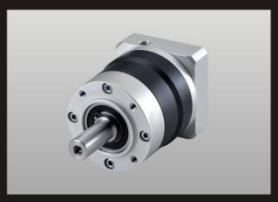


TUNYO

PL 同 軸 行 星 減 速 機
PL Coaxial Planetary Gear Box

PW 轉 角 行 星 減 速 機
PW Planetary Speed Gear Box

PS 雙 軸 行 星 減 速 機
PS Biaxial Planetary Gear Box

PV 十 字 行 星 減 速 機
PV Cross Planetary Gear Box

P系列精密行星減速機使用手册
P Series Precision Planetary Gear Box Hand Book

TUNYO ELECTRONICS INDUSTRY CO.,LTD

TUNYO

The Power Of Dream

品質成就領先

技術服務社會

目錄 CONTENTS

*本公司產品因不斷改進，尺寸如有變動恕不另行通知，詳情請聯系本公司。

*Our company´s products always develop in time,if there are some changes about size, we will not inform you again.So please contact us.

產品特性 Product characteristics

◆一體式行星臂架 Integrated Planetary Arm Bracke

減速機輸出軸與行星臂架采用一體式的結構設計，前、後軸承大跨距分布于箱體內，形成超强穩定的一體式結構，以確保提高扭轉鋼性及精確度，并使用一次加工完成工藝，控制形位精度在公差之內。

The planetary arm bracket and the output shaft are one-piece constructed to increase torsionalrigidity and accuract.The entire structure is one-time machined for controlling accuracy in the specified tolerance.

◆精密磨齒齒輪 Complete Haoned Toothings

20CrMnTi合金鋼齒輪經碳-氮共滲，采用先進的數控蝸輪杆砂輪磨齒機精密磨制，精度可達DIN5級，比不磨齒或采用其它加工方法制成的齒輪具有更高精度等級，真正實現高精度、低噪音、耐磨耗、長壽命。

The planetary and sun gear aremanufactured form high quality 20CrMnTi0,precision machined and carbunzed,precesion teeth grinding assures gear accuracy reaches Din5 CLASS.It provides better wear resistance impatt resistance、low noise and longer service life than gears with only surface nitrided.

◆雙螺栓强力鎖緊輸入軸 Double Bolt Powerful Lock Input Shaft

輸入軸和鎖緊器采用一體式結構設計。雙螺栓對稱分布，無須去重校驗獲得天然動平衡；雙螺栓强力鎖死，有效防止電機軸空轉打滑，實現高精密零背隙的動力傳遞。

Input shaft and lock the one-piece strycture is designed.Double bolt symmetric distribution,no need to go check get natural dynamic balance weight;Double bolt strong locked,effctively prevent the motor shaft iding,to nealize high precision zero back transfe the power of the gap.

◆模塊化馬達聯接板設計 Modular Desigh Of Motor Connection Plate

獨特的馬達聯接板模塊化設計，既保證行星減速機完整獨立又靈活方便地適用任何型號的伺服馬達快速聯接。采用航空鋁合金表面經防氧化處理提高環境的耐受性和抗磨蝕能力。

The special modular desigh of motor connection plate is suitable for any brand and any type of servomotor.Manufactured from aluminum alloy,its surface is anti-oxdant treaed for upgrading ecvironmental-resistand and corrosion-resitand capability.

行星減速器選型 Notice for ordering

選配行星減速機應遵循適用性與經濟性相結合的原則，就是説行星減速機的各項技術指標，既能滿足設備的要求又能節約成本。“過”與“不及”都會帶來成本浪費。選型不當是減速機出現故障的主要原因，因此正確選用行星減速機非常重要。

選用減速機應考慮其結構類型、承載能力、減速比、輸出轉速、軸向力、徑向力、扭轉鋼性、背隙等内在性能指標，也應該充分考慮安裝形式、工況條件、工作環境等外部因素。爲方便起見，請參考以下表格，實現準確快速選型。

步驟	説明	代號	參數計算						
1	設備使用系數	f_1	負載類型 Loading classification	每分鐘啓動次數Z Running per min	使用系數fs Using fs				
					每日運行時間(h) Running per day(h)				
					h<4	4<h<8	8<h<12	12<h<16	16<h<24
			均匀負載 uniform	Z<10	0.85	0.95	1.00	1.20	1.60
				10<Z<30	0.90	1.10	1.15	1.40	1.80
				30<Z<100	1.00	1.20	1.30	1.60	2.00
			中等衝擊負載 Medium shock	Z<10	1.00	1.20	1.30	1.60	2.00
				10<Z<30	1.10	1.35	1.45	1.80	2.20
				30<Z<100	1.20	1.45	1.60	2.00	2.40
			重衝擊負載 Heavy shock	Z<10	1.20	1.45	1.60	2.00	2.40
				10<Z<30	1.30	1.55	1.75	2.20	2.60
				30<Z<100	1.40	1.65	1.90	2.40	2.80
2	扭矩的確定	Tn	Tn>Tc2 所選減速機的額定扭矩Tn必須大于計算扭矩Tc2。Tc2=Tr2×fs(Tc2-計算扭矩 Tr2-實際所需扭矩 fs-使用系數)						
3	額定輸入轉速	n1	n1≤6000(160以下)　n1≤4000(160以上)						
4	確定減速比	i	$I=\frac{n1}{n2}$　L1:3~10、L2:9~64、L3:60~512						
5	減速機效率	η	L1≥96%、L2≥94%、L3≥90%						
6	以被驅動設備所需的扭矩或功率，計算減速機的輸入功率	P1	$P1=\frac{T2\times n1}{9550\times i\times \eta}$　或　$P1=P2\div\eta$						
7	根據計算傳動力表確定減速機的規格	T_{2N} P_{1N}	$T_{2n}\geq T_2\times f_1\times f_2$						
8	輸出軸的徑向力、軸向力校核	Fr、Fa	查《産品手册》性能表，對比應小于減速機最大徑向力、軸向力。頻繁啓動-停止運轉工況應選擇加强型						
9	確認使用環境		防護等級、工作溫度、化學環境等						
10	根據空間確認安裝方式		同軸安裝、90° 直交安裝						
11	確認減速機型號		根據安裝方法、輸入、輸出方式等確定具體系列、型號、規格及附件						

説明:n_2、P_2爲被驅動設備的轉速和功率；P_1、T_2爲被驅動設備所需的功率和扭矩；P_{1N}、T_{2N}爲實際減速機所需功率和扭矩。

與選型有關的基本概念 Base concepts ofprecision planetary gear boxes

◆減速比 Ratio

輸出轉速比上輸入轉速
Input speed/Output speed

◆額定輸入轉速 n_1[rpm]

減速機的驅動速度，若減速機與電機直接相連，則轉速值與電機轉速相同。本書中的額定輸入轉速是在環境溫度爲20℃的條件下測得的，環境溫度較高時請降低轉速n1。

◆輸出轉速 n_2[rpm]

輸出轉速按照下列公式通過輸入轉速n_1和轉動比i計算出來：$n_2=n_1/i$

◆段/極數 Poles

行星齒輪的套數。由于一套行星齒輪無法滿足較大的轉動比，有時需要二套或者三套來滿足用户對較大轉動比的要求，也就是說，減速比越大段/極數越多。由于增加了行星齒輪的數量，所以二級或三級減速機的長度會有所增加，效率會有所下降。

The number of set of planetary gear.Oweing to one set planetary gear can´t satisfy bigger transimission ratio,two or three sets can meet users´requirements of biggertransimission ratio.Sinceinsereasing the gear quantity,the length of two or three poles motor will increase accordingly,of course,the eifficiency will reduce accordingly.

◆傳動效率 Efficiency

指在額定負載情況下，減速機的傳輸效率、減速比較大，級數越多，效率越低。
If refers to the gearing efficiency of the gearboxes in the care of the largest load.

◆平均壽命 Average Lifetime

指減速機在額定負載下，額定輸入轉速時減速機的連續工作時間。
Trefers to the continuous working time of the case of the gearboxs of the highestinputrev.

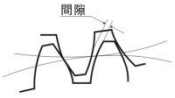
◆定位精度 Precise Positioning

在高速機械往復運動中做到精確定位的關鍵在于盡量減小通過運動產生的角偏差。定位精度取决于兩個值，一個是與加載有關的偏轉角，涉及到回程間隙和抗扭剛性；另一個是與運動控制有關的偏轉角，涉及到同步偏差的問題。

In high-speed reciprocating mechanical movement achieve precise positioning is the key to minimizing the movement through the angular deviation,positioning accuracy depends on the two values,with a load of the deflection angle,involving a return to space with torsion stiffness,and the other is control of the movement and rotation angle,involving partial synchronization the problem worse.

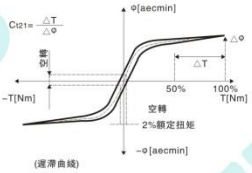
◆回程間隙齒隙 Backlashi

批減速機輸出軸與輸入軸的最大偏差角，測量時先將齒輪輸入軸固定住，然後在輸出軸用力矩儀加載一定力矩(2%T2B)，以克服減速機内的摩擦力。



◆遲滯曲綫

遲滯曲綫是爲了得出減速機的抗扭剛性，通過檢測得到遲滯曲綫。檢測時，先將減速機輸入端固定住，然後在輸出端的兩個旋轉方向分別持續地加載到T28最大加速力矩，繼而逐步卸載，用儀器記録下力矩的偏差角，得到的曲綫是一條閉合曲綫，從中可以計算出減速機制回程間隙(jt)和抗扭剛性(Ct21)



(遲滯曲綫)

◆轉動慣量 Inertia

本説明書中的該值均指輸入端。表示一個物體盡力保持自己轉動狀態(或静止或轉動)特性的一個值。

Moment of the rotary inertiain this description refers to that input terminal.Siad an object strive to maintain their rotational state (or a stationary of rotating)characteristics of a value.

◆慣量比 The Proportion of inertia

是指負載慣量與傳動系統慣量(電機加上齒輪箱)這間的比值。這個比值决定了系統的可控性。λ值越大，也就是各轉動慣量差值越大，高動態的動作過程就越難精確控制，建議盡可能將λ值控制在<5.齒輪箱可以將負載降低$1/i^2$。

Refer to the ration of load inertia drive system(motor with gearbox).This ratio determines the controllable of the λ value,the greater is the moment of ineryia greater margin,hig-dynamic action on the more difficult process of precision control.The values cam be control in 5,gea-rboxes can be used to reduce load$1/I^2$.

◆噪音 Noise

單位是分貝(dB)。此數值是在輸入轉速爲3000轉/分時，不帶負載，距離減速機一米距離時測量的。

The unit is decibel(dB).Thevalue is measured when the input rev is 3000r/m without load and at the distance of one meterfrom the gearboxes.

◆工作條件 Operating Conditions

工作溫度℃ Operating temp	-60/-40/-25~+55/+90/+120
防護等級 Degree of protection	IP54/IP65
潤滑 Lubrication	長效潤滑，整個使用期内無需添加潤滑劑 Life time lubrication
安裝方式 Mounting position	任意 Any

與選型有關的基本概念 Base concepts ofprecision planetary gear boxes

◆額定輸出扭矩 T_N[Nm]

T_N[Nm]指減速機長時間(連續工作制)可以加載的力矩(無磨損)，條件應滿足負載均勻，安全系數S=1，160以下機型，理論壽命爲20000小時;190以上機型理論壽命爲10000小時;T_N值遵守ISO DP 6336齒輪標準與ISO 281軸承標準。

◆加速扭矩[Nm]

指工作周期每小時少于1000次時允許短時間加載到輸出端的最大力矩。工作周期每小時大于1000次時，須考慮衝擊因素。T_{2B}是周期工作制選型時的一個最大值，實際使用中的加速力矩(T2b)必須小于T_{2B}，否則會縮短減速機的壽命。

◆緊急制動扭矩[Nm]

指減速機輸出端所能加載的最大力矩，這個力矩可在減速機壽命期內加載1000次，絶對不能超過1000次。(備注：160以下機型爲T_{2HOT}=2・T_{2B}；190以上機型爲T_{2HOT}=1.5・T_{2B})

◆空載扭矩 T_{012}[Nm]

指加載到減速機上的以克服減速機內摩擦力的力矩。

◆最大扭矩 T_{2max}[Nm]

指減速機在靜態條件或頻繁啓動條件下所能承受的輸出扭矩，通常指峰值負載或啓動負載。

◆實際所需扭矩 T_2[Nm]

所需扭矩取决于應用場合的實際工況，擬選減速機的額定扭矩T_N必須大于這個扭矩。

◆計算用扭矩 T_{c2}[Nm]

會在選擇減速機時被用到，可以由實際所需轉矩T_2和系數fs，按以下公式得出 $T_{c2}=T_2*fs\leqslant TN$

◆側傾扭矩 [Nm]

指軸向力和徑向力作用與輸出端軸承上徑向受力點的力矩。其計算公式爲：$M2kmax=[Fa*y_2+Fr*(X_2+Z_2)]/1000$

◆軸向力 Fa[N]

指垂直平行于軸心的一個力，它平行于輸出軸，它的作用點與輸出軸端有一定的軸向偏差(Y2)時，會形成一個額外的彎撓力矩。軸向力超過樣本所示的額定值時，須用聯軸節來抵消這種彎撓力。

◆徑向力 Fr[N]

指垂直作用于軸向力的一個力，它的作用點與軸端有一定的軸向距離(X2)，這個點成一個杠杆點，橫向力形成一個彎撓力矩。

◆軸伸徑向載荷、軸向載荷

選擇減速機的附加依據是輸出軸伸出端上的徑向載荷和軸向載荷。軸的强度和軸承的承載能力决定了許用軸伸的徑向載荷。産品樣本中給出的最大允許值是指在最不利的方向作用在軸伸出端中點(即1/2L處)的力。當作用力不在中點時，越接近軸肩，允許的徑向載荷就越大；相反，作用點離軸肩越遠，允許的徑向載荷就越小。

◆安全系數 S

安全系數等于減速機的額定輸入功率與電機功率的比值。

◆使用系數 f1

使用系數表現減速機的應用特性，它考慮到減速機的負載類型和每日工作時間。

◆抗扭剛性Ct21[Nm/Arcmin]

由加載力矩和所産生的扭轉角之間的比率來定義。$Ct21=\Delta T\Delta\varphi$它説明需要用多大的力矩才能把輸出軸轉動一弧分。抗扭剛性是從遲滯曲綫得出的。在曲綫圖上衹需要關注T2B的50%到100%這個範圍，在這個範圍内，曲綫可看成是一條直綫。

◆安裝力矩 [Nm]

減速機的組裝以及電機與減速機的連接安裝 (輸入軸采用彈性聯軸器要求)，都是有力矩要求。建議使用力矩扳手來完成安裝步驟。

◆特別注意

本書給出的所有減速機輸入端尺寸僅供參考，具體尺寸由適配電機的軸伸端尺寸决定，因此實物外形尺寸與本手册有所差异，應以訂購貨品的標準圖爲準，在没有特殊制定狀態下減速機的輸出端尺寸以本書爲準。

本書給出的所有減速機重量爲近似值，實際重量以實物爲準。書中錯誤之處敬請諒解。

You can only refer to the input terminal dimension giver in this book,special dimension is depend on the shaft extension terminal of chosen motor ,practical object´s dimension will be difference with these in book,the practical is depend on the finished produc,the out terminal dimension is according to these given in this book if not sign.

The weigh of reduce motor given in this book is approximation,the practical is depend on the finished product

PL同軸行星減速機

PLE
圓型法蘭輸出
P15–22

PLF
方型法蘭輸出
P23–30

PLFX
加强型方型法蘭輸出
P31–35

PLK
孔輸出
P36–39

PLH
盤輸出
P40–45

PW轉角行星減速機

PWE
直角圓型法蘭輸出
P48–53

PWF
直角方型法蘭輸出
P54–59

PWFX
直角加强型方型法蘭輸出
P60–63

PWK
直角孔輸出
P64–67

PWH
直角盤輸出
P68–73

PS雙軸行星減速機

PSE
軸輸入圓型法蘭輸出
P76–79

PSF
軸輸入方型法蘭輸出
P76–79

PSFX
軸輸入加强型方型法蘭輸出
P76–79

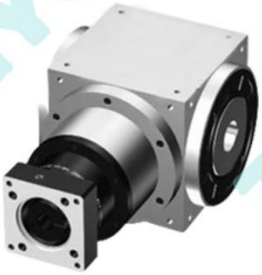
PSH
軸輸入盤輸出
P76–79

PV十字行星減速機

PV-S
軸輸入
P85-90

PV-S
軸輸入
P85-90

PV-K
孔輸入
P91-98



PV-K
孔輸入
P91-98

PL/PS行星減速機技術參數 PL/PS Technical parameters

型號 Model	單位 Unit	40	60	80	90	120	140	160	190	減速比 Ratios(i)	級數 Stages
額定輸出扭矩TN Nominal torquet TN	Nm	5	15.8	60	60	150	210	310	588	3	1-stages
		10	25.5	80	88	225	450	605	1040	4	
		9	27.5	94.5	95	240	400	420	1200	5	
		5	19.2	64	66	160	210	270	1100	7/8①	
		5	12	39.5	40	90	130	–	1100	10	
		12	28	96	98	250	450	340	1040	12	2-stages
		12	29.5	96	98	250	450	680	1040	16	
		12	29.5	96	98	250	450	680	1040	20	
		10.5	31.5	105.5	105	270	400	460	1200	25	
		12	29.5	96	98	250	450	680	1040	28/32①	
		–	31.5	105.5	105	270	–	–	–	35	
		10.5	29.5	96	98	250	400	460	1200	40	
		7.5	31.5	105.5	105	270	310	310	1200	50/56①	
		20	22.5	71.5	75	180	310	310	1040	70/64①	
		20	35.5	120	125	315	310	310	1040	80	3-stages
		20	35.5	120	125	135	900	900	1040	100	
		18	38.5	132	135	335	580	580	1200	125	
		20	35.5	120	125	315	900	900	1040	140/160①	
		–	38.5	132	135	335	–	–	–	175	
		18	35.5	120	125	315	580	580	1200	200	
		–	38.5	130	135	335	900	900	1040	250/256①	
		–	35.5	120	125	315	580	580	–	280	
		18	38.5	132	135	335	580	580	1200	350/320①	
		–	37	120	125	315	580	580	–	400	
		7.5	40	132	135	335	400	400	1100	500/512①	
		–	27	89.5	93	225	–	–	–	700	
		–	17.2	55	58	130	–	–	–	1000	
故障停止扭矩 T_{2N} Max.output torque T_{2N}	Nm	2倍額定輸出扭矩/2*Nominal torque									
超精密背隙P0 Ultra precision back gap P0	arcmin	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2		1-stages
		≤3	≤3	≤3	≤3	≤3	≤3	≤3	≤3		2-stages
		≤3	≤3	≤3	≤3	≤3	≤3	≤3	≤3		3-stages
精密背隙P1 Precision backgap P1	arcmin	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4		1-stages
		≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6		2-stages
		≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8		3-stages
標準背隙P2 Standard back lash P2	arcmin	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8		1-stages
		≤10	≤10	≤10	≤10	≤10	≤10	≤10	≤10		2-stages
		≤10	≤10	≤10	≤10	≤10	≤10	≤10	≤10		3-stages
額定輸入轉速 Rated input speed	rpm	3000	4000	3500	3500	3000	3000	2500	3000		
最大輸入轉速 Max.input speed	rpm	6000	8000	6000	6000	5000	6000	4500	6000		
噪聲③/Noise③	dB	≤58	≤58	≤60	≤62	≤65	≤65	≤65	≤65		

PW行星減速機技術參數 PW Technical parameters

型號 Model	單位 Unit	40	60	80	90	120	140	160	190	減速比 Ratios(i)	級數 Stages
額定輸出扭矩TN Nominal torquet TN	Nm	4.5	15.8	60	60	150	210	310	588	3	1-stages
		6	25.5	80	88	225	450	605	1040	4	
		6	27.5	94.5	95	240	400	420	1200	5	
		5	19.2	64	66	160	210	270	1100	7/8①	
		5	12	39.5	40	90	130	–	1100	10	
		16.5	28	96	98	250	450	340	1040	12	2-stages
		20	29.5	96	98	250	450	680	1040	16	
		20	29.5	96	98	250	450	680	1040	20	
		18	31.5	105.5	105	270	400	460	1200	25	
		20	29.5	96	98	250	450	680	1040	28/32①	
		–	31.5	105.5	105	270	–	–	–	35	
		18	29.5	96	98	250	400	460	1200	40	
		7.5	31.5	105.5	105	270	310	310	1200	50/56①	
		20	22.5	71.5	75	180	310	310	1040	70/64①	
		20	35.5	120	125	315	310	310	1040	80	3-stages
		20	35.5	120	125	135	900	900	1040	100	
		18	38.5	132	135	335	580	580	1200	125	
		20	35.5	120	125	315	900	900	1040	140/160①	
		–	38.5	132	135	335	–	–	–	175	
		18	35.5	120	125	315	580	580	1200	200	
		–	38.5	130	135	335	900	900	1040	250/256①	
		–	35.5	120	125	315	580	580	–	280	
		18	38.5	132	135	335	580	580	1200	350/320①	
		–	37	120	125	315	580	580	–	400	
		7.5	40	132	135	335	400	400	1100	500/512①	
		–	27	89.5	93	225	–	–	–	700	
		–	17.2	55	58	130	–	–	–	1000	
故障停止扭矩 T_{2N} Max.output torque T_{2N}	Nm	2倍額定輸出扭矩/2*Nominal torque									
超精密背隙P0 Ultra precision back gap P0	arcmin	≤2	≤2	≤2	≤2	≤2	≤2	≤2	≤2		1-stages
		≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4		2-stages
		≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4		3-stages
精密背隙P1 Precision backgap P1	arcmin	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5		1-stages
		≤7	≤7	≤7	≤7	≤7	≤7	≤7	≤7		2-stages
		≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9		3-stages
標準背隙P2 Standard back lash P2	arcmin	≤10	≤10	≤10	≤10	≤10	≤10	≤10	≤10		1-stages
		≤12	≤12	≤12	≤12	≤12	≤12	≤12	≤12		2-stages
		≤14	≤14	≤14	≤14	≤14	≤14	≤14	≤14		3-stages
額定輸入轉速 Rated input speed	rpm	3000	4000	3500	3500	3000	3000	2500	3000		
最大輸入轉速 Max.input speed	rpm	6000	8000	6000	6000	5000	6000	4500	6000		
噪聲③/Noise③	dB	≤58	≤58	≤60	≤62	≤65	≤65	≤65	≤65		

技術參數 Specificatioans

型號 Model	單位 Unit	P系列			級數 Stages
壽命 Lifetime	h	20000			
最低工作溫度 Min.operating temp	℃	-25			
最高工作溫度 Max.operating temp	℃	+90			
防護等級 Degree of protection	IP	IP65			
潤滑方式 Lubrication		長效潤滑			
安裝方式 Mounting position		任意			
旋轉方向 Direction of rotation		輸出、輸入同向			
滿載效率 Maximum efficiency	%	PL	PS	PW	
		96%	96%	94%	1-stages
		94%	94%	92%	2-stages
		90%	90%	88%	3-stages

抗扭鋼性 Torsional stiffness

形式 \ 框號	40	60	80	90	120	140	160	190
PLE	0.7	2.3	7.5	7.5	15	50	30	145
PLF	0.7	2.3	7.5	7.5	15	50	30	145
PLFX	-	6	-	14	27	60	-	140
PLK	-	13	-	31	82	-	266	-
PLH	-	13	-	31	82	151	266	440
PWLE	-	2.3	-	7.5	15	50	30	145
PWLF	-	2.3	-	7.5	15	50	30	145
PWLFX	-	6	-	14	27	60	-	-
PWLK	-	13	-	31	82	-	266	-
PWLH	-	13	-	31	82	151	266	440
PSE	-	2.3	-	7.5	15	-	30	-
PSF	-	2.3	-	7.5	15	-	30	-
PSFX	-	6	-	14	27	-	-	-
PSH	-	13	-	31	82	-	266	-

單位：Nm/arcmin

最大容許軸向力 Max axial force

形式 \ 框號	40	60	80	90	120	140	160	190	級數 Stages
PLE	80	300	850	1100	2100	4000	4700	6200	1-stages
	80	300	850	1100	2100	4000	4700	6200	2-stages
	80	300	850	1100	2100	4000	4700	6200	3-stages
PLF	80	300	850	1100	2100	4000	4700	6200	1-stages
	80	300	850	1100	2100	4000	4700	6200	2-stages
	80	300	850	1100	2100	4000	4700	6200	3-stages
PLFX	-	560	-	1600	3230	4410	-	7800	1-stages
	-	560	-	1600	3230	4410	-	7800	2-stages
	-	560	-	1600	3230	4410	-	7800	3-stages
PLK	-	1260	-	4230	6360	-	13270	-	1-stages
	-	1260	-	4230	6360	-	13270	-	2-stages
	-	1260	-	4230	6360	-	13270	-	3-stages
PLH	-	1260	-	4230	6360	10590	13270	16660	1-stages
	-	1260	-	4230	6360	10590	13270	16660	2-stages
	-	1260	-	4230	6360	10590	13270	16660	3-stages
PWLE	-	300	-	1100	2100	4000	4700	6200	1-stages
	-	300	-	1100	2100	4000	4700	6200	2-stages
	-	300	-	1100	2100	4000	4700	6200	3-stages
PWLF	-	300	-	1100	2100	4000	4700	6200	1-stages
	-	300	-	1100	2100	4000	4700	6200	2-stages
	-	300	-	1100	2100	4000	4700	6200	3-stages
PWLFX	-	560	-	1600	3230	4410	-	-	1-stages
	-	560	-	1600	3230	4410	-	-	2-stages
	-	560	-	1600	3230	4410	-	-	3-stages
PWLK	-	1260	-	4230	6360	-	13270	-	1-stages
	-	1260	-	4230	6360	-	13270	-	2-stages
	-	1260	-	4230	6360	-	13270	-	3-stages
PWLH	-	1260	-	4230	6360	10590	13270	16660	1-stages
	-	1260	-	4230	6360	10590	13270	16660	2-stages
	-	1260	-	4230	6360	10590	13270	16660	3-stages
PSE	-	300	-	1100	2100	-	4700	-	1-stages
	-	300	-	1100	2100	-	4700	-	2-stages
	-	300	-	1100	2100	-	4700	-	3-stages
PSF	-	300	-	1100	2100	-	4700	-	1-stages
	-	300	-	1100	2100	-	4700	-	2-stages
	-	300	-	1100	2100	-	4700	-	3-stages
PSFX	-	560	-	1600	3230	-	-	-	1-stages
	-	560	-	1600	3230	-	-	-	2-stages
	-	560	-	1600	3230	-	-	-	3-stages
PSH	-	1260	-	4230	6360	-	13270	-	1-stages
	-	1260	-	4230	6360	-	13270	-	2-stages
	-	1260	-	4230	6360	-	13270	-	3-stages

單位 Unit: N

最大容許徑向力 Max radial force

形式 \ 框號	40	60	80	90	120	140	160	190	級數 Stages
PLE	160	500	1270	1300	2900	8460	10300	13050	1-stages
	160	500	1270	1300	2900	8460	10300	13050	2-stages
	160	500	1270	1300	2900	8460	10300	13050	3-stages
PLF	160	500	1270	1300	2900	8460	10300	13050	1-stages
	160	500	1270	1300	2900	8460	10300	13050	2-stages
	160	500	1270	1300	2900	8460	10300	13050	3-stages
PLFX	-	700	-	3360	6700	9300	-	15600	1-stages
	-	700	-	3360	6700	9300	-	15600	2-stages
	-	700	-	3360	6700	9300	-	15600	3-stages
PLK	-	-	-	-	-	-	-	-	1-stages
	-	-	-	-	-	-	-	-	2-stages
	-	-	-	-	-	-	-	-	3-stages
PLH	-	-	-	-	-	-	-	-	1-stages
	-	-	-	-	-	-	-	-	2-stages
	-	-	-	-	-	-	-	-	3-stages
PWLE	-	500	-	1300	2900	8460	10300	13050	1-stages
	-	500	-	1300	2900	8460	10300	13050	2-stages
	-	500	-	1300	2900	8460	10300	13050	3-stages
PWLF	-	500	-	1300	2900	8460	10300	13050	1-stages
	-	500	-	1300	2900	8460	10300	13050	2-stages
	-	500	-	1300	2900	8460	10300	13050	3-stages
PWLFX	-	700	-	3360	6700	9300	-	-	1-stages
	-	700	-	3360	6700	9300	-	-	2-stages
	-	700	-	3360	6700	9300	-	-	3-stages
PWLK	-	-	-	-	-	-	-	-	1-stages
	-	-	-	-	-	-	-	-	2-stages
	-	-	-	-	-	-	-	-	3-stages
PWLH	-	-	-	-	-	-	-	-	1-stages
	-	-	-	-	-	-	-	-	2-stages
	-	-	-	-	-	-	-	-	3-stages
PSE	-	500	-	1300	2900	-	10300	-	1-stages
	-	500	-	1300	2900	-	10300	-	2-stages
	-	500	-	1300	2900	-	10300	-	3-stages
PSF	-	500	-	1300	2900	-	10300	-	1-stages
	-	500	-	1300	2900	-	10300	-	2-stages
	-	500	-	1300	2900	-	10300	-	3-stages
PSFX	-	700	-	3360	6700	-	-	-	1-stages
	-	700	-	3360	6700	-	-	-	2-stages
	-	700	-	3360	6700	-	-	-	3-stages
PSH	-	-	-	-	-	-	-	-	1-stages
	-	-	-	-	-	-	-	-	2-stages
	-	-	-	-	-	-	-	-	3-stages

單位 Unit: N

TUNYO

東洋PL同軸行星減速機

TUNYO PL COAXIAL PLANETARY REDUCER

PROFESSIONAL MANUFACTURER OF POWER TRANSMISSION

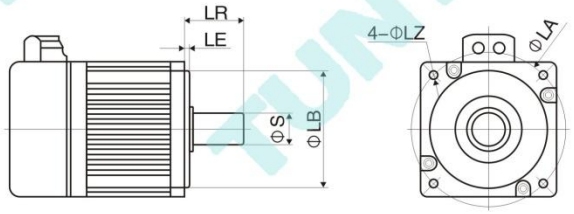
DESIGN PHILOSOPHY: To follow the law, but always beyond.

BUSINESS PHILOSOPHY: Design for customer demand , dedication for customer satisfaction

PL型號説明 PL General information of pseries

P	L	E	80	–	40	–	K	P2
系列名稱	同軸輸出	安裝方式 E:圓型法蘭 F:方型法蘭 FX:加强型方型法蘭 K:孔輸出 H:盤輸出	裝置尺寸 40:□40mm 60:□60mm 80:□80mm 90:□90mm 120:□120mm 140:□140mm 160:□160mm 190:□190mm		減速比 1級:3~10 2級:12~70 3級:80~1000		出軸形式 K:出力軸有鍵 S:出力軸無鍵	背隙 P0:超精密 (1–3′) P1:精密 (4–8′) P2:標準 (8–10′)

電機安裝尺寸説明 Size specification



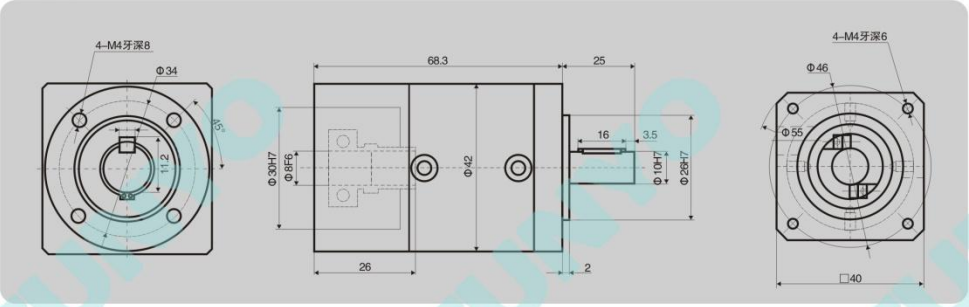
ΦS × LR	ΦLB × LE	4–ΦLZ–ΦLA
電機“輸出軸”相關尺寸 ΦS:電機軸直徑 LR:包括凸臺的長度	電機“安裝凸臺”相關尺寸 ΦLB:凸臺直徑 LE:凸臺深度	電機“安裝孔”相關尺寸 4:安裝孔數量，一般爲4個 Φ LZ:安裝孔的直徑(注意螺紋孔時爲M) ΦLA:安裝孔分度圓(虛擬圓)直徑

PLE40

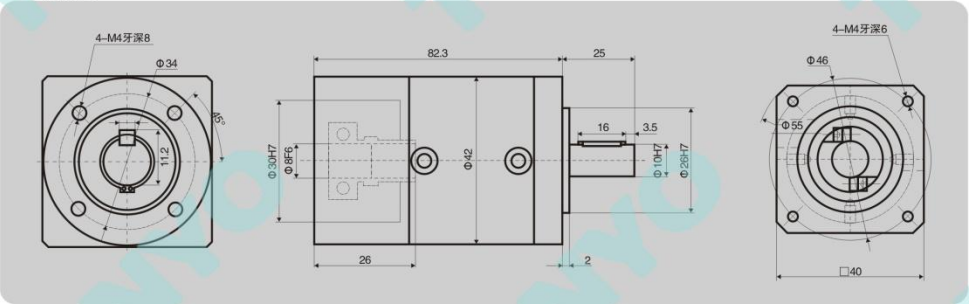
圓型法蘭
行星減速機
減速比:1:3~512
輸出扭矩:4.5~20N.m

外形尺寸 Dimension

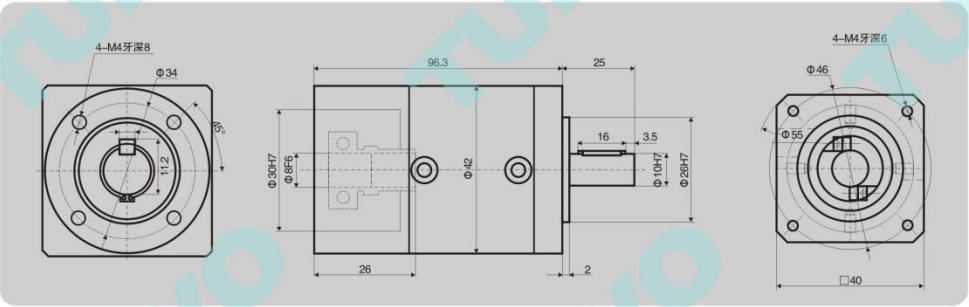
◆一級減速



◆二級減速



◆三級減速



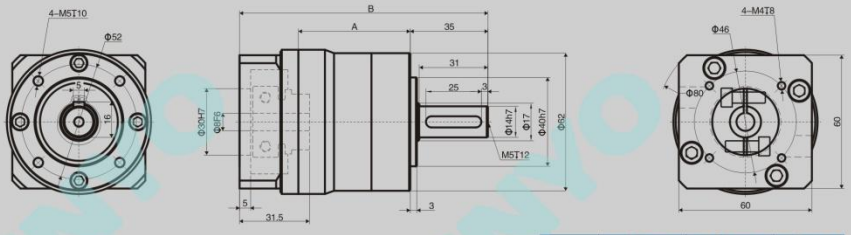
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE60

圓型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

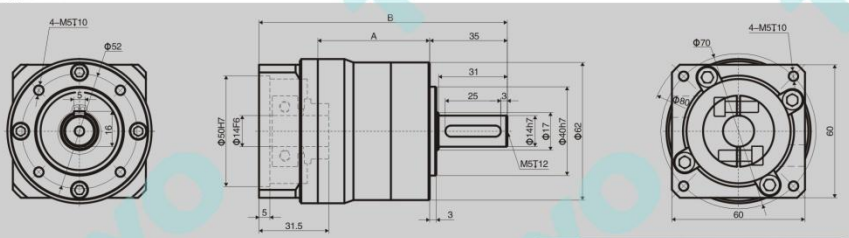
外形尺寸 Dimension

◆輸入軸徑≤Φ8



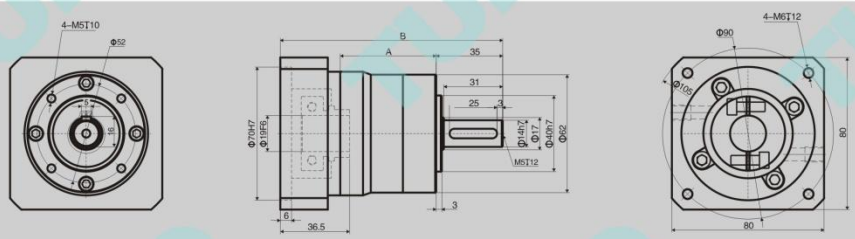
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	112.0	1.1Kg
2-stage	66.5	128.0	1.4Kg
3-stage	82.5	144.0	1.7Kg

◆輸入軸徑≤Φ14



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	112.0	1.1Kg
2-stage	66.5	128.0	1.4Kg
3-stage	82.5	144.0	1.7Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	121.0	1.5Kg
2-stage	68.5	137.0	1.8Kg

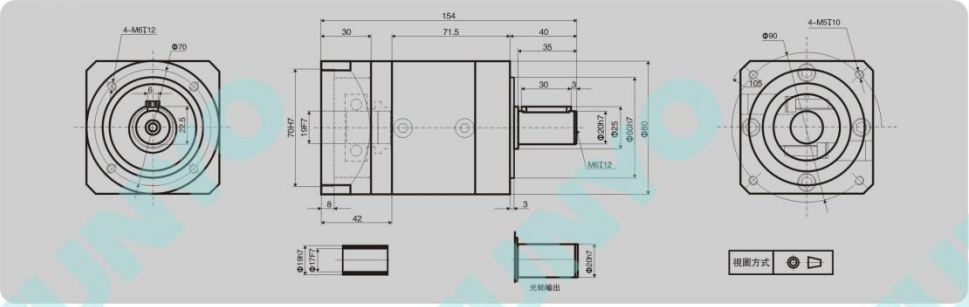
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE80

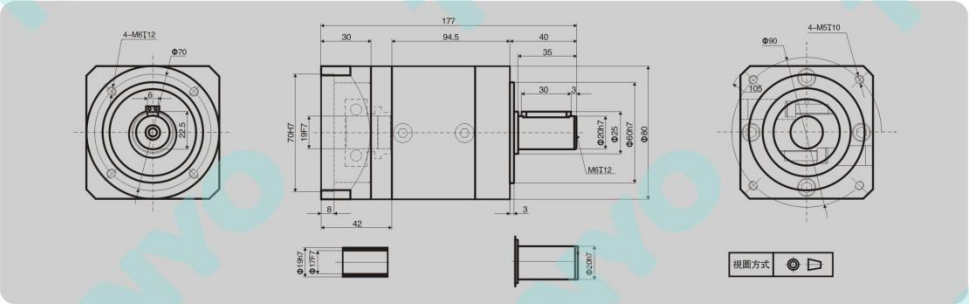
圓型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:39.5~132N.m

外形尺寸 Dimension

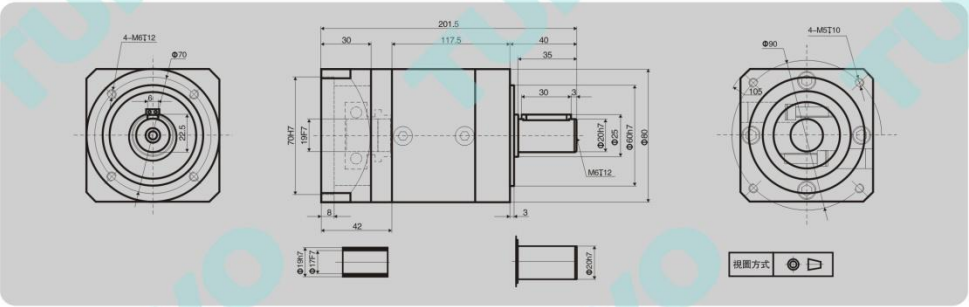
◆一級減速



◆二級減速



◆三級減速



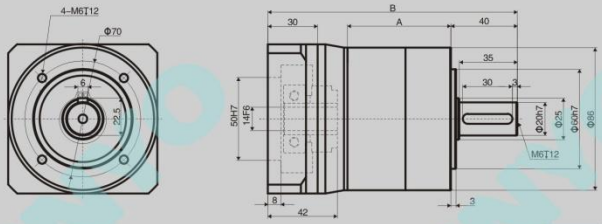
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE90

圓型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

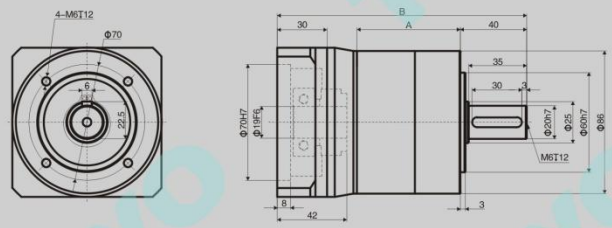
外形尺寸 Dimension

◆輸入軸徑≤Φ14



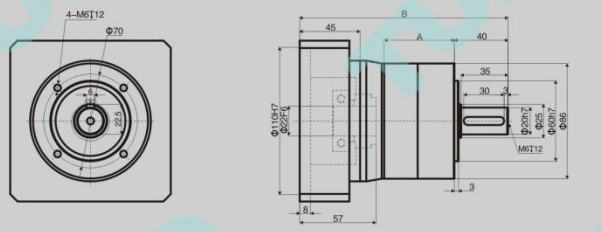
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	150.5	2.6Kg
2-stage	86.0	174.0	3.2Kg
3-stage	109.0	197.0	3.8Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	150.5	2.6Kg
2-stage	86.0	174.0	3.2Kg
3-stage	109.0	197.0	3.8Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	165.5	2.9Kg
2-stage	86.0	189.0	3.5Kg

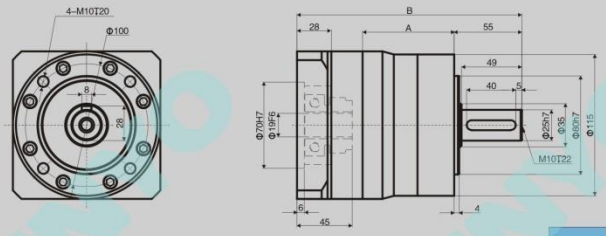
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE120

圓型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

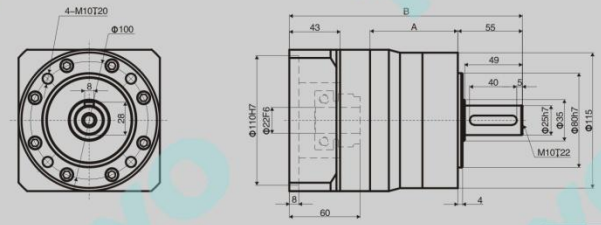
外形尺寸 Dimension

◆輸入軸徑≤Φ19



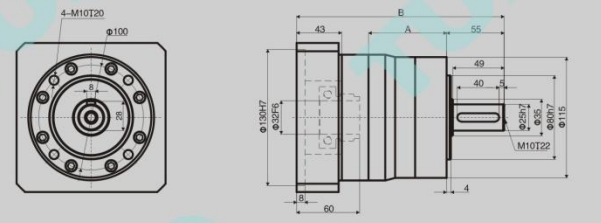
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	183.0	6.2Kg
2-stage	104.5	213.0	8.2Kg
3-stage	134.5	243.0	10.2Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	198.0	6.5Kg
2-stage	104.5	228.0	8.5Kg
3-stage	134.5	258.0	10.5Kg

◆輸入軸徑≤Φ32



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	183.0	6.7Kg
2-stage	104.5	213.0	8.7Kg
3-stage	134.5	243.0	10.7Kg

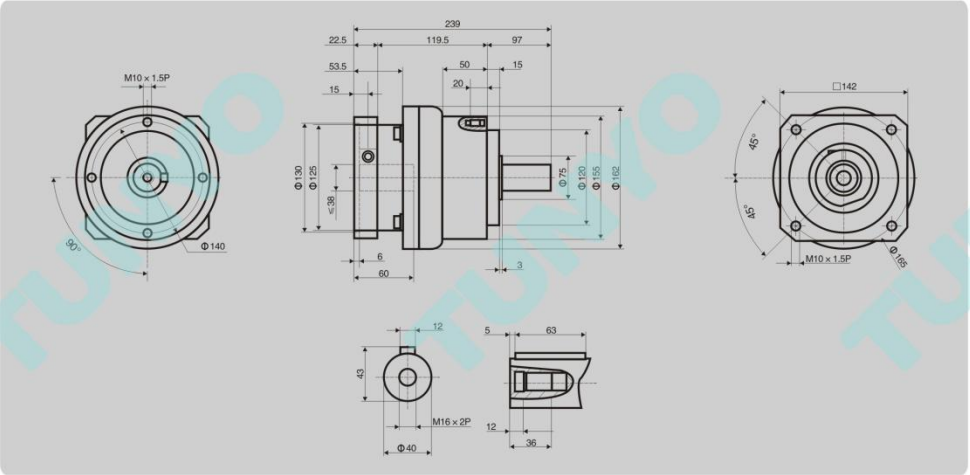
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE140

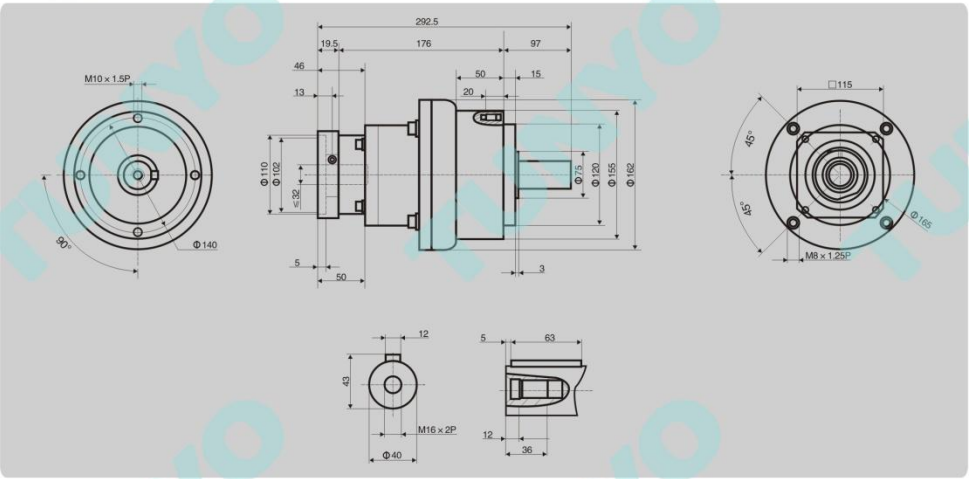
圓型法蘭
行星減速機
減速比:1:3~100
輸出扭矩:342~650N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



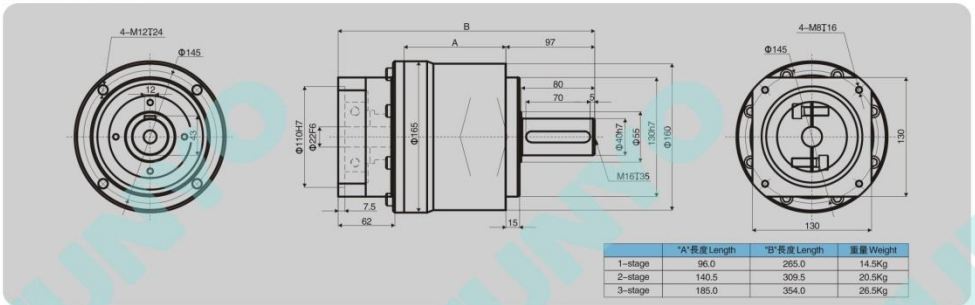
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE160

圓型法蘭
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

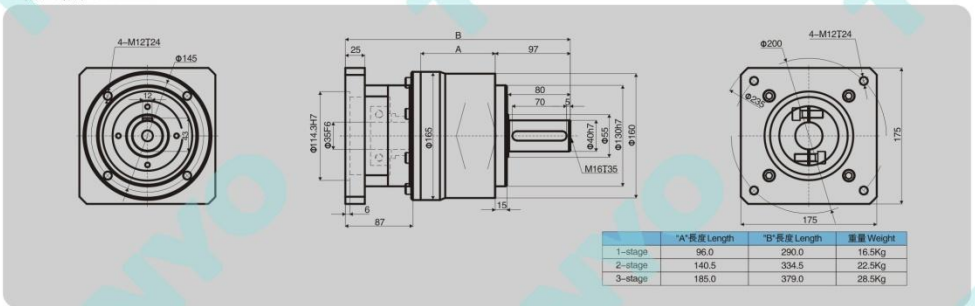
外形尺寸 Dimension

◆輸入軸徑≤Φ22



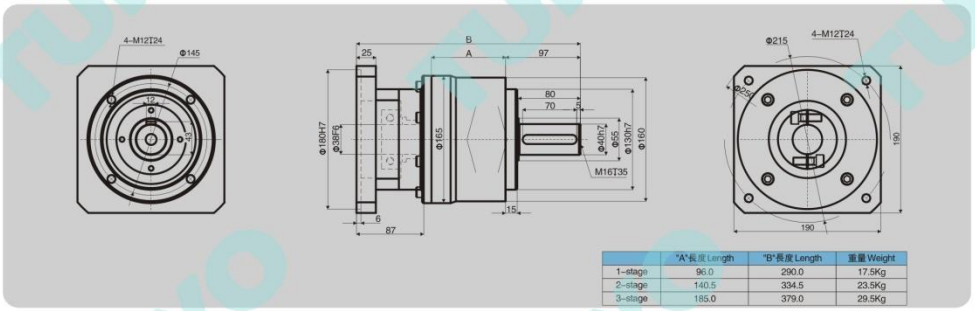
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	265.0	14.5Kg
2-stage	140.5	309.5	20.5Kg
3-stage	185.0	354.0	26.5Kg

◆輸入軸徑≤Φ35



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	290.0	16.5Kg
2-stage	140.5	334.5	22.5Kg
3-stage	185.0	379.0	28.5Kg

◆輸入軸徑≤Φ38



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	290.0	17.5Kg
2-stage	140.5	334.5	23.5Kg
3-stage	185.0	379.0	29.5Kg

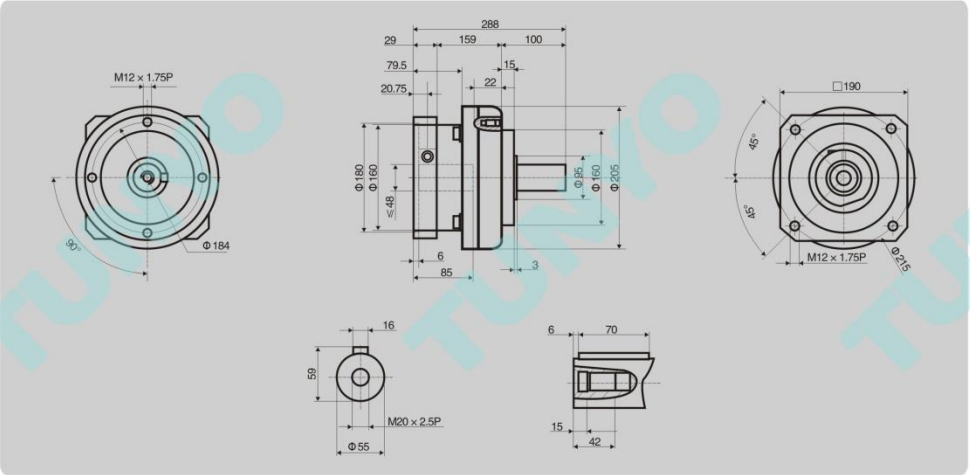
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLE190

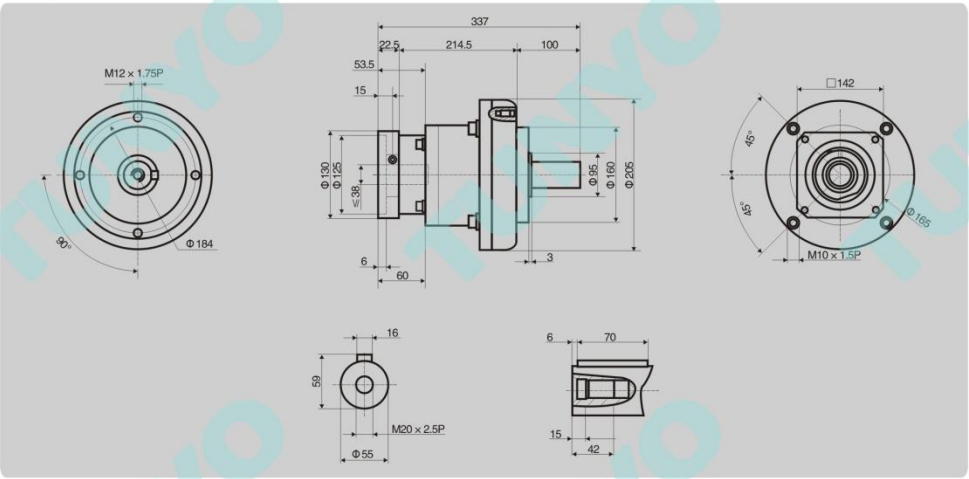
圓型法蘭
行星減速機
減速比:1:3~100
輸出扭矩:588~1200N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



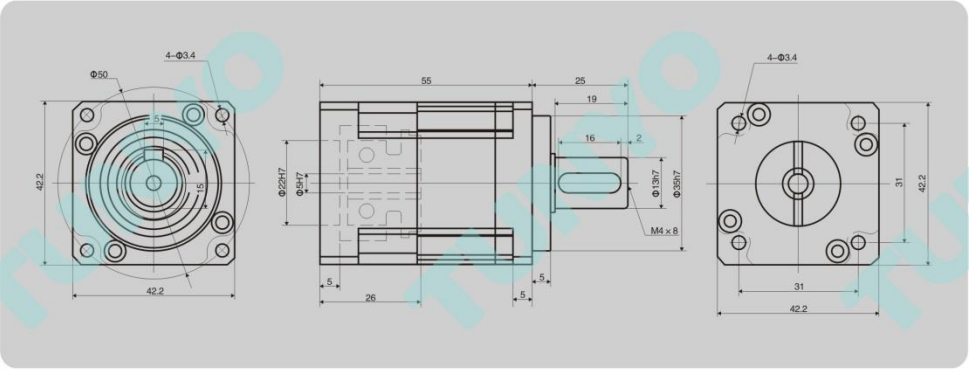
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF40

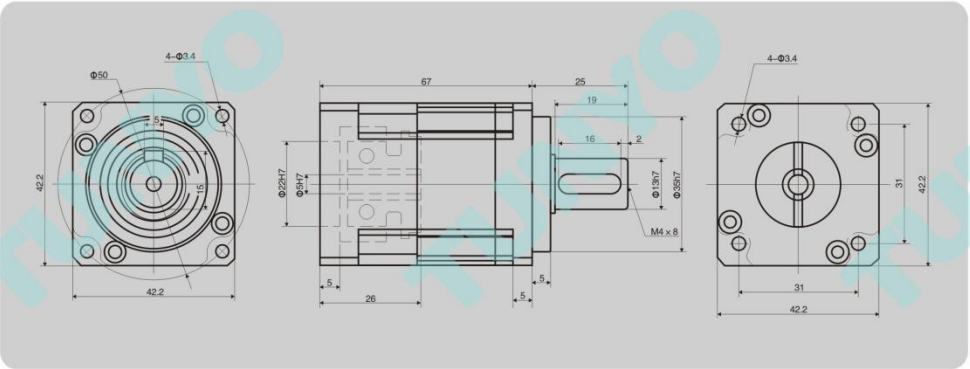
方型法蘭
行星減速機
減速比:1:3~40
輸出扭矩:5~12N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



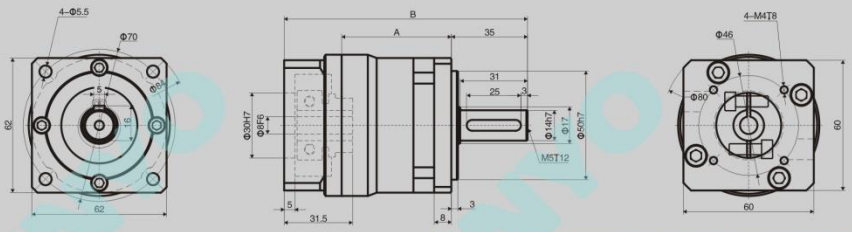
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF60

方型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

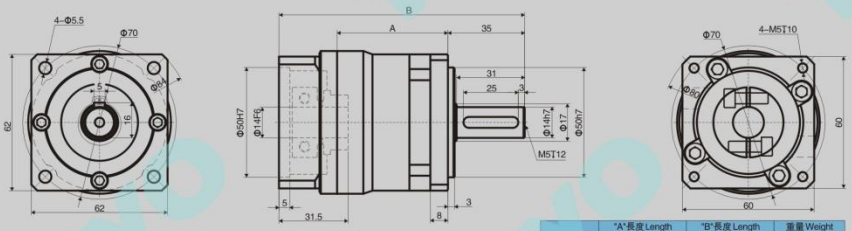
外形尺寸 Dimension

◆輸入軸徑≤Φ8



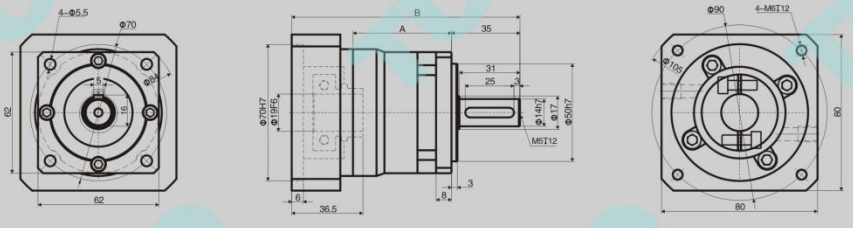
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	112.0	1.2Kg
2-stage	66.5	128.0	1.5Kg
3-stage	82.5	144.0	1.8Kg

◆輸入軸徑≤Φ14



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	112.0	1.2Kg
2-stage	66.5	128.0	1.5Kg
3-stage	82.5	144.0	1.8Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	117.0	1.5Kg
2-stage	66.5	133.0	1.8Kg

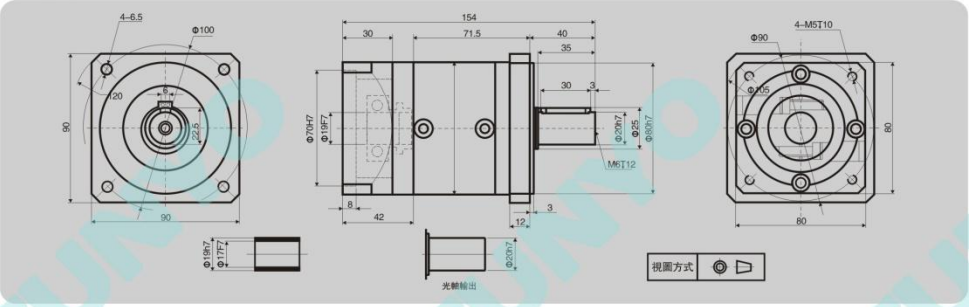
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF80

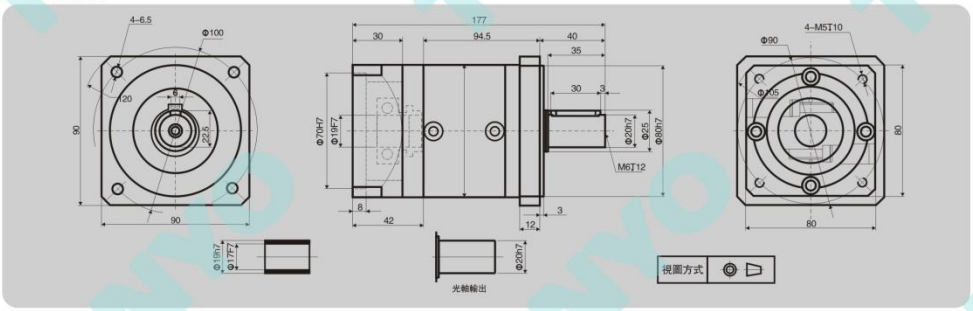
方型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:39.5~132N.m

外形尺寸 Dimension

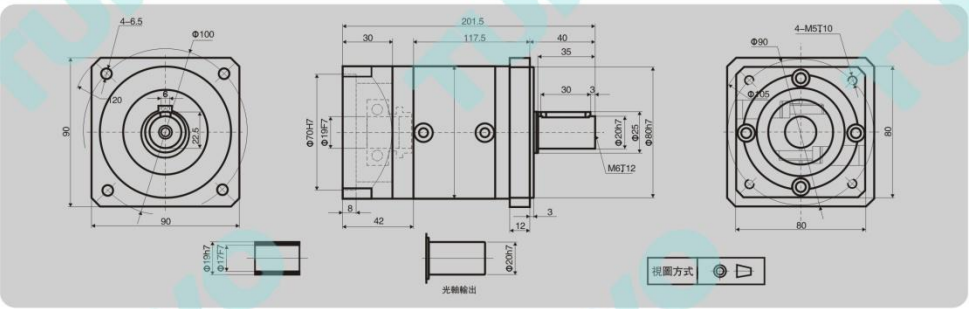
◆一級減速



◆二級減速



◆三級減速



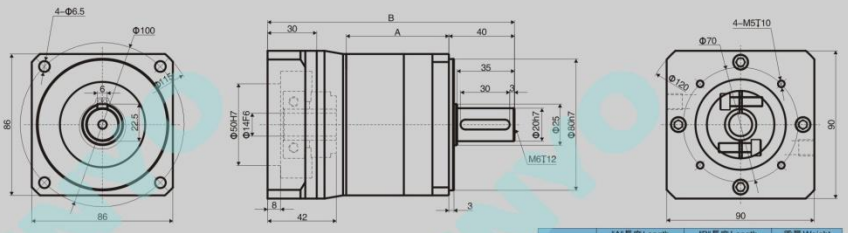
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF90

方型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

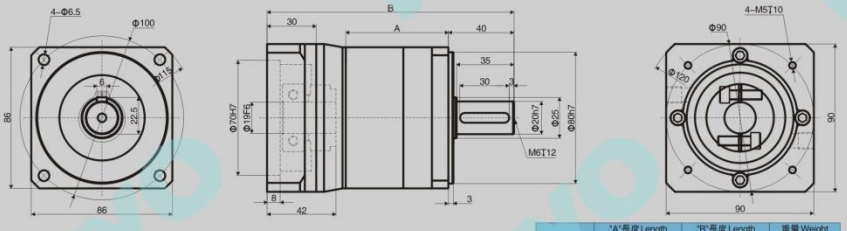
外形尺寸 Dimension

◆輸入軸徑≤Φ14



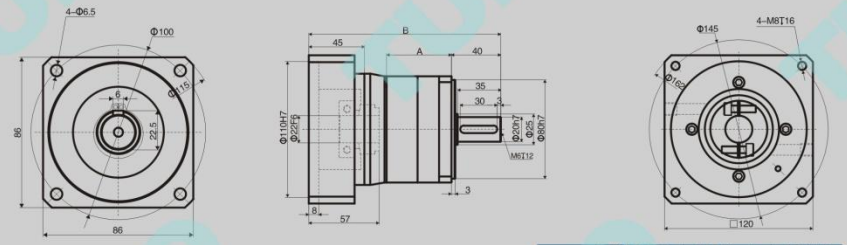
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	150.5	2.7Kg
2-stage	86.0	174.0	3.3Kg
3-stage	109.0	197.0	3.9Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	150.5	2.7Kg
2-stage	86.0	174.0	3.3Kg
3-stage	109.0	197.0	3.9Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	165.5	2.9Kg
2-stage	86.0	189.0	3.5Kg

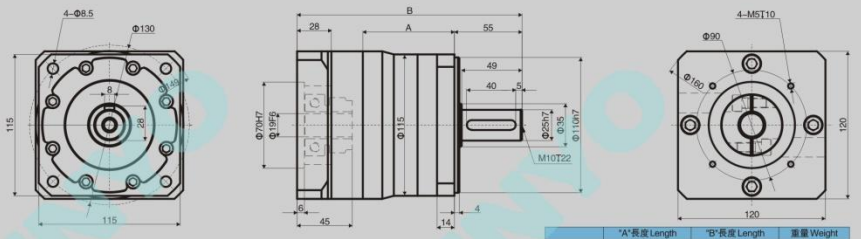
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF120

方型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

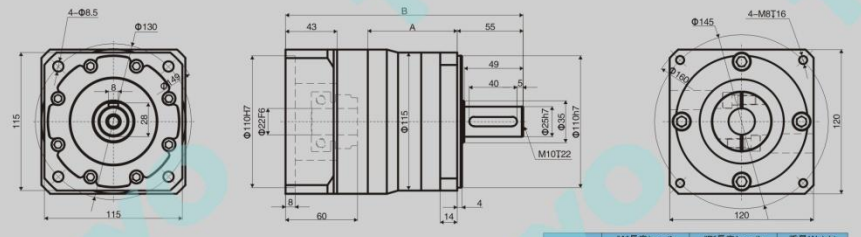
外形尺寸 Dimension

◆輸入軸徑≤Φ19



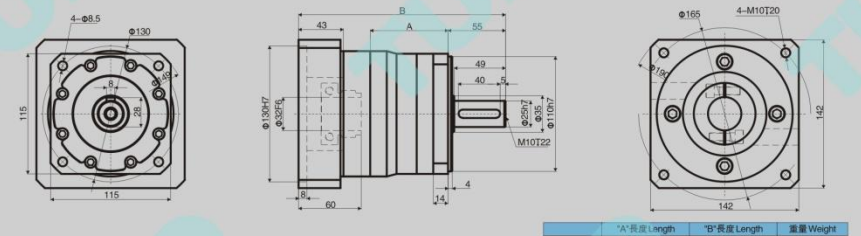
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	183.0	6.4Kg
2-stage	104.5	213.0	8.4Kg
3-stage	134.5	243.0	10.4Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	198.0	6.7Kg
2-stage	104.5	228.0	8.7Kg
3-stage	134.5	258.0	10.7Kg

◆輸入軸徑≤Φ32



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	183.0	7.0Kg
2-stage	104.5	213.0	9.0Kg
3-stage	134.5	243.0	11.0Kg

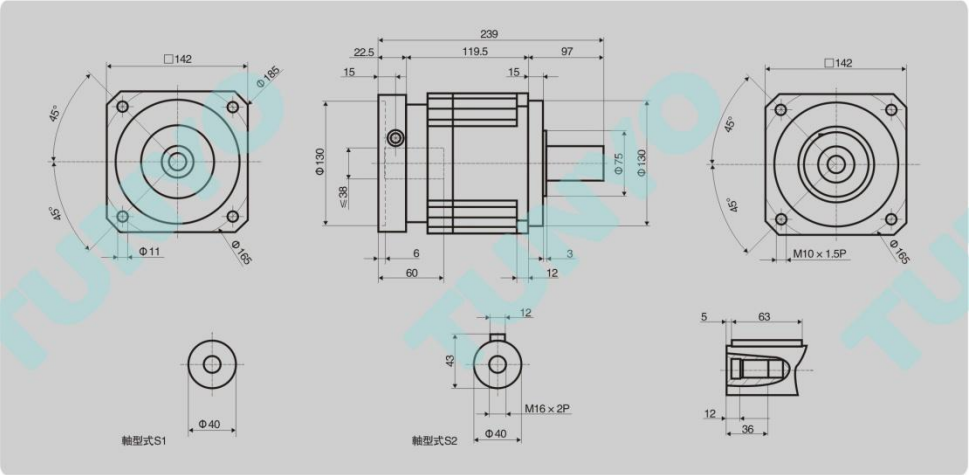
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF140

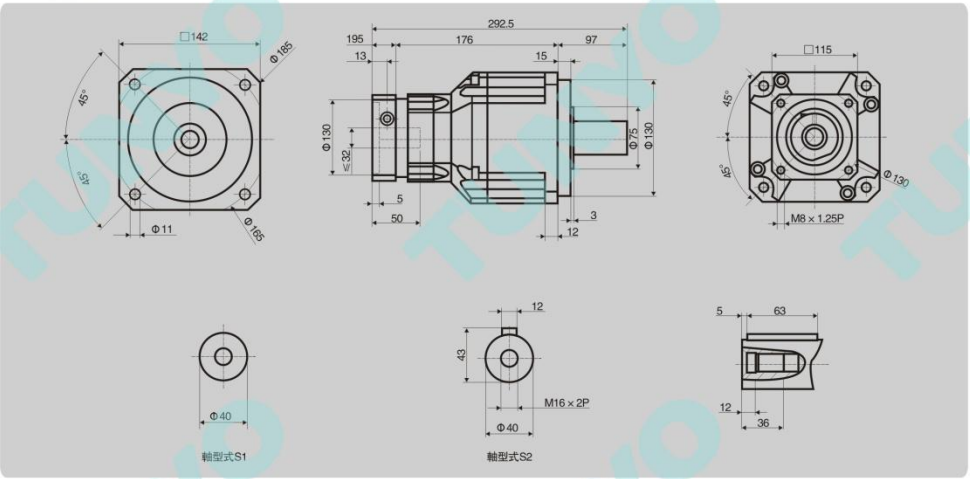
方型法蘭
行星減速機
減速比:1:3~100
輸出扭矩:342~650N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



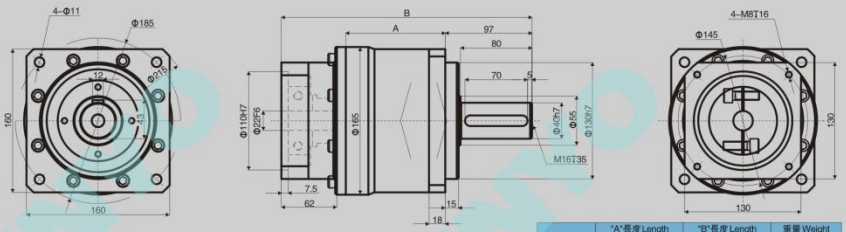
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF160

方型法蘭
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

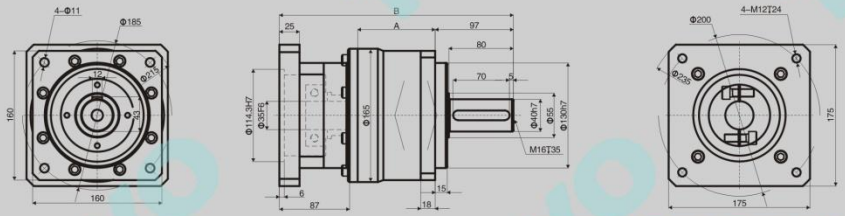
外形尺寸 Dimension

◆輸入軸徑≤Φ22



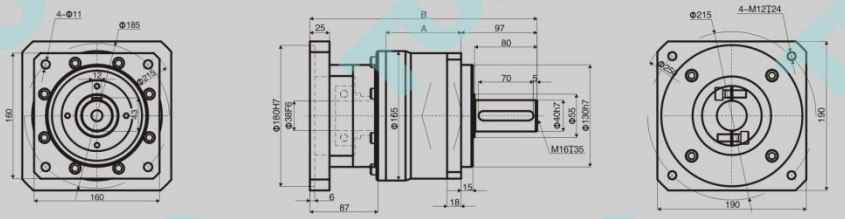
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	265.0	15.0Kg
2-stage	140.5	309.5	21.0Kg
3-stage	185.0	354.0	27.0Kg

◆輸入軸徑≤Φ35



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	290.0	17.0Kg
2-stage	140.5	334.5	23.0Kg
3-stage	185.0	379.0	29.0Kg

◆輸入軸徑≤Φ38



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	290.0	18.0Kg
2-stage	140.5	334.5	24.0Kg
3-stage	185.0	379.0	30.0Kg

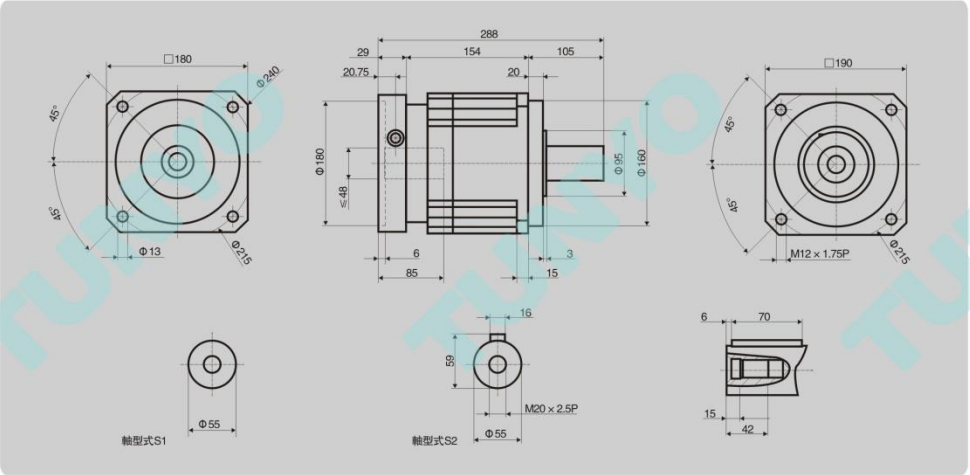
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLF190

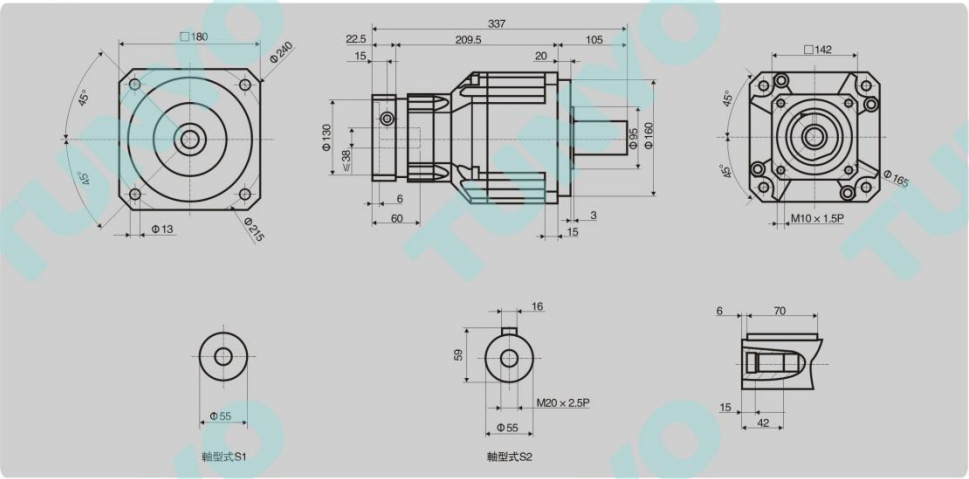
方型法蘭
行星減速機
減速比:1:3~100
輸出扭矩:588~1200N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



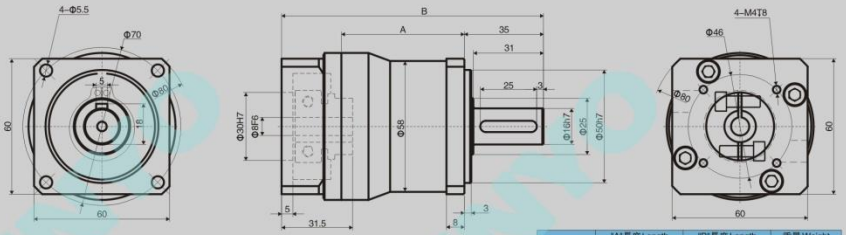
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLFX60

加强型方型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

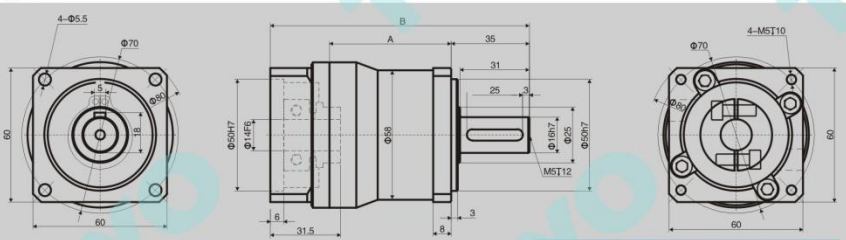
外形尺寸 Dimension

◆輸入軸徑≤Φ8



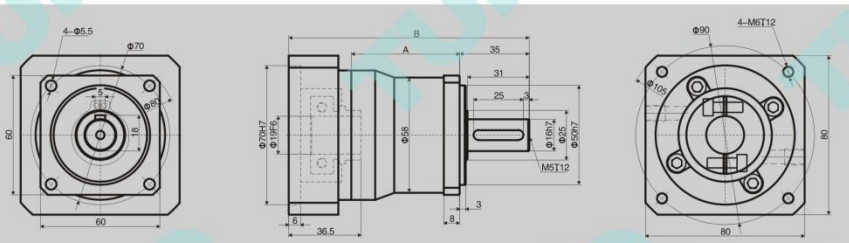
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	116.0	1.3Kg
2-stage	68.5	132.0	1.6Kg
3-stage	84.5	148.0	1.9Kg

◆輸入軸徑≤Φ14



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	116.0	1.3Kg
2-stage	68.5	132.0	1.6Kg
3-stage	84.5	148.0	1.9Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	121.0	1.6Kg
2-stage	68.5	137.0	1.9Kg

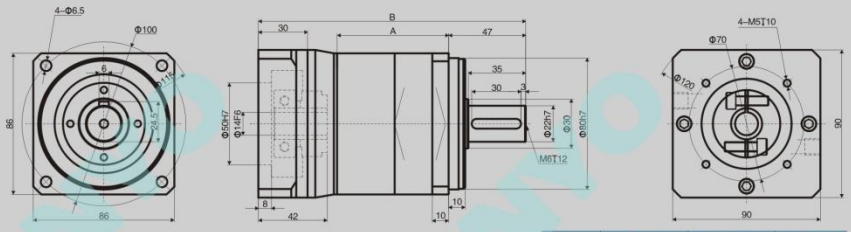
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLFX90

加强型方型法蘭
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

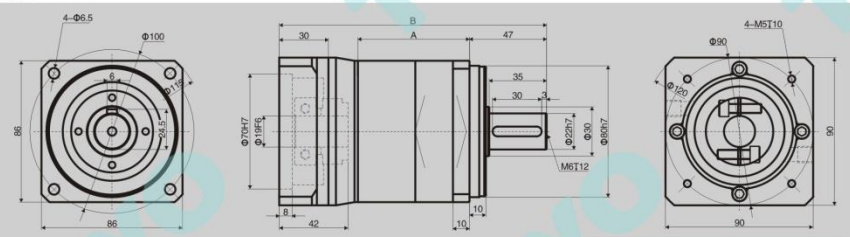
外形尺寸 Dimension

◆輸入軸徑≤Φ14



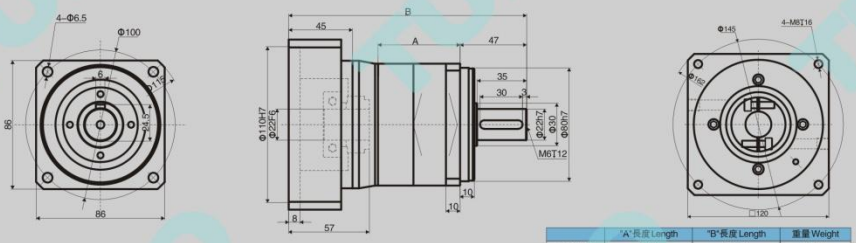
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.0	163.0	3.0Kg
2-stage	91.5	186.5	3.6Kg
3-stage	114.5	209.5	4.2Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.5	163.0	3.0Kg
2-stage	91.5	186.5	3.6Kg
3-stage	114.5	209.5	4.2Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.0	178.0	3.3Kg
2-stage	91.5	201.5	3.9Kg

◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

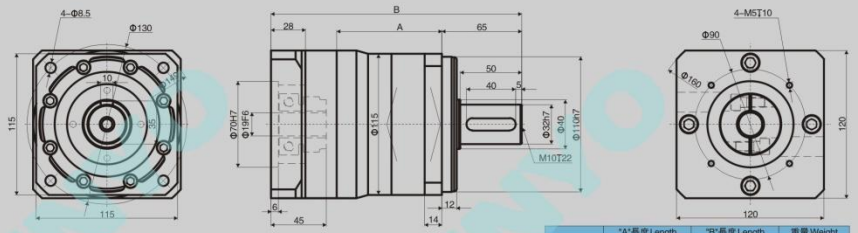
PLFX120 加强型方型法蘭 行星減速機

減速比:1:3~1000

輸出扭矩:90~335N.m

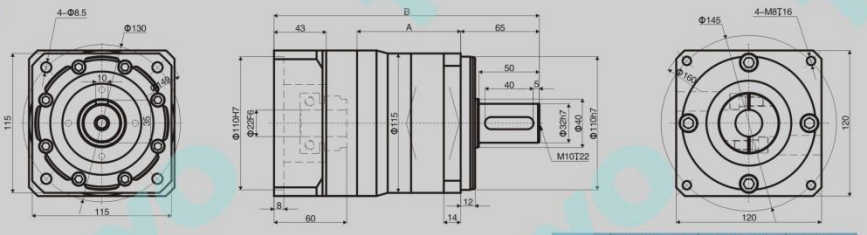
外形尺寸 Dimension

◆輸入軸徑≤Φ19



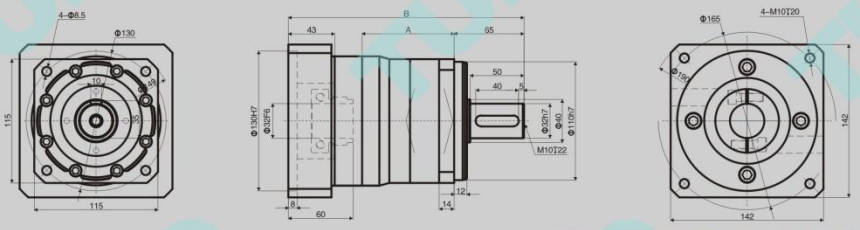
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	204.0	6.6Kg
2-stage	115.5	234.0	8.6Kg
3-stage	145.5	264.0	10.6Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	219.0	6.9Kg
2-stage	115.5	249.0	8.9Kg
3-stage	145.5	279.0	10.9Kg

◆輸入軸徑≤Φ32



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	219.0	7.2Kg
2-stage	115.5	249.0	9.2Kg
3-stage	145.5	279.0	11.2Kg

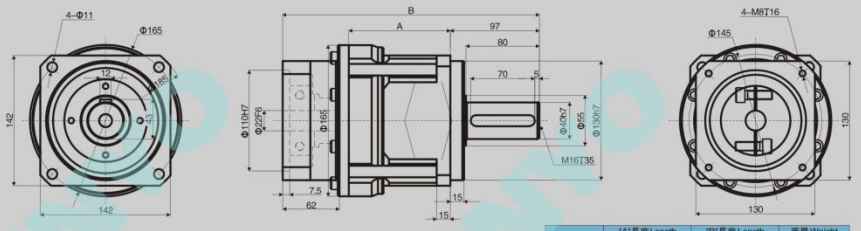
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLFX140

加强型方型法蘭
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

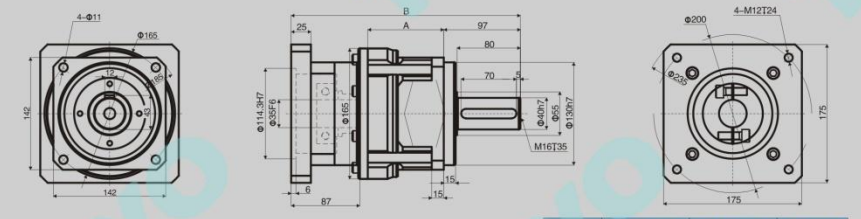
外形尺寸 Dimension

◆輸入軸徑≤Φ22



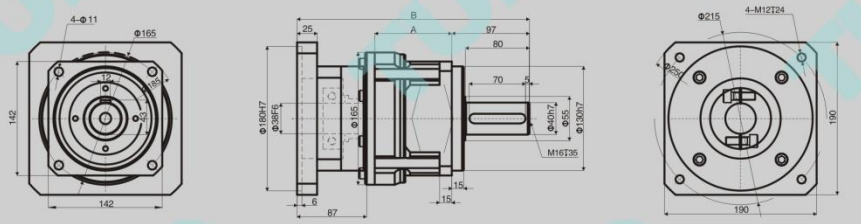
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	265.0	14.0Kg
2-stage	140.5	309.5	20.0Kg
3-stage	185.0	354.0	26.0Kg

◆輸入軸徑≤Φ35



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	290.0	16.0Kg
2-stage	140.5	334.5	22.0Kg
3-stage	185.0	379.0	28.0Kg

◆輸入軸徑≤Φ38



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	290.0	17.0Kg
2-stage	140.5	334.5	23.0Kg
3-stage	185.0	379.0	29.0Kg

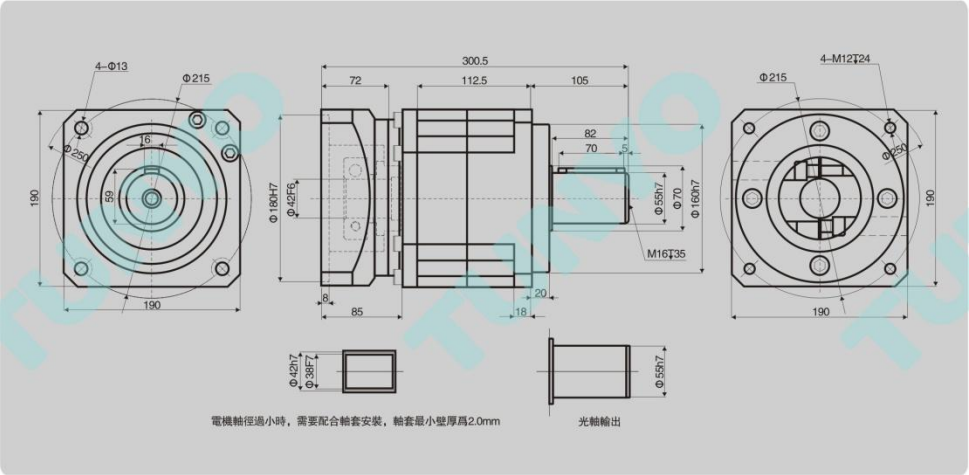
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLFX190

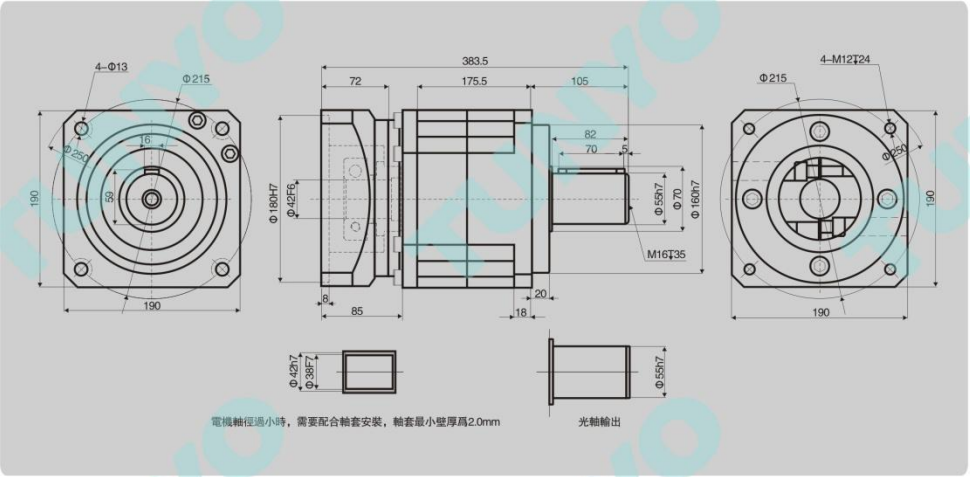
加强型方型法蘭
行星減速機
減速比: 1:4~64
輸出扭矩:745~2035N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



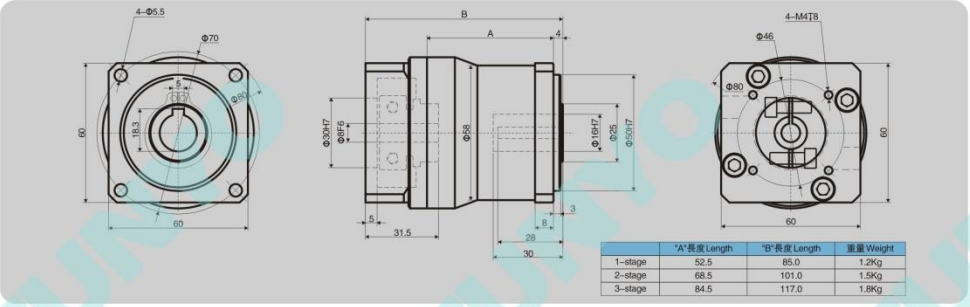
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLK60

孔　輸　出
行 星 減 速 機
減速比:1:3~1000
輸出扭矩:12~40N.m

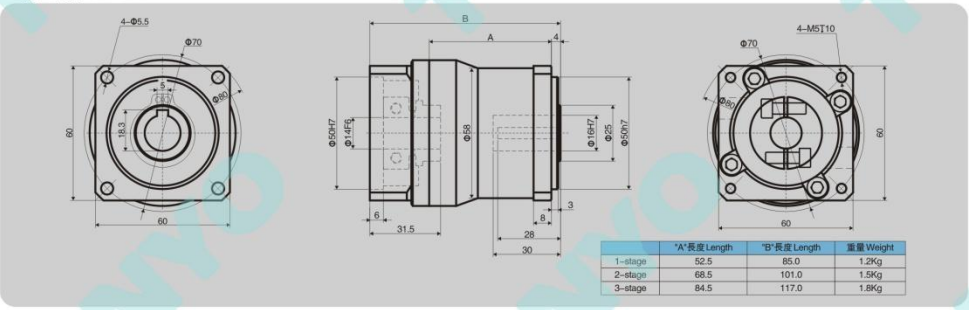
外形尺寸 Dimension

◆輸入軸徑≤Φ8



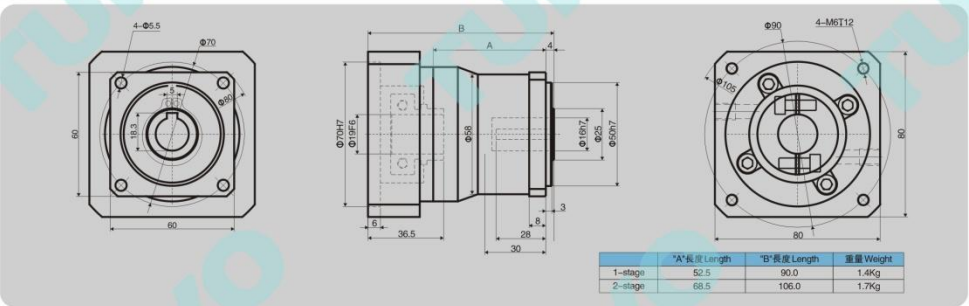
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	85.0	1.2Kg
2-stage	68.5	101.0	1.5Kg
3-stage	84.5	117.0	1.8Kg

◆輸入軸徑≤Φ14



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	85.0	1.2Kg
2-stage	68.5	101.0	1.5Kg
3-stage	84.5	117.0	1.8Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	90.0	1.4Kg
2-stage	68.5	106.0	1.7Kg

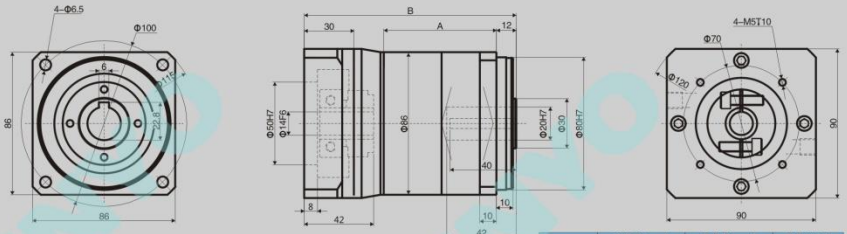
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLK90

孔　輸　出
行 星 減 速 機
減速比:1:3~1000
輸出扭矩:40~135N.m

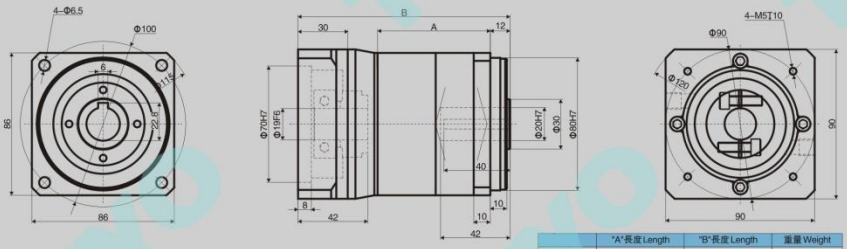
外形尺寸 Dimension

◆輸入軸徑≤Φ14



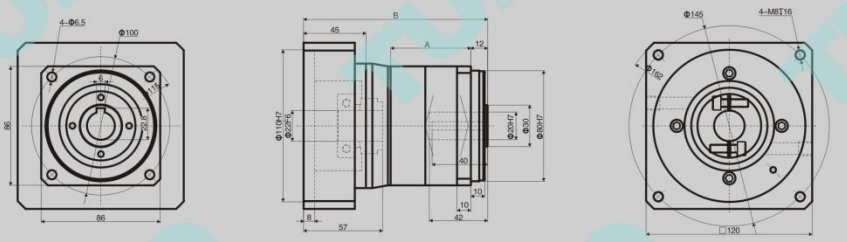
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.0	128.0	2.6Kg
2-stage	91.5	151.5	3.2Kg
3-stage	114.5	174.5	3.8Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.0	128.0	2.6Kg
2-stage	91.5	151.5	3.2Kg
3-stage	114.5	174.5	3.8Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.0	143.0	2.9Kg
2-stage	91.5	166.5	3.5Kg

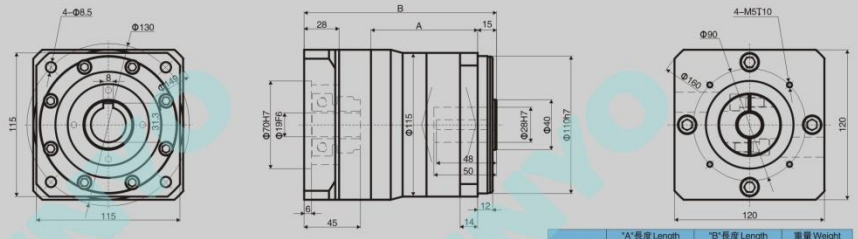
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLK120

孔　輸　出
行 星 減 速 機
減速比:1:3~1000
輸出扭矩:90~335N.m

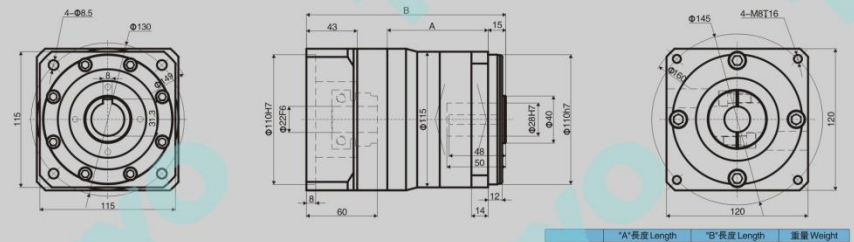
外形尺寸 Dimension

◆輸入軸徑≤Φ19



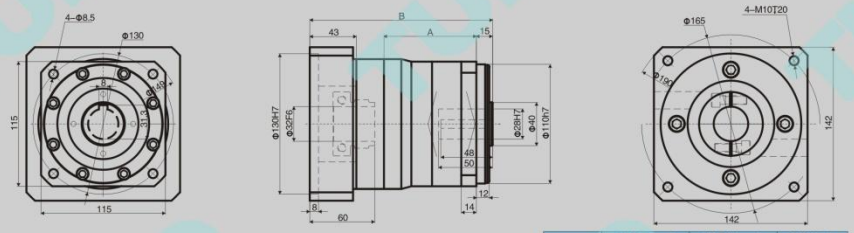
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	154.0	6.1Kg
2-stage	115.5	184.0	8.1Kg
3-stage	114.5	214.0	10.1Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	169.0	6.4Kg
2-stage	115.5	199.0	8.4Kg
3-stage	145.5	229.0	10.4Kg

◆輸入軸徑≤Φ32



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	169.0	6.6Kg
2-stage	115.5	199.0	8.6Kg
3-stage	145.5	229.0	10.6Kg

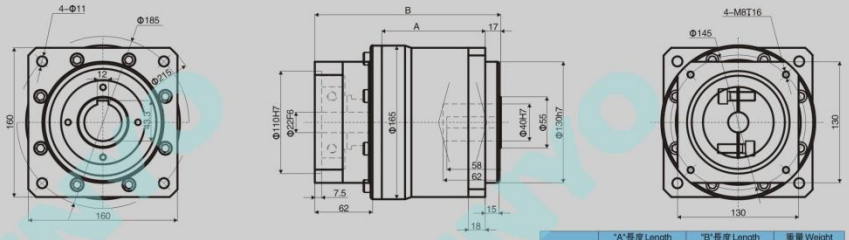
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLK160

孔　輸　出
行 星 減 速 機
減速比:1:3~512
輸出扭矩:270~900N.m

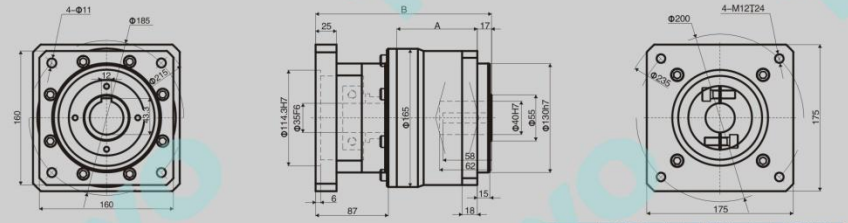
外形尺寸 Dimension

◆輸入軸徑≤Φ22



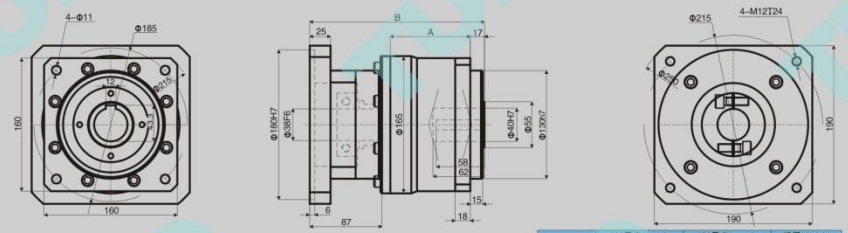
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	185.0	14.0Kg
2-stage	140.5	229.5	20.0Kg
3-stage	185.0	274.0	26.0Kg

◆輸入軸徑≤Φ35



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	210.0	16.0Kg
2-stage	140.5	254.5	22.0Kg
3-stage	185.0	299.0	28.0Kg

◆輸入軸徑≤Φ38



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	210.0	17.0Kg
2-stage	140.5	254.5	23.0Kg
3-stage	185.0	299.0	29.0Kg

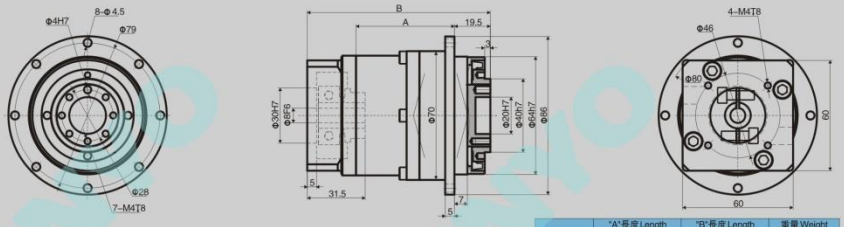
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLH60

盤　輸　出
行 星 減 速 機
減速比:1:3~1000
輸出扭矩:12~40N.m

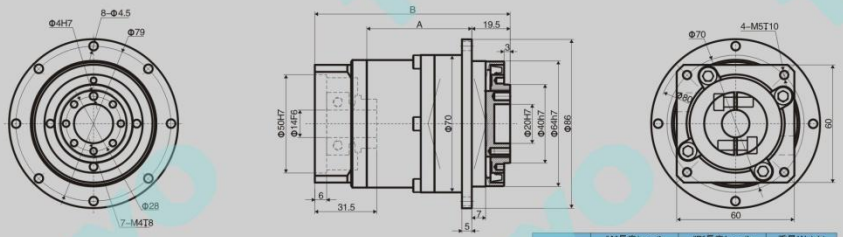
外形尺寸 Dimension

◆輸入軸徑≤Φ8



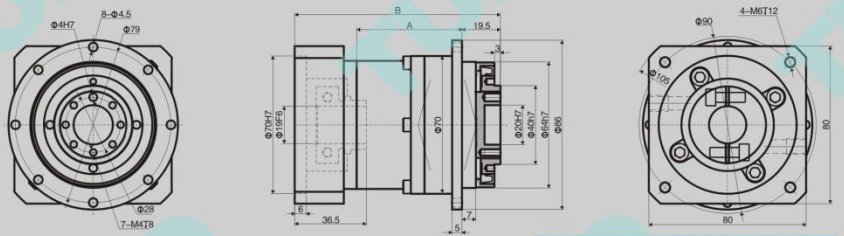
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	53.5	99.5	1.8Kg
2-stage	69.5	115.5	2.1Kg
3-stage	85.5	131.5	2.4Kg

◆輸入軸徑≤Φ14



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	53.5	99.5	1.8Kg
2-stage	69.5	115.5	2.1Kg
3-stage	85.5	131.5	2.4Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	53.5	104.5	2.1Kg
2-stage	69.5	120.5	2.4Kg

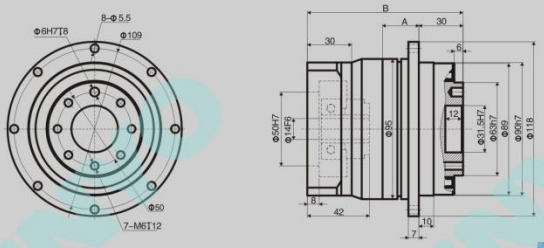
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLH90

盤　輸　出
行 星 減 速 機
減速比:1:3~1000
輸出扭矩:40~135N.m

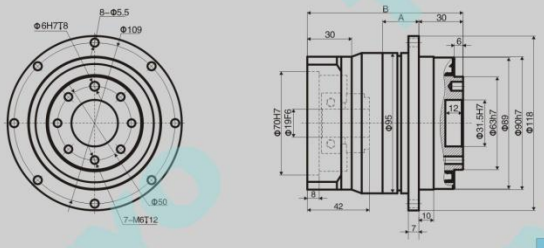
外形尺寸 Dimension

◆輸入軸徑≤Φ14



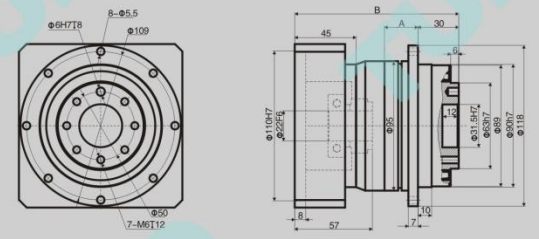
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	24.5	108.5	3.2Kg
2-stage	55.5	133.5	3.8Kg
3-stage	78.5	156.5	4.4Kg

◆輸入軸徑≤Φ19



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	24.5	108.5	3.2Kg
2-stage	55.5	133.5	3.8Kg
3-stage	78.5	156.5	4.4Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	24.5	123.5	3.6Kg
2-stage	55.5	148.5	4.2Kg

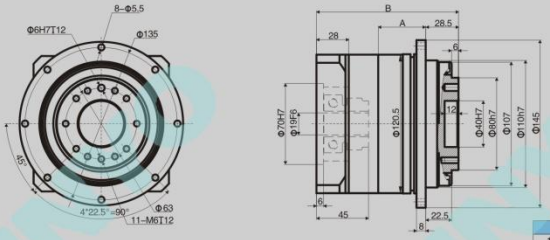
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLH120

盤　輸　出
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

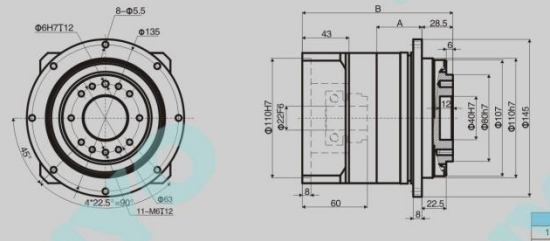
外形尺寸 Dimension

◆輸入軸徑≤Φ19



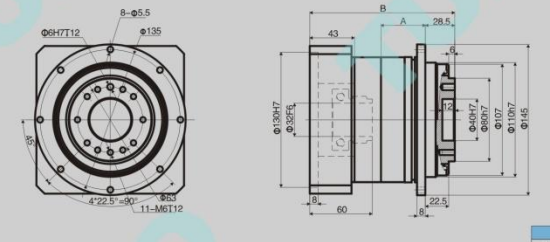
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	36.0	118.0	6.6Kg
2-stage	68.0	150.0	8.6Kg
3-stage	98.5	180.5	10.6Kg

◆輸入軸徑≤Φ22



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	36.0	133.0	6.9Kg
2-stage	68.0	165.0	8.9Kg
3-stage	98.5	195.5	10.9Kg

◆輸入軸徑≤Φ32



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	36.0	133.0	7.1Kg
2-stage	68.0	165.0	9.1Kg
3-stage	98.5	195.5	11.1Kg

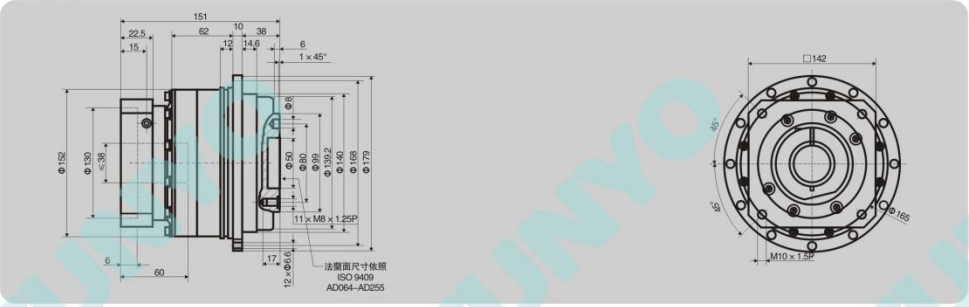
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLH140

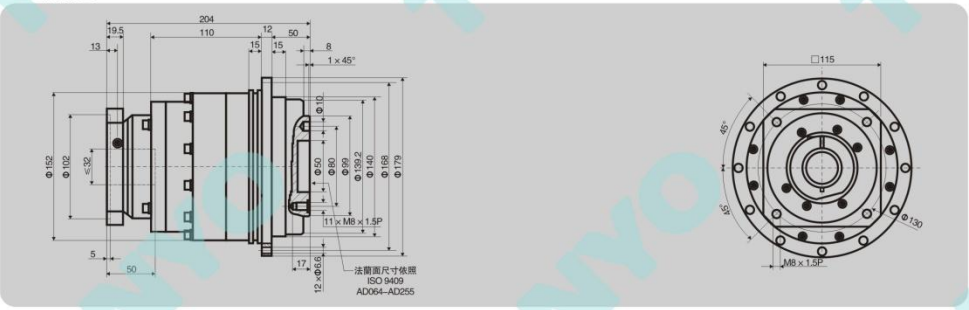
盤　輸　出
行星減速機
減速比:1:3~100
輸出扭矩:130~450N.m

外形尺寸 Dimension

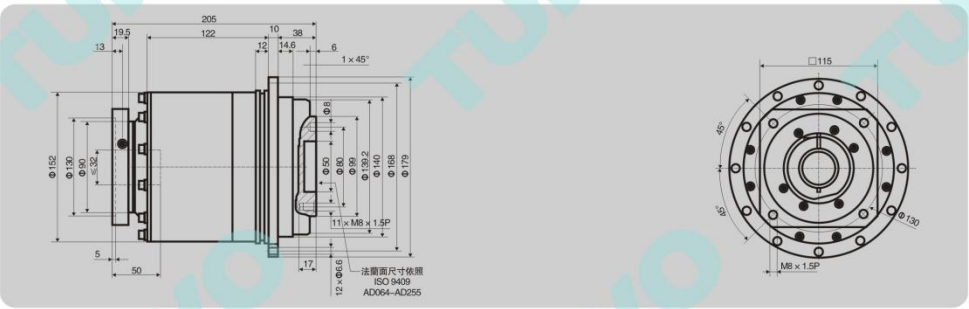
◆一級減速



◆二級減速



◆非標減速比 i=16,21,31,61,91



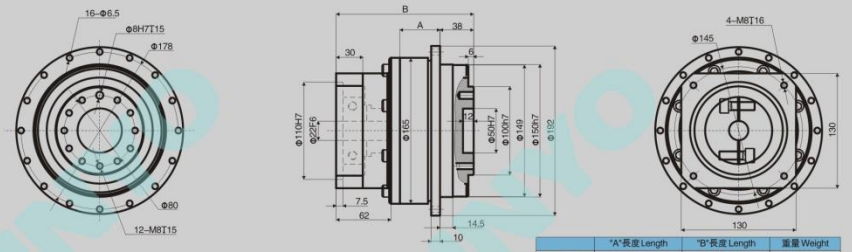
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PLH160

盤　輸　出
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

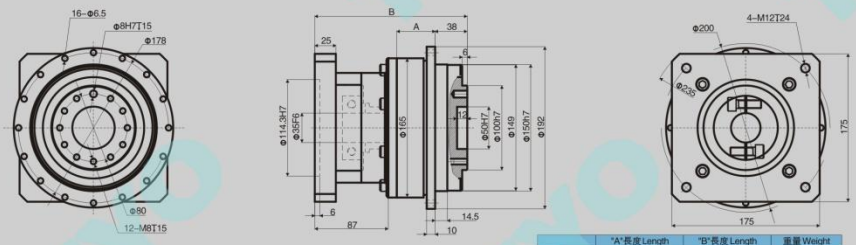
外形尺寸 Dimension

◆輸入軸徑≤Φ22



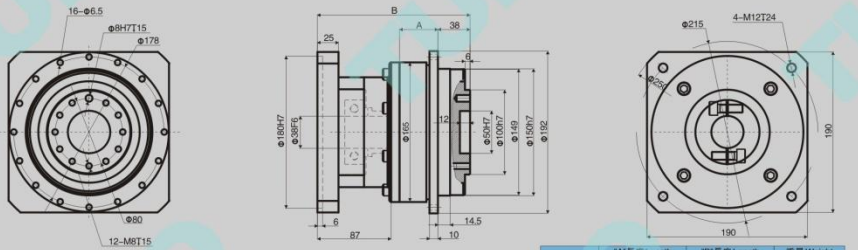
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	45.5	155.5	14.0Kg
2-stage	87.5	197.5	20.0Kg

◆輸入軸徑≤Φ35



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	45.5	180.5	16.0Kg
2-stage	87.5	222.5	22.0Kg

◆輸入軸徑≤Φ38



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	45.5	180.5	17.0Kg
2-stage	87.5	222.5	23.0Kg

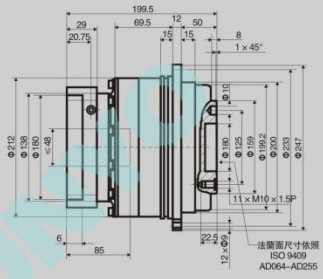
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

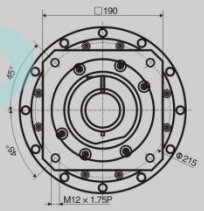
PLH190

盤　輸　出
行星減速機
減速比:1:3~100
輸出扭矩:360~1780N.m

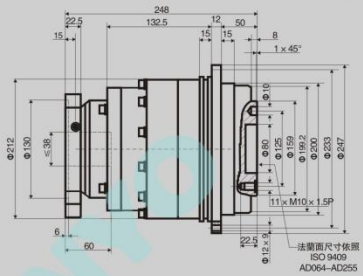
外形尺寸 Dimension

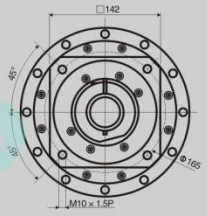
◆一級減速



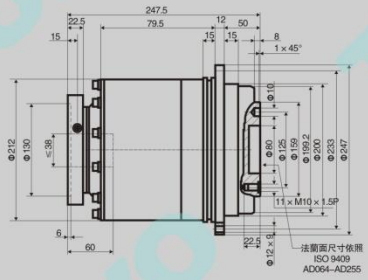


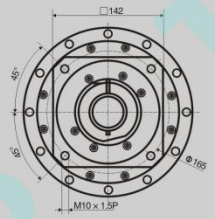
◆二級減速





◆非標減速比 i=16,21,31,61,91





◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

TUNYO

東洋PW轉角行星減速機

TUNYO PW PLANETARY SPEED REDUCER

PROFESSIONAL MANUFACTURER OF POWER TRANSMISSION

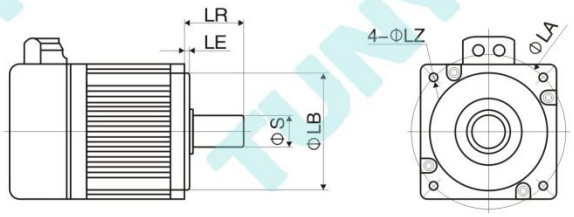
DESIGN PHILOSOPHY: To follow the law, but always beyond.

BUSINESS PHILOSOPHY: Design for customer demand , dedication for customer satisfaction

PW型號說明 PW General information of pseries

P	W	E	80	–	40	–	K	P2
系列名稱	轉角輸出	安裝方式 E:圓型法蘭 F:方型法蘭 FX:加强型方型法蘭 K:孔輸出 H:盤輸出	裝置尺寸 40:□40mm 60:□60mm 90:□90mm 120:□120mm 140:□140mm 160:□160mm 190:□190mm		減速比 1級:3~10 2級:12~70 3級:80~1000		出軸形式 K:出力軸有鍵 S:出力軸無鍵	背隙 P0:超精密 (1–4′) P1:精密 (5–9′) P2:標準 (10–14′)

尺寸說明 Size specification



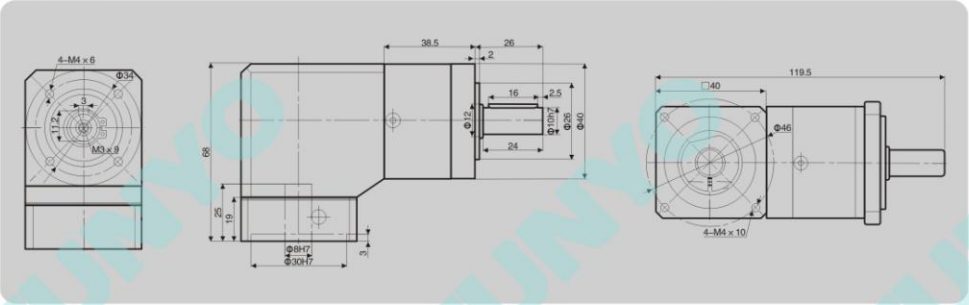
ΦS × LR	ΦLB × LE	4–ΦLZ–ΦLA
電機“輸出軸”相關尺寸 ΦS:電機軸直徑 LR:包括凸臺的長度	電機“安裝凸臺”相關尺寸 ΦLB:凸臺直徑 LE:凸臺深度	電機“安裝孔”相關尺寸 4:安裝孔數量，一般爲4個 Φ LZ:安裝孔的直徑(注意螺紋孔時爲M) ΦLA:安裝孔分度圓(虛擬圓)直徑

PWE40

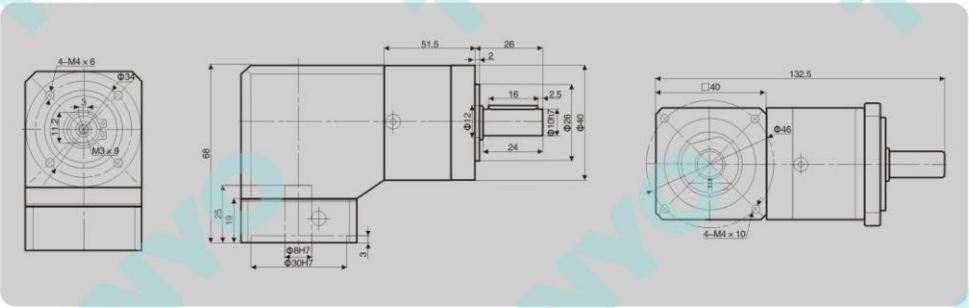
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:4.5~20N.m

外形尺寸 Dimension

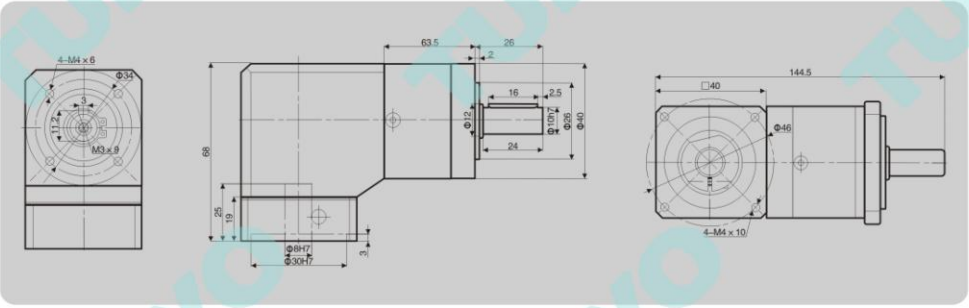
◆一級減速



◆二級減速



◆三級減速



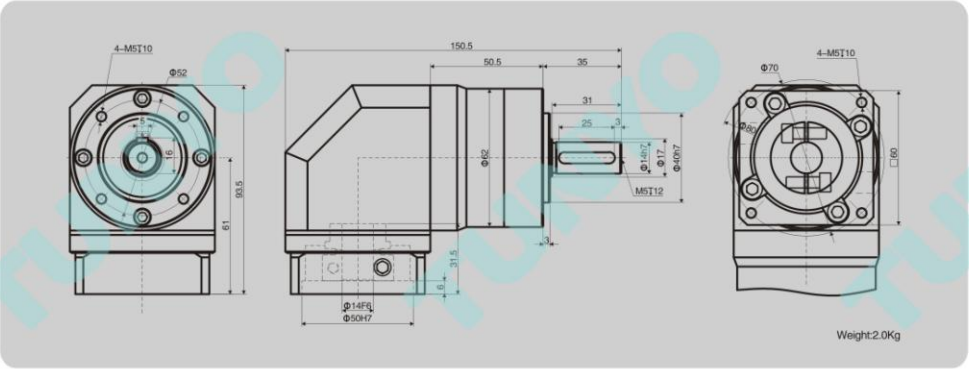
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE60

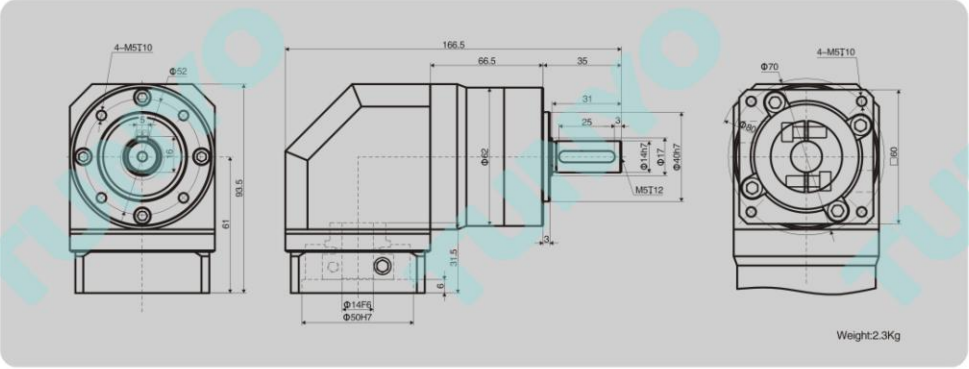
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



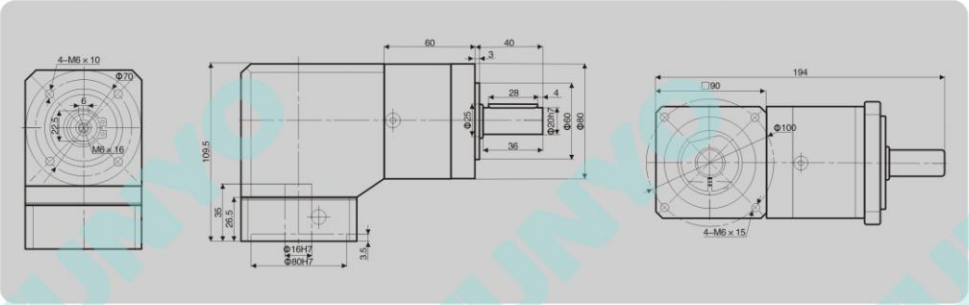
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE80

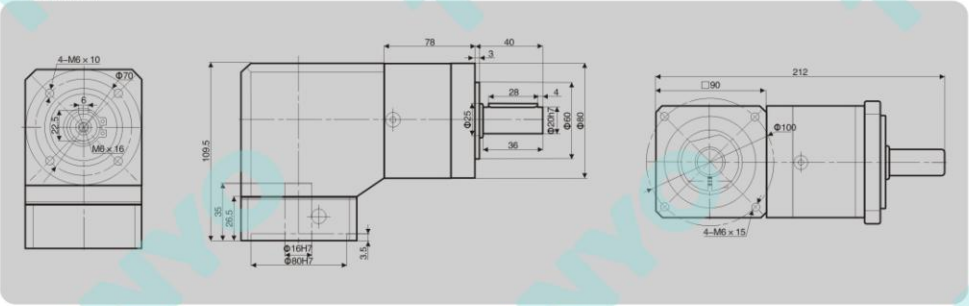
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:40~120N.m

外形尺寸 Dimension

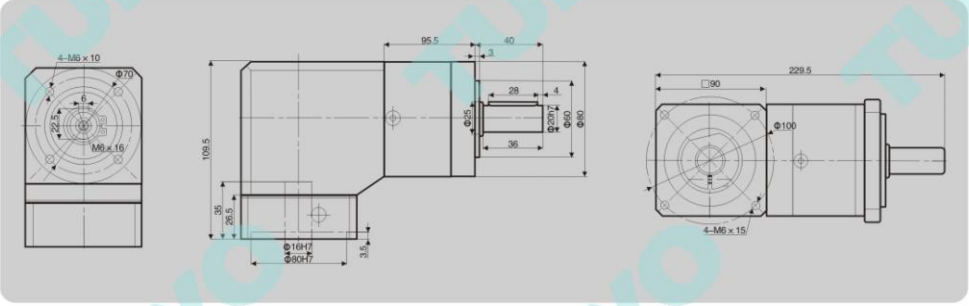
◆一級減速



◆二級減速



◆三級減速



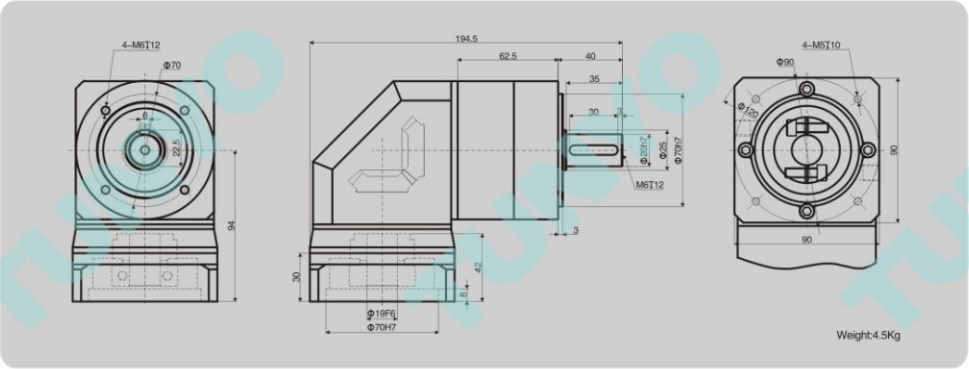
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE90

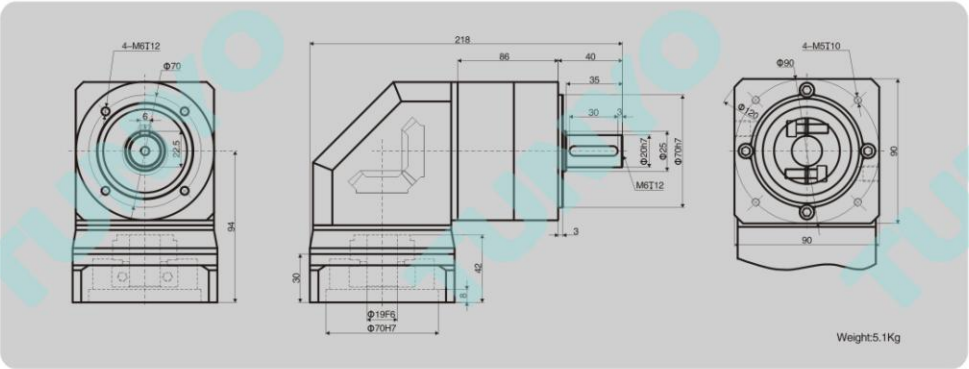
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



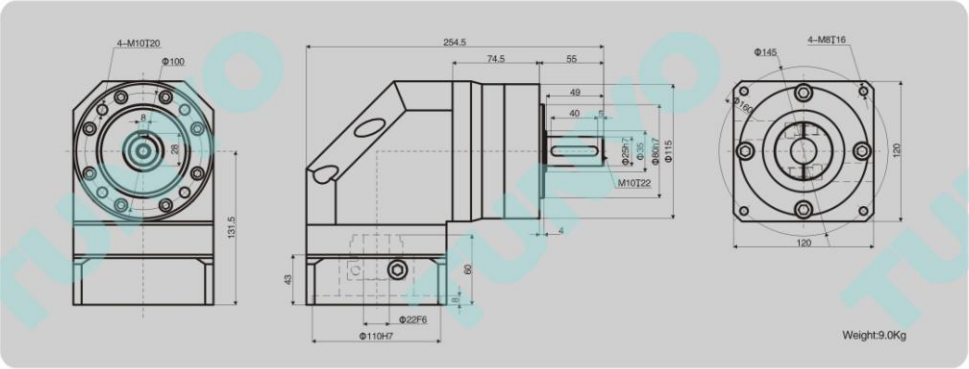
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE120

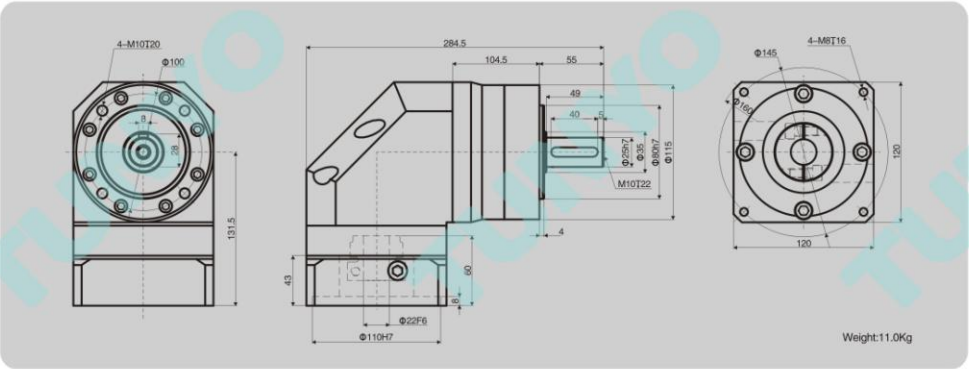
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



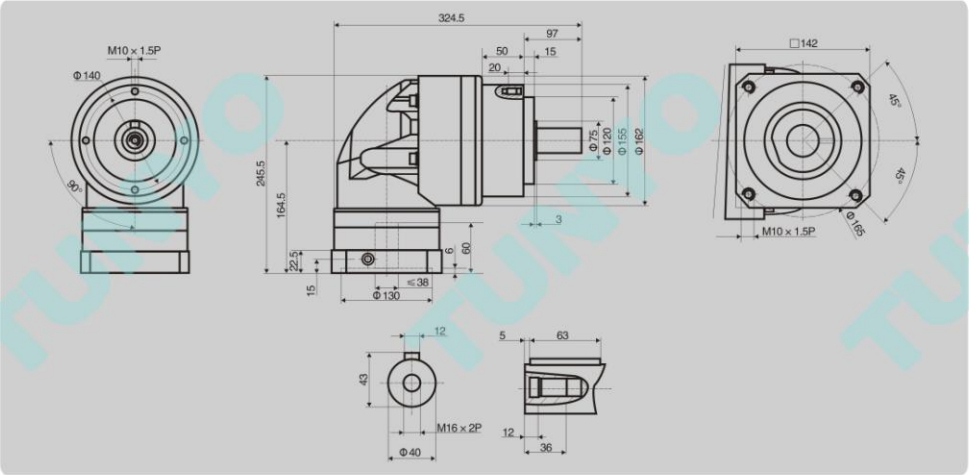
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE140

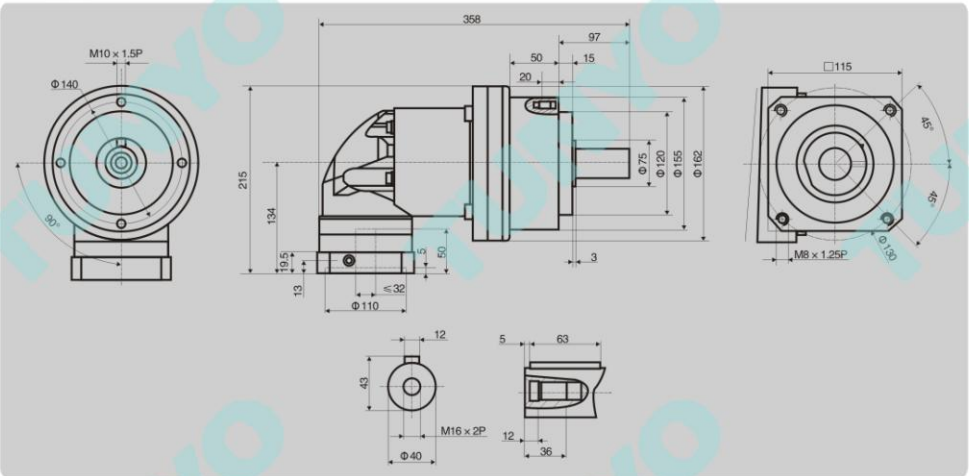
直角輸出
行星減速機
減速比:1:3~200
輸出扭矩:342~650N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



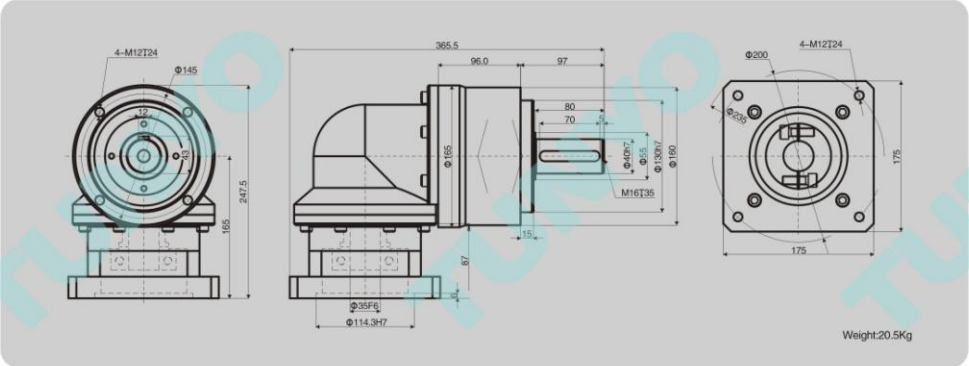
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE160

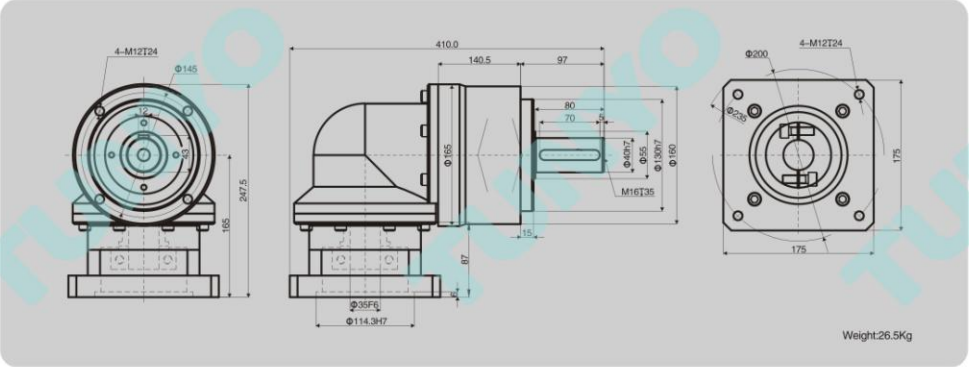
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



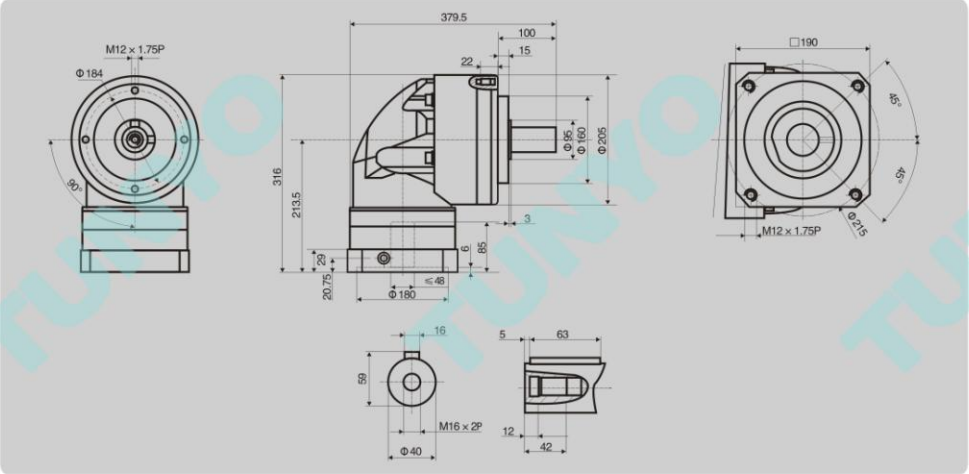
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWE190

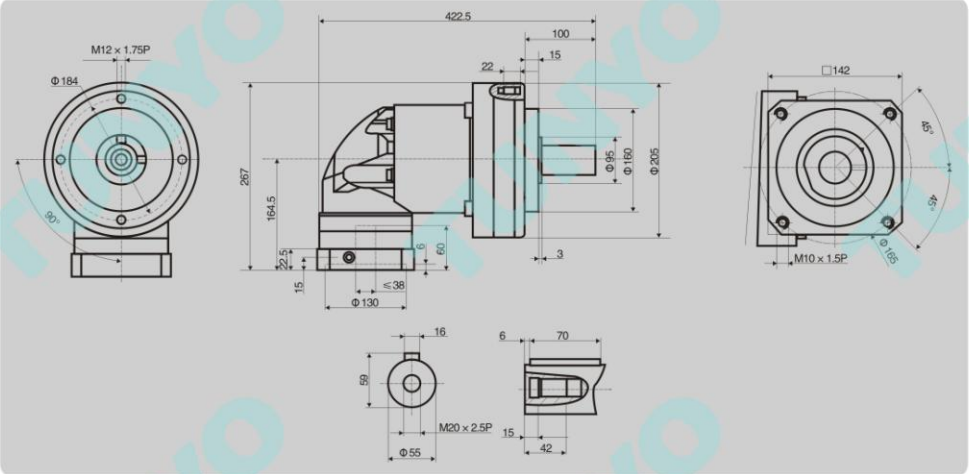
直角輸出
行星減速機
減速比:1:3~200
輸出扭矩:588~1200N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



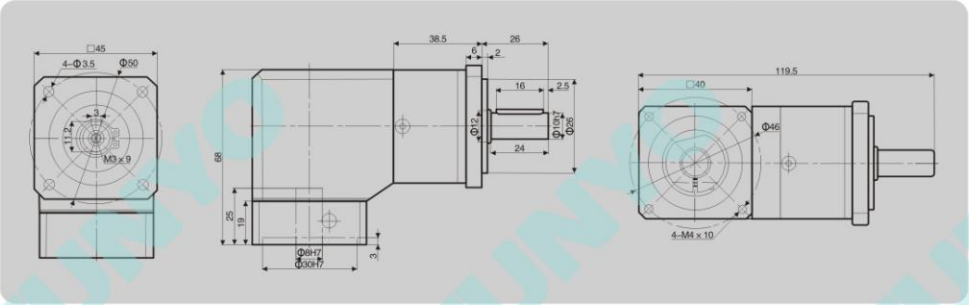
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF40

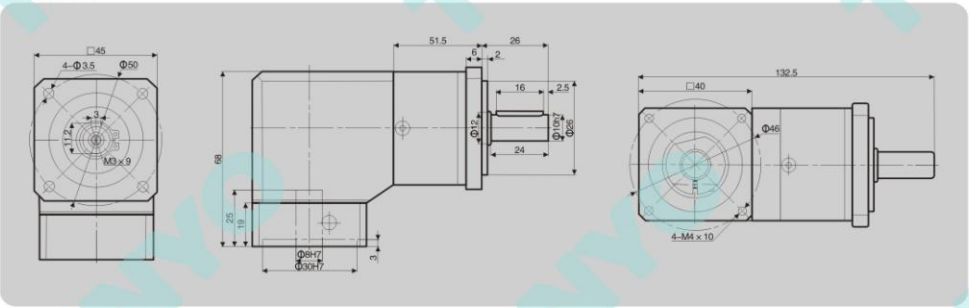
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:4.5~20N.m

外形尺寸 Dimension

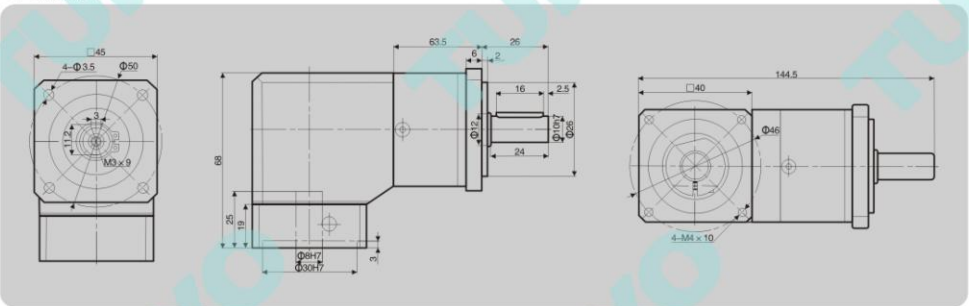
◆一級減速



◆二級減速



◆三級減速



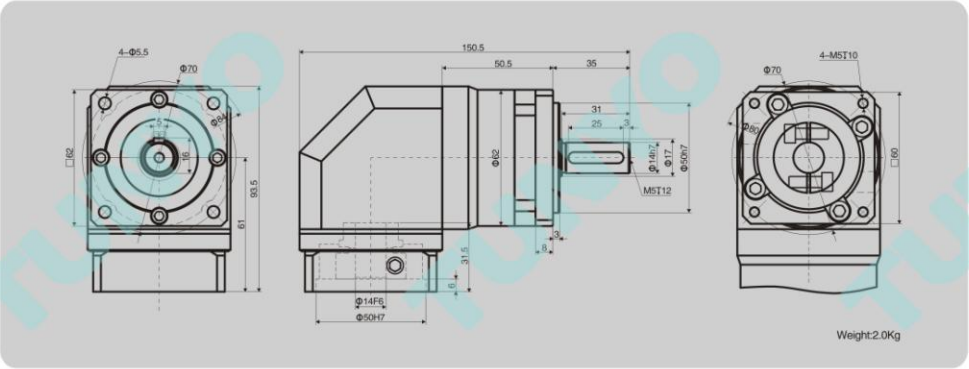
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF60

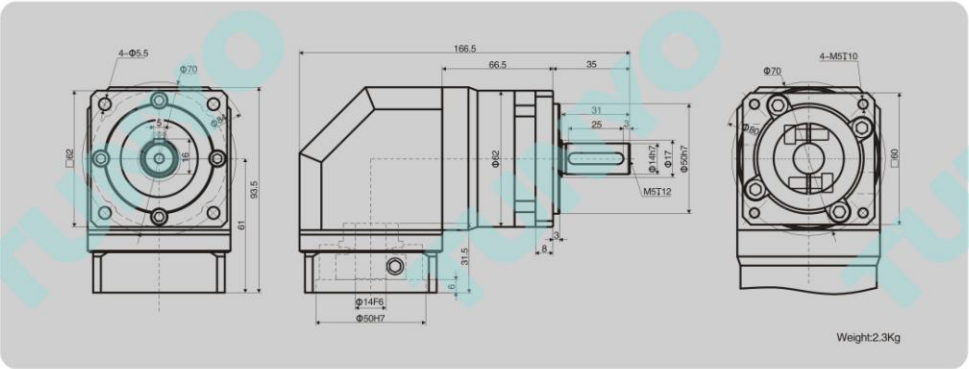
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



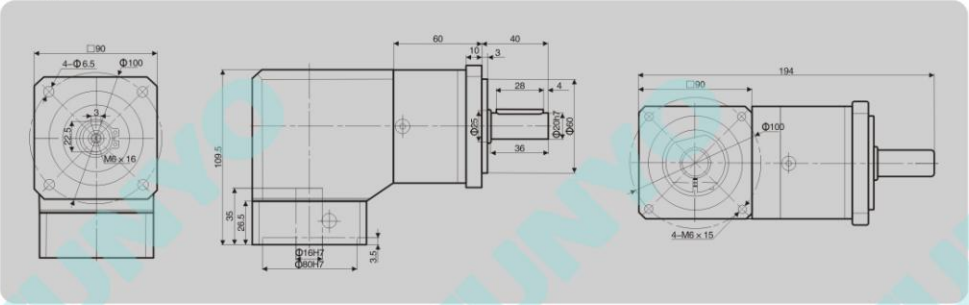
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF80

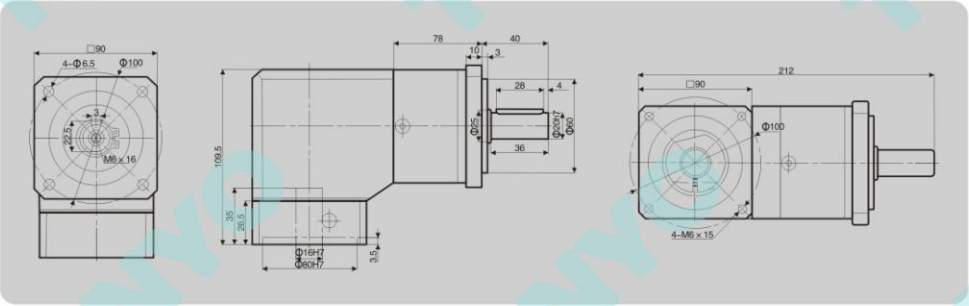
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:40~120N.m

外形尺寸 Dimension

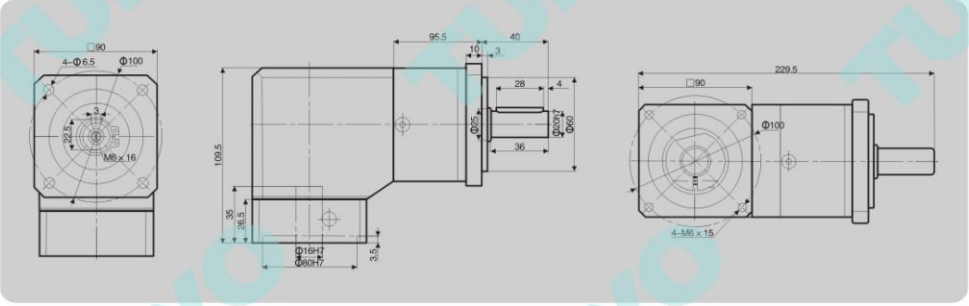
◆一級減速



◆二級減速



◆三級減速



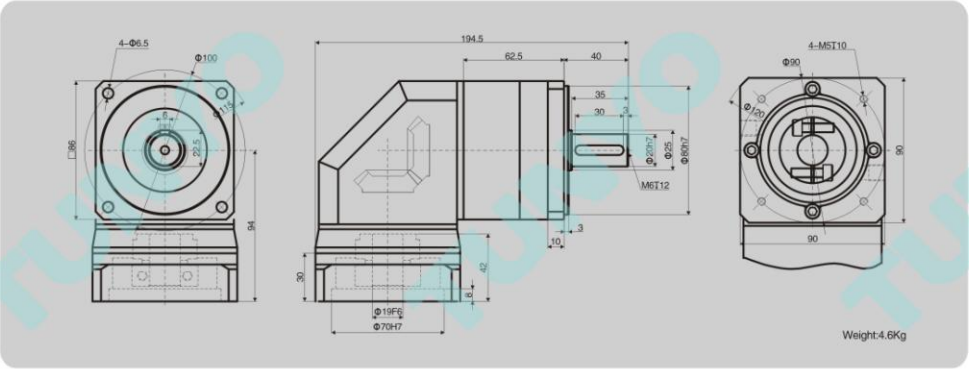
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF90

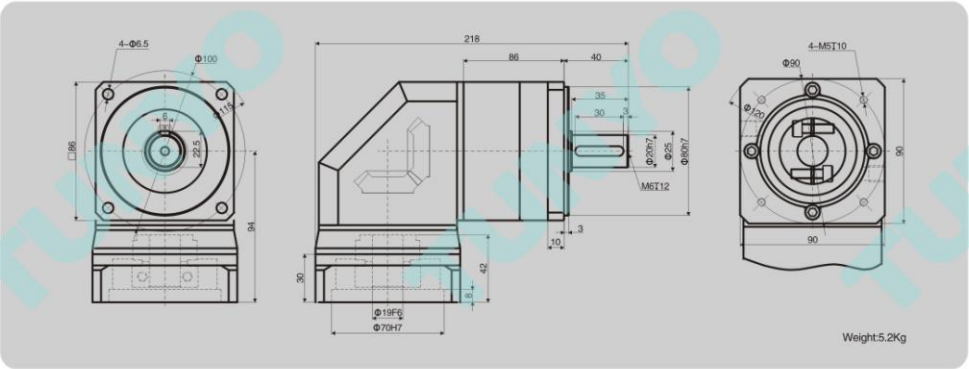
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



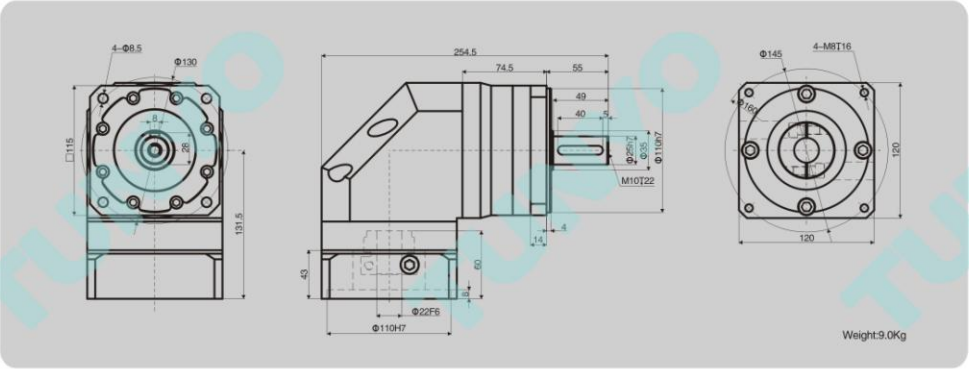
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF120

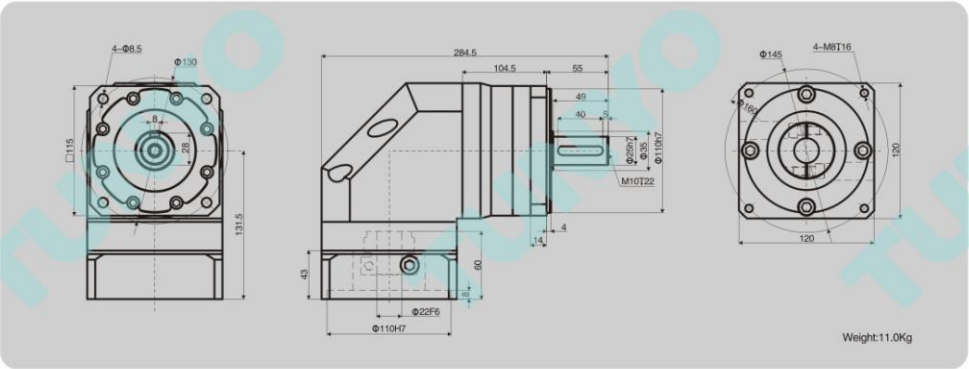
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



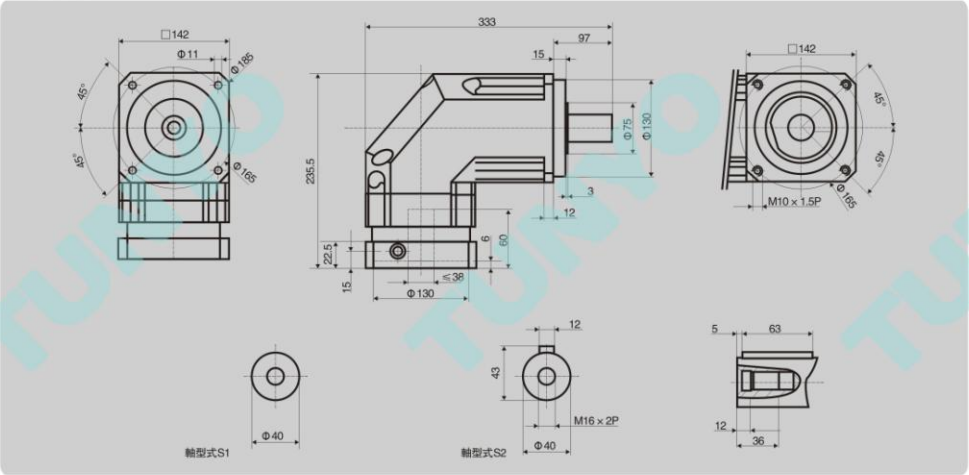
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF140

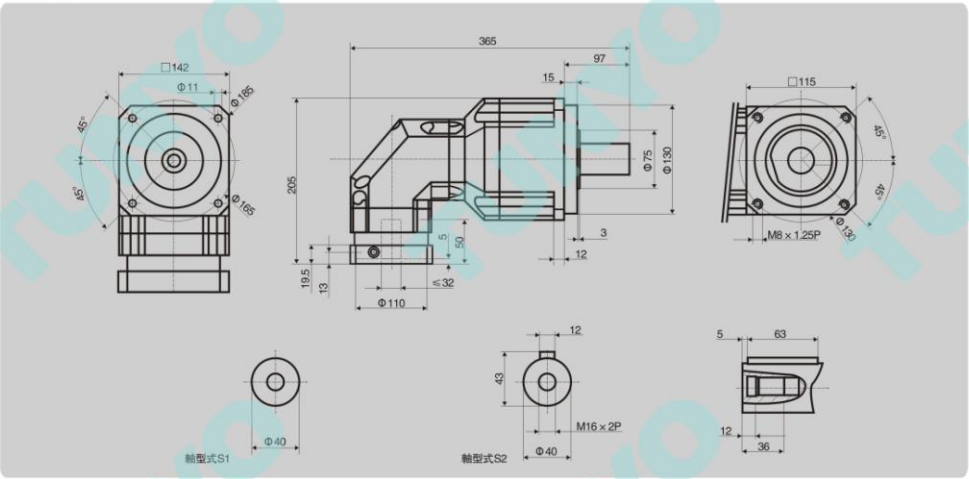
直角輸出
行星減速機
減速比:1:3~200
輸出扭矩:342~650N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



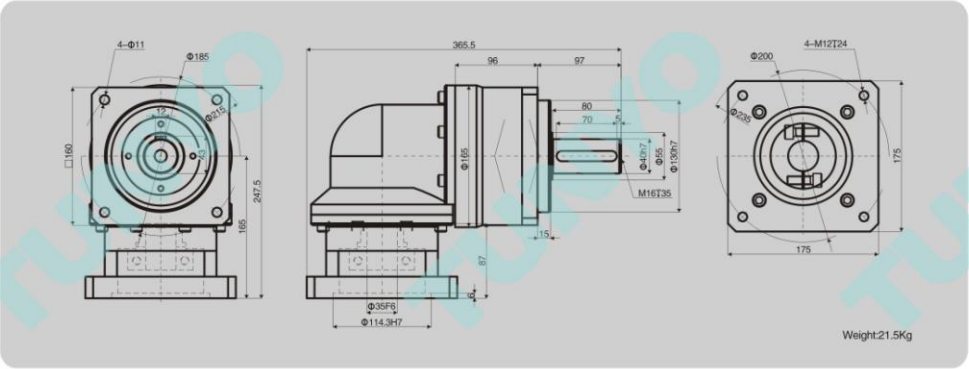
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF160

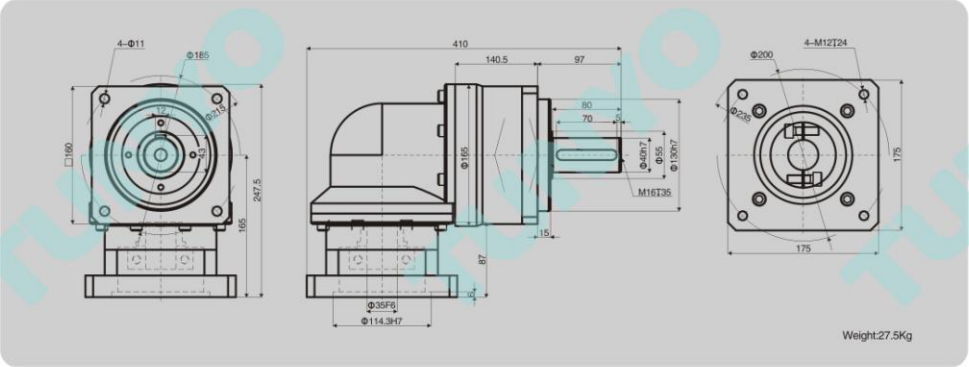
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



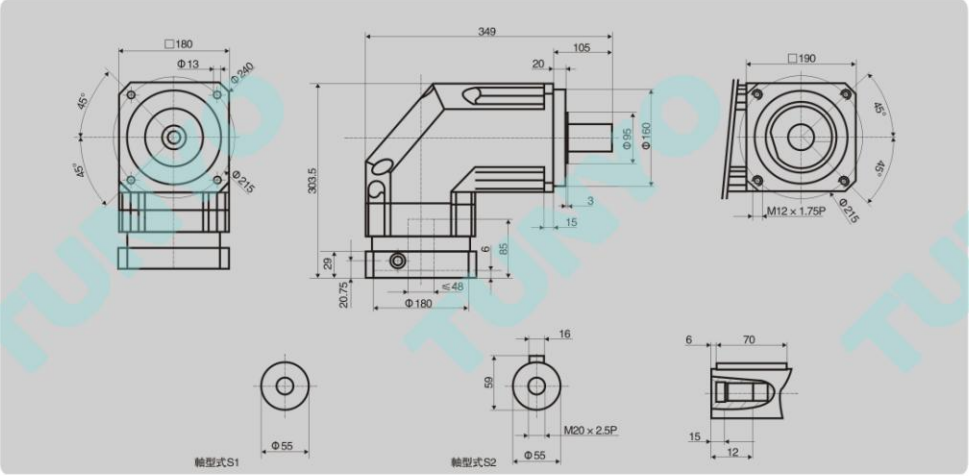
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWF190

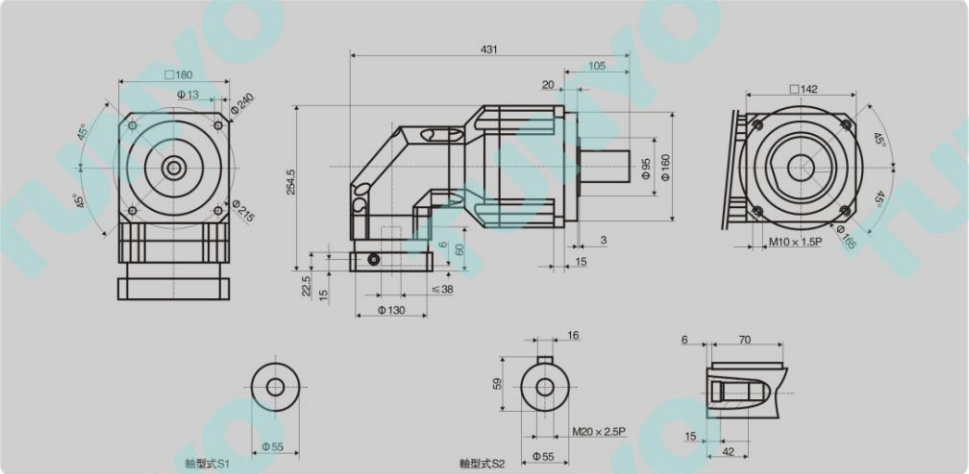
直角輸出
行星減速機
減速比:1:3~200
輸出扭矩:588~1200N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



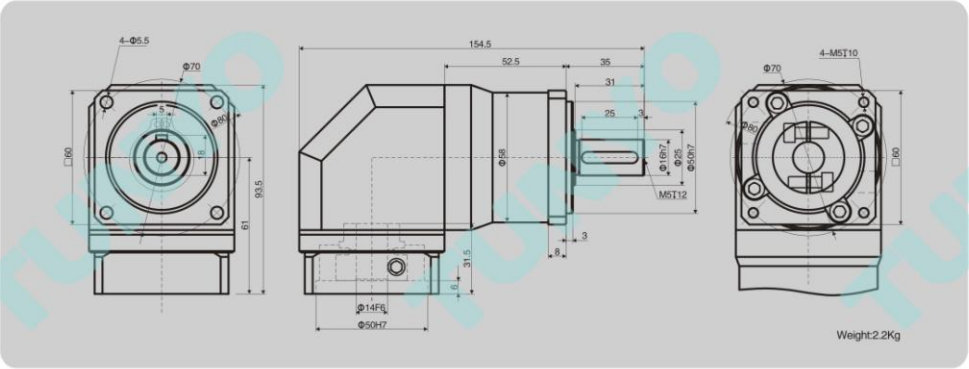
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWFX60

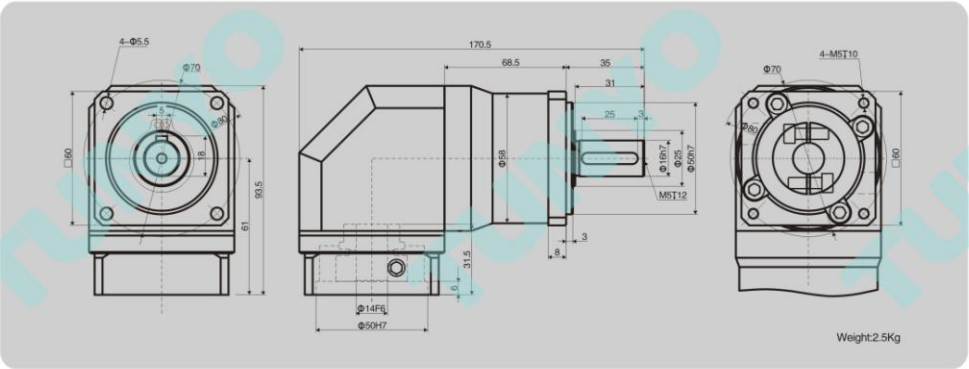
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



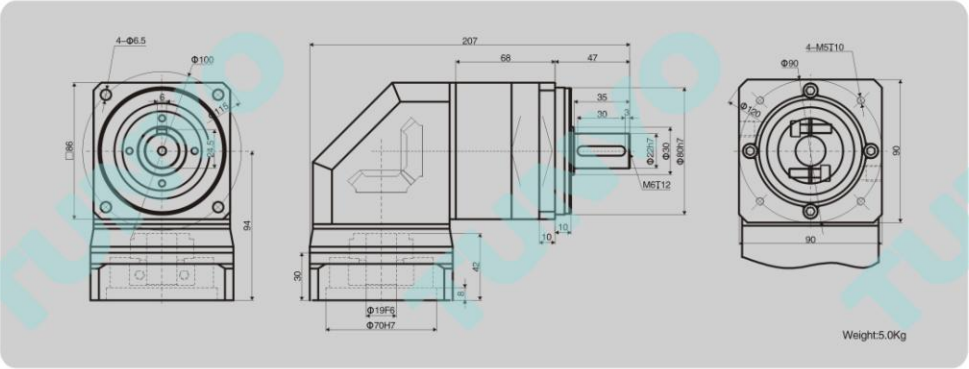
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWFX90

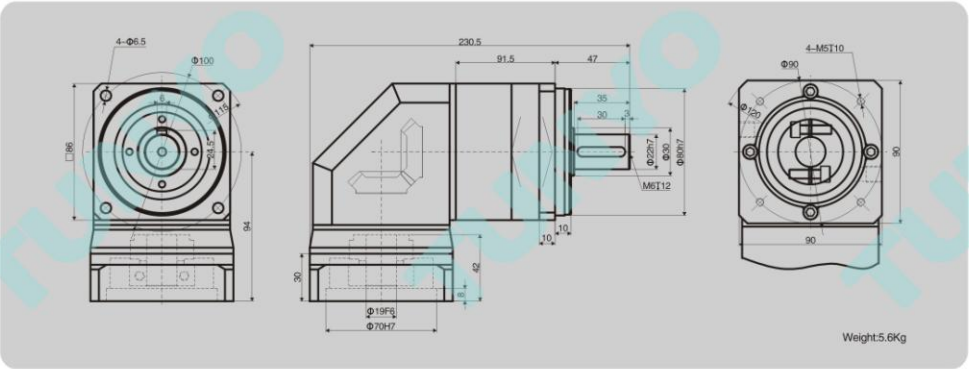
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



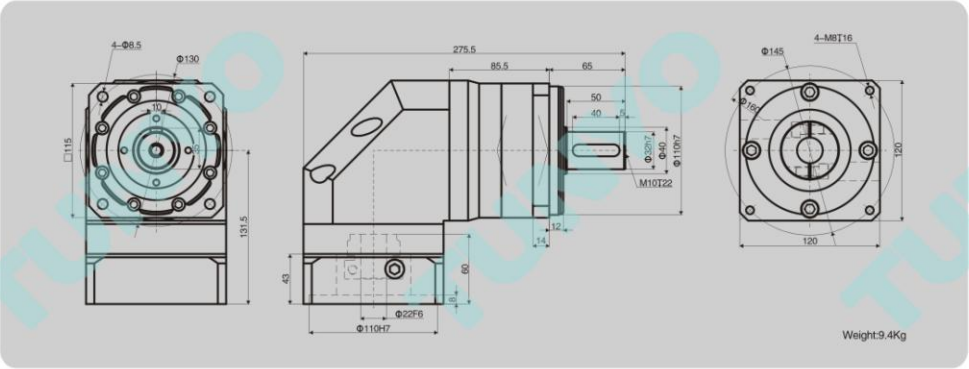
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWFX120

直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

外形尺寸 Dimension

◆一級減速



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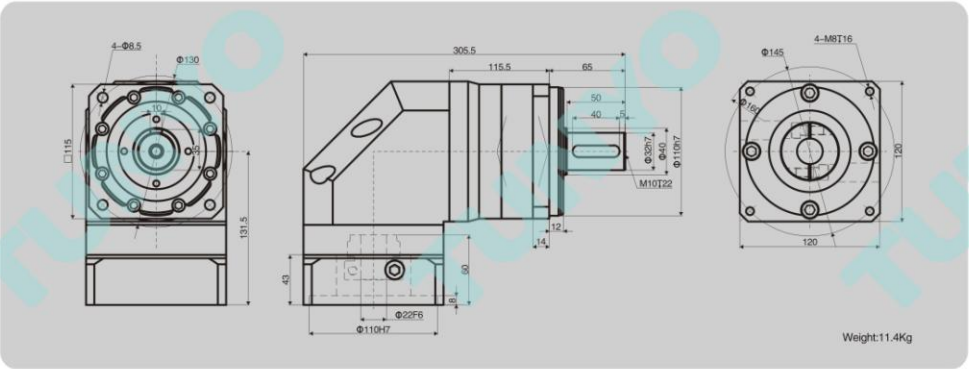


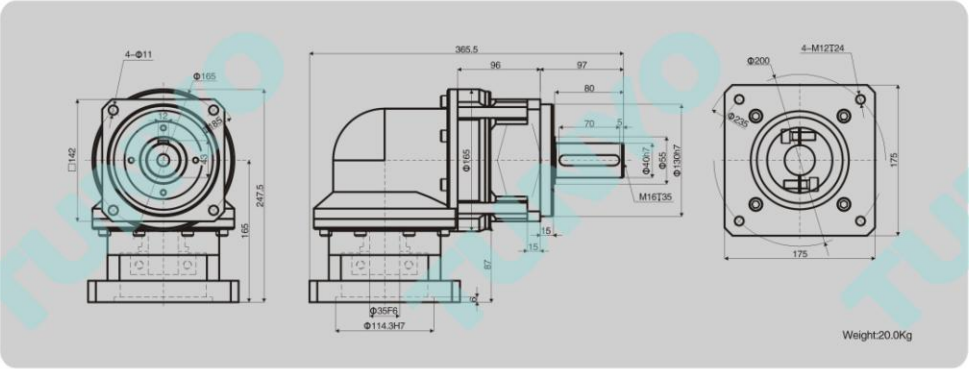
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWFX140

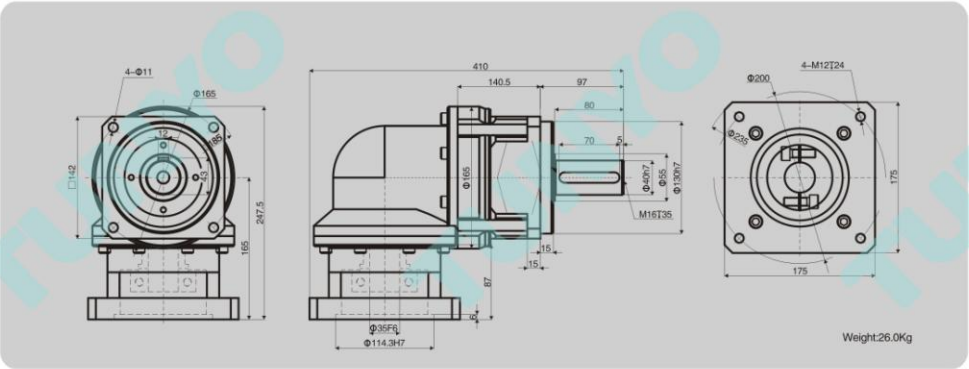
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



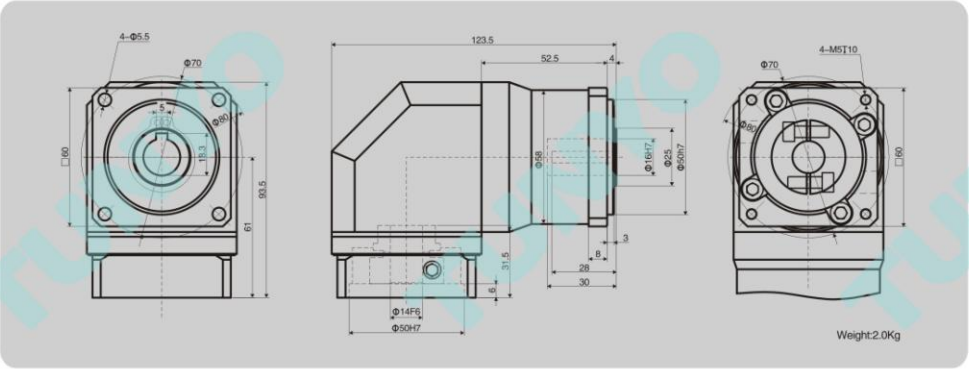
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWK60

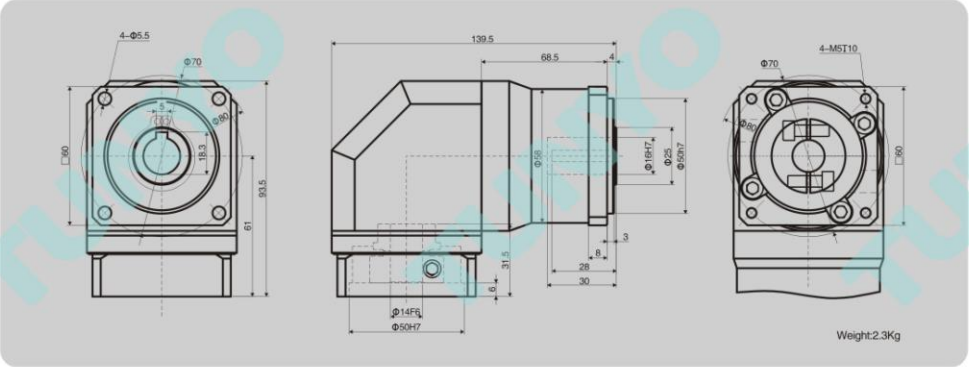
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



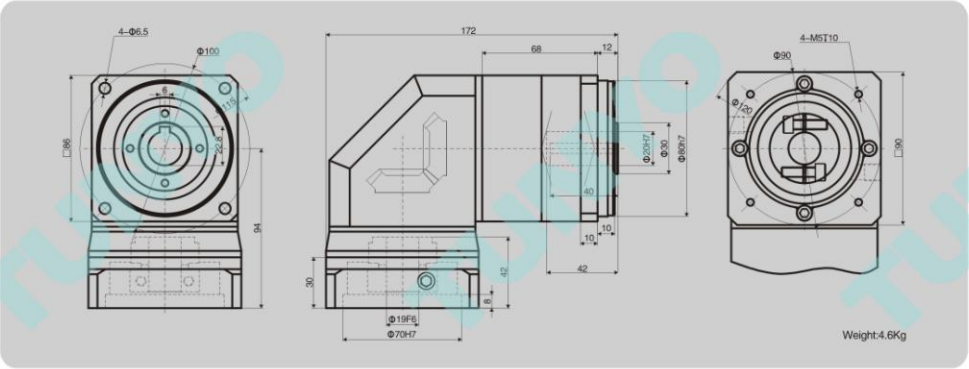
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWK90

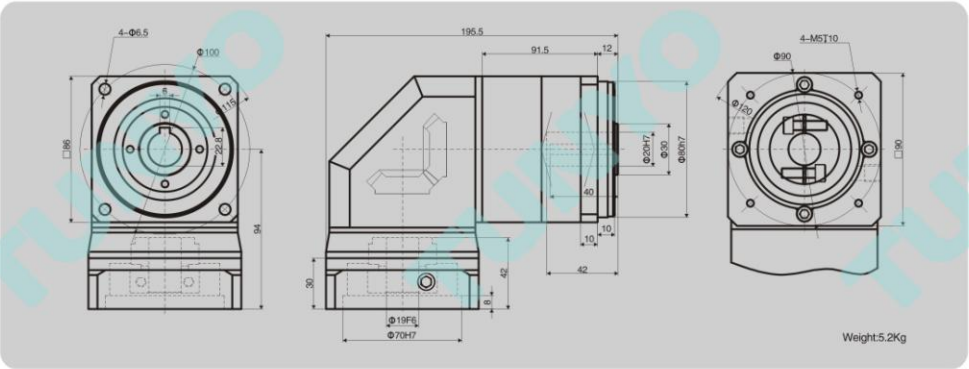
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



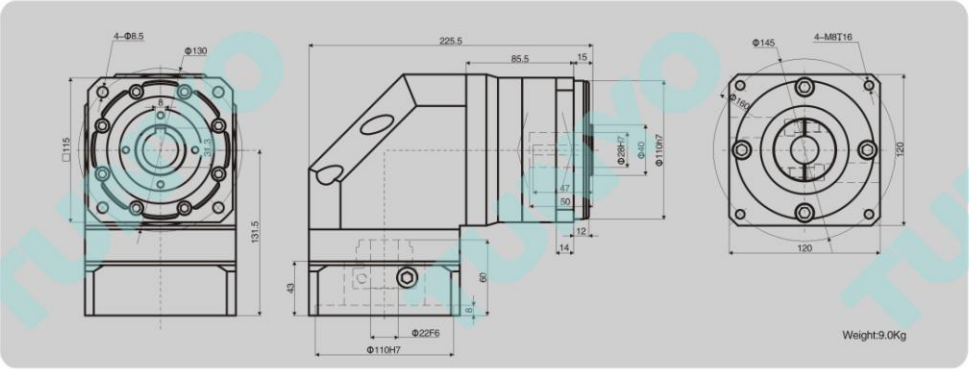
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWK120

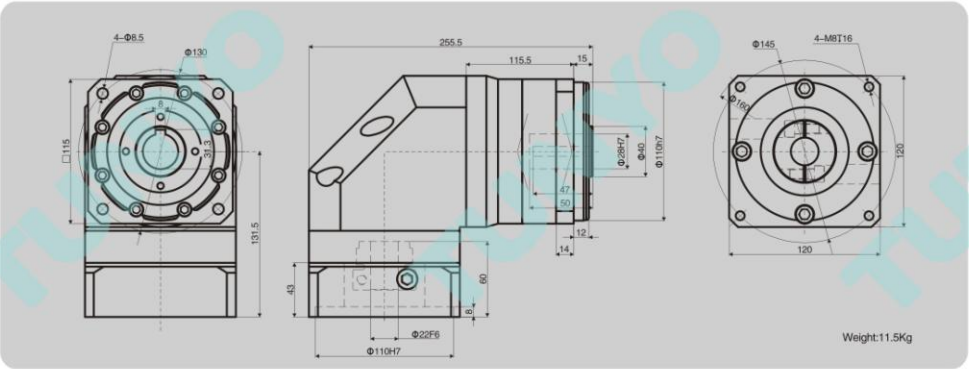
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:90~335N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



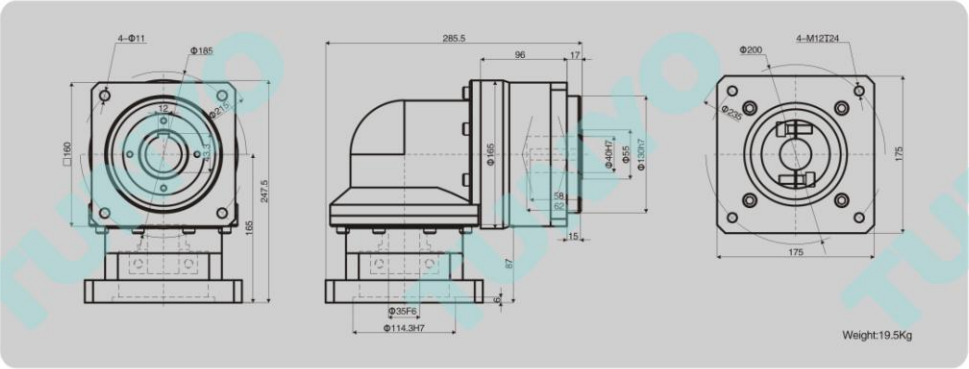
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWK160

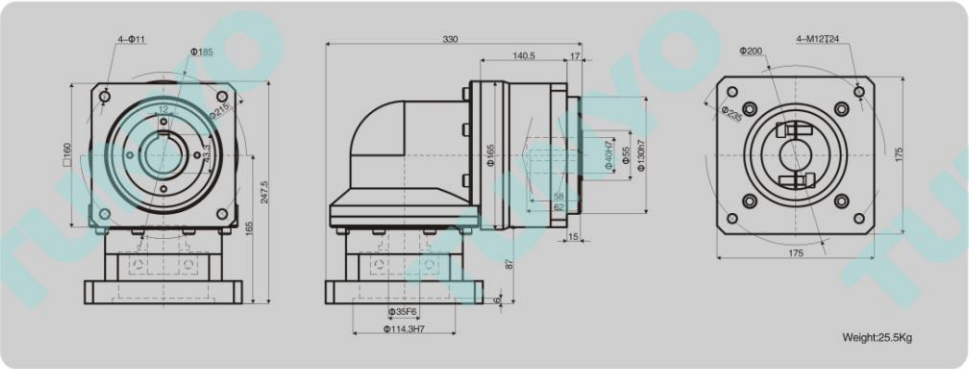
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



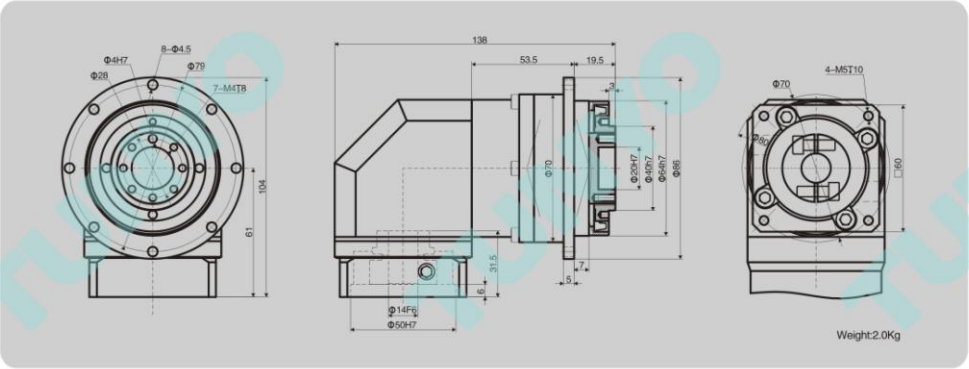
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWH60

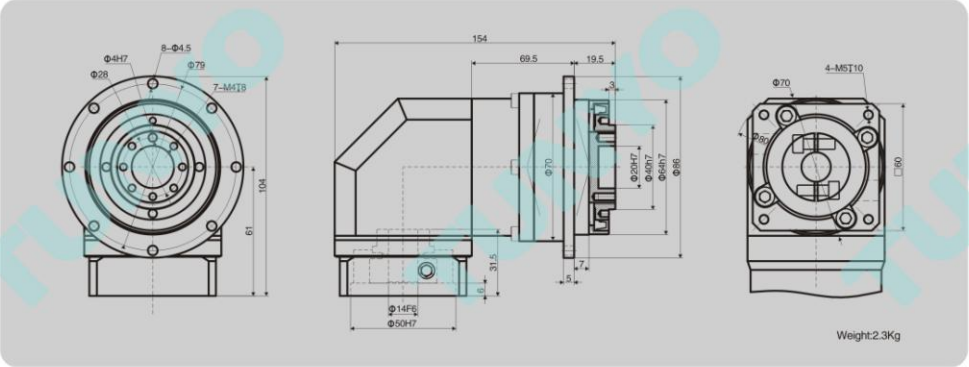
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



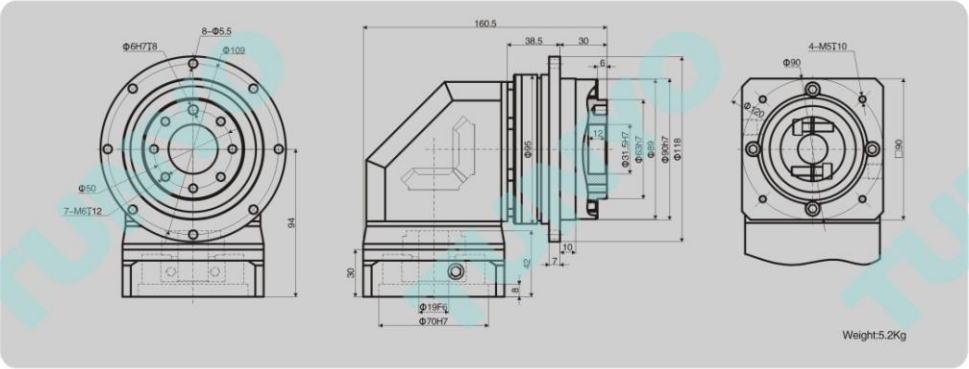
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWH90

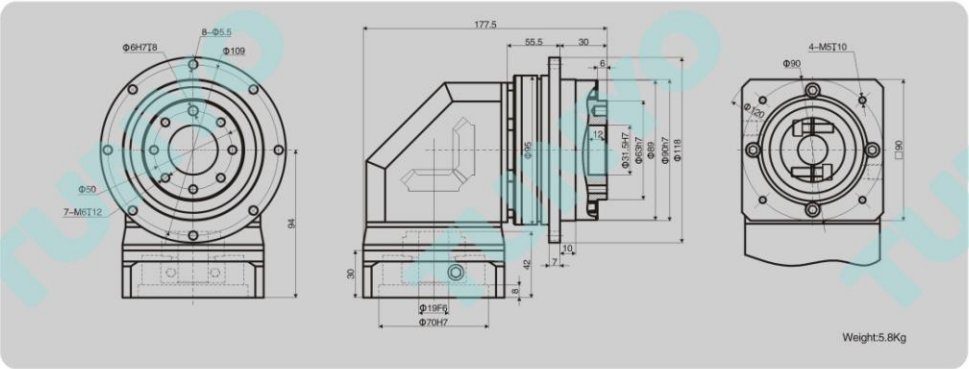
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



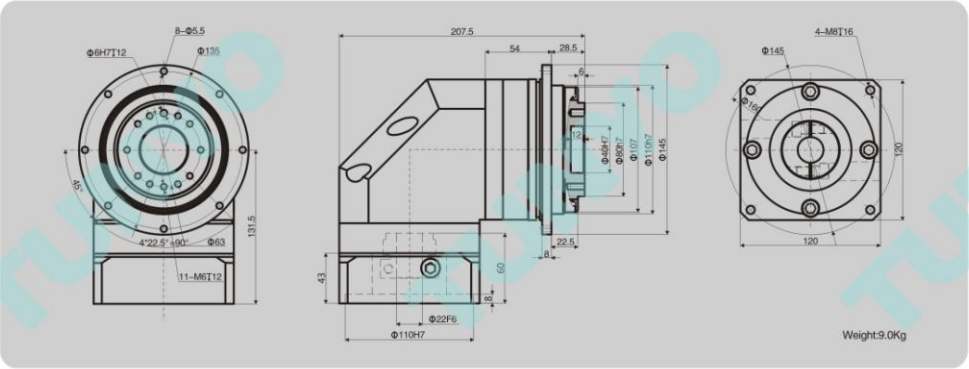
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWH120

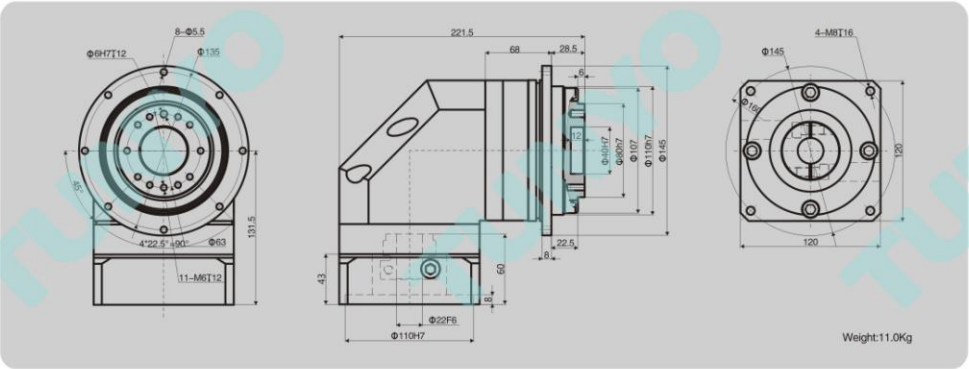
直角輸出
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



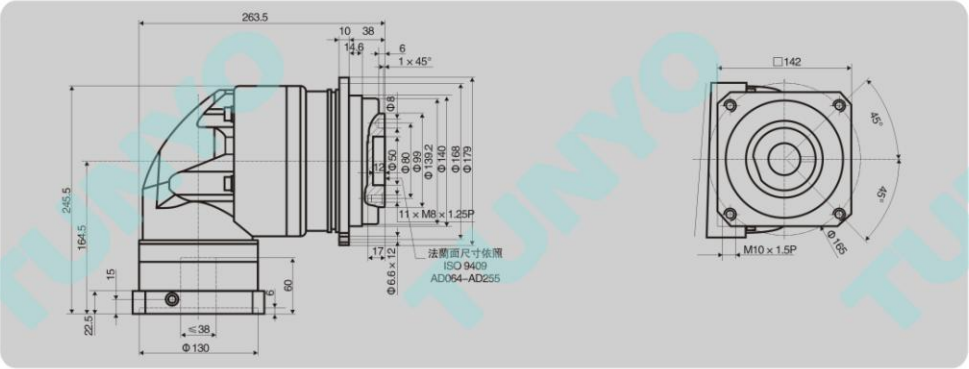
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWH140

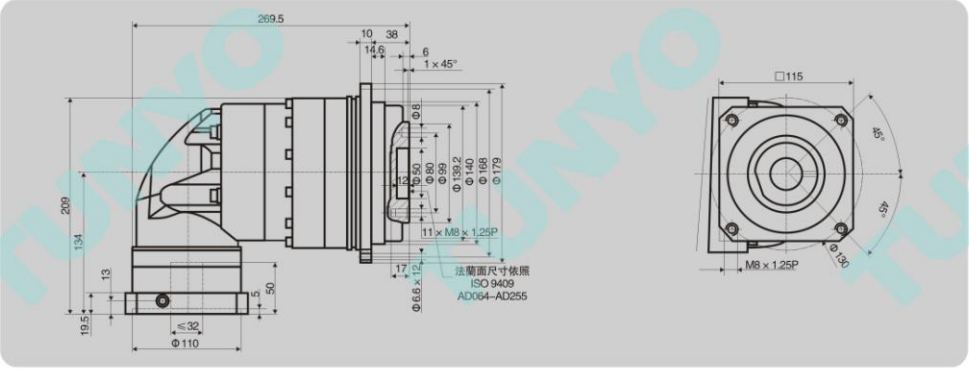
直角輸出
行星減速機
減速比:1:3~200
輸出扭矩:130~450N.m

外形尺寸 Dimension

◆一級減速



二級減速



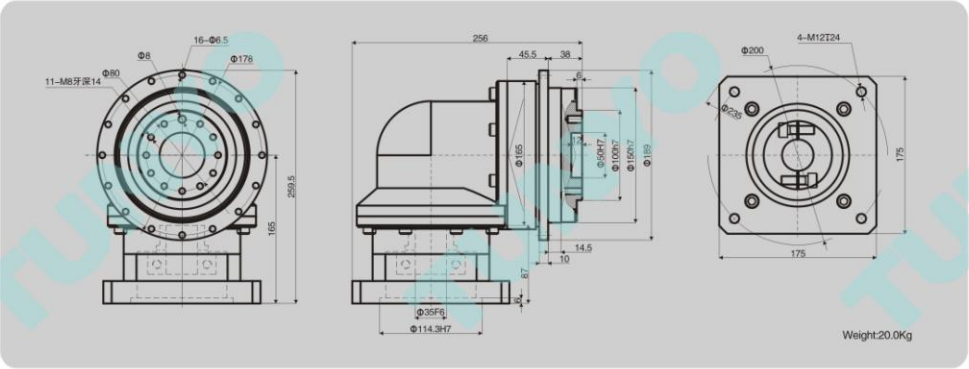
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWH160

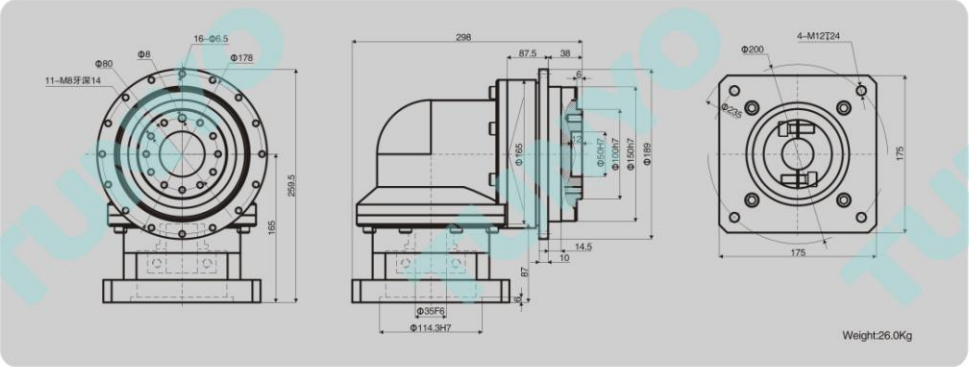
直角輸出
行星減速機
減速比:1:3~512
輸出扭矩:270~900N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



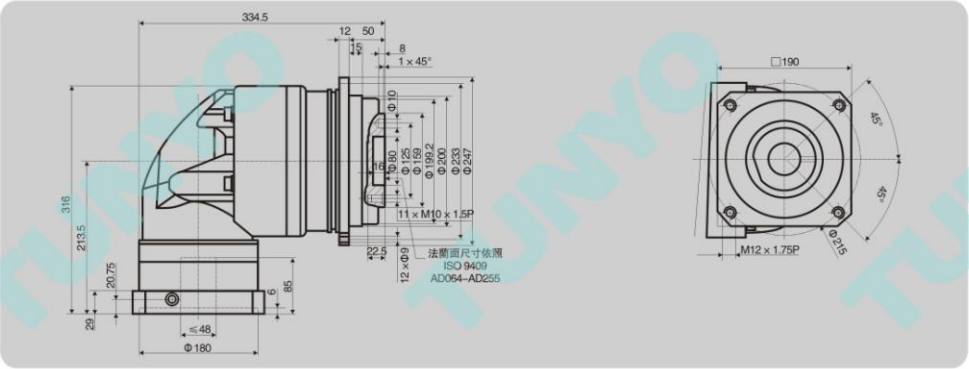
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PWH190

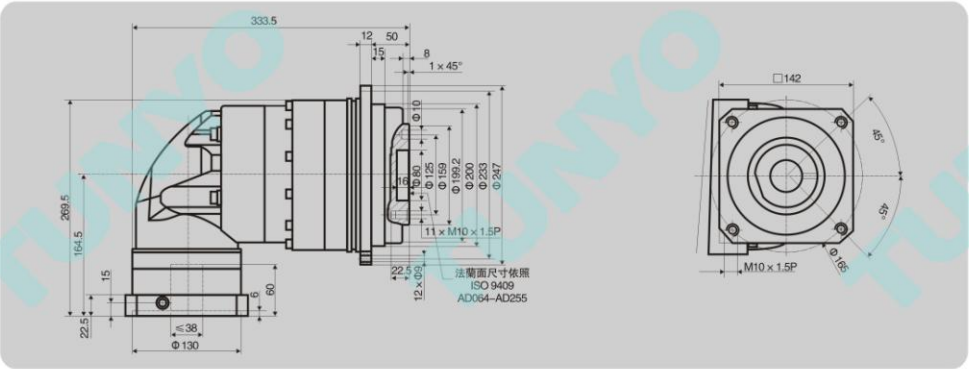
直角輸出
行星減速機
減速比:1:3~200
輸出扭矩:360~1780N.m

外形尺寸 Dimension

◆一級減速



◆二級減速



◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

TUNYO

東洋PS雙軸行星減速機

TUNYO PS BIAXIAL PLANETARY REDUCER

PROFESSIONAL MANUFACTURER OF POWER TRANSMISSION

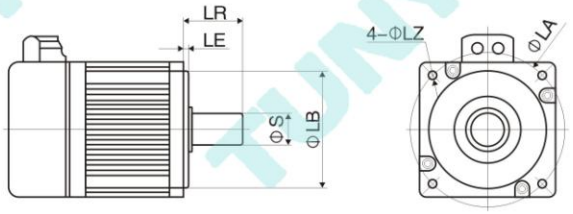
DESIGN PHILOSOPHY: To follow the law, but always beyond.

BUSINESS PHILOSOPHY: Design for customer demand , dedication for customer satisfaction

PS型號說明 PS General information of pseries

P	S	E	60	–	40	–	K	P2
系列名稱	軸輸入型	安裝方式 E:圓型法蘭 F:方型法蘭 FX:加强型方型法蘭 H:盤輸出	裝置尺寸 60:□60mm 90:□90mm 120:□120mm 160:□160mm		減速比 1級:3~10 2級:12~70 3級:80~1000		出軸形式 K:出力軸有鍵 S:出力軸無鍵	背隙 P0:超精密 (1–3′) P1:精密 (4–8′) P2:標準 (8–10′)

尺寸說明 Size specification



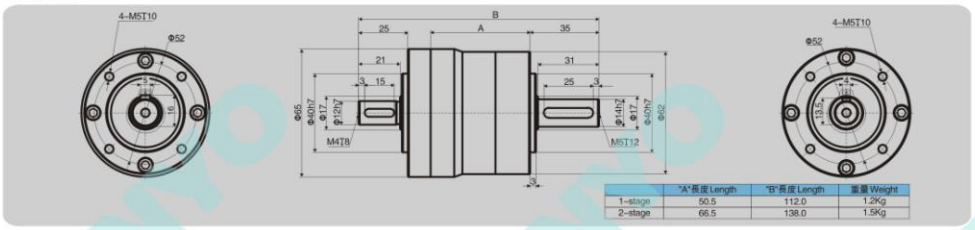
ΦS × LR	ΦLB × LE	4–ΦLZ–ΦLA
電機“輸出軸”相關尺寸 ΦS:電機軸直徑 LR:包括凸臺的長度	電機“安裝凸臺”相關尺寸 ΦLB:凸臺直徑 LE:凸臺深度	電機“安裝孔”相關尺寸 4:安裝孔數量，一般爲4個 Φ LZ:安裝孔的直徑(注意螺紋孔時爲M) ΦLA:安裝孔分度圓(虛擬圓)直徑

PS60

雙　軸　型
行星減速機
減速比:1:3~1000
輸出扭矩:12~40N.m

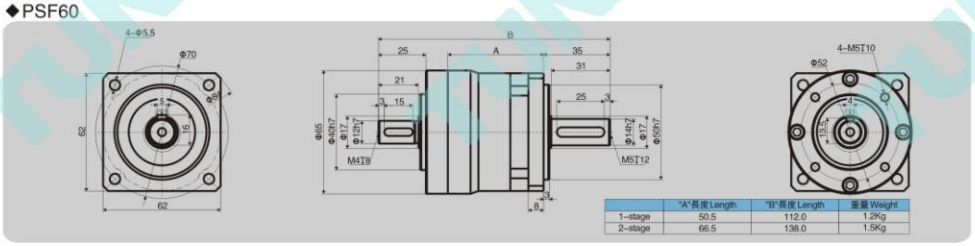
外形尺寸 Dimension

◆PSE60



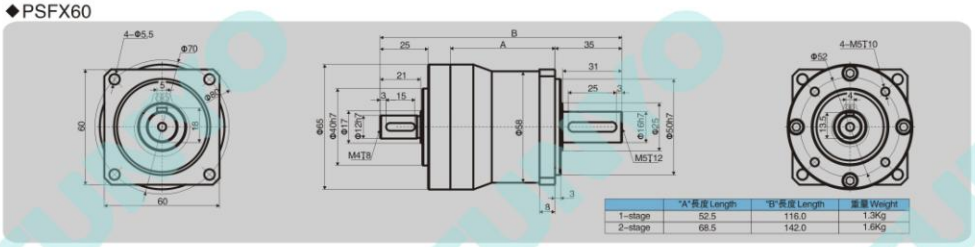
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	112.0	1.2Kg
2-stage	66.5	138.0	1.5Kg

◆PSF60



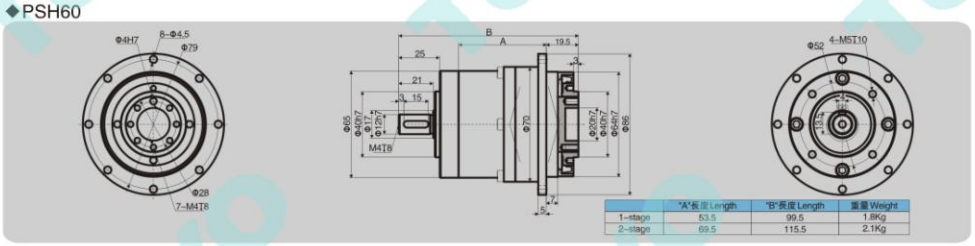
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	50.5	112.0	1.2Kg
2-stage	66.5	138.0	1.5Kg

◆PSFX60



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	52.5	116.0	1.3Kg
2-stage	68.5	142.0	1.6Kg

◆PSH60



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	53.5	99.5	1.8Kg
2-stage	69.5	115.5	2.1Kg

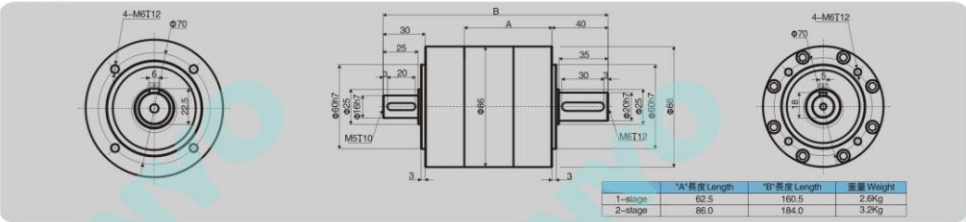
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PS90

雙　軸　型
行星減速機
減速比:1:3~1000
輸出扭矩:40~135N.m

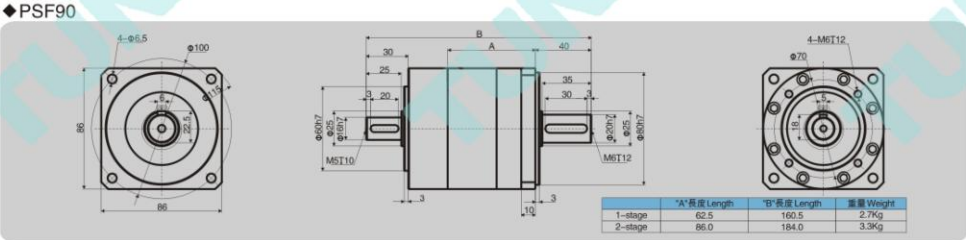
外形尺寸 Dimension

◆PSE90



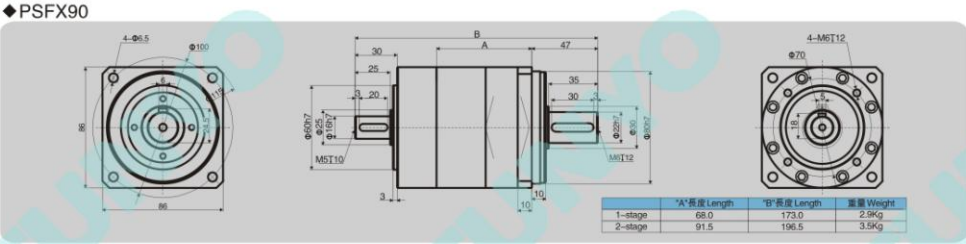
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	160.5	2.6Kg
2-stage	86.0	184.0	3.2Kg

◆PSF90



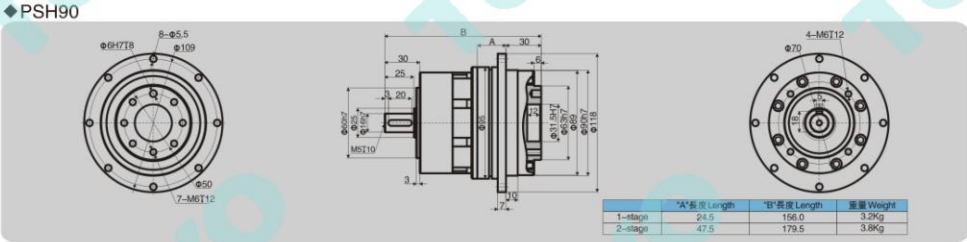
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	62.5	160.5	2.7Kg
2-stage	86.0	184.0	3.3Kg

◆PSFX90



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	68.0	173.0	2.9Kg
2-stage	91.5	196.5	3.5Kg

◆PSH90



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	24.5	156.0	3.2Kg
2-stage	47.5	179.5	3.8Kg

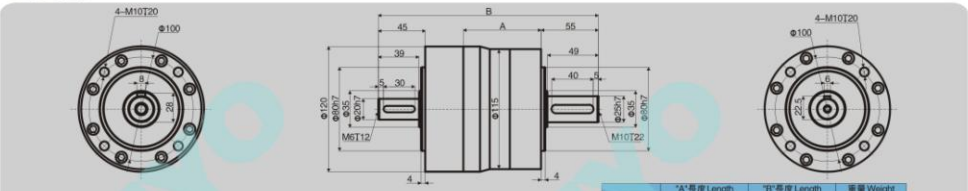
◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

PS120

雙　軸　型
行星減速機
減速比:1:3~1000
輸出扭矩:90~335N.m

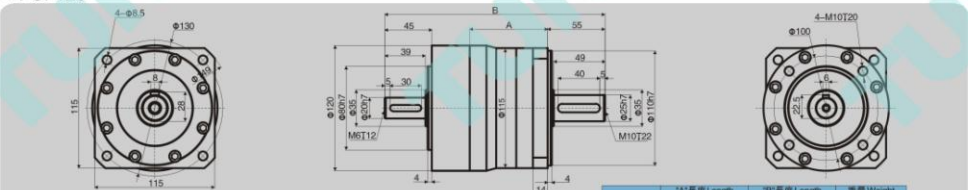
外形尺寸 Dimension

◆PSE120



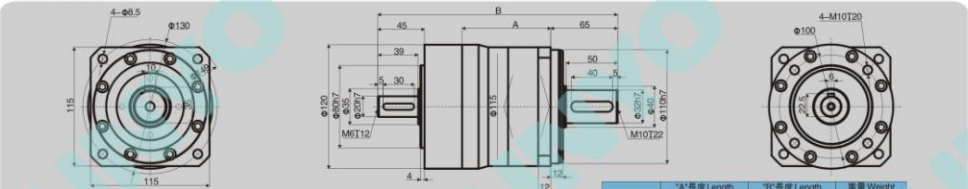
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	211.0	6.0Kg
2-stage	104.5	241.0	8.0Kg

◆PSF120



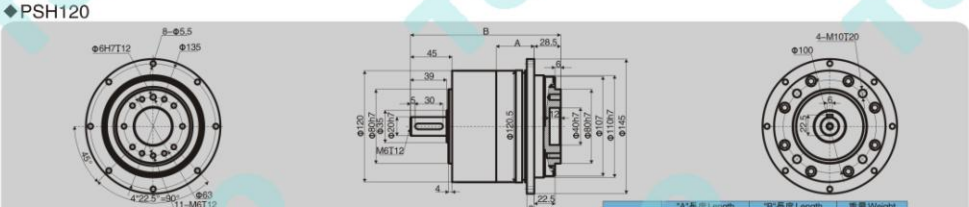
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	74.5	211.0	6.0Kg
2-stage	104.5	241.0	8.0Kg

◆PSFX120



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	85.5	232.0	6.4Kg
2-stage	115.5	262.0	8.4Kg

◆PSH120



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	36.0	146.0	6.4Kg
2-stage	66.0	178.0	8.4Kg

◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

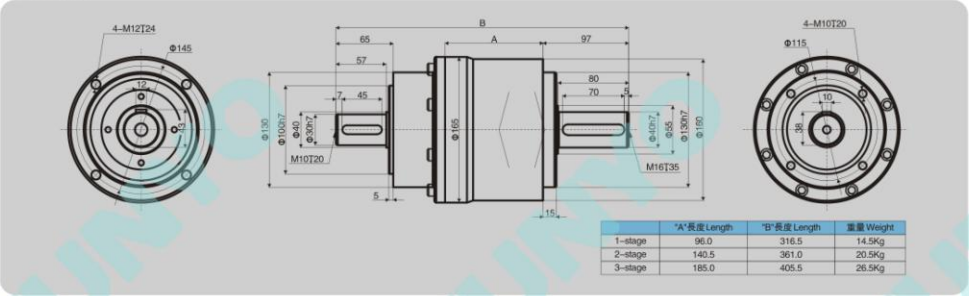
PS160 雙軸型 行星減速機

減速比:1:3~512

輸出扭矩:270~900N.m

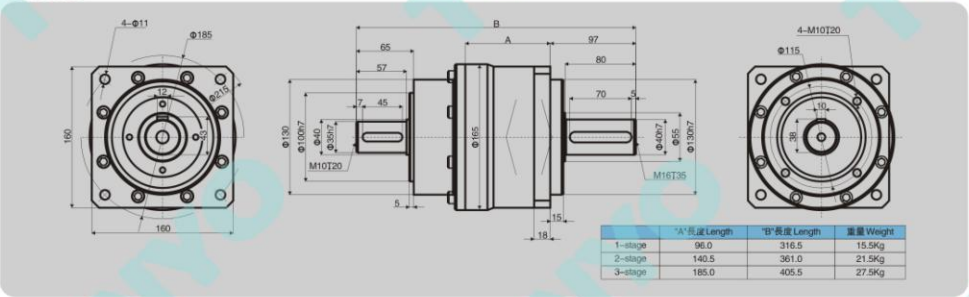
外形尺寸 Dimension

◆PSE160



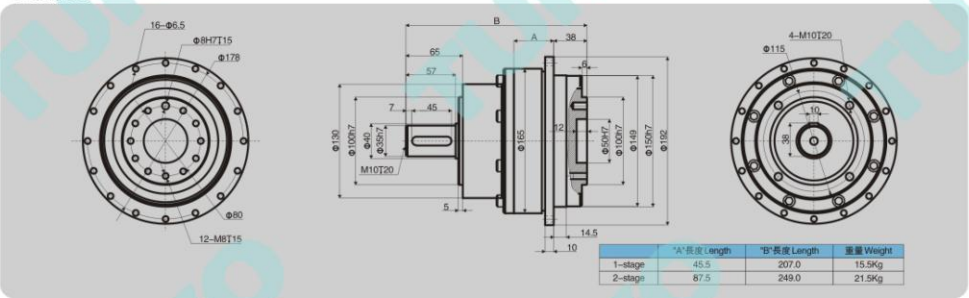
	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	316.5	14.5Kg
2-stage	140.5	361.0	20.5Kg
3-stage	185.0	405.5	26.5Kg

◆PSF160



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	96.0	316.5	15.5Kg
2-stage	140.5	361.0	21.5Kg
3-stage	185.0	405.5	27.5Kg

◆PSH160



	"A"長度 Length	"B"長度 Length	重量 Weight
1-stage	45.5	207.0	15.5Kg
2-stage	87.5	249.0	21.5Kg

◆以上視圖標準爲
◆The view standard is of
◆減速機輸入端尺寸，依電機輸出安裝尺寸而變。特殊規格馬達，請與東洋技術人員聯系。
◆The dimension of input end of gear reducer is based on the installing dimension of output of motor. For special parameters' motor, please consult the technician of TUNYO

TUNYO

東洋PV十字行星減速機

TUNYO PV CROSS PLANET REDUCER

PROFESSIONAL MANUFACTURER OF POWER TRANSMISSION

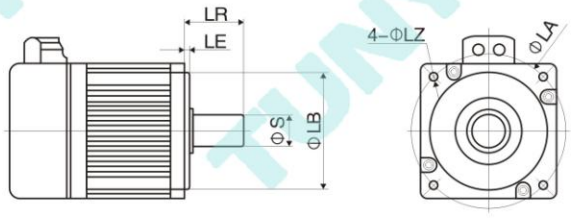
DESIGN PHILOSOPHY: To follow the law, but always beyond.

BUSINESS PHILOSOPHY: Design for customer demand , dedication for customer satisfaction

PV型號說明 PV General information of pseries

P	V	65	–	SS	LS	–	40	–	K	P2
系列名稱	十字型輸出	框號 65、170 75、210 90、240 110、280 140		輸入形式 SS:單軸輸入 DS:雙軸輸入 K:孔輸入	輸出形式 LS:左軸輸出 RS:右軸輸出 DS:雙軸輸出 K:孔輸出 H:盤輸出		減速比 1級:1~5 2級:10~50		出軸形式 K:出力軸有鍵 S:出力軸無鍵	背隙 P0:超精密 (1–4′) P1:精密 (5–8′) P2:標準 (9–12′)

尺寸說明 Size specification



ΦS × LR	ΦLB × LE	4–ΦLZ–ΦLA
電機“輸出軸”相關尺寸 ΦS:電機軸直徑 LR:包括凸臺的長度	電機“安裝凸臺”相關尺寸 ΦLB:凸臺直徑 LE:凸臺深度	電機“安裝孔”相關尺寸 4:安裝孔數量，一般爲4個 Φ LZ:安裝孔的直徑(注意螺紋孔時爲M) ΦLA:安裝孔分度圓(虛擬圓)直徑

PV行星減速機性能資料

◆ 一級減速

規格		級數	減速比	65	75	90	110	140	170	210	240	280
額定輸出力矩T_{2n}	Nm	1	1	25	45	78	150	360	585	1300	2150	3200
			2	24	42	68	150	330	544	1220	2010	3050
			3	18	33	54	120	270	450	1020	1650	2850
			4	13	28	52	100	224	376	860	1410	2300
			5	12	25	40	85	196	320	740	1170	1930
最大加速轉速T_{2B}	Nm	1	1~5	1.5倍額定輸出轉矩								
額定輸入轉速n_{1N}	rpm	1	1~5	3000	3000	3000	2500	2500	2000	2000	1500	1000
最大輸入轉速n_{1B}	rpm	1	1~5	6000	6000	5500	4500	3500	3000	3000	2000	1700
超精密背隙P0	arcmin	1	≤3	≤3	≤3	≤3	≤3	≤3	≤3	≤3	≤3	≤3
精密背隙P1	arcmin	1	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6
標準背隙P2	arcmin	1	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9	≤9
容許徑向力F_{2aB} 輸入軸d1	N	1	1~5	750	1050	1500	2360	3080	4800	6400	11500	16000
容許軸向力F_{2aB} 輸入軸d2	N	1	1~5	350	525	750	1180	1540	2400	3200	5700	8500
使用壽命	hr	1	1~5	20000								
效率 η	%	1	1~5	94%~98%								
使用溫度	℃	1	1~5	-30℃~+100℃								
潤滑		1	1~5	合成潤滑油脂								
噪音值(n1=3000rpm)	db(A)	1	1~5	≤71	≤72	≤76	≤77	≤78	≤79	≤81	≤83	≤84

1、減速比($i=N_{in}/N_{out}$)
2、作用于輸入軸中心位置@n_{1B}
3、連續運轉降低使用壽命二分之一
4、背隙值爲在2%額定力矩T_{2n}的扭力下所測得

PV行星減速機性能資料

◆ 二級減速

規格		級數	減速比	65	75	90	110	140	170	210	240	280
額定輸出力矩T_{2n}	Nm	2	10	24	42	68	150	330	544	1220	2010	3050
			15	18	33	54	120	270	450	1020	1650	2850
			20	13	28	48	100	224	376	860	1410	2300
			25	12	25	40	85	196	320	740	1170	1930
			30	18	33	54	120	270	450	1020	1650	2850
			40	13	28	52	100	224	376	860	1410	2300
			50	12	25	40	85	196	320	740	1170	1930
最大加速轉速T_{2B}	Nm	2	10~50	1.5倍額定輸出轉矩								
額定輸入轉速n_{1N}	rpm	2	10~50	3000	3000	3000	3000	3000	3000	3000	1800	1800
最大輸入轉速n_{1B}	rpm	2	10~50	6000	6000	6000	6000	6000	5000	5000	3600	3600
超精密背隙P0	arcmin	2	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4	≤4
精密背隙P1	arcmin	2	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8
標準背隙P2	arcmin	2	≤10	≤10	≤10	≤10	≤10	≤10	≤10	≤10	≤10	≤10
容許徑向力F_{2aB} 輸入軸d1	N	2	10~50	750	1050	1500	2360	3080	4800	6400	11500	16000
容許軸向力F_{2aB} 輸入軸d2	N	2	10~50	350	525	750	1180	1540	2400	3200	5700	8500
使用壽命	hr	2	10~50	20000								
效率 η	%	2	10~50	90%~94%								
使用溫度	℃	2	10~50	-30℃~+100℃								
潤滑		2	10~50	合成潤滑油脂								
噪音值(n1=3000rpm)	db(A)	2	10~50	≤71	≤72	≤76	≤77	≤78	≤79	≤81	≤83	≤84

1、減速比($i=N_{in}/N_{out}$)
2、作用于輸入軸中心位置@n_{1B}
3、連續運轉降低使用壽命二分之一
4、背隙值爲在2%額定力矩T_{2n}的扭力下所測得

PV行星減速機性能資料

規格		級數	減速比	65	75	90	110	140	170	210	240	280
轉動慣量J1	Kg·cm²	1	1	0.51	1.79	4.93	12.5	36.8	85.9	287	365	787
			2	0.44	0.95	2.78	7.41	15.6	39.3	123	245	500
			3	0.43	0.78	2.34	6.18	10.9	28.5	84.1	29.26	29.26
			4	0.43	0.72	2.18	5.71	9.19	24.5	69.9	29.26	29.26
			5	0.43	0.69	2.10	5.48	8.32	22.6	62.7	29.26	29.26
		2	10	0.05	0.15	0.18	0.41	0.56	3.25	8.9	29.26	29.26
			15	0.05	0.15	0.18	0.41	0.56	3.25	8.9	24.73	40.75
			20	0.05	0.15	0.18	0.41	0.56	3.25	8.9	24.73	40.75
			25	0.05	0.15	0.18	0.41	0.56	3.25	8.9	24.73	40.75
			30	0.05	0.15	0.16	0.38	0.53	3.09	8.4	24.73	40.75
			40	0.05	0.15	0.16	0.38	0.53	3.09	8.4	24.73	40.75
			50	0.05	0.15	0.16	0.38	0.53	3.09	8.4	24.73	40.75

重量 Weight

規格		級數	減速比	65	75	90	110	140	170	210	240	280
SS-DS	Kg	1	1~5	2.6	4.2	6.8	11.6	19.8	34.8	66.2	98.1	155.7
SS-LS/RS		1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
SS-K		1	1~5	2.5	3.9	6.4	11.0	18.1	31.6	60.0	89.4	143.4
SS-H		1	1~5	2.8	4.2	6.9	11.4	19.6	33.7	63.3	97.9	149.1
DS-LS/RS		1	1~5	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
DS-DS		1	1~5	3.5	5.6	9.1	15.4	24.8	42.6	82.5	123.5	193.3
K-DS		1	1~5	2.8	4.4	7.1	12.1	20.9	36.1	69.4	101.2	158.3
		2	10~50	3.2	4.8	8.1	14.3	24.2	38.5	74.1	112.4	171.0
K-LS/RS		1	1~5	2.7	4.3	7.1	11.9	20.3	35.5	68.3	99.6	156.0
		2	10~50	3.2	4.8	8.0	14.2	23.9	37.9	73.0	110.8	168.6
K-K		1	1~5	2.6	4.1	6.7	11.4	18.9	32.9	63.2	92.5	146.0
		2	10~50	3.1	4.6	7.7	13.6	22.4	35.3	67.9	103.7	158.7
K-H		1	1~5	2.9	4.4	7.2	11.8	20.4	35.0	66.5	96.0	151.7
		2	10~50	3.3	4.9	8.2	14.1	24.1	37.4	71.2	107.2	164.4

PV-SS

單軸輸入雙軸輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension

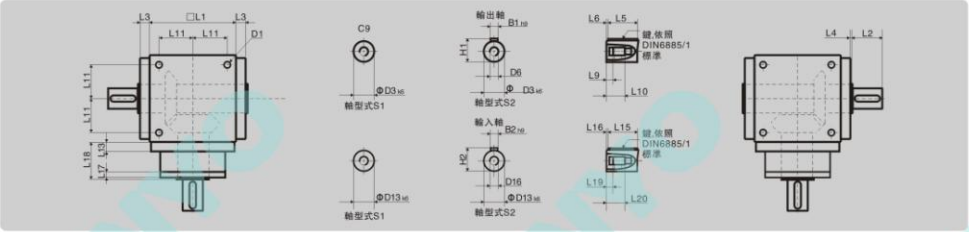
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4 × M4 × L7	4 × M5 × L8	4 × M5 × L8	6 × M6 × L10	6 × M6 × L10	6 × M8 × L12.5	6 × M8 × L12.5	6 × M8 × L12.5	6 × M10 × L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

PV-SS

單軸輸入單軸輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension



[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 k6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4 × M4 × L7	4 × M5 × L8	4 × M5 × L8	6 × M6 × L10	6 × M6 × L10	6 × M8 × L12.5	6 × M8 × L12.5	6 × M8 × L12.5	6 × M10 × L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

PV-SS

單軸輸入孔輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension

[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H7	13	14	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
L23	40	47	52	53	70	80	95	115	115
L24	30	32	35	35	50	55	65	80	80
B2 h9	5	5	6	6	10	12	14	16	18
B3 h9	5	5	6	6	10	12	14	16	18
H2	15	18	20.5	24.5	35	43	53.5	59	64
H3	15.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4

PV-SS

單軸輸入盤輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension

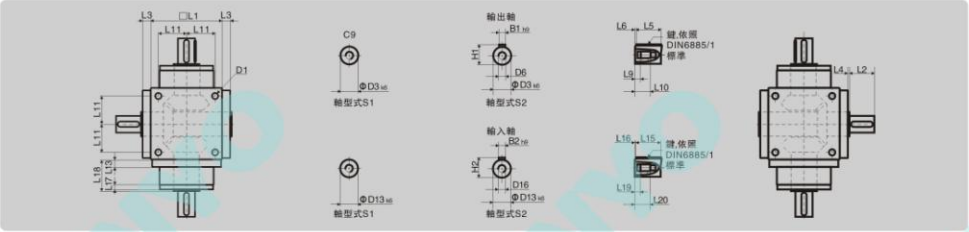
[unit:mm]

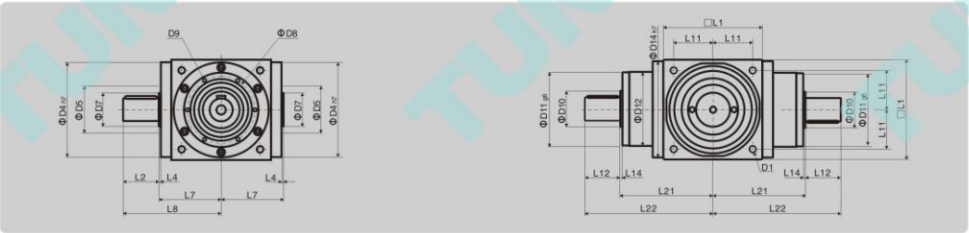
尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	133.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
B2 h9	5	5	6	6	10	12	14	16	18
H2	15	18	20.5	24.5	35	43	53.5	59	64

PV-DS

雙軸輸入單軸輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension





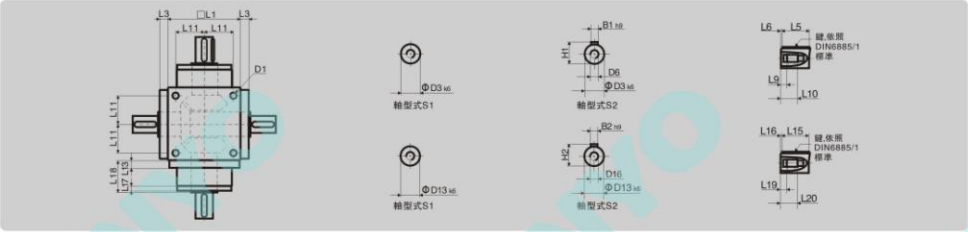
[unit:mm]

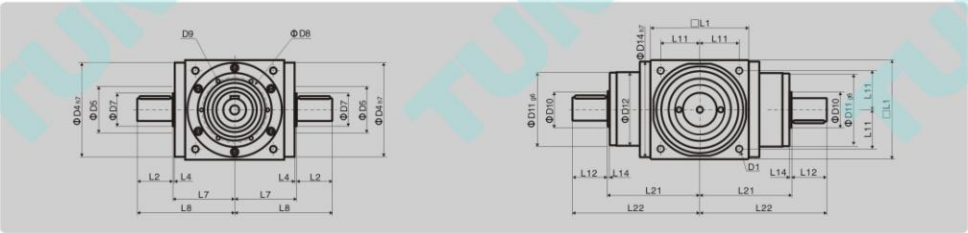
尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4 × M4 × L7	4 × M5 × L8	4 × M5 × L8	6 × M6 × L10	6 × M6 × L10	6 × M8 × L12.5	6 × M8 × L12.5	6 × M8 × L12.5	6 × M10 × L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

PV-DS

雙軸輸入雙軸輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension





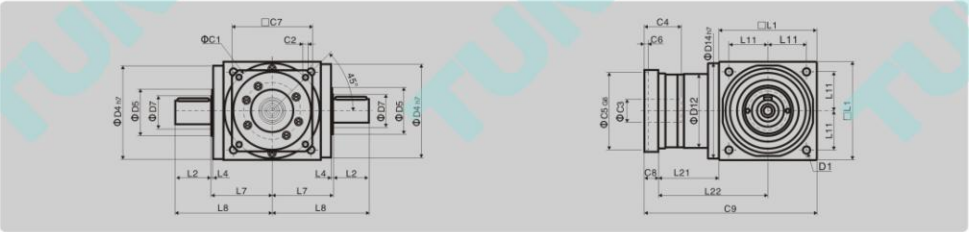
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	6×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

PV-K

孔輸入雙軸輸出
行星減速機
減速比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension (一級減速)



[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	105	127	158	178	198
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	49	60.5	63	69.5	85.5	95	130	144.5	135
L22	81.5	98	108	124.5	155.5	180	235	264.5	275
C1[3]	46	70	100	100	130	165	215	215	235
C2[3]	M4	M5	M6	M6	M8	M10	M12	M12	M12
C3[3]	≤11	≤14	≤19	≤24	≤32	≤38	≤42	≤48	≤55
C4[3]	30	34	40	40	50	60	85	85	116
C5[3] G6	30	50	80	80	110	130	180	180	200
C6[3]	3.5	8	4	4	5	6	6	6	6
C7[3]	42	60	90	90	115	142	190	190	220
C8[3]	19.5	19	17	17	19.5	22.5	29	29	63
C9[3]	133.5	154.5	170	196.5	245	287.5	369	413.5	478
C10[3]	13.25	13.5	10.75	10.75	13	15	20.75	20.75	53.5
B1 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64

PV-K

孔輸入雙軸輸出
行星減速機
減速比:1:10~50
輸出扭矩:12~3200N.m

外形尺寸 Dimension (二級減速)

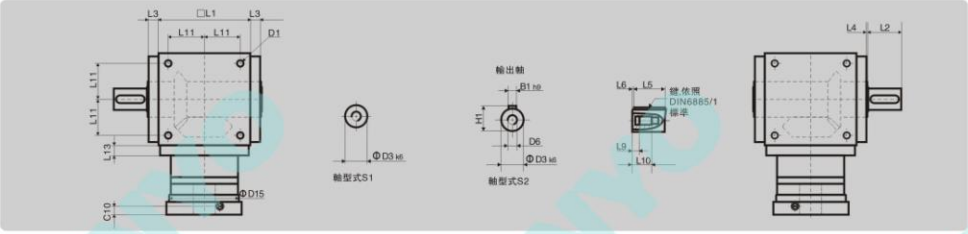
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	106	127	158	178	198
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	75	84.5	99	122	144.5	157.5	206.5	239	248
L22	107.5	122	144	177	214.5	242.5	311.5	359	388
C1	46	46	70	100	100	100	130	165	165
C2	M4	M4	M5	M6	M6	M6	M8	M10	M10
C3	12	12	16	24	24	24	32	38	38
C4	30	30	34	40	40	40	50	60	60
C5 G6	30	30	50	80	80	80	110	130	130
C6	3.5	3.5	8	4	4	4	5	6	6
C7	42	42	60	92	92	92	115	142	142
C8	21.5	21.5	21.5	20	20	20	24	31	31
C9	161.5	181	210.5	252	304.5	347.5	440.5	510	559
C10	14.5	14.5	15.5	13	13	13	16	21	21
B1 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64

PV-K

孔輸入單軸輸出
行 星 減 速 機
減 速 比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension (一級減速)



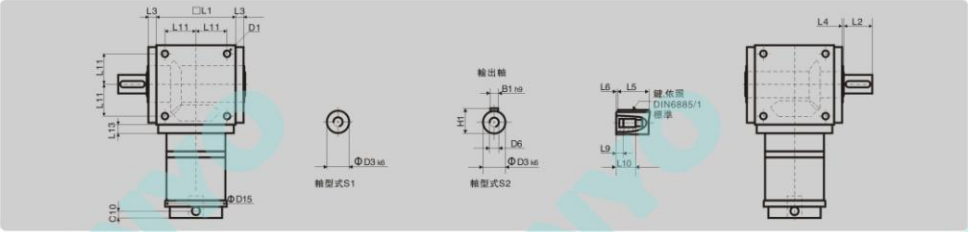
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	105	127	158	178	198
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	49	60.5	63	69.5	85.5	95	130	144.5	135
L22	81.5	98	108	124.5	155.5	180	235	264.5	275
C1	46	70	100	100	130	165	215	215	235
C2	M4	M5	M6	M6	M8	M10	M12	M12	M12
C3	≤11	≤14	≤19	≤24	≤32	≤38	≤42	≤48	≤55
C4	30	34	40	40	50	60	85	85	116
C5 G6	30	50	80	80	110	130	180	180	200
C6	3.5	8	4	4	5	6	6	6	6
C7	42	60	90	90	115	142	190	190	220
C8	19.5	19	17	17	19.5	22.5	29	29	63
C9	133.5	154.5	170	196.5	245	287.5	369	413.5	478
C10	13.25	13.5	10.75	10.75	13	15	20.75	20.75	53.5
B1 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64

PV-K

孔輸入單軸輸出
行 星 減 速 機
減速比:1:10~50
輸出扭矩:12~3200N.m

外形尺寸 Dimension (二級減速)



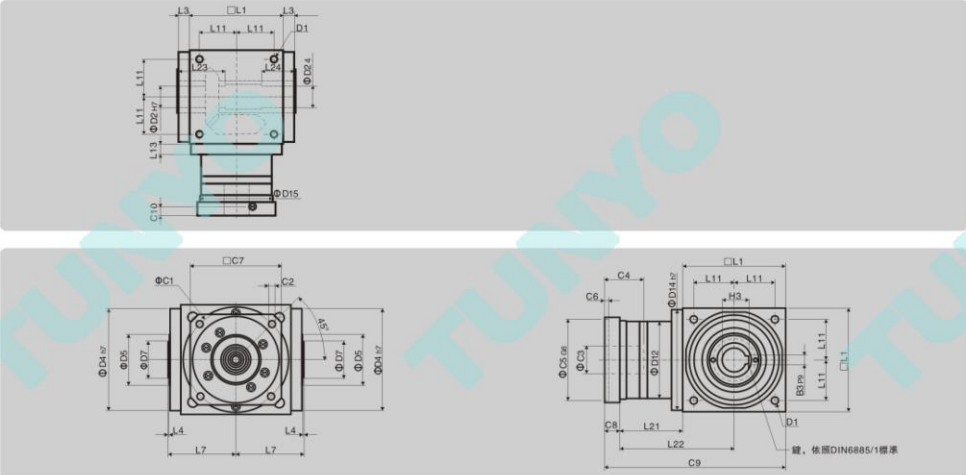
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 K6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	106	127	158	178	198
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	75	84.5	99	122	144.5	157.5	206.5	239	248
L22	107.5	122	144	177	214.5	242.5	311.5	359	388
C1	46	46	70	100	100	100	130	165	165
C2	M4	M4	M5	M6	M6	M6	M8	M10	M10
C3	12	12	16	24	24	24	32	38	38
C4	30	30	34	40	40	40	50	60	60
C5 G6	30	30	50	80	80	80	110	130	130
C6	3.5	3.5	8	4	4	4	5	6	6
C7	42	42	60	92	92	92	115	142	142
C8	21.5	21.5	21.5	20	20	20	24	31	31
C9	161.5	181	210.5	252	304.5	347.5	440.5	510	559
C10	14.55	14.5	15.5	13	13	13	16	21	21
B1 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64

PV-K

孔輸入孔輸出
行星減速機
減速比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension (一級減速)



[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H7	13	14	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D7	21	22	28	33	47	55	75	85	110
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	105	127	158	178	198
L1	65	75	90	110	140	170	210	240	280
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	49	60.5	63	69.5	85.5	95	130	144.5	135
L22	81.5	98	108	124.5	155.5	180	235	264.5	275
L23	40	47	52	53	70	80	95	115	115
L24	30	32	35	35	50	55	65	80	80
C1	46	70	100	100	130	165	215	215	235
C2	M4	M5	M6	M6	M8	M10	M12	M12	M12
C3	≤11	≤14	≤19	≤24	≤32	≤38	≤42	≤48	≤55
C4	30	34	40	40	50	60	85	85	116
C5 G6	30	50	80	80	110	130	180	180	200
C6	3.5	8	4	4	5	6	6	6	6
C7	42	60	90	90	115	142	190	190	220
C8	19.5	19	17	17	19.5	22.5	29	29	63
C9	133.5	154.5	170	196.5	245	287.5	369	413.5	478
C10	13.25	13.5	10.75	10.75	13	15	20.75	20.75	53.5
B3 P9	5	5	6	6	10	12	14	16	18
H3	15.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4

PV-K

孔輸入孔輸出
行星減速機
減速比:1:10~50
輸出扭矩:12~3200N.m

外形尺寸 Dimension (二級減速)

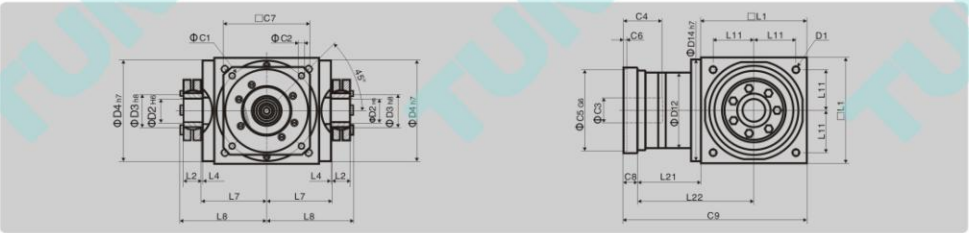
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H7	13	14	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D7	21	22	28	33	47	55	75	85	110
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	106	127	158	178	198
L1	65	75	90	110	140	170	210	240	280
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	75	84.5	99	122	144.5	157.5	206.5	239	248
L22	107.5	122	144	177	214.5	242.5	311.5	359	388
L23	40	47	52	53	70	80	95	115	115
L24	30	32	35	35	50	55	65	80	80
C1	46	46	70	100	100	100	130	165	165
C2	M4	M4	M5	M6	M6	M6	M8	M10	M10
C3	12	12	16	24	24	24	32	38	38
C4	30	30	34	40	40	40	50	60	60
C5 G6	30	30	50	80	80	80	110	130	130
C6	3.5	3.5	8	4	4	4	5	6	6
C7	42	42	60	92	92	92	115	142	142
C8	21.5	21.5	21.5	20	20	20	24	31	31
C9	161.5	181	210.5	252	304.5	347.5	440.5	510	559
C10	14.5	14.5	15.5	13	13	13	16	21	21
B3 P10	5	5	6	6	10	12	14	16	18
H3	15.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4

PV-K

孔輸入盤輸出
行星減速機
減速比: 1 : 1 ~ 5
輸出扭矩:12~3200N.m

外形尺寸 Dimension (一級減速)



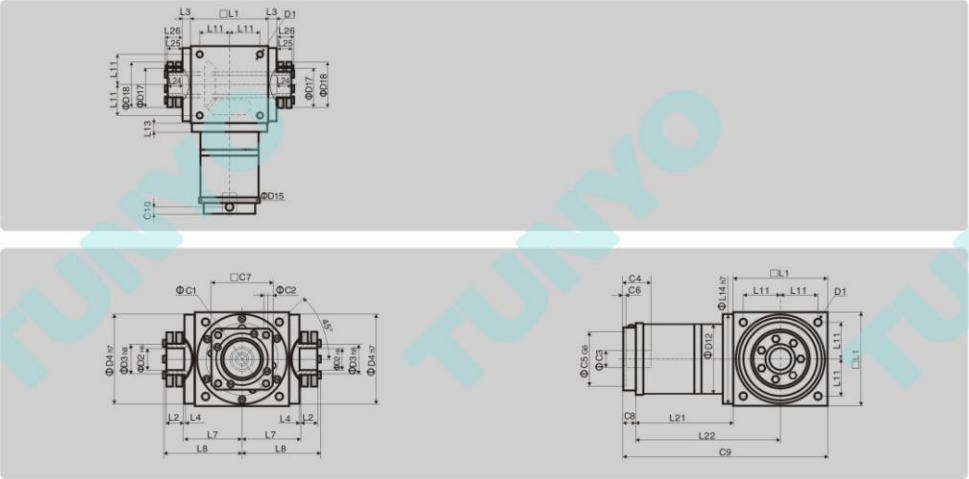
[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	105	130	158	178	198
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	113.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	49	60.5	63	69.5	85.5	95	130	144.5	135
L22	81.5	98	108	124.5	155.5	180	235	264.5	275
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
C1	46	70	100	100	130	165	215	215	235
C2	M4	M5	M6	M6	M8	M10	M12	M12	M12
C3	11	14	19	24	32	38	42	48	55
C4	30	34	40	40	50	60	85	85	116
C5 G6	30	50	80	80	110	130	180	180	200
C6	3.5	8	4	4	5	6	6	6	6
C7	42	60	90	90	115	142	190	190	220
C8	19.5	19	17	17	19.5	22.5	29	29	63
C9	133.5	154.5	170	196.5	245	287.5	369	413.5	478
C10	13.25	13.5	10.75	10.75	13	15	20.75	20.75	53.5

PV-K

孔輸入盤輸出
行星減速機
減速比:1:10~50
輸出扭矩:12~3200N.m

外形尺寸 Dimension (二級減速)



[unit:mm]

尺寸	65	75	90	110	140	170	210	240	280
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D12	62	72	86	106	104	128	160	180	200
D14 h7	63	73	88	108	135	165	205	235	275
D15	62.9	72.9	87	107	106	127	158	178	198
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	133.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L13	13	15	15	15	15	15	20	25	25
L21	75	84.5	99	122	144.5	157.5	206.5	239	248
L22	107.5	122	144	177	214.5	242.5	311.5	359	388
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
C1	46	46	70	100	100	100	130	165	165
C2	M4	M4	M5	M6	M6	M6	M8	M10	M10
C3	12	12	16	24	24	24	32	38	38
C4	30	30	34	40	40	40	50	60	60
C5 G6	30	30	50	80	80	80	110	130	130
C6	3.5	3.5	8	4	4	4	5	6	6
C7	42	42	60	92	92	92	115	142	142
C8	21.5	21.5	21.5	20	20	20	24	31	31
C9	161.5	181	210.5	252	304.5	347.5	440.5	510	559
C10	14.5	14.5	15.5	13	13	13	16	21	21

安裝説明 Installation Instructions

正確的安裝、使用和維護減速機，是保證機械設備正常運行的重要環節。因此，在您安裝東洋行星減速機對,請務必嚴格按照下面的安裝使用相關事項，認真地裝配和使用。

The correct installation,use and maintenance of the gearboxes,are important parts to ensure the normal operation of mechanical equipment. Therefore,when you install a TUNYO gearboxes,besure to strictly follow the install related matters to assembly and use seriously.

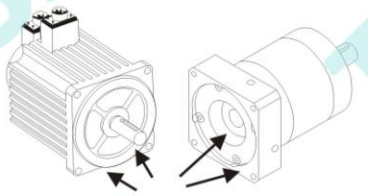
1.與原動機的連接 The Connection To The Prime Engine

第一步 安裝前確認電機和減速機是否完好無損，并且嚴格檢查電機與減速機相連接的各部位尺寸是否匹配，主要指電機的凸臺尺寸與減速機凹槽等尺寸及配合公差(圖1)。

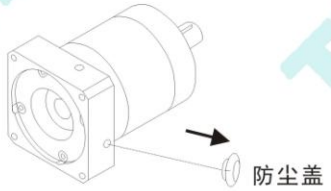
Step 1.Before installation confirm the motor and gearbox are intact,and strictly check whether the size of the various parts of the motor and gearboxes connected match,mainly refers to the size of the spigot ofthe motor and gearbox norch size and fit tolerance(FIG.1)

第二步 取下減速機法蘭外側工藝孔上的防塵蓋，調整減速機輸入軸彈性夾緊裝置使其緊固螺栓與工藝孔對齊. 插入内六角扳手(圖2)鬆開緊固螺栓。此步驟適合筒夾式鎖緊機構聯接。

Step 2.Remove the dust cover on the technological bores of the gearboxes flange outer.Adjust input shaft elastic clamping device so that the fastening bolt is aligned with the technological bore.Insert hex wrench(FIG.2)to loosen the fastening bolts.This step is suitable for tube clip-locking mechanism coupling.



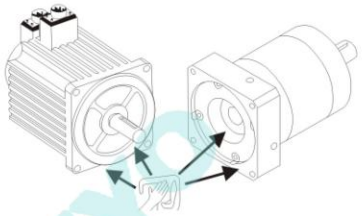
(圖1/FIG.1)



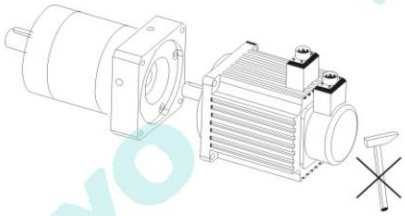
(圖2/FIG.2)

第三步 將電機輸出軸、定位凸臺及減速機連接部位的防銹油用汽油或鋅鈉水擦拭净(圖3)，其目的是保證連接的緊密性及運轉的靈活性，并且防止不必要的磨損。將電機與減速機自然連接。連接時必須保證減速機輸出軸與電機輸入軸同軸度一致，且二者外側法蘭平行。如同軸度不一致，會導致電機軸折斷或減速機齒輪磨損。另外，在安裝時，嚴禁用鐵錘等擊打，防止軸向力或徑向力過大損壞軸承或齒輪(圖4)。

Step 3.Then wipe the anti-rust oil on the motor output shaft,the positioning spigot and gearboxes coupling parts with gasoline or zinc sodium Water(FIG.3).Its purpose is to ensure that the coupling tightness and operation flexibility,and to prevent unnecessary wear.Naturally connect the motor and gearboxes,ensure that the concentricity of the gear output shaft and the motor of the input shaft is the same.and both the outside of the flange parallel.If the concentricity is inconsistency,will cause broken motor shaft and gearboxesgear wear.Further,when installed,do not hit with a hammer and other objects,to prevent axial force or radial force is so large that damage the bearing or gear(FIG 4).



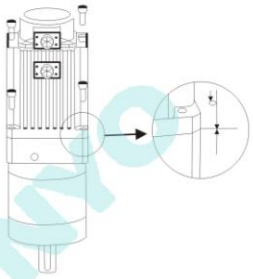
(圖3/FIG.3)



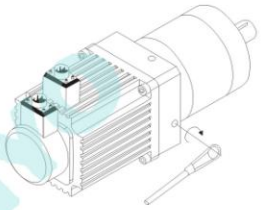
(圖4/FIG.4)

第四步 在電機與減速機連接前，請先將電機方位與減速機方位盡量對齊。爲保證受力均勻，請先將任意對角位置的安裝螺栓旋上，但不要旋緊，再旋上另外兩個對角位置的安裝螺栓最後逐個旋緊四個安裝螺栓(圖5)。最後，旋緊緊固螺栓。所有緊固螺栓均需用力矩扳手按標明的固定扭力矩數據(見下表)進行固定和檢查(圖6)。

Step 4.Before connecting the motor and gearboxes,Please machine of decelerate of motor bearing and azimuth alignment as far as possible.In order to ensure uniform force,please spin on mounting bolts in the any angular position,but do not tighten,Spin on the other two on the angular position of the mounting bolts and then tighten the four mounting bolts one by one(FIG.5).Finally,tighten the bolts.All fastening bolts are required to use a torque wrench fixed torsional moment data indicated(Table)to fix and check(FIG.6)



(圖5/FIG.5)



(圖6/FIG.6)

預緊力矩 Tightening torque	TA(Nm)	4.5	9	9	15	36	81
螺栓大小 Bolt size	SW(mm)	M4	M5	M5	M6	M8	M10

2.與工作機的連接 The Connection Of The Work Machine

與工作機安裝時，應重視傳動中心軸綫對中，其誤差不得大于所用聯軸器的使用補償量。對中良好能延長使用壽命，并獲得理想的傳動效率：在輸出軸上安裝傳動件時，不允許用錘子敲擊，通常利用裝配夾具和軸端的內螺紋，用螺栓將傳動件壓入，否則有可能造成減速機內部零件的損壞：最好不采用鋼性固定式聯軸器，因該類聯軸器安裝不當，會引起不必要的外加載荷，以致造成軸承的早期損壞，嚴重時甚至造成輸出軸的斷裂。

When the installation of the working machine,we should attach importance to the transmission center axis aligned,and the error should not be greater than the amount of coupling the use of compensation.Aligning well can extend the service life and to obtain the desired transmission efficiency.When Install transmission parts on the output shaft,not allowed to tap with a hammer,usually use the Internal threads of the assembly fixture and shaft end,using bolts pressed into the drive member.Failure to do so may cause damage of the internal parts of the reducer.Best not to use steel fixed coupling.because class coupling improper installation will cause unnecessary applied load,and resulting in early bearing damage,severe or even cause the output shaft fracture

3.減速機的固定 The Gearbox´s Fixing

減速機應牢固地安裝在穩定的基礎或支座上,且冷却空氣循環流暢。基礎不可靠，運轉時會引起振動及噪聲，并促使軸承及齒輪受損。當傳動聯接件有突出物或采用齒輪、鏈輪傳動時，應考慮加裝防護裝置。安裝就位後，應按次序全面檢查安裝位置的準確性，各緊固件壓緊的可靠性，安裝後應能靈活轉動。減速機采用脂潤滑，方可進行空載試運轉，時間不得少于2小時。運轉應平穩，無衝擊、振動、雜音及滲漏油現象，發現异常應及時排除。如環境溫度過高或過低時，需改變潤滑脂的牌號。

Gearboxes should be securely mounted on a stable foundation or bearing.and the cooling air circulation flowing.Unstable foundation will cause vibration and noise during operation.and promote the bearing and gear damage.When the drive couplings with protrusion or gear and sprocket,you should consider the installation of protective devices.After installation,you should have a in-order comprehensive check of the accuracy of the installation location and the reliability of fasteners clamping.The machine should be flexible rotation after installation .The operation should be smooth without shock,vibration,noise and oil leakage phenomenon.Abnormal should be immediately removed.If the ambient temperature is too high or too low,the grades of grease need to be changed.

維修説明Maintenance Instructions

減速機在使用過程中應定期檢查油脂的質量，對于混入雜質或變質的油脂需及時更換。

一般情況下，對于長期連續工作的減速機，按運行20000小時或隔年更換新油脂，間斷用的減速機，在重新運轉之前亦應檢查潤滑脂情況，再潤滑可由專業廠家完成，根據運轉情況決定再潤滑的間隔和數量。如果舊的潤滑脂不能被完全清除，則應該相應限制所注入潤滑脂的數量以避免過潤滑。如再潤滑周期間隔較長，推薦對全部潤滑脂進行徹底更換。油脂添加量爲内部空間的1/3爲宜，如輸入轉速較低可適當增加，但最多不能超過内部空間的1/2。

輸出端回轉部分采用唇形密封圈（TC型）密封，密封圈的更換一般以是否有油脂泄漏作爲更換的依據。對于間斷使用的減速機，在重新運轉之前亦應檢查密封情況，判斷有無必要更換密封圈。更換密封圈時衹需拆下相應密封圈座即可更換。

工作中，當發現油温温升超過90℃或産生不正常的噪聲等現象時應停止使用，檢查原因，必須排除故障後，方可繼續運轉。

用户應有合理的使用維護規章制度，對減速機的運轉情況和檢驗中發現的問題應作認真記録，上述規定應嚴格執行。

Gearboxes oil quality should be checked regularly during use,timely replacement of for impurities or deterioration grease required.

Under normal circumstances.gearboxes for long-term continuous work,should be replaced with new grease in accordance with the running 20,000 hours or every other year.Intermittent gearboxes should be checked the grease before re-operation.Relubrication can be completed by professional manufacturers.The re-lubrication intervals and quantities should be decided according to the functioning.If the old grease can not be completely removed.accordingly limit the number of grease to avoid lubrication.If re-lubrication cycle interval is longer.recommended to completely replace all the grease.Grease dosage is preferably 1/3 of the internal space.if the input speed is low may be appropriate to increase.But can not exceed a maximum of 1/2 of the internal space.

The output of the rotary part(TC)use skeleton oil seal.the seals replacement generally based on whether the grease leaks.Gearboxes for intermittent use,also should be check the seal before reoperation,determine whether there is necessary for replacement of seals. The seals can be replaced only need to remove the seal seat.

At work when the temperature rise of the oil temperature exceeds 90℃ or produce abnormal phenomena such as noise.stop using it and check the cause.The fault must be removed before they are allowed to continue operation.The user should have the reasonable use and maintenance regulations.The problems found in the deceleration machine

Operation and inspection should be carefully recorded.The above provisions should be strictly enforced.

TUNYO®

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CERTIFICATE OF APPROVAL CCC

CE認證取得
CERTIFICATE OF APPROVAL CE

RoHS認證取得
CERTIFICATE OF APPROVAL ROHS

ISO9001認證取得
CERTIFICATE OF APPROVAL ISO9001

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