



江蘇 蘇州廠

成長史

- (西元1976年) - 創立東力公司，資本額20萬元，廠地佔地30坪，專營買賣與修理服務。
- (西元1982年) - 建廠於三重市光復路一段12巷26號，廠房約300坪，員工30人，同年開始製造馬達。
- (西元1983年) - 因實際業務之需要公司改組為東力電機股份有限公司，並增加營業項目有齒輪減速機，小型AC.DC.馬達及馬達電子控速器、變頻器、傳動軸用扭力限制器等專業生產。
- (西元1984年) - 建立全省經銷網與成立貿易體制，使生產品順利外銷，其當時員工約40人。
- (西元1990年) - 因當時業績及實際生產量逐年突增，為應付其實際需求，再度於台北縣五股工業區五權三路50號，投資建設新廠房1200坪，員工有80餘人之多。
- (西元1995年) - 國際事業一致好評及擴大，遂於中國上海市成立分公司。
- (西元2000年) - 因考慮台灣廠商轉移大陸投資生產頗多，公司為求台商大陸交貨方便及降低成本，始於大陸廈門及蘇州設廠製造，以供大陸廠商之需。

THE HISTORY OF TUNG LEE

- 1976 Tung Lee Company was founded with capitalization of NT \$200,000 on a plant site with 100 m², specializing in resale and repairing.
- 1982 New plant constructed at No. 26, Lane 12, Guang-fu Road, Sec. 1, San-chung City. Capitalization increased to NT \$2 million with 30 employees. In the same year, motor manufacturing began.
- 1983 Under demand of business expansion, the Company was reorganized as Tung Lee Electronical Co., Ltd. and new products, such as gear reducers, small AC/DC motor speed controllers, inverters, torque limiter, were added to product lines.
- 1984 Established nationwide distribution networks and opened up overseas markets. 40 employees.
- 1990 Because gradual increase in sales and production volumes, increased capitalization to NT \$20 million, invested and built a new plant with 4000 m² at the Industrial Park in Wu-gu, Taipei Country. 80 employees were working with Company.
- 1995 Winning international recognition. Established branch office in Shanghai, China.
- 2000 In order to providing the better service to the big demand in China. Tung Lee established manufactories in Xia-men and Su-Zhou to offer the efficient serve and lower the cost for many clients which expend their business from Taiwan to China market.



福建 廈門廠

公司簡介

公司商號：東力電機股份有限公司

所在地址：新北市五股工業區五權三路50號

電話：(02) 2299-2655-9 (02) 2299-2149-50

傳真：(02) 2299-0146

主要營業項目：

齒輪減速馬達，小型AC.DC.馬達，AC.DC.馬達電子控速器，變頻器，線性馬達，渦輪減速馬達，伺服減速馬達，傳動軸用扭力限制器等專業生產。

主要銷售對象：

停車機械設備，CNC 工具機械設備，電子機械設備，輸送機械設備，油壓機械設備，自動化機械設備。

內銷客戶：

友嘉實業、台塑企業、中國鋼鐵、南亞塑膠、楊鐵機械、台灣松下、台灣麗偉、正隆紙業、振榮油機…等。

外銷地區：

日本、泰國、新加坡、馬來西亞、澳洲、美國、德國、香港、中國大陸…等。

COMPANY PROFILE

Registered Name : Tung Lee Electrical Co., Ltd.

Business Address : 50, Wu Chuan 3rd Road, Wu Gu, Taipei, Taiwan

Telephone : +886-2-2299-2655~59
+886-2-2299-2149~50

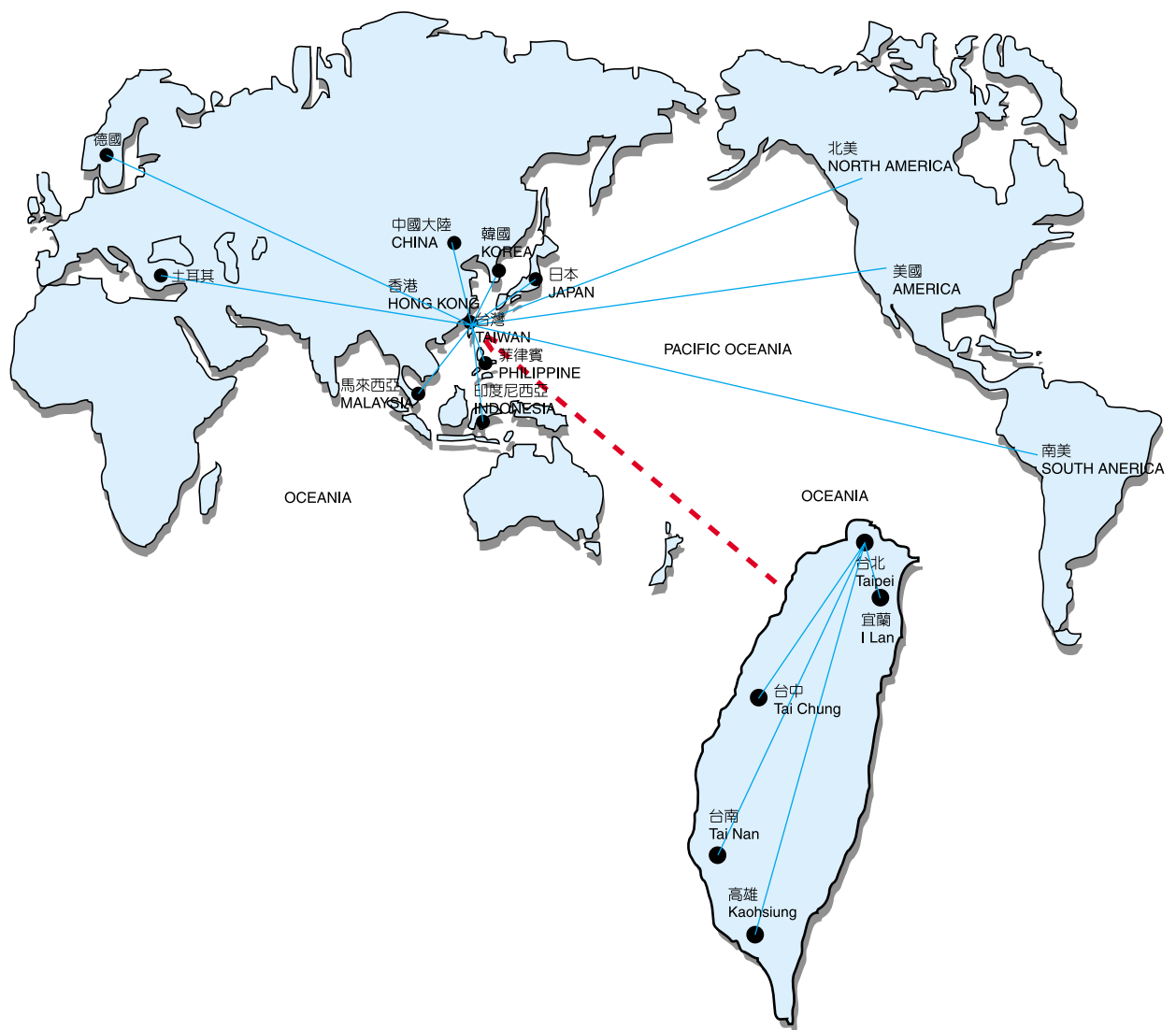
Facsimile : +886-2-2299-0146

Major Products : Gear Reducers, Small AC/DC Motors, AC/DC Motor Electronic Speed Controllers, Inverters, Linear Motors, Turbine Reducers, Transmission Axis Torque Limiter.

Major Clients : CNC Equipment, Electronic Machinery Equipment, Conveying Belt Equipment, Oil Pressure Machinery Equipment, Automatic Machinery Equipment.

Domestic Clients : Nan Ya Plastics Corp., China Steel, Matsushita Electric (Taiwan) Co., Ltd., Lead Well CNC Machines Mfg. Co., Chang Hua Chen Ying Oil Machinery Co., Ltd., Cheng Loong Co.

Overseas Markets : Japan, Thailand, Singapore, Malaysia, Australia, The US, Germany, Hong Kong, Mainland China.





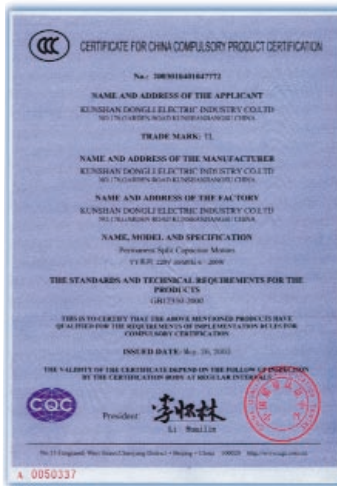
先進尖端的品質，精確控制機械自動化的命脈



ISO 9001 : 2008 認證通過

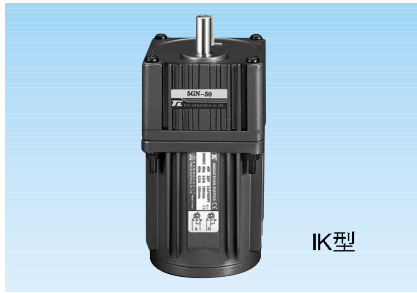


CCC 認證通過



CE (EMC) 測試通過





IK型

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單相感應式馬達

Single phase induction motor

馬力 HP : 6W~150W

電壓 V : 100V~110V
200V~220V

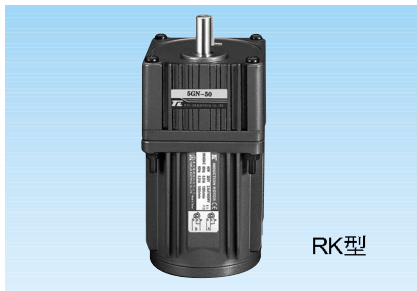
三相感應式馬達

3-phase induction motor

馬力 HP : 25W~150W

電壓 V : 200V · 220V
380V · 440V

- 額定運轉為連續運轉
- 採用 E 級絕緣
- 單相馬達使用電容器式感應馬達，故高功率、低噪音。
- 三相馬達使用三相電源200V...的感應馬達。
- * Rated continuous operation
- * E class insulation
- * Capacitive induction motor shall be used for high power output and low noise single phase motor.
- * Using the 220V, 3 phase AC Induction motor.



RK型

Page 19~20

單相頻繁啟動(定格)馬達

Single phase reversible motor

馬力 HP : 6W~150W

電壓 V : 100V~110V

200V~220V

三相頻繁啟動(定格)馬達

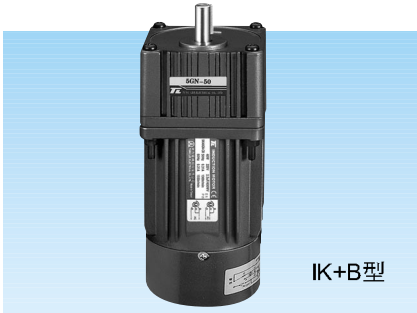
3-phase reversible motor

馬力 HP : 25W~150W

電壓 V : 200V · 220V

380V · 440V

- 具有瞬時轉換正轉、逆轉功能。因採用平衡繞線方式，並內裝簡易制動機構能夠瞬時地轉換正轉、反轉，其正反旋轉特性同樣均勻且穩定。
- 運轉額定式30分鐘額定。感應馬達和可逆式馬達的不同點：可逆式是能瞬時轉換正、反轉，但感應馬達將接線轉換到反轉，會發生旋轉磁場和逆方向的轉矩，故不能旋轉負載時轉換逆方向。
- * Instantaneous alternate between normal and reversible for motors equipped with balanced windings and built-in simple brake mechanism.
- * Thirty minutes of rated operation. Difference between the induction motor and reversible motor: the later one can instantaneously be reversible, however rotating magnetic field & reversible momentum for induction motor occurs in reversible direction. In case no reversible shall be made in loading condition.



IK+B型

Page 21~24

單相附電磁剎車馬達

Single phase motor with electromagnetic brake

馬力 HP : 6W~150W

電壓 V : 100V~110V

200V~220V

三相附電磁剎車馬達

3-phase motor with electromagnetic brake

馬力 HP : 25W~150W

電壓 V : 200V · 220V

380V · 440V

- 確實地保持負載：既為無激磁動作式電磁制動器，剛關掉電源時，立即產生制動力而確實地保持負載。
- 短時間內制動：電動機單機時，超程是2~4旋轉。
- 可控制較複雜的瞬時正、反轉：每分鐘可以停止6次（停止時間必須保持3秒以上）。如須1分鐘停止7~100次時，應採用C&B馬達。
- * Always maintain the load properly: For a non-exciting type electrical magnetic brake, loading can be kept normally by the brake whenever the power source is "Off".
- * Instantaneous brake: Over-travel in 2 - 4 cycles only for a single motor.
- * More complex, controllable, instantaneous Normal / Reversible time: Allowable "Stop" for 6 times per minute. (3 second or more have to be kept for each "Stop"), C&B type of motor is applicable on 100 times of "stop" per minute if necessary.



US型

Page 25~26

無段變速馬達

Stepless variable speed control motor

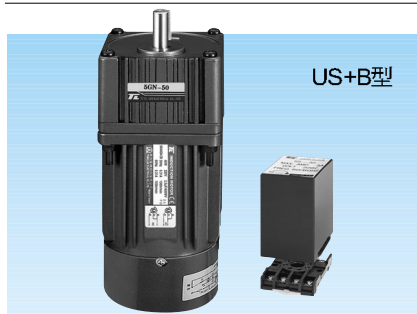
馬力 HP : 6W~120W

電壓 V : 單相 Single phase

100V~110V

200V~220V

- 因配用速度控制器，可以調整廣範圍的變速（50Hz.....90~1400轉/分；60Hz.....90~1700轉/分）。
- 可按需選擇變速、制動、轉換正、反轉、慢速起動、慢速減速等多種複雜的運轉程序。
- 內部備有轉速傳感器，實行回授控制，因此電源頻率有變化，其規定轉數絕無變化。
- * Wide range of variable speed is adjustable by using the speed controller. (50Hz.90 - 1400 rpm; 60Hz.90 - 1700 rpm).
- * More operational procedure shall be available, such as: variable speed selection, normal / reversible, slower starting, slower speed reduction, etc.
- * Built - in rpm sensors, feed - back control, a constant rpm can be obtained even if there is any frequency variation.



US+B型

Page 27~28

無段變速附電磁剎車馬達

Variable speed control motor with electromagnetic Brake

馬力 HP : 6W~120W

電壓 V : 單相 Single phase

100V~110V

200V~220V

- 因配用速度控制器，可以調整廣範圍的變速（50Hz.....90~1400轉/分；60Hz.....90~1700轉/分）。
- 可按需選擇變速、制動、轉換正、反轉、慢速起動、慢速減速等多種複雜的運轉程序。
- 內部備有轉速傳感器，實行回授控制，因此電源頻率有變化，其規定轉數絕無變化。
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- * More operational procedures are available, such as: variable speed selection, normal / reversible, slower starting, slower speed reduction etc.
- * Built - in rpm sensors, feed - back type of control, a constant rpm can be obtained even if there is any frequency variation .

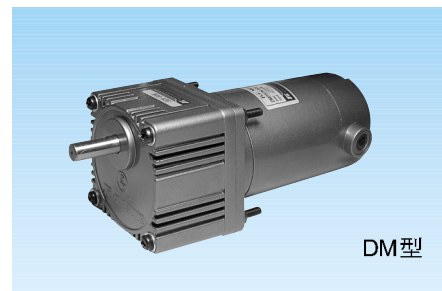


上下左右擺動型

Page 29~30

直線型減變速馬達
Linear type gear head and variable speed motor
馬力 HP：6W~150W
電壓 V：單相 Single phase
100V~110V
三相 3-phase
200V~220V
380V~440V

- 自動化機械推動物料簡易法。
- 可任意選擇帶動馬達型號。(IK、RK、US、DM等.....)
- 動作齊全可左右擺動。
上下擺動。
- * Simple method for the automatic mechanical materials lifting operation.
- * Selectable in any type of driving motor. (IK, RK, US, DM.....etc.)
- * Offering all kind of operation such as: Swing left and right
Swing up and down

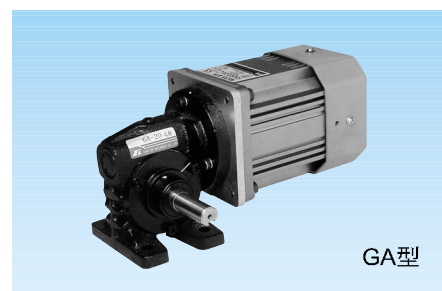


DM型

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永磁性直流馬達
Permanent magnet DC motor
馬力 HP：30W~120W
電壓 V：12V、24V、90V
回轉數 rpm：1800RPM
3000RPM

- 在無交流電地點用電池即可使用。
- 簡易控制箱，調整電壓：可做變速用。
- 變速範圍大，扭力強。
- 回轉數如需要可定做。
- * Battery can be used as a power source if AC power is not available.
- * Simple control box, adjustable voltage, for speed alternating purpose
- * Wider range for variable speed, larger torque operation.



GA型

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渦輪減速馬達
Worm gear reduction motor
馬力 HP：40W~200W
電壓 V：單相 Single Phase
100V~110V
200V~220V
三相 3-Phase
200V~220V
380V~440V

- 90度出力軸方向可減省空間。
- 具有相當停止保持力。
- 可任選調配任何馬達。
- (IK、RK、US、DM)等.....
- * To reduce the space requirements for installation the 90 degree output power shaft can be used.
- * Certain durability in stoppage.
- * Any kind of motor can be used.
- * (IK, RK, US, DM)etc.

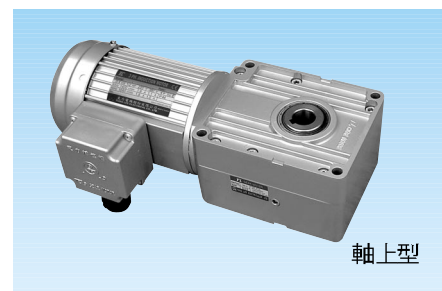


直交軸型

Page 33~34

直交軸系列(RH/RA)
小型直交軸系列減速機
Right-Angel Gear Reducer
馬力 HP：25W~150W
電壓 V：單相 Single Phase
100~120V
200~240V
三相 3-Phase
200~220V
380~440V

- 90度出力軸方向 節省安裝空間
- 可搭配現有各種型式小型馬達IK/RK/US/DM系列
- 使用螺旋傘齒輪，擁有高強度，低噪音的特性
- 相較傳統蝸輪式減速機，直交軸系列擁有較高齒輪 強度及使用壽命可減省空間。
- * 90 Degree Right-Angle hollow bore gear box.
- * Compatible with wide range selection of motors such as IK/RK/US/DM.
- * From the benefit of spiral bevel gear, RH/RA series provide high strength, low noise, and space saving characteristics.
- * Compare to the worm gear reducer, the right-angle hollow bore gear reducer has higher strength in operation and better durability.

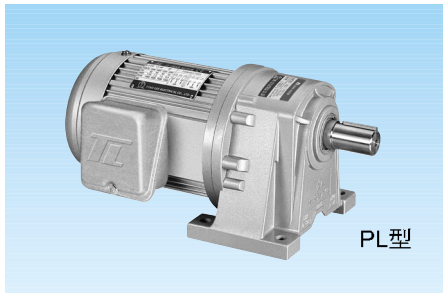


軸上型

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軸上型減速機
TL4060/4070/5080
馬力 HP: 100W~1500W
電壓 V：單相 Single Phase
100~120V
200~240V
三相 3-Phase
200~220V
380~440V
減速比: 1/30~1/300

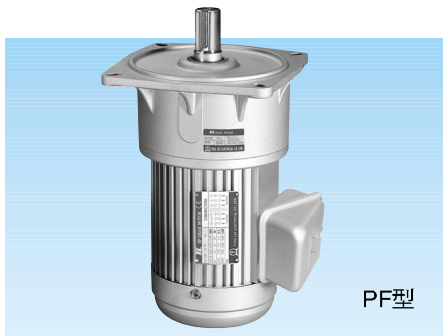
- 各型號僅單一安裝尺寸，不因減速比而改變安裝尺寸
- 馬達直接輸入減速齒輪箱，有效降低安裝尺寸
- 在輸出段搭配高效率齒輪，降低因意外的撞擊而直接對銅齒輪造成損傷
- 選用高性能潤滑油品，免除定期保養的不便
- * Unique frame size design helps to cut down the possibility of installation surface change due to changing the gear ratio.
- * With built-in motor direct input to the gear box, minimize the installation space.
- * Effectively avoid the damage to the copper worm gear by better structure design.
- * Pre-lubricated design offers customers the maintenance-free service life.



臥式減速馬達
馬力: 100W~3700W
電壓: 單相 100V~110V
200V~220V
三相 200V~220V
380V~440V
可搭配電磁剎車器
減速比齊全

Horizontal Type Gear Motor (Foot-Mounted)
Output: 100W~3700W
Voltage: Single Phase 100V~110V · 200V~220V
3 Phase 200V~220V · 380V~440V
Optional: Electric Magnetic Brake Unit
(90V Safe Brake)
Full Range of Reduction Ratio

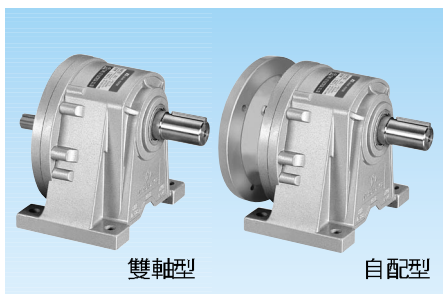
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立式減速馬達
馬力: 100W~3700W
電壓: 單相 100V~110V
200V~220V
三相 200V~220V
380V~440V
可搭配電磁剎車器
減速比齊全

Vertical Type Gear Motor (Flange-Mounted)
Output: 100W~3700W
Voltage: Single Phase 100V~110V · 200V~220V
3 Phase 200V~220V · 380V~440V
Optional: Electric Magnetic Brake Unit
(90V Safe Brake)
Full Range of Reduction Ratio

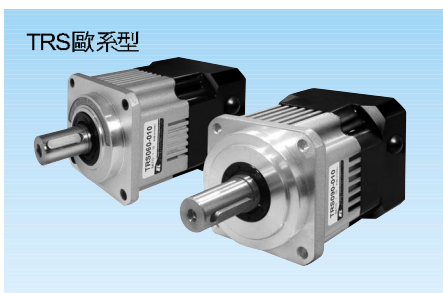
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PLK/PFK 自配馬達型減速機
適用IEC規格馬達
馬力: 100W~3700W
減速比齊全
PLD/PFD 雙軸型減速機
馬力: 100W~3700W
減速比齊全

PLK/PFK Self-Contained
Suitable for all IEC motors
Output: 100W~3700W
Full Range of Reduction Ratio
PLD/PFD Dual Shaft Gear Reducer
Output: 100W~3700W
Full Range of Reduction Ratio

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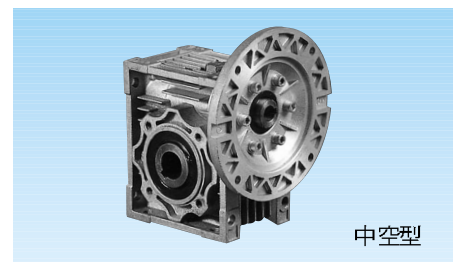
TRS歐系型

TRS/TRK 伺服專用減速機
減速比: 1/3~1/100
精密度: 最高3弧分/一般12弧分
低噪音高扭力
TRS: 安裝尺寸符合歐系產品規格
TRK: 安裝尺寸符合日系產品規格

- 一體式的出力軸設計，增加強度同時避免因減速齒箱在承受負載時造成變形破壞
- 提供最高兩段式的齒輪箱設計，可達最高1:100的多種減速比
- 接受客製化訂單，協助客戶選用或設計專用的減速機型

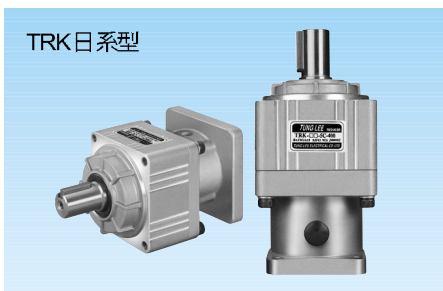
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NRM/NR 鋁合金中空蝸輪減速機
Aluminum Hollow-Shaft Worm Gear Reducer



中空型

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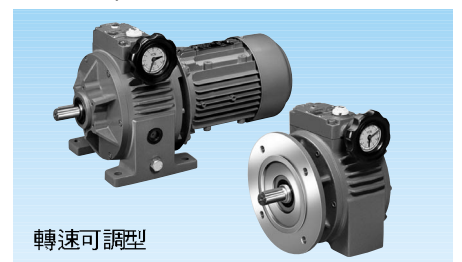


TRK日系型

- * Integrated output shaft, maximize the thrust as well as the efficiency.
- * Two-stage design provide more gear ratio selections.
- * Accept ODM case, helping customers to design and to manufacture dedicated products.

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無段變速機
Variable Speed Control Motor



轉速可調型

Page 53~54

馬達用詞概要

1. 定格

馬達在使用上從溫度上升分為連續定格及短時間定格兩種，通常被決定為定格有電壓，周波數，定格回轉數等；這些分別被稱為定格出力，定格電壓，定格周波數，定格回轉數等。

2. 連續定格、短時間定格

已定格出力在無異常情況下連續運轉稱為連續定格按規定時間內定格出力運轉稱為短時間定格。

3. 出力

馬達在單位時間內所能做的扭力之表示由馬達的回轉數及轉矩決定，在馬達已定格出力之表示，在日本瓦特 (W) 表示，而歐美以 HP 表示出力

$$(W) = 1.027 \times 10^5 \times T \times N$$

1.027 x 10⁵: 常數 T (gcm): 轉矩 N(rpm): 回轉數

4. 定格出力

指馬達在定格電壓周波數條件下能發揮其最佳特性出力為定格出力，回轉數轉矩，通常簡稱為定格出力。

5. 起動轉矩

馬達在起動瞬間所發出轉矩稱為起動轉矩，比這轉矩大的負荷一加在馬達上，馬達就無法回轉。

6. 停動轉矩

馬達在一定電壓，一定周波數產生最大轉矩，在此轉矩標準內負荷再加上去，馬達便會停止。

7. 定格轉矩

馬達在定格電壓，定格周波數，定格出歷時所連續發出的轉矩稱為定格轉矩，定格回轉數的轉矩。

8. 定格回轉數

馬達在定格出力時之回轉為使用上最理想之回轉數。

9. 同步回轉數

因馬達的極數及電源周波數之決定已被固定，所以可由以下公式來表示，通常以每分鐘回轉表示。

Ns=同步回轉數 (rpm) Ns=120f/p (rpm) f=周波數(Hz) P=極數 120=常數
例如: 4極的馬達電源周波數60Hz Ns=120x60/4=1800(rpm)

10. 轉差率

回轉表現方法之一種，可由以下公式表示：

$$S = \frac{N_s - N}{N_s} \text{ 又 } N = N_s(1 - S) \quad N_s: \text{ 同步回轉數(rpm)}$$

N: 任意負荷時之回轉數值(rpm) 在此，4極60Hz的感應馬達轉差率

$$S = 0.1 \text{ 時之回轉}$$

$$N = 120 - 60/4 \quad (1 - 0.1) = 1800(1 - 0.1) = 1620(\text{rpm})$$

Terminology for the motors

1. Ratings

There are two kinds of rating for motors: continuous duty rating and short time rating classified by the temperature rise of motors. Usually they are defined by power output, voltage, cycles in frequency, and rpm etc.; so-called rated power output, rated voltage, rated cycles in frequency, and rated rpm.

2. continuous duty rating and short time rating

continuous operation at the rated output power under normal condition is called a continuous duty rating, while operation at the rated output power in a specific time is so called short time rating.

3. Output power

The twist force produced by motors in a unit time shall be expressed by rpm and the torque of motors. The rated output power of a motor is expressed by Watt in Japan and H.P. in Europe.

$$(W) = 1.027 \times 0.00001 \times T \times N, \text{ where } 1.027 \times 0.00001: \text{ a constant } T(\text{gcm}): \text{ Torque } N(\text{rpm}): \text{ number of revolutions per minute}$$

4. Rated output power

Rated power output means to develop a best characteristic output power under the rated voltage and rated frequency of motors. The rpm torque is simply called rated output power.

5. starting torque

Torque produced at any instant of a starting motor is called starting torque. Motor is not rotating in case of a larger load than the torque.

6. Stop torque

The maximum torque is produced by any motor under a specific voltage and specific frequency. Any loading is applied on a Motor within this range of torque, motor is stopped.

7. Rated torque

The speed reduction gearing under rated voltage, rated frequency, rated power output is defined as continuous torque, as well as the rated torque, torque for rated rpm.

8. Rated rpm

The most favorable rpm of the motor shall be a rpm under a rated output power.

9. Rpm in synchronism

Suppose the number of poles of a motor and the frequency of power source are given, It can be shown in the following equation which is usually expressed by revolution per minute.

$$N_s = 120f / p(\text{rpm})$$

Where N_s = Number of rpm in synchronism

$$f = \text{number of frequency in Hertz. } P = \text{number of poles of the motor } 120 = \text{constant}$$

For example:

A four-pole motor and frequency of the power source is 60Hz.

$$N_s = 120 \times 60 / 4 = 1800(\text{rpm})$$

10. Slide slip rate

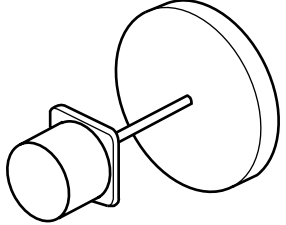
Another kind of indication for rpm can be shown in the following formula:

$$S = \frac{N_s - N}{N_s} \text{ or } N = N_s(1 - S) \quad N_s:$$

Where N_s: rpm in synchronous (rpm)

Where N: rpm under any loading (rpm), The slide slip rate for a 4 pole 60Hz induction motor is, Revolution per S = 0.1 N = 120-60/4 (1-0.1) = 1800(1-0.1) = 1620 (rpm)

驅動慣性力矩時 Driving Moment of Inertia

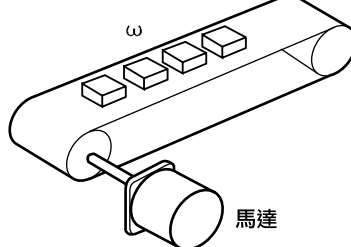


馬達
CD² (包括轉子的飛輪效率)

$$P_g = 1.027 \text{ NT(W)}$$

$$T = \frac{GD^2 \cdot N}{375 \cdot t} (\text{kg}\cdot\text{m})$$

N: 轉數 (rpm)
T: 轉矩 (kg·m)
GD²: 飛輪效率 (kg·m²)
t: 時間
P_g: 所需動力 (W)



馬達

$$P_g = (P_1 + P_2 + P_3) \frac{100}{\eta} (\text{W})$$

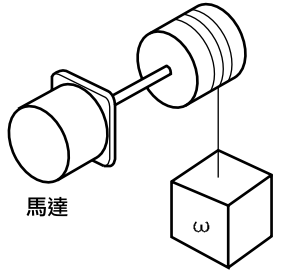
空轉動力 P₁ = 9.8 μ ω u ℓ (W)

$$\text{水平動力 } P_2 = \frac{\mu Q \ell}{367} (\text{W})$$

$$\text{垂直動力 } P_3 = \frac{QH}{367} (\text{W})$$

ℓ: 運輸機長 (m)
W: 皮帶單位長重量 (kg/m)
μ: 摩擦係數
u: 皮帶速度 (m/sec)

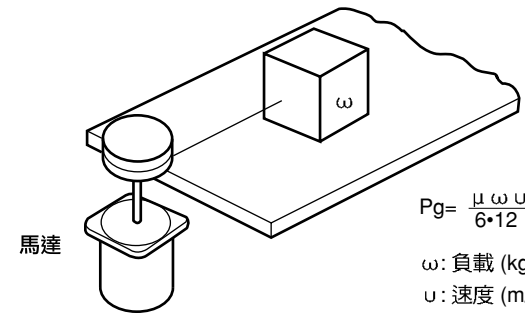
Q: 運輸量 (kg/h)
η: 效率 (%)
H: 傾斜運輸機兩端高低差 (m)
P_g: 所需動力 (W)



馬達

$$P_g = \frac{\omega V}{6 \cdot 12} \cdot \frac{100}{\eta} (\text{W})$$

ω: 負載 (kg)
V: 速度 (m/min)
η: 效率 (%)
P_g: 所需動力 (W)



馬達

$$P_g = \frac{\mu \omega u}{6 \cdot 12} (\text{W})$$

ω: 負載 (kg)
u: 速度 (m/min)
μ: 摩擦係數
P_g: 所需動力 (W)

減速機用詞概要

1. 減速機選擇方法

減速機為配合馬達機型及瓦特數依負荷狀況做下列之分類：

GN型→配合6, 15, 25, 40, 60, 90, 120, 150W使用→(輕負荷請選含油軸承;重負荷請選滾珠軸承)。

GU型→配合60, 90, 120, 150W使用(GU型全部使用滾珠軸承)。

1. Selections of the speed reduction gearing (mechanism)

To coordinate between the type of motor and wattage of power used, the following classification is made according to the loading conditions:

Model GN - for 6, 15, 25, 40, 60, 90, 120, 150W - (Oil bearing for applications in light loading, ball bearing shall be used for those heavier loading)

Model GU - for 60, 90, 120, 150W - (using ball bearing for all GU type motor).

3. 最大容許轉矩 (右圖)

減速機之出力轉矩因減速機比大而增大,但因受了齒輪之材質及其他條件之影響,限制實際所能承受之負荷轉矩,而減速機之最大容許轉矩之大小是視減速機種類與減速機之出力轉矩。

$$TG = TM \times i \times n = 1.9 \times 100 \times 0.66 = 125.4 \text{ kg}\cdot\text{cm}$$

如右圖所示4GN-100K最大容許轉矩80Kg·cm,但計算所得之減速機出力轉矩為125kg·cm,但是實際上減速機所能承受之負荷不可超過80kg·cm。

3. Maximum allowable torque (Figure to the right)

The torque for a motor output power can be increased in accordance with the bigger reduction ratio of the speed reduction gearing. however, the practical limitation of the loading torque shall be effected by the material of the gear and some other conditions. The Maximum allowable torque for a speed reduction gearing is also depending on the kind of speed reduction gearing and the output power torque of the speed reduction gearing.

$$TG = TM \times i \times n = 1.9 \times 100 \times 0.66 = 125.4 \text{ Kg}\cdot\text{cm}$$

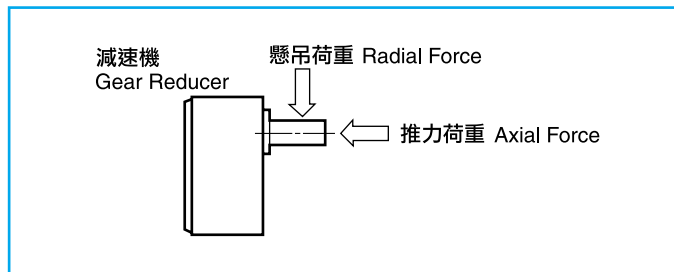
The maximum allowable torque 80 Kg·cm for the 4GN-100K is shown in the figure to the right, in comparing to the output power torque of the speed reduction gearing, 125 Kg·cm, by calculation. In practical, however, under no way the loading of a speed reduction gearing exceed 80 Kg·cm.

4. 容許懸吊荷重及容許推力荷重 (右圖)

減速機之出力軸使用在鏈條,齒輪或皮帶等傳動機構上,在一定出力軸處,增加懸吊荷重(同軸呈直角重)軸承的壽命會受到懸吊荷重與出力軸間作用關係,產生直接影響。

4. Permissible Radial Force and Axial Force (see figure below):

Transmission mechanism such as chain, gears, or belt can be used as an output shaft for the speed reduction gearing. Suppose the radial force is increased (vertically to the shaft) at the output shaft which should be effected directly against the applicable life regarding to relations between Radial force and Axial force.



Terminology for the gear reducers

2. 減速機配合馬達之出力轉矩計算方式：

轉矩.....TG=TM x i x n

TG: 減速機之轉矩(kg·cm) TM: 馬達之轉矩(kg·cm)

i: 減速機之減速比 n: 減速機之傳動效率

2. Calculations of a speed reduction gear in relating to the torque of the motor output power.

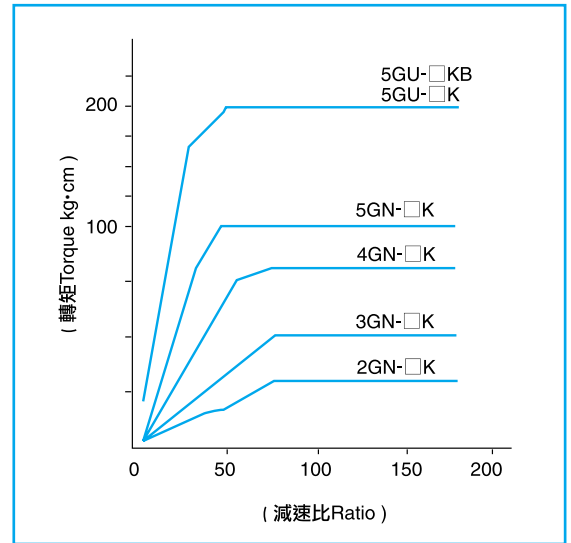
Torque: TG = TM x i x n

TG = torque of the speed reduction gearing (Kg·cm)

TM: Torque of a motor (Kg·cm)

i = Reduction ratio of the speed reduction gearing

n = transmission efficiency of the speed reduction gearing



品名 Gear Model No.	減速比 Ratio	最大容許 轉矩 (kg·cm)	容許懸吊荷重(kg)		容許推力 荷重 (kg)
			在軸前端 10mm處	在軸前端 20mm處	
2GN-□	3~18	25	5	8	3
2GN-□ K	20~180		12	18	
3GN-□	3~18	50	8	12	4
3GN-□ K	20~180		15	25	
4GN-□	3~18	80	10	15	5
4GN-□ K	20~180		20	30	
5GN-□	3~18	100	25	35	10
5GN-□ K	20~180		30	45	
5GU-□ KB	3~10	200	40	50	15
5GU-□ K	12.5~18		45	60	
5GU-□ K	20~180		50	70	

5. 減速機傳動效率 Transmission efficiency of the gear reducers

品名 Gear Model No.	減數比 Ratio																							
	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	45	50	60	75	90	100	120	150	180
2GN-□ K																								
3GN-□ K																								
4GN-□ K																								
5GN-□ K																								
5GU-□ K	81%						73%						66%						59%					

馬達型號解說 (IK, RK 規格) General information of motors, for IK·RK type



裝置尺寸
Dimension of device

2: 60mm
3: 70mm
4: 80mm
5: 90mm

4 IK 25 GN - C -

IK: 連續運轉
Continuous operation

RK: 頻繁啟動(定格)
Reversible Rated Operation

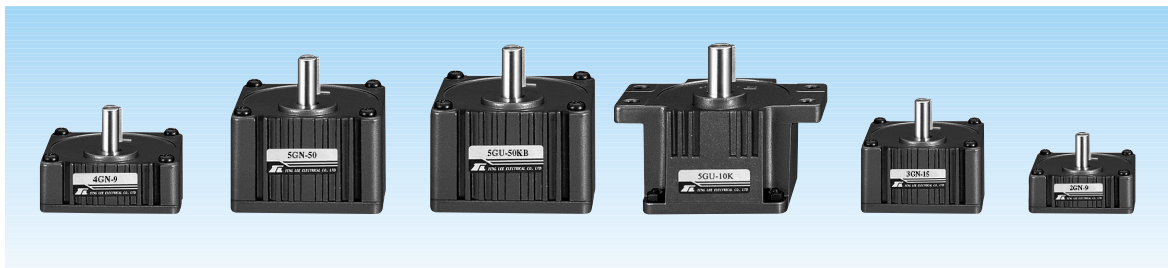
馬力: 6W (HP) 15W 25W 40W 60W 90W 120W 150W

A: 圓形軸 Cylindrical Shaft
GA: 渦輪軸 for Worm Gear
GK: 直齒軸 (40, 60W) Spur
GS: 直齒軸 (60, 90W) Spur
GN: 斜齒軸 Pinion cut shaft (6, 15, 25, 40, 60, 90, 120, 150W)
GU: 斜齒軸 Pinion cut shaft (60, 90, 120, 150W)
NA: 中空軸 for Hollow Shaft Gear

A: 單相 Single Phase 110V
C: 單相 Single Phase 220V
S₂: 三相 3-Phase 220V
S₃: 三相 3-Phase 220/380V
S₄: 三相 3-Phase 220/440V

T: 附端子箱
W/ Terminal-Box
B: 附電磁剎車
W/Electromagnetic Brake
P: 溫控 Thermal Switch
F: 強制風扇
Ventilator Fan

減速機型號解說 (GN, GU規格) General information of reducers, for GN·GU type



4 GN - 100

裝置尺寸
Dimension of device

2: 60mm
3: 70mm
4: 80mm
5: 90mm

GN: 斜齒軸 Pinion cut shaft (6, 15, 25, 40, 60, 90, 120, 150W)
GU: 斜齒軸 Pinion cut shaft (60, 90, 120, 150W)

減速比 Ratio: 1:100

GN B型: 合銅、培林混合型
GU K型: 有耳型
KB型: 方筒型

馬達型號解說 (US 規格) General information of motors, for US type



M: 無段變速馬達
Stepless variable speed
Motor

M 4 25 - 4 0 2 □

B: 附電磁剎車
With
Electromagnetic
Brake

裝置尺寸
Dimension of
device

- 2: □ 60mm
- 3: □ 70mm
- 4: □ 80mm
- 5: □ 90mm

馬力: 6W
(HP) 15W
25W
40W
60W
90W
120W

- 0: 圓形軸 Cylindrical Shaft
- 1: GA渦輪軸 for Worm Gear
- 2: 直齒軸 Spur(40, 60W)
- 3: 直齒軸 Spur(60, 90W)
- 4: GN斜齒軸 Pinion cut shaft (6, 15, 25, 40, 60, 90, 120W)
- 5: GU斜齒軸 Pinion cut shaft (60, 90, 120W)
- 6: NA中空軸 for Hollow Shaft Gear

- 1: 單相 Single Phase 100~110V
- 2: 單相 Single Phase 200~220V

- 0: IK型 連續運轉
IK Type Continuous Operation
- 1: RK型 頻繁起動(定格)
RK Type
Reversible Rated Operation

馬達型號解說 (4GN/5GN-□ RH/RA) General information of motors



5 GN - □ RH

- 4: 4GN
- 5: 5GN

GN系列 Series

減速比 Ratio
10, 15, 20, 25, 30, 40, 45, 50, 60,
75, 90, 100, 120, 150, 160, 180,
200, 250, 300, 350, 400, 500, 600

RH: 中空軸型 Hollow Shaft Type
RA: 出力軸型 Output Shaft Type

速度控制器型號解說(US/UX規格) General information of speed controller, for US/UX type



UX: 無段變速數字型控制箱
Stepless variable speed controller with digital speed indicator

US: 無段變速控制箱
Stepless variable speed controller

US 4 25 - 0 2 □

DMS

裝置尺寸
Dimension of device

2: □ 60mm
3: □ 70mm
4: □ 80mm
5: □ 90mm

馬力: 6W
(HP) 15W
25W
40W
60W
90W
120W

0: IK型 連續運轉
IK Type Continuous Operation

1: RK型 頻繁起動(定格)
RK Type Reversible Rated Operation

B: 附電磁剎車
With Electromagnetic Brake

01: 單相 Single Phase 100~110V
02: 單相 Single Phase 200~220V

DC馬達速度控制器
DC Motor Speed Controller
Input: AC 100~240V
Output: DC 90V

速度控制器型號解說(SS規格) General information of speed controller, for SS type



8 Pin

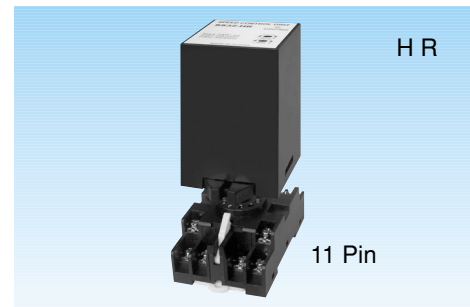
SS 31 - □ - □

31: 單相 100~110V (Single Phase)
32: 單相 200~220V (Single Phase)

R: 附電子剎車
With electronic brake

馬力: 6W
(HP) 15W
25W
40W
60W
90W
120W

SS: 無段變速分離控制箱
Stepless variable speed separate controller



HR

11 Pin

SS 31 - □ - HR

31: 單相 100~110V (Single Phase)
32: 單相 200~220V (Single Phase)

HR: 抗干擾型
Anti-interference

馬力: 6W
(HP) 15W
25W
40W
60W
90W
120W

SS: 無段變速分離控制箱
Stepless variable speed separate controller



單相IK型感應馬達

Induction Motor (Single Phase)

IK型連續運轉馬達特性表 Specifications of continuous operating motor

馬達型號 Motor Model No.		出力 Output (W)	周波數 Frequency (Hz)	電壓 Voltage (V)	電流 Current (A)	起動轉矩 Start Torque (gcm)	定格 Rating		起動電容 Start Condenser		齒輪型號 Gear Model No.		
圓柱形出力軸 Cylindrical Output Shaft	小齒切出力軸 Pinion Cut Output Shaft						轉矩 Torque (gcm)	回轉數 Revolving (rpm)	容量 Capacity (μF)	耐電壓 Resistance Voltage (WV)	培林軸承 Ball Bearing	含油軸承與培林共用型 Oil Bearing and Ball Bearing Combined	中間齒輪 Middle Gear
2IK6A - A	2IK6GN - A	6	50/60	100 110	0.21	420	420	1200 1450	2.5	250	2GN-□K	2GN-□	2GN-10X 2GN-10XK
2IK6A - C	2IK6GN - C	6	50/60	200 220	0.10	420	420	1200 1450	0.8	400			
3IK15A - A	3IK15GN - A	15	50/60	100 110	0.33	800	1100	1250 1550	4	250	3GN-□K	3GN-□	3GN-10X 3GN-10XK
3IK15A - C	3IK15GN - C	15	50/60	200 220	0.16	800	1100	1250 1550	1	400			
4IK25A - A	4IK25GN - A	25	50/60	100 110	0.60	1300	1800	1250 1550	6	250	4GN-□K	4GN-□	4GN-10X 4GN-10XK
4IK25A - C	4IK25GN - C	25	50/60	200 220	0.25	1300	1800	1250 1550	1.5	400			
5IK40A - A	5IK40GN - A	40	50/60	100 110	0.68	2300	3200	1300 1550	10	250	5GN-□K	5GN-□	5GN-10X 5GN-10XK
5IK40A - C	5IK40GN - C	40	50/60	200 220	0.31	2300	3200	1300 1550	2.5	400			
5IK60A - A	5IK60 ^{GN} _{GU} - A	60	50/60	100 110	1.68	3300	4500	1300 1550	14	250	5GN-□K 5GU-□K 5GU-□KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
5IK60A - C	5IK60 ^{GN} _{GU} - C	60	50/60	200 220	0.55	3300	4500	1300 1550	3.5	400			
5IK90A - A	5IK90 ^{GN} _{GU} - A	90	50/60	100 110	1.46	5200	6500	1300 1550	20	250	5GN-□K 5GU-□K 5GU-□KB		5GN-10XK 5GU-10XK
5IK90A - C	5IK90 ^{GN} _{GU} - C	90	50/60	200 220	0.63	5200	6500	1300 1550	5	400			
5IK120A - A	5IK120 ^{GN} _{GU} - A	120	50/60	100 110	2.10	6500	8990	1300 1550	25	250	5GN-□K 5GU-□K 5GU-□KB		5GN-10XK 5GU-10XK
5IK120A - C	5IK120 ^{GN} _{GU} - C	120	50/60	200 220	0.93	6500	8990	1300 1550	6	400			
5IK150A - A	5IK150 ^{GN} _{GU} - A	150	50/60	100 110	2.78	7800	11240	1300 1550	28	250	5GN-□K 5GU-□K 5GU-□KB		5GN-10XK 5GU-10XK
5IK150A - C	5IK150 ^{GN} _{GU} - C	150	50/60	200 220	1.35	7800	11240	1300 1600	8	400			

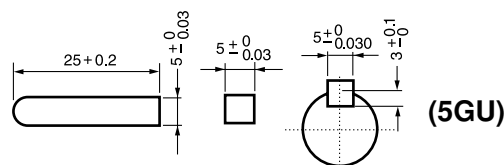
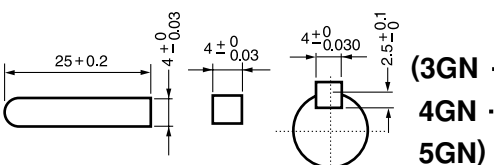
扭矩表 Gear Head-Torque Table (Kg-cm)

(Kg-cm) x 9.8 ÷ 100 = N·m

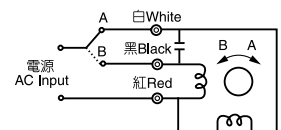
輸出回轉數 rpm	500	300	200	120	100	60	50	30	20	15	10	6	5	3	2	1.5	1
50Hz 減速比		5	7.5	12.5	15	25	30	50	75	100	150	250	300	500	750	1000	1500
60Hz Reduction Ratio	3	6	9	15	18	30	36	60	90	120	180	300	360	600	900	1200	1800
6W	1.0	1.6	2.5	4.1	5	8.1	9.7	16	23	25	25	25	25	25	25	25	25
15W	2.4	4.0	6.0	10	12	19	23	39	50	50	50	50	50	50	50	50	50
25W	4	6.7	10	16	20	32	39	65	80	80	80	80	80	80	80	80	80
40W	6.7	11	16	28	33	54	65	100	100	100	100	100	100	100	100	100	100
60W	10	16	24	40	48	77	93	155	200	200	200	200	200	200	200	200	200
90W	14	23	35	58	69	110	133	200	200	200	200	200	200	200	200	200	200
120W	19	30	47	77	92	147	177	200	200	200	200	200	200	200	200	200	200
150W	22	45	68	113	136	200	200	200	200	200	200	200	200	200	200	200	200

齒箱鍵尺寸 Key Dimensions

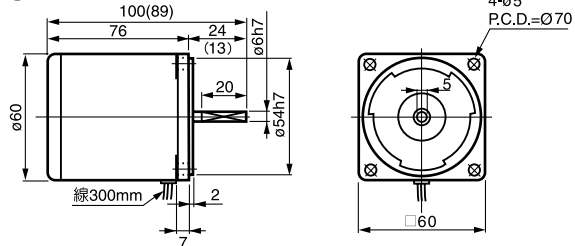
接線圖 Line Knotting Chart



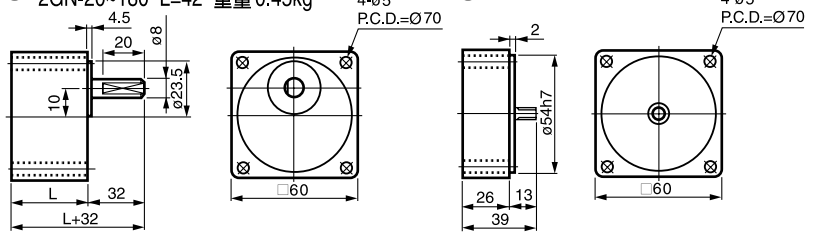
(出線三條)
Bi-Directional



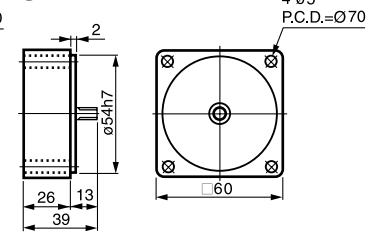
① 2IK6A(GN)-□ 重量 0.7kg



② 2GN-3~18 L=32 重量 0.35kg
2GN-20~180 L=42 重量 0.45kg

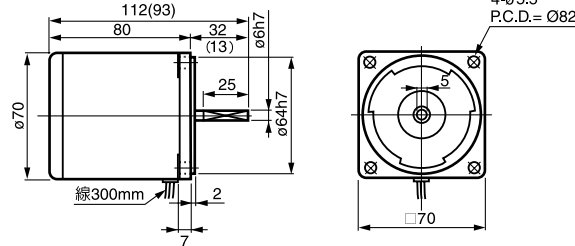


③ 2GN-10X 重量 0.3kg

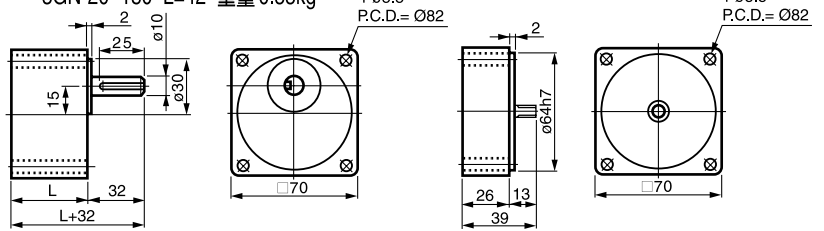


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

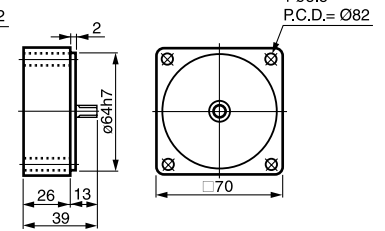
④ 3IK15A(GN)-□ 重量 1.1kg



⑤ 3GN-3~18 L=32 重量 0.45kg
3GN-20~180 L=42 重量 0.55kg

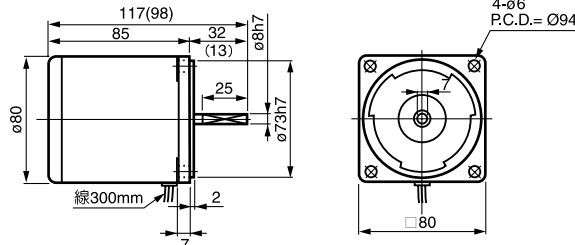


⑥ 3GN-10X 重量 0.35kg

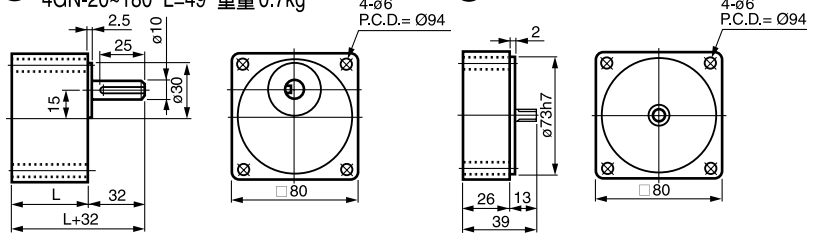


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

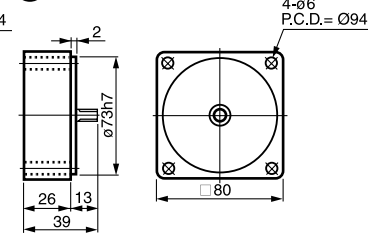
⑦ 4IK25A(GN)-□ 重量 1.6kg



⑧ 4GN-3~18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg

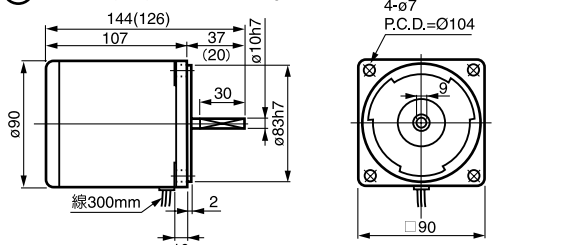


⑨ 4GN-10X 重量 0.45kg

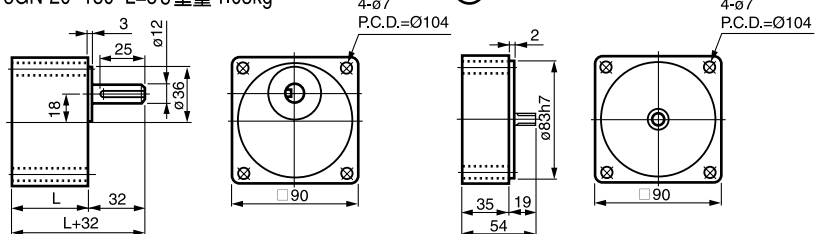


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

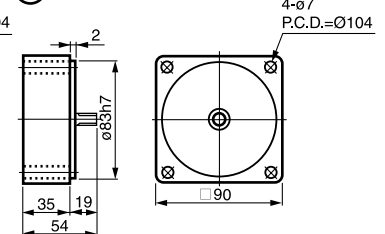
⑩ 5IK40A(GN)-□ 重量 2.5kg



⑪ 5GN-3~18 L=42 重量 0.7kg (40~150W 共用)
5GN-20~180 L=58 重量 1.05kg

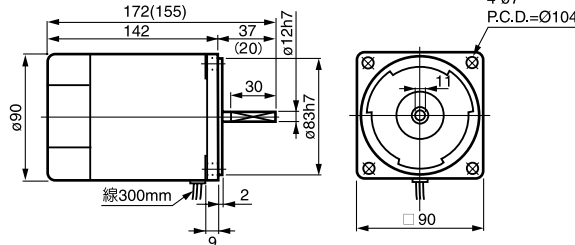


⑫ 5GN-10X 重量 0.6kg

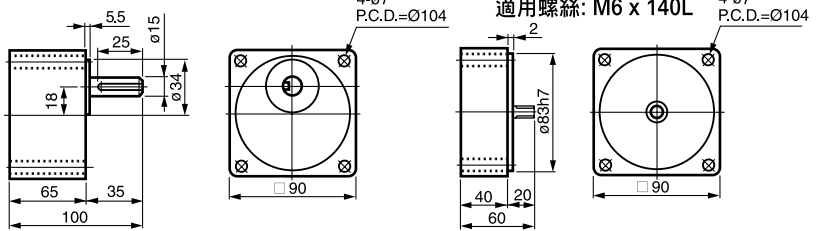


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

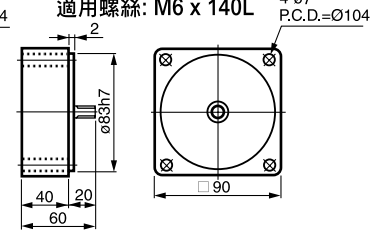
⑬ 5IK60 GN-□ 重量 2.6kg
A
GU



⑭ 5GU-3~180 KB 重量 1.3kg (60, 90, 120, 150W 共用)

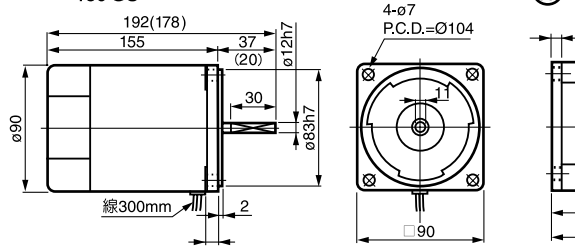


⑮ 5GU-10XK 重量 0.65kg
適用螺絲: M6 x 140L

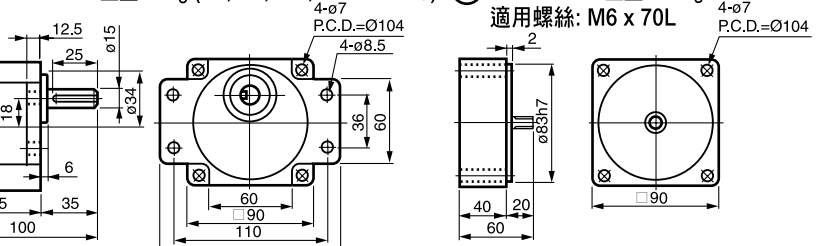


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

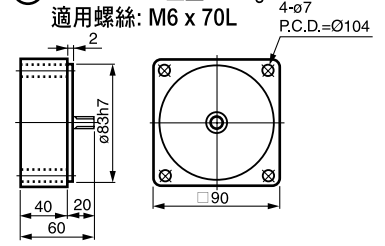
⑯ 5IK 120 GN-□ 重量 3.4kg
90 A
150 GU



⑰ 5GU-3~180K 重量 1.3kg (60, 90, 120, 150W 共用)



⑱ 5GU-10XKS 重量 0.65kg
適用螺絲: M6 x 70L



()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

以上數值若有變動, 恕不另行通知 We reserve the right to change without further notice.





三相IK型感應馬達

Induction Motor (3-Phase)

IK型連續運轉馬達特性表 Specifications of continuous operating motor

馬達型號 Motor Model No.		出力 Output (W)	周波數 Frequency (Hz)	電壓 Voltage (V)	電流 Current (A)	起動轉矩 Start Torque (gcm)	定格 Rating		齒輪型號 Gear Model No.		
圓柱形出力軸 Cylindrical Output Shaft	小齒切出力軸 Pinion Cut Output Shaft						轉矩 Torque (gcm)	回轉數 Revolving (rpm)	培林軸承 Ball Bearing	含油軸承與培林共用型 Oil Bearing and Ball Bearing Combined	中間齒輪 Middle Gear
4IK25A - S ₂	4IK25GN - S ₂	25	50/60	200	0.18	4600	1900	1300	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
4IK25A - S ₃	4IK25GN - S ₃			220		3600	1800	1550			
4IK25A - S ₄	4IK25GN - S ₄	25	50/60	380	0.13	4600	1900	1300	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
4IK25A - S ₄	4IK25GN - S ₄			440		3600	1600	1500			
5IK40A - S ₂	5IK40GN - S ₂	40	50/60	200	0.27	10000	3000	1300	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK40A - S ₃	5IK40GN - S ₃			220		8000	2600	1550			
5IK40A - S ₄	5IK40GN - S ₄	40	50/60	380	0.18	10000	3000	1300	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK40A - S ₄	5IK40GN - S ₄			440		8000	2600	1550			
5IK60A - S ₂	5IK60 ^{GN} _{GU} - S ₂	60	50/60	200	0.47	13000	4500	1300	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK60A - S ₃	5IK60 ^{GN} _{GU} - S ₃			220		9000	3800	1550			
5IK60A - S ₄	5IK60 ^{GN} _{GU} - S ₄	60	50/60	380	0.33	13000	4500	1300	5GU-□ K	5GN-□	5GN-10X 5GN-10XK
5IK60A - S ₄	5IK60 ^{GN} _{GU} - S ₄			440		9000	3800	1550			
5IK90A - S ₂	5IK90 ^{GN} _{GU} - S ₂	90	50/60	200	0.70	18000	6800	1300	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK90A - S ₃	5IK90 ^{GN} _{GU} - S ₃			220		13000	4500	1300			
5IK90A - S ₄	5IK90 ^{GN} _{GU} - S ₄	90	50/60	380	0.56	18000	6800	1300	5GU-□ K	5GN-□	5GN-10X 5GN-10XK
5IK90A - S ₄	5IK90 ^{GN} _{GU} - S ₄			440		13000	5700	1550			
5IK120A - S ₂	5IK120 ^{GN} _{GU} - S ₂	120	50/60	200	1.28	41000	8650	1350	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK120A - S ₃	5IK120 ^{GN} _{GU} - S ₃			220		32000	7100	1650			
5IK120A - S ₄	5IK120 ^{GN} _{GU} - S ₄	120	50/60	380	0.70	41000	8650	1350	5GU-□ K	5GN-□	5GN-10X 5GN-10XK
5IK120A - S ₄	5IK120 ^{GN} _{GU} - S ₄			440		32000	7100	1650			
5IK150A - S ₂	5IK150 ^{GN} _{GU} - S ₂	150	50/60	200	1.60	41000	11300	1350	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK150A - S ₃	5IK150 ^{GN} _{GU} - S ₃			220		32000	9450	1650			
5IK150A - S ₄	5IK150 ^{GN} _{GU} - S ₄	150	50/60	380	0.88	41000	11300	1350	5GU-□ K	5GN-□	5GN-10X 5GN-10XK
5IK150A - S ₄	5IK150 ^{GN} _{GU} - S ₄			440		32000	9450	1650			

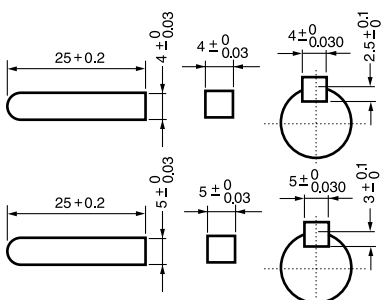
扭矩表 Gear Head-Torque Table (Kg·cm)

(Kg·cm) x 9.8 ÷ 100 = N·m

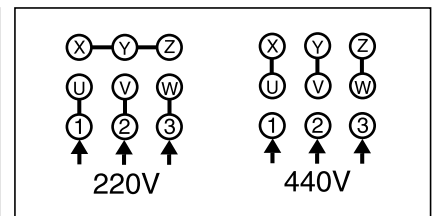
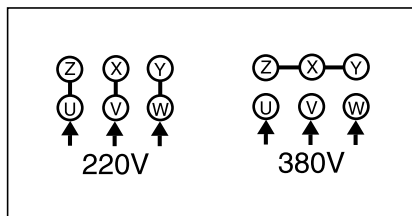
輸出回轉數 rpm	500	300	200	120	100	60	50	30	20	15	10	6	5	3	2	1.5	1
50Hz 減速比	3	5	7.5	12.5	15	25	30	50	75	100	150	250	300	500	750	1000	1500
60Hz Reduction Ratio	3	6	9	15	18	30	36	60	90	120	180	300	360	600	900	1200	1800
25W	4	6.7	10	16	20	32	39	65	80	80	80	80	80	80	80	80	80
40W	6.7	11	16	28	33	54	65	100	100	100	100	100	100	100	100	100	100
60W	10	16	24	40	48	77	93	155	200	200	200	200	200	200	200	200	200
90W	14	23	35	58	69	110	133	200	200	200	200	200	200	200	200	200	200
120W	19	30	47	77	92	147	177	200	200	200	200	200	200	200	200	200	200
150W	22	45	68	113	136	200	200	200	200	200	200	200	200	200	200	200	200

齒箱鍵尺寸 Key Dimensions

接線圖 Line Knotting Chart



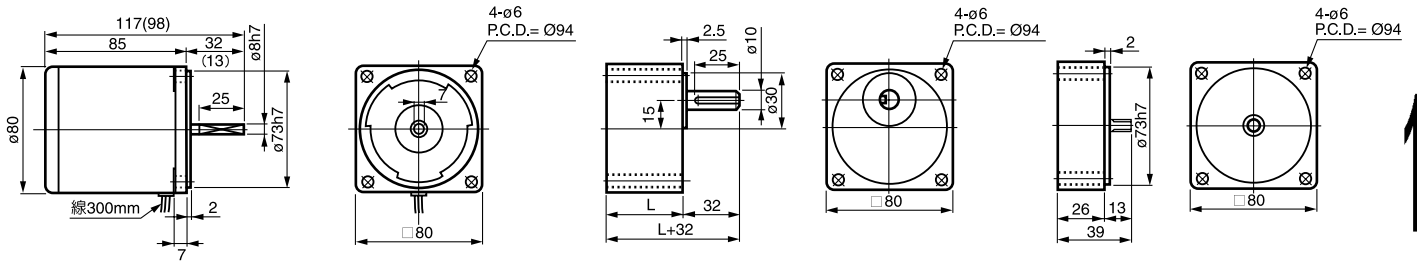
3GN
4GN
5GN
5GU



① 4IK25A(GN)-□ 重量 1.6kg

② 4GN-3~18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg

③ 4GN-10X 重量 0.45kg

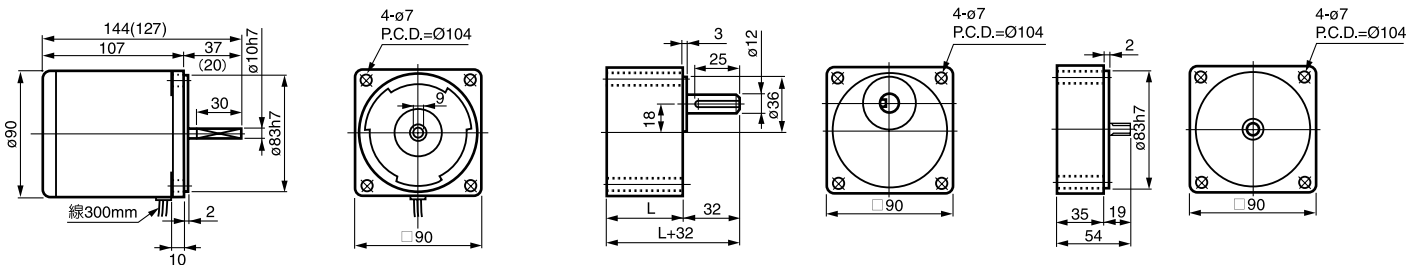


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

④ 5IK40A(GN)-□ 重量 2.5kg

⑤ 5GN-3~18 L=42 重量 0.7kg
5GN-20~180 L=58 重量 1.05kg
(40~150W 共用)

⑥ 5GN-10X 重量 0.6kg

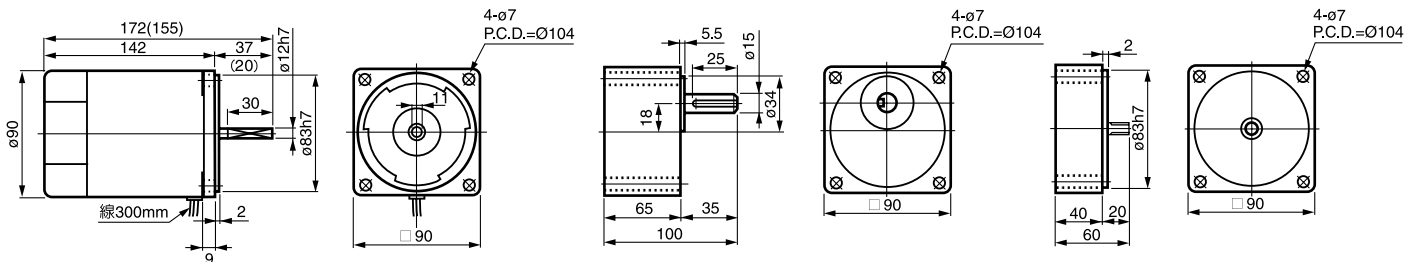


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

⑦ 5IK 60 GN -□ / 5IK 90 GN -□ 重量 2.6kg
GU GU

⑧ 5GU-3~180 KB 重量 1.3kg
(60, 90, 120, 150W 共用)

⑨ 5GU-10XK 重量 0.65kg
適用螺絲: M6 x 140L

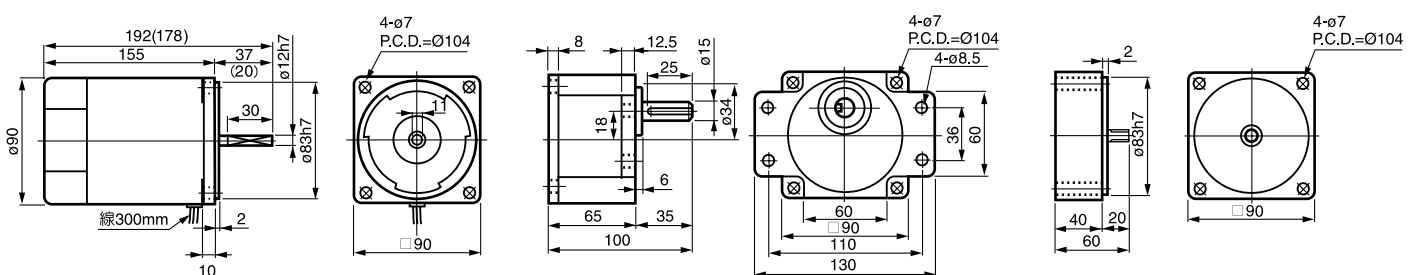


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

⑩ 5IK 120 GN -□ / 5IK 150 GN -□ 重量 3.4kg
GU GU

⑪ 5GU-3~180K 重量 1.3kg (60, 90, 120, 150W 共用)

⑫ 5GU-10XKS 重量 0.65kg
適用螺絲: M6 x 70L



()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.



單相RK型頻繁啟動(定格)馬達

Reversible Motor (Single Phase)

(for Bi-Directional Operation or Instantaneous Reversal of Direction)

RK型30分定格馬達特性表 Specifications of RK Type 30-minutes rated motor

馬達型號 Motor Model No.		出力 Output (W)	周波數 Frequency (Hz)	電壓 Voltage (V)	電流 Current (A)	起動轉矩 Start Torque (gcm)	定格 Rating		起動電容 Start Condenser		齒輪型號 Gear Model No.		
圓柱形出力軸 Cylindrical Output Shaft	小齒切出力軸 Pinion Cut Output Shaft						轉矩 Torque (gcm)	回轉數 Revolving (rpm)	容量 Capacity (μF)	耐電壓 Resistance Voltage (WV)	培林軸承 Ball Bearing	含油軸承與培林共用型 Oil Bearing and Ball Bearing Combined	中間齒輪 Middle Gear
2RK6A - A	2RK6GN - A	6	50/60	100	0.23	500	500	1200	3	250	2GN-□ K	2GN-□	2GN-10X 2GN-10XK
				110		450	400	1550					
2RK6A - C	2RK6GN - C	6	50/60	200	0.12	500	500	1200	1	400	2GN-□ K	2GN-□	2GN-10X 2GN-10XK
				220		450	400	1500					
3RK15A - A	3RK15GN - A	15	50/60	100	0.36	900	1250	1200	6	250	3GN-□ K	3GN-□	3GN-10X 3GN-10XK
				110		800	1000	1500					
3RK15A - C	3RK15GN - C	15	50/60	200	0.18	900	1200	1200	1.5	400	3GN-□ K	3GN-□	3GN-10X 3GN-10XK
				220		800	1000	1500					
4RK25A - A	4RK25GN - A	25	50/60	100	0.65	1600	2000	1250	8	250	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
				110		1400	1700	1500					
4RK25A - C	4RK25GN - C	25	50/60	200	0.27	1600	2000	1250	2	400	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
				220		1400	1600	1550					
5RK40A - A	5RK40GN - A	40	50/60	100	0.73	3000	3000	1300	12	250	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
				110		2600	2600	1550					
5RK40A - C	5RK40GN - C	40	50/60	200	0.34	3000	3000	1300	3	400	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
				220		2600	2600	1550					
5RK60A - A	5RK60 ^{GN} _{GU} - A	60	50/60	100	1.75	4700	4700	1250	16	250	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				110		3800	3800	1550					
5RK60A - C	5RK60 ^{GN} _{GU} - C	60	50/60	200	0.60	4700	4700	1250	4	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				220		3800	3800	1550					
5RK90A - A	5RK90 ^{GN} _{GU} - A	90	50/60	100	1.60	6300	7300	1200	25	250	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				110		5900	5900	1550					
5RK90A - C	5RK90 ^{GN} _{GU} - C	90	50/60	200	0.69	6300	7300	1200	6	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				220		5900	5900	1500					
5RK120A - A	5RK120 ^{GN} _{GU} - A	120	50/60	100	2.25	6500	8990	1200	28	250	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				110		5800	7300	1550					
5RK120A - C	5RK120 ^{GN} _{GU} - C	120	50/60	200	1.03	6500	8990	1200	8	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				220		5800	7300	1550					
5RK150A - A	5RK150 ^{GN} _{GU} - A	150	50/60	100	2.91	7800	11240	1300	28	250	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				110				1600					
5RK150A - C	5RK150 ^{GN} _{GU} - C	150	50/60	200	1.55	7800	11240	1300	8	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				220				1600					

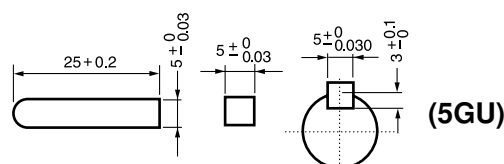
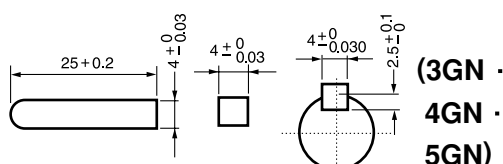
扭矩表 Gear Head-Torque Table (Kg·cm)

(Kg·cm) x 9.8 ÷ 100 = N·m

輸出回轉數 rpm	500	300	200	120	100	60	50	30	20	15	10	6	5	3	2	1.5	1
50Hz 減速比		5	7.5	12.5	15	25	30	50	75	100	150	250	300	500	750	1000	1500
60Hz Reduction Ratio	3	6	9	15	18	30	36	60	90	120	180	300	360	600	900	1200	1800
6W	1.0	1.6	2.5	4.1	5	8.1	9.7	16	23	25	25	25	25	25	25	25	25
15W	2.4	4.0	6.0	10	12	19	23	39	50	50	50	50	50	50	50	50	50
25W	4	6.7	10	16	20	32	39	65	80	80	80	80	80	80	80	80	80
40W	6.7	11	16	28	33	54	65	100	100	100	100	100	100	100	100	100	100
60W	10	16	24	40	48	77	93	155	200	200	200	200	200	200	200	200	200
90W	14	23	35	58	69	110	133	200	200	200	200	200	200	200	200	200	200
120W	19	30	47	77	92	147	177	200	200	200	200	200	200	200	200	200	200
150W	22	45	68	113	136	200	200	200	200	200	200	200	200	200	200	200	200

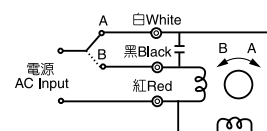
齒箱鍵尺寸 Key Dimensions

接線圖 Line Knotting Chart

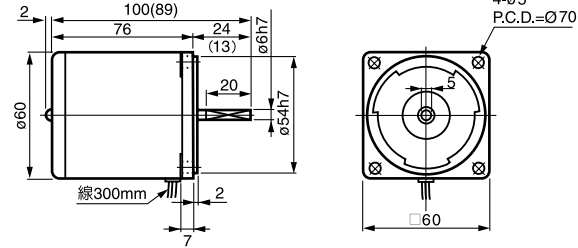


(出線三條)

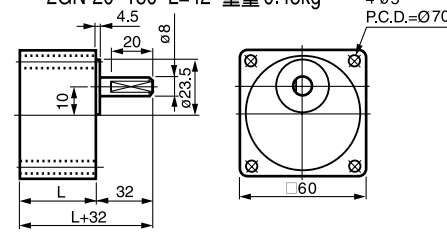
Bi-Directional



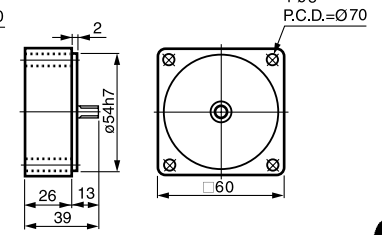
① 2RK6A(GN)-□ 重量 0.8kg



② 2GN-3~18 L=32 重量 0.35kg
2GN-20~180 L=42 重量 0.45kg

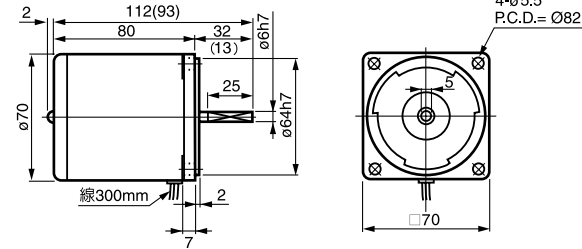


③ 2GN-10X 重量 0.3kg

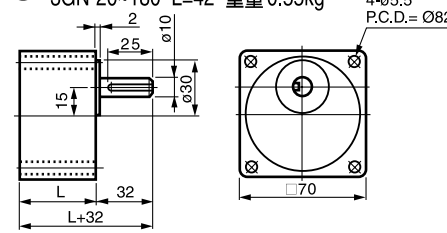


()內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

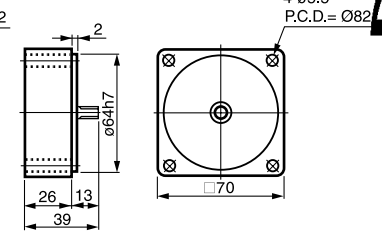
④ 3RK15A(GN)-□ 重量 1.2kg



⑤ 3GN-3~18 L=32 重量 0.45kg
3GN-20~180 L=42 重量 0.55kg

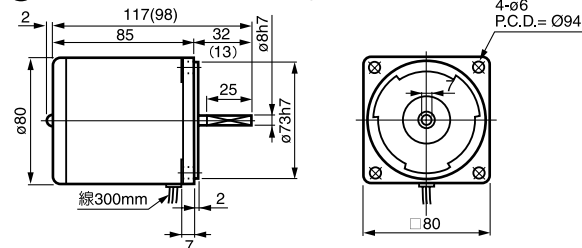


⑥ 3GN-10X 重量 0.35kg

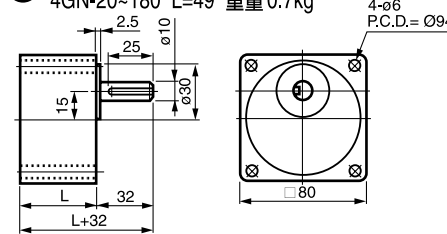


()內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

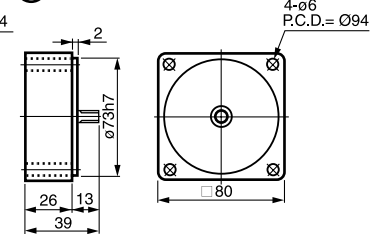
⑦ 4RK25A(GN)-□ 重量 1.65kg



⑧ 4GN-3~18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg

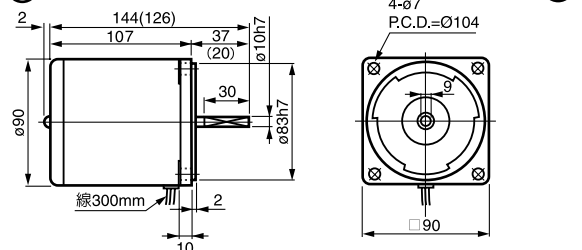


⑨ 4GN-10X 重量 0.45kg

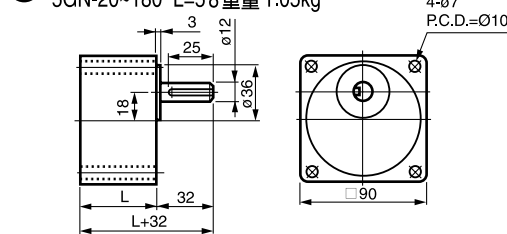


()內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

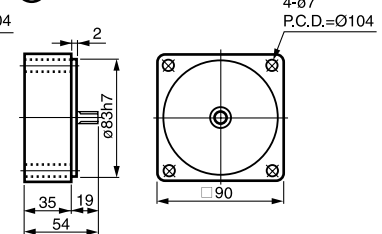
⑩ 5RK40A(GN)-□ 重量 2.5kg



⑪ 5GN-3~18 L=42 重量 0.7kg (40~150W 共用)
5GN-20~180 L=58 重量 1.05kg

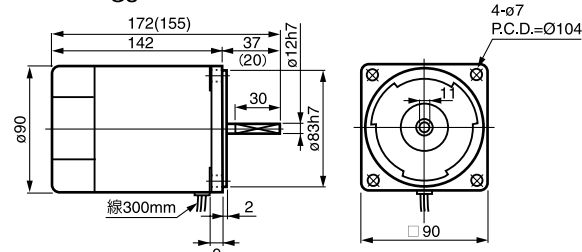


⑫ 5GN-10X 重量 0.6kg

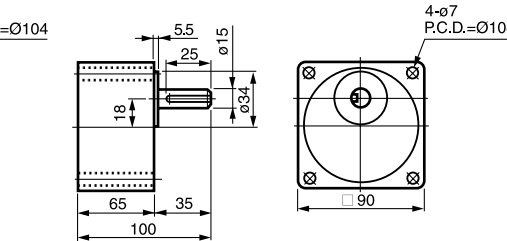


()內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

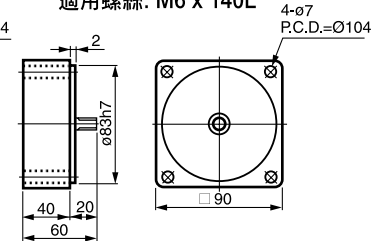
⑬ 5RK60 GN-□ 重量 2.6kg



⑭ 5GU-3~180 KB 重量 1.3kg (60, 90, 120, 150W 共用)

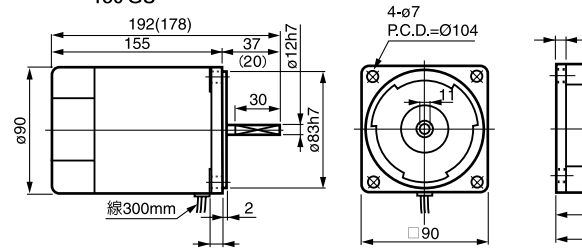


⑮ 5GU-10XK 重量 0.65kg
適用螺絲: M6 x 140L

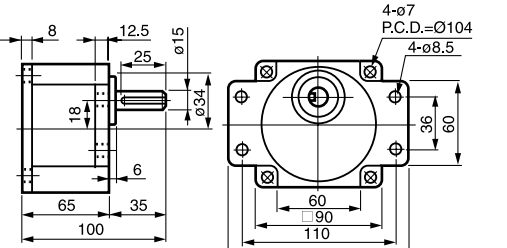


()內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

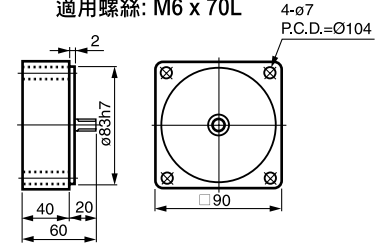
⑯ 5RK 120 GN-□ 重量 3.4kg
150 GU



⑰ 5GU-3~180 K 重量 1.3kg (60, 90, 120, 150W 共用)



⑱ 5GU-10XKS 重量 0.65kg
適用螺絲: M6 x 70L



()內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

以上數值若有變動, 恕不另行通知 We reserve the right to change without further notice.



單相附電磁剎車馬達

Electromagnetic Brake Motor (Single Phase)

IK-B型電磁剎車馬達特性表 Specifications of IKB Type Motor

馬達型號 Motor Model No.		出力 Output (W)	周波數 Frequency (Hz)	電壓 Voltage (V)	電流 Current (A)	起動轉矩 Start Torque (gcm)	定格 Rating		起動電容 Start Condenser		齒輪型號 Gear Model No.		
圓柱形出力軸 Cylindrical Output Shaft	小齒切出力軸 Pinion Cut Output Shaft						轉矩 Torque (gcm)	回轉數 Revolving (rpm)	容量 Capacity (μF)	耐電壓 Resistance Voltage (WV)	培林軸承 Ball Bearing	含油軸承與培林共用型 Oil Bearing and Ball Bearing Combined	中間齒輪 Middle Gear
2 IK6A - AB	2 IK6GN - AB	6	50/60	100	0.21	500	420	1200	2.5	250	2GN-□ K	2GN-□	2GN-10X 2GN-10XK
				110		400		1450					
2 IK6A - CB	2 IK6GN - CB	6	50/60	200	0.10	500	420	1200	0.8	400	2GN-□ K	2GN-□	2GN-10X 2GN-10XK
				220		400		1450					
3 IK15A - AB	3 IK15GN - AB	15	50/60	100	0.33	900	800	1250	4	250	3GN-□ K	3GN-□	3GN-10X 3GN-10XK
				110		850		1550					
3 IK15A - CB	3 IK15GN - CB	15	50/60	200	0.16	900	800	1250	1	400	3GN-□ K	3GN-□	3GN-10X 3GN-10XK
				220		850		1550					
4 IK25A - AB	4 IK25GN - AB	25	50/60	100	0.60	1600	1300	1250	6	250	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
				110		1500		1550					
4 IK25A - CB	4 IK25GN - CB	25	50/60	200	0.25	1600	1300	1250	1.5	400	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
				220		1500		1550					
5 IK40A - AB	5 IK40GN - AB	40	50/60	100	0.68	3000	2300	1300	10	250	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
				110		2600		1550					
5 IK40A - CB	5 IK40GN - CB	40	50/60	200	0.31	2700	2300	1300	2.5	400	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
				220		2600		1550					
5 IK60A - AB	5IK60 ^{GN} _{GU} - AB	60	50/60	100	1.68	3200	3300	1300	14	250	5GN-□ K 5GU-□ K	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				110		3000		1550					
5 IK60A - CB	5IK60 ^{GN} _{GU} - CB	60	50/60	200	0.55	3200	3300	1300	3.5	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
				220		3000		1550					
5 IK90A - AB	5IK90 ^{GN} _{GU} - AB	90	50/60	100	1.46	4500	5200	1300	20	250	5GN-□ K 5GU-□ K	5GN-□	5GN-10X 5GU-10XK
				110		4500		1550					
5 IK90A - CB	5IK90 ^{GN} _{GU} - CB	90	50/60	200	0.63	4500	5200	1300	5	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GU-10XK
				220		4500		1550					
5 IK120A - AB	5IK120 ^{GN} _{GU} - AB	120	50/60	100	2.10	6500	8990	1300	25	250	5GN-□ K 5GU-□ K	5GN-□	5GN-10X 5GU-10XK
				110		5800		1600					
5 IK120A - CB	5IK120 ^{GN} _{GU} - CB	120	50/60	200	0.93	6500	8990	1300	6	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GU-10XK
				220		5800		1600					
5 IK150A - AB	5IK150 ^{GN} _{GU} - AB	150	50/60	100	2.78	7800	11240	1300	28	250	5GN-□ K 5GU-□ K	5GN-□	5GN-10X 5GU-10XK
				110		7800		1600					
5 IK150A - CB	5IK150 ^{GN} _{GU} - CB	150	50/60	200	1.35	7800	11240	1300	8	400	5GN-□ K 5GU-□ KB	5GN-□	5GN-10X 5GU-10XK
				220		7800		1600					

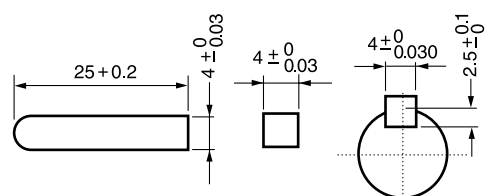
扭距表 Gear Head-Torque Table (Kg-cm)

(Kg-cm) x 9.8 ÷ 100 = N·m

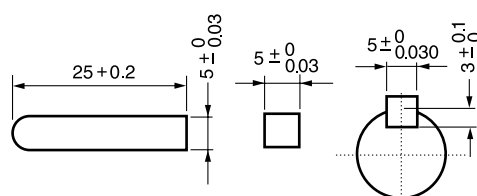
輸出回轉數 rpm	500	300	200	120	100	60	50	30	20	15	10	6	5	3	2	1.5	1
50Hz 減速比	3	5	7.5	12.5	15	25	30	50	75	100	150	250	300	500	750	1000	1500
60Hz Reduction Ratio		6	9	15	18	30	36	60	90	120	180	300	360	600	900	1200	1800
6W	1.0	1.6	2.5	4.1	5	8.1	9.7	16	23	25	25	25	25	25	25	25	25
15W	2.4	4.0	6.0	10	12	19	23	39	50	50	50	50	50	50	50	50	50
25W	4	6.7	10	16	20	32	39	65	80	80	80	80	80	80	80	80	80
40W	6.7	11	16	28	33	54	65	100	100	100	100	100	100	100	100	100	100
60W	10	16	24	40	48	77	93	155	200	200	200	200	200	200	200	200	200
90W	14	23	35	58	69	110	133	200	200	200	200	200	200	200	200	200	200
120W	19	30	47	77	92	147	177	200	200	200	200	200	200	200	200	200	200
150W	22	45	68	113	136	200	200	200	200	200	200	200	200	200	200	200	200

齒箱鍵尺寸 Key Dimensions

(3GN · 4GN · 5GN)

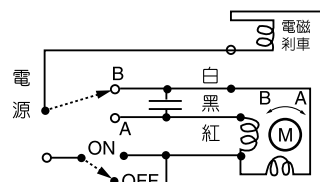


(5GU)



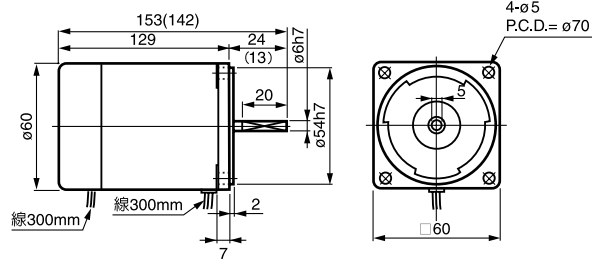
接線圖 Line Knotting Chart

Line Knotting Chart

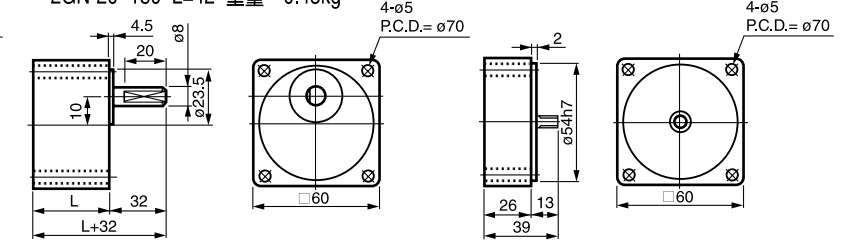


以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

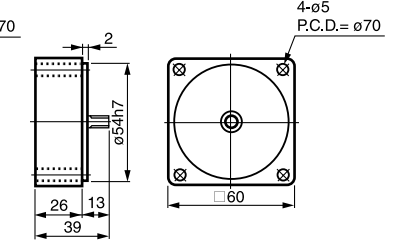
① 2IK6A(GN)-□B 重量 1.2kg



② 2GN-3~18 L=32 重量 0.35kg
2GN-20~180 L=42 重量 0.45kg

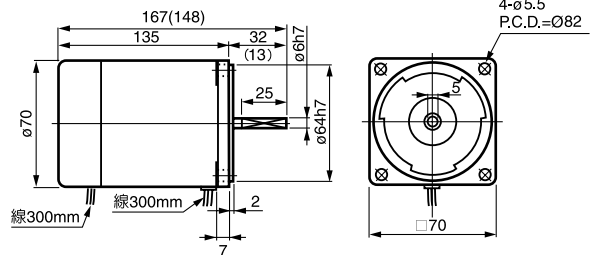


③ 2GN-10X 重量 0.3kg

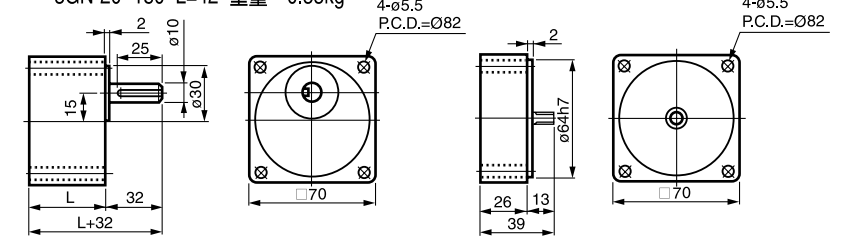


() 内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

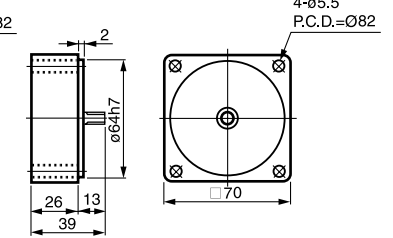
④ 3IK15A(GN)-□B 重量 1.6kg



⑤ 3GN-3~18 L=32 重量 0.45kg
3GN-20~180 L=42 重量 0.55kg

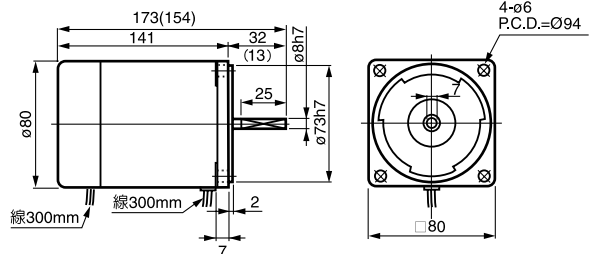


⑥ 3GN-10X 重量 0.35kg

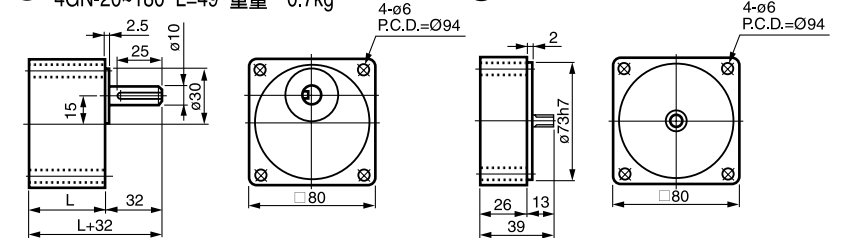


() 内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

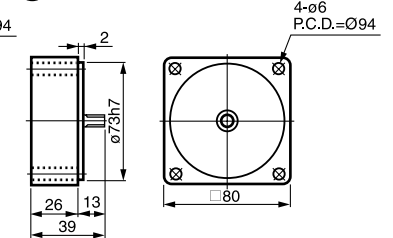
⑦ 4IK25A(GN)-□B 重量 2kg



⑧ 4GN-3~18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg

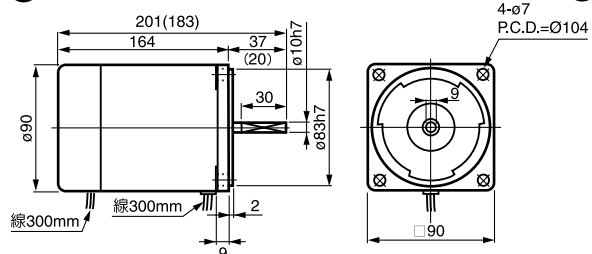


⑨ 4GN-10X 重量 0.45kg

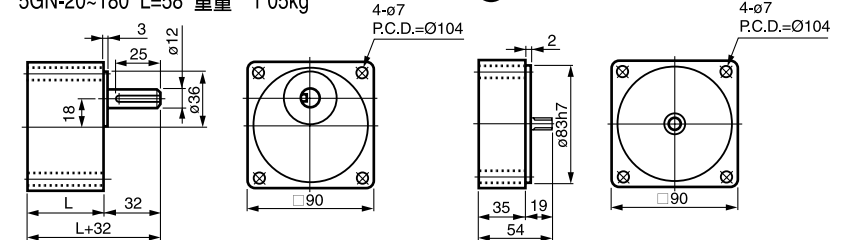


() 内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

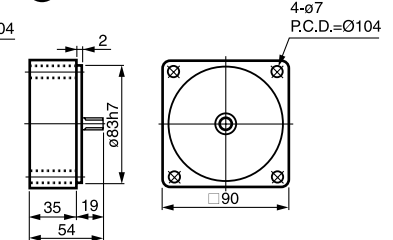
⑩ 5IK40A(GN)-□B 重量 3kg



⑪ 5GN-3~18 L=42 重量 0.7kg (40~150W 共用)
5GN-20~180 L=58 重量 1.05kg

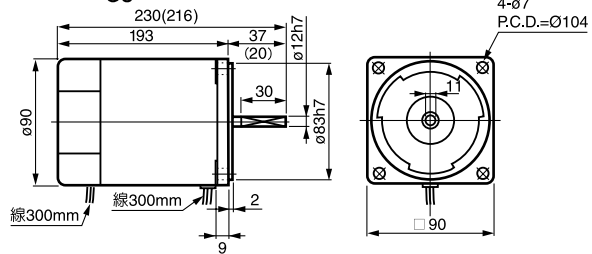


⑫ 5GN-10X 重量 0.6kg

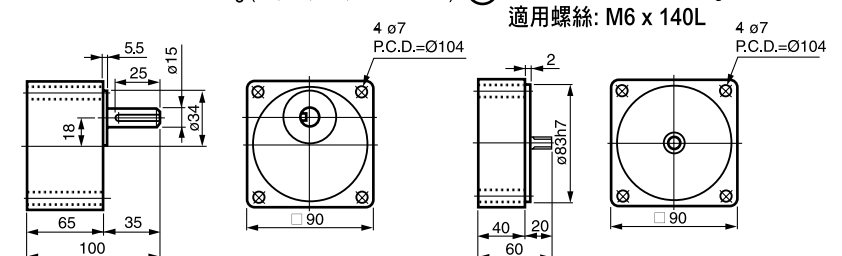


() 内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

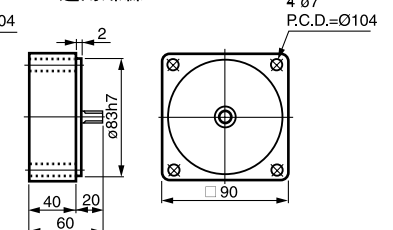
⑬ 5IK60 GN-□ 重量 3.1kg
GU



⑭ 5GU-3~180 KB 重量 1.3kg (60, 90, 120, 150W 共用)

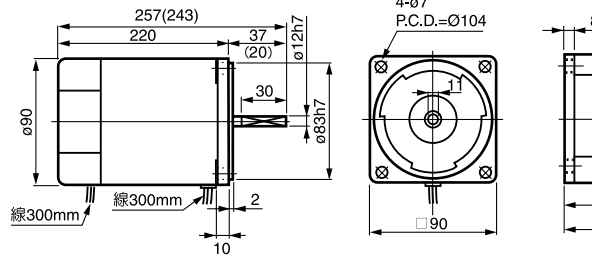


⑮ 5GU-10XK 重量 0.65kg
適用螺絲: M6 x 140L

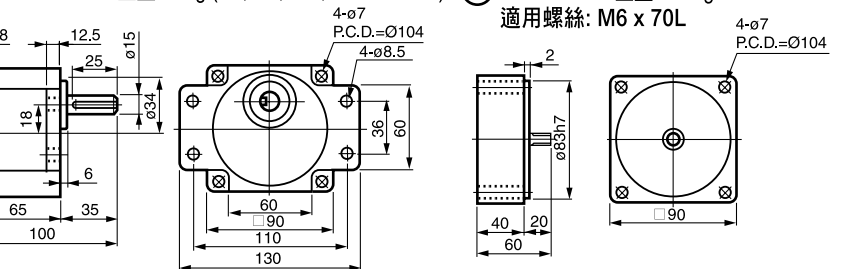


() 内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

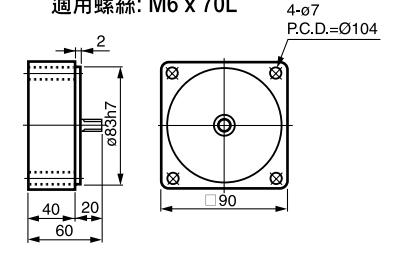
⑯ 5IK 120 GN-□ 重量 4kg
150 GU



⑰ 5GU-3~180 K 重量 1.3kg (60, 90, 120, 150W 共用)



⑱ 5GU-10XKS 重量 0.65kg
適用螺絲: M6 x 70L



() 内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

以上數值若有變動, 恕不另行通知 We reserve the right to change without further notice.



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三相附電磁剎車馬達

Electromagnetic Brake Motor (3-Phase)

三相 IK-B附電磁剎車馬達特性表 Specifications of IKB Type Motor(3-Phase)

馬達型號 Motor Model No.		出力 Output (W)	周波數 Frequency (Hz)	電壓 Voltage (V)	電流 Current (A)	起動轉矩 Start Torque (gcm)	定格 Rating		齒輪型號 Gear Model No.		
圓柱形出力軸 Cylindrical Output Shaft	小齒切出力軸 Pinion Cut Output Shaft						轉矩 Torque (gcm)	回轉數 Revolving (rpm)	培林軸承 Ball Bearing	含油軸承與培林共用型 Oil Bearing and Ball Bearing Combined	中間齒輪 Middle Gear
4IK25A - S ₂ B	4IK25GN - S ₂ B	25	50/60	200	0.18	4600	1900	1300	4GN-□ K	4GN-□	4GN-10X 4GN-10XK
4IK25A - S ₂ B	4IK25GN - S ₂ B	25	50/60	220	0.13	3600	1600	1550			
4IK25A - S ₂ B	4IK25GN - S ₂ B	25	50/60	380	0.13	4600	1900	1300			
5IK40A - S ₂ B	5IK40GN - S ₂ B	40	50/60	200	0.27	10000	3000	1300	5GN-□ K	5GN-□	5GN-10X 5GN-10XK
5IK40A - S ₂ B	5IK40GN - S ₂ B	40	50/60	220	0.18	8000	2600	1550			
5IK40A - S ₂ B	5IK40GN - S ₂ B	40	50/60	380	0.18	10000	3000	1300			
5IK60A - S ₂ B	5IK60 ^{GN} _{GU} - S ₂ B	60	50/60	200	0.47	13000	4500	1300	5GN-□ K 5GU-□ K 5GU-□ KB	5GN-□	5GN-10X 5GN-10XK 5GU-10XK
5IK60A - S ₂ B	5IK60 ^{GN} _{GU} - S ₂ B	60	50/60	220	0.33	9000	3800	1550			
5IK60A - S ₂ B	5IK60 ^{GN} _{GU} - S ₂ B	60	50/60	380	0.33	13000	4500	1300			
5IK90A - S ₂ B	5IK90 ^{GN} _{GU} - S ₂ B	90	50/60	200	0.70	18000	6800	1300	5GN-□ K 5GU-□ K 5GU-□ KB		5GN-10XK 5GU-10XK
5IK90A - S ₂ B	5IK90 ^{GN} _{GU} - S ₂ B	90	50/60	220	0.56	13000	5700	1550			
5IK90A - S ₂ B	5IK90 ^{GN} _{GU} - S ₂ B	90	50/60	380	0.56	18000	6800	1300			
5IK120A - S ₂ B	5IK120 ^{GN} _{GU} - S ₂ B	120	50/60	200	1.28	41000	8650	1350	5GN-□ K 5GU-□ K 5GU-□ KB		5GN-10XK 5GU-10XK
5IK120A - S ₂ B	5IK120 ^{GN} _{GU} - S ₂ B	120	50/60	220	0.70	32000	7100	1650			
5IK120A - S ₂ B	5IK120 ^{GN} _{GU} - S ₂ B	120	50/60	380	0.70	41000	8650	1350			
5IK150A - S ₂ B	5IK150 ^{GN} _{GU} - S ₂ B	150	50/60	200	0.60	41000	11300	1350	5GN-□ K 5GU-□ K 5GU-□ KB		5GN-10XK 5GU-10XK
5IK150A - S ₂ B	5IK150 ^{GN} _{GU} - S ₂ B	150	50/60	220	0.88	32000	9450	1650			
5IK150A - S ₂ B	5IK150 ^{GN} _{GU} - S ₂ B	150	50/60	380	0.88	41000	11300	1350			
5IK150A - S ₂ B	5IK150 ^{GN} _{GU} - S ₂ B	150	50/60	440	0.88	32000	9450	1650			

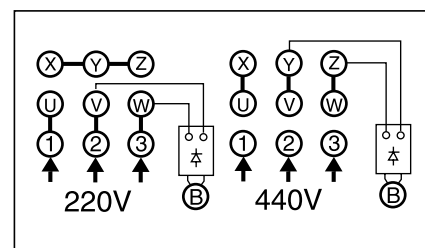
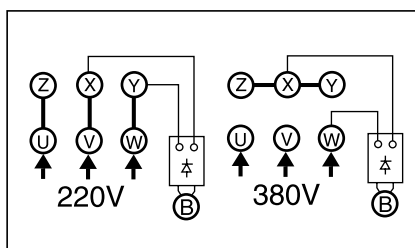
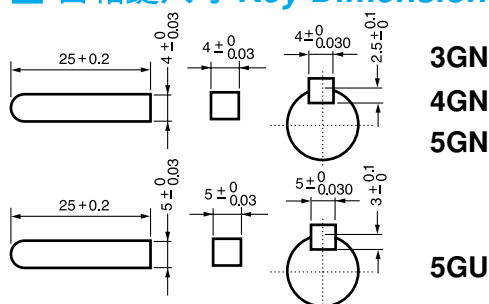
扭矩表 Gear Head-Torque Table (Kg·cm)

(Kg·cm) x 9.8 ÷ 100 = N·m

輸出回轉數 rpm	500	300	200	120	100	60	50	30	20	15	10	6	5	3	2	1.5	1
50Hz 減速比	3	5	7.5	12.5	15	25	30	50	75	100	150	250	300	500	750	1000	1500
60Hz Reduction Ratio		6	9	15	18	30	36	60	90	120	180	300	360	600	900	1200	1800
25W	4	6.7	10	16	20	32	39	65	80	80	80	80	80	80	80	80	80
40W	6.7	11	16	28	33	54	65	100	100	100	100	100	100	100	100	100	100
60W	10	16	24	40	48	77	93	155	200	200	200	200	200	200	200	200	200
90W	14	23	35	58	69	110	133	200	200	200	200	200	200	200	200	200	200
120W	19	30	47	77	92	147	177	200	200	200	200	200	200	200	200	200	200
150W	22	45	68	113	136	200	200	200	200	200	200	200	200	200	200	200	200

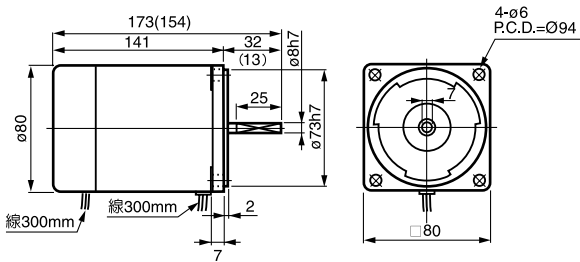
齒箱鍵尺寸 Key Dimensions

接線圖 Line Knotting Chart

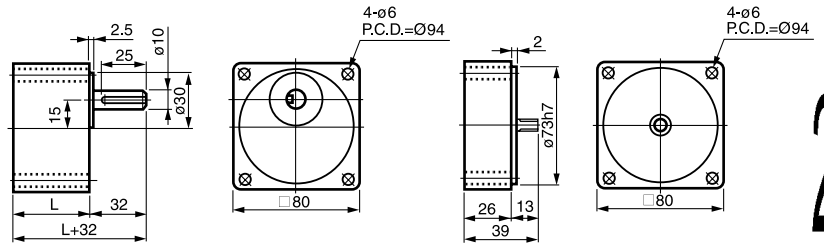


以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

① 4IK25A(GN)-□B 重量 2kg



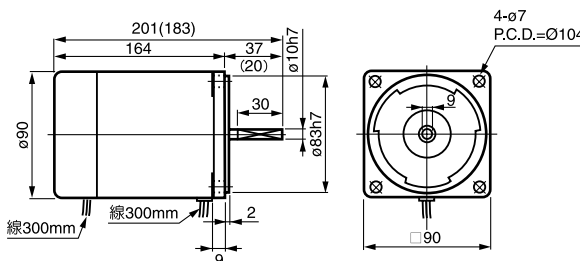
② 4GN 3 18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg



③ 4GN-10X 重量 0.45kg

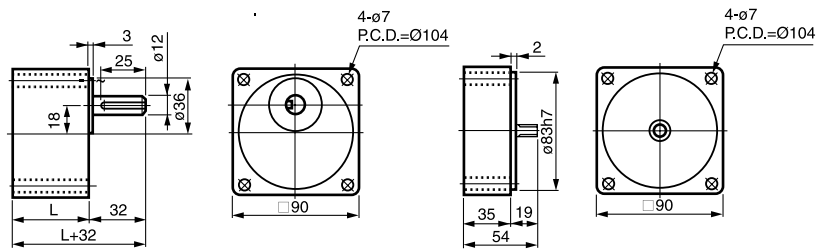
()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

④ 5IK40A(GN)-□B 重量 3kg



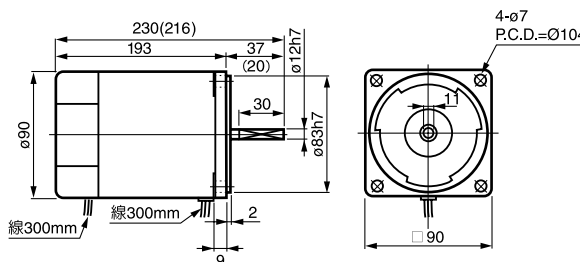
⑤ 5GN-3-18 L=42 重量 0.7kg (40~150W 共用)
5GN-20~180 L=58 重量 1.05kg

⑥ 5GN-10X 重量 0.6kg



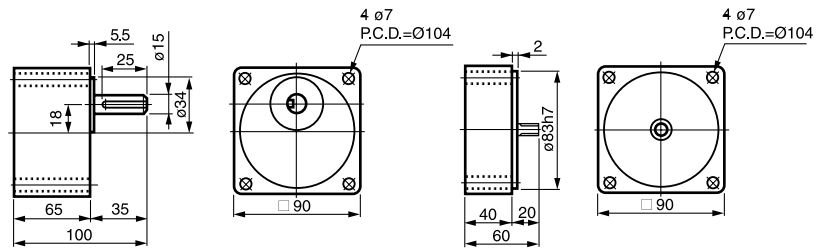
()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

⑦ 5IK 60 GN -□B / 5IK 90 GN -□B 重量 3.1kg



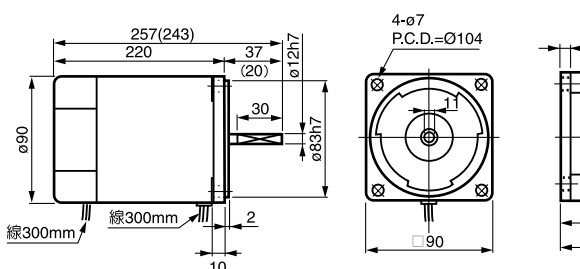
⑧ 5GU-3~180KB 重量 1.3kg (60, 90, 120, 150W 共用)

⑨ 5GU-10XK 重量 0.65kg
適用螺絲: M6 x 140L



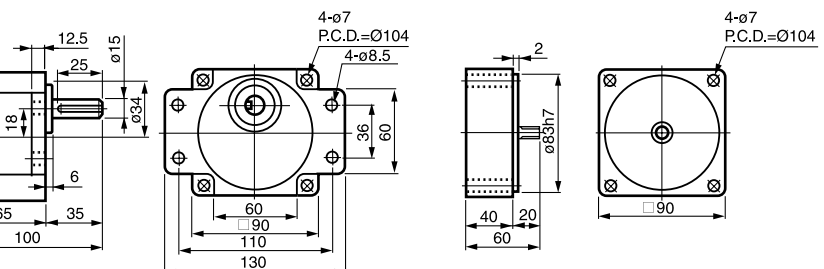
()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

⑩ 5IK 120 GN -□B / 5IK 150 GN -□B 重量 3.1kg

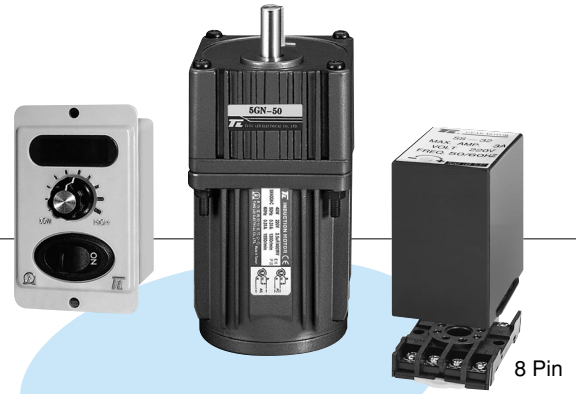


⑪ 5GU-3~180K 重量 1.3kg (60, 90, 120, 150W 共用)

⑫ 5GU-10XKS 重量 0.65kg
適用螺絲: M6 x 70L



()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.



單相交流無段變速馬達

Stepless Variable Speed Control Motor (Single Phase)

US型馬達特性表 Specifications of US Type Motor(Single-Phase)

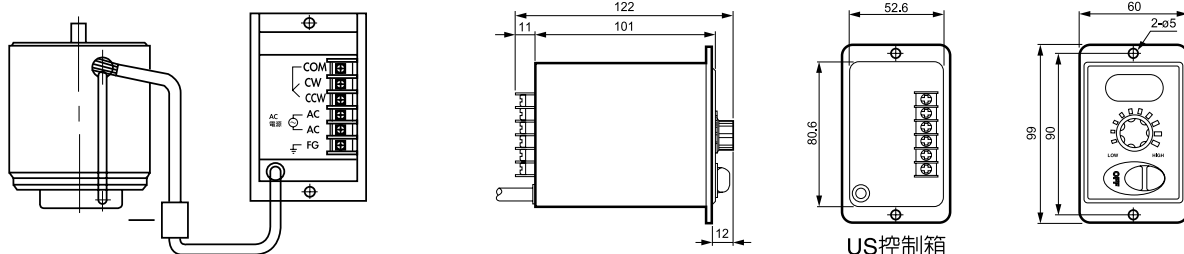
馬達型號 Motor Model No.		最大出力 Output (W)	電壓 Voltage (V)	周波數 Frequency (Hz)	極數 Pole (P)	可變速度範圍 Variable Speed Range		容許轉矩 Torque (gcm)		起動轉矩 Starting Torque (gcm)	電流 Current (A)	消耗電力 Consumed Power (W)	起動電容器 Condenser	
圓出力軸 Cylindrical Output Shaft	斜齒出力軸 Pinion Cut Output Shaft					回轉數 Revolving (rpm)	比 (Ratio)	設定回轉數 Set Revolving No.					容量 Capacity (μF)	耐電壓 Resistance Voltage (WV)
		1200rpm	90rpm											
M206-001	M206-401	6	100 110	50 60	4	90~1400 90~1700	1:15	460	250	330	0.21	23	2.5	250
M206-002	M206-402	6	200 220	50 60	4	90~1400 90~1700	1:15	460	250	330	0.10	23	0.8	400
M315-001	M315-401	15	100 110	50 60	4	90~1400 90~1700	1:15	880 660	300	550	0.33	40	4	250
M315-002	M315-402	15	200 220	50 60	4	90~1400 90~1700	1:15	880 660	300	550	0.16	40	1	400
M425-001	M425-401	25	100 110	50 60	4	90~1400 90~1700	1:15	1760 1400	450	1200	0.60	60	6	250
M425-002	M425-402	25	200 220	50 60	4	90~1400 90~1700	1:15	1760 1400	450	1200	0.25	60	1.5	400
M540-001	M540-401	40	100 110	50 60	4	90~1400 90~1700	1:15	2800 1800	550	1900	0.68	90	10	250
M540-002	M540-402	40	200 220	50 60	4	90~1400 90~1700	1:15	2800 1800	550	1900	0.31	90	2.5	400
M560-001	M560-401 M560-501	60	100 110	50 60	4	90~1400 90~1700	1:15	5000 3500	700	3000	1.68	150	14	250
M560-002	M560-402 M560-502	60	200 220	50 60	4	90~1400 90~1700	1:15	5000 3500	700	3000	0.55	150	3.5	400
M590-001	M590-401 M590-501	90	100 110	50 60	4	90~1400 90~1700	1:15	6600 5300	1100	4500	1.46	200	20	250
M590-002	M590-402 M590-502	90	200 220	50 60	4	90~1400 90~1700	1:15	6600 5300	1100	4500	0.63	200	5	400
M5120-001	M5120-401 M5120-501	120	100 110	50 60	4	90~1400 90~1700	1:15	8500 7000	1400	6500	2.10	230	25	250
M5120-002	M5120-402 M5120-502	120	200 220	50 60	4	90~1400 90~1700	1:15	8500 7000	1400	6500	0.93	230	6	400

扭矩表 Gear Head-Torque Table (Kg·cm)

$$(Kg \cdot cm) \times 9.8 \div 100 = N \cdot m$$

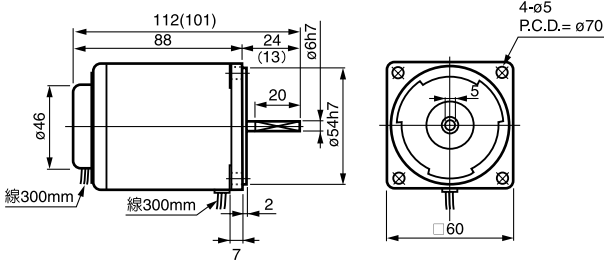
變化轉速範圍 (轉分) Variable Speed Range (rpm)	M206-001, -201-401 M206-002, -202-402		M315-001, -201-401 M315-002, -202-402		M425-001, -201-401 M425-002, -202-402		M540-001, -201-401 M540-002, -202-402		M560-001, -401-501 M560-002, -402-502		M590-001, -401-501 M590-002, -402-502	
	扭矩 Torque	減速比 Gear Ratio	扭矩 Torque	減速比 Gear Ratio	扭矩 Torque	減速比 Gear Ratio	扭矩 Torque	減速比 Gear Ratio	扭矩 Torque	減速比 Gear Ratio	扭矩 Torque	減速比 Gear Ratio
90~1700	0.3~0.5	—	0.45~1.2	—	0.6~1.8	—	0.8~2.5	—	1.0~3	—	1.6~5	—
15~283	1.5~2.4	2GN-6	2.4~7	3GN-6	2.9~8.8	4GN-6	3.9~12	5GN-6	4.6~15	5GU-6K	8~24	5GU-6K
5~94.4	4.4~7.3	2GN-18	6.5~18	3GN-18	8.8~26	4GN-18	12~37	5GN-18	16~50	5GU-18K	45~75	5GU-18K
1.5~28.3	12~20	2GN-60	16~	3GN-60	24~71	4GN-60	32~100	5GN-60	45~120	5GU-60K	64~150	5GU-60K
1~18.8	18~25	2GN-90	25~70	3GN-90	36~80	4GN-90	48~100	5GN-90	60~125	5GU-90K	95~180	5GU-90K
0.5~9.4	25	2GN-180	70	3GN-180	80	4GN-180	90~100	5GN-180	100~125	5GU-180K	150~180	5GU-180K

US控制箱尺寸與配線圖 US Panel-Mount Control Unit Dimension and Knotting Chart

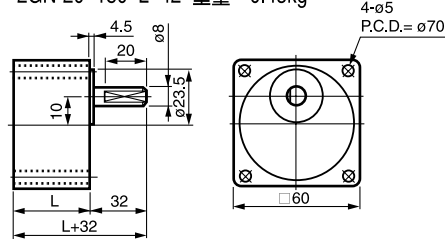


以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

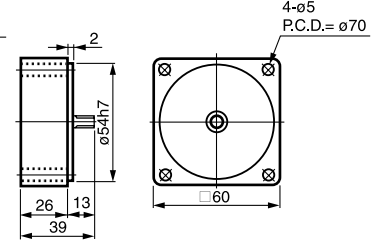
① M206-□ 重量 0.9kg



② 2GN-3~18 L=32 重量 0.35kg
2GN-20~180 L=42 重量 0.45kg

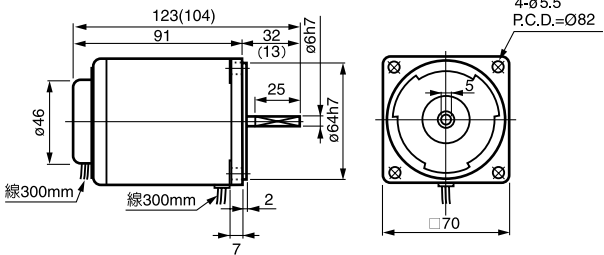


③ 2GN-10X 重量 0.3kg

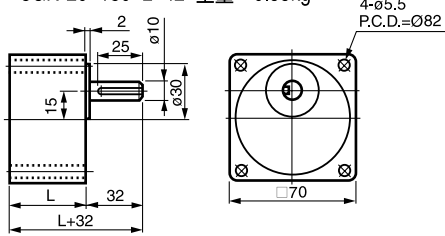


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

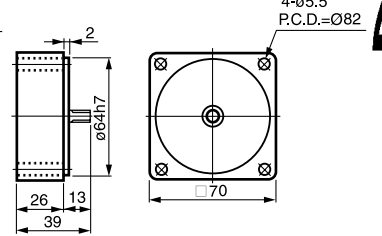
④ M315-□ 重量 1.3kg



⑤ 3GN-3~18 L=32 重量 0.45kg
3GN-20~180 L=42 重量 0.55kg

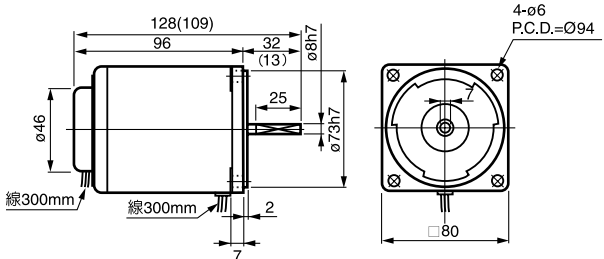


⑥ 3GN-10X 重量 0.35kg

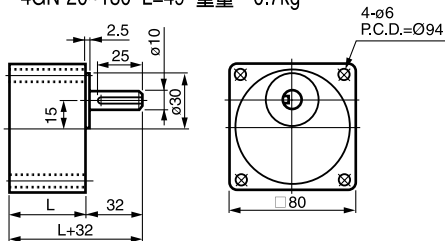


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

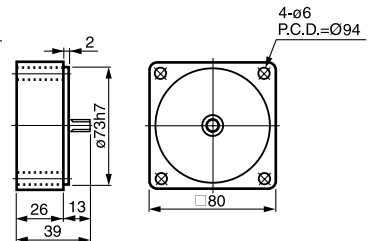
⑦ M425-□ 重量 1.8kg



⑧ 4GN-3~18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg

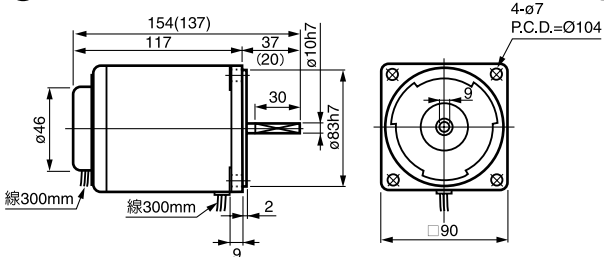


⑨ 4GN-10X 重量 0.45kg

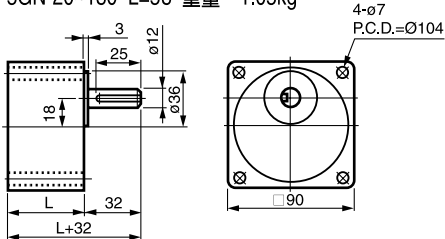


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

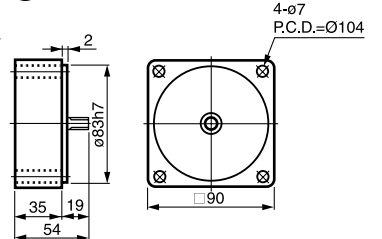
⑩ M540-□ 重量 2.6kg



⑪ 5GN-3~18 L=42 重量 0.7kg (40~120W 共用)
5GN-20~180 L=58 重量 1.05kg

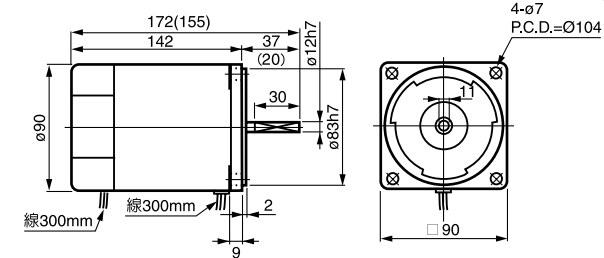


⑫ 5GN-10X 重量 0.6kg

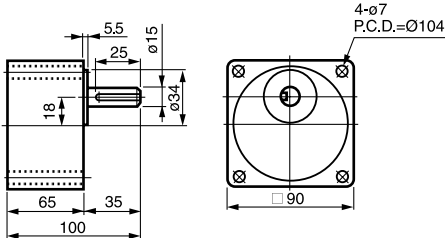


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

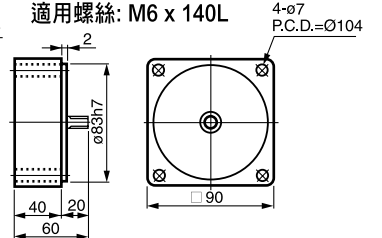
⑬ M560-□ 重量 2.7kg



⑭ 5GU-3~180 KB 重量 1.3kg (60, 90, 120W 共用)

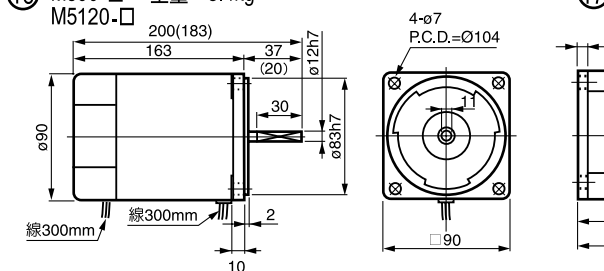


⑮ 5GU-10XK 重量 0.65kg
適用螺絲: M6 x 140L

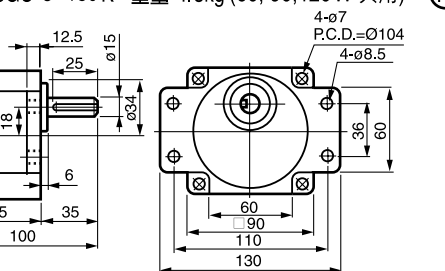


()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

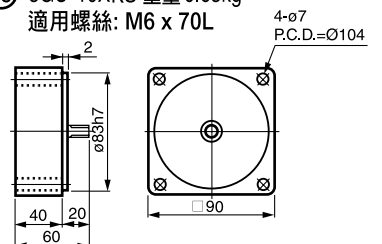
⑯ M590-□ 重量 3.4kg
M5120-□



⑰ 5GU-3~180 K 重量 1.3kg (60, 90, 120W 共用)

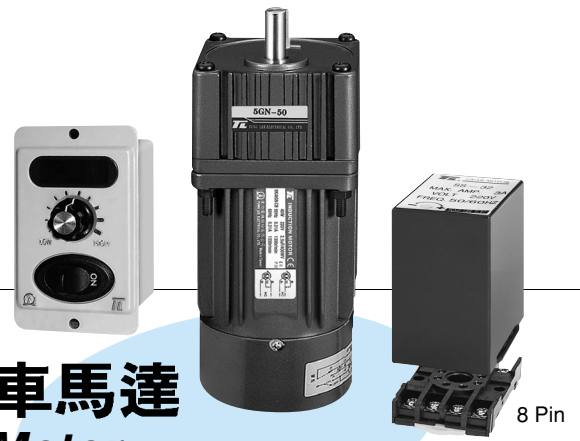


⑱ 5GU-10XKS 重量 0.65kg
適用螺絲: M6 x 70L



()内數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.





單相交流無段變速附電磁剎車馬達

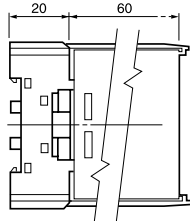
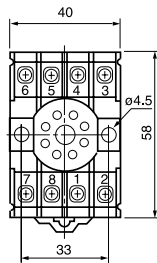
Stepless Variable Speed Control Motor with Electromagnetic Brake (Single-Phase)

US-B型剎車馬達特性表 Specifications of USB Type Motor (Single-Phase)

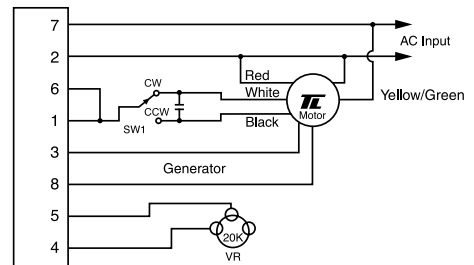
馬達型號 Motor Model No.		最大出力 Output (W)	電壓 Voltage (V)	周波數 Frequency (Hz)	極數 Pole (P)	可變速度範圍 Variable Speed Range		容許轉矩 Torque (gcm)		起動轉矩 Starting Torque (gcm)	電流 Current (A)	消耗電力 Consumed Power (W)	起動電容器 Condenser	
圓出力軸 Cylindrical Output Shaft	斜齒出力軸 Pinion Cut Output Shaft					回轉數 Revolving (rpm)	比 (Ratio)	設定回轉數 Set Revolving No.					容量 Capacity (μF)	耐電壓 Resistance Voltage (VV)
						1200rpm	90rpm							
M206-001B	M206-401B	6	100 110	50 60	4	90~1400 90~1700	1:15	460	250	330	0.21	23	2.5	250
M206-002B	M206-402B	6	200 220	50 60	4	90~1400 90~1700	1:15	460	250	330	0.10	23	0.8	400
M315-001B	M315-401B	15	100 110	50 60	4	90~1400 90~1700	1:15	880 660	300	550	0.33	40	4	250
M315-002B	M315-402B	15	200 220	50 60	4	90~1400 90~1700	1:15	880 660	300	550	0.16	40	1	400
M425-001B	M425-401B	25	100 110	50 60	4	90~1400 90~1700	1:15	1760 1400	450	1200	0.60	60	6	250
M425-002B	M425-402B	25	200 220	50 60	4	90~1400 90~1700	1:15	1760 1400	450	1200	0.25	60	1.5	400
M540-001B	M540-401B	40	100 110	50 60	4	90~1400 90~1700	1:15	2800 1800	550	1900	0.68	90	10	250
M540-002B	M540-402B	40	200 220	50 60	4	90~1400 90~1700	1:15	2800 1800	550	1900	0.31	90	2.5	400
M560-001B	M560-401B M560-501B	60	100 110	50 60	4	90~1400 90~1700	1:15	5000 3500	700	3000	1.68	150	14	250
M560-002B	M560-402B M560-502B	60	200 220	50 60	4	90~1400 90~1700	1:15	5000 3500	700	3000	0.55	150	3.5	400
M590-001B	M590-401B M590-501B	90	100 110	50 60	4	90~1400 90~1700	1:15	6600 5300	1100	4500	1.46	200	20	250
M590-002B	M590-402B M590-502B	90	200 220	50 60	4	90~1400 90~1700	1:15	6600 5300	1100	4500	0.63	200	5	400
M5120-001	M5120-401B M5120-501B	120	100 110	50 60	4	90~1400 90~1700	1:15	8500 7000	1400	6500	2.10	230	25	250
M5120-002	M5120-402B M5120-502B	120	200 220	50 60	4	90~1400 90~1700	1:15	8500 7000	1400	6500	0.93	230	6	400

SS31/32 分離控制箱尺寸與配線圖

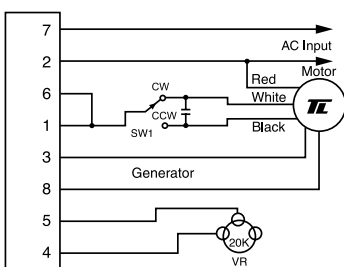
SS31/32 Speed Control Unit Dimension and Knotting Chart



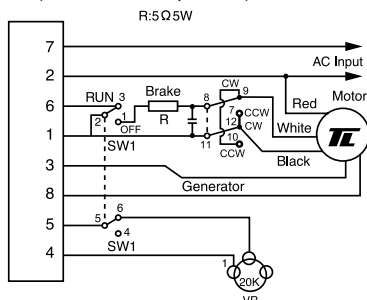
SS31/SS32 (B) 速度控制正逆轉加電磁剎車接線圖 SS speed control with electromagnetic brake (Bi Directional Operation)



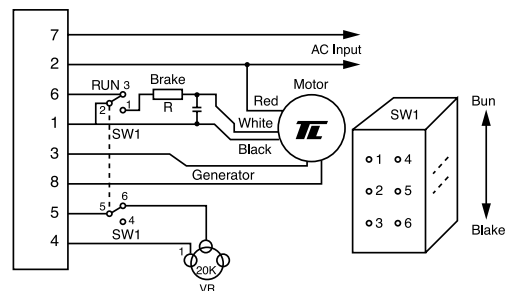
SS31/SS32 速度控制正逆轉接線圖 SS speed control (Bi Directional Operation)



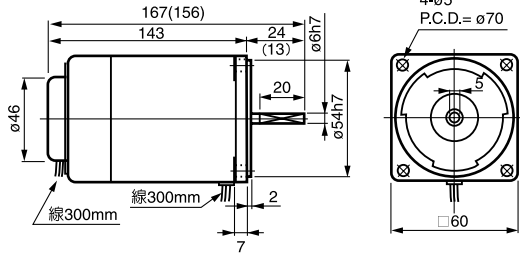
SS31/SS32 (R) 速度控制正逆轉加電子剎車接線圖 SS speed control with electronic brake (Bi Directional Operation)



SS31/SS32 (R) 速度控制加電子剎車接線圖 SS speed control with electronic brake R:5Ω5W

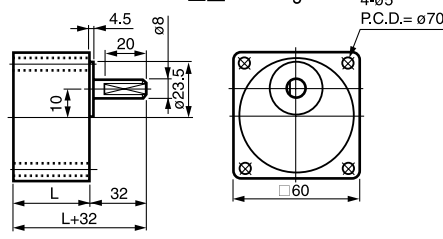


① M206-□B 重量 1.2kg

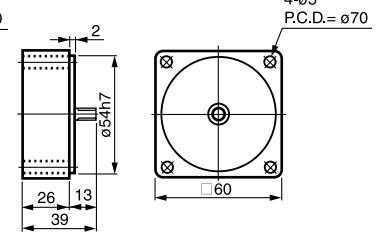


() 內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

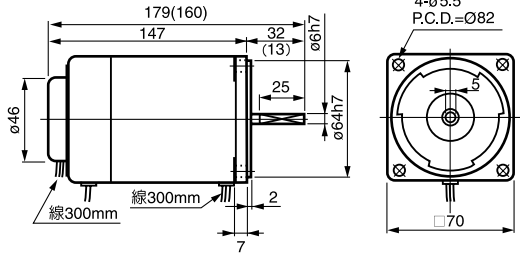
② 2GN-3~18 L=32 重量 0.35kg
2GN-20~180 L=42 重量 0.45kg



③ 2GN-10X 重量 0.3kg

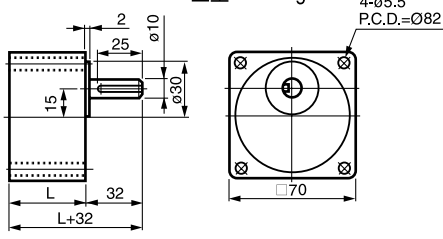


④ M315-□B 重量 1.1kg

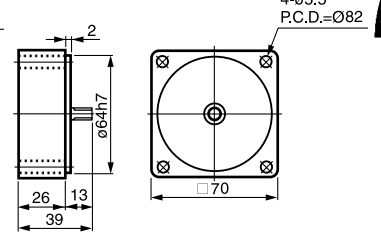


() 內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

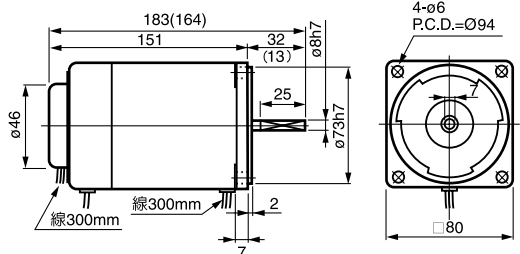
⑤ 3GN-3~18 L=32 重量 0.45kg
3GN-20~180 L=42 重量 0.55kg



⑥ 3GN-10X 重量 0.35kg

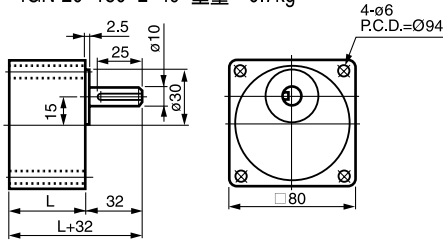


⑦ M425-□B 重量 1.6kg

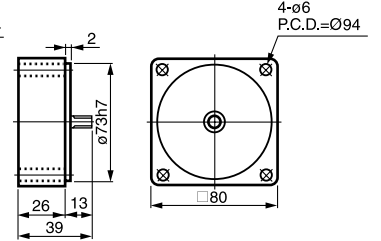


() 內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

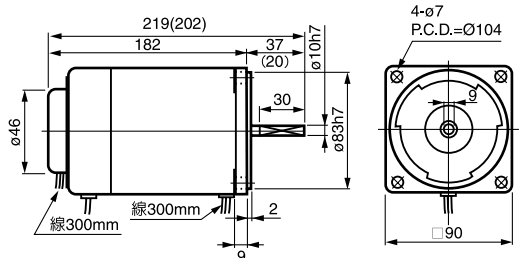
⑧ 4GN-3~18 L=35.5 重量 0.5kg
4GN-20~180 L=49 重量 0.7kg



⑨ 4GN-10X 重量 0.45kg

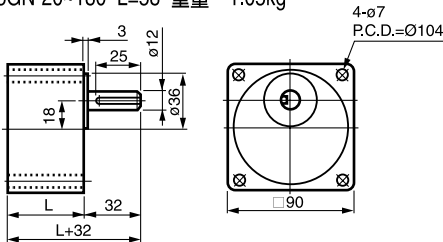


⑩ M540-□B 重量 3kg

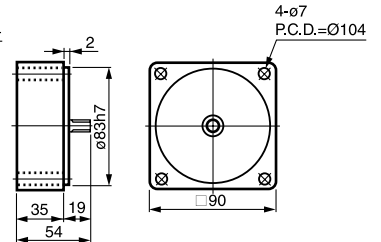


() 內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

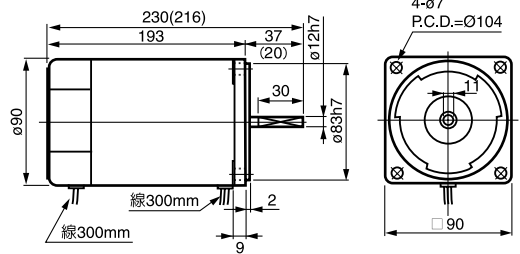
⑪ 5GN-3~18 L=42 重量 0.7kg (40~120W 共用)
5GN-20~180 L=58 重量 1.05kg



⑫ 5GN-10X 重量 0.6kg

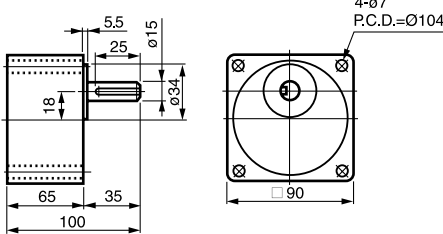


⑬ M560-□B 重量 3.1kg

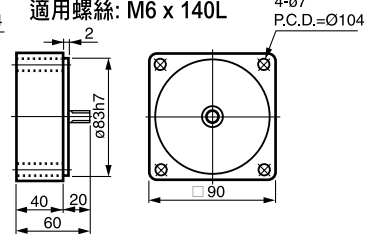


() 內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

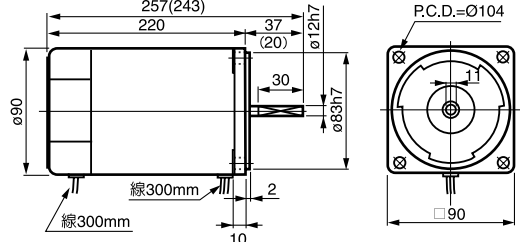
⑭ 5GU-3~180KB 重量 1.3kg (60, 90, 120W 共用)



⑮ 5GU-10XK 重量 0.65kg

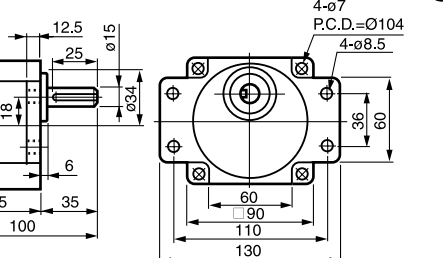


⑯ M590-□B 重量 4kg
M5120-□B

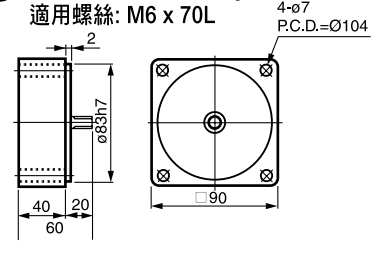


() 內數字係小齒輪軸馬達的數值 () Numbers shown the dimension of the pinion shaft.

⑰ 5GU-3~180K 重量 1.3kg (60, 90, 120W 共用)



⑱ 5GU-10XKS 重量 0.65kg



以上數值若有變動, 恕不另行通知 We reserve the right to change without further notice.



GNT · GUT 直線型減變速馬達

Linear Type Gear Head with Motor

4 L 45 - 3

衝程速度 Stroke Speed 45mm/sec.

L: 水平推力 Horizontal Thrust

F: 垂直推力 Vertical Thrust

推桿斷面 Ram Section

2: 60mm(2GN)

4: 80mm(4GN)

5: 90mm(5GN)

6: 90mm(5GU)

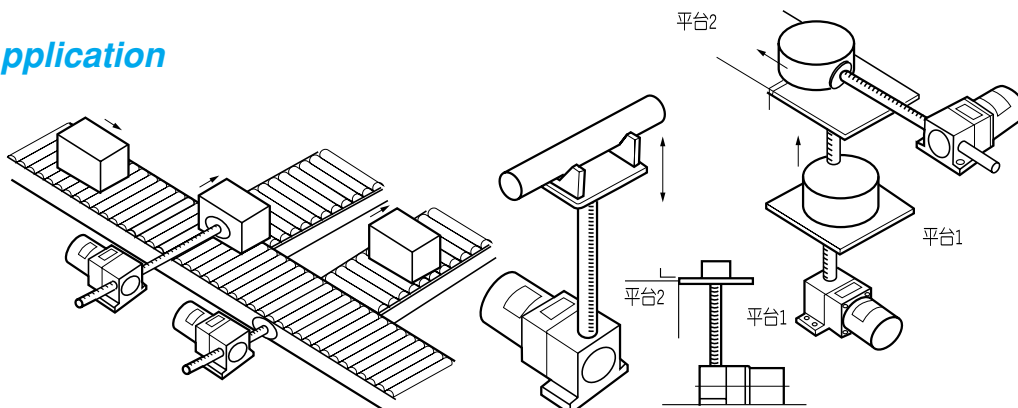
桿長代碼	適用型號
1: 100mm	2,4,5,6
2: 200mm	
3: 300mm	
4: 400mm	
5: 500mm	4,5,6
6: 600mm	
7: 700mm	
8: 800mm	

直線型齒輪箱特性表 Specifications of GNT (GUT) Type Gear Head with Motor

型號 Model No.	排桿座重量 Weight (kg)	排桿座寬度 (mm)	配合馬達機種 Applicable Motor	最大推力 Max. Thrust (kg)	基本速度 Speed (mm/sec)	直吊荷重 Permissible O.H.L. (kg)	衝程 Stroke (mm)	排桿重量 Weight (kg)	衝程 Stroke (mm)	排桿重量 Weight (kg)
2 $\frac{L}{F}$ - □ - □	0.35	64	2IK6GN-□ 2IK6GN-□ B M206-□	20	10	3	100	0.19	400	0.53
					20		200	0.30	500	0.64
					30		300	0.41	600	0.75
					40					
4 $\frac{L}{F}$ - □ - □	0.65	86	4IK25GN-□ 4IK25GN-□ B M425-□	70	10	5	100	0.37	500	1.34
					20		200	0.65	600	1.59
					30		300	0.88	700	1.83
					40		400	1.12	800	2.04
5 $\frac{L}{F}$ - □ - □	0.87	96	5IK40GN-□ 5IK40GN-□ B M540-□	100	10	8	100	0.73	500	2.15
					20		200	1.07	600	2.52
					30		300	1.43	700	2.87
					40		400	1.79	800	3.24
6 $\frac{L}{F}$ - □ - □	0.87	96	5IK60GU-□ 5IK60GU-□ B M560-□ 5IK90GU-□ 5IK90GU-□ B M590-□	140	10	8	100	0.73	500	2.15
					20		200	1.07	600	2.52
					30		300	1.43	700	2.87
					40		400	1.79	800	3.24

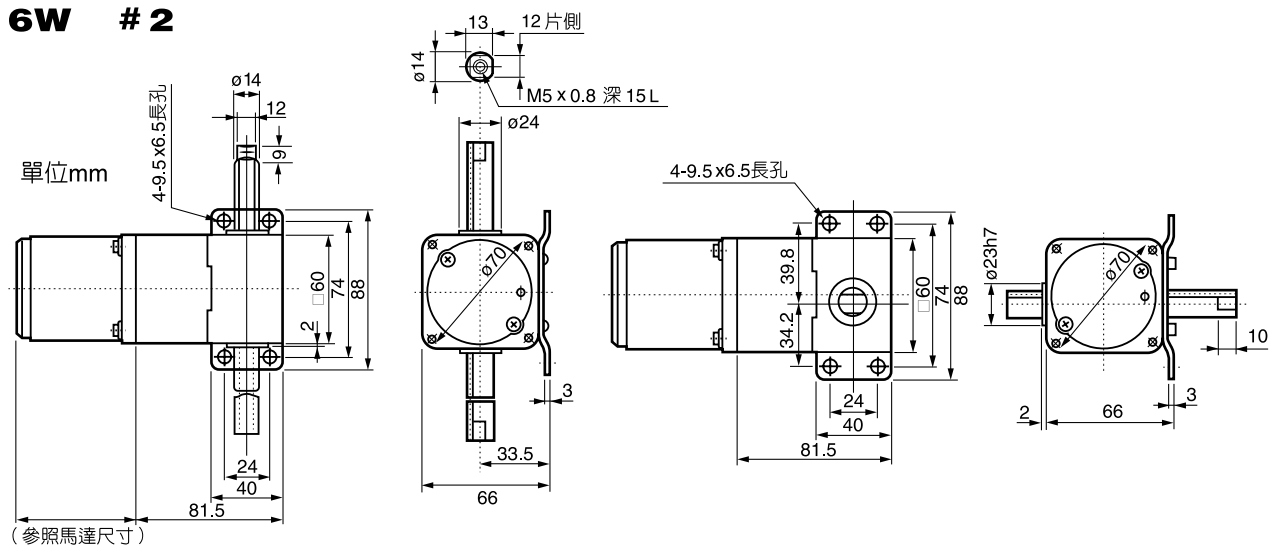
※ 最大推力以10mm/sec.及水平出力為基準；速度加快，推力降低。

用途例 Application

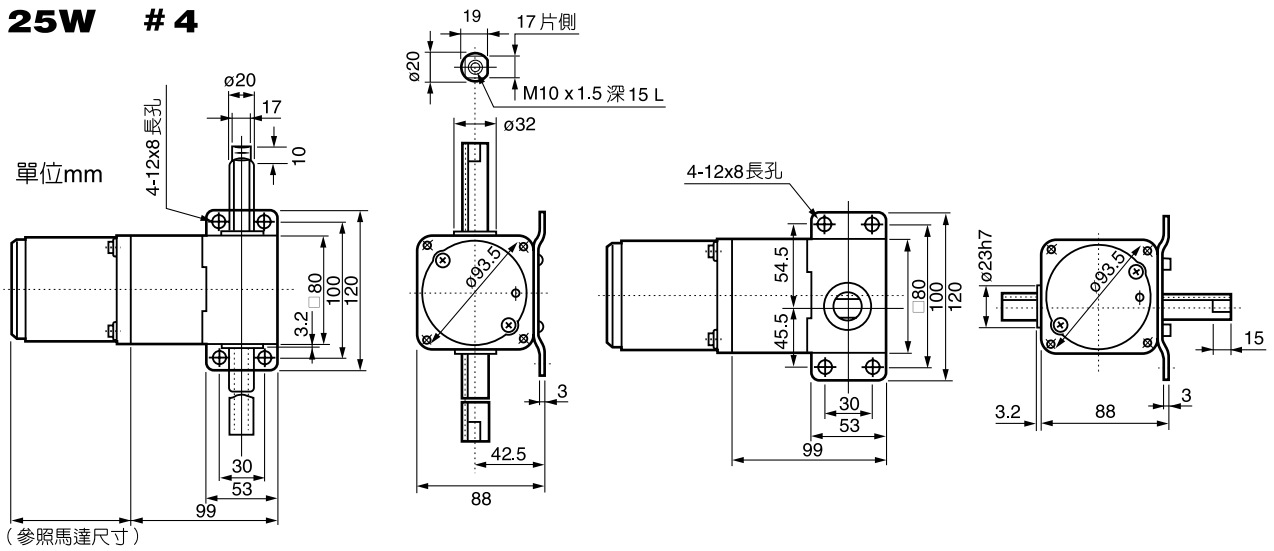


以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

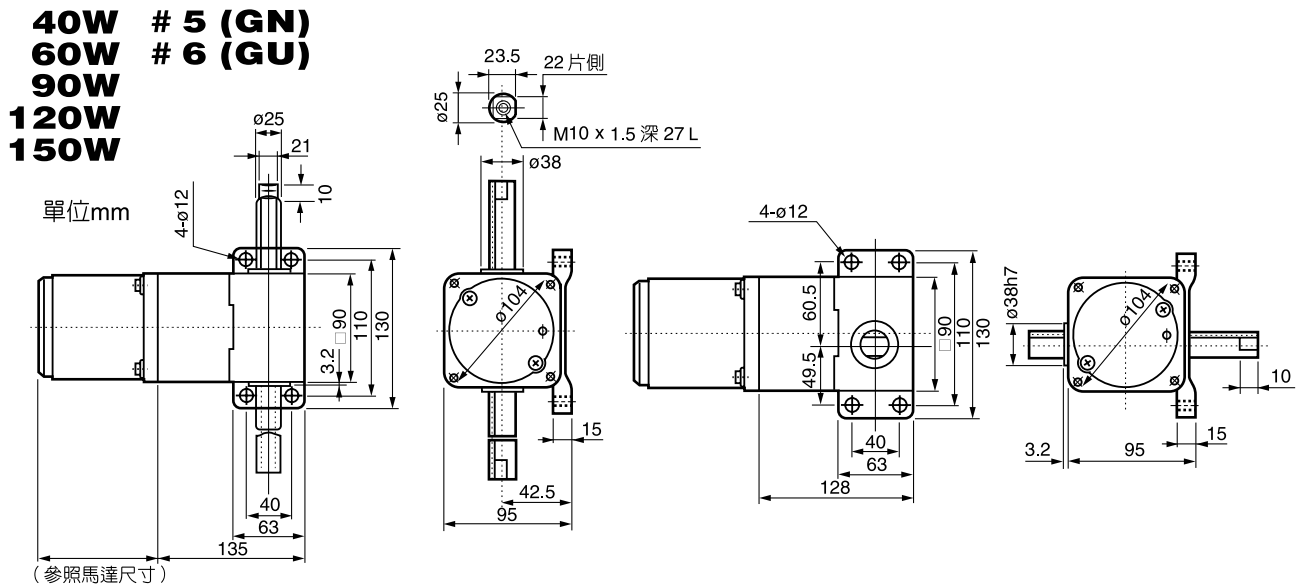
6W # 2



25W # 4



40W # 5 (GN)
60W # 6 (GU)
90W
120W
150W



以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.





GEAR REDUCER
GEAR MOTOR



DM 型永磁性直流減速馬達

DM Type Permanent Magnet DC Motor

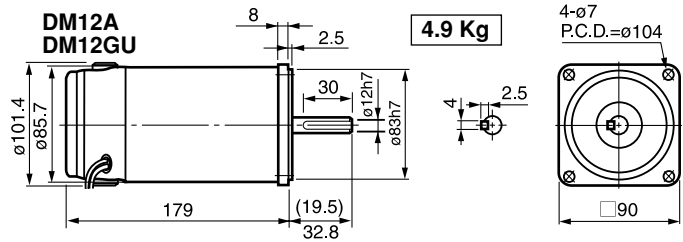
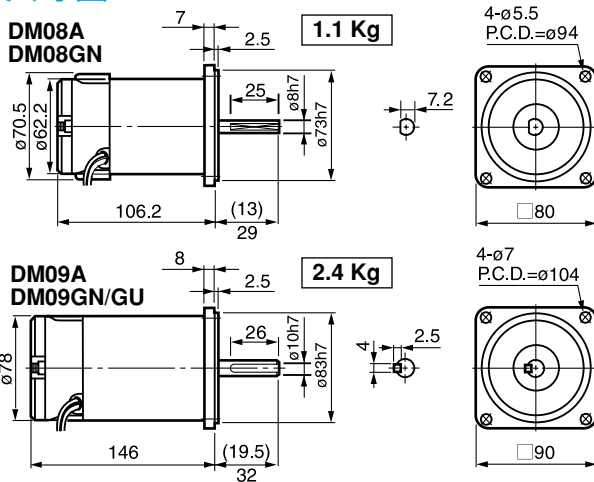
DMS

DM調速控制器
Input AC 100~240 V
Output DC 90 V

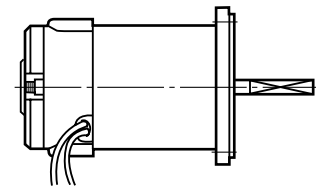
DM 08 GN - 90 - □

- 轉速 1800, 3000 RPM
- 電壓 Voltage 12V, 24V, 90V
- 齒輪 Pinion Shaft: A 圓軸 Cylindrical
GN/GU 斜齒軸 Pinion cut
- 馬力代號 HP: 08(30W), 09(60W), 12(120W)
- 永磁式直流馬達 Permanent Magnet DC Motor (Brushed)

尺寸圖 Dimensions Chart



接線圖 Line Knotting Chart



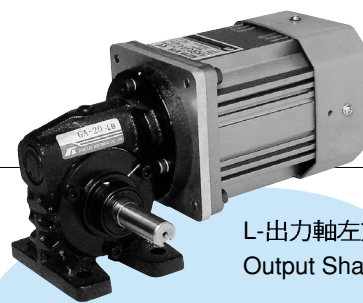
Red 紅 黑Black (正反轉紅黑對調)
Normal/Reversible change by the red wire & black

()內數字係齒輪馬達尺寸 () Numbers shown the dimension of the gear motor

馬達特性 Specifications of DM Type Motor

馬達型號 Motor Model No.		出力 Output Force (W)	電壓 Voltage (V)	電流 Current (A)	回轉數 Revolution (rpm)	扭力 Torque (Kg·cm)	配合齒箱規格 Arrange Model of Gear Box	
圓軸 Cylindrical Output Shaft	斜齒軸 Pinion Cut Output Shaft							
DM08-A	DM08-GN□	30	12/24	5.6/2.8	3000	1.2	4GN-□	4GN-□K
DM09-A	DM09-GU/GN	60	12/24	9/4.5	3000	2.8	5GU-□K 5GU-□KB	5GN-□K
DM12-A	DM12-GU□	120	12/24	14/7	3000	4.3	5GU-□K 5GU-□KB	PL型 PF型
DM08-A	DM08-GN□	30	12/24	3.8/1.8	1800	1.8	4GN-□	4GN-□K
DM09-A	DM09-GU/GN	60	12/24	7.5/3.8	1800	3.5	5GU-□K 5GU-□KB	5GN-□K
DM12-A	DM12-GU□	120	12/24	11/5.8	1800	6.5	5GU-□K 5GU-□KB	PL型 PF型
DM08-A	DM08-GN□	30	90	0.4	1800	1.8	4GN-□	4GN-□K
DM09-A	DM09-GU/GN	60	90	0.8	1800	3.5	5GU-□K 5GU-□KB	5GN-□K
DM12-A	DM12-GU□	120	90	1.4	1800	6.5	5GU-□K 5GU-□KB	PL型 PF型

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

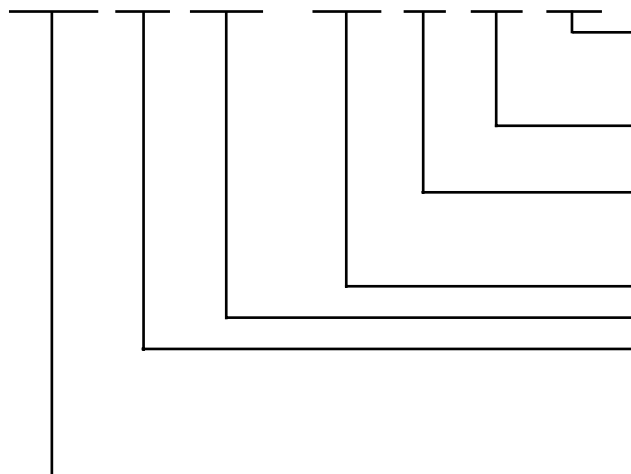


L-出力軸左方圖
Output Shaft in the Left

GA型渦輪減速馬達

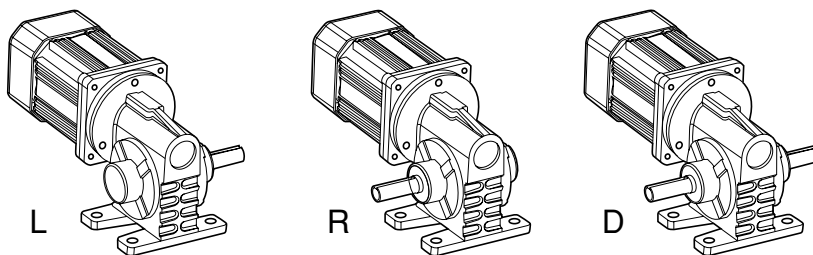
Worm Gear Reducer with Motor

GA U 40 - 60 A B □

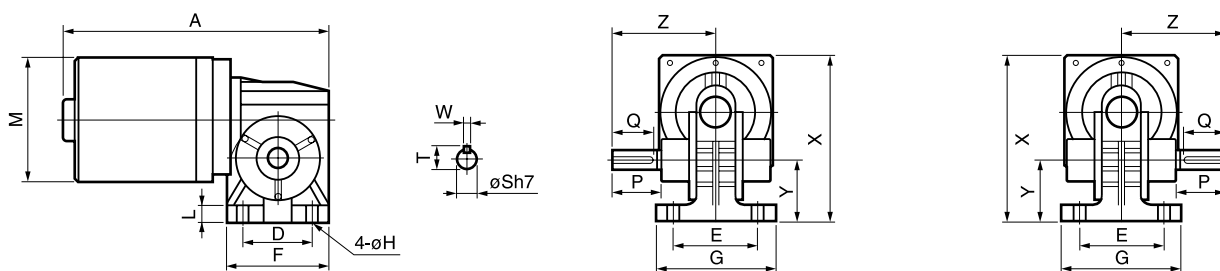


- L-左出力軸 Output Shaft in the Left
- R-右出力軸 Output Shaft in the Right
- D-雙出力軸 Dual Output Shaft
- B-附電磁剎車 With Electromagnetic Brake
- T-附端子箱 With Terminal Box
- A-單相 Single Phase 100V~110V
- C-單相 Single Phase 200V~220V
- S₂: 三相 220V, S₃: 三相220/380V, S₄: 三相 220/440V
- 減速比 Gear Ratio 5, 10, 15, 20, 30, 40, 50, 60
- 馬力 HP 40W, 60W, 90W, 100W, 120W, 150W, 200W
- U : 無段變速馬達 Variable Speed Control Motor
- I : 連續運轉馬達 Induction Motor
- R : 定格30分馬達 Reversible Motor
- D : 直流馬達 DC Motor
- 渦輪代號 Worm Gear Type

出力軸 Output Shaft



尺寸圖 Dimension Chart



R-出力軸右方圖
Output Shaft in the Right

L-出力軸左方圖
Output Shaft in the Left

GA尺寸表 Dimensions

型號 Model No.	減速比 Gear Ratio	入力孔	A	D	E	F	G	H	L	M	X	Y	Z		出力軸端 Output Shaft						渦座重量 (Kg)
													L	R	P		Q	S	T	W	
															L	R					
GAI-40-□-□	1/5-1/60	ø10	198 (248)	50	60	75	87	9	10	90	118	43.5	78	77	41	40	30	14	16.5	5	配小渦座 1.8
GAI-60-□-□	1/5-1/60		230 (288)	50	60	75	87	9	10	90	118	43.5	78	77	41	40	30	14	16.5	5	
GAI-90-□-□	1/51/60	ø12	270 (330)	65	90	92.8	112	10	10	90	146	56.5	96	94	53	51	40	16	18.5	5	配大渦座 3.5
GAI-100-□-□	1/5-1/60		255 (300)	65	90	92.8	112	10	10	126	161	56.5	96	94	53	51	40	16	18.5	5	
GAI-200-□-□	1/5-1/60		285 (330)	65	90	92.8	112	10	10	126	161	56.5	96	94	53	51	40	16	18.5	5	

()為附剎車尺寸

() Numbers shown the dimension of the brake

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.



33

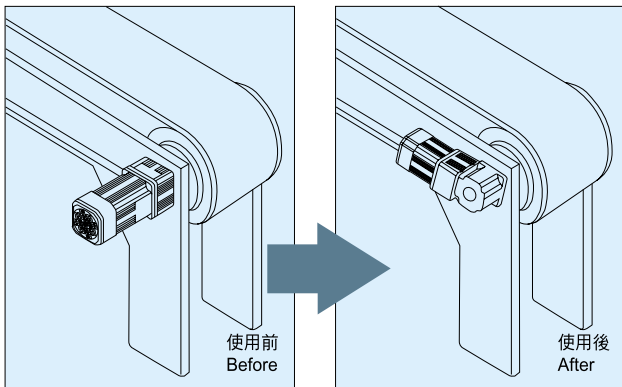
直交軸系列 齒輪減速機

Right-Angle Gear Reducer

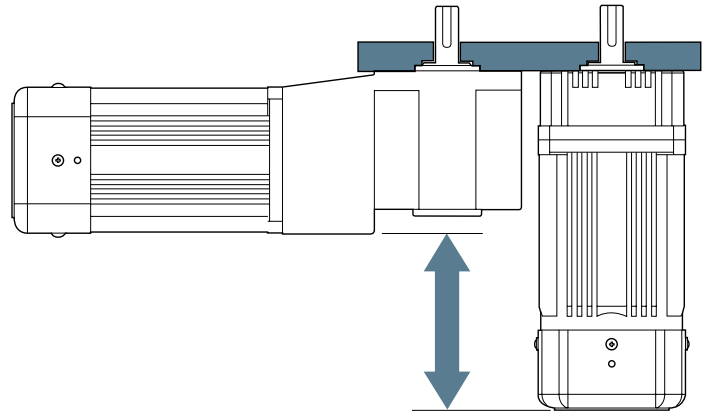
5 GN - 150 RH



應用範例 Examples



使用差異 Difference in usage



轉矩表 Torque Table (Kg·cm)

(Kg · cm) x 9.8/100=N·m

減速比	10	15	20	25	30	40	45	50	60	75	90	100	120	150	180	200	250	300	350	400	500	600
25W	9.3	14	19	23	28	37	42	47	58	72	87	96	120	120	120	120	120	120	120	120	120	120
40W	13.4	20	27	34	40	54	61	67	83	104	125	140	140	140	140	140	140	140	140	140	140	140
60W	19.6	29	39	49	59	79	88	98	122	152	183	203	244	260	260	260	260	260	260	260	260	260
90W	29.5	44	59	74	88	118	133	147	183	229	260	260	260	260	260	260	260	260	260	260	260	260
120W	36.7	55	73	92	110	147	165	184	228	260	260	260	260	260	260	260	260	260	260	260	260	260
150W	48.9	73	98	122	147	196	220	245	260	260	260	260	260	260	260	260	260	260	260	260	260	260
效率	51.75%					53.50%					61.38%											

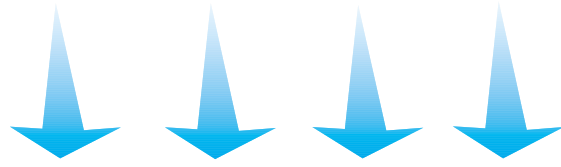
以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.



鋁合金中空型渦輪減速機

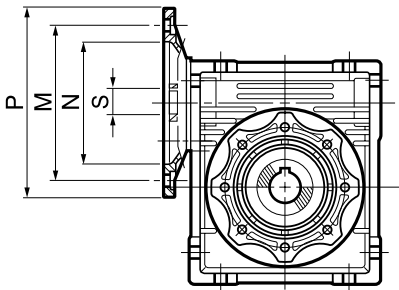
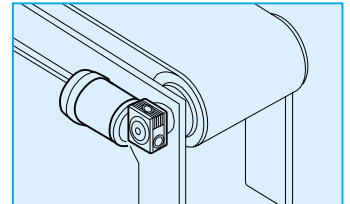
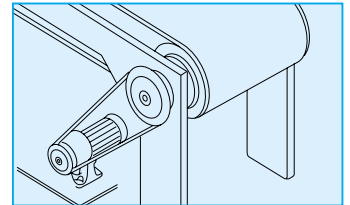
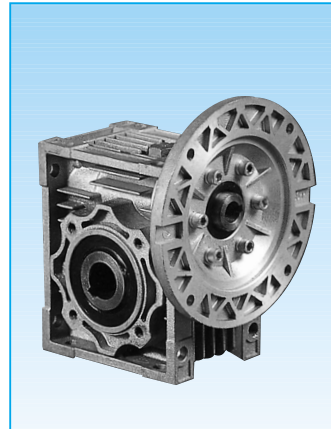
機種代號說明：

NRM - 030 - 010 - 0.4



NR: 單入力軸型 Input Shaft NRM: 法蘭型 Flange	型號 (Model)	減速比 (Ratio)	馬力 (KW)
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使用差異 *Difference in usage*



不佔空間及降低成本的代名詞

- 自鎖功能:**
對於一般需要微保持力的使用場合，可節省裝置制動器的費用，如（爬坡型輸送機）。
- 安全性高:**
使用不同於傳統的傳動方式，免鏈輪、皮帶輪，傳動結構不外露，減少作業人員的傷害。
- 可多面安裝，無角度限制:**
全系列產品，每個平面，皆有固定孔，您可選擇安裝時所需的方向、角度安裝。

標準馬達直結型選擇表（一段型）

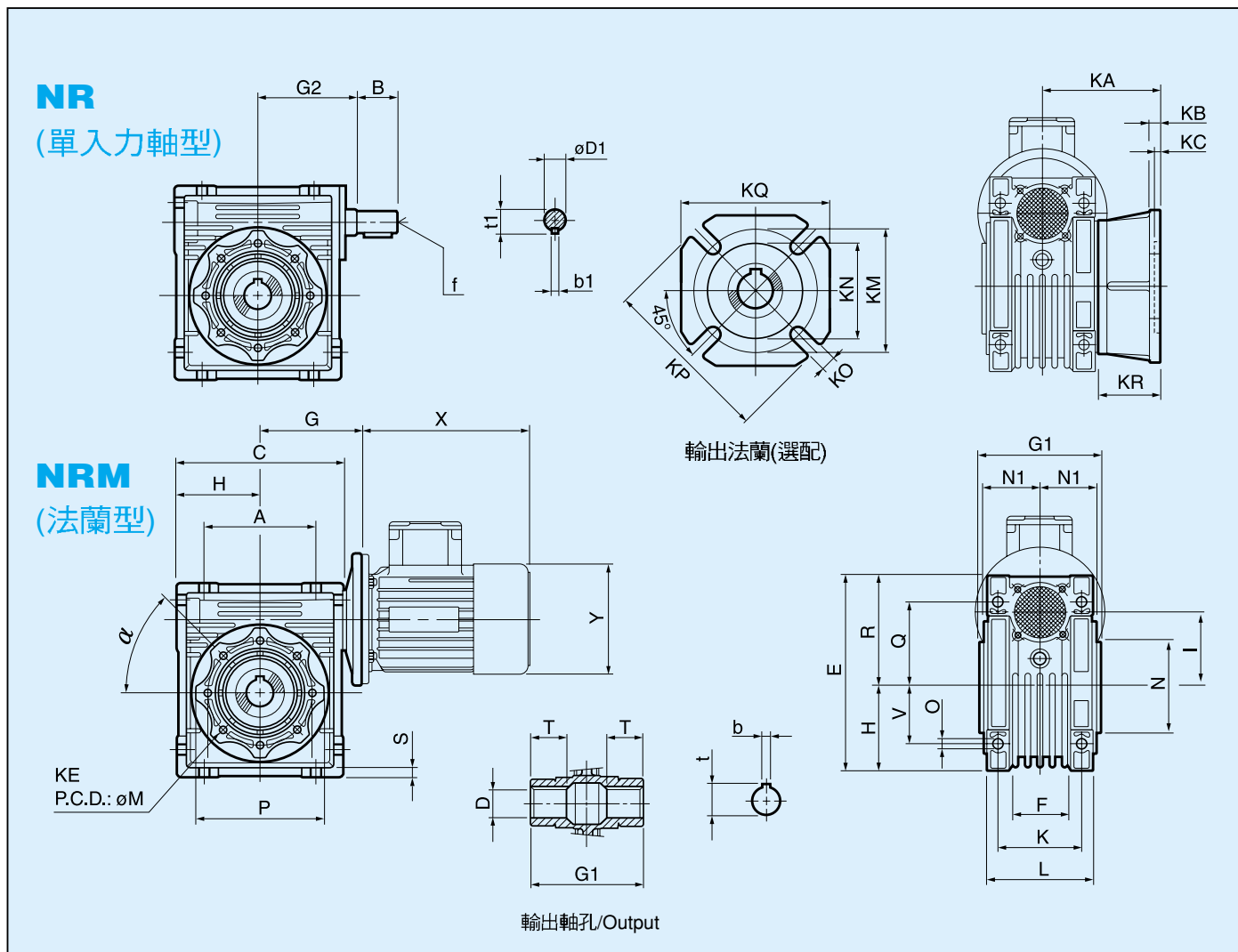
框號	PAM IEC	馬力 (4P) kW	N	M	P	S (Input Shaft Dia. 入力軸徑/Gear Ratio 減速比)												
						5	7.5	10	15	20	25	30	40	50	60	80	100	
NRM030 鋁合金	63B14	0.2	60	75	90	11	11	11	11	11	11	11	11	11	11	-	-	-
	TL, 方型	0.06/0.09	83	104	90	12	12	12	12	12	12	12	12	12	12	12	-	-
NRM040 鋁合金	71B5	0.4	110	130	160	14	14	14	14	14	14	14	-	-	-	-	-	
	TL, 方型	0.09	83	104	90	11	11	11	11	11	11	11	11	11	11	-	-	
NRM050 鋁合金	80B5	0.75	130	165	200	19	19	19	19	19	19	19	-	-	-	-	-	
	71B5	0.4	110	130	160	14	14	14	14	14	14	14	14	14	14	-	-	
	71B5	0.2	110	130	160	11	11	11	11	11	11	11	11	11	11	11	11	
NRM063 鋁合金	90B5	1.5	130	165	200	24	24	24	24	24	24	24	-	-	-	-	-	
	80B5	0.75	130	165	200	19	19	19	19	19	19	19	19	19	-	-	-	
	71B5	0.4	110	130	160	-	-	14	14	14	14	14	14	14	14	14	14	
NRM075 鋁合金	100/112B5	2.2/3.7	180	215	250	-	28	28	28	-	-	-	-	-	-	-	-	
	90B5	1.5	130	165	200	-	24	24	24	24	24	24	24	-	-	-	-	
	80B5	0.75	130	165	200	-	-	-	-	19	19	19	19	19	19	19	19	
NRM090 鑄鐵	100/112B5	2.2/3.7	180	215	250	-	28	28	28	28	28	28	-	-	-	-	-	
	90B5	1.5	130	165	200	-	24	24	24	24	24	24	24	24	24	-	-	
	80B5	0.75	130	165	200	-	-	-	-	-	-	-	19	19	19	19	19	
NRM110 鑄鐵	132B5	5.5/7.5	230	265	300	-	38	38	38	38	-	-	-	-	-	-	-	
	100/112B5	2.2/3.7	180	215	250	-	28	28	28	28	28	28	28	28	28	-	-	
	90B5	1.5	130	165	200	-	-	-	-	-	24	24	24	24	24	24	24	
	80B5	0.75	130	165	200	-	-	-	-	-	-	-	-	-	-	19	19	
NRM130 鑄鐵	132B5	5.5/7.5	230	265	300	-	38	38	38	38	38	38	-	-	-	-	-	
	100/112B5	2.2/3.7	180	215	250	-	-	-	-	-	28	28	28	28	28	28	28	
	90B5	1.5	130	165	200	-	-	-	-	-	-	-	-	-	-	24	24	

*另有扭力臂、單出力軸、雙出力軸、輸出法蘭可選配。(Torque arm, single shaft, dual shaft, output flange are optional.)

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

Hollow Shaft Worm Gear Reducer

NR/NRM 尺寸圖 (一段型) Dimensions (One stage type)



尺寸 型式	A	B	C	D (H7)	D1 (j6)	E	F	G	G1	G2	H	I	L	M	N	N1	O	P	Q	R	S	T
030	54	20	80	14	9	98.5	32	57	65	51	40	30	56.5	65	55	30	6	75	44	57	6.5	20.5
040	70	23	101.5	18 (19)	11	123	43	72	82.4	60	50.5	40	71	75	60	36.5	6.5	90	55	73	7	21.7
050	80	30	120.5	25 (24)	14	145	49	80	93.4	74	60	50	85	85	70	44.35	8	100	64	85	7.5	28.2
063	100	40	148	25 (28)	19	174	72	102	114.2	90	72	63	103	95	80	53	8	110	80	102	7.5	29.6
075	120	50	175	28 (35)	24	205	74	113.5	119.2	105	86	75	112	115	95	59	11	140	93	119	8	40

尺寸 型式	V	K	KA	KB	KC	KE	KM	KN	KO	KP	KQ	KR	b	b1	f	t	t1	Kg
030	27	44	55	6	3.7	M6x11 n. 4	68	50	6 n. 4	80	70	25	5	3	-	16.7	10.2	1.2
040	35	60	68	7.5	5.7	M6x10 n. 4	74	60	9 n. 4	110	95	30	6 (6)	4	-	21.2 (22.2)	12.5	2.3
050	40	70	91.5	9	5.7	M8x10 n. 4	85	70	11 n. 4	124	110	47	8 (8)	5	M6	28.3 (27.3)	16.0	3.5
063	50	85	82.5 (113)	10 (11)	6 (7)	M8x14 n. 8	150	115	11 n. 4	180	145	29.5 (60)	8 (8)	6	M6	28.3 (31.3)	21.5	6.2
075	60	90	111.5	13	6	M8x14 n. 8	162	130	14 n. 4	198	168	54	8 (10)	8	M8	31.3 (38.3)	27.0	9

() 內為選用尺寸，請另行告知。

圖中X 與Y軸的尺寸請參考所使用的馬達。

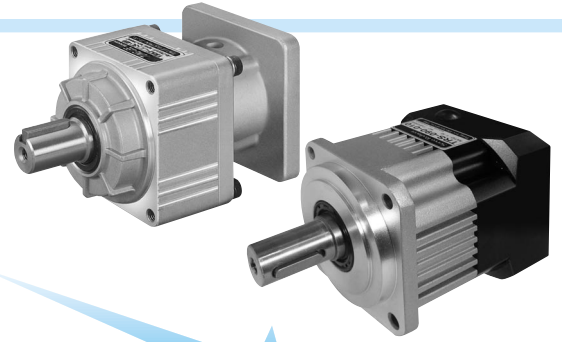
Please refer to the motor used for the size of X and Y in the figure.

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.



伺服專用減速機-TRS型 (歐規) / TRK型 (日規)

TRS - 060 - 010 - P1 /



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TRS: 歐規機種
European spec.
TRK: 日規機種
Japan spec.

減速比 Ratio

Stage	Type	TRS	TRK
一段式		3~10	3~5
二段式		12~100	6~25

配合馬達廠牌及型號
Motor brand & Model

歐規尺寸 Dimension of device
042, 060, 090, 115, 142, 180
日規尺寸 Dimension of device
B, C, D, E, F

P0超精密背隙：
一段式：0.05° (3弧分以下)
二段式：0.08° (5弧分以下)

P1精密背隙：
一段式：0.1° (6弧分以下)
二段式：0.13° (8弧分以下)

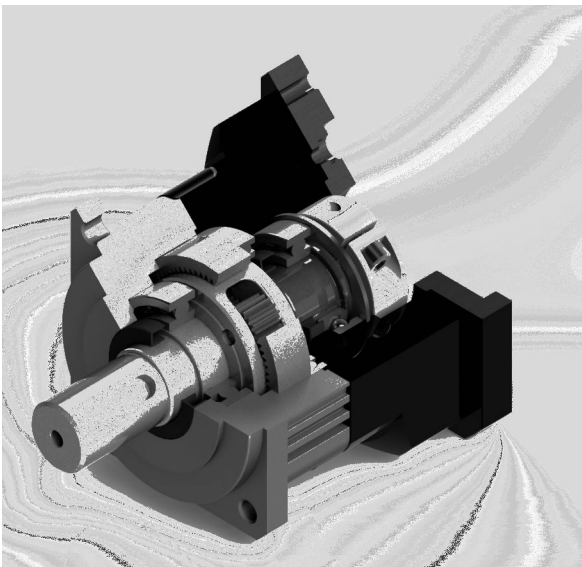
P2標準背隙：
一段式：0.13° (8弧分以下)
二段式：0.20° (12弧分以下)

P0 Grade Backlash
One stage
Less than 0.05° (3 Arc-min)
Two stage
Less than 0.08° (5 Arc-min)

P1 Grade Backlash
One stage
Less than 0.1° (6 Arc-min)
Two stage
Less than 0.13° (8 Arc-min)

P2 Grade Backlash
One stage
Less than 0.13° (8 Arc-min)
Two stage
Less than 0.20° (12 Arc-min)

減速機出力軸容許徑向力 Permissible Radial Force and Axial Force



從減速機出力軸連接鏈條齒輪等傳動機構時，會承受徑向力，徑向力
 $OHL = (T \times s \times f \times p) / R$

T=機構端扭力

s=負荷係數

F=驅動方式的載重係數

P=位置係數: 負載點小於等於d時, P=1

R=皮帶輪或鏈輪半徑

負載點大於d時, P=1.5

The gearbox will bear radial force while its output shaft connected with transmission machinery, such as chain wheel.

The O.H.L. formula of radial force is as below:

• $OHL = (T \times s \times f \times p) / R$

• T= Torque of transmission machinery

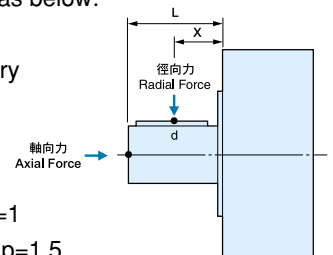
• s= Service factor

• f= Driven Coefficient

• R= Radial of pulley or chain wheel

• p= Position, Position less than d, p=1

position larger than d, p=1.5



負荷係數表 (s) Service factor table

傳動機負荷等級 Loading classification	每日使用時數Running per day			
	0.5hr	2hr	8-10hr	10-24hr
均負荷 Uniform	0.80	0.90	1.00	1.25
中衝擊Medium shock	0.9	1.00	1.25	1.50
重衝擊Heavy shock	1.00	1.25	1.50	1.75

驅動方式載重係數係數 Driven Coefficient (f)

傳動方式 Driving mode	(f)
鏈條/齒型皮帶 Chain pulley	1.00
齒輪 Gear	1.25
V型皮帶 V-belt	1.5
平皮帶 Flat-belt	2.5

• 正轉、逆轉或起動、停止，1小時內達10次者，請將右上表的值乘以1.2。

• CW/CCW Operation or start-up/stop reaches 10 times or more within 1 hour, please multiply by 1.2.

Servo Reducer-TRS

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性能表 Specification

規 格	段數(Section)	減速比(Ratio)	TRS-042	TRS-060	TRS-090	TRS-115	TRS-142	TRS-180
額定輸出力矩 (N-m)	一段式	3	18	47	135	295	570	1140
		4	17	43	126	276	523	1045
		5	20	51	144	314	523	1140
		6	18	47	135	295	570	1045
		7	17	43	126	285	523	1045
		8	15	38	108	247	475	950
	二段式	9	13	34	90	219	428	855
		10	13	34	90	219	428	855
		15	18	47	135	295	570	1140
		20	17	43	126	276	523	1045
		25	20	51	144	314	618	1140
		30	18	47	135	295	570	1045
		35	17	43	126	285	523	1045
		40	15	38	108	247	475	950
		45	13	34	90	219	428	855
		50	20	51	144	314	618	1140
		60	18	47	135	295	570	1045
		70	17	43	126	285	523	1045
80	15	38	108	247	475	950		
90	13	34	90	219	428	855		
100	13	41	90	219	428	855		
最大輸出力矩 T2B N-m	一段式、二段式	3-100	3倍額定輸出力矩					
額定輸入轉速 NIN RPM	一段式、二段式	3-100	5,000	5,000	4,000	4,000	3,000	3,000
最大輸入轉速 NIB RPM	一段式、二段式	3-100	10,000	10,000	8,000	8,000	6,000	6,000
超精密背隙 P0 Arc-Min	一段式	3-10	≤3	≤3	≤3	≤3	≤3	≤3
	二段式	15-100	≤5	≤5	≤5	≤5	≤5	≤5
精密背隙 P1 Arc-Min	一段式	3-10	≤6	≤6	≤6	≤6	≤6	≤6
	二段式	15-100	≤8	≤8	≤8	≤8	≤8	≤8
標準背隙 P2 Arc-Min	一段式	3-10	≤8	≤8	≤8	≤8	≤8	≤8
	二段式	15-100	≤12	≤12	≤12	≤12	≤12	≤12
扭轉剛性 N-m/Arc-Min	一段式、二段式	3-100	3	7	14	25	50	145
容許徑向力 F _{2RBN}	一段式、二段式	3-100	780	1530	3250	6700	9400	14500
容許軸向力 F _{2ABN}	一段式、二段式	3-100	390	765	1625	3350	4700	7250
使用壽命 HR	一段式、二段式	3-100	20000					
效率 η %	一段式	3-10	≥96%					
	二段式	15-100	≥93%					
使用溫度 °C	一段式、二段式	3-100	-10 °C~+90 °C					
潤滑油品	一段式、二段式	3-100	CPC高黏性滑脂					
防護等級	一段式、二段式	3-100	IP65					
安裝方向	一段式、二段式	3-100	任意方向					
噪音值 (N1=3000RPM) db	一段式、二段式	3-100	<58	<60	<60	<63	<65	<67

減速機轉動慣量 Moment of Inertia

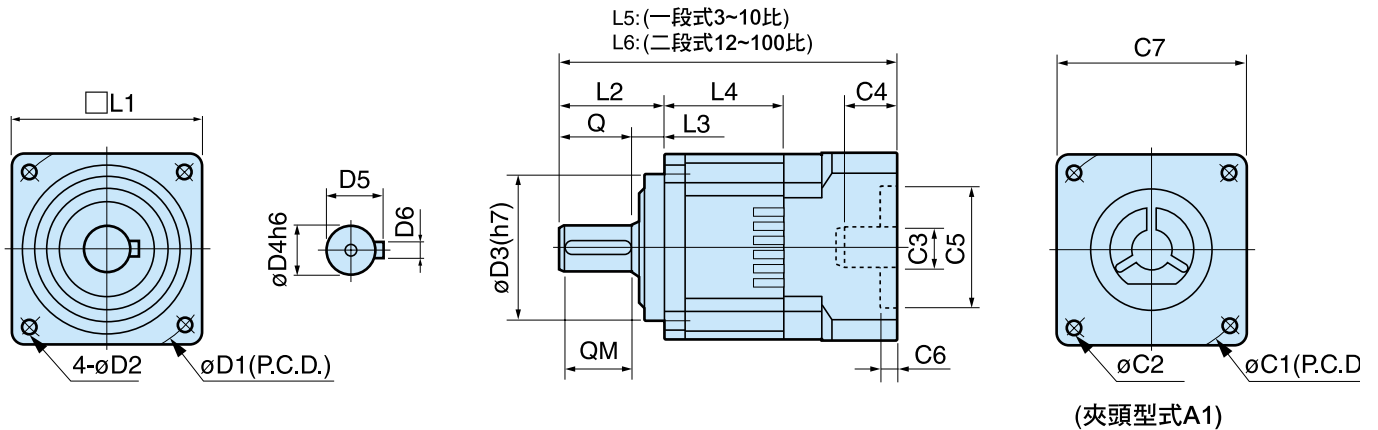
規 格	段數(Section)	減速比(Ratio)	TRS-042	TRS-060	TRS-090	TRS-115	TRS-142	TRS-180
轉動慣量 J1 (Kg·m ²)	一段式	3	0.05	0.24	1.04	5.05	14.61	46.76
		4	0.04	0.18	0.71	3.67	10.57	33.53
		5	0.04	0.17	0.64	3.34	9.66	30.31
		6	0.03	0.15	0.56	3.01	8.66	27.07
		7	0.03	0.15	0.52	2.85	8.24	25.57
		8	0.03	0.14	0.49	2.73	7.88	24.37
	二段式	9	0.03	0.14	0.48	2.66	7.65	23.63
		10	0.03	0.14	0.47	2.62	7.54	23.23
		15	0.04	0.04	0.22	0.70	3.5	10.19
		20	0.04	0.04	0.21	0.66	3.39	9.84
		25	0.04	0.04	0.21	0.66	3.37	9.76
		30	0.04	0.04	0.21	0.65	3.34	9.66
		35	0.04	0.04	0.21	0.64	3.32	9.62
		40	0.04	0.04	0.21	0.64	3.31	9.58
		45	0.04	0.04	0.20	0.64	3.30	9.56
		50	0.03	0.03	0.15	0.52	2.63	7.56
		60	0.03	0.03	0.15	0.52	2.61	7.54
		70	0.03	0.03	0.15	0.52	2.61	7.53
80	0.03	0.03	0.15	0.52	2.61	7.52		
90	0.03	0.03	0.15	0.52	2.61	7.51		
100	0.03	0.03	0.15	0.52	2.61	7.51		

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.



伺服專用減速機-TRS型 (歐規) / TRK型 (日規)

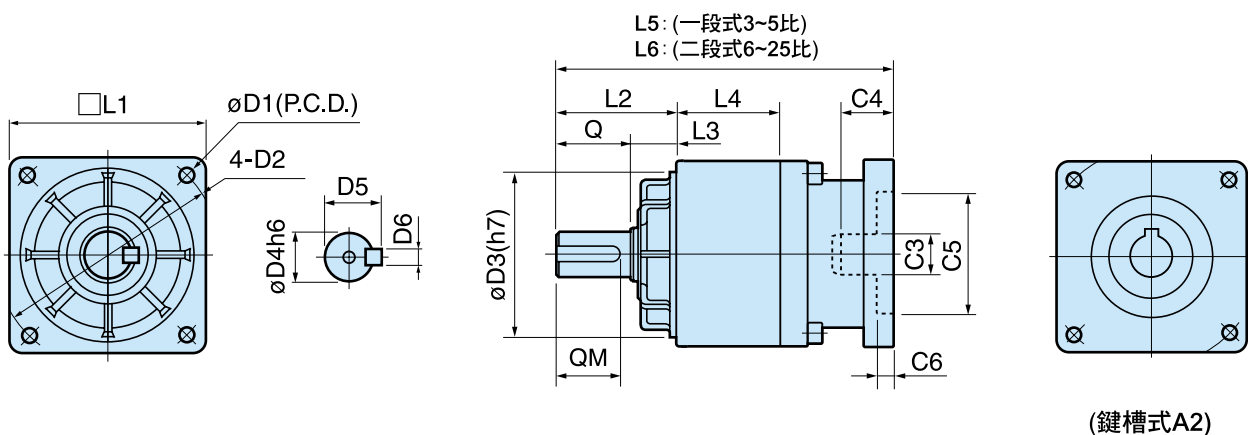
■ TRS 尺寸圖 (歐規)



■ 尺寸表 (mm)

型號	L1	L2	L3	L4	L5	L6	Q	QM	D1	D2	D3	D4	D5	D6	C代號=>配合馬達可變更尺寸							重量	
															C1	C2	C3	C4	C5	C6	C7	一段式	二段式
TRS-042	44	30	5	25	82		20	15	50	4	35	13	15	4x4	45	M3	8	15	30	4	44	0.8	1.1
TRS-060	63	38	10	40	130	160	28	22	70	5.5	50	16	18.5	5x5	70	M5	14	30	50	4	63	1.5	2.0
TRS-090	90	50	15	45	152	190	35	29	100	6.5	80	22	25	6x6	100	M6	19	40	80	5	91	3.5	4.5
TRS-115	115	65	15	48	200	240	50	42	130	9	110	32	36	10x8	130	M8	24	60	110	7	130	6.5	8.8
TRS-142	142	96	18	67	270	320	78	68	165	11	130	40	45	12x8	165	M10	35	70	130	7	143	16	19.7
TRS-180	180	105	30	85	330	415	80	73	215	13.5	160	55	61	16x12	215	M10	42	80	180	7	192	26	33

■ TRK 尺寸圖 (日規)



■ 尺寸表 (mm)

型號	L1	L2	L3	L4	L5	L6	Q	QM	D1	D2	D3	D4	D5	D6	C代號=>配合馬達可變更尺寸							重量	
															C1	C2	C3	C4	C5	C6	C7	一段式	二段式
TRK-B	65	38	10	38	126	156	28	25	70	M5	50	16	18.5	5x5	70	M5	14	25	50	4	65	1.4	1.8
TRK-C	77	52	22	45	146	172	30	27	90	M6	70	19	22	6x6	90	M6	19	30	70	4	80	3.1	3.8
TRK-D	98	62	22	50	180	210	40	35	114	M8	90	24	28	8x8	115	M8	24	40	80	5	100	4.7	5.9
TRK-E	125	73	23	57	230	280	50	47	135	M10	110	32	36	10x8	135	M10	35	60	110	7	125	9.2	13.8
TRK-F	154	90	34	75	196	340	65	60	170	M10	130	40	45	12x8	145	M10	42	66	110	7	154	11.8	15.0

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.

Servo Reducer-TRK/TRS

■ 適用馬力 (W) 3000RPM

型號	A1 減速比	馬力(W)
TRS-042	3~100	50~200
TRS-060/TRK-B	3~100	200~400
TRS-090/TRK-C	3~100	400~750
TRS-115/TRK-D	3~100	750~1500
TRS-142/TRK-E	3~100	1500~3500
TRS-180/TRK-F	3~100	3500~4500

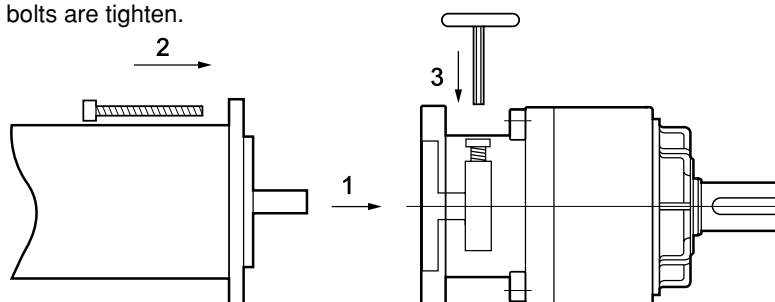
■ 伺服馬達標準裝配系列

- * 松下電器產業 (株) / MIMAS 系列
- * 安川電機 / SGM, SGMAH 系列
- * 三菱電機 (株) / HA-ME/HC-MF 系列
- * 日機電裝 (株) / NA50 / NA70 系列
- * 神鋼電機 (株) / BM / ZM 系列
- * 東榮電機 (株) / T.Z 系列
- * 山洋電氣 (株) / P3 系列
- * 富士電機 (株) / FALDIC 系列
- * 東元精電伺服馬達
- * 台達伺服馬達

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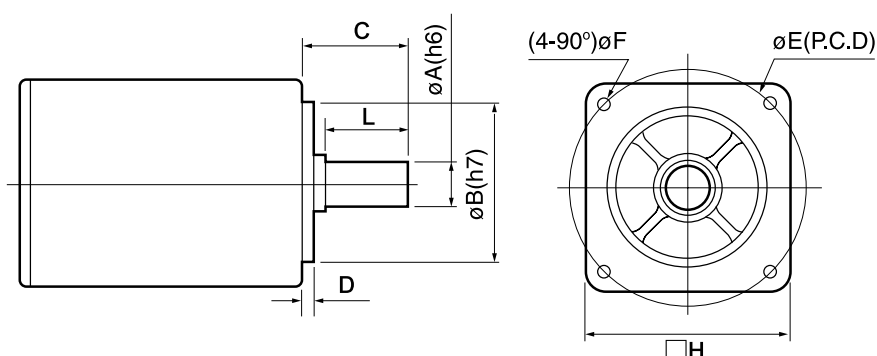
■ 伺服減速機與馬達安裝順序 *Servo Reducer and Servo Motor Mounting Instruction*

1. 伺服減速機組裝前，請先確認入力軸固定束環的螺絲對準開口
Make sure the screw on the set collar is line up with the open on adapter plate.
2. 請小心將馬達與減速機組裝。請勿轉動入力軸固定束環。
Install the motor and the reducer. Do not rotate the set collar.
3. 依對角順序將法蘭螺絲鎖緊。
Tighten the mounting bolts on flange in diagonal order.
4. 再次確認所有螺絲都確實鎖緊。
Make sure all the bolts are tighten.



★ 訂貨時，請把貴公司所使用的馬達廠牌、型號及尺寸依此表格填寫並告知本公司。

Please fill in the blank in the table below.



廠牌： _____ 型號： _____

序 號	軸心 外徑 $\phi A(h6)$	凸緣 外徑 $\phi B(h7)$	軸心 長度 C	凸緣 高度 D	螺絲孔 中心距 ϕE	螺絲孔 直徑 ϕF	馬達面 尺寸 $\square H$	軸心 有效長 L	備 註

以上數值若有變動，恕不另行通知 We reserve the right to change without further notice.



東力小型 齒輪、渦輪減速變速馬達

先進尖端的品質，精確控制機器自動化的命脈

ISO-9001 國際品質保證 CE(EMC)認證通過

臥式、立式齒輪減速馬達

Horizontal/Vertical type gear motor

CE/EMC approved
馬力(Horsepower):
0.1kw-3.7kw
減速比(Ratio):
1/3-1/1800



無段變速齒輪馬達

Speed control gear motor

齒輪減速馬達
Gear motor
馬力(Horsepower):
6w-150w
減速比(Ratio):
1/3-1/1800



直線型馬達

Linear gear motor

推力(Thrust): 1kg-140kg
基本速度(Stroke Speed): 1-50 mm/sec
推桿長度(Length): 100~600mm



電磁制動馬達

Electromagnetic brake motor

馬力(Horsepower): 6-150w
減速比(Ratio): 1/3-1/1800



直交軸系列 齒輪減速機

Right-Angle gear motor

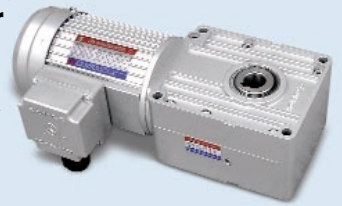
馬力(Horsepower): 25w-150w
減速比(Ratio): 1/10-1/600



軸上型減速機 (直交軸型)

Shaft-Mounted Reducer

Model: TL-4060, 4070, 5080
減速比(Ratio): 1/30~1/300
馬力(Horsepower): 100w-1500w



TRS低間隙伺服馬達專用減速機 (歐系規格)

Low backlash planetary gear reducer for servo motor

機種(Mode):
042, 060, 090, 115, 142, 180
馬力(Horsepower): 50w-5000w
減速比(Ratio): 3-100



TRK低間隙伺服馬達專用減速機 (日系規格)

Low backlash planetary gear reducer for servo motor

機種(Type): TRK-B.C.D.E.F
馬力(Horsepower): 50w-5000w
減速比(Ratio): 3-25



無段變速機

Variable Speed control motor

馬力(Horsepower):
0.2kw-3.7kw
變速範圍(Speed range):
200rpm-1200rpm



遊星式減速機

Planetary Reducer

馬力(Horsepower): 1/2HP-150HP
減速比齊全



東力

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(TUV) 認證通過

東力小型 伺服減速 齒輪減速 渦輪減速 馬達

T.L. GEAR REDUCTION MOTOR

