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經銷商



齒輪減速機選型手冊

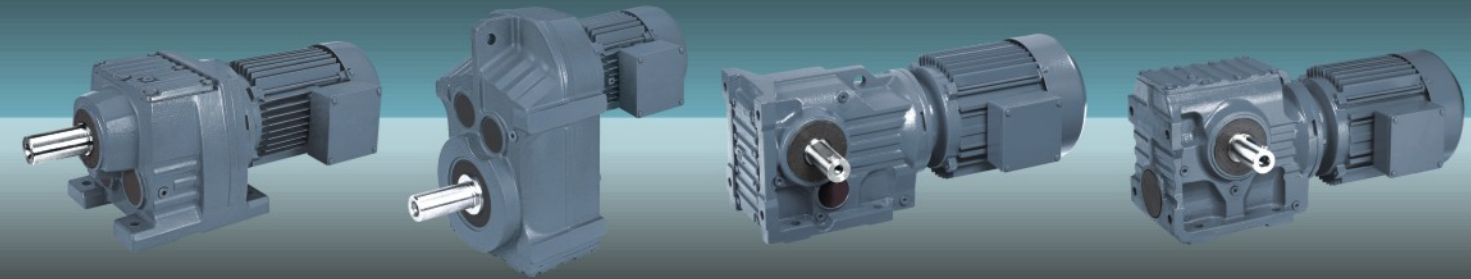
臺灣瑞思科傳動科技有限公司



# 齒輪減速電機 GEAR MOTOR

- RCR系列斜齒輪減速電機
- RCF系列平行軸-斜齒輪減速電機
- RCK系列斜齒輪-傘齒輪減速電機
- RCS系列斜齒輪-蝸輪蝸杆減速電機

- RCR Helical Geared Motor
- RCF Parallel Shaft-Helical Geared Motor
- RCK Helical-Bevel Geared Motor
- RCS Helical-Worm Geared Motor

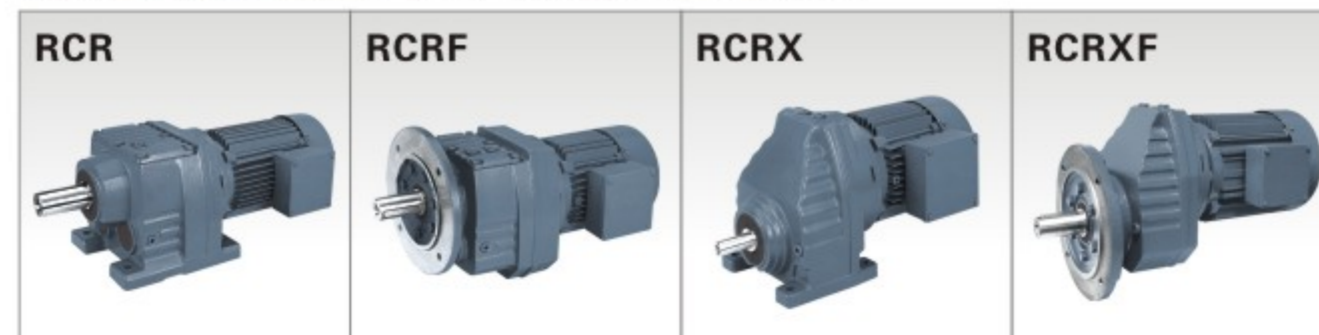


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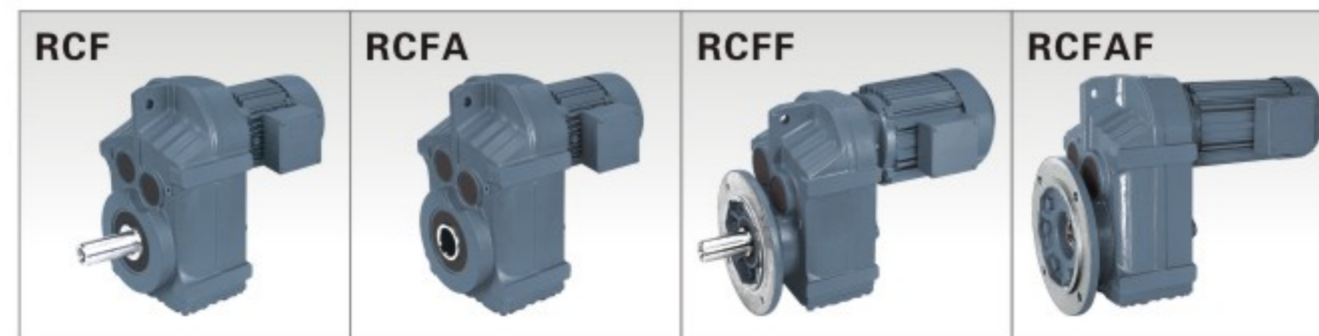
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## 1. 產品圖片 Product Pictures

RCR 斜齒輪減速電機 RCR Helical Geared Motor



RCF 平行軸-斜齒輪減速電機 RCF Parallel Shaft-Helical Geared Motor



RCK 斜齒輪-傘齒輪減速電機 RCK Helical-Bevel Geared Motor



RCS 斜齒輪-蝸輪蝸杆減速電機 RCS Helical-Worm Geared Motor



## 2. 產品說明 Product Introduction

瑞思科四大系列硬齒面齒輪減速電機是具有國際先進水平的著名品牌產品，包括RCR系列斜齒輪減速電機、RCF系列平行軸-斜齒輪減速電機、RCK系列斜齒輪-傘齒輪減速電機、RCS系列斜齒輪-蝸輪蝸杆減速電機。

瑞思科四大系列產品遵循模塊化、最優化設計理念，運用有限元分析技術，採用獨特的低噪音齒輪齒形設計，確保設計的先進性；傳動比分級精細，具備數百萬種不同的組合，可滿足用戶各種不同需求；從選料到制造單元加工，實現產品的高精度、免維護。

我公司還備有雙聯型減速電機（輸入端加裝一個斜齒輪減速器）、鎖緊盤、花鍵空心軸、B14法蘭等多種組合方式供客戶選擇，詳情請向我公司諮詢。

RISC series Geared Motor is the famous brand in drive field with international advanced level, including RCR series Helical Geared Motor, RCF series Parallel Shaft-Helical Geared Motor, RCK series Helical-Bevel Geared Motor, RCS series Helical-Worm Geared Motor.

RISC series products follow motor the philosophy of modularization and optimization, adopt finite element analysis method and unique lower noise technology in designing gear, to insure advanced design. The classification of ratio is so accurate that.

Our corporation also provides other product options such as combined geared motor, shrink disk, spline hollow shaft, B14 flange, please consult our company for further information.

## 3. 型號說明 Model Notes

### 3.1 減速電機符號說明

### 3.1 Reducer Model Introduction

<b>RCR</b>	<b>F</b>	<b>67</b>	<b>II</b>	<b>D</b>	<b>80</b>	<b>N</b>	<b>4</b>	/	<b>BMG</b>	<b>HF</b>	<b>TF</b>	<b>128.97</b>	<b>M1</b>	<b>180°</b>
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
<b>1 產品代碼</b> RCR--斜齒輪減速電機 RCF--平行軸-斜齒輪減速電機 RCK--斜齒輪-傘齒輪減速電機 RCS--斜齒輪-蝸輪蝸杆減速電機	<b>2 裝配型式</b> 無代碼--底腳安裝 F--法蘭安裝 ..F--底腳法蘭安裝 M--法蘭安裝帶加長軸承箱 X--底腳安裝單級傳動 XF--法蘭安裝單級傳動	<b>3 減速機規格號</b> 67--減速機規格號為67	<b>4 法蘭盤大小</b> 無代碼--無法蘭，或只有一種法蘭，或一種以上法蘭中的最小法蘭 II--兩種法蘭中的最大法蘭，三種法蘭中的中法蘭 III--三種法蘭中的最大法蘭	<b>5 電動機</b> D--三相异步電動機 (IP54)	<b>6 電動機規格號</b> 80--電機中心高為80mm	<b>7 電動機定子鐵芯長度代號</b> D、K、N、S、M、ML、L	<b>8 電動機極數</b> 4--電動機極數為4	<b>9 制動器</b> 無代碼--無制動器 BMG--制動器	<b>10 手動釋放裝置</b> 無代碼--無手動釋放裝置 HF--手動釋放裝置帶自鎖功能 HR--手動釋放裝置不帶自鎖功能	<b>11 電機熱保護</b> 無代碼--無電機熱保護裝置 TF--電機熱保護裝置	<b>12 減速機傳動比</b> 128.97--減速機傳動比為128.97	<b>13 安裝位置</b> M1--安裝型式圖中M1位置	<b>14 接線盒位置</b> 無代碼--安裝型式圖中0°位置 180°--安裝型式圖中180°位置	

<b>RCS</b>	<b>A</b>	<b>67</b>	/	<b>T</b>	<b>D</b>	<b>80</b>	<b>N</b>	<b>4</b>	/	<b>BMG</b>	/	<b>HF</b>	/	<b>TF</b>	/	<b>106.75</b>	/	<b>d45</b>	/	<b>B</b>	/	<b>M1</b>	/	<b>180°</b>
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16									
<b>1 產品代碼</b> RCF--平行軸-斜齒輪減速電機 RCK--斜齒輪-傘齒輪減速電機 RCS--斜齒輪-蝸輪蝸杆減速電機	<b>2 裝配型式</b> 無代碼--底腳安裝 F--法蘭安裝 A--空心軸安裝 AF--法蘭空心軸安裝	<b>3 減速機規格號</b> 67--減速機規格號為67	<b>4 扭矩臂</b> 無代碼--無扭矩臂 T--扭矩臂 (適用於K、S) G--扭矩臂 (適用於F)	<b>5 電動機</b> D--三相异步電動機 (IP54)	<b>6 電動機規格號</b> 80--電機中心高為80mm	<b>7 電動機定子鐵芯長度代號</b> D、K、N、S、M、ML、L	<b>8 電動機極數</b> 4--電動機極數為4	<b>9 制動器</b> 無代碼--無制動器 BMG--制動器	<b>10 手動釋放裝置</b> 無代碼--無手動釋放裝置 HF--手動釋放裝置帶自鎖功能 HR--手動釋放裝置不帶自鎖功能	<b>11 電機熱保護</b> 無代碼--無電機熱保護裝置 TF--電機熱保護裝置	<b>12 減速機傳動比</b> 106.75--減速機傳動比為106.75	<b>13 空心軸孔徑</b> 無代碼--標準型 d45--空心軸孔徑為45H7 (尺寸表中兩種孔徑選擇一種)	<b>14 軸指向</b> 無代碼--標準型 A--軸指向為A B--軸指向為B AB--雙輸出	<b>15 安裝位置</b> M1--安裝型式圖中M1位置	<b>16 接線盒位置</b> 無代碼--安裝型式圖中0°位置 180°--安裝型式圖中180°位置									

### 3.2 減速電機和減速制動電機供貨型號 3.2 Type of gear motor and gear motor with brake

RCR、RCF、RCK、RCS  
減速電機 Gear motor

下表列出了可提供的斜齒輪(RCR)、平行軸(RCF)、斜齒輪-傘齒輪(RCK)和斜齒輪-蝸輪蝸杆(RCS)減速電機型號。

There are the types of Helical(RCR), Parallel shaft-Helical(RCF), Helical-Bevel(RCK) and helical-Worm (RCS) geared motors. we supplied in the table.

型號 Model	減速電機			
	斜齒輪 (R) Helical	平行軸 (F) Parallel shaft	斜齒輪-傘齒輪 (K) Helical bevel	斜齒輪-蝸輪蝸杆 (S) Helical worm
底腳安裝 Foot mounted	•	•	•	•
B5法蘭安裝 B5 flange mounted	•	•	•	•
底腳/B5法蘭安裝 Foot/B5 flange mounted	• 2)	•	• 3)	-
帶鍵空心軸安裝 Hollow shaft mounted	-	•	• 1)	• 1)
帶鎖緊盤空心軸安裝 Hollow shaft with shrink disk	-	•	• 1)	• 1)
帶花鍵空心軸安裝 Splined hollow shaft mounted	-	•	• 1)	-
帶鎖緊盤空心軸安裝+底腳安裝 Hollow shaft with shrink disk+foot mounted	-	•	•	-
帶鍵空心軸安裝+底腳安裝 Hollow shaft with Key+foot mounted	-	•	•	-
帶花鍵空心軸安裝+底腳安裝 Splined hollow shaft mounted+foot mouted	-	•	•	-
帶鍵空心軸安裝+B5法蘭安裝 Hollow shaft with Key+B5 flange mounted	-	•	•	•
帶鎖緊盤空心軸安裝+B5法蘭安裝 Hollow shaft with shrink disk+B5 flange mounted	-	•	•	•
帶花鍵空心軸安裝+B5法蘭安裝 Splined hollow shaft mounted+B5 flange mounted	-	•	•	-
帶鍵空心軸安裝+B14法蘭安裝 Hollow shaft with Key+B14 flange mounted	-	•	•	•
帶鎖緊盤空心軸安裝+B14法蘭安裝 Hollow shaft with shrink disk+B14 flange mounted	-	•	•	•
帶花鍵空心軸安裝+B14法蘭安裝 Splined hollow shaft mounted+B14 flange mounted	-	•	•	-

- 適用於標準型號
- 不可用
- 1) 也可帶力矩臂
- 2) 僅用於RCR17-RCR87
- 3) 僅用於RCK127-RCK157
- The normal type
- Can't use
- 1) You can use torque arm
- 2) Only used for RCR12-RCR87
- 3) Only used for RCK127-RCK157

#### 多級減速電機 Multi-stage geared motor

通過多級減速器或多減速電機，可獲得特別低的輸出轉速。就是在輸入端安裝一個斜齒輪減速機或減速電機作為第二級齒輪箱。此時，要注意根據減速機最大許用的輸出扭矩，限制電機功率。

You can achieve the particularly low output speed by using multi-stage geared motor. The method is mounting a helical gear unit as a second gear units on the input end. Notice that restrict the motor power according the maximum permitted output torque.

#### 攪拌專用減速電機 RCRM geared motor

RCRM減速電機作為斜齒輪減速電機的特殊規格，它帶有一個加長的軸承箱，專為攪拌應用場合設計的，它應用于承受大的徑向力和軸向力甚至彎矩的場合，其它數據和斜齒輪減速電機相一致。

RCRM geared motors are a special type of helical geared motor with an expanded output bearing hub. They are specially designed for agitating applications and can be used in applications subject to high overhung and axial loads as well as flexural torque. The remaining data correspond with to the standard helical geared motors.

#### 制動電機 Brake motors

根據需要可把機械制動與電機及減速電機合成一體提供。制動器是由帶直流繞圈的電磁盤式制動器，通過電磁力打開，彈簧力制動。它的制動原理意味着斷電制動。滿足了基本安全需要。制動器如果安裝手動釋放，可實現機械式釋放。手動釋放有手柄或平頭螺絲兩種形式，手柄可自動彈回，平頭螺絲可鎖在釋放位置。制動器通過裝在電機接線盒或電氣櫃的制動控制系統來驅動。

On request, Motors and geared motors can be supplied with an integrated mechanical brake. The brake is an electromagnetic disk brake with a DC coil which is released electrically and braked using spring force. The design principle means the brake is applied if the power fails. This means it complies with fundamental safety requirements. The brake can also be released mechanically if fitted with manual brake release. For this purpose, either a hand lever or a setscrew is supplied with the brake. The hand lever springs back automatically and the setscrew can be locked. The brake is activated by a brake control system which is in the wiring switch cabinet.

### 3.3 減速器及附件的名稱 3.3 Unit designations for gear units and options

#### 斜齒輪減速器 Helical gear units

RCR..	底腳安裝 Foot-mounted
RCRF..	法蘭安裝 Flange-mounted
RCR..F	底腳-法蘭安裝 Foot and flange-mounted
RCRM..	帶加長軸承箱，法蘭安裝 Flange-mounted with the extended bearing housing
RCRX..	單級底腳安裝 Single-stage flange-mounted
RCRXF..	單級法蘭安裝 Single-stage foot-mounted

#### 平行軸減速器 Parallel shaft helical gear units

RCF..	底腳安裝 Foot mounted
RCFA..B	底腳安裝，空心軸 Flange mounted with hollow shaft
RCFH..B	底腳安裝，帶鎖緊盤空心軸 Foot mounted with hollow shaft and shrink disk
RCFV..B	底腳安裝，帶花鍵空心軸 Foot mounted with hollow shaft and splined hollow shaft
RCFF..	B5法蘭安裝 B5 flange mounted
RCFAF..	B5法蘭安裝，空心軸 B5 flange mounted with hollow shaft
RCFHF..	B5法蘭安裝，帶鎖緊盤空心軸 B5 flange mounted with hollow shaft and shrink disk
RCFVF..	B5法蘭安裝，帶花鍵空心軸 B5 flange mounted with splined hollow shaft disk
RCFA..	空心軸安裝 Hollow shaft mounted
RCFH..	帶鎖緊盤空心軸安裝 Hollow shaft with shrink disk

RCFV..	帶花鍵空心軸安裝 Splined hollow shaft mounted
RCFAZ..	B14法蘭安裝, 空心軸 B14 flange mounted with hollow shaft
RCFHZ..	B14法蘭安裝, 帶鎖緊盤空心軸 B14 flange mounted with hollow shaft disk
RCFVZ..	B14法蘭安裝, 帶花鍵空心軸 B14 flange mounted with splined hollow shaft

**斜齒輪-傘齒輪減速器**  
**Helical-Bevel gear units**

RCK..	底腳安裝 Foot mounted
RCKA..B	底腳安裝, 空心軸 Foot mounted with hollow shaft
RCKH..B	底腳安裝, 帶鎖緊盤空心軸 Foot mounted with hollow shaft and shrink disk
RCKV..B	底腳安裝, 帶花鍵空心軸 Foot mounted with hollow shaft and splined hollow shaft
RCKF..	B5法蘭安裝 B5 flange mounted
RCKAF..	B5法蘭安裝, 空心軸 B5 flange mounted with hollow shaft
RCKHF..	B5法蘭安裝, 帶鎖緊盤空心軸 B5 flange mounted with hollow shaft and shrink disk
RCKVF..	B5法蘭安裝, 帶花鍵空心軸 B5 flange mounted with spined hollow shaft disk
RCKA..	空心軸安裝 Hollow shaft mounted
RCKH..	帶鎖緊盤空心軸安裝 Hollow shaft with shrink disk
RCKV..	帶花鍵空心軸安裝 Splined hollow shaft mounted
RCKAZ..	B14法蘭安裝, 空心軸 B14 flange mounted with hollow shaft
RCKHZ..	B14法蘭安裝, 帶鎖緊盤空心軸 B14 flange mounted with hollow shaft disk
RCKVZ..	B14法蘭安裝, 帶花鍵空心軸 B14 flange mounted with spined hollow shaft

**斜齒輪-蝸輪蝸杆減速器**  
**Helical-Worm gear units**

RCS..	底腳安裝 Foot mounted
RCSF..	B5法蘭安裝 B5 flange mounted
RCSAF..	B5法蘭安裝, 空心軸 B5 flange mounted with hollow shaft
RCSHF..	B5法蘭安裝, 帶鎖緊盤空心軸 B5 flange mounted with hollow shaft and shrink disk
RCSA..	空心軸安裝 Hollow shaft mounted
RCSH..	帶鎖緊盤空心軸安裝 Hollow shaft with shrink disk
RCSAZ..	B14法蘭安裝, 空心軸 B14 flange mounted with hollow shaft
RCSHZ..	B14法蘭安裝, 帶鎖緊盤空心軸 B14 flange mounted with hollow shaft disk

**3.4 交流電機及附件名稱**
**3.4 The name of AC motors and its accessories**
**雙速交流電機型號**
**Pole-Changing AC motors with soft start**

SD...	雙速電機底腳安裝 Pole-changing foot mounted
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**電機選型**  
**Motor options**

BMG	制動器 Brake
../HF	手動釋放 (鎖在制動釋放位置) ..with lock manual brake release
../HR	手動釋放 (自動返回制動位置) ..with automatic manual brake disengaging
/RE	逆止器 Backstop
/TF	熱敏電阻保護裝置 (PTC熱敏電阻) Thermistor sensor(PTC resistance)
/TH	恆溫器保護裝置 (雙金屬片開關) Thermostat (bimetallic switch)
/U	機身冷卻 (無通風) Non-ventilated
/V	強制冷風扇3 × 380-415V <sub>AC</sub> , 50HZ Forced cooling fan.3 × 380-415V <sub>AC</sub> , 50HZ
/VS	強制冷風扇1 × 220-266V <sub>AC</sub> , 50HZ Forced cooling fan.1 × 220-266V <sub>AC</sub> , 50HZ
/VR	強制冷風扇1 × 24V <sub>DC</sub> Forced cooling fan.1 × 24 <sub>DC</sub>
/Z	高慣量飛輪風扇 Additional flywheel mass
/C	風扇保護罩 Protection cowl for the fan guard
-SRD	輓道電機 Roller motor

**編碼器附件**
**Encoder on AC motor options**

/AV1Y	絕對值編碼器, MSI和sin/cos信號, 24V <sub>DC</sub> 電源 Absolute encoder with solid shaft. MSI and sin/cos signals and 24V <sub>DC</sub> supply
/ES..T	擴展軸編碼器, TTL (RS-422) 信號, 5V <sub>DC</sub> 電源 Encoder with spread shaft. TTL(RS-422)Signals and 5V <sub>DC</sub> supply
/ES..S	擴展軸編碼器, sin/cos信號, 24V <sub>DC</sub> 電源 Encoder with spread shaft. Sin/cos signals and 24V <sub>DC</sub> supply
/ES..R	擴展軸編碼器, TTL (RS-422) 信號, 24V <sub>DC</sub> 電源 Encoder with spread shaft, TTL(RS-422)signals and 24 <sub>DC</sub> supply
/ES..C	擴展軸編碼器, HTL Encoder with spread shaft, HTL
/EV1T	實心軸編碼器, TTL (RS-422) 信號, 5V <sub>DC</sub> 電源 Encoder with spread shaft. TTL(RS-422)signals and 5V <sub>DC</sub> supply
/EV1S	實心軸編碼器, sin/cos信號, 24V <sub>DC</sub> 電源 Encoder with spread shaft. signals and 24V <sub>DC</sub> supply
/EV1R	實心軸編碼器, TTL (RS-422) 信號, 24V <sub>DC</sub> 電源 Encoder with spread shaft. TTL(RS-422)signals and 24V <sub>DC</sub> supply
/EV1C	實心軸編碼器, HTL Encoder with spread shaft, HTL
/NV1..	接近開關, 帶A通道, 24V <sub>DC</sub> 電源 Proximity sensor with A track and 24V <sub>DC</sub> supply
/NV2..	接近開關, 帶A、B通道, 24V <sub>DC</sub> 電源 Proximity sensor with A/B track and 24V <sub>DC</sub> supply

## 4. 減速器選型

### 4.1 傳動裝置選型數據

準確地確定所需傳動裝置，下表所列的數據是必需的：

傳動裝置選型數據		
<b>n<sub>amin</sub></b>	最小輸出轉速	[rpm]
<b>n<sub>amax</sub></b>	最大輸出轉速	[rpm]
<b>P<sub>a</sub> at n<sub>amin</sub></b>	最低輸出轉速下的輸出功率	[kW]
<b>p<sub>a</sub> at n<sub>amax</sub></b>	最高輸出轉速下的輸出功率	[kW]
<b>M<sub>a</sub> at n<sub>amin</sub></b>	最低輸出轉速下的輸出扭矩	[Nm]
<b>M<sub>a</sub> at n<sub>amax</sub></b>	最高輸出轉速下的輸出扭矩	[Nm]
<b>F<sub>R</sub></b>	輸出軸徑向力。假設載荷作用在軸伸的中點，如果不一致，請確定徑向力準確的作用點、作用角度和軸的旋轉方向以便進行校核計算。	[N]
<b>F<sub>A</sub></b>	輸出軸軸向負載（拉力和壓力）	[N]
<b>J<sub>load</sub></b>	被驅動件的轉動慣量	[10 <sup>-4</sup> kgm <sup>2</sup> ]
<b>RCR/F/K/S M1-M6</b>	所需減速機類型和安裝位置	-
<b>IP..</b>	外殼防護等級	-
<b>θ<sub>env</sub></b>	環境溫度	[°C]
<b>H</b>	海拔高度	[M above sea level]
<b>S<sub>...%</sub>Cdf</b>	工作制和負載持續率cdf;也可給出精確的負載周期圖	-
<b>Z</b>	啓停頻率; 也可給出精確的負載周期圖	[No.per h]
<b>f<sub>mains</sub></b>	電源頻率	[Hz]
<b>V<sub>mot</sub> V<sub>brake</sub></b>	電機工作電壓和制動器電壓	[V]
<b>M<sub>B</sub></b>	所需制動力矩	[Nm]
對於變頻器運行：控制模式和設置範圍		

## 4. Selection of gear reducer

### 4.1 Drive selection data

Certain data are essential to specify the components for your drive. These are.

Drive selection data		
<b>n<sub>amin</sub></b>	Minimum output speed	[rpm]
<b>n<sub>amax</sub></b>	Maximum output speed	[rpm]
<b>P<sub>a</sub> at n<sub>amin</sub></b>	Output power at minimum output speed	[kW]
<b>p<sub>a</sub> at n<sub>amax</sub></b>	Output power at maximum output speed	[kW]
<b>M<sub>a</sub> at n<sub>amin</sub></b>	Output torque at minimum output speed	[Nm]
<b>M<sub>a</sub> at n<sub>amax</sub></b>	Output torque at maximum output speed	[Nm]
<b>F<sub>R</sub></b>	Overhung load on output shaft. Assumes force application is in the center of shaft end. If not, please specify the exact application point indicating the application angle and direction of rotation of the shaft for a check calculation	[N]
<b>F<sub>A</sub></b>	Axial load (tension and compression) on output shaft	[N]
<b>J<sub>load</sub></b>	Mass moment of inertia to be driven	[10 <sup>-4</sup> kgm <sup>2</sup> ]
<b>RCR/F/K/S M1-M6</b>	Required gear unit type and mounting position (→sec. Mounting positions, churning losses)	-
<b>IP..</b>	Required protect rank	-
<b>θ<sub>env</sub></b>	Ambient temperature	[°C]
<b>H</b>	Altitude	[M above sea level]
<b>S<sub>...%</sub>Cdf</b>	Operating mode and intermittency factor cdf; alternatively, exact load cycle can be specified.	-
<b>Z</b>	Starting frequency; alternatively, exact load cycle can be specified	[No.per h]
<b>f<sub>mains</sub></b>	Supply frequency	[Hz]
<b>V<sub>mot</sub> V<sub>brake</sub></b>	Operating voltage of motor and brake	[V]
<b>M<sub>B</sub></b>	Required braking torque	[Nm]
<b>For inverter operation: Required control mode and setting range</b>		

## 4.2 選型流程圖

### 4.2 Project planning sequence

例 Example 帶有位置要求驅動方案的流程示意圖，所涉及的減速電機由變頻器控制  
The following flowchart displays a schematic view of the procedure for planning a project incorporating a positioning drive. The drive comprises a gear motor which is powered by and inverter



圖：選型應用流程圖 Figure:Project planning process

## 4.3 減速機的效率

### 4.3 Efficiency of gear units

減速機的效率主要由齒輪嚙合和軸承摩擦損失所決定的。減速機運行初期的效率總是比正常運行時要低，尤其是斜齒輪蝸輪蝸杆和螺旋平面減速機更為明顯。

The efficiency of the gear units is mainly determined by the gearing, mesh and bearing friction. Please note that the starting efficiency of a gear unit is always less than its efficiency at operating speed. This fact is especially obvious in helical-worm and right-angle geared motors.

#### RCR.RCF.RCK減速機 RCR.RCF.RCK gear units

斜齒輪、平行軸、斜齒輪-錐齒輪減速機的效率是根據減速級數確定，在94%(3級)~98%(1級)之間。

The efficiency of helical, parallel shaft and helical-bevel gear units varies according to the unumber of gear stages, between 94%(3-stage)and 98%(1-stage).

#### RCS減速機 RCS gear units

斜齒輪蝸杆減速機由于產生高損失的滑動摩擦，所以它們比RCR、RCF、RCK減速機損失大、效率低，主要是由以下因素決定：  
·斜齒輪蝸杆級的傳動比  
·輸入轉速  
·齒輪箱溫度  
RISC設計的斜齒輪蝸杆減速機比單級的蝸輪蝸杆減速機的效率有明顯的提高，對於很大速比的斜齒輪蝸輪蝸杆才有可能其效率  $\eta < 0.5$ 。

The gearing in helical-worm and gear units produces a high proportion of sliding friction. As a result, these gear units may have higher gearing losses than RCR, RCF or RCK gear units, and thus be less efficient. The cause of factors are:

- Gear ratio of the helical-worm
- Input speed
- Gear unit temperature

RISC gear units are designed as helical worm which makes them significantly more efficient than standard worm gear units. The efficiency may reach  $\eta < 0.5$  if the helical-worm stage has a very high ratio step.

#### 自鎖條件 Self-locking condition

在斜齒輪-蝸輪蝸杆上加反向力矩會產生一個反向效率  $\eta' = 2 - 1/\eta$ ，其值明顯小於正向效率  $\eta$ ，如果正向效率  $\eta \leq 0.5$ ，那麼斜齒輪蝸輪蝸杆減速機會自鎖。僅有少量大速比的斜齒輪蝸輪蝸杆減速機靜態自鎖。如果想利用自鎖的制動效果特點請向我公司諮詢。

Retrodriving torques on helical-worm gear units produce an efficiency of  $\eta' = 2 - 1/\eta$ , which is significantly less favorable than the forwards efficiency  $\eta$ . The helical-worm or Spiroplan gear unit is self-locking if the forwards efficiency  $\eta \leq 0.5$ . A few helical-worm gear units with the largest gear ratio are statically self-locking. Please contact company if you wish to wish to make technical use of the braking effect of self-locking characteristics.

#### 運行初始階段 Running-inphase

由于新的斜齒輪蝸杆減速機齒面不够光滑、摩擦角較大，所以效率較正常運行時要小，這種影響在大傳動比時變得更加明顯。

The tooth flanks of new helical-worm and gear units are not yet completely smooth. For the friction angle is greater, the efficiency will be less than operation. This effect becomes more apparent in the greater ratio.

RCR  
RCF  
RCK  
RCS  
RC

RCF  
RCK  
RCS  
RC

在運初試階段，所給定的效率值應減去表中數值：

In The first beginning, the given efficiency number should minus as follows

	Helical-worm	速比的範圍
1start (單頭蝸杆)	approx.12%	approx.50-280
2start (雙頭蝸杆)	approx.6%	approx.20-75
3start (三頭蝸杆)	approx.3%	approx.20-90
4start (四頭蝸杆)	-	-
5start (五頭蝸杆)	approx.3%	approx.6-25
6start (六頭蝸杆)	approx.2%	approx.7-25

經過連續24小時運行，斜齒輪蝸輪蝸杆滿足以下條件可以達到給出的額定效率：

- 減速機經過充分的試運行
- 減速機達到正常運行溫度值
- 加入推薦的潤滑劑

減速機的額定的負載範圍內工作

The running-in phase normally lasts 24 hours. Helical-worm gear units achieve their listed rated efficiency values when:

- The gear unit has been run is completely
  - The gear unit has reached normal operation temperature
  - The recommended lubricant has been filled in
- The gear unit is working within the rated load range

#### 攪動損失

#### Churning losses

在某些安裝位置，第一級小齒輪完全浸在油中，對於大機座減速機和有較高輸入轉速的減速機，攪動損失會急劇上升，不能忽視，因此，當遇到此類情況請向我公司諮詢。

如果可能，對於RCR、RCK和RCS系列減速機盡量使用M1安裝位置以確保較小的攪動損失。

In certain gear unit mounting positions the first reduction stage is completely immersed in the lubricant. For large gear unit sizes and high circumferential velocities of the input stage, this gives rise to churning losses constituting a factor which cannot be ignored. Please contact company if you wish to use gear units of this type. If possible, use the mounting position M1 for RCR, RCK and RCS gear units in order to keep the churning losses in low.

### 4.4 使用系數

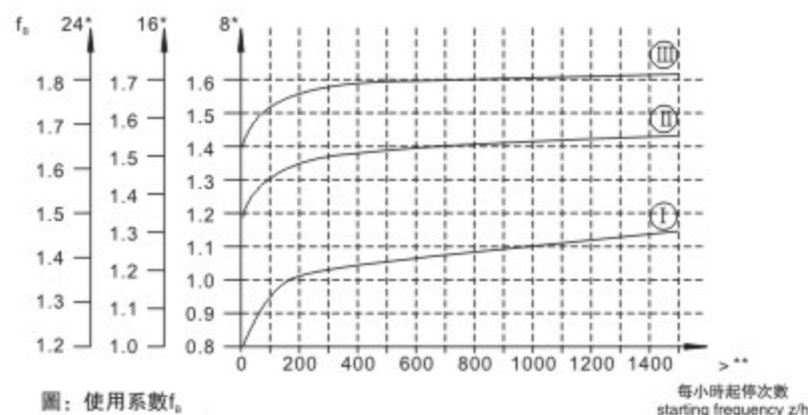
#### 4.4 Service factor

##### 決定使用系數的因素

##### Determining of the service factor

選用減速箱要考慮一定的使用系數用 $f_s$ 表示，使用系數 $f_s$ 由每天的運行時間和起停頻率所決定，根據慣量加速系數確定的三種負載類型也要考慮，可以從圖3中讀取驅動方案的使用系數，從圖中確定的使用系數一定要小於或等於從選型表中所給定的使用系數。

Gear unit selection needs to consider a certain factor which we use  $f_s$  to express. This service factor is determined by the daily operating time and the starting frequency. Three load classifications are also considered to depend on the mass acceleration factor. You can read the different service factor from the figure as follows. The service factor determined using this diagram must be small than or equal to the service factor as given in the selection tables.



圖：使用系數 $f_s$   
Fig:service factor  $f_s$

\*運行小時/天

\*\*起停次數，包括所在的起停和制動過程，所括從低到高，從高到低變換過程。

Daily operating time in hours/day

Starting frequency Z:The cycles include all starting and and braking procedures as well as changes from low to high and high to low speed.

#### 負載類型

#### Load classification

三種負載類型：

- I、均勻載荷，允用的慣性加速系數 $\leq 0.2$
- II、中等衝擊載荷，允許的慣性加速系數 $\leq 0.3$
- III、強衝擊載荷，允許的慣性加速系數 $\leq 10$

Three load classifications are differentiated:

- I . Uniform, approved mass acceleration factor $\leq 0.2$
- II . Moderate shock load, approved mass acceleration factor $\leq 3$
- III . Severe shock load, approved mass acceleration factor $\leq 10$

#### 慣性加速系數

#### Mass acceleration factor

慣性加速系數的計算方式：

The mass acceleration factor is calculated as follows:

$$\text{慣性加速系數} = \frac{\text{所有的外部轉動慣量}}{\text{電動機的轉動}}$$

$$\text{Mass acceleration factor} = \frac{\text{All external mass moments of inertia}}{\text{Mass moment of inertia on the motor end}}$$

所有的外部轉動慣量是指被驅動裝置加上減速機相對於電機轉速的轉動慣量，

折算公式如下： $J_s = j \cdot \left(\frac{n}{n_m}\right)^2$

"All external mass moments of inertia" are the mass moments of inertia of the driven machine and the gear unit, scaled down to the motor speed. The calculation for scaling down to the motor speed performed using the following formula:  $J_s = j \cdot \left(\frac{n}{n_m}\right)^2$

$J_s$ =相對於電機軸的外部轉動慣量

$J_s$ =Reduced mass moment of inertia on the motor shaft

$J$ =相對於減速機輸出軸的外部轉動慣量

$J$ =Mass moment of inertia referenced to the output speed of the gear unit

$N$ =減速機的輸出轉速

$N$ =Output speed of the gear unit

$N_m$ =電機轉速

$N_m$ =Motor speed

電機的轉動慣量是指電機轉動慣量，若配有制動器和高慣量飛輪（Z風扇）則要相應增加所配部件的轉動慣量。慣性加速系數大於10，要求傳動部件高平穩性及大的徑向負載時使用系數 $f_s$ 就大於1.8，此類情況請向我公司諮詢。

"Mass moment of inertia on the motor" if it equips the brake and the flywheel fan(Z fan), the components' mass moment of inertia or large overhung loads. Please contact company in this case.

#### 使用系數 $f_s$

確定最大持續運行扭矩 $M_{max}$ 和由此推導出的使用系數 $f_s = M_{max}/M_n$ 是不標準的，並且不同的製造商之間有很大不同。瑞思科使用系數 $f_s=1$ 是，驅動設備在疲勞強度範圍內能提供相當高的工作安全性和可靠性（除斜齒輪蝸輪蝸杆減速機的蝸輪之外）。在一定條件下，使用系數不必和其它減速機製造商所給出的進行比較。若有疑問，請和我公司聯系索取針對特殊驅動設備詳細資料。



Service factor:  $f_b$

The method for determining the maximum approved continuous torque  $M_{max}$  and then deriving the service factor  $f_b = M_{max} / M_a$  is not defined in a standard and varies greatly from manufacturer to manufacturer. With their RISC service factor  $f_b = 1$ , drives afford an extremely high level of safety and reliability in the fatigue strength range (exception: wearing of the worm wheel in helical-Worm gear units). Under a certain circumstances, the service factor may not be comparable to the information given details for your specific drive. If there is any questions, please contact company to get the special drive equipments' document in detail.

舉例  
Example

慣性加速系數2.5(II類載荷), 運行時間14小時/天 (按16小時/天查圖)和300次起停/小時, 使用系數在圖中為  $f_b = 1.51$ , 根據選型表所選擇的減速電機  $f_b$  值要  $\geq 1.51$ 。  
Mass acceleration factor 2.5(load classification II), 14 hours/day operating time(check the figure at 16h/d) and 300 cycles/hour produce a service factor  $f_b = 1.51$  as shown in Fig.2. According to the selection table, the selected motor must have an  $f_b$  Value of 1.15 or greater.

斜齒輪蝸杆減速機  
Helical-worm gear unit

在斜齒輪蝸杆減速機中, 除了已有圖3中的使用系數  $f_b$  外還有兩個使用系數  $f_{b1}$ 、 $f_{b2}$  要考慮  
 •  $f_{b1}$  = 環境溫度使用系統  
 •  $f_{b2}$  = 負載持續系數  
 Two further service factors have to be taken into account with helical-worm gear units in addition to the selection factor  $f_b$  shown in Fig.2. These are:  
 -  $f_{b1}$  = Service factor from the ambient temperature  
 -  $f_{b2}$  = Service factor from the cyclic duration factor  
 附加的使用系數  $f_{b1}$ 、 $f_{b2}$  可通過圖4確定, 確定  $f_{b1}$  時用和確定  $f_b$  同樣的方法考慮負載類型。  
 Additional service factors  $f_{b1}$  and  $f_{b2}$  can be determined by diagrams as shown in Fig.4. For the  $f_{b1}$  factor, we can define it just in the same way as  $f_b$ .

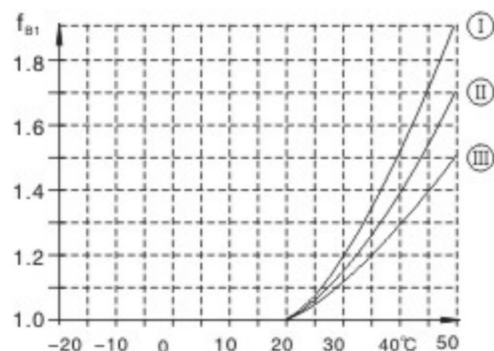
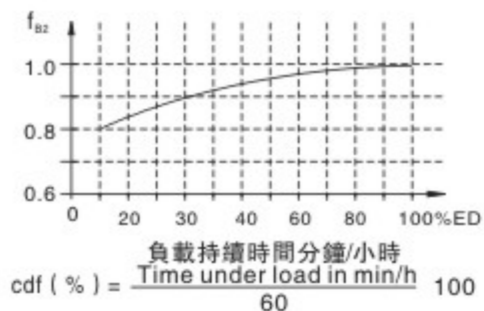


圖: 附加使用系數  $f_{b1}$  和  $f_{b2}$   
Additional service factors  $f_{b1}$  and  $f_{b2}$



確定  $f_{b1}$  時, 環境溫度低於  $-20^\circ\text{C}$  請向我公司諮詢。  
Please contact company case of temperatures below  $-20^\circ\text{C}$  ( $-f_{b1}$ ).  
斜齒輪蝸杆減速機總的使用系數  $f_{btotal}$  按下式計算  
The total service factor for helical-worm gear units is calculated as follows:  $F_{btotal} = f_b \cdot f_{b1} \cdot f_{b2}$

舉例  
Example

若前一個例子使用系統  $f_b = 1.51$  的減速機是斜齒輪蝸杆減速機,  
If the geared motor with the service factor  $f_b = 1.51$  in the previous example is a helical-worm geared motor.  
環境溫度  $40^\circ\text{C} \rightarrow f_{b1} = 1.38$  (負載類型 II)  
Ambient temperature  $t = 40^\circ\text{C} \rightarrow f_{b1} = 1.38$  (read off at load classification II)  
負載工作時間 40 分鐘/小時  $\text{cdf} = 66.7\%$   $f_{b2} = 0.95$   
Time under load = 40 min/h  $\rightarrow \text{cdf} = 66.7\% \rightarrow f_{b2} = 0.95$   
The total service factor is  $F_{btotal} = 1.51 \cdot 1.38 \cdot 0.95 = 1.98$   
根據選型表, 所選的斜齒輪蝸杆減速機的  $f_b$  則應  $\geq 1.98$ 。  
According to the selection tables, the selected helical-worm geared motor must have a  $f_b$  value of 1.98 or greater.

4.5 徑向和軸向負載  
4.5 Overhung and axial loads

徑向負載  
Determining overhung load

確定徑向負載時, 要考慮安裝在軸端傳動部件的影響, 傳動部件系數  $f_t$  列于下表:  
When determining the overhung load, the type of transmission element mounted on the shaft end must be considered. The transmission element factors  $f_t$  are listed as follows:

傳動部件 Transmission element	傳動部件系數 $f_t$ Transmission element factor $f_t$	備注 Comments
齒輪 Gears	1.15	< 17齒 < 17teeth
鏈輪 Chain sprockets	1.40	< 13齒 < 13teeth
鏈輪 Chain sprockets	1.25	< 20齒 < 20teeth
窄V型帶 Narrow V-belt pulleys	1.75	預應力影響 Pre-tensioning influence
寬平皮帶 Flat belt pulleys	2.50	預應力影響 Pre-tensioning influence
齒型皮帶 Toothed belt pulleys	2.5	預應力影響 Pre-tensioning influence

作用在電機或減速機軸上的徑向力按下式計算:  
The overhung load exerted on the motor or gear shaft is calculated as follows:

$$F_r = \frac{M_d \cdot 2000}{d_o} \cdot f_t$$

- $F_r$  徑向載荷(N)       $F_r$  Overhung load in N
- $M_d$  力矩(N·m)       $M_d$  Torque in N·m
- $d_o$  節圓直徑(mm)       $d_o$  Mean diameter of the mounted transmission element in mm
- $f_t$  傳動部件系數       $f_t$  Transmission element factor

許用的徑向載荷  
Permitted overhung load

根據耐磨軸承額定壽命  $L_{H10}$  來確定許用徑向載荷。  
對於特殊的運行條件, 許用徑向載荷根據所要求的修正壽命  $L_{na}$  來確定。  
對於地腳安裝實心軸輸出的減速機許用徑向載荷列于減速電機的選型表中。對於其他安裝形式可向我公司聯系。  
According to the rate service life  $L_{H10}$  of the anti-friction bearings to define the permitted overhung loads.  
For the special operating conditions, the permitted overhung loads can be determined by the modified service life  $L_{na}$ .  
The permitted overhung loads  $F_{ra}$  for the output shafts of foot-mounted gear units with a solid shaft are listed in the selection tables for geared motors. Please contact company in case of other types.

選型表中的徑向力數值按照力作用於軸伸的中點 (斜齒輪-傘齒輪減速機按照A端輸出軸考慮)。徑向力作用角度  $\alpha$  和旋轉方向已經按最不利的條件給予考慮。  
The data refer to the radial force acting midway on the shaft end (with right-angle gear units on the A-side output). Worst case conditions have been assumed for the force application angle  $\alpha$  and the direction of rotation.

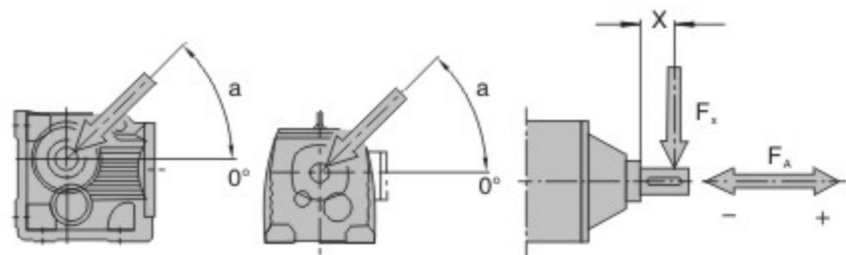
- 對於RCK和RCS系列減速機,M1安裝位置前面與安裝固定面連接時,許用徑向載荷祇是選型表中 $F_{ra}$ 數值的50%。
- 對於RCK167和RCK187減速電機 在安裝位置M1-M4時;若安裝與其安裝位置示例有所區別情況下,其許用徑向載荷最大祇為選型表中 $F_{ra}$ 的50%。
- 地腳/法蘭安裝斜齒輪減速電機(RCR..F):當通過法蘭安裝傳遞力矩時,許用徑向載荷最大為選型表中 $F_{Ra}$ 的50%
- Only 50% of the  $F_{ra}$  Value specified in the selection tables permitted in mounting position M1 with wall attachment on the front face for RCK and RCS gear units.
- Helical-bevel geared motors RCK 167 and RCK 187 in mounting positions M1 to M4:If the mounting position is different the position we offered (M1-M4),the overhung load  $F_{ra}$  lasted in the selection tables.
- Foot and flange-mounted helical geared motors(RCR..F): A maximum of 50% of the overhung load  $F_{ra}$  specified in the selection tables in the case of torque transmission via the flange mounting.when the torque transmission via the flange mounting the overhung load  $F_{ra}$  will only be 50% compared with the  $F_{ra}$  lasted the selection tables.

### 更高的許用徑向載荷 Higher approved overhung loads

- 對於RCR、RCF和RCK系列減速電機,安裝重載軸承可提高許用徑向載荷。另外,精確考慮旋轉方向和力作用角 $\alpha$ ,也可提高許用徑向載荷,在此情況下,請和我公司聯繫。
- It possible to achieve a higher overhung load by exactly considering the force application angle  $\alpha$  and the direction of rotation. In addition, higger output shaft loads are permitted if heavy duty bearings are installed, especially with RCR、RCF and RCK gear units. Please contact company in this case.

### 所受力的定義 Definition of force application

所受力根據下圖來定義  
Force application is defined according to the following diagram:



$F_x$ =在X點的許用徑向載荷 (N)  
 $F_A$ =許用軸向載荷 (N)  
 $F_x$ =Approved overhung load at point X[N]  
 $F_A$ =Approved axial load [N]

### 許用軸向載荷 Approved axial loads

如果沒有徑向載荷,那麼軸向載荷 FA (+表示拉力,-表示壓緊力)依據表中徑向負荷的50%給定是允許的,這適用於:  
If there is no overhung load,then an axial load FA(tension or compression)amount to 50% of the overhung load given in the selection tables is approved.This applies to the following geared motors:

- 斜齒輪減速機(RCR..137到167除外)
- 平行軸斜齒輪減速機與斜齒輪-傘齒輪(實心軸)減速機(RCF97...除外)
- 實心軸斜齒輪蝸輪蝸杆減速機
- Helical geared motors except for RCR...to RCR...167....
- Parallel shaft and helical-bevel geared motors with solid shaft except for RCF97...
- Helical-worm geared motors with solid shaft

對於其它類型的減速機請與公司諮詢,以防過大的軸向載荷或軸向及徑向的合成力。  
Please contact company for all other types of gear units and in the event of significantly greater axial loads or combinations of overhung load and axial load.

### 偏離中心點的徑向力 Overhung load conversion for off-center force application

對於受力點不在軸端中點的允許徑向載荷要根據下面的公式計算。 $F_{xL}$ 和 $F_{xw}$ 中的較小值是在X點允許數值,所計算的數值應用於 $M_{max}$

The approved overhung loads given in the selection tables must be calculated using the following form-ulae in the event of force application not in the center of the shaft e-nd. The smaller of the two value  $F_{xL}$  (according to bearing service life)and  $F_{xw}$  (according to shaft strength) is the approved value for the overhung load at pointx. Note that the calculation apply to  $M_{max}$

根據軸承壽命 $F_{xL}$   
 $F_{xL}$  acc.to bearing service life

$$F_{xL} = F_{ra} \cdot \frac{a}{b+x} \text{ [N]}$$

根據輸出軸強度 $F_{xw}$   
 $F_{xw}$  from the shaft strength

$$F_{xw} = \frac{c}{f+x} \text{ [N]}$$

- $F_{ra}$  =對於底腳安裝齒輪箱的允許徑向載荷(選型表中所列值)單位: N  
Approved overhung load(x=1/2)for foot-mounted gear units according to the selection tables in [N]
- X =從軸肩到受力點的距離  
Distance from the shaft shoulder to the force application point in[mm]
- a,b,f =對於徑向負載轉化的齒輪箱常量  
Gear unit constants for overhung load conversion[mm]
- c =對於徑向負載轉化的齒輪箱常量  
Gear unit constant for overhung load conversion[Nmm]

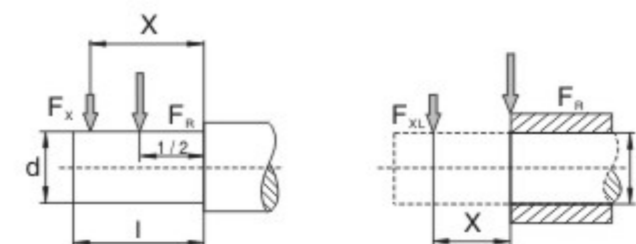


圖: 偏離中心點的徑向力 $F_x$   
Fig: Overhung load  $F_x$  for off-center force application

據徑向負載/轉化所得的/減速機常量  
Gear unit constants for overhung load conversion

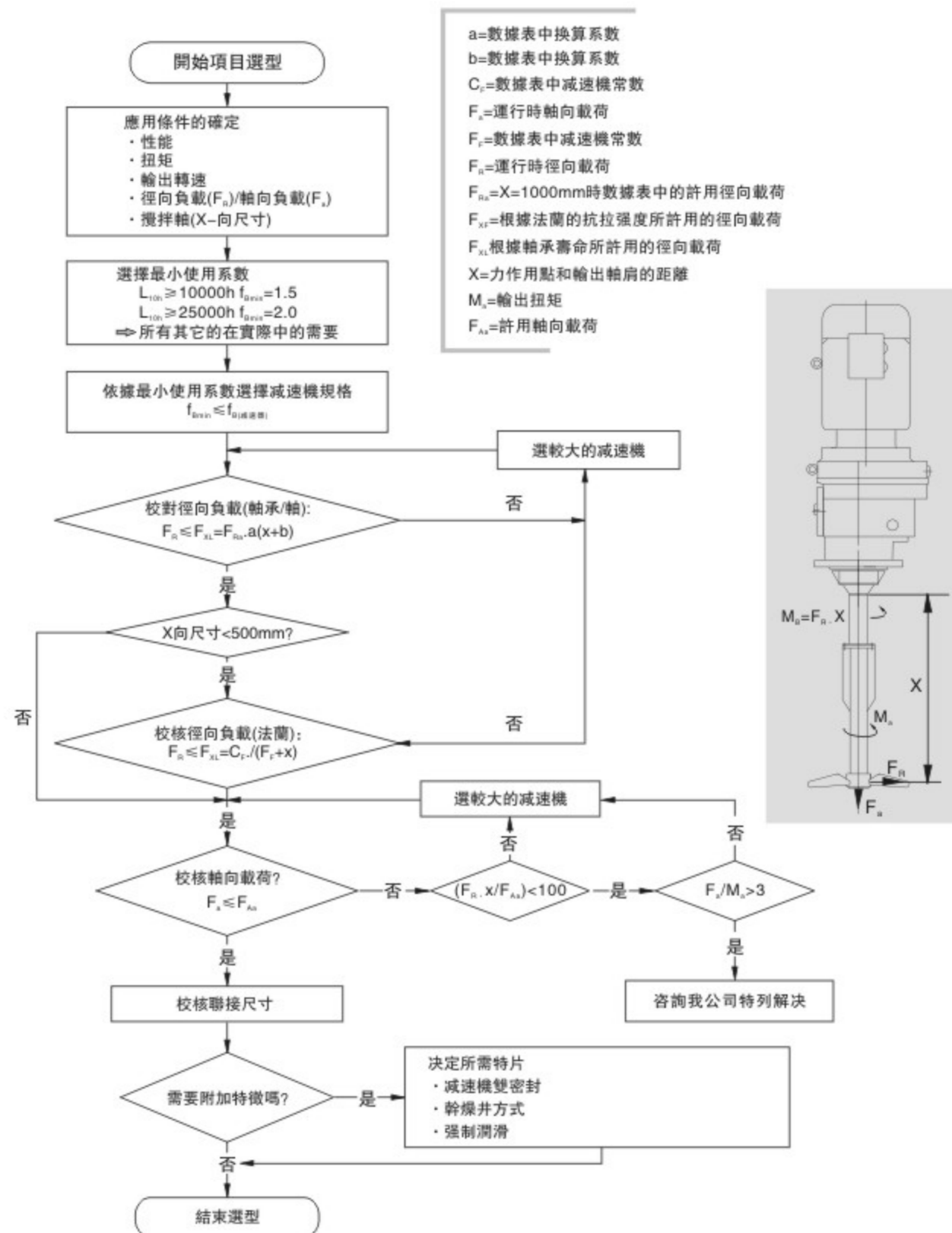
減速機常量 Gear unit type	a [mm]	b [mm]	c [Nmm]	f [mm]	d [mm]	l [mm]
RCR17	88.5	68.5	$6.527 \times 10^4$	17	20	40
RCR27	106.5	81.5	$1.56 \times 10^5$	11.8	25	50
RCR37	118	93	$1.24 \times 10^5$	0	25	50
RCR47	137	107	$2.44 \times 10^5$	15	20	60
RCR57	147.5	112.5	$3.77 \times 10^5$	18	35	70
RCR67	168.5	133.5	$2.51 \times 10^5$	0	35	70
RCR77	173.7	133.7	$3.97 \times 10^5$	0	40	80
RCR87	216.7	166.7	$8.47 \times 10^5$	0	50	100
RCR97	255.5	195.5	$1.19 \times 10^6$	0	60	120
RCR107	285.5	215.5	$2.06 \times 10^6$	0	70	140
RCR137	343.5	258.5	$6.14 \times 10^6$	30	90	170
RCR147	402	297	$8.65 \times 10^6$	33	110	210
RCR167	450	345	$1.26 \times 10^7$	0	120	210
RCRX57	43.5	23.5	$1.51 \times 10^5$	34.2	20	40
RCRX67	52.5	27.5	$2.42 \times 10^5$	39.7	25	50
RCRX77	60.5	30.5	$1.95 \times 10^5$	0	30	60
RCRX87	73.5	33.5	$7.69 \times 10^5$	48.9	40	80
RCRX97	86.5	36.5	$1.43 \times 10^6$	53.9	50	100
RCRX107	102.5	42.5	$2.47 \times 10^6$	62.3	60	120
RCF37	123.5	98.5	$1.07 \times 10^5$	0	25	50
RCF47	153.5	123.5	$1.78 \times 10^5$	0	30	60
RCF57	170.7	135.7	$5.49 \times 10^5$	32	35	70
RCF67	181.3	141.3	$4.12 \times 10^5$	0	40	80
RCF77	215.8	165.8	$7.87 \times 10^5$	0	50	100
RCF87	263	203	$1.19 \times 10^6$	0	60	120
RCF97	350	280	$2.09 \times 10^6$	0	70	140
RCF107	373.5	288.5	$4.23 \times 10^6$	0	90	170
RCF127	442.5	337.5	$9.49 \times 10^6$	0	110	210
RCF157	512	407	$1.05 \times 10^7$	0	120	210
RCK37	123.5	98.5	$1.41 \times 10^5$	0	25	50
RCK47	153.5	123.5	$1.78 \times 10^5$	0	30	60
RCK57	168.7	134.7	$6.8 \times 10^5$	31	35	70
RCK67	181.3	141.3	$4.12 \times 10^5$	0	40	80
RCK77	215.8	165.8	$7.69 \times 10^5$	0	50	100
RCK87	252	192	$1.64 \times 10^6$	0	60	120
RCK97	319	249	$2.8 \times 10^6$	0	70	140
RCK107	373.5	288.5	$5.53 \times 10^6$	0	90	170
RCK127	443.5	338.5	$8.31 \times 10^6$	0	110	210
RCK157	509	404	$1.18 \times 10^7$	0	120	210
RCK167	621.5	496.5	$1.88 \times 10^7$	0	160	250
RCK187	720.5	560.5	$3.04 \times 10^7$	0	190	320
RCS37	118.5	98.5	$6.0 \times 10^5$	0	20	40
RCS47	130	105	$1.33 \times 10^5$	0	25	50
RCS57	150	120	$2.14 \times 10^5$	0	30	60
RCS67	184	149	$3.04 \times 10^5$	0	35	70
RCS77	224	179	$5.26 \times 10^5$	0	45	90
RCS87	281.5	221.5	$1.68 \times 10^6$	0	60	120
RCS97	326.3	256.3	$2.54 \times 10^6$	0	70	140

對於沒有列出的類型的值需要給定。  
Values for types not listed are available on request.

#### 4.6 RCRM減速機

選型

當選用帶加長軸承箱的RCRM系列減速電機時，要考慮較高的徑向和軸向負載，請按照下列步驟計算選型



圖：RCRM選型流程圖



## 5. RCR 斜齒輪減速電機 RCR Helical Geared motors

下表是對於RCRM減速電機在力作用點 $X \neq 1000\text{mm}$ 時計算徑向載荷 $F_{rx}$ 所需的換算系數和減速器常數  
The following conversion factors and gear unit constants apply to calculating the permitted overhung load  $F_{rx}$  at point  $X \neq 1000\text{mm}$  for RCRM gear motors.

換算系數和減速器常數  
Conversion factors and gear unit constants

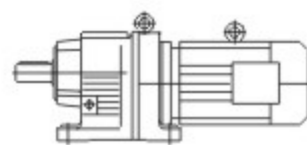
型號 Type	a	b	$c_r(f_b=1.5)$	$C_r(f_b=2.0)$	$F_r$
RCRM57	1047	47	1220600	1260400	277
RCRM67	1047	47	2047600	2100000	297.5
RCRM77	1050	50	2512800	2574700	340.5
RCRM87	1056.5	56.5	4917800	5029000	414
RCRM97	1061	61	10911600	11124100	481
RCRM107	1069	69	15367000	15652000	554.5
RCRM137	1088	88	25291700	25993600	650
RCRM147	1091	91	30038700	31173900	756
RCRM167	1089.5	89.5	42096100	43654300	869

RCRM減速機的附加重量  
Additional weights of RCRM gear units

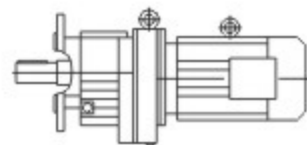
型號 Type	在帶有最小法蘭尺寸RF減速機重量基礎上的附加重量 Additional weight in addition to RF, related to the smallest RF flange $\Delta m[\text{kg}]$
RCRM57	12.0
RCRM67	15.8
RCRM77	25.0
RCRM87	29.7
RCRM97	51.3
RCRM107	88.0
RCRM137	111.1
RCRM147	167.4
RCRM167	195.4

### 5.1 設計方案 5.1 Versions of geared motors

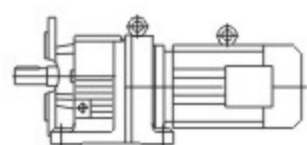
斜齒輪減速電機有以下設計方案：  
The following types of helical-bevel motor can be supplied:



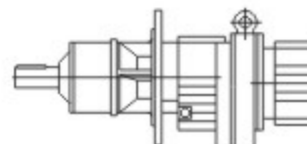
RCR..D..  
底腳安裝斜齒輪減速電機  
Foot-mounted helical geared motor



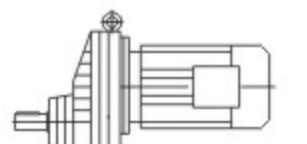
RCRF..D..  
法蘭安裝斜齒輪減速電機  
Flange-mounted helical geared motor



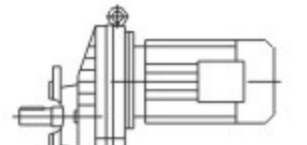
RCR..F D..  
底腳法蘭安裝斜齒輪減速電機(僅限於RCR17-RCR87)  
Foot and flange-mounted helical geared motor



RCRM..D..  
法蘭安裝帶長軸承箱的斜齒輪減速電機  
Flange-mounted helical geared motor with extended bearing housing



RCRX..D..  
底腳安裝單級斜齒輪減速電機  
Single-stage foot-mounted helical geared motor



RCRXF..D..  
法蘭安裝單級斜齒輪減速電機  
Single-stage flange-mounted helical geared motor









RCR107-147 表中 $n_a$ 是按 $n=1400$  1/min計算

Table with 3 columns: RCR107 (4300Nm), RCR137 (8000Nm), and RCR147 (13000Nm). Each column contains a table with 5 columns: i, n\_a [1/min], M\_amax [Nm], F\_Ra [N], and AD. It lists various gear ratios and their corresponding torque and force values.

RCR167, RCR27/37R17 表中 $n_a$ 是按 $n=1400$  1/min計算

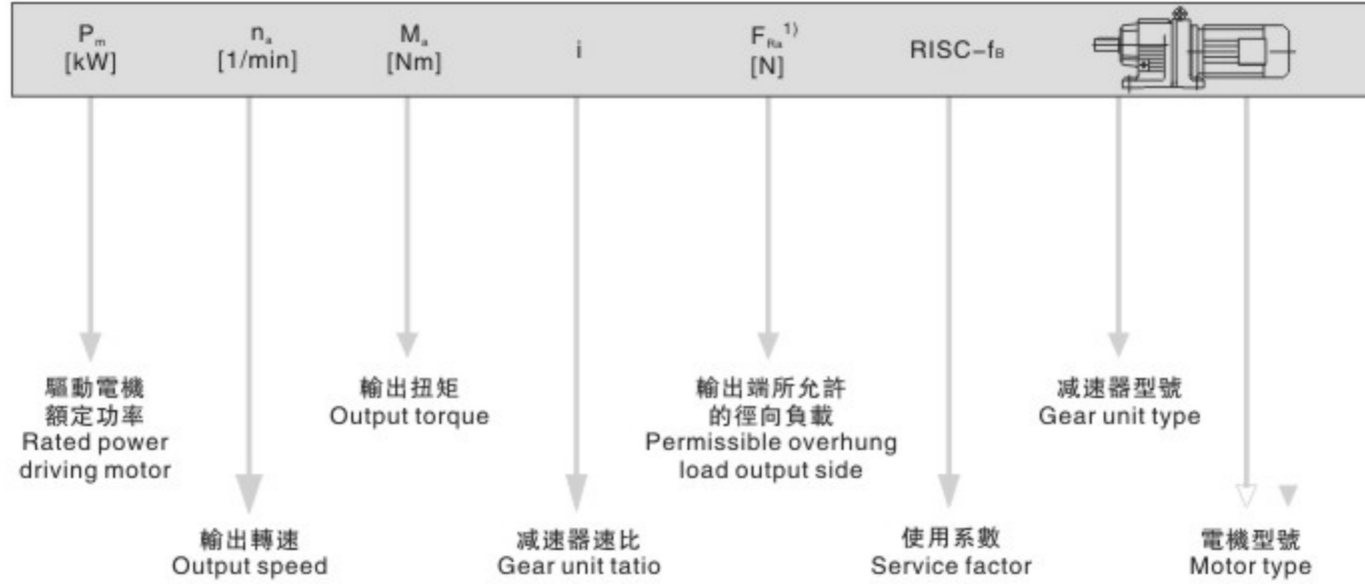
Table with 3 columns: RCR167 (18000Nm), RCR27R17 (130Nm), and RCR37R17 (200Nm). Each column contains a table with 5 columns: i, n\_a [1/min], M\_amax [Nm], F\_Ra [N], and AD. It lists various gear ratios and their corresponding torque and force values.





5.4 選型表注釋  
5.4 Selection table

選型表的結構  
Selection table for geared motors



輸出轉速 Output speed $n_s$ [1/min]	輸出扭矩 Output torque $M_s$ [N·m]	傳動比 Ratio $i$	徑向負荷 Permitted overhung load $F_{Ra}^{1)}$ [N]	使用系數 Service factor $f_s$	型號 Model
<b>0.12kW</b>					
0.06	14300	21342	58600	0.90	RCR 147 R77 D63S4 RCRF147 R77 D63S4
0.08	12000	18210	64500	1.10	
0.09	10300	15923	67300	1.25	
0.10	9440	14075	68600	1.40	
0.11	7630	12344	70700	1.70	RCR 147 R77 D63S4 RCRF147 R77 D63S4
0.12	6780	11143	71500	1.90	
0.14	6020	9743	72200	2.2	
0.16	4960	8443	73000	2.6	
0.19	4290	7307	73400	3.0	
0.21	3780	6447	73700	3.4	
0.25	3270	5568	73900	4.0	
0.11	8390	12921	52300	0.95	RCR 137 R77 D63S4 RCRF137 R77 D63S4
0.12	7240	11712	54900	1.10	
0.13	6430	10573	56400	1.25	
0.16	5160	8784	58200	1.55	
0.18	4270	7479	59200	1.85	
0.21	4060	6559	59500	1.95	
0.24	3330	5834	60100	2.4	
0.27	3160	5116	60200	2.5	
0.18	4500	7583	28300	0.95	RCR 107 R77 D63S4 RCRF107 R77 D63S4
0.20	3850	6743	31700	1.10	
0.23	3660	5914	32500	1.20	
0.27	2950	5168	35100	1.45	
0.31	2600	4435	36000	1.65	
0.35	2310	3896	36400	1.85	
0.45	1880	3039	36900	2.3	
0.35	2670	3918	35900	1.60	
0.41	2240	3343	36500	1.90	
0.45	2030	3034	36700	2.1	
0.52	1750	2653	37000	2.5	
0.61	1500	2280	37200	2.9	
0.67	1300	2067	37400	3.3	
0.30	2950	4559	21300	1.00	RCR 97 R57 D63S4 RCRF97 R57 D63S4
0.34	2500	4004	24100	1.20	
0.40	2200	3481	25500	1.35	
0.29	3240	4678	3970	0.90	
0.32	2970	4309	21000	1.00	
0.37	2510	3702	24000	1.20	
0.46	2010	3019	26400	1.50	
0.52	1750	2668	27300	1.70	
0.61	1440	2245	27700	2.1	
0.68	1280	2016	27900	2.3	
0.80	1160	1733	28100	2.6	
0.45	2020	3065	26300	1.50	RCR 97 R57 D63S4 RCRF97 R57 D63S4
0.51	1790	2722	27100	1.65	
0.60	1510	2311	27600	2.0	
0.66	1360	2078	27800	2.2	
0.76	1170	1823	28100	2.6	
0.87	1020	1583	28200	3.0	
0.99	860	1396	28300	3.5	
1.1	740	1228	28400	4.1	
0.48	1740	2873	15500	0.90	RCR 87 R57 D63S4 RCRF87 R57 D63S4
0.70	1260	1961	18700	1.25	
0.50	1850	2770	10700	0.85	RCR 87 R57 D63S4 RCRF87 R57 D63S4
0.53	1730	2595	15600	0.90	
0.65	1390	2129	18000	1.10	
0.72	1240	1930	18800	1.25	
0.80	1100	1733	19400	1.40	
0.79	1090	1737	19500	1.40	RCR 87 R57 D63S4 RCRF87 R57 D63S4
0.91	960	1524	20000	1.60	
1.1	775	1303	20000	2.0	
1.2	680	1143	20000	2.3	
1.6	555	885	20000	2.8	
1.8	485	776	20000	3.2	
2.0	430	685	20000	3.6	
2.3	345	599	20000	4.5	

輸出轉速 Output speed $n_s$ [1/min]	輸出扭矩 Output torque $M_s$ [N·m]	傳動比 Ratio $i$	徑向負荷 Permitted overhung load $F_{Ra}^{1)}$ [N]	使用系數 Service factor $f_s$	型號 Model	
<b>0.12kW</b>						
0.97	950	1430	8220	0.85	RCR 77 R37 D63S4 RCRF 77 R37 D63S4	
1.1	900	1303	9080	0.90		
1.2	770	1124	10400	1.05		
1.3	715	1047	10800	1.15		
1.5	615	915	11500	1.35		
0.99	940	1394	8660	0.85	RCR 77 R37 D63S4 RCRF 77 R37 D63S4	
1.1	785	1218	10200	1.05		
1.3	710	1084	10800	1.15		
1.5	635	940	11400	1.30		
1.7	505	821	12000	1.60		
1.9	460	731	12300	1.80		
2.1	440	646	12300	1.85		
2.7	365	520	12600	2.3	RCR 77 R37 D63S4 RCRF 77 R37 D63S4	
3.1	310	451	12800	2.6		
3.3	290	422	12800	2.8	RCR 77 R37 D63S4 RCRF 77 R37 D63S4	
3.8	245	365	12900	3.3		
1.4	655	956	5950	0.90	RCR 67 R37 D63S4 RCRF 67 R37 D63S4	
1.5	605	891	7480	1.00		
1.9	490	730	8670	1.25		
2.1	425	644	9150	1.40		
2.4	375	571	9490	1.60		
2.8	315	486	9820	1.90		
1.6	565	836	7980	1.05	RCR 67 R37 D63S4 RCRF 67 R37 D63S4	
1.8	475	750	8790	1.25		
2.1	420	646	9190	1.40		
2.4	380	574	9450	1.55		
2.8	330	495	9740	1.80		
3.2	275	438	9990	2.2		
1.8	525	782	5710	0.85		RCR 57 R37 D63S4 RCRF 57 R37 D63S4
2.0	440	678	7160	1.05		
2.3	395	604	7330	1.15		
2.6	360	537	7460	1.25		
2.9	315	471	7590	1.45		
3.9	235	357	7790	1.95		
4.3	205	319	7840	2.2		
3.8	245	359	7760	1.80	RCR 57 R37 D63S4 RCRF 57 R37 D63S4	
4.3	225	324	7810	2.0		
4.8	196	290	7860	2.3		
5.3	177	262	7890	2.5		
5.6	164	246	7910	2.8		
6.3	144	220	7940	3.1		
2.4	375	572	2500	0.80	RCR 47 R37 D63S4 RCRF 47 R37 D63S4	
2.7	330	510	5140	0.90		
3.2	275	436	5540	1.10		
3.4	255	408	5630	1.15		
4.0	210	344	5810	1.40		
2.8	355	502	3780	0.85	RCR 47 R37 D63S4 RCRF 47 R37 D63S4	
3.2	300	429	5430	1.00		
3.7	255	372	5640	1.15		
4.0	240	348	5710	1.25		
4.6	205	301	5840	1.50		
5.4	169	255	5950	1.75		
6.1	150	228	6000	2.0		
7.1	125	195	6050	2.4		
4.1	220	338	4700	0.90	RCR 37 R17 D63S4 RCRF 37 R17 D63S4	
4.7	205	296	4910	1.00		
5.3	176	259	5220	1.15		
6.1	155	228	5420	1.30		
6.9	134	199	5600	1.50		
8.0	117	172	5720	1.70		
4.2	230	328	4550	0.90		RCR 37 R17 D63S4 RCRF 37 R17 D63S4
4.8	197	289	4990	1.00		
5.2	184	265	5130	1.10		
6.1	151	226	5470	1.35		
6.8	138	202	5570	1.45		
7.7	120	179	5700	1.65		

























Table with 6 columns: 輸出轉速, 輸出轉矩, 傳動比, 徑向負荷, 使用系數, 型號. Includes sub-sections for 7.5kW, 9.2kW, and 11.0kW. Lists various gear models like RCR 97, RCRX 97, RCR 77, RCR 67, RCR 57.

Table with 6 columns: 輸出轉速, 輸出轉矩, 傳動比, 徑向負荷, 使用系數, 型號. Includes sub-sections for 7.5kW, 9.2kW, and 11.0kW. Lists various gear models like RCRX 97, RCRXF97, RCR 87, RCRXF87, RCRX 77, RCRXF77, RCR 67, RCRXF67, RCR 147, RCRXF147, RCR 147, RCRXF147, RCR 137, RCRXF137.

Table with 6 columns: 輸出轉速, 輸出轉矩, 傳動比, 徑向負荷, 使用系數, 型號. Includes sub-sections for 9.2kW, 11.0kW, and 16.0kW. Lists various gear models like RCR 107, RCRXF107, RCR 77, RCRXF77, RCR 67, RCRXF67, RCR 147, RCRXF147, RCR 147, RCRXF147, RCR 137, RCRXF137, RCR 97, RCRXF97.

Table with 6 columns: 輸出轉速, 輸出轉矩, 傳動比, 徑向負荷, 使用系數, 型號. Includes sub-sections for 9.2kW, 11.0kW, and 16.0kW. Lists various gear models like RCRX 87, RCRXF87, RCRX 77, RCRXF77, RCR 167, RCRXF167, RCR 147, RCRXF147, RCR 147, RCRXF147, RCR 147, RCRXF147, RCR 137, RCRXF137.

RCR..

RCF..

RCK..

RCS..

RCR系列斜齒輪減速電機

RCR..

RCF..

RCK..

RCS..

RCR系列斜齒輪減速電機

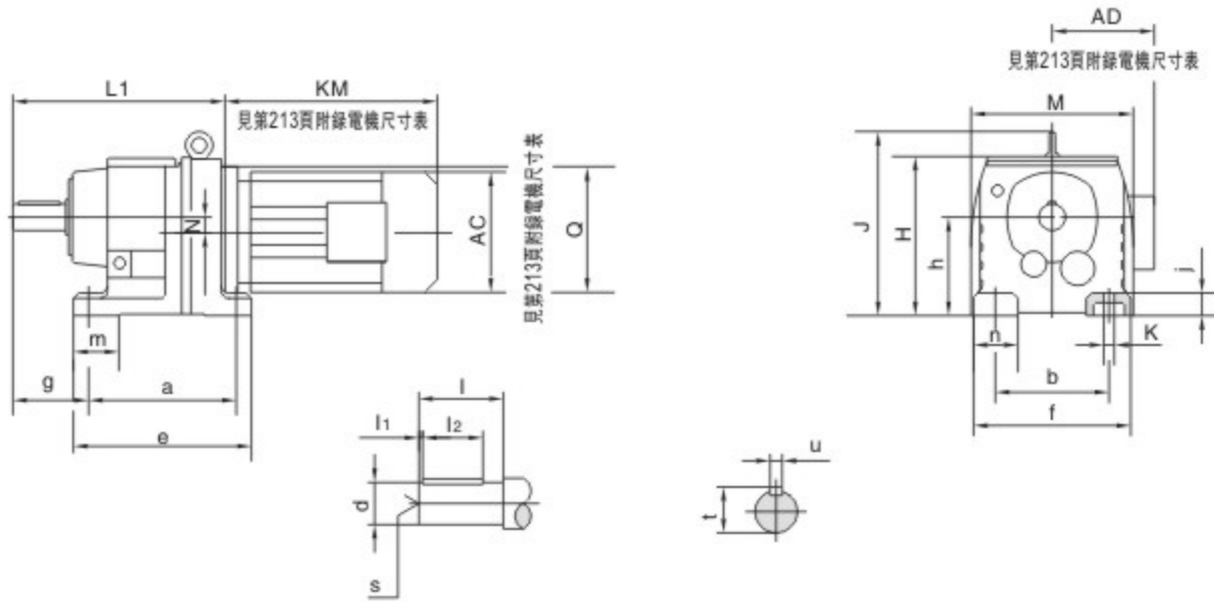




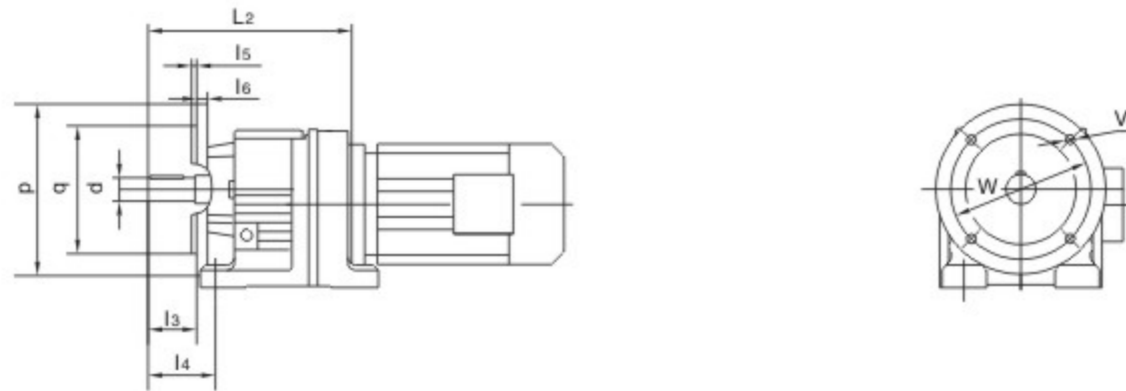




RCR17..~RCR167..



RCR17F..~RCR87F..



型號 size	a b	e f	g	h	j	k	m n	軸伸尺寸 Shaft dimension				
								d	l	l <sub>1</sub> l <sub>2</sub>	S	t u
RCR17.. RCR17F..	110 110	131 135	58	75 <sub>-0.5</sub>	12	9	28 25	20k6	40	4 32	M6	22.5 6
RCR27.. RCR27F..	130 110	152 145	75	90 <sub>-0.5</sub>	18	9	27 32	25k6	50	3.5 40	m10	28 8
RCR37.. RCR37F..	130 110	160 145	75	90 <sub>-0.5</sub>	18	9	40 35	25k6	50	3.5 40	m10	28 8
RCR47.. RCR47F..	165 135	195 170	90	115 <sub>-0.5</sub>	24	13.5	50 42	30k6	60	3.5 50	m10	33 8
RCR57.. RCR57F..	165 135	200 190	100	115 <sub>-0.5</sub>	24	13.5	60 55	35k6	70	7 56	m12	38 10
RCR67.. RCR67F..	195 150	235 210	100	130 <sub>-0.5</sub>	30	14	60 60	35k6	70	7 56	m12	38 10
RCR77.. RCR77F..	205 170	245 230	115	140 <sub>-0.5</sub>	30	17.5	60 60	40k6	80	5 70	m16	43 12
RCR87.. RCR87F..	260 215	310 290	140	180 <sub>-0.5</sub>	45	17.5	90 75	50k6	100	10 80	m16	53.5 14

型號 size	法蘭尺寸 flange dimension					H	J	L1	L2	M	N	Q
	P q	l <sub>3</sub>	l <sub>4</sub>	L <sub>5</sub> l <sub>6</sub>	V w							
RCR17.. RCR17F..	120 80j6	40	66	3 8	6.5 100	134	/	207	215	140	0	/
RCR27.. RCR27F..	120 80j6	50	81	3 8	6.5 100	147	/	193	199	151	3.4	120
RCR37.. RCR37F..	120 80j6	50	81	3 8	6.6 100	151	/	201	207	145	10.1	120
RCR47.. RCR47F..	140 95j6	60	90	3 10	9 115	187	/	235	235	178	14	160
RCR57.. RCR57F..	160 110j6	70	100	3.5 10	9 130	187	/	257	257	202	11.2	160
RCR67.. RCR67F..	200 130j6	70	100	3.5 12	11 165	212	243	280	280	215	20.7	160
RCR77.. RCR77F..	250 180j6	80	115	4 15	13.5 215	228	269	300	300	235	15.9	200
RCR87.. RCR87F..	300 230j6	100	140	4 16	13.5 26.5	295	345	372	372	297	12.6	250

型號 size	a b	e f	g	h	j	k	m n	軸伸尺寸 Shaftdimension					H	J	L M	N	Q
								d	l	l <sub>1</sub> l <sub>2</sub>	S	t u					
RCR97..	310 250	365 340	160	225 <sub>-0.5</sub>	55	22	100 90	60m6	120	5 110	M20	64 18	368	418	440 348	10.2	300
RCR107..	370 290	440 400	185	250 <sub>-0.5</sub>	65	26	125 110	70m6	140	7.5 125	M20	74.5 20	408	475	495 409	20.4	350
RCR137..	410 340	490 450	220	315 <sub>-1</sub>	70	33	130 110	90m6	170	5 160	M24	95 25	495	562	589 458	25.1	400
RCR147..	500 380	590 530	260	355 <sub>-1</sub>	80	39	150 150	110m6	210	15 180	M24	116 28	565	637	695 540	33.4	450
RCR167..	580 500	670 660	270	425 <sub>-1</sub>	100	39	160 160	120m6	210	5 200	M24	127 32	675	749	790 670	59.9	550

RCR系列斜齒輪減速電機

RCR系列斜齒輪減速電機

RCRF17..~RCRF167..

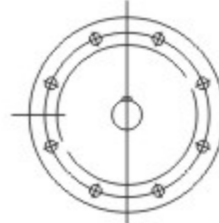
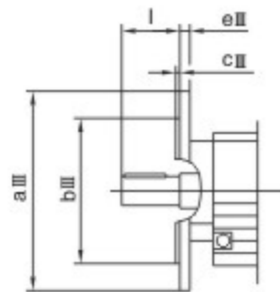
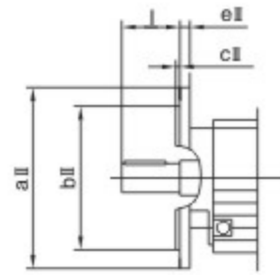
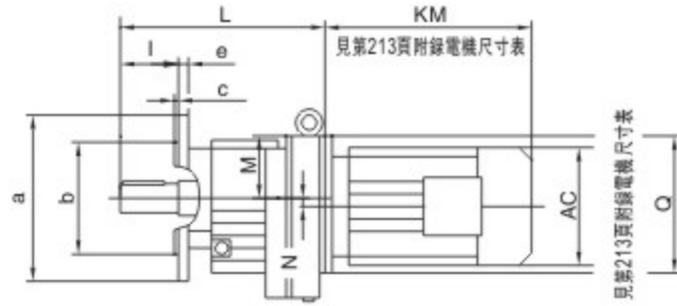
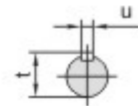
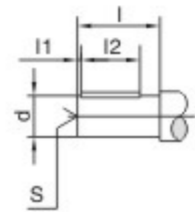


Fig.1 Fig.2

法蘭型式  
Flange form



型號 size	法蘭 尺寸 flange dimension	a aII aIII	b bII bIII	c cII cIII	e eII eIII	f fII fIII	g gII gIII	H J K	L M N	Q	軸伸尺寸 Shaftdimension				
											d	l	l <sub>1</sub> l <sub>2</sub>	S	t u
RCRF17..	Flg.1	120 140 /	80j6 95j6 /	3 3 /	8 9 /	100 115 /	6.5 8.5 /	76 130 /	215 59 0	/	20k6	40	4 32	M6	22.5 6
RCRF27..	Flg.1	120 140 160	80j6 95j6 110j6	3 3 3.5	8 9 10	100 115 130	6.5 8.5 8.5	92 142 /	199 57 3.4	120	25k6	50	3.5 40	m10	28 8
RCRF37..	Flg.1	120 160 200	80j6 110j6 130j6	3 3.5 3.5	8 10 12	100 130 165	6.6 9 11	94 161 /	207 61 10.1	120	25k6	50	3.5 40	m10	28 8
RCRF47..	Flg.1	140 160 200	95j6 110j6 130j6	3 3.5 3.5	10 10 12	115 130 165	9 9 11	118 178 /	235 72 14	160	30k6	60	3.5 50	m10	33 8
RCRF57..	Flg.1	160 200 250	110j6 130j6 180j6	3.5 3.5 4	10 12 15	130 165 215	9 11 13.5	121 202 /	257 72 11.2	160	35k6	70	7 56	m12	38 10
RCRF67..	Flg.1	200 250 /	130j6 180j6 /	3.5 4 /	12 15 /	165 215 /	11 13.5 /	134 215 113	280 82 20.7	160	35k6	70	7 56	m12	38 10
RCRF77..	Flg.1	250 300 /	180j6 230j6 /	4 4 /	15 18.5 /	215 265 /	13.5 13.5 /	144 235 129	300 88 15.9	200	40k6	80	5 70	m16	43 12
RCRF87..	Flg.1	300 350 /	230j6 250h6 /	4 5 /	16 18 /	265 300 /	13.5 17.5 /	184 297 165	372 115 12.6	250	50k6	100	10 80	m16	53.5 14
RCRF97..	Flg.1 Flg.2 /	350 450 /	250h6 350h6 /	5 5 /	18 22 /	300 400 /	17.5 17.5 /	230 348 193	440 144 10.2	300	60m6	120	5 110	m20	64 18
RCRF107..	Flg.1 Flg.2 /	350 450 /	250h6 350h6 /	5 5 /	20 22 /	300 400 /	17.5 17.5 /	255 409 224	495 158 20.4	350	70m6	140	7.5 125	m20	74.5 20
RCRF137..	Flg.2	450 550 /	350h6 450h6 /	5 5 /	22 25 /	400 500 /	17.5 17.5 /	320 458 247	589 180 25.1	400	90m6	170	5 160	m24	95 25
RCRF147..	Flg.2	450 550 /	350h6 450h6 /	5 5 /	22 25 /	400 500 /	17.5 17.5 /	361 540 285	695 210 33.4	450	110m6	210	15 180	m24	116 28
RCRF167..	Flg.2	550 660 /	450h6 550h6 /	5 6 /	25 28 /	500 600 /	17.5 22 /	430 670 324	790 250 59.9	550	120m6	210	5 200	m24	127 32

RCR..

RCF..

RCK..

RCS..

RCR..

RCF..

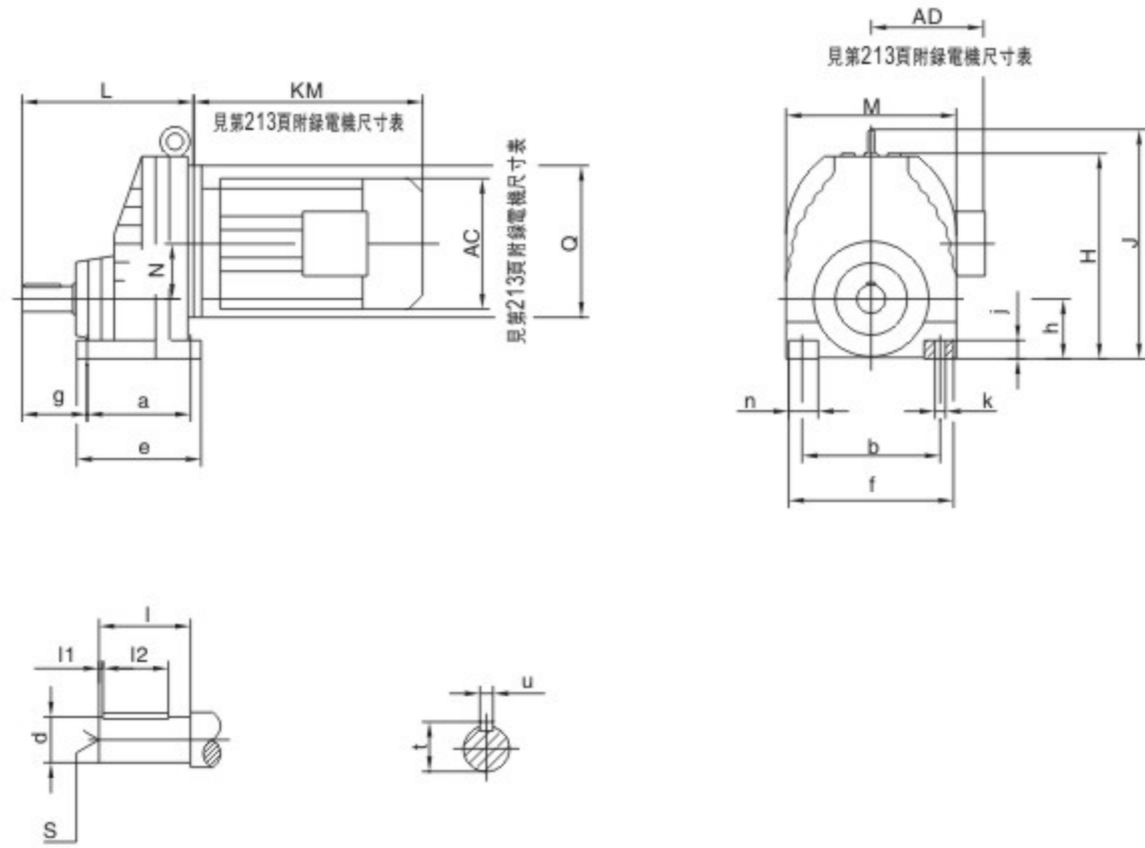
RCK..

RCS..

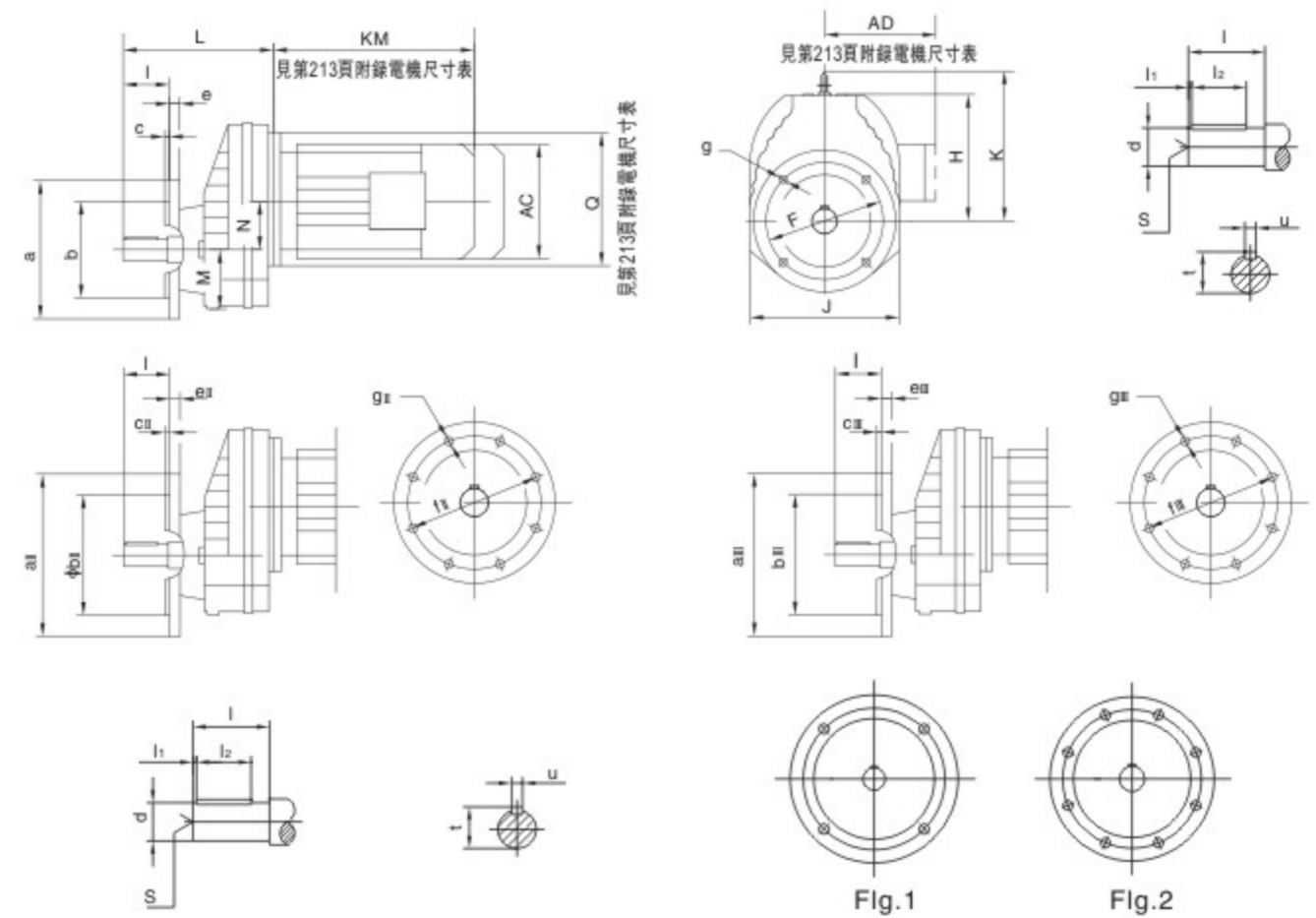
RCR系列斜齒輪減速電機

RCR系列斜齒輪減速電機

RCRX57..RCRX107..



RCRXF57..RCRXF107..



法蘭型式  
Flange form

型號 size	a b	e f	g	h	j	k	n	軸伸尺寸 Shaftdimension					H	J	L M	N	Q
								d	l	l <sub>1</sub> l <sub>2</sub>	S	t u					
RCRX57..	110 125	137 156	56	63-0.5	18	11	31	20k6	40	3.5 32	M6	22.5 6	202	/	174 162	52	160
RCRX67..	120 135	150 170	75	80-0.5	20	13.5	35	25k6	50	3.5 40	M10	28 8	226	/	201 176	60	160
RCRX77..	150 170	190 204	85	90-0.5	25	17.5	50	30k6	60	3.5 50	M10	33 8	271	311	227 210	72	200
RCRX87..	160 215	206 266	110	100-0.5	30	17.5	60	40k6	80	5 70	M16	43 12	332	372	269 272	93.5	250
RCRX97..	185 250	240 320	140	112-0.5	35	22	70	50k6	100	10 80	M16	53.5 14	393	440	316 328	116	300
RCRX107..	210 310	260 360	152	140-0.5	45	22	80	60m6	120	5 110	M20	64 18	459	506	364 370	130	350

型號 size	法蘭 尺寸 flange dimension	a aII aIII	b bII bIII	c cII cIII	e eII eIII	f fII fIII	g gII gIII	H J K	L M N	Q	軸伸尺寸 Shaftdimension				
											d	l	l <sub>1</sub> l <sub>2</sub>	S	t u
RCRF57..	Fig.1	140 160 200	95j6 110j6 130j6	3 3.5 3.5	10 10 12	115 130 165	9 9 11	139 162 /	174 62 52	160	20k6	40	5 32	M6	22.5 6
RCRF67..	Fig.1	160 200 250	110j6 130j6 180j6	3.5 3.5 4	10 12 15	130 165 215	9 11 13.5	147 175 /	201 70 60	160	25k6	50	3.5 40	M10	28 8
RCRF77..	Fig.1	200 250 /	130j6 180j6 /	3.5 4 /	12 15 /	165 215 /	11 13.5 /	181 210 221	227 78 72	200	30k6	60	3.5 50	50	33 8
RCRF87..	Fig.1	250 300 /	180j6 230j6 /	4 4 /	15 16 /	215 265 /	13.5 13.5 /	232 272 272	269 98 93.5	250	40k6	80	5 70	M16	43 12
RCRF97..	Fig.1	300 350 /	230j6 250h6 /	4 5 /	16 18 /	265 300 /	13.5 17.5 /	281 328 328	316 118 116	300	50k6	100	10 80	M16	53.5 14
RCRF107..	Fig.1 Fig.2	350 450 /	250h6 350h6 /	5 5 /	18 22 /	300 400 /	17.5 17.5 /	319 370 366	364 135 130	350	60m6	120	5 110	M20	64 18

RCR... RCF... RCK... RCS... RCR系列斜齒輪減速電機



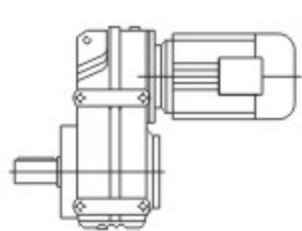




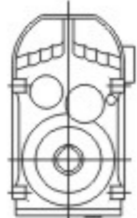
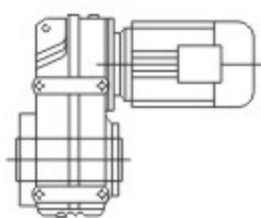
## 6. RCF 平行軸 – 斜齒輪減速電機 RCF Parallel shaft – Helical Geared Motor

### 6.1 設計方案 6.1 Versions of geared motors

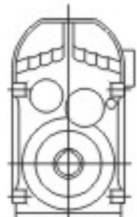
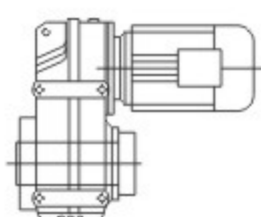
平行軸裝式斜齒輪減速電機有以下設計方案：  
The following types of Parallel Shaft – Helical Geared Motor can be supplied:



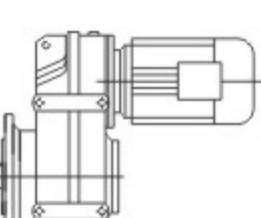
RCF..D..  
底腳安裝平行軸-斜齒輪減速電機  
Solid shaft  
Rail mount with tapped holes



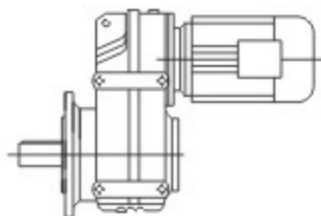
RCFA..B D..  
底腳空心軸安裝平行軸-斜齒輪減速電機  
Hollow shaft with key  
Rail mount with tapped holes



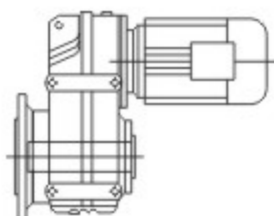
RCFV..B D..  
底腳花鍵空心軸安裝平行軸-斜齒輪減速電機  
Splined hollow shaft  
Rail mount with tapped holes



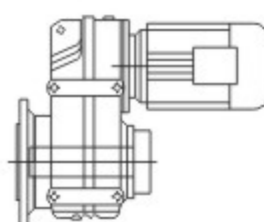
RCFH..B D..  
底腳空心軸鎖緊盤安裝平行軸-斜齒輪減速電機  
Shrink disk hollow shaft  
Rail mount with tapped holes



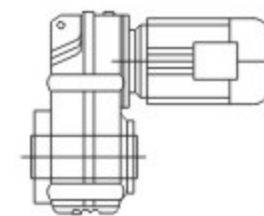
RCFF..D..  
B5 法蘭安裝平行軸-斜齒輪減速電機  
Solid shaft  
Flange mounted(D&B5 style flange with through holes)



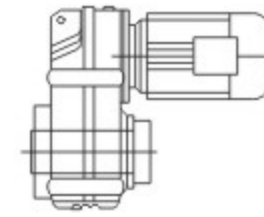
RCFAF..D..  
B5 法蘭空心軸安裝平行軸-斜齒輪減速電機  
Hollow shaft with key  
Flange mount(D&B5 style flange with through holes)  
RCFVF..D..  
B5 法蘭花鍵空心軸安裝平行軸-斜齒輪減速電機  
Hollow shaft with key  
Flange mount(D&B5 style flange with through holes)



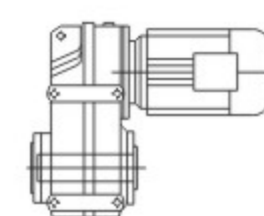
RCFHF..D..  
B5 法蘭空心軸鎖緊盤安裝平行軸-斜齒輪減速電機  
Shrink disk hollow shaft  
Flange mount(D&B5 style flange with through holes)



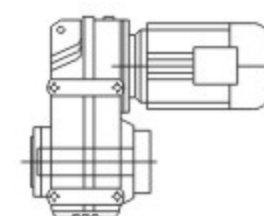
RCFA..D..  
空心軸安裝平行軸-斜齒輪減速電機  
Hollow shaft with key  
Shaft mount



RCFV..D..  
花鍵空心軸安裝平行軸-斜齒輪減速電機  
Splined hollow shaft  
Shaft mount



RCFH..D..  
空心軸鎖緊盤安裝平行軸-斜齒輪減速電機  
Shrink disk hollow shaft  
Shaft mount



RCFAZ..D  
B14 法蘭空心軸安裝平行軸-斜齒輪減速電機  
Hollow shaft with key  
Face mount(D&B14 style flange with tapped holes)

RCFVZ..D  
B14 法蘭花鍵空心軸安裝平行軸-斜齒輪減速電機  
Hollow shaft with key  
Face mount(D&B14 style flange with tapped holes)



RCFHZ..D  
B14 法蘭空心軸鎖緊盤安裝平行軸-斜齒輪減速電機  
Shrink disk hollow shaft  
Face mount(D&B14 style flange with tapped holes)

## 6.2 可行的組合方式 6.2 Type of combination

以下是平行軸-斜齒輪減速機與交流(帶制動)電機的組合列表。表中給出了每種組合的速比範圍。  
The below is combination table between gear box and electro motor in each list the ratio range.

減速器型號 Gear unit size	級 Stages	D63 D71	D80	D90	D100	D112	D132S	D132M
RCF/FF/FA/FAF37	2	4.22-7.44 8.97-23.63	3.77-23.63	3.77-20.57	3.77-6.74 8.01-14.33 17.03			
RCF/FF/FA/FAF37	3	23.88-128.51	23.88-100.36	23.88-51.70 58.32-86.53	23.88-31.69 38.31 51.70 58.32 70.50			
RCF/FF/FA/FAF47	2	6.34-8.96 13.93-30.86	4.99-30.86	4.99-30.86	4.99-25.72			
RCF/FF/FA/FAF47	3	28.88-190.76	28.88-150.06	28.88-130.07	28.88-56.49 68.09-105.09			
RCF/FF/FA/FAF57	2	6.58-9.31 13.52-40.13	5.18-34.24	5.18-29.94	5.18-24.96	5.18-21.17		
RCF/FF/FA/FAF57	3	30.15-199.70	30.15-157.09	30.15-136.16	30.15-58.97 83.46-110.01	30.15-50.10 83.46-93.47		
RCF/FF/FA/FAF67	2	7.53-9.08 18.29-36.30	5.95-9.08 14.46-36.30	3.97-36.30	3.97-32.08	3.97-27.41	3.97-22.05	3.97-22.05
RCF/FF/FA/FAF67	3	43.20-228.99	34.01-195.39	34.01-170.85	34.01-142.40	34.01-67.65 90.59-120.79	34.01-53.73 90.59-95.94	34.01-53.73 90.59-95.94
RCF/FF/FA/FAF77	2	21.43-36.58	8.26-9.30 17.49-36.58	5.76-9.30 12.20-36.58	4.28-36.58	4.28-31.51	4.28-25.50	4.28-25.50
RCF/FF/FA/FAF77	3	48.37-72.50 94.93-281.71	38.23-225.79	25.54-198.31	25.54-166.47	25.54-142.27	25.54-58.32 75.02-114.45	25.54-58.32 75.02-114.45
RCF/FF/FA/FAF87	2		23.68-33.92	7.35-8.29 17.12-33.92	5.63-8.29 13.12-33.92	5.63-8.29 13.12-33.92	4.12-33.92	4.12-33.92
RCF/FF/FA/FAF87	3		109.49-270.68	39.30-50.36 76.39-270.68	29.20-228.93	29.20-197.20	29.20-159.61	29.20-159.61
RCF/FF/FA/FAF97	2			9.06 22.11-43.28	7.07-9.06 17.25-43.28	7.07-9.06 17.25-43.28	4.57-43.28	4.57-43.28
RCF/FF/FA/FAF97	3			58.06-72.29 80.31 89.85-97.58 112.99-276.77	44.49-72.29 80.31-276.77	44.49-72.29 80.31-276.77	32.50-223.88	32.50-223.88
RCF/FF/FA/FAF107	2				21.76-33.79	21.76-33.79	7.40-9.69 14.67-33.79	7.40-9.69 14.67-33.79
RCF/FF/FA/FAF107	3				58.12-83.99 92.47-254.40	58.12-83.99 92.47-254.40	37.61-254.40	37.61-254.40
RCF/FF/FA/FAF127	2							7.88-8.86 14.55-26.86
RCF/FF/FA/FAF127	3							37.28-170.83

續表

減速器型號 Gear unit size	級 Stages	D132ML	D160M	D160L	D180	D200
RCF/FF/FA/FAF77	2	4.28-19.70	4.28-19.70			
RCF/FF/FA/FAF77	3	25.54-43.58	25.54-43.58			
RCF/FF/FA/FAF87	2	4.12-26.50	4.12-26.50	4.12-26.50	4.12-21.32	
RCF/FF/FA/FAF87	3	29.20-123.29	29.20-123.29	29.20-123.29	29.20-50.36	
RCF/FF/FA/FAF97	2	4.57-33.91	4.57-33.91	4.57-33.91	4.57-27.44	4.57-22.11
RCF/FF/FA/FAF97	3	32.50-89.85 102.16-174.87	32.50-89.85 102.16-174.87	32.50-89.85 102.16-174.87	32.50-75.63 86.59 102.16-140.71	32.50-58.06 75.63 86.59 102.16-112.99
RCF/FF/FA/FAF107	2	6.22-9.69 12.33-33.79	6.22-9.69 12.33-33.79	6.22-9.69 12.33-33.79	6.22-33.79	6.22-27.57
RCF/FF/FA/FAF107	3	31.80-199.31	31.80-199.31	31.80-199.31	31.80-161.28	31.80-74.52 88.49 101.38-129.97
RCF/FF/FA/FAF127	2	6.80-8.86 12.54-26.86	6.80-8.86 12.54-26.86	6.80-8.86 12.54-26.86	5.52-26.86	4.68-26.86
RCF/FF/FA/FAF127	3	31.33-170.83	31.33-170.83	31.33-170.83	25.30-153.67	25.30-125.37
RCF/FF/FA/FAF157	2		16.85-53.55	16.85-53.55	13.96-43.94	11.92-35.75
RCF/FF/FA/FAF157	3		40.06-267.43	40.06-267.43	32.55-217.62	27.60-178.20

減速器型號 Gear unit size	級 Stages	D225	D250M	D280	D315	D315M-A/B
RCF/FF/FA/FAF107	2	6.22-27.57				
RCF/FF/FA/FAF107	3	31.80-74.52 88.49 101.38-129.97				
RCF/FF/FA/FAF127	2	4.68-26.86	4.68-21.38	4.68-21.38		
RCF/FF/FA/FAF127	3	25.30-125.37	25.30-55.31 75.41-98.95	25.30-55.31 75.41-98.95		
RCF/FF/FA/FAF157	2	11.92-35.75	11.92-28.60	11.92-28.60	11.92-22.16	11.92-16.85
RCF/FF/FA/FAF157	3	27.60-178.20	27.60-68.28 96.53-141.80	27.60-68.28 96.53-141.80	27.60-52.24 96.53-108.49	27.60-40.06







RCF127R77,RCF127/R87,RCF157R97 表中 $n_a$ 是按 $n_e=1400$  1/min計算

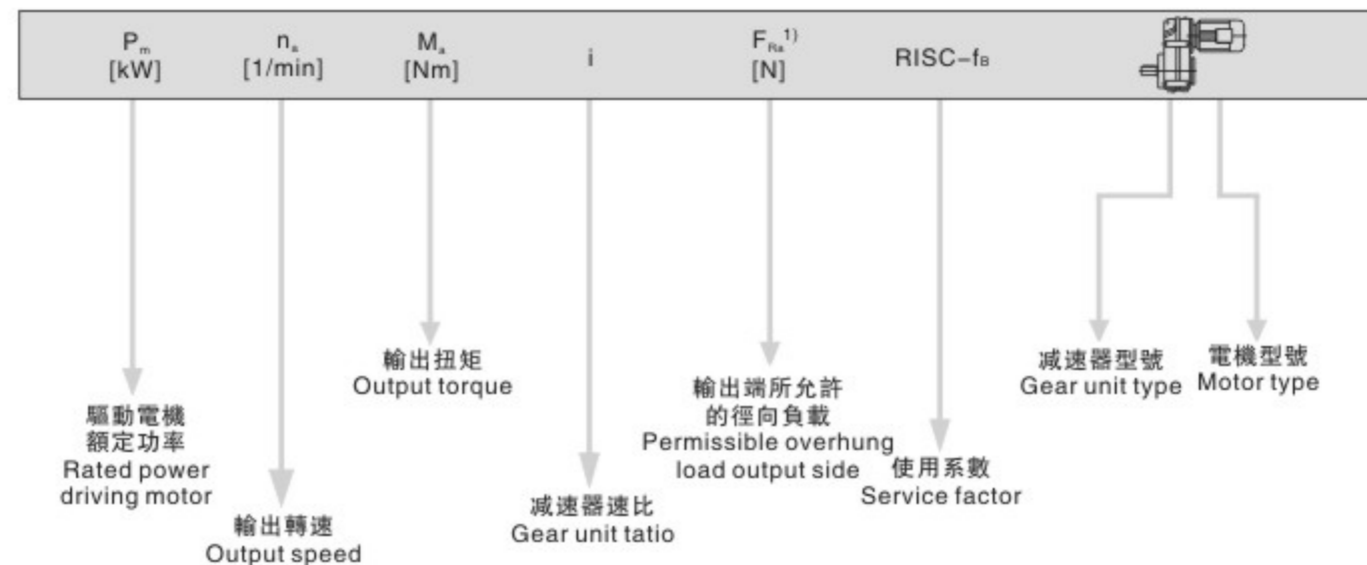
RCF127R77 12000Nm			
i	$n_a$ [1/min]	$M_{amax}$ [Nm]	$F_{Ra}$ [N]
24478	0.06	12000	90000
22323	0.06	12000	90000
19048	0.07	12000	90000
16656	0.08	12000	90000
14722	0.10	12000	90000
12912	0.11	12000	90000
11656	0.12	12000	90000
10191	0.14	12000	90000
8831	0.16	12000	90000
7643	0.18	12000	90000
6715	0.21	12000	90000
5925	0.24	12000	90000
5153	0.27	12000	90000
4533	0.31	12000	90000
3926	0.36	12000	90000
3454	0.41	12000	90000
3031	0.46	12000	90000
2672	0.52	12000	90000
2357	0.59	12000	90000
2038	0.69	12000	90000
1784	0.78	12000	90000
1606	0.87	12000	90000
1390	1.0	12000	90000
1220	1.1	12000	90000
1077	1.3	12000	90000
930	1.5	12000	90000
820	1.7	12000	90000
727	1.9	12000	90000
648	2.2	12000	90000
549	2.6	12000	90000
495	2.8	12000	90000
428	3.3	12000	90000
376	3.7	12000	90000

RCF127R87 12000Nm			
i	$n_a$ [1/min]	$M_{amax}$ [Nm]	$F_{Ra}$ [N]
483	2.9	12000	90000
418	3.3	12000	90000
374	3.7	12000	90000
312	4.5	12000	90000
293	4.8	12000	90000
259	5.4	12000	90000
223	6.3	12000	90000
198	7.1	12000	90000
166	8.4	12000	90000

RCF157R97 18000Nm			
i	$n_a$ [1/min]	$M_{amax}$ [Nm]	$F_{Ra}$ [N]
31434	0.04	18000	100300
26173	0.05	18000	100300
23464	0.06	18000	100300
20212	0.07	18000	100300
17984	0.08	18000	100300
16358	0.09	18000	100300
13751	0.10	18000	100300
12235	0.11	18000	100300
10033	0.14	18000	100300
9021	0.16	18000	100300
8026	0.17	18000	100300
7075	0.20	18000	100300
6295	0.22	18000	100300
5404	0.26	18000	100300
4831	0.29	18000	100300
4130	0.34	18000	100300
3607	0.39	18000	100300
3210	0.44	18000	100300
2780	0.50	18000	100300
2427	0.58	18000	100300
2185	0.64	18000	100300
1944	0.72	18000	100300
1674	0.84	18000	100300
1441	0.97	18000	100300
1308	1.1	18000	100300
1169	1.2	18000	100300
953	1.5	18000	100300
845	1.7	18000	100300
764	1.8	18000	100300
680	2.1	18000	100300
576	2.4	18000	100300
503	2.8	18000	100300
446	3.1	18000	100300
353	4.0	18000	100300
302	4.6	18000	100300
273	5.1	18000	100300
232	6.0	18000	100300
202	6.9	18000	100300
197	7.1	18000	100300

6.4 選型表注釋  
6.4 Selection table

選型表的結構  
Selection table for geared motors



圖例 Cuttine

- ※ 也可用于EEExe 電機。 ※EEXE motor is optional.
- 1) 實心軸底腳安裝減速機的徑向負荷
- 1) Overhung load specified for foot-mounted gear unit with solid shaft

注意: Notice:

對於特殊低輸出轉速驅動(多級減速電機), 電機功率必須與減速機的最大允許輸出地扭矩相對應。  
In drives for particularly low output speeds (multi-stage geared motor), the motor power must belimited according to maximum permitted output torque of the gear unit.













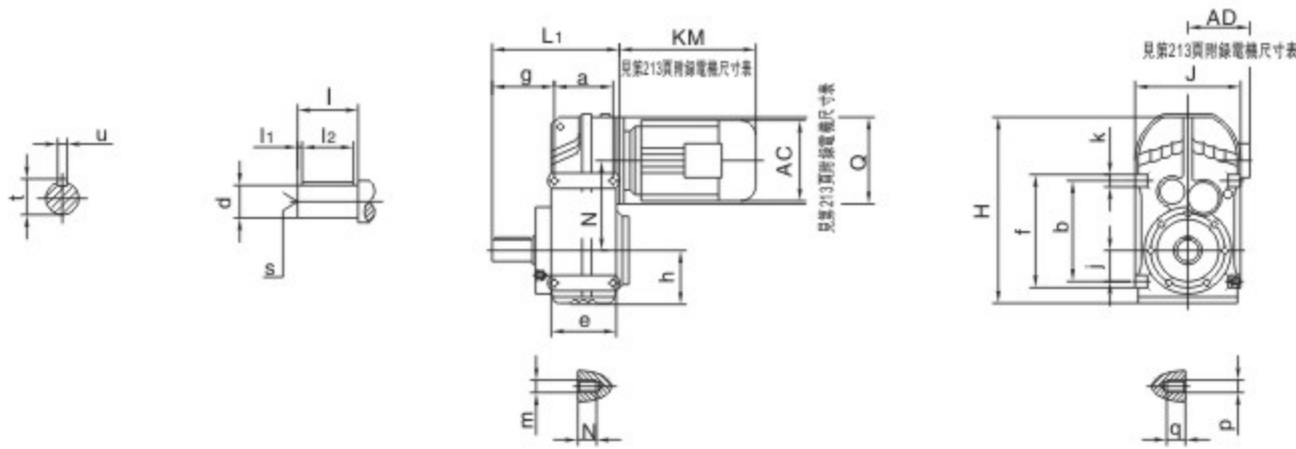




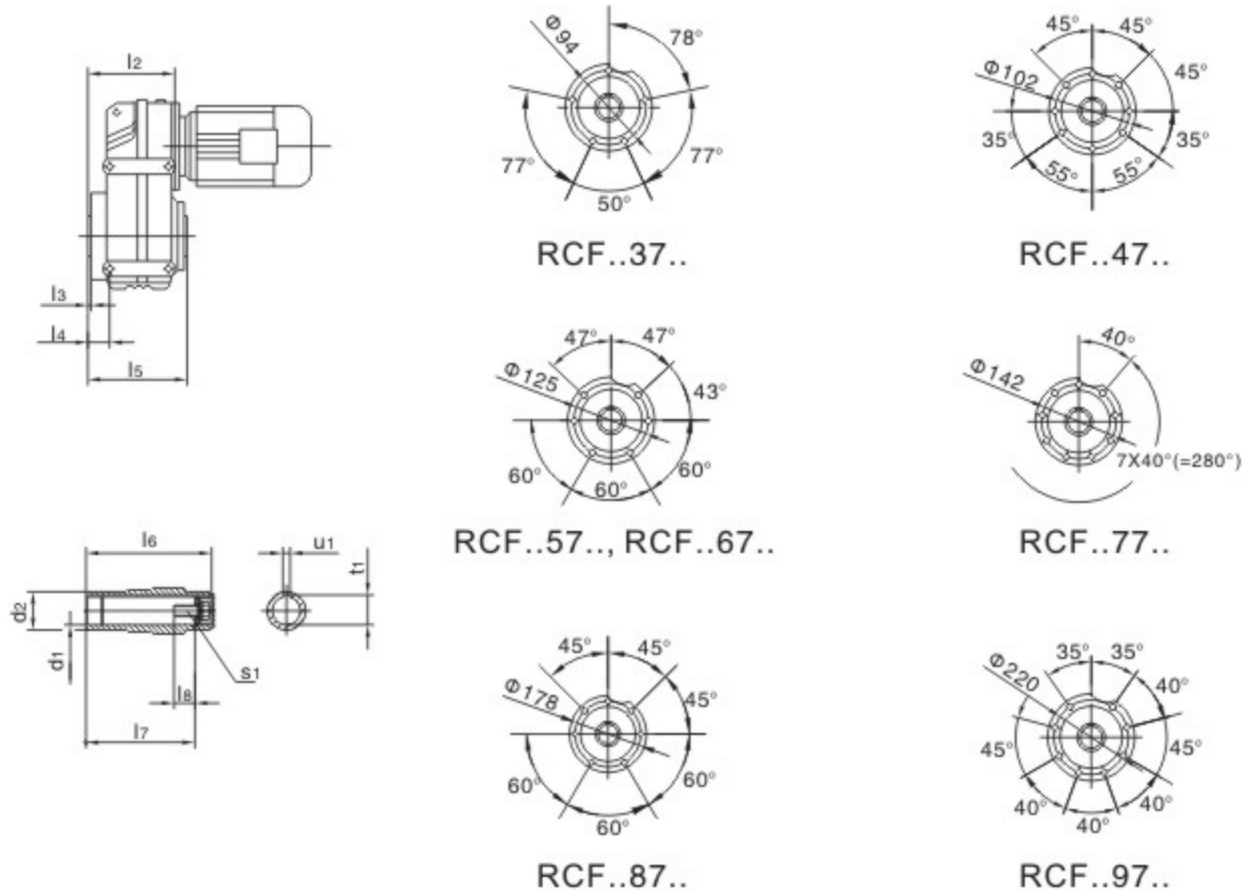




RCF37..~RCF157..



RCFA37B..~RCFA157B..



型號 size	a b	e f	g	h	j	k	m n	P q	軸伸尺寸 Shaft dimension				
									d	l	l <sub>1</sub> l <sub>2</sub>	S	t u
RCF37.. RCFA37B..	77 115	95 135	72.5	76	31	20	M8 11	M8 11	25k6	50	5 40	M10	28 8
RCF47.. RCFA47B..	93 145	109 165	91	77	43	20	M8 11	M10 15	30k6	60	3.5 50	M10	33 8
RCF57.. RCFA57B..	102 170	126 195	104.5	93	55	25	M12 17	M12 17	35k6	70	7 56	M12	38 10
RCF67.. RCFA67B..	1121 190	131 215	118.5	97	60	25	M12 17	M12 17	40k6	80	5 70	M16	43 12
RCF77.. RCFA77B..	140 240	165 275	137.5	121	70	35	M12 17	M16 26	50k6	100	10 80	M16	53.5 14
RCF87.. RCFA87B..	165 310	195 350	163	152	100	40	M16 26	M16 26	60m6	120	5 110	M20	64 18
RCF97.. RCFA97B..	205 350	240 400	190.5	178	120	50	M16 26	M20 28	70m6	140	7.5 125	M20	74.5 20
RCF107.. RCFA107B..	220 400	260 460	241.5	200	125	60	/ /	M24 36	90m6	170	5 160	M24	95 25
RCF127.. RCFA127B..	270 450	316 520	291	236	142	70	/ /	M30 45	110m6	210	15 180	M24	116 28
RCF157.. RCFA157B..	310 540	364 620	325	286	170	80	/ /	M36 55	120m6	210	5 200	M24	127 32

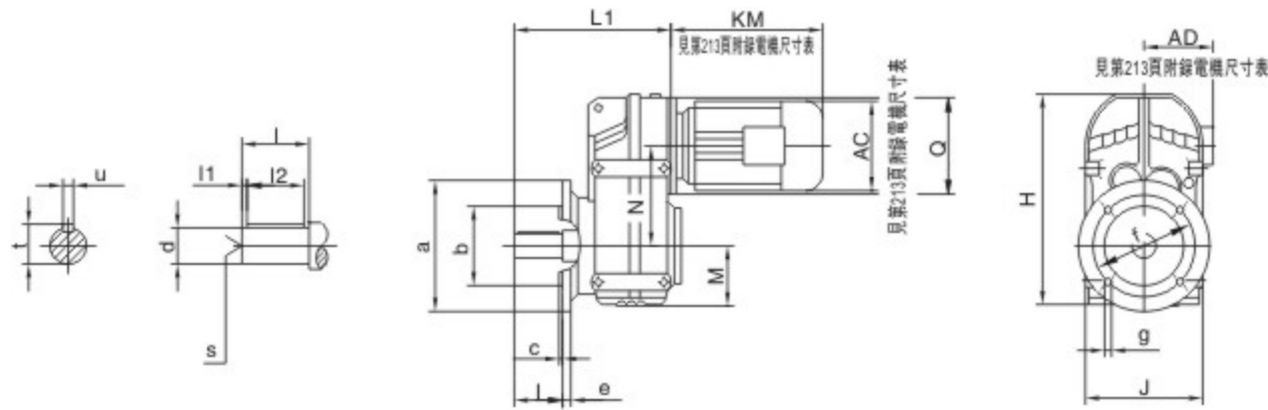
型號 Model	空心軸尺寸 Hollow shaft dimension								HJ	L1	L2	N	Q
	d1	d2	l <sub>3</sub> l <sub>4</sub>	l <sub>5</sub>	l <sub>6</sub> l <sub>7</sub>	l <sub>8</sub>	s <sub>1</sub>	t <sub>1</sub> u <sub>1</sub>					
RCF37.. RCFA37B..	30H7	45	2.5 22.5	123	120 105	17	M10X25	33.3 8	252 165	160	110	112	120
RCF47.. RCFA47B..	35H7	50	3 31	153	150 132	22	M10X25	38.3 10	269 180	193	133	128.1	120
RCF57.. RCFA57B..	40H7	55	3 33.5	170	166 142	29	M16X40	43.3 12	317 200	221	150	136	160
RCF67.. RCFA67B..	40H7	55	3.5 37	184	180 156	29	M16X40	43.3 12	343 212	242	161	159.5	160
RCF77.. RCFA77B..	50H7	70	4 36.5	213	210 183	32	M16X45	53.8 14	426 270	294	193	200	200
RCF87.. RCFA87B..	60H7	85	4 43	243	240 210	36	M20X50	64.4 18	531 330	344	224	246.7	250
RCF97.. RCFA97B..	70H7	95	4 48.5	303	300 270	34	M20X50	74.9 20	623 400	416	274	285	300
RCF107.. RCFA107B..	90H7	118	2.5 69.5	353	350 313	40	M24X60	95.4 25	717 450	484	312	332.4	350
RCF127.. RCFA127B..	100H7	135	2.5 79.25	413	410 373	38	M24X60	106.4 28	856 530	585	373	382.6	450
RCF157.. RCFA157B..	120H7	155	7 118	503	500 460	36	M24X60	127.4 32	1021 660	662	455	447	550

RCF系列平行軸-斜齒輪減速電機

RCF系列平行軸-斜齒輪減速電機



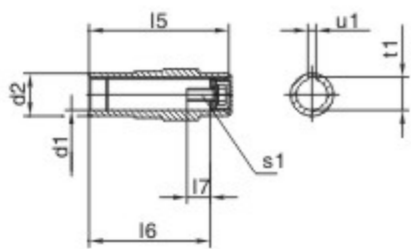
RCFF37..~RCFF157..



RCFAF37..~RCFAF157



法蘭型式  
flange form



型號 Model	法蘭 型式 flange form	a b	c e	f g	軸伸尺寸 Shaft dimension				空心軸尺寸 Hollow Shaft dimension					H J	L1 L2	M N Q
					d l	l1 l2	s	t u	d1 d2	l3 l4	l5 l6	l7 l8	t1 u1			
RCFF37.. RCFAF37..	Fig.1	160	3.5	130	25k6	5	M10	28	30H7	24	120	17	33.3	252	184	76
		110j6	10	9	50	40		8	45	123	105	M10X25	8	165	138	112 120
RCFF47.. RCFAF47..	Fig.1	200	3.5	165	30k6	3.5	M10	33	35H7	25	150	22	38.3	269	218	77
		130j6	12	11	60	50		8	50	153	132	M10X25	10	180	162	128.1 120
RCFF57.. RCFAF57..	Fig.1	250	4	215	35k6	7	M12	38	40H7	23.5	166	29	43.3	317	243	93
		180j6	15	13.5	70	56		10	55	170	142	M16X40	12	200	177	136 160
RCFF67.. RCFAF67..	Fig.1	250	4	215	40k6	5	M16	43	40H7	23	180	29	43.3	343	264	97
		180j6	15	13.5	80	70		12	55	184	156	M16X40	12	212	188	159.5 160
RCFF77.. RCFAF77..	Fig.1	300	4	265	50k6	10	M16	53.5	50H7	37	210	32	53.8	426	330	121
		230h6	16	13.5	100	80		14	70	213	183	M16X45	14	270	234	200 200
RCFF87.. RCFAF87..	Fig.1	350	5	300	60m6	5	M20	64	60H7	30	240	36	64.4	531	374	152
		250h6	18	17.5	120	110		18	85	243	210	M20X50	18	330	259	246.7 250
RCFF97.. RCFAF97..	Fig.2	450	5	400	70m6	7.5	M20	74.5	70H7	41.5	300	34	74.9	623	456	178
		350h6	22	17.5	140	125		20	95	303	270	M20X50	20	400	321	285 300
RCFF107.. RCFAF107..	Fig.2	450	5	400	90m6	5	M24	95	90H7	41	350	40	95.4	717	523	200
		350h6	22	17.5	170	160		25	118	353	313	M24X60	25	450	358	332.4 350
RCFF127.. RCFAF127..	Fig.2	550	5	500	110m6	15	M24	116	100H7	51	410	38	106.4	856	643	236
		450h6	25	17.5	210	180		28	135	413	373	M24X60	28	530	426	382.6 450
RCFF157.. RCFAF157..	Fig.2	660	6	600	120m6	5	M24	127	120H7	60	500	36	127.4	1021	725	286
		550h6	28	22	210	200		32	155	503	460	M24X60	32	660	521	447 550

RCR..

RCF..

RCK..

RCS..

RCF系列平行軸-斜齒輪減速電機

RCR..

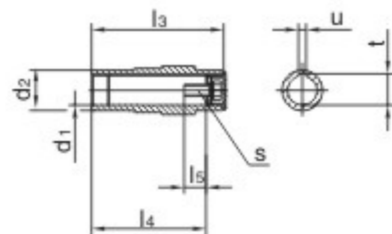
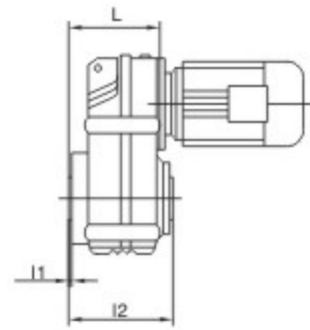
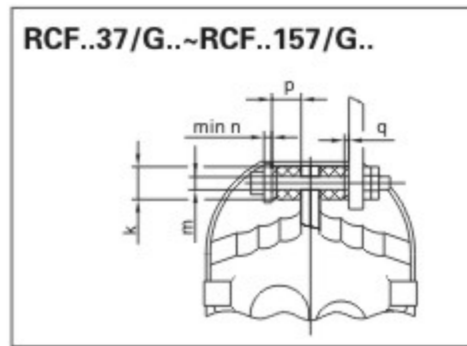
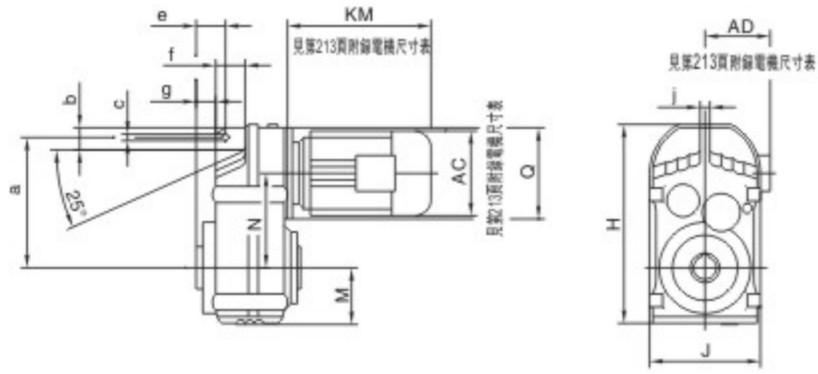
RCF..

RCK..

RCS..

RCF系列平行軸-斜齒輪減速電機

RCFA37..~RCFA157..



型號 Model	a b	c e	f g	空心軸尺寸 Hollow Shaft dimension					扭矩臂尺寸 torque arm form			H J i	L	M	N Q
				d1 d2	l1 l2	l3 l4	l5 s	t u	K M N	p q					
RCFA37.. RCF..37/G..	158 30	14 31.5	46 15	30H7 45	0.5 123	120 105	17 M10X25	33.3 8	40 12.5 5	20 1	252 172 12	110	76	112 120	
RCFA47.. RCF..47/G..	170 22	14 32	64 12	35H7 50	1 153	150 132	22 M10X25	38.3 10	40 12.5 5	20 1.8	269 189 12	133	77	128.1 120	
RCFA57.. RCF..57/G..	198 31	14 40.5	60 19.5	40H7 55	1 170	166 142	29 M16X40	43.3 12	40 12.5 5	20 2.4	317 210 14	150	93	136 160	
RCFA67.. RCF..67/G..	218 40	14 41	65 21	40H7 55	1 184	180 156	29 M16X40	43.3 12	40 12.5 5	20 3	343 223 16	161	97	159.5 160	
RCFA77.. RCF..77/G..	278 49	22 50	69 28	50H7 70	1 213	210 183	32 M16X45	53.8 14	60 21 10	30 3.2	426 282 20	193	121	200 200	
RCFA87.. RCF..87/G..	346 57	22 62	79 32	60H7 85	1 243	240 210	36 M20X50	64.4 18	60 21 10	30 4.5	531 336 26	224	152	246.7 250	
RCFA97.. RCF..97/G..	395 88	26 70	104 34	70H7 95	1 303	300 270	34 M20X50	74.9 20	80 25 12	40 5	623 414 30	274	178	285 300	
RCFA107.. RCF..107/G..	485 108	26 88	100 57	90H7 118	2.5 353	350 313	40 M24X60	95.4 25	80 25 12	40 6	717 456 36	312	200	332.4 350	
RCFA127.. RCF..127/G..	550 138	33 110	125 66	100H7 135	2.5 413	410 373	38 M24X60	106.4 28	100 32 15	60 9	856 530 40	373	236	382.6 450	
RCFA157.. RCF..157/G..	660 170	33 150	140 98	120H7 155	7 503	500 460	36 M24X60	127.4 32	120 32 15	60 9	1021 660 45	455	286	447 550	

RCR..

RCF..

RCK..

RCS..

RCF系列平行軸-斜齒輪減速電機

RCR..

RCF..

RCK..

RCS..

RCF系列平行軸-斜齒輪減速電機

























Table with 7 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Contains data for 0.55kW and 0.75kW ranges.

Table with 7 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Contains data for 0.55kW and 0.75kW ranges.

Table with 7 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Contains data for 0.55kW and 0.75kW ranges.

Table with 7 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Contains data for 0.75kW and 1.1kW ranges.

RCR..

RCF..

RCK..

RCS..

RCK系列斜齒輪-傘齒輪減速電機

RCR..

RCF..

RCK..

RCS..

RCK系列斜齒輪-傘齒輪減速電機









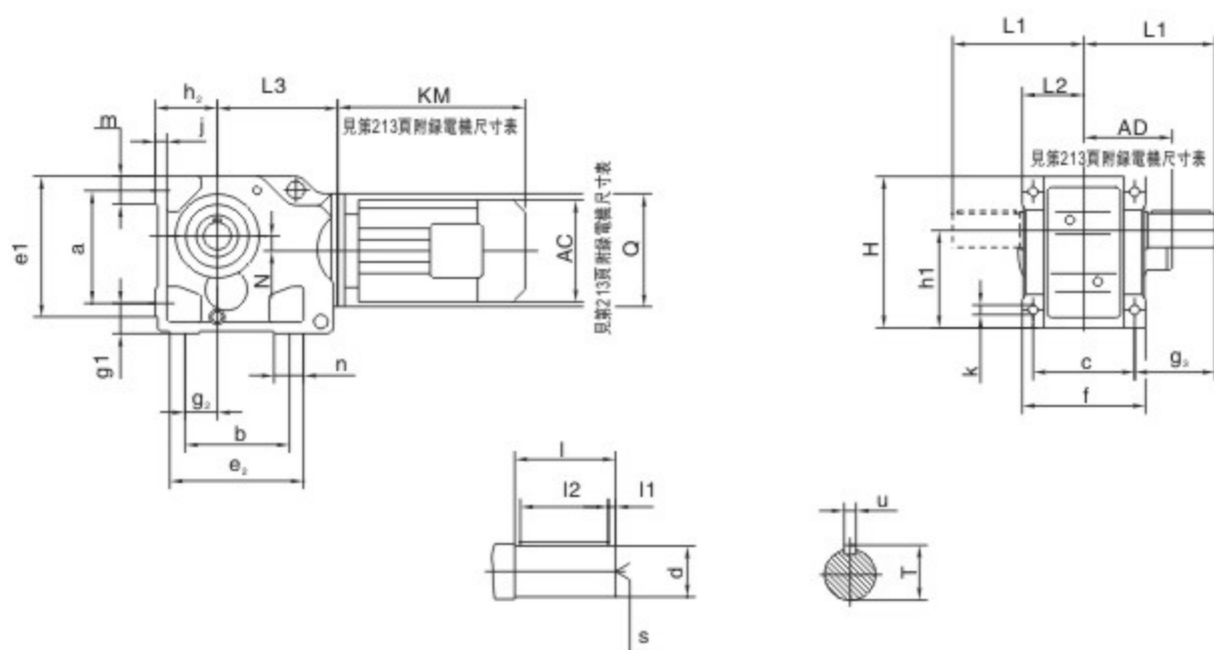






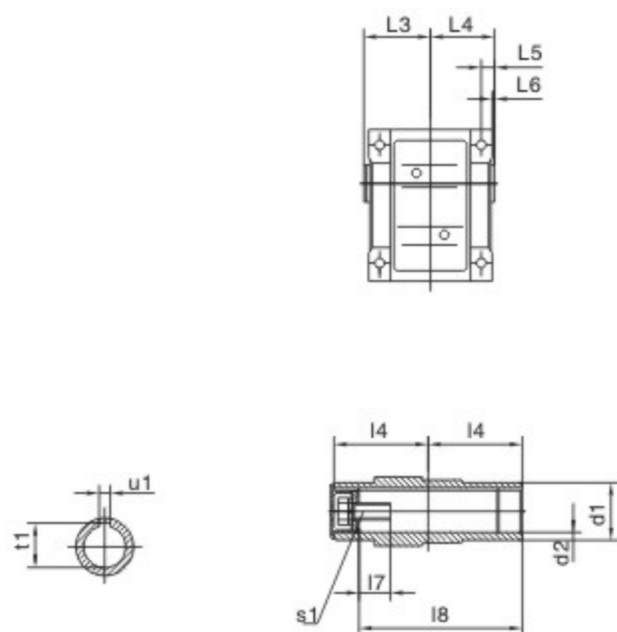


## RCK37..~RCK157..



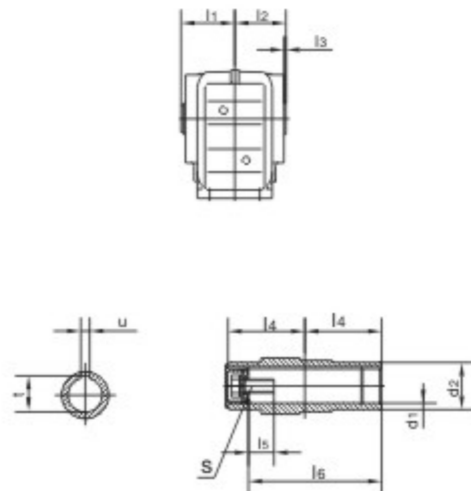
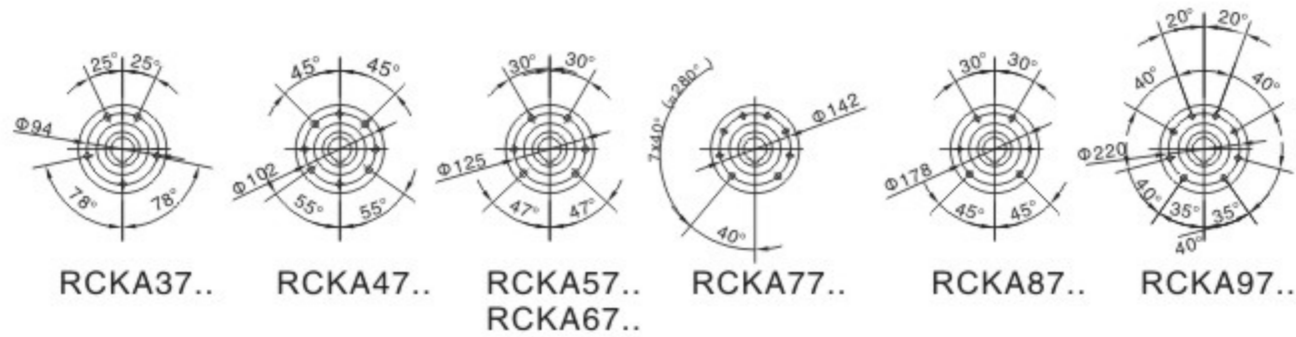
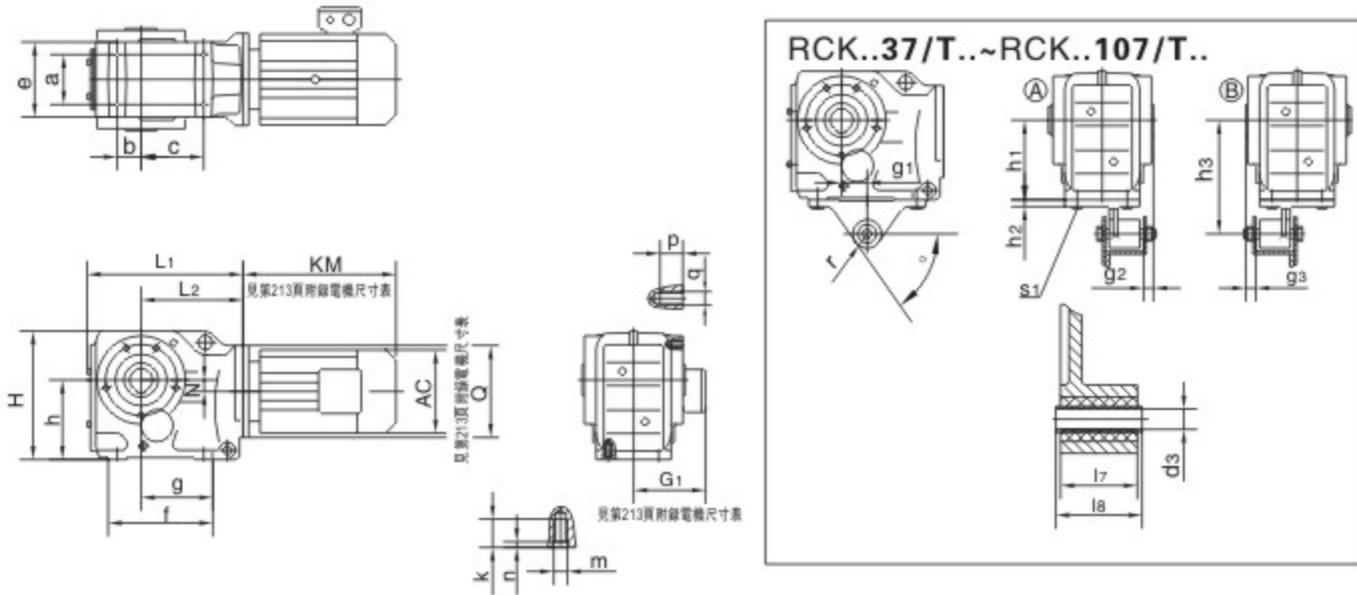
型號 size	a b c	e <sub>1</sub> e <sub>2</sub> f	g <sub>1</sub> g <sub>2</sub> g <sub>3</sub>	h <sub>1</sub> h <sub>2</sub>	j	k	m n	軸伸尺寸 Shaft dimension				
								d	l	l <sub>1</sub> l <sub>2</sub>	S	t u
RCK37..	115 110 100	150 143 120	32 28 60	100-0.5 63-0.5	16	11	37 38	25k6	50	5 40	M10	28 8
RCK47.. RCKA47B..	130 130 120	170 162 145	37 35 75	112-0.5 71-0.5	18	11	37 32	30k6	60	3.5 50	M10	33 8
RCK57.. RCKA57B..	150 130 130	190 172 157	45 30 88	132-0.5 80-0.5	21	13.5	43 40	35k6	70	7 56	M12	38 10
RCK67.. RCKA67B..	160 120 140	203 170 170	45 30 101	140-0.5 90-0.5	24	13.5	43 45	40k6	80	5 70	M16	43 12
RCK77.. RCKA77B..	200 150 165	263 208 200	55 40 123.5	180-0.5 112-0.5	27	17.5	55 55	50k6	100	10 80	M16	53.5 14
RCK87.. RCKA87B..	233 180 180	305 260 230	70 55 150	212-0.5 132-0.5	32	22	67 75	60m6	120	5 110	M20	64 18
RCK97.. RCKA97B..	295 240 240	372 294 290	75 75 171	265-1 160-0.5	36	26	82 60	70m6	140	7.5 125	M20	74.5 20
RCK107.. RCKA107B..	360 280 270	448 380 340	95 95 212	315-1 200-0.5	40	33	98 100	90m6	170	5 160	M24	95 25
RCK127.. RCKA127B..	420 350 330	526 440 400	110 115 253	375-1 225-0.5	45	39	111 100	110m6	210	15 180	M24	116 28
RCK157.. RCKA157B..	500 380 420	634 480 500	130 140 247	450-1 280-1	50	39	130 100	120m6	210	5 200	M24	127 32

## RCKA37B..~RCKA157B..



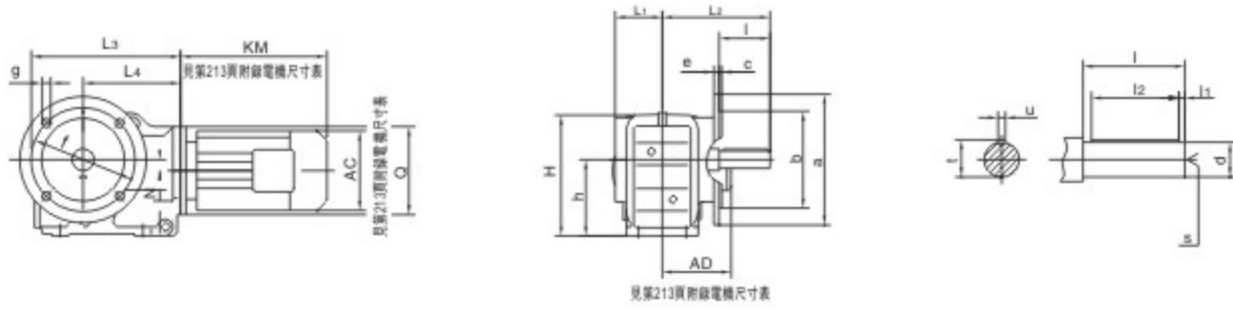
型號 size	空心軸尺寸 hollow shaft dimension							H	L <sub>1</sub> L <sub>2</sub>	L <sub>3</sub>	N	Q
	d <sub>1</sub>	d <sub>2</sub>	L <sub>3</sub> L <sub>4</sub>	L <sub>5</sub> L <sub>6</sub>	l <sub>7</sub> l <sub>8</sub>	s <sub>1</sub>	t <sub>1</sub> u <sub>1</sub>					
RCK37..	-	-	-	-	-	-	-	165	110 60	139	8.5	120
RCK47.. RCKA47B..	35 <sup>H7</sup>	50	78 75	15 3	22 132	M12x30	38.3 10	185	135 72	166	7.2	160
RCK57.. RCKA57B..	40 <sup>H7</sup>	55	86 83	18 3	29 142	M16x40	43.3 12	217	153 80	173	13.1	160
RCK67.. RCKA67B..	40 <sup>H7</sup>	55	93 90	20 3.5	29 156	M16x40	43.3 12	228	171 86.5	179	20	160
RCK77.. RCKA77B..	50 <sup>H7</sup>	70	108 105	22.5 4	32 183	M16x45	53.8 14	288	206 101	202	31.3	200
RCK87.. RCKA87B..	60 <sup>H7</sup>	85	123 120	30 4	36 210	M20x50	64.4 18	340	240 116	257	25.9	250
RCK97.. RCKA97B..	70 <sup>H7</sup>	95	153 150	30 4	34 270	M20x50	74.9 20	417	291 146	277	32.3	300
RCK107.. RCKA107B..	90 <sup>H7</sup>	118	178 175	40 2.5	40 313	M24x60	95.4 25	503	347 175	341	52	350
RCK127.. RCKA127B..	100 <sup>H7</sup>	135	208 205	40 2.5	38 373	M24x60	106.4 28	592	418 203	390	53	450
RCK157.. RCKA157B..	120 <sup>H7</sup>	155	253 250	40	36 460	M24x60	127.4 32	705	457 250	426	71.7	550

**RCKA37..~RCKA107..**

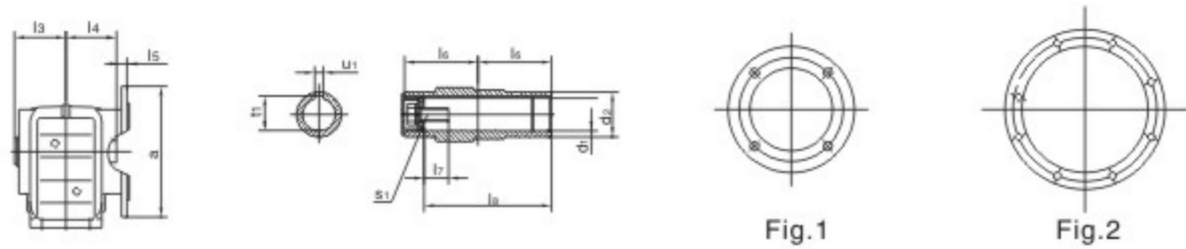


型號 size	a b c	e f g	h	k m n	p q	空心軸尺寸 Hollow shaft dimension				扭矩臂尺寸 Torque arm form				H L1 L2	N Q
						d1 d2	l1 l2 l3	l4 l5 l6	s t u	g1 g2 g3	h1 h2 h3	d3 l7 l8	r s1 ∞		
						RCKA37.. RCK..37/T..	60 35 82	100 147 97	100-0.5	20 M10 4	12 M8	30 <sup>H7</sup> 45	63 60 2.5		
RCKA47.. RCK..47/T..	70 40 100	110 170 115	112-0.5	20 M10 4	12 M8	35 <sup>H7</sup> 50	78 75 3	75 22 132	M12 38.3 10	30 20 20	112-0.5 12 160 <sup>+0.2</sup> <sub>-0.7</sub>	10.4±0.1 31 36-0.3	22.5 M10x30 55°	185 243 166	7.2 160
RCKA57.. RCK..57/T..	88 47 105	122 182 120	132-0.5	25 M12 5	20 M12	40 <sup>H7</sup> 55	86 83 3	83 29 142	M16 43.3 12	40 18 18	132-0.5 13 192 <sup>+0.2</sup> <sub>-0.7</sub>	16.4±0.08 54 60-0.3	29 M12x35 55°	215 269 173	13.1 160
RCKA67.. RCK..67/T..	88 42 110	130 182 125	140-0.5	25 M12 5	20 M12	40 <sup>H7</sup> 55	94 90 3.5	90 29 156	M16 43.3 12	45 25 25	140-0.5 13 200 <sup>+0.2</sup> <sub>-0.7</sub>	16.4±0.08 54 60-0.3	29 M12x35 55°	226 274 179	20 160
RCKA77.. RCK..77/T..	102 48 122	154 204 139	180-0.5	32 M16 6	20 M12	50 <sup>H7</sup> 70	108 105 4	105 32 186	M16 53.8 14	52.5 25 25	180-0.5 14 250 <sup>+0.2</sup> <sub>-0.7</sub>	16.4±0.08 54 60-0.3	29 M16x40 60°	286 312 202	31.3 200
RCKA87.. RCK..87/T..	118 65 160	170 280 190	212-0.5	32 M16 6	26 M16	60 <sup>H7</sup> 85	123 120 4	120 36 210	M20 64.4 18	60 30 30	212-0.5 16 300 <sup>+0.2</sup> <sub>-0.7</sub>	25±0.08 72 80-0.3	41 M16x45 60°	338 390 257	25.9 250
RCKA97.. RCK..97/T..	160 83 165	226 298 190	265-1	36 M20 6	26 M16	70 <sup>H7</sup> 95	153 150 4	150 34 270	M20 74.9 20	70 40 40	265-1 17 350 <sup>+0.2</sup> <sub>-1.2</sub>	25±0.08 92 100-0.3	41 M20x50 50°	414 435 277	32.3 300
RCKA107.. RCK..107/T..	190 100 190	266 370 230	315-1	44 M24 8	- -	90 <sup>H7</sup> 118	178 175 2.5	175 40 313	M24 95.4 25	74 45 45	315-1 20 450 <sup>+0.2</sup> <sub>-1.2</sub>	25±0.08 92 100-0.3	41 M24x60 55°	500 537 341	52 350

### RCKF37..~RCKF157..



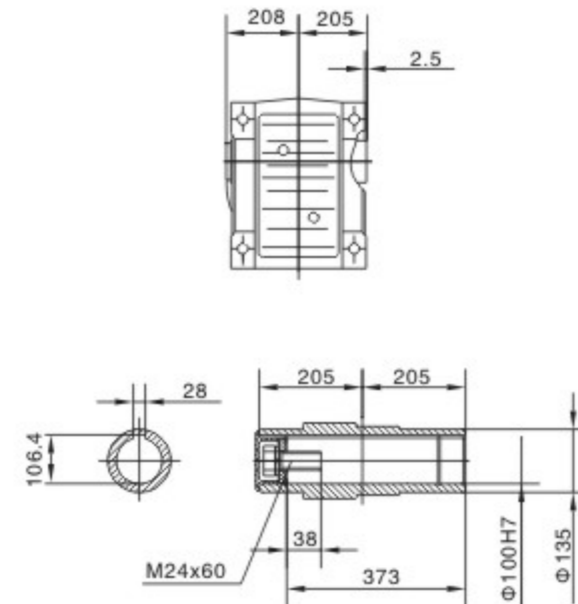
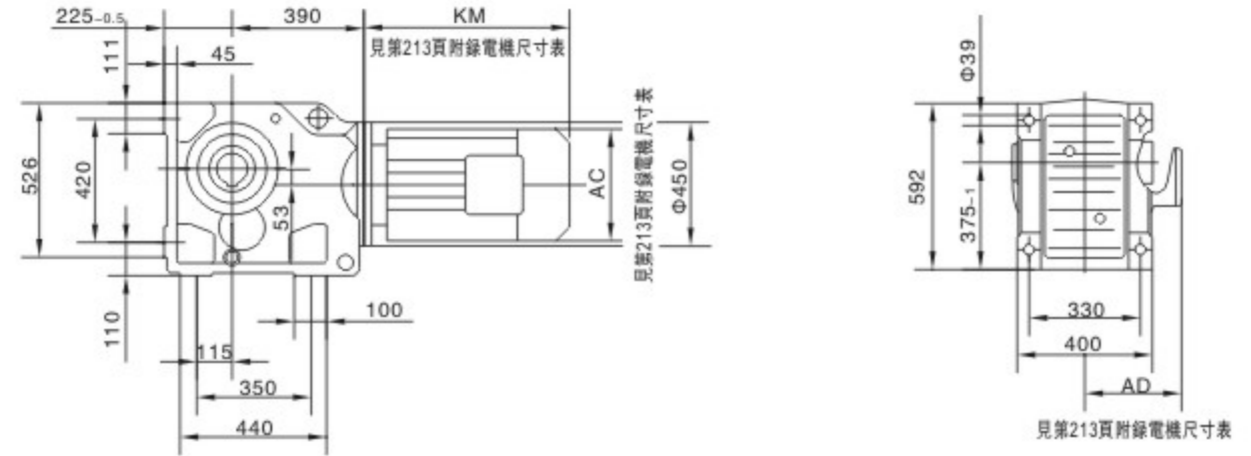
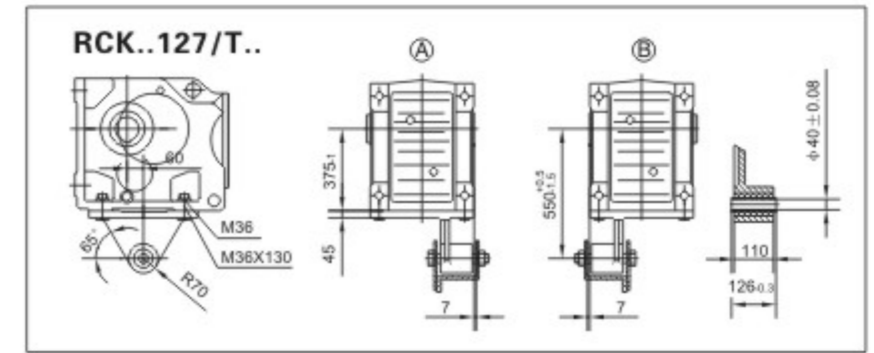
### RCKAF37..~RCKAF157..



法蘭型式  
Flange form

型號 model	法蘭 型式 Flange form	a b	c e	f g h	軸伸尺寸 Shaft dimension				空心軸尺寸 Hollow shaft dimension				H	L1 L2 L3	L4 N Q
					d l	l1 l2	s	t u	d1 d2	l3 l4 l5	l6 l7 l8	s1			
RCKF37.. RCKAF37..	Fig.1	160 110j6	3.5 10	130 9 100	25k6 50	5 40	M10	28 8	30 H7 45	63 17 24	60 17 105	M10×25	33.3 8	164 134 210	139 8.5 120
RCKF47.. RCKAF47..	Fig.1	200 130j6	3.5 10	165 11 112	30k6 60	3.5 50	M10	33 8	35 H7 50	78 22 25	75 22 132	M12×30	38.3 10	185 160 243	166 7.2 160
RCKF57.. RCKAF57..	Fig.1	250 180j6	4 15	215 13.5 132	35k6 70	7 56	M12	38 10	40 H7 55	86 29 23.5	83 29 142	M16×40	43.3 12	215 177 269	173 13.1 160
RCKF67.. RCKAF67..	Fig.1	250 180j6	4 15	215 13.5 140	40k6 80	5 70	M16	43 12	40 H7 55	94 29 23	90 29 156	M16×40	43.3 12	226 193 274	179 20 160
RCKF77.. RCKAF77..	Fig.1	300 230j6	4 16	265 13.5 180	50k6 100	8 10	M16	53.5 14	50 H7 70	108 105 37	105 32 183	M16×45	53.8 14	286 242 312	202 31.3 200
RCKF87.. RCKAF87..	Fig.1	350 250h6	5 18	300 17.5 212	60m6 120	5 110	M20	64 18	60 H7 85	123 120 30	120 36 210	M20×50	64.4 18	338 270 390	257 25.9 250
RCKF97.. RCKAF97..	Fig.2	450 350h6	5 22	400 17.5 265	70m6 140	7.5 125	M20	74.5 20	70 H7 95	153 150 41.5	150 34 270	M20×50	74.9 20	414 332 435	277 32.3 300
RCKF107.. RCKAF107..	Fig.2	450 350h6	5 25	400 17.5 315	90m6 170	5 160	M24	95 25	90 H7 118	178 175 41	175 40 313	M24×60	95.4 25	500 386 537	341 52 350
RCKF127.. RCKAF127..	Fig.2	550 450h6	5 22	500 17.5 375-1	110m6 210	15 180	M24	116 28	100 H7 135	208 205 51	205 38 373	M24×60	106.4 28	592 466 615	390 53 450
RCKF157.. RCKAF157..	Fig.2	660 550h6	6 28	600 22 450-1	120m6 210	5 200	M24	127 32	120 H7 155	253 250 60	250 36 460	M24×60	127.4 32	705 520 706	705 71.7 550

### RCKA127..

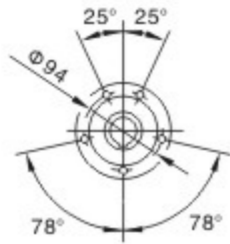
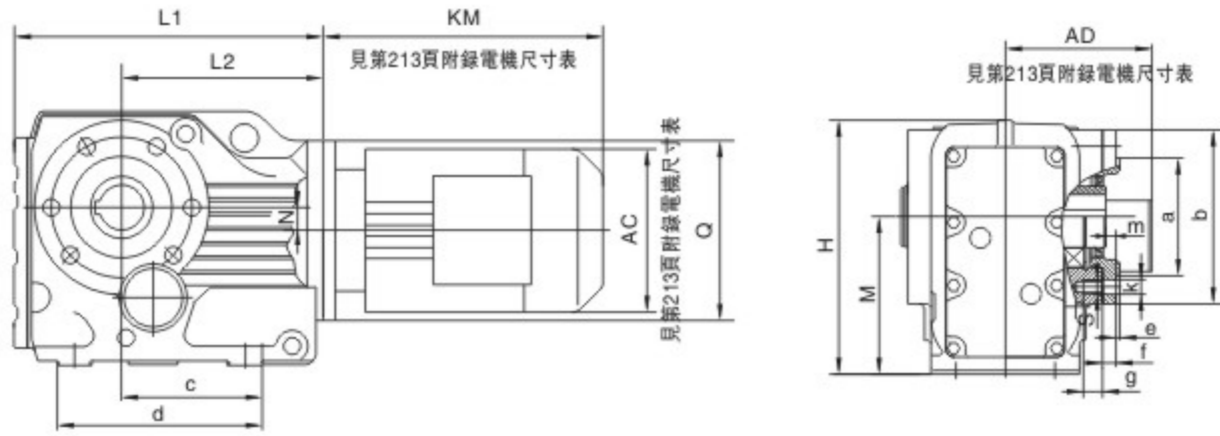


RCR.. RCF.. RCK.. RCS.. RCK系列斜齒輪-傘齒輪減速電機

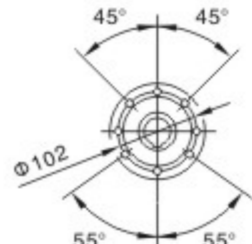
RCR.. RCF.. RCK.. RCS.. RCK系列斜齒輪-傘齒輪減速電機



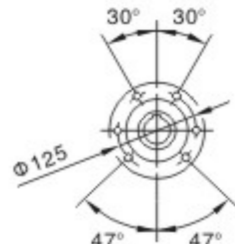
### RCKAZ37..~RCKAZ107..



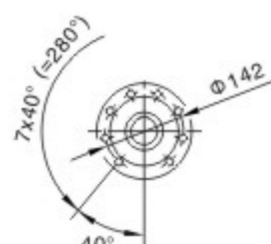
RCKAZ37..



RCKAZ47..



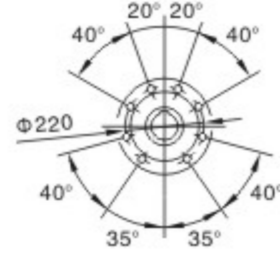
RCKAZ67..



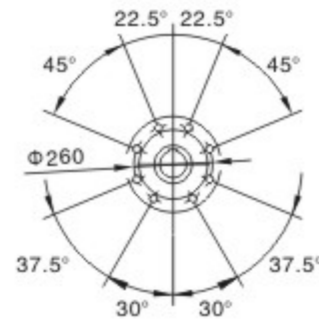
RCKAZ77..



RCKAZ87..



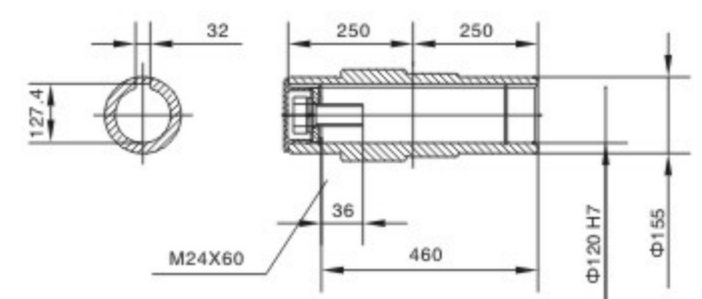
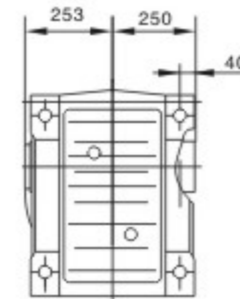
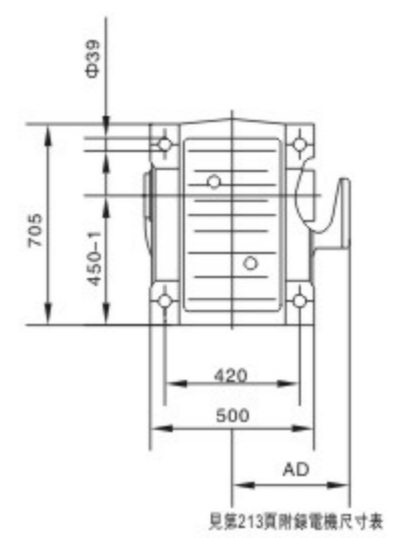
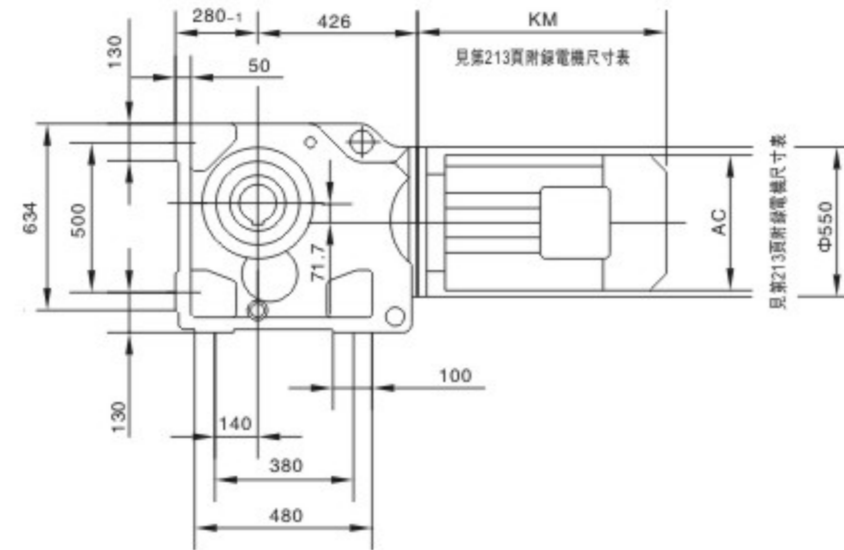
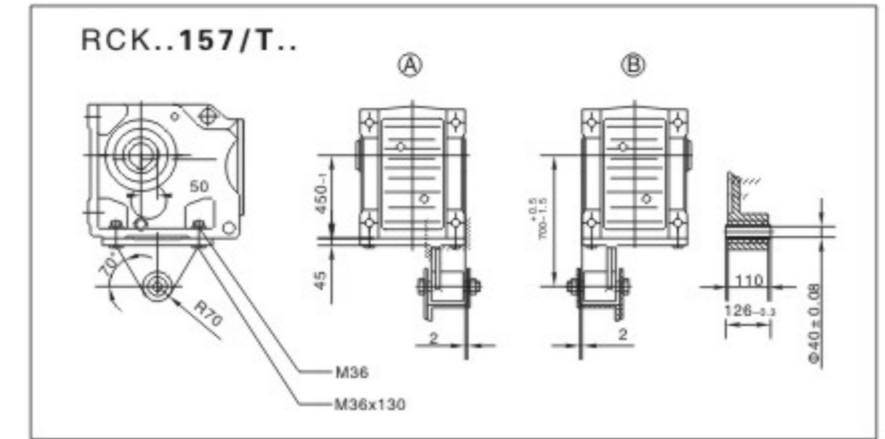
RCKAZ97..



RCKAZ107..

型號 Model	a	b	c	d	e	f	g	H	k	L1	L2	m	M	N	Q	S
RCKAZ37..	110	80j6	97	147	3	11.5	12	164	9	210	139	9	100	8.5	120	M8
RCKAZ47..	120	80j6	115	170	3	11	12	185	9	243	166	8.5	112	7.2	160	M8
RCKAZ57..	155	105j6	120	182	3.5	12	20	215	13.5	269	173	9	132	13.1	160	M12
RCKAZ67..	155	105j6	125	182	3.5	12	20	226	13.5	274	179	8.5	140	20	160	M12
RCKAZ77..	170	125j6	139	204	3.5	14	20	286	13.5	312	202	10	180	31.3	200	M12
RCKAZ87..	215	155j6	190	280	4	15	26	338	17.5	390	257	11	212	25.9	250	M16
RCKAZ97..	260	180j6	190	298	4	18	26	414	17.5	435	277	14	265	32.3	300	M16
RCKAZ107..	304	210j6	23	370	4	22	30	500	22	537	341	8	315	52	350	M20

### RCKA157..



ROR..

RCF..

RCK..

RCS..

RCK系列斜齒輪-傘齒輪減速電機

ROR..

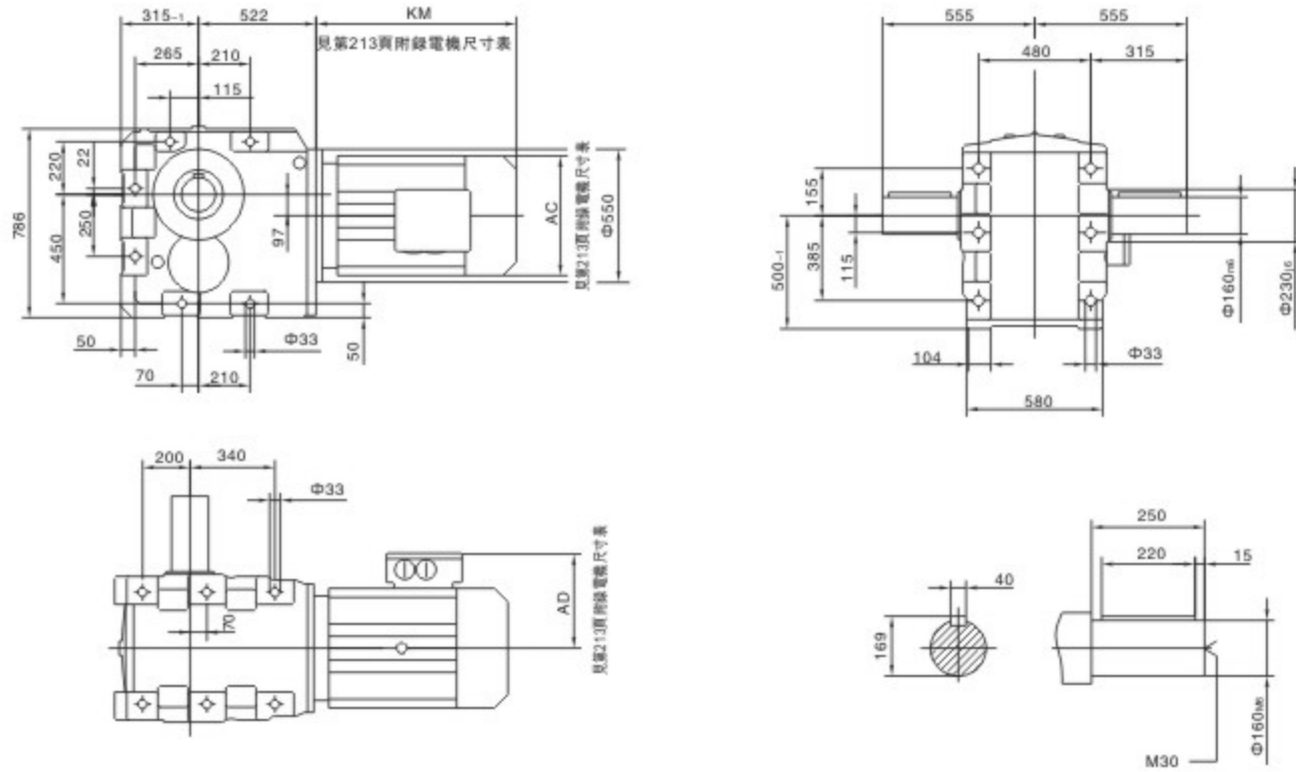
RCF..

RCK..

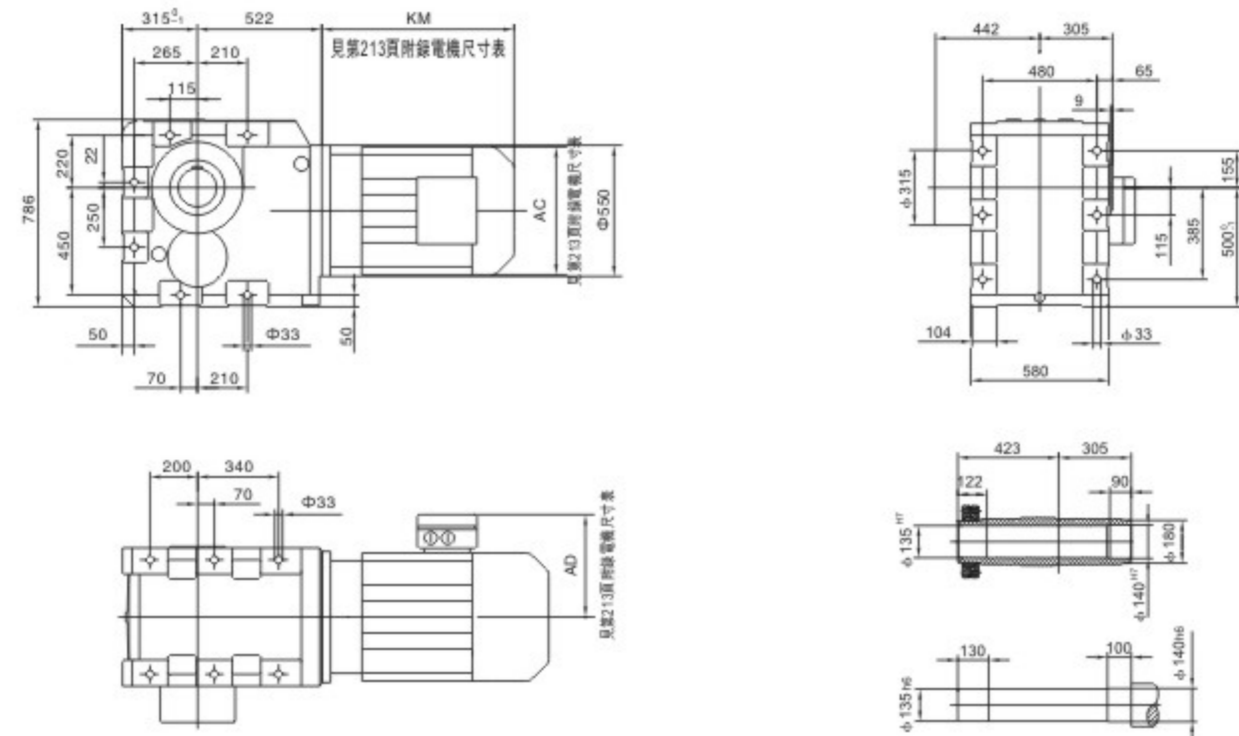
RCS..

RCK系列斜齒輪-傘齒輪減速電機

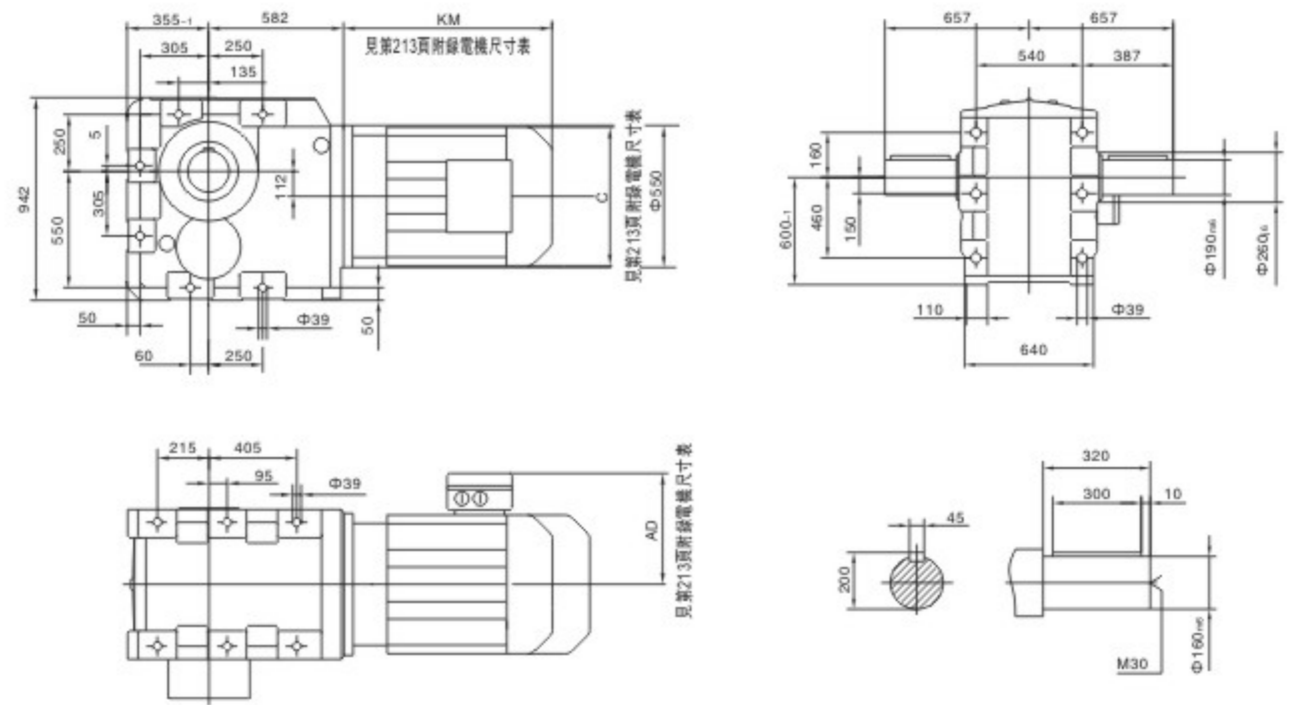
### RCK167..



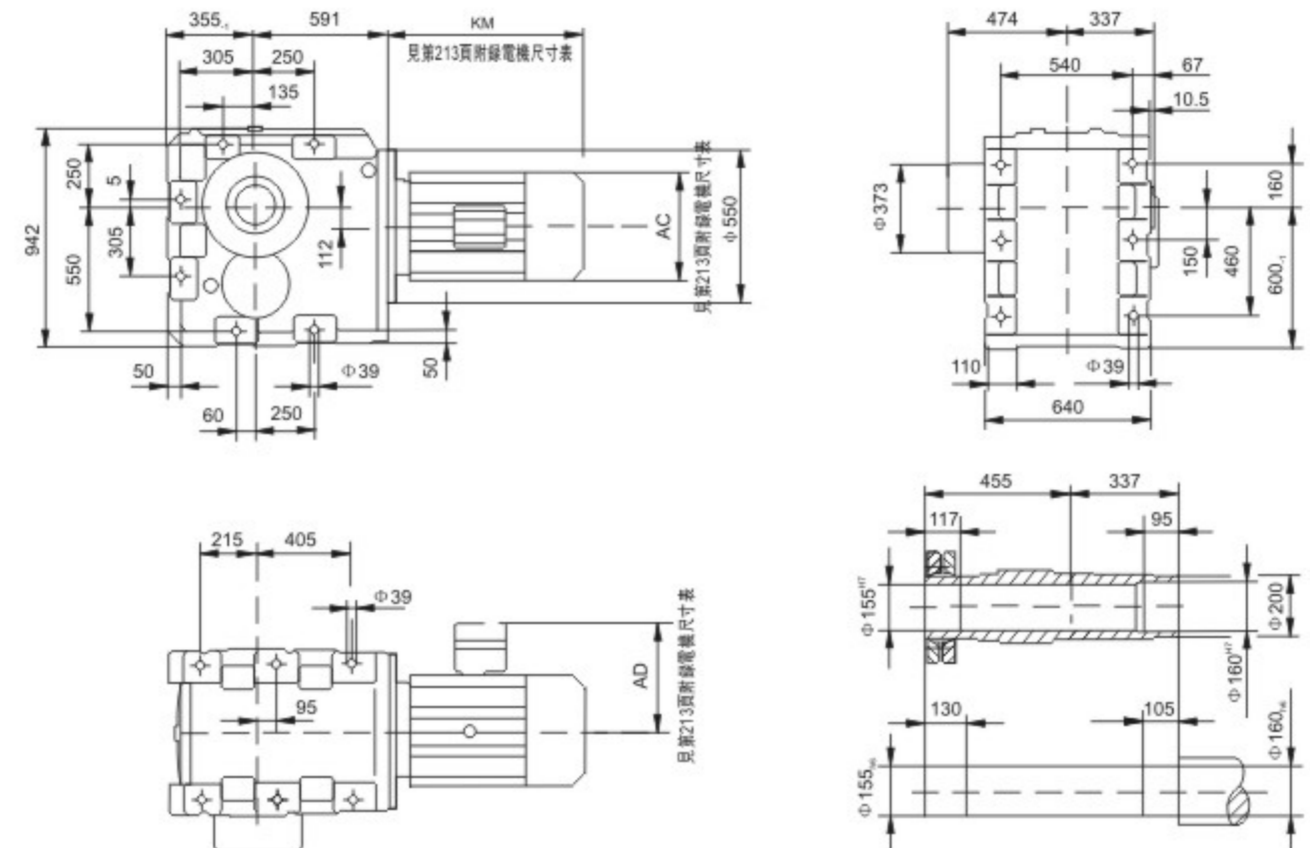
### RCKH167..



### RCK187..



### RCKH187..



RCK..

RCF..

RCK..

RCS..

RCK系列斜齒輪-傘齒輪減速電機

RCP..

RCF..

RCK..

RCS..

RCK系列斜齒輪-傘齒輪減速電機





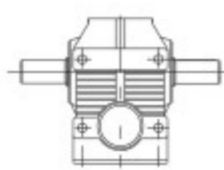
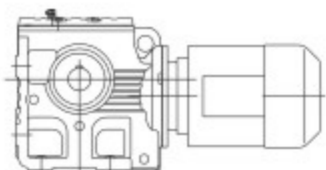
## 8. RCS 斜齒輪 – 蝸輪蝸杆減速電機 RCS Helical – Worm Geared Motor

### 8.1 設計方案

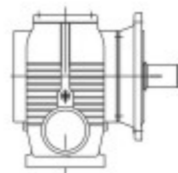
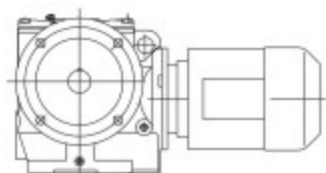
#### 8.1 Versions of geared motors

斜齒輪 – 蝸輪蝸杆齒輪減速電機有以下設計方案：

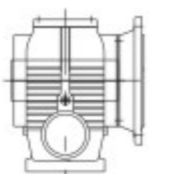
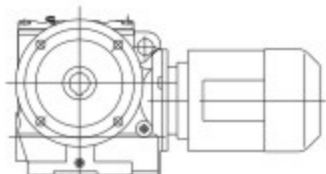
The following types of helical – worm gearmotor can be supplied:



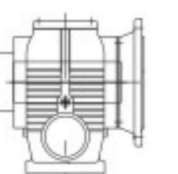
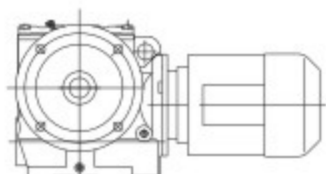
RCS..D..  
底腳安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Foot – mounted helical – worm gearmotor



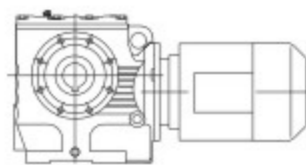
RCSF..D..  
法蘭安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor flange – mounted version.



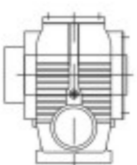
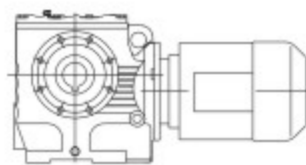
RCSAF..D..  
B5 法蘭空心軸安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor in B5 flange – mounted version with hollow shaft.



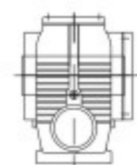
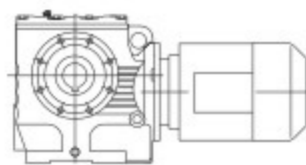
RCSHF..D..  
B5 法蘭空心軸鎖緊盤安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor in B5 flange – mounted version with hollow shaft and shrink disk.



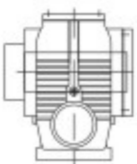
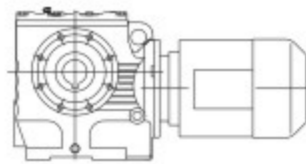
RCSA..D..  
空心軸安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor with hollow shaft.



RCSH..D..  
空心軸鎖緊盤安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor with hollow shaft and shrink disk.



RCSAZ..D..  
B14 法蘭空心軸安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor in B14 flange – mounted version with hollow shaft



RCSHZ..D..  
B14 法蘭空心軸鎖緊盤安裝斜齒輪--蝸輪蝸杆齒輪減速電機  
Helical – worm gearmotor in B14 flange – mounted version with hollow shaft and shrink disk.













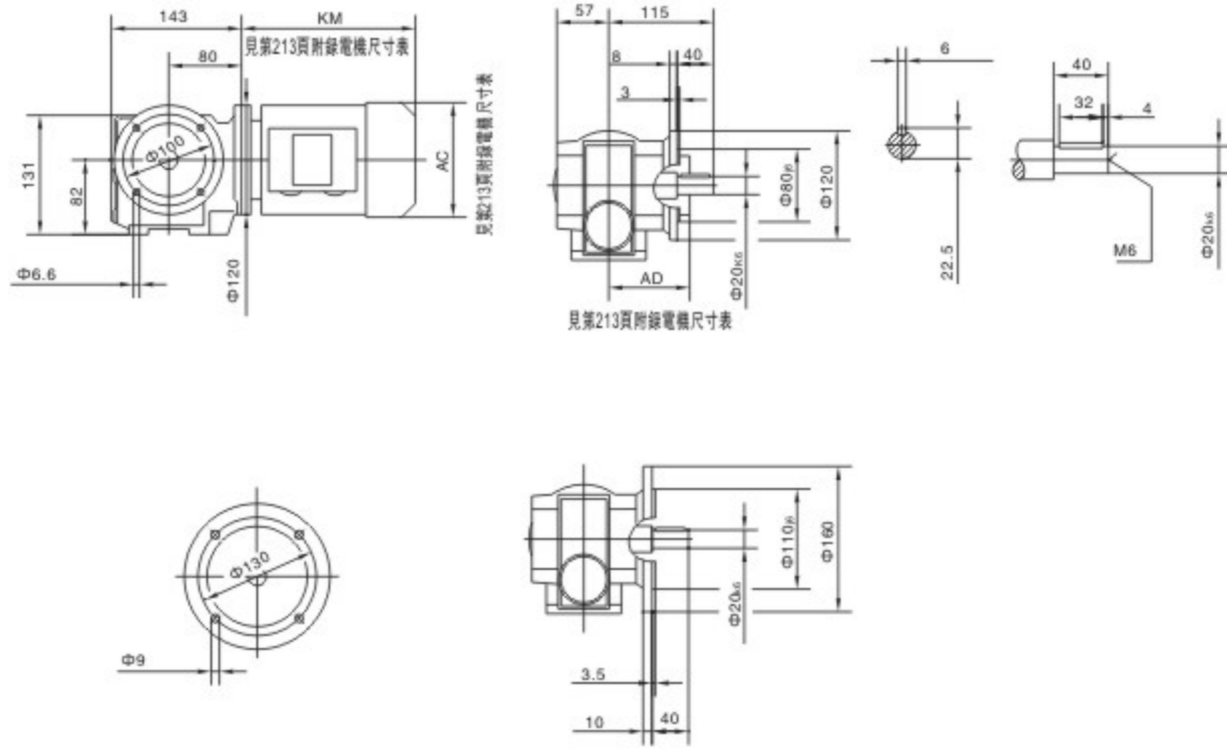




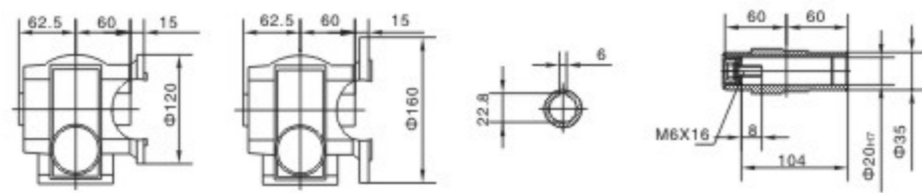




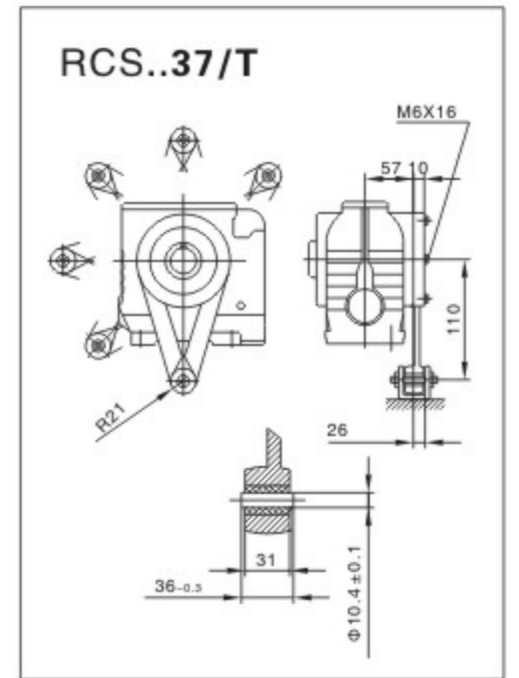
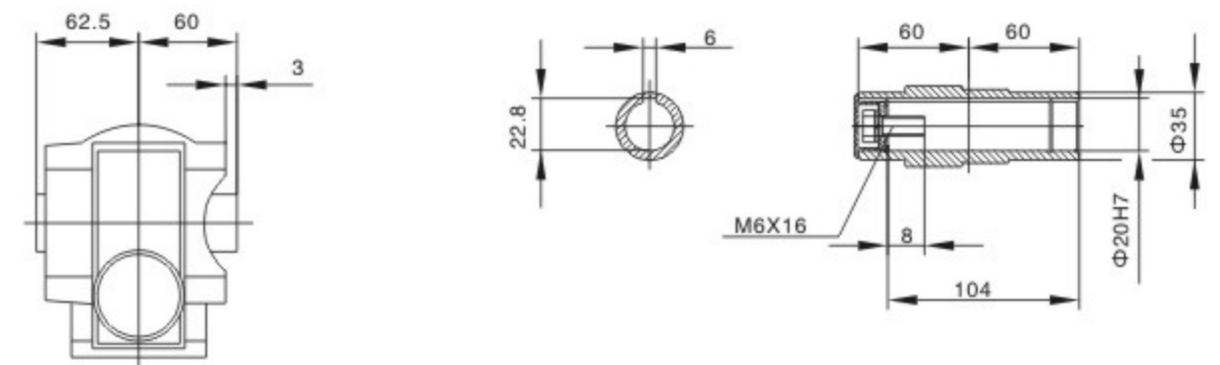
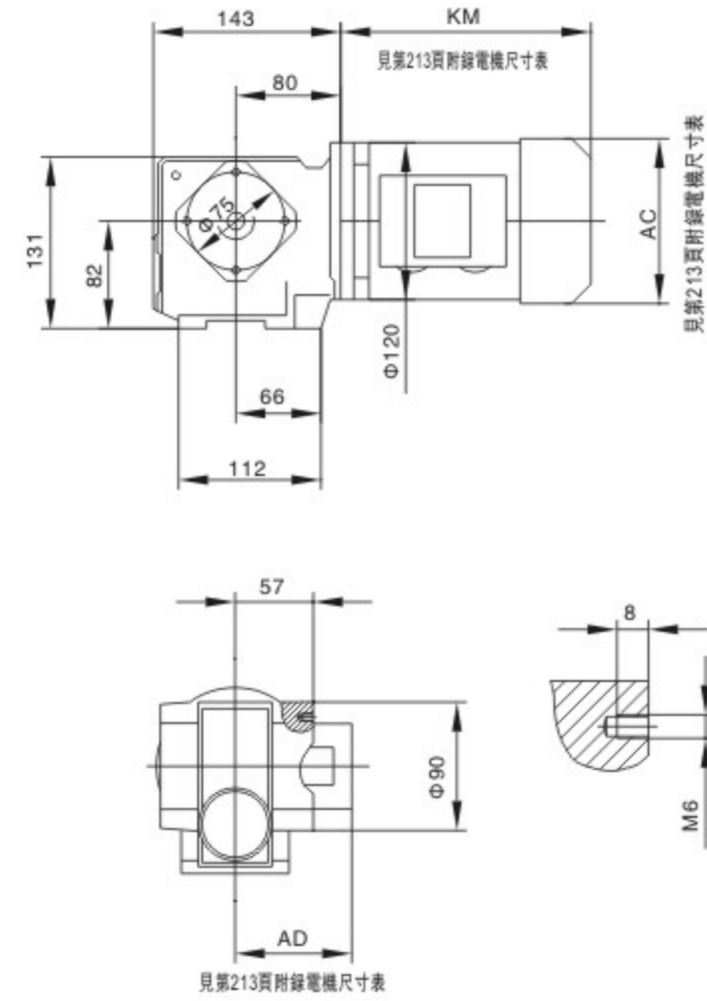
### RCSF37..



### RCSAF37..



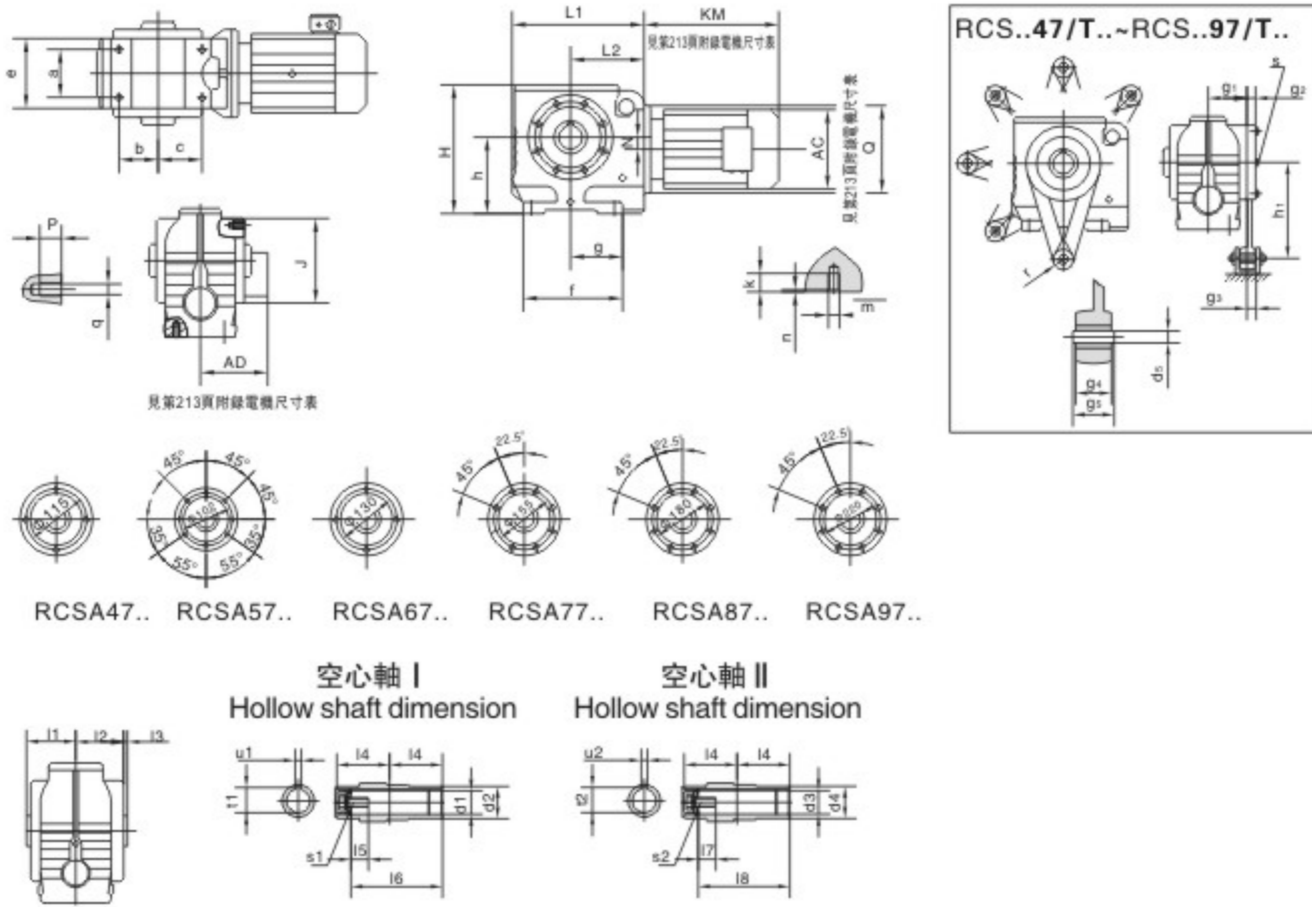
### RCSA37..





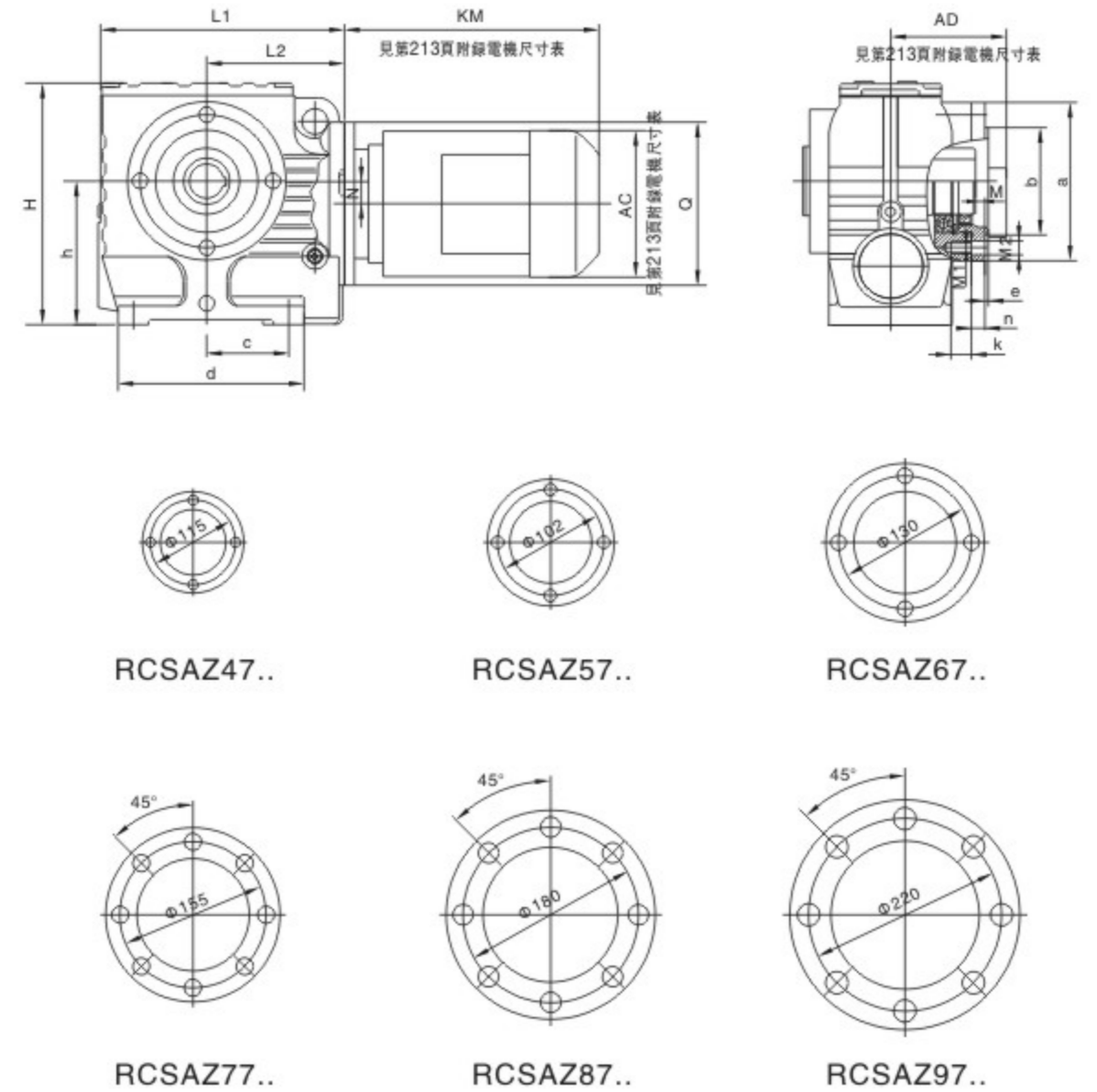


RCSA47..~RCSA97..



型號 Model	a b c	e f g	h	k m h	p q	空心軸 I 尺寸 Hollow shaft dimension			空心軸 II 尺寸 Hollow shaft dimension			扭矩臂尺寸 Torque arm form			H L1 L2	Q N	
						d1 d2	l1 l2 l3	l4 l5 l6	s1 t1 u1	d3 d4	l7 l8	s2 t2 u2	g1 g2 g3	g4 g5 h1			d5 r s3
RCSA47.. RCS..47/T..	60 35 52	94 127 67	100	20 M10 4	12 M8	30 <sup>H7</sup> 45	63 60 2.5	60 17 105	M10X25 33.3 8	25 <sup>H7</sup> 45	17 105	M10X25 28.3 8	57.5 15 20.5	31 36-0.3 130	10.4±0.1 21 M8X25	179 171 96	8 120
RCSA57.. RCS..57/T..	60 58.5 58.5	100 146 73	112	20 M10 4	12 M8	35 <sup>H7</sup> 50	78 75 3	75 22 132	M12X30 38.3 10	30 <sup>H7</sup> 50	17 132	M10X25 33.3 8	72 15 18.5	31 36-0.3 160	10.4±0.1 21 M8X25	189 187 107	20 120
RCSA67.. RCS..67/T..	88 71.5 80.5	128 182 95.5	140	25 M12 5	20 M12	45 <sup>H7</sup> 65	87 84 3.5	84 29 144	M16X40 48.8 14	40 <sup>H7</sup> 65	29 144	M16X40 43.3 12	80.5 18 19.5	31 36-0.3 200	10.4±0.1 21 M12X35	236 242 135	22 160
RCSA77.. RCS..77/T..	102 85 85	154 204 104	180	32 M16 6	20 M12	60 <sup>H7</sup> 80	108 105 4	105 37 180	M20X50 64.4 18	50 <sup>H7</sup> 80	32 183	M16X45 53.8 14	101 18 32.5	54 60-0.3 250	16.4±0.08 30 M12X35	301 287 162	34 200
RCSA87.. RCS..87/T..	118 115 110	194 260 125	225	32 M16 6	26 M16	70 <sup>H7</sup> 95	128 125 5	125 34 220	M20X50 74.9 20	60 <sup>H7</sup> 95	36 220	M20X50 64.4 18	120 24 25.5	54 60-0.5 310	16.4±0.08 30 M16X45	368 340 190	37.5 250
RCSA97.. RCS..97/T..	160 135 113	236 301 140	280	36 M20 6	26 M16	90 <sup>H7</sup> 120	149 145 5	145 41 255	M24X60 95.4 25	70 <sup>H7</sup> 120	34 260	M20X50 74.9 20	140 26 33	72 80-0.5 380	25±0.08 40 M16X50	455 420 240	52 300

RCSAZ47..~RCSAZ97..



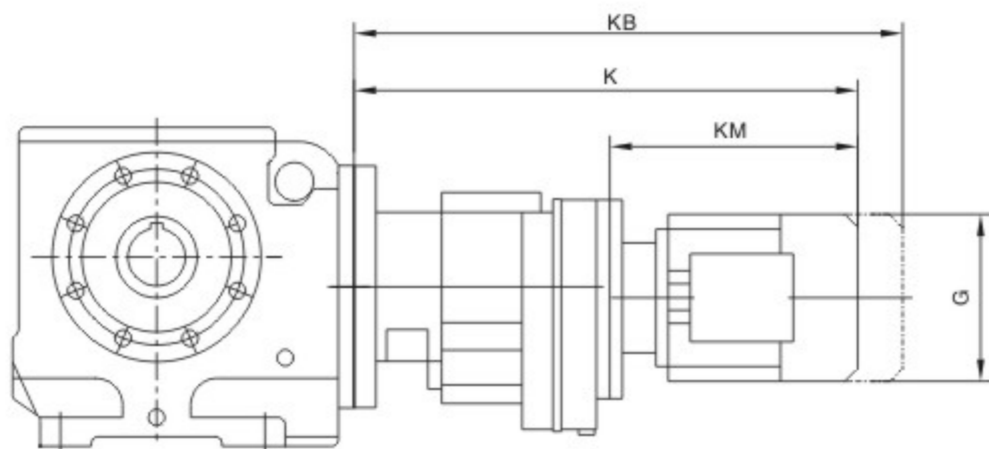
型號 Model	a	b	c	d	e	h	H	k	L1	L2	M	M1	M2	N	n	Q
RCSAZ47..	130	95j6	67	127	3	100	179	12	171	96	8.5	M8	9	8	11	120
RCSAZ57..	120	80j6	73	146	3	112	189	12	187	107	8	M8	9	20	11	120
RCSAZ67..	155	105j6	95.5	182	3.5	140	236	20	242	135	9.5	M12	13.5	22	13	160
RCSAZ77..	180	125j6	104	204	4	180	301	18.5	287	162	14.5	M12	13.5	34	18.5	200
RCSAZ87..	215	150j6	125	260	5	225	368	23.5	340	190	18.5	M16	17.5	37.5	23.5	250
RCSAZ97..	260	180j6	140	301	5	280	455	23.5	420	240	18.5	M16	17.5	52	23.5	300

ROR..  
RCF..  
RCK..  
RCS..  
RCS系列斜齒輪-蝸輪蝸杆減速電機

ROR..  
RCF..  
RCK..  
RCS..  
RCS系列斜齒輪-蝸輪蝸杆減速電機



RCS..R..



減速箱規格 Gear unit type	電機規格 Motor type	G	K	KB	KM
RCS..37R17	D63..	155	368	425	193
	D71D	155	369	433	194
	D80..	155	419	483	244
RCS..47R17 RCS..57R37	D63..	155	400	425	193
	D71D	155	401	433	194
	D80..	155	451	483	244
RCS..67R37	D63..	155	410	457	235
	D71D	155	401	465	236
	D80..	155	451	515	286
	D90..	155	451	536	286
RCS..77R37	D63..	155	392	449	235
	D71D	155	393	457	236
	D80..	155	443	507	286
RCS..87R57	D90..	210	443	528	286
	D63..	155	445	502	229
	D71D	155	445	509	229
	D80..	155	495	559	279
	D90..	210	495	580	279
RCS..97R57	D100M	210	545	630	329
	D100L	210	565	650	349
	D63..	155	440	497	229
	D71D	155	440	504	229
	D80..	155	490	554	279
	D90..	210	510	595	299
RCS..97R57	D100M	210	540	625	329
	D100L	210	560	645	349
	D112M	240	575	655	364

注：上表中點擊尺寸為參考尺寸，因空間限制對電機尺寸有嚴格要求時請向我公司諮詢。  
Notes: The dimension of motor in the above table is only reference. If you have special require require. Please consult us.

9. 設計和裝配注意事項

Important notes of design and mounting

9.1 拆裝單鍵空心軸減速機

9.1 Installation/removal of gear units with hollow shafts and keys

重要提示  
Installation

- 在裝配過程中一定要使用所供應的潤滑劑。它的作用是防止接觸腐蝕和便于拆卸。  
Always use the supplied NOCO Fluid paste during the assembly procedure. It avoids contact corrosion and easy for disassembly.
- 鍵的尺寸X是有用戶確定，但X必須>DK。  
The key dimension X is defined by the customer, however X must be >DK.

安裝  
Customer shaft

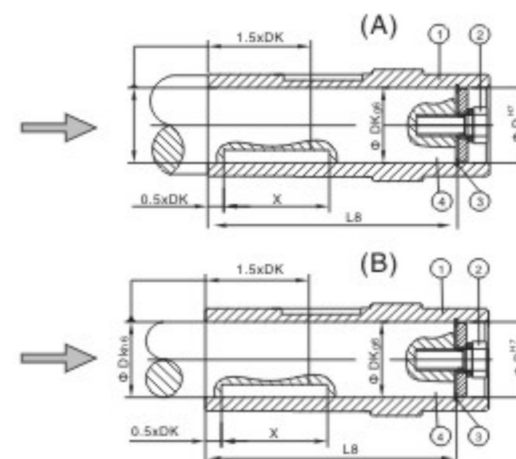
- 推薦兩種方法將用戶軸安裝到單鍵空心軸上。  
Recommends two methods for mounting gear unit with hollow shafts and keys onto the input shaft of the driven machine(=customer shaft):
- 1. 用提供的固定件進行裝配  
Install with supplied fastening elements
- 2. 用可選件裝卸工具進行裝配  
Install using the optional installation/removal kit

9.1.1 提供的固定件

9.1.1 Supplied fastening elements

標準產品提供下列固定件：  
The following fastening elements are supplied as standard:

- 帶墊片的緊固螺栓 Retaining screw with washer ①
- 孔用擋圈 Circlip ②



帶軸肩的用戶軸  
用戶軸的安裝長度必須為L8-1(mm)(圖)  
Installation length of customer shaft with contact shoulder(A) must be L8-1mm

用戶軸不帶軸肩  
安裝長度必須等於L8(圖)  
Installation length of customer shaft with contact shoulder(B) must equal to L8

緊固螺栓要擰緊到MS所示擰緊力矩值  
The retaining screw ② must be tightened to the tightening torque MS listed in the following table

① 空心軸 Hollow shaft  
② 帶墊片的緊固螺栓 Retaining screw with washer  
③ 孔用擋圈 Circlip  
④ 用戶軸 Customer shaft

圖：空心軸組裝示意圖(帶軸肩的用戶軸)  
Fig: Customer shaft with contact shoulder(A) and with contact shoulder(B)

減速器型號 Gear unit type	D <sup>H7</sup> [mm]	DK[mm]	L8[mm]	MS[Nm]
RCSA..37	20	20	84,106,104	8
RCSA..47	25	25	105	20
RCFA..37,RCKA..37,RCSA..47,RCSA..57	30	30	105 132	20
RCFA..47,RCKA..47,RCSA..57	35	35	132	20
RCFA..57,RCKA..57 RCFA..67,RCKA..67 RCSA..67	40	40	142 156 144	40
RCSA..67	45	45	144	40
RCFA..77,RCKA..77,RCSA..77	50	50	183	40
RCFA..87,RCFA..87, RCSA..77,RCSA..87,	60	60	210 180,220	80
RCFA..97,RCFA..97, RCSA..87,RCSA..97,	70	70	270 220,260	80
RCFA..107,RCKA..107,RCSA..97	90	90	313,313,255	200
RCFA..127,RCKA..127,	100	100	373	200
RCFA..157,RCKA..157,	120	120	460	200

### 9.1.2 拆裝工具

#### 9.1.2 Installation / removal kit

可使用的選件：拆裝工具進行裝配。可以通過表中給出的零件號訂購減速機的拆裝工具。

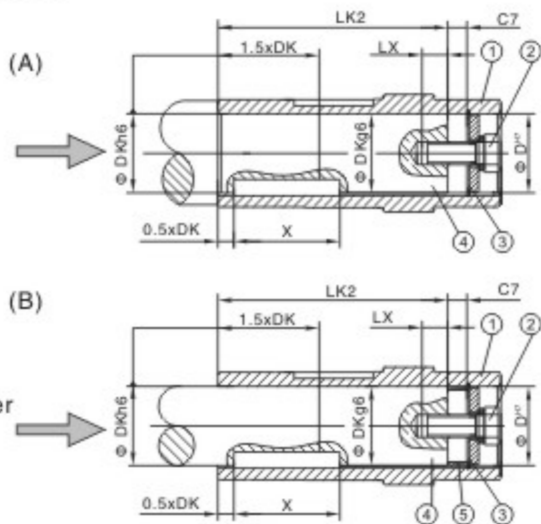
拆裝工具包含以下零件：

- 對沒有軸肩的用戶軸裝配所有的軸套
- 拆卸用的壓盤
- 裝配用的緊固螺栓
- 拆卸用的鎖母

You can use the optional installation/removal kit for installation. The kit can be ordered for the specific gear unit types by quoting the part numbers in the table below.

The accessories of the tools include:

- Distance piece for installation without contact shoulder ⑤
- Retaining screw for installation ②
- Removal washer for installation ⑦
- Fixed nut for removal ⑧



帶軸肩的用戶軸  
安裝長度LK2 [→圖A] 不使用軸套  
The installation length of the customer shaft must be LK2. The distance piece must not be used if the customer shaft does have a contact shoulder(A).

不帶軸肩的用戶軸  
安裝長度LK2 [→圖B] 軸套必須使用  
The installation length of the customer shaft must be LK2. The distance piece must not be used if the customer shaft does have a contact shoulder(B).

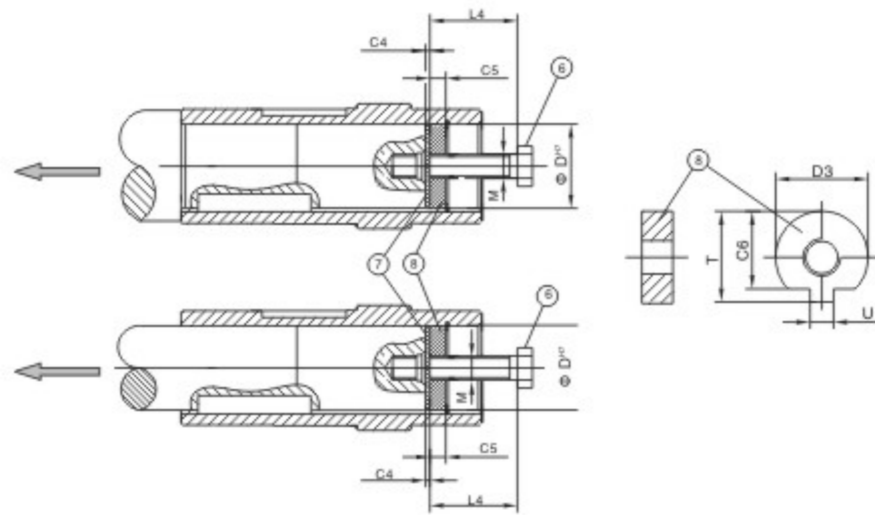
圖：帶軸肩附用戶軸 (A) 和不帶軸肩附用戶軸 (B)  
Fig: Customer shaft with contact shoulder (A) and without contact shoulder (B)

減速器型號 Gear unit type	D <sup>H7</sup> [mm]	DK[mm]	LK2[mm]	LX <sup>-2</sup> [Nm]	C7[Nm]	MS[Nm]
RCSA..37	20	20	92	16	12	8
RCSA..47	25	25	89	22	16	20
RCFA..37,RCKA..37,RCSA..47 RCSA..57	30	30	89 89,116	22	16	20
RCFA..47,RCKA..47,RCSA..57	35	35	114	28	18	20
RCFA..57,RCKA..57 RCFA..67,RCKA..57 RCSA..67	40	40	124 138,138,126	36	18	40
RCSA..67	45	45	126	36	18	40
RCFA..77,RCKA..77,RCSA..77	50	50	165	36	18	40
RCFA..87,RCKA..87 RCSA..77,RCSA..87	60	60	188 158,198	42	22	80
RCFA..97,RCKA..97 RCSA..87,RCSA..97	70	70	248 198,238	42	22	80
RCFA..107,RCKA..107,RCSA..97	90	90	287 229	50	26	200
RCFA..127,RCKA..127	100	100	347	50	26	200
RCFA..157,RCKA..157	120	120	434	50	26	200

### 拆卸 Removal

用拆裝工具進行裝配，須按以下步驟進行拆卸

1. 拆下緊固螺栓 ⑥
  2. 拆下擋圈 ③，若使用了軸套 ⑤ 也一并拆下
  3. 在用戶軸 ④ 和擋圈 ③ 之間按圖 13 裝上壓盤 ⑦ 和鎖母 ⑧
  4. 重新裝上擋圈 ③
  5. 重新裝上緊固螺栓 ⑥
- 這樣就可以把軸拆下來。



- ⑥ 螺栓 Retaining screw
- ⑦ 壓盤 Removal washer
- ⑧ 拆卸用鎖母 Fixed nut for removal

圖：空心軸拆卸示意圖  
Fig. Removal

Applies prior installation with the installation /removal kit only.

Proceed as follows for removal:

1. Remove the retaining screw ⑥
2. Remove the Circlip ③ and if used, the distance piece ⑤
3. Insert the removal washer ⑦ and the fixed nut ⑧ between the customer shaft ④ and circlip ③ according to Fig.
4. Re-insert the circlip ③.
5. Re-insert the retaining screw ⑥. You can now push the gear unit off the shaft.

型號 Model	D <sup>H7</sup> [mm]	M	C4 [mm]	C5 [mm]	C6 [mm]	U <sup>-0.5</sup> [mm]	T3 <sup>-0.5</sup> [mm]	D <sup>-0.5L4</sup> [mm]	拆裝工具 零件號 installation/ removal kit part number
RCSA..37	20	M6	5	6	15.5	5.5	22.5	19.7	25
RCSA..47	25	M10	5	10	20	7.5	28	24.7	35
RCFA..37,RCKA..37,RCSA..57	30	M10	5	10	25	7.5	33	29.7	35
RCFA..47,RCSA..57	35	M12	5	12	29	9.5	38	34.7	45
RCFA..57,RCKA..57,RCFA..67,RCKA..67,RCSA..57	40	M16	5	12	34	11.5	41.9	39.7	50
RCSA..67	45	M16	5	12	38.5	13.5	48.5	44.7	50
RCFA..77,RCKA..77,RCSA..77	50	M16	5	12	43.5	13.5	53.5	49.7	50
RCFA..87,RCKA..87,RCSA..77,RCSA..87	60	M20	5	16	56	17.5	64	59.7	60
RCFA..97,RCKA..97,RCSA..97	70	M20	5	16	65.5	19.5	74.5	69.7	60
RCFA..107,RCKA..107,RCSA..97	90	M24	5	20	80	24.5	95	89.7	70
RCFA..127,RCKA..127	100	M24	5	20	89	27.5	106	99.7	70
RCFA..157,RCKA..157	120	M24	5	20	107	31	127	119.7	70

## 9.2 帶軸階的空心軸和鎖緊盤選件

### 9.2 Shouldered hollow shaft with shrink disk (option)

帶空心軸鎖緊盤的減速機(RCFH/FHF/FHZ37-157)平行軸減速機RCKH/KHF/KHZ37-157斜齒輪-錐齒輪減速機和RCSH/SHF47-97斜齒輪蝸輪蝸杆減速機, 可提供較大的軸孔直徑D' 作為選件

D=D' 為標準產品

Gear unit with a hollow shaft and shrink disk (parallel shaft helical gear units H/FHF/SH/SHF47-97) can be supplied with an optional larger hole diameter D'

The standard is D'=D.

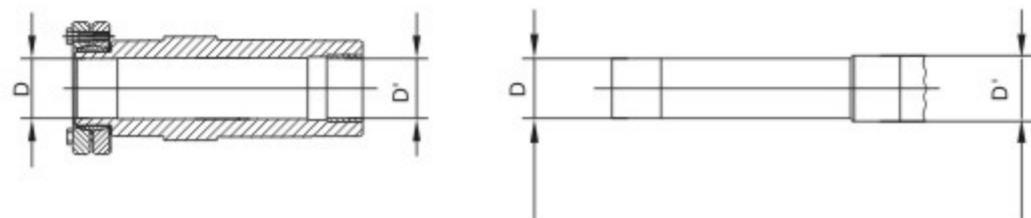


圖: 選件軸孔直徑D'

Fig: Optional hole diameter D'

減速器型號 Gear unit size	孔徑 D/D' Hole diameter
RCFH/FHF/FHZ37,RCKH/KHF/KHZ37,RCSH/SHF/SHZ47	30/32
RCFH/FHF/FHZ47,RCKH/KHF/KHZ47,RCSH/SHF/SHZ57	35/36
RCFH/FHF/FHZ57,RCKH/KHF/KHZ57	40/42
RCFH/FHF/FHZ67,RCKH/KHF/KHZ67,RCSH/SHF/SHZ67	40/42
RCFH/FHF/FHZ77,RCKH/KHF/KHZ77,RCSH/SHF/SHZ77	50/52
RCFH/FHF/FHZ87,RCKH/KHF/KHZ87,RCSH/SHF/SHZ87	65/66
RCFH/FHF/FHZ97,RCKH/KHF/KHZ97,RCSH/SHF/SHZ97	75/76
RCFH/FHF/FHZ107,RCKH/KHF/KHZ107	95/96
RCFH/FHF/FHZ127,RCKH/KHF/KHZ127	105/106
RCFH/FHF/FHZ157,RCKH/KHF/KHZ157	125/126

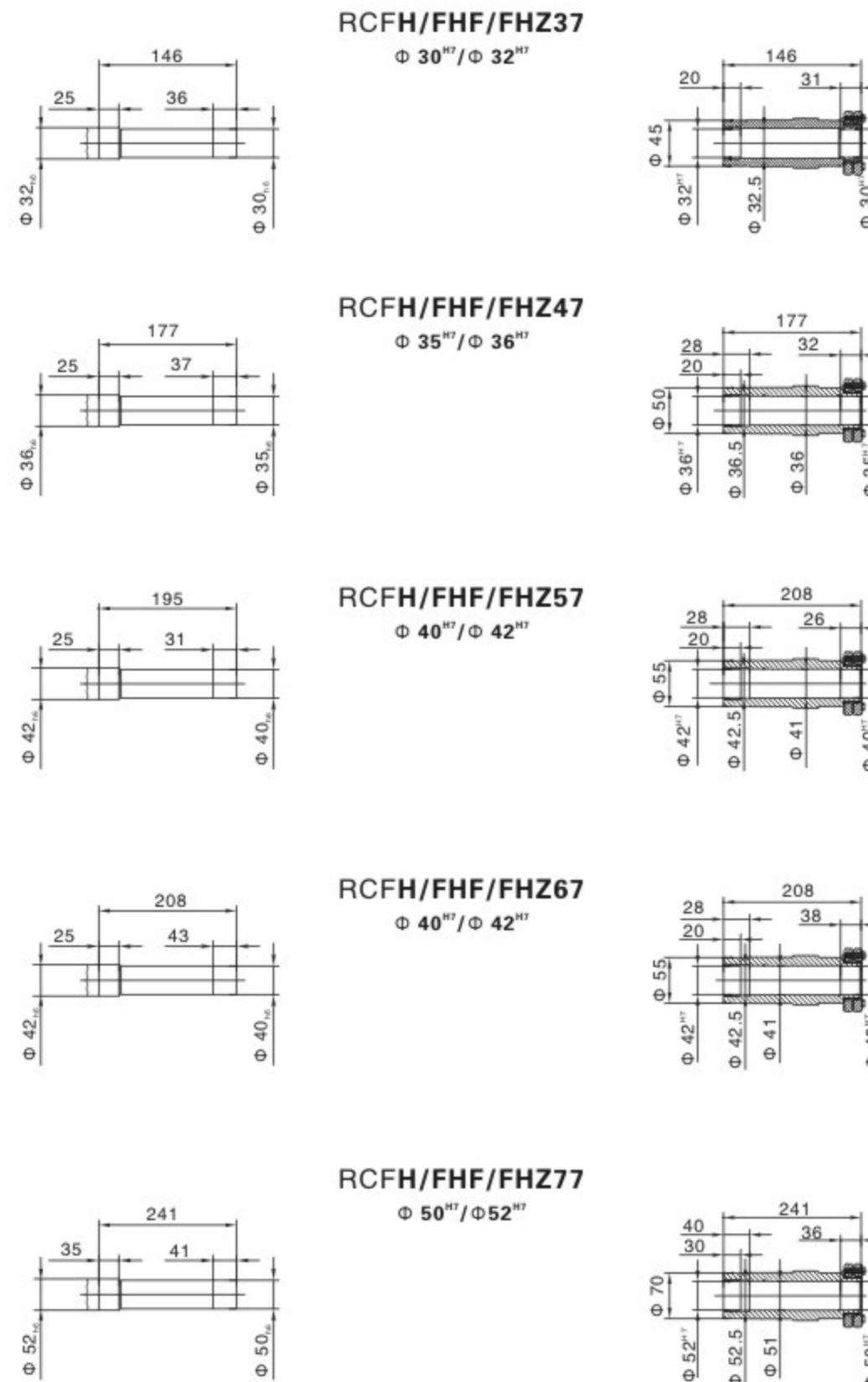
定購帶軸階的空心軸減速機(可選軸孔直徑D')必須注明D/D'尺寸。

例如: RCFH37 D80N4 30/32

Diameter D/D' must be specified when ordering gear units with a shouldered hollow shaft (optional hole diameter D').

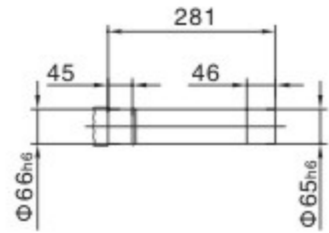
## 帶軸階空心軸和鎖緊盤的平行軸減速電機

### Parallel shaft helical gear unit with shouldered hollow shaft

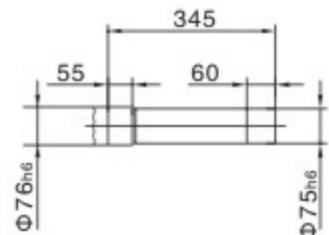
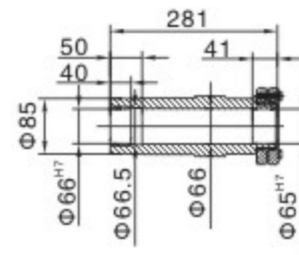


帶軸階空心軸和鎖緊盤的平行軸減速電機  
Parallel shaft helical gear unit with shouldered hollow shaft

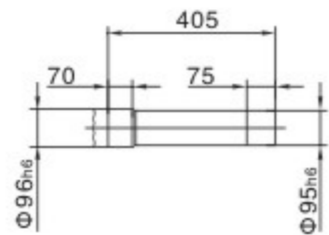
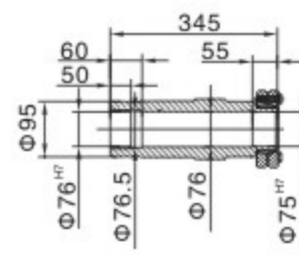
帶軸階空心軸和鎖緊盤的斜齒輪-錐齒輪減速電機  
Helical-bevel gear unit with shouldered hollow shaft



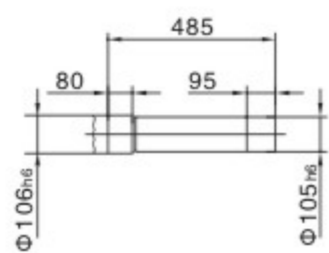
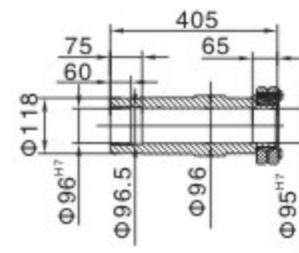
**RCFH/FHF/FHZ87**  
Φ65<sup>H7</sup>/Φ66<sup>H7</sup>



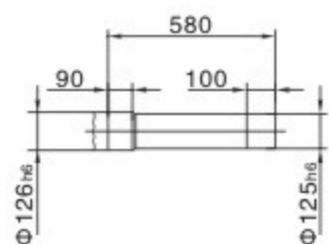
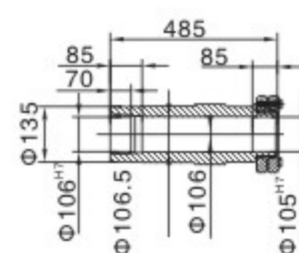
**RCFH/FHF/FHZ97**  
Φ75<sup>H7</sup>/Φ76<sup>H7</sup>



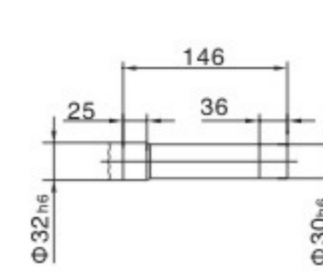
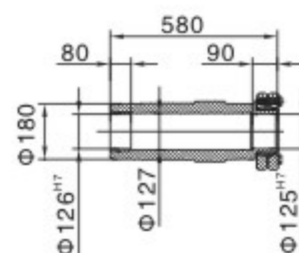
**RCFH/FHF/FHZ107**  
Φ95<sup>H7</sup>/Φ96<sup>H7</sup>



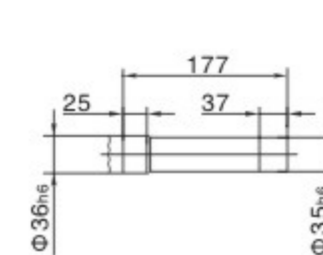
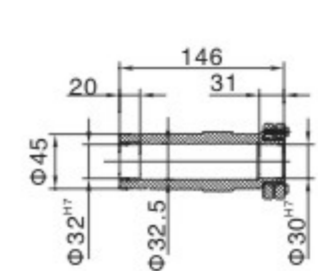
**RCFH/FHF/FHZ127**  
Φ105<sup>H7</sup>/Φ106<sup>H7</sup>



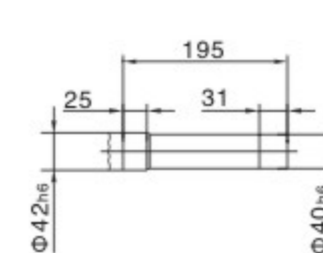
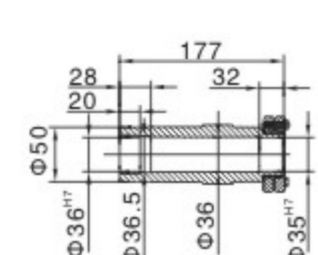
**RCFH/FHF/FHZ157**  
Φ125<sup>H7</sup>/Φ126<sup>H7</sup>



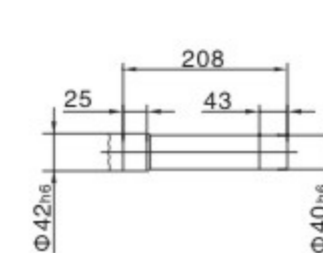
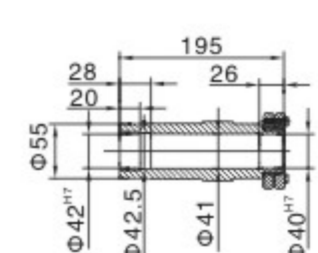
**RCKH/KHF/KHZ37**  
Φ30<sup>H7</sup>/Φ32<sup>H7</sup>



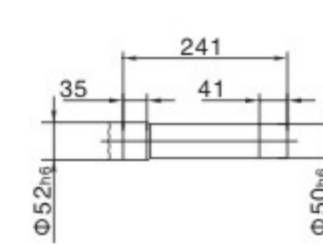
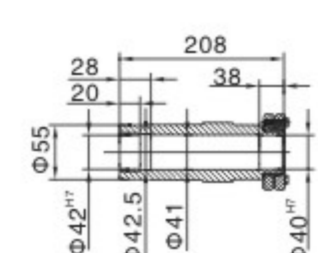
**RCKH/KHF/KHZ47**  
Φ35<sup>H7</sup>/Φ36<sup>H7</sup>



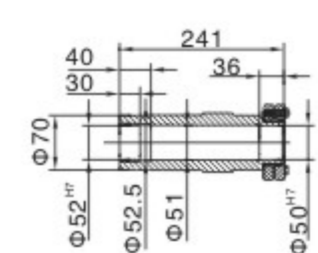
**RCKH/KHF/KHZ57**  
Φ40<sup>H7</sup>/Φ42<sup>H7</sup>



**RCKH/KHF/KHZ67**  
Φ40<sup>H7</sup>/Φ42<sup>H7</sup>



**RCKH/KHF/KHZ77**  
Φ50<sup>H7</sup>/Φ52<sup>H7</sup>



RCR..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

RCP..

RCF..

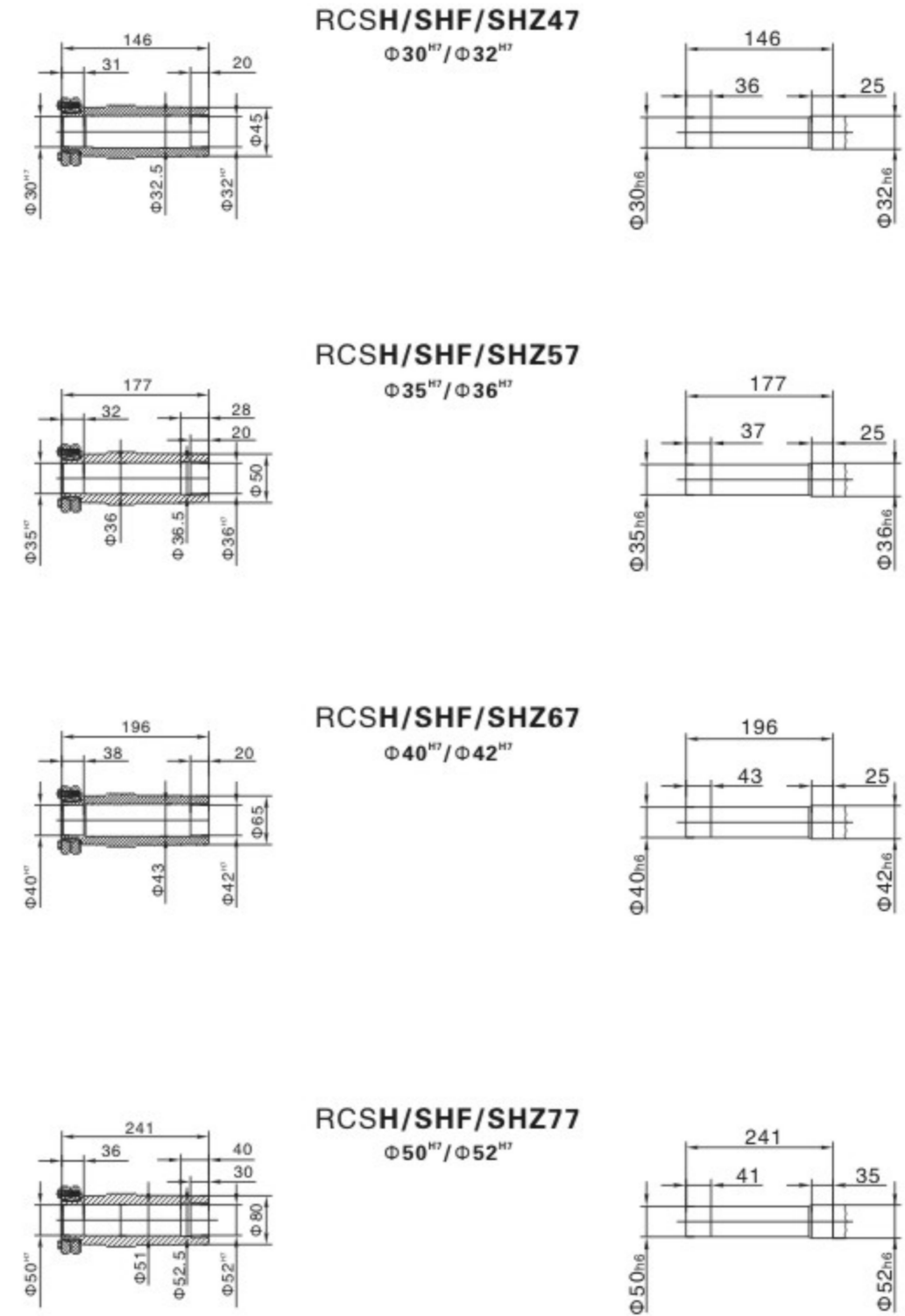
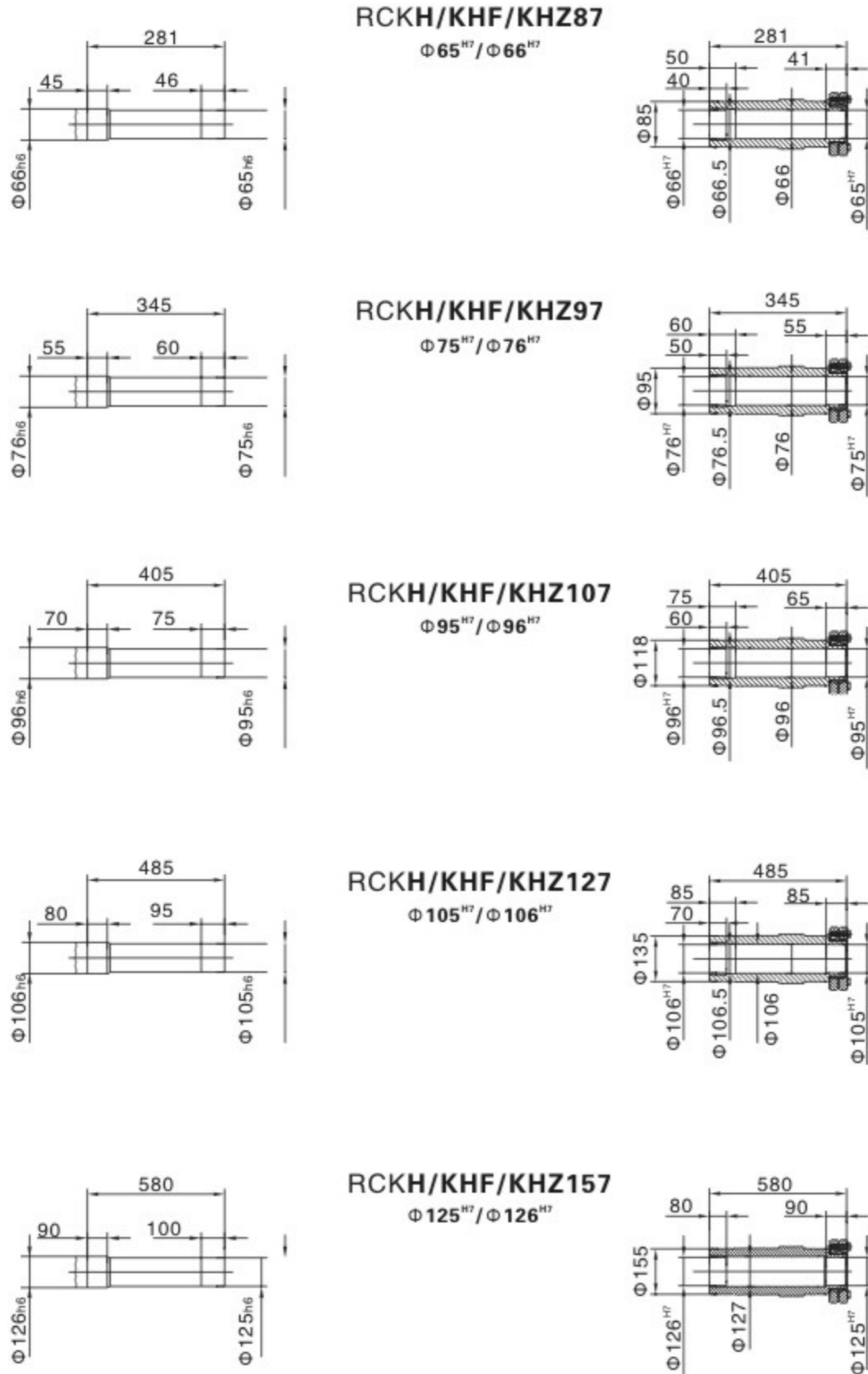
RCK..

RCS..

RC..系列齒輪減速電機

帶軸階空心軸和鎖緊盤的斜齒輪-錐齒輪減速電機  
Helical-bevel gear unit with shouldered hollow shaft

帶軸階空心軸和鎖緊盤的斜齒輪-蝸杆減速電機  
Helical-worm gear unit with shouldered hollow shaft



RCR..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

RCP..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

帶軸階空心軸和鎖緊盤的斜齒輪-蝸杆減速電機  
Helical-worm gear unit with shouldered hollow shaft

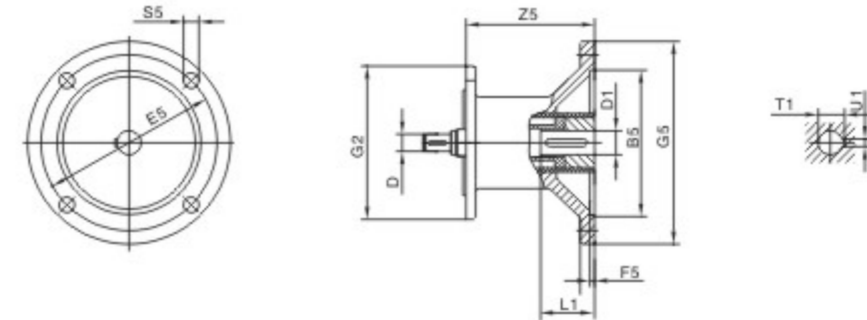


RCSR/SHF/SHZ87  
Φ65<sup>H7</sup>/Φ66<sup>H7</sup>



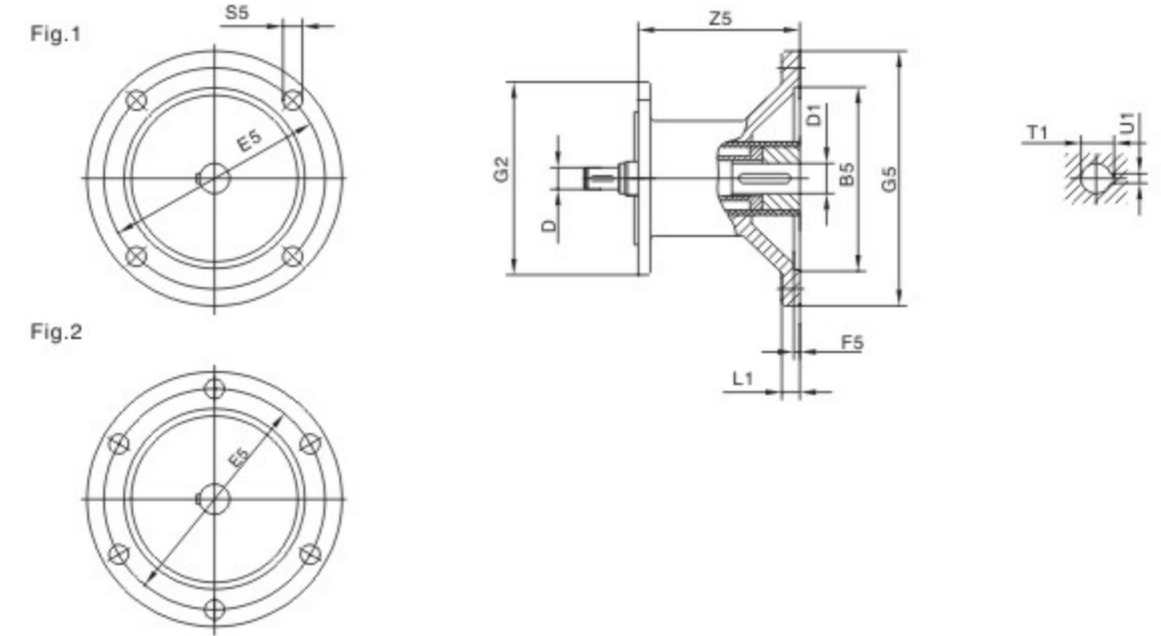
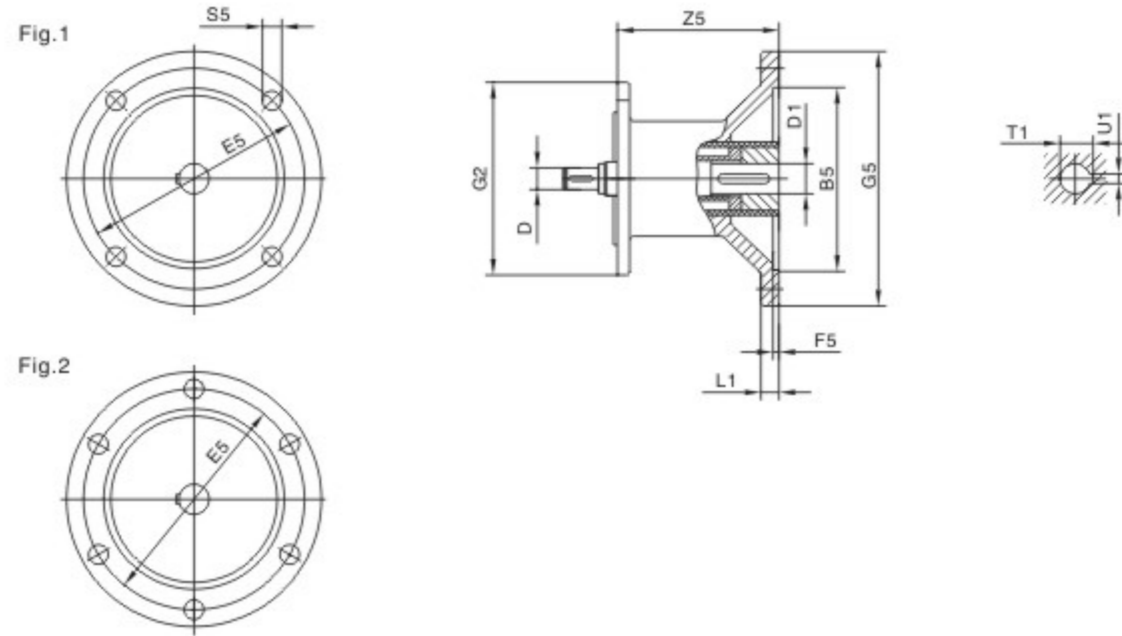
RCSR/SHF/SHZ97  
Φ75<sup>H7</sup>/Φ76<sup>H7</sup>

9.3 用于安装IEC標準電機的聯軸器  
9.3 Coupling for mounting of IEC motors



減速箱規格 Gear unit type	聯軸器規格 Coupling type	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
RCR..27,RCR..37 RCF..37,RCF..47 RCK..37 RCS..37,RCS..47 RCS..57	AM63	95	10	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71 <sup>1)</sup>	110		130			14			30	16.3	5	
	AM80 <sup>1)</sup>	130	12	4.5	200		M10	106	19	40	21.8	6	
	AM90 <sup>1)</sup>		14						165	24	50	27.3	8
RCR..47,RCR..57 RCR..67 RCF..57,RCF..67 RCK..47,RCK..57 RCK..67 RCS..67	AM63	95	10	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71	110		130			14			30	16.3	5	
	AM80	130	12	4.5	200		M10	99	19	40	21.8	6	
	AM90		14						165	24	50	27.3	8
	AM100 <sup>1)</sup>	180	16	5	250		M12	134	28	60	31.3	8	
	AM112 <sup>1)</sup>	18	215						28	60	31.3	8	
RCR..77 RCF..77 RCK..77 RCS..77	AM63	95	10	115	3.5	200	140	M8	60	11	23	12.8	4
	AM71	110		130			14			30	16.3	5	
	AM80	130	12	4.5	200		M10	92	19	40	21.8	6	
	AM90		14						165	24	50	27.3	8
	AM100 <sup>1)</sup>	180	16	5	250		M12	126	28	60	31.3	8	
	AM112 <sup>1)</sup>	18	215						28	60	31.3	8	
	AM132S <sup>1)</sup>	230	22	265	300		M12	179	38	80	41.3	10	
	AM132M <sup>1)</sup>		28						38	80	41.3	10	
AM132ML <sup>1)</sup>		28											
RCR..87 RCF..87 RCK..87 RCS..87	AM80	130	12	165	4.5	250	200	M10	87	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100	180	16	215	5		250	M12	121	28	60	31.3	8
	AM112		18							28	60	31.3	8
	AM132S	230	22	265	300		M12	174	38	80	41.3	10	
	AM132M		28						38	80	41.3	10	
	AM132ML		28										
	AM160 <sup>1)</sup>	250	28	300	6		350	M16	232	42	110	45.3	12
AM180 <sup>1)</sup>	32		48			51.8				14			





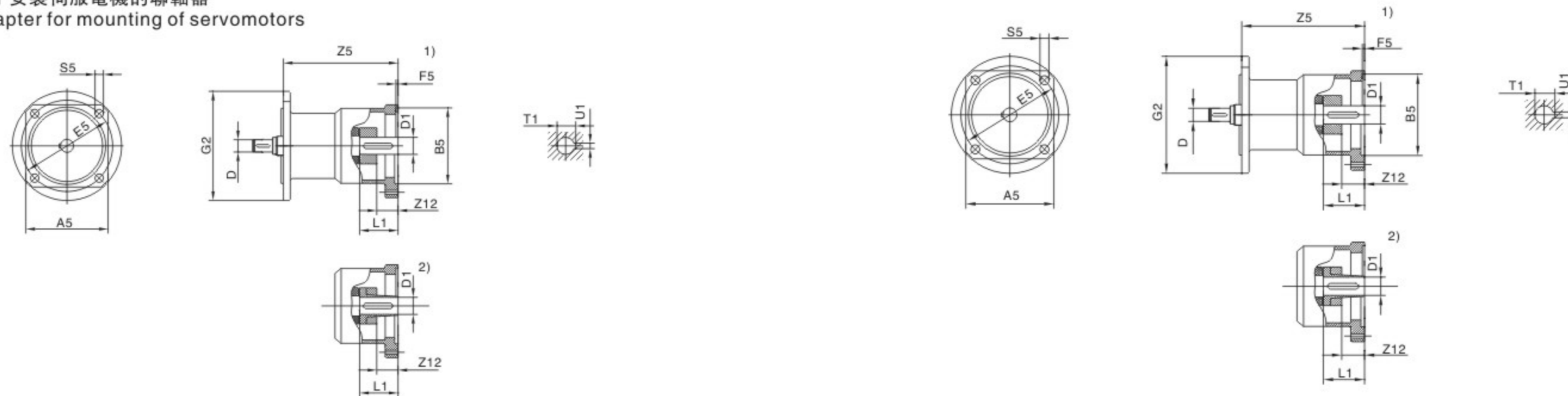
減速箱規格 Gear unit type	聯軸器規格 Coupling type	Fig	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1	
RCR..97 RCF..97 RCK..97 RCS..97	AM100	1	180	16	215	5	300	250	M12	116	28	60	31.3	8	
	AM112			18											
	AM132S		230	22	265										
	AM132M			28											
	AM160	250	28	300	6	350		M16	227	42	110	45.3	12		
	AM180		32												
	AM200	300	38	350	7	400		268	55	59.3	16				
	AM225 <sup>1)</sup>	2	350	38		400			450	283	60	140	64.4	18	
	RCR..107 RCF..107 RCK..107	AM100	1	180	16	215	5	350	250	M12	110	28	60	31.3	8
AM112		18													
AM132S		230		22	265										
AM132M				28											
AM160		250	28	300	6	350	M16		221	42	110	45.3	12		
AM180			32												
AM200		300	38	350	7	400	262		55	59.3	16				
AM225		2	350	38		400			450	277	60	140	64.4	18	
RCR..137		AM132S	1	230	22	265	5	400	300	M12	156	38	80	41.3	10
	AM132M	250			28										
	AM132ML				28										
	AM160	250	28	300	6	350	M16		214	42	110	45.3	12		
	AM180		32												
	AM200	300	38	350	7	400	255		55	59.3	16				
AM225	2	350	38	400		450		270	60	140	64.4	18			

1) 如果安裝在RCR、RCK和RCS系列地腳安裝方式的減速機上，請檢查尺寸G5/2，它可能已突出安裝平面。  
Dimension 1/2 G5 may protrude past foot mounting surface if mounted on RCR, RCK or RCS foot-mounted gear unit. Please check.

減速箱規格 Gear unit type	聯軸器規格 Coupling type	Fig	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1	
RCR..147 RCF..127 RCK..127	AM132S	1	230	22	265	5	450	300	M12	148	38	80	41.3	10	
	AM132M			250											28
	AM132ML														28
	AM160			250											28
	AM180	32													
	AM200	300	38	350	7	450		247	55	59.3	16				
	AM225	350	38	400					7	450	262	60	140	64.4	18
	AM250		450		48	500		7				550			
	AM280	75		79.9	20										
RCR..167 RCF..157 RCK..157 RCK..167 RCK..187	AM160	1	250	28	300	6	550	350	M16	198	42	110	45.3	12	
	AM180			300											32
	AM200														38
	AM225	350	38	400	7	450		239	55	140	59.3	16			
	AM250		450						48				500	7	550
	AM280	65		69.4	18										

1) 如果安裝在RCR、RCK和RCS系列地腳安裝方式的減速機上，請檢查尺寸G5/2，它可能已突出安裝平面。  
Dimension 1/2 G5 may protrude past foot mounting surface if mounted on RCR, RCK or RCS foot-mounted gear unit. Please check.

### 9.4 用于安装伺服电机的联轴器 9.4 Adapter for mounting of servomotors

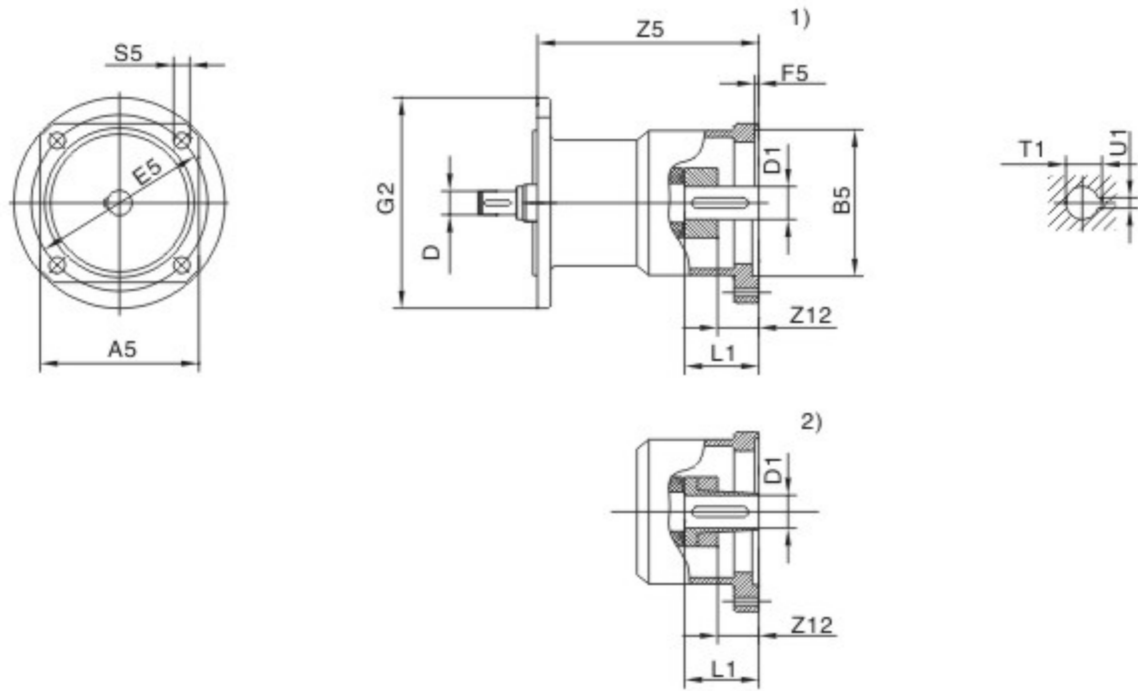


减速箱规格 Gear unit type	联轴器规格 Motor adaptor	A5	B5	D	E5	F5	G2	S5	Z5	Z12 <sup>1)</sup>	Z12 <sup>2)</sup>	D1	L1	T1 <sup>1)</sup>	U1 <sup>1)</sup>
RCR..27 RCR..37 RCF..37 RCF..47 RCK..37 RCS..37 RCS..47 RCS..57	AQ..80/1	82	60	10	75	3	120	M5	104.5	5.5	5.5	11	23	12.8	4
	AQ..80/2														
	AQ..80/3														
	AQ..100/1	100	80	10	100	4		M6	129.5	-	-	14	30	16.3	5
	AQ..100/2														
	AQ..100/3														
	AQ..100/4														
	AQ..115/1	115	95	16	130	4		M8	143.5	7	14	19	40	21.8	6
	AQ..115/2														
	AQ..115/3														

1) 适用于键连接 (AQA..)  
2) 适用于锁紧套连接 (AQH..)

减速箱规格 Gear unit type	联轴器规格 Coupling type	A5	B5	D	E5	F5	G2	S5	Z5	Z12 <sup>1)</sup>	Z12 <sup>2)</sup>	D1	L1	T1 <sup>1)</sup>	U1 <sup>1)</sup>
RCR..77 RCF..77 RCK..77 RCS..77	AQ..80/1	82	60	10	75	3	200	M5	92	5.5	5.5	11	23	12.8	4
	AQ..80/2														
	AQ..80/3														
	AQ..100/1	100	80	10	100	4		M6	115.5	-	-	14	30	16.3	5
	AQ..100/2														
	AQ..100/3														
	AQ..100/4														
	AQ..115/1	115	95	16	130	4		M8	129.5	7	14	19	40	21.8	6
	AQ..115/2														
	AQ..115/3														
	AQ..140/1	140	110	16	165	5		M8	138.5	16	23	19	40	21.8	6
	AQ..140/2														
AQ..140/3															
AQ..190/1	190	130	22	215	5	M10	167	21	16	24	50	27.3	8		
AQ..190/2															
AQ..190/3															

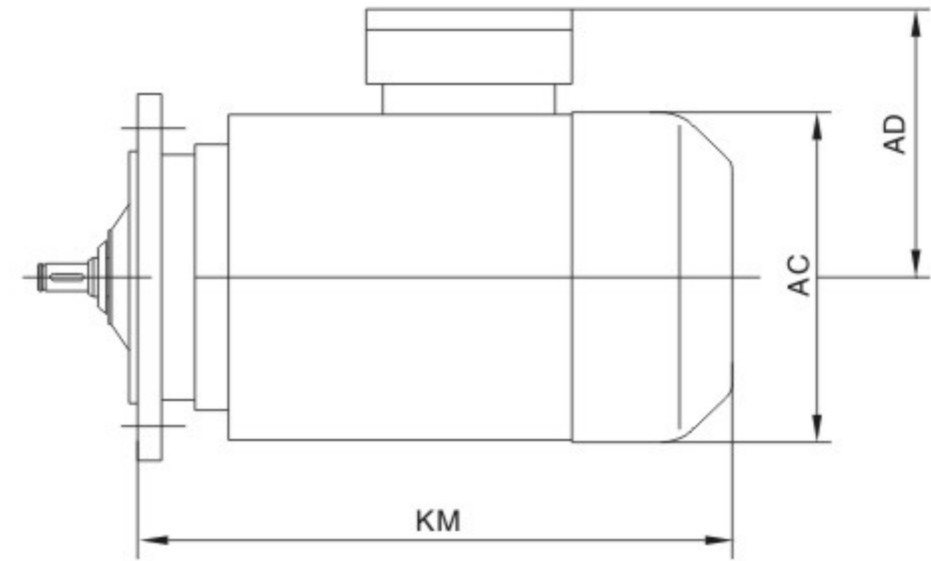
1) 适用于键连接 (AQA..)  
2) 适用于锁紧套连接 (AQH..)



減速箱規格 Gear unit type	聯軸器規格 Coupling type	A5	B5	D	E5	F5	G2	S5	Z5	Z12 <sup>1)</sup>	Z12 <sup>2)</sup>	D1	L1	T1 <sup>1)</sup>	U1 <sup>1)</sup>			
RCR..97 RCF..97 RCK..97 RCS..97	AQ..140/1	140	110	16	165	5	300	M10	157	21	16	24	50	27.3	8			
	AQ..140/2		18															
	AQ..140/3		130	22														
	AQ..190/1	190	130	22	215				5	350	M12	215.5	26	24	32	60	35.3	10
	AQ..190/2		180	28														
	AQ..190/3		22	28														
AQ..140/1	140	110	16	165	5	350	M10	151				21	16	24	50	27.3	8	
AQ..140/2		18																
AQ..140/3		130	22															
AQ..190/1	190	130	22	215				5	400	M12	209.5	26	24	32	60	35.3	10	
AQ..190/2		180	28															
AQ..190/3		22	28															
AQ..190/1	190	130	22	215	5	450	M12				194.5	26	24	32	60	35.3	10	
AQ..190/2		180	28															
AQ..190/3		218.5	39															34

1) 適用於鍵連接 (AQA..) 1) Applies to type with key way (AQA..)   
 2) 適用於鎖緊套連接 (AQH..) 2) Applies to type with clamping ring hub (AQH..)

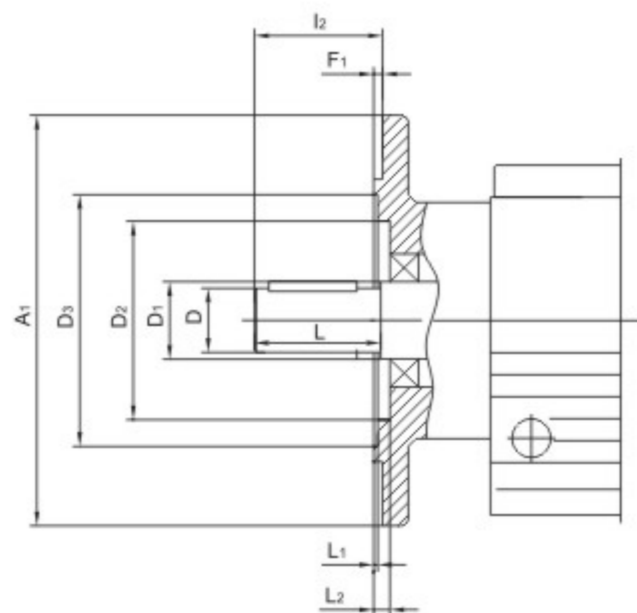
9.5 電機尺寸圖  
9.5 The size of motor



型號 Model	D63M	D71M	D80M	D90S D90L	D100L	D112M	D132S D132L	D160M D160L	D180M D180L	D200L	D225S D225M	D250M	D280S D280M	D315S D315M
AC	130	145	175	195	215	240	275	330	380	420	470	510	580	612
AD	70	80	145	155	180	190	210	255	280	305	335	370	400	430
KM	250	280	320	342 367	400	408	473 513	560 615	645 685	710	724 754	810	895 945	1010 1065

注：上表中的電機尺寸為部分鐵芯長度電機的參考尺寸，具體尺寸根據鐵芯長度與聯接法蘭尺寸確定，  
 因空間限制對電機尺寸有要求時請向我公司諮詢。  
 Notice: The data in the above table is only for reference. If you have any special requirements, please contact us.

9.6 RCRF..和RCR..F減速電機法蘭外形圖  
9.6 Flange contours of RCRF.. and RCR..F gear units



選擇和安裝輸出零件時請注意L1和L2尺寸  
Check dimensions L1 and L2 for selection and installation of output elements

規格 Type	A1	D	D1	D2		D3	F1	12	L	L1		L2	
				RCRF	RCR..F					RCRF	RCR..F		
RCRF17,RCR17F	120	20	25	46	46	65	3	40	40	1	1	5	
	140				-	78				3	1	-	5
RCRF27,RCR27F	120	25	30	54	4	66	3	50	50	1	1	6	
	140				-	79				3	3	-	7
	160				-	92				3.5	3	-	7
RCRF37,RCR37F	120	25	35	60	63	70	3	50	50	5	4	7	
	160				-	96				3.5	1	-	7.5
	200				-	119				3.5	1	-	7.5
RCRF47,RCR47F	140	30	35	72	64	82	3	60	60	4	1	6	
	160				-	96				3.5	0.5	-	6.5
	200				-	116				3.5	0.5	-	6.5
RCRF57,RCR57F	160	35	40	76	75	96	3.5	70	70	4	2.5	5	
	200				-	116				3.5	0	-	5
	250				-	160				4	0.5	-	5.5
RCRF67,RCR67F	200	35	50	90	90	118	3.5	70	70	2	4	7	
	250				-	160				4	1	-	7.5
RCRF77,RCR77F	250	40	52	112	100	160	4	80	80	0.5	2.5	7	
	300				-	210				4	0.5	-	7
RCRF87,RCR87F	300	50	62	123	122	210	4	100	100	0	1.5	8	
	350				-	226				5	1	-	9
RCRF97	350	60	72	136	236	5	120	120	120	0		9	
	450				320								
RCRF107	350	70	82	157	232	5	140	140	140	0		11	
	450				316								
RCRF137	450	90	108	180	316	5	170	170	170	0		10	
	550				416								
RCRF147	450	110	125	210	316	5	210	210	210	0		10	
	550				416								
RCRF167	550	120	145	290	416	5	210	210	210	1		10	
	660				517					6	2		11

9.7 減速機安裝  
9.7 Gear unit mounting

例外  
Exception

安裝減速機和減速電機時一定要使用8.8級螺栓  
Always use bolts quality 8.8 for mounting gear units and geared motors.

當傳遞樣本上所給定的額定扭矩時，下面幾種法蘭安裝 (RCRF..) 和地腳/法蘭安裝 (RCR..F..) 的斜齒輪減速電機，法蘭和用戶安裝單元固定時一定要用10.9級的螺栓。  
· RCRF37和帶Φ 120mm法蘭的RCRF37  
· RCRF47和帶Φ 140mm法蘭的RCRF47  
· RCRF57和帶Φ 160mm法蘭的RCRF57

Bolts of quality 10.9 must be used for used for fastening the flange to the customer supplied unit in order to transmit the rated torque specified in the catalog. These bolts must be used in case following flange – mounted helical geared motors (RCRF..) and foot/flange – mounted helical geared motors (RCR..F..) :  
· RCRF37, RCRF37F with flange Φ 120mm  
· RCRF47, RCRF47F with flange Φ 140mm  
· RCRF57, RCRF57F with flange Φ 160mm

RCKH167..,RCKH187..  
的力矩臂

Torque arms for  
RCKH167..,RCKH187..

對於減速電機RCKH167..和RCKH187..作為標準配置，一般不提供扭矩臂。如果需要，請和我公司聯繫，我們將給出推薦的安裝位置和尺寸圖。

As standard, there are no torque arms available for gear unit sizes RCKH167..and RCKH187 Please contact company if you require torque arms for these gear units. We will submit The configuration of recommendations.

9.8 潤滑  
9.8 Lubricants

概述  
General  
information

除非特別要求，公司所提供的減速電機均按其減速機規格注了油。訂貨時，所規定的安裝位置對注油量的多少是一個決定性因素。對於安裝位置的調整必須相應地調節注油量。(按218頁注油量表)。  
Unless there is a special requirement, company always supplies the drives that with lubricant fill specifically for the reducer and mounting position. When ordering a drive, the decisive factor of lubricant fill quantities is the drives mounting position. You must adapt the lubricant fill to any subsequent change made to the mounting position check P218 for the (Lubricant fill quantities)

潤滑油的等級和粘度類型  
Lubricating  
conglutination

推薦使用的潤滑油見P217頁潤滑油表，其等級和粘度指標見下表  
Commend the lubricant oil in P217. The grade and conglutination index in the following.

DIN(ISO,SAE)標準潤滑油 Normal lubricating	粘度指標 Conglutination index	環境溫度℃ Ambient temperature	減速機型號 Gear unit type
Mineral oil CLp(cc)	ISOVG 220	-10~+40	RCR系列, RCF系列 RCK系列減速機
	ISOVG 680	0~+40	RCS系減速機

特殊應用場合必須使用特殊潤滑油，比如要求長使用壽命潤滑油。若需要可提供用于食品行業和生物降解潤滑油。  
The special lubricante oil. must be used in special situation. For example requesting use the oil with long life-span.If you want, we can afford the biology decompose oil for food industry.

DIN(ISO,SAE)標準潤滑油 Normal lubricating	粘度指標 Conglutination index	環境溫度℃ Ambient temperature	減速機型號 Gear unit type
Mineral oil CLp(CC)	ISOVG 100	-20~+25	RCR系列, RCF系列 RCK系列減速機
Synthetic fluid,clp pg	ISOVG 220	-25~+80	RCR系列, RCF系列 RCK系列減速機
Synthetic fluid,CLP HC	ISOVG 460	-30~+80	RCS系減速機

耐磨軸承  
用潤滑油  
Anti-friction  
bearing  
greases

下列潤滑脂用于減速機和電機的耐磨軸承潤滑

DIN(ISO,SAE)標準潤滑油 Normal lubricating	環境溫度℃ Ambient temperature	減速機型號 Gear unit type
礦物軸承潤滑脂K32N/K2K mineral bearing lubricating lipin K32N/K2K	-30~+60	正常型式：減速機、電機 Normal type: motor reducer
合成軸承潤滑脂KHC 2R-40 synthetic bearing lubricating lipin K2R-40	-40~+80	減速機加注合成潤滑油 Reducers need to inject the synthetic lubricant
礦物軸承潤滑脂K3N-30 mineral bearing lubricating lipin K3N-30	-25~+80	特殊型式：按應用場合確定的電機 Special type: select the motor in different situation
合成軸承潤滑脂K2S-50 synthetic bearing lubricating lipin K2S-50	-45~-25	特殊型式：按應用場合確定的電機 Special type: select the motor in different situation

傳動裝置潤滑油表  
Lubricant table

減速機型號 Gear unit type	環境溫度 Ambient temperature 0° +50 +100	潤滑油 類型 DIN(ISO)	ISO粘度和 NLGI相應	Mobil	Shell	ARAL	BP	Tribol	Optimal	FUCHS	
RCR	-10	標準	VG 220	Mobilgear 630	Shell Omala 220	Aral Degol Bg220	BP Energol GR-Xp220	Tribol 1100V/220	Optigear BM220	Renolin CLP 220	
	-25	+40	VG 220	Mobil Glyglyfe 30	Shell Tivela WB	Aral Degol Gs220	BP Energol SR-Xp220	Tribol 800/220	Optiflex A 220		
	-40	+40	VG 220	Mobil SHC 630	Shell Omala 220HD	Aral Degol PAS220		Tribol 1510/200	Optigear Synthetic A 220	Renolin Unisyn CLP 220	
	-40	+40	VG 150	Mobil SHC 629							
	-20	+25	VG 150 VG 100	Mobilgear 629	Shell Omala 100	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1000V/100	Optigear BM220	Renolin CLP 150	
	-30	+10	VG 68-46 VG 32	Mobil D.T.E 15M	Shell Tellus T32	Aral Degol Bg46		Tribol 1100/68	Optigear 32	Renolin B46 HVI	
	-40	+10	VG 32	Mobil SHC 624							
RCF	-10	標準	VG 22	Mobil D.T.E 11M	Shell Tellus T15	Aral Degol Bg680	BP Energol HLP-HM10	Tribol			
	-20	+60	VG 15	Mobilgear 636	Shell Omala 680	Aral Degol Bg680	BP Energol GR-Xp680	Tribol 1100V/680	Optigear BM 680	Renolin CLP 680	
	-30	+80	VG 680 1)	Mobil Glyglyfe HE 680				Tribol 800/680			
	-40	+10	VG 460	Mobil SHC 634	Shell Omala 460HD						
	-40	+10	VG 150	Mobil SHC 629							
	-20	+10	VG 150 VG 100	Mobil D.T.E 18M	Shell Omala 100	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1100V/100	Optigear BM 100	Renolin CLP 150	
	-25	+20	VG 32	Mobil Glyglyfe 30				Tribol 800/220	Optiflex A 220		
RCK	-10	標準	VG 460 4)	Mobil SHC 624	Shell Cassida Fluid GL 460	Aral Eural Bear 460					
	-20	+40	VG 460 5)								
	-25	+60	00 2)	Glyglyfe Grease 00	Shell Tivela Compound A						
	-30	+40	000-0 2)	Mobilux EP 004	Shell Alvania GL 00	Aralub MFL 00	BP Energol LS-EP 00				
	-40	+40									
	-15	+40									
											Longtime PD 00

☐ = 合成潤滑油 Synthetic lubricant  
□ = 礦物潤滑油 Mineral lubricant  
1) Please contact with company when the Helical-worm geared motors use PG oil.  
2) Small conglutination index oil, other types of reducers. Please contact with company.  
3) 食品飲料行業用油(食品級油)  
4) 生物降解油(用于農業、林業和水工業)  
\* 低溫時啟動要求高

CLPPG=聚二脲類  
CLP HC=磺基烴化合物類  
E=二元酸酯化合物類  
HCE=磺基烴化合物十二脂油  
CLP=礦物油  
HLP=液壓油  
CLP:Petrolatam oil  
HLP:Hydraulic pressure oil  
KBTS/GaVI



斜齒輪-錐齒輪減速器(RCK系列)  
Helical-bevel Gear unit (RCK..)

RCK...,RCKA..B,RCKH..B,RCKV..B

減速器型號 Gear unit type	注油量(升) Fill quantity(L)					
	M1	M2	M3	M4	M5	M6
RCK..37	0.5	1	1	1.3	1	1
RCK..47	0.8	1.3	1.5	2	1.6	1.6
RCK..57	1.2	2.3	2.5	3	2.6	2.4
RCK..67	1.1	2.4	2.6	3.4	2.6	2.6
RCK..77	2.2	4.1	4.4	5.9	4.2	4.4
RCK..87	3.7	8	8.7	10.9	7.8	8
RCK..97	7	14	15.7	20	15.7	15.5
RCK..107	10	21	25.5	33.5	24	24
RCK..127	21	41.5	44	54	40	41
RCK..157	31	62	6.5	90	58	62
RCK..167	35	100	100	125	85	85
RCK..187	60	170	170	205	130	130

RCKF..

減速器型號 Gear unit type	注油量(升) Fill quantity(L)					
	M1	M2	M3	M4	M5	M6
RCKF37	0.5	1.1	1.1	1.5	1	1
RCKF47	0.8	1.3	1.7	2.2	1.6	1.6
RCKF57	1.3	2.3	2.7	3	2.9	2.7
RCKF67	1.1	2.4	2.8	3.6	2.7	2.7
RCKF77	2.1	4.1	4.4	6	4.5	4.5
RCKF87	3.7	8.2	9	11.9	8.4	8.4
RCKF97	7	14.7	17.3	21.5	15.7	16.5
RCKF107	10	22	26	35	25	25
RCKF127	21	41.5	46	55	41	41
RCKF157	31	66	69	92	62	62

RCKA...,RCKH...,RCKV...,RCKAF...,RCKHF...,RCKVF...,RCKAZ...,RCKHZ...,RCKVZ

減速器型號 Gear unit type	注油量(升) Fill quantity(L)					
	M1	M2	M3	M4	M5	M6
RCK..37	0.5	1	1	1.4	1	1
RCK..47	0.8	1.3	1.6	2.1	1.6	1.6
RCK..57	1.3	2.3	2.7	3	2.9	2.7
RCK..67	1.1	2.4	2.7	3.6	2.6	2.6
RCK..77	2.1	4.1	4.6	6	4.4	4.4
RCK..87	3.7	8.2	8.8	11.1	8	8
RCK..97	7	14.7	15.7	20	15.7	15.7
RCK..107	10	20.5	24	32	24	24
RCK..127	21	41.5	43	52	40	40
RCK..157	31	66	67	87	62	62
RCK..167	35	100	100	125	85	85
RCK..187	60	170	170	205	130	130

斜齒輪-蝸輪蝸杆減速器(RCS系列)  
Helical-worm Gear units.(RCS..)

RCS..

減速器型號 Gear unit type	注油量(升) Fill quantity(L)					
	M1	M2	M3 <sup>1)</sup>	M4	M5	M6
RCS37	0.25	0.4	0.5	0.6	0.4	0.4
RCS47	0.35	0.8	0.7	1.1	0.8	0.8
RCS57	0.5	1.2	1	1.5	1.3	1.3
RCS67	1	2.0	2.2/3.1	3.2	2.6	2.6
RCS77	1.9	4.2	3.7/5.4	6	4.4	4.4
RCS87	3.3	8.1	6.9/10.4	12	8.4	8.4
RCS97	6.8	15	13.4/18	22.5	17	17

1) 多級減速箱中較大的減速機須注較多的油量。  
The output end unit of multi-stage gear units must be filled with the larger oil volume.

RCSF..

減速器型號 Gear unit type	注油量(升) Fill quantity(L)					
	M1	M2	M3 <sup>1)</sup>	M4	M5	M6
RCSF37	0.25	0.4	0.5	0.6	0.4	0.4
RCSF47	0.4	0.9	0.9	1.2	1.0	1
RCSF57	0.5	1.2	1	1.6	1.4	1.4
RCSF67	1	2.2	2.3/3	3.2	2.7	2.7
RCSF77	1.9	4.1	3.9/5.8	6.5	4.9	4.9
RCSF87	3.8	8	7.1/10.1	12	9.1	9.1
RCSF97	7.4	15	13.8/18.8	23.6	18	18

1) 多級減速箱中較大的減速機須注較多的油量。  
The output end unit of multi-stage gear units must be filled with the larger oil volume.

RCSA...,RCSH...,RCSAF...,RCSHF...,RCSAZ...,RCSHZ.

減速器型號 Gear unit type	注油量(升) Fill quantity(L)					
	M1	M2	M3 <sup>1)</sup>	M4	M5	M6
RCS..37	0.25	0.4	0.5	0.6	0.4	0.4
RCS..47	0.4	0.8	0.7	1.1	0.8	0.8
RCS..57	0.5	1.1	1	1.6	1.2	1.2
RCS..67	1	2	1.8/2.6	2.9	2.5	2.5
RCS..77	1.8	3.9	3.6/5	5.9	4.5	4.5
RCS..87	3.8	7.4	6/8.7	11.2	8	8
RCS..97	7	14	11.4/16	21	15.7	15.7

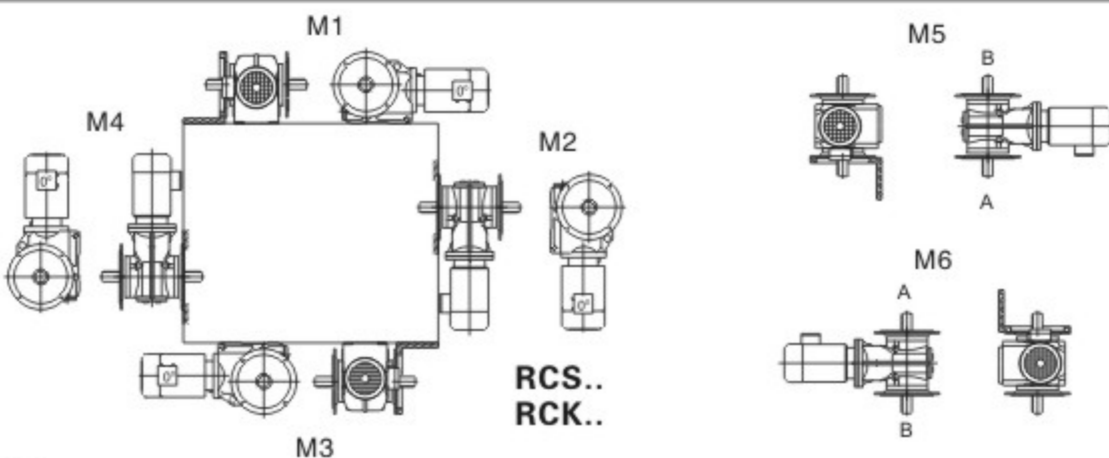
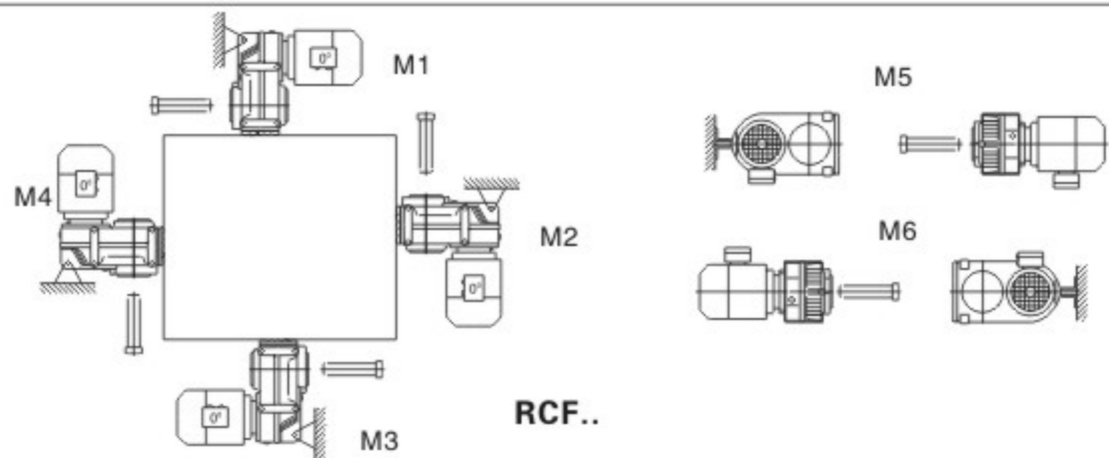
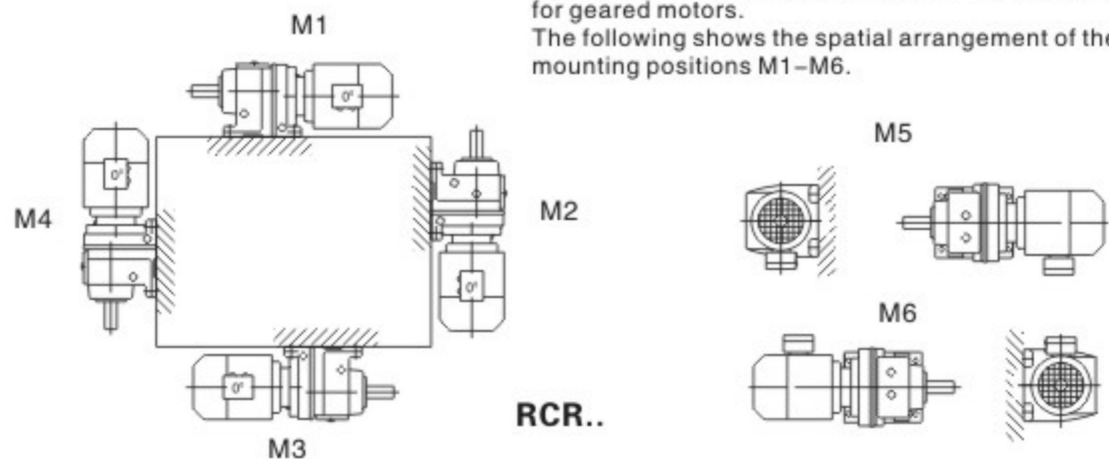
1) 多級減速箱中較大的減速機須注較多的油量。  
The output end unit of multi-stage gear units must be filled with the larger oil volume.

## 10. 安裝位置 Monnting Position

### 10.1 安裝位置概述

### 10.1 Mounnting position designation

安裝位置說明：RISC減速電機有M1..M6共6種安裝位置。  
下面的圖表說明了減速器安裝位置M1..M6的空間排列。  
RISC differentiates between six mounnting position M1-M6 for geared motors.  
The following shows the spatial arrangement of the gear units in mounting positions M1-M6.



重要的訂貨信息  
Important indention information  
除了安裝位置以外，下面訂貨資料也是必需的，以便精確描述要求的減速電機外形。  
Except the mounting position, the indention informations for depicting the figure of gear

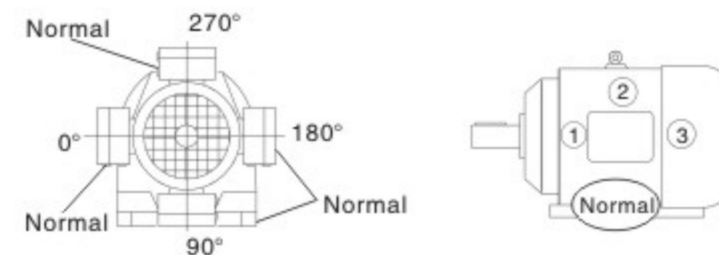
電機接線盒位置  
電機接線盒上出線口位置  
對直角軸減速機：輸出方向  
對直角軸型帶收縮盤軸式減速機：連接端帶或不帶法蘭  
帶逆止器的減速電機：設備的旋轉方向

Unit exactly are necessary  
Position of the motor terminal box  
For the right-angle shaft reducers:output shaft connection.  
For the right-angle shaft reducers:with shrink-disk:with or without feange.  
For the drive with a backstop: the Direction of rotation.

### 電機接線盒和出線嘴位置

### Position of the motor terminal box cable entry

電機接線盒從電機風扇罩看（如圖），位置分別表示為0°，90°，180°或270°  
出線嘴的位置也可以進行選擇（如圖），分別表示為“Normal”，“1”，“2”或“3”  
Possible positions of the teminal box are 0° ,90° ,180° or 270° as ciewed onto the fan guard=B-side  
In addition, the position of the cable entry can be selected. The possibilities are "X" (=normal position), "1", "2", or "3"



圖：接線盒與出線嘴的位置  
Fig:Position of the terminal box and cable entry

對於接線盒，除非給出了詳細信息，否則接線盒按0°，出線嘴按“Normal”供貨。  
我們建議安裝位置在M3時，應選擇出線嘴位置為“2”。

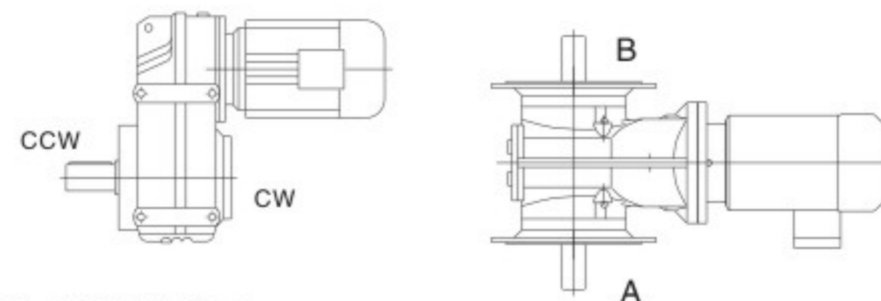
注意：  
對於RCR17D71..減速電機，接線盒位置不能標為90°  
D71..BMG接線盒位置為90°時，出線嘴位置不能標為“2”。  
Unless other information is given regarding the terminal box,the 0° type with "X" cable entry will be supplied.We recommend selecting cable enty "2"with mounting position M3.  
The terminal box cannot be positioned at 90° on the RCR17D71 geared motor.  
Cable entry "2" is not possible with the D71..BMG motor with terminal box position 90°



### 帶逆止器減速電機的旋轉方向

### Direction of totatiom of the drive with a backstop

若減速電機帶逆止器，規定出減速電機的旋轉方向是很必要的。按下列標識：  
從輸出軸看：順時針(CW)為向右旋轉逆時針(CCW)為向左旋轉  
If the drive has a RS backstop,it is necessary to stipulate the direction of drive rotation.  
The following defintion applies:  
Looking onto the output shaft:Clockwise(CW)=Rotating to the right  
Counterclockwise(CCW)=Rotating to the left



圖：輸出軸的旋轉方向  
Fig: Direction of rotation of the output shaft

對於直角軸型式減速電機，規定出給定的旋轉方向是從A端看還是從B端看的，這是非常必要的。  
In right-angle gear units, it is necessary to indicate if the direction of rotation is given where be looked from the A or B end.



輸出軸的位置  
Position of the output shaft

對於直角軸型減速機，規定出軸方向是必要的：· A或B，還是A+B(見圖)  
In right-angle gear units, it is necessary to indicate the position of the output shaft and output flange: A or B or A+B

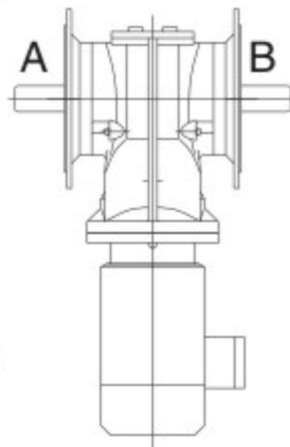


圖:出軸方向  
Fig:Position of the Output shaft

帶鎖緊盤的軸裝直角軸減速機  
Position of the connection end in tight-angle gear units with shrink disk

對於軸裝式帶鎖緊盤的正文軸型減速機，規定出A端還是B端為連接端並且連接端是否有法蘭是必要的。在圖中，A端是連接端，鎖緊盤在連接端對面。  
In shaft mounted right-angle gear units with shrink disk, it is necessary to indicate whether the A or B end is the connection end. In Fig. The A end and is the connection end. The shrink disk is located opposite the connection end.

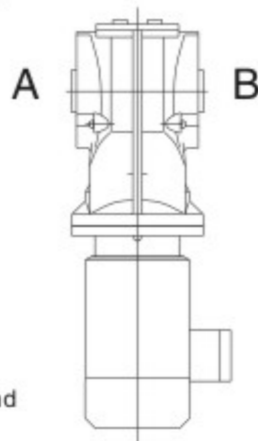


圖:連接端的位置  
Fig:Position of the connection end

定購實例  
Sample orders

對於RCK167/K187來講，安裝為M5和M6時，連接端祇能是在底部連接。  
Connection end at bottom only is possible with RCK167/K187 helical-bevel gear units in mounting positions M5 and M6.

類型 Type	安裝位置 Mounting position	連接端 Shaft with	鎖緊盤位置 Position of shrink disk	法蘭 Flange	接線位置 Position of terminal box	出線端位置 Position of cable entry	旋轉方向 ration direction	出軸方向 Output direction
RCKF47D71D4/RS	M5	A	-	B	0°	"Normal"	CW	A
RCSF97D180M4	M2	A+B	-	A+B	180°	"2"	-	A+B
RCKH107D160L4	M1	A	B	-	270°	"3"	-	-

所有符號的含義  
Symbols used

下表列出，在安裝位置上的符號及其含義  
The following table shows the symbols used in the mounting position sheets and what they mean:

符號 Symbol	含義 Meaning
	通氣器 Breather valve
	油標 Oil level plug
	放油螺塞 Oil drain plug
	進綫位置 In line plug

攪油損失  
Churning losses

在某些安裝位置可能增加攪油損失，在下列結構中請向我公司諮詢  
In creased churning losses may arise in some mounting positions, Please contact company in case of the following combinations.

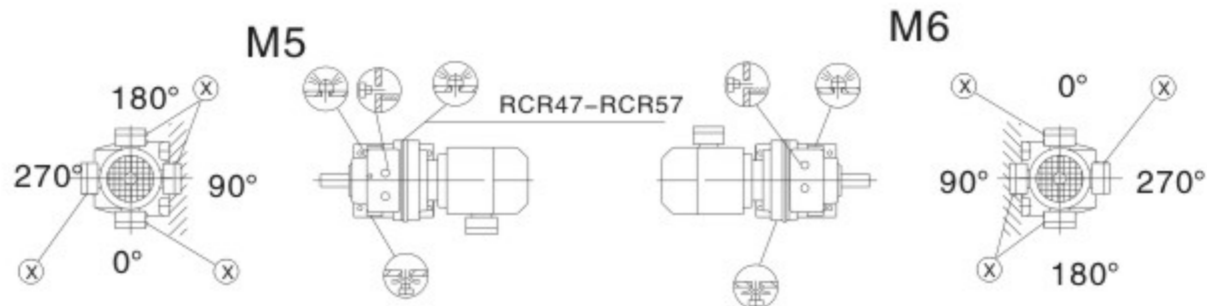
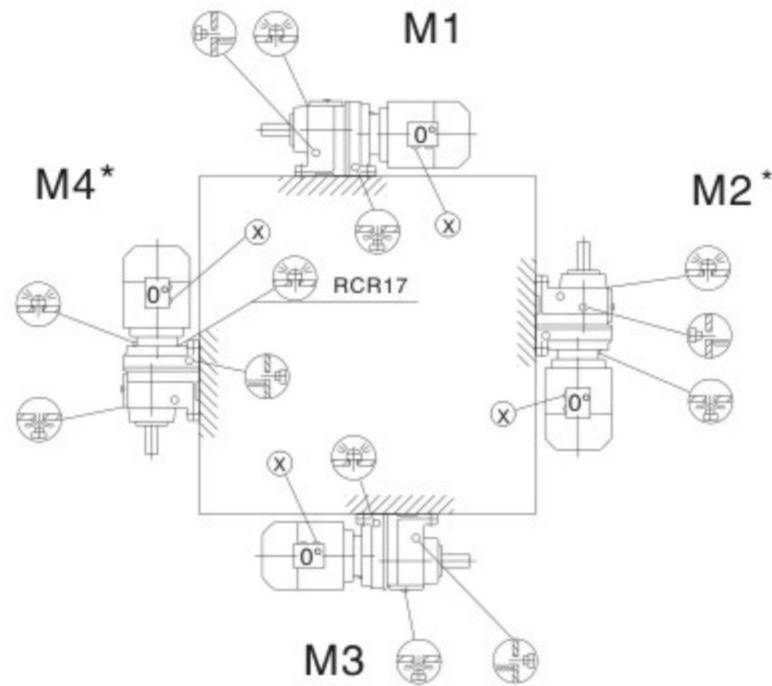
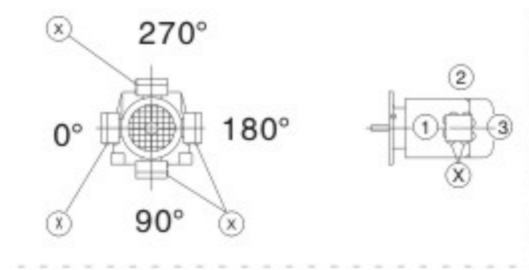
安裝位置 Mounting position	減速器型號 Gear unit type	減速器規格 Gear unit size	輸入速度(rpm) Input speed
M2, M4	RCR	97-107	>2500
		>107	>1500
M2, M3, M4, M5, M6	RCF	97-107	>2500
		>107	>1500
	RCK	77-107	>2500
		>107	>1500
RCS	77-97	>2500	

RCR... RCF... RCK... RCS... RC...系列齒輪減速電機

RCR... RCF... RCK... RCS... RC...系列齒輪減速電機

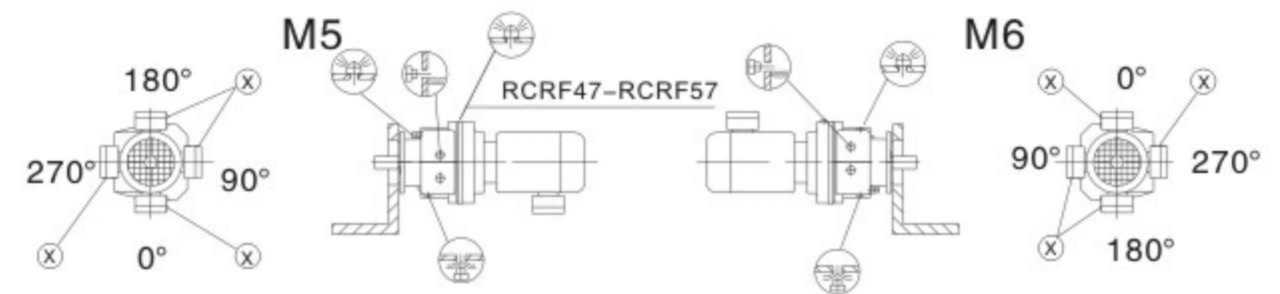
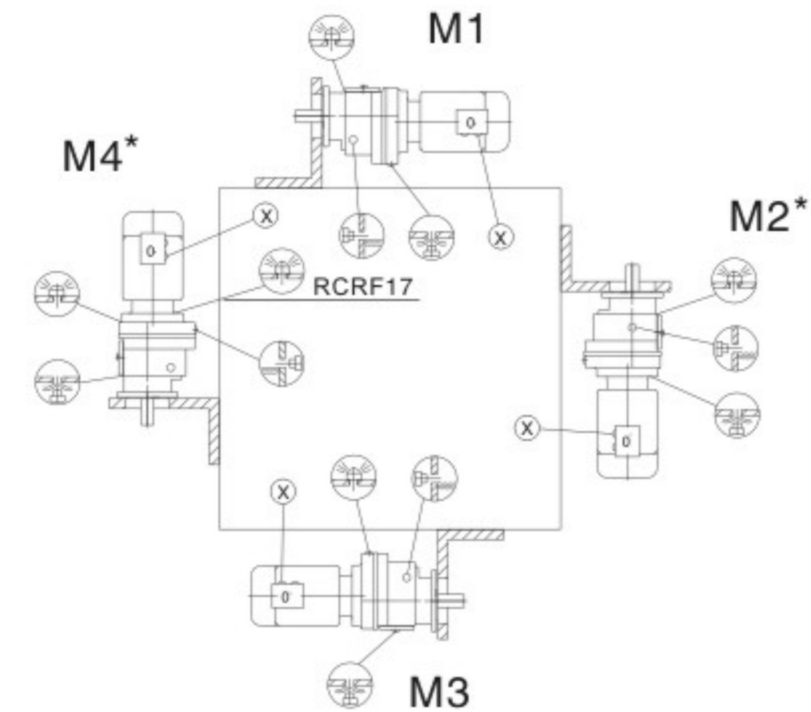
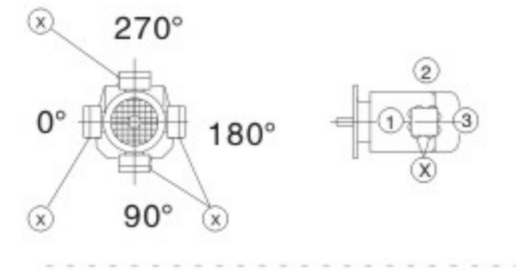
10.2 斜齒輪減速電機安裝位置  
10.2 Mounting position of Helical gear unit

RCR17-RCR167



- RCR17,RCR27 M1,M3,M5,M6
- RCR47,RCR57 M5
- RCR17,RCR27

RCRF17-RCRF167



- RCRF17,RCRF27 M1,M3,M5,M6
- RCRF47,RCRF57 M5
- RCRF17,RCRF27

RCR..

RCF..

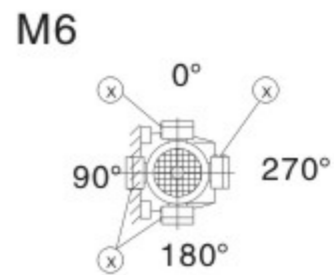
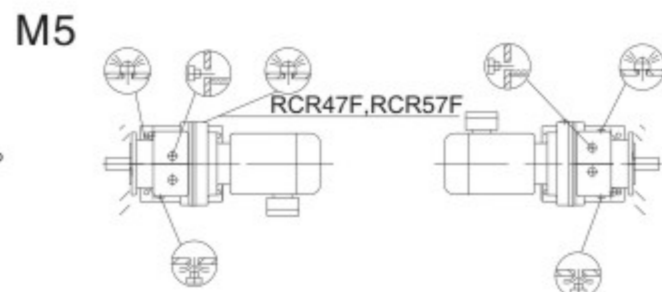
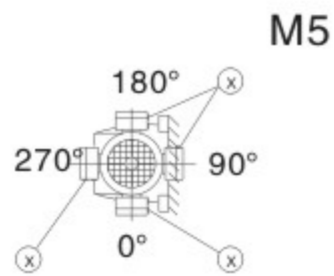
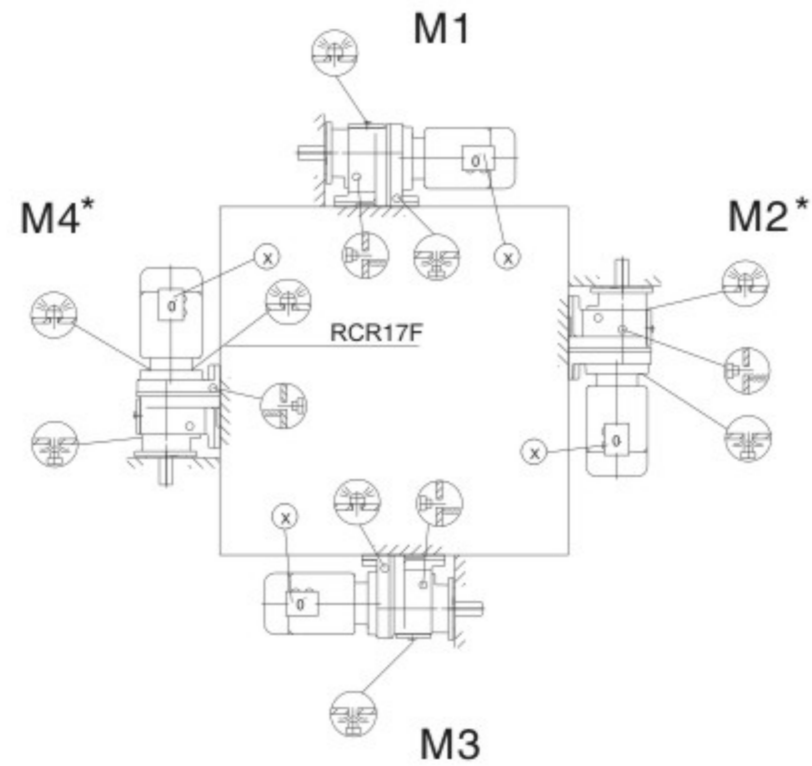
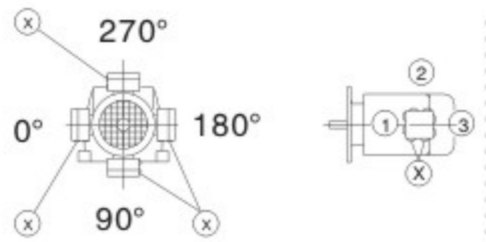
RCK..

RCS..

RC..系列齒輪減速電機

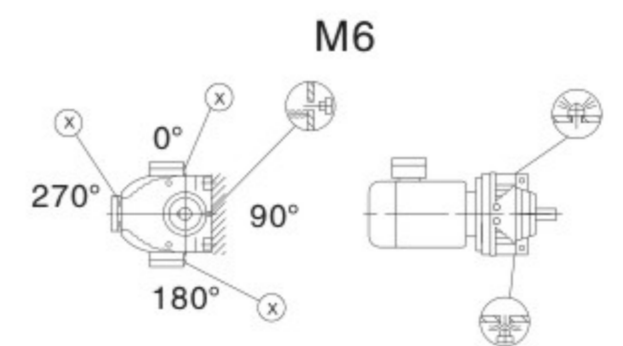
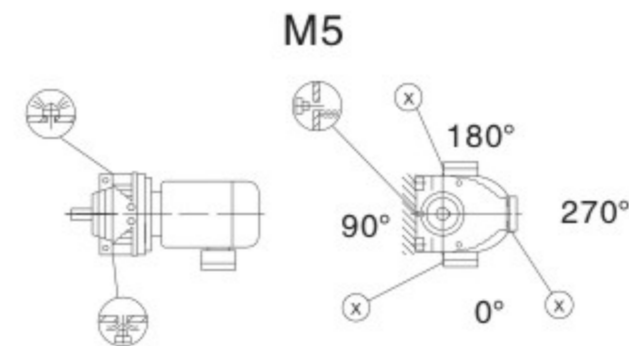
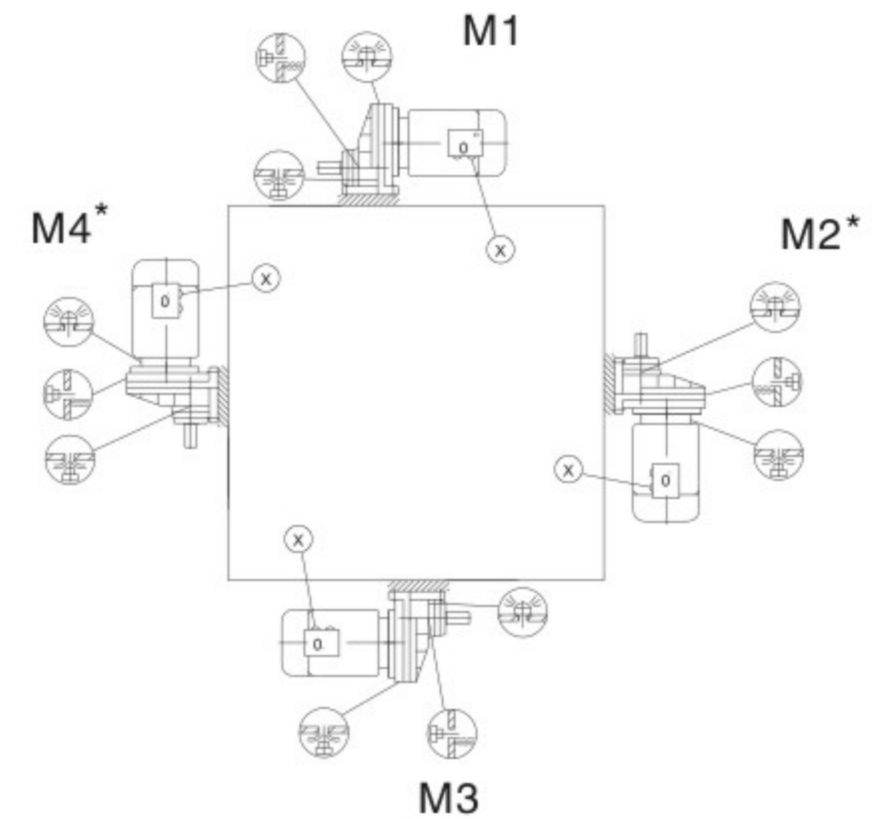
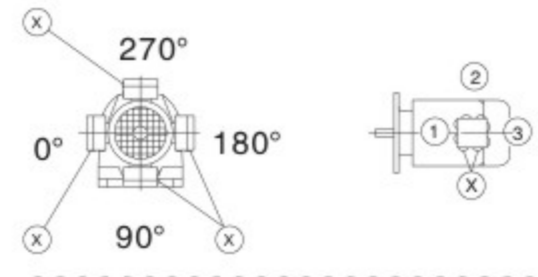
RC..系列齒輪減速電機

RCR17F-RCR87F



- RCR17F, RCR27F M1, M3, M5, M6
- RCR47F, RCR57F M5
- RCR17F, RCR27F

RCRX57-RCRX107



RCR..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

RCR..

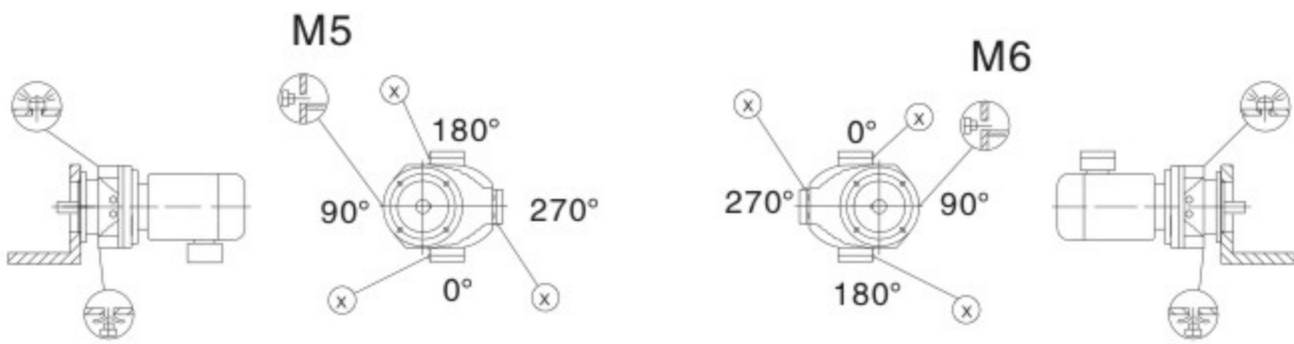
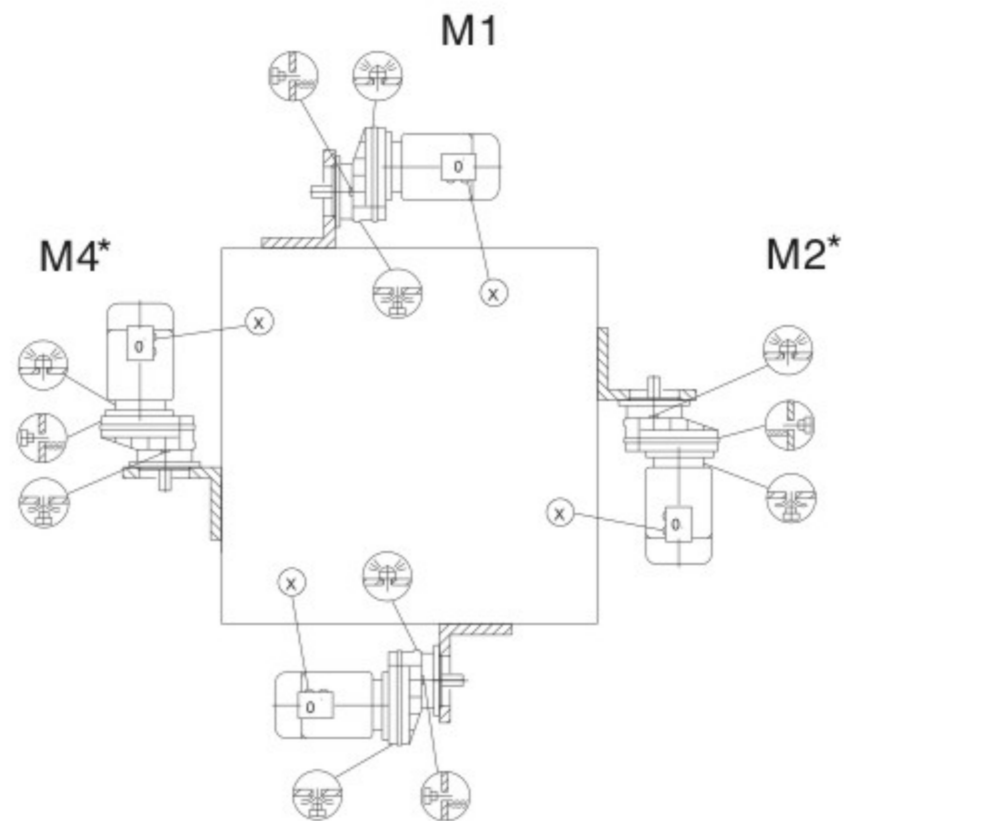
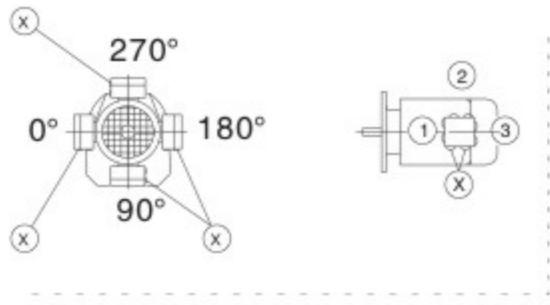
RCF..

RCK..

RCS..

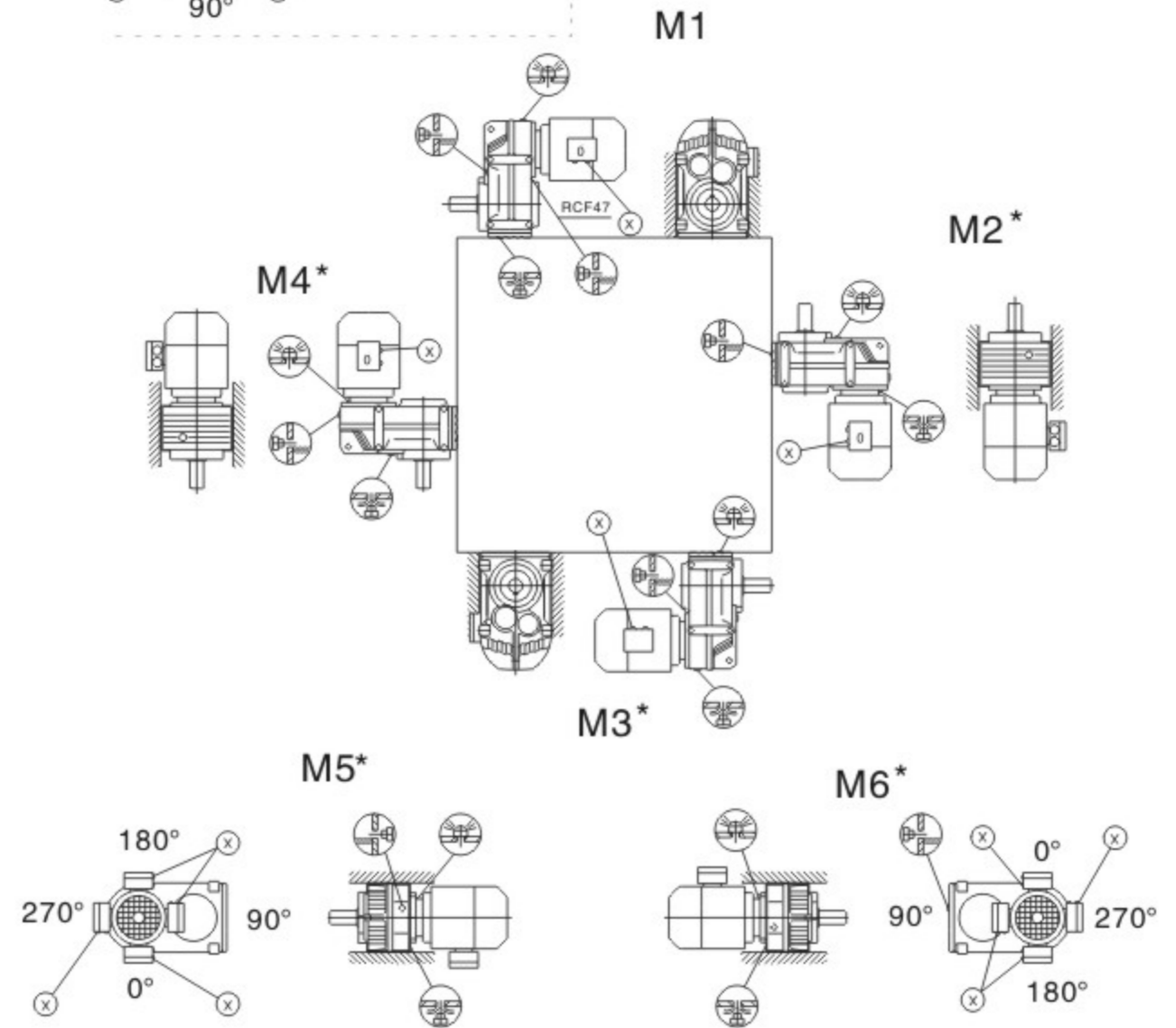
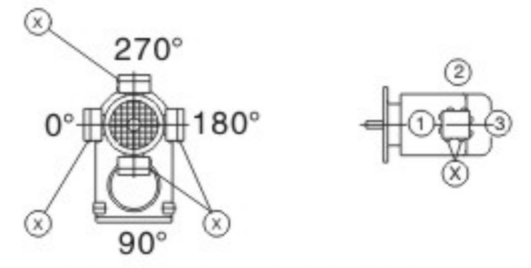
RC..系列齒輪減速電機

RCRXF57-RCRXF107



10.3 平行軸斜齒輪減速電機安裝位置  
10.3 Mounting position of parallel shaft helical Gear unit

RCF/FA..B/FH27B-157B, RCFV27B-107B



RCF..27		M1, M3, M5, M6
RCF..27		M1-M6
RCF..27		M1, M3, M5, M6

RCR..

RCF..

RCK..

RCS..

RCR..

RCF..

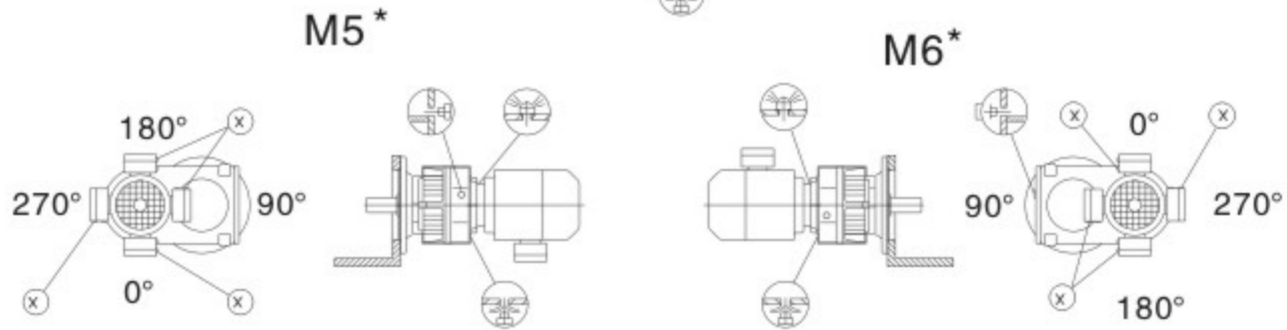
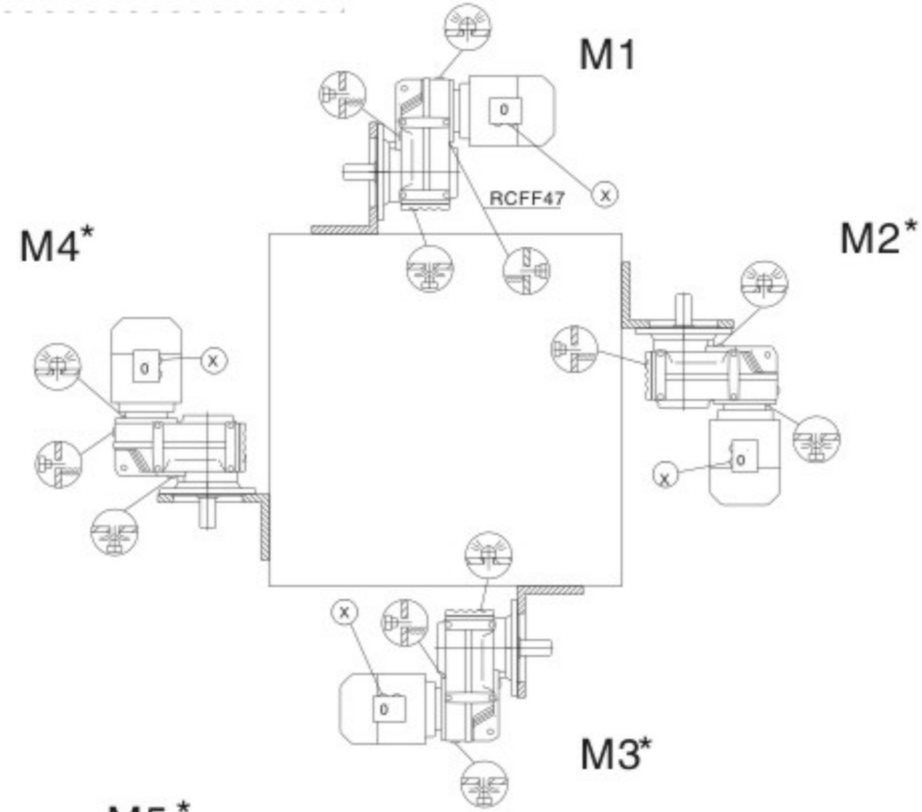
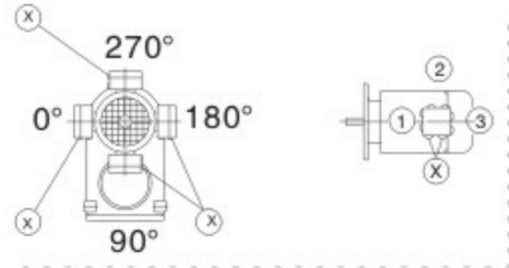
RCK..

RCS..

RC..系列齒輪減速電機

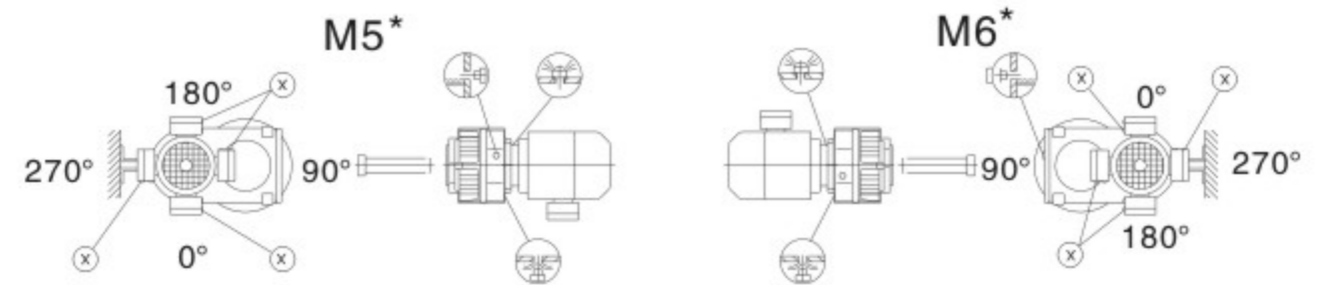
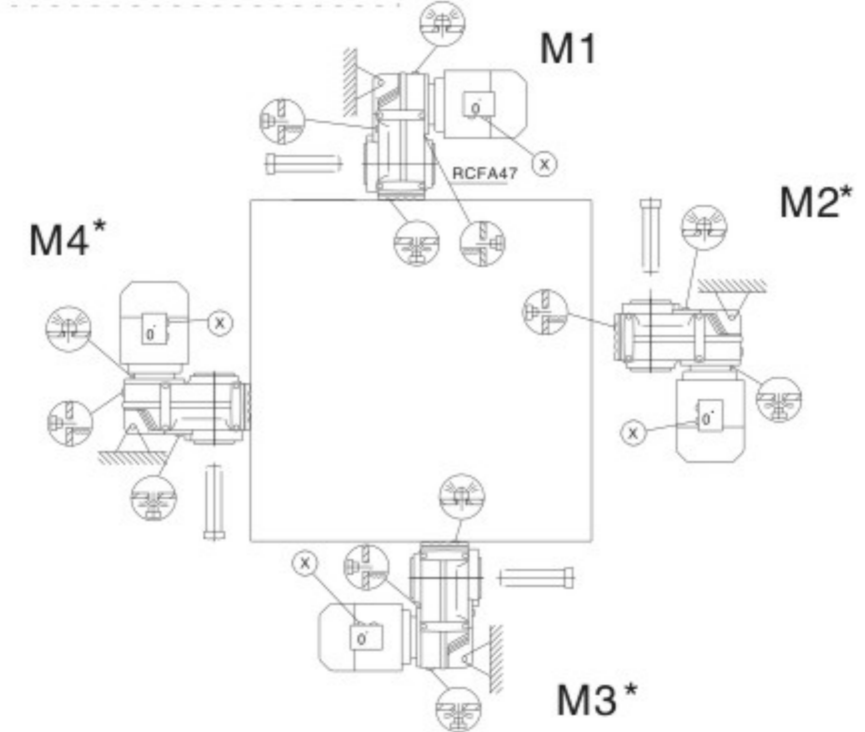
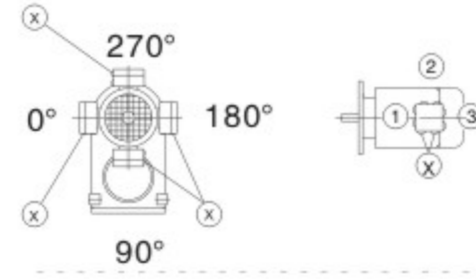
RC..系列齒輪減速電機

RCFF/FAF/FHF/FAZ/FHZ27-157, RCFVF/FVZ27-107



RCF..27		M1, M3, M5, M6
RCF..27		M1-M6
RCF..27		M1, M3, M5, M6

RCFA/FH27-157, RCFV27-107



RCF..27		M1, M3, M5, M6
RCF..27		M1-M6
RCF..27		M1, M3, M5, M6

RCR..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

RCR..

RCF..

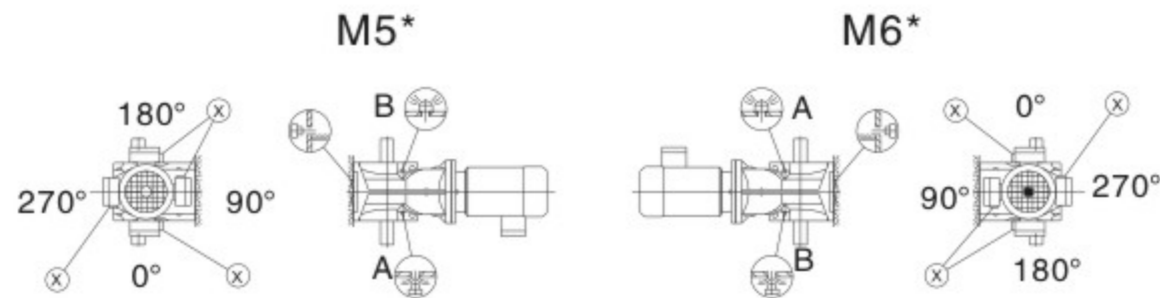
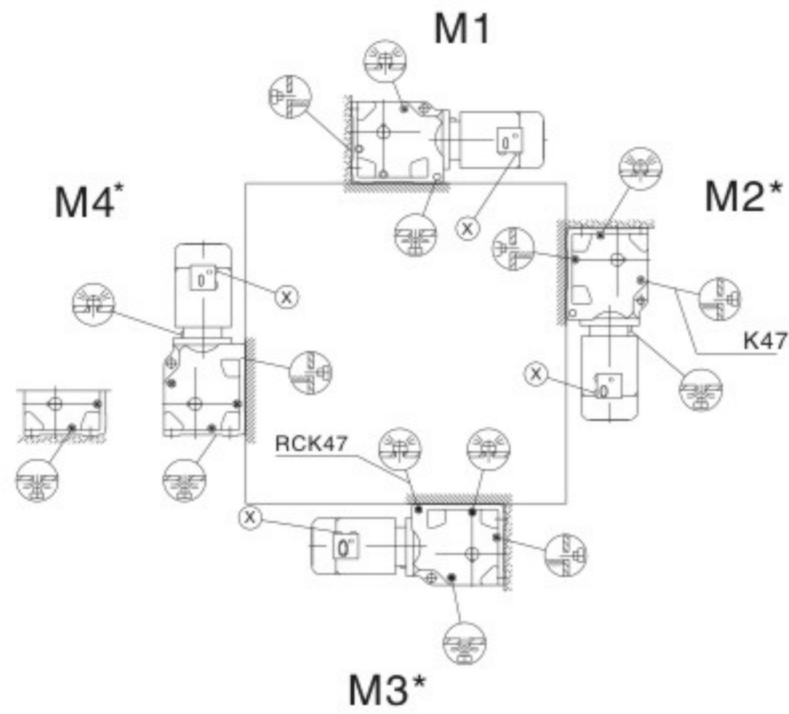
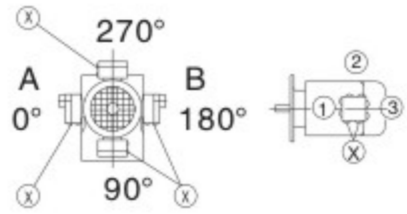
RCK..

RCS..

RC..系列齒輪減速電機

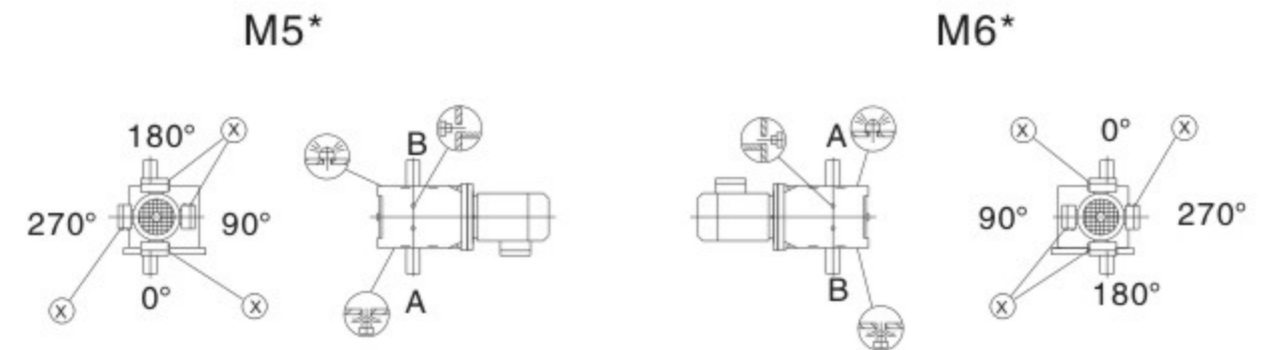
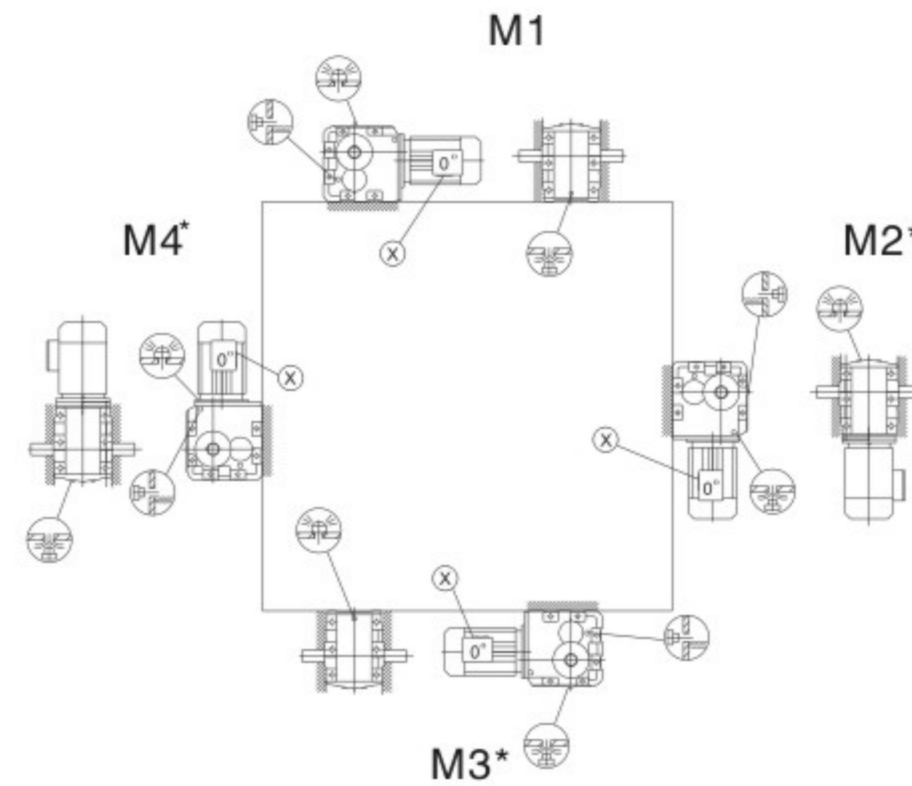
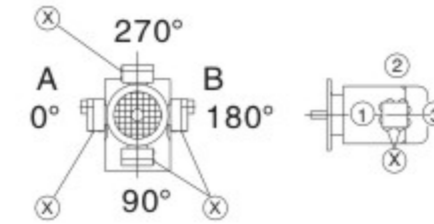
10.4 斜齒輪-傘齒輪減速電機安裝位置  
Mounting position of helical - bevel Gear unit

RCK/KA..B/KH37B - 157B, RCKV37B - 107B



重要:請參見"減速器選型"中"徑向和軸向負載"部分(P19)  
Important:Please refer to the information in the "Geared Motors"catalog.Optional Planning for Gear units Ouerhung and axial loads part"(P19)

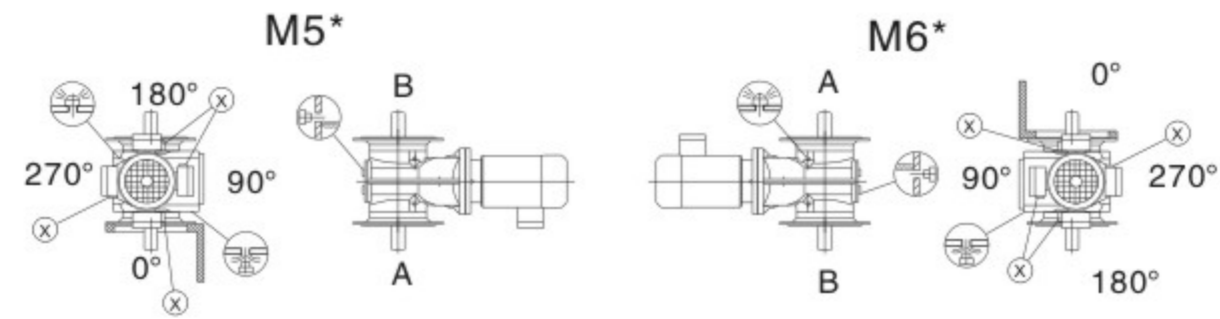
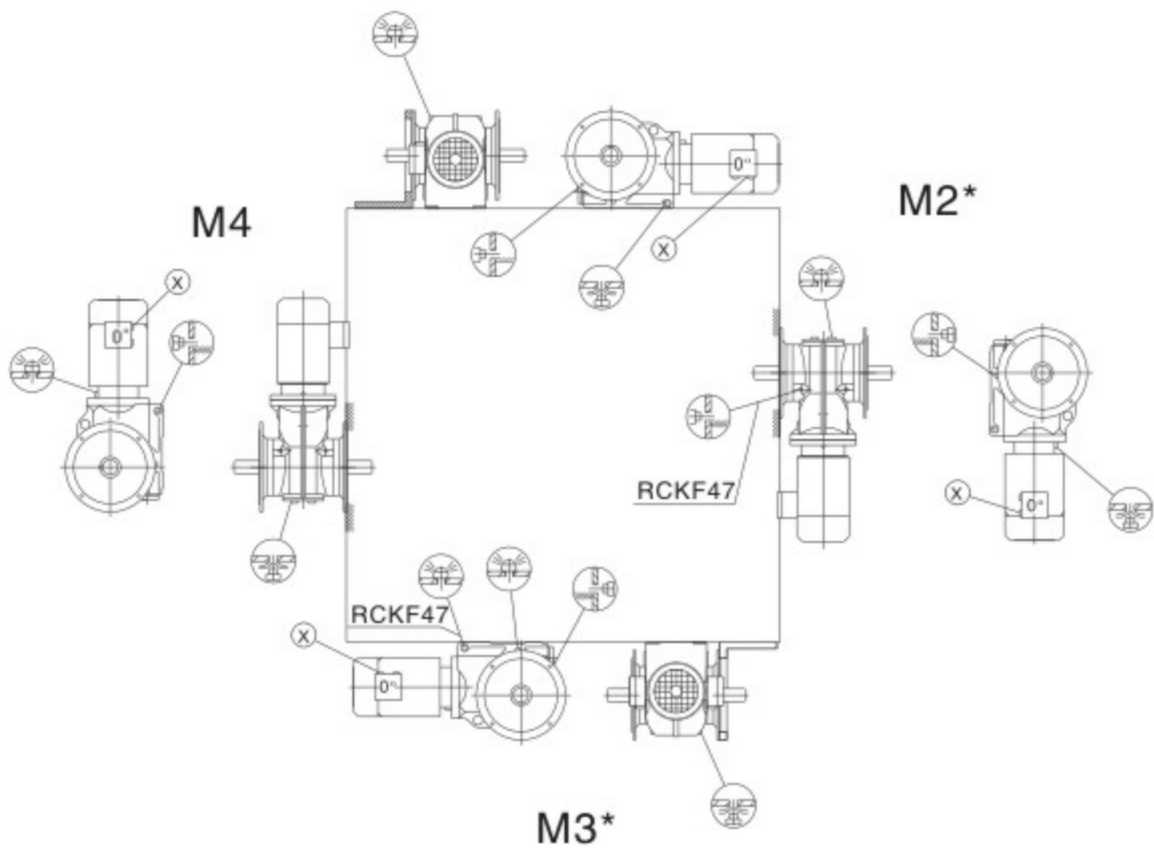
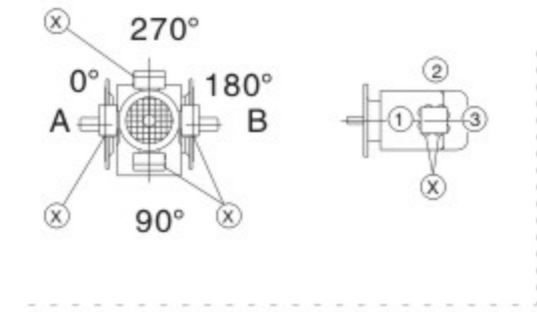
RCK167-187, RCKH167B-187B



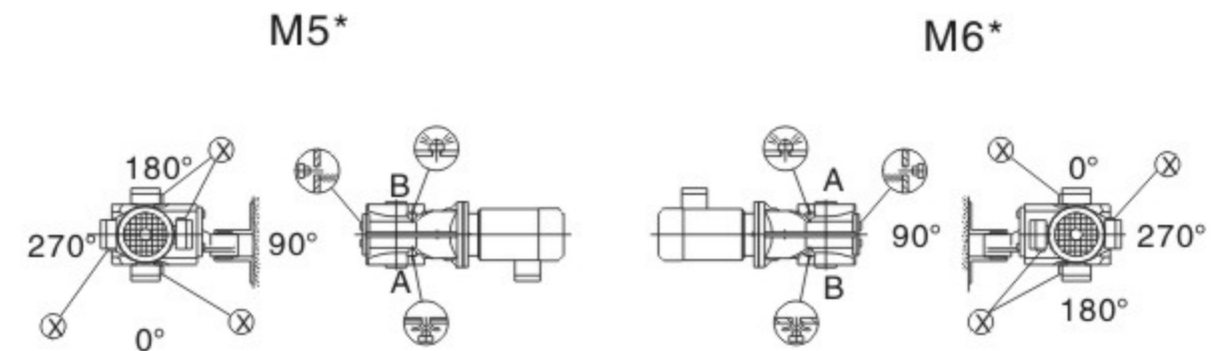
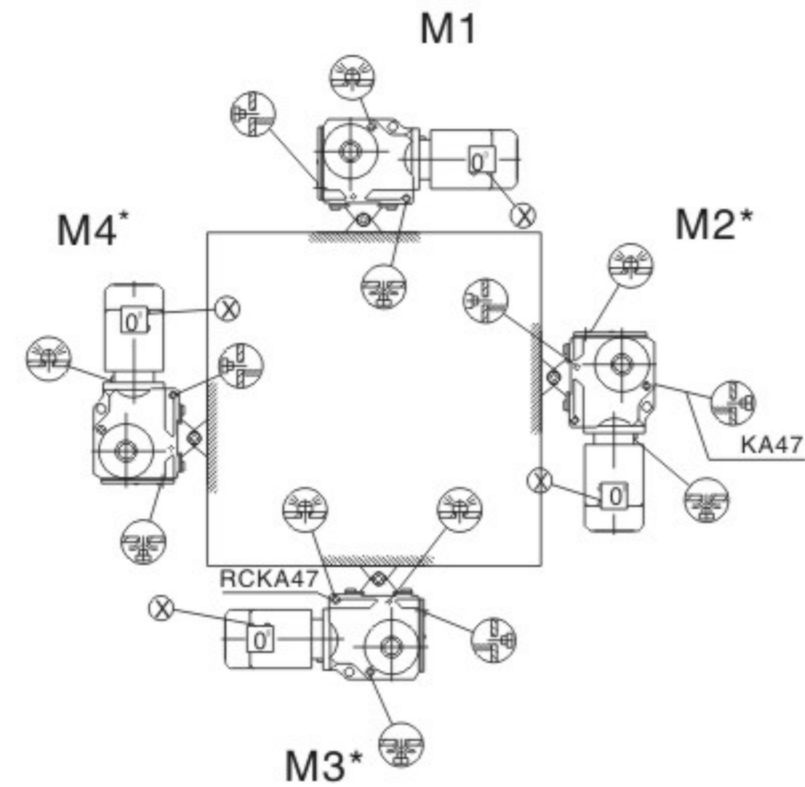
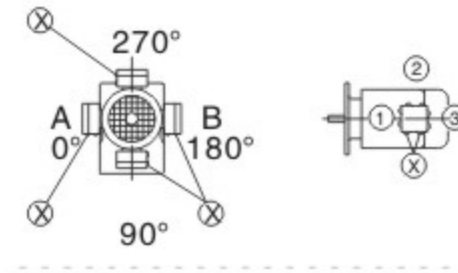
重要:請參見"減速器選型"中"徑向和軸向負載"部分(P19)  
Important:Please refer to the information in the "Geared Motors"catalog.Optional Planning for Gear units Ouerhung and axial loads part"(P19)

RCP  
RCF  
RCK  
RCS  
RC

RCKF/KAF/KAZ/KHZ37-157, RCKVF/KVZ37-107



RCKA/KH37-157/T, RCKV37-107/T



RCR..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

RCP..

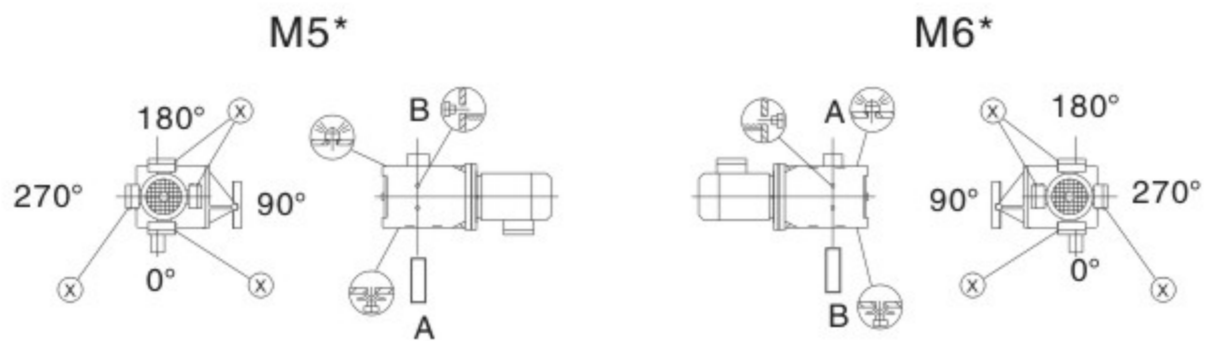
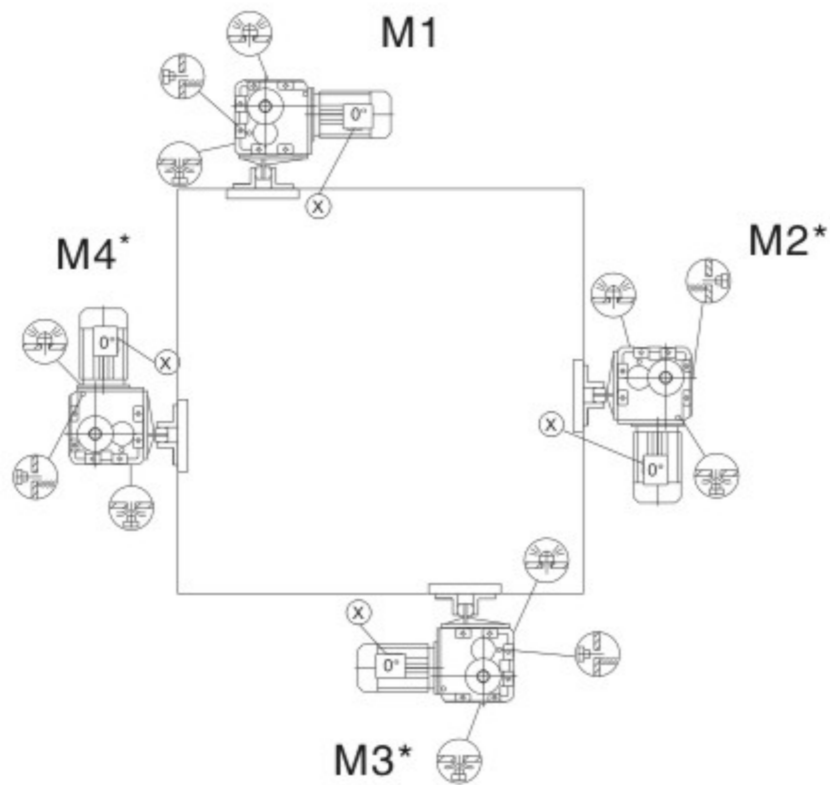
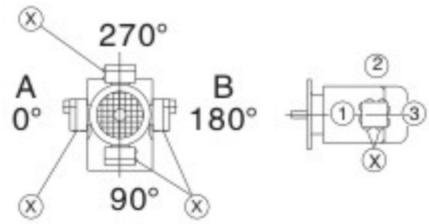
RCF..

RCK..

RCS..

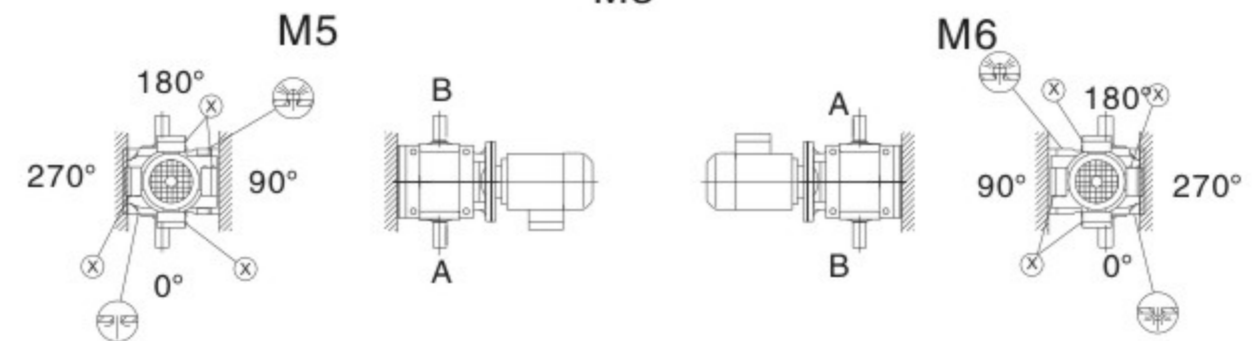
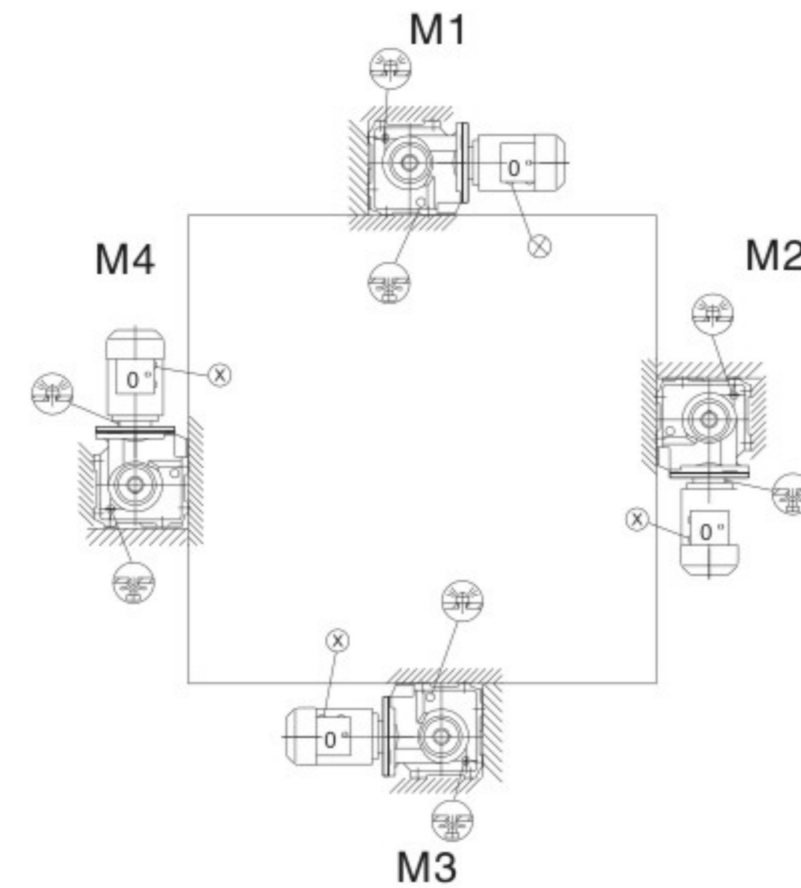
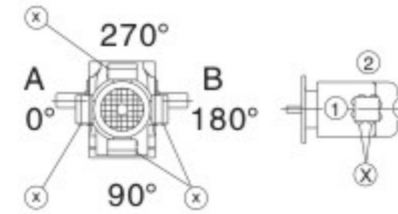
RC..系列齒輪減速電機

RCKH167-187



10.5 斜齒輪-蝸杆減速電機安裝位置  
10.5 Mounting position of Helical-worm Gear motor

RCS37



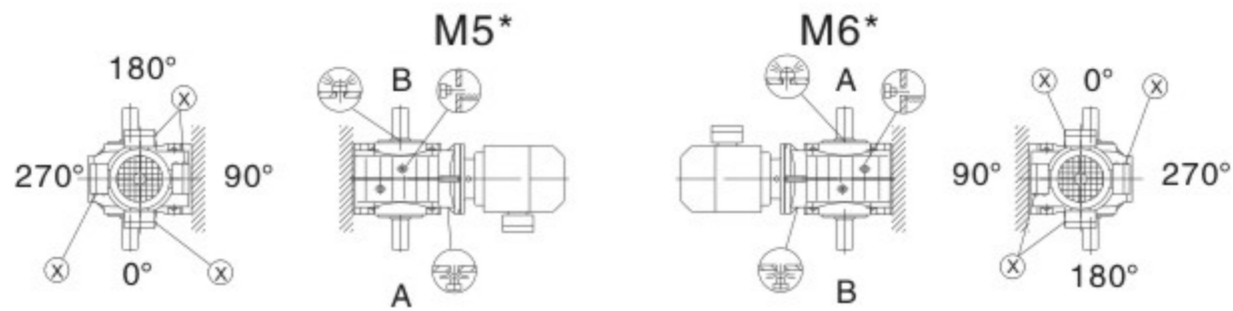
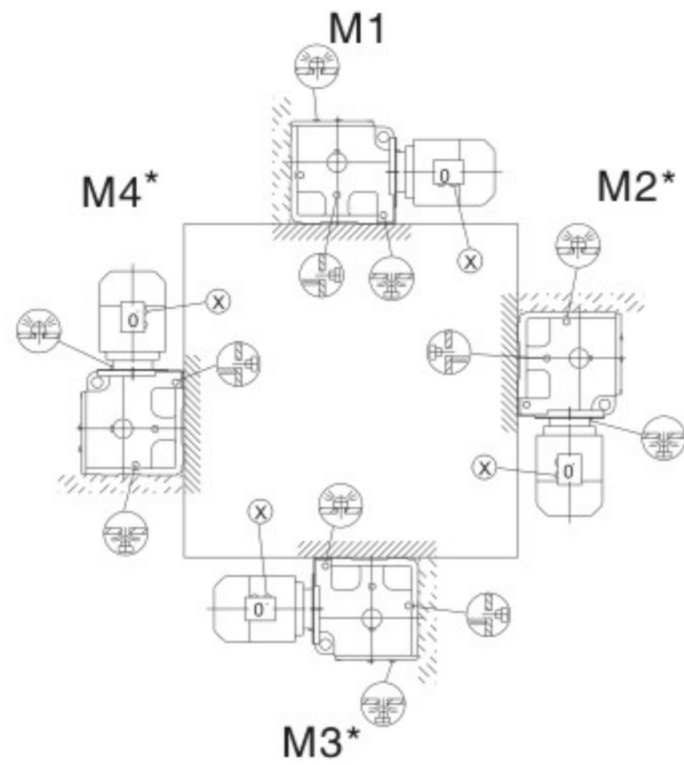
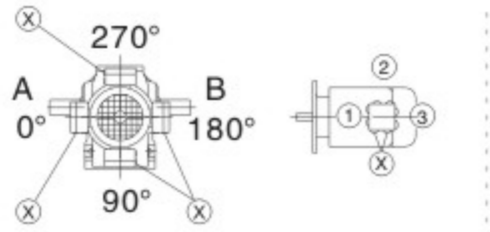
重要:請參見"減速器選型"中"徑向和軸向負載"部分(P19)  
Important:Please refer to the information in the "Geared Motors"catalog,Optional Planning for Gear units Ouerhung and axial loads part"(P19)

RC..系列齒輪減速電機

RC..系列齒輪減速電機

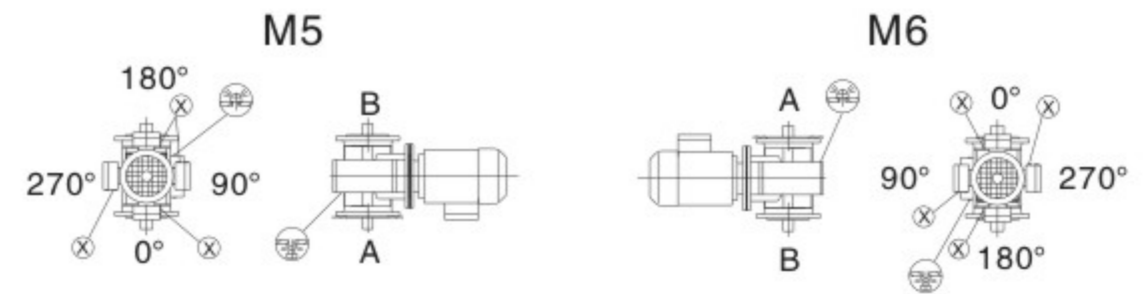
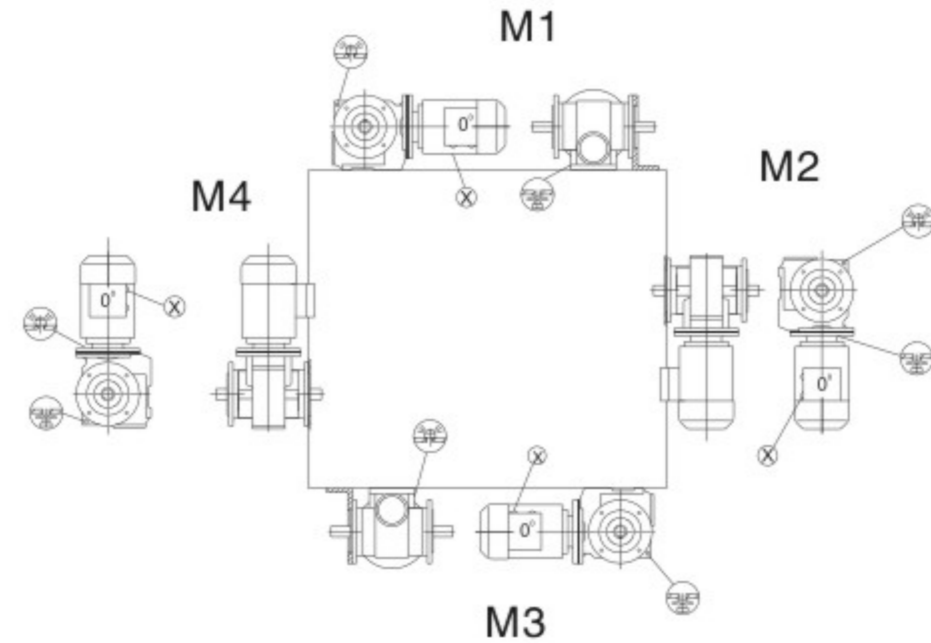
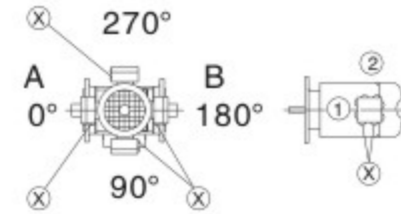


RCS47-RCS97



重要:請參見"減速器選型"中"徑向和軸向負載"部分(P19)  
Important:Please refer to the information in the "Geared Motors" catalog.Optional Planning for Gear units Ouerhung and axial loads part"(P19)

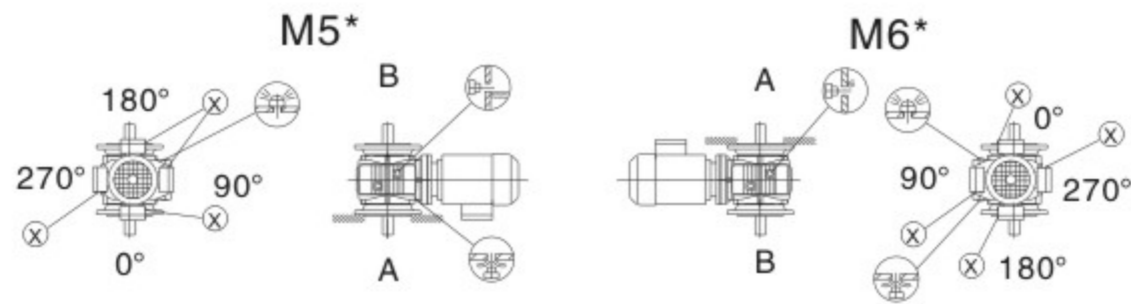
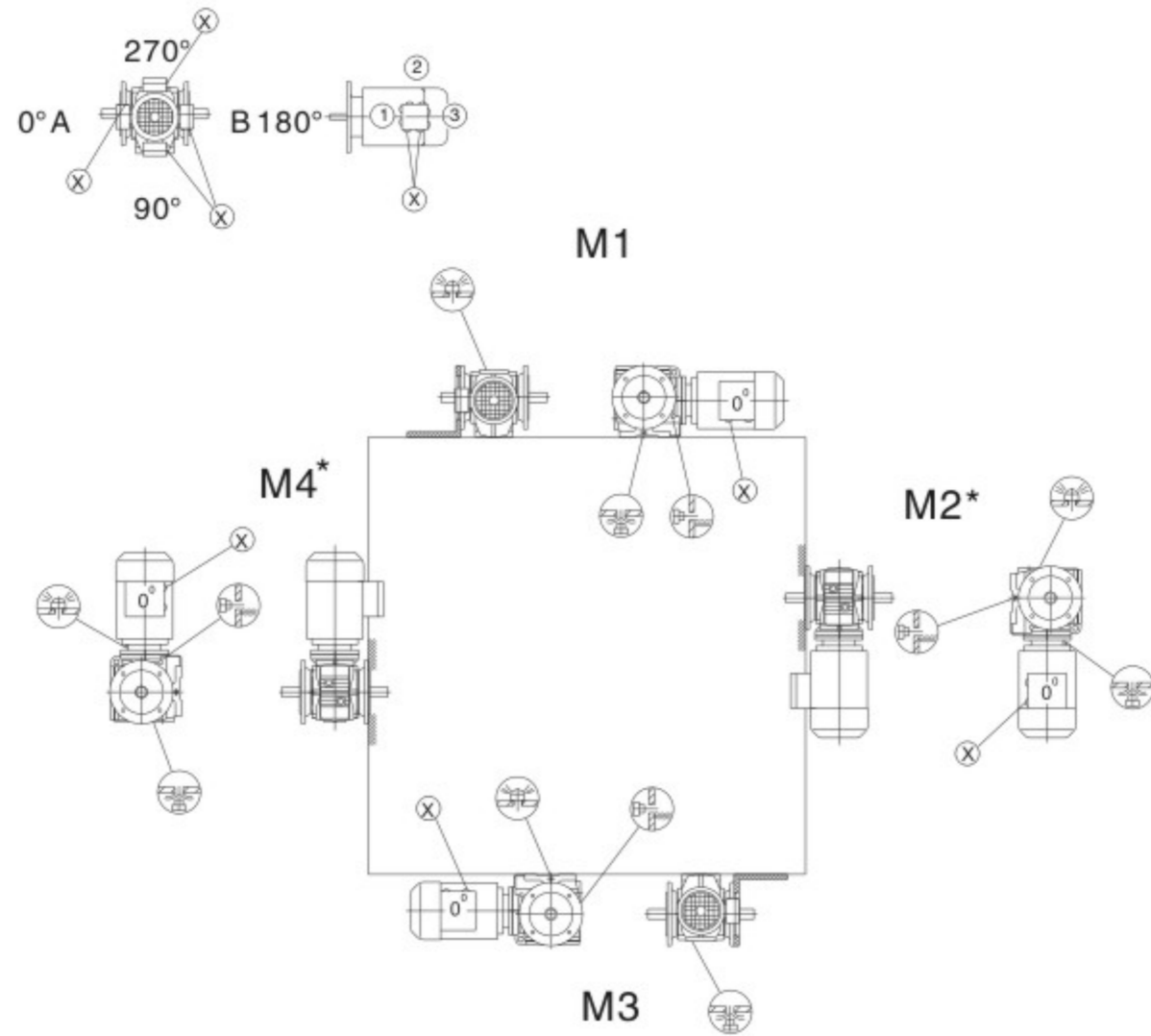
RCSF/SAF/SHF37



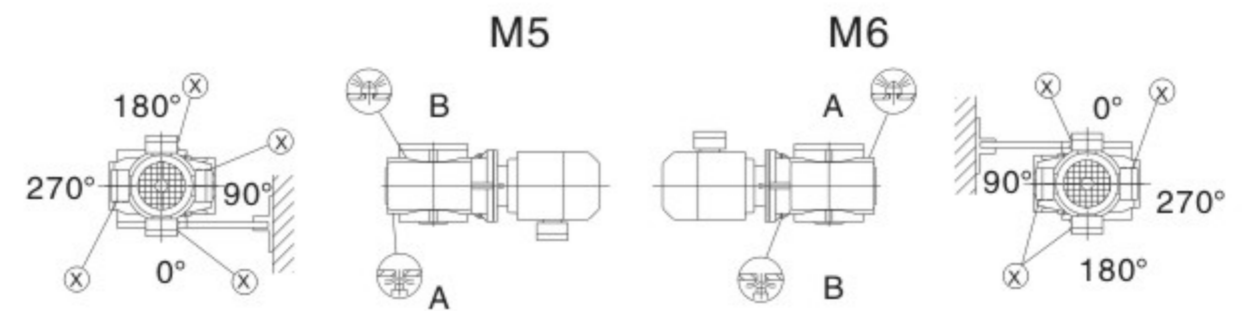
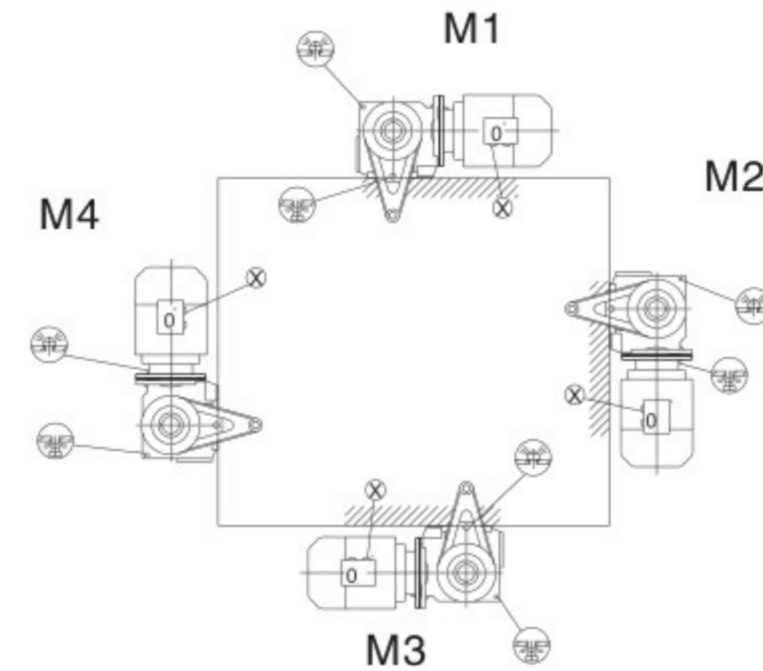
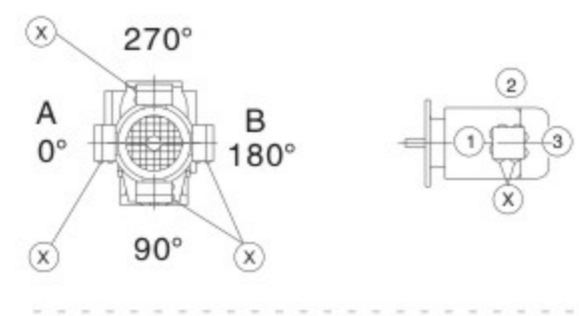
RCR  
RCF  
RCK  
RCS  
RC  
RC  
RC

RCR  
RCF  
RCK  
RCS  
RC  
RC  
RC

RCSF/SAF/SHF/SAZ/SHZ47..-97..



RCSA/SH37/T..



RCR..

RCF..

RCK..

RCS..

RCR..

RCF..

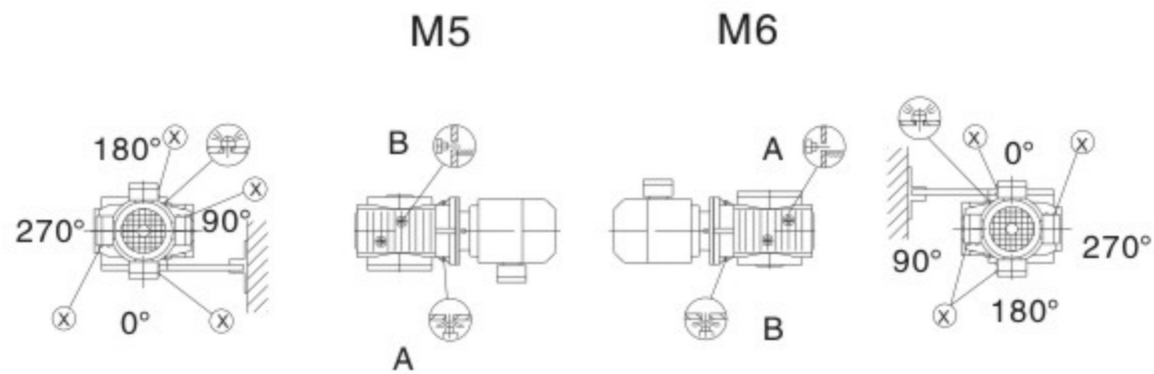
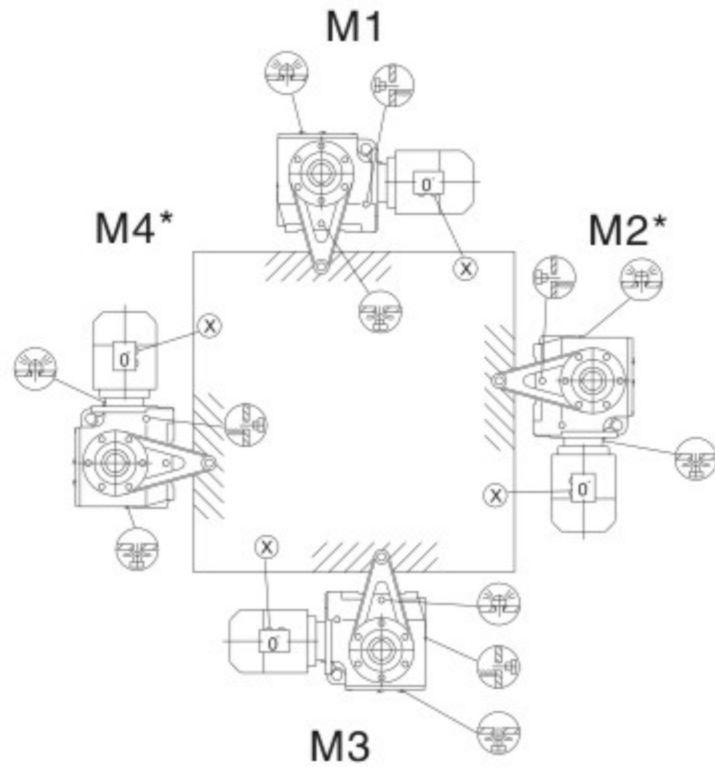
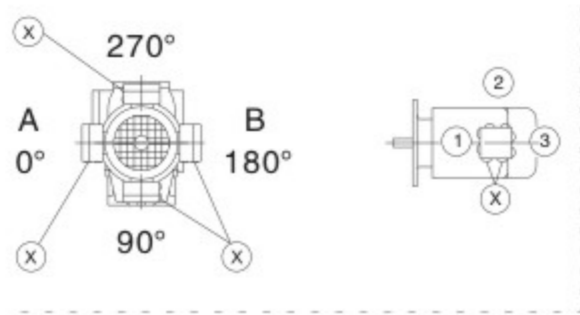
RCK..

RCS..

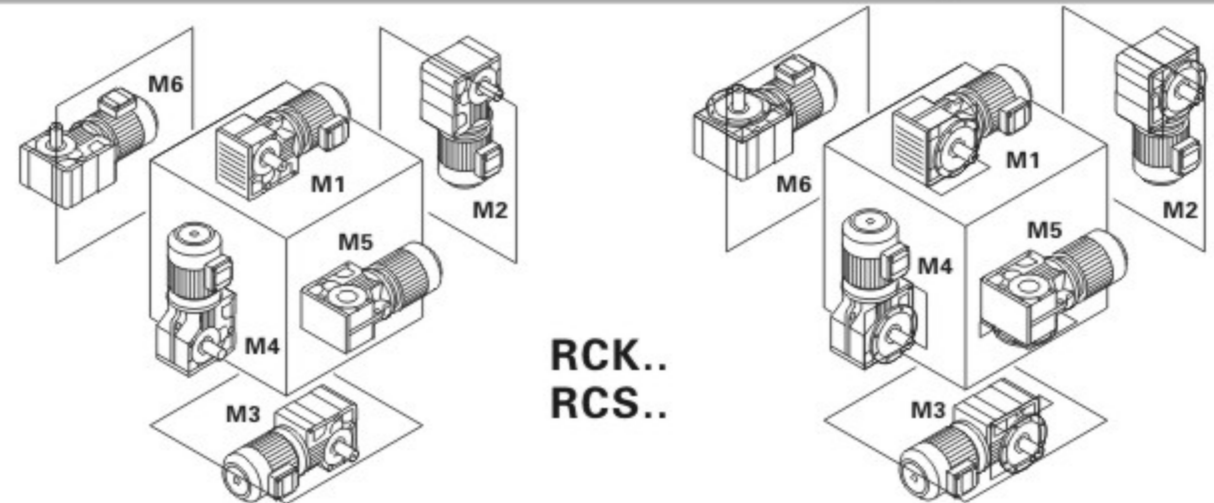
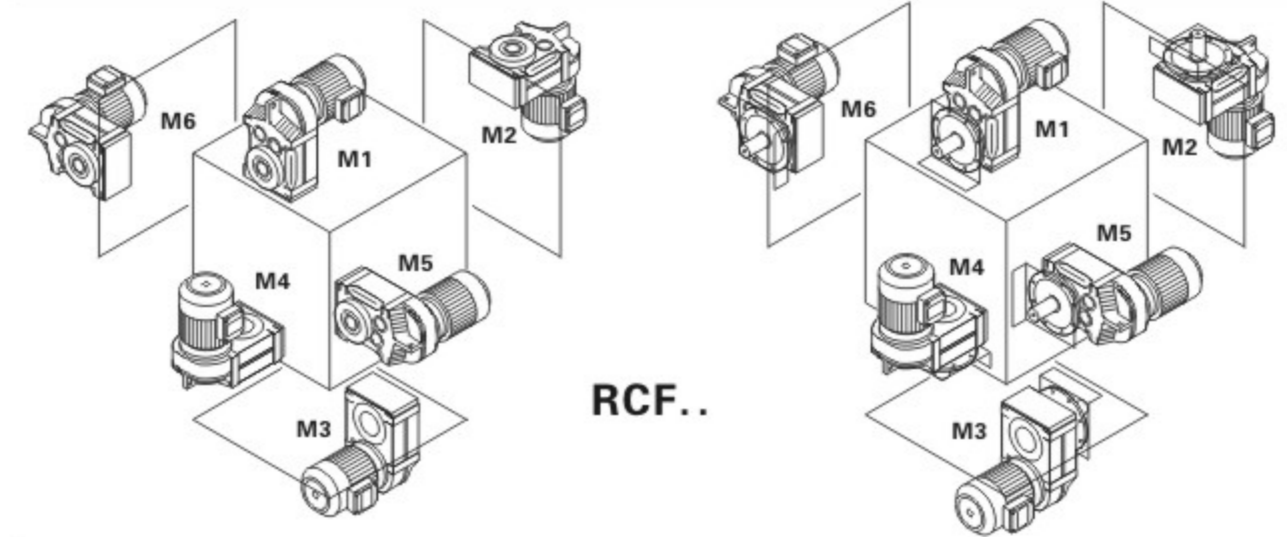
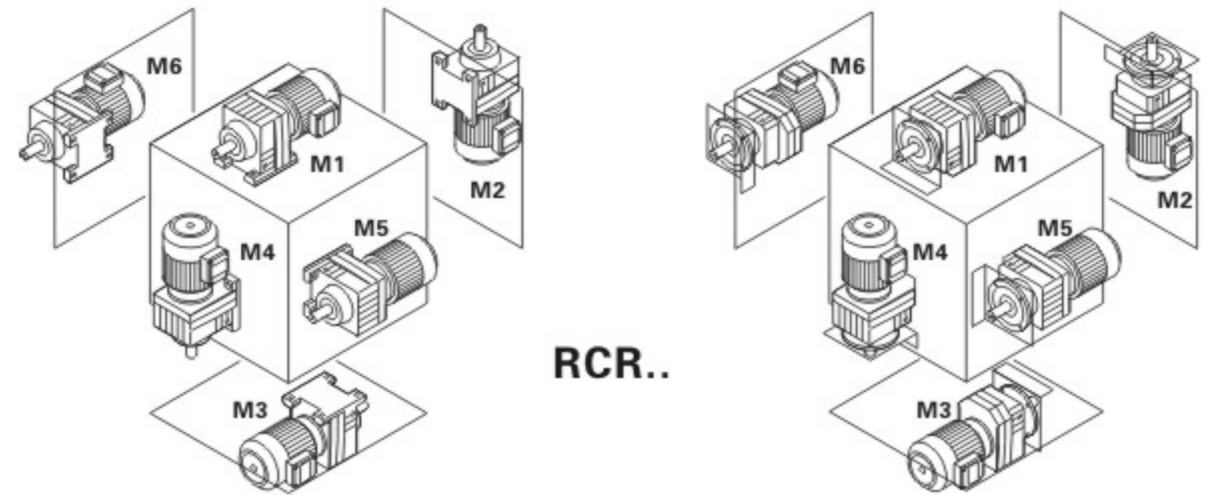
RC..系列齒輪減速電機

RC..系列齒輪減速電機

RCSA/SH47..-97..



安裝位置示意圖  
Schematic diagram of the installation location



RCR..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

RCP..

RCF..

RCK..

RCS..

RC..系列齒輪減速電機

## 11. 尺寸信息 Dimension information

中心高公差  
Shaft heights tolerances

$h \leq 250\text{mm} \rightarrow -0.5\text{mm}$   
 $h > 250 \rightarrow -1\text{mm}$

地脚安裝減速機：當配有電機時，電機可能已凸出到安裝平面以下，請注意檢查。  
Foot-mounted gear units: The motor may project below the mounting surface when fitted, please check.

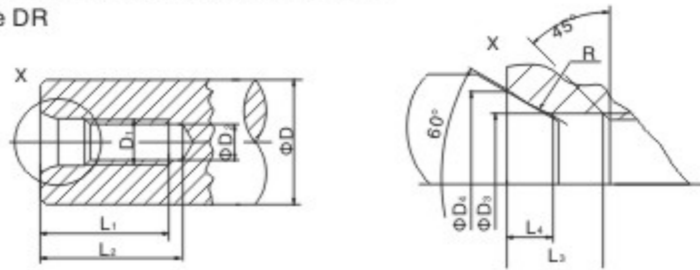
軸公差  
Shaft tolerance

直徑公差 Diameter tolerance

$\Phi \leq 50\text{mm} \rightarrow \text{ISO}k6$   
 $\Phi > 50 \rightarrow \text{ISO}m6$

按照DIN332標準有DR型中心孔：

Center hole in accordance with DIN332.  
shape DR



輸出軸直徑ΦD Diameter of Output shaft	D1	D2	D3	D4	R	L1 +2	L2 min	L3	L4 ≈
ΦD=7-10mm	M3	2.5	3.2	5.3	4.0	9.0	12.0	2.6	1.8
ΦD>10-13mm	M4	3.3	4.3	6.7	5.0	10.0	14.0	3.2	2.1
ΦD>13-16mm	M5	4.2	5.3	8.1	6.3	12.5	17.0	4.0	2.4
ΦD>16-21mm	M6	5.0	6.4	9.6	8.0	16.0	21.0	5.0	2.8
ΦD>21-24mm	M8	6.8	8.4	12.2	10.0	19.0	25.0	6.0	3.3
ΦD>24-30mm	M10	8.5	10.5	14.9	16.0	22.0	30.0	7.5	3.8
ΦD>30-38mm	M12	10.2	13.0	18.1	20.0	28.0	37.0	9.5	4.4
ΦD>38-50mm	M16	14.0	17.0	23.0	25.0	36.0	45.0	12.0	5.2
ΦD>50-85mm	M20	17.5	21.0	28.4	31.5	42.0	53.0	15.0	6.4
ΦD>85-130mm	M24	21.0	25.0	34.2	40.0	50.0	63.0	18.0	8.0
ΦD>130mm	M30	26.5	31.0	42.6	50.0	63.0	85.0	20.0	10.0

空心軸  
Hollow shaft

鍵：根據DIN6885確定（圓頭平鍵）  
Keys: In accordance with DIN6885(domest type)

直徑公差  
Diameter tolerance

$\Phi \rightarrow \text{ISO}H7$ 塞規測量  
ISOH7 measured with plug gauge

花鍵軸  
Multiple-spine shafts

Dm =測量棒直徑 Measuring roller diameter  
Me =檢測尺寸 Inspection size

法蘭  
Flange

止口公差 Centering shoulder tolerance

$\Phi \leq 230\text{mm}$  ( flange size A 120-A300 )  $\rightarrow \text{ISO}j6$   
 $\Phi > 230\text{mm}$  ( flange size A 350-A660 )  $\rightarrow \text{ISO}h6$   
對於每個規格的斜齒輪減速機、交流(制動)電機和防爆(制動)電機最多可提供三種不同尺寸的法蘭，每種法蘭的尺寸見相關尺寸表。  
Up to three different flange dimensions are available for each size of helical gear units AC (brake) motor and explosion-proof AC (brake) motor. The possible flanges per size are indicted in the relevant dimension sheets.

起吊螺栓及吊耳  
Lifting eyebolts, suspension eye lugs

RCR17和RCR27減速機，電機機座號小于100的減速電機沒有配備專門的運輸吊裝工具、其它的減速機和電機配有鑄造的吊裝孔，用螺栓固定在機體上的吊耳或吊環。  
RCR17...RCR27 helical gear units, motors up to DV100 and Spiroplan geared motoes are delivered without special reansport fixtures. Otherwise, the gear units and motors are equipped with cast-on suspension eye lugs, screw-on suspension eye lugs or sceew-on lifting eyebolts.

減速機/電機型號規格 Gear unit/motor type	吊環/吊耳 Screw-on lifting eyebolts /suspension eye lugs	鑄造吊裝孔 Cast-on suspension eye lugs
RCR/RF37-57,RCRX/RXF57-67	•	—
≥RCR67	•	—
RCF37-157	—	•
RCK37-157	—	•
RCK167-187	•	—
RCS37-47	•	—
RCS57-97	—	•
≥D112	•	—

通氣閥  
Breather valves

減速機尺寸圖總是顯示為螺塞，相應地螺塞在出廠前按照其定貨要求的安裝位置更換為通氣閥。  
這意味着減速機的外形尺寸圖稍有不同。  
The gear unit dimension drawings are always shown with screw plugs. The corresponding screw plug is replaced by an breather valve at the factory depending on with mounting position M1-M6 is ordered. This means the contour dimensions may be slightly different.

鎖緊盤連接  
Shrink disk connnection

對於鎖緊盤連接的空心軸減速機：若需要可向我公司索要關於鎖緊盤的詳細數據表。  
Hollow shaft gear unit with shrink disk connection: If required, please request a detailed data sheet on shrink disks form company, data sheet no.33 753..95.

花鍵空心軸  
Splined hollow shaft

RCFV..和RCKV..減速機從37到107可提供按DIN5480制作的花鍵空心軸。  
Hollow shaft gear units RCFV.. in sizes 37-107 and RCFV.. In sizes 37-107 are supplied with a splined hollow shaft to ISO4762.

RCFA/RCFH/RCFV的橡膠緩衝墊  
Rubber buffer for RCFA/RCFH/RCFV

f為在力矩Mamax作用下橡膠緩衝墊被壓縮的距離尺寸  
f stands for the compressed dimension of Rubber buffer in the Manax torque.

制動電機  
brake motors

配制動電機時，G1B的尺寸代替G1；KB代K  
In brake motors, dimensions G1B apply instead of G1 and KB instead of K

電機附件  
Motor accessory

電機的尺寸因不同的電機附件而不同，請參考電機選擇的尺寸圖。  
The motor dimensions may different as a result of motor accessory. Please refer to the dimensions of the motor accessory.

特殊應用  
Special versions

接線盒的尺寸，在特殊應用如KS或CSA時與標準形式的尺寸不同。  
The dimensions of the terminal box on special versions such as KS or CSA may different form the standard dimensions.