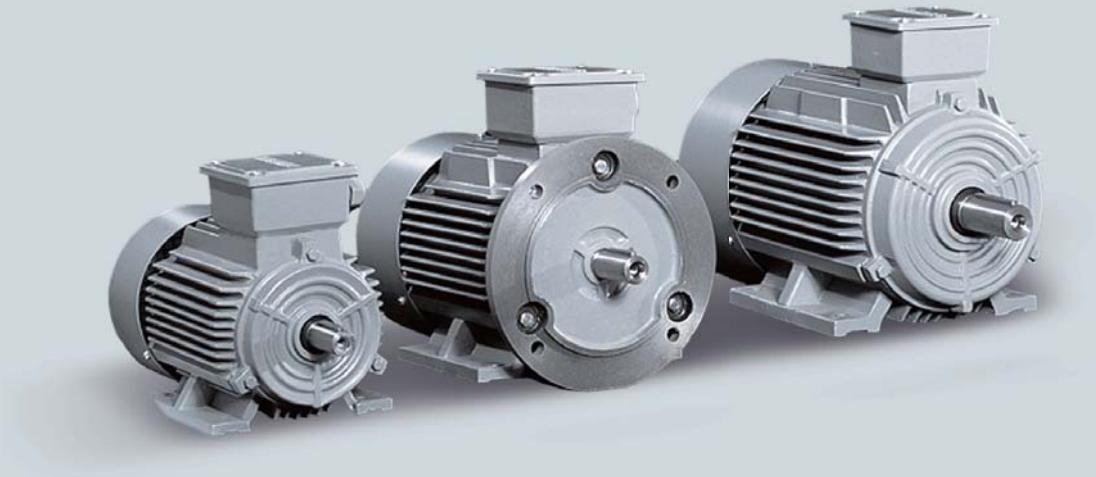
Low-voltage motors up to 315kW

Catalog D81.5 • 11.2010

1LG0 Low-voltage Motors

Answers for industry.

SIEMENS



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Overview

The 1LG0 series of 3 phase asynchronous motors are Totally Enclosed Fan Cooled (TEFC) with IP55 environmental protection. These motors are designed and manufactured in accordance with ISO, IEC standards.

Features of Siemens 1LG0 series

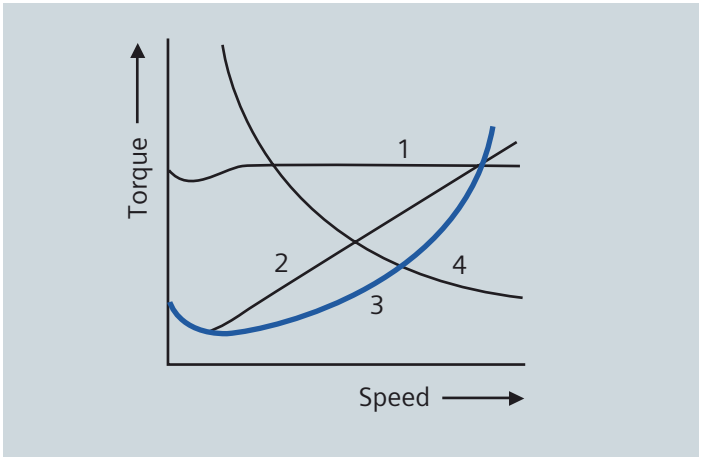
- Frame and terminal box material: Grey cast iron
- Standard colour: Stone Grey RAL 7030
- Available in 2,4,6 pole variants with efficiency class IE1 according to IEC60034-30
- Specific wound stators supporting multiple 3PH mains supply voltages at 50Hz or 60Hz
- Frame sizes: 80mm ~ 355mm
- Rated power range: 0.55kW ~ 315kW at 50Hz
- Standard mounting types and variations (IEC 60034-7)
- TEFC with IP55 degree of protection (IEC 60034-5)
- Overload capacity of 1.5 times rated current for 2 minutes (IEC 60034-1)
- V-ring as standard on DE rotor shaft for motor with FS 80 ~ 132, and oil seal as option; Oil seal as standard for motor with FS160 and above
- Anti-condensation heater (space heater) as option
- Winding protection with PTC and PT100 as option
- Insulation class: F, used according to temperature rise B

[1] FS, abbreviation of "Frame size".

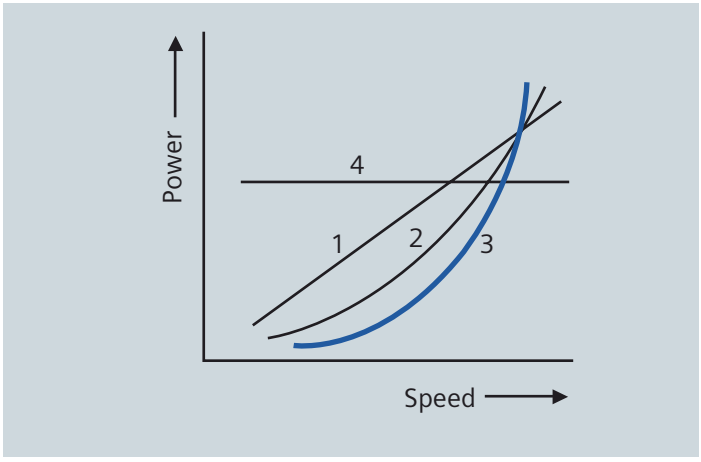
- Flexible cable entry (Rotatable terminal box)
- Rotor shaft with closed keyway (A type key) and NDE shaft extension
- Dynamically balanced rotor with a half key
- Drain plug on FS 160 ~ 355 motor as standard
- Ribbed end shields for better bearing heat dissipation and prolonged bearing life
- Lubrication of bearing
  - FS 80 ~ 160 motor - greased for life
  - FS 180 ~ 280 motor - regreasable when ordered with K40 option
  - FS 315 ~ 355 motor - with regreasing device as standard

The 1LG0 is a General Purpose Motor with cast iron frame designed for constant or adjustable speed with continuous duty operation (S1) requiring variable torque over a speed range.

Load torque characteristics



Torque / speed characteristic



Power / speed characteristic

1. Torque almost constant; power proportional to speed.
2. Torque increases proportionally with the speed; power proportional to the square of the speed.
3. Torque increases proportionally with the square of the speed; power proportional to the cube of the speed. (applicable for 1LG0 series motors)
4. Torque decreases in inverse proportion to the speed; power constant.

1LG0 motors are suitable for pumps, fans, compressors and HVAC applications where variable or constant speed is required (Curve 3). For more demanding applications we recommend Siemens consultation.

Motor standards

The 1LG0 complies with the following electrical and mechanical standards:

Standard title	DIN / VDE / EN	IEC standard
General regulations for rotation and electrical machines	DIN EN 60034-1	IEC 60034-1 IEC 60085
AC induction motors for general use with standardized dimensions and power	DIN EN 50347	IEC 60072
Restart characteristic of rotation electrical machines	DIN EN 60034-12	IEC 60034-12
Terminal markings and direction rotation of rotating electrical machines	DIN VDE 0530-8	IEC 60034-8
Type of construction and installation	DIN EN 60034-7	IEC 60034-7
IEC standard voltage	DIN IEC 60038	IEC 60038
Cooling methods for rotation electrical machines	DIN EN 60034-6	IEC 60034-6
Mechanical vibrations of rotating electrical machines	DIN EN 60034-14	IEC 60034-14
Degrees of protection for rotating	DIN EN 60034-5	IEC 60034-5
Rotating electrical machines and - Part 9 : Noise limits	IEC 60034-9:2007	EN 60034-9:2007
Guide for the design and performance of cage induction motors specifically designed for converter supply	DIN IEC 60034-17	IEC 60034-17

IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and
CQC
hereby certify that the organization

Siemens Standard Motors Ltd.

No.110, West Street, Qingshan Town, Yizheng City, Jiangsu Prov., P.R.China

For the following field of activities
Design, Production and Service of Three-phase Asynchronous Motor (H63-355)

Has implemented and maintains a
Management System
Which fulfils the requirements of the following standard
ISO9001:2000

Issued on: Jul. 13, 2009
Validity date: Jul. 12, 2012
Registration Number: ***00109Q19009R2L/3200***

René Wasmer
President of IQNet

Wang Kejiao
President of CQC

IQNet Partners*:

Nemko

ATTESTATION OF CONFORMITY

WITH EUROPEAN DIRECTIVE

Page 1 of 1

Order No. [illegible]

A sample of the following product has been [illegible] and is stated by Nemko to be in conformity with the applicable European safety- and EMC standards referred below.

Manufacturer	Siemens Standard Motors Ltd. 110 West Street, Qingshan Town Yizheng City P.R. CHINA
Product	Three-phase Induction Motors
Model/type	1LG0abc
Data	[illegible]V~ at 380/660V~, 50Hz or 440V~, 60Hz; 0.55kW-315kW
Other specification	IP55, 2/4/6P; Frame size 80-355mm
Standards applied	Safety std.: EN 60034-1:2004 EN 60034-5:2001
	EMC std.: EMC is based on self-declaration by the manufacturer
Statement reference	75053

It may therefore be presumed that the tested sample of the product is in conformity with the technical provisions of the following European Directives including the latest amendments, and with national legislation implementing these Directives:

- Low Voltage Directive 73/23/EEC
- EMC Directive 89/336/EEC

On this basis, the manufacturer (or the European authorized representative), may draw up an EC/EEA Declaration of Conformity and affix the CE-marking as indicated below to each conforming product.

Additional information	Description of type reference: abc = frame size: 080-355

Date of issue: 02 November 2006

Magne Levaas
Head of section

CE

Nemko AS
P.O. Box 73, Blindern
N-0314 Oslo, Norway

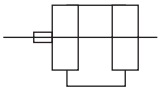
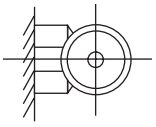
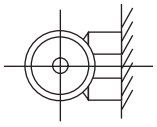
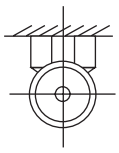
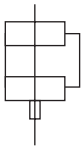
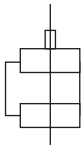
Mechanical design

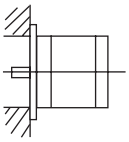
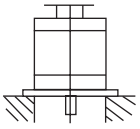
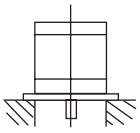
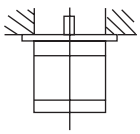
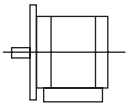
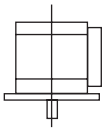
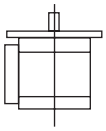
Terminal box

Terminal boxes are top mounted as default on the motor. This box can be rotated by 4 X 90° to allow for cable entry from each direction. In addition the terminal box can be installed either on the Left Hand Side (LHS – code K10) or Right Hand Side (RHS – code K09) when viewed from the drive end (DE) side of the motor.

Type	Frame Size	Protection degree	Rotation of terminal box	Number of cable grand	Terminal box materia	Terminal bus	Max. cable size (mm^2)	Cable entry size
1LG0	80	IP55	4 x 90°	2	Cast-iron	M4	2.5	M24 x 1.5 + M16 x 1.5
	90	IP55	4 x 90°	2	Cast-iron	M5	2.5	M24 x 1.5 + M16 x 1.5
	100	IP55	4 x 90°	2	Cast-iron	M5	4	M24 x 1.5 + M16 x 1.5
	112	IP55	4 x 90°	2	Cast-iron	M5	4	2 – M32 x 1.5
	132	IP55	4 x 90°	2	Cast-iron	M5	6	2 – M32 x 1.5
	160	IP55	4 x 90°	2	Cast-iron	M6	16	2 – M36 x 2
	180	IP55	4 x 90°	2	Cast-iron	M6	16	2 – M36 x 2
	200	IP55	4 x 90°	2	Cast-iron	M8	25	2 – M48 x 2
	225	IP55	4 x 90°	2	Cast-iron	M8	35	2 – M48 x 2
	250	IP55	4 x 90°	2	Cast-iron	M10	120	2 – M64 x 2
	280	IP55	4 x 90°	2	Cast-iron	M10	120	2 – M64 x 2
	315	IP55	4 x 90°	2	Cast-iron	M16	240	2 – M64 x 2
	355	IP55	4 x 90°	2	Cast-iron	M20	400	2 – M72 x 2

Construction or mounting type

Construction type	With feet and without flange on the end-shield (DE)					
Mounting type	IM B3 FS 80 ~ 355	IM B6 FS 80 ~ 160	IM B7 FS 80 ~ 160	IM B8 FS 80 ~ 160	IM V5 FS 80 ~ 225	IM V6 FS 80 ~ 225
Diagram						

Construction type	Without feet and with flange on the end-shield (DE)				With feet and with flange on the end-shield (DE)		
Mounting type	IM B5 FS 80 ~ 280	IM V1[1)] FS 80 ~ 355		IM V3 FS 80 ~ 160	IM B35 FS 80 ~ 355	IM V15 FS 80 ~ 160	IM V36 FS 80 ~ 160
Diagram							

[1)] For IMV1 with canopy and without canopy, motor has different order number.
Please find detailed information in "Technical data table".

Bearing

All motors are supplied with the ball bearing as standard. These bearings are either of the sealed or regreasable type.

Bearing design

- Floating bearing situated at DE & NDE of FS 80 ~ 160 motor;
- Fixed bearing situated at DE of FS 180 ~ 355 motor with IM B3, IM B5;
- Fixed bearing situated at DE of FS 180 ~ 225 motor with IM V1;
- Fixed bearing situated at NDE of FS 250 ~ 355 motor with IM V1;

Bearing type

Type	Frame Size	Poles	Drive-end bearing		Non-drive-end bearing	
			Horizontal mounting	Vertical mounting	Horizontal mounting	Vertical mounting
1LG0	80	2 ,4 , 6	6204 2RZC3		6204 2RZC3	
	90	2 ,4 , 6	6205 2RZC3		6205 2RZC3	
	100	2 ,4 , 6	6206 2RZC3		6206 2RZC3	
	112	2 ,4 , 6	6206 2RZC3		6206 2RZC3	
	132	2 ,4 , 6	6208 2RZC3		6208 2RZC3	
	160	2	6209 2RZC3		6209 2RZC3	
		4 , 6	6309 2RZC3		6209 2RZC3	
	180	2	6211 C3		6211 C3	
		4 , 6	6311 C3		6211 C3	
	200	2	6312 C3		6212 C3	
		4 , 6	6312 C3		6212 C3	
	225	2	6312 C3		6312 C3	
		4 , 6	6313 C3		6312 C3	
	250	2	6313 C3		6313 C3	7313AC
		4 , 6	6314 C3		6313 C3	7313AC
	280	2	6314 C3		6314 C3	7314AC
		4 , 6	6317 C3		6314 C3	7314AC
	315	2	6317 C3		6317 C3	7317AC
		4 , 6	6319 C3		6319 C3	7319AC
	355	2	6319 C3		6319 C3	7319AC
		4 , 6	6322 C3		6322 C3	7322AC

Bearing life

Frame Size	Poles	Bearing lifetime[1)]
80 ~ 355	2, 4, 6	20000 or 40000[2)] (hours)

[1)] Lifetime means that motor runs under normal operation, maintained according to operating manual.

[2)] 40000Hrs applies for horizontally installed motors with coupling output without additional axial loads and at least 20,000 hours with the admissible permitted loads.

Grease life and Relubrication interval (for horizontal installation)

Please refer to 1LG0 series motor operationg instruction for grease life and relubrication interval (for horizontal installation)

If the coolant temperature is increased by 10°C, the grease lifetime and regreasing interval is halved. Operating the 1LG0 motor beyond the rated speed will increase the mechanical stress on the motor resulting in increased vibrations, reduced bearing and grease lifespan.

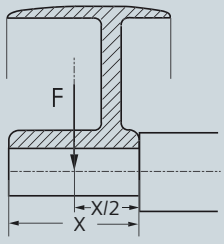
Cooling and ventilation

The 1LG0 standard motors from FS 80 ~ 355 are fitted with an radial flow fan for cooling in accordance with IEC 60034-6 cooling method.

Permissible Radial forces (F) on the DE rotor shaft

The table below contains the permissible Radial Force values in Newtons with the assumption of zero axial forces.

Frame Size	Poles	Radial force, in: N
80	2	640
	4	800
	6	920
90	2	700
	4	870
	6	1,000
100	2	970
	4	1,205
	6	1,390
112	2	1,240
	4	1,550
	6	1,790
132	2	1,485
	4	1,685
	6	2,156
160	2	1,570
	4	1,925
	6	2,125
180	2	3,010
	4	3,695
	6	4,290
200	2	4,035
	4	4,830
	6	5,520
225	2	4,420
	4	5,450
	6	6,160
250	2	5,035
	4	6,190
	6	7,060
280	2	3,690
	4	9,220
	6	10,525
315	2	3950
	4	9,900
	6	12,109
355	2	6,500
	4	10,400
	6	12,500



Permissible radial force "F" (N) applied at X/2 (mm) to shaft shoulder

Noise levels

The table below contains noise level for the1LG0 unloaded motors taken at 50Hz operation.
And all published values here have a tolerance of +3dB.

Output (kW)	synchronous speed (r/min)		
	L_{pfa} / L_{WA} (dB (A))		
	3000 (2 poles)	1500 (4 poles)	1000 (6 poles)
0.55	–	47 / 58	42 / 54
0.75	56 / 67	47 / 58	45 / 57
1.1	56 / 67	49 / 61	45 / 57
1.5	60 / 72	49 / 61	49 / 61
2.2	60 / 72	52 / 64	53 / 65
3	64 / 76	52 / 64	57 / 69
4	65 / 77	53 / 65	57 / 69
5.5	68 / 80	59 / 71	57 / 69
7.5	68 / 80	59 / 71	61 / 73
11	73 / 86	63 / 75	61 / 73
15	73 / 86	63 / 75	61 / 73
18.5	73 / 86	64 / 76	64 / 76
22	75 / 89	64 / 76	64 / 76
30	78 / 92	66 / 79	64 / 76
37	78 / 92	68 / 81	66 / 78
45	78 / 92	68 / 81	68 / 80
55	79 / 93	70 / 83	68 / 80
75	80 / 94	73 / 86	73 / 85
90	80 / 94	73 / 86	73 / 85
110	82 / 96	80 / 93	73 / 85
132	82 / 96	80 / 93	73 / 85
160	85 / 98	84 / 94	80 / 92
200	85 / 98	84 / 94	80 / 92
220	89 / 103	88 / 101	80 / 92
250	89 / 103	88 / 101	N / A
280	89 / 103	88 / 101	N / A
315	89 / 103	88 / 101	N / A

L_{pfa} – sound pressure level
L_{WA} – sound power level

Vibration

1LG0 rotors are dynamically balanced to severity grade A using a half key.
Table below contain the effective vibration values for unloaded motors.

Vibration grade	Frame size (mm)	56 ≤ FS ≤ 132	160 ≤ FS ≤ 280	280 < FS ≤ 355
A	Mounting	Vibration velocity (mm/s)	Vibration velocity (mm/s)	Vibration velocity (mm/s)
	Free suspension	1.6	2.2	2.8
	Rigid mounting	1.3	1.8	2.3

Electrical design

Reliable quality and performance

To ensure reliable and long life, the 1LG0 windings are made of materials with class F temperature rise limited to class B (80K) .

Voltage and Frequency

1LG0 standard motor will operate on main power supplies in accordance with IEC 60034-1 Category A (combination of voltage deviation ±5% and frequency deviation ±2%) for voltage and frequency fluctuations.

Rated Output

1LG0 rated output power refers to continuous duty (S1) operation in accordance with IEC 60034-1 when operated at 40°C ambient temperature and at site altitudes of 1000m or less.

1LG0 current overload is in accordance with IEC 60034-1 (1.5 times for 2 minutes) when operated as per the rated nameplate data.

Environmental

- Suitable for IP55 installations
- Below or equal to1000m above sea level
- Operating temperature between -20°C and 40°C
- Relative humidity

Temperature	Relative humidity
-20°C ≤ T ≤ 20°C	100%
20°C < T ≤ 30°C	95%
30°C < T ≤ 40°C	55%

Note: For other requirements, Siemens should be consulted.

If environmental conditions vary from those listed above, please consult the chart below for output power derating factor.

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

Space heater (Option code: K45) electrical data

Frame Size	80 ~ 90	100 ~ 112	132 ~ 160	180 ~ 200	225 ~ 280	315	355
Power (W)	20	30	40	50	60	80	110
Voltage (V)	220						

Converter fed application

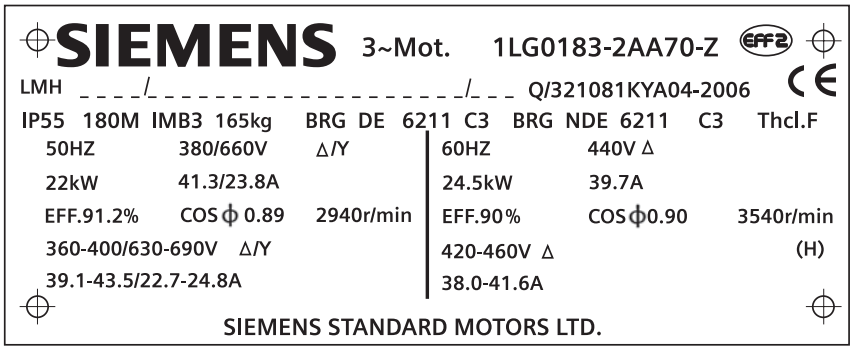
1LG0 motors from FS 80 ~ 250 are suitable for converter fed operation in variable torque (VT) applications. When 1LG0 motor is opterated with a converter, the motor must be ordered with winding protection options such as PTC, PT100.

Note:

- Insulated bearing is not available as an option for the 1LG0 motors. This must be taken into consideration during selection and configuration.
- In application where the motor is driven by a converter, the degree of electrical interference depends on the type of converter used (type, number of IGBTs, interference suppression measures, and manufacturer), cabling, distance and application requirements.
- The installation guidelines of the converter manufacturer with regards to electromagnetic compatibility must be considered at all times during the design and implementation phases.

Nameplate Overview

- Rated voltage
- Rated frequency
- Rated output
- Rated speed
- Efficiency
- Power factor
- Connection type
- Protection degree
- Series number
- Motor type
- Balance
- Insulation class
- Weight



MLFB configuration

1	2	3	4	5	6	7	8	9	10	11	12[1]	*
1	L	G	0									

Motor series

80 ~ 355 FS 80 ~ 355

S = short (0, 1, 2)
M = medium (3, 4, 5)
L = long (6, 7, 8)

Number of poles 2, 4, 6

Design type

Voltage, connections and frequency

1 – 230 VD / 400 VY 50Hz
2 – 220 VD / 380 VY 50Hz
6 – 400 VD / 690 VY 50Hz
7 – 380 VD / 660 VY 50Hz
9[2] – Special voltage and frequency

Construction type

0 - With feet and without flange on the end-shield (DE)
1 - Without feet and with flange on the end-shield (DE)
6 - With feet and with flange on the end-shield (DE)
4 - Without feet and with flange on the end-shield (DE), and with canopy on non-driven end
8[3] - Without feet and with flange on the end-shield (DE), IMV1 without canopy

Ordering example:

Three-phase motor IP55

2-pole 50 Hz,11kW 380VD/660VY IMB3

Order No.1LG0163-2AA..

Voltage identifier: 7

construction type identifier: 0

[1] Option codes are added after position 12;

[2] When selecting special voltage and frequency mentioned in "option" part, 11 position of MLFB should be changed to "9".

[3] Code "8" is only applicable to 1LG0 motor from FS 250 ~ 355, 1LG0 motor with FS 250 ~ 355, IMV1 without canopy; for 1LG0 motor with the other frame sizes, IMV1 without canopy, the 12th position is "1".

Options

Option Code	Description	Application Scope
Special voltage and frequency		
L1C	415VY 50Hz, 50Hz output	FS 80 ~ 355
L1D	415VD 50Hz, 50Hz output	FS 80 ~ 355
L1U	400VD 50Hz, 50Hz output	FS 80 ~ 355
L2B	220VD / 380VY 60Hz, 60Hz output	FS 80 ~ 355
L2D	380VD / 660VY 60Hz, 60Hz output	FS 80 ~ 355
L2E	460VY 60Hz, 60Hz output	FS 80 ~ 355
L2F	460VD 60Hz, 60Hz output	FS 80 ~ 355
Electrical design		
A11	Motor protection with PTC thermistors with three embedded temperature sensors for tripping	FS 80 ~ 355
A12	Motor protection with PTC thermistors with six embedded temperature sensors for alarm and tripping	FS 80 ~ 355
A60	Installation of 3 PT100 resistance thermometers	FS 100 ~ 355
A61	Installation of 6 PT100 resistance thermometers	FS 180 ~ 355
A72	Installation of 2 PT100 screw-in resistance thermometers for bearings	FS 180 ~ 355
K45	Anti-condensation heater for 220Vac (spaces heater)	FS 80 ~ 355
W04	Temperture class 155 (F), used acc. to 130 (B) with service factor 1.15	FS 80 ~ 315
Mechanical design		
K09 [1)]	Terminal box on RHS (view from drive end)	FS 80 ~ 355
K10 [1)]	Terminal box on LHS (view from drive end)	FS 80 ~ 355
K11 [1)]	Terminal box on top, cable entry on right (view from drive end)	FS 80 ~ 355
K83	Rotation of terminal box by 90°, inserted from drive end	FS 80 ~ 355
K84	Rotation of terminal box by 90°, inserted from non-drive end	FS 80 ~ 355
K85	Rotation of terminal box by 180°	FS 80 ~ 355
K16 [2)]	Second standard shaft-extension	FS 80 ~ 355
K40	Regreasing device	FS 180 ~ 280
W01	SKF bearings	FS 80 ~ 355
W02	NSK bearings	FS 80 ~ 355
W03	Motor shaft DE equipped with Oil seal	FS 80 ~ 132
Paint		
Y53	Finish in other colours - please specify RAL7032 or RAL9006	FS 80 ~ 355
Testing certificate		
B02	Acceptance test certificate 3.1 according to EN 10204	FS 80 ~ 355

[1)] Indication of terminal box position is not necessary for motor with flange. For motor with K10, the connection box is close to NDE.

[2)] Motor without feet and with flange on the end-shield (DE), and with canopy on non-driven end should not be associated with this option.

Technical data

Table 1

Frame Size	Type	Rated Output	Rated speed	Efficiency at (50Hz) 4 / 4 load	Efficiency at (50Hz) 3 / 4 load	Power factor	Rated current	Rated torque
		P_{rated}	n_{rated}	η_{rated}	η_{rated}	$Cos\,\phi_{rated}$	I_{rated}	T_{rated}
		kW	rpm	%	%		A	Nm
3000rpm 2-pole								
		220VD / 380VY 50Hz						
80M	1LG0 080-2AA..	0.75	2845	76	75.1	0.83	1.81	2.5
80M	1LG0 083-2AA..	1.1	2840	77.4	80	0.84	2.57	3.7
90S	1LG0 090-2AA..	1.5	2840	79	79.2	0.84	3.43	5
90L	1LG0 096-2AA..	2.2	2840	81.1	81.8	0.85	4.85	7.4
100L	1LG0 106-2AA..	3	2860	83	83.2	0.88	6.31	10
		380VD / 660VY 50Hz						
112M	1LG0 113-2AA..	4	2880	85	85.8	0.88	8.1	13.3
132S	1LG0 130-2AA..	5.5	2900	86	87.1	0.88	11	18.1
132S	1LG0 131-2AA..	7.5	2900	87	88.7	0.88	14.9	24.7
160M	1LG0 163-2AA..	11	2930	88.4	88.6	0.89	21.2	35.9
160M	1LG0 164-2AA..	15	2930	89.4	90	0.89	28.6	48.9
160L	1LG0 166-2AA..	18.5	2930	91	91	0.9	34.3	60.3
180M	1LG0 183-2AA..	22	2940	91.2	90.2	0.89	41.2	71.5
200L	1LG0 206-2AA..	30	2950	91.4	91.2	0.9	55.4	97.1
200L	1LG0 207-2AA..	37	2950	92	92.2	0.9	67.9	120
225M	1LG0 223-2AA..	45	2960	92.5	92.6	0.9	82.1	145
250M	1LG0 253-2AB..	55	2965	93	92.8	0.9	100	177
280S	1LG0 280-2AB..	75	2970	93.6	93	0.9	135	241
280M	1LG0 283-2AB..	90	2970	93.9	93.7	0.91	160	289
315S	1LG0 310-2AC..	110	2975	94	93.2	0.91	195	353
315M	1LG0 313-2AC..	132	2975	94.5	93.9	0.91	233	424
315L	1LG0 316-2AC..	160	2975	94.6	94	0.92	279	514
315L	1LG0 317-2AC..	200	2975	94.8	94.9	0.92	348	642
355M	1LG0 353-2AC..	220	2987	94.8	94.8	0.92	383	703
355M	1LG0 354-2AC..	250	2987	95.2	94.9	0.9	444	799
355L	1LG0 356-2AC..	280	2987	95.2	95.1	0.9	497	895
355L	1LG0 357-2AC..	315	2987	95.4	95.4	0.9	558	1007

Penultimate position:					
Voltage Identifiler No.					
220VD / 380VY 50Hz	380VD / 660VY 50Hz	230VD / 400VY 50Hz	400VD / 690VY 50Hz	E-Voltage / Frequency	
2	7	1	6	9	

Rated Output	Rated speed	Efficiency	Power factor	Rated current	Rated torque	Starting current	Starting torque	Max torque	Moment of inertia J	Weight
P_{rated}	n_{rated}	η_{rated}	$Cos\ \phi_{rated}$	I_{rated}	T_{rated}	I_{LR}/I_{rated}	T_{LR}/T_{rated}	T_B/T_{rated}		
kW	rpm	%		A	Nm				kgm^2	kg
440VY 60Hz										
0.86	3450	76.0	0.83	1.79	2.38	6.1	2.3	2.7	0.0008	14
1.3	3430	79.0	0.84	2.57	3.62	7	2.3	2.5	0.0009	15
1.75	3440	80.0	0.84	3.42	4.86	6.9	2.3	2.3	0.0012	22
2.55	3440	82.0	0.85	4.80	7.08	6.9	2.3	2.8	0.0014	24
3.45	3460	84.0	0.87	6.19	9.52	6.9	2.3	2.8	0.0039	33
440VD 60Hz										
4.6	3480	86.0	0.88	8.0	12.6	7.2	2.3	2.8	0.0055	38
6.3	3500	86.0	0.88	10.9	17.2	7.5	2.3	2.8	0.0109	58
8.6	3500	87.0	0.88	14.7	23.5	7.4	2.3	2.8	0.013	63
12.6	3520	89.5	0.89	20.8	34.2	7.5	2.5	2.6	0.038	105
17.3	3520	90.0	0.895	28.2	46.9	7.3	2.5	2.9	0.045	115
21.3	3520	90.5	0.905	34.1	57.8	7.2	2.5	2.8	0.055	128
24.5	3540	90.0	0.90	39.7	66.1	7.5	2.3	2.9	0.075	165
33.5	3540	91.2	0.90	53.6	90.4	6.9	2.2	2.9	0.124	225
41.5	3540	92.0	0.90	65.8	112	7.1	2.3	2.9	0.139	246
51	3550	92.8	0.91	79.2	137	7.3	2.5	2.9	0.233	296
62	3560	92.5	0.90	98	166	7.5	2.5	2.9	0.312	390
84	3560	93.0	0.90	132	225	7.5	2.3	2.9	0.597	504
101	3560	93.8	0.91	155	271	7.5	2	2.3	0.675	536
123	3570	94.0	0.91	189	329	7.1	1.8	2.2	1.18	865
148	3570	94.5	0.91	226	396	7.1	1.8	2.2	1.55	960
180	3570	94.6	0.92	271	482	7	1.9	2.5	1.76	1035
224	3570	94.8	0.92	337	599	7.1	1.8	2.2	2.02	1160
246	3580	94.8	0.92	370	656	7.1	1.4	2.2	3.02	1545
280	3580	95.3	0.92	419	747	7.1	1.4	2.2	3.56	1650
314	3580	95.3	0.92	470	838	7.1	1.4	2.2	3.84	1650
353	3580	95.6	0.92	527	942	7.1	1.4	2.2	4.16	1790

	Final position			
	Type of construction Identifier No.			
	With feet and without flange on the end-shield	Without feet and with flange on the end-shield	With feet and with flange on the end-shield	Without feet and with flange on the end-shield, and with Canopy on non-driven end
	0	1 8[1)]	6	4

[1)] Code "8" is only for FS 250 ~ 355 1LG0 motor with mounting type "IMV1 without canopy" ;
for FS 80 ~ 225 1LG0 motor with mounting type "IMV1 without canopy", the 12th position is "1".

Technical data

Table 2

Frame Size	Type	Rated Output	Rated speed	Efficiency at (50Hz) 4 / 4 load	Efficiency at (50Hz) 3 / 4 load	Power factor	Rated current	Rated torque
		P_{rated}	n_{rated}	η_{rated}	η_{rated}	$Cos\,\phi_{rated}$	I_{rated}	T_{rated}
		kW	rpm	%	%		A	Nm
1500rpm 4-pole								
		220VD / 380VY 50Hz						
80M	1LG0 080-4AA..	0.55	1390	71	71.9	0.75	1.57	3.8
80M	1LG0 083-4AA..	0.75	1380	73	74.7	0.76	2.05	5.2
90S	1LG0 090-4AA..	1.1	1390	76.2	75	0.76	2.89	7.6
90L	1LG0 096-4AA..	1.5	1390	78.5	75.8	0.79	3.67	10.3
100L	1LG0 106-4AA..	2.2	1410	81	78.8	0.8	5.16	14.9
100L	1LG0 107-4AA..	3	1410	82.8	80.9	0.81	6.8	20.3
		380VD / 660VY 50Hz						
112M	1LG0 113-4AA..	4	1435	84.5	84	0.82	8.8	26.6
132S	1LG0 130-4AA..	5.5	1440	86	85.9	0.82	11.8	36.5
132M	1LG0 133-4AA..	7.5	1440	87.2	87.4	0.84	15.6	49.7
160M	1LG0 163-4AA..	11	1460	89	88.5	0.83	22.6	72
160L	1LG0 166-4AA..	15	1460	90	89.7	0.84	30.1	98.1
180M	1LG0 183-4AA..	18.5	1470	90.6	91.2	0.86	36.1	120.2
180L	1LG0 186-4AA..	22	1470	91.4	91.6	0.86	42.5	143
200L	1LG0 206-4AA..	30	1470	92.1	92.3	0.86	57.5	195
225S	1LG0 220-4AA..	37	1475	92.6	92.7	0.87	69.8	240
225M	1LG0 223-4AA..	45	1475	92.8	93.2	0.87	84.7	291
250M	1LG0 253-4AA..	55	1480	93	93.3	0.87	103	355
280S	1LG0 280-4AA..	75	1480	93.8	93.6	0.87	140	484
280M	1LG0 283-4AA..	90	1480	94.3	94.1	0.87	167	580
315S	1LG0 310-4AB..	110	1480	94.6	94	0.88	201	710
315M	1LG0 313-4AB..	132	1480	94.9	94.4	0.88	240	852
315L	1LG0 316-4AB..	160	1480	95.1	94.8	0.89	287	1032
315L	1LG0 317-4AB..	200	1480	95.3	94.9	0.89	358	1291
355M	1LG0 353-4AB..	220	1490	95	95.3	0.89	395	1410
355M	1LG0 354-4AB..	250	1490	95.2	95.3	0.87	459	1602
355L	1LG0 356-4AB..	280	1490	95.2	95.4	0.87	514	1794
355L	1LG0 357-4AB..	315	1490	95.2	95.4	0.87	578	2019

Penultimate position:					
Voltage Identifiler No.					
220VD / 380VY 50Hz	380VD / 660VY 50Hz	230VD / 400VY 50Hz	400VD / 690VY 50Hz	E-Voltage / Frequency	
2	7	1	6	9	

Rated Output	Rated speed	Efficiency	Power factor	Rated current	Rated torque	Starting current	Starting torque	Max torque	Moment of inertia J	Weight
P_{rated}	n_{rated}	η_{rated}	$Cos\ \phi_{rated}$	I_{rated}	T_{rated}	I_{LR}/I_{rated}	T_{LR}/T_{rated}	T_B/T_{rated}		
kW	rpm	%		A	Nm				kgm^2	kg
440VY 60Hz										
0.63	1690	73.0	0.75	1.51	3.56	5	2.4	2.6	0.002	14
0.86	1680	75.0	0.76	1.98	4.89	5.8	2.4	2.6	0.002	15
1.3	1680	77.0	0.77	2.88	7.39	5.8	2.3	2.5	0.0021	21
1.75	1680	79.0	0.79	3.68	9.95	5.8	2.4	2.8	0.003	23
2.55	1710	81.0	0.81	5.10	14.2	6	2.4	2.3	0.007	31
3.45	1710	83.0	0.82	6.65	19.3	6	2.3	2.8	0.007	33
440VD 60Hz										
4.6	1730	85.0	0.82	8.7	25.4	6.2	2.3	2.8	0.0095	44
6.3	1740	85.5	0.85	11.4	34.6	6.5	2.3	2.8	0.0214	61
8.6	1740	87.0	0.84	15.4	47.2	7	2.5	2.8	0.0296	71
12.6	1750	89.0	0.85	21.9	68.8	7	2.4	2.9	0.075	110
17.3	1750	89.5	0.85	29.8	94.4	7.5	2.5	2.9	0.092	132
21.3	1760	91.0	0.86	35.7	116	7	2.3	2.9	0.139	164
24.5	1760	91.5	0.865	40.6	133	7	2.4	2.9	0.158	180
33.5	1760	92.5	0.86	55.3	182	7	2.3	2.8	0.262	225
41.5	1770	92.8	0.87	67.4	224	6.9	2.2	2.7	0.406	285
51	1770	93.0	0.87	82.7	275	6.9	2.2	2.3	0.469	305
62	1770	93.5	0.875	99	335	7.1	2.4	2.8	0.66	400
84	1780	93.8	0.88	134	451	6.8	2.3	2.8	1.12	553
101	1780	94.3	0.88	160	542	7.2	2.4	2.8	1.46	582
123	1780	94.5	0.88	194	660	6.2	2.3	2.8	3.11	900
148	1780	94.8	0.88	233	794	6.1	2.2	2.8	3.29	995
180	1780	94.9	0.89	280	966	6.5	2.2	2.8	3.79	1070
224	1780	95.0	0.89	348	1202	6.4	2.1	2.8	4.49	1220
246	1780	95.0	0.89	382	1320	6.9	1.6	2.2	4.82	1645
280	1780	95.3	0.90	428	1502	6.9	1.6	2.2	5.67	1685
314	1780	95.3	0.90	480	1685	6.9	1.6	2.2	6.13	1780
353	1780	95.6	0.90	538	1894	6.9	1.6	2.2	6.66	1890

	Final position			
	Type of construction Identifier No.			
	With feet and without flange on the end-shield	Without feet and with flange on the end-shield	With feet and with flange on the end-shield	Without feet and with flange on the end-shield, and with Canopy on non-driven end
	0	1 8[1)]	6	4

[1)] Code "8" is only for FS 250 ~ 355 1LG0 motor with mounting type "IMV1 without canopy" ;
for FS 80 ~ 225 1LG0 motor with mounting type "IMV1 without canopy", the 12th position is "1".

Technical data

Table 3

Frame Size	Type	Rated Output	Rated speed	Efficiency at (50Hz) 4 / 4 load	Efficiency at (50Hz) 3 / 4 load	Power factor	Rated current	Rated torque
		P_{rated}	n_{rated}	η_{rated}	η_{rated}	$Cos\,\phi_{rated}$	I_{rated}	T_{rated}
		kW	rpm	%	%		A	Nm
1000rpm 6-pole								
		220VD / 380VY 50Hz						
80M	1LG0 083-6AA..	0.55	885	65	67.3	0.72	1.79	5.9
90S	1LG0 090-6AA..	0.75	910	69	70.2	0.72	2.29	7.9
90L	1LG0 096-6AA..	1.1	910	72	74.5	0.73	3.18	11.5
100L	1LG0 106-6AA..	1.5	920	76	78.2	0.75	4	15.6
112M	1LG0 113-6AA..	2.2	935	80	81.3	0.75	5.6	22.5
132S	1LG0 130-6AA..	3	960	81.5	82.2	0.76	7.4	29.8
		380VD / 660VY 50Hz						
132M	1LG0 133-6AA..	4	960	82	83.9	0.76	9.8	38.2
132M	1LG0 134-6AA..	5.5	960	84.4	86.3	0.77	12.9	52.5
160M	1LG0 163-6AA..	7.5	970	86	87.9	0.77	17.2	71.6
160L	1LG0 166-6AA..	11	970	87.5	89.1	0.78	24.5	105.1
180L	1LG0 186-6AA..	15	970	89	89.6	0.83	30.9	143
200L	1LG0 206-6AB..	18.5	980	90	90.1	0.81	38.6	177
200L	1LG0 207-6AB..	22	980	90	91.1	0.83	44.7	210
225M	1LG0 223-6AB..	30	980	91.7	92.3	0.84	59.2	287
250M	1LG0 253-6AB..	37	980	92	92.1	0.86	71	353
280S	1LG0 280-6AB..	45	980	92.5	92.6	0.86	86	430
280M	1LG0 283-6AB..	55	980	92.8	93.2	0.86	105	525
315S	1LG0 310-6AB..	75	989	93.5	93.8	0.86	142	724
315M	1LG0 313-6AB..	90	989	93.8	94.1	0.86	170	869
315L	1LG0 316-6AB..	110	989	94.3	94.5	0.86	206	1062
315L	1LG0 317-6AB..	132	989	94.6	94.8	0.87	244	1274
355M	1LG0 353-6AB..	160	989	94.5	94.2	0.88	292	1609
355M	1LG0 354-6AB..	185	989	94.5	94.4	0.88	338	1861
355M	1LG0 355-6AB..	200	989	94.7	94.6	0.88	365	2012
355L	1LG0 356-6AB..	220	989	94.7	94.7	0.88	401	2213

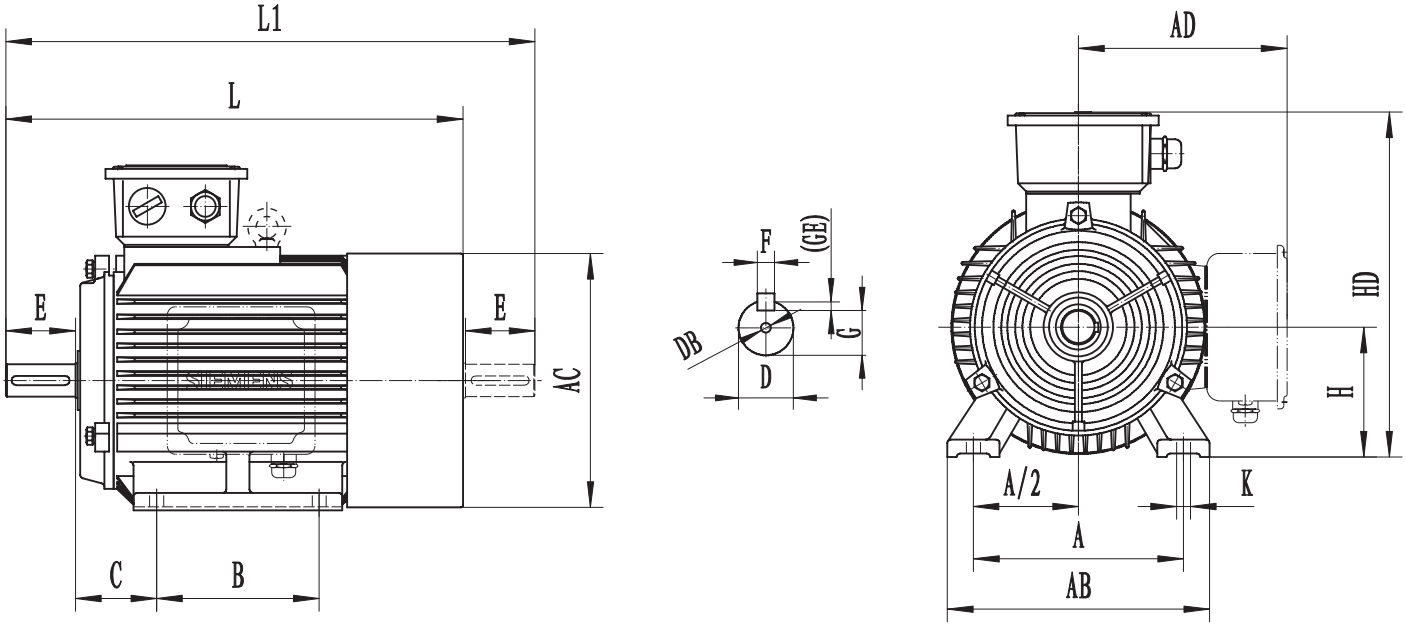
Penultimate position:					
Voltage Identifiler No.					
220VD / 380VY 50Hz	380VD / 660VY 50Hz	230VD / 400VY 50Hz	400VD / 690VY 50Hz	E-Voltage / Frequency	
2	7	1	6	9	

Rated Output	Rated speed	Efficiency	Power factor	Rated current	Rated torque	Starting current	Starting torque	Max torque	Moment of inertia J	Weight
P_{rated}	n_{rated}	η_{rated}	$Cos\ \phi_{rated}$	I_{rated}	T_{rated}	I_{LR} / I_{rated}	T_{LR} / T_{rated}	T_B / T_{rated}		
kW	rpm	%		A	Nm				kgm^2	kg
440VY 60Hz										
0.63	1080	66.0	0.72	1.74	5.57	4.7	1.9	2.1	0.003	16
0.86	1100	71.0	0.72	2.21	7.47	5	2	2.3	0.0029	20
1.3	1100	73.5	0.73	3.18	11.3	5	2.1	2.3	0.0035	23
1.75	1110	78.0	0.75	3.93	15.1	5	2.2	2.4	0.0069	31
2.55	1130	81.0	0.76	5.4	21.6	5	2.4	2.4	0.0138	40
3.45	1160	82.0	0.76	7.3	28.4	6	2.1	2.6	0.0286	56
440VD 60Hz										
4.6	1160	83.0	0.76	9.6	37.9	6	2.1	2.8	0.036	68
6.3	1160	86.0	0.77	12.5	51.9	6.4	2.1	2.8	0.045	75
8.6	1160	87.5	0.78	16.5	70.8	6.5	2	2.7	0.088	104
12.6	1160	88.5	0.78	24.0	104	6.5	2	2.9	0.116	127
17.3	1170	90.0	0.82	30.8	141	6.5	2.2	2.7	0.207	167
21.3	1170	90.5	0.82	37.7	174	6.5	2.2	2.8	0.315	210
24.5	1170	91.0	0.835	42.3	200	6.5	2.1	2.6	0.36	223
33.5	1170	92.0	0.85	56.2	273	6.5	2	2.6	0.547	290
41.5	1170	92.0	0.87	68	339	6.9	2.1	2.8	0.834	375
51	1180	92.5	0.86	84	413	7	2.2	2.8	1.39	492
62	1180	93.0	0.865	101	502	7	2.1	2	1.65	530
84	1186	93.8	0.86	137	676	7	2.3	2.8	4.11	820
101	1186	93.8	0.86	164	813	6.2	2	2.7	4.28	895
123	1186	94.0	0.86	200	990	6.2	2	2.6	5.45	1010
148	1186	94.5	0.87	236	1192	6.5	2	2.8	6.12	1080
180	1180	94.5	0.88	284	1457	6.7	1.9	2	8.85	1590
207	1180	94.5	0.88	327	1675	6.7	1.9	2	8.98	1660
224	1180	94.7	0.88	353	1813	6.7	1.9	2	9.55	1730
246	1180	94.7	0.88	387	1991	6.7	1.9	2	10.09	1835

	Final position			
	Type of construction Identifier No.			
	With feet and without flange on the end-shield	Without feet and with flange on the end-shield	With feet and with flange on the end-shield	Without feet and with flange on the end-shield, and with Canopy on non-driven end
	0	1 8[1)]	6	4

[1)] Code "8" is only for FS 250 ~ 355 1LG0 motor with mounting type "IMV1 without canopy" ;
for FS 80 ~ 225 1LG0 motor with mounting type "IMV1 without canopy", the 12th position is "1".

Dimension drawings



FS 80 ~ 132 (1LG0080...1LG0134)

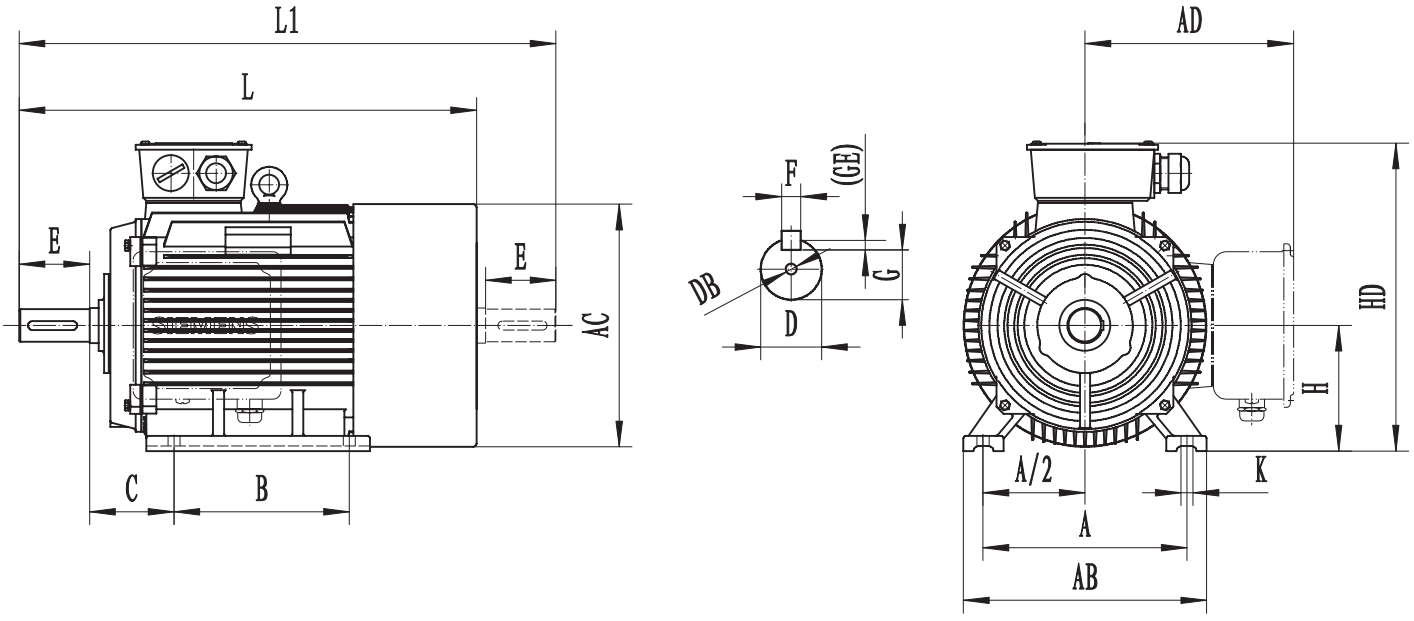
Note: FS 80 ~ 90 motor without eyebolts

Table 1 Frame with feet and without flange on the end shield

Frame size		Poles	Mounting Dimensions and Tolerance											
			A	A/2	B	C		D		E		F	
80M	1LG0080...1LG0083	2, 4, 6	125	62.5	100	50	±1.5	19	+0.009 -0.004	40	±0.310	6	0 -0.030
90S	1LG0090		140	70	100	56		24		50		8	0 -0.036
90L	1LG0096				125								
100L	1LG0106...1LG0107		160	80	140	63	±2.0	28		60	±0.370		
112M	1LG0113		190	95	140	70							
132S	1LG0130...1LG0131		216	108	140	89		38	+0.018 +0.002	80		10	
132M	1LG0133...1LG0134				178								
160M	1LG0163...1LG0164		254	127	210	108	±3.0	42		110	±0.430	12	0 -0.043
160L	1LG0166				254								
180M	1LG0183		279	139.5	241	121		48				14	
180L	1LG0186				279								
200L	1LG0206...1LG0207		318	159	305	133		55	+0.030 +0.011			16	
225S	1LG0220	4	356	178	286	149	±4.0	60		140	±0.500	18	
225M	1LG0223	2			311			55		110	±0.430	16	
		4, 6						60		140	±0.500	18	
250M	1LG0253	2	406	203	349	168							
		4, 6						65					

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).

[2] K hole's positional tolerance is based on the central line of shaft extension.

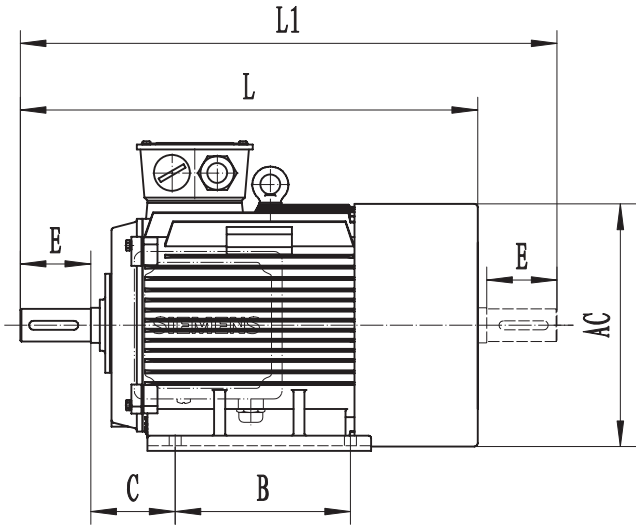


FS 160 ~ 250 (1LG0163...1LG0253)

mm

								Contour Dimensions					
	G[1]		H		K[2]		DB	AB	AC	AD	HD	L	L1
	15.5	0 -0.10	80	0 -0.5	10	+0.360 0	ϕ 1.0 Ⓜ	M6	165	164	145	220	295	335
	20	0 -0.20	90		12			M8	180	184	155	250	320	375
													345	400
	24		100			+0.430 0		M10	205	204	180	270	385	445
			112						230	228	190	300	400	465
	33		132					M12	270	267	210	345	470	555
													510	593
	37		160		15		ϕ 1.5 Ⓜ	M16	320	325	255	420	615	735
													665	779
	42.5		180						355	366	280	455	700	810
													730	848
	49		200		19	+0.520 0		M20	395	408	305	505	770	880
	53		225						435	456	335	560	815	965
	49												820	935
	53						ϕ 2.0 Ⓜ						845	990
			250		24				490	504	370	615	915	1060
	58													1060

Dimension drawings

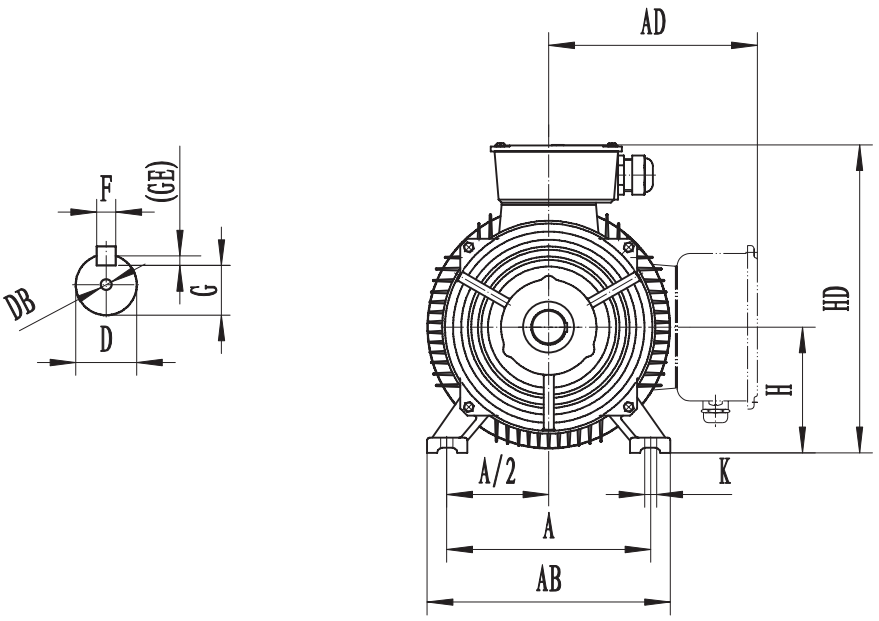


FS 280 ~ 355 (1LG0280...1LG0357)

Table 1 (Continuous) Frame with feet and without flange on the end shield

Frame size		Poles	Mounting Dimensions and Tolerance											
			A	A/2	B	C		D		E		F	
280S	1LG0280	2	457	228.5	368	190	±4.0	65	+0.030 +0.011	140	±0.500	18	0 -0.043
		4, 6						75				20	0 -0.052
280M	1LG0283	2			419			65				18	0 -0.043
		4, 6						75				20	0 -0.052
315S	1LG0310	2	508	254	406	216		65				18	0 -0.043
		4, 6						80		170		22	0 -0.052
315M	1LG0313	2			457			65		140		18	0 -0.043
		4, 6						80		170		22	0 -0.052
315L	1LG0316...1LG0317	2			508			65		140		18	0 -0.043
		4, 6						80		170		22	0 -0.052
355M	1LG0353...1LG0355	2	610	305	560	254		75		140		20	
		4, 6						95	+0.035 +0.013	170		25	
355L	1LG0356...1LG0357	2			630			75	+0.030 +0.011	140		20	
		4, 6						95	+0.035 +0.013	170		25	

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).
[2] K hole's positional tolerance is based on the central line of shaft extension.

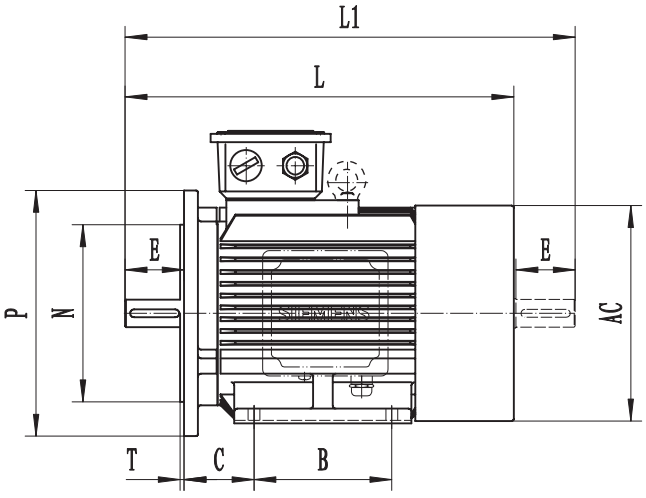


FS 280 ~ 355 (1LG0280...1LG0357)

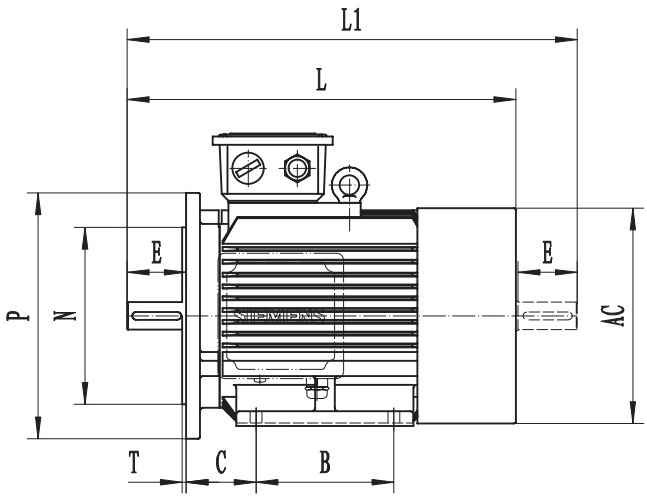
mm

									Contour Dimensions					
	G[1]		H		K[2]			DB	AB	AC	AD	HD	L	L1
	58	0 -0.20	280	0 -1.0	24	+0.520 0	ϕ 2.0 Ⓜ	M20	550	566	410	680	960	1105
	67.5												980	1125
	58												1010	1156
	67.5												1030	1176
	58		315		28				635	639	530	845	1190	1330
	71												1220	1390
	58												1300	1440
	71												1330	1500
	58												1300	1440
	71												1330	1500
	67.5		355						730	718	655	1010	1500	1640
	86							M24					1530	1700
	67.5							M20					1500	1640
	86							M24					1530	1700

Dimension drawings



FS 80 ~ 132 (1LG0080...1LG0134)
Note: FS 80 ~ 90 motor without eyebolts

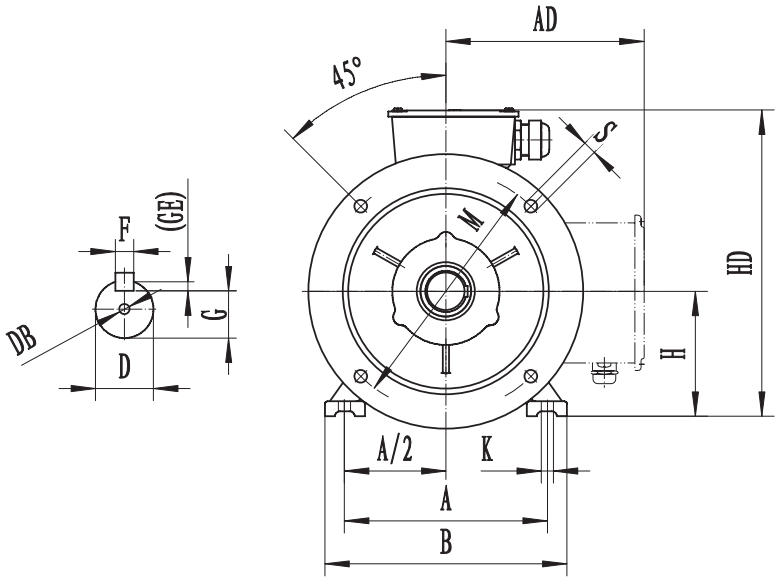


FS 160 ~ 250 (1LG0163...1LG0253)

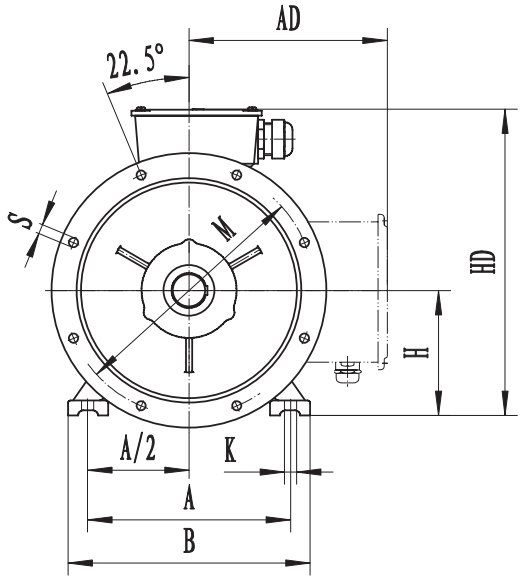
Table 2 Frame with feet and with flange (with through holes) on the end shield

Frame size		Flang number	Poles	Mounting Dimensions and Tolerance															
				A	A/2	B	C		D		E		F		G[1]		H	
80M	1LG0080...1LG0083	FF165	2, 4, 6	125	62.5	100	50	±1.5	19	+0.009 -0.004	40	±0.310	6	0 -0.030	15.5	0 -0.10	80	0 -0.5
90S	1LG0090			140	70	100	56		24		50		8	0 -0.036	20	0 -0.20	90	
90L	1LG0096					125												
100L	1LG0106...1LG0107	FF215		160	80	140	63	±2.0	28		60	±0.370			24		100	
112M	1LG0113			190	95	140	70										112	
132S	1LG0130...1LG0131	FF265		216	108	140	89		38		80		10		33		132	
132M	1LG0133...1LG0134					178												
160M	1LG0163...1LG0164	FF300		254	127	210	108	±3.0	42	+0.018 +0.002	110	±0.430	12	0 -0.043	37		160	
160L	1LG0166					254												
180M	1LG0183			279	139.5	241	121		48				14		42.5		180	
180L	1LG0186					279												
200L	1LG0206...1LG0207	FF350		318	159	305	133		55	+0.030 +0.011			16		49		200	
225S	1LG0220	FF400	4	356	178	286	149	±4.0	60		140	±0.500	18		53		225	
225M	1LG0223		2			311			55		110	±0.430	16		49			
			4, 6						60		140	±0.500	18		53			
250M	1LG0253	FF500	2	406	203	349	168											
			4, 6						65						58		250	

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).
[2] K hole's positional tolerance is based on the central line of shaft extension
[3] Dimension of P is the maximum limit
[4] R is the distance from the flange the flange to the drive shaft end.



FS 80 ~ 200 (1LG0080...1LG0207)

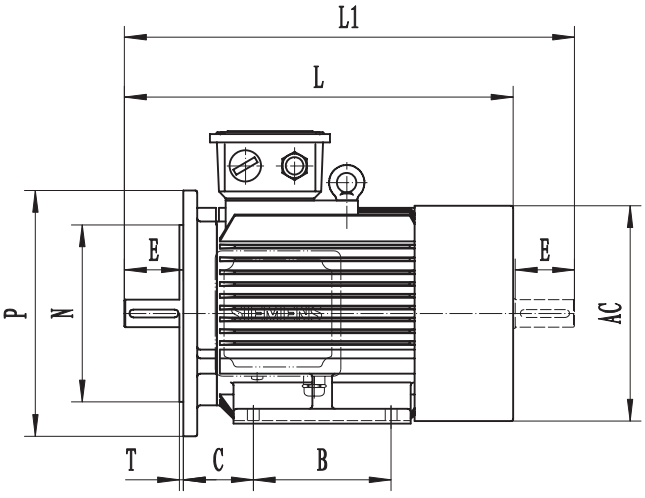


FS 225 ~ 250 (1LG0220...1LG0253)

mm

																Contour Dimensions					
	K[2]			M	N		P[3]	R[4]	S[2]			T		Flange hole number	DB	AB	AC	AD	HD	L	L1
	10	+0.360 0	ϕ 1.0 Ⓜ	165	130	+0.014 -0.011	200	±1.5	12	+0.430 0	ϕ 1.0 Ⓜ	3.5	0 -0.120	4	M6	165	164	145	220	295	335
															M8	180	184	155	250	320	375
																				345	400
	12	+0.430 0		215	180		250	±2.0	15		ϕ 1.5 Ⓜ	4			M10	205	204	180	270	385	445
																230	228	190	300	400	465
				265	230		300								M12	270	267	210	345	470	555
																				510	593
	15		ϕ 1.5 Ⓜ	300	250	+0.016 -0.013	350	±3.0	19	+0.520 0		5			M16	320	325	255	420	615	735
																				665	779
																355	366	280	455	700	810
																				730	848
	19	+0.520 0		350	300	±0.016	400	±4.0						8	M20	395	408	305	505	770	880
				400	350	±0.018	450									435	456	335	560	815	965
																				820	935
			ϕ 2.0 Ⓜ																	845	990
	24			500	450	±0.020	550									490	504	370	615	915	1060
																					1060

Dimension drawings

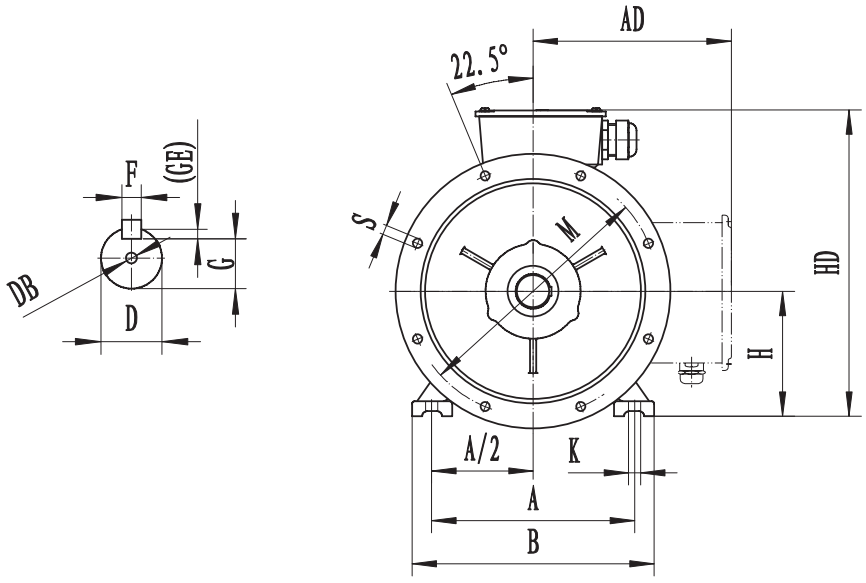


FS 280 ~ 355 (1LG0280...1LG0357)

Table 2 (Continuous) Frame with feet and with flange (with through holes) on the end shield

Frame size		Flang number	Poles	Mounting Dimensions and Tolerance																	
				A	A/2	B	C		D		E		F		G[1]		H	
280S	1LG0280	F500	2	457	228.5	368	190	±4.0	65	+0.030 +0.011	140	±0.500	18	0 -0.043	58	0 -0.20	280	0 -1.0
			4, 6						75				20	0 -0.052	67.5			
280M	1LG0283		2			419			65				18	0 -0.043	58			
			4, 6						75				20	0 -0.052	67.5			
315S	1LG0310	FF600	2	508	254	406	216		65				18	0 -0.043	58		315	
			4, 6						80		170		22	0 -0.052	71			
315M	1LG0313		2			457			65		140		18	0 -0.043	58			
			4, 6						80		170		22	0 -0.052	71			
315L	1LG0316...1LG0317		2			508			65		140		18	0 -0.043	58			
			4, 6						80		170		22		71			
355M	1LG0353...1LG0355	FF740	2	610	305	560	254		75		140		20		67.5		355	
			4, 6						95	+0.035 +0.013	170		25	0 -0.052	86			
355L	1LG0356...1LG0357		2			630			75	+0.030 +0.011	140		20		67.5			
			4, 6						95	+0.035 +0.013	170		25		86			

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).
[2] K hole's positional tolerance is based on the central line of shaft extension
[3] Dimension of P is the maximum limit
[4] R is the distance from the flange the flange to the drive shaft end.

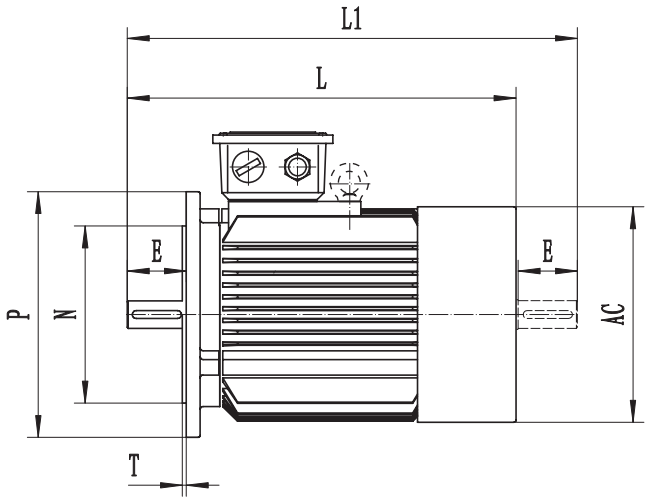


FS 280 ~ 355 (1LG0280...1LG0357)

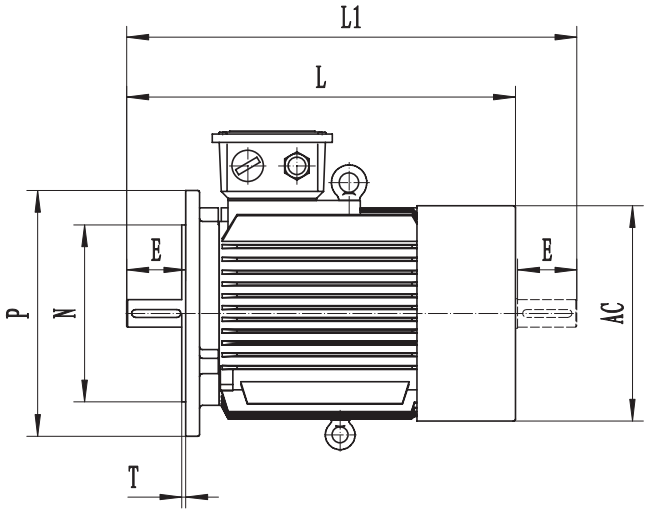
mm

																Contour Dimensions					
	K[2]		M	N		P[3]	R[4]		S[2]			T		Flange hole number	DB	AB	AC	AD	HD	L	L1
	24		500	450	0.020	550			19		ϕ 1.5 Ⓜ	5	0 -0.120			550	566	410	680	960	1105
																				980	1125
																				1010	1156
																				1030	1176
	28	+0.520 0	600	550	±0.022	660	0	±4.0	24	+0.520 0	ϕ 2.0 Ⓜ	6	0 -0.150	8	M20	635	639	530	845	1190	1330
																				1220	1390
																				1300	1440
																				1330	1500
																				1300	1440
																				1330	1500
			740	680	±0.025	800									M20	730	718	655	1010	1500	1640
															M24					1530	1700
															M20					1500	1640
															M24					1530	1700

Dimension drawings



FS 80 ~ 132 (1LG0080...1LG0134)
Note: FS 80 ~ 90 motor without eyebolts

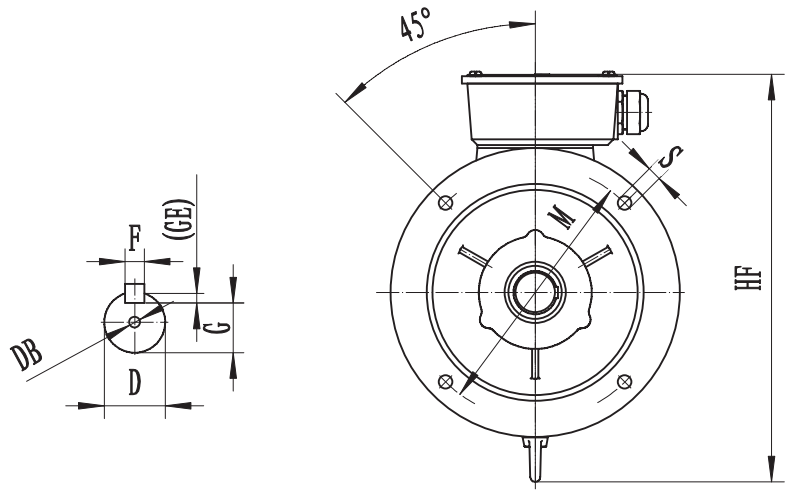


FS 160 ~ 180 (1LG0163...1LG0186)

Table 3 Frame without feet and with flange (with through holes) on the end shield

Frame size		Flang number	Poles	Mounting Dimensions and Tolerance								
				D		E		F		G[1]		
80M	1LG0080...1LG0083	FF165	2, 4, 6	19	+0.009 -0.004	40	±0.310	6	0 -0.030	15.5	0 -0.10	
90S	1LG0090			24		50		8	0 -0.036	20	0 -0.20	
90L	1LG0096											
100L	1LG0106...1LG0107	FF215		28		60	±0.370			24		
112M	1LG0113											
132S	1LG0130...1LG0131	FF265		38	+0.018 +0.002	80		10		33		
132M	1LG0133...1LG0134											
160M	1LG0163...1LG0164	FF300		42		110	±0.430	12	0 -0.043	37		
160L	1LG0166											
180M	1LG0183			48	+0.018 +0.002			14		42.5		
180L	1LG0186											

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).
[2] S hole's positional tolerance is based on the central line of shaft extension
[3] Dimension of P is the maximum limit
[4] R is the distance from the flange to the drive shaft end.

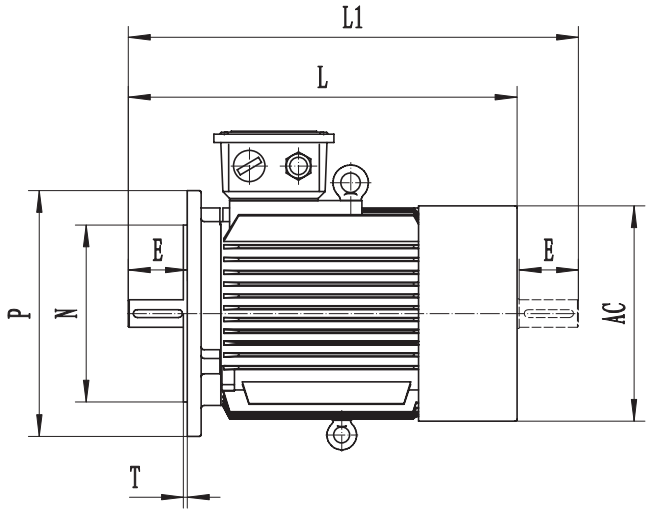


FS 80 ~ 180 (1LG0080...1LG0186)

mm

													Contour Dimensions			
M	N		P[3]	R[4]		S[2]			T		Flange hole number	DB	AC	HF	L	L1
165	130	+0.014 -0.011	200	0	±1.5	12	+0.430 0	ϕ 1.0 Ⓜ	3.5	0 -0.120	4	M6	164	235	295	335
												M8	184	255	320	375
															345	400
215	180		250		±2.0	15		ϕ 1.5 Ⓜ	4			M10	204	290	385	445
													228	315	400	465
265	230	+0.016 -0.013	300									M12	267	360	470	555
															510	593
300	250		350		±3.0	19	+0.520 0		5			M16	325	480	615	735
															665	779
													366	510	700	810
															730	848

Dimension drawings

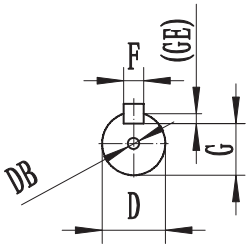


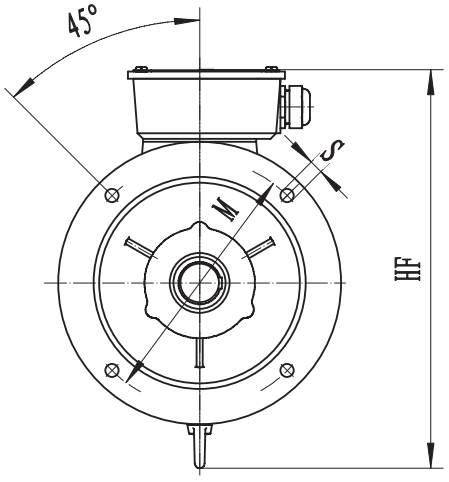
FS 200 ~ 280 (1LG0206...1LG0283)

Table 3 (Continuous) Frame without feet and with flange (with through holes) on the end shield

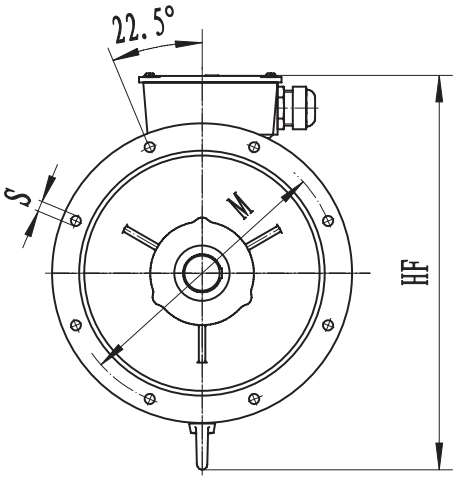
Frame size		Flang number	Poles	Mounting Dimensions and Tolerance								
				D		E		F		G[1]		
200L	1LG0206...1LG0207	FF350	2, 4, 6	55	+0.030 +0.011	110	±0.430	16	0 -0.043	49	0 -0.20	
225S	1LG0220	FF400	4	60		140	±0.500	18		53		
225M	1LG0223		2	55		110	±0.430	16		49		
			4, 6	60		140	±0.500	18		53		
250M	1LG0253	FF500	2									
			4, 6	65						58		
280S	1LG0280		2									
			4, 6	75				20	0 -0.052	67.5		
280M	1LG0283		2	65				18	0 -0.043	58		
			4, 6	75				20	0 -0.052	67.5		

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).
[2] S hole's positional tolerance is based on the central line of shaft extension
[3] Dimension of P is the maximum limit
[4] R is the distance from the flange to the drive shaft end.





FS 200 (1LG0206...1LG0207)

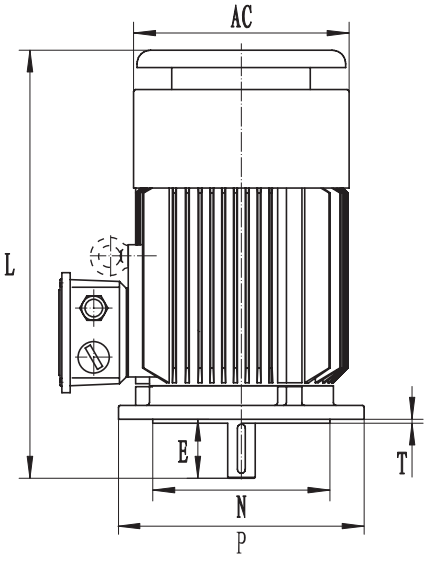


FS 225 ~ 280 (1LG0220...1LG0283)

mm

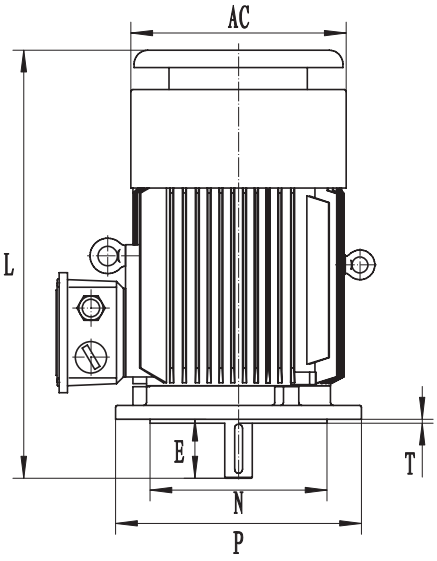
													Contour Dimensions			
M	N		P[3]	R[4]		S[2]			T		Flange hole number	DB	AC	HF	L	L1
350	300	±0.016	400	0	±3.0	19	+0.520 0	ϕ 1.5 Ⓜ	5	0 -0.120	4	M20	408	570	770	880
400	350	±0.018	450		±4.0						8		456	615	815	965
															820	935
															845	990
500	450	±0.020	550										504	685	915	1060
																1060
													566	760	960	1105
															980	1125
															1010	1156
															1030	1176

Dimension drawings



FS 80 ~ 132 (1LG0080...1LG0134)

Note: FS 80 ~ 90 motor without eyebolts



FS 160 ~ 250 (1LG0163...1LG0253)

Table 4 Vertically-mounted, Frame without feet and with flange (with through holes) on the end shield, shaft extension downwards

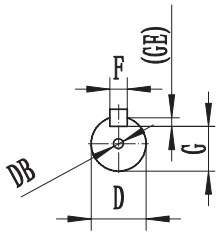
Frame size		Flang number	Poles	Mounting Dimensions and Tolerance							
				D		E		F		G[1]	
80M	1LG0080...1LG0083	FF165	2, 4, 6	19	+0.009 -0.004	40	±0.310	6	0 -0.030	15.5	0 -0.10
90S	1LG0090			24		50		8	0 -0.036	20	0 -0.20
90L	1LG0096										
100L	1LG0106...1LG0107	FF215		28		60	±0.370			24	
112M	1LG0113										
132S	1LG0130...1LG0131	FF265		38	+0.018 +0.002	80		10		33	
132M	1LG0133...1LG0134										
160M	1LG0163...1LG0164	FF300		42		110	±0.430	12	0 -0.043	37	
160L	1LG0166										
180M	1LG0183			48				14		42.5	
180L	1LG0186										
200L	1LG0206...1LG0207	FF350		55	+0.030 +0.011			16		49	
225S	1LG0220	FF400	4	60		140	±0.500	18		53	
225M	1LG0223		2	55		110	±0.430	16		49	
			4, 6	60		140	±0.500	18		53	
250M	1LG0253	FF500	2								
			4, 6	65						58	

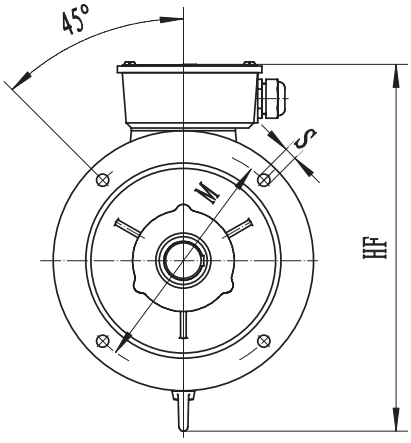
[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).

[2] K, S hole's positional tolerance is based on the central line of shaft extension

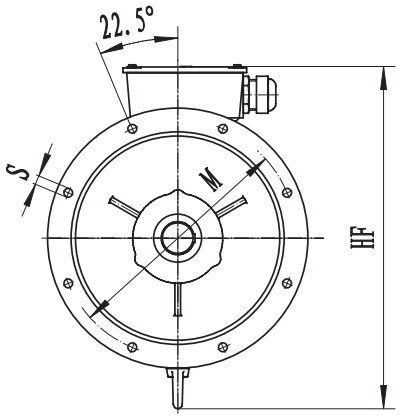
[3] Dimension of P is the maximum limit

[4] R is the distance from the flange to the drive shaft end.





FS 80 ~ 200 (1LG0080...1LG0207)

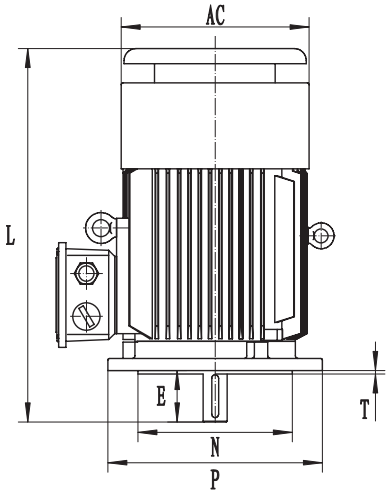


FS 225 ~ 250 (1LG0220...1LG0253)

mm

													Contour Dimensions		
	M	N		P[3]	R[4]		S[2]			T		Flange hole number	DB	AC	HF	L
	165	130	+0.014 -0.011	200	0	±1.5	12	+0.430 0	ϕ 1.0 Ⓜ	3.5	0 -0.120	4	M6	164	235	355
													M8	184	255	380
																405
	215	180		250		±2.0	15		ϕ 1.5 Ⓜ	4			M10	204	290	445
														228	315	460
	265	230		300									M12	267	360	530
																570
	300	250	+0.016 -0.013	350		±3.0	19	+0.520 0		5			M16	325	480	685
																735
														366	510	770
																800
	350	300	±0.016	400								8	M20	408	570	840
	400	350	±0.018	450		±4.0								456	615	885
																890
																915
	500	450	±0.020	550										504	685	995

Dimension drawings

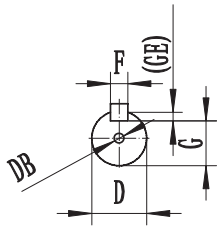


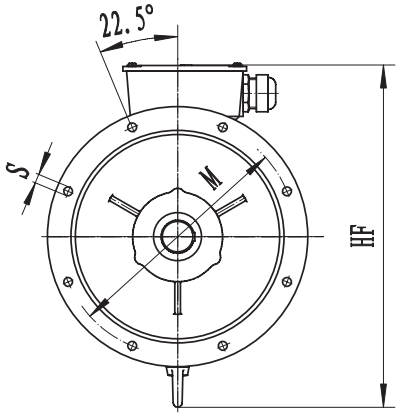
FS 280 ~ 355 (1LG0280...1LG0357)

Table 4 (Continuous) Vertically-mounted, Frame without feet and with flange (with through holes) on the end shield, shaft extension downwards

Frame size		Flang number	Poles	Mounting Dimensions and Tolerance							
				D		E		F		G[1]	
280S	1LG0280	FF500	2		+0.030 +0.011	140	±0.500	18	0 -0.043	58	0 -0.20
			4, 6	75				20	0 -0.052	67.5	
280M	1LG0283		2	65				18	0 -0.043	58	
			4, 6	75				20	0 -0.052	67.5	
315S	1LG0310	FF600	2	65				18	0 -0.043	58	
			4, 6	80				22	0 -0.052	71	
315M	1LG0313		2	65				18	0 -0.043	58	
			4, 6	80		170		22	0 -0.052	71	
315L	1LG0316...1LG0317		2	65		140		18	0 -0.043	58	
			4, 6	80		170		22	0 -0.052	71	
355M	1LG0353...1LG0355	FF740	2	75		140		20		67.5	
			4, 6	95	+0.035 +0.013	170		25		86	
355L	1LG0356...1LG0357		2	75	+0.030 +0.011	140		20		67.5	
			4, 6	95	+0.035 +0.013	170		25		86	

[1] G=D-GE, GE limit deviations for frame size 80M (1LG0080...1LG0083) are ($^{+0.10}_{0}$), for other frame size ($^{+0.20}_{0}$).
[2] K, S hole's positional tolerance is based on the central line of shaft extension
[3] Dimension of P is the maximum limit
[4] R is the distance from the flange to the drive shaft end.



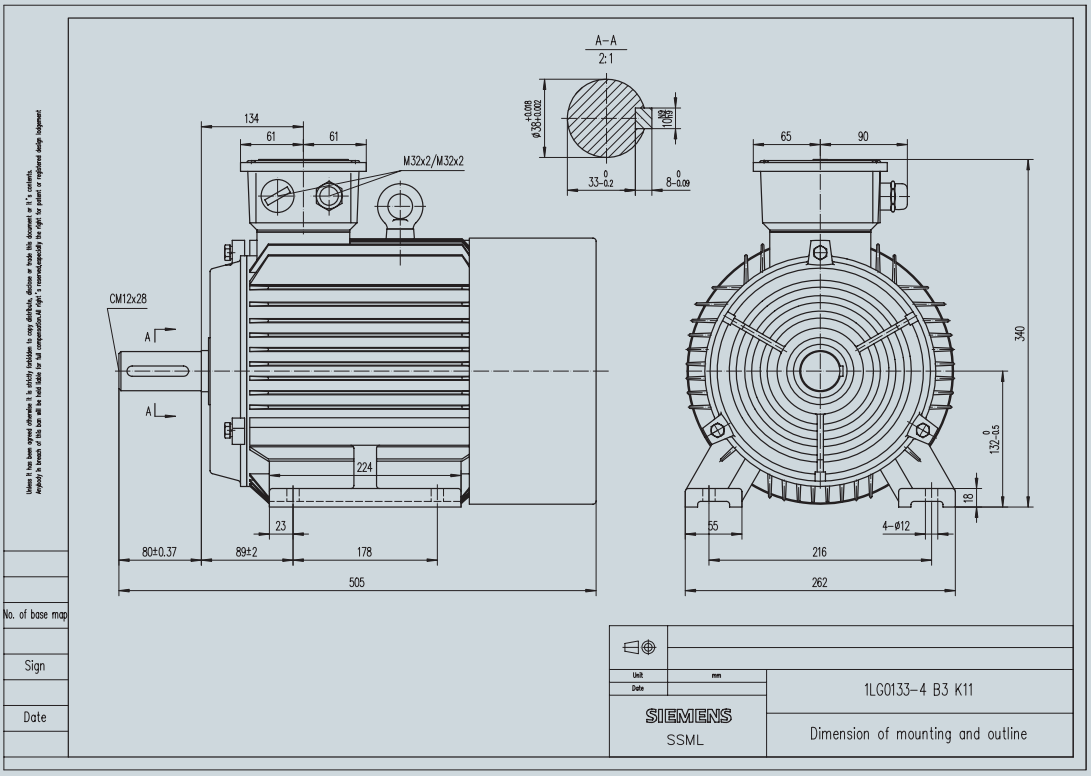


FS 280 ~ 355 (1LG0280...1LG0357)

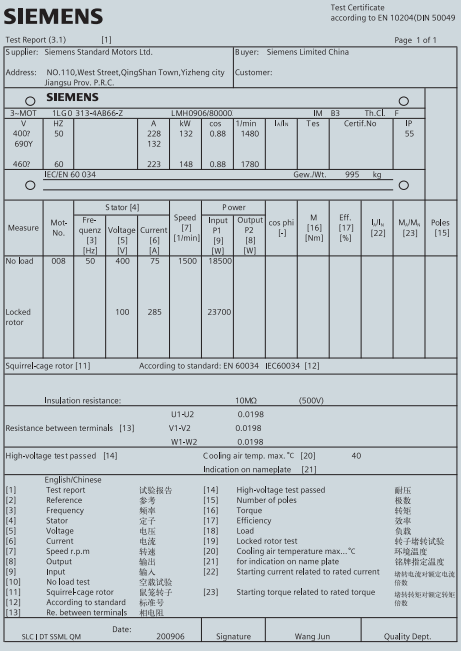
mm

												Contour Dimensions		
	M	**N**		**P**[3]	**R**[4]		**S**[2]			**T**		**Flange hole number**	**DB**	**AC**	**HF**	**L**
	500	450	±0.022	550	0	±4.0	19	+0.520 0	ϕ 1.5 Ⓜ	5	0 -0.120	8	M20	566	760	1040
																1060
																1090
																1110
	600	550	±0.022	660			24		ϕ 2.0 Ⓜ	6	0 -0.150			639	950	1270
																1300
																1380
																140
																1380
																1440
	740	680	±0.025	800										718	1125	1580
													M24			1610
													M20			1580
													M24			1610

Technical supporting documentation



Dimensions Drawings



SIEMENS

Test Certificate according to EN 10204(DIN 50049

Test Report (3.1) [1] Page 1 of 1

Supplier: Siemens Standard Motors Ltd. Buyer: Siemens Limited China

Address: NO.110,West Street,QingShan Town,Yizheng city Jiangsu Prov. P.R.C. Customer:

SIEMENS

3~MOT 1LG0 313-4AB66-Z LMH0906/80000 IM B3 Th.Cl F

V	HZ		A	kW	cos	T/min	I_A/I_N	Tes	Certif.No	IP
400? 690Y	50		228 132	132	0.88	1480				55
460?	60		223	148	0.88	1780				

IEC/EN 60 034 Gew./Wt. 995 kg

Measure	Mot-No.	Stator [4] Fre-quenz [3] [Hz]	Voltage [5] [V]	Current [6] [A]	Speed [7] [1/min]	Power Input P1 [9] [W]	Output P2 [8] [W]	cos phi [-]	M [16] [Nm]	Eff. [17] [%]	I_A/I_N [22]	M_A/M_N [23]	Poles [15]
No load	008	50	400	75	1500	18500							
Locked rotor			100	285		23700							

Squirrel-cage rotor [11] According to standard: EN 60034 IEC60034 [12]

Insulation resistance: 10MΩ (500V)

Resistance between terminals [13] U1-U2 0.0198 V1-V2 0.0198 W1-W2 0.0198

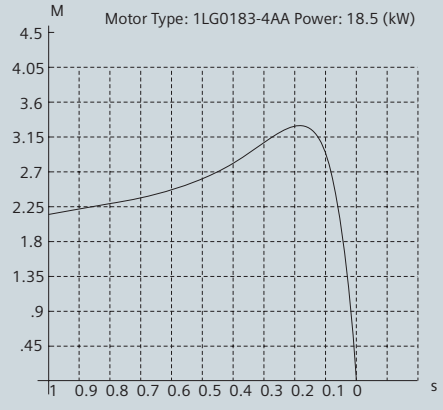
High-voltage test passed [14] Cooling air temp. max.°C [20] 40

Indication on nameplate [21]

	English/Chinese				
[1]	Test report	试验报告	[14]	High-voltage test passed	耐压
[2]	Reference	参考	[15]	Number of poles	极数
[3]	Frequency	频率	[16]	Torque	转矩
[4]	Stator	定子	[17]	Efficiency	效率
[5]	Voltage	电压	[18]	Load	负载
[6]	Current	电流	[19]	Locked rotor test	转子堵转试验
[7]	Speed r.p.m	转速	[20]	Cooling air temperature max...°C	环境温度
[8]	Output	输出	[21]	for indication on name plate	铭牌指定温度
[9]	Input	输入	[22]	Starting current related to rated current	堵转电流对额定电流倍数
[10]	No load test	空载试验			
[11]	Squirrel-cage rotor	鼠笼转子	[23]	Starting torque related to rated torque	堵转转矩对额定转矩倍数
[12]	According to standard	标准号			
[13]	Re. between terminals	相电阻			

Date:			
SLC DT SSML QM	200906	Signature	Wang Jun	Quality Dept.

Acceptance Test Certificates (Option code: B02)



Torque characteristic

Certificates

Nemko

ATTESTATION OF CONFORMITY

WITH EUROPEAN DIRECTIVE

Order No. [redacted]75053

A sample of the following product has been tested and is stated by Nemko to be in conformity with the applicable European safety- and EMC standards referred below.

Manufacturer	Siemens Standard Motors Ltd. 110 West Street, Qingshan Town Yizheng City P.R. CHINA	
Product	Three-phase Induction Motors	
Model/type	1LG0abc	
Data	220/380V~ alt. 380/660V~, 50Hz or 440V~, 60Hz; 0.55kW-315kW	
Other specification	IP55, 2/4/6P; Frame size 80-355mm	
Standards applied	Safety std.:	EN 60034-1:2004 EN 60034-5:2001
	EMC std.:	EMC is based on self-declaration by the manufacturer
Statement reference	75053	

It may therefore be presumed that the tested sample of the product is in conformity with the technical provisions of the following European Directives including the latest amendments, and with national legislation implementing these Directives:

- Low Voltage Directive 73/23/EEC
- EMC Directive 89/336/EEC

On this basis, the manufacturer (or the European authorized representative), may draw up an EC/EEA Declaration of Conformity and affix the CE-marking as indicated below to each conforming product.

Additional information	Description of type reference: abc = frame size: 080-355

Date of issue 02 November 2006

signature

Magne Løvaas

Head of section

CE

Nemko AS P.O. Box 73, Blindern N-0314 Oslo, Norway	Office address Gaustadalléen 30 Oslo	Telephone +47 22 96 03 30 Enterprise number:	Fax +47 22 96 05 50 NO 974404532

Certificates

IQNet

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and
CQC
hereby certify that the organization

Siemens Standard Motors Ltd.

No.110, West Street, Qingshan Town, Yizheng City, Jiangsu Prov., P.R.China

For the following field of activities
Design, Production and Service of Three-phase Asynchronous Motor (H63-355)

Has implemented and maintains a
Management System
Which fulfils the requirements of the following standard

ISO9001:2000

Issued on: **Jul. 13, 2009**
Validity date: **Jul. 12, 2012**
Registration Number: ***00109Q19009R2L/3200***

IQNet

René Wasmer
President of IQNet

Wang Kejiao
President of CQC

CQC

IQNet Partners*:
AENOR *Spain* AFNOR Certification *France* AIB-Vinçotte International *Belgium* ANCE *Mexico* APCER *Portugal* CISQ *Italy*
CQC *China* CQM *China* CQS *Czech Republic* Cro Cert *Croatia* DQS Holding GmbH *Germany* DS *Denmark* ELOT *Greece*
FCAV *Brazil* FONDONORMA *Venezuela* HKQAA *Hong Kong China* ICONTEC *Colombia* IMNC *Mexico* Inspecta Certification *Finland*
IRAM *Argentina* JQA *Japan* KFQ *Korea* MSZT *Hungary* Nemko AS *Norway* NSAI *Ireland* PCBC *Poland*
Quality Austria *Austria* RR *Russia* SII *Israel* SIQ *Slovenia* SIRIM QAS International *Malaysia* SQS *Switzerland* SRAC *Romania*

Siemens Ltd., China
Industry Sector
Industry Automation & Drive Technologies

www.ad.siemens.com.cn

Order NO. E20001-A-0132-C600-X-7600
658-SH905830-02105