

SIEMENS



SIMOTICS 1LE0103 超高效低壓交流非同步馬達  
SIMOTICS 1LE0103 Premium Efficiency Low-voltage Motors

2016.07

[siemens.com.cn/fom](http://siemens.com.cn/fom)



## 目錄

## Contents

整體介紹 Overview .....	3
參考標準 Reference standards .....	5
機械特性 Mechanical design .....	6
電氣特性 Electrical design .....	14
變頻應用 Converter fed application .....	18
訂購號碼 Order No. ....	21
技術資料表 Technical data table .....	22
選購項目 Options .....	26
外型尺寸 Dimension drawings .....	30
認證 Certificates .....	35



## 整體介紹

SIMOTICS 1LE0103 系列超高效低壓馬達是鑄鐵機殼通用型全封閉風扇冷卻或強制冷卻式三相非同步馬達，其防護等級為 IP55，該系列馬達設計生產符合 ISO、IEC、GB 等相關標準的要求。

SIMOTICS 1LE0103 系列超高效低壓馬達適用於連續工作制 (S1)、恆轉速或一定速度範圍內的變頻調速應用。

### 技術特性

- 機座材料：灰鑄鐵；
- 標準顏色：石頭灰 (RAL 7030)；
- 額定功率：0.55kW~315kW (50Hz)
- 0.75kW 及以上的 2、4、6 及馬達達到 GB18613-2012 標準能效等級 2 級，且能滿足 IEC 60034-30 標準中的 IE3 效率等級 (50Hz)；
- 優化的緊湊型結構；
- 標準安裝結構類型 (符合 IEC 60034-7 標準規定)：IM B3、IM B5、IM B35 等；
- 所有馬達設計的防護等級均為 IP55 (IEC 60034-5)；
- 再潤滑裝置為 FS<sup>1)</sup> 280 ~ 355 的標準配備，FS<sup>1)</sup> 100 ~ 250 的選購配備；
- FS 100 ~ 355 馬達可選購強化型軸承，以承受較大的懸臂力；
- 馬達可選購 PTC 或 PT100 熱阻器或 KTY84-130 進行繞阻保護；

<sup>1)</sup> FS，機座尺寸的英文 (Frame Size) 縮寫。

## Overview

SIMOTICS 1LE0103 low voltage premium efficiency motor with cast iron housing is Totally Enclosed Fan Cooled (TEFC) or Totally Enclosed Forced Ventilated with IP55 environmental protection, and applicable for general purpose use. These motors are designed and manufactured in accordance with ISO, IEC standards, GB standards.

SIMOTICS 1LE0103 low voltage premium efficiency motor is designed for constant or adjustable speed with continuous duty operation (S1) over a speed range.

- Frame material: grey cast iron.
- Standard color: stone grey (RAL 7030)
- Rated power output: 0.55kW~200kW at 50Hz.
- Available in 2, 4, 6 pole motor (0.75kW and up) with efficiency grade 2, according to GB18613-2012 and efficiency class IE3 (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 FS<sup>1)</sup> 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 KTY84-130 as option.

<sup>1)</sup> FS，Frame Size

- 標準接線盒位於機座頂端，電纜入口位於右側（從驅動端看），可選擇變更接線盒和電纜入口的位置；
- 絕緣系統按照 155 (F) 溫度等級設計，在額訂輸出和直接供電時則可用於 130 (B) 溫度等級；
- 馬達標準冷卻方式為風扇冷卻（IEC 60034-6 規定之 IC 411），可提供獨立驅動風扇強制冷卻；
- FS 100 ~ 355 馬達均配備雙吊環，FS80~90 馬達未附吊環。
- 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.
- FS 100 ~ 355 all motors have 2 eyebolts. FS80~90 motor donot have eyebolt;

### 運行環境

- 防護等級 IP55 (IEC 60034-5) ；
- 高度不超過海拔 1000 m (IEC 60034-1) ；
- 允許環境溫度範圍 -20 °C ~ 40 °C (IEC 60034-1) ；
- 允許相對濕度範圍：
  - -20 °C ≤ T ≤ 20 °C : 100 %
  - 20 °C < T ≤ 30 °C : 95 %
  - 30 °C < T ≤ 40 °C : 55 %

對於更高的環境溫度、以及（或者）高於海拔 1000 m 的地點，馬達的額定功率換算係數為  $k_{HT}$ 。所允許的功率值 ( $P_{adm}$ ) ：

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

### Environmental

- Degrees of motor protection IP55 (IEC 60034-5).
- Altitude shall not exceed 1000m 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:

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

各種高度和（或）環境溫度的功率換算係數 $k_{HT}$ Factor $k_{HT}$ for different side altitudes and / or coolant temperature						
海拔高度 Site altitude above see level	對應海拔高度的環境溫度 Site altitude above see 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



# 參考標準

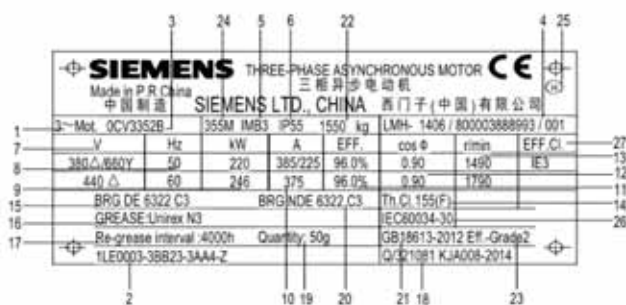
# Reference standards

馬達符合以下電氣及機械標準：

Standards:

名稱 Title	IEC 標準 IEC standard	中國國家標準 Chinese standard
旋轉馬達的定額與性能 Rotating electrical machines – Part 1: Rating and performance	IEC 60034-1	GB 755
旋轉馬達損耗和功效確認的標準測試方法 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
旋轉馬達整體結構的防護等級 (IP 代碼) 分級 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
旋轉馬達的冷卻方法 Rotating electrical machines – Part 6: Methods of cooling (IC Code)	IEC 60034-6	GB/T 1993
旋轉馬達結構型式 安裝型式和接線盒位置的分類 (IM 代碼) Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)	IEC 60034-7	GB/T 997
旋轉馬達的馬達線端標誌和旋轉方向 Rotating electrical machines – Part 8: Terminal markings and direction of rotation	IEC 60034-8	GB/T 1971
旋轉馬達噪音的測定方法及限值 第 3 部分：噪音限值 Rotating electrical machines – Part 9: Noise limits	IEC 60034-9	GB 10069.3
馬達軸高 56 mm 及以上的機械震動 震動的測量、評定及限值 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
旋轉馬達的尺寸和輸出功率等級 第 1 部分：機座型號 56 – 400 和凸緣型號 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
中小型旋轉馬達的安全要求 Safety requirements of small and medium size rotating electrical machines		GB 14711
旋轉馬達升溫 Electrical insulation – Thermal classification	IEC 60085	GB/T 11021
電工電子產品的自然環境條件 溫度和濕度 Classification of environmental conditions Part 2-1: Environmental conditions appearing in nature – Temperature and humidity	IEC 60721-2-1	GB/T 4797.1
標準電壓 Standard voltages	IEC 60038	GB/T 156

## 標示牌資訊 Nameplate



1 三相非同步馬達	Three-phase low-voltage motor
2 訂購號碼	Order No.
3 型號	Type
4 產品序號	Series number
5 安裝結構型式	Type of construction
6 防護等級	Degree of protection
7 額定電壓	Rated voltage and Winding connections
8 頻率	Frequency [Hz]
9 額定功率	Rated output [kW]
10 額定電流	Rated current [A]
11 效率	Efficiency
12 功率因數	Power factor [cos φ]
13 額定轉速	Rated speed
14 絕緣耐熱等級	Thermal class
15 驅動端軸承	Bearing at the drive end
16 潤滑油類型	Grease type
17 再潤滑間隔	Re-grease interval
18 產品標準	Standards
19 再潤滑量	Quantity
20 非驅動端軸承	Bearing at the non-drive end
21 中國國家標準	GB standard
22 淨重	Net weight
23 中國能源效率等級	GB efficiency grade
24 機座尺寸	Frame size
25 平衡方法	Balance method
26 IEC 標準	IEC standard
27 IEC 能源效率等級	IEC efficiency class

## 機械特性

### 接線盒

標準接線盒為於機座頂端，且自身可 4×90° 旋轉安裝，讓電纜從各種方向進入。所有接線盒均有 2 個電纜入口，其一採用纜線接頭，另一則採用螺塞密封。



## Mechanical design

### Connection box

The connection box is located on the top of motor housing as standard, and can be rotated by 4×90° 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.



### 接線盒技術規格

機座尺寸 Frame Size	主接線端子數 Number of main terminals	最多可容納的輔助端子數 Max. allowable auxiliary terminals	接線螺紋 Contact screw thread	連接線最大截面積 (mm <sup>2</sup> ) Max. connectable cross-section	外接電纜直徑 (mm) Outer cable diameter (sealing range)	電纜入口尺寸 (接頭 + 螺塞) Cable entry size (Gland+Screwed plug)
80	6	12	M4	1.5	13~18	M25×1.5+M16×1.5
90	6	12		1.5		
100	6	12		4		
112	6	12		4		
132	6	12	M5	6	18~25	M32×1.5+M32×1.5
160	6	14		16		
180	6	14	M5	16	22~32	M40×1.5+M40×1.5
200	6	14 <sup>1)</sup>	M6	25	22~32	M40×1.5+M40×1.5
225	6	14 <sup>1)</sup>	M8	35	32~38	M50×1.5+M50×1.5
250	6	14 <sup>1)</sup>	M10	120	37~44	M63×1.5+M63×1.5
280	6	14 <sup>1)</sup>		120		
315	6	16 <sup>1)</sup>		240		
355	6	24 <sup>1)</sup>	M16	240	44~57	M72×2+M72×2

### Connection boxes technical data

註：<sup>1)</sup> 需要的輔助端子數若超過接線盒最多可容納的輔助端子數時，需選擇輔助接線盒（選購代碼：L97）

Note: <sup>1)</sup> 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.

### 接線盒位置

接線盒除標準位置外，還可裝於馬達機座左側或右側。馬達的接線盒位置可參考馬達訂購號碼的第 16 位數。

### 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 16<sup>th</sup> digit of motor order code.

接線盒的位置皆指從馬達驅動端看過去的位置。

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

- 標準接線盒位於頂部，馬達訂購號碼的第 16 位數為 4；
- 接線盒在右側，馬達訂購號碼的第 16 位數為 5；
- 接線盒在左側，馬達訂購號碼的第 16 位數為 6。

- On top (Standard), 16th position of Motor Order No. digit 4.
- On RHS, 16th position of Motor Order No. digit 5.
- On LHS, 16th position of Motor Order No. digit 6.

當馬達的接線盒位置與其他部件衝突時，可以將接線盒從驅動端移到非驅動端（選購代碼：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).



#### 接線盒的電纜入口

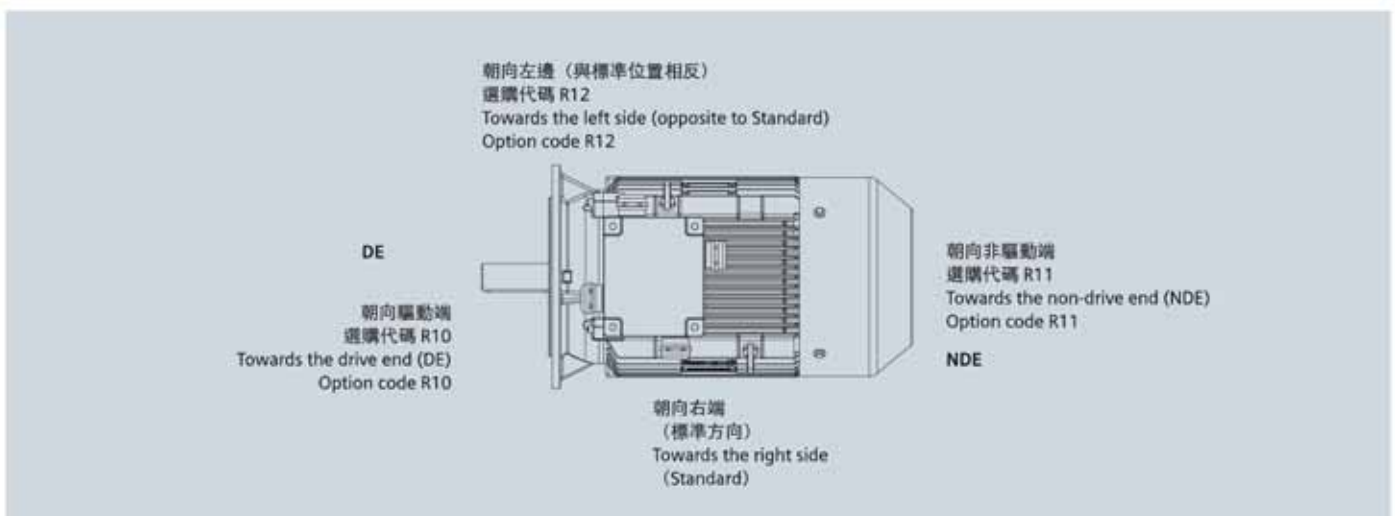
除非另有說明，否則電纜入口的標準位置如下圖所示。接線盒可以依圖示方向旋轉。

- 朝向驅動端  
接線盒旋轉 90°，電纜入口朝向驅動端，選購代碼為 R10。  
若為 FS80 ~ 112 凸緣 (IM B5) 馬達，只有接線盒在非驅動端（選購代碼：H08）時，才可將電纜入口朝向驅動端。
- 朝向非驅動端  
接線盒旋轉 90°，電纜入口朝向非驅動端，選購代碼為 R11。
- 朝向左側（與標準方向相反）  
接線盒旋轉 180°，電纜入口的位置相反，選購代碼為 R12。

#### 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.

- Towards the drive end (DE)  
Rotation of connection box by 90° , entry from DE, Option code R10.  
For flange motor (IM B5) from FS80 to FS100, 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.



變更接線盒位置（如右側或左側），需檢查電纜入口的位置是否方便進線。必要時，可以搭配相應的（R10、R11 和 R12）訂購。

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).



## 安裝結構型式 Construction and mounting type

結構型式 Construction type	機座附支架，端蓋無凸緣 With feet and without flange on the end-shield (DE)					
安裝型式 Mounting type	IM B3 FS 80 – 355	IM B6 FS 80 – 315	IM B7 FS 80 – 315	IM B8 S 80 – 315	IM V5 <sup>1)</sup> FS 80 – 315	IM V6 <sup>2)</sup> FS 80 – 315
示意圖 Diagram						
馬達訂購號碼第 14 位的 對應字母 Letter, position 14 <sup>th</sup> of Motor code	A	T	U	V	C	D
結構型式 Construction type	機座無支架，端蓋附凸緣 Without feet and with flange on the end-shield (DE)			機座附支架，端蓋附凸緣 With feet and with flange on the end-shield (DE)		
安裝型式 Mounting type	IM B5 FS 80 – 315	IM V1 <sup>1)</sup> FS 80 – 355	IM V3 <sup>2)</sup> FS 80 – 315	IM B35 FS 80 – 355	IM V15 <sup>1)</sup> FS 80 – 315	IM V35 <sup>2)</sup> FS 80 – 315
示意圖 Diagram						
馬達訂購號碼第 14 位的 對應字母 Letter, position 14 <sup>th</sup> of Motor code	F	G	H	J	W	Y
結構型式 Construction type	機座無支架，端蓋附標準小凸緣 Without feet and with C-flange on the end-shield (DE)			機座附支架，端蓋附標準小凸緣 With feet and with C-flange on the end-shield (DE)		
安裝型式 Mounting type	IM B14 FS 80 – 160	IM V18 <sup>1)</sup> FS 80 – 160	IM V19 <sup>2)</sup> FS 80 – 160	IM B34 FS 80 – 160		
示意圖 Diagram						
馬達訂購號碼第 14 位的 對應字母 Letter, position 14 <sup>th</sup> of Motor code	K	M	L	N		

<sup>1)</sup> 室外使用時建議使用護罩（選購代碼 H00）；

<sup>2)</sup> 當室外安裝時，建議採取馬達軸防護措施，避免遭水噴濺。

<sup>1)</sup> At outdoor application, the using of protective cover (Option code H00) is recommended

<sup>2)</sup> At out door application the protection of shaft again jet-water is recommended

### 冷卻與通風

所有標準馬達均裝有離心式冷卻風扇，其冷卻效能不會受馬達的旋轉方向影響（冷卻方法符合 IEC60034-6 標準 IC411）。

某些特定應用可以配置獨立驅動風扇，例如，

- 馬達在低速運行時，建議使用獨立驅動風扇，發揮馬達最大效能；
- 若馬達的運行速度明顯高於額定同步轉速，亦建議選用獨立驅動風扇，有助於降低馬達噪音。

獨立驅動風扇的選購代碼為 F70。安裝獨立驅動風扇後，馬達長度將會增加  $\Delta L$ 。

### Cooling and ventilation

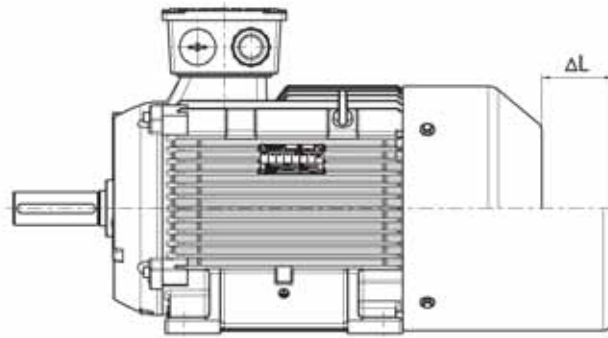
The 1LE0103 standard motors are fitted with an radial flow fan for cooling in accordance with IEC 60034-6 cooling method.

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  $\Delta L$ .





獨立驅動風扇技術規格

Technical data for separately fan

對應馬達機座尺寸 Motor frame size	電壓 Voltage (V)	頻率 Frequency (Hz)	功率 Rated output (W)	電流 Current (A)	轉速 Speed (r/min)	Δ L (mm)
80	380V	50	30	0.08	2800	60
90	380V	50	30	0.08	2800	70
100	380V	50	52	0.12	2800	80
112	380V	50	52	0.12	2800	90
132	380V	50	45	0.35	1400	75
160	380V	50	45	0.35	1400	55
180	380V	50	120	0.6	1400	35
200	380V	50	120	0.6	1400	65
225	380V	50	120	0.6	1400	60
250	380V	50	230	1.0	1400	65
280	380V	50	230	1.0	1400	110
315	380V	50	370	1.1	1250	90
355	380V	50	550	1.26	1350	100

註：風扇可以在 210 ~ 240VD/360 ~ 420VY 50Hz 電源供電下運行，也可以在 220 ~ 260VD/380 ~ 480VY 60Hz 電源供電下運行。其他電源供電，需特殊詢價。

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

### 軸承系統

SIMOTICS 1LE0103 系列超高效低壓馬達標準配置深溝球軸承或角接觸球軸承，此類軸承可選用密封型或再潤滑型。

FS80~160 範圍的馬達驅動端與非驅動端採用浮動軸承。

FS180 ~ 355 馬達驅動端採浮動軸承，非驅動端則採固定軸承。

標準軸承可承受的最大懸臂力，請參閱第 11 頁「馬達軸驅動端允許的最大懸臂力」。若馬達軸端承受的懸臂力較大，應選用強化型軸承設計（選購代碼：L22）。

FS80 ~ 250 範圍標準馬達無再潤滑裝置；FS280 ~ 355 範圍的馬達則附再潤滑軸承，並配備再潤滑裝置。若有必要，FS100 ~ 250 範圍的馬達亦可選用再潤滑軸承和再潤滑裝置（選購代碼：L23）。

### Bearing system

SIMOTICS 1LE0103 premium efficiency low voltage motor is supplied with the ball bearing as standard. These bearings are either of the sealed or regreasable type.

For FS80~160, the floating bearings are assembled;

for FS180 ~ 355, floating bearing at DE, and fixed bearing at NDE assembled.

The standard bearing can endure a maximum cantilever force, referred to page 11 - Permissible cantilever forces. If higher cantilever force on the shaft required, the increased cantilever bearing design (Option code: L22) should be considered.

As standard, FS80 ~ 250 motors are not with regreasing device, but FS280 ~ 355 motors with regreasable bearing and regreasing device. If necessary, FS100 ~ 250 motor can be configured with regreasable bearing and regreasing device (Option code: L23).

軸承選配

Bearing Assignment

機座尺寸 Frame size	極數 Pole	標準配置 Standard design			強化型懸臂力軸承 (選購代碼: L22) Increased cantilever-bearing (Option code: L22)			再潤滑軸承 (選購代碼: L23) Re-greasing bearing (Option code: L23)	
		驅動端軸承 DE bearing	非驅動端軸承 (水平安裝) NDE bearing (Horizontal mounting)	非驅動端軸承 (立式安裝) NDE bearing (Vertical mounting)	驅動端軸承 DE bearing	非驅動端軸承 (水平安裝) NDE bearing (Horizontal mounting)	非驅動端軸承 (立式安裝) NDE bearing (Vertical mounting)	驅動端軸承 DE bearing	非驅動端軸承 NDE bearing
80	2,4,6	6204 2Z C3	6204 2Z C3	6204 2Z C3	-	-	-	-	-
90	2,4,6	6205 2Z C3	6205 2Z C3	6205 2Z C3	-	-	-	-	-
100	2,4,6	6206 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6206 C3	6206 C3
112	2,4,6	6306 2Z C3	6206 2Z C3	6206 2Z C3	6306 2Z C3	6206 2Z C3	6206 2Z C3	6206 C3	6206 C3
132	2,4,6	6308 2Z C3	6208 2Z C3	6208 2Z C3	6308 2Z C3	6208 2Z C3	6208 2Z C3	6208 C3	6208 C3
160	2,4,6	6309 2Z C3	6209 2Z C3	6209 2Z C3	6309 2Z C3	6209 2Z C3	6209 2Z C3	6209 C3	6209 C3
180	2,4,6	6310 Z C3	6210 Z C3	6210 Z C3	NU210	6210 Z C3	6210 Z C3	6210 C3	6210 C3
200	2,4,6	6312 Z C3	6212 Z C3	6212 Z C3	NU212	6212 Z C3	6212 Z C3	6212 C3	6212 C3
225	2,4,6	6313 Z C3	6213 Z C3	6213 Z C3	NU213	6213 Z C3	6213 Z C3	6213 C3	6213 C3
250	2,4,6	6315 C3	6215 C3	7215 AC	NU215	6215 C3	O.R.	6215 C3	6215 C3
280	2,4,6	6317 C3	6317 C3	7317 AC	NU317	6317 C3	O.R.	□	□
315	2,4,6	6319 C3	6319 C3	7319 AC	NU319	6319 C3	O.R.	□	□
355	2	6319 C3	6319 C3	7319 AC	NU319	6319 C3	O.R.	□	□
	4,6	6322 C3	6322 C3	7322 AC	NU322	6322 C3	O.R.	□	□

註：  
DE 驅動端  
NDE 非驅動端  
- 無法配置  
□ 標準配置  
O.R. 需另外估價

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

軸承壽命 (標稱壽命)

軸承的標稱壽命係根據 ISO 281 標準公式計算。若馬達在本型錄所列之標準條件下操作，至少九成的軸承可達標稱壽命。一般來說，軸承的使用壽命取決於軸承規格、軸承負載、操作條件、轉速和潤滑油壽命。

馬達水平安裝且無軸向力時，其軸承壽命至少能達 40,000 小時。承受最大容許負載時，馬達壽命亦至少可達 20,000 小時，以上所述之軸承壽命，均指馬達於 50 Hz 下正常操作的情況。

在非標準條件下操作，會縮短馬達軸承的壽命。例如：

- 馬達速度高於額定速度，使得馬達震動加大，軸承受到額外徑向力和軸向力，最終導致壽命縮短；
- 環境或設備等因素增加馬達震動，軸承亦會因此受到額外徑向力和軸向力，最終導致壽命縮短；
- 環境溫度每升高 10°C，潤滑油壽命和再潤滑間隔會縮短一半。

潤滑油壽命和再潤滑間隔

軸承若為無法再潤滑型，其潤滑油壽命即等於軸承壽命。惟馬達需在本型錄所列之標準規格下運行。

若馬達在一定間隔內再潤滑，則可延長軸承壽命，藉此補償溫度、安裝條件、轉速、軸承規格和機械負載等不利因素。

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 the motors 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.



潤滑油壽命和再潤滑間隔（馬達水平安裝）

Grease life (Horizontal installation)

機座尺寸 Frame size	極數 Poles	潤滑油壽命 Grease lifetime up to CT 40 °C <sup>1)</sup>
<b>持久潤滑型軸承的潤滑油 Grease for permanent lubrication bearing</b>		
80 – 250	2 · 4 · 6	20000 或 (or) 40000 <sup>2)</sup>
<b>可再潤滑型軸承的潤滑油 Grease for regreasable bearing</b>		
100 – 160	2 · 4 · 6	8000 小時 (h)
180 – 250	2	4000 小時 (h)
180 – 250	4 · 6	8000 小時 (h)
280 – 315	2	3000 小時 (h)
280 – 315	4 · 6	5000 小時 (h)
355	2	2000 小時 (h)
355	4 · 6	4000 小時 (h)

註：

<sup>1)</sup> 環境溫度每升高 10 °C，潤滑油壽命以及再潤滑間隔會縮短一半。

<sup>2)</sup> 在環境溫度 25 度下，40000 小時適用於馬達水平安裝，且軸不受額外的軸向力影響；

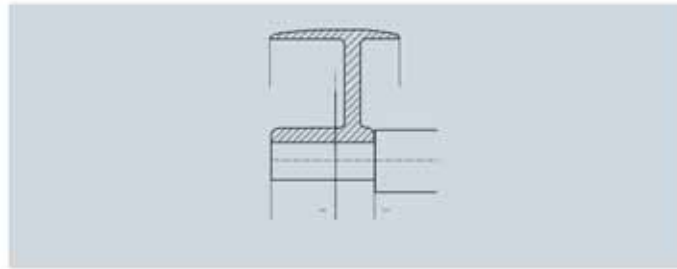
馬達軸驅動端允許的最大懸臂力

Note:

<sup>1)</sup> If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

<sup>2)</sup> 40000 h apply to horizontally installed motors with coupling output without additional axial loads.

Permissible cantilever forces on DE shaft



計算徑向負載的最大懸臂力時，據軸肩處的懸臂力  $F_Q$  (N) 必須位於軸伸端以內，（長度為  $x$ ）。長度  $x$  [mm] 是距離軸肩的距離。長度最長為  $x_{max}$ ，與軸伸長度相同。總懸臂力  $F_Q$  使用以下公式計算。

$$F_Q = c \cdot F_U$$

預緊力係數  $c$  取自皮帶製造商的經驗數值，請應用以下估算值。

- 一般扁平皮帶， $c = 2$ ；
- V 型皮帶， $c = 2 \sim 2.5$ ；
- 特殊皮帶（因皮帶類型和負載而異）， $c = 2 \sim 2.5$ 。

計算切線力  $F_U$  (N) 使用下列公式：

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

- $F_U$  切線力 (N)
- $P$  額定功率 (kW)
- $n$  額定轉速
- $D$  滑輪直徑 (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.



以下表格說明馬達不受任何軸向力時，所能承受的最大徑向懸臂力（單位：牛頓）。

標準馬達最大懸臂力 Admissible cantilever forces for standard version			
機座尺寸 Frame size	極數 Number of poles	懸臂力範圍 <sup>1)</sup> Admissible cantilever force <sup>1)</sup>	
		for $x_0$ N	for $x_{max}$ N
80M	2	620	510
	4	790	640
	6	910	740
90S/90L	2	700	560
	4	880	720
	6	1020	820
100L	2	980	790
	4	1230	990
	6	1420	1140
112M	2	980	790
	4	1230	990
	6	1420	1140
132S/132M	2	1440	1120
	4	1230	990
	6	2080	1630
180M 180L	2	1,820	1,470
	4	2,300	1,900
	6	2,630	2,150
200L	2	2,650	2,230
	4	3,350	2,800
	6	3,850	3,230
225S 225M	2	3,000	2,540
	4	3,700	3,000
	6	4,250	3,470
250M	2	3,150	2,620
	4	3,950	3,280
	6	4,600	3,820
280S 280M	2	6,600	5,550
	4	8,300	6,950
	6	9,650	8,120
315S 315M 315L	2	7,100	6,200
	4	8,700	7,250
	6	10,000	8,500
355M 355L	2	6,800	6,000
	4	11,500	10,000
	6	13,200	11,600

<sup>1)</sup> 若安裝型式為 IM B6、IM B7、IM B8、IM V5、IM V6 時，皮帶張力需平行或垂直安裝平面，且馬達支架需有適當支撐力，馬達的兩個支架必須牢固。

<sup>2)</sup> 強化懸臂力型僅適用於 FS100 ~ 355

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

大懸臂力的強化軸向設計（編號 L22） Bearing design for increased cantilever forces Order code L22			
機座尺寸 Frame size	極數 Number of poles	懸臂力範圍 <sup>1)</sup> Admissible cantilever force <sup>1)</sup>	
		for $x_0$ N	for $x_{max}$ N
80M	2	– <sup>2)</sup>	– <sup>2)</sup>
	4	– <sup>2)</sup>	– <sup>2)</sup>
	6	– <sup>2)</sup>	– <sup>2)</sup>
90S/90L	2	– <sup>2)</sup>	– <sup>2)</sup>
	4	– <sup>2)</sup>	– <sup>2)</sup>
	6	– <sup>2)</sup>	– <sup>2)</sup>
100L	2	1480	1220
	4	1870	1540
	6	2140	1720
112M	2	1480	1220
	4	1870	1540
	6	2140	1720
132S/132M	2	2100	1700
	4	2720	2170
	6	3100	2420
180M 180L	2	3,300	2,700
	4	4,200	3,400
	6	4,750	3,900
200L	2	5,000	4,200
	4	6,330	5,320
	6	7,250	6,080
225S 225M	2	5,650	4,800
	4	6,950	5,600
	6	7,900	6,500
250M	2	6,700	5,600
	4	8,500	7,000
	6	9,500	7,800
280S 280M	2	11,500	9,500
	4	17,000	14,000
	6	20,000	17,000
315S 315M 315L	2	14,600	12,300
	4	20,000	16,500
	6	23,000	19,000
355M 355L	2	15,800	14,000
	4	22,000	19,000
	6	25,000	22,000

<sup>1)</sup> 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.

<sup>2)</sup> Reinforced version only from FS100 ~ 355

## 噪音

### 噪音級

噪音級係根據 DIN EN ISO 1680 標準於噪音室測量。表面聲壓級噪音  $L_{pfa}$  計算表示單位為 dB (A)。聲壓級噪音的空間平均值於測量面上測得。測量面距離馬達表面一立方公尺遠。聲功率級噪音以  $L_{WA}$  表示，單位為 dB (A)。下列噪音級僅適用於馬達在 50 Hz 供電空載運行時的情況，允許誤差為 +3 dB。馬達於 60 Hz 電源下空載運行時，允許誤差大約為 +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 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.

機座尺寸 Frame size	同步轉速 synchronous speed (r/min)		
	$L_{pfa} / L_{WA}$ (dB (A))		
	3000 (2 極 poles)	1500 (4 極 poles)	1000 (6 極 poles)
80	51 / 62	45 / 56	44 / 55
90	55 / 67	47 / 59	45 / 57
100	62 / 74	52 / 64	49 / 61
112	65 / 77	53 / 65	53 / 65
132	67 / 79	59 / 71	57 / 69
160	69 / 81	61 / 73	61 / 73
180	70 / 83	63 / 76	59 / 73
200	71 / 84	63 / 76	59 / 73
225	72 / 85	65 / 78	60 / 74
250	75 / 89	66 / 79	62 / 76
280	77 / 91	66 / 80	64 / 78
315	78 / 92	74 / 88	69 / 83
355	85/100	81/95	71/85

$L_{pfa}$  – 聲壓級

$L_{WA}$  – 聲功率級

$L_{pfa}$  – sound pressure level

$L_{WA}$  – sound power level

## 震動

所有馬達轉子均採半鍵式動態平衡，符合 A 級（標準）震動等級。

馬達在空載時測得震動速度有效值不超過下表中的 A 級所列值。

## Vibration

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

Table below contains the effective vibration values for unloaded motors.

震動等級 Vibration grade	機座尺寸 Frame size (mm)	$80 \leq FS \leq 132$	$160 \leq FS \leq 280$	$280 < FS \leq 355$
A	安裝方式 Mounting	Vibration velocity 震動速度 (mm/s)	Vibration velocity 震動速度 (mm/s)	Vibration velocity 震動速度 (mm/s)
	自由懸置 Free suspension	1.6	2.2	2.8
	剛性安裝 Rigid mounting	1.3	1.8	2.3
B	自由懸置 Free suspension	0.7	1.1	1.8
	剛性安裝 Rigid mounting	-	0.9	1.5

# 電氣特性

## 額定輸出

SIMOTICS 1LE0103 系列超高效低壓馬達的額定功率是指馬達連續運行 S1 (IEC 60034-1) , 周圍環境溫度為 -20 °C ~ 40 °C , 海拔高度低於 1000 m 。

## 電壓、頻率

IEC 60034-1 將電壓和頻率的偏差分為 A 類 (電壓偏差 ±5 % , 頻率偏差 ±2 %) 和 B 類 (電壓偏差 ±10 % , 頻率偏差 +3 % / -5 %) 。馬達均能夠在 A 類和 B 類提供額定轉矩。A 類溫度較正常運行的溫度高 10 K 。

# Electrical design

## Rated Output

SIMOTICS 1LE0103 premium efficiency low voltage 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 ±5 % and frequency deviation ±2 %) and Category B (combination of voltage deviation ±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.

標準 Standard	類別 Category	類別 Category
60034 - 1	A	B
電壓偏差 Voltage deviation	±5 %	±10 %
頻率偏差 Frequency deviation	±2 %	+3 % / -5 %

馬達依標準不建議在 B 類情況下長時間運行  
According to the standard, longer operation is not recommended for Category B.

## 電氣規格的公差值

- 效率  $\eta$ 
  - $P_{rated} \leq 150 \text{ kW}$ :  $-0.15 \times (1 - \eta)$
  - $P_{rated} > 150 \text{ kW}$ :  $-0.10 \times (1 - \eta)$
  - 效率  $\eta$  小於 1
- 功率因數:  $(1 - \cos \phi) / 6$ 
  - 最小絕對值: 0.02
  - 最大絕對值: 0.07
- 轉差率: ±20 % (馬達偏差 < 1 kW ±30 % 為可允許值)
- 堵轉轉子電流: +20 %
- 堵轉轉子轉矩: -15 % ~ +25 %
- 停轉轉矩: -10 %
- 轉動慣量: ±10 %

## 過載倍數

按照 IEC60034 標準要求, 1LE0103 系列馬達需能在額定電壓和頻率下, 至少承受 2 分鐘的 1.5 倍額定電流。

## Tolerance for electrical data

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

## Overload times

According to IEC60034, 1LE0103 series motors are designed to withstand overload capacity of 1.5 times rated current for 2 minutes at rated voltage and frequency.



## 絕緣系統

SIMOTICS 1LE0103 馬達絕緣系統可靠耐用、壽命長且耐撞擊。

SIMOTICS 1LE0103 系列馬達的溫度等級為 155 (F)。當 1LE0 馬達直接以額定功率供電時，絕緣系統能依 130 (B) 溫度等級使用。

## 馬達保護

### 馬達過熱保護

馬達過熱保護是指將溫度感測器或檢測器，嵌入馬達定子繞組或其他合適位置，保護馬達不因過熱而損壞。

馬達過熱保護，可參考 1LE0103 馬達訂購號碼的第 15 位字母，或以選購代碼加以訂購。以下為馬達繞組和軸承的幾種保護方式。

### 繞組保護

#### ■ PTC 熱阻器溫度保護

目前最常用的馬達繞組過熱保護，是在馬達繞組中安裝 PTC 熱阻器。由於熱阻器的熱容量較低，且在繞組間的熱傳導性能佳，因此可以準確監控繞組溫度。PTC 熱阻器達到極限溫度時（標稱跳脫溫度），其電阻會出現階躍變化。此變化跳脫裝置評估後，即可斷開輔助迴路。

PTC 熱阻器本身不能承受大電流和高電壓，否則會導致半導體損壞。PTC 熱阻器和跳脫裝置因開關磁滯效應小，因此可在短時間內重新起動驅動。若應用為重載起動、高起動頻率、大負載變化、高環境溫度或大電源波動等場合，建議馬達使用此類保護。

## Insulation system

The insulation system of SIMOTICS 1LE0103 premium efficiency low voltage motor results in high reliability, a long service life and high resistance to stress, for example, during starting or under overload conditions.

SIMOTICS 1LE0103 premium efficiency low voltage motor is 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

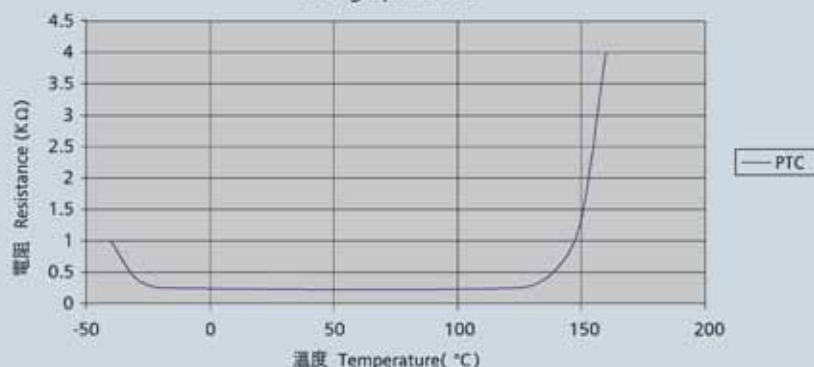
#### ■ PTC thermistors protection

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曲線圖

The graph of PTC

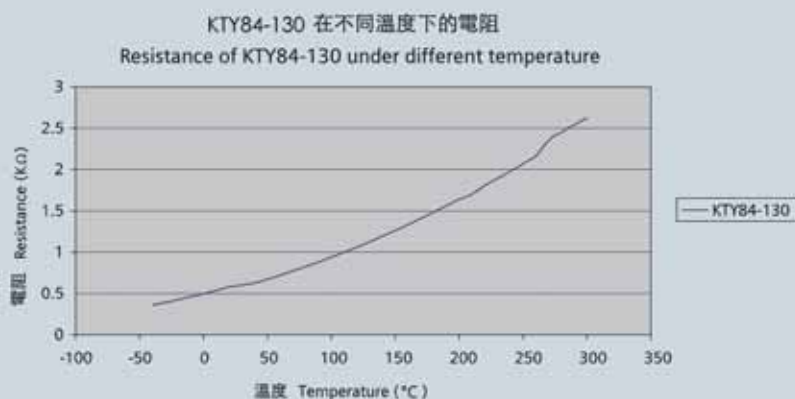


### 兩種 PTC 熱阻器溫度保護

- 馬達繞組內建1組3個跳脫式 PTC 熱阻器，跳脫溫度為 155 °C，馬達訂購號碼的第 15 位為“B”，需 2 個輔助接線端子。
- 馬達繞組內建2組6個跳脫式 PTC 熱阻器，分別用於警告和跳脫，警告溫度為 145 °C，跳脫溫度為 155 °C，馬達訂購號碼第 15 位為“C”，需 4 個輔助接線端子。

### ■ KTY84-130 溫度感測器溫度保護

應用馬達變頻時，建議使用 KTY84-30 溫度感測器進行繞組保護。KTY84-130 溫度感測器特性如下圖所示。

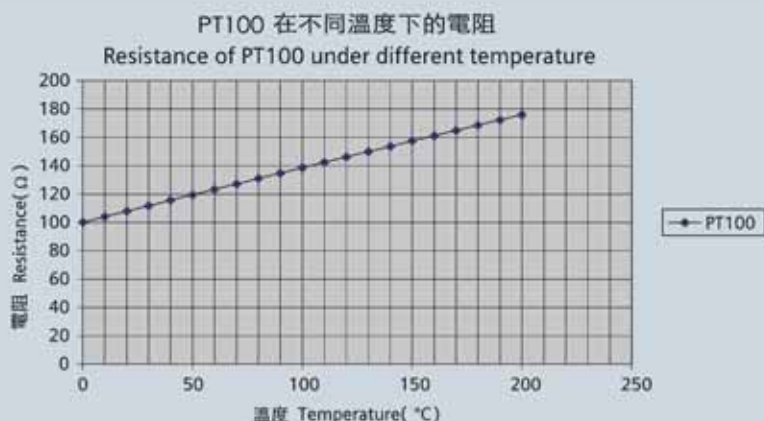


某些西門子變頻器是以溫度感測器的電阻來判斷馬達溫度，從而設定馬達警告和跳脫溫度。

馬達繞組內建1個 KTY 84-130 溫度感測器，馬達訂購號碼第 15 位為“F”，需 2 個輔助接線端子。

### ■ PT100 熱阻器感測器溫度保護

PT100 熱阻器為高精確、高靈敏感測器，線性溫度電阻優於其他電阻式感應器，性能穩定、可靠性高，其特性如下。



### 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.

### ■ KTY84-130 temperature sensor protection

When motor with converter fed operation, KTY84-30 is recommended to be configured for winding protection. The following chart show the characteristic of KTY84-30.

Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping.

Motor winding with embedded temperature detector sensor KTY 84 -130. Two auxiliary terminals are provided in the connection box. 15th position of Motor Order No. letter F.

### ■ 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.

#### 兩種 PT100 熱阻器溫度保護

- 馬達繞組帶 3 個 2 線制 PT100 測溫元件，馬達訂購號碼第 15 位為“H”，需 6 個輔助接線端子。
- 馬達繞組帶 6 個 2 線制 PT100 測溫元件，馬達訂購號碼第 15 位為“J”，需 12 個輔助接線端子。

#### 軸承保護

標準馬達軸承並無任何保護。因此在某些嚴峻應用中，建議採取軸承保護措施。所謂軸承保護，是在馬達驅動端和非驅動端的軸承蓋嵌入溫度感測器，並將引接線引入馬達主控線盒內。

馬達軸承裝有 2 個 PT100 測溫元件，選購代碼為 Q5A，需 4 個輔助接線端子。

#### 加熱防潮保護

馬達若置於較為惡劣的環境，如高溫度或晝夜溫差大，其繞組很可能出現凝露現象，造成馬達燒毀的風險。在此種情況下，建議在馬達繞組上配置防潮加熱器（選購號碼：Q04）進行保護。

馬達防潮加熱器須在馬達運行中關閉；馬達停機時則啟動為繞組加熱。防潮加熱器的電氣規格如下表所示。

#### 防潮加熱器電氣規格

機座尺寸 Frame size	功率 Power (W)	電壓 Voltage
80 – 90	20	220 V
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

#### 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.

#### Bearing protection

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 motor bearings, Option code: Q5A. 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).

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

#### Electrical data of Anti-condensation heater



## 變頻應用

SIMOTICS 1LE0103 馬達適用於變速或恆速各種應用，如風扇、幫浦、壓縮機、紡織機等。

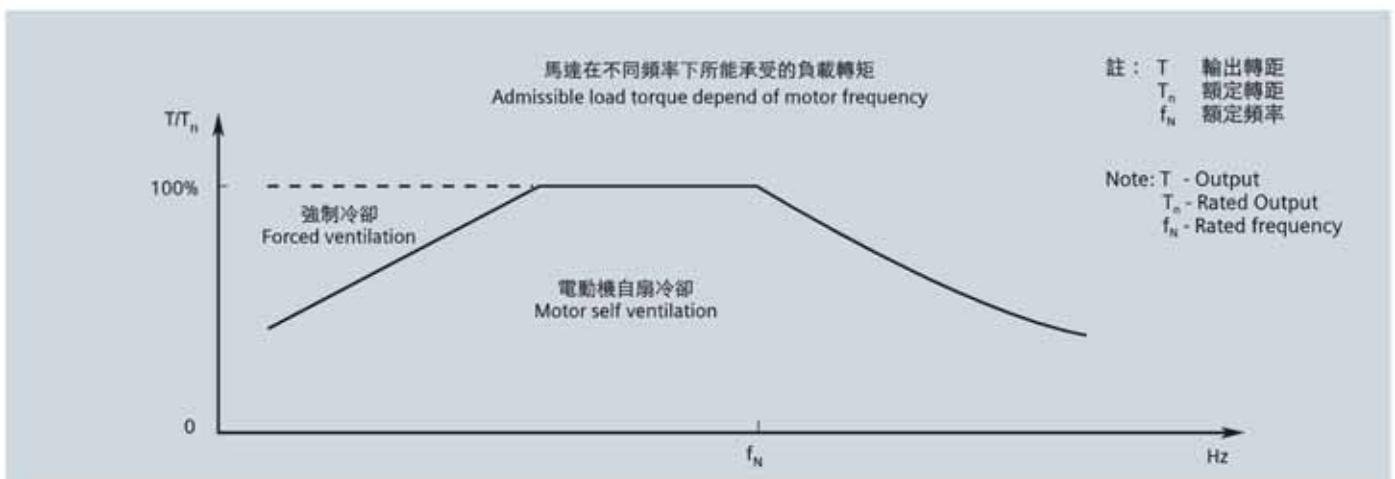
當變頻器驅動馬達時，電磁干擾的程度大小取決於變頻器的類型（種類，IGBT 數量，干擾控制措施及製造商）、佈線、距離以及應用需求。在設計和應用階段必須參考變頻器製造商關於電磁相容性的安裝指導。

當馬達變頻應用（變頻器供電），且輸出額定功率時，其使用溫度等級為 155 (F)。為避免軸承電流造成損壞，FS250 ~ 355 馬達建議使用絕緣軸承。絕緣軸承相關情形，請向西門子諮詢。

### 變頻器驅動運行

SIMOTICS 1LE0103 馬達標準絕緣設計，使馬達的正常運行範圍為高達變頻器電壓 460 V。

該系列馬達在特定負載下能以變頻器驅動，如以下圖表所示：



若負載轉矩在允許的轉矩範圍內，馬達能夠以內建風扇冷卻；然若超過所允許轉矩，則需強迫冷卻。

馬達運行速度若超過額定轉速，會增加噪音和震動數值，縮短軸承壽命。此時需注意再潤滑間隔和潤滑油壽命。

變頻時若頻率超過 60 Hz 時，需以特殊平衡來符合特定限值。

## Converter fed application

SIMOTICS 1LE0103 low voltage 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 FS250 ~ 355. Please inquire Siemens about the detailed information of insulated bearing.

### Converter-fed operation

The standard insulation of SIMOTICS 1LE0103 low voltage motors is designed such that operation is possible on the converter at mains voltage up to 460 V.

The load torque characteristics of this series motor is referred in the following diagram:

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.

最高安全轉速如下表

The allowed maximum safe operating speed is shown in the diagram

機座尺寸 Frame Size	2 極 2 pole		4 極 4 pole		6 極 6 pole	
	最高轉速 Max. rpm	最大頻率 fmax	最高轉速 Max. rpm	最大頻率 fmax	最高轉速 Max. rpm	最大頻率 fmax
80	5200	87	3600	120	2400	120
90	5200	87	3600	120	2400	120
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

### 電壓承受值

繞組絕緣的電介質力取決於：

- 電壓峰值，上升時間和變頻器產生的脈衝頻率；  
變頻器與馬達間的連接線特性和長度；
- 繞組結構和其他系統參數，尤其是不同繞組和接地零件間的電壓（代表絕緣系統的電介質應力）。

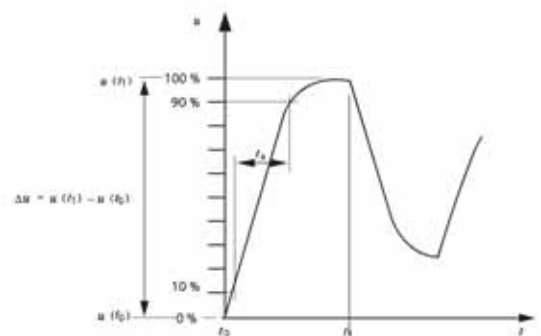
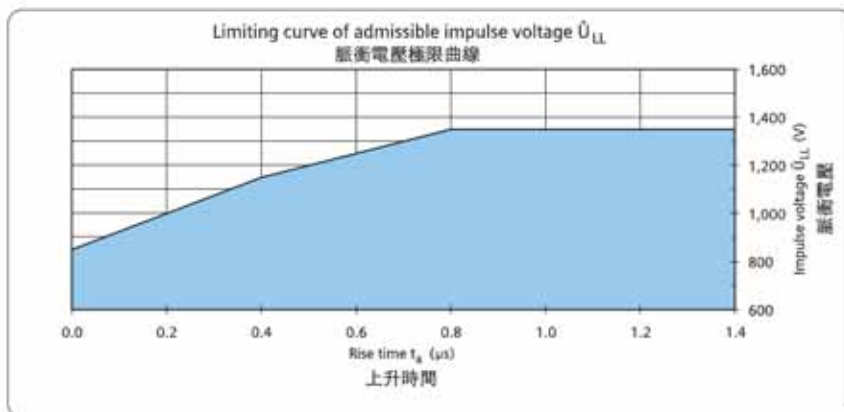
圖表所示為 1LE0103 馬達標準絕緣能耐受的電壓峰值和梯度：

### 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 1LE0103 motors is designed to withstand voltage peak and rise time which is showed in the diagram:



數值參照 IEC 60034-17，GB/T 20161-2008 標準。

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

# 型號與訂購號碼

## Motor Type and Order No.

### 馬達型號 Motor Type

1	2	3	4	5	6	7	8
0	C	V	3				

### 馬達訂購號碼 Order No.

1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16
1	L	E	0	1	0	3	-										

鑄鐵殼系列全封閉通風冷卻馬達  
Cast iron TEFC motor

中國能源效率 2 級 · IE3 效率等級  
China energy efficiency grade 2, IE3 efficiency

機座尺寸 Frame size  
08=80 ;09=90 ;10=100 ;11=112 ;13=132 ;16=160  
18=180 ;20=200 ;22=225 ;25=250 ;28=280 ;31=315  
35=355

鐵心長 Core length  
0 or 1 = S ; 2 or 3 = M ; 4, 5, 6 or 7 = L

極數 Poles  
A = 2 ; B = 4 ; C = 6

中國能源效率 2 級 · IE3 效率等級  
China energy efficiency grade 2, IE3 efficiency

機座尺寸 Frame size  
0D = 080 ; 0E = 090 ; 1A = 100 ; 1B = 112 ; 1C = 132 ; 1D = 160 ; 1E = 180  
2A = 200 ; 2B = 225 ; 2C = 250 ; 2D = 280 ; 3A = 315 ; 3B = 355

極數 Poles  
A = 2 ; B = 4 ; C = 6

鐵心長度 Core length  
0 or 1 = S (短鐵心 short) ; 2 or 3 = M (中鐵心 medium) ; 4 or 5 or 6 or 7 = L (長鐵心 long)

電壓、連接方式和頻率編號 Voltage, connections and frequency  
21 = 220VD/380VY 50Hz    34 = 400VD/690VY 50Hz    35 = 415VD 50Hz  
33 = 380VD/660VY 50Hz    04 = 400VD 50Hz    90<sup>1)</sup> = 特殊電壓與頻率 special voltage & frequency  
22 = 230VD/400VY 50Hz    23 = 240VD/415VY 50Hz

結構和安裝方式編號 Construction and mounting type  
A<sup>2)</sup> 3) = IM B3 ; T<sup>3)</sup> = IM B6 ; U<sup>3)</sup> = IM B7 ; V<sup>3)</sup> = IM B8 ; C<sup>3)</sup> 6) = IM V5 ; D<sup>3)</sup> = IM V6  
F<sup>3)</sup> 4) = IM B5 ; G<sup>3)</sup> 4) 6) = IM V1 ; H<sup>3)</sup> 4) = IM V3  
J<sup>3)</sup> IM B35 ; W<sup>3)</sup> 6) = IM V15 ; Y<sup>3)</sup> = IM V35  
K<sup>3)</sup> 4) 5) = IM B14 ; M<sup>3)</sup> 4) 5) 6) = IM V18 ; L<sup>3)</sup> 4) 5) = IM V19 ; N<sup>3)</sup> 5) = IM B34

繞組保護編號 Winding protection  
A = 無繞組保護 without winding protection  
B = 採 3 個跳脫式 PTC 熱阻器 3 PTC thermistors for tripping  
C = 採 6 個跳脫及警告式 PTC 熱阻器 6 PTC thermistors for alarm and tripping  
F = 採 KTY 84-130 溫度感測器 1 temperature sensor KTY 84-130  
H = 採 3 個 Pt100 測溫元件 3 resistance thermometers Pt100  
J = 採 6 個 Pt100 測溫元件 6 resistance thermometers Pt100  
Z<sup>8)</sup> = 其他繞組保護 Other temperature for winding protection

接線盒位置編號 (從驅動端看) Connection box location (view from drive end)  
4 = 置頂 on top ; 5<sup>7)</sup> = 右側 on RHS ; 6<sup>7)</sup> = 左側 on LHS



# 訂購號碼 Order No.

## 附註：

- <sup>1)</sup> 用電壓編號 90 與相應選購代碼訂購（參見「選購項目」）；
- <sup>2)</sup> 當馬達不需冷凝水排放孔（選購代碼：H03）時，IM B3 安裝結構型式也可適用於 IM B6/7/8，但馬達標示牌上只標示 IM B3 安裝結構型式，不標示其他安裝結構型式；
- <sup>3)</sup> 標示牌上均印有結構類型。若已選購冷凝水排放孔（選購代碼：H03），則需有特定的馬達安裝結構，以便在製程中確定冷凝水排放孔的位置。
- <sup>4)</sup> 若為 IM B5、IM V1、IM V3、IM B14、IM V18 和 IM V19 馬達安裝結構，須選購訂購號碼第 16 位數為 4 的馬達；
- <sup>5)</sup> 僅適用於 FS80 ~ 160；
- <sup>6)</sup> 標準馬達並無頂蓋，頂蓋防護請參考選購代碼 H00；
- <sup>7)</sup> FS80 ~ 132 電纜入口的方向朝向非驅動端；
- <sup>8)</sup> 請向西門子另行諮詢

## 訂購號碼範例：

三項低壓交流馬達  
4-極，15 kW，IM B5，380VD/660VY 50 Hz，IP55，接線盒位於頂端，電纜入口位於右側（從驅動端看），配備獨立驅動風扇。

馬達訂購號碼：1LE0103-1DB43-3FA4-Z F70

馬達訂購號碼詳情

## Foot note:

- <sup>1)</sup> Order other voltages with voltage code 90 and the corresponding Option code (see under "Option") .
- <sup>2)</sup> The types of construction IM B6/7/8, IM V6 and IM V5 without protective cover are also possible as long as no condensation drainage holes (Order code: H03) and no stamping of these types of construction on the rating plate are required. As standard, the type of construction IM B3 is then stamped on the rating plate.
- <sup>3)</sup> 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.
- <sup>4)</sup> 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";
- <sup>5)</sup> Only for FS80 ~ 160.
- <sup>6)</sup> Without canopy, for protective cover with canopy needed Option code H00.
- <sup>7)</sup> Cable entry on connection box towards the non-drive.
- <sup>8)</sup> Please specially consult with Siemens.

## Order No. example:

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

Motor order code: 1LE0103-1DB43-3FA4-Z F70

Motor order code introduction

1	L	E	0	1	0	3	-	1	D	B	4	3	-	3	F	A	4	-	Z	F	7	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

高效能馬達 Premium efficiency motor

機座尺寸 Frame size : 160

極數 Poles : 4

機座長度 Frame length : 長機座 (L)

電壓，連接方式和頻率 voltage, connection method and frequency : 380VD/660VY 50Hz

結構型式 Construction : IM B5

繞組保護 winding protection : 無 None

接線盒位置 Connection box position : 置頂 On top

其他技術要求 Other technical requirements : 獨立驅動風扇 Separately driven fan

## 技術資料表 Technical data table

機座尺寸 Frame Size	馬達型號 Motors Type	型號 Order No.	額定功率 Rated Output	額定轉速 Rated Speed	效率Efficiency at (50HZ) 4/4 load	效率Efficiency at (50HZ) 3/4 load	功率因數 Power factor	額定電流 Rated current
			kW	r/m	%	%		A
3000rpm 2- pole 230VD/400VY 50HZ								
80M	0CV3082A	1LE0103-0DA22-2 □□□	0.75	2835	80.7	82.9	0.86	1.64
80M	0CV3083A	1LE0103-0DA32-2 □□□	1.1	2870	82.7	84.0	0.83	2.45
90S	0CV3090A	1LE0103-0EA02-2 □□□	1.5	2900	84.2	84.8	0.86	3.15
90L	0CV3094A	1LE0103-0EA42-2 □□□	2.2	2910	85.9	87.2	0.88	4.40
100L	0CV3104A	1LE0103-1AA42-2 □□□	3	2875	87.1	88.3	0.87	6.0
3000rpm 2- pole 400VD/690VY 50HZ								
112M	0CV3112A	1LE0103-1BA23-4 □□□	4	2925	88.1	89.6	0.90	7.7
132S	0CV3130A	1LE0103-1CA03-4 □□□	5.5	2930	89.2	90.2	0.89	10.5
132S	0CV3131A	1LE0103-1CA13-4 □□□	7.5	2925	90.1	91.5	0.90	14.1
160M	0CV3162A	1LE0103-1DA23-4 □□□	11	2935	91.2	92.0	0.89	20.5
160M	0CV3163A	1LE0103-1DA33-4 □□□	15	2930	91.9	92.6	0.89	28.0
160L	0CV3164A	1LE0103-1DA43-4 □□□	18.5	2940	92.4	93.0	0.89	34.0
180M	0CV3182A	1LE0103-1EA23-4 □□□	22	2950	92.7	93.0	0.89	40.5
200L	0CV3204A	1LE0103-2AA43-4 □□□	30	2955	93.3	93.4	0.89	55
200L	0CV3205A	1LE0103-2AA53-4 □□□	37	2955	93.7	93.9	0.89	67
225M	0CV3222A	1LE0103-2BA23-4 □□□	45	2960	94.0	94.3	0.89	82
250M	0CV3252A	1LE0103-2CA23-4 □□□	55	2975	94.3	94.1	0.89	100
280S	0CV3280A	1LE0103-2DA03-4 □□□	75	2975	94.7	94.8	0.89	135
280M	0CV3282A	1LE0103-2DA23-4 □□□	90	2975	95.0	95.3	0.90	160
315S	0CV3310A	1LE0103-3AA03-4 □□□	110	2975	95.2	95.1	0.90	195
315M	0CV3312A	1LE0103-3AA23-4 □□□	132	2980	95.4	95.3	0.90	235
315L	0CV3315A	1LE0103-3AA53-4 □□□	160	2978	95.6	95.7	0.91	280
315L	0CV3316A	1LE0103-3AA63-4 □□□	185	2978	95.7	95.9	0.92	320
315L	0CV3317A	1LE0103-3AA73-4 □□□	200	2982	95.8	95.9	0.92	345
355M	0CV3352A	1LE0103-3BA23-4 □□□	220	2986	95.8	95.4	0.90	390
355M	0CV3353A	1LE0103-3BA33-4 □□□	250	2985	95.8	95.7	0.90	440
355L	0CV3355A	1LE0103-3BA53-4 □□□	280	2988	95.8	95.7	0.90	495
355L	0CV3356A	1LE0103-3BA63-4 □□□	315	2982	95.8	95.8	0.90	560

註：電壓與頻率、繞組保護和接線盒位置的編碼資訊，請參見第 20 頁的「訂購號碼」。

Note: About the code of other voltage and frequency, winding protection and connection box position, please refer to Orde No. in page 20.

	額定轉矩 Rated torque	起動電流 Starting Current	起動轉矩 Starting torque	最大轉矩 Max torque	轉動慣量 Moment of inertia (J) (EFF2)	重量 Weight IMB3
	Nm				kgm <sup>2</sup>	kg
3000rpm 2- pole 230VD/400VY 50HZ						
	2.5	6.0	2.4	3.0	0.00208	16.0
	3.7	6.5	2.4	3.4	0.00154	18.0
	4.9	6.5	2.0	3.4	0.00276	24
	7.2	7.5	2.3	3.6	0.00356	28
	10.0	7.8	2.6	3.6	0.00462	39
3000rpm 2- pole 400VD/690VY 50HZ						
	13.1	7.8	2.6	3.6	0.0088	46
	17.9	7.5	2.3	3.6	0.0185	64
	24.5	7.5	2.3	3.6	0.0232	71
	35.8	7.5	2.3	2.5	0.0390	99
	48.9	7.5	2.4	3.4	0.0472	107
	60.1	7.8	2.4	3.4	0.0577	131
	71.2	7.8	2.4	3.4	0.077	171
	97.0	7.8	2.4	3.4	0.133	250
	120	7.8	2.4	3.4	0.152	260
	145	7.8	2.4	3.2	0.254	342
	177	7.8	2.4	3.2	0.443	425
	241	7.2	2.4	3.0	0.780	545
	289	7.2	2.4	3.4	0.950	620
	353	7.9	1.8	2.6	1.300	790
	423	7.9	2.1	2.6	1.510	960
	513	7.9	2.1	2.6	1.810	1060
	593	7.9	2.3	2.6	2.190	1145
	641	7.9	2.6	3.2	2.190	1165
	704	8.5	2.2	2.8	3.0	1490
	800	8.0	2.2	2.8	3.0	1490
	896	8.5	2.2	2.8	3.5	1620
	1009	8.0	2.2	2.8	3.5	1670



## 技術資料表 Technical data table

機座尺寸 Frame Size	馬達型號 Motors Type	型號 Order No.	額定功率 Rated Output	額定轉速 Rated Speed	效率 Efficiency at (50HZ) 4/4 load	效率 Efficiency at (50HZ) 3/4 load	功率因數 Power factor	額定電流 Rated current
			kW	r/m	%	%		A
<b>1500rpm 4-pole 230VD/400VY 50HZ</b>								
80M	0CV3082B	1LE0103-0DB22-2□□□	0.55	1440	80.8	81.8	0.76	1.36
80M	0CV3083B	1LE0103-0DB32-2□□□	0.75	1445	82.5	82.9	0.75	1.84
90S	0CV3090B	1LE0103-0EB02-2□□□	1.1	1430	84.1	85.1	0.79	2.50
90L	0CV3094B	1LE0103-0EB42-2□□□	1.5	1440	85.3	86.0	0.79	3.40
100L	0CV3102B	1LE0103-1AB42-2□□□	2.2	1445	86.7	87.1	0.82	4.70
100L	0CV3105B	1LE0103-1AB52-2□□□	3	1450	87.7	88.1	0.82	6.3
<b>1500rpm 4-pole 400VD/690VY 50HZ</b>								
112M	0CV3112B	1LE0103-1BB23-4□□□	4	1450	88.6	89.6	0.82	8.4
132S	0CV3130B	1LE0103-1CB03-4□□□	5.5	1455	89.6	90.9	0.84	11.1
132M	0CV3132B	1LE0103-1CB23-4□□□	7.5	1455	90.4	91.7	0.85	14.8
160M	0CV3162B	1LE0103-1DB23-4□□□	11	1460	91.4	92.4	0.86	21.5
160L	0CV3164B	1LE0103-1DB43-4□□□	15	1460	92.1	92.9	0.86	29.0
180M	0CV3182B	1LE0103-1EB23-4□□□	18.5	1470	92.6	93.0	0.83	36.5
180L	0CV3184B	1LE0103-1EB43-4□□□	22	1470	93.0	93.7	0.83	43.5
200L	0CV3204B	1LE0103-2AB43-4□□□	30	1470	93.6	94.3	0.84	58
225S	0CV3220B	1LE0103-2BB03-4□□□	37	1478	93.9	94.1	0.85	70
225M	0CV3222B	1LE0103-2BB23-4□□□	45	1478	94.2	94.2	0.85	85
250M	0CV3252B	1LE0103-2CB23-4□□□	55	1482	94.6	95.0	0.86	103
280S	0CV3280B	1LE0103-2DB03-4□□□	75	1485	95.0	95.3	0.86	139
280M	0CV3282B	1LE0103-2DB23-4□□□	90	1485	95.2	95.6	0.87	165
315S	0CV3310B	1LE0103-3AB03-4□□□	110	1488	95.4	95.7	0.87	200
315M	0CV3312B	1LE0103-3AB23-4□□□	132	1488	95.6	95.9	0.87	240
315L	0CV3315B	1LE0103-3AB53-4□□□	160	1488	95.8	96.1	0.87	290
315L	0CV3316B	1LE0103-3AB63-4□□□	185	1488	95.9	96.2	0.87	335
315L	0CV3317B	1LE0103-3AB73-4□□□	200	1490	96.0	96.3	0.88	360
355M	0CV3352B	1LE0103-3BB23-4□□□	220	1492	96.0	96.0	0.88	395
355M	0CV3353B	1LE0103-3BB33-4□□□	250	1490	96.0	96.0	0.88	450
355L	0CV3355B	1LE0103-3BB53-4□□□	280	1490	96.0	96.1	0.88	500
355L	0CV3356B	1LE0103-3BB63-4□□□	315	1490	96.0	96.1	0.88	570

註：電壓與頻率、繞組保護和接線盒位置的編碼資訊，請參見第 20 頁的「訂購號碼」。

Note: About the code of other voltage and frequency, winding protection and connection box position, please refer to Orde No. in page 20.

	額定轉矩 Rated torque	起動電流 Starting Current	起動轉矩 Starting torque	最大轉矩 Max torque	轉動慣量 Moment of inertia (J) (EFF2)	重量 Weight IMB3
	Nm				kgm <sup>2</sup>	kg
<b>1500rpm 4-pole 230VD/400VY 50HZ</b>						
	3.6	5.5	2.2	3.2	0.00216	16.5
	5.0	6.0	2.7	3.7	0.00250	18.0
	7.3	6.5	2.7	3.7	0.00389	24
	9.9	6.5	2.7	3.8	0.00499	27
	14.5	8.3	3.7	4.6	0.01125	42
	19.8	8.3	3.7	4.6	0.01313	46
<b>1500rpm 4-pole 400VD/690VY 50HZ</b>						
	26.3	8.3	3.7	4.6	0.0149	52
	36.1	7.8	2.4	3.8	0.0285	71
	49.2	7.8	2.4	3.8	0.0356	83
	72.0	7.8	2.4	3.8	0.0648	110
	98.1	7.8	2.6	3.8	0.0811	134
	120	7.8	2.6	3.6	0.126	170
	143	7.8	2.6	3.6	0.146	192
	195	7.8	2.6	3.6	0.220	255
	239	8.3	3.3	3.6	0.461	315
	291	8.3	3.3	3.6	0.479	342
	354	7.6	2.6	3.3	0.820	440
	482	7.6	2.6	3.0	1.310	580
	579	7.6	2.6	3.0	1.690	685
	706	7.9	3.3	3.0	2.770	800
	847	7.9	3.3	3.0	3.000	1035
	1027	7.9	3.3	3.0	3.140	1065
	1187	7.9	3.3	3.0	3.460	1115
	1282	7.9	3.3	3.0	3.790	1175
	1408	8.0	2.0	3.2	6.9	1670
	1602	7.8	1.8	2.9	6.9	1670
	1795	7.8	1.8	2.9	7.7	1700
	2019	8.0	1.8	2.9	8.5	1790

## 技術資料表 Technical data table

機座尺寸 Frame Size	馬達型號 Motors Type	型號 Order No.	額定功率 Rated Output	額定轉速 Rated Speed	效率 Efficiency at (50HZ) 4/4 load	效率 Efficiency at (50HZ) 3/4 load	功率因數 Power factor	額定電流 Rated current
			kW	r/m	%	%		A
<b>1000rpm 6-pole 230VD/400VY 50HZ</b>								
80M	OCV3083C	1LE0103-0DC32-2□□□	0.55	935	77.2	77.5	0.67	1.62
90S	OCV3090C	1LE0103-0EC02-2□□□	0.75	940	78.9	80.3	0.70	2.05
90L	OCV3094C	1LE0103-0EC42-2□□□	1.1	945	81.0	81.6	0.69	3.00
100L	OCV3104C	1LE0103-1AC42-2□□□	1.5	945	82.5	84.1	0.74	3.75
112M	OCV3112C	1LE0103-1BC22-2□□□	2.2	945	84.3	86.1	0.74	5.4
132S	OCV3130C	1LE0103-1CC02-2□□□	3	965	85.6	86.6	0.75	7.1
<b>1000rpm 6-pole 400VD/690VY 50HZ</b>								
132M	OCV3132C	1LE0103-1CC23-4□□□	4	955	86.8	88.5	0.75	9.3
132M	OCV3133C	1LE0103-1CC33-4□□□	5.5	960	88.0	89.2	0.76	12.5
160M	OCV3162C	1LE0103-1DC23-4□□□	7.5	965	89.1	90.4	0.78	16.4
160L	OCV3164C	1LE0103-1DC43-4□□□	11	970	90.3	90.3	0.77	23.5
180L	OCV3184C	1LE0103-1EC43-4□□□	15	975	91.2	92.1	0.80	31.0
200L	OCV3204C	1LE0103-2AC43-4□□□	18.5	978	91.7	92.5	0.80	38.5
200L	OCV3205C	1LE0103-2AC53-4□□□	22	978	92.2	93.1	0.80	45.5
225M	OCV3222C	1LE0103-2BC23-4□□□	30	982	92.9	93.9	0.83	59
250M	OCV3252C	1LE0103-2CC23-4□□□	37	985	93.3	94.1	0.84	72
280S	OCV3280C	1LE0103-2DC03-4□□□	45	985	93.7	94.5	0.84	87
280M	OCV3282C	1LE0103-2DC23-4□□□	55	988	94.1	94.6	0.84	106
315S	OCV3310C	1LE0103-3AC03-4□□□	75	990	94.6	95.0	0.84	143
315M	OCV3312C	1LE0103-3AC23-4□□□	90	990	94.9	95.3	0.84	172
315L	OCV3315C	1LE0103-3AC53-4□□□	110	991	95.1	95.3	0.85	205
315L	OCV3316C	1LE0103-3AC63-4□□□	132	991	95.4	95.7	0.85	245
355M	OCV3352C	1LE0103-3BC23-4□□□	160	994	95.6	95.7	0.84	305
355M	OCV3353C	1LE0103-3BC33-4□□□	185	993	95.7	95.8	0.84	350
355M	OCV3354C	1LE0103-3BC43-4□□□	200	993	95.8	95.9	0.84	380
355L	OCV3355C	1LE0103-3BC53-4□□□	220	993	95.8	96.0	0.84	415
355L	OCV3356C	1LE0103-3BC63-4□□□	250	992	95.8	96.1	0.84	470

註：電壓與頻率、繞組保護和接線盒位置的編碼資訊，請參見第 20 頁的「訂購號碼」。

Note: About the code of other voltage and frequency, winding protection and connection box position, please refer to Orde No. in page 20.



	額定轉矩 Rated torque	起動電流 Starting Current	起動轉矩 Starting torque	最大轉矩 Max torque	轉動慣量 Moment of inertia (J) (EFF2)	重量 Weight IMB3
	Nm				kgm <sup>2</sup>	kg
	1000rpm 6-pole 230VD/400VY 50HZ					
	5.6	5.0	2.7	3.4	0.00310	19.5
	7.6	5.0	2.4	3.2	0.00436	25
	11.1	5.5	2.7	3.5	0.00513	28
	15.2	5.5	2.7	3.5	0.01136	42
	22.2	6.0	2.7	3.4	0.01451	50
	29.7	6.0	2.7	4.0	0.02666	67
	1000rpm 6-pole 400VD/690VY 50HZ					
	40.0	6.0	2.3	3.4	0.0305	76
	54.7	6.5	2.3	4.0	0.0413	88
	74.2	6.5	2.3	3.6	0.0703	112
	108	7.0	2.3	3.6	0.0707	144
	147	7.0	2.3	3.0	0.185	175
	181	7.0	2.3	3.0	0.284	235
	215	7.0	2.4	3.0	0.327	251
	292	7.6	2.4	3.0	0.710	350
	359	7.6	2.4	3.0	1.030	430
	436	7.8	3.0	3.0	1.400	520
	532	7.8	3.0	3.0	1.700	585
	723	7.8	2.6	3.0	2.730	790
	868	7.8	2.6	3.0	3.290	950
	1060	7.8	2.6	3.0	4.170	1085
	1272	7.8	2.6	3.0	4.490	1135
	1537	8.5	3.0	2.4	8.4	1770
	1779	8.5	3.0	2.4	8.4	1770
	1923	8.5	3.0	2.4	11.2	1810
	2116	8.5	3.0	2.4	11.4	1980
	2407	8.5	3.0	2.4	11.4	2010

## 選購項目 Options

馬達訂購號碼 Motor order code	選購代碼 Option Code <sup>1)</sup>	描述 Description	應用範圍 Application Scope
<b>電壓與頻率</b> Voltages and frequency			
1LE0103- □□□□ 2-1 □□□	-	220VD / 380VY 50 Hz (0.55 kW ~ 3 kW <sup>2)</sup> )	FS80 ~ 355
1LE0103- □□□□ 3-3 □□□	-	380VD / 660VY 50 Hz (4 kW ~ 355 kW <sup>2)</sup> )	FS80 ~ 355
1LE0103- □□□□ 2-2 □□□	-	230VD / 400VY 50 Hz	FS80 ~ 355
1LE0103- □□□□ 3-4 □□□	-	400VD / 690VY 50 Hz	FS80 ~ 355
1LE0103- □□□□ 2-3 □□□	-	240VD / 415VY 50 Hz	FS80 ~ 355
1LE0103- □□□□ 0-4 □□□	-	400VD 50 Hz	FS80 ~ 355
1LE0103- □□□□ 3-5 □□□	-	415VD 50 Hz	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M1A	220VD / 380VY 60 Hz (60 Hz output , 60 Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M1B	380VD / 660VY 60 Hz (60 Hz output , 60 Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M1C	440VY 60Hz (60Hz output , 60Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M1D	440VD 60Hz (60Hz output , 60Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M1E	460VY 60 Hz (60 Hz output , 60 Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M1F	460VD 60 Hz (60 Hz output , 60 Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M2A	220VD/380VY 60Hz (50Hz output , 50Hz 功率輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M2B	380VD/660VY 60Hz (50Hz output , 50Hz 功率輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M2C	440VY 60Hz (50Hz output , 50Hz 功率輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M2D	440VD 60Hz (50Hz output , 50Hz 功率輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M2E	460VY 60Hz (50Hz output , 50Hz 功率輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	M2F	460VD 60Hz (50Hz output , 50Hz 功率輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	X04	480VY 60Hz (60Hz output , 60Hz 輸出)	FS80 ~ 355
1LE0103- □□□□ 9-0 □□□ -Z	X20	480VD 60Hz (60Hz output , 60Hz 輸出)	FS80 ~ 355
<b>繞組保護</b> Motor protection			
1LE0103- □□□□□ - □□ A □ <sup>2)</sup>	-	無繞組保護 Without motor protection	FS80 ~ 355
1LE0103- □□□□□ - □□ B □	-	採 3 個跳脫式 PTC 熱阻器 Motor protection with PTC thermistors with three embedded temperature sensors for tripping	FS80 ~ 355

馬達訂購號碼 Motor order code	選購代碼 Option Code <sup>1)</sup>	描述 Description	應用範圍 Application Scope
<b>繞組保護</b> Motor protection			
1LE0103- □□□□□ - □□ C □	-	採 6 個跳脫及警告式 PTC 熱阻器 Motor protection with PTC thermistors with six embedded temperature sensors for alarm & tripping	FS80 ~ 355
1LE0103- □□□□□ - □□ F □	-	採 KTY 84-130 溫度感測器 Motor temperature detection with embedded temperature sensor KTY84-130	FS100-355
1LE0103- □□□□□ - □□ H □	-	採 3 個 Pt100 測溫元件 Installation of three PT100 resistance thermometers	FS80 ~ 355
1LE0103- □□□□□ - □□ J □	-	採 6 個 Pt100 測溫元件 Installation of six PT100 resistance thermometers	FS80 ~ 355
<b>線圈和絕緣</b> Windings and insulation			
-	N01	溫度等級 155 (F) · 155 (F) 使用 · 具供電係數 (SF1.15) Temperature class 155 (F), used according to 155 (F), with service factor (SF1.15)	FS80 ~ 355
-	N10	180 (H) 度溫度等級絕緣 Temperature class 180 (H)	FS80 ~ 355
-	Q04	繞組附 220 V 防潮加熱器 Anti-condensation heater for 220 VAC (spaces heater)	FS80 ~ 355
<b>馬達接線盒</b> Motor connection box			
1LE0103- □□□□□ - □□□ 4 <sup>2)</sup>	-	接線盒位於頂端 Connection box on top	FS80 ~ 355
		電纜入口位於右側 (從驅動端看) (標準馬達) cable entry on right (view from DE) (Standard version)	FS80 ~ 355
1LE0103- □□□□□ - □□□ 5	-	接線盒位於右邊 (從驅動端看) Connection box on RHS (view from DE)	FS80 ~ 355
1LE0103- □□□□□ - □□□ 6	-	接線盒位於左邊 (從驅動端看) Connection box on LHS (view from DE)	FS80 ~ 355
-	R10 <sup>3)</sup>	接線盒旋轉 90° · 電纜入口位於驅動端 Rotation of the connection box through 90°, entry from DE	FS80 ~ 355
-	R11	接線盒旋轉 90° · 電纜入口位於非驅動端 Rotation of the connection box through 90°, entry from NDE	FS80 ~ 355
-	R12	接線盒旋轉 180° Rotation of the connection box through 180°	FS80 ~ 355
-	H08 <sup>4)</sup>	接線盒位於非驅動端 Connection box on NDE	FS80 ~ 355
-	L97	輔助接線盒 Additional connection box	FS200 ~ 355



## 選購項目 Options

馬達訂購號碼 Motor order code	選購代碼 Option Code <sup>1)</sup>	描述 Description	應用範圍 Application Scope
<b>軸承</b> Bearings			
-	L80 <sup>5)</sup>	SKF 軸承 SKF Bearing	FS80 – 355
-	L22 <sup>6)</sup>	強化懸臂力軸承設計 Bearing design for increased cantilever forces	FS100 – 355
-	L20	驅動端軸承固定 Located bearing at DE	FS80 – 160
-	L23 <sup>7)</sup>	再潤滑裝置 Regreasing device	FS100 – 250
-	Q5A	軸承附 2 個 PT100 測溫元件 Installation of 2PT100 screw-in resistance thermometers for bearing	FS180 – 355
-	L27 <sup>8)</sup>	絕緣軸承 Insulated bearing	FS250 – 355
-	Q01	驅動端預留 SPM 測量接頭 Measuring nipple for SPM shock pulse at DE measurement for bearing inspection	FS100 – 355
<b>平衡</b> Balance and vibration quantity			
-	L00	B 級震動量等級 Vibration quantity level B	FS80 – 355
<b>機械設計和防護等級</b> Mechanical design and degrees of protection			
-	L05 <sup>9) 10)</sup>	第二標準軸伸 Second standard shaft extension	FS80 – 355
-	H00 <sup>11)</sup>	馬達附防護罩 Motor with protective cover	FS80 – 355
-	H03 <sup>12)</sup>	冷凝水排放孔 Condensation drainage holes	FS80 – 355
-	H04	外部接地 External earthing	FS80 – 280
-	H22	IP56 防護等級 (非大浪情況) IP56 degree of protection (non-heavy-sea)	FS80 – 355
<b>模組化技術</b> Modular technology			
-	F70 <sup>13)</sup>	IC 416 冷卻方式 (非自冷) · 馬達附獨立驅動風扇 Mounting of separately driven fan	FS80 – 355
-	F90 <sup>14)</sup>	風扇馬達 (無風扇和風扇罩 · 非驅動端全封閉) Fan motor (Without fan and fan cover, NDE closed)	FS80 – 355
-	F76	金屬風扇 Metal fan	FS80 – 355
-	X05	預留 LL861900220 編碼器安裝位置 Prepared for of LL861900220 encoder	FS112 – 355
-	G04	安裝旋轉脈波編碼器 LL861900200 Mounting of LL861900220 rotary pulse encoder	FS112 – 355
-	X50 <sup>15)</sup>	安裝 Omron 旋轉脈波編碼器 (E6B2-CWZ6C) 和獨立驅動風扇 Mounting of Omron rotary pulse encoder (E6B2-C) and separately driven fan	FS80 – 355
-	W74 <sup>16)</sup>	安裝 Omron 編碼器 (E6B2-CWZ1X) 和獨立驅動風扇 Mounting of Omron encoder (E6B2-CWZ1X) and separated driven fan	FS80 – 355
<b>標示牌和測試憑證</b> Rating plate and test certificates			
-	B02	出廠檢驗報告 Acceptance test certificate 3.1 in accordance with EN 10204	FS80 – 355

馬達訂購號碼 Motor order code	選購代碼 Option Code <sup>1)</sup>	描述 Description	應用範圍 Application Scope
<b>塗裝 Paint nish</b>			
-	S01	不塗裝，僅有底漆 Unpainted, only primed	FS80 ~ 355
-	S80	標準塗裝，顏色為 RAL 7032 Standard nish in RAL 7032	FS80 ~ 355
-	S81	標準塗裝，顏色為 RAL 9006 Standard nish in RAL 9006	FS80 ~ 355
-	W88 <sup>17)</sup>	適用 TH, W, F1, WF1 以及海洋型氣候專用馬達 Design for TH, W, F1, WF1 and Sea air resistant	FS80 ~ 355
<b>環境溫度 Coolant temperature</b>			
-	D03	冷卻溫度 -40 °C ~ +40 °C Coolant temperature -40 °C to + 40 °C	FS80 ~ 355

<sup>1)</sup> 訂貨時，馬達訂購號碼需附上「-Z」，另外請附選購代碼；

<sup>2)</sup> 無需附加費用；

<sup>3)</sup> FS80 ~ 112 馬達只有在接線盒位於非驅動端（選購代碼：H08）時，才可以選此選件；

<sup>4)</sup> 電纜入口方向朝向驅動端；

<sup>5)</sup> 機座尺寸 250 及以上、垂直安裝的馬達選擇此選件時需要特殊詢價；與選件 L22 同時選擇時，需要特殊詢價。

<sup>6)</sup> 對於垂直安裝的 FS250~FS355 馬達，需要特殊諮詢西門子。

<sup>7)</sup> FS280, FS355 的再潤滑排油裝置標準配備；

<sup>8)</sup> 若為水平安裝的馬達，絕緣軸承位於非驅動端。若為垂直安裝的馬達，後端是角接觸軸承時，絕緣軸承會位於驅動端；

<sup>9)</sup> 距有頂蓋或獨立驅動風扇的馬達不能選購此件；

<sup>10)</sup> 非驅動端上的第二軸尺寸與驅動端軸伸不一致；

<sup>11)</sup> 僅適用於 IM V5、IM V1、IMV15 以及 IM V18 安裝結構型式。無法搭配選購代碼 L05；

<sup>12)</sup> 適用於水平安裝馬達；若為垂直安裝馬達，請向西門子諮詢。馬達若需安裝排水孔，需在購買馬達時註明其具體安裝方式；

<sup>13)</sup> 安裝具體風機後，馬達的長度增加  $\Delta L$ 。具體的增加尺寸和技術資料，請參見第 8 頁內容；

<sup>14)</sup> 無風扇和風罩時，馬達的長度減小  $\Delta l$ 。按照標示牌上功率數值輸出時，馬達必須有外部通風冷卻。客戶應當採用正確的冷卻方式，缺少或誤用冷卻方式都會減少馬達的使用壽命，甚至造成損壞；

<sup>15)</sup> SINAMICS 變頻器連結 Omron 編碼器（E6B2-CWZ6C）時，變頻器需要一些特殊配置。詳細訊息請諮詢西門子。

<sup>16)</sup> SINAMICS 變頻器可以直接與 Omron 編碼器（E6B2-CWZ1X）連結。

<sup>17)</sup> 可用於室內或暴露於環境中的室外安裝，也可用於適當濃度 SO<sub>2</sub> 的工業環境中，並可用於海洋型氣候環境中，但不適用於海上。

<sup>1)</sup> Order No. supplement Z with option code when ordering;

<sup>2)</sup> Without additional charge

<sup>3)</sup> For FS80 ~ 112 motor, R10 only in combination with Option code H08 (Connection box on NDE) possible.

<sup>4)</sup> Cable entry on connection box towards the non-drive end.

<sup>5)</sup> On request for FS250 and above motors in vertical mounting; On request for motors configured with option L22.

<sup>6)</sup> For vertical mounting of FS250~FS355 motor, please specially consult with Siemens.

<sup>7)</sup> FS280, FS355 motor with the regrease device as standard.

<sup>8)</sup> For horizontal mounting motor, insulated bearing located at DE; For vertical mounting motor, insulated bearing located at NDE.

<sup>9)</sup> Not possible in combination with canopy or separately driven fan (Order code: F70).

<sup>10)</sup> Second standard shaft extension on NDE has allowed output from the next smaller frame size.

<sup>11)</sup> Only applicable for the construction type IM V5, IM V1, IM V15 and IM V18. Not possible in combination with Option code L05.

<sup>12)</sup> 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.

<sup>13)</sup> When the separately driven fan is mounted, the length of the motor increase by  $\Delta L$ . For an explanation of the additional dimension and technical data see from page 8.

<sup>14)</sup> Without fan and fan cover, the length of the motor is decrease by  $\Delta l$ . 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.

<sup>15)</sup> When SINAMICS inverter is connected with Omron encoder (E6B2-CWZ6C), additional configuration on inverter is needed. For detailed information, please contact with Siemens hotline.

<sup>16)</sup> Omron encoder (E6B2-CWZ1X) can be directly connected with SINAMICS inverter.

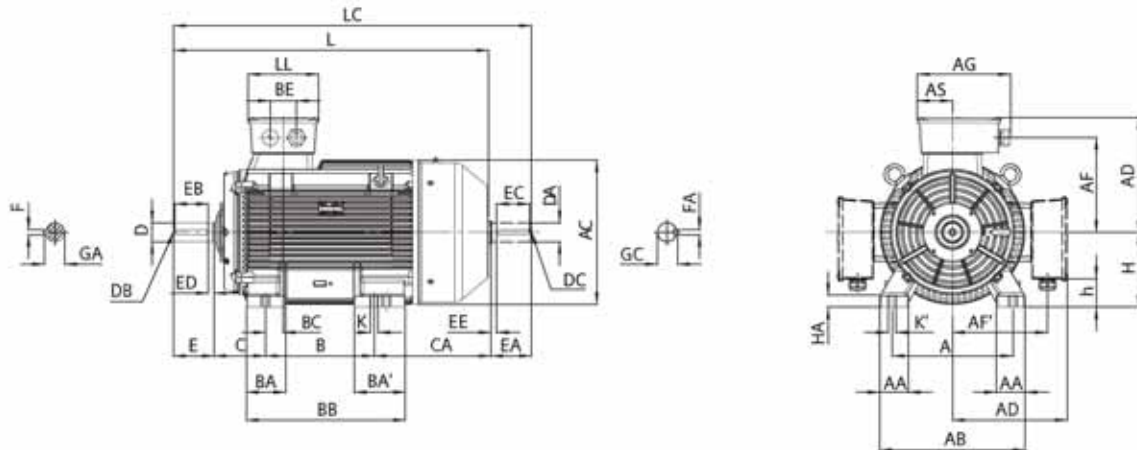
<sup>17)</sup> Recommended for indoor or outdoor installations exposed to direct weather conditions. Industrial environment with moderate SO<sub>2</sub>, inshore maritime climate but not offshore.

# 外型尺寸 Dimension drawings

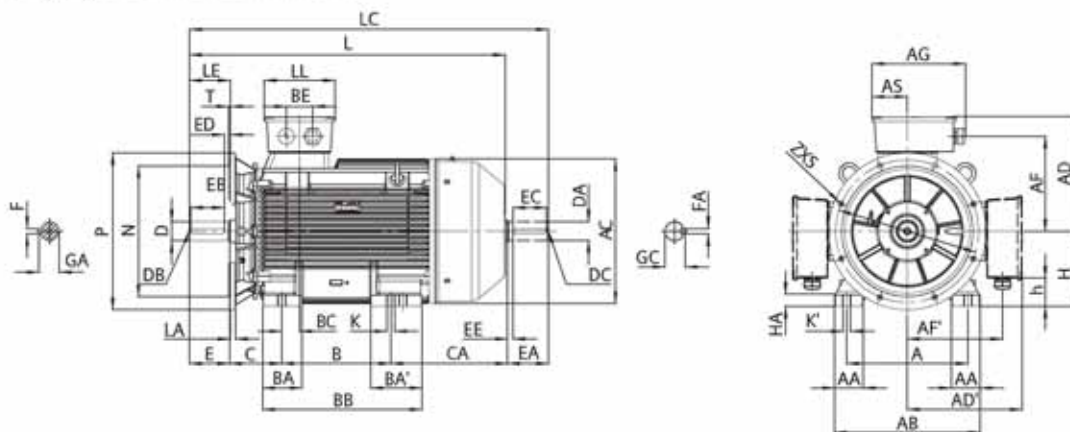
1LE0103 鑄鐵系列馬達 Cast-iron series 1LE0103

機座尺寸範圍 80M~160L Frame sizes 80 M to 160L

IM B3 安裝結構型式 Type of construction IM B3



IM B35 安裝結構型式 Type of construction IM B35



機座尺寸 Frame size	類型 Type 1LE0103-	極數 poles	尺寸符合 IEC 標準 Dimension designation according to IEC standards																
			A	AA	AB	AC <sup>1)</sup>	A D / AD'	A F / AF'	AG	AH	AS	B <sup>2)</sup>	B A / BA'	BB	BC	BE	C	CA <sup>2)</sup>	H
80 M	0D □ 2	2	125	36	160	166	142	110.5	145	-	65.5	100	44	135	26	42	50	143	80
	0D □ 2	4, 6	125	36	160	166	142	110.5	145	-	65.5	100	44	135	26	42	50	143	80
	0D □ 3	2, 4, 6	125	36	160	166	142	110.5	145	-	65.5	100	44	135	26	42	50	143	80
90 S	0E □ 0	2, 4, 6	140	46	175	184	152	120.5	145	-	65.5	100	46	140	20	42	56	165	90
90 L	0E □ 4		140	46	175	184	152	120.5	145	-	65.5	125	46	165	20	42	56	165	90
100 L	1A □ 4	2, 4, 6	160	45	200	205	177	140	163	276	70	140	45	176	30.5	54	63/148 <sup>3)</sup>	203.5	100
	1A □ 5	4	160	45	200	205	177	140	163	276	70	140	45	176	30.5	54	63/148 <sup>3)</sup>	203.5	100
112 M	1B □ 2	2, 4, 6	190	45	226	230	188.5	152	163	304	70	140	50	180	22	54	70	182	112
132 S	1C □ 0	2, 4, 6	216	50	256	268	212	175	163	354	70	140	64	186	32.5	54	89/139 <sup>3)</sup>	213	132
	1 □ 1	2	216	50	256	268	212	175	163	354	70	140	64	186	32.5	54	89/139 <sup>3)</sup>	213	132
132 M	1C □ 2	4, 6	216	50	256	268	212	175	163	354	70	178	64	224	32.5	54	89/146 <sup>3)</sup>	220	132
	1C □ 3	6	216	50	256	268	212	175	163	354	70	178	64	224	32.5	54	89/146 <sup>3)</sup>	220	132
160 M	1D □ 2	2, 4, 6	254	60	314	324	255	206	231	422	94	210	70	258	51	68	108/112 <sup>3)</sup>	193	160
	1D □ 3	2	254	60	314	324	255	206	231	422	94	210	70	258	51	68	108/112 <sup>3)</sup>	193	160
160 L	1D □ 4	2, 4, 6	254	60	314	324	255	206	231	422	94	254	70	302	51	68	108/128 <sup>3)</sup>		

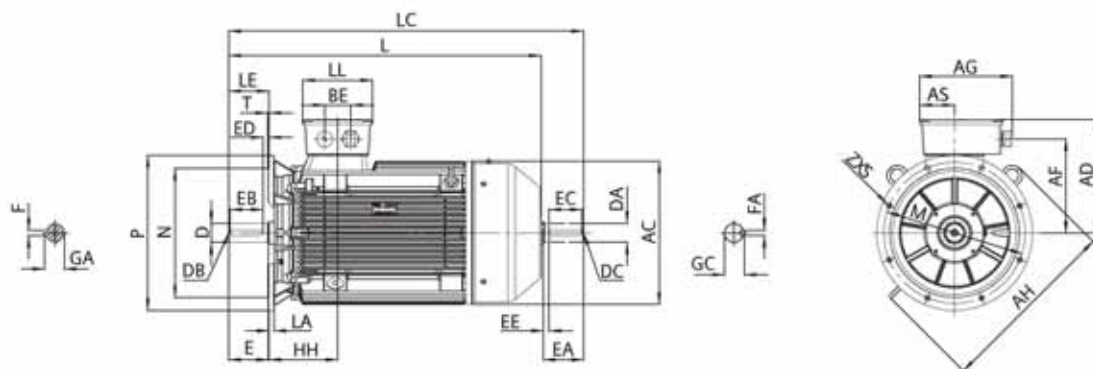
<sup>1)</sup> 包含螺栓頭長度

<sup>2)</sup> 該尺寸為 DIN EN 50347 標準所列機座的對應尺寸

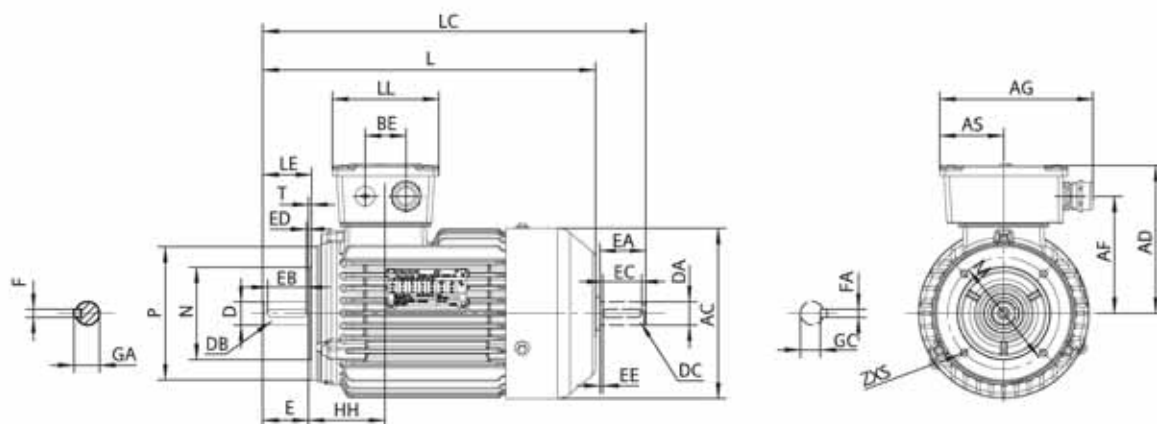
<sup>3)</sup> 僅適用於配置 H08 選件的馬達



IM B5 以及 IM V1 安裝結構型式 Type of construction IM B5 and IM V1



IM B14 安裝結構型式 Type of construction IM B14



							驅動端軸伸直徑 DE shaft extension						非驅動端軸伸 (選購代碼 L05) NDE shaft extension (option code L05)							
h	HA	HH	K / K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
14.5	10	76	10	328	363	109	19	M6	40	32	4	6	21.5	14	M5	30	22	4	5	16
14.5	10	76	10	328	363	109	19	M6	40	32	4	6	21.5	14	M5	30	22	4	5	16
14.5	10	76	10	328	363	109	19	M6	40	32	4	6	21.5	14	M5	30	22	4	5	16
24.5	10	76	10	366	411	109	24	M8	50	40	5	8	27	19	M6	40	32	5	8	21.5
24.5	10	76	10	391	436	109	24	M8	50	40	5	8	27	19	M6	40	32	5	8	21.5
30	12	93.5	12	460	516.5	118	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
30	12	93.5	12	460	516.5	118	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
42	12	92	12	448	504.5	118	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
62	15	121.5	12	515	582	118	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
62	15	121.5	12	515	582	118	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
62	15	121.5	12	560	627	118	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
62	15	121.5	12	560	627	118	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
66	20	159	15	614	701	158	42	M16	110	100	5	12	45	38	M12	80	70	5	10	41
66	20	159	15	614	701	158	42	M16	110	100	5	12	45	38	M12	80	70	5	10	41
66	20	159	15	674	761	158	42	M16	110	100	5	12	45	38	M12	80	70	5	10	41

<sup>1)</sup> Measured across the bolt heads.

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

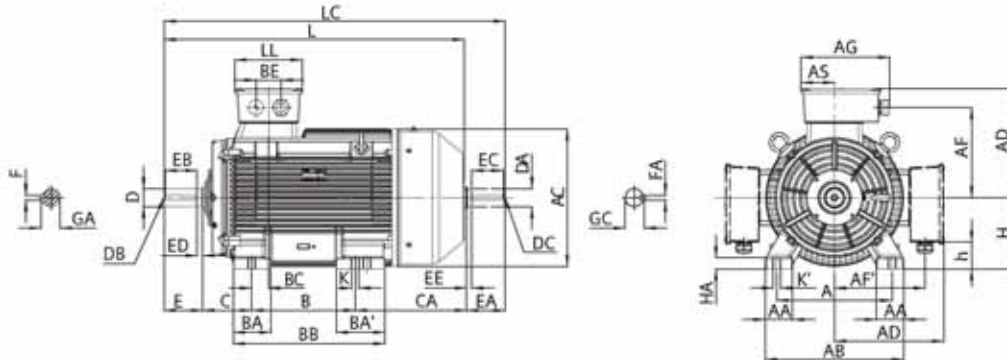
<sup>3)</sup> Only for the motor configured with H08 option

# 外型尺寸 Dimension drawings

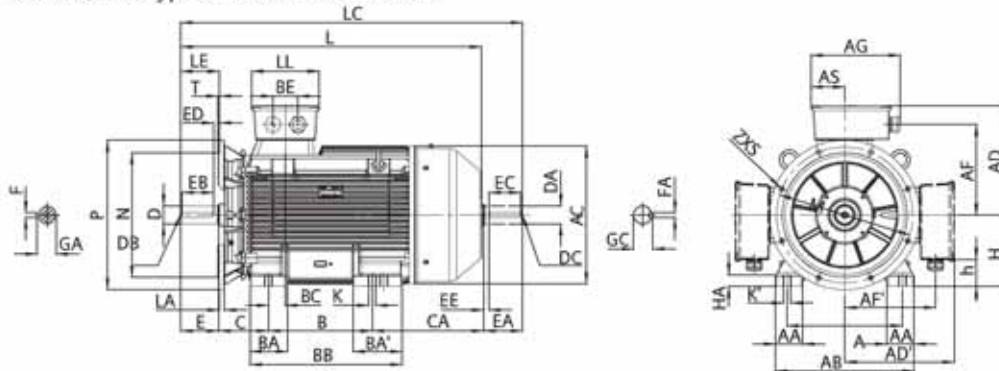
1LE0103 鑄鐵系列馬達 Cast-iron series 1LE0103

機座尺寸範圍 180 M ~ 355L Frame sizes 180 M ~ 355 L

IM B3 安裝結構型式 Type of construction IM B3



IM B35 安裝結構型式 Type of construction IM B35



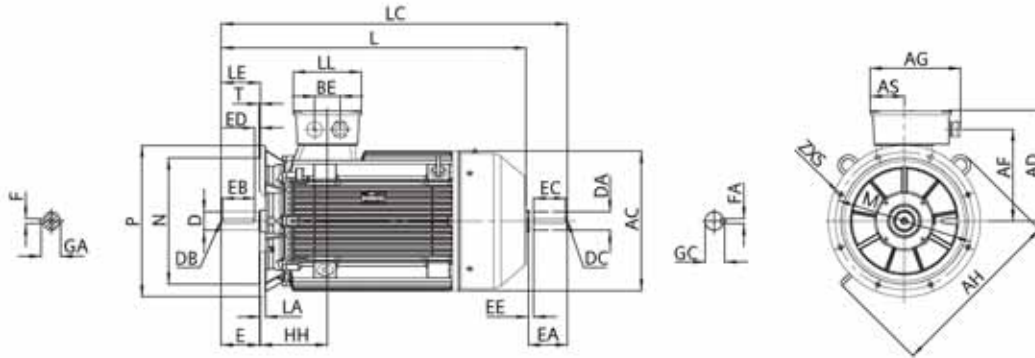
機座尺寸 Frame size	類型 Type 1LE0003-	極數 poles	尺寸符合 IEC 標準 Dimension designation according to IEC standards														
			A	AA	AB	AC <sup>1)</sup>	AD / AD'	AF / AF'	AG	AH	AS	B <sup>2)</sup>	BA / BA'	BB	BC	BE	C
180M	1E □ 2	2,4	279	65	339	368	270	221	231	466	94	241	80	301	37	68	121/150 <sup>2)</sup>
180L	1E □ 4	4,6	279	65	339	368	270	221	231	466	94	279	80	339	37	68	121/152 <sup>2)</sup>
200L	2A □ 4 2A □ 5	2,4,6	318	70	378	409	300	247.5	288	532	107.5	305	80	369	69	85	133/158 <sup>2)</sup>
		2,6	318	70	378	409	300	247.5	288	532	107.5	305	80	369	69	85	133/158 <sup>2)</sup>
225S	2B □ 0	4	356	80	436	457	327	274	288	556	107.5	286	90	348	63	85	149/136 <sup>2)</sup>
225M	2B □ 2	2	356	80	436	457	327	274	288	556	107.5	311	90	373	63	85	149/166 <sup>2)</sup>
		4,6															
250M	2C □ 2	2 4,6	406	90	490	503	373	310.5	342	600	123	349	100	421	92	84	168/208 <sup>2)</sup>
280S	2D □ 0	2 4,6	457	100	540	553	413	350.5	342	652	123	368	115	454	72	84	190/172 <sup>2)</sup>
280M	2D □ 2	2 4,6	457	100	540	553	413	350.5	342	652	123	419	115	505	72	84	190/172 <sup>2)</sup>
315S	3A □ 0	2 4,6	508	120	610	623	482	401	401	734	148	406	140	520	75	110	216/230 <sup>2)</sup>
315M	3A □ 2	2 4,6	508	120	610	623	482	401	401	734	148	457/508	165/215	668	75	110	216/409 <sup>2)</sup>
315L	3A □ 5/3A □ 6 6/3A □ 7	2 4,6	508	120	610	623	482	401	401	734	148	457/508	165/215	668	75	110	216/358 <sup>2)</sup>
		2															
355M	3B □ 2 3B □ 2 3B □ 4	2 4,6	610	120	730	710	646	545	464	920	173.5	560/630	153/207	750	27	130	254/378 <sup>2)</sup>
		2 4,6	610	120	730	710	646	545	464	920	173.5	560/630	153/207	750	27	130	254/378 <sup>2)</sup>
		6, 4,6	610	120	730	710	646	545	464	920	173.5	560/630	153/207	750	27	130	254/378 <sup>2)</sup>
355L	3B □ 5 3B □ 6	2 4,6	610	120	730	710	646	545	464	920	173.5	560/630	153/207	750	27	130	254/308 <sup>2)</sup>
		2 4,6	610	120	730	710	646	545	464	920	173.5	560/630	153/207	750	27	130	254/308 <sup>2)</sup>

<sup>1)</sup> 包含螺栓頭長度

<sup>2)</sup> 該尺寸為 DIN EN 50347 標準所列機座的對應尺寸

<sup>3)</sup> 僅適用於配置 H08 選件的馬達

IM B5 以及 IM V1 安裝結構型式 Type of construction IM B5 and IM V1



CA <sup>2)</sup>	H	h	HA	HH	K / K'	L	LC	LL	D	驅動端軸伸直徑 DE shaft extension					非驅動端軸伸 (選件號為L05) NDE shaft extension (option code L05)							
										E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC	
254	180	86	20	158	15	718	836	158	48	M16	110	100	5	14	51.5	42	M16	110	90	10	12	45
256	180	86	20	158	15	758	876	158	48	M16	110	100	5	14	51.5	42	M16	110	90	10	12	45
269	200	64.5	25	202	19	807	927	215	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
269	200	64.5	25	202	19	807	927	215	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
280	225	89.5	34	212	19	845	965	215	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
260	225	89.5	34	212	19	820	940	215	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
285						875	995		60		140	125	10	18	64	55	M20	110	100	5	16	59
320	250	81	40	260	24	965	1087	246	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
							1117		65					69	60	M20	140	125	10	18	64	
303	280	111	40	262	24	991	1141	246	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
303									75					20	79.5	65	M20	140	125	10	18	69
303	280	111	40	262	24	1042	1192	246	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
									75					20	79.5	65	M20	140	125	10	18	69
413	315	111	50	291	28	1163	1315	296	65	M20	140	125	10	18	69	65	M20	140	125	10	18	69
613							1193	1545	80		170	140	25	22	85	75	M20	140	125	10	20	79.5
392/341	315	111	50	291	28	1393	1345	296	65	M20	140	125	10	18	69	65	M20	140	125	10	18	69
592/541							1423	1575	80		170	140	25	22	85	75	M20	140	125	10	20	79.5
392/341	315	111	50	291	28	1393	1345	296	65	M20	140	125	10	18	69	65	M20	140	125	10	18	69
592/541							1423	1575	80		170	140	25	22	85	75	M20	140	125	10	20	79.5
548/478	355	132	53	281	28	1490	1642	397	75	M20	140	125	10	20	79.5	65	M20	140	125	10	18	69
							1520	1702	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
548/478	355	132	53	281	28	1490	1642	397	75	M20	140	125	10	20	79.5	65	M20	140	125	10	18	69
							1520	1702	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
548/478	355	132	53	281	28	1520	1702		95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
548/478	355	132	53	281	28	1490	1642	397	75	M20	140	125	10	20	79.5	65	M20	140	125	10	18	69
							1520	1702	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
548/478	355	132	53	281	28	1490	1642	397	75	M20	140	125	10	20	79.5	65	M20	140	125	10	18	69
							1520	1702	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85
548/478	355	132	53	281	28	1490	1642	397	75	M20	140	125	10	20	79.5	65	M20	140	125	10	18	69
							1520	1702	95	M24	170	140	25	25	100	80	M20	170	140	25	22	85

<sup>1)</sup> Measured across the bolt heads.

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

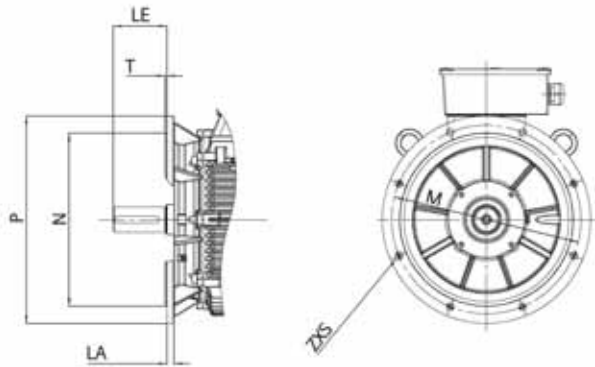
<sup>3)</sup> Only for the motor configured with H08 option



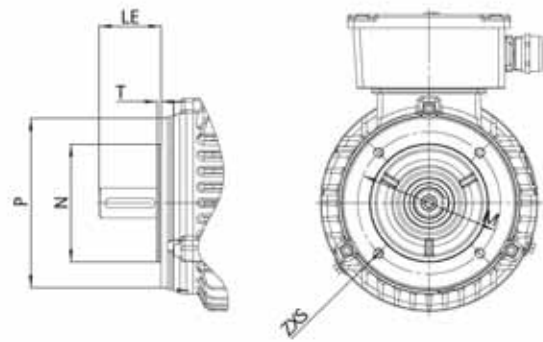
# 外型尺寸 Dimension drawings

## 凸緣尺寸 Flange dimension

IM B5、IM B35、IM V1、IM V3 安裝結構型式  
Type of construction IM B5, IM B35, IM V1, IM V3



IM B14、IM V18、IM V19 安裝結構型式  
Type of construction IM B14, IM V18, IM V19



機座尺寸 Frame size	安裝型式 Type of construction	凸緣附通孔 (FF/A)/ 附內螺紋孔 (FT/C) Flange with Through holes(FF/A) Tapped holes(FT/C)	尺寸符合 IEC 標準 Dimension designation according to IEC standards							
		按照 DIN EN 50347 標準 According to DIN EN 50 347	LA	LE	M	N	P	S	T	Z
80	IM B5, IM B35, IM V1, IM V3 IM B14, IM V18, IM V19	FF 165	10	40	165	130	200	12	3.5	4
		FT 100	-	40	100	80	120	M 6	3	4
90	IM B5, IM B35, IM V1, IM V3 IM B14, IM V18, IM V19	FF 165	10	50	165	130	200	12	3.5	4
		FT 115	-	50	115	95	140	M 8	3	4
100	IM B5, IM B35, IM V1, IM V3 IM B14, IM V18, IM V19	FF 215	11	60	215	180	250	14.5	4	4
		FT 130	-	60	130	110	160	M 8	3.5	4
112	IM B5, IM B35, IM V1, IM V3 IM B14, IM V18, IM V19	FF 215	11	60	215	180	250	14.5	4	4
		FT 130	-	60	130	110	160	M 8	3.5	4
132	IM B5, IM B35, IM V1, IM V3 IM B14, IM V18, IM V19	FF 265	14	80	265	230	300	14.5	4	4
		FT 165	-	80	165	130	200	M 10	3.5	4
160	IM B5, IM B35, IM V1, IM V3 IM B14, IM V18, IM V19	FF 300	14	110	300	250	350	18.5	5	4
		FT 215	-	110	215	180	250	M 12	4	4
180	IM B5, IM B35, IM V1, IM V3	FF 300	16	110	300	250	350	18.5	5	4
200	IM B5, IM B35, IM V1, IM V3	FF 350	16	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	22	140/170	740	680	800	24	6	8

# 認證 Certificates



# 認證 Certificates







本型錄中為產品的一般說明和特性介紹，可能會與實際應用情況有所出入，並可能隨產品後續開發而有變化。西門子僅在相關合約條款明確規定時，方有責任提供文中所述的產品特性。

本型錄提及之所有名稱，可能為西門子公司或其供應商的商標或產品名稱。若第三方擅自使用，可能會侵犯所有者的權利。

內容如有變更，恕不另行通知

文件編號：E20001-K0369-C600-V2-7U00

西門子股份有限公司

製程工業暨驅動科技事業部

台北總公司：台北市南港區圖圖街3號8樓

台中分公司：台中市西屯區工業區三十四路40-2號

高雄分公司：高雄市前鎮區新街路288號6樓

客服專線：0800-202-808

Email Box：adscs.taiwan@siemens.com

Website：www.siemens.com.tw/DFPD