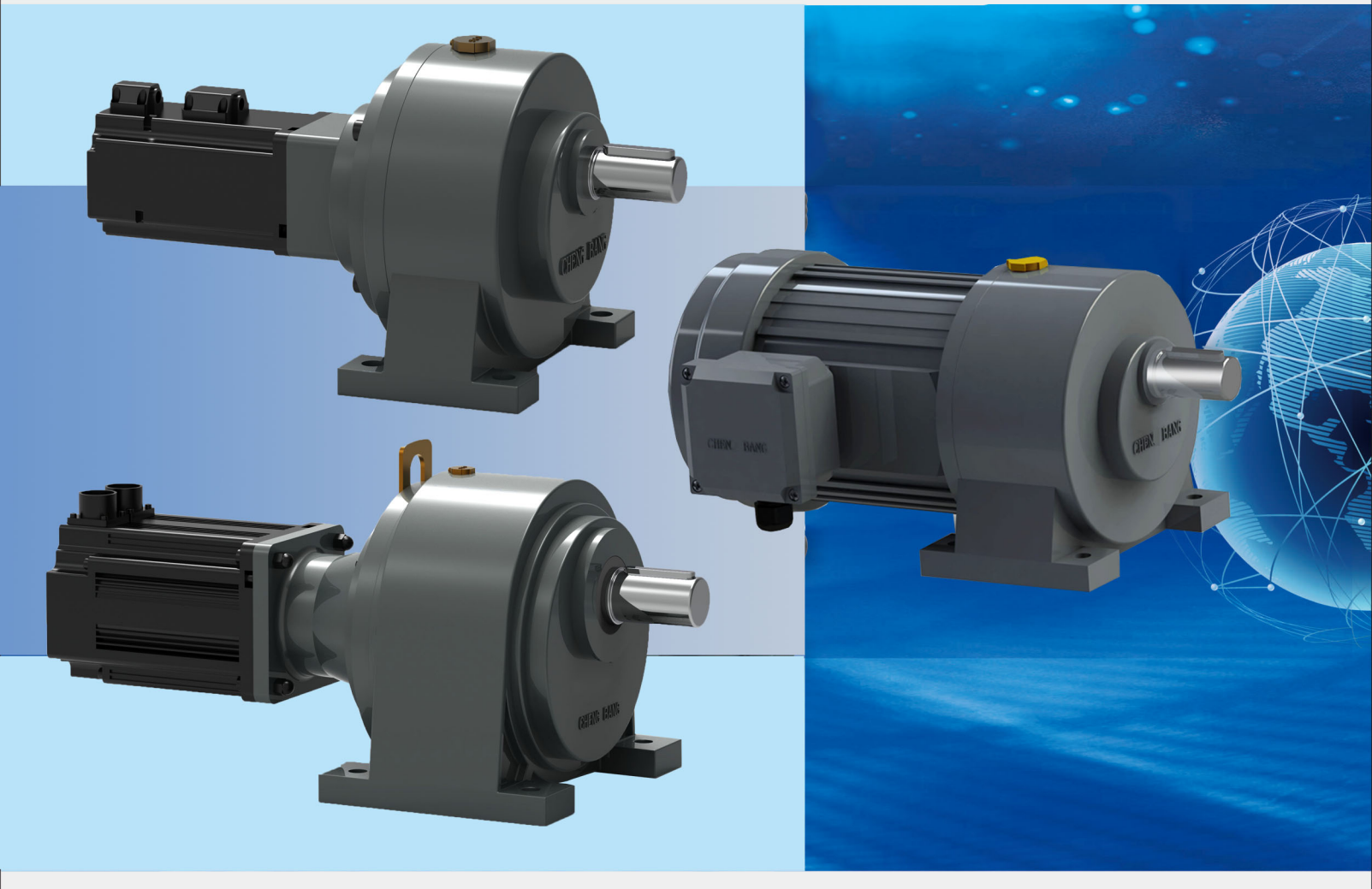
# ZHB®

## 城邦减速机配伺服马达

## 重载减速机




江蘇城邦減速電機製造有限公司

# Company Profile
## 公司簡介

蘇州城邦減速電機製造有限公司位于人文工業氣息濃厚的高新區新滸工業園内，成立於 2012 年，是一家面向國内外制造企業提供優質傳動核心部件的專業生產供應商。公司擁有獨立大氣的廠房設施，先進的生產設備，一流的服務團隊，嚴謹的生產管理體系，本着交貨快、質量好、服務優，從業來已為衆多經銷商朋友和機械制造廠商提供了精準、快捷的服務。

2023 年公司擴大發展規模，將公司保留原組織機構代碼證和原賬號的前提下將生產經營地址遷至江蘇省常州市金壇區興業大道 5 號，同时公司的名稱變更為江蘇城邦減速電機製造有限公司。

一直以來，公司信守發揚“ 用心做事，以德服人，立品如玉，誠信一生 ”的企業文化和服務精神。秉持“ 節能環保，精益求精 ”的產品理念，長期致力于為客户提供高性價比的產品及高品質的服務，憑借多年來齒輪減速電機設計研發和生產經驗，已穩定地在瓦楞紙、捆包機、打包機行業等包裝機械行業樹立了領導地位，在快遞公司總路運營綫、插件線、流水綫、輥筒、輸送等領域深受用户喜愛，在花式捻綫機、清花機、梳棉機等領域也成為深受客户信賴的指定品牌。

公司主營用于傳動領域的動力提供核心部件，各類單 / 三相齒輪減速（刹車）馬達，產品涵蓋 100W-3.7KW，速比 3-8000 的齒輪減速電機，包含變頻馬達、刹車馬達及各種定制馬達。相較于普通品牌，本公司所有產品均采用冷軋高衝高效率的矽鋼片，使產品小巧，功率更强勁，大量採用台灣產核心配件或台商在大陸投資的合資或獨資生產的高精密配件。

多年來我公司生產的 ZHB 系列的四大系列減速機、准雙曲面減速機、螺旋傘齒輪減速機、城邦 小金鋼 系列的齒輪減速電機、微型電機減速機，以及高效節能的二級能效、三級能效、三相異步電動機，相繼成為眾多的國内知名企業、國際知名企業的指定品牌電機減速機。

公司崇尚節能環保，以振興民族工業為己任，旨在自動化、印刷、包裝、環保、金融、食品、船用、印刷、農用等機械領域不斷開拓進取，取得驕人成績，提供更好的產品和更優的服務，成爲衆多行業中最受歡迎齒輪減速機品牌。本公司誠摯期待與海内外伙伴携手雙贏，共創美好明天！

# Facilities
## 廠房設備


CNC加工中心


数控车床加工


数控铣床加工


数控高速滚齿机


电机测试设备


齿轮检测机

## 1-1 型號說明（DESCRIPTION OF MODEL）

CH 400 30 SZ B G1 LB

**CH** — 機型代號 TYPE
CH:卧式 HORIZONTAL
CV:立式 VERTICAL

**400** — 馬力CAPACITY:100W-3700W

**30** — 減速比RATIO:3,5,10...1800

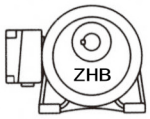
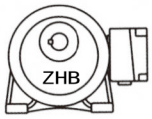
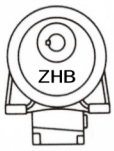
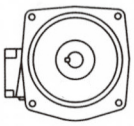
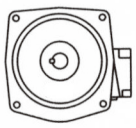
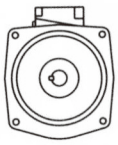
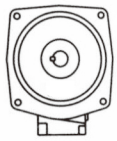
**SZ**
S：附三箱馬達220,380V/50,60HZ-3 PHASE
K：附三相馬達 220,440V/50,60HZ-3 PHASE
A：附單相文電馬達 110,220V/50,60HZ-1 PHASE
AV：附單相離心馬達 110,220V/50,60HZ-1 PHASE
L：DC直流馬達 DC-MOTOR
P：東元鐵殼三相 馬達 TECO 3-PHASE STEEL PLATE MOTOR
Z：縮框機型 LIGHT DUTY TYPE
□：鋁合金馬達 ALUMINUM MOTOR
T：鐵殼馬達 STEEL PLATE MOTOR
F：法蘭修平面 FLANGE WITH FLATE SURFACE
Q1：110V强制風扇 EXTERNAL FAN 110V
Q2：220V强制風扇 EXTERNAL FAN 220V

**B**
B：DC90V安全剎車器BRAKE UNIT
YB：手釋放剎車器WITH RELEASE BRAKE UNIT
D：DC24V送電剎車器DC24V BRAKE
W：渦輪減速機WORM GEAR REDUCER

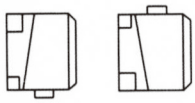
**G1**
依出力盒看配綫盒方向
VIEW FROM OUTPUT SHAFT
G1：左方向LEFT(標準型)(STD)
G2：右方向RIGHT
G3：上方向UPPER
G4：下方向LOWER

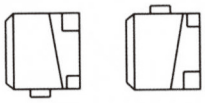
**LB**
入綫口方向WIRE INLET
T：向上TOP
D：向下DOWM
F：向前FORWORD
B：向後BACK
L：向左LEFT
R：向右RIGHT

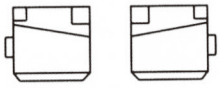
## 1-2 配綫盒方向選定（TERMINAL BOX DIRECTION）

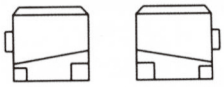
| TYPE | G1-左方向 LEFT SIDE | G2-右方向 RIGHT SIDE | G3-上方向 UPPER SIDE | G4-下方向 LOWER SIDE |
|---|---|---|---|---|
| CH型 CH TYPE |  |  |  |  |
| | G1 | G2 | G3 | G4 |
| CV型 CV TYPE |  |  |  |  |
| | G1 | G2 | G3 | G4 |

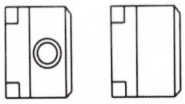
## 1-3 入綫口方向（WIRE INLET DIRECTION）

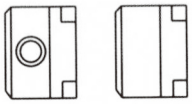

LD LT

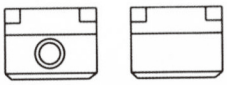

RD RT

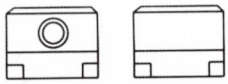

TL TR


DL DR


LF LB

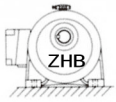

RF RB

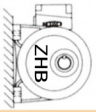

TF TB

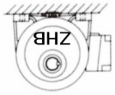

DF DB

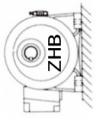
## 1-4 减速機與透氣塞安裝位置示意圖（REDUCER AND VENTILATION INSTALLATION）

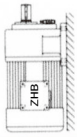
CH 機型安裝範例 CH INSTALLATION EXAMPLES

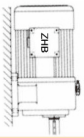

HO標準STANDARD(cpg正立 cpg STAND)


H3(左側LEFT SIDE)

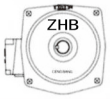

H6(倒裝INVERT)


H9(右側RIGHT SIDE)

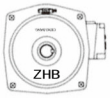

HU(軸向上SHAFT UP)


HD(軸向下SHAFT DOWN)

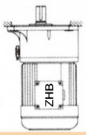
CV 機型安裝範例 CV INSTALLATION EXAMPLES

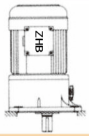

VO標準STAND(cpg正立 cpg STAND)


V3(cpg順轉90℃ cpg CLOCKWISE90℃)


V6(cpg順轉180℃ cpgCLOCKWISE 180℃)


V9(cpg逆轉90℃ cpg LEFT TURN 90℃)

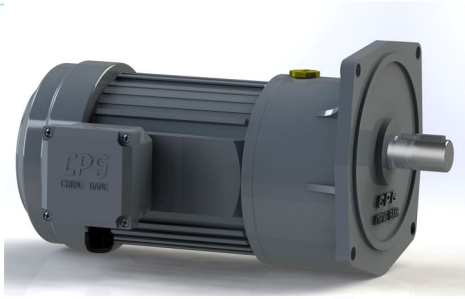

VU(軸向上 SHAFY UP)


VD(軸向下 SHAFY DOWN)

備 注：1、除標準安裝方式外，其餘安裝方式均需先告知本司。
NOTE：1、IN ADDITION TO THE STANDARD INSTALLATION.THE OTHER INSTALLATION IS REQUIRED PRIOR NOTICE OF THE COMPANY.

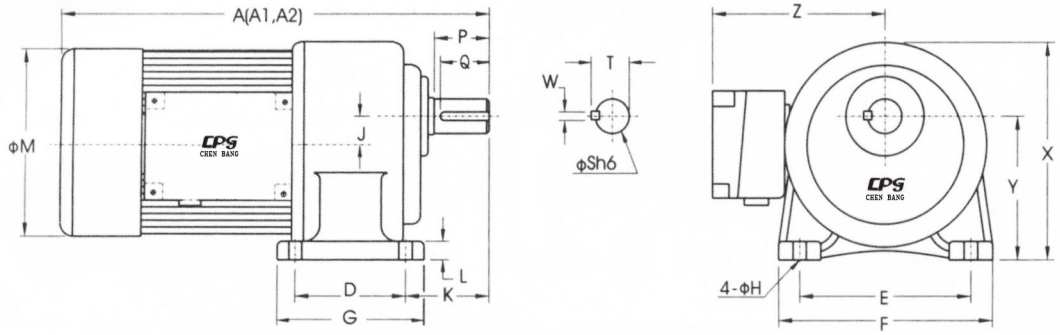
## 2-2 附三相鋁/鐵殼（剎車）馬達減速機
## WITH ALUMINUM/STEEL PALTE 3-PHASE（BRAKE）MOTOR.

CH..S 卧式
CH..S HORIZONTAL TYPE

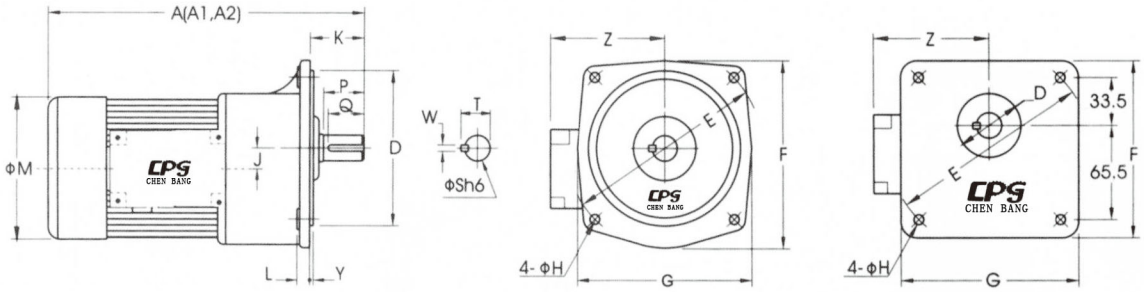


CV..S 立式
CV..S VERTICAL TYPE

### 卧式附三相 HORIZONTAL TYPE




### 立式附三相 VERTICAL TYPE




### 出力軸尺寸 OUTPUT SHAFT

B型法兰 B TYPE FLANGE

| 型番 SIZE(S) | 出力軸 SHAFT | | 鍵槽 KEYWAY | | | 鍵 KEY |
|---|---|---|---|---|---|---|
| | Sh6 | P | W | T | Q | SPEC' |
| 18 | ϕ18 | 30 | 5 | 20.2 | 27 | 5*5*27 |
| 22 | ϕ22 | 40 | 7 | 25 | 35 | 7*7*35 |
| 28 | ϕ28 | 45 | 7 | 31.1 | 40 | 7*7*40 |
| 32 | ϕ32 | 55 | 10 | 35.5 | 50 | 10*8*50 |
| 40 | ϕ40 | 65 | 10 | 43.5 | 60 | 10*8*60 |
| 50 | ϕ50 | 80 | 14 | 54 | 75 | 14*9*75 |

適用機型APPLICABLE MODELS : CH..S,CH..ST,CH..SB,CH..STB,CV..S,CV..ST,CV..SB,CV..STB.

## 卧式 HORIZONTAL TYPE(Dimenion in mm)

| 馬力 KW | 減速比 RATIO | 本體 CODE | 型番 SIZE(S) | A | A1 | A2 | D | E | F | G | H | J | K | L | M | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100W 1/8HP | 60-200 | 2# | 22 | 280 | 280 | 280 | 65 | 130 | 158 | 90 | 11 | 17.5 | 60 | 13 | 133 | 152 | 97.5 | 120 |
| 200W 1/4HP | 15-90 | 2# | 22 | 315 | 315 | 315 | 65 | 130 | 158 | 90 | 11 | 17.5 | 60 | 13 | 133 | 152 | 97.5 | 120 |
| | 100-200 | 3# | 28 | 350 | 350 | 350 | 90 | 140 | 178 | 120 | 11 | 23 | 68 | 17 | 133 | 178 | 116 | 120 |
| 400W 1/2HP | 15-90 | 3# | 28 | 360 | 360 | 360 | 90 | 140 | 178 | 120 | 11 | 23 | 68 | 17 | 167 | 178 | 116 | 135 |
| | 100-200 | 4# | 32 | 395 | 395 | 395 | 130 | 170 | 210 | 165 | 13 | 30 | 70 | 23 | 167 | 212 | 140 | 135 |
| 750W 1HP | 30-120 | 4# | 32 | 410 | 410 | 410 | 130 | 170 | 210 | 165 | 13 | 30 | 70 | 23 | 167 | 212 | 140 | 135 |
| | 125-200 | 5# | 40 | 465 | 465 | 465 | 150 | 210 | 265 | 198 | 15 | 36 | 89 | 24 | 167 | 250 | 160 | 135 |
| 1500W 2HP | 40-100 | 5# | 40 | 510 | 510 | 510 | 150 | 210 | 265 | 198 | 15 | 36 | 89 | 24 | 192 | 250 | 160 | 146 |
| | 110-180 | 6# | 50 | 560 | 560 | 560 | 170 | 265 | 321 | 238 | 18 | 51 | 120 | 31.5 | 192 | 308 | 200 | 146 |
| 2200W 3HP | 45-100 | 6# | 50 | 580 | 580 | 580 | 170 | 265 | 321 | 238 | 18 | 51 | 120 | 31.5 | 212 | 308 | 200 | 160 |
| 3700W 5HP | 15-60 | 6# | 50 | 620 | 620 | 620 | 170 | 265 | 321 | 238 | 18 | 51 | 120 | 31.5 | 212 | 308 | 200 | 160 |
| 5500W | 3-60 | 6# | 50 | 663 | 663 | 663 | 170 | 265 | 321 | 238 | 18 | 51 | 120 | 31.5 | 212 | 308 | 200 | 160 |
| | 3-60 | 6# | 50 | 647 | 647 | 647 | 170 | 265 | 321 | 238 | 18 | 51 | 120 | 31.5 | 256 | 308 | 200 | 160 |
| 7500W | 3-35 | 6# | 50 | 692 | 692 | 692 | 170 | 265 | 321 | 238 | 18 | 51 | 120 | 31.5 | 256 | 308 | 200 | 160 |

P09-P10

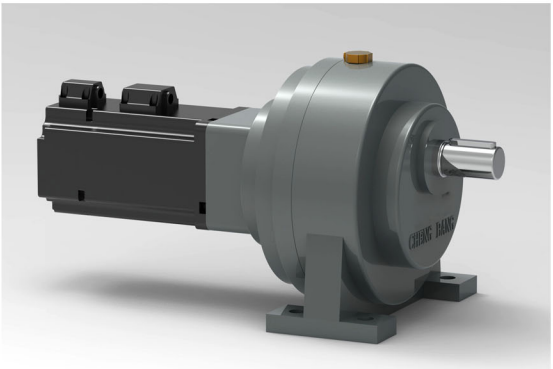
## 立式 VERTICAL TYPE(Dimenion in mm)

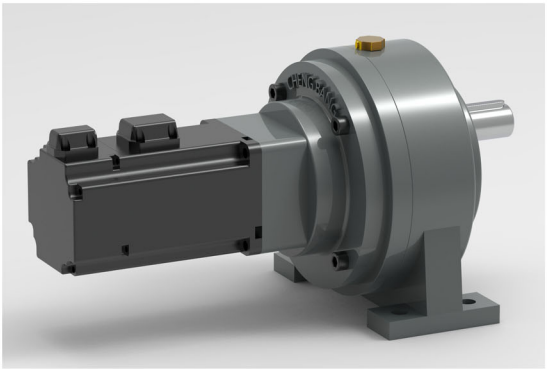
| 馬力 KW | 減速比 RATIO | 本體 CODE | 型番 SIZE(S) | A | A1 | A2 | D | E | F | G | H | J | K | L | M | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100W 1/8HP | 60-200 | 2# | 22 | 280 | 280 | 280 | 148 | 185 | 175 | 165 | 11 | 17.5 | 48 | 12 | 133 | 3 | 120 |
| 200W 1/4HP | 15-90 | 2# | 22 | 315 | 315 | 315 | 148 | 185 | 175 | 165 | 11 | 17.5 | 48 | 12 | 133 | 3 | 120 |
| | 100-200 | 3# | 28 | 350 | 350 | 350 | 170 | 220 | 205 | 195 | 12 | 23 | 58 | 13 | 133 | 3 | 120 |
| 400W 1/2HP | 15-90 | 3# | 28 | 360 | 360 | 360 | 170 | 220 | 205 | 195 | 12 | 23 | 58 | 13 | 167 | 3 | 135 |
| | 100-200 | 4# | 32 | 395 | 395 | 395 | 185 | 255 | 248 | 225 | 15 | 30 | 65 | 16 | 167 | 3 | 135 |
| 750W 1HP | 30-120 | 4# | 32 | 410 | 410 | 410 | 185 | 255 | 248 | 225 | 15 | 30 | 65 | 16 | 167 | 3 | 135 |
| | 125-200 | 5# | 40 | 465 | 465 | 465 | 230 | 310 | 291 | 272 | 15 | 36 | 85 | 21 | 167 | 5 | 135 |
| 1500W 2HP | 40-100 | 5# | 40 | 510 | 510 | 510 | 130 | 310 | 291 | 272 | 15 | 36 | 85 | 21 | 192 | 5 | 146 |
| | 110-180 | 6# | 50 | 560 | 560 | 560 | 280 | 390 | 372 | 342 | 18 | 51 | 92 | 25 | 192 | 5 | 146 |
| 2200W 3HP | 45-100 | 6# | 50 | 580 | 580 | 580 | 280 | 390 | 372 | 342 | 18 | 51 | 92 | 25 | 212 | 5 | 160 |
| 3700W 5HP | 15-60 | 6# | 50 | 620 | 620 | 620 | 280 | 390 | 372 | 342 | 15 | 51 | 92 | 25 | 212 | 5 | 160 |
| 5500W | 3-60 | 6# | 50 | 663 | 663 | 663 | 280 | 390 | 372 | 342 | 18 | 51 | 92 | 25 | 212 | 5 | 160 |
| | 3-60 | 6# | 50 | 647 | 647 | 647 | 280 | 390 | 372 | 342 | 18 | 51 | 90 | 25 | 256 | 5 | 160 |
| 7500W | 3-35 | 6# | 50 | 692 | 692 | 692 | 280 | 390 | 372 | 342 | 18 | 51 | 90 | 25 | 256 | 5 | 160 |

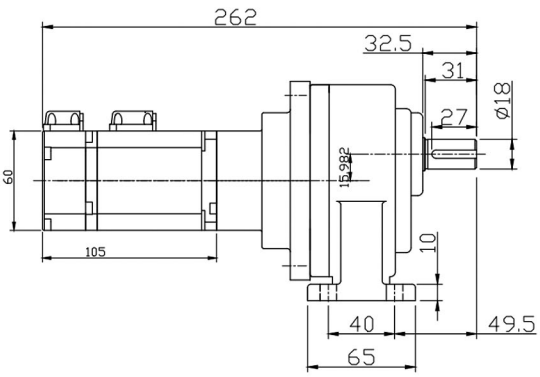
備注： A：三相鋁殼馬達.WITH 3–PHASE ALUMINUM MOTOR. A1：三相鐵殼馬達. WITH 3–PHASE STEEL PLATE MOTOR.
A2：三相馬達附剎車器. WITH 3–PHASE BRAKE MOTOR. .*：屬于B型處理法蘭. BELONG TO B TYPE OUTPUT FLANGE.
*：單相馬達僅限于1.5KW以內

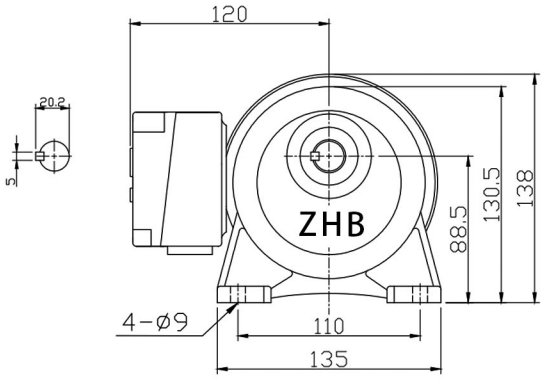
DIMENSION R寸表

## 城邦CHM100W-(3-50)-18轴+100W60伺服-02

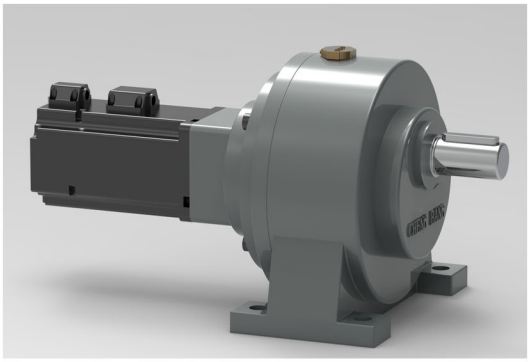


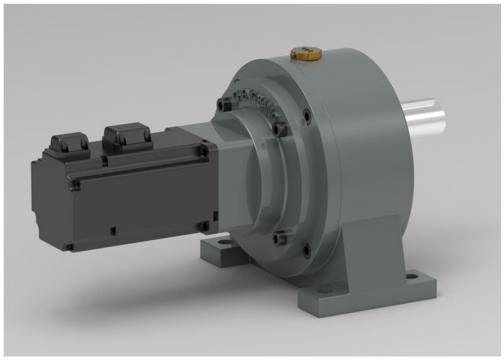


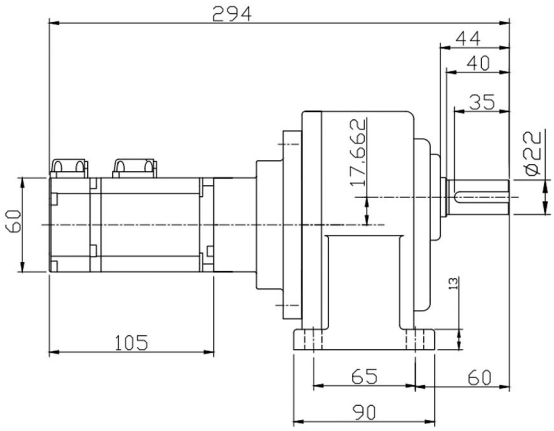


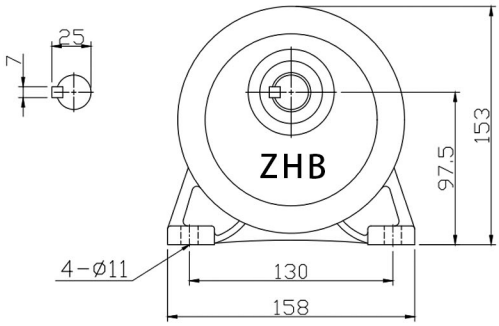




## 城邦CHM100W-(60-200)-22轴+100W60伺服-02





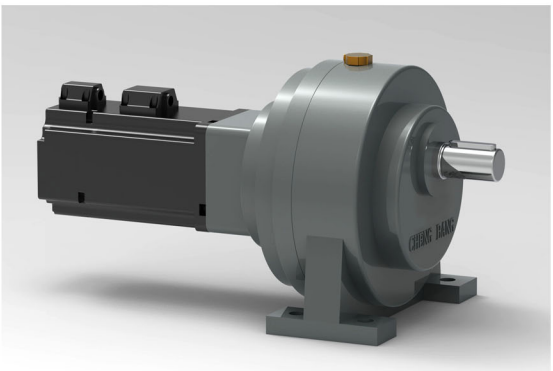


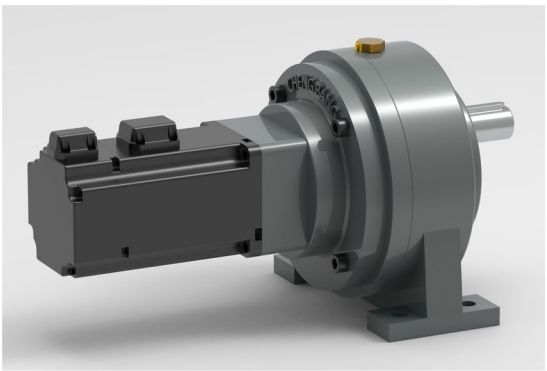



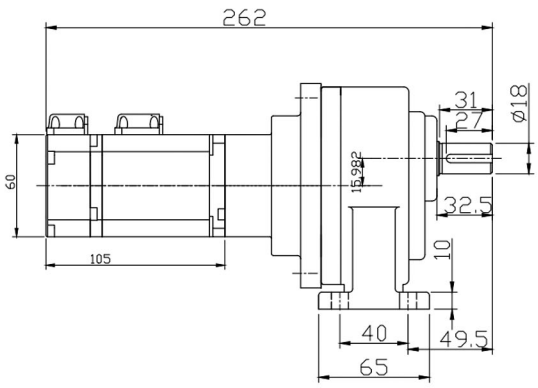

城邦齒輪減速馬達精密制造

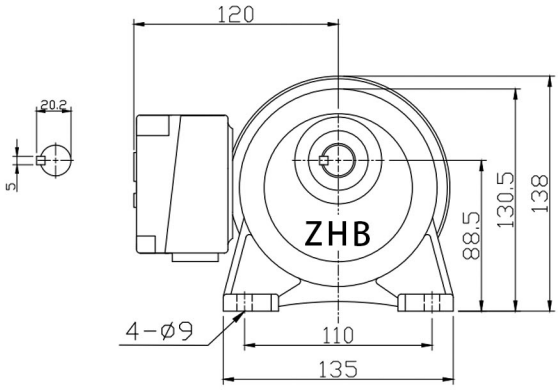
DIMENSION 尺寸表

## 城邦CHM200W-(3-10)-18轴+200W60伺服

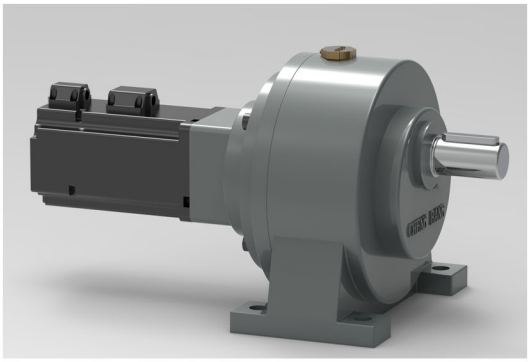


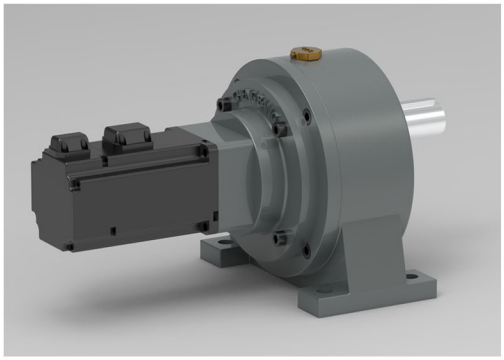


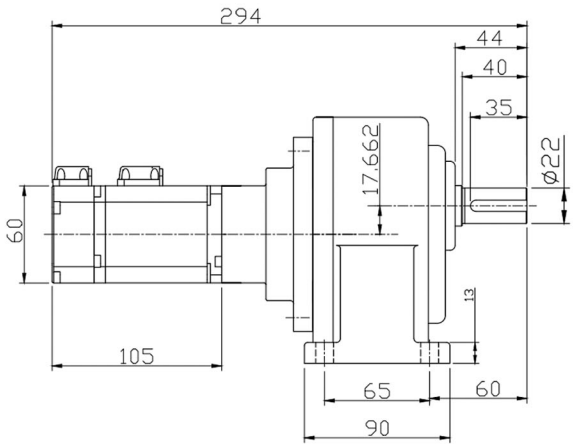


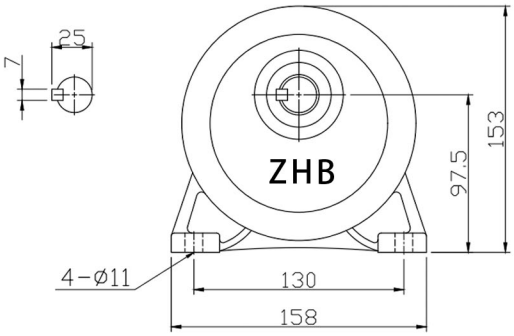




## 城邦CHM200W-(15-90)-22轴+200W60伺服





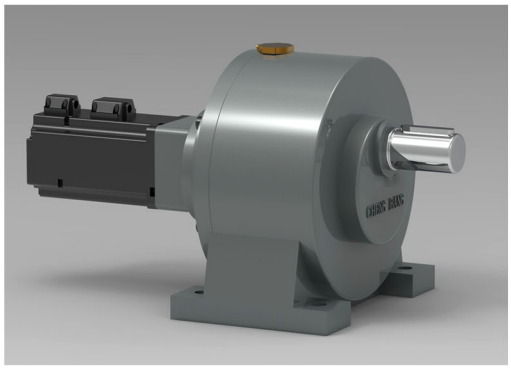


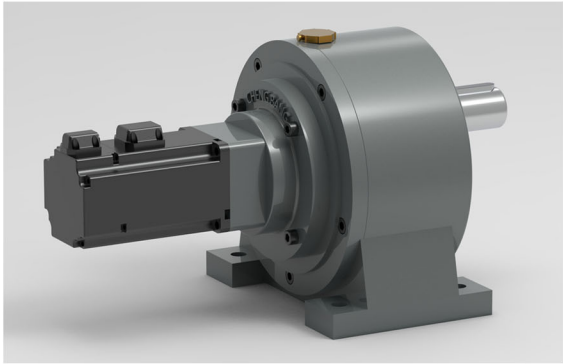



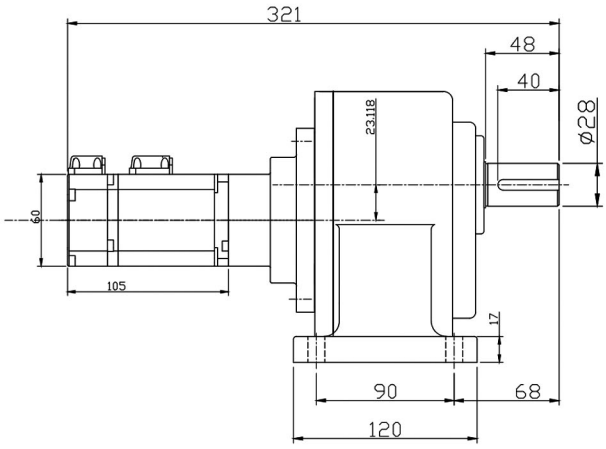

城邦齒輪減速馬達精密制造

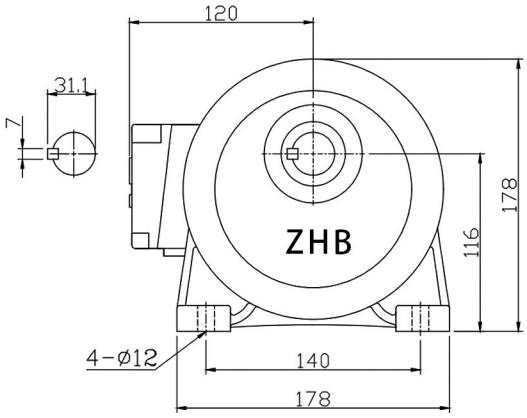
DIMENSION R寸表

## 城邦CHM200W-(100-200)-28轴+200W60伺服

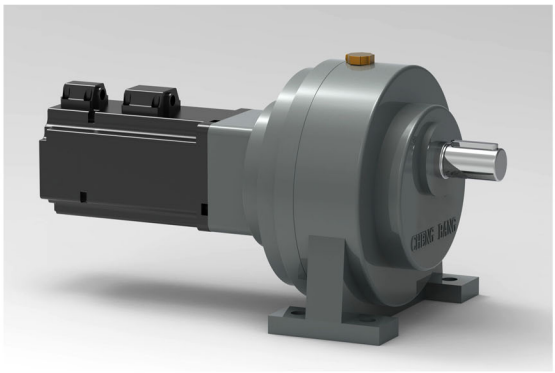


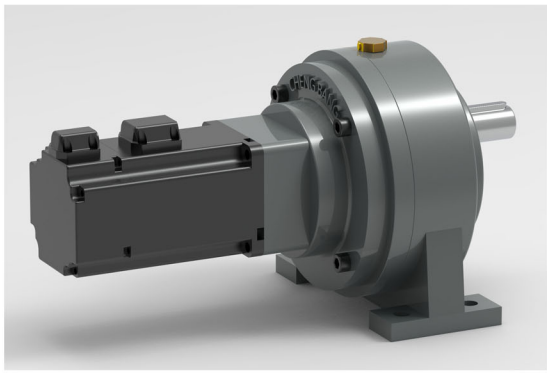


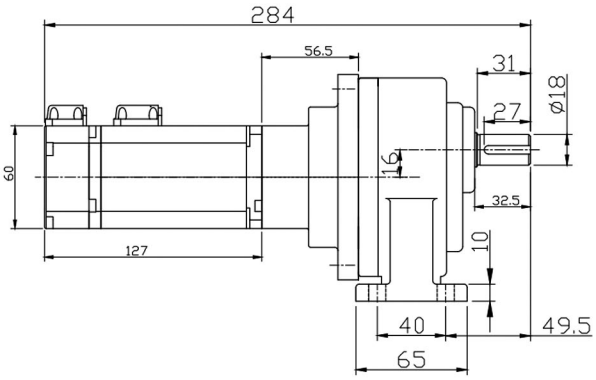


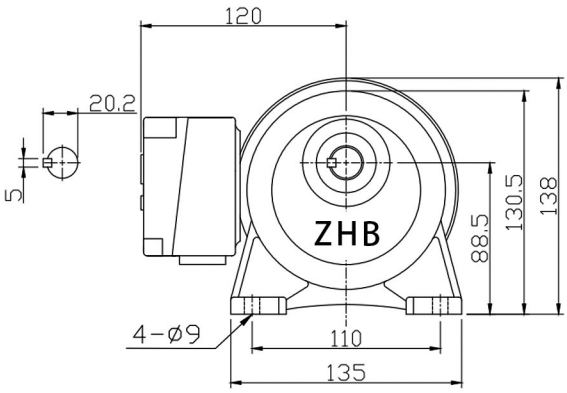




## 城邦CHM200W-(3-10)-18轴+200W60伺服-04





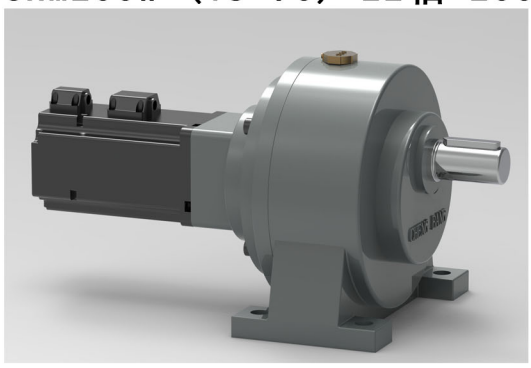


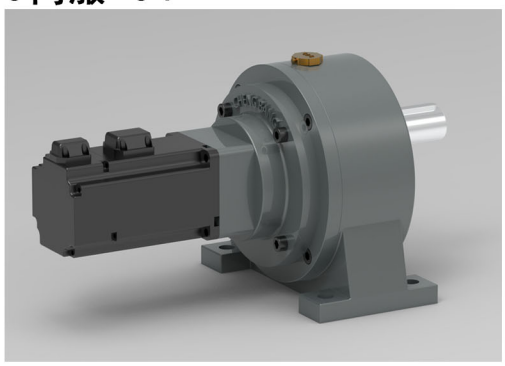



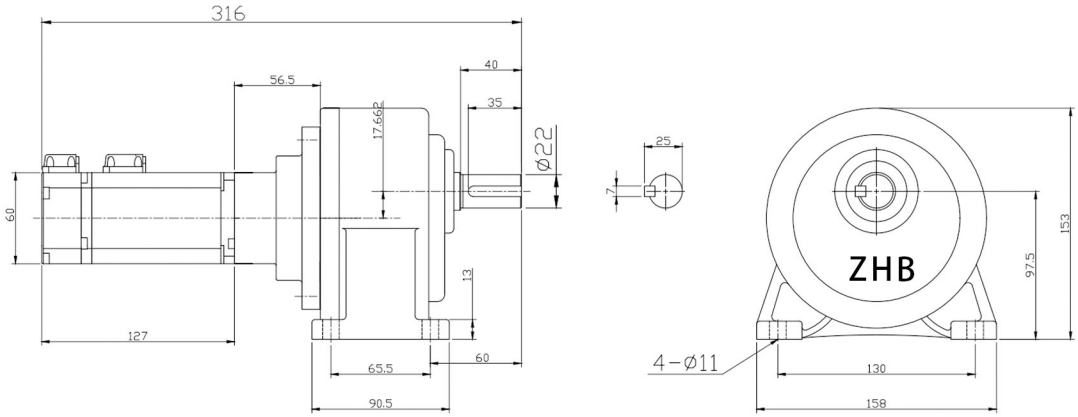

城邦齒輪減速馬達精密制造

DIMENSION R寸表

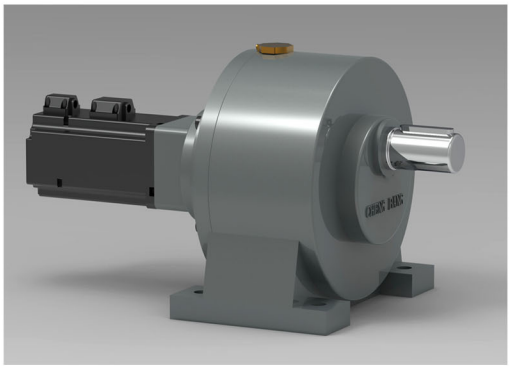
## 城邦CHM200W-(15-90)-22轴+200W60伺服-04

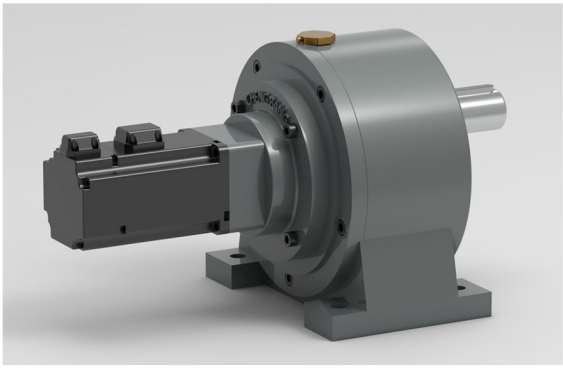


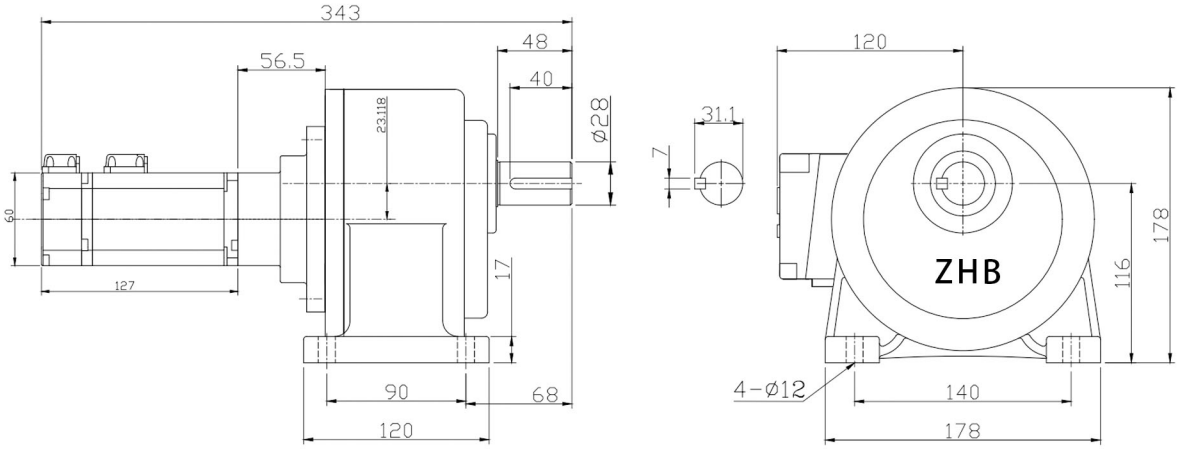





## 城邦CHM200W-(100-200)-28轴+200W60伺服-04



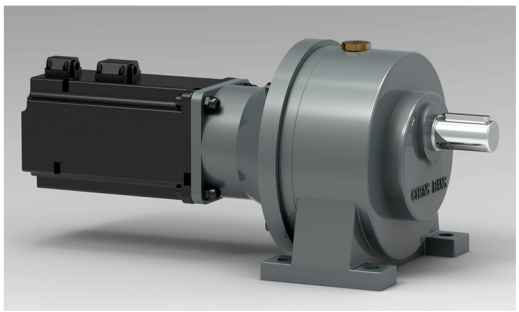


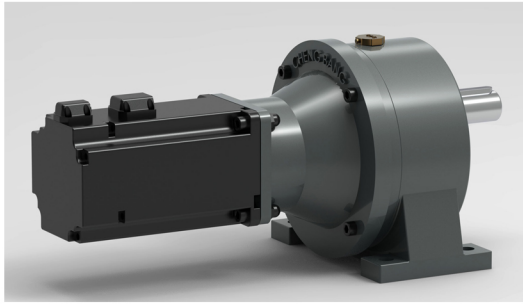


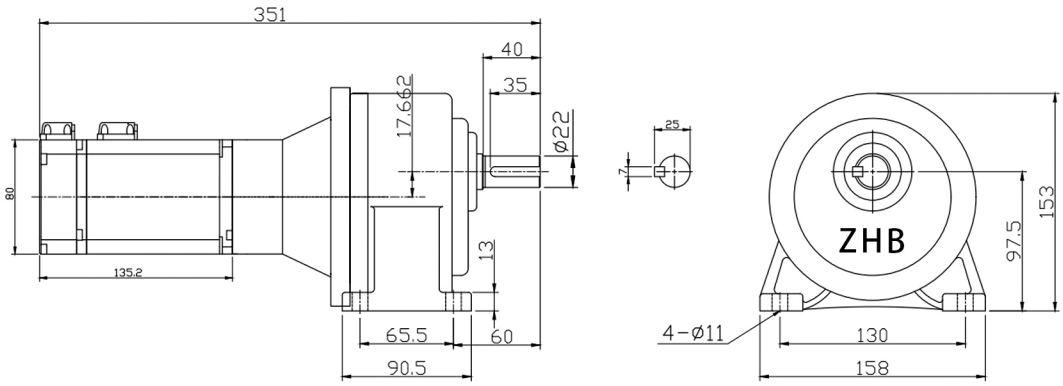

城邦齒輪減速馬達精密制造

DIMENSION R寸表

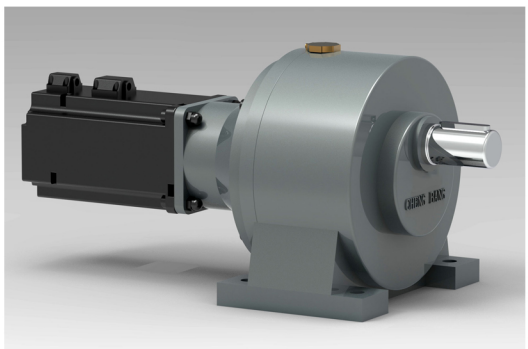
## 城邦CHM400W-(3-10)-22轴+400W80伺服-75

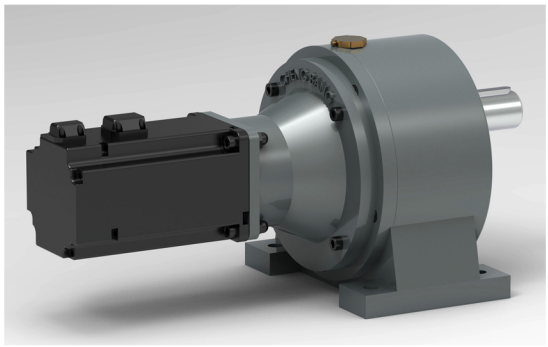


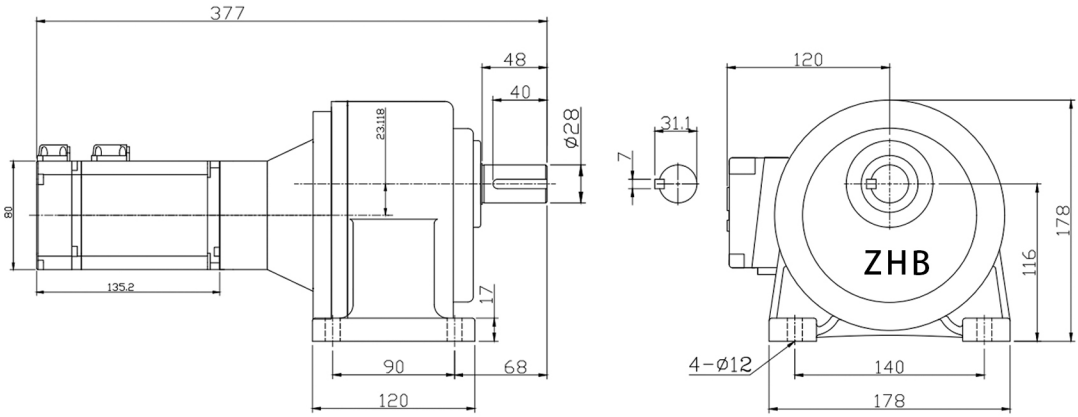





## 城邦CHM400W-(15-90)-28轴+400W80伺服-75

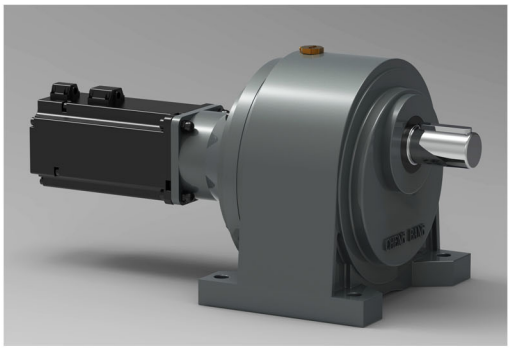


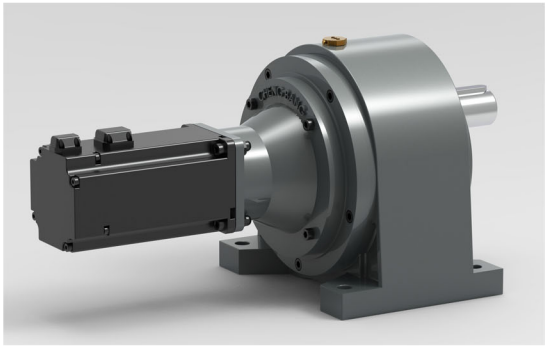


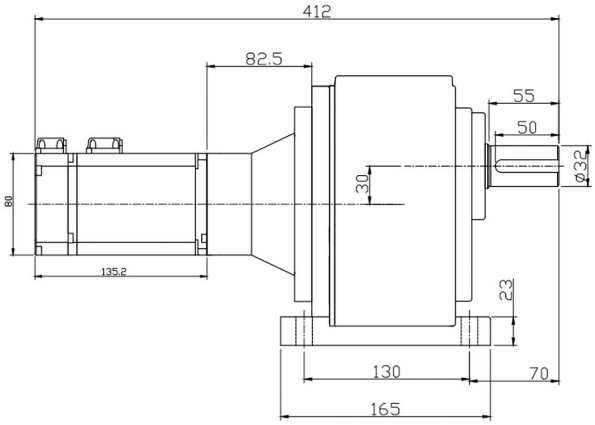


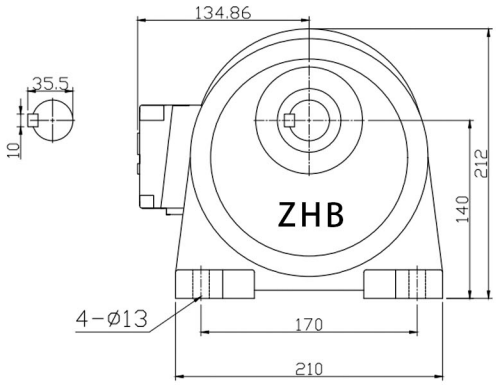

城邦齒輪減速馬達精密制造

## 城邦CHM400W-(100-200)-32轴+400W80伺服-75

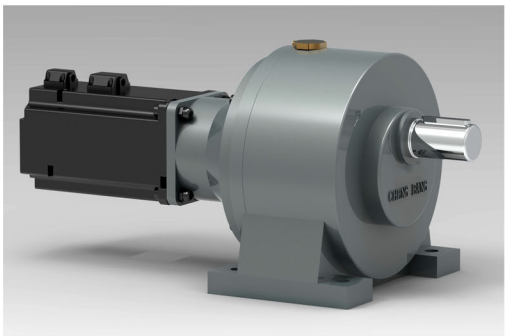


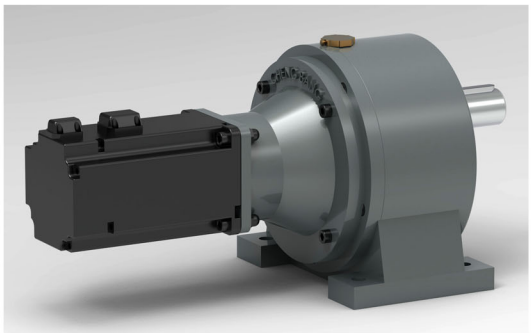


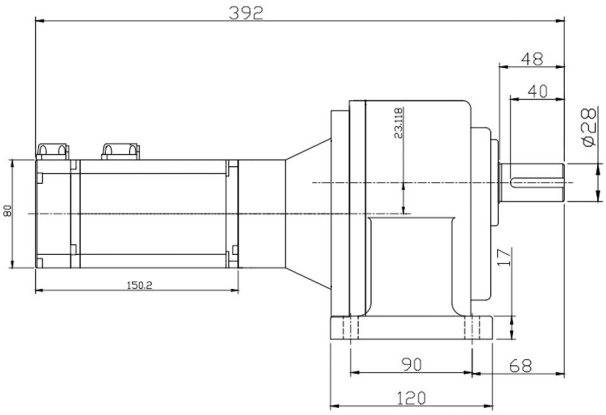


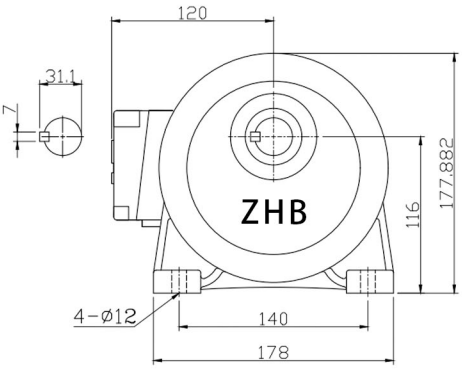




## 城邦CHM750W-(3-25)-28轴+750W80伺服-10



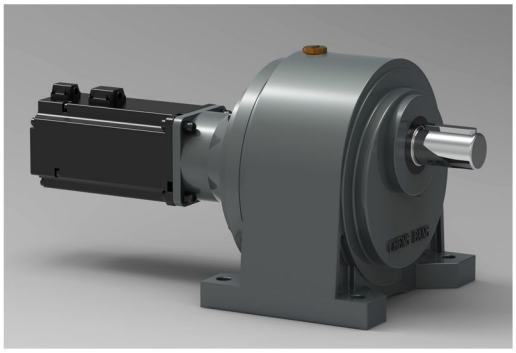


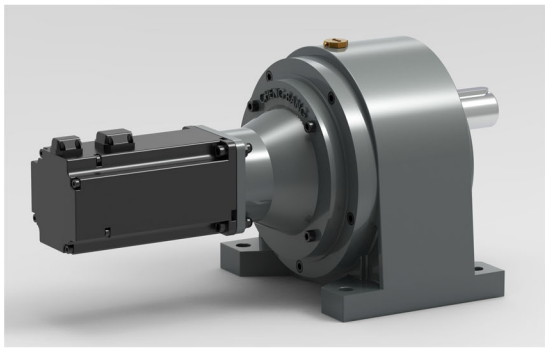


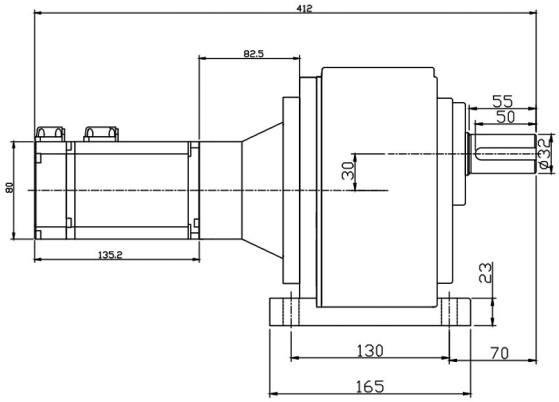



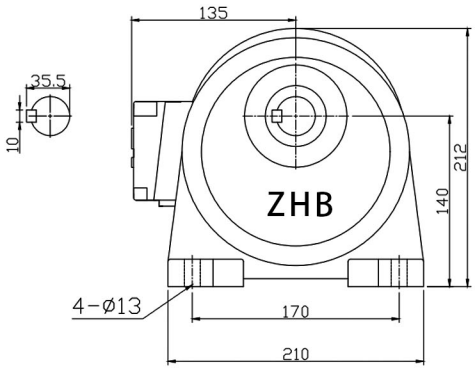
DIMENSION R寸表

## 城邦CHM750W-(30-120)-32轴+750W80伺服-10

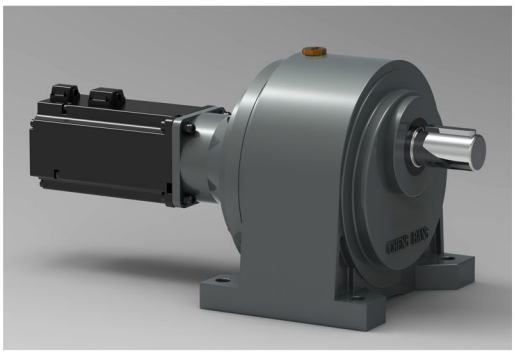


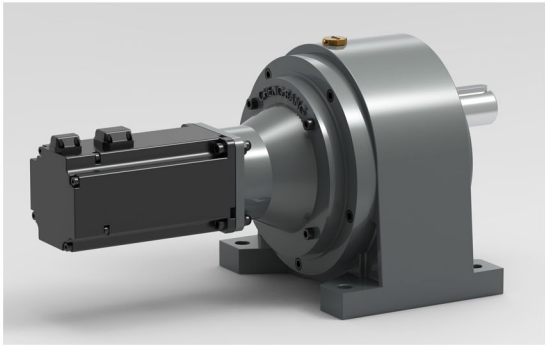


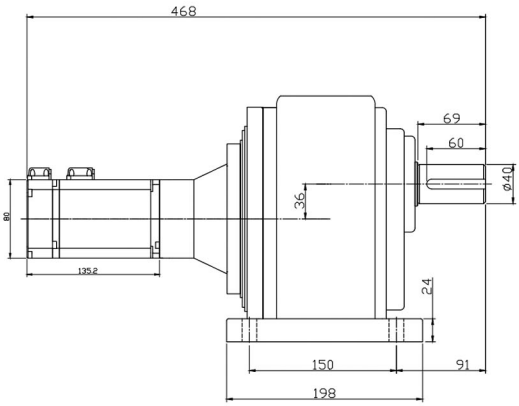


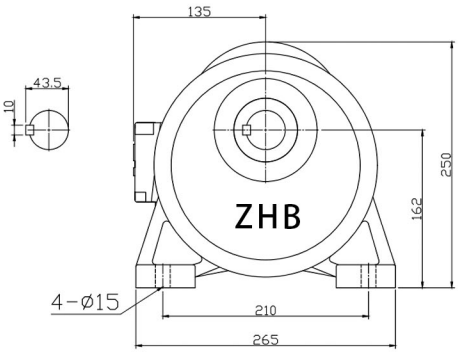




## 城邦CHM750W-(125-200)-40轴+750W80伺服-10





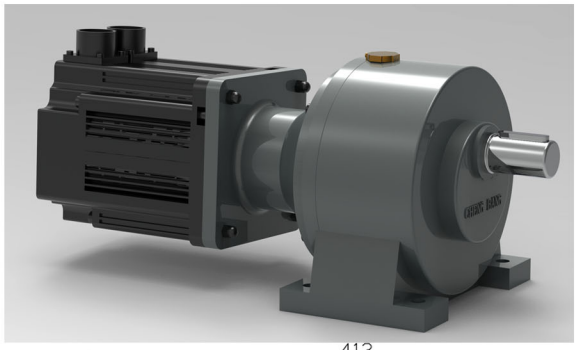


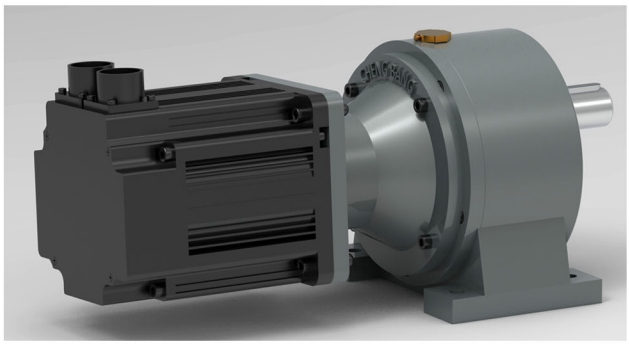



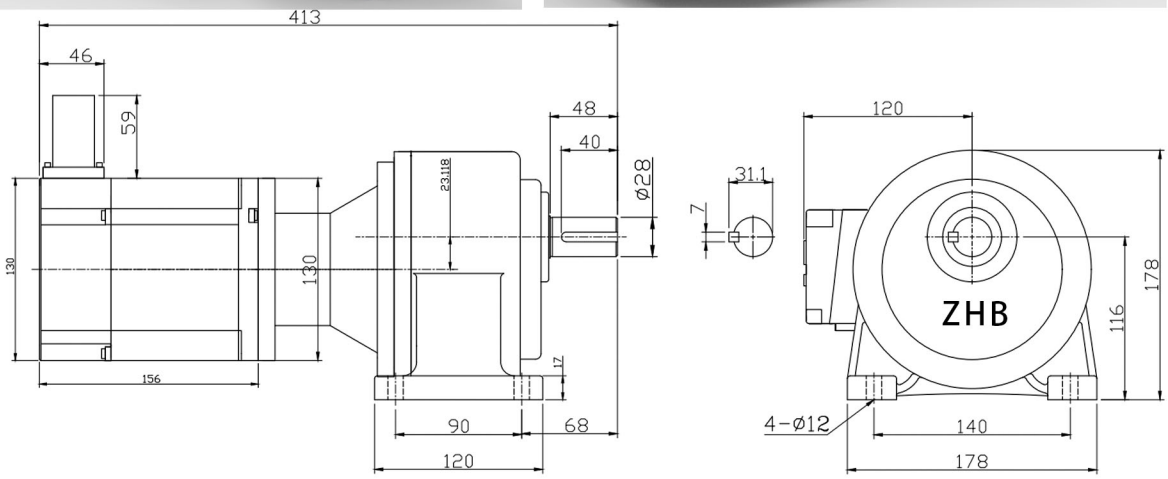

城邦齿輪減速馬達精密制造

DIMENSION R寸表

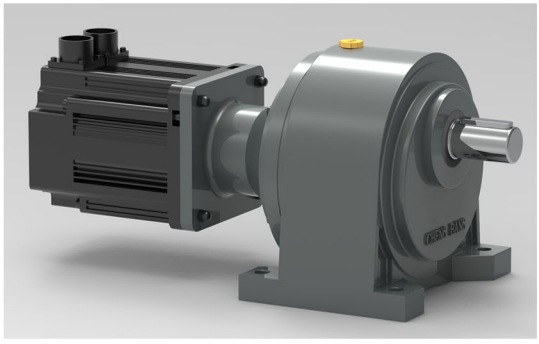
## 城邦CHM750W-(3-25)-28轴+750W130伺服-85

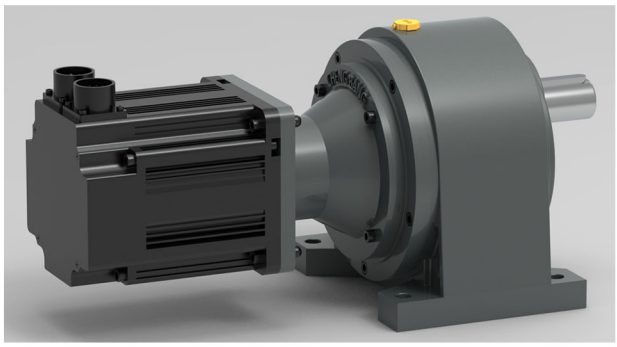


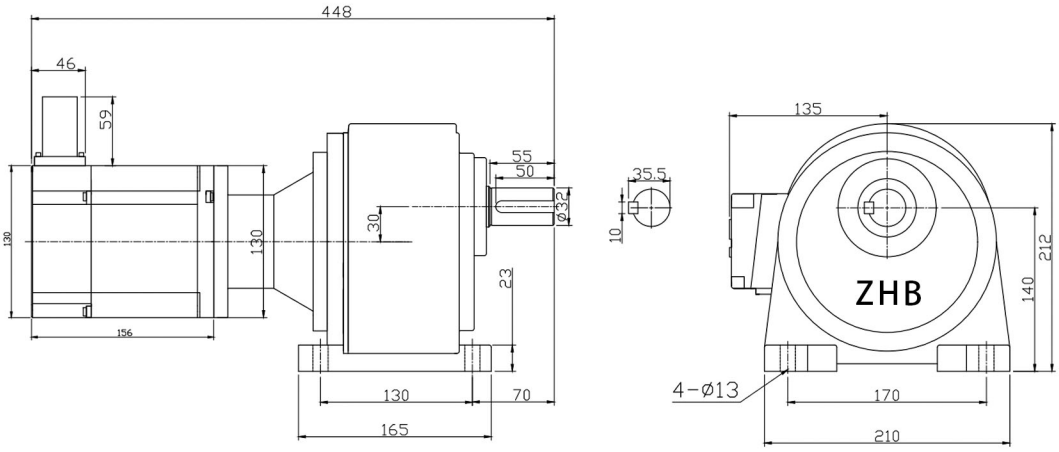





## 城邦CHM750W-(30-120)-32轴+750W130伺服-85



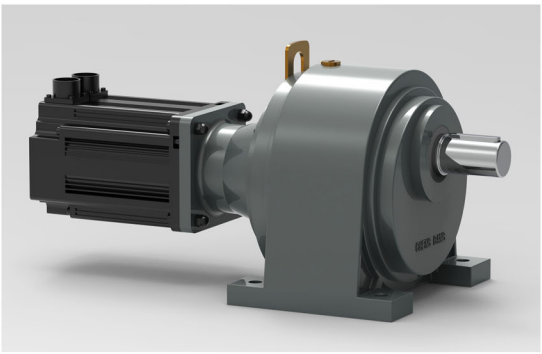


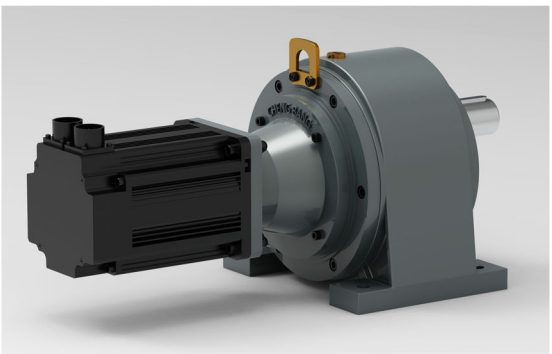


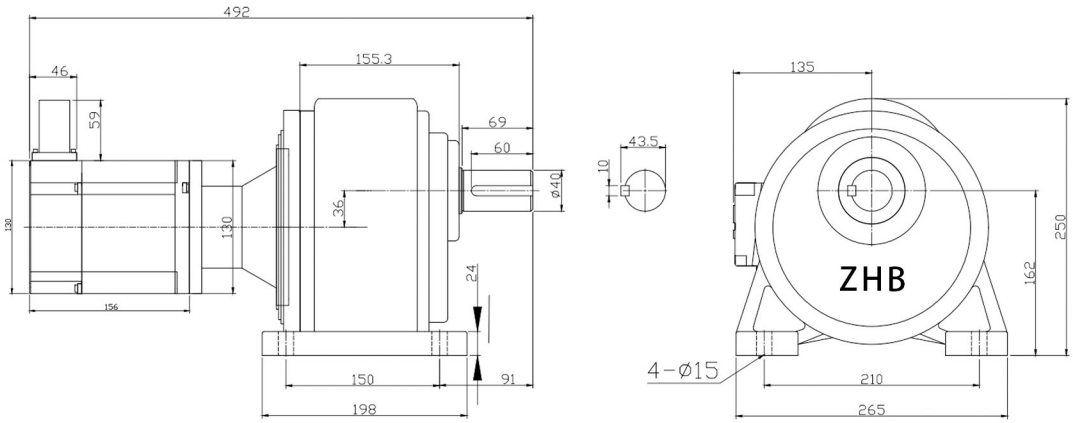

城邦齒輪減速馬達精密制造

DIMENSION R寸表

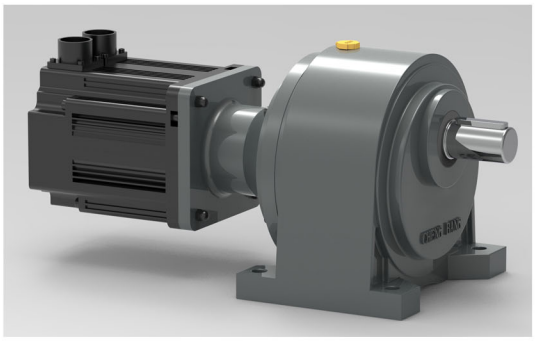
## 城邦CHM750W-(125-200)-40轴+750W130伺服-85

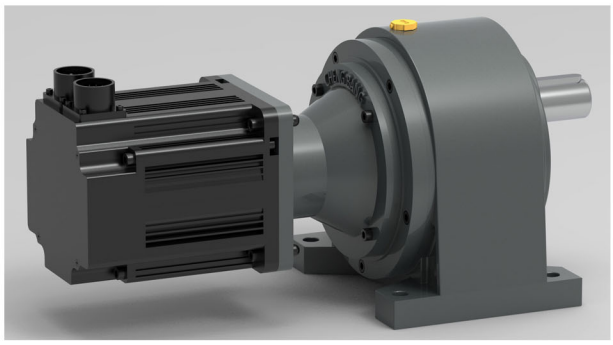


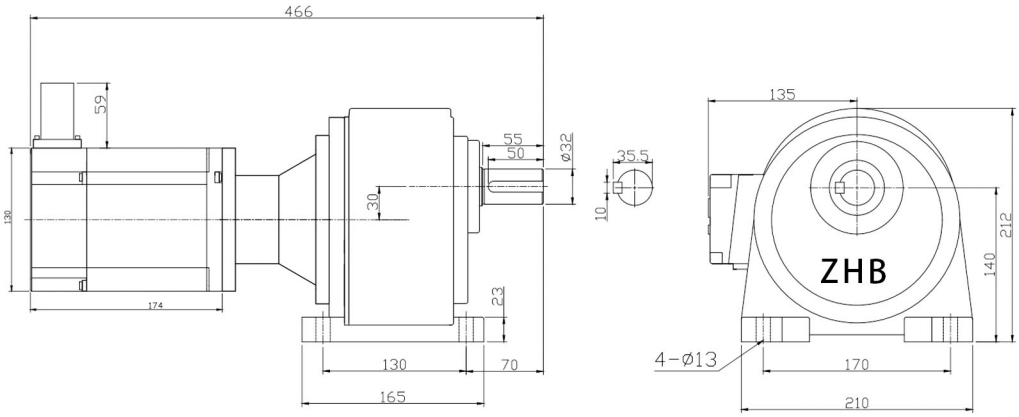





## 城邦CHM1500W-(3-30)-32轴+1500W130伺服-13



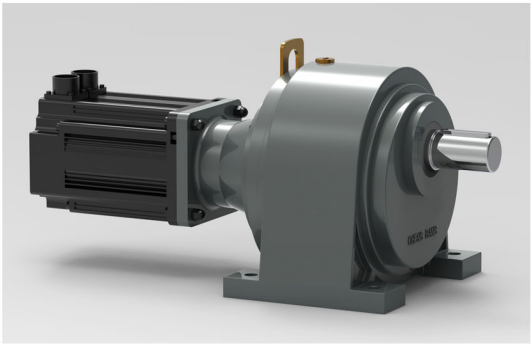


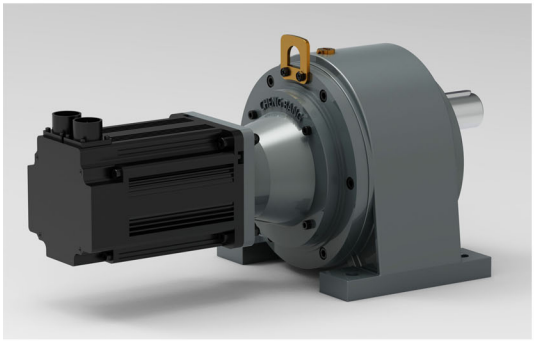


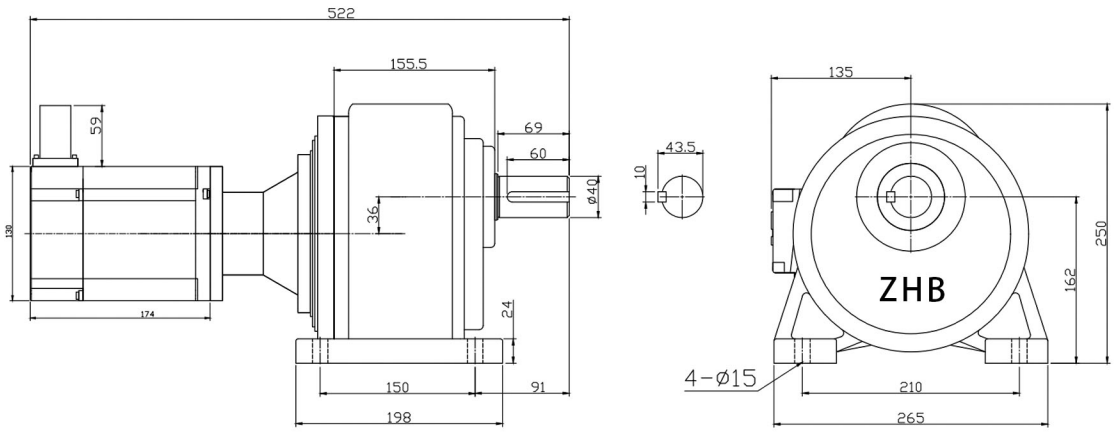

城邦齒輪減速馬達精密制造

DIMENSION R寸表

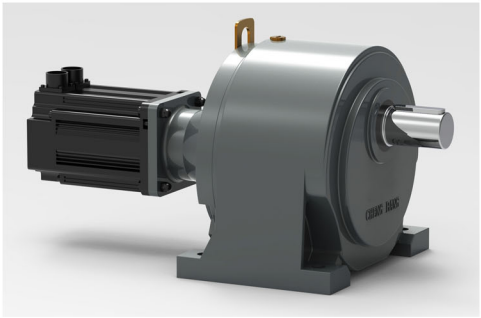
## 城邦CHM1500W-(40-100)-40轴+1500W130伺服-13

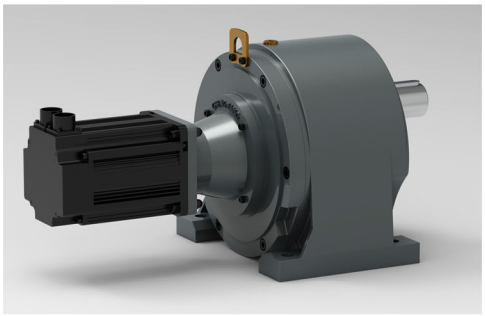


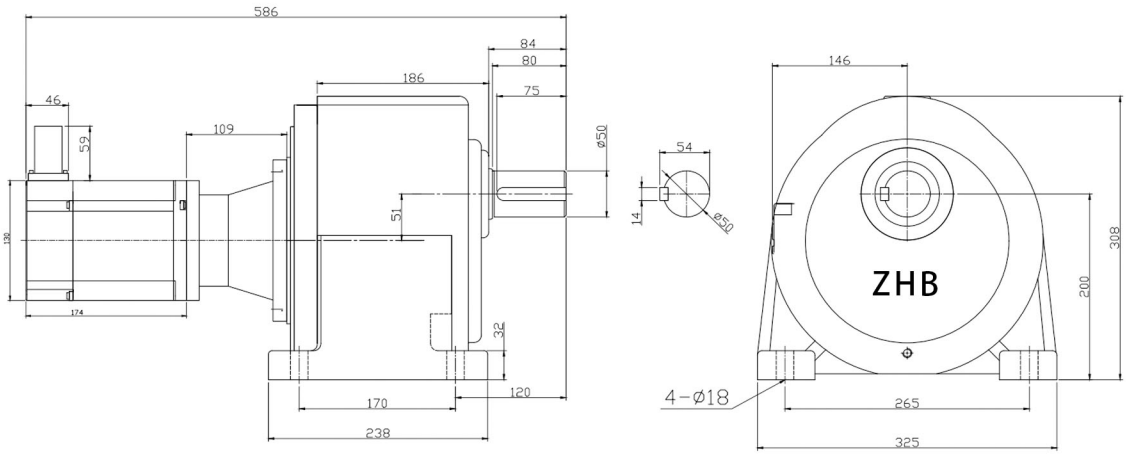





## 城邦CHM1500W-(110-180)-50轴+1500W130伺服



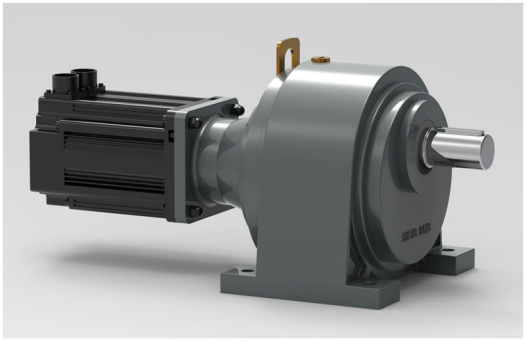


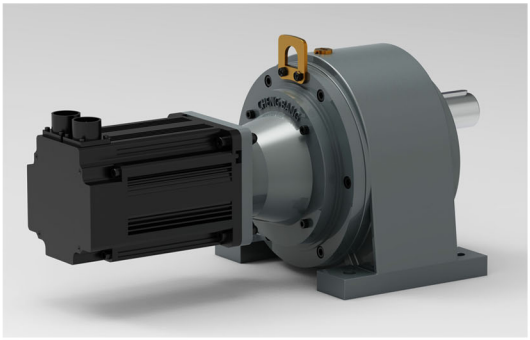


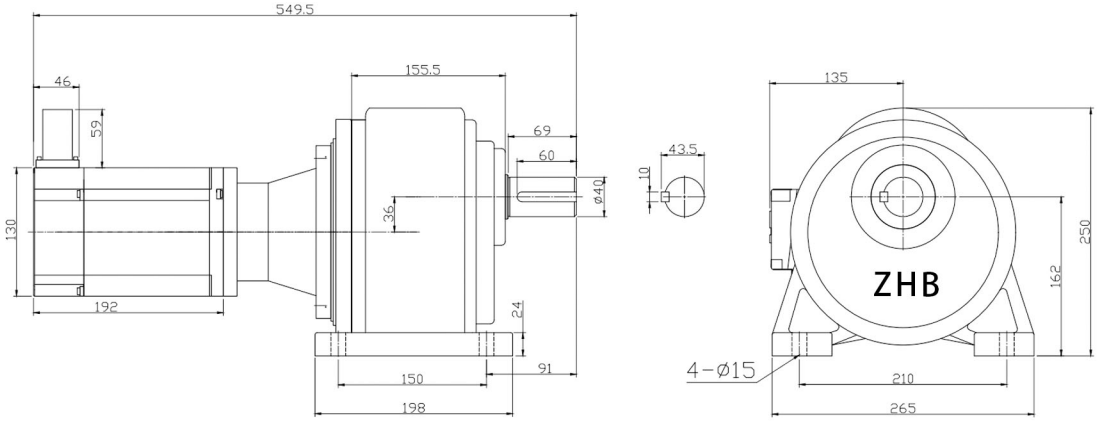

城邦齒輪減速馬達精密制造

DIMENSION R寸表

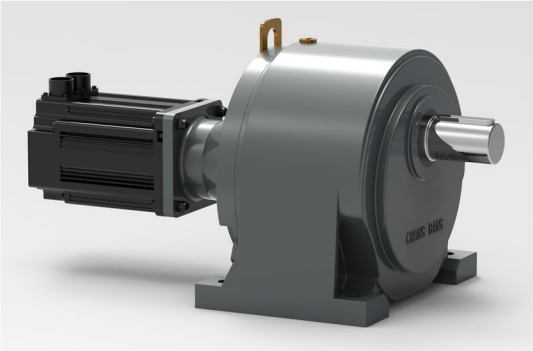
## 城邦CHM2200W-(3-40)-40轴+2200W130伺服-18

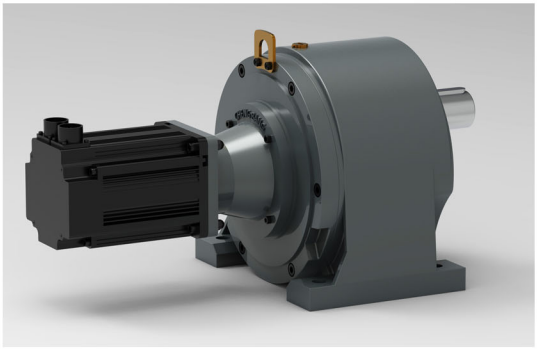


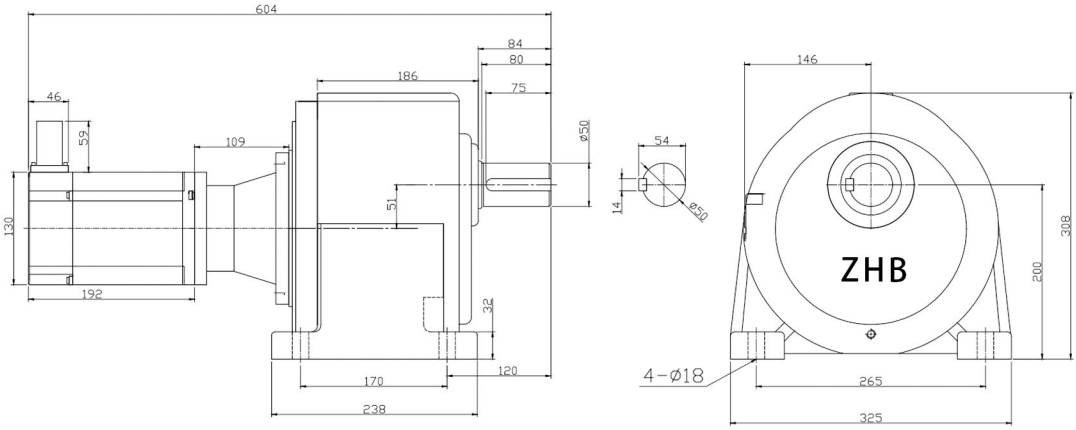





## 城邦CHM2200W-(50-100)-50轴+2200W130伺服-18








城邦齒輪減速馬達精密制造

## 4-1 產品特點 PRODUCT FEATURES

### 4-1-1 產品結構特點（PRODUCT STRUCTURE CHARACTERISTICS）

本公司提供的齒輪減速電機結合國際技術要求制造，采用斜齒輪傳動結構，體積小、重量輕、傳遞轉矩大、起動平穩、
傳動比分級精細，可根據用户要求進行任意連接和多種安裝位置的選擇。

1、與直齒輪相比，傳遞的扭矩大，噪音小；
與蝸輪機相比，效率高，免保養，減速範圍大；
與擺綫產品相比，重量輕，結構簡單，噪音小，外觀更有檔次。
2、節省空間，可靠耐用，承受過載能力高，功率可達90KW以上，本公司產品功率範圍涵蓋0.1KW-3.7KW。
3、能耗低，性能優越，減速機效率高。
4、振動小，噪音低，節能高，選用優質鍛鋼材料，鋼性鑄鐵箱體，齒輪表面經過滲碳及磨齒處理，部分采用高頻熱處理。
5、經過精密加工，確保定位精度，這一切構成了齒輪傳動總成的齒輪減速電機配置了各類電機，形成了機電一體化，完全保證了產品使用質量特徵。

### 4-1-2 產品性能優勢（PRODUCT PERFORMANCE ADVANTAGES）

1、本公司所有產品均采用冷軋高衝高效率的矽鋼片，產品更節能，性能更穩定，功率更强勁；
2、齒輪的齒軸部分全系列采用20鉻錳鈦+滲碳處理工藝+二次精滚/磨齒齒輪處理工藝，滿足客户對高品質、長壽命的減速馬達需求，打破行業内原先齒輪組建以40鉻爲標準的現狀，提高齒輪耐磨性、抗衝擊性和使用壽命，本產品的齒軸在正常使用情況下，連續使用壽命可達3萬小時以上，而以40鉻爲材質的產品連續運轉使用壽命均在2萬小時以内。
3、在行業内率先采用灰鐵250作爲減速箱材質，打破業内之前采用灰鐵180和灰鐵200的結構，減少鑄鐵件電機在運輸中摔斷角座的可能性，提高箱體及角座部分的抗拉力；
4、本公司所有電機均爲鋁合金材質ADC-12。減速箱1-3號本體采用鋁合金材質ADC-12,4-6號本體采用鑄鐵材質FC-20或灰鐵250。
5、電機部分全系列外殼均采用國際品牌的鋁鎂合金，使電機外觀更漂亮，產品更輕巧，散熱更强勁。

## 4-2 注意事項 MATTERS NEDDING ATTENTION

### 4-2-1 選型注意事項（SELECTION CONSIDERATIONS）

1、在選型過程中，應盡量避免大功率、小比數、低頻率運轉，這樣會導致電機功率大、能耗大，使不上力氣，容易燒毁電機等情況。選型應先計算速度，得出安全頻率，算出速比，根據扭矩表再計算功率，做到安全、節能、環保選型。
2、盡量避免速度變化範圍過大，速度變化應盡量控制在3倍以内，超出3倍到6倍之間應保證使用不超過30分鐘，且需加大電機功率，交且還需保證使用頻率盡量不超過60HZ。60HZ-80HZ間應盡量短時間使用，控制在30分鐘以内；超過80HZ者不建議使用。速度變化超過6倍必須選用變頻電機 。

3、盡量避免重載、低頻頻繁啓動。因爲在低頻、重載時，電機的功效低，熱效大，實際功率遠低于50HZ時的額定功率，極易導致過載或高温。

4、啓動轉矩過大時，建議采用軟啓動方式，并且等電機先調到50HZ，達到最佳效率後，再調至客户需求的理想速度。

5、重載項目或啓動要求快，或加速時間短，或帶負荷啓動項目及場合，不可使用縮框機型。

6、1.5KW及以上功率，建議優先使用380V電源。

7、如對位置有要求時應選用刹車馬達，但刹車頻率應最大不超過每分鐘4次。每分鐘超過2次，刹車壽命會降低，每分鐘超過4次，不適合使用；每分鐘超過一次的刹車，電機本身功率應增加以應對衝擊負載。

8、刹車頻率每天超過80次及以上，建議不采用縮框型減速電機。

9、如選擇側裝、倒裝、倒挂、倒立的安裝方式時，訂貨時須向我司注明，我司將根據安裝方式調整油量、油位及透氣要求，如不注明，極易造成漏油、幹磨、噪音或高温等。

## 4-2-2 安裝注意事項（INSTALL THE MATTERS NEEDING ATTENTION）

1、安裝前確認電機和減速機是否完好無損，型號、功率、速比等是否無誤，并且嚴格檢查各軸徑、孔徑、鍵和鍵槽的尺寸是否匹配，避免裝配過繁、過鬆影響減速機性能。

2、連接時必須保證減速機輸出軸與電機輸入軸平行，同心度一致， 底座須以適當螺栓，確保固定緊密。如同心度不一致，會導致電機軸折斷或減速機齒輪磨損。

3、在安裝時，嚴禁用鐵錘等重力擊打、擠壓，防止軸向力或徑向力過大損壞軸承或齒輪，或者造成内部變形産生嚴重噪音及卡死現象。

4、使用新減速機時，不能滿負載起動，應該逐步增大負載。

5、電機須按正確方式接綫，接綫錯誤會導致電機燒毁。

6、6、確保電機風扇附近有良好的通風環境，以免影響散熱效果。

7、7、減速機的標準工作環境温度爲-5℃至40℃，工作環境异常高温或低温時請注明。

8、8、搭配變頻器使用時，如果常使用于低頻，請使用變頻專用馬達。

9、9、安裝在減速機軸上的齒輪或聯軸器，需保持徑向同心或軸向水平。

10、10、卧式減速機底部螺絲安裝時，須保證底平面絶對平整，否則易造成角座拉斷。

11、11、如使用鏈條傳動，請避免鏈條過緊，在鏈條緊綳的情况下，電機負載增加數倍，會導致電機燒毁；過鬆會導致鏈條叠加，增加瞬間衝擊力，導致齒輪斷齒，應以偏鬆，但鏈條無法叠加爲適宜。

## 4-2-3 接綫注意事項（WIRING MATTERS NEEDING ATTENTION）

1、接綫時需確保螺絲鎖緊，否則將可能導致缺相，接觸不良，過壓過載。

2、殺車接變頻器時，剎車綫一定要外接，不可和電機綫同綫，否則會導致堵死、燒毀綫圈。因剎車要到50HZ才打開，
而 電機衹需1HZ就可啓動，在剎車打開之前，電機已堵死。

## 4-2-4 變頻注意事項（VARIABLE FREQUENCY CONSIDERATIONS）

在未安裝强制風扇的情况下，適用頻率範圍爲20-60HZ，不宜長期在20HZ以下頻率運行（如必要，請控制在30分鐘内），切勿在高于60HZ以上頻率運行。

## 4-2-5 潤滑注意事項（LUBRICATION POINTS FOR ATTENTION）

本公司與出廠前已添加油脂（BT-860-0），在正常條件下運轉20，000小時可不必更換潤滑油脂，但在特殊環境下運轉時，如：高温，長時間運轉，衝擊負荷時，則換油頻率爲10，000-15，000小時。

ALL REDUCERS FILLED WITH LUBRCANT(BT-860-0)BEFORE DELIVERY,NORMALLY,IT NO NEED TOREPLACE LUBRICANT FOR FIRST 20.000 HRS RUNNING,BUT IF WORKING IN SPCIAL APPLICATION,SUCH AS:HIGH TEMPERATURE,24 HRS RUNNING,HEAVY DUTY IMPACT...ETC,THEN LUBRCANT NEED TOBE CHANGED IN EVERY 10.000-15.000WORKING HOURS.

可替換潤滑油脂（EXCHANGEABLE LUBRICANT）

| 廠牌（BRANG） | SHELL | COSMD | MOBIL | 昭和石油 | 臺制 |
|---|---|---|---|---|---|
| 規格（SPEC） | OMALAOIL 320 | EP-320 | MOBIL GEAR632 | ISO VGEP 320 | 國光牌HD-320 |

## 4-3 相關計算 CALCULATE DATA

### (A)連結系數表（CLCULATE DATA)

| | |
|---|---|
| 鏈輪SPROCKET | 1.00 |
| 齒輪GEAR | 1.25 |
| 三角皮帶BELT | 1.50 |
| 平皮帶FLAT BELT | 2.50 |

### (B)荷重系數表 (SERVICE FACTOR)

| 減還機負重等級 LOAD GRADE | 每日運轉時間 (HRS) DAILY OPERATING HOURS | | | |
|---|---|---|---|---|
| | 1-2 | 3-8 | 9-15 | 16-24 |
| 均一負載 UNIF ORM LOAD | 0.80 | 0.90 | 1.20 | 1.30 |
| 中級引擎負載 MEDIUM IMPACT LOAD | 1.00 | 1.20 | 1.30 | 1.50 |
| 重級引擎負載 HEAVY IMPACT LOAD | 1.20 | 1.50 | 1.75 | 2.00 |

### (C)符號説明(CODE DETAILS)

| | | |
|---|---|---|
| V=速度 SPEED(M/MIN) | E=效率 EFFICIENCY(%) | 1 INCH=2.54CM |
| I=減速比RATIO | $N_2$ =出力軸轉速(RPM) OUTPUT SHAFT SPEED | 1 FOOT=12INCH |
| T=輸出扭力(KG-M) OUTPUT TORQUE | D =滚軸直徑(MM) ROLLER RADIUS | 1 KW=1000W 1KW=1.34HP |
| K=連接系數 CONNECTING FACTOR | R =滚軸半徑(MM) ROLLER RADIUS | 1 KG-M=7.233FT-LB 1 KG-M=86.8FT-LB |
| F=荷重系數 SERVICE FACTCOR | KW1(HP1) =入力馬力 INPUT CAPACITY | 1 KG=2.2LB 1 LB=0.4536KG |
| W=荷重 LOAD | KW2(HP2) =輸出馬力 OUTPUT CAPACITY | N1=入力回轉速(r/min) INPUT SHAFT ROTATION SPEED |

### (D)基本傳動公式(BASIC FORMULAR)

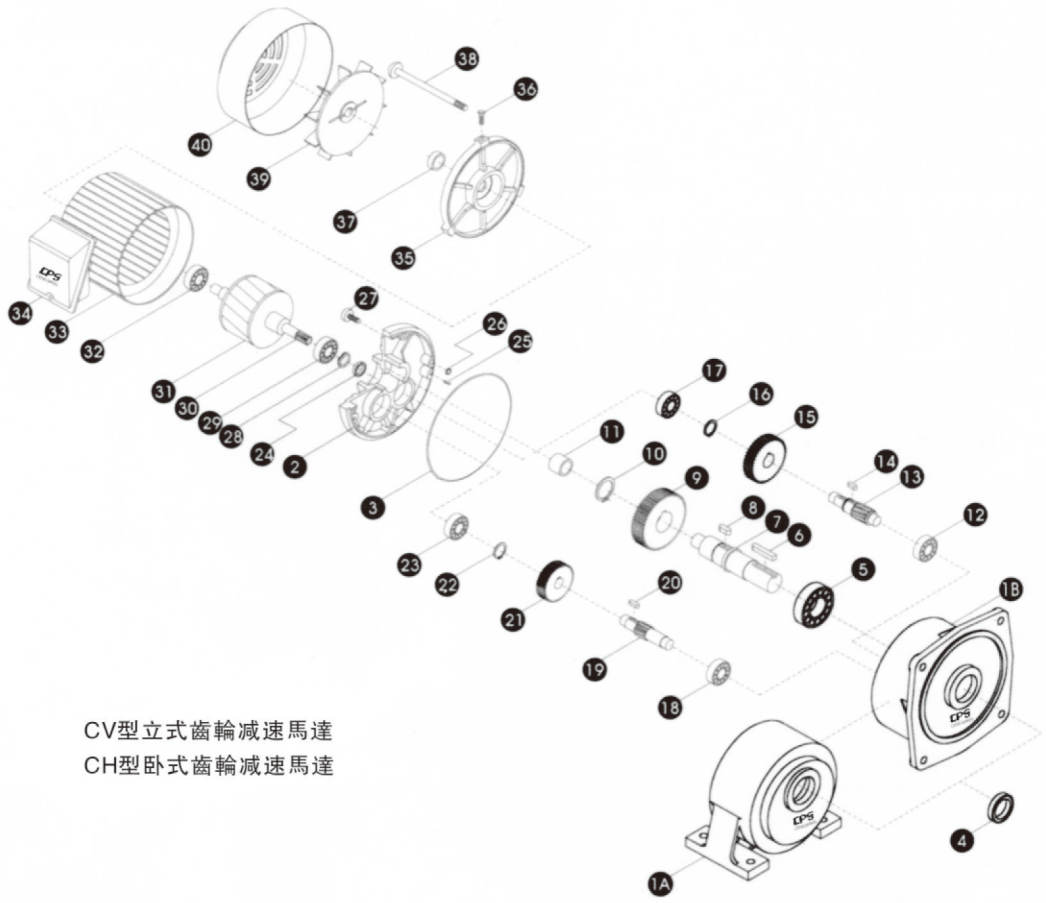
| | |
|---|---|
| 減速比 RATIO | $I=N_2/N_1$ |
| 回轉速度ROTATION SPEED(R/MIN) | N1=V/ΠD |
| 輸出扭力OUTPUT TORQUE(KG-M) | T=W×R×K |
| 輸入馬力INPUT HORSEPOWER(公制 METRIC) | KW1=N×T×974 |
| 輸入馬力INPUR HORSEPOWER(英制 INCH) | HP1=N×T/716 |
| 輸出馬力OUTPUT HORSEPOWER(公制 METRIC) | KW2=KW1×F/E |
| 輸出馬力 OUTPUT HORSEPOWER(英制 INCH) | HP2=HP1×F/E |

### (E) 減速機水平輸送場合符號説明及傳動公式（DESCRIPTION AND TRANSMISSION)

| | | | |
|---|---|---|---|
| 輸送速度(r/min) TPANSMISSION SPEED | V | 輸送帶摩擦系數 BELT FRICTION COEFFICIENT | μ |
| 滚輪直徑(MM) ROLLER DIANETER | D | 鏈輪傳動效率（%） CHAIN DRIBE EFFCIENCY | η1 |
| 載重量(KG) LOAD | W | 減速機傳動效率（%） REDUCER TRANSNISSION EFFICIENCY | η2=0.9 |
| 出力軸主動鏈齒輪數 OUTPUT SHAFT TEETH | T1 | 輸送機被動鏈輪齒數 CONVEYOR PASSIVE SPROCKET TEETH | t2 |
| 輸送帶所需扭力(KG-M) BELT TOPQUE | T1 | 減速機減速比 REDUCER RATIO | 1 |
| 減速機扭力(KG-M) REDUCER TOPQUE | T2 | 減速機出力軸回轉速（R/min) REDUCER OUTPUT SHAFT ROTATION SPEED | N2 |
| 荷重系數 SHRVICE FACTOR | F(查4-13表（B) F(FIND4-13 TABLE(B)) | | |

| | |
|---|---|
| 輸送機回轉速度（R/MIN) TRANSMISSION SPEED | N1=V/ΠD |
| 減速機出力軸回轉速（R/MIM) REDUCER OUTPUT SHAFT ROTATION SPEED | N2=N1×(T1/T2) |
| 減速機減速比(I) REDUCER RATIO | 50HZ I=1500/N2 60HZ I=1800/N2 |
| 輸送帶所需扭力（KG-M) BELT TORQUE | T1=W×D/2× μ/η1 |
| 減速機所需扭力（KG-M) REBUCER TORQUE | T2=T1×(T1/T2)/η2 |
| 考慮荷重系數減速馬達扭力 GEAR MOTOR TORQUE(SERVICE FACTORBE CONSIDER) | T3=T2×F |
| 馬力(HP) CAPACITY | HP=T3×N2/716.2 |

## 4-4 零件剖面圖 SECTIONAL DIAGRAM FOR PARTS




CV型立式齒輪減速馬達
CH型卧式齒輪減速馬達

| 2段/3段式結構剖示圖<br>2 STAGES/3STAGES SECTIONAL DIAGRAM | | | | | |
|---|---|---|---|---|---|
| 項次 | 零件名稱 | 項次 | 零件名稱 | 項次 | 零件名稱 |
| 1A | 卧式本體 HORIZONTAL HOUSING | 14 | 三段小齒輪鍵 KEY-3 STAGE PINION | 28 | 波浪彈簧 WAVE SPRING |
| 1B | 立式本體 VERTICAL HOUSING | 15 | 二段大齒輪 GEAR-2 STAGE | 29 | 馬達軸培林 BEARING-MOTOR SHAFT |
| 2 | 馬達前蓋 HOUSING COVER | 16 | C-扣環 SNAP RING | 30 | 馬達齒輪 MOTOR SHAFT |
| 3 | O型環 0-RING | 17 | 三段齒軸培林 BEARING-3RD STAGE PINION | 31 | 轉子 ROTOR |
| 4 | 出力軸油封 OIL SEAL-OUTPUT SHAFT | 18 | 二段齒軸培林 BEARING-2 STAGE PINION | 32 | 馬達軸培林 BEARING-MOTOR SHAFT |
| 5 | 出力軸培林 BEARING-OUTPUT SHAFT | 19 | 二段小齒輪 PINION-2 STAGE | 33 | 綫圈總成 COIL ASSEMBLY |
| 6 | 出力軸鍵 KEY-OUTPUT SHAFT | 20 | 二段小齒輪鍵 KEY-2 STAGE PINION | 34 | 鋁接綫盒 WIRE BOX |
| 7 | 出力軸 OUTPUT SHAFT | 21 | 一段大齒輪 GEAR-1 STAGE | 35 | 馬達後蓋 REAR COVER-MOTOR |
| 8 | 三段小齒軸鍵 KEY-3 OPINION | 22 | C-扣環 SNAP RING | 36 | 風罩螺絲 SCREW-FAN COVER |
| 9 | 三段大齒輪 GEAR-3 PINION | 23 | 二段齒輪培林 BEARING-2 STAGE PINION | 37 | 後蓋油封 OIL SEAL-REAR COVER |
| 10 | C-扣環 SNAP RING | 24 | 入力側油封 OIL SEAL-MOTOR SHAFT | 38 | 馬達螺栓 BOLT-MOTOR |
| 11 | 出力軸自潤軸承 OILLESS BEARING | 25 | 定位銷 PIN | 39 | 風葉 FAN |
| 12 | 二段齒輪培林 BEARING-2 STAGEPINION | 26 | O型環 O-RING | 40 | 風罩 FAN COVER MITOR |
| 13 | 三段小齒輪 PINION-3 STAGE | 27 | 内六角螺絲 HEX-HEAD SCREW | | |

## 4-5 減速機各部零件説明 PARTS DETAILS

### A) 本體(HOUSING)

*1號，2號及3號本體，其出力軸直徑介于ϕ18-ϕ28之間時，減速機本體皆采用鋁合金材質ADC-12，
ALUMINUM HOUSING FOR OUTPUT SHAFT DIAMETER BETWEEN ϕ18-ϕ28,HOUSING MATERIAL ADC-12 ALUMINUM ALLOY.
* 4號，5號及6號本體，其出力軸直徑介于ϕ32-ϕ50之間時，減速機本體皆采用鑄鐵材質FC-20.
CAST IRON HOUSING FOR OUTPUT SHAFT DIAMETER BE1WEEN ϕ32-ϕ50.HOUSING MATERIAL: FC-20-CAST IRON

### B) 1/2/3段齒輪(1ST,2ND&3RD STAGE GEAE)

*齒輪經精密滚齒加工，齒輪加工精度等級爲2-3級
GEAR MACHINING BY PRECISION HOBBING MACHINE, GEAR PRECISION LEVEL BET WEEN GRADE2-3
* 齒輪材質爲S45C，調質至HRC21° 再經高週波熱處理至HRC45° -48°
GEARWITHS45C MATERIAL,BYNORMALIZE&INDUCTION HARDENED HEAT TREATMENT TO HARDNESS HRC45° -48°

### C) 二/三段齒軸(2ND&3RD STAGE PINION)

*齒輪經SKIVING精密滚齒加工，齒輪精度等級爲1-2級。
GEAR PINION MACHINING BY SKIVING CUTTING,PINION PRECISION LEVEL BETWEEN GRADE1-2.
齒輪材質爲SCM21，調質至HRC21° 再經滲碳熱處理至HRC58° -61°
PINON WITH SCM21,MATERIAL,BY NORMALIZE&INDUCTION HARDENED HEAT TREATMENT TO HARDNESS HRC58° -61°

### D) 馬達齒軸(MOTOR SHAFT)

*馬達齒軸經SKIVING精密滚齒加工，齒軸精度等級爲1-2級.
MOTOR SHAFT GEAR PINION MACHINING BY SKIVING CUTTING,PINION PRECISION LEVEL BETWEEN GRADE1-2.
* 材質爲SCM4，調質至HRC21° 再經高波熱處理至HRC50° -53°
PINON WITH SCM4 MATERIAL. BY NORMALIZE&INDUCTION HARDENED HEAT TREATMENT TO HARDNESS HRC50° -53°

### E) 軸承(BEARING)

*馬達部分皆采用瑞典SKF或同等級精密軸承，以確保長期運轉壽命.
ALL MOTOR SHAFT ASSEMBLY WITH SWEDEN MADE "SKF" BEARING OR EQUIVAL ENTPRECISION BEARING, IN ORDER TO ENSURE LONG LIFE RUNNING.

### F) 油封(OIL SEAL)

*馬達軸側以耐高温VITO油封爲主，可確保防止潤滑油回漏馬達内部.
MOTOR SHAFT SIDE WITH"VITON"MATERIAL OIL SEAL,IT CAN PREVENT LUBRICANT FLOW INTO MOTOR CASING.

### G) 接綫盒(TERMINAL BOX)

*采用鋁合金專用IP-55鋁制接綫盒，防水性及防塵性佳.
TERMINAL BOX WITH ALUMINUM ALLOY MATERIAL, SPECIAL DESIGN FOR IP-55LEVEL AND TOTALLY AVOID WATERAND DUST INTO CASING.

### H)三相/單相馬達本體(THREE/SINGLE PHASE MOTOR HOUSING)

*三相馬達：采標準全密閉型專用鋁殼馬達配IP-55鋁制接綫盒，具較佳防水性及防塵性，易散熱及運轉效率高.
THREE PHASE MOTOR WITH TOTALLY ENCLOSED FAN COOLED TYPE, IP-55 ALUMINUM TERMINAL BOX TOTALLY AVOID WATER AND DUST INTO HOUSING
* 單相馬達：采標準半密閉型專用鐵殼馬達配鐵制接綫盒，較易散熱，運轉效率高.(本公司亦可提供全密型鐵殼馬達及鋁合金型單相馬達).
SINGLE PHASE MOTOR WITH SEM-1-ENCL OSED FAN COOLED STEEL PLATETYPE.HIGH-EFFICIENCY RUNNING. (ALSO AVAILABLE FOR TOTALLY ENCLOSED STEEL PLATE HOUSING&ALUMINUM TYPE HOUSING)

### I)馬達後蓋(REAR MOTON COVER)

*可采用防水型馬達後蓋，于軸心處加置油封，可防止灰塵及外部水氣流入馬達.
REAR MOTOR COVER ASSEMBLY WITH OIL SEAL.IT CAN PREVENT DUST AND WATER GET INTO MOTOR.

## 4-6 馬達規範 MOTOR SPECIFICATION

4-6-1 標準馬達規範表 STANDARD MOTOR SPECIFICATION

| 項目ITEM | 三相交流馬達3-PHASE MOTOR | | 單相交流馬達 1-PHASE MOTOR | |
|---|---|---|---|---|
| 保護等級 PROTECTION | 全密閉外扇型IP-54 TOTALLY ENCLOSED FAN COOLED TYPE | | 半密閉外扇型 SEMI-ENCLOSECD FAN COOLED TYPE | |
| 外殼材質 HOUSING MATERIAL | 0.1-3.7KW | 鋁合金 ALUM ALLOY | 0.1-15KW | 鐵殼 STEEL PLATE |
| | 0.1-3.7KW | 鐵殼 STEEL PLATE | 0.1-1.5KW (OPTIONAL) | 鋁合金 ALUM ALLOY |
| 啓動方式 STARTING | 全壓啓動 DIRECT START | | 0.1-0.2KW | 運轉電容啓動CAPACITOR |
| | | | 0.4-1.5KW | 起動電容啓動+離心開關 CAPACITOR& CENTRIFUGAL SWITCH |
| 定格 TIME RATING | 連續運轉 CONTINUOUS RUNNING | | 連續運轉 CONTINUOUS RUNNING | |
| 絶緣等級 INSULATION | F-絶緣 F-CLASS | | F-絶緣 F-CLASS | |
| 適用環境 ENVIRONMENT | 温度：-10℃ TO+40℃ (TEMPERATURE BETWEEN-10℃ AND+40℃)<br>濕度：90%以下 (HUMIDITY LESS THAN90%) | | | |
| 適用電壓 VOLTAGE | 50HZ | 220V,230V,240V,380V, 400V,415V,440V | 50HZ | 110V,115V,200V, 220V,230V |
| | 60HZ | 220V,240V,380V,415V, 440V,460V,480V,600V | 60HZ | 110V,220V,240V |
| 適用極數 POLE | 2P,4P,6P,8P | | 4P | |
| 輸出轉數(4P) FULL SPEED | 50HZ | 1360-1430RPM | 50HZ | 1340-1400RPM |
| | 60HZ | 1640-1740RPM | 60HZ | 1610-1720RPM |
| 依據標準 FULL SPEED | 國際/國家標準<br>IEC-34,CNS-10919 ACCORING TO IEC-34,CNS-10919 | | | |
| 海拔 SEA LEVEL | 1000公尺以下 UNDER 1000M | | | |
| 接綫盒 TERMINALBOX | 采用IP55級防水型鋁合金接綫盒<br>WITH IP-55 CLASS WATER-PROOF ALUMINUM TERMINAL BOX | | | |

4-6-2 三相電壓全負載電流值3-PHASE/4-POLES FULL LOAD AMPERE

| 輸出馬力 CAPACIT | 50HZ-4P | | | | | 60HZ | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 220V | 380V | 415V | 440V | PRM | 220V | 380V | 440V | 460V | PRM |
| 100W | 0.6 | 0.4 | 0.32 | 0.3 | 1410 | 0.6 | 0.35 | 0.3 | 0.29 | 1720 |
| 200W | 1.15 | 0.67 | 0.61 | 0.58 | 1410 | 1.1 | 0.63 | 0.55 | 0.52 | 1720 |
| 400W | 2.14 | 1.24 | 1.13 | 1.07 | 1420 | 1.9 | 1.1 | 0.95 | 0.91 | 1730 |
| 750W | 3.67 | 2.13 | 1.94 | 1.84 | 1420 | 3.4 | 1.96 | 1.7 | 1.63 | 1730 |
| 1500W | 6.59 | 3.82 | 3.49 | 3.3 | 1430 | 6.1 | 3.53 | 3.05 | 2.92 | 1740 |
| 2200W | 8.94 | 5.18 | 4.74 | 4.47 | 1430 | 8.7 | 5.04 | 4.35 | 4.16 | 1725 |
| 3700W | 13.85 | 8.03 | 7.34 | 6.93 | 1440 | 13.5 | 7.82 | 6.75 | 6.46 | 1745 |
| 5500W | 20.2 | 11.7 | 10.7 | 10.1 | 1440 | 16.8 | 9.75 | 8.42 | 8.05 | 1745 |
| 7500W | 27.8 | 16.1 | 14.7 | 13.9 | 1440 | 23.1 | 13.4 | 11.57 | 11.06 | 1745 |

4-6-3 單相電壓全負載電流值 1-PHASE/4-POLES FULL LOAD AMPERE

| 輸出馬力 CAPACITY | 50HZ-4P | | | 60HZ-4P | | |
|---|---|---|---|---|---|---|
| | 110V | 220V | RPM | 110V | 220V | RPM |
| 100W | 4.00 | 2.00 | 1410 | 3.80 | 1.90 | 1720 |
| 200W | 5.00 | 2.50 | 1410 | 4.60 | 2.30 | 1720 |
| 400W | 8.40 | 4.20 | 1420 | 7.80 | 3.90 | 1730 |
| 750W | 14.20 | 7.10 | 1420 | 12.90 | 6.40 | 1730 |
| 1500W | 26.00 | 13.00 | 1430 | 23.40 | 11.70 | 1740 |

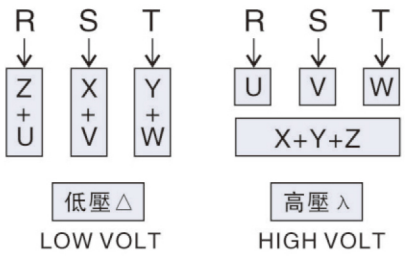
4-6-4 單相馬達電容器規格 1-PHASE MOTOR CAPACITOR

| 輸出馬力 CAPACITY | 運轉電容（文電型） RUNNING CAPACITOR (NON-CENTRIFUGAL TYPE) | 起動電容（離心開關型） STARTING CAPACITOR (THE CENTRIFUGAL SWITCHTYPE) | 運轉電容+起動電容（離心開關型） RUNNING& STATING (THE CENTRIFUGAL SWITCHTYPE) |
|---|---|---|---|
| 100W | 10μf-450V | ----- | ----- |
| 200W | 16μf-450V | 125μf-250V | ----- |
| 400W | 30μf-450V | ----- | 30μf-450V+200μf-250V |
| 750W | 35μf-450V | ----- | 35μf-450V+300μf-250V |
| 1500W | ----- | ----- | 50μf-450V+400μf-250V |

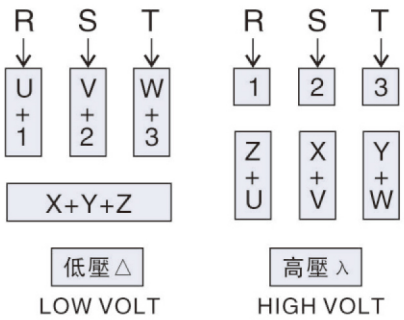
## 4–7 接綫方式 WIRING DIAGRAM

（1）三相馬達/剎車器接綫方式（THREE PHASE MOTORW/BRAKE UNIT DLAGRAM）

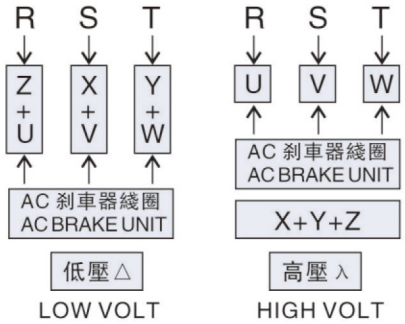
（a）三箱六條馬達電源綫（FOR SIX WIRES）



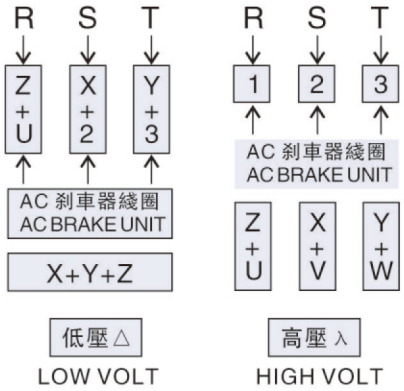

（b）三相九條馬達電源綫（FOR NINE WIRES）



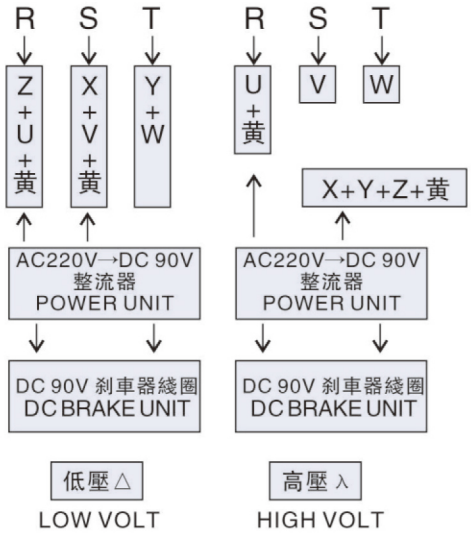

（c）三相六條馬達電源綫附交流剎車器
（SIX WIRES W/AC BRAKE UNIT）



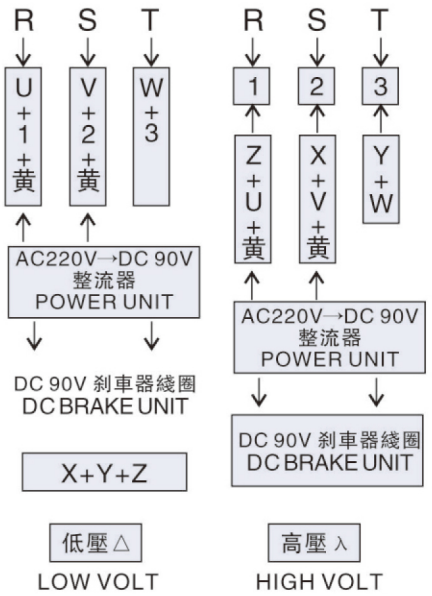

（d）三相九條馬達電源綫附交流剎車器
（NINE WIRES W/AC BRAKE UNIT）




（e） 六條馬達電源綫附直流剎車器
（SIX WIRES W/DC BRAKE UNIT）

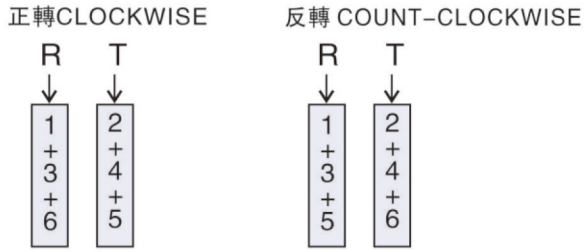



（d） 九條馬達電源綫附直流剎車器
（NINE WIRES W/DC BRAKE UNIT）

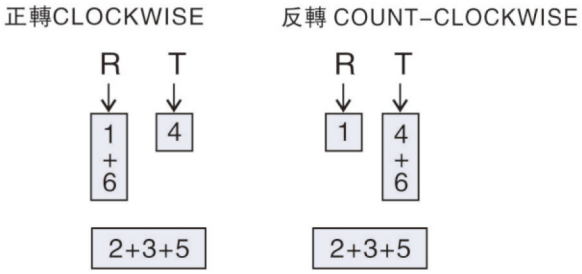


（2）單相馬達/剎車器接綫方式（SINGLE PHASE MOTORW/BRAKE UNIT DLAGRAM）

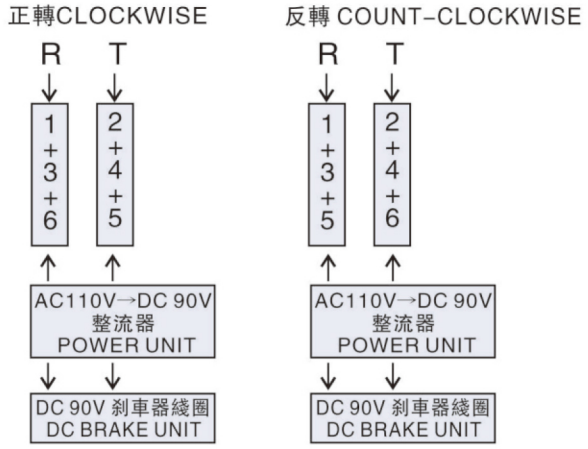
（a）單相低壓 LOW VOLTAGE-110V



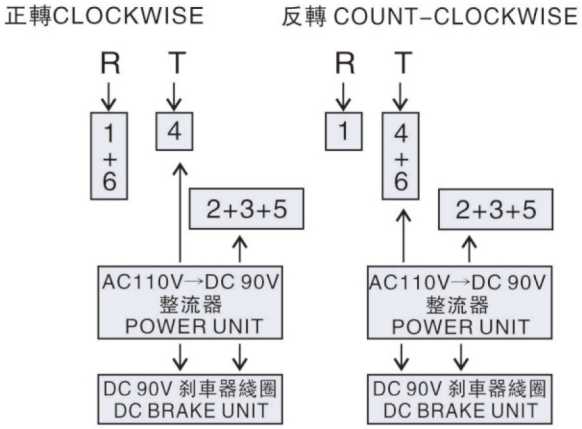

（b）單相高壓 HIGH VOLTAGE-220V




（c）單相低壓110V附直流剎車器
LOW VOLTAGE-110V WITH DC BRAKE UNIT

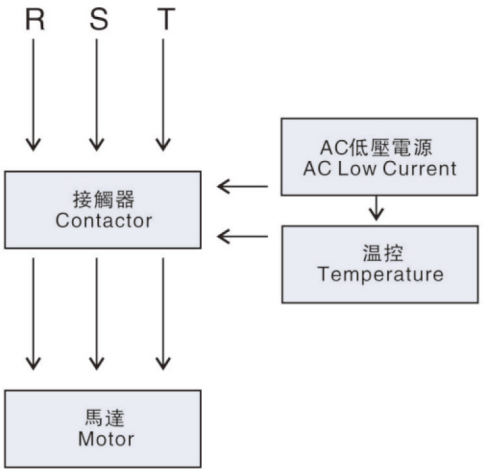



（d）三相九條馬達電源綫附交流剎車器
（NINE WIRES W/AC BRAKE UNIT）



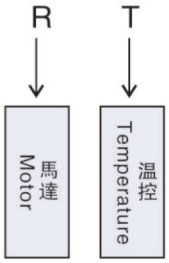

（3）加温控接綫方式（TEMPERATURE CONTROL WIRING）

（a）三相馬達加温控綫圖
3-PHASE TEMPERATURE CONTROL WIRING

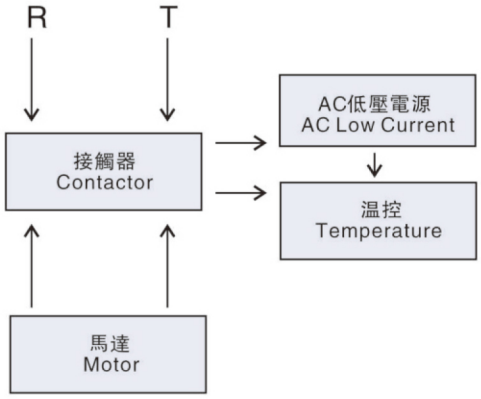



（b）單相馬達加温控綫圖
1-PHASE TEMPERATURE CONTROL WIRING

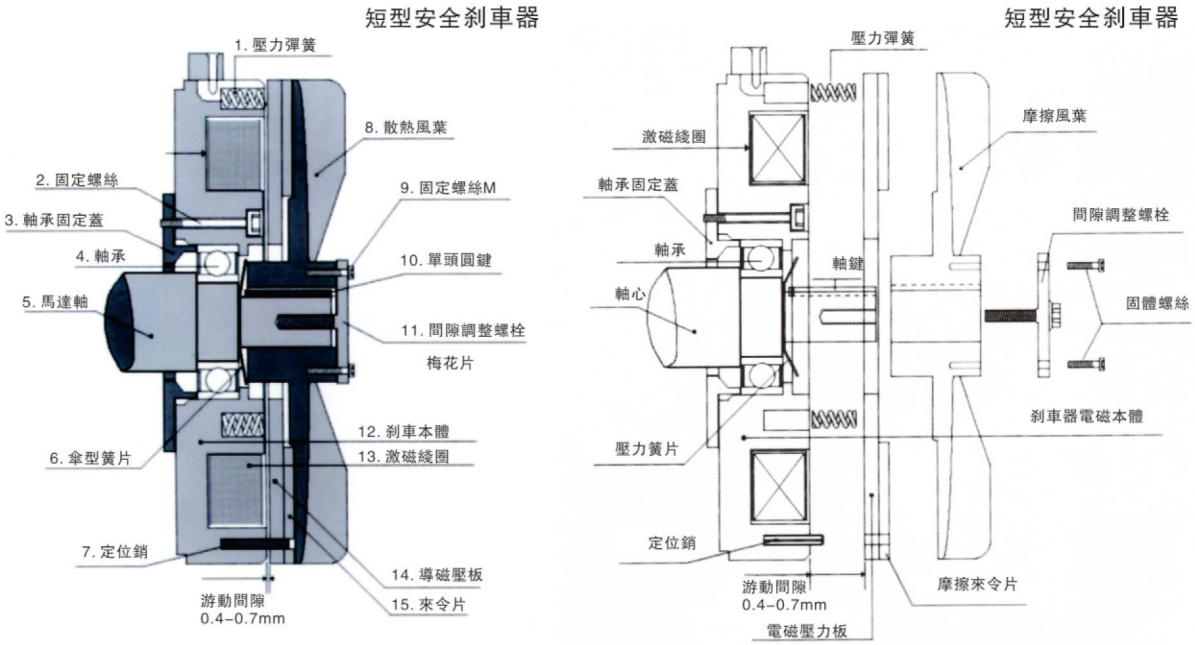
單相額定電源小于
或等于5A接法
1-PHASE RATED
CURRENT IS LESS
THANOR EQUAL TO
5A CONNECTION




1-PHASE RATED CURRENT IS
GREATER THAN 5A CONNECTION

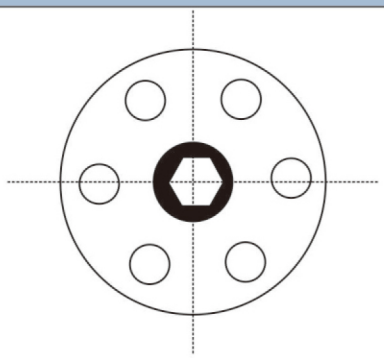


## 4-8 剎車零件分解圖 SECTIONAL DIAGRAM FOR BRAKE UNIT




| | | | | | |
|---|---|---|---|---|---|
| 1 | 壓力彈簧 | PRESSURE SPRING | 9 | 固定螺絲 | FIXED SCREW |
| 2 | 固定螺絲 | FIXED SCREW | 10 | 固定鍵 | KEY |
| 3 | 軸承固定蓋 | FIXED BEARING PLATE | 11 | 調整螺栓 | GAP ADJUSTMENT BOLT |
| 4 | 軸承 | BEARING | 12 | 剎車本體 | BRAKE HOUSING |
| 5 | 馬達軸 | MOTOR SHAFT | 13 | 激磁綫圈 | BRAKE COIL |
| 6 | 傘型簧片 | DISC SPRING | 14 | 導磁壓板 | FRICTION PLATE |
| 7 | 定位銷 | FIXED PIN | 15 | 來令片 | FRICTION BRAKE DISC |
| 8 | 散熱風葉 | FAN | | | |

### 剎車間隙調整 AD JUST BRAKE CLEARANCE



1.請先移除固定螺絲
PLEASE REMOVE TWO PIECES FIXED SCREWS IN ADVANCE.

2.每向右調整一格，其間距縮小0.07-0.10MM
EVERY SINGLE POSITION AD JUSTMENT, BRAKE CLEARANCE WILL REDUCE 0.07-0.10MM.

## 4-9 剎車器性能説明 （WIRING DIAGRAM）

### 4-9-1 交流剎車器規格（AC BRAKE UNIT SPECIFICATION）

| 輸出馬力 CAPACITY (HP) | 允許最高轉速 PERMIT MAX RPM | 剎車制動力 TORQUE (KG-M) | 剎車間隙 CLEARANCE (MM) | 來令片 BRAKE DISC | | 重量 WEIGHT (KG) |
|---|---|---|---|---|---|---|
| | | | | 外徑 O/D | 内徑 I/D | |
| 1/4HP 4P | 4000 | 0.15-0.30 | 0.4-1.2 | 83 | 48 | 1.6 |
| 1/2HP 4P-1/4HP 6P | 4000 | 0.15-0.40 | 0.4-1.2 | 112 | 65 | 4.0 |
| 1HP 4P-1HP 6P | 4000 | 0.25-0.70 | 0.5-1.3 | 130 | 68 | 4.3 |
| 3HP 4P-2HP 6P | 3600 | 1.42-1.50 | 0.5-1.4 | 140 | 78 | 5.8 |
| 3HP 4P-2HP 6P | 3600 | 0.92-2.00 | 0.5-1.4 | 150 | 78 | 7.0 |
| 5HP 4P-3HP 6P | 3600 | 1.80-3.50 | 0.5-1.5 | 170 | 86 | 9.0 |
| 7.5HP 4P-HP 6P | 3600 | 2.80-5.50 | 0.5-1.7 | 170 | 86 | 12.5 |
| 10HP 4P-7.5HP 6P | 3400 | 4.00-7.00 | 0.6-1.7 | 190 | 105 | 15.0 |
| 15HP 4P-10HP 6P | 3400 | 6.00-11.00 | 0.6-1.7 | 200 | 110 | 23.6 |
| 20HP 4P-15HP 6P | 3200 | 8.00-13.00 | 0.6-1.8 | 240 | 125 | 31.5 |
| 25HP 4P-20HP 6P | 2600 | 15.00-23.00 | 0.8-2.0 | 300 | 145 | 54.5 |
| 30HP 4P-25HP 6P | 2600 | 15.00-23.00 | 0.8-2.0 | 300 | 145 | 54.5 |
| 40HP 4P-30HP 6P | 2600 | 15.00-23.00 | 0.8-2.0 | 300 | 145 | 54.5 |

| 備注：REMARK | |
|---|---|
| | 1.AC剎車器安裝尺寸較長于原有標準馬達.<br>AC BRAKE UNIT LENGTH LONGER THAN ORIGINAL STANDARD MOTOR. |
| | 2.適用電壓AVAILBLE VOLTAGE.<br>220V.380V.400V.415V.440V.460V. |
| | 3.可接受特殊定制AC剎車器及專用剎車機型.<br>AVAILABLE FOR SPECIAL BRAKE DESIGN. |
| | 4.BA07-BA40爲腹板式剎車器.<br>DOUBLE BRAKE DISC SYSTEM FOR 7.5HP 4P-40HP 4P. |

### 4-9-2 直流安全式剎車器規格（AC BRAKE UNIT SPECIFICATION）

| 輸出馬力 CAPACITY (HP) | 剎車制動力 TORQUE (KG-M) | 剎車間隙 CLEARANCE (MM) | 剎車時間 BRAKE (SEC) | 釋放時間 RELEASE (SEC) | 剎車綫圈BRAKE COIL | | | 重量 WEIGHT (KG) |
|---|---|---|---|---|---|---|---|---|
| | | | | | 電壓 VOLTAGE (DC-V) | 電流AMP (A) | 阻抗OHM (Ω) | |
| 1/4HP 4P | 0.20 | 0.2-0.60 | 0.22 | 0.12 | 95±10% | 0.17 | 565 | 3.5 |
| 1/2HP 4P | 0.40 | 0.2-0.60 | 0.24 | 0.13 | 95±10% | 0.28 | 336 | 4.0 |
| 1HP 4P | 0.80 | 0.3-0.65 | 0.22 | 0.12 | 95±10% | 0.41 | 233 | 5.0 |
| 2HP 4P | 1.50 | 0.3-0.65 | 0.28 | 0.15 | 95±10% | 0.57 | 167 | 6.0 |
| 3HP 4P | 2.20 | 0.4-0.70 | 0.28 | 0.18 | 95±10% | 0.73 | 130 | 8.0 |
| 5HP 4P | 4.50 | 0.4-0.70 | 0.28 | 0.18 | 95±10% | 0.73 | 130 | 10.0 |
| 7.5HP 4P | 5.60 | 0.5-0.90 | 0.38 | 0.21 | 95±10% | 1.02 | 93 | 12.5 |

| 備注：REMARK | |
|---|---|
| | 1.直流剎車器安裝尺寸相同與原有標準馬達<br>DC BRAKE UNIT LENGTH LONGER SAME AS ORIGINAL STANDARD MOTOR.<br>2.采用非石棉剎車來令片材質<br>ADOPT MATERIAL WIHT NOM-ASBESTOS BRAKE DISC.<br>3.適用電壓AVAILBLE VOLTAGE.<br>220V.380V.400V.415V.440V.460V.<br>4.剎車電壓爲 DC90V.BRAKE COIL VOLTAGE DC90V.<br>5.選用配件OPTIONAL DESIGN<br>a.可附加手動剎車釋放裝置<br>AVAILABLE FOR MANUAL REIEASE BRAKE SYSTEM.<br>b.可接受特殊定制DC剎車器及專用剎車機型<br>AVAILABLE FOR SPECIAL BRAKE DESIGN |

## 4-10 输出扭矩表 OUTPUT TORQUE

标准型(NORMAL DUTY TYPE)

| 减速比 RATIO | 输出转速 OUTPUT R.P.M | | 输出扭矩(OUTPUT TORQUE) N.m | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 100W | | 200W | | 400W | | 750W | | 1500W | | 2200W | | 3700W | | 5500W | | 7500W | |
| | Hz | | | | | | | | | | | | | | | | | | | |
| | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 |
| 3 | 466.67 | 600 | 1.9 | 1.6 | 3.6 | 3.0 | 6.9 | 5.9 | 12.7 | 10.8 | 25.5 | 21.6 | 37.2 | 31.4 | 58.8 | 53.9 | 104.7 | 81.4 | 142.7 | 111.0 |
| 5 | 280.00 | 360 | 3.0 | 2.5 | 6.1 | 5.1 | 11.8 | 9.8 | 21.6 | 18.6 | 44.1 | 37.2 | 65.9 | 54.9 | 107.8 | 98.0 | 174.5 | 135.7 | 237.9 | 185.0 |
| 10 | 140.00 | 180 | 6.1 | 5.1 | 12.2 | 10.2 | 23.5 | 19.6 | 44.1 | 37.2 | 89.2 | 74.5 | 134.3 | 109.8 | 215.6 | 196.0 | 348.9 | 271.4 | 475.8 | 370.1 |
| 15 | 93.33 | 120 | 8.9 | 7.4 | 17.6 | 14.7 | 35.3 | 29.4 | 66.6 | 55.9 | 132.3 | 110.7 | 197.0 | 164.6 | 319.5 | 292.0 | 523.4 | 407.1 | 713.7 | 555.1 |
| 20 | 70.00 | 90 | 11.8 | 9.8 | 23.5 | 19.6 | 47.0 | 39.2 | 88.2 | 73.5 | 177.4 | 148.0 | 262.6 | 219.5 | 427.3 | 352.8 | 697.8 | 542.8 | 951.6 | 740.1 |
| 25 | 56.00 | 72 | 13.7 | 11.8 | 29.4 | 24.5 | 58.8 | 49.0 | 109.8 | 92.1 | 221.5 | 185.2 | 329.3 | 274.4 | 528.2 | 485.4 | 872.3 | 678.4 | 1189.5 | 925.2 |
| 30 | 46.67 | 60 | 17.6 | 14.7 | 35.3 | 29.4 | 70.6 | 58.8 | 132.3 | 110.7 | 265.6 | 221.5 | 394.9 | 329.3 | 634.1 | 576.2 | 1046.7 | 814.1 | 1427.4 | 1110.2 |
| 40 | 35.00 | 45 | 21.6 | 18.6 | 45.1 | 38.2 | 91.1 | 76.4 | 171.5 | 143.1 | 342.0 | 285.2 | 509.6 | 425.3 | 845.7 | 768.3 | 1395.7 | 1085.5 | 1903.2 | 1480.3 |
| 45 | 31.11 | 40 | 26.5 | 21.6 | 52.9 | 43.1 | 106.8 | 89.2 | 201.9 | 166.6 | 402.8 | 333.2 | 586.0 | 486.1 | 965.3 | 800.7 | 1570.1 | 1221.2 | | |
| 50 | 28.00 | 36 | 27.4 | 23.5 | 55.9 | 47.0 | 113.7 | 95.1 | 214.6 | 179.3 | 427.3 | 356.7 | 638.0 | 532.1 | 1048.6 | 950.6 | 1744.6 | 1356.9 | | |
| 60 | 23.33 | 30 | 33.3 | 28.4 | 67.6 | 56.8 | 136.2 | 113.7 | 256.8 | 214.6 | 513.5 | 428.3 | 765.4 | 638.0 | 1244.6 | 1127.0 | 2093.5 | 1628.3 | | |
| 70 | 20.00 | 25 | 42.1 | 35.3 | 78.4 | 66.6 | 158.8 | 132.3 | 308.7 | 257.7 | 611.5 | 509.6 | 906.5 | 755.6 | | | | | | |
| 80 | 17.50 | 23 | 47.0 | 39.2 | 90.2 | 75.5 | 180.3 | 150.9 | 347.9 | 290.1 | 693.8 | 578.2 | 1029.0 | 857.5 | | | | | | |
| 90 | 15.56 | 20 | 51.0 | 43.1 | 100.9 | 84.3 | 202.9 | 169.5 | 385.1 | 321.4 | 755.6 | 630.1 | 1107.4 | 924.1 | | | | | | |
| 100 | 14.00 | 18 | 56.8 | 48.0 | 112.7 | 94.1 | 225.4 | 188.2 | 423.4 | 352.8 | 820.3 | 684.0 | 1234.8 | 1029.0 | | | | | | |
| 120 | 11.67 | 15 | 67.6 | 56.8 | 135.2 | 112.7 | 271.5 | 226.4 | 507.6 | 423.4 | 989.8 | 820.3 | | | | | | | | |
| 140 | 10.00 | 13 | 78.4 | 65.7 | 156.8 | 131.3 | 313.6 | 261.7 | 585.1 | 488.0 | 1136.8 | 948.6 | | | | | | | | |
| 160 | 8.75 | 11 | 89.2 | 74.5 | 179.3 | 149.9 | 355.7 | 296.9 | 666.4 | 555.7 | 1293.6 | 1078.0 | | | | | | | | |
| 180 | 7.78 | 10 | 100.9 | 84.3 | 202.9 | 169.5 | 399.8 | 333.2 | 752.6 | 627.2 | 1450.4 | 1205.4 | | | | | | | | |
| 200 | 7.00 | 9 | 113.7 | 95.1 | 224.4 | 187.2 | 423.4 | 352.8 | 811.4 | 676.2 | | | | | | | | | | |

备注：同等功率同等速比，1.5#基座减速机在安装尺寸大小基本和1号基座一致的情况下，输出扭矩大25%。

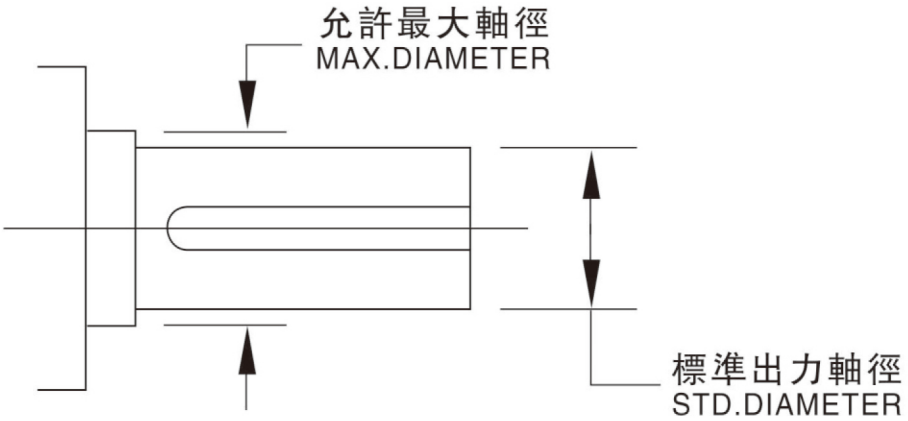
以上表格为一体机扭矩

## 4-11 出力軸懸垂荷重 OVERHUNG LOAD

KG

| 减速比 RATIO | 输出转速 OUTPUT R.P.M | | 0.1KW | | 0.2KW | | 0.4KW | | 0.75KW | | 1.5KW | | 2.2KW | | 3.7KW | | 5.5KW | | 7.5KW | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | HZ | | | | | | | | | | | | | | | | | | | |
| | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 | 50 | 60 |
| 3 | 500 | 600 | 30 | 25 | 30 | 25 | 54 | 45 | 60 | 50 | 145 | 130 | 165 | 150 | 200 | 180 | 200 | 180 | 200 | 180 |
| 5 | 300 | 360 | 36 | 30 | 36 | 30 | 78 | 70 | 65 | 75 | 165 | 150 | 210 | 180 | 270 | 225 | 270 | 225 | 270 | 225 |
| 10 | 150 | 180 | 70 | 60 | 70 | 60 | 150 | 130 | 180 | 150 | 280 | 250 | 430 | 360 | 570 | 550 | 570 | 550 | 570 | 550 |
| 15 | 100 | 120 | 110 | 90 | 110 | 100 | 175 | 160 | 165 | 160 | 355 | 348 | 490 | 450 | 780 | 750 | 780 | 750 | 780 | 750 |
| 20 | 75 | 90 | 150 | 125 | 135 | 125 | 190 | 170 | 175 | 170 | 369 | 365 | 540 | 500 | 850 | 830 | 850 | 830 | 850 | 830 |
| 25 | 60 | 72 | 155 | 140 | 150 | 140 | 210 | 180 | 185 | 180 | 450 | 430 | 650 | 630 | 1100 | 1050 | 1100 | 1050 | 1100 | 1050 |
| 30 | 50 | 60 | 160 | 150 | 170 | 165 | 235 | 220 | 415 | 400 | 480 | 450 | 690 | 650 | 1200 | 1100 | 1200 | 1100 | 1200 | 1100 |
| 40 | 38 | 45 | 160 | 160 | 180 | 180 | 270 | 260 | 430 | 420 | 580 | 550 | 710 | 670 | 1280 | 1200 | 1280 | 1200 | 1280 | 1200 |
| 45 | 33 | 40 | 170 | 170 | 180 | 180 | 335 | 328 | 440 | 430 | 590 | 570 | 820 | 780 | 1300 | 1250 | 1300 | 1250 | | |
| 50 | 30 | 36 | 170 | 170 | 180 | 180 | 350 | 335 | 450 | 440 | 600 | 580 | 850 | 820 | 1400 | 1350 | 1400 | 1350 | | |
| 60 | 25 | 30 | 180 | 180 | 180 | 180 | 350 | 350 | 450 | 450 | 630 | 610 | 900 | 900 | 1400 | 1400 | | | | |
| 70 | 21 | 25 | 180 | 180 | 180 | 180 | 350 | 350 | 460 | 460 | 670 | 650 | 1100 | 1100 | | | | | | |
| 80 | 18 | 22 | 180 | 180 | 180 | 180 | 350 | 350 | 460 | 460 | 680 | 680 | 1100 | 1100 | | | | | | |
| 90 | 16 | 20 | 180 | 180 | 180 | 180 | 350 | 350 | 500 | 500 | 850 | 850 | 1200 | 1200 | | | | | | |
| 100 | 15 | 18 | 200 | 200 | 250 | 250 | 380 | 380 | 590 | 590 | 900 | 900 | 1200 | 1200 | | | | | | |
| 120 | 12 | 15 | 200 | 200 | 320 | 320 | 390 | 390 | 640 | 640 | 920 | 920 | | | | | | | | |
| 140 | 11 | 13 | 200 | 200 | 320 | 320 | 400 | 400 | 679 | 679 | 920 | 920 | | | | | | | | |
| 150 | 10 | 12 | 220 | 220 | 330 | 330 | 420 | 420 | 679 | 679 | 950 | 650 | | | | | | | | |
| 160 | 9 | 11 | 220 | 220 | 330 | 330 | 420 | 420 | 700 | 700 | 950 | 950 | | | | | | | | |
| 180 | 8 | 10 | 240 | 240 | 350 | 350 | 430 | 430 | 720 | 720 | 980 | 980 | | | | | | | | |
| 200 | 7 | 9 | 240 | 240 | 350 | 350 | 430 | 430 | 720 | 720 | | | | | | | | | | |
| 1-250-1/1800 | | | 300 | 300 | 480 | 480 | 720 | 720 | 1400 | 1400 | | | | | | | | | | |

## 4-12 出力軸允許最大軸徑 AVAILABLE MAX OUTPUT SHAFT DIAMETER




| 本體框號<br>HOUSING CODE | 標準處理軸徑<br>STD OUTPUT SHAFT | 出力軸培林<br>OUTPUT SHAFT BEARING | 允許最大軸徑<br>MAX AVAILABLE<br>SHAFT DIAMETER |
|---|---|---|---|
| 1# | ϕ 18.0 | 6004 | ϕ 20.0 |
| 2# | ϕ 22.0 | 6205 | ϕ 25.0 |
| 3# | ϕ 28.0 | 6206 | ϕ 30.0 |
| 4# | ϕ 32.0 | 6207 | ϕ 35.0 |
| 5# | ϕ 40.0 | 6209 | ϕ 45.0 |
| 5# | ϕ 45.0 | 6209 | ϕ 45.0 |
| 6# | ϕ 50.0 | 6211 | ϕ 55.0 |

## 4-13 出力軸軸徑對照表 OUTPUT SHAFT DIAMETER TABLE

標準型（NORMAL DUTY TUPE）

| 馬力 CAPACITY / 速比 RATIO | 1/8HP (100W) | 1/4HP (200W) | 1/2HP (400W) | 1HP (750W) | 2HP (1500W) | 3HP (2200W) | 5HP (3700W) |
|---|---|---|---|---|---|---|---|
| 3 | 18 | 18 | 22 | 28 | 32 | 40 | 40 |
| 5 | 18 | 18 | 22 | 28 | 32 | 40 | 40 |
| 10 | 18 | 18 | 22 | 28 | 32 | 40 | 40 |
| 15 | 18 | 22 | 28 | 28 | 32 | 40 | 50 |
| 20 | 18 | 22 | 28 | 28 | 32 | 40 | 50 |
| 25 | 18 | 22 | 28 | 28 | 32 | 40 | 50 |
| 30 | 18 | 22 | 28 | 32 | 32 | 40 | 50 |
| 40 | 18 | 22 | 28 | 32 | 40 | 40 | 50 |
| 45 | 18 | 22 | 28 | 32 | 40 | 50 | 50 |
| 50 | 18 | 22 | 28 | 32 | 40 | 50 | 50 |
| 60 | 22 | 22 | 28 | 32 | 40 | 50 | 50 |
| 70 | 22 | 22 | 28 | 32 | 40 | 50 | |
| 80 | 22 | 22 | 28 | 32 | 40 | 50 | |
| 90 | 22 | 22 | 28 | 32 | 40 | 50 | |
| 100 | 22 | 28 | 32 | 32 | 40 | 50 | |
| 120 | 22 | 28 | 32 | 32 | 50 | | |
| 140 | 22 | 28 | 32 | 40 | 50 | | |
| 150 | 22 | 28 | 32 | 40 | *50 | | |
| 160 | 22 | 28 | 32 | 40 | *50 | | |
| 180 | 22 | 28 | 32 | 40 | *50 | | |
| 200 | 22 | 28 | 32 | 40 | | | |
| 250-1800 | 28 | 32 | 40 | 50 | | | |

輕負載縮框型（LIGHT DUTY TYPE）

| 馬力 CAPACITY / 速比 RATIO | 1/8HP (100W) | 1/4HP (200W) | 1/2HP (400W) | 1HP (750W) | 2HP (1500W) | 3HP (2200W) | 5HP (3700W) |
|---|---|---|---|---|---|---|---|
| 3 | | | | 22 | 28 | | |
| 5 | | | | 22 | 28 | | |
| 10 | | | | 22 | 28 | | |
| 15 | | 18 | 22 | 22 | 28 | | 40 |
| 20 | | 18 | 22 | 22 | 28 | | 40 |
| 25 | | 18 | 22 | 22 | 28 | | 40 |
| 30 | | 18 | 22 | 28 | 28 | | 40 |
| 40 | | 18 | 22 | 28 | 32 | | 40 |
| 45 | | 18 | 22 | 28 | 32 | | 40 |
| 50 | | 18 | 22 | 28 | 32 | 40 | 40 |
| 60 | 18 | 18 | 22 | 28 | 32 | 40 | 40 |
| 70 | 18 | 18 | 22 | 28 | 32 | 40 | |
| 80 | 18 | 18 | 22 | 28 | 32 | 40 | |
| 90 | 18 | 18 | 22 | 28 | 32 | | |
| 100 | 18 | 22 | 28 | 28 | 32 | | |
| 120 | 18 | 22 | 28 | 28 | 40 | | |
| 140 | 18 | 22 | 28 | 32 | 40 | | |
| 150 | 18 | 22 | 28 | 32 | 40 | | |
| 160 | 18 | 22 | 28 | 32 | 40 | | |
| 180 | *18 | 22 | 28 | 32 | *40 | | |
| 200 | *18 | 22 | *28 | *32 | | | |
| 250-1800 | 22 | 28 | 32 | 40 | | | |

備注：
REMARK

1.縮框機型爲不正當設計使用，如非必要請勿選用.
LIGHT DUTY TYPE ARE NOT AVALABLE FOR STANDARD APPLICATION DESIGN,IT ONLY SUTABLE FOR SPECIAL PROJECT DESIGN.
2.僅就馬達部分提供一年保固.PROVIDE ONE TEAR GUARANTEE FOR MOTOR ONLY.
3.*馬達到此速比時，必須搭配6P馬達使用. *IT NEED TO USE 6 POLE MOTOR TO REACH CERTAIN RATIO.
4.單相馬達僅限于1.5KW以内.

# Troubleshooting 故障排除

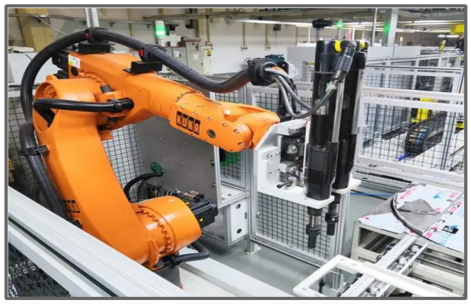
## 直流刹車器故障排除 TROUBLESHOOTING FOR DC BRAKE UNIT

| 不良原因 DEFECTIVE REASON | 原因分析 POSSIBLE ANALYSIS | | 解决方式 SOLUTION | |
|---|---|---|---|---|
| 刹車器不動作 NO ACTION | 未供電源 | NO FOWER INSIDE BRAKE | 供應電源 | SUPPLY POWER |
| | 來令片磨損 | BRAKE DISC WORN OUT | 換新來令片 | USE NEW BRAKE DISC |
| | 間隙過大 | LARGE CLEARANCE | 調整間隙 | ADJUST CLEARANCE |
| | 電源電壓不足 | LOW VOLTAGE | 提供正常電壓 | USE CORRECT VOLTAGE |
| | 電源供應器損壞 | POWER SUPPY DAMAGE | 電源供應器換新 | USE NEW POWER SUPPLY |
| | 异物入侵 | DIRTY INSIDE | 清洗零件 | CLEAN PARTS |
| | 使用電壓錯誤 | WRONG VOLTAGE | 使用正確電壓 | CORRECT VOLTAGE |
| | 接綫脱落 | CONNECT WIRE LOST | 重新接綫 | RE-CONNECT WIRE |
| | 來令片卡死 | BEAKE DISC LOCKED | 清洗零件 | CLEAN PARTS |
| | 刹車綫圈燒毁 | BRAKE COIL BURNED-OUT | 刹車綫圈換新 | USE NEW BRAKE COIL |
| 刹車移動 OVER STOP | 來令片磨損 | BEAKE DISC WORN OUT | 換新來令片 | USE NEW BRAKE DISC |
| | 間隙過大 | LARGE CLEARANCE | 調整間隙 | ADJUST CLEARANCE |
| | 來令片沾染油漬 | SURFACE W/OIL | 清新來令片 | CLEAN BRAKE DISC |
| | 負載過大 | OVER LOADING | 重新設計 | RE-DESIGN BRAKE UNIT |
| | 刹車表面歪斜 | DISC SURFACE TWIST | 更换零件 | USE NEW PARTS |
| | 下降衡量過大 | HUGE MOMENTUM | 機構重新設計 | SYSTEM RE-DESIGN |
| | 選用機型錯誤 | SELECT WRONG TYPE | 選用正確機型 | RE-SELECT UNIT |
| | 環境温度過高 | HIGH TEMPERATURE | 檢討環境温度 | ADJUST TEMPERATURE |

## 減速機故障排除 TROUBLESHOOTRING FOR GEARMOTOR

| 不良原因 DEFECTIVE REASON | | 原因分析 POSSIBLE ANALYSIS | | 解决方式 SOLUTION | |
|---|---|---|---|---|---|
| 噪音 NOISE | 齒輪敲擊聲 KNOCKING | 齒輪表面受傷 | HURT GAER SURFACE | 更换受傷齒輪組 | REPLACE GEAR SET |
| | 連續性雜音 CONTINIALLY | 培林損壞 | BAD BEARING | 更换受傷培林 | REPLACE BEARING |
| | 過期性雜音 PERIODICALLY | 异物附着齒面 | PARICLE INSIDE | 檢查齒輪齒面 | CHECK GEAR |
| | 嘶嘶聲 NEIGH | 油量不足 | LACJ OF LUBRICANT | 添加潤滑油 | FILL WITH LUB-OIL |
| | 斷續性雜音 INTERMTTENTLY | 潤滑油不净 | DIRTY LUBRICANT | 更换新潤滑油 | REPLACE LUBRICANT |
| 振動 VIBRATING | 固定底座振動 MOUNTING BASE MOVEMENT | 安裝平面歪斜 | BAD SURFACE MOUNTING | 重新調整固定底座 | RE-ADJUST MOUNTING BASE |
| | 出力軸振動 OUTPUT SHAFT MOVING | 培林損壞 | BEARING BROKEN | 更换受傷培林 | REPLACE WOUNTING BASE |
| | 内部零件齒輪振動 INSIDE GEAR PARTS MOVEMENT | 齒輪受傷 | GEAR WOUNDED | 更换受傷齒輪 | REPLACE WOUNDED GEAR |
| | 本體振動 HOUSING VIBRATING | 齒輪組安裝不良 | BAD GEAR ASSEMBLY | 重新調整齒輪組 | RE-ADJUST GEAR SET |
| 漏油 LEAKAGE | 油封滑輪 OIL SEAL LEAKAGE | 油封硬化 | OIL SEAL TOO HARDEN | 更换損壞油封 | REPL ACE WOUNDED OIL SEAL |
| | 本體漏油 HOUSING LEAKAGE | 本體有沙孔 | HOUSINGHAD SANDHOLE | 更换沙孔本體 | REPLACE SANG HOLE HOUSING |
| | 結合面漏油 HOUSING SURFAXE LEAKAGE | O-型環損傷 | O-RING BROKEN | 更换損壞O型環 | REPLACE WOUNDED O-RING |
| 過熱 OVER-HEATING | 油封 BAO OIL SEAL | 油封太緊 | OIL SEAL TOO TIGHT | 更换太緊油封 | REPLACE TIGHTEN IOIL SEAL |
| | 本體過熱 HOUSING TOO HEAT | 過負載 | OVER LOAD RUNNNING | 重新設計負載馬力 | RE-CALAULATE LOADING |
| | 缺潤滑油 LESS LUBRICANT | 油量不足 | LACK OF LUBRICANT | 加入潤滑油 | FILL WITH LUBRICANT |
| | 馬達過熱 MOTOR TOO HEAT | 馬達不良 | DEFECTIVE | 更换新馬達 | REPLACE NEW MOTOR |

# 產品應用領域 Product application areas



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