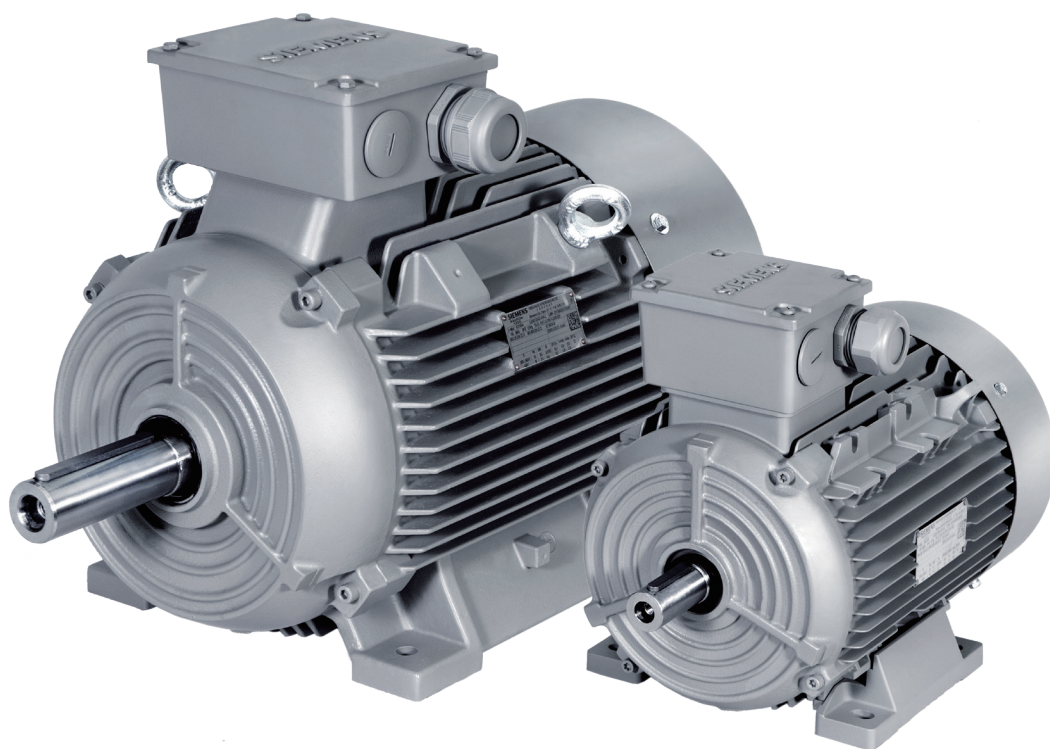


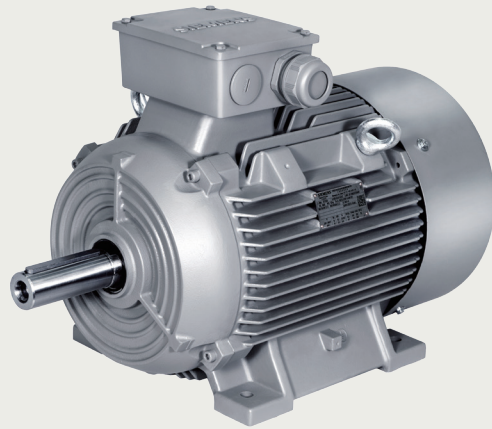
SIEMENS



产品样本
2022.10

SIMOTICS 1LE0 IE4 能效 低压交流异步电动机 IE4 Low-voltage Motors

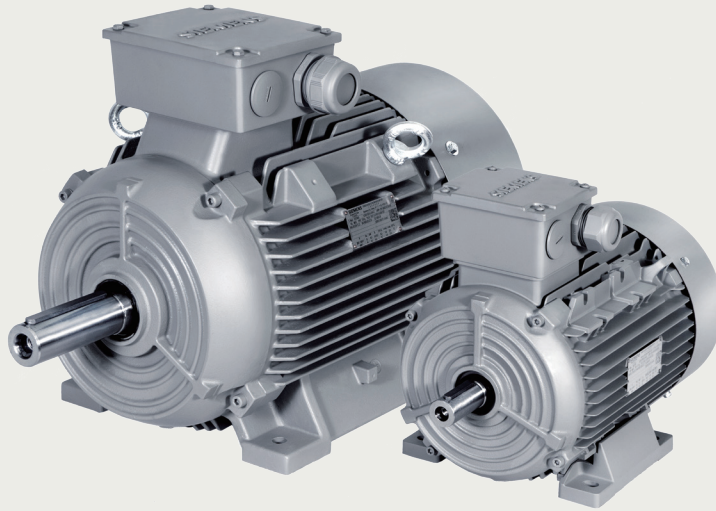
[siemens.com.cn/SIMOTICS_GP_1LE0](https://www.siemens.com.cn/SIMOTICS_GP_1LE0)



铸铁壳电机

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总体介绍 Overview

SIMOTICS 1LE0 系列电动机是通用型全封闭自扇冷却式三相异步电动机，其防护等级为 IP55，1LE0 系列电动机设计生产符合 ISO、IEC、GB 等相关标准的要求。

1LE0 系列电动机适用于连续工作制（S1）、恒转速或一定速度范围内的变频调速应用。

西门子 1LE0 系列电动机技术特性

- 机座材料：灰铸铁；
- 标准颜色：石头灰（RAL 7030）；
- 额定功率：1.5 kW ~ 315 kW（50 Hz）；
- 1.5 kW 及以上的 2、4、6 极电动机达到 GB18613-2020 标准能效等级 2 级，且能满足 IEC 60034-30 标准中的 IE4 效率等级（50Hz）；
- 优化的紧凑型结构；
- 标准安装结构类型（符合 IEC 60034-7 标准规定）：IM B3、IM B5、IM B35 等；
- 所有的电动机设计防护等级为 IP55（IEC 60034-5）；
- FS¹⁾ 280 ~ 355 标配再润滑装置，FS¹⁾ 100 ~ 250 的作为选项；
- 对于 FS 100 ~ 355 范围电动机，可选择增强悬臂力设计；
- 电动机可选 PTC 或 PT100 热敏电阻或 PT1000 进行绕组保护；

¹⁾ FS，机座的英文（Frame Size）缩写。

SIMOTICS 1LE0 series of 3 phase asynchronous motors is Totally Enclosed Fan Cooled (TEFC) with IP55 environmental protection, and applicable for general purpose use. These motors are designed and manufactured in accordance with ISO, IEC standards, GB standards.

The 1LE0 series motor is designed for constant or adjustable speed with continuous duty operation (S1) over a speed range.

Features of Siemens 1LE0 series

- Frame material: grey cast iron.
- Standard color: stone grey (RAL 7030).
- Rated power output: 1.5kW~315kW at 50Hz.
- Available in 2, 4, 6 pole motor (1.5kW and up) with efficiency grade 2. according to GB18613-2020 and efficiency class IE4 (50Hz) according to IEC 60034-30.
- Optimized compact style construction.
- Standard mounting construction according to IEC 60034-7: IM B3, IM B5, IM B35 and etc.
- All motors are designed to IP55 degree of protection (IEC 60034-5).
- Re-greasing devices for FS¹⁾ 280 ~ 355 as standard, and for FS100 ~ 250 as option.
- Reinforced bearings for increased cantilever forces for FS100 ~ 355 as option.
- Winding protections with PTC, PT100 and PT1000 as option.

¹⁾ FS, Frame Size.

- 接线盒标准位置处于机座顶端，进线孔处于右侧（从驱动端看），选项中接线盒位置和进线方向可变化；
- 绝缘系统按 155 (F) 温度等级设计，在额定输出和直接供电时按 130 (B) 温度等级使用；
- 电动机标准冷却方式为自扇冷却（IEC 60034-6 规定的 IC 411），可提供独立驱动风扇强制冷却；
- 铸铁电动机 FS 100 ~ 355 都有 2 个吊环；

运行环境

- 防护等级 IP55（IEC 60034-5）；
- 高度不超过海拔 1000 m（IEC 60034-1）；
- 允许的环境温度在 -20 °C ~ 40 °C（IEC 60034-1）；
- 所允许的相对湿度：
 - -20 °C ≤ T ≤ 20 °C：100 %
 - 20 °C < T ≤ 30 °C：95 %
 - 30 °C < T ≤ 40 °C：55 %

对于更高的环境温度、以及（或者）高于海拔 1000 m 的地点，电动机的额定功率换算系数为 k_{HT} 。所允许的功率值 (P_{adm})：

$$P_{adm} = P_{rated} \cdot k_{HT}$$

- Terminal box on top, and cable entry on right side (viewed from driven end). Variable location of connection boxes and cable entries as option.
- Insulation system is designed for temperature class 155 (F). At rated output with line-fed operation, the motors can be used in temperature class 130 (B).
- Self ventilated motors with radial-flow fans (cooling method IC 411 according to IEC 60034-6) as standard, forced air cool with external separately driven fans as option.
- For cast iron motor FS 100 ~ 355 all motors have 2 eyebolts.

Environmental

- Degrees of motor protection IP55 (IEC 60034-5).
- Altitude shall not exceed 1000 m above sea-level (IEC 60034-1).
- Allowed air temperature between -20 °C and 40 °C (IEC 60034-1).
- Permitted relative humidity:
 - -20 °C ≤ T ≤ 20 °C：100 %
 - 20 °C < T ≤ 30 °C：95 %
 - 30 °C < T ≤ 40 °C：55 %

For higher coolant temperatures and / or site altitudes higher than 1000 m above sea level, the specified motor output must be reduced by using the factor k_{HT} . The results in an admissible output (P_{adm}) of the motor:

$$P_{adm} = P_{rated} \cdot k_{HT}$$

对于不同高度和（或）不同环境温度的功率换算系数 k_{HT} Factor k_{HT} for different site altitudes and / or coolant temperature						
海拔高度 Site altitude above sea level	对应海拔高度的环境温度 Site altitude above sea level Coolant temperature					
	< 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
3000 m	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

参考标准 Reference standards

名称 Title	IEC 标准 IEC standard	中国国家标准 Chinese standard
旋转电动机定额和性能 Rotating electrical machines – Part 1: Rating and performance	IEC 60034-1	GB/T 755
旋转电动机损耗与效率确定的标准测试方法 Rotating electrical machines – Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)	IEC 60034-2	GB/T 1032
旋转电机整体结构的防护等级 (IP 代码) 分级 Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification	IEC 60034-5	GB/T 4942.1
旋转电动机冷却方法 Rotating electrical machines – Part 6: Methods of cooling (IC Code)	IEC 60034-6	GB/T 1993
旋转电动机结构型式、安装型式及接线盒位置的分类 (IM 代码) Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)	IEC 60034-7	GB/T 997
旋转电动机旋转电机线端标志与旋转方向 Rotating electrical machines – Part 8: Terminal markings and direction of rotation	IEC 60034-8	GB/T 1971
旋转电机噪声测定方法及限值 第 3 部分: 噪声限值 Rotating electrical machines – Part 9: Noise limits	IEC 60034-9	GB 10069.3
轴中心高为 56 mm 及以上电机的机械振动 振动的测量、评定及限值 Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity	IEC 60034-14	GB 10068
旋转电机尺寸和输出功率等级 第 1 部分: 机座号 56 ~ 400 和凸缘号 55 ~ 1080 Rotating electrical machines – Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080	IEC 60072-1	GB/T 4772.1
中小型旋转电机安全要求 Safety requirements of small and medium size rotating electrical machines		GB 14711
电气绝缘 耐热性和表示方法 Electrical insulation – Thermal evaluation and designation	IEC 60085	GB/T 11021
电工电子产品自然环境条件 温度和湿度 Classification of environmental conditions Part 2-1: Environmental conditions appearing in nature – Temperature and humidity	IEC 60721-2-1	GB/T 4797.1
标准电压 Standard voltages	IEC 60038	GB/T 156

噪声

噪声值

噪声值根据 DIN EN ISO 1680 标准在噪音室测得。表面声压级噪声 L_{pfa} 计算表示单位为 dB (A)。声压级噪声的空间平均值是在其测量面上测得的。测量面是距离电动机表面一立方米的地方。声功率级噪声用 L_{WA} 来表示, 单位为 dB (A)。下面给出噪声值仅适用于全封闭自扇冷却 (冷却方式: IC411) 电动机在 50 Hz 电源供电空载运行时的情况, 容差为 +3 dB。当在 60 Hz 电源下空载运行时, 偏差值大约为 +4 dB。

Noise levels

Noise levels for mains-fed operation

The noise levels are measured in accordance with DIN EN ISO 1680 in a dead room. It is specified as the A-valued measuring-surface sound pressure level L_{pfa} in dB (A). This is the spatial mean value of the sound pressure levels measured on the measuring surface. The measuring surface is a cube 1 m away from the motor surface. The sound power level is also specified as L_{WA} in dB (A). The following specified values are only valid for totally enclosed fan cooling (cooling method: IC411) motor with no load at 50 Hz with no load, and the tolerance is +3 dB. While motor operating 60 Hz with no load, the values are approximately +4 dB (A) higher.

振动

所有电动机转子都使用半键按照 A 级（标准）振动等级进行动态平衡。

电动机在空载时测得振动速度有效值不超过下表中的 A 级所列值。

Vibration

1LE0 rotors are dynamically balanced to severity grade A using a half key.

Table below contains the effective vibration values for unloaded motors.

振动等级 Vibration Grade	机座号 Frame size (mm)	56 ≤ FS ≤ 132		H>132	
	安装方式 Mounting	位移 Vibration displacement/ (μm)	速度 Vibration velocity/ (mm/s)	位移 Vibration displacement/ (μm)	速度 Vibration velocity/ (mm/s)
A	自由悬置 Free suspension	45	2.8	45	2.8
	刚性安装 Rigid mounting	-	-	37	2.3 2.8 ¹⁾
B	自由悬置 Free suspension	18	1.1	29	1.8
	刚性安装 Rigid mounting	-	-	24	1.5 1.8 ¹⁾

注：

¹⁾ 该值为 GB/T 10068-2020 中定义的轴中心高 H>132 mm 的两极电机，当两倍电网频率占主导时的振动速度限值。

Note:

¹⁾ The level are vibration velocity limit when the twice line frequency vibration level is dominant defined by GB/T 10068-2020, for 2p motors that frame size bigger than 132mm.

铭牌信息 Nameplate

1LE0 铸铁系列电机铭牌 1LE0 Cast iron motor nameplate

V		Hz	kW	A	EFF.(%)	cosφ	r/min	EFF.Cl.
380V△/660VY		50	220	385/220	96.5	0.90	2988	IE4
440V△		60	246	375	96.5	0.90	3585	

1 电动机型号	Motor type	14 额定转速	Rated speed
2 电动机类别	Category of motor	15 能效等级 IEC	Efficiency class according to IEC standard
3 机座号	Frame size	16 能效等级 GB	Efficiency class according to GB standard
4 轴承型号	Bearing type	17 二维码	QR code
5 润滑脂型号	Bearing grease type	18 IEC 标准	IEC standard
6 再润滑周期	Re-grease interval	19 企业标准	Company standard
7 加注油脂量	Re-grease quantity	20 产品序列号	Product series number
8 额定电压和接线方式	Rated voltage and connection	21 平衡方式	Balance method
9 额定频率	Rated frequency	22 热分级	Thermal class
10 额定功率	Rated power	23 订货号	Order No.
11 额定电流	Rated current	24 电机重量	Motor weight
12 效率	Efficiency	25 IP 防护等级	IP protection class
13 功率因数	Power factor	26 安装结构形式	Mounting type

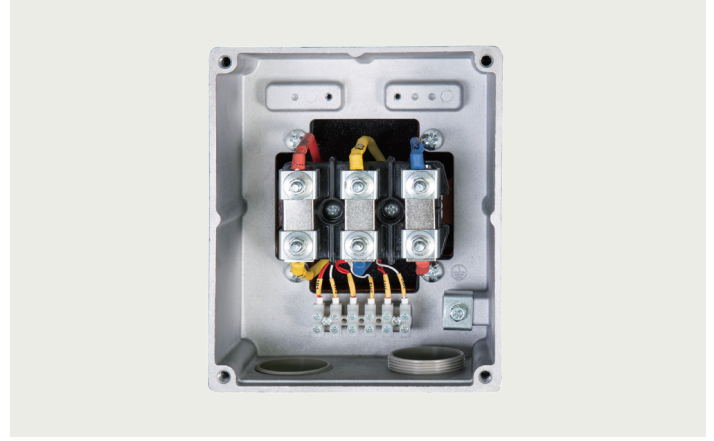
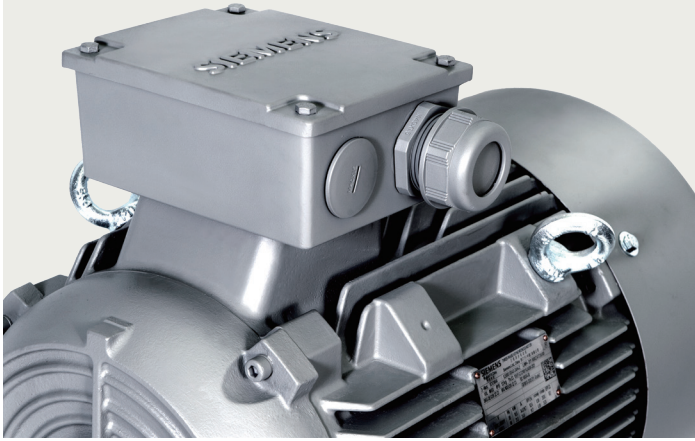
机械特性 Mechanical design

接线盒

接线盒标准位置处于机座顶端，且自身可 $4 \times 90^\circ$ 旋转安装¹⁾，从而使电缆可以从各个方向进入。所有接线盒都有两个进线孔，其中一个进线孔采用葛兰密封，另一个进线孔采用螺塞密封。

Connection box

The connection box is located on the top of motor housing as standard, and can be rotated by $4 \times 90^\circ$ to allow for cable entry from each direction. All the connection box have 2 cable entries, one is sealed by the cable gland, and another sealed by screwed plug.



接线盒技术参数 Connection boxes technical data

机座号 Frame Size	主接线端子数 Number of main terminals	最多可容纳的 辅助端子数 Max. allowable auxiliary terminals	接线螺钉螺纹 Contact screw thread	引接线最大截面积 (mm ²) Max. connectable cross-section	外接电缆直径 (mm) Outer cable diameter (sealing range)	进线孔尺寸 (葛兰+螺 塞) Cable entry size (Gland+Screwed plug)
100	6	12	M4	4	18 ~ 25 10 ~ 14 ¹⁾	M32 × 1.5+M32 × 1.5 M24 × 1.5+M24 × 1.5 ¹⁾
112	6	12		4	18 ~ 25 13 ~ 18 ²⁾	M32 × 1.5+M32 × 1.5 M30 × 2+M30 × 2 ²⁾
132	6	12	M5 ³⁾	6	18 ~ 25 13 ~ 18 ³⁾	M32 × 1.5+M32 × 1.5 M27x2+M27x2 ³⁾
160	6	14	M5	16	22 ~ 32 18 ~ 25 ⁴⁾	M40 × 1.5+M40 × 1.5 M36x2+M36x2 ⁴⁾
180	6	14		16	22 ~ 32	M40 × 1.5+M40 × 1.5
200	6	14 ²⁾	M6	25	32 ~ 38	M50 × 1.5+M50 × 1.5
225	6	14 ²⁾	M8	35		
250	6	14 ²⁾	M10	120	37 ~ 44	M63 × 1.5+M63 × 1.5
280	6	14 ²⁾		120		
315 2P(S/M)/4P(S/M)/6P	6	16 ²⁾	M12	240	44 ~ 57	M72 × 2+M72 × 2
315 2P(L)/4P(L)	6	24 ²⁾	M12	240		
355	6	24 ²⁾	M16	240	44 ~ 57	M72 × 2+M72 × 2

注:

- ¹⁾ 仅适用于1AB5。
- ²⁾ 仅适用于1BB2。
- ³⁾ 仅适用于1CC3。
- ⁴⁾ 仅适用于1DC4。

Note:

- ¹⁾ Only suitable for 1AB5.
- ²⁾ Only suitable for 1BB2.
- ³⁾ Only suitable for 1CC3.
- ⁴⁾ Only suitable for 1DC4.

接线盒位置

接线盒除标准位置外，还可处于电动机机座的左侧或右侧。电动机接线盒位置可以在电动机订货号的第 16 位用数字表示出。

接线盒的位置是指从电动机驱动端来看的位置。

- 标配接线盒在顶部，电动机订货号的第 16 位数字为 4；
- 接线盒在右边，电动机订货号的第 16 位数字为 5¹⁾；
- 接线盒在左边，电动机订货号的第 16 位数字为 6¹⁾。

注：

¹⁾ FS315 2/4P (L)机座左右出线接线盒为左上侧或右上侧。

²⁾ 需要的辅助端子数若超过接线盒最多可容纳的辅助端子数时，须选择辅助接线盒（选件号：L97）

Location of the connection box

Besides standard position, the connection box also can be on the right or left of motor housing. The position of terminal box can be indicated on the 16th digit of motor order code.

The position of connection box is described by viewed from drive end (DE).

- On top (Standard), 16th position of Motor Order No. digit 4.
- On RHS, 16th position of Motor Order No. digit 5¹⁾.
- On LHS, 16th position of Motor Order No. digit 6¹⁾.

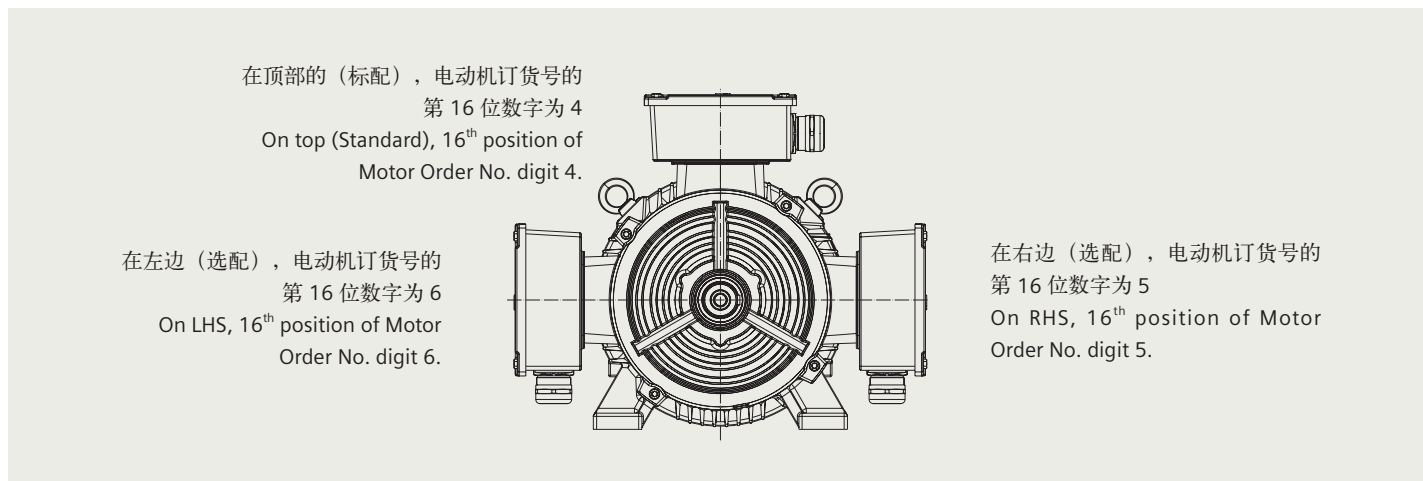
Note:

¹⁾ For FS315 2/4P (L) housing, terminal box in on right or left side.

²⁾ An auxiliary connection box (option code: L97) is required when the total number of auxiliary terminals exceeds the number of allowable terminals in main connection box.

当电动机的接线盒位置与其它部件冲突时，可以将接线盒从驱动端移到非驱动端（选件号：H08）。

If there is interfere between the connection box and other components, the connection box can be moved from the drive end (DE) to non-drive end (NDE) (Option code: H08).



接线盒的进线孔

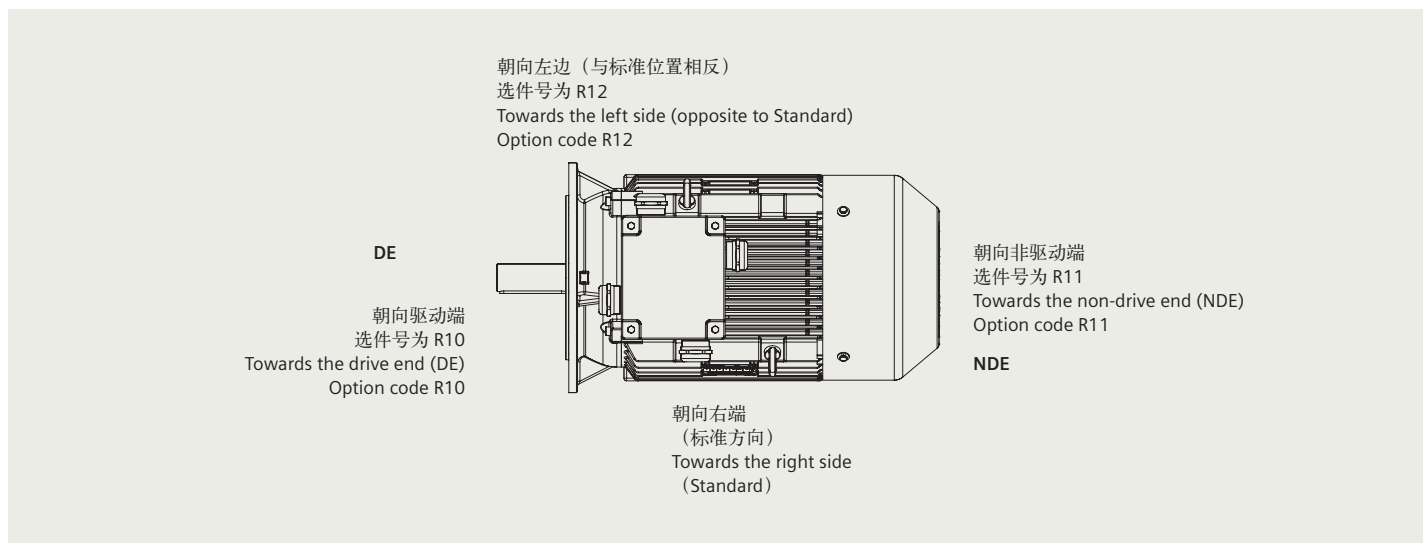
除非另作规定，否则进线孔的标准位置如下图所示。接线盒可以按照图示的位置旋转。

Cable entry on connection box

Unless stated, otherwise the cable entry is located in the standard position as show in the following illustration. The connection box can also be rotated such that the cable entry is located.

- 朝向驱动端
接线盒旋转 90°，进线口朝向驱动端，选件号为 R10。
对于 FS100 ~ 112 的带法兰（IM B5）电动机，只有接线盒在非驱动端（选件号：H08）时，才可以选择进线孔朝向驱动端。
- 朝向非驱动端
接线盒旋转 90°，进线口朝向非驱动端，选件号为 R11。
- 朝向左侧（与标准方向相反）
接线盒旋转 180°，进线口位置相反，选件号为 R12。

- Towards the drive end (DE)
Rotation of connection box by 90°，entry from DE, Option code R10.
For flange motor (IM B5) from FS100 to FS112, only possible with connection box on NDE (Option code H08).
- Towards the non-drive end (NDE)
Rotation of connection box by 90°，entry from NDE, Option code R11.
- Towards the left side (opposite to Standard)
Rotation of connection box by 180°，entry from opposite end, Option code R12.



如果接线盒的位置改变时（如右侧或左侧），须要检查进线孔的位置是否方便进线。必要时，可以同时订购其它选件（R10，R11 和 R12）。

If the position of the connection box (connection box RHS or LHS) is changed, the position of the cable entry must be checked. If necessary, it can be ordered with the corresponding order codes (R10, R11 and R12).

安装结构型式 Construction and mounting type

结构型式 Construction type	机座带底脚，端盖无法兰 With feet and without flange on the end-shield (DE)					
安装型式 Mounting type	IM B3 FS100 ~ 355	IM B6 FS100 ~ 315	IM B7 FS100 ~ 315	IM B8 FS100 ~ 315	IM V5 ^{1) 3)} FS100 ~ 315	IM V6 ^{2) 3)} FS100 ~ 315
示意图 Diagram						
电动机订货号第 14 位号 上对应的字母 Letter, position 14 th of Motor code	A	T	U	V	C	D
结构型式 Construction type	机座不带底脚，端盖有法兰 Without feet and with flange on the end-shield (DE)			机座带底脚，端盖有法兰 With feet and with flange on the end-shield (DE)		
安装型式 Mounting type	IM B5 FS100 ~ 315	IM V1 ^{1) 3)} FS100 ~ 355	IM V3 ^{2) 3)} FS100 ~ 315	IM B35 FS100 ~ 355	IM V15 ^{1) 3)} FS100 ~ 315	IM V35 ^{2) 3)} FS100 ~ 315
示意图 Diagram						
电动机订货号第 14 位号 上对应的字母 Letter, position 14 th of Motor code	F	G	H	J	W	Y
结构型式 Construction type	机座不带底脚，端盖有标准小法兰 Without feet and with C-flange on the end-shield (DE)			机座带底脚，端盖有标准小法兰 With feet and with C-flange on the end-shield (DE)		
安装型式 Mounting type	IM B14 FS100 ~ 160	IM V18 ^{1) 3)} FS100 ~ 160	IM V19 ^{2) 3)} FS100 ~ 160	IM B34 FS100 ~ 160		
示意图 Diagram						
电动机订货号第 14 位号 上对应的字母 Letter, position 14 th of Motor code	K	M	L	N		

冷却与通风

所有电动机标配装有径流（离心）式冷却风扇，其冷却效能与电动机的旋转方向无关（冷却方法符合 IEC60034-6 标准的 IC411）。

对于某些应用，可以考虑配置独立驱动风扇，如，

- 电动机在低速运行时，推荐使用独立驱动风扇，从而使电动机得到有效利用；
- 电动机在明显高于额定同步转速的速度运行时，同样推荐选用独立驱动风扇，这样有助于降低电动机噪声。

独立驱动风扇的选件号为 F70。当安装独立驱动风扇时，电动机的长度将增加 ΔL ⁴⁾。

¹⁾ 室外使用时推荐使用护罩（选件号 H00）；

²⁾ 当户外安装时，推荐对电动机轴采取防护措施，避免水直接喷射到电动机轴上；

³⁾ 当立式安装配独立风机时，请根据现场使用实际工况，与西门子咨询；

⁴⁾ 详细尺寸请与西门子咨询。

Cooling and ventilation

The 1LE0 standard motors are fitted with an radial flow fan for cooling in accordance with IEC 60034-6 cooling method.

For some special application, separately driven fan should be considered to be configured.

- The use of a separately driven fan is recommended to increase motor utilization at low speed;
- When motor speed significantly higher than the synchronous speed, the separately fan is also recommended to be used. It can help reduce the motor noise.

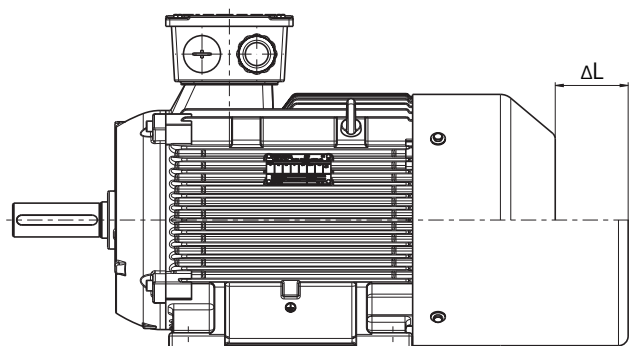
The separately driven fan can be supplied already fitted, Option code F70. When the separately driven fan is mounted, the length of the motor increase by ΔL ⁴⁾.

¹⁾ At outdoor application, the using of protective cover (Option code H00) is recommended;

²⁾ At out door application the protection of shaft again jet-water is recommended;

³⁾ If vertical mounting with separate fan, please consult with Siemens refer to actual operation conditions on site;

⁴⁾ Please contact Siemens for detail dimensions.



独立驱动风扇技术参数 Technical data for separately fan

对应电动机机座号 Motor frame size	电压 Voltage (V)	频率 Frequency (Hz)	功率 Rated output (W)	电流 Current (A)	转速 Speed (r/min)
100	220 Δ / 380Y	50	52	0.21/0.12	2800
112	220 Δ / 380Y	50	52	0.21/0.12	2800
132	220 Δ / 380Y	50	45	0.35/0.2	1400
160	220 Δ / 380Y	50	45	0.35/0.2	1400
180	220 Δ / 380Y	50	120	1.04/0.6	1400
200	220 Δ / 380Y	50	120	1.04/0.6	1400
225	220 Δ / 380Y	50	120	1.04/0.6	1400
250	220 Δ / 380Y	50	230	1.73/1.0	1400
280	220 Δ / 380Y	50	230	1.73/1.0	1400
315 2P(S/M)/4P(S/M)/6P	220 Δ / 380Y	50	370	1.91/1.1	1250
315 2P(L)/4P(L)	220 Δ / 380Y	50	1100	4.33/2.5	1350
355	220 Δ / 380Y	50	550	2.18/1.26	1350

注：风扇可以在 210 ~ 240 VD/360 ~ 420VY 50Hz 电源供电下运行，也可以在 220 ~ 260 VD/380 ~ 480 VY 60 Hz 电源供电下运行。其他电源供电，须特殊询价。

Note: The fan can be running with supply 210 ~ 240 VD/360 ~ 420 VY 50 Hz, and also 220 ~ 260 VD/380 ~ 480 VY 60 Hz. Other voltage supply, possible on request.

轴承系统

1LE0 系列电动机标准配置深沟球轴承或角接触球轴承，这些轴承是密封的或可再润滑型的。

FS100 ~ 160 范围的 1LE0 电动机驱动端与非驱动端轴承浮动；FS180 ~ 355 电动机驱动端轴承浮动，非驱动端轴承固定。

FS100 ~ 250 范围电动机标配不带再润滑装置；FS280 ~ 355 范围的电动机标配可再润滑轴承，并标配再润滑装置。

Bearing system

1LE0 series motors are supplied with the ball bearing as standard. These bearings are either of the sealed or regreasable type.

For FS100 ~ 160, the floating bearings are assembled; for FS180 ~ 355, floating bearing at DE, and fixed bearing at NDE assembled.

As standard, FS100 ~ 250 motors are not with regreasing device, but FS280 ~ 355 motors with regreasable bearing and regreasing device.

轴承选配 Bearing Assignment

机座号 Frame size	极数 Pole	标准配置 Standard design		
		驱动端轴承 DE bearing	非驱动端轴承（水平安装） NDE bearing (Horizontal mounting)	非驱动端轴承（立式安装） NDE bearing (Vertical mounting)
100	2,4,6	6206 2Z C3	6206 2Z C3	6206 2Z C3
112	2,4,6	6206 2Z C3	6206 2Z C3	6206 2Z C3
132	2,4,6	6208 2Z C3	6208 2Z C3	6208 2Z C3
160	2,4,6	6209 2Z C3	6209 2Z C3	6209 2Z C3
180	2,4,6	6210 Z C3	6210 Z C3	6210 Z C3
200	2,4,6	6212 Z C3	6212 Z C3	6212 Z C3
225	2,4,6	6213 Z C3	6213 Z C3	6213 Z C3
250	2,4,6	6215 C3	6215 C3	6215 C3
280	2,4,6	6317 C3	6317 C3	6317 C3
315	2 (S/M)	6316 C3	6316 C3	6316 C3
	4 (S/M),6	6319 C3	6319 C3	6319 C3
315	2 (L)	6316 C4	6316 C4	7316 B
315	4 (L)	6319 C4	6319 C4	7319 B
355	2	6317 C3	6317 C3	7317
	4,6	6322 C3	6322 C3	7322

注：
DE 驱动端 NDE 非驱动端
— 不能满足 标准配置
O.R. 须要特殊询价

Note:
DE Driven end NDE Non driven end
— Not possible Standard
O.R. Possible on request

轴承寿命（标称寿命）

轴承的标称额定寿命可根据 ISO 281 标准规定的标准计算程序计算出来的。如果电动机在该样本中所规定条件下运行，90 % 甚至更高比例的轴承的运行时间可达到标称寿命。通常，轴承的使用寿命取决于轴承规格、轴承载荷、运行条件、转速以及润滑脂寿命。

当电动机水平安装，且不受轴向力的情况下，电动机的轴承寿命至少能够达到 40,000 小时。在承受最大容许载荷的情况下，其寿命也至少有 20,000 小时，这里所说的轴承寿命，指的都是电动机在 50 Hz 下正常运行的情况。

当电动机在非正常的条件下运行时，轴承的寿命会缩短。如下面几种情况：

- 当电动机的运行速度高于额定速度时，由于电动机的振动增大，使得轴承受到额外的径向力和轴向力，导致其寿命减少；
- 当环境或设备等因素引起电动机振动加大时，同样轴承也会因此受到额外的径向力和轴向力，而导致其寿命减少；
- 当环境温度每升高 10°C，润滑脂寿命以及再润滑时间缩短一半。

润滑脂寿命和再润滑周期

对于不可再润滑的轴承，其润滑脂寿命与轴承寿命相当。但是，这只能是在电机严格按照本样本中规定的技术数据运行。

对于以规定间隔再润滑的电机，轴承寿命可以延长，从而补偿不利因素，诸如温度、安装条件、转速、轴承规格和机械载荷造成的影响。

Bearing life time (nominal lifetime)

The nominal bearing lifetime is defined according standardized calculation procedures (ISO 281) and is reached or even exceeded for 90% of the bearings when the motors are operated in compliance with the data provide in the catalog. Generally, the bearing lifetime is defined by the bearing size, the bearing load, the operating condition, the speed and the grease lifetime.

The bearing lifetime of motors with horizontal type of construction is at least 40,000 hours if there is no additional axial loading at the coupling output and at least 20,000 hours with the maximum admissible loads. This assumes that the motor is operated at 50Hz.

When the motor runs outside of normal conditions, the bearing life will be reduced, such as the following conditions.

- When 1LEO motor runs beyond the rated speed, the increase of motor vibration will result in the extra radial and axial force on bearing. This will reduce the life of bearing;
- When the motor vibration increase due to the environment or other equipment, the bearing also will endure more radial and axial force. This also will reduce the life of bearing;
- If the coolant temperature is increased by 10 °C, the grease lifetime and regreasing interval is halved.

Grease life and re-greasing interval

For permanent lubrication, the bearing grease lifetime is matched to the bearing lifetime. This can, however, only be achieved if the motor is operated in accordance with the catalog specifications.

For motors which can be regreased at defined regreasing intervals, the bearing lifetime can be extended and/or unfavorable factors such as temperature, mounting conditions, speed, bearing size and mechanical load can be compensated.

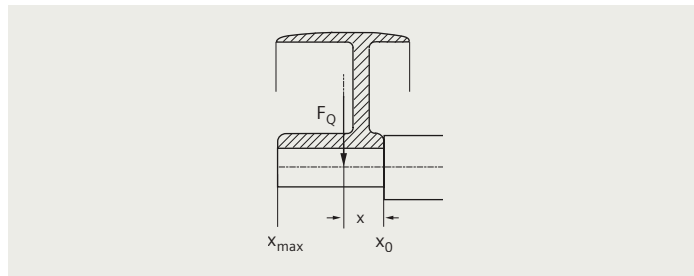
润滑脂寿命和再润滑周期（电动机水平安装） Grease life (Horizontal installation)

机座号 Frame size	极数 Poles	润滑脂寿命 Grease lifetime up to CT 40 °C
持久润滑型轴承的润滑脂 Grease for permanent lubrication bearing		
100 ~ 250	2, 4, 6	20000 或 (or) 40000 h
可再润滑型轴承的润滑脂 Grease for regreasable bearing		
100 ~ 160	2, 4, 6	8000 h
180 ~ 250	2	4000 h
	4, 6	8000 h
280 ~ 315	2	3000 h
	4, 6	4000 h ¹⁾ /5000 h
355	2	3000 h
	4, 6	4000 h

¹⁾ 仅适用于3AA5/3AA6/3AA7/3AB5/3AB6/3AB7。

¹⁾ only apply to 3AA5/3AA6/3AA7/3AB5/3AB6/3AB7.

电动机轴驱动端允许的最大悬臂力 Permissible cantilever forces on DE shaft



为了计算径向负载的最大悬臂力，据轴肩处的悬臂力 F_Q (N) 必须位于轴伸端以内，（长度为 x ）。长度 x [mm] 是距离轴肩的距离。长度最长为 x_{max} ，与轴伸长度相同。总的悬臂力 F_Q 使用以下公式计算。

$$F_Q = c \cdot F_U$$

预紧力系数 c 是从皮带制造商那得到的经验数值，下面的估算值可以应用。

- 对于一般扁平的皮带， $c = 2$ ；
- 对于V型皮带， $c = 2 \sim 2.5$ ；
- 对于特殊的皮带（取决于皮带类型和负载）， $c = 2 \sim 2.5$ 。

计算切向力 F_U (N) 使用下列公式：

$$F_U = 2 \cdot 10^7 \frac{P}{n \times D}$$

- F_U 切向力 (N)
 P 额定功率 (kW)
 n 额定转速
 D 滑轮直径 (mm)

In order to calculate the admissible cantilever forces for a radial load, the line of force (i.e. the centerline of the pulley) of the cantilever force F_Q (N) must lie within the free shaft extension (dimension x). Dimension x [mm] is the distance between the point of application of force F_Q and the shaft shoulder. Dimension x_{max} . Corresponds to the length of the shaft extension. Total cantilever force is calculated using the following equation.

$$F_Q = c \cdot F_U$$

The pre-tension factor c is a value gained from experience from the belt manufacturer. The following approximate value can be assumed.

- For normal flat leather belts with an idler pulley, $c = 2$.
- For v-belts, $c = 2$ to 2.5.
- For special synthetic belts (depending on the type and load), $c = 2$ to 2.5.

The circumferential force F_U (N) is calculated using the following equation.

$$F_U = 2 \cdot 10^7 \frac{P}{n \times D}$$

- F_U circumferential force in N
 P rated motor power (transmitted power) in kW
 n rated motor speed
 D pulleys in mm.

假设电动机不受任何轴向力，下面的表格中列出了允许的径向悬臂力值（单位：牛顿）。

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

标准电机最大悬臂力 Admissible cantilever forces for standard version			
机座号 Frame size	极数 Number of poles	悬臂力范围 ¹⁾ Admissible cantilever force ¹⁾	
		for x_0 N	for x_{max} N
100L	2	940	750
	4	1230	990
	6	1370	1090
112M	2	950	760
	6	1390	1110
132S 132M	2	1440	1130
	4	1780	1380
	6	2080	1630
160M 160L	2	1560	1250
	4	1920	1540
	6	2040	1590
180M 180L	2	1790	1460
	4	2250	1890
	6	2540	2100
200L	2	2620	2220
	4	3270	2750
	6	3740	3150
225S 225M	2	2960	2520
	4	3650	2980
	6	4190	3450
250M	2	3140	2650
	4	3830	3230
	6	4340	3660
280S 280M	2	6600	5570
	4	8210	6900
	6	9450	7980
315S 315M 315L	2	5860	5090
	4	8660	7300
	6	10000	8500
355M 355L	2	6110	5420
	4	11500	10000
	6	13200	11600

¹⁾ 对于安装型式为 IM B6, IM B7, IM B8, IM V5, IM V6 时，在电动机底脚的支撑力足够的情况下，皮带张力垂直于或指向安装平面。采用底脚安装的电动机两个底脚必须牢固。

¹⁾ It should be considered that for types of construction IM B6, IM B7, IM B8, IMV5 and IM V6 the belt tension is only permitted to act parallel to the mounting plane or towards the mounting plane and the feet must be supported. Both feet must be secured for foot-mounting types of construction.

电气特性 Electrical design

额定输出

1LE0电动机的额定功率是指电动机在连续运行的情况下 S1 (IEC 60034-1)，此时周围环境温度为 -20 °C ~ 40 °C，海拔高度不超过 1000 m。

电压、频率

IEC 60034-1 将电压和频率的偏差分为 A 类 (电压偏差 $\pm 5\%$ ，频率偏差 $\pm 2\%$) 和 B 类 (电压偏差 $\pm 10\%$ ，频率偏差 $+3\% / -5\%$)。电动机均能够在 A 类和 B 类提供额定转矩。在 A 类中，温度比正常运行下温度大约提升 10 K。

Rated Output

1LE0 motors rated output powers means that the motor runs under continuous duty S1 (IEC 60034 - 1) operation when operated at ambient temperature from -20 °C to 40 °C and at altitudes of up to 1000 m over sea.

Voltage and Frequency

IEC 60034-1 differentiates between Category A (combination of voltage deviation $\pm 5\%$ and frequency deviation $\pm 2\%$) and Category B (combination of voltage deviation $\pm 10\%$ and frequency deviation $+3\% / -5\%$) for voltage and frequency fluctuations. The motors can supply their rated torque in both Category A and B. In Category A, the temperature rise is approximately 10 K higher than during normal operation.

标准 Standard 60034 - 1	类别 Category A	类别 Category B
电压偏差 Voltage deviation	$\pm 5\%$	$\pm 10\%$
频率偏差 Frequency deviation	$\pm 2\%$	$+3\% / -5\%$

根据标准，不推荐电动机在 B 类情况下长时间运行
According to the standard, longer operation is not recommended for Category B.

电气数据公差

- 效率 η
 $P_{\text{rated}} \leq 150 \text{ kW}: -0.15 \times (1 - \eta)$
 $P_{\text{rated}} > 150 \text{ kW}: -0.10 \times (1 - \eta)$
效率 η 为小于 1 的值
- 功率因数: $(1 - \cos \phi) / 6$
最小绝对值: 0.02
最大绝对值: 0.07
- 转差率: $\pm 20\%$ (电动机的偏差 $< 1 \text{ kW} \pm 30\%$ 时是允许的)
- 堵转电流: $+20\%$
- 堵转转矩: $-15\% \sim +25\%$
- 最大转矩: -10%
- 转动惯量: $\pm 10\%$

过载倍数

根据 IEC60034 标准要求，1LE0 系列电动机能够在额定电压和频率下承受 1.5 倍的额定电流达 2 分钟。

Tolerance for electrical data

- Efficiency η at
 $P_{\text{rated}} \leq 150 \text{ kW}: -0.15 \times (1 - \eta)$
 $P_{\text{rated}} > 150 \text{ kW}: -0.10 \times (1 - \eta)$
With η being a decimal number
- Power factor - $(1 - \cos \phi) / 6$
Minimum absolute value: 0.02
Maximum absolute value: 0.07
- Slip $\pm 20\%$ (for motors $< 1 \text{ kW} \pm 30\%$ is admissible)
- Locked-rotor current $+20\%$
- Locked-rotor torque -15% to $+25\%$
- Breakdown torque -10%
- Moment of inertia $\pm 10\%$

Overload times

According to IEC60034, 1LE0 series motors are designed to withstand overload capacity of 1.5 times rated current for 2 minutes at rated voltage and frequency.

绝缘系统

1LE0 电动机绝缘系统具有可靠性、耐用性好和寿命长、耐冲击能力强的特点。

1LE0 系列电动机标准设计温度等级为 155 (F)。当 1LE0 电动机直接供电，且输出额定功率时，其绝缘系统按 130 (B) 温度等级使用。

电动机保护

电动机过热保护

电动机热保护是指将温度保护传感器或温度检测传感器嵌入电动机定子绕组或其他适当的地方，从而使其不会因为过热而受到破坏。

不同的电动机热保护方式可以在 1LE0 电动机订货号的第 15 位采用不同的字母或者选件号来表示。下面是电动机的绕组保护和轴承保护的几种保护方式。

绕组保护

■ PTC 热敏电阻温度保护

目前，最常用的电动机绕组过热保护方式是采用在电动机绕组中安装 PTC 热敏电阻进行保护。由于热敏电阻的热容量较低以及其在绕组间优良的热传导特性，绕组温度可被准确的监控。当达到极限温度时（标称跳闸温度），PTC 热敏电阻阻值会出现一个阶跃变化。这一变化被跳闸装置捕捉后，即可断开辅助回路。

PTC 热敏电阻本身不能耐受大电流和高电压。否则会导致半导体器件损坏。PTC 热敏电阻和跳闸装置的开关滞后效应小，因此可以实现快速重起。对于重载起动、起动频率高、负载变化大、环境温度高或电源波动大等应用场合，建议电动机使用该类保护。

Insulation system

The insulation system of 1LE0 results in high reliability, a long service life and high resistance to stress, for example, during starting or under overload conditions.

1LE0 series motors are designed for temperature class 155 (F). At rated output with line-fed operation, the motors can be used in temperature class 130 (B).

Motor protection

Motor thermal overload protection

Motor thermal protection means to use of thermal protectors and thermal detectors incorporated into the stator windings or placed in other suitable positions in motor in order to protect them against serious damage due to thermal overloads.

The order variants for motor protection are coded with letters in the 15th position of the Motor Order No., or ordered with Option code. Some protection method about winding protection and bearing protection are shown in the following.

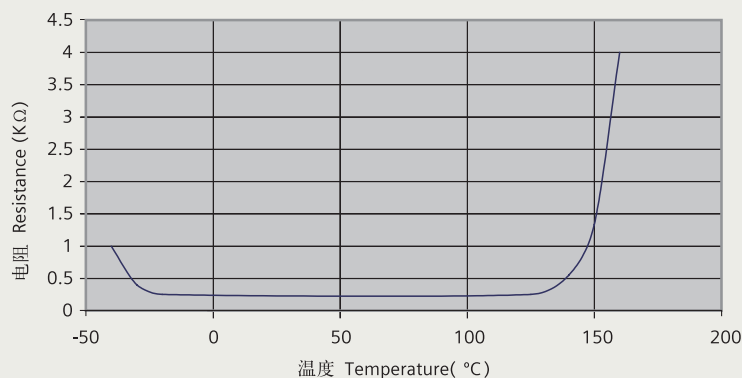
Winding protection

■ PTC thermistors protection

The most comprehensive protection against thermal overloading of the motor is provided by PTC thermistors (thermistor motor protection) installed in the motor winding. The temperature of the winding can be accurately monitored thanks to its low heating capacity and the excellent heat contact with the winding. When a limit temperature is reached (nominal tripping temperature), the resistance of PTC thermistors will have a step change. This is evaluated by a tripping unit and can be used to open auxiliary circuits.

The PTC thermistors themselves cannot be subjected to high currents and voltages. This would result in destruction of the semiconductor. The switching hysteresis of the PTC thermistor and tripping unit is low, which supports fast restarting of the drive. Motors with this type of protection are recommended for heavy duty starting, switching duty, extreme changes in load, high ambient temperatures or fluctuating supply systems.

PTC 曲线图
The graph of PTC



两种 PTC 热敏电阻温度保护

- 电动机绕组带一组三芯串联的 PTC 热敏电阻用于跳闸，跳闸温度为 155 °C，电动机订货号第 15 位字母为“B”，需 2 个辅助接线端子。
- 电动机绕组带两组三芯串联的 PTC 热敏电阻，其中一组用于在电动机跳闸前报警，一组用于跳闸，报警温度为 145 °C，跳闸温度为 155 °C，电动机订货号第 15 位字母为“C”，需 4 个辅助接线端子。

■ PT100 热敏电阻传感器温度保护

PT100 热敏电阻是一种精确高、灵敏度高的传感器，其线性温度阻值优于其他电阻式传感器，性能稳定、可靠性高，其特性曲线如下。

两种 PT100 热敏电阻温度保护

- 电动机绕组带 3 个 2 线制 PT100 测温元件，电动机订货号第 15 位字母为“H”，需 6 个辅助接线端子。
- 电动机绕组带 6 个 2 线制 PT100 测温元件，电动机订货号第 15 位字母为“J”，需 12 个辅助接线端子。

2 alternatives of PTC protection

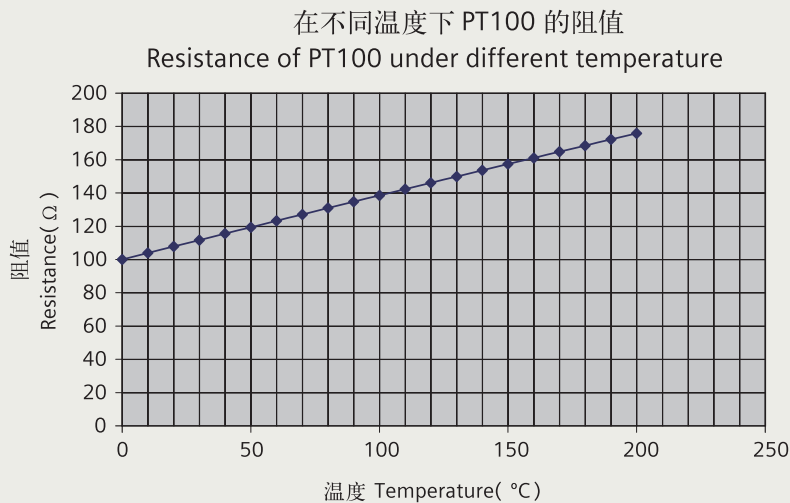
- Motor winding is protected with PTC thermistors with 3 embedded temperature sensors for tripping. Connection be done through 2 auxiliary terminals in the connection box. 15th position of Motor Order No. letter B.
- Motor winding is protected with two sets of three temperature sensors, one set is for warning, another set for tripping. The warning temperature is 145 °C, and tripping temperature is 155 °C. Connection be done through 4 auxiliary terminals in the connection box. 15th position of Motor Order No. letter C.

■ PT100 resistance thermometers protection

PT100 thermometers are a high precision, high sensitivity, better linear temperature resistance, more stable performance, and high reliability sensor, whose characteristics are as following.

2 alternatives of PT100

- Installation of 3 PT100 resistance thermometers. Connection be done through 6 auxiliary terminals in the connection box. 15th position of Motor Order No. letter H.
- Installation of 6 PT100 resistance thermometers. Connection be done through 12 auxiliary terminals in the connection box. 15th position of Motor Order No. letter J.



■ PT1000 热敏电阻传感器温度保护

PT1000 热敏电阻可对电机绕组温度进行更精确地监测。

- 绕组中带一个单支两线制 PT1000 测温元件，电机的铭牌编号 15 位数为 K，需 2 个辅助接线端子。

轴承保护

1LE0 电动机轴承标配不带任何保护。对于某些苛刻的应用，推荐对轴承采取保护措施。轴承保护是通过在电动机驱动端和非驱动端的轴承端盖拧入温度传感器来进行保护。温度传感器的引接线引入电动机主接线盒内。

1LE0 电动机轴承装两个 PT100 测温元件，选件号为 Q72，需 4 个辅助接线端子。

防潮加热保护

当电动机处于较为恶劣的环境时，比如湿度非常大或者昼夜温差比较大，电动机的绕组很可能出现凝露的现象，这样会带来电动机烧毁的风险。对于这种情况，建议对电动机绕组配置防潮加热带（选件号：Q04）进行保护，需 2 个辅助接线端子。

电动机防潮加热带必须在电动机工作过程中处于不工作状态；当电动机停机时，防潮加热带必须启动工作，为绕组加热。防潮加热带的电气参数如下表所示。

防潮加热带电气参数 Electrical data of Anti-condensation heater

机座号 Frame size	功率 Power (W)	电压 Vlotage
100 ~ 112	30	220 V
132 ~ 160	40	220 V
180 ~ 200	50	220 V
225 ~ 280	60	220 V
315	80	220 V
355	100	220 V

■ PT1000 resistance thermometers protection

The PT1000 thermistor can monitor the temperature of the motor winding more accurately.

- Installation of 1 single 2 wires PT1000 resistance thermometers. Connection be done through 2 auxiliary terminals in the connection box. 15th position of Motor Order No. letter K.

Bearing protection

1LE0 motors bearing has no protection as standard. For some severe application, such as high load, high coolant temperature and etc., the bearing is recommended to be protected. The bearing is protected through thermometers screwed into the bearing plates of motor driven end (DE) and non-drive-end (NDE). The wires are routed through the main connection box.

Installation of 2 PT100 screwed-in resistance thermometers for 1LE0 motor bearings, Option code: Q72. Connection be done through 4 auxiliary terminals in the connection box.

Anti-condensation heater

Motors whose windings are at risk of condensation due to the climatic conditions, e.g. inactive motors in humid atmospheres or motors that are subjected to widely fluctuating temperatures can be equipped with anti-condensation heaters (Option code: Q04), 2 auxiliary terminals in connection box are needed.”

Anti-condensation heaters must be switched off during operation. When motor shut down, the heaters must be switched on.

变频应用 Converter fed application

1LE0 电动机适于变转速、恒转速的各种应用，如风机、泵、压缩机、纺织机械等。

当变频器驱动电动机时，电磁干扰的程度大小取决于变频器的类型（种类，IGBT 数量，干扰控制措施及制造商）、布线、距离以及应用需求。在设计和应用阶段必须参考变频器制造商关于电磁兼容性的安装指导。

当 1LE0 电动机变频应用（变频器供电），且输出额定功率时，电动机的使用温度等级为 155 (F)。为了避免杂散电流对电动机轴承的损坏，推荐 FS250 ~ 355 电动机使用绝缘轴承。请向西门子咨询关于绝缘轴承的详细信息。

变频器驱动运行

1LE0 电动机的标准绝缘系统设计要求，能够保证其在变频器供电电压不超过 460 V 时正常运行。

1LE0 电动机带有特定的负载时能够使用变频器驱动，其特定的负载扭矩如以下图表所示：

1LE0 motors are suitable for pumps, fans, compressors, textile machine and mechanical machine applications where variable or constant speed is required.

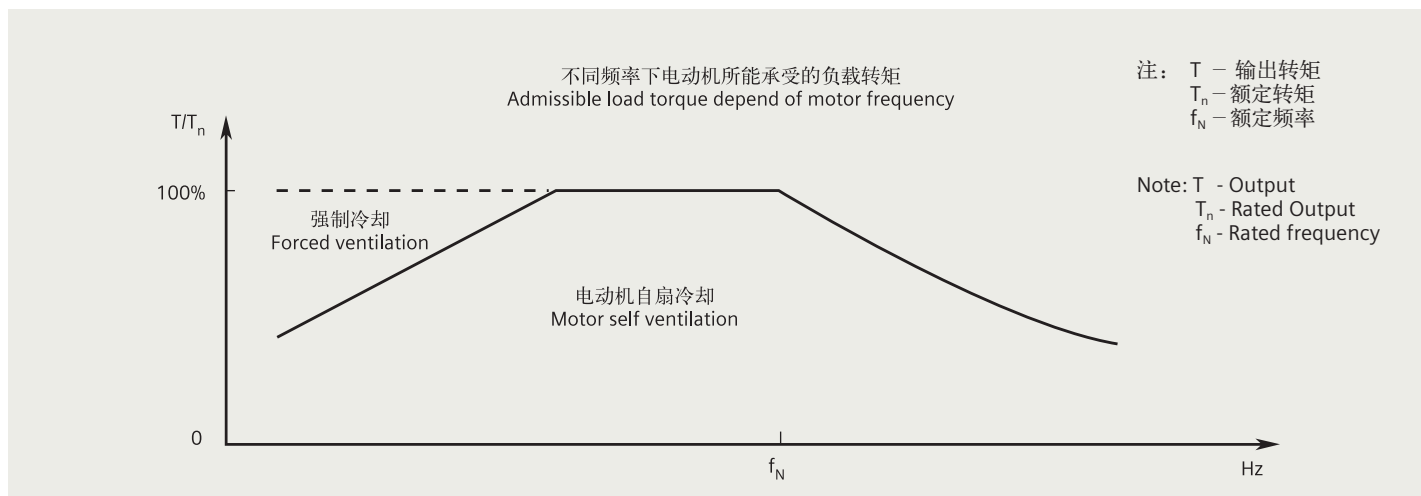
In application where the motor is driven by a converter, the degree of electrical interference depends on the type of converter used (type, number of IGBTs, interference suppression measures, and manufacturer), cabling, distance and application requirements. The installation guidelines of the converter manufacturer with regards to electromagnetic compatibility must be considered at all times during the design and implementation phases.

At rated output with converter fed operation, the motors will be used in temperature class 155 (F). To prevent damage as a result of bearing currents, insulated bearings are recommended to be assembled for frame size 250 and above. Please inquire Siemens about the detailed information of insulated bearing.

Converter-fed operation

The standard insulation of the 1LE0 motors is designed such that operation is possible on the converter at mains voltage up to 460 V.

1LE0 motors are capable for converter-fed operation with certain characteristics load, of which the load torque characteristics is referred in the following diagram:



当负载扭矩在允许的转矩范围内时，电动机能够自扇冷却；当负载扭矩超过所允许的转矩时，电动机需要强迫冷却。

在电动机运行速度超过额定转速时，噪声和振动值将增加，并且轴承的寿命将缩短。需要注意再润滑周期和润滑脂的寿命。

变频运行时当频率超过 60 Hz 时，必需按照特定的限值进行动平衡。

By usage with admissible torque and below, the motor can be operated with self cooling; by usage over the admissible torque line, the motor with forced ventilation is needed.

At operating speeds above rated speed the noise and vibration levels increase and the bearing life time reduce. Attention should be paid to the re-greasing intervals and the grease service life.

For converter-fed operation with frequencies greater than 60 Hz special balancing is required for compliance with the specified limit values.

1LE0 电动机所允许的最大安全转速如下表

The allowed maximum safe operating speed of 1LE0 motors shows the diagram

机座号 Frame Size	2 极 2 pole		4 极 4 pole		6 极 6 pole	
	最高转速 Max. rpm	最大频率 fmax	最高转速 Max. rpm	最大频率 fmax	最高转速 Max. rpm	最大频率 fmax
100	5200	87	3600	120	2400	120
112	5200	87	3600	120	2400	120
132	4500	75	2700	90	2400	120
160	4500	75	2700	90	2400	120
180	4500	75	2700	90	2400	120
200	4500	75	2300	77	1800	90
225	3600	60	2300	77	1800	90
250	3600	60	2300	77	1800	90
280	3600	60	2300	77	1800	90
315	3600	60	2300	77	1800	90
355	3600	60	2300	77	1800	90

电压承受值

绕组绝缘的电介质应力决定于：

- 电压峰值，上升时间以及变频器产生的脉冲频率；
- 变频器与电动机连接电缆的特性和长度；
- 绕组结构和其他系统参数，尤其是绝缘系统中不同绕组的对地电压（代表了绝缘系统的电介质应力）。

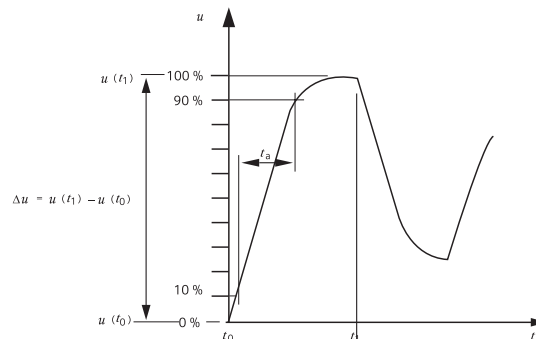
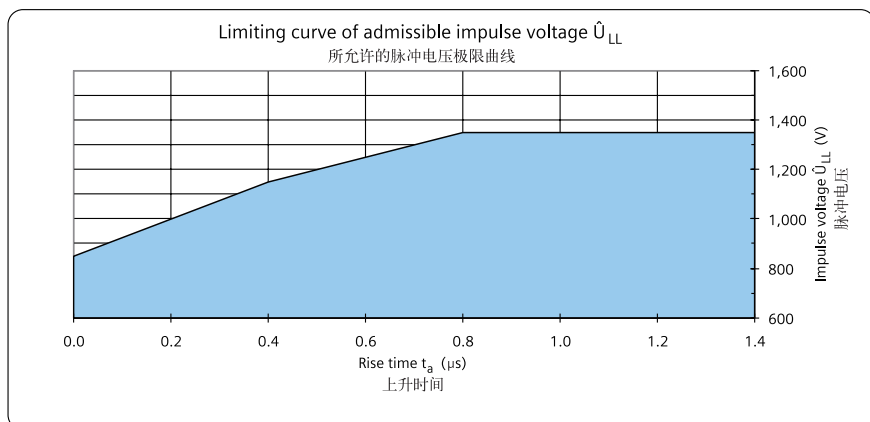
图表所示为 1LE0 电动机标准绝缘能承受电压的峰值和上升时间：

Voltage withstand levels

The dielectric stress of the winding insulation is determined by:

- the peak voltage, rise time and frequency of the impulses produced by the converter.
- the characteristics and the length of the connection leads between the converter and motor.
- the winding construction and other system parameters, especially the voltages between the different parts of the winding and the ground represent dielectric stress at the insulation system.

The standard insulation of the 1LE0 motors is designed to withstand voltage peak and rise time which is showed in the diagram:

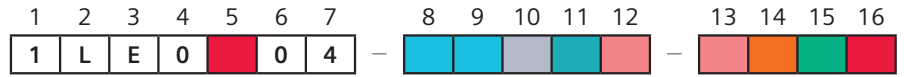


数值参照 IEC 60034-17, GB/T 20161-2008 标准。

The values refer to standard IEC 60034-17 and GB/T 20161-2008.

订货号和型号 Order No. and Motor Type

订货号 Order No.



低压系列电动机 Low-voltage motor series

0 = 铸铁壳
0 = Cast Iron

4 = 超高效电动机, 中国能效等级 2 级
4 = Premium Efficiency, China Energy Efficiency Grade 2

机座号编号 Code of frame size

1A = 100; 1B = 112; 1C = 132; 1D = 160; 1E = 180
2A = 200; 2B = 225; 2C = 250; 2D = 280
3A = 315; 3B = 355

极数编号 Code of poles

A = 2; B = 4; C = 6

机座长度编号 Code of frame length

0 or 1 = S (短机座 short); 2 or 3 or 4 = M (中机座 medium); 4 or 5 or 6 or 7 = L (长机座 long)

电压, 连接方式和频率编号 Code of voltage, connections and frequency

22 = 230 VD/400 VY 50Hz 35 = 415 VD 50 Hz
21 = 220 VD/380 VY 50Hz 23 = 240 VD/415 VY 50Hz 90¹⁾ = 特殊电压与频率
33 = 380 VD/660 VY 50Hz 34 = 400 VD/690 VY 50Hz special voltage & frequency

结构和安装方式编号 Code of Construction and mounting type

T²⁾ = IM B6
A²⁾ = IM B3 U²⁾ = IM B7
J²⁾ = IM B35 V²⁾ = IM B8
F^{2) 3)} = IM B5 C^{2) 5)} = IM V5 W^{2) 5)} = IM V15 G^{2) 3) 5)} = IM V1 M^{2) 3) 4) 5)} = IM V18
K^{2) 3) 4)} = IM B14 D²⁾ = IM V6 Y²⁾ = IM V35 H^{2) 3)} = IM V3 L^{2) 3) 4)} = IM V19 N^{2) 4)} = IM B34

绕组保护编号 Code of winding protection

A = 无绕组保护 without winding protection
B = 绕组带一组三芯串联的 PTC 热敏电阻用于跳闸 3 PTC thermistors for tripping
C = 绕组带两组三芯串联的 PTC 热敏电阻用于报警和跳闸 6 PTC thermistors for alarm and tripping
K = 绕组带 1 个单支两线制 PT1000 测温元件 1 single 2 wires PT1000 resistance thermometers
H = 绕组带 3 个 Pt100 测温元件 3 resistance thermometers Pt100
J = 绕组带 6 个 Pt100 测温元件 6 resistance thermometers Pt100
Z = 其他绕组保护 Other temperature for winding protection

接线盒位置编号 (从驱动端看) Code of connection box location (view from drive end)

4 = 置顶 on top; 5⁶⁾ = 右侧 on RHS; 6⁶⁾ = 左侧 on LHS

附注:

- 1) 用电压编号 90 及相应选项号来定制其它电压 (参见选项描述) ;
- 2) 铭牌上标有结构型式。若需要冷凝水排放孔 (订货号: H03) , 则必须指明电机的安装结构型式, 以便在制造过程中确定冷凝水排放孔的具体位置。
- 3) 对于 IM B5、IM V1、IM V3、IM B14、IM V18 和 IM V19 安装结构型式电动机, 须指定电动机订货号第 16 位数字为 “4” ;
- 4) 只针对 FS100 ~ 160;
- 5) 电动机标配无防雨罩, 但如需要加带防雨罩用于防护时, 须订购选项号 H00;
- 6) FS100 ~ 132 进线孔的方向朝向非驱动端。

Foot note:

- 1) Order other voltages with voltage code 90 and the corresponding Option code (see under "Option") .
- 2) The type of construction is stamped on the rating plate. When ordering with condensation drainage holes (order code H03), it is absolutely necessary to specify the type of construction for the exact position of the condensation drainage holes during manufacture.
- 3) For motor with IM B5, IM V1, IM V3, IM B14, IM V18 and IM V19 construction and mounting type, the 16th digit of motor order No. must be "4";
- 4) Only for FS100 ~ 160.
- 5) Without canopy, for protective cover with canopy needed Option code H00.
- 6) Cable entry on connection box towards the non-drive FS100~132.

	电机型号 Motor type							
	1	2	3	4	5	6	7	8
亚太系列 Asia pacific	0	<input type="checkbox"/>	V	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
机壳材料 Housing material C = 铸铁 Cast iron								
冷却方式 Cooling method V = 空冷 ventilated								
能效等级, Energy efficiency grade 4 = 中国能效等级 2 级, IE4 效率等级 4 = China energy efficiency grade 2, IE4 efficiency								
机座号 Frame size 10 = 100; 11 = 112; 13 = 132; 16 = 160; 18 = 180; 20 = 200; 22 = 225; 25 = 250; 28 = 280; 31 = 315; 35 = 355								
铁心长 Core length								
极数 Poles A = 2; B = 4; C = 6;								

订货号样例:

中国能效等级二级、铸铁低压三相交流电动机
4-极, 15 kW, IM B5, 380 VD/660 VY 50 Hz, IP55, 接线盒位置处于顶端, 进线孔右侧 (从驱动端看), 带独立驱动风扇。

电动机订货号: 1LE0004-1DB43-3FA4-Z F70

Order No. example:

IE4, Low voltage three phase cast iron motor
4-pole, 15 kW, IM B5, 380 VD/660 VY 50 Hz, IP55, connection box on top and cable entry at right side (view from DE), with separately driven fan.

Motor order code: 1LE0004-1DB43-3FA4-Z F70

选型技术数据表 Technical data table

铸铁壳系列电机, Cast Iron Motors
IE4, 中国能效等级2级

机座号 Frame Size	电动机型号 Motor Type	订货号 Order No.	额定功率 Rated Output	额定功率 (60Hz) Rated Output (60Hz)	额定转速 Rated Speed	效率 (100% 负载) Effeciency at (50HZ) 4/4 load	效率 (75% 负载) Effeciency at (50HZ) 3/4 load	功率因数 Power factor
			kW	kW	r/m	%	%	
3000rpm 2 极 2- pole 220VD/380VY 50HZ								
100L	OCV4104A	1LE0004-1AA42-1	3	3.45	2870	89.1	90.5	0.88
3000rpm 2 极 2- pole 380VD/660VY 50HZ								
112M	OCV4112A	1LE0004-1BA23-3	4	4.6	2930	90.0	90.9	0.91
132S	OCV4130A	1LE0004-1CA03-3	5.5	6.3	2940	90.9	91.7	0.88
132S	OCV4131A	1LE0004-1CA13-3	7.5	8.6	2935	91.7	92.7	0.90
160M	OCV4162A	1LE0004-1DA23-3	11	12.6	2955	92.6	93.1	0.88
160M	OCV4163A	1LE0004-1DA33-3	15	17.3	2945	93.3	93.8	0.86
160L	OCV4164A	1LE0004-1DA43-3	18.5	21.3	2945	93.7	94.3	0.88
180M	OCV4182A	1LE0004-1EA23-3	22	24.5	2960	94.0	94.2	0.89
200L	OCV4204A	1LE0004-2AA43-3	30	33.5	2960	94.5	94.7	0.88
200L	OCV4205A	1LE0004-2AA53-3	37	41.5	2960	94.8	95.0	0.88
225M	OCV4222A	1LE0004-2BA23-3	45	51	2970	95.0	95.1	0.89
250M	OCV4252A	1LE0004-2CA23-3	55	62	2980	95.3	95.3	0.88
280S	OCV4280A	1LE0004-2DA03-3	75	84	2980	95.6	95.5	0.89
280M	OCV4282A	1LE0004-2DA23-3	90	101	2980	95.8	95.8	0.89
315S	OCV4310A	1LE0004-3AA03-3	110	123	2985	96.0	96.0	0.90
315M	OCV4312A	1LE0004-3AA23-3	132	148	2986	96.2	96.1	0.90
315L	OCV4315A	1LE0004-3AA53-3	160	180	2982	96.3	96.3	0.89
315L	OCV4316A	1LE0004-3AA63-3	185	207	2980	96.4	96.4	0.89
315L	OCV4317A	1LE0004-3AA73-3	200	224	2980	96.5	96.7	0.89
355M	OCV4352A	1LE0004-3BA23-3	220	246	2988	96.5	96.2	0.90
355M	OCV4353A	1LE0004-3BA33-3	250	280	2985	96.5	96.4	0.91
355L	OCV4355A	1LE0004-3BA53-3	280	314	2986	96.5	96.5	0.91
355L	OCV4356A	1LE0004-3BA63-3	315	353	2982	96.5	96.6	0.91

	额定电流 Rated current	额定转矩 Rated torque	起动电流 / 额定电流 Starting Current/ Rated current	起动转矩 / 额定转矩 Starting torque/ Rated torque	最大转矩 / 额定转矩 Max torque/Reted torque	转动惯量 Moment of inertia (J)	重量 Weight IMB3	噪声 Noise
	A	Nm	I_{LR}/I_{rated}	T_{LR}/T_{rated}	T_{max}/T_{rated}	kgm ²	kg	L_{pfa}/L_{WA}
3000rpm 2 极 2- pole 220VD/380VY 50HZ								
	10.0/5.8	10.0	9.0	3.6	4.0	0.00552	42	62/74
3000rpm 2 极 2- pole 380VD/660VY 50HZ								
	7.4/4.25	13.0	9.5	3.0	3.6	0.0098	50	65/77
	10.4/6.0	17.9	9.0	3.0	4.0	0.0174	61	67/79
	13.8/8.0	24.4	9.0	3.0	4.0	0.0218	69	67/79
	20.5/11.8	35.5	9.0	3.0	4.0	0.0449	111	69/81
	28.5/16.4	48.6	9.0	3.0	4.0	0.0449	111	69/81
	34.0/19.6	60.0	9.0	3.0	4.0	0.0536	132	69/81
	40.0/23.0	71.0	9.5	2.6	3.6	0.0905	178	70/83
	55/31.5	96.8	8.0	2.6	3.6	0.164	251	71/84
	67/39.0	119	8.5	3.0	3.6	0.193	277	71/84
	81/46.5	145	8.5	3.0	3.4	0.322	363	72/85
	100/57	176	8.3	3.0	3.4	0.523	420	75/89
	134/77	240	8.5	3.0	3.4	0.92	555	77/91
	160/92	288	8.5	3.0	3.4	1.03	600	77/91
	193/111	352	7.9	2.3	2.6	1.64	828	78/92
	230/133	422	9.0	3.0	3.2	1.97	1020	78/92
	285/163	512	8.2	2.6	3.0	2.46	1285	81/96
	330/189	593	8.2	2.6	3.0	2.80	1361	81/96
	355/205	641	8.0	2.6	3.0	2.80	1378	81/96
	385/220	703	8.5	2.5	3.0	2.75	1515	85/100
	435/250	800	8.0	2.5	3.0	2.75	1510	85/100
	485/280	896	8.5	2.2	2.8	3.28	1620	85/100
	550/315	1009	8.0	2.2	2.8	3.28	1635	85/100

选型技术数据表 Technical data table

铸铁壳系列电机, Cast Iron Motors
IE4, 中国能效等级2级

机座号 Frame Size	电动机型号 Motor Type	订货号 Order No.	额定功率 Rated Output	额定功率 (60Hz) Rated Output (60Hz)	额定转速 Rated Speed	效率 (100% 负载) Effeciency at (50HZ) 4/4 load	效率 (75% 负载) Effeciency at (50HZ) 3/4 load	功率因数 Power factor
			kW	kW	r/m	%	%	
1500rpm 4 极 4-pole 220VD/380VY 50HZ								
100L	OCV4104B	1LE0004-1AB42-1	2.2	2.55	1455	89.5	90.0	0.79
112M	OCV4112B	1LE0004-1AB53-3	3	3.45	1455	90.4	89.8	0.80
1500rpm 4 极 4-pole 380VD/660VY 50HZ								
112M	OCV4112B	1LE0004-1BB23-3	4	4.6	1465	91.1	91.2	0.80
132S	OCV4130B	1LE0004-1CB03-3	5.5	6.3	1460	91.9	92.4	0.80
132M	OCV4132B	1LE0004-1CB23-3	7.5	8.6	1465	92.6	93.3	0.80
160M	OCV4162B	1LE0004-1DB23-3	11	12.6	1470	93.3	93.8	0.83
160L	OCV4164B	1LE0004-1DB43-3	15	17.3	1470	93.9	94.4	0.84
180M	OCV4182B	1LE0004-1EB23-3	18.5	21.3	1475	94.2	94.8	0.83
180L	OCV4184B	1LE0004-1EB43-3	22	24.5	1475	94.5	95.0	0.82
200L	OCV4204B	1LE0004-2AB43-3	30	33.5	1478	94.9	95.4	0.84
225S	OCV4220B	1LE0004-2BB03-3	37	41.5	1485	95.2	95.6	0.85
225M	OCV4222B	1LE0004-2BB23-3	45	51	1485	95.4	95.7	0.83
250M	OCV4252B	1LE0004-2CB23-3	55	62	1488	95.7	96.0	0.85
280S	OCV4280B	1LE0004-2DB03-3	75	84	1488	96.0	96.2	0.86
280M	OCV4282B	1LE0004-2DB23-3	90	101	1488	96.1	96.4	0.86
315S	OCV4310B	1LE0004-3AB03-3	110	123	1490	96.3	96.5	0.88
315M	OCV4312B	1LE0004-3AB23-3	132	148	1490	96.4	96.7	0.89
315L	OCV4315B	1LE0004-3AB53-3	160	180	1490	96.6	96.9	0.87
315L	OCV4316B	1LE0004-3AB63-3	185	207	1490	96.7	96.9	0.87
315L	OCV4317B	1LE0004-3AB73-3	200	224	1490	96.7	96.9	0.87
355M	OCV4352B	1LE0004-3BB23-3	220	246	1491	96.7	97.0	0.90
355M	OCV4353B	1LE0004-3BB33-3	250	280	1492	96.7	96.9	0.90
355L	OCV4355B	1LE0004-3BB53-3	280	314	1492	96.7	96.9	0.90
355L	OCV4356B	1LE0004-3BB63-3	315	353	1490	96.7	97.1	0.90

	额定电流 Rated current	额定转矩 Rated torque	起动电流 / 额定电流 Starting Current/ Rated current	起动转矩 / 额定转矩 Starting torque/ Rated torque	最大转矩 / 额定转矩 Max torque/Reted torque	转动惯量 Moment of inertia (J)	重量 Weight IMB3	噪声 Noise
	A	Nm	I_{LR}/I_{rated}	T_{LR}/T_{rated}	T_{max}/T_{rated}	kgm ²	kg	L_{pfa}/L_{WA}
1500rpm 4极 4-pole 220VD/380VY 50HZ								
	8.2/4.75	14.4	9.0	3.6	4.0	0.01257	45	52/64
	10.9/6.3	19.7	9.0	2.7	3.3	0.0156	48	54/66
1500rpm 4极 4-pole 380VD/660VY 50HZ								
	8.34/4.8	26.1	9.5	2.7	3.3	0.0223	56	60/72
	11.4/6.5	36.0	9.0	3.2	4.0	0.0305	75	63/75
	15.4/8.9	48.9	9.5	3.2	4.0	0.0381	88	63/75
	21.5/12.4	71.5	9.5	3.0	4.0	0.0683	114	61/73
	29.0/16.6	97.4	9.5	3.0	4.0	0.0902	144	61/73
	36.0/20.5	120	8.5	3.0	3.6	0.1531	182	63/76
	43.0/25.0	142	9.0	3.0	3.6	0.1724	201	63/76
	57/33.0	194	9.0	3.0	3.6	0.270	269	63/76
	69/40.0	238	8.5	3.0	3.3	0.543	332	65/78
	86/49.5	289	9.0	3.3	3.6	0.586	356	65/78
	103/59	353	9.0	3.3	3.6	1.031	471	66/79
	138/79	481	8.5	3.0	3.2	1.61	595	70/84
	165/95	578	8.5	3.0	3.2	1.98	690	70/84
	197/114	705	8.5	3.0	3.0	2.91	950	74/88
	235/135	846	8.5	3.0	3.0	3.66	1115	74/88
	290/167	1026	7.6	2.0	2.4	4.01	1370	74/88
	335/192	1186	7.6	2.0	2.4	4.44	1430	74/88
	360/210	1282	7.6	2.0	2.4	4.69	1451	74/88
	385/220	1409	8.0	1.8	3.2	5.50	1720	81/95
	435/250	1600	8.0	1.8	2.9	5.99	1800	81/95
	490/280	1792	8.0	1.8	2.9	5.99	1795	81/95
	550/315	2019	8.0	1.8	2.9	6.18	1865	81/95

选型技术数据表 Technical data table

铸铁壳系列电机, Cast Iron Motors
IE4, 中国能效等级2级

机座号 Frame Size	电动机型号 Motor Type	订货号 Order No.	额定功率 Rated Output	额定功率 (60Hz) Rated Output (60Hz)	额定转速 Rated Speed	效率 (100% 负载) Effeciency at (50HZ) 4/4 load	效率 (75% 负载) Effeciency at (50HZ) 3/4 load	功率因数 Power factor
			kW	kW	r/m	%	%	
1000rpm 6极 6-pole 220VD/380VY 50HZ								
100L	OCV4104C	1LE0004-1AC42-1	1.5	1.75	960	85.9	86.2	0.71
112M	OCV4112C	1LE0004-1BC22-1..	2.2	2.55	960	87.4	88.0	0.71
132S	OCV4130C	1LE0004-1CC02-1	3	3.45	970	88.6	89.2	0.71
1000rpm 6极 6-pole 380VD/660VY 50HZ								
132M	OCV4132C	1LE0004-1CC23-3	4	4.6	970	89.5	90.0	0.72
132M	OCV4133C	1LE0004-1CC33-3	5.5	6.3	968	90.5	89.9	0.72
160M	OCV4162C	1LE0004-1DC23-3	7.5	8.6	985	91.3	91.5	0.76
160L	OCV4164C	1LE0004-1DC43-3	11	12.6	980	92.3	91.8	0.77
180L	OCV4184C	1LE0004-1EC43-3	15	17.3	980	92.9	93.8	0.80
200L	OCV4204C	1LE0004-2AC43-3	18.5	21.3	982	93.4	94.1	0.80
200L	OCV4205C	1LE0004-2AC53-3	22	24.5	982	93.7	94.3	0.80
225M	OCV4222C	1LE0004-2BC23-3	30	33.5	985	94.2	94.7	0.81
250M	OCV4252C	1LE0004-2CC23-3	37	41.5	986	94.5	95.2	0.83
280S	OCV4280C	1LE0004-2DC03-3	45	51	988	94.8	95.4	0.83
280M	OCV4282C	1LE0004-2DC23-3	55	62	988	95.1	95.7	0.84
315S	OCV4310C	1LE0004-3AC03-3	75	84	991	95.4	95.7	0.84
315M	OCV4312C	1LE0004-3AC23-3	90	101	990	95.6	95.9	0.84
315L	OCV4315C	1LE0004-3AC53-3	110	123	990	95.8	96.2	0.85
315L	OCV4316C	1LE0004-3AC63-3	132	148	990	96.0	96.4	0.84
355M	OCV4352C	1LE0004-3BC23-3	160	180	993	96.2	96.4	0.86
355M	OCV4353C	1LE0004-3BC33-3	185	207	993	96.3	96.5	0.86
355M	OCV4354C	1LE0004-3BC43-3	200	224	993	96.3	96.5	0.86
355L	OCV4355C	1LE0004-3BC53-3	220	246	993	96.4	96.6	0.86
355L	OCV4356C	1LE0004-3BC63-3	250	280	993	96.5	96.8	0.86

	额定电流 Rated current	额定转矩 Rated torque	起动电流 / 额定电流 Starting Current/ Rated current	起动转矩 / 额定转矩 Starting torque/ Rated torque	最大转矩 / 额定转矩 Max torque/Reted torque	转动惯量 Moment of inertia (J)	重量 Weight IMB3	噪声 Noise
	A	Nm	I_{LR}/I_{rated}	T_{LR}/T_{rated}	T_{max}/T_{rated}	kgm ²	kg	L_{pfa}/L_{WA}
1000rpm 6极 6-pole 220VD/380VY 50HZ								
	6.5/3.75	14.9	6.5	2.8	3.0	0.01265	45	50/62
	9.3/5.4	21.9	7.0	3.2	3.4	0.0152	51	53/65
	12.5/7.3	29.5	7.0	2.7	4.0	0.0256	66	57/69
1000rpm 6极 6-pole 380VD/660VY 50HZ								
	9.4/5.4	39.4	7.0	2.7	4.0	0.0402	88	57/69
	12.8/7.38	54.3	9.0	2.3	2.6	0.0569	99	61/73
	16.4/9.5	72.7	7.5	3.0	3.0	0.1337	118	61/73
	23.5/13.5	107	8.5	2.2	2.5	0.1580	157	61/73
	30.5/17.7	146	7.0	2.3	3.0	0.2413	187	59/73
	37.5/21.5	180	7.0	2.3	3.0	0.341	222	59/73
	44.5/25.5	214	8.0	2.8	3.2	0.401	263	59/73
	60/34.5	291	8.3	3.0	3.5	0.779	353	60/74
	72/41.5	358	8.0	2.8	3.2	1.581	468	65/79
	87/50	435	8.5	3.2	3.2	1.43	509	64/78
	105/60	532	8.5	3.6	3.6	2.01	619	64/78
	142/82	723	7.8	2.4	3.0	2.85	792	69/83
	170/98	868	7.8	2.4	3.0	3.02	955	69/83
	205/118	1061	8.0	2.4	3.0	4.33	1090	69/83
	250/143	1273	8.5	3.0	3.0	4.65	1134	69/83
	295/169	1539	7.5	2.2	2.8	9.91	1690	71/85
	340/195	1779	7.5	2.2	2.8	10.46	1730	71/85
	365/210	1923	8.0	2.2	2.8	10.83	1760	71/85
	405/230	2116	8.0	2.4	3.0	11.57	1815	71/85
	460/265	2404	8.0	2.4	3.0	12.78	1940	71/85

选件 Options

电动机订货号 Motor order code	选件号 Option Code ¹⁾	描述 Description	应用范围 Application Scope
电压与频率 Voltages and frequency			
1LE0□04-□□□□2-1□□□	—	220 VD / 380 VY 50 Hz (0.55 kW ~ 3 kW ²⁾)	FS100 ~ 280
1LE0□04-□□□□3-3□□□	—	380 VD / 660 VY 50 Hz (4 kW ~ 315 kW ²⁾)	FS100 ~ 355
1LE0□04-□□□□2-2□□□	—	230 VD / 400 VY 50 Hz	FS100 ~ 280
1LE0□04-□□□□3-4□□□	—	400 VD / 690 VY 50 Hz	FS100 ~ 355
1LE0□04-□□□□2-3□□□	—	240 VD / 415 VY 50 Hz	FS100 ~ 280
1LE0□04-□□□□0-4□□□	—	400 VD 50 Hz	FS100 ~ 355
1LE0□04-□□□□3-5□□□	—	415 VD 50 Hz	FS100 ~ 355
1LE0□04-□□□□9-0□□□	M2A	220 VD/380 VY 60 Hz (50 Hz output, 50 Hz 功率输出)	FS100 ~ 355
1LE0□04-□□□□9-0□□□	M2B	380 VD/660 VY 60 Hz (50 Hz output, 50 Hz 功率输出)	FS100 ~ 355
1LE0□04-□□□□9-0□□□	M2C	440 VY 60 Hz (50 Hz output, 50 Hz 功率输出)	FS100 ~ 280
1LE0□04-□□□□9-0□□□	M2D	440 VD 60 Hz (50 Hz output, 50 Hz 功率输出)	FS100 ~ 355
1LE0□04-□□□□9-0□□□	M2E	460 VY 60 Hz (50 Hz output, 50 Hz 功率输出)	FS100 ~ 280
1LE0□04-□□□□9-0□□□	M2F	460 VD 60 Hz (50 Hz output, 50 Hz 功率输出)	FS100 ~ 355
绕组保护 Motor protection			
1LE0□04-□□□□□-□□A□ ²⁾	—	无绕组保护 Without motor protection	FS100 ~ 355
1LE0□04-□□□□□-□□B□	—	绕组带一组三芯串联的 PTC 热敏电阻用于跳闸 Motor protection with PTC thermistors with three embedded temperature sensors for tripping	FS100 ~ 355
1LE0□04-□□□□□-□□C□	—	绕组带两组三芯串联的 PTC 热敏电阻用于报警和跳闸 Motor protection with PTC thermistors with six embedded temperature sensors for alarm & tripping	FS100 ~ 355
1LE0□04-□□□□□-□□K□	—	绕组带 1 个单支两线制 PT1000 测温元件 Installation of 1 single 2 wires PT1000 resistance thermometers	FS100 ~ 355
1LE0□04-□□□□□-□□H□	—	绕组带 3 个 Pt100 测温元件 Installation of three PT100 resistance thermometers	FS100 ~ 355
1LE0□04-□□□□□-□□J□	—	绕组带 6 个 Pt100 测温元件 Installation of six PT100 resistance thermometers	FS100 ~ 355
线圈和绝缘 Windings and insulation			
—	N01	温度等级 155 (F)，使用 155 (F)，带有服务系数 (SF1.15) Temperature class 155 (F), used according to 155 (F), with service factor (SF1.15)	FS100 ~ 355
—	N10	180 (H) 度温度等级绝缘 Temperature class 180 (H)	FS100 ~ 355
—	Q04	绕组带 220 V 防潮加热带 Anti-condensation heater for 220 V AC (spaces heater)	FS100 ~ 355

电动机订货号 Motor order code	选件号 Option Code ¹⁾	描述 Description	应用范围 Application Scope
电动机接线盒 Motor connection box			
1LE0□0□-□□□□□□-□□□4 ²⁾	—	接线盒在顶端 Connection box on top 进线孔在右侧（从驱动端看）（标准电动机） cable entry on right (view from DE) (Standard version)	FS100 ~ 355
1LE0□0□-□□□□□□-□□□5	—	接线盒在右边（从驱动端看） Connection box on RHS (view from DE)	FS100 ~ 355
1LE0□0□-□□□□□□-□□□6	—	接线盒在左边（从驱动端看） Connection box on LHS (view from DE)	FS100 ~ 355
—	R10 ³⁾	接线盒直接旋转 90°，进线口朝向驱动端 Rotation of the connection box through 90°, entry from DE	FS100 ~ 355
—	R11	接线盒直接旋转 90°，进线口朝向非驱动端 Rotation of the connection box through 90°, entry from NDE	FS100 ~ 355
—	R12	接线盒直接旋转 180° Rotation of the connection box through 180°	FS100 ~ 355
—	H08	接线盒在非驱动端 Connection box on NDE	FS100 ~ 355 ¹³⁾
—	L97	辅助接线盒 Additional connection box	FS200 ~ 355
轴承 Bearings			
—	L80	SKF 轴承 SKF Bearing	FS100 ~ 355
—	L22 ⁴⁾	增强悬臂力轴承设计 Bearing design for increased cantilever forces	FS100 ~ 355
—	L20	驱动端轴承固定 Located bearing at DE	FS100 ~ 160
—	L23 ⁵⁾	再润滑装置 Regreasing device	FS100 ~ 250
—	Q72	轴承带 2 个单支双线圈制 PT100 测温元件，需用 4 个辅助接线端子 Installation of 2 single 2 wires PT100 resistance thermometers for bearings, need 4 terminals	FS180 ~ 355
—	L27 ⁶⁾	绝缘轴承 Insulated bearing	FS250 ~ 355
—	Q01	驱动端预留 SPM 测量接头 Measuring nipple for SPM shock pulse at DE measurement for bearing inspection	FS100 ~ 355

选件 Options

电动机订货号 Motor order code	选件号 Option Code ¹⁾	描述 Description	应用范围 Application Scope
机械设计和防护等级 Mechanical design and degrees of protection			
—	L05 ^{7) 8)}	第二标准轴伸 Second standard shaft extension	FS100 ~ 355
—	H00 ⁹⁾	电动机带防护罩 Motor with protective cover	FS100 ~ 355
—	H03 ¹⁰⁾	冷凝水排放孔 Condensation drainage holes	FS100 ~ 355
—	H04	外部接地 External earthing	FS100 ~ 280
—	H22	IP56 防护等级 (非高海况) IP56 degree of protection (non-heavy-sea)	FS100 ~ 355
模块化技术 Modular technology			
—	F70 ¹¹⁾	IC 416 冷却方式 (非自冷), 电动机带独立驱动风扇 Mounting of separately driven fan	FS100 ~ 315 ¹³⁾
—	F90 ¹²⁾	风机电机 (无风扇和风扇罩, 非驱动端全封闭) Fan motor (Without fan and fan cover, NDE closed)	FS100 ~ 315 ¹³⁾
—	X05	预留安装 LL861900220 编码器位置 Prepared for of LL861900220 encoder	FS112 ~ 315 ¹³⁾
铭牌和测试证书 Rating plate and test certificates			
—	B02	出厂检验报告 Acceptance test certificate 3.1 in accordance with EN 10204	FS100 ~ 355
喷漆 Paint finish			
—	S01	不喷漆, 只带底漆 Unpainted, only primed	FS100 ~ 355
—	S80	标准喷漆, 颜色为 RAL 7032 Standard finish in RAL 7032	FS100 ~ 355
—	S81	标准喷漆, 颜色为 RAL 9006 Standard finish in RAL 9006	FS100 ~ 355
环境温度 Coolant temperature			
—	D03 ¹³⁾	用于环境温度 -40 °C ~ +40 °C 下使用的电机 Coolant temperature -40 °C to + 40 °C	FS100 ~ 355

- 1) 订货时，电动机订货号需带“-Z”，另外附上选件号；
- 2) 无需附加费用；
- 3) 对于 FS100 ~ 112 电动机只有接线盒在非驱动端（选件号：H08）时，才可以选此选件；
- 4) 对于立式安装的 FS250 ~ FS355 电动机，需要特殊咨询西门子；
- 5) 对于 FS280，FS315 和 FS355，加排油装置是标配；
- 6) 只有当 FS355 立式安装，后端是角接触轴承时，绝缘轴承放置在驱动端；其他情况均在非驱动端；
- 7) 带防雨罩或独立驱动风扇的电动机不能选此选件；
- 8) 非驱动端上的第二轴尺寸与驱动端轴伸不一致；
- 9) 仅适用于 IM V5、IM V1、IMV15 以及 IM V18 安装结构型式。无法与选件号 L05 并用；
- 10) 适用于水平安装电机；对于立式安装的电机，请向西门子咨询。电动机安装排水孔时，须在购买电动机时注明其具体安装方式；
- 11) 当安装独立风机时，电动机的长度将增加 ΔL 。具体的增加尺寸和技术数据请查看独立驱动风扇技术参数表；
- 12) 无风扇和风罩时，电动机的长度将减小 Δl 。按照铭牌上功率数值输出时，电动机必须有外部冷却。客户应当采用正确的冷却方式，没有或错误的冷却方式都将减少电动机的使用寿命，甚至会损坏电动机；
- 13) FS225不可选。

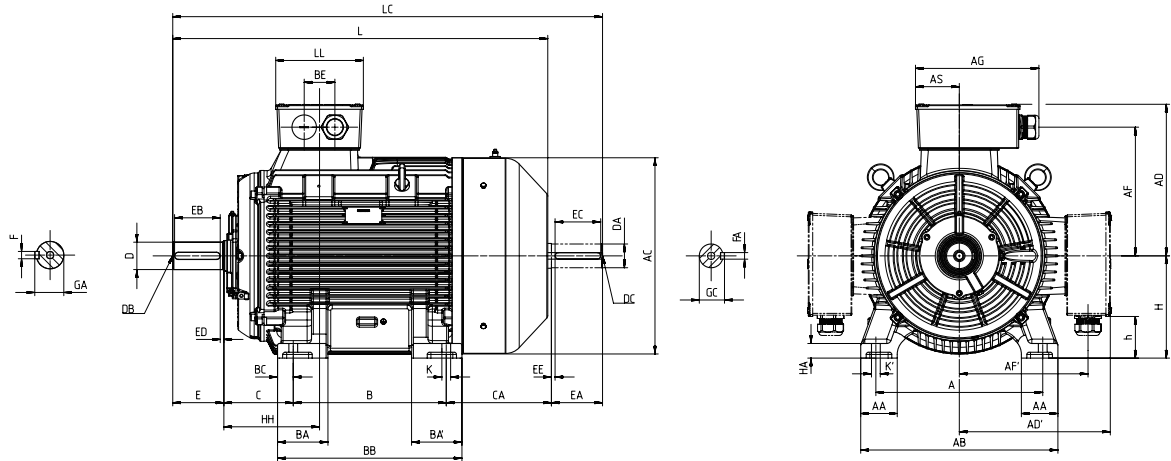
- 1) Order No. supplement Z with option code when ordering;
- 2) Without additional charge;
- 3) For FS100 ~ 112 motor, R10 only in combination with Option code H08 (Connection box on NDE) possible;
- 4) For vertical mounting of FS250~FS355 motor, please specially consult with Siemens;
- 5) FS280, FS315 and FS355 motor with the regrease device as standard;
- 6) Only for FS355 with vertical mounting, insulated bearing located at DE. Otherwise insulated bearing located at NDE;
- 7) Not possible in combination with canopy or separately driven fan (Order code: F70);
- 8) Second standard shaft extension on NDE has allowed output from the next smaller frame size;
- 9) Only applicable for the construction type IM V5, IM V1, IM V15 and IM V18. Not possible in combination with Option code L05;
- 10) Applicable to motor of horizontal mounting. If vertical mounting motor required to be with condensation drainage holes, please inquiry Siemens specially. If condensation drainage holes are required, it is necessary to order the motors in their respective type of construction;
- 11) When the separately driven fan is mounted, the length of the motor increase by ΔL . For an explanation of the additional dimension please refer to technical data for separately fan;
- 12) Without fan and fan cover, the length of the motor is decrease by Δl . By using the power output of rating plate, the motor must have external cooling by air flow. The correct motor cooling is in responsibility of customer. Missing or wrong cooling reduce the life time or damaged the motor;
- 13) not applicable for FS225.

外形尺寸 Dimension drawings

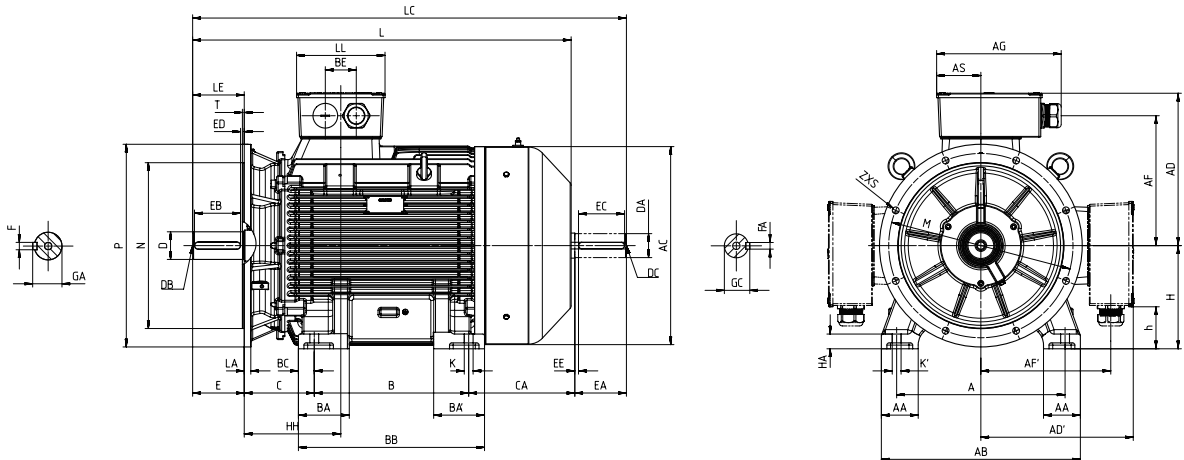
1LE0004 系列电机

机座号从 100L ~ 180L Frame sizes 100L to 180L

IM B3 安装结构方式 Type of construction IM B3



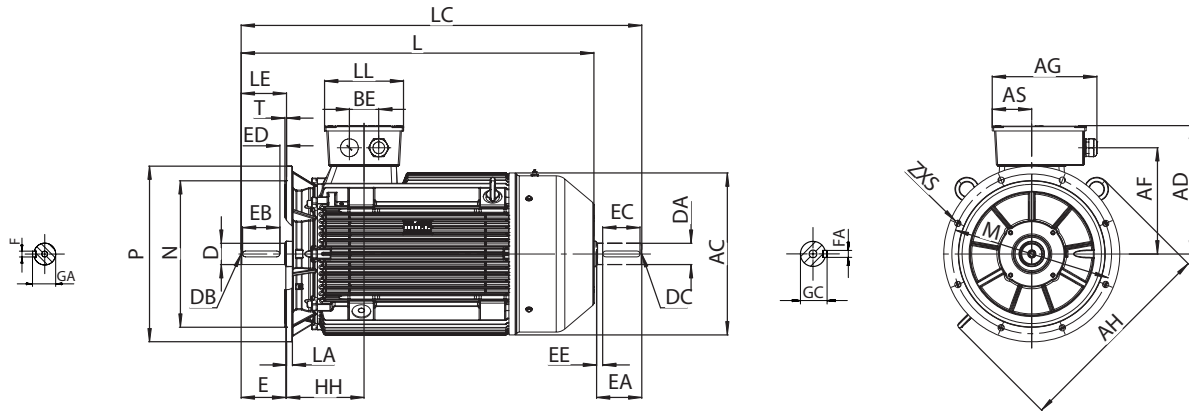
IM B35 安装结构方式 Type of construction IM B35



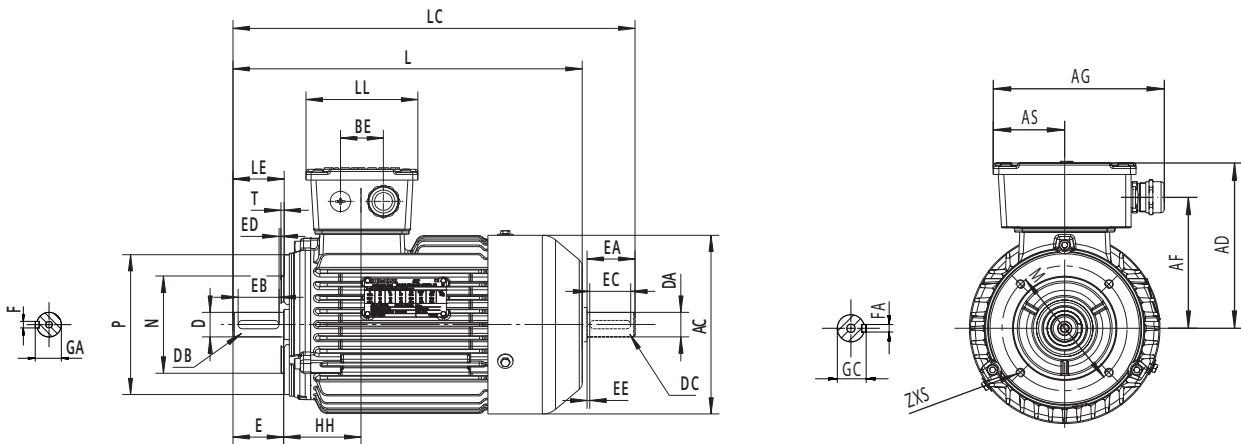
机座号 Frame size	类型 Type 1LE0004-	极数 poles	尺寸图依据 IEC 标准 Dimension designation according to IEC standards											
			A	AA	AB	AC ¹⁾	AD/AD'	AF/AF'	AG	AH	AS	B ²⁾	BA	BA'
100L	1A □ 4	2,4,6	160	40	200	205	180	142	163	276	69	140	45	45
	1A □ 5	4	160	40	200	205	166	134	130	-	55	140	-	-
112M	1B □ 2	2,6	190	45	226	230	188.5	152	163	304	69	140	50	50
	1B □ 2	4	190	45	226	235	192	159	156	-	65	140	-	-
132S	1C □ 0	2,4,6	216	50	256	268	218	177	160	354	69	140	64	64
	1C □ 1	2	216	50	256	268	218	177	160	354	69	140	64	64
132M	1C □ 2	4,6	216	50	256	268	218	177	160	354	69	178	64	64
	1C □ 3	6	216	55	262	296	221.5	188.5	156	-	65	178	-	-
160M	1D □ 2	2,4,6	254	60	314	324	260	208	225	426	94	210	70	70
	1D □ 3	2	254	60	314	324	260	208	225	426	94	210	70	70
160L	1D □ 4	2,4	254	60	314	324	260	208	225	426	94	254	70	70
	1D □ 4	6	254	65	314	314	252	211	218	-	82.5	254	-	-
180M	1E □ 2	2,4	279	65/66 ³⁾	339	368	275	223	231	472	94	241	80/53 ³⁾	80/87 ³⁾
180L	1E □ 4	4,6	279	65/66 ³⁾	339	368	275	223	231	472	94	279	80/53 ³⁾	80/87 ³⁾
200L	2A □ 4	2,4,6	318	70	378	410	305	250	288	540	107.5	305	80/65 ³⁾	80/65 ³⁾
	2A □ 5	2,6	318	70	378	410	305	250	288	540	107.5	305	80/65 ³⁾	80/65 ³⁾
225S	2B □ 0	4	356	80	436	449	330	278	288	564	107.5	286	90/60 ³⁾	90/60 ³⁾

¹⁾ 包含螺栓头的尺寸。
²⁾ 该尺寸为 DIN EN 50347 标准所列机座号对应尺寸。
³⁾ 仅适用于左出线的电机。 * 图示未在表格中标注的尺寸请与西门子咨询。

IM B5 以及 IM V1 安装方式 Type of construction IM B5 and IM V1



IM B14 安装方式 Type of construction IM B14



尺寸图依据 IEC 标准
Dimension designation according to IEC standards

驱动端轴伸直径
DE shaft extension

BB	BC	BE	C	H	h	HA	HH	K/K'	L	LL	D	DB	E	EB	ED	F	GA
176	18	54	63	100	42	12	93.5	12	465	116	28	M10x22	60	50	5	8	31
233	18	54	63	100	25.5	14	83/240	12	427	111	28	M10	60	50	5	8	31
180	20	54	70	112	42	15	92	12	455	118	28	M10x22	60	50	5	8	31
216	38	46	70	112	21	15	69/211	12	426	122	28	M10	60	50	5	8	31
186	23	54	89	132	62	15	121.5	12	520	116	38	M12x28	80	70	5	10	41
186	23	54	89	132	62	15	121.5	12	520	116	38	M12x28	80	70	5	10	41
224	23	54	89	132	62	15	121.5	12	565	116	38	M12x28	80	70	5	10	41
256	23	46	89	132	41	18	99/289	12	540	122	38	M12	80	70	5	10	41
258	24	68	108	160	66	20	159	15	620	158	42	M16x36	110	100	5	12	45
258	24	68	108	160	66	20	159	15	620	158	42	M16x36	110	100	5	12	45
302	24	68	108	160	66	20	159	15	680	158	42	M16x36	110	100	5	12	45
304	25	56	108	160	24.5	20	146/324	14.5	654	165	42	M16	110	100	5	12	45
301/328 ²⁾	30/26 ³⁾	68	121	180	86	22/20 ³⁾	158	15	725	158	48	M16x36	110	100	5	14	51.5
301/328 ²⁾	30/26 ³⁾	68	121	180	86	22/20 ³⁾	158	15	765	158	48	M16x36	110	100	5	14	51.5
369/355 ³⁾	32/25 ³⁾	85	133	200	64.5	25	203	19	810	215	55	M20x42	110	100	5	16	59
369/355 ³⁾	32/25 ³⁾	85	133	200	64.5	25	203	19	810	215	55	M20x42	110	100	5	16	59
348/361 ³⁾	31/25 ³⁾	85	149	225	89.5	34	212	19	855	215	60	M20x42	140	125	10	18	64

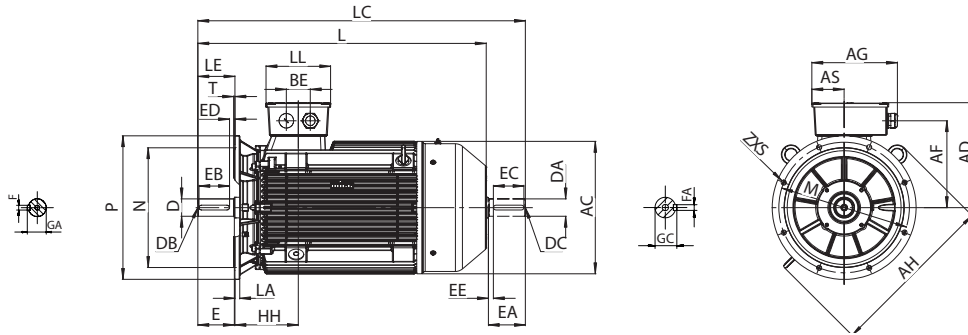
¹⁾ Measured across the bolt heads.

²⁾ This dimension is assigned in DIN EN 50347 to the frame size listed.

³⁾ Only for motor terminal box on left side

* Dimension data is not in the table, please contact Siemens.

IM B5 以及 IM V1 安装方式 Type of construction IM B5 and IM V1



尺寸图依据 IEC 标准 Dimension designation according to IEC standards											驱动端轴伸直径 DE shaft extension							
BB	BC	BE	C	H	h	HA	HH	K/K'	L	LL	D	DB	E	EB	ED	F	GA	
373/361 ³⁾	31/25 ³⁾	85	149	225	89.5	34	212	19	880	215	55	M16x36	110	100	5	16	59	
									910		60	M20x42	140	125	10	18	64	
421/409 ³⁾	36/30 ³⁾	84	168	250	81	22/20 ³⁾	260	24	965	246	60	M20x42	140	125	10	18	64	
											65						69	
454/479 ³⁾	43/30 ³⁾	84	190	280	111	40	262	24	995	246	65	M20x42	140	125	10	18	69	
											75					20	79.5	
454/479 ³⁾	43/30 ³⁾	84	190	280	111	40	262	24	1045	246	65	M20x42	140	125	10	18	69	
											75					20	79.5	
520/527 ³⁾	75/86 ³⁾	110	216	315	111	50	291	28	1170	296	65	M20x42	140	125	10	18	69	
									1200		80		170	140	25	22	85	
668/666 ³⁾	80/70 ³⁾	110	216	315	111	50	291	28	1400	296	65	M20x42	140	125	10	18	69	
									1430		80		170	140	25	22	85	
770	70	140	216	315	675	50	382	28	1475	380	65	M20x42	140	125	10	18	69	
									1505		80		170	140	25	22	85	
668/666 ³⁾	80/70 ³⁾	110	216	315	111	50	291	28	1430	296	80	M20x42	170	140	25	22	85	
750	68	130	254	355	132	53	281	28	1500	347	75	M20x42	140	125	10	20	79.5	
									1530		95	M24x50	170	140	25	25	100	
750	68	130	254	355	132	53	281	28	1500	347	75	M20x42	140	125	10	20	79.5	
									1530		95	M24x50	170	140	25	25	100	
750	68	130	254	355	132	53	281	28	1530	347	95	M24x50	170	140	25	25	100	
									1530		95	M24x50	170	140	25	25	100	
750	68	130	254	355	132	53	281	28	1500	347	75	M20x42	140	125	10	20	79.5	
									1530		95	M24x50	170	140	25	25	100	
750	68	130	254	355	132	53	281	28	1500	347	75	M20x42	140	125	10	20	79.5	
									1530		95	M24x50	170	140	25	25	100	

¹⁾ Measured across the bolt heads.

²⁾ This dimension is assigned in DIN EN 50347 to the frame size listed.

³⁾ Only for motor terminal box on left side

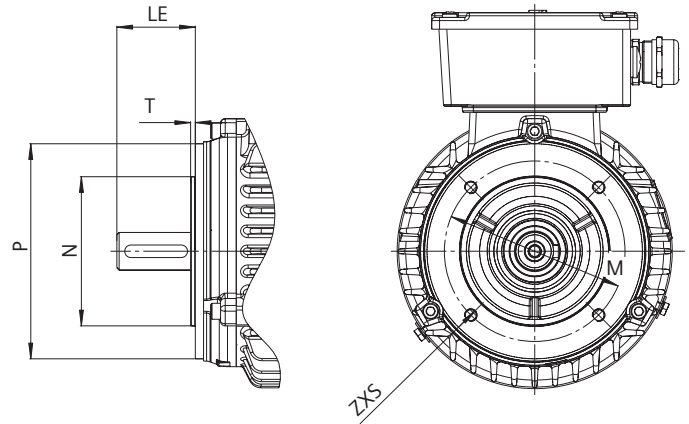
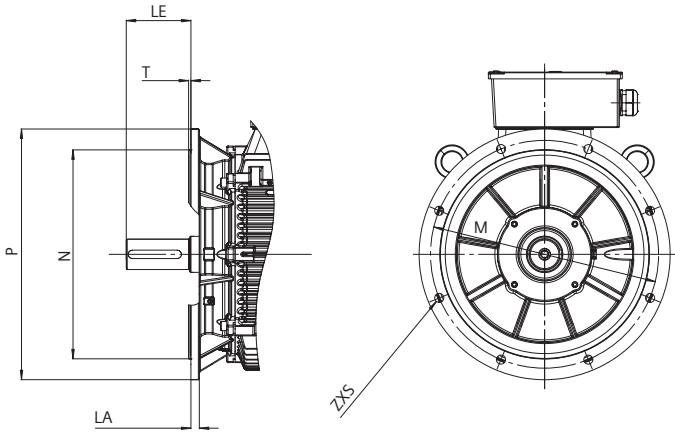
* Dimension data is not in the table, please contact Siemens.

外形尺寸 Dimension drawings

法兰尺寸 Flange dimension

IM B5、IM B35、IM V1、IM V3 安装结构型式
Type of construction IM B5, IM B35, IM V1, IM V3

IM B14、IM V18、IM V19 安装结构型式
Type of construction IM B14, IM V18, IM V19



机座号 Frame size	安装结构形式 Type of construction	法兰带通孔 (FF/A) / 带内螺纹孔 (FT/C) Flange with through holes (FF/A) / tapped holes (FT/C)	尺寸图依据 IEC 标准 Dimension designation according to IEC standards							
		按照 DIN EN 50347 标准 According to DIN EN 50347	LA ¹⁾	LE	M	N	P ²⁾	S	T	Z
100	IM B5, IM B35, IM V1, IM V3	FF 215	11	60	215	180	250	14.5	4	4
	IM B14, IM V18, IM V19	FT 130	—	60	130	110	160	M 8	3.5	4
112	IM B5, IM B35, IM V1, IM V3	FF 215	11	60	215	180	250	14.5	4	4
	IM B14, IM V18, IM V19	FT 130	—	60	130	110	160	M 8	3.5	4
132	IM B5, IM B35, IM V1, IM V3	FF 265	13	80	265	230	300	14.5	4	4
	IM B14, IM V18, IM V19	FT 165	—	80	165	130	200	M 10	3.5	4
160	IM B5, IM B35, IM V1, IM V3	FF 300	13	110	300	250	350	18.5	5	4
	IM B14, IM V18, IM V19	FT 215	—	110	215	180	250	M 12	4	4
180	IM B5, IM B35, IM V1, IM V3	FF 300	13	110	300	250	350	18.5	5	4
200	IM B5, IM B35, IM V1, IM V3	FF 350	15	110	350	300	400	18.5	5	4
225	IM B5, IM B35, IM V1, IM V3	FF 400	16	110/140	400	350	450	18.5	5	8
250	IM B5, IM B35, IM V1, IM V3	FF 500	18	140	500	450	550	18.5	5	8
280	IM B5, IM B35, IM V1, IM V3	FF 500	18	140	500	450	550	18.5	5	8
315	IM B5, IM B35, IM V1, IM V3	FF 600	22	140/170	600	550	660	24	6	8
355	IM B35, IM V1	FF 740	25	140/170	740	680	800	24	6	8

¹⁾ 法兰厚度 LA 尺寸是指法兰安装孔处的厚度。

²⁾ 请注意，IM B35 安装方式全圆法兰外圆可能会低于机座底脚。

* 图示未在表格中标注的尺寸请与西门子咨询。

¹⁾ Flange LA size refers to the thickness at the flange mounting hole.

²⁾ Please note, the outer circle dimension maybe lower than the base foot in IM B35.

* Dimension data is not in the table, please contact Siemens.

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