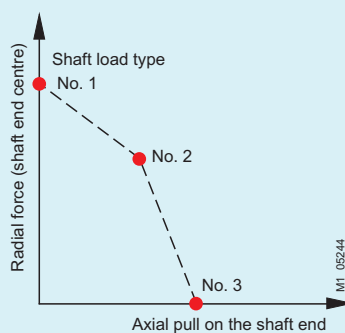
Permissible load on the shaft end

Permissible load in the axial and radial direction, the data is valid except sizes 280 and 315 for any number of poles.

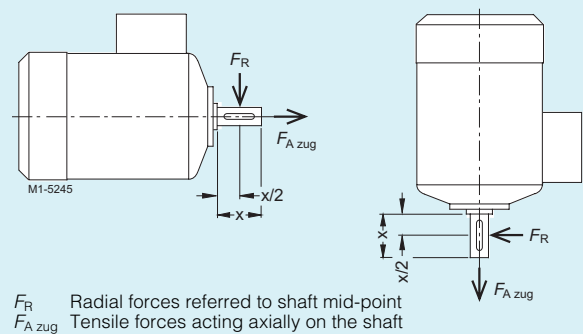
Higher loading with appropriate bearings have not been tested.

Size	No. of poles	DE bearing	Type of loading on the shaft		Shaft horizontally		Shaft vertically downwards	
					F_R N	$F_{A\text{ pull}}$ N	F_R N	$F_{A\text{ pull}}$ N
80	2-8	6004	No.					
			1	Radial force	400	0	360	0
			2	Radial force + axial pull	150	130	40	170
90	2-8	6205	1	Radial force	650	0	590	0
			2	Radial force + axial pull	250	205	100	260
			3	Axial pull	0	343	0	310
100	2-8	6206	1	Radial force	890	0	820	0
			2	Radial force + axial pull	400	265	300	265
			3	Axial pull	0	490	0	430
112	2-8	6206	1	Radial force	870	0	760	0
			2	Radial force + axial pull	400	250	250	260
			3	Axial pull	0	480	0	405
132	2-8	6208	1	Radial force	1070	0	810	0
			2	Radial force + axial pull	450	315	250	300
			3	Axial pull	0	580	0	450
160	2-8	6209	1	Radial force	1440	0	1210	0
			2	Radial force + axial pull	700	450	500	335
			3	Axial pull	0	825	0	620
180	2-8	6210	1	Radial force	1540	0	1020	0
			2	Radial force + axial pull	770	430	550	220
			3	Axial pull	0	815	0	455
200	2-8	6212	1	Radial force	2050	0	1450	0
			2	Radial force + axial pull	1200	770	500	460
			3	Axial pull	0	1350	0	720
225	2-8	6213	1	Radial force	2460	0	1910	0
			2	Radial force + axial pull	1370	900	500	660
			3	Axial pull	0	1560	0	920
250	2-8	6215	1	Radial force	2770	0	1490	0
			2	Radial force + axial pull	1400	840	500	460
			3	Axial pull	0	1500	0	710
280	2	6217	1	Radial force	3180	0	3000	0
	4-8	6317	2	Radial force + axial pull	1700	1820	600	1085
			3	Axial pull	0	2630	0	1380
315	2	6219	1	Radial force	3470	0		
	4-8	6319	2	Radial force + axial pull	1750	2200	On request	On request
			3	Axial pull	0	3000		

Load types



Forces on shaft end



Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
Forced-air cooled motors 1PP7, 1PP5 (aluminium housing) and 1PP6 (cast iron housing) IP 55 degree of protection, type of cooling IC 411, temperature/time classes F200 and F300													EN 12 101-3
3000 rpm, 2-pole, 50 Hz													
0.75 1.1	80 M	1PP7 080-2TA.. 1PP7 083-2TA..	2855 2845	73.0 77.0	0.86 0.87	1.73 2.40	2.5 3.7	2.3 2.6	5.6 6.1	2.4 2.7	16 16	0.00085 0.0011	9.8 11.5
1.5 2.2	90 S 90 L	1PP7 090-2TA.. 1PP7 131-2TA..	2860 2880	79.0 82.0	0.85 0.85	3.25 4.55	5.0 7.3	2.4 2.8	5.5 6.3	2.7 3.1	16 16	0.0015 0.002	14.6 17.4
3	100 L	1PP7 106-2TA..	2890	84.0	0.85	6.1	9.9	2.8	6.8	3.0	16	0.0038	23
4	112 M	1PP7 113-2TA..	2905	86.0	0.86	7.8	13	2.6	7.2	2.9	16	0.0055	31
5.5 7.5	132 S 132 M	1PP7 130-2TA.. 1PP7 131-2TA..	2925 2930	86.5 88.0	0.89 0.89	10.3 13.8	18 24	2.0 2.3	5.9 6.9	2.8 3.0	16 16	0.016 0.021	44 52
11 15 18.5	160 M 160 L	1PP7 163-2TA.. 1PP7 164-2TA.. 1PP7 166-2TA..	2940 2940 2940	89.5 90.0 91.0	0.88 0.90 0.91	20 26.5 32.5	36 49 60	2.1 2.2 2.4	6.5 6.6 7.0	2.9 3.0 3.1	16 16 16	0.034 0.04 0.052	71 82 95
22	180 M	1PP5 183-2TA..	2940	91.7	0.88	39	71	2.5	6.9	3.2	16	0.077	119
30 37	200 L	1PP5 206-2TA.. 1PP5 207-2TA..	2945 2945	92.3 92.8	0.89 0.89	53 65	97 120	2.4 2.4	7.2 7.7	2.8 2.8	16 16	0.14 0.16	171 194
45	225 M	1PP5 223-2TA..	2960	93.6	0.89	78	145	2.8	7.7	3.4	16	0.2	229
55	250 M	1PP6 253-2TB..	2975	95.1	0.90	94	177	2.5	7.4	3.3	13	0.466	405
75 90	280 S 280 M	1PP6 280-2TB.. 1PP6 283-2TB..	2975 2975	95.3 95.6	0.91 0.90	126 152	241 289	2.6 3.0	7.5 7.5	2.9 3.0	13 13	0.832 1.00	510 595
110 132 160 200	315 S 315 M 315 L 315 L	1PP6 310-2TB.. 1PP6 313-2TB.. 1PP6 316-2TB.. 1PP6 317-2TB..	2985 2984 2984 2984	95.9 96.1 96.3 96.4	0.90 0.91 0.93 0.93	186 220 260 325	352 422 512 640	2.6 2.7 2.8 2.5	7.5 7.4 7.5 7.0	3.2 3.0 3.1 2.8	13 13 13 13	1.39 1.62 2.09 2.46	770 895 1035 1225
1500 rpm, 4-pole, 50 Hz													
0.55 0.75	80 M	1PP7 080-4TA.. 1PP7 083-4TA..	1395 1395	67.0 72.0	0.82 0.81	1.45 1.86	3.7 5.1	2.2 2.3	3.9 4.2	2.2 2.3	16 16	0.0015 0.0018	9.6 11
1.1 1.5	90 S 90 L	1PP7 090-4TA.. 1PP7 096-4TA..	1415 1420	77.0 79.0	0.81 0.81	2.55 3.4	7.4 10	2.3 2.4	4.6 5.3	2.4 2.6	16 16	0.0028 0.0035	14 17.3
2.2 3	100 L	1PP7 106-4TA.. 1PP7 107-4TA..	1420 1420	82.0 83.0	0.82 0.82	4.7 6.4	15 20	2.5 2.7	5.6 5.6	2.8 3.0	16 16	0.0048 0.0058	23 26
4	112 M	1PP7 113-4TA..	1440	85.0	0.83	8.2	27	2.7	6.0	3.0	16	0.011	33
5.5 7.5	132 S 132 M	1PP7 130-4TA.. 1PP7 133-4TA..	1455 1455	86.0 87.5	0.81 0.82	11.4 15.2	36 49	2.5 2.7	6.3 6.7	3.1 3.2	16 16	0.018 0.024	46 52
11 15	160 M 160 L	1PP7 163-4TA.. 1PP7 166-4TA..	1460 1460	88.5 90.0	0.84 0.84	21.5 28.5	72 98	2.2 2.6	6.2 6.5	2.7 3.0	16 16	0.04 0.052	70 95
18.5 22	180 M 180 L	1PP5 183-4TA.. 1PP5 186-4TA..	1460 1460	90.5 91.2	0.83 0.84	35 41	121 144	2.3 2.3	7.5 7.5	3.0 3.0	16 16	0.13 0.15	116 130
30	200 L	1PP5 207-4TA..	1465	91.8	0.86	55	196	2.6	7.0	3.2	16	0.24	176
37 45	225 S 225 M	1PP5 220-4TA.. 1PP5 223-4TA..	1470 1470	92.9 93.4	0.87 0.87	66 80	241 293	2.8 2.8	7.0 7.7	3.2 3.3	16 16	0.32 0.36	221 247
55	250 M	1PP6 253-4TA..	1485	94.9	0.86	97	354	2.9	7.5	3.3	16	0.856	445
75 90	280 S 280 M	1PP6 280-4TA.. 1PP6 283-4TA..	1486 1485	95.0 94.9	0.87 0.88	132 156	482 579	2.6 2.5	7.3 7.3	2.8 2.8	16 16	1.39 1.71	555 655
110 132 160 200	315 S 315 M 315 L 315 L	1PP6 310-4TA.. 1PP6 313-4TA.. 1PP6 316-4TA.. 1PP6 317-4TA..	1488 1488 1488 1488	95.3 95.5 95.9 95.7	0.87 0.87 0.87 0.88	192 230 275 345	706 847 1027 1284	2.6 2.7 2.9 3.2	6.9 7.0 7.4 7.3	2.8 2.7 2.9 3.1	16 16 16 16	2.31 2.88 3.46 4.22	790 945 1085 1285

Forced-air cooled (surface cooled) motors without external fan and fan cover; the motors are located in the air flow of the driven fan and are adequately cooled during operation under normal conditions.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ	IM B 3	Price supplement		
						IM B 5	IM V1 without protec- tive cover	IM B 35
1PP7 080 to 1PP7 096 1PP7 106 to 1PP7 166	1	6	3	-	0	1	1	6
1PP5 183 to 1PP5 223	1	6	3	5	0	1	1	6
1PP6 253 to 1PP6 313 1PP6 316 to 1PP6 318	1	6	3	5	0	1 ¹⁾	1	6

1) Additional radial supports must be provided.

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output				Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A								
Forced-air cooled motors 1PP7, 1PP5 (aluminium housing) and 1PP6 (cast iron housing) IP 55 degree of protection, type of cooling IC 411, temperature/time classes F200 and F300														EN 12 101-3
1000 rpm, 6-pole, 50 Hz														
0.37	80 M	1PP7 080-6TA..	920	62.0	0.72	1.20	3.9	1.9	3.1	2.1	16	0.0015	9.6	
0.55		1PP7 083-6TA..	910	67.0	0.74	1.60	5.8	2.1	3.4	2.2	16	0.0018	11	
0.75	90 S	1PP7 090-6TA..	915	69.0	0.76	2.1	7.8	2.2	3.7	2.2	16	0.0028	14.2	
1.1	90 L	1PP7 096-6TA..	915	72.0	0.77	2.9	11.5	2.3	3.8	2.3	16	0.0035	17.4	
1.5	100 L	1PP7 106-6TA..	925	74.0	0.75	3.9	15	2.3	4	2.3	16	0.0063	25	
2.2	112 M	1PP7 113-6TA..	940	78.0	0.78	5.2	22	2.2	4.6	2.5	16	0.011	29	
3	132 S	1PP7 130-6TA..	950	79.0	0.76	7.2	30	1.9	4.2	2.2	16	0.015	44	
4	132 M	1PP7 133-6TA..	950	80.5	0.76	9.4	40	2.1	4.5	2.4	16	0.019	49	
5.5		1PP7 134-6TA..	950	83.0	0.76	12.8	55	2.3	5	2.6	16	0.025	57	
7.5	160 M	1PP7 163-6TA..	960	86.0	0.74	17	75	2.1	4.6	2.5	16	0.041	78	
11	160 L	1PP7 166-6TA..	960	87.5	0.74	24.5	109	2.3	4.8	2.6	16	0.049	104	
15	180 L	1PP5 186-6TA..	970	89.5	0.77	31.5	148	2.0	5.2	2.4	16	0.15	130	
18.5	200 L	1PP5 206-6TA..	975	90.2	0.77	38.5	181	2.7	5.5	2.8	16	0.24	176	
22		1PP5 207-6TA..	975	90.8	0.77	45.5	215	2.8	5.5	2.9	16	0.28	196	
30	225 M	1PP5 223-6TA..	978	91.8	0.77	61	294	2.8	5.7	2.9	16	0.36	237	
37	250 M	1PP6 253-6TA..	984	92.6	0.84	69	359	2.7	6.4	2.4	16	0.934	390	
45	280 S	1PP6 280-6TA..	986	92.8	0.86	81	436	2.5	6.6	2.5	16	1.37	500	
55	280 M	1PP6 283-6TA..	986	92.7	0.87	99	533	2.5	6.5	2.5	16	1.65	550	
75	315 S	1PP6 310-6TA..	990	93.9	0.85	136	723	2.7	7.0	2.9	16	2.50	740	
90	315 M	1PP6 313-6TA..	990	94.3	0.86	160	868	2.7	7.3	3.0	16	3.20	915	
110	315 L	1PP6 316-6TA..	990	94.7	0.87	192	1061	2.6	7.4	3.0	16	4.02	990	
132	315 L	1PP6 317-6TA..	988	94.8	0.87	230	1276	3.0	7.2	2.8	16	4.71	1160	
160	315 L	1PP6 318-6TA..	990	95.0	0.86	285	1543	3.1	7.5	3.0	16	5.39	1225	

Forced-air cooled (surface cooled) motors without external fan and fan cover; the motors are located in the air flow of the driven fan and are adequately cooled during operation under normal conditions.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz				IM B 3	Price supplement		
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ		IM B 5	IM V1 without protec- tive cover	IM B 35
1PP7 080 to 1PP7 096	1	6	3	-	0	1	1	6
1PP7 106 to 1PP7 166	1	6	3	5	0	1	1	6
1PP5 183 to 1PP5 223	1	6	3	5	0	1	1	6
1PP6 253 to 1PP6 313	1	6	3	5	0	1	1	6
1PP6 316 to 1PP6 318	-	6	-	5	0	1 ¹⁾	8	6

For other designs, see "Technical information", "Designs".

1) Additional radial supports must be provided.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output					Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.										
Self-cooled motors 1LA7, 1LA5 (aluminium housing) and 1LG6 (cast iron housing)															
IP 55 degree of protection, type of cooling IC 411, temperature/time classes F200 and F300															
EN 12 101-3															
3000 rpm, 2-pole, 50 Hz															
0.75	80 M	1LA7 080-2TA..	2855	73.0	0.86	1.73	2.5	2.3	5.6	2.4	16	0.00085	10.2		
1.1		1LA7 083-2TA..	2845	77.0	0.87	2.40	3.7	2.6	6.1	2.7	16	0.0011	11.9		
1.5	90 S	1LA7 090-2TA..	2860	79.0	0.85	3.25	5.0	2.4	5.5	2.7	16	0.0015	15.2		
2.2	90 L	1LA7 096-2TA..	2880	82.0	0.85	4.55	7.3	2.8	6.3	3.1	16	0.002	18		
3	100 L	1LA7 106-2TA..	2890	84.0	0.85	6.1	9.9	2.8	6.8	3.0	16	0.0038	24		
4	112 M	1LA7 113-2TA..	2905	86.0	0.86	7.8	13	2.6	7.2	2.9	16	0.0055	32		
5.5	132 S	1LA7 130-2TA..	2925	86.5	0.89	10.3	18	2.0	5.9	2.8	16	0.016	45		
7.5	132 M	1LA7 131-2TA..	2930	88.0	0.89	13.8	24	2.3	6.9	3.0	16	0.021	53		
11	160 M	1LA7 163-2TA..	2940	89.5	0.88	20	36	2.1	6.5	2.9	16	0.034	74		
15	160 S	1LA7 164-2TA..	2940	90.0	0.90	26.5	49	2.2	6.6	3.0	16	0.04	85		
18.5	160 L	1LA7 166-2TA..	2940	91.0	0.91	32.5	60	2.4	7.0	3.1	16	0.052	98		
22	180 M	1LA5 183-2TA..	2940	91.7	0.88	39	71	2.5	6.9	3.2	16	0.077	125		
30	200 L	1LA5 206-2TA..	2945	92.3	0.89	53	97	2.4	7.2	2.8	16	0.14	179		
37		1LA5 207-2TA..	2945	92.8	0.89	65	120	2.4	7.7	2.8	16	0.16	202		
45	225 M	1LA5 223-2TA..	2960	93.6	0.89	78	145	2.8	7.7	3.4	16	0.2	238		
55	250 M	1LG6 253-2TB..	2975	94.2	0.90	94	177	2.5	7.4	3.3	13	0.466	420		
75	280 S	1LG6 280-2TB..	2975	94.8	0.91	126	241	2.6	7.5	2.9	13	0.832	530		
90	280 M	1LG6 283-2TB..	2975	95.2	0.90	152	289	3.0	7.5	3.0	13	1.00	615		
110	315 S	1LG6 310-2TB..	2985	95.0	0.90	186	352	2.6	7.5	3.2	13	1.39	790		
132	315 M	1LG6 313-2TB..	2984	95.3	0.91	220	422	2.7	7.4	3.0	13	1.62	915		
160	315 L	1LG6 316-2TB..	2984	95.7	0.93	260	512	2.8	7.5	3.1	13	2.09	1055		
200	315 L	1LG6 317-2TB..	2984	95.9	0.93	325	640	2.5	7.0	2.8	13	2.46	1245		
1500 rpm, 4-pole, 50 Hz															
0.55	80 M	1LA7 080-4TA..	1395	67.0	0.82	1.45	3.7	2.2	3.9	2.2	16	0.0015	10		
0.75		1LA7 083-4TA..	1395	72.0	0.81	1.86	5.1	2.3	4.2	2.3	16	0.0018	11.4		
1.1	90 S	1LA7 090-4TA..	1415	77.0	0.81	2.55	7.4	2.3	4.6	2.4	16	0.0028	14.6		
1.5	90 L	1LA7 096-4TA..	1420	79.0	0.81	3.4	10	2.4	5.3	2.6	16	0.0035	17.9		
2.2	100 L	1LA7 106-4TA..	1420	82.0	0.82	4.7	15	2.5	5.6	2.8	16	0.0048	24		
3		1LA7 107-4TA..	1420	83.0	0.82	6.4	20	2.7	5.6	3.0	16	0.0058	27		
4	112 M	1LA7 113-4TA..	1440	85.0	0.83	8.2	27	2.7	6.0	3.0	16	0.011	34		
5.5	132 S	1LA7 130-4TA..	1455	86.0	0.81	11.4	36	2.5	6.3	3.1	16	0.018	47		
7.5	132 M	1LA7 133-4TA..	1455	87.5	0.82	15.2	49	2.7	6.7	3.2	16	0.024	53		
11	160 M	1LA7 163-4TA..	1460	88.5	0.84	21.5	72	2.2	6.2	2.7	16	0.04	73		
15	160 L	1LA7 166-4TA..	1460	90.0	0.84	28.5	98	2.6	6.5	3.0	16	0.052	98		
18.5	180 M	1LA5 183-4TA..	1460	90.5	0.83	35	121	2.3	7.5	3.0	16	0.13	125		
22	180 L	1LA5 186-4TA..	1460	91.2	0.84	41	144	2.3	7.5	3.0	16	0.15	139		
30	200 L	1LA5 207-4TA..	1465	91.8	0.86	55	196	2.6	7.0	3.2	16	0.24	187		
37	225 S	1LA5 220-4TA..	1470	92.9	0.87	66	241	2.8	7.0	3.2	16	0.32	233		
45	225 M	1LA5 223-4TA..	1470	93.4	0.87	80	293	2.8	7.7	3.3	16	0.36	259		
55	250 M	1LG6 253-4TA..	1485	94.7	0.86	97	354	2.9	7.5	3.3	16	0.856	460		
75	280 S	1LG6 280-4TA..	1486	94.6	0.87	132	482	2.6	7.3	2.8	16	1.39	575		
90	280 M	1LG6 283-4TA..	1485	94.6	0.88	156	579	2.5	7.3	2.8	16	1.71	675		
110	315 S	1LG6 310-4TA..	1488	95.0	0.87	192	706	2.6	6.9	2.8	16	2.31	810		
132	315 M	1LG6 313-4TA..	1488	95.3	0.87	230	847	2.7	7.0	2.7	16	2.88	965		
160	315 L	1LG6 316-4TA..	1488	95.7	0.87	275	1027	2.9	7.4	2.9	16	3.46	1105		
200	315 L	1LG6 317-4TA..	1488	95.5	0.88	345	1284	3.2	7.3	3.1	16	4.22	1305		

Surface-cooled motors with external fan and fan cover.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz				IM B 3	Price supplement		
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ		IM B 5	IM V1 without protec- tive cover	IM B 35
1LA7 080 to 1LA7 096	1	6	3	-	0	1	1	6
1LA7 106 to 1LA7 166	1	6	3	5	0	1	1	6
1LA5 183 to 1LA5 223	1	6	3	5	0	1	1	6
1LG6 253 to 1LG6 313	1	6	3	5	0	1	1	6
1LG6 316 to 1LG6 318	-	6	-	5	0	1 ¹⁾	8	6

1) Additional radial supports must be provided.

For other designs, see "Technical information", "Designs".

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
Self-cooled motors 1LA7, 1LA5 (aluminium housing) and 1LG6 (cast iron housing) IP 55 degree of protection, type of cooling IC 411, temperature/time classes F200 and F300													EN 12 101-3
1000 rpm, 6-pole, 50 Hz													
0.37	80 M	1LA7 080-6TA..	920	62.0	0.72	1.20	3.9	1.9	3.1	2.1	16	0.0015	9.5
0.55		1LA7 083-6TA..	910	67.0	0.74	1.60	5.8	2.1	3.4	2.2	16	0.0018	11.4
0.75	90 S	1LA7 090-6TA..	915	69.0	0.76	2.1	7.8	2.2	3.7	2.2	16	0.0028	14.8
1.1	90 L	1LA7 096-6TA..	915	72.0	0.77	2.9	11.5	2.3	3.8	2.3	16	0.0035	18
1.5	100 L	1LA7 106-6TA..	925	74.0	0.75	3.9	15	2.3	4	2.3	16	0.0063	26
2.2	112 M	1LA7 113-6TA..	940	78.0	0.78	5.2	22	2.2	4.6	2.5	16	0.011	30
3	132 S	1LA7 130-6TA..	950	79.0	0.76	7.2	30	1.9	4.2	2.2	16	0.015	45
4	132 M	1LA7 133-6TA..	950	80.5	0.76	9.4	40	2.1	4.5	2.4	16	0.019	50
5.5		1LA7 134-6TA..	950	83.0	0.76	12.8	55	2.3	5	2.6	16	0.025	58
7.5	160 M	1LA7 163-6TA..	960	86.0	0.74	17	75	2.1	4.6	2.5	16	0.041	81
11	160 L	1LA7 166-6TA..	960	87.5	0.74	24.5	109	2.3	4.8	2.6	16	0.049	107
15	180 L	1LA5 186-6TA..	970	89.5	0.77	31.5	148	2.0	5.2	2.4	16	0.15	139
18.5	200 L	1LA5 206-6TA..	975	90.2	0.77	38.5	181	2.7	5.5	2.8	16	0.24	187
22		1LA5 207-6TA..	975	90.8	0.77	45.5	215	2.8	5.5	2.9	16	0.28	207
30	225 M	1LA5 223-6TA..	978	91.8	0.77	61	294	2.8	5.7	2.9	16	0.36	249
37	250 M	1LG6 253-6TA..	984	92.4	0.84	69	359	2.7	6.4	2.4	16	0.934	405
45	280 S	1LG6 280-6TA..	986	92.7	0.86	81	436	2.5	6.6	2.5	16	1.37	520
55	280 M	1LG6 283-6TA..	986	92.6	0.87	99	533	2.5	6.5	2.5	16	1.65	570
75	315 S	1LG6 310-6TA..	990	93.8	0.85	136	723	2.7	7.0	2.9	16	2.50	760
90	315 M	1LG6 313-6TA..	990	94.2	0.86	160	868	2.7	7.3	3.0	16	3.20	935
110	315 L	1LG6 316-6TA..	990	94.6	0.87	192	1061	2.6	7.4	3.0	16	4.02	1010
132	315 L	1LG6 317-6TA..	988	94.7	0.87	230	1276	3.0	7.2	2.8	16	4.71	1180
160	315 L	1LG6 318-6TA..	990	94.9	0.86	285	1543	3.1	7.5	3.0	16	5.39	1245

Surface-cooled motors with external fan and fan cover.

Order No. supplement

Motor type	Penultimate position: Voltage identifier 50 Hz				Final position: Design identifier			
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	IM B 3	Price supplement		
						IM B 5	IM V1 without protec- tive cover	IM B 35
1LA7 080 to 1LA7 096	1	6	3	-	0	1	1	6
1LA7 106 to 1LA7 166	1	6	3	5	0	1	1	6
1LA5 183 to 1LA5 223	1	6	3	5	0	1	1	6
1LG6 253 to 1LG6 313	1	6	3	5	0	1	1	6
1LG6 316 to 1LG6 318	-	6	-	5	0	1 ¹⁾	8	6

For other designs, see "Technical information", "Designs".

1) Additional radial supports must be provided.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
Forced-air cooled motors 1PP6 (cast iron housing) IP 55 degree of protection, cooling type IC 411, temperature/time class F400													EN 12 101-3
3000 rpm, 2-pole, 50 Hz													
3	100 L	1PP6 106-2UA..	2875	79.0	0.85	6.5	10	2.5	6.2	2.8	16	0.0038	31
4	112 M	1PP6 113-2UA..	2900	82.0	0.85	8.7	13	2.5	6.8	2.9	16	0.0055	40
5.5	132 S	1PP6 130-2UA..	2920	84.0	0.89	10.8	18	1.9	5.7	2.7	16	0.016	49
7.5		1PP6 131-2UA..	2930	85.0	0.89	14.5	24	2.0	6.5	2.8	16	0.021	54
11	160 M	1PP6 163-2UA..	2930	87.0	0.85	21	36	1.8	6.4	2.7	16	0.034	91
15	160 M	1PP6 164-2UA..	2930	88.0	0.89	27.5	49	2.0	6.5	2.80	16	0.04	99
18.5	160 L	1PP6 166-2UA..	2930	89.0	0.90	34	60	2.0	7.0	2.70	16	0.052	109
22	180 M	1PP6 183-2UA..	2955	93.1	0.88	39	71	2.4	7.0	3.2	16	0.086	175
30	200 L	1PP6 206-2UA..	2955	92.8	0.88	53	97	2.3	6.7	3.1	16	0.151	215
37	200 L	1PP6 207-2UA..	2958	93.0	0.89	65	119	2.4	7.1	3.2	16	0.182	245
45	225 M	1PP6 223-2UA..	2962	95.0	0.89	77	145	2.4	7.1	3.1	16	0.266	320
55	250 M	1PP6 253-2UA..	2972	94.9	0.90	94	177	2.3	6.7	2.9	16	0.466	405
75	280 S	1PP6 280-2UB..	2975	94.9	0.89	128	241	2.4	6.8	2.9	13	0.832	510
90	280 M	1PP6 283-2UB..	2976	95.2	0.90	152	289	2.5	7.4	3.0	13	1.00	595
110	315 S	1PP6 310-2UB..	2982	95.3	0.91	184	352	2.4	6.8	2.7	13	1.39	770
132	315 M	1PP6 313-2UB..	2980	95.7	0.91	220	423	2.5	6.9	2.8	13	1.62	895
160	315 L	1PP6 316-2UB..	2982	96.0	0.92	265	512	2.4	7.1	2.8	13	2.09	1035
190	315 L	1PP6 317-2UB..	2982	96.3	0.93	325	608	2.6	7.2	2.9	13	2.46	1225
1500 rpm, 4-pole, 50 Hz													
2.2	100 L	1PP6 106-4UA..	1410	79.0	0.75	5.6	15	2.3	5.0	2.5	16	0.0048	31
3		1PP6 107-4UA..	1410	79.0	0.80	7.1	20	2.5	5.0	2.6	16	0.0058	34
4	112 M	1PP6 113-4UA..	1440	82.0	0.75	9.5	27	2.7	5.7	3.0	16	0.011	42
5.5	132 S	1PP6 130-4UA..	1455	81.0	0.80	12.8	36	2.5	6.3	3.0	16	0.018	51
7.5		1PP6 133-4UA..	1455	82.0	0.80	16.5	49	2.7	6.7	3.1	16	0.024	58
11	160 M	1PP6 163-4UA..	1460	85.0	0.80	24	72	2.2	6.2	2.7	16	0.04	95
15	160 L	1PP6 166-4UA..	1460	86.0	0.80	33.3	98	2.6	6.5	3.0	16	0.052	108
18.5	180 M	1PP6 183-4UA..	1470	91.2	0.84	35	120	2.4	6.1	2.8	16	0.122	150
22	180 L	1PP6 186-4UA..	1472	92.1	0.85	40.5	143	2.4	6.4	2.9	16	0.144	175
30	200 L	1PP6 207-4UA..	1470	92.6	0.86	55	195	2.4	6.4	3.1	16	0.234	215
37	225 S	1PP6 220-4UA..	1480	92.9	0.86	67	239	2.6	6.5	2.8	16	0.398	280
45	225 M	1PP6 223-4UA..	1480	93.6	0.86	81	290	2.7	6.6	2.9	16	0.486	320
55	250 M	1PP6 253-4UA..	1485	94.5	0.87	97	354	2.5	7.4	2.9	16	0.856	445
75	280 S	1PP6 280-4UA..	1484	94.6	0.87	132	483	2.4	6.7	2.8	16	1.39	554
90	280 M	1PP6 283-4UA..	1486	95.1	0.86	160	578	2.6	7.3	3.0	16	1.71	655
110	315 S	1PP6 310-4UA..	1488	95.3	0.87	192	706	2.7	7.0	2.8	16	2.31	790
132	315 M	1PP6 313-4UA..	1488	95.6	0.88	225	847	2.6	7.1	2.8	16	2.88	945
160	315 L	1PP6 316-4UA..	1490	95.8	0.88	275	1025	2.9	7.2	2.9	16	3.46	1085
200	315 L	1PP6 317-4UA..	1488	95.9	0.88	345	1284	3.1	7.5	2.9	16	4.22	1285

Forced-air cooled (surface cooled) motors without external fan and fan cover; the motors are located in the air flow of the driven fan and are adequately cooled during operation under normal conditions.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz				IM B 3	Price supplement		
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ		IM B 5	IM V1 without protective cover	IM B 35
1PP6 106 to 1PP6 313	1	6	3	5	0	1	1	6
1PP6 316 to 1PP6 318	-	6	-	5	0	1 ¹⁾	8	6

For other designs, see "Technical information", "Designs".

1) Additional radial supports must be provided.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output				Rated current at 400 V A	Rated torque Nm	Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated torque Nm								
Forced-air cooled motors 1PP6 (cast iron housing)														
IP 55 degree of protection, cooling type IC 411, temperature/time class F400														
EN 12 101-3														
1000 rpm, 6-pole, 50 Hz														
1.5	100 L	1PP6 106-6UA..	925	72.0	0.70	4.50	15	2.3	4.0	2.3	16	0.0063	31	
2.2	112 M	1PP6 113-6UA..	940	75.0	0.74	5.70	22	2.1	4.4	2.3	16	0.011	42	
3	132 S	1PP6 130-6UA..	950	77.0	0.75	7.8	30	1.6	4.1	1.7	16	0.015	52	
4	132 M	1PP6 133-6UA..	950	80.0	0.76	10	40	1.7	4.6	2.1	16	0.019	62	
5.5	132 M	1PP6 134-6UA..	950	81.0	0.76	14	55	2.0	5.0	2.3	16	0.025	72	
7.5	160 M	1PP6 163-6UA..	960	82.0	0.74	20	75	2.0	5.0	2.4	16	0.041	107	
11	160 L	1PP6 166-6UA..	960	84.0	0.74	27.5	109	2.0	5.0	2.5	16	0.049	129	
15	180 L	1PP6 186-6UA..	974	88.9	0.82	30	147	2.2	5.2	2.3	16	0.203	170	
18.5	200 L	1PP6 206-6UA..	975	89.8	0.82	36.5	181	2.2	5.3	2.3	16	0.285	200	
22	200 L	1PP6 207-6UA..	975	90.8	0.83	42.5	215	2.2	5.4	2.3	16	0.362	230	
30	225 M	1PP6 223-6UA..	980	92.3	0.84	56	292	2.7	6.3	2.8	16	0.629	315	
37	250 M	1PP6 253-6UA..	984	93.0	0.84	69	359	2.8	6.5	2.4	16	0.934	390	
45	280 S	1PP6 280-6UA..	986	92.6	0.86	82	436	2.8	6.3	2.5	16	1.37	500	
55	280 M	1PP6 283-6UA..	986	93.1	0.86	99	533	3.1	6.8	2.7	16	1.65	550	
75	315 S	1PP6 310-6UA..	990	94.0	0.84	138	723	2.7	7.0	2.9	16	2.50	740	
90	315 M	1PP6 313-6UA..	988	94.5	0.85	162	870	2.6	7.1	2.8	16	2.50	915	
110	315 L	1PP6 316-6UA..	988	94.7	0.85	198	1063	2.8	7.2	2.8	16	2.50	990	
132	315 L	1PP6 317-6UA..	990	95.1	0.85	235	1273	3.0	7.5	3.0	16	2.50	1160	
160	315 L	1PP6 318-6UA..	988	95.1	0.86	285	1546	3.1	7.5	3.0	16	2.50	1225	

Forced-air cooled (surface cooled) motors without external fan and fan cover; the motors are located in the air flow of the driven fan and are adequately cooled during operation under normal conditions.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz				IM B 3	Price supplement		
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ	IM B 5	IM V1 without protec- tive cover	IM B 35	
1PP6 106 to 1PP6 313	1	6	3	5	0	1	1	6
1PP6 316 to 1PP6 318	-	6	-	5	0	1 ¹⁾	8	6

For other designs, see "Technical information", "Designs".

1) Additional radial supports must be provided.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Effi- ciency η %	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
Self cooled motors 1LA6, 1LG6 (cast iron housing) IP 55 degree of protection, cooling type IC 411, temperature/time class F400													EN 12 101-3
3000 rpm, 2-pole, 50 Hz													
3	100 L	1LA6 106-2UA..	2875	79.0	0.85	6.5	10	2.5	6.2	2.8	16	0.0038	32
4	112 M	1LA6 113-2UA..	2900	82.0	0.85	8.7	13	2.5	6.8	2.9	16	0.0055	41
5.5	132 S	1LA6 130-2UA..	2920	84.0	0.89	10.8	18	1.9	5.7	2.7	16	0.016	51
7.5		1LA6 131-2UA..	2930	85.0	0.89	14.5	24	2.0	6.5	2.8	16	0.021	56
11	160 M	1LA6 163-2UA..	2930	87.0	0.85	21	36	1.8	6.4	2.7	16	0.034	93
15	160 M	1LA6 164-2UA..	2930	88.0	0.89	27.5	49	2.0	6.5	2.80	16	0.04	102
18.5	160 L	1LA6 166-2UA..	2930	89.0	0.90	34	60	2.0	7.0	2.70	16	0.05	112
22	180 M	1LG6 183-2UA..	2955	92.6	0.88	39	71	2.4	7.0	3.2	16	0.086	180
30	200 L	1LG6 206-2UA..	2955	92.2	0.88	53	97	2.3	6.7	3.1	16	0.151	225
37	200 L	1LG6 207-2UA..	2958	92.5	0.89	65	119	2.4	7.1	3.2	16	0.182	255
45	225 M	1LG6 223-2UA..	2962	94.6	0.89	77	145	2.4	7.1	3.1	16	0.266	330
55	250 M	1LG6 253-2UA..	2972	94.3	0.90	94	177	2.3	6.7	2.9	16	0.466	420
75	280 S	1LG6 280-2UB..	2975	94.5	0.89	128	241	2.4	6.8	2.9	13	0.832	530
90	280 M	1LG6 283-2UB..	2976	94.9	0.90	152	289	2.5	7.4	3.0	13	1.00	615
110	315 S	1LG6 310-2UB..	2982	94.7	0.91	184	352	2.4	6.8	2.7	13	1.39	790
132	315 M	1LG6 313-2UB..	2980	95.2	0.91	220	423	2.5	6.9	2.8	13	1.62	915
160	315 L	1LG6 316-2UB..	2982	95.6	0.92	265	512	2.4	7.1	2.8	13	2.09	1055
190	315 L	1LG6 317-2UB..	2982	95.9	0.93	325	608	2.6	7.2	2.9	13	2.46	1245
1500 rpm, 4-pole, 50 Hz													
2.2	100 L	1LA6 106-4UA..	1410	79.0	0.75	5.6	15	2.3	5.0	2.5	16	0.0048	32
3		1LA6 107-4UA..	1410	79.0	0.80	7.1	20	2.5	5.0	2.6	16	0.0058	34
4	112 M	1LA6 113-4UA..	1440	82.0	0.75	9.5	27	2.7	5.7	3.0	16	0.011	43
5.5	132 S	1LA6 130-4UA..	1455	81.0	0.80	12.8	36	2.5	6.3	3.0	16	0.018	53
7.5		1LA6 133-4UA..	1455	82.0	0.80	16.5	49	2.7	6.7	3.1	16	0.024	60
11	160 M	1LA6 163-4UA..	1460	85.0	0.80	24	72	2.2	6.2	2.7	16	0.04	97
15	160 L	1LA6 166-4UA..	1460	86.0	0.80	33.3	98	2.6	6.5	3.0	16	0.052	110
18.5	180 M	1LG6 183-4UA..	1470	90.7	0.84	35	120	2.4	6.1	2.8	16	0.122	155
22	180 L	1LG6 186-4UA..	1472	91.7	0.85	40.5	143	2.4	6.4	2.9	16	0.144	180
30	200 L	1LG6 207-4UA..	1470	92.2	0.86	55	195	2.4	6.4	3.1	16	0.234	225
37	225 S	1LG6 220-4UA..	1480	92.6	0.86	67	239	2.6	6.5	2.8	16	0.398	290
45	225 M	1LG6 223-4UA..	1480	93.3	0.86	81	290	2.7	6.6	2.9	16	0.486	330
55	250 M	1LG6 253-4UA..	1485	94.2	0.87	97	354	2.5	7.4	2.9	16	0.856	460
75	280 S	1LG6 280-4UA..	1484	94.2	0.87	132	483	2.4	6.7	2.8	16	1.39	574
90	280 M	1LG6 283-4UA..	1486	94.7	0.86	160	578	2.6	7.3	3.0	16	1.71	675
110	315 S	1LG6 310-4UA..	1488	95.0	0.87	192	706	2.7	7.0	2.8	16	2.31	810
132	315 M	1LG6 313-4UA..	1488	95.3	0.88	225	847	2.6	7.1	2.8	16	2.88	965
160	315 L	1LG6 316-4UA..	1490	95.6	0.88	275	1025	2.9	7.2	2.9	16	3.46	1105
200	315 L	1LG6 317-4UA..	1488	95.7	0.88	345	1284	3.1	7.5	2.9	16	4.22	1305

Surface-cooled motors with integral fan and fan cover.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz				IM B 3	Price supplement		
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ		IM B 5	IM V1 without protective cover	IM B 35
1LA6 106 to 1LG6 313	1	6	3	5	0	1	1	6
1LG6 316 to 1LG6 318	-	6	-	5	0	1 ¹⁾	8	6

For other designs, see "Technical information", "Designs".

1) Additional radial supports must be provided.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Selection and ordering data

Rated output kW	Size	Order No. Order No.- supplements for voltage and size, see table below	Operating data at rated output					Starting torque For direct-on-line starting as multiple of the rated torque	Starting current as multiple of the rated current	Stalling torque	Torque Class KL	Moment of inertia J kg m ²	Weight IM B 3 approx. kg
			Rated speed rpm	Efficiency η	Power factor p.f.	Rated current at 400 V A	Rated torque Nm						
Self cooled motors 1LA6, 1LG6 (cast iron housing)												EN 12 101-3	
IP 55 degree of protection, cooling type IC 411, temperature/time class F400													
1000 rpm, 6-pole, 50 Hz													
1.5	100 L	1LA6 106-6UA..	925	72.0	0.70	4.50	15	2.3	4.0	2.3	16	0.0063	32
2.2	112 M	1LA6 113-6UA..	940	75.0	0.74	5.70	22	2.1	4.4	2.3	16	0.011	43
3	132 S	1LA6 130-6UA..	950	77.0	0.75	7.8	30	1.6	4.1	1.7	16	0.015	54
4	132 M	1LA6 133-6UA..	950	80.0	0.76	10	40	1.7	4.6	2.1	16	0.019	63
5.5	132 M	1LA6 134-6UA..	950	81.0	0.76	14	55	2.0	5.0	2.3	16	0.025	74
7.5	160 M	1LA6 163-6UA..	960	82.0	0.74	20	75	2.0	5.0	2.4	16	0.041	110
11	160 L	1LA6 166-6UA..	960	84.0	0.74	27.5	109	2.0	5.0	2.5	16	0.049	132
15	180 L	1LG6 186-6UA..	974	88.7	0.82	30	147	2.2	5.2	2.3	16	0.203	175
18.5	200 L	1LG6 206-6UA..	975	89.4	0.82	36.5	181	2.2	5.3	2.3	16	0.285	210
22	200 L	1LG6 207-6UA..	975	90.5	0.83	42.5	215	2.2	5.4	2.3	16	0.362	240
30	225 M	1LG6 223-6UA..	980	92.2	0.84	56	292	2.7	6.3	2.8	16	0.629	325
37	250 M	1LG6 253-6UA..	984	92.6	0.84	69	359	2.8	6.5	2.4	16	0.934	405
45	280 S	1LG6 280-6UA..	986	92.3	0.86	82	436	2.8	6.3	2.5	16	1.37	520
55	280 M	1LG6 283-6UA..	986	92.8	0.86	99	533	3.1	6.8	2.7	16	1.65	570
75	315 S	1LG6 310-6UA..	990	93.7	0.84	138	723	2.7	7.0	2.9	16	2.50	760
90	315 M	1LG6 313-6UA..	988	94.2	0.85	162	870	2.6	7.1	2.8	16	3.20	935
110	315 L	1LG6 316-6UA..	988	94.5	0.85	198	1063	2.8	7.2	2.8	16	4.02	1010
132	315 L	1LG6 317-6UA..	990	94.9	0.85	235	1273	3.0	7.5	3.0	16	4.71	1180
160	315 L	1LG6 318-6UA..	988	94.9	0.86	285	1546	3.1	7.5	3.0	16	5.39	1245

Surface-cooled motors with external fan and fan cover.

Order No. supplement

Motor type	Penultimate position: Voltage identifier				Final position: Design identifier			
	50 Hz				IM B 3	Price supplement		
	230 VΔ / 400 VΥ	400 VΔ / 690 VΥ	500 VΥ	500 VΔ		IM B 5	IM V1 without protective cover	IM B 35
1LA6 106 to 1LG6 313	1	6	3	5	0	1	1	6
1LG6 316 to 1LG6 318	-	6	-	5	0	1 ¹⁾	8	6

For other designs, see "Technical information", "Designs".

1) Additional radial supports must be provided.

Squirrel-cage motors

Sector solutions · Smoke extraction motors

Order codes for special designs

Additional order suffix –Z with order code	Special designs	Motor type – Size						
		1PP7	1PP5	1PP6	1LA7	1LA5	1LG6	1LA6

Windings and motor protection

A11	Motor protection by means of PTC thermistor with 3 built-in temperature sensors for shutdown 1)	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
A12	Motor protection by means of PTC thermistor with 6 built-in temperature sensors for warning and shutdown 1)	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
A23	Motor temperature sensing with built-in KTY 84-130 temperature sensors 1)	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160

Paint finish

	Special paintwork in RAL 7030 stone grey	Standard design (without order code)						
M16	RAL 1002 sand yellow	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
M17	RAL 1013 pearl white							
M18	RAL 3000 flame red							
K27	RAL 6011 mignonette green							
M19	RAL 6021 pale green							
M20	RAL 7001 silver grey							
K28	RAL 7031 bluish grey							
L42	RAL 7032 pebble grey							
M21	RAL 7035 light grey							
M22	RAL 9001 cream white							
M23	RAL 9002 grey white							
L43	RAL 9005 jet black							
Y54 ●	Special paintwork in other colors: RAL 1015, 1019, 2003, 2004, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6019, 7000, 7004, 7011, 7016, 7022, 7033	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
	And special paintwork RAL.....							
K23	Unpainted (only cast iron parts primed)	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
K24	Unpainted, only primed	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160

Mechanical design

K40	Regreasing device	100 – 160	180 – 225	100 – 315	100 – 160	180 – 225	180 – 315	100 – 160
L13	External earthing	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
K31	Extra rating plate, loose	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
Y82 ●	Extra rating plate	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
	And order code							
K45	Anti-condensation heater for 230 V	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
K46	Anti-condensation heater for 115 V	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
L99	Wire-lattice pallet	80 – 160	180	100 – 180	80 – 150	180	180	100 – 160

Safety and commissioning notes/certification

B02	Factory test certificate 2.3 acc. to EN 10 204 (routine test)	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
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Additional suffixes

A60	Installation of 3 PT 100 G resistance thermometers	–	225	225 – 315	–	225	225 – 315	–
A61	Installation of 6 PT 100 G resistance thermometers	–	225	225 – 315	–	225	225 – 315	–
G50	Measuring nipples for SPM shock pulse measurement for bearing monitoring	–	180 – 225	180 – 315	–	180 – 225	180 – 315	–
K50	IP65 degree of protection	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
L03	Vibration-proof version	80 – 160	180 – 225	100 – 160	80 – 160	180 – 225	–	100 – 160
L51	Protruding cable end – right side	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
L52	Protruding cable end – left side	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160
L68	Full-key balancing	80 – 160	180 – 225	100 – 315	80 – 160	180 – 225	180 – 315	100 – 160

● Additional plain text required.

1) For appropriate control unit, see Catalog NS K.

Squirrel-cage motors

Sector solutions

Notes

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