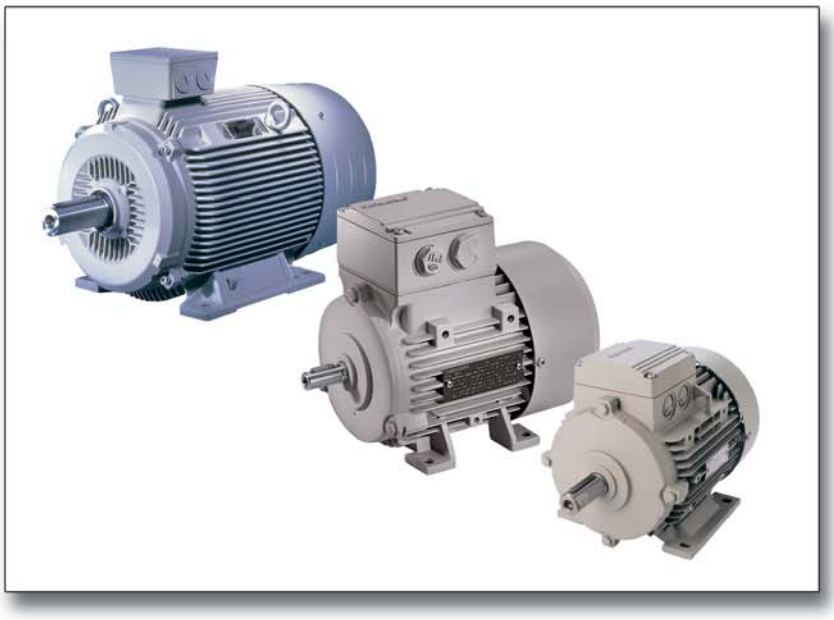
SIEMENS

Low-Voltage Motors: Improved-Efficiency range

Catalogue M17/50Hz, 2002
East Asia



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SQUIREL-CAGE MOTORS

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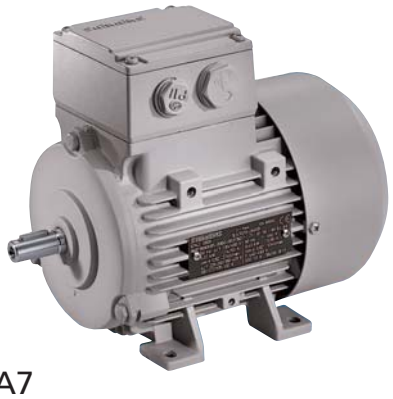
STANDARDS & SPECIFICATIONS

All Siemens motors are manufactured in accordance with the following standards:

Titles	DIN / VDE / EN	IEC
General requirements for rotating electrical machines	DIN EN 60 034-1	IEC 60 034-1 IEC 60 085
Three-phase induction motors for general use with standardized dimensions and outputs	pr EN 50 347	IEC 60 072 fixing dimensions only
Starting performance of rotating electrical machines	DIN EN 60 034-12	IEC 60 034-12
Terminal designations and direction of rotation, rotating electrical machines	DIN VDE 0530 Part 8	IEC 60 034-8
Types of construction and installation	DIN EN 60 034-7	IEC 60 034-7
Entry into the terminal box	DIN 42 925	–
Built-in thermal protection	–	IEC 60 034-11
Noise emission limits for rotating electrical machines	DIN EN 60 034-9	IEC 60 034-9
IEC standard voltages	DIN IEC 60 038	IEC 60 038
Methods of cooling rotating electrical machines	DIN EN 60 034-6	IEC 60 034-6
Vibration severity of rotating electrical machines	DIN EN 60 034-14	IEC 60 034-14
Decrees of protection of rotating electrical machines	DIN EN 60 034-5	IEC 60 034-5

The motors also comply with various national standards.



1LA7
Frame size 56 to 90

1LA7
Frame size 100 to 160

1LG4
Frame Size 180 to 315

ELECTRICAL DATA

Voltage and Frequency

The motors can be supplied for use at rated voltages of 230V. 400V, or 690V at a supply frequency of 50Hz. This is in accordance with DIN IEC 60 038. The voltage tolerance is +/- 10%.

The selection and ordering data states the rated current at 400V. The rated currents at 380V and 420V are listed in the table shown.

Rated Output

The rated output refers to continuous duty according to DIN EN 60 034-1 at a frequency of 50 Hz, a coolant temperature (CT) of 40°C and a site altitude of up to 1000 m above sea level (ASL).

The motors are manufactured with class F insulation and utilised to class B, for the above-mentioned operating conditions. Should the actual operating condition deviate from the specified values, then the maximum output should be adjusted according to the de-rating factors as specified in the table.

The coolant temperature and altitude are rounded up to the nearest 5°C or 500 m.

Ambient Temperature

All motors with the standard design can be used at ambient temperatures between -20°C to +40°C. Service duty factor is 1.1.

For all motors:
The motors are designed to withstand 1.5 times the rated current for up to 2 minutes at rated voltage and frequency in accordance with DIN EN 60 034.

Rated currents for the rated voltage range from 380 V to 420 V

Motor Type	Currents in A at voltage							
	380 V 2-pole	420 V	380 V 4-pole	420 V	380 V 6-pole	420 V	380 V 8-pole	420 V
1LA7 050	0.27	0.26	0.21	0.21	–	–	–	–
1LA7 053	0.33	0.32	0.30	0.31	–	–	–	–
1LA7 060	0.52	0.53	0.42	0.44	–	–	–	–
1LA7 063	0.68	0.70	0.56	0.57	0.48	0.50	–	–
1LA7 070	1.05	1.02	0.80	0.77	0.66	0.64	0.36	0.36
1LA7 073	1.38	1.41	1.07	1.06	0.80	0.80	0.51	0.52
1LA7 080	1.75	1.79	1.50	1.50	1.18	1.25	0.73	0.80
1LA7 083	2.45	2.50	1.90	1.92	1.62	1.66	1.01	1.10
1LA7 090	3.40	3.35	2.60	2.60	2.10	2.15	1.15	1.18
1LA7 096	4.70	4.65	3.50	3.50	3.00	2.95	1.63	1.60
1LA7 106	6.25	6.15	4.80	4.80	4.00	4.10	2.25	2.20
1LA7 107	–	–	6.50	6.80	–	–	3.00	3.00
1LA7 113	8.20	7.70	8.40	8.30	5.40	5.30	4.10	4.20
1LA7 130	10.60	10.40	11.40	11.90	7.30	7.50	5.90	6.00
1LA7 131	14.10	13.80	–	–	–	–	–	–
1LA7 133	–	–	15.40	15.50	9.50	9.70	7.90	7.90
1LA7 134	–	–	–	–	13.00	13.10	–	–
1LA7 163	21.00	20.50	22.30	21.50	17.50	17.30	9.90	10.60
1LA7 164	28.00	26.00	–	–	–	–	13.10	13.40
1LA7 166	34.00	32.00	29.50	28.50	24.80	24.70	17.60	18.40
1LG4 183	42.00	38.00	37.00	33.00	–	–	–	–
1LG4 186	–	–	44.00	40.00	31.00	28.00	26.00	24.00
1LG4 206	57.00	51.00	–	–	38.00	35.00	–	–
1LG4 207	68.00	62.00	59.00	53.00	46.00	41.00	34.00	31.00
1LG4 220	–	–	72.00	65.00	–	–	41.00	37.00
1LG4 223	83.00	75.00	85.00	77.00	60.00	54.00	47.00	43.00
1LG4 253	101.00	91.00	105.00	95.00	74.00	67.00	61.00	55.00
1LG4 280	137.00	124.00	143.00	130.00	87.00	79.00	76.00	69.00
1LG4 283	162.00	147.00	168.00	152.00	105.00	95.00	92.00	81.00
1LG4 310	200.00	181.00	210.00	190.00	145.00	131.00	112.00	101.00
1LG4 313	237.00	214.00	247.00	224.00	173.00	156.00	147.00	133.00
1LG4 316	284.00	257.00	295.00	267.00	206.00	187.00	177.00	160.00
1LG4 317	347.00	314.00	363.00	329.00	247.00	224.00	216.00	195.00
1LG4 318	–	–	–	–	300.00	271.00	258.00	233.00

Altitude above sea level in m	Coolant temperature in °C					
	<30	30-40	45	50	55	60
1000	1.07	1.00	0.96	0.92	0.87	0.82
1500	1.04	0.97	0.93	0.89	0.84	0.79
2000	1.00	0.94	0.90	0.86	0.82	0.77
2500	0.96	0.90	0.86	0.83	0.78	0.74
3000	0.92	0.86	0.82	0.79	0.75	0.70
3500	0.88	0.82	0.79	0.75	0.71	0.67
4000	0.82	0.77	0.74	0.71	0.67	0.63

ELECTRICAL DATA

Insulation

All motors are manufactured with class F insulation. The utilization of the motor corresponds to class B at rated output and with mains operation.

The motors have tropicalized insulation. The insulating material used is DURIGNIT IR 2000 (IR for inverter resistant). This insulation system comprises of high-grade enamelled wires and insulating sheet materials combined with solvent-free impregnating resin.

The system ensures a high level of mechanical and electrical strength as well as good serviceability and a long motor life.

The standard insulation makes all motors suitable for converter-fed operation without any restrictions up to a rated voltage of 500 V and with a voltage rise time $t_s > 0.1\ \mu$. The utilization under this condition corresponds to class F at rated output.

Efficiency and Power Factor

The efficiency η and power factor cos φ values for each rated output are listed in the selection tables in the individual sections of the Catalogue.

The part load values can be found on the tables below. These values are averages; precise values can be provided upon request.

Part-load power factor at

Part-load efficiency in % at 25% of full load	50%	75%	**100%**	125%
0.7	0.86	0.9	**0.92**	0.92
0.65	0.85	0.89	**0.91**	0.91
0.63	0.83	0.88	**0.9**	0.9
0.61	0.8	0.86	**0.89**	0.89
0.57	0.78	0.85	**0.88**	0.88
0.53	0.76	0.84	**0.87**	0.87
0.51	0.75	0.83	**0.86**	0.86
0.49	0.73	0.81	**0.85**	0.86
0.47	0.71	0.8	**0.84**	0.85
0.45	0.69	0.79	**0.83**	0.84
0.43	0.67	0.77	**0.82**	0.83
0.41	0.66	0.76	**0.81**	0.82
0.4	0.65	0.75	**0.8**	0.81
0.38	0.63	0.74	**0.79**	0.8
0.36	0.61	0.72	**0.78**	0.8
0.34	0.59	0.71	**0.77**	0.79

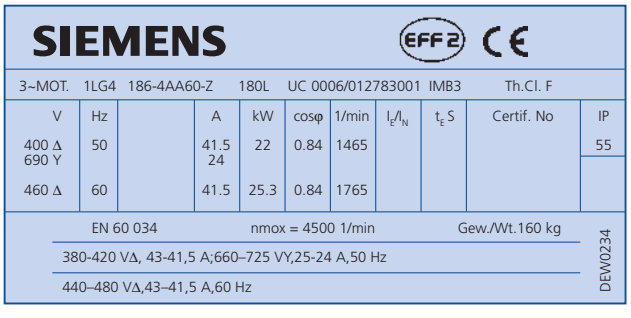
Rating plates

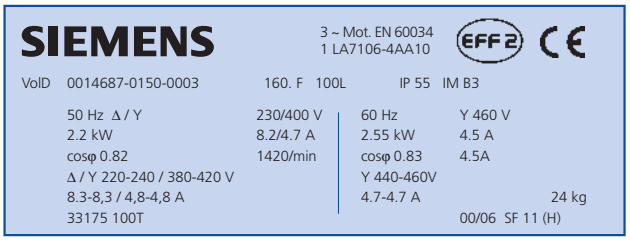
All motors have an international rating plate. The rating plate is stamped with data for 230 VΔ/400 VY, 50 Hz and 460 VY, 60 Hz or 400 VΔ/690 VY, 50 Hz and 460 VΔ, 60 Hz.

Part-load efficiencies

Part-load efficiency in % at 25% of full load	50%	75%	**100%**	125%
93	96	97	**97**	96.5
92	95	96	**96**	95.5
90	93.5	95	**95**	94.5
89	92.5	94	**94**	93.5
88	91.5	93	**93**	92.5
87	91	92	**92**	91.5
86	90	91	**91**	90
85	89	90	**90**	89
84	88	89	**89**	88
80	87	88	**88**	87
79	86	87	**87**	86
78	85	86	**86**	85
76	84	85	**85**	83.5
74	83	84	**84**	82.5
72	82	83	**83**	81.5
70	81	82	**82**	80.5
68	80	81	**81**	79.5
66	79	80	**80**	78.5
64	77	79.5	**79**	77.5
62	75.5	78.5	**78**	76.5
60	74	77.5	**77**	75
58	73	76	**76**	74
56	72	75	**75**	73
55	71	74	**74**	72
54	70	73	**73**	71
53	68	72	**72**	70
52	67	71	**71**	69
51	66	70	**70**	68
50	65	69	**69**	67
49	64	67.5	**68**	66
48	62	66.5	**67**	65
47	61	65	**66**	64
46	60	64	**65**	63
45	59	63	**64**	62
44	57	62	**63**	61
43	56	60.5	**62**	60.5
42	55	59.5	**61**	59.5
41	54	58.5	**60**	58.5

Examples of rating plates





Technical Information

MECHANICAL DATA

Types Of Construction

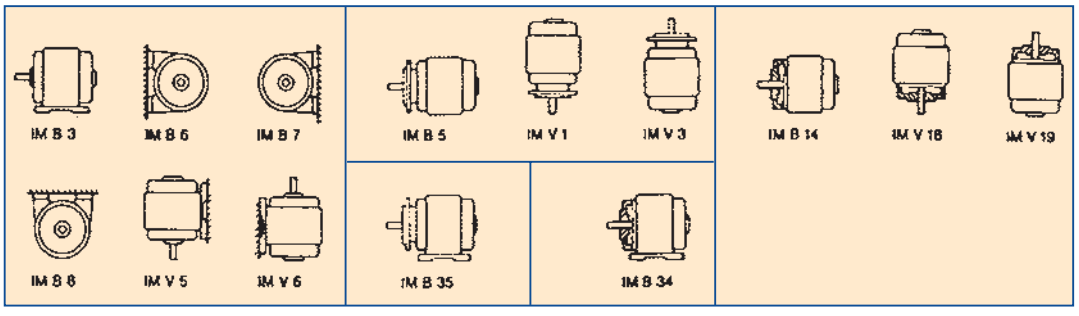
The motors in the standard power range are available in the basic designs IM B3, IM B5, or IM B14, and can be operated in the following positions: IM B6, IM B7, IM B8, IM V5, IM V6, IM V1 or IM V18 and IM V19 (universal type of construction).

The rating plate is only stamped with the basic type of construction.

When foot-mounted motors of frame size 180M and above are wall-mounted, it is advisable to provide extra bracing on the motor feet.

The "with canopy" design is recommended for all types of construction with shaft extension pointing downwards.

Construction Types



Degree Of Protection

All motors are designed with a degree of protection of IP 55 in accordance to DIN EN 60 034-5 (complete protection against contact with live or moving parts inside and protection against harmful deposits of dust and against water jets from all directions). They are suitable for use in dusty or damp surroundings.

Motors from FS 225M upwards have condensation drain holes with plastic plugs.

All motors which have a mounting position with the shaft extension pointing upwards, must have a means of protection against the ingress of water along the shaft.

Cooling & Ventilation

Motors with frame sizes 63 to 315 are fitted with a radial-flow fan which functions independently of the direction of rotation (cooling method 1C 411 in accordance to DIN EN 60 034-6).

Motors with frame size 56 have no fan (IC 410).

Frame Design & Fan Material

Type Series	Frame Size	Frame Material	Frame Feet	Fan Material	Fan Cowl Material
1LA7	56 to 90	Aluminium Alloy	Cast	Plastic	Corrosion-protected steel sheet
	100 to 163		Bolted*		
1LG4	180 to 315	Cast Iron	Cast	Plastic	Glass-reinforced plastic

* 1LA7 in FS100 (with terminal box on-top) comes with casted feet as standard.

MECHANICAL DATA

Terminal Box

All motors in FS 56 to 315 have the terminal box located on top of the motor as standard.

Terminal boxes for 1LA7, 1LG4 motors.

Type Series	Frame Size	Terminal box position	Degree of protection	Rotation of terminal box	No. of cable entries	Terminal box material	Terminal screw thread	Maximum conductor size in mm²	Sealing Range dia. in mm	Cable entry size
1LA7	56	Top	IP 55	4 x 90°	2-holes with plugs,sealed	Aluminium	M4	2.5	9 to 17	M25 x 1.5
	63								4.5 to 10	M16 x 1.5
	71									
	80									
	90									
	100			180°	4 knock-out holes, sealed (2 left, 2 right)			4	11 to 21	M32 x 1.5
	112									
	132							6		
	160						M5	16	19 to 28	M40 x 1.5
1LG4	180			4 x 90°	2-holes with plugs					
	200						M6	25	27 to 35	M50 x 1.5
	225						M8	35		
	250					Cast Iron	M10	120	32 to 42	M63 x 1.5
	280									
	315						M12	240	40 to 48	

Bearings

The nominal bearing life of motors with horizontal type of construction is at least 40,000 hours when used on a direct coupled load without any additional axial loading.

The bearings of motors with frame sizes up to 250 are pre-lubricated. Frame size 280 and larger sizes comes with regreasable bearings and fitted with a flat-type regrease nipple (M10 x 1) in accordance to DIN 3404.

The bearings must be regreased at regular intervals according to the pot life of the grease to ensure that they achieve their nominal service life.

1LA7 motors up to frame size 132 do not have a locating bearing. Frame sizes 160 to 315 all have locating bearings at the non-drive end and a floating bearing at the drive end.

Selection of bearings for 1LA/1LG motors, basic design.

Type Series	Frame Size	No. of poles	DE bearing	NDE bearing
1LA7	56	All	6201 2ZC3	6201 2ZC3
	63	All	6201 2ZC3	6201 2ZC3
	70	All	6202 2ZC3	6202 2ZC3
	80	All	6004 2ZC3	6004 2ZC3
	90	All	6205 2ZC3	6004 2ZC3
	100	All	6206 2ZC3	6205 2ZC3
	112	All	6206 2ZC3	6205 2ZC3
	132	All	6208 2ZC3	6208 2ZC3
	160	All	6209 2ZC3	6209 2ZC3
1LG4	180	All	6210 ZC3	6210 ZC3
	200	All	6212 ZC3	6212 ZC3
	225	All	6213 ZC3	6212 ZC3
	250	All	6215 ZC3	6215 ZC3
	280	2	6216 C3	6216 C3
		4 to 8	6317 C3	6317 C3
	315S, M	2	6217 C3	6217 C3
		4 to 8	6319 C3	6319 C3
	315L	2	6217 C3	6217 C3
		4 to 8	6319 C3	6319 C3

Grease Life

Type of Lubrication	Frame Size	No. of poles	Grease life/Relubrication Interval at 40°C
Prelubricated	56 to 160	2	10,000 h
		4 to 8	20,000 h
	180 to 250	2	20,000 h
		4 to 8	40,000 h
Regreasable	280 to 315	2	4,000 h
		4 to 8	8,000 h

MECHANICAL DATA

Maximum Cantilever Forces

The values for the maximum permitted cantilever for F_0 (N) with a radial load are based on the assumption that the line of force (i.e. the centre of the pulley) is still within the free shaft extension (dimension X).

Dimension X (mm) is the distance from the shoulder of the shaft to the line of action of the force F. The dimension X_{MAX}, is thus the total length of the shaft extension.

Maximum Cantilever forces for 50Hz, basic design

Frame Size	No. of Poles	Cantilever Forces in N x = 0	x = max
56	2	270	240
	4	350	305
	6	415	360
63	2	270	240
	4	350	305
	6	415	360
71	2	415	355
	4	530	450
	6	630	545
	8	690	585
80	2	485	400
	4	625	515
	6	735	605
	8	815	675
90	2	725	605
	4	920	775
	6	1,090	910
	8	1,230	1,030
100	2	1,030	840
	4	1,310	1,060
	6	1,550	1,250
	8	1,720	1,400
112	2	1,010	830
	4	1,270	1,040
	6	1,520	1,240
	8	1,690	1,380
132	2	1,490	1,180
	4	1,940	1,530
	6	2,260	1,780
	8	2,500	1,980
160	2	1,540	1,210
	4	2,040	1,590
	6	2,330	1,820
	8	2,660	2,080
180	2	2,000	1,550
	4	2,350	1,950
	6	2,800	2,250
	8	3,050	2,500
200	2	2,550	2,100
	4	3,350	2,750
	6	3,900	3,200
	8	4,150	3,450
225	2	3,050	2,550
	4	3,750	2,950
	6	4,550	3,600
	8	4,850	3,900
250	2	3,650	2,950
	4	4,400	3,600
	6	5,350	4,350
	8	5,700	4,700
280	2	3,350	2,800
	4	8,700	7,200
	6	10,800	8,900
	8	11,900	9,850
315	2	3,950	3,350
	4	9,900	8,100
	6	12,100	9,900
	8	13,300	10,900

Noise levels

The noise levels are measured in accordance to EN 21 680-1 in a dead room with rated power.

The values are measured on a test hemisphere which is a cuboid at a distance of 1m from the machine surface. The values are applicable at 50 Hz and with a tolerance of ± 3dB.

A-weighted measuring-surface sound pressure and sound power levels

Type Series	Frame Size	Measuring-surface sound pressure level (L_{pfA}) Sound power level (L_{WA})							
		2-pole		4-pole		6-pole		8-pole	
		L_{pfA} dB	L_{WA} dB	L_{pfA} dB	L_{WA} dB	L_{pfA} dB	L_{WA} dB	L_{pfA} dB	L_{WA} dB
1LA7	56	41	52	42	53	38	49		
	63	49	60	42	53	39	50		
	71	52	63	44	55	39	50	36	47
	80	56	67	47	58	40	51	41	52
	90	60	72	48	60	43	55	41	53
	100	62	74	53	65	47	59	45	57
	112	63	75	53	65	52	64	49	61
	132	68	80	62	74	63	75	53	65
	160	70	82	66	78	66	78	63	75
1LG4	180	69	82	65	78	62	75	67	80
	200	73	86	66	79	59	72	57	70
	225	73	86	66	79	59	72	58	71
	250	77	91	68	82	62	76	58	72
	280	78	92	70	84	64	78	60	74
	315	79	93	70	84	65	79	64	78

Mechanical Balance Quality

All the rotors are dynamically balanced with half keys to vibration severity grade N (standard). This type of balancing, H for half-key, is marked on the drive-end shaft extension of motors from frame size 90 upwards. Motors from frame size 56 to 80 have the type of balancing marked on the rating plate. The nominal values shown are applicable to freely suspended motors running uncoupled and at no load.

Limits of Vibration

Vibration severity grade	Rated speed range in rpm	Frame Size 56 to 132 mm/s	132 to 225 mm/s	225 to 400 mm/s	> 400 mm/s
N (normal)	600 to 3600	1.80	1.80	3.50	3.50
R (reduced)	600 to 1800	0.71	0.71	1.80	2.80
	1800 to 3600	1.12	1.12	2.80	2.80
S (special)	600 to 1800	0.45	0.45	1.12	
	1800 to 3600	0.71	0.71	1.80	

Paint Finish

The 1LA7 motors are supplied with the special paint finish (Climate group - Worldwide) as standard. The 1LG4 motors are supplied with the standard finish (Climate group - Moderate). All motors can be painted over with any normal type of paint. When no colour is specified, the motor is painted in the colour RAL 7030 as standard.

Rated Output	Frame Size	Order No.	Torque Class	Moment of Inertia	Performance at rated output					Locked rotor torque	Locked rotor current	Break-down torque	Weight
		For order no. suffixes for voltage and type of construction - see table below			Rated Speed	Efficiency	Power Factor	Rated current at 400V	Rated torque	*For direct-online starting in multiples of rated*			
kW			CL	kg m²	rpm	η	cos φ	A	Nm	torque	current	torque	kg
2-pole													
0.09	56	**1LA7 050-2AA..**	16	0.00015	2830	63	0.81	0.26	0.3	2.0	3.7	2.3	3
0.12		**1LA7 053-2AA..**	16	0.00015	2800	65	0.83	0.32	0.41	2.1	3.7	2.4	3
0.18	63	**1LA7 060-2AA..**	16	0.00018	2820	63	0.82	0.51	0.61	2.0	3.7	2.2	3.5
0.25		**1LA7 063-2AA..**	16	0.00023	2830	65	0.82	0.68	0.84	2.0	4.0	2.2	4.1
0.37	71	**1LA7 070-2AA..**	16	0.00035	2740	66	0.82	1.00	1.3	2.3	3.5	2.3	5
0.55		**1LA7 053-2AA..**	16	0.00045	2800	71	0.82	1.36	1.9	2.5	4.3	2.6	6.6
0.75	80	**1LA7 080-2AA..**	16	0.00085	2855	73	0.86	1.73	2.5	2.3	5.6	2.4	8.2
1.1		**1LA7 083-2AA..**	16	0.0011	2845	77	0.87	2.40	3.7	2.6	6.1	2.7	9.9
1.5	90 S	**1LA7 090-2AA..**	16	0.0015	2860	79	0.85	3.25	5	2.4	5.5	2.7	12.9
2.2	90L	**1LA7 096-2AA..**	16	0.0020	2880	82	0.85	4.55	7.3	2.8	6.3	3.1	15.7
3	100 L	**1LA7 106-2AA..**	16	0.0038	2890	84	0.85	6.10	9.9	2.8	6.8	3.0	22
4	112 M	**1LA7 113-2AA..**	16	0.0055	2905	86	0.86	7.80	13	2.6	7.2	2.9	29
5.5	132 S	**1LA7 130-2AA..**	16	0.016	2925	86.5	0.89	10.30	18	2.0	5.9	2.8	41
7.5		**1LA7 131-2AA..**	16	0.021	2930	88	0.89	13.80	24	2.3	6.9	3.0	49
11	160 L	**1LA7 163-2AA..**	16	0.034	2940	89.5	0.88	20.00	36	2.1	6.5	2.9	69
15		**1LA7 164-2AA..**	16	0.040	2940	90	0.9	26.50	49	2.2	6.6	3.0	80
18.5	160 L	**1LA7 166-2AA..**	16	0.052	2940	91	0.91	32.50	60	2.4	7.0	3.1	93
22	180 M	**1LG4 183-2AA..**	16	0.070	2945	91.4	0.86	40.50	71	2.5	7.0	3.4	145
30	200 L	**1LG4 206-2AA..**	16	0.13	2950	91.7	0.88	54	97	2.3	6.9	3.0	205
37		**1LG4 207-2AA..**	16	0.15	2950	92.4	0.89	65	120	2.5	7.3	3.3	225
45	225 M	**1LG4 223-2AA..**	16	0.22	2960	93.4	0.88	79	145	2.4	6.9	3.1	285
55	250 M	**1LG4 253-2AB..**	13	0.40	2970	93.6	0.88	96	177	2.1	6.9	3.0	375
75	280 S	**1LG4 280-2AC..**	13	0.72	2975	94.3	0.88	130	241	2.5	7.5	3.0	500
90	280 M	**1LG4 283-2AC..**	13	0.86	2975	94.8	0.89	154	289	2.5	7.6	3.0	540
110	315 S	**1LG4 310-2AC..**	13	1.20	2982	94.6	0.88	190	352	2.3	7.2	3.0	720
132	315 M	**1LG4 313-2AC..**	13	1.40	2982	95.1	0.90	225	423	2.3	7.2	3.0	775
160	315 L	**1LG4 316-2AC..**	13	1.60	2982	95.4	0.9	270	512	2.4	7.2	3.0	900
200		**1LG4 317-2AC..**	13	2.20	2982	95.9	0.91	330	641	2.3	7.2	3.0	1015
4-pole													
0.06	56	**1LA7 050-4AB..**	13	0.00027	1350	56	0.77	0.2	0.42	1.9	2.6	1.9	3
0.09		**1LA7 053-4AB..**	13	0.00027	1350	58	0.77	0.29	0.63	1.9	2.6	1.9	3
0.12	63	**1LA7 060-4AB..**	13	0.0003	1350	55	0.75	0.42	0.84	1.9	2.8	2.0	3.5
0.18		**1LA7 063-4AB..**	13	0.0004	1350	60	0.77	0.56	1.3	1.9	3.0	1.9	4.1
0.25	71	**1LA7 070-4AB..**	13	0.0006	1350	60	0.79	0.76	1.8	1.9	3.0	1.9	4.8
0.37		**1LA7 073-4AB..**	13	0.0008	1370	65	0.80	1.03	2.5	1.9	3.3	2.1	6
0.55	80	**1LA7 080-4AA..**	16	0.0015	1395	67	0.82	1.45	3.7	2.2	3.9	2.2	8
0.75		**1LA7 083-4AA..**	16	0.0018	1395	72	81	1.86	5.1	2.3	4.2	2.3	9.4
1.1	90 S	**1LA7 090-4AA..**	16	0.0028	1415	77	0.81	2.55	7.4	2.3	4.6	2.4	12.3
1.5	90 L	**1LA7 096-4AA..**	16	0.0035	1420	79	0.81	3.4	10	2.4	5.3	2.6	15.6
2.2	100 L	**1LA7 106-4AA..**	16	0.0048	1420	82	0.82	4.70	15	2.5	5.6	2.8	22
3		**1LA7 107-4AA..**	16	0.0058	1420	83	0.82	6.40	20	2.7	5.6	3.0	25
4	112 M	**1LA7 113-4AA..**	16	0.011	1440	85	0.83	8.20	27	2.7	6.0	3.0	31
5.5	132 S	**1LA7 130-4AA..**	16	0.018	1455	86	0.81	11.40	36	2.5	6.3	3.1	43
7.5	132 M	**1LA7 133-4AA..**	16	0.024	1455	87	0.82	15.20	49	2.7	6.7	3.2	49
11	160 M	**1LA7 163-4AA..**	16	0.040	1460	88.5	0.84	21.50	72	2.2	6.2	2.7	68
15	160 L	**1LA7 166-4AA..**	16	0.052	1460	90	0.84	28.50	98	2.6	6.5	3.0	93
18.5	180 M	**1LG4 183-4AA..**	16	0.1	1465	90.4	0.84	35	121	2.4	6.8	3.1	140
22	180 L	**1LG4 186-4AA..**	16	0.12	1465	90.8	0.84	41.50	143	2.5	6.9	3.2	155
30	200 L	**1LG4 207-4AA..**	16	0.19	1465	91.6	0.85	56	196	2.5	6.9	3.4	205
37	225 S	**1LG4 220-4AA..**	16	0.35	1475	92.2	0.85	68	240	2.5	6.9	3.0	265
45	225 M	**1LG4 223-4AA..**	16	0.52	1475	93.1	0.86	81	291	2.6	7.2	3.2	300
55	250 M	**1LG4 253-4AA..**	16	0.69	1480	93.3	0.85	100	355	2.5	6.3	2.8	390
75	280 S	**1LG4 280-4AA..**	16	1.29	1485	94.2	0.85	136	482	2.5	7.4	3.0	535
90	280 M	**1LG4 283-4AA..**	16	1.47	1485	94.6	0.86	160	579	2.5	7.4	3.0	580
110	315 S	**1LG4 310-4AA..**	16	2.00	1488	94.7	0.84	200	707	2.5	6.4	2.8	730
132	315 M	**1LG4 313-4AA..**	16	3.01	1488	95.7	0.85	235	848	2.6	6.8	2.9	810
160	315 L	**1LG4 316-4AA..**	16	3.01	1488	92.2	0.85	68	240	2.5	6.9	3.0	265
200		**1LG4 317-4AA..**	16	3.91	1486	95.9	0.87	345	1285	2.6	7.0	2.9	1060

Order No. suffixes Motor type	Penultimate position: Voltage code 50 Hz				Last Position: Type of construction code IM B3 with extra charge						
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ		IM B5	IM V1 without canopy	IM V1 with canopy	IM B14 with small flange	IM B14 with large flange	IMB 35
1LA7 050 to 1LA7 096	1	6	3	–	0	1	1	4	2	3	6
1LA7 106 to 1LA7 166	1	6	3	5	0	1	1	4	2[1)]	3[1)]	6
1LG4 183 to 1LG4 313	1	6	3	5	0	1	1	4	–	–	6
1LG4 316 to 1LG4 318	–	6	–	5	0	–	8	4	–	–	6

1) Only available up to 1LA7 113.

Rated Output	Frame Size	Order No.	Torque Class	Moment of Inertia	Performance at rated output					Locked rotor torque	Locked rotor current	Break-down torque	Weight
		For order no. suffixes for voltage and type of construction - see table below			Rated Speed	Efficiency	Power Factor	Rated current at 400V	Rated torque	For direct-online starting in multiples of rated			
kW			CL	kg m²	rpm	η	cos φ	A	Nm	torque	current	torque	kg
6-pole													
0.09	63	**1LA7 063-6AB..**	13	0.0004	850	45	0.66	0.44	1	1.8	2.0	1.9	4.1
0.18	71	**1LA7 070-6AA..**	16	0.0006	835	56	0.75	0.62	2	2.1	2.3	1.9	6.3
0.25		**1LA7 073-6AA..**	16	0.0009	830	61	0.76	0.78	2.8	2.2	2.7	2.0	6.3
0.37	80	**1LA7 080-6AA..**	16	0.0015	920	62	0.72	1.2	3.9	1.9	3.1	2.1	7.5
0.55		**1LA7 083-6AA..**	16	0.0018	910	67	0.74	1.6	5.8	2.1	3.4	2.2	9.4
0.75	90 S	**1LA7 090-6AA..**	16	0.0028	915	69	0.76	2.1	7.8	2.2	3.7	2.2	12.5
1.1	90 L	**1LA7 096-6AA..**	16	0.0035	915	72	0.77	2.9	11.5	2.3	3.8	2.3	15.7
1.5	100 L	**1LA7 106-6AA..**	16	0.0063	925	74	0.75	3.9	15	2.3	4.0	2.3	24
2.2	112 M	**1LA7 113-6AA..**	16	0.011	940	78	0.78	5.2	22	2.2	4.6	2.5	27
3	132 S	**1LA7 130-6AA..**	16	0.015	950	79	0.76	7.2	30	1.9	4.2	2.2	41
4	132 M	**1LA7 133-6AA..**	16	0.019	950	80.5	0.76	9.4	40	2.1	4.5	2.4	46
5.5		**1LA7 134-6AA..**	16	0.025	950	83	0.76	12.8	55	2.3	5.0	2.6	54
7.5	160 M	**1LA7 163-6AA..**	16	0.041	960	86	0.74	17	75	2.1	4.6	2.5	76
11	160 L	**1LA7 166-6AA..**	16	0.049	960	87.5	0.74	24.5	109	2.3	4.8	2.6	102
15	180 L	**1LG4 186-6AA..**	16	0.18	970	88.9	0.83	29.5	148	2.3	5.5	2.5	150
18.5	200 L	**1LG4 206-6AA..**	16	0.24	975	89.8	0.81	36.5	181	2.5	5.8	2.5	195
22	200 L	**1LG4 207-6AA..**	16	0.29	975	90.3	0.81	43.5	215	2.6	5.9	2.6	205
30	225 M	**1LG4 223-6AA..**	16	0.49	978	91.6	0.83	57	293	2.7	5.9	2.5	280
37	250 M	**1LG4 253-6AA..**	16	0.81	982	92.3	0.83	70	360	2.6	6.0	2.3	370
45	280 S	**1LG4 280-6AA..**	16	1.17	985	92.4	0.85	83	436	2.5	6.4	2.5	475
55	280 M	**1LG4 283-6AA..**	16	1.53	985	92.7	0.86	100	533	2.5	6.4	2.5	510
75	315 S	**1LG4 310-6AA..**	16	2.20	988	93.3	0.84	138	725	2.4	6.5	2.8	685
90	315 M	**1LG4 313-6AA..**	16	2.65	988	93.9	0.84	164	870	2.5	6.8	2.9	750
110	315 L	**1LG4 316-6AA..**	16	3.35	988	92.3	0.86	196	1063	2.5	6.9	2.9	870
132		**1LG4 317-6AA..**	16	4.20	988	94.8	0.85	235	1276	2.5	7.0	3.0	980
160		**1LG4 318-6AA..**	16	4.80	988	95	0.86	285	1547	2.7	7.2	2.9	1105
8-pole													
0.09	71	**1LA7 070-8AB..**	13	0.0009	630	53	0.68	0.36	1.4	1.9	2.2	1.7	6.3
0.12		**1LA7 073-8AB..**	13	0.0009	645	53	0.64	0.51	1.8	2.2	2.2	2.0	6.3
0.18	80	**1LA7 080-8AB..**	13	0.0015	675	51	0.68	0.75	2.5	1.7	2.3	1.9	7.5
0.25		**1LA7 083-8AB..**	13	0.0018	685	55	0.64	1.03	3.5	2.0	2.6	2.2	9.4
0.37	90 S	**1LA7 090-8AB..**	13	0.0025	675	63	0.75	1.13	6.2	1.6	2.9	1.8	10.5
0.55	90L	**1LA7 096-8AB..**	13	0.0035	675	66	0.76	1.58	7.8	1.7	3.0	1.9	13.2
0.75	100 L	**1LA7 106-8AB..**	13	0.0053	680	66	0.76	2.15	11	1.6	3.0	1.9	20
1.1		**1LA7 107-8AB..**	13	0.007	680	72	0.76	2.9	16	1.8	3.3	2.1	22
1.5	112 M	**1LA7 113-8AB..**	13	0.013	705	74	0.76	3.9	21	1.8	3.7	2.1	24
2.2	132 S	**1LA7 130-8AB..**	13	0.014	700	75	0.74	5.7	30	1.9	3.9	2.3	41
3	132 M	**1LA7 133-8AB..**	13	0.019	700	77	0.74	7.6	40	2.1	4.1	2.4	49
4	160 M	**1LA7 163-8AB..**	13	0.035	715	80	0.72	10	54	2.2	4.5	2.6	61
5.5		**1LA7 164-8AB..**	13	0.043	710	83.5	0.73	13	74	2.3	4.7	2.7	70
7.5	160 L	**1LA7 166-8AB..**	13	0.062	715	85.5	0.72	17.6	100	2.7	5.3	3.0	91
11	180 L	**1LG4 186-8AB..**	13	0.17	720	87.5	0.73	25	146	1.7	4.6	2.1	150
15	200 L	**1LG4 207-8AB..**	13	0.29	725	87.7	0.76	32.5	198	2.1	5.1	2.6	205
18.5	225 S	**1LG4 220-8AB..**	13	0.48	730	89.1	0.78	38.5	242	2.2	5.6	2.8	270
22	225 M	**1LG4 223-8AB..**	13	0.55	730	89.7	0.79	45	288	2.2	5.6	2.7	290
30	250 M	**1LG4 253-8AB..**	13	0.84	732	91.4	0.81	58	391	2.2	5.5	2.4	385
37	280 S	**1LG4 280-8AB..**	13	1.23	735	92	0.81	72	481	2.1	5.5	2.1	475
45	280 M	**1LG4 283-8AB..**	13	1.44	735	92.4	0.81	87	585	2.1	5.5	2.1	515
55	315 S	**1LG4 310-8AB..**	13	2.20	738	92.7	0.81	106	712	2.1	5.8	2.6	680
75	315 M	**1LG4 313-8AB..**	13	2.52	738	93.1	0.83	140	971	2.2	5.8	2.6	745
90	315 L	**1LG4 316-8AB..**	13	3.21	738	93.2	0.83	168	1165	2.2	5.8	2.7	855
110		**1LG4 317-8AB..**	13	4.16	738	93.9	0.83	205	1423	2.3	6.1	2.8	1020
132		**1LG4 318-8AB..**	13	4.70	738	94.2	0.83	245	1708	2.4	6.5	2.9	1100

Order No. suffixes Motor type	Penultimate position: Voltage code 50 Hz				Last Position: Type of construction code IM B3 with extra charge						
	230 VΔ / 400 VY	400 VΔ / 690 VY	500 VY	500 VΔ		IM B5	IM V1 without canopy	IM V1 with canopy	IM B14 with small flange	IM B14 with large flange	IMB 35
1LA7 050 to 1LA7 096	1	6	3	–	0	1	1	4	2	3	6
1LA7 106 to 1LA7 166	1	6	3	5	0	1	1	4	2[1)]	3[1)]	6
1LG4 183 to 1LG4 313	1	6	3	5	0	1	1	4	–	–	6
1LG4 316 to 1LG4 318	–	6	–	5	0	–	8	4	–	–	6

1) Only available up to 1LA7 113.

DIMENSIONS

Dimension drawings in accordance with DIN EN 50 347 and IEC 60 072.

Fits

The shaft extensions (DIN 748) and centering spigot diameters (DIN 42 948) specified in the dimension tables are designed with the following fits:

Dimension symbol	**ISO fit acc. to DIN ISO 286-2**	
D, DA	< 30	j 6
	>30 to 50	k6
	>50	m6
N	< 250	j6
	>250	h6
F, F A		h9

The bore holes in couplings and belt pulleys should have an ISO fit of at least H7.

Dimensional tolerances

The deviations specified below are permitted for the dimensions shown in the tables in bold print:

Dimension symbol	**Dimension**	**Permitted deviation**
A, B	< 250	± 0.75
	> 250 to 500	± 1.0
	> 500 to 750	± 1.5
	> 750 to 1000	± 2.0
	> 1000	± 2.5
M	< 200	± 0.25
	> 200 to 500	± 0.5
	>500	±1.0
H	< 250	– 0.5
	> 250	– 1.0
E, EA		– 0.5

The keyways and the featherkeys (bold dimensions GA, GC, F and FA) conform to DIN 6885, Part 1.

Note
Siemens reserves the right to change technical information without notice. Dimensions in the catalogue may get out of date. Up-to-date dimension drawings can be issued at no extra cost.

Flanges

In the DIN EN 50 347 standard, the FF flanges with through-holes and the FT flanges with threaded holes are assigned to the frame sizes.

The DIN 42 948 standard with the flanges A and C is further valid.

All dimensions stated are in mm.

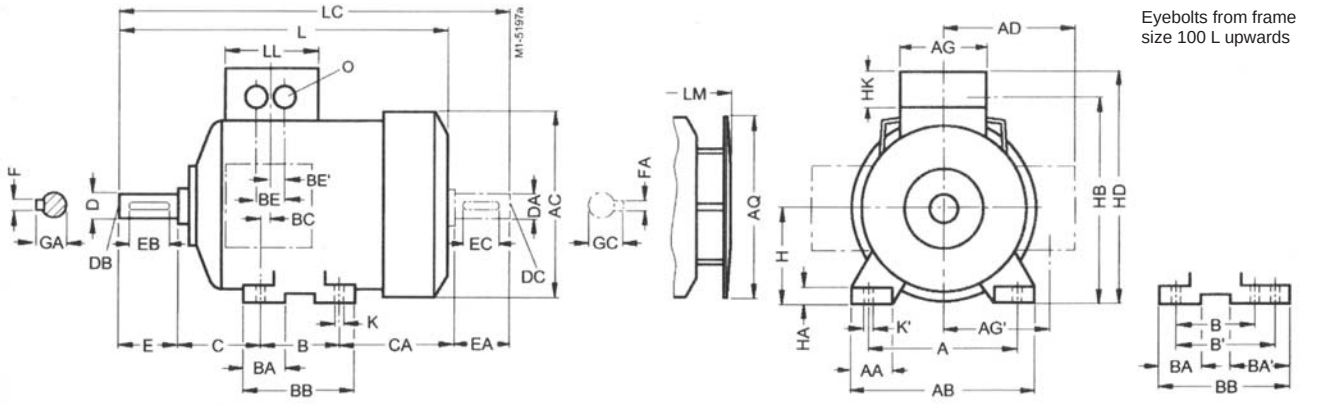
Flange assignment to motor sizes

Motor size	Flange with through-holes acc. to DIN EN 50-347	acc. to DIN 42 948	Flange with threaded-holes acc. to DIN EN 50 347	acc. to DIN 42 948
56	FF 100	A 120	FT 65	C 80
63	FF 115	A 140	FT 75	C 90
71	FF 130	A 160	FT 85	C 105
80	FF 165	A 200	FT 100	C 120
90	FF 165	A 200	FT 115	C 140
100	FF 215	A 250	FT 130	C 160
112	FF 215	A 250	FT 130	C 160
132	FF 265	A 300	FT 165	C 200
160	FF 300	A 350	FT 215	C 250
180	FF 300	A 350		
200	FF 350	A 400		
225	FF 400	A 450		
250	FF 500	A 550		
280	FF 500	A 550		
315	FF 600	A 660		

DIMENSIONS

Types of Constuction IM B3

1LA7 - Frame sizes 56 to 160 L



Eyebolts from frame size 100 L upwards

Frame size 90 S/L has feet with 2 holes each at the non-drive end

Frame size	Type	Series	No. of poles	IEC DIN	A b	AA n	AB f	AC g	AD p_1	AG r	AG' y	AQ j	B a	B' a'	BA m	BA' m_1	BB e	BC x_3	BE x	BE' x_2	C w_1	CA w_2	H h
56	**1LA7**	050• 053•	2 to 4		**90**	25	110	116	–	75	–	–	**71**	–	28	–	87	33.5	32	14	**36**	53	**56**
63		060 063	2 to 6		**100**	27	120	118	–	75	–	125	**80**	–	28	–	96	29.5	32	14	**40**	66	**63**
71		070 073	2 to 8		**112**	30.5	132	145	–	75	–	125	**90**	–	27	–	106	18.5	32	14	**45**	83	**71**
80		080 083	2 to 8		**125**	30.5	150	162	120	75	96.5	125	**100**	–	32	–	118	13.5	32	14	**50**	94	**80**
90S 90 L		090 096	2 to 8		**140**	30.5	165	181	128	75	104.5	170	**100*** **100***	125 **125***	33	54	143	26.5	32	14	**56**	143	**90**
100L		106 107	2 to 8 4 and 8		**169**	42	196	202	163	120	123	170	**140**	–	47	–	176	39	42	21	**63**	125	**100**
112M		113	2 to 8		**190**	46	226	227	176	120	136	170	**140**	–	47	–	176	32	42	21	**70**	141	**112**
132S		130 131	2 to 8 2		**216**	53	256	266	194	140	154	250	**140**	–	49	–	180	39	42	21	**89**	163	**132**
132M		133 134	4 to 8 6		**216**	53	256	266	194	140	154	250	**178**	–	49	–	218	39	42	21	**89**	125	**132**
160M		163	2 to 8		**254**	60	300	319	226	165	183	250	**210**	–	57	–	256	52.5	54	27	**108**	183	**160**
160L		164 166	2 and 8 2 to 8		**254**	60	300	319	226	165	183	250	**254**	–	57	–	300	52.5	54	27	**108**	139	**160**

* This dimension is assigned to the specified frame size in DIN EN 50 347.

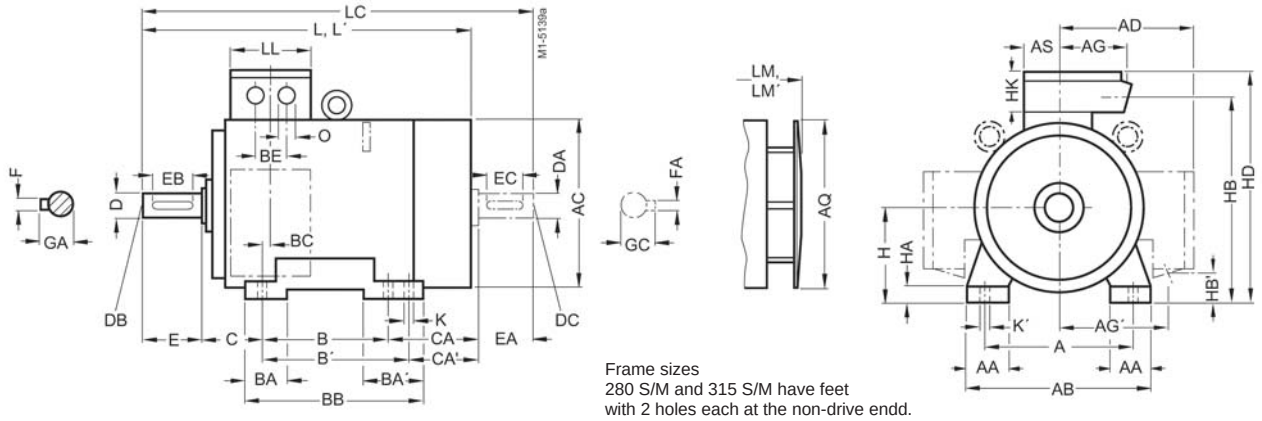
• Motors in frame size 56 are non-ventilated.

											Drive-end shaft extension						Non-drive-end shaft extension					
HA c	HB' v	HD p	HK x_4	**K** **s**	K' k_1	L k	LC k_1	LL x_1	LM k_2	O S_3	**D** **d**	**DB** **d_6**	**E** **l**	**EB**	**F** **u**	**GA** **t**	DA d_1	DC d_7	EA l_1	EC	FA u_1	GC t_1
6	133.5	157	39	**5.8**	9	169	200	75	–	M 16 x 1.5 M 25 x 1.5	**9**	**M3**	**20**	**14**	**3**	**10.2**	9	M3	20	14	3	10.2
7	140.5	164	39	**7**	10	202.5	232	75	236	M 16 x 1.5 M 25 x 1.5	**11**	**M4**	**23**	**16**	**4**	**12.5**	11	M4	23	16	4	12.5
7	158.5	182	39	**7**	10	240	278	75	269	M 16 x 1.5 M 25 x 1.5	**14**	**M5**	**30**	**22**	**5**	**16**	14	M5	30	22	5	16
8	176.5	200	39	**9.5**	13.5	274	324	75	303	M 16 x 1.5 M 25 x 1.5	**19**	**M6**	**40**	**32**	**6**	**21.5**	19	M6	40	32	6	21.5
10	194.5	218	39	**10**	14	332	389	75	366	M 16 x 1.5 M 25 x 1.5	**24**	**M8**	**50**	**40**	**8**	**27**	19	M6	40	32	6	21.5
12	178	235	35	**12**	16	373	438	120	424	M 32 x 1.5	**28**	**M10**	**60**	**50**	**8**	**31**	24	M8	50	40	8	27
12	203	260	35	**12**	16	394	461	120	445	M 32 x 1.5	**28**	**M10**	**60**	**50**	**8**	**31**	24	M8	50	40	8	27
15	239	299	36	**12**	16	453.5	552	140	506	M 32 x 1.5	**38**	**M12**	**80**	**70**	**10**	**41**	38	M12	80	70	10	41
15	239	299	36	**12**	16	453.5	552	140	506	M 32 x 1.5	**38**	**M12**	**80**	**70**	**10**	**41**	38	M12	80	70	10	41
18	287	357	42	**15**	19	588	721	165	641	M 40 x 1.5	**42**	**M16**	**110**	**90**	**12**	**45**	42	M16	110	90	12	45
18	287	357	42	**15**	19	588	721	165	641	M 40 x 1.5	**42**	**M16**	**110**	**90**	**12**	**45**	42	M16	110	90	12	45

DIMENSIONS

Types of Constuction IM B3

1LG4 - Frame sizes 180M to 315 L



Frame sizes
280 S/M and 315 S/M have feet
with 2 holes each at the non-drive endd.

Frame size	Type	Series	No. of poles	IEC DIN	A b	AA n	AB f	AC g	AD p_1	AG r	AG' y	AQ j	AS r_2	B a	B' a'	BA m	BA' m_1	BB e	BC x_3	BE x	C w_1	CA w_2	CA' w_2	H GC
180M 180L	**1LG4**	183 186	2 and 4 4 to 8		**279**	65	340	364	262	81	220	340	71	**241*** **241**	**279** **279***	50	91	328	36	54	**121**	202	– 164	**180**
200L		206 207	2 and 6 2 to 8		**318**	70	380	402	300	164	247	340	96	**305**	**–**	60	60	355	63	85	**133**	177	–	**200**
225S 225M		220 223 4 to 8	4 and 8 2		**356**	80	436	452	325	164	275	425	96	**286*** **286**	**311** **311***	85	110	361	47	85	**149**	218 –	– 193	**225**
250M		253	2 4 to 8		**406**	100	490	502	370	183	310	470	117	**349**	**–**	100	100	409	69	110	**168**	305	–	**250**
280S		280	2 4 to 8		**457**	100	540	555	432	182	348	525	118	**368***	**419**	100	151	479	62	110	**190**	267	216	**280**
280M		283	2 4 to 8		**457**	100	540	555	432	182	348	525	118	**368**	**419***	100	151	479	62	110	**190**	267	216	**280**
315S		310	2 4 to 8		**508**	120	610	610	500	226	400	590	154	**406***	**457**	125	176	527	69	110	**216**	315	264	**315**
315M		313	2 4 to 8		**508**	120	610	610	500	226	400	590	154	**406**	**457***	125	176	527	69	110	**216**	315	264	**315**
315L		316 317 318	2 4 to 8 8 6		**508** **508** **508**	120	610	610	500	226	400	590	154	**457** **406**	**508*** **457**	125 155	250 176 250	578 578 666	69	110	**216**	424 424 615	373 373 564	**315**

* This dimension is assigned to the specified frame size in DIN EN 50 347.

1) Measured across the bold heads.

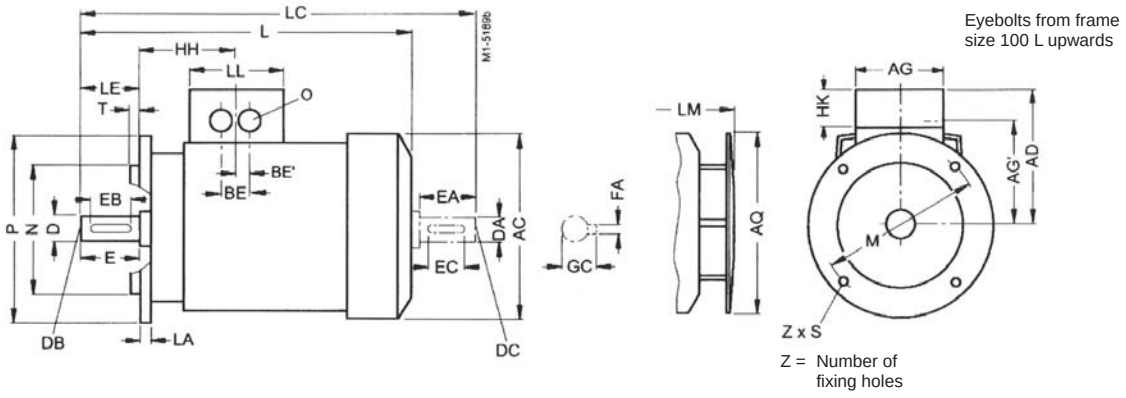
Dimensions Sheets

												Drive-end shaft extension						Non-drive-end shaft extension					
HA v	HB v	HB' v'	HD p	HK x_4	**K** **s**	K' s_1	L k	LC k_1	LL x_1	LM k_2	O S_3	**D** **d**	**DB** **d_6**	**E** **l**	**EB**	**F** **u**	**GA** **t**	DA d_1	DC d_7	EA l_1	EC	FA u_1	GC t_1
15	400	99	442	79	**15**	19	670	784	132	760	M40x1.5	**48**	**M16**	**110**	**100**	**14**	**51.5**	48	M16	110	100	14	51.5
20	447	36	500	101	**19**	25	720	835	192	810	M50x1.5	**55**	**M20**	**110**	**100**	**16**	**59**	55	M20	110	100	16	59
34	500	59	550	100	**19**	25	790 760 790	903 873 903	197	890 860 890	M50x1.5	**60** **55** **60**	**M20**	**140** **110** **140**	**125** **100** **125**	**18** **16** **18**	**64** **59** **64**	55 48 55	M20 M16 M20	110	100	16 14 16	59 51.5 59
40	560	67	620	135	**24**	30	890	1002 1032	236	990	M63X1.5	**60** **65**	**M20**	**140**	**125**	**18**	**64** **69**	55 60	M20	110 140	100 125	16 18	59 64
40	628	98	712	142	**24**	30	960	1105	236	1070	M63X1.5	**65** **75**	**M20**	**140**	**125**	**18** **20**	**69** **79.5**	60 65	M20	140	125	18	64 69
40	628	98	712	142	**24**	30	960	1105	236	1070	M63X1.5	**65** **75**	**M20**	**140**	**125**	**18** **20**	**69** **79.5**	60	M20	140	125	18	64 69
50	715	89	815	170	**28**	35	1072 1102	1217 1247	307	1182 1212	M63X1.5	**65** **80**	**M20**	**140** **170**	**125** **140**	**18** **22**	**69** **85**	60 70	M20	140	125	18	64 74.5
50	715	89	815	170	**28**	35	1072 1102	1217 1247	307	1182 1212	M63X1.5	**65** **80**	**M20**	**140** **170**	**125** **140**	**18** **22**	**69** **85**	60 70	M20	140	125	18 20	64 74.5
50	715	89	815	170	**28**	35	1232 1262	1377 1407	307	1342 1372	M63X1.5	**65** **80**	**M20**	**140** **170**	**125** **140**	**18** **22**	**69** **85**	60 70	M20	140	125	18 20	64 74.5
30	715	89	815	170	**28**	35	1372 1402	1517 1547	307	1482 1512	M63X1.5	**80** **80**	**M20**	**170** **170**	**140** **140**	**22** **22**	**85** **85**	70 70	M20	140	125	20 20	74.5 74.5

DIMENSIONS

Types of Constuction IM B5

1LA7 - Frame sizes 56 to 160 L



Frame Size	Type	Series	No. of poles	IEC DIN	Flange size	AC g	AD p_1	AG r	AG' y	AQ j	BE x	BE' x_2	HH x_5	HK x_4	L k	LA c_1	LC k	LE i
56	**1LA7**	050• 053•	2 to 4		**A 120**	116	101	75	77.5	–	32	14	69.5	39	169	8	200	**20**
63		060 063	2 to 6		**A 140**	118	101	75	77.5	125	32	14	69.5	39	202.5	8	232	**23**
71		070 073	2 to 8		**A 160**	145	111	75	87.5	125	32	14	63.5	39	240	9	278	**30**
80		080 083	2 to 8		**A 200**	162	120	75	96.5	125	32	14	63.5	39	274	10	324	**40**
90S 90L		090 096	2 to 8		**A 200**	181	128	75	104.5	170	32	14	72	39	332	10	389	**50**
100L		106 107	2 to 8 4 and 8		**A 250**	202	135	120	78	170	42	21	102	35	373	11	438	**60**
112M		113	2 to 8		**A 250**	227	148	120	91	170	42	21	102	35	394	11	461	**60**
132S		130 131	2 to 8 2		**A 300**	266	167	140	107	250	42	21	128	36	453.5	12	552	**80**
132M		133 134	4 to 8 6		**A 300**	266	167	140	107	250	42	21	128	36	453.5	12	552	**80**
160M		163 164	2 to 8 2 and 8		**A 350**	319	197	165	127	250	54	27	160.5	42	588	13	721	**110**
160L		166	2 to 8		**A 350**	319	197	165	127	250	54	27	160.5	42	588	13	721	**110**

* This dimension is assigned to the specified frame size in DIN EN 50 347.

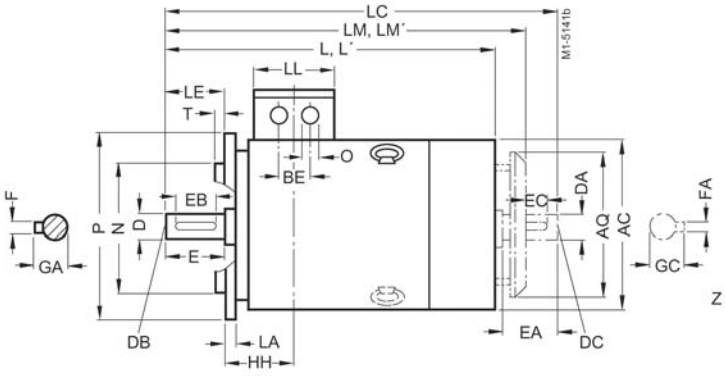
• Motors in frame size 56 are non-ventilated.

									Drive-end shaft extension						Non-drive-end shaft extension					
LL x_1	LM k_1	**M e_1**	**N b_1**	O s_3	**P a_1**	**S s_2**	T f_1	Z z_1	**D d**	**DB d_6**	**E l**	**EB**	**F u**	**GA t**	DA d_1	DC d_2	EA l_1	EC	FA u_1	GC t_1
75	–	**100**	**80**	M16x1.5 M25x1.5	**120**	**7**	3	4	**9**	**M3**	**20**	**14**	**3**	**10.2**	9	M3	20	14	3	10.2
75	236	**115**	**95**	M16x1.5 M25x1.5	**120**	**7**	3	4	**9**	**M3**	**23**	**16**	**3**	**12.5**	11	M4	23	16	3	12.5
75	269	**130**	**110**	M16x1.5 M25x1.5	**160**	**10**	3.5	4	**14**	**M5**	**30**	**22**	**3**	**16**	14	M5	30	22	3	16
75	303	**165**	**130**	M16x1.5 M25x1.5	**200**	**12**	3.5	4	**19**	**M6**	**40**	**32**	**6**	**21.5**	19	M6	40	32	6	21.5
75	366	**165**	**130**	M16x1.5 M25x1.5	**200**	**12**	3.5	4	**24**	**M8**	**50**	**40**	**8**	**27**	19	M6	40	32	6	21.5
75	424	**215**	**180**	M32x1.5	**250**	**14**	4	4	**28**	**M10**	**60**	**50**	**8**	**31**	24	M8	50	40	8	27
75	445	**215**	**180**	M32x1.5	**250**	**14**	4	4	**28**	**M10**	**60**	**50**	**8**	**31**	24	M8	50	40	8	27
75	506	**265**	**230**	M32x1.5	**300**	**14.5**	4	4	**38**	**M12**	**80**	**70**	**10**	**41**	38	M12	80	70	10	41
75	506	**265**	**230**	M32x1.5	**300**	**14.5**	4	4	**38**	**M12**	**80**	**70**	**10**	**41**	38	M12	80	70	10	41
75	641	**300**	**250**	M40x1.5	**350**	**18.5**	5	4	**42**	**M16**	**110**	**90**	**12**	**45**	42	M16	110	90	12	45
75	641	**300**	**250**	M40x1.5	**350**	**18.5**	5	4	**42**	**M16**	**110**	**90**	**12**	**45**	42	M16	110	90	12	45

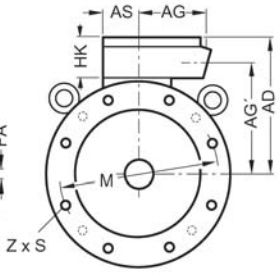
DIMENSIONS

Types of Constuction IM B5

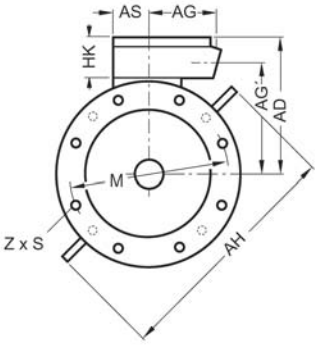
1LG4 - Frame sizes 180M to 315 L



Type of construction IM B 5
(up to frame size 315 M only)



Type of construction IM V 1



The motors are supplied with two fitted eyebolts conforming to IMB5.
One of them can be repositioned to conform to IMV1 or IMV3.
care must be taken to avoid perpendicular stress.

Z = Number of fixing holes

Frame size	Type	Series	No. of poles	IEC DIN	Flange size	AC g	AD p_1	AH p_3	AG r	AG' y	AQ j	AS r_2	BE x	HH o_1	HK x_4	L k	LA c_1	LC k_1	LE i_2	LL x_1
180M 180L	**1LG4**	183 186	2 and 4 4 to 8		**A 350**	364	262	452	81	220	340	71	54	157	79	670	13	784	**110**	132
200L		206 207	2 and 6 2 to 8		**A 400**	402	300	486	164	247	340	96	85	196	101	720	15	835	**110**	192
225S 225M		220 223	4 and 8 2 4 to 8		**A 450**	452	325	556	164	275	425	96	85	196	100	790 760 790	16	903 873 903	**140** **110** **140**	197
250M		253	2 4 to 8		**A 550**	502	370	620	183	310	470	117	110	237	135	890	18	1002 1032	**140**	236
280S		280	2 4 to 8		**A 550**	555	432	672	182	348	525	118	110	252	142	960	18	1105	**140**	236
280M		283	2 4 to 8		**A 550**	555	432	672	182	348	525	118	110	252	142	960	18	1105	**140**	236
315S		310	2 4 to 8		**A 660**	610	500	780	226	400	590	154	110	285	170	1072 1102	22	1217 1247	**140** **170**	307
315M		313	2 4 to 8		**A 660**	610	500	780	226	400	590	154	110	285	170	1072 1102	22	1217 1247	**140** **170**	307
315L		316 317 318	2 4 to 8 8 6		**A 660** **A 660**	610 610	500 500	780 780	226 226	400 400	590 590	154 154	110 110	285 285	170 170	1232 1262 1262 1402	22 22	1377 1407 1407 1547	**140** **170** **170** **170**	307 307

1) Measured across the bold heads.

Dimensions Sheets

									Drive-end shaft extension					Non-drive-end shaft extension					
LM k_2	**M** **e_1**	**N** **b_1**	O S_3	**P** **a_1**	**S** **s_2**	T f_1	Z z_1	**D** **d**	**DB** **d_6**	**E** **l**	**EB**	**F** **u**	**GA** **t**	DA d_1	DC d_2	EA l_1	EC	FA u_1	GC t_1
760	**300**	**250**	M40x1.5	**350**	**18**	5	4	**48**	**M16**	**110**	**100**	**14**	**51.5**	48	M16	110	100	14	51.5
810	**350**	**300**	M50x1.5	**400**	**18**	5	4	**55**	**M20**	**110**	**100**	**16**	**59**	55	M20	110	100	16	59
890	**400**	**350**	M50x1.5	**450**	**18**	5	8	**60**	**M20**	**140**	**125**	**18**	**64**	55	M20	110	100	16	59
860								**55**	**M20**	**110**	**100**	**16**	**59**	48	M16			14	51.5
890								**60**	**M20**	**140**	**125**	**18**	**64**	55	M20			16	59
990	**500**	**450**	M63x1.5	**550**	**18**	5	8	**60**	**M20**	**140**	**125**	**18**	**64**	55	M20	110	100	16	59
								65					**69**	60		140	125	18	64
1070	**500**	**450**	M63x1.5	**550**	**18**	5	8	**65**	**M20**	**140**	**125**	**18**	**69**	60	M20	140	125	18	64
								75				**20**	**79.5**	65					69
								65				**18**	**69**	60	M20	140	125	18	64
1070	**500**	**450**	M63x1.5	**550**	**18**	5	8	**75**	**M20**	**140**	**125**	**20**	**79.5**	65					69
1182	**600**	**550**	M63x1.5	**660**	**22**	6	8	**65**	**M20**	**140**	**125**	**18**	**69**	60	M20	140	125	18	64
1212								**80**		**170**	**140**	**22**	**85**	70				20	74.5
1182	**600**	**550**	M63x1.5	**660**	**22**	6	8	**65**	**M20**	**140**	**125**	**18**	**69**	60	M20	140	125	18	64
1212								**80**		**170**	**140**	**22**	**85**	70				20	74.5
1342	**600**	**550**	M63x1.5	**660**	**22**	6	8	**65**	**M20**	**140**	**125**	**18**	**69**	60	M20	140	125	18	64
1372								**80**		**170**	**140**	**22**	**85**	70				20	74.5
1372	**600**	**550**	M63x1.5	**660**	**22**	6	8	**80**	**M20**	**140**	**140**	**22**	**85**	70	M20	140	125	20	74.5
1512								**80**		**170**	**140**	**22**	**85**	70				20	74.5

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quality system.

A quality audit, documented in an audit report, has verified that this quality system fulfills the requirements of the following standard:

DIN EN ISO 9001
August 1994 edition

This certificate is valid until: 2002-07-01
Certificate Registration No.: 357-05
Frankfurt am Main, Berlin: 1999-07-02

This certificate is based on a quality audit in cooperation with VDE Prüf- und Zertifizierungsinstitut - VDE Verband der Elektrotechnik Elektronik Informationstechnik e.V.

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