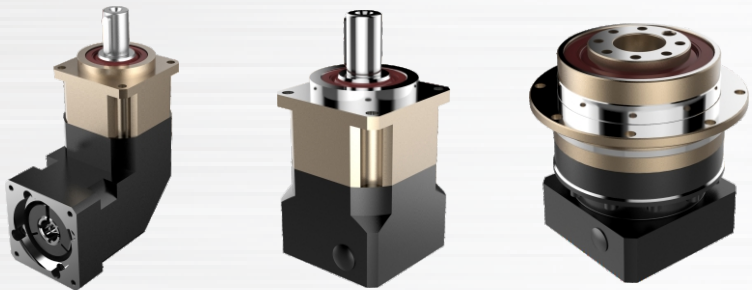


传动装置的解决方案 / 自动化领域领导品牌



Precision Planetary Reducer
Solutions Provider

传动设备方案供应商



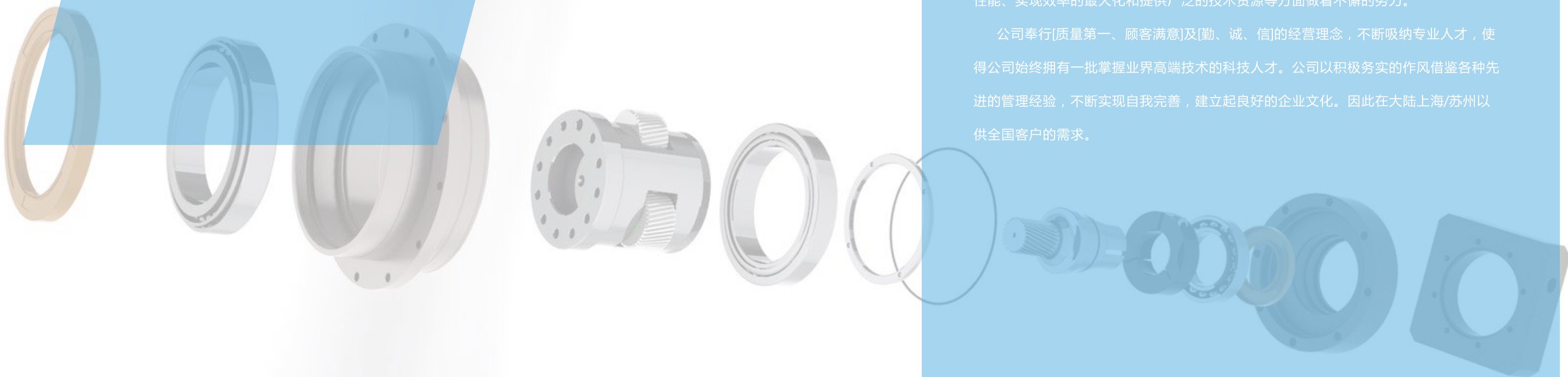
www.jhreducer.com
金一 智能制造未来

DRIVE THE WORLD 智造 未来

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我们的使命

推动精密传动领域进步，助力中国制造；
让人类享受更美好生活，实现更多梦想。

Our mission

Committed to the progress in the field of precision transmission,
make human have more freedom in the production and living,
Realize more dream!

ABOUT US 关于我们

本公司专业从事高科技的各种减速机马达及螺旋齿轮减速机，行星减速机的设计、研发、生产。近年来肩负着顾客们对产品质量与价格的追求，不断地在提高减速机的高性能、实现效率的最大化和提供广泛的技术资源等方面做着不懈的努力。

公司奉行[质量第一、顾客满意]及[勤、诚、信]的经营理念，不断吸纳专业人才，使得公司始终拥有一批掌握业界高端技术的科技人才。公司以积极务实的作风借鉴各种先进的管理经验，不断实现自我完善，建立起良好的企业文化。因此在大陆上海/苏州以供全国客户的需求。

The company specializes in the design, development and production of various high-tech reducer motors and spiral gear reducers, worm and worm gear reducers, planetary reducers. In recent years, with the customers' pursuit of product quality and price, we have made unremitting efforts to improve the performance of reducer, maximize efficiency and provide a wide range of technical resources. The company pursues the business philosophy of "quality first, customer satisfaction" and "diligence, sincerity, trust", constantly absorbing professional talents, so that the company has always had a number of high-end technology talents in the industry. With a positive and pragmatic style, the company draws lessons from various advanced management experience, constantly realizes self-improvement, and establishes a good corporate culture.

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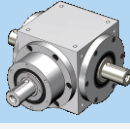
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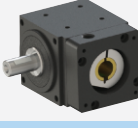
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● PLANETARY GEARBOX OPERATION MANUAL 行星式减速机操作说明书

1.NOTE 注意事项

1.1 Preparation before installation 安装前准备

- 使用前请熟读“操作说明书”，若因人为原因、非产品本身原因或天灾发生等因素而导致不良或损坏，在操作时违反本说明书所示内容而造成的损害，或未依照原本设计之使用方式及非经由本公司进行的改装及维修所造成的故障，本公司将不承担任何赔偿责任，特此声明，敬请见谅。
Please read this operation manual before using this gearbox. Any problems caused by inappropriate operation contrary with the manual, or damage caused by natural disasters, or restructure the gearbox without our permission, Junyi will not hold any responsibility nor will the gearbox be cover by warranty.
- 本公司之产品保固期间为购买产品后一年内，保固期限内，若产品因非人为因素而发生故障，客户将产品寄回，本公司免费更换受损零件
Warranty start within one year after purchase the gearbox. Within warranty period, if gearbox damage is not caused by operation error nor by natural disaster, then please send back the gearbox, we should replace the damage.
- 减速机之安装、拆卸、保养、须由专业技术人员进行之。
Installation, disassemble, maintenance on the gearbox, needed to be performing by trained technicians.
- 依据安装环境之通风状况，长时间连续运转下可能使得减速机温度升高，运转中与刚停机后请避免直接碰触减速机。
According to the application and operation environment, the gearbox temperature might be raising after period of running. Please do not touch the gearbox directly during operation, or right off from operation.
- 运转中请勿接触任何旋转中之部件，减速机安装完毕后请务必将侧面的塞头回塞，以避免细小物品掉入减速机中。
Do not touch any rotating components when the gearbox is running. Ensure that the plugs of the gearbox were inserted after installation. Avoid any small object fall into the gearbox.
- 减速机为精密零组件，安装过程中，请勿以软锤或者工具敲击减速机本体，以避免影响运转精度。
Handle the gearbox gently during installation, do not knock the gearbox by any tool, to avoid the influence of running accuracy.
- 请勿对减速机进行拆解或改造，否则有可能受伤或造成设备受损。
Do not disassemble or modify gearhbox to prevent injury or equipment damage.
- 减速机为密封式设计，油品属半固态高级合成油，不需换油。
Synthetic lubricant is sealed in gear there is no need to change lubricant.

1.2 Installation environment limitation 安装环境的限制

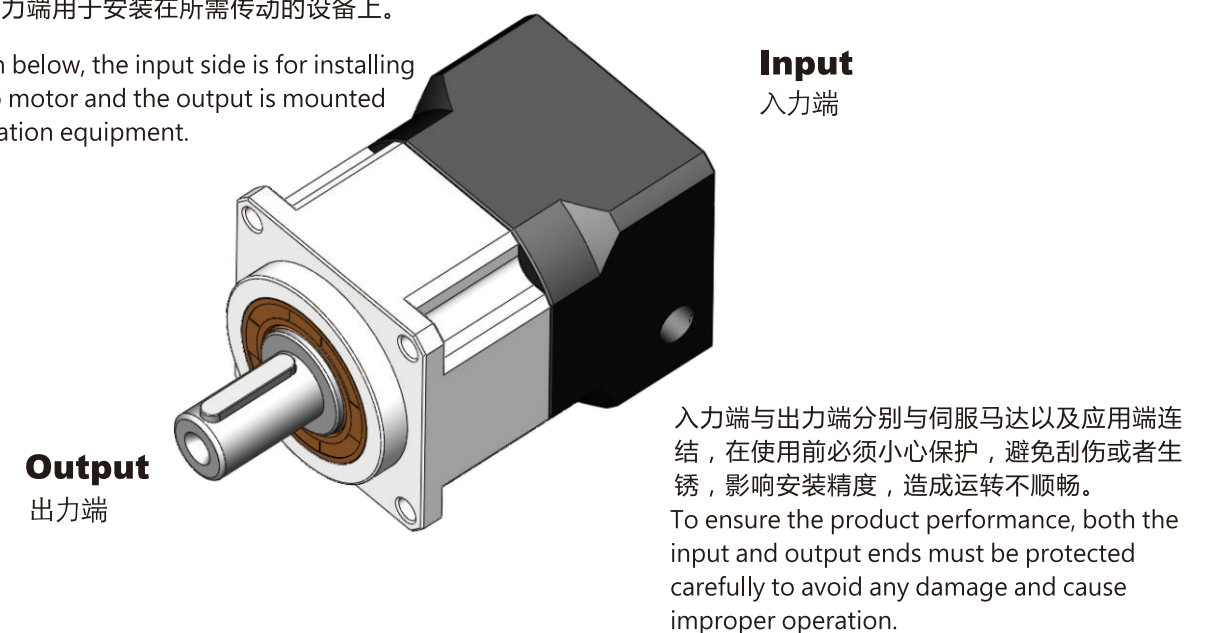
减速机必须依据下列条件安装，不符合下列之安装条件及使用环境将会损害到本产品，不在保固范围内。
Gearbox must be installed under following terms to prevent damages which are not covered by warranty.

- 本产品之设计或制造，为使用装配于其他之机械设备上。
Gearbox is designed or manufactured, to be used in the other of mechanical equipment assembly.
- 周围使用温度-10℃ ~ +90℃。
Operate temperature is between -10 °C to + 90 °C.
- 高度：不可超过海平面1000公尺。
Operate altitude may not be higher than 1000m above sea-level
- 避免连续性震动或撞击。
Avoid continuity vibration or hit.
- 避免将减速机使用于可燃气体或腐蚀气体之环境。
Avoid Gearbox used in flammable gas or corrosion gas environment.
- 湿度：不可超过85%，以避免水气凝结。
Humidity: no more than 85%, in order to avoid condensation.
- 避免阳光直射，灰尘堆积。
Avoid direct sunlight, dust accumulation.
- 避免水或油的喷溅。
Avoid water or oil splashed.
- 使用于良好通风之场所。
Used in good ventilated place.

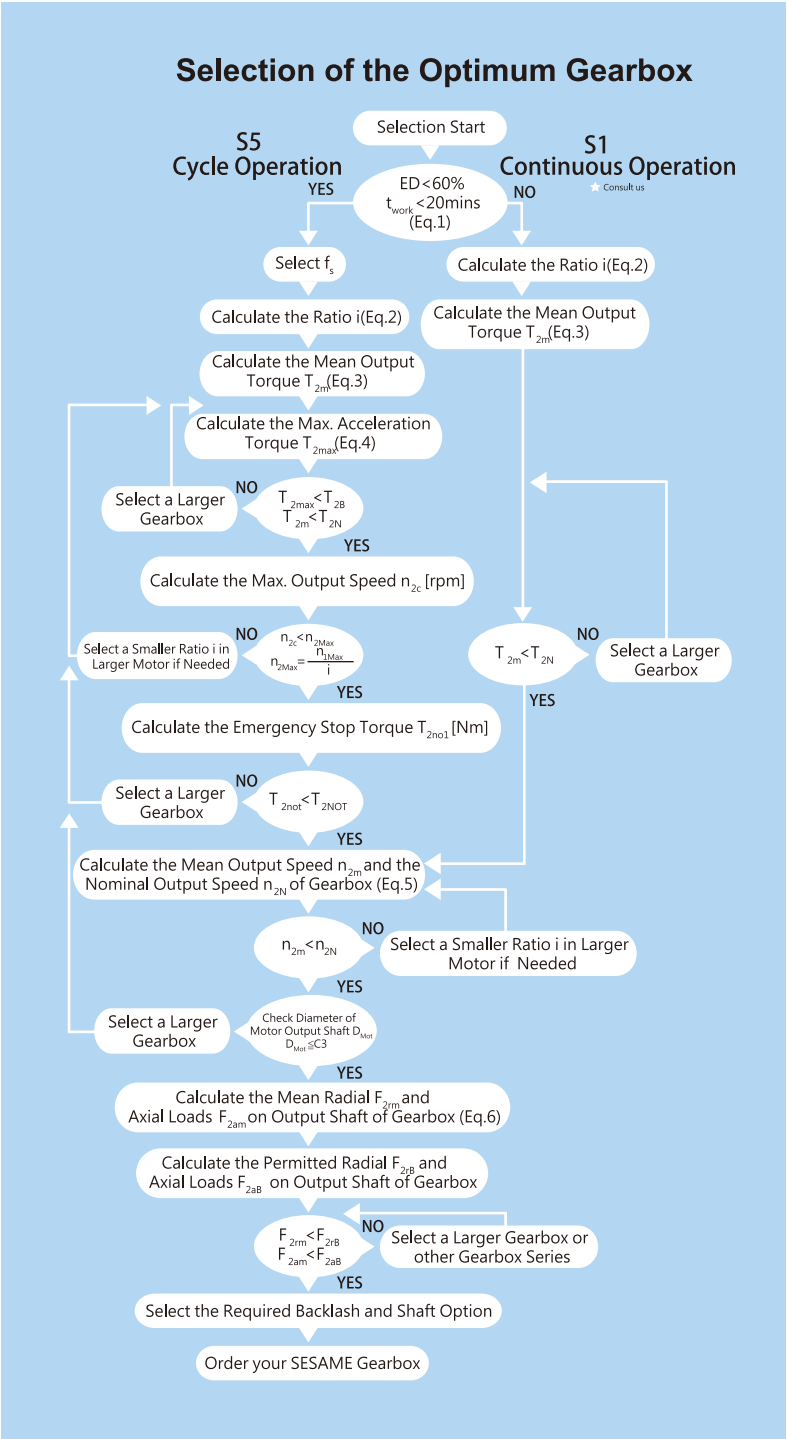
2.Gearbox Introduction 减速机介绍

减速机分为入力端与出力端，入力端用于安装伺服马达，出力端用于安装在所需传动的设备上。

As shown below, the input side is for installing the servo motor and the output is mounted to application equipment.



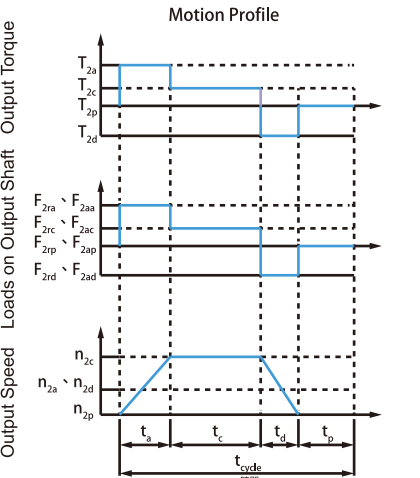
SELECTION OF THE OPTIMUM GEARBOX



Recommended (for S5 Cycle Operation)
The general design is given for $\frac{J_L}{J_m} \leq 4 \times J_m$

The optimal design is given for $\frac{J_L}{J_m} \leq J_m$

J_L Load Inertia
J_m Motor Inertia



1. $ED = \frac{t_{work}}{t_{cycle}} \times 100\%$, $t_{work} = t_a + t_c + t_d$

Index : a. Acceleration, c. Constant, d. Deceleration, p. Pause

(Eq.1)

2. $i \geq \frac{n_m}{n_{work}}$

n_m Output Speed of the Motor
n_{work} Working Speed

(Eq.2)

3. $T_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times T_{2a}^3 \times n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

(Eq.3)

4. $T_{2max} = T_{mB} \times i \times f_s \times \eta$

Where f_s is

f _s	No. of Cycles / hr
1.0	0 ~ 1,000
1.1	1,000 ~ 1,500
1.3	1,500 ~ 2,000
1.6	2,000 ~ 3,000
1.8	3,000 ~ 5,000

T_{mB} Max. Output Torque of the Motor
η Efficiency of the Gearbox

(Eq.4)

5. $n_{2a} = n_{2d} = \frac{1}{2} \times n_{2c}$

$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$

$n_{2N} = \frac{n_{1N}}{i}$

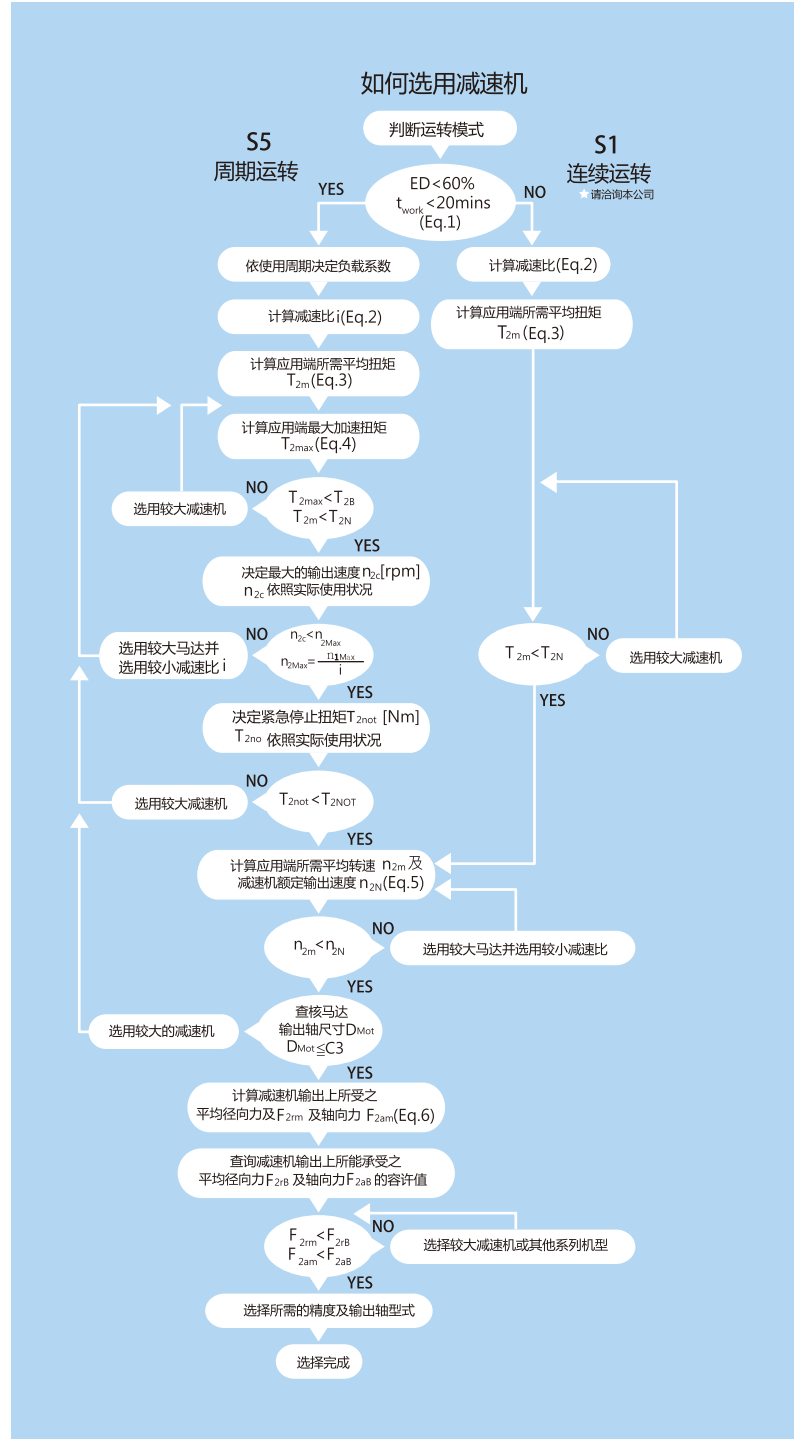
(Eq.5)

6. $F_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2a}^3 \times n_{2c} \times t_c \times F_{2c}^3 + n_{2d} \times t_d \times F_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

$F_{2am} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2a}^3 \times n_{2c} \times t_c \times F_{2c}^3 + n_{2d} \times t_d \times F_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

(Eq.6)

减速机的选用

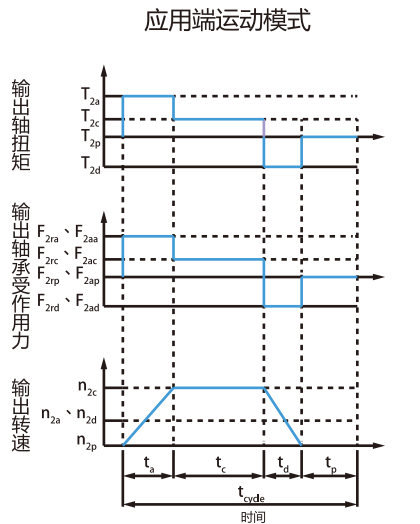


S5周期运转之建议事项
一般的应用惯量须符合以下公式

最适当的应用惯量须符合以下公式

$\frac{J_L}{J_m} \leq 4 \times J_m$ $\frac{J_L}{J_m} \leq J_m$

J_L 负载惯量
J_m 减速机惯量



1. $ED = \frac{t_{work}}{t_{cycle}} \times 100\%$, $t_{work} = t_a + t_c + t_d$

下标说明：a. 加速, c. 等速
d. 减速, p. 停止

(Eq.1)

2. $i \geq \frac{n_m}{n_{work}}$

n_m 马达输出速度
n_{work} 实际应用速度

(Eq.2)

3. $T_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times T_{2a}^3 \times n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

(Eq.3)

4. $T_{2max} = T_{mB} \times i \times f_s \times \eta$

f_s 负载系数

f _s	周期次数/小时
1.0	0 ~ 1,000
1.1	1,000 ~ 1,500
1.3	1,500 ~ 2,000
1.6	2,000 ~ 3,000
1.8	3,000 ~ 5,000

T_{mB} 马达最大输出扭矩
η 减速机运转效率

(Eq.4)

5. $n_{2a} = n_{2d} = \frac{1}{2} \times n_{2c}$

$n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$

$n_{2N} = \frac{n_{1N}}{i}$

(Eq.5)

6. $F_{2m} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2a}^3 \times n_{2c} \times t_c \times F_{2c}^3 + n_{2d} \times t_d \times F_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

$F_{2am} = 3 \sqrt{\frac{n_{2a} \times t_a \times F_{2a}^3 \times n_{2c} \times t_c \times F_{2c}^3 + n_{2d} \times t_d \times F_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$

(Eq.6)

● CODING SYSTEM 型号定义

- P

G

L
- 行星式减速机 (Planetary)

等级 (Grade)

H: 极精密斜齿型 Premium Type Helical Series
G: 精密型 Precision Series
E: 实用型 Standard Series

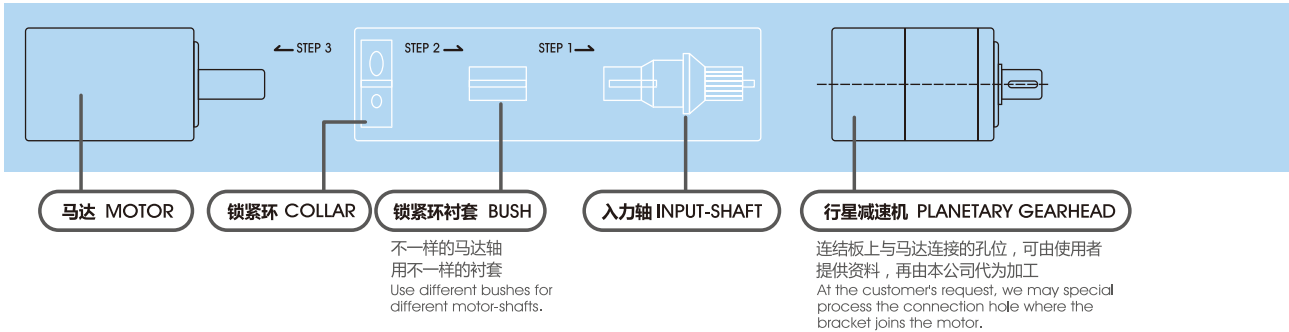
本体与连结方式 (Connection)

L: 方形有法兰面 Square Housing with Flange
C: 圆形无法兰面 Round Housing without Flange
E: 圆形有法兰面 Round Housing with Flange
F: 圆盘连结型 Plate Type
H: 方形法兰面斜齿型 (适用于等级G精密型行星式减速机)
Square Flange Helical Gear (Square Flange Helical Gear for G Grade (Precision Series) Only)
RH: 直角斜齿型 Right Angle Helical Gear
FR: 圆盘连结直角型 Oatput Flange Right Angle Type



60	框号 (Size)	42:□42 60:□60 90:□90 115:□115 142:□142 180:□180 220:□220
I	减速比	单节式 Single Stage:3,4,5,6,7,8,9,10
30	(Speed Reduction Ratio)	双节式 Double Stage:12,15,20,25,30,35,40,45,50,60,70,80,90,100
I		多节式 Muti-Stage: 125~1000
P1	背隙 (Backlash)	P0: 超精密级 Micro Backlash P1: 精密等级 Precision Backlash P2: 标准背隙 Standard Backlash
I	特殊规格 (Customer Specification)	
Y		
I		
MOTOR	马达型号 (Motor Model)	

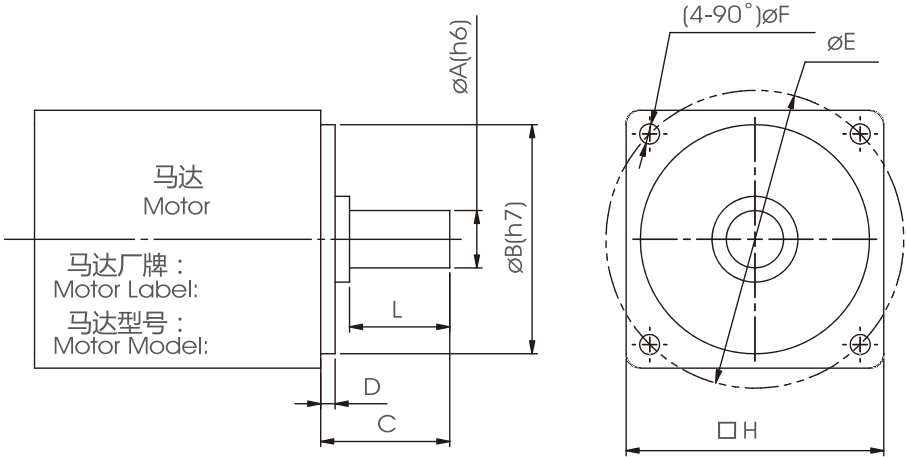
► 马达与减速机组合方法 CONNECTION OF MOTOR & GEARHEAD



- 锁紧环、锁紧环衬套、入力轴与马达稳固组合后，请谨慎与行星式减速机结合后，以防止伤及减速机的内部结构。
After the collar, the bush, and the input-shaft are securely assembled with the motor, please join the parts with the planetary gearhead cautiously with a slight clockwise and /or counter-clockwise motion, until the planetary gearhead engages the input-shaft.

* 在正常的使用状态下，本公司出厂的产品保固一年或20,000小时，以先到期为准。
Under normal usage and loading, our products come with a one-year or 20,000-hour limited warranty, whichever comes first.

● FILL IN DATA OF MOTOR 客户填写资料



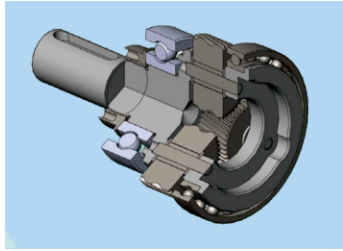
► 规格 SPECIFICATIONS

Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
øA(h6)	øB(h7)	C	D	øE	øF	□H	L	P0/P1/P2

* 本公司生产行星式减速机皆经过专属配对加工，保证寿命超长并确保背隙精度不变，荣获国内外知名精密机械或半导体大厂选用，值得信赖。

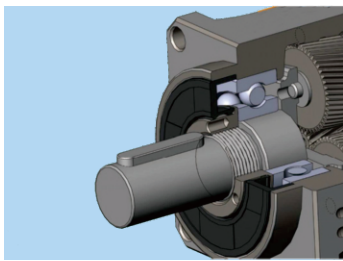
*JUNYI Planetary Gearheads are produced under strickly exclusive pairing process to ensure accuracy and lifespan.

PGH SERIES FEATURES PGH系列 產品特點



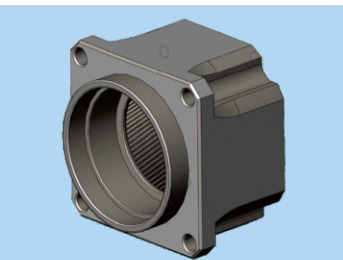
行星固定架及出力軸設計一體成型，且前後培林設定位置為大跨距，可達到最大扭轉剛性及出力軸高徑向負載能力。

Planetary arm bracket and output shaft are one-piece constructed, setting bearing apart for larger span to reach the largest reverse rigid and contribute high axis radial load capacity.



出力軸與油封搭配確保最低磨擦係數和減少啟動負載，保持最佳密封性，延長使用壽命。

Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan.



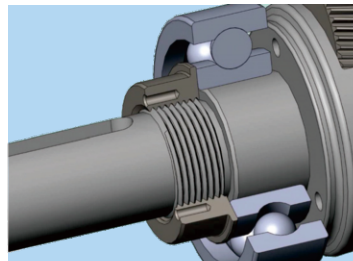
本體獨家採用最新高科技材料，齒箱與內環齒一體鍛造成形，再經德國頂級插齒機加工。

具有高精度，高扭力，耐磨耗等特點。

先進無電解鍍表面處理，耐刮，耐腐蝕，最適合高科技設備嚴苛要求。

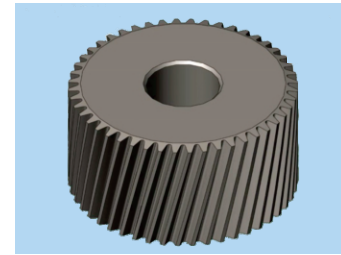
The gear box and internal gear ring are one-piece constructed, and then processed with advanced Germany gear shaper machinery for high-precision, high torque and abrade consumption.

Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.



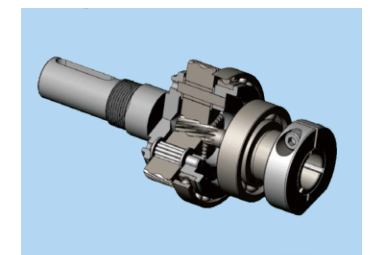
特殊出力軸鎖緊機構設計，確保減速機構緊密結合定位，動力傳輸效率高，永保精密度。

Special locking mechanisms designed of the output shaft ensure its integration closely with positioning gear, power transmission efficiency, and eternal precision.



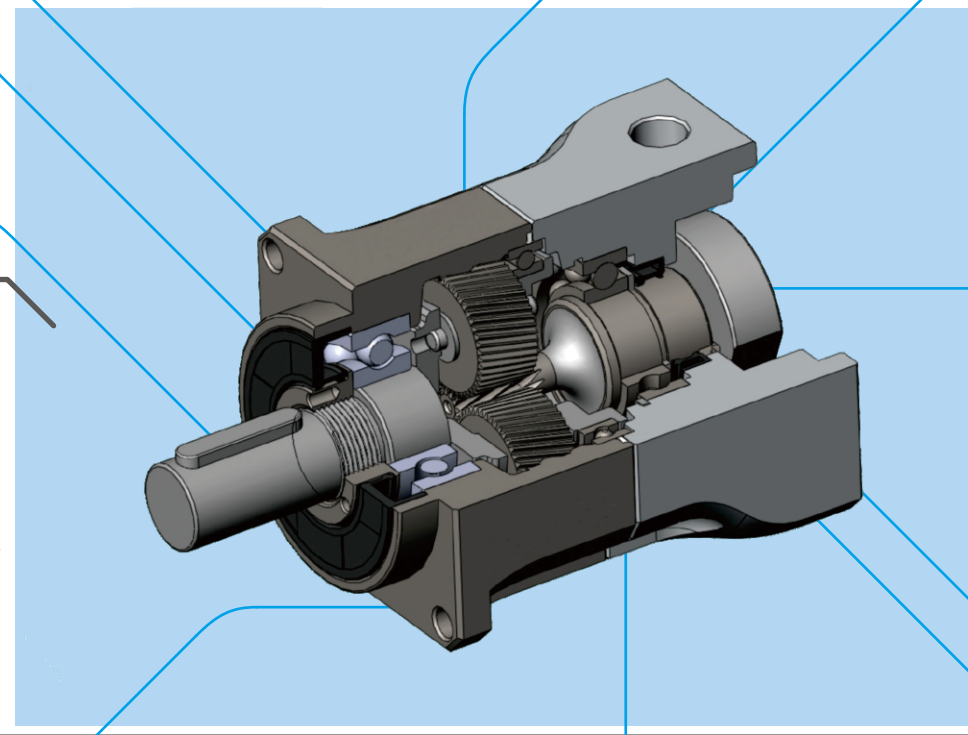
齒輪材質選用高級合金鋼，獨特熱處理至最佳硬度，並經過齒型研磨加工，以獲得最佳的精度、高耐磨耗及高耐衝擊韌性。

Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.



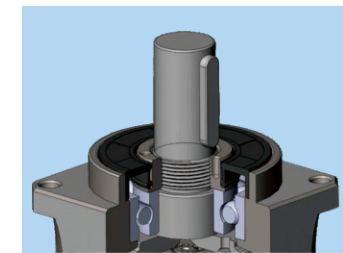
太陽齒前端軸承直接置入於行星固定架內，整體機械結構設計，以確保傳動元件的同心度。

The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.



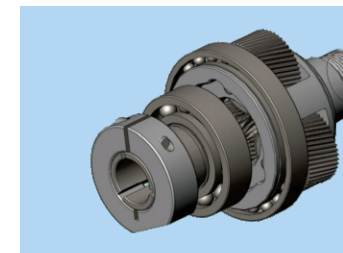
PGH系列採用螺旋齒輪設計，提升齒形嚙合率達**30%**以上，特殊螺旋角設計，可降低軸向推力、容許伺服馬達高轉速的輸入，達到最大扭力輸出。精密齒輪設計及專業齒輪加工，製造出低運轉背隙、高效率、運轉平順、低噪音及長壽命的行星減速機。

PGH series helical gear design, enhance tooth engagement rate of 30% or more, special helix design, which reduces the axial thrust, allowing high-speed servo motor input, maximum torque output. Precision gear design and professional gear processing create a low backlash operation, high efficiency, smooth running, low noise and long life of the planetary gear.



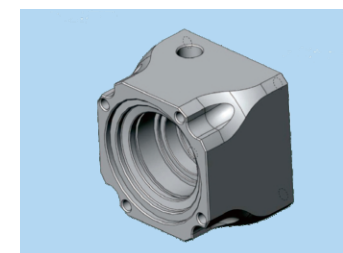
採用與世界知名品牌同款潤滑油，搭配高科技油封設計，上唇為防塵唇，下唇為防油唇。採IP65防護等級的密封設計，不洩漏、永久免保養。

High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Protection grade IP65 safeguards fully avoid leaking problem, and given it maintenance-free.



輸入端與馬達入力軸連結方法採用栓緊式機構，鎖緊環經過動平衡分析，確保高轉速下，結合界面的同心度及零滑差動力傳遞。

Input-end and motor shaft are coupled through a dynamic balanced collar clamping mechanism to ensure connection interface concentricity and zero slip power transmission at high speed.



先進馬達連接板設計，配合入力軸襯套，安裝容易，可與各種廠牌之伺服、步進馬達完美搭配組合。

Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.



行星齒輪傳動介面採用針狀軸承，滿針排列不含保持器，以達到最大接觸面積最小間隙公差，提高結構剛性及輸出扭力。

Planet gear transmission interface equipped with needle bearings, full needle roller bearings aligned without retainer achieve maximum exposure but smallest gap tolerances. Enhance over-all gear structure rigid and output torque.

PGH系列-效率最大化
PGH SERIES-MAXIMIZING EFFICIENCY

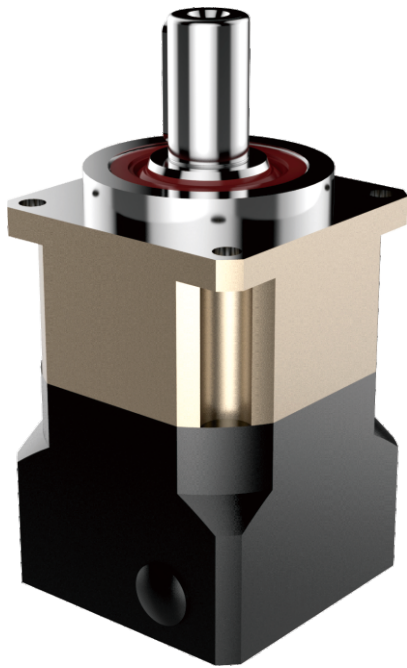
为精密而生
BORN FOR PRECISION

我们为客户定制高精度、高刚性、高扭矩的超精密行星减速器；PGH系列在技术方面为您提供创新和先进的解决方案以达到效率最大化。

We customize precise planetary reducers with high precision, high rigidity and high torque for customers. The PGH series provides you with innovative and advanced solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

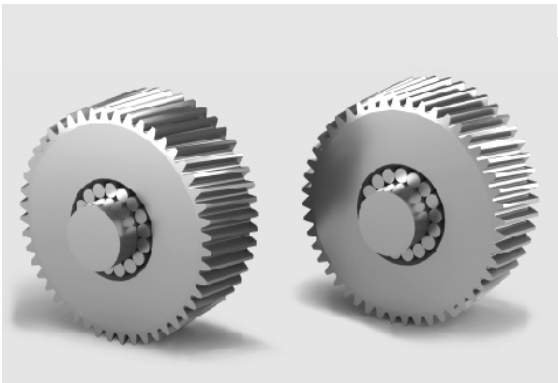
回程间隙	arcmin	1~5
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



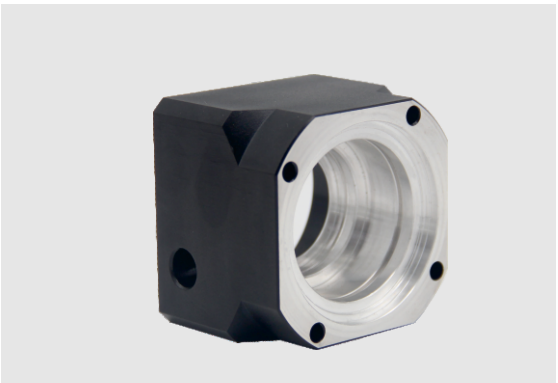
臂架与输出轴一体化设计
确保最大扭转刚性



输出法兰与内齿一体化设计
更精密 耐用



优选高级合金钢，渗碳处理确保最佳精度



一体化连接板设计,与各种伺服, 马达完美配合

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

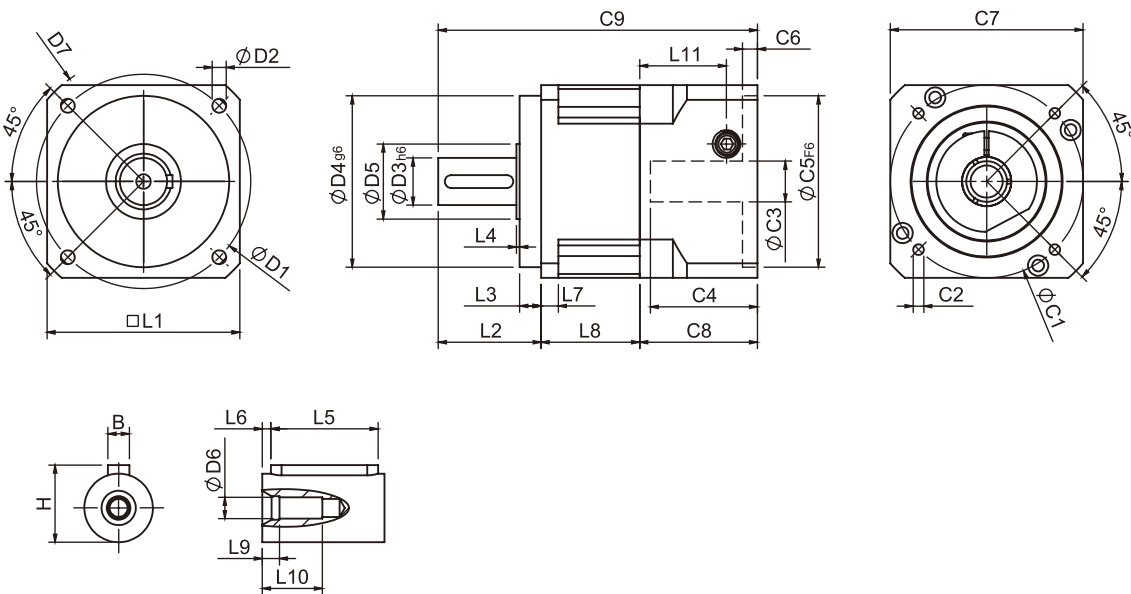
减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGH-42	PGH-60	PGH-90	PGH-115	PGH-142	PGH-180	PGH-220
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	3	19	53	145	290	520	950	1100
			4	20	55	150	300	550	1000	1700
			5	17	54	140	290	600	1050	2000
			6	15	46	135	280	560	1000	1850
			7	14	44	125	270	530	960	1750
			8	12	41	110	240	480	900	1550
			9	11	37	95	220	430	800	1500
			10	11	37	95	220	430	800	1450
		節數 Stage	減速比 Ratio	PGH-42	PGH-60 (T)	PGH-90(T)	PGH-115T	PGH-142T	PGH-180T	PGH-220T
		2	15	19	53	145	290	520	950	2000
			20	20	55	150	300	550	1000	2000
			25	17	54	140	290	600	1050	2000
			30	17	54	140	290	600	1050	2000
			35	17	54	140	290	600	1050	2000
			40	17	54	140	290	600	1050	2000
			45	17	54	140	290	600	1050	2000
			50	17	54	140	290	600	1050	2000
			60	15	46	135	280	560	1000	1850
			70	14	44	125	270	530	960	1750
			80	12	41	110	240	480	900	1550
			90	11	37	95	220	430	800	1500
			100	11	37	95	220	430	800	1450
急停力矩 T _{2NOT} Emergency Stop Torque	N • m	3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)								
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	3-100	5000	5000	4000	4000	3000	3000	2000
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	3-100	10000	10000	8000	8000	6000	6000	4000
超精密背隙 Micro Backlash P0	arcmin	1	3-10	≤ 2	≤ 2	≤ 2	≤ 1	≤ 1	≤ 1	≤ 1
		2	15-100	≤ 4	≤ 4	≤ 4	≤ 3	≤ 3	≤ 3	≤ 3
精密背隙 Precision Backlash P1	arcmin	1	3-10	≤ 4	≤ 4	≤ 4	≤ 3	≤ 3	≤ 3	≤ 3
		2	15-100	≤ 6	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5
標準背隙 Standard Backlash P2	arcmin	1	3-10	≤ 6	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5
		2	15-100	≤ 8	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	3-100	2.5	6	12	23	50	145	220
容許徑向力 F _{2rB} ¹ Max. Radial Load	N	1,2	3-100	760	1570	2780	5340	9000	14000	31810
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1,2	3-100	410	750	1870	3310	4670	6460	18530
使用溫度 Operating Temp.	°C		3-100	-10 °C ~+90 °C						
使用壽命Service Life	hr		3-100	20,000 (10,000/ 連續運轉 Continuous operation)						
效率 Efficiency	%	1	3-10	≥ 97%						
		2	15-100	≥ 94%						
重量 Weight	kg	1	3-10	0.6	1.3	3.5	7.8	16.1	27	55
		2	15-100	0.9	2.0/1.6	5.6/3.9	9.5	19	34	68.5
安裝方向 Mounting Position	-	1,2	3-100	任意方向Any direction						
噪音值 Noise Level ²	dBA/1m	1,2	3-100	56	58	60	63	65	67	70
防護等級 Protection Class	-	1,2	3-100	IP65						
潤滑 Lubrication	-	1,2	3-100	全合成潤滑油 Synthetic Lubricant						
減速機轉動慣量 Inertia(J1)										
節數Stage	減速比Ratio	單位unit		PGH-42	PGH-60	PGH-90	PGH-115	PGH-142	PGH-180	PGH-220
1	3	Kg • cm ²		0.03	0.23	0.97	2.35	10.00	30.50	79.50
	4			0.02	0.18	0.67	1.66	7.17	25.86	58.21
	5			0.02	0.17	0.65	1.50	6.52	23.63	54.36
	6/7/8			0.02	0.14	0.60	1.45	6.17	22.92	54.12
	9/10			0.02	0.14	0.58	1.41	6.10	22.73	53.98
節數Stage	減速比Ratio			PGH-42	PGH-60(T)	PGH-90(T)	PGH-115T	PGH-142T	PGH-180T	PGH-220T
2	15/20/25			0.02	0.17(0.02)	0.65(0.17)	0.65	1.50	6.52	23.63
	30/35/40			0.02	0.14(0.02)	0.60(0.14)	0.60	1.45	6.17	22.92
	45/50/60/70/80/90/100			0.02	0.14(0.02)	0.58(0.14)	0.58	1.41	6.10	22.73
* 1. 輸出轉速 100rpm 時，作用於輸出軸中心位置。Applied to the output shaft center @100rpm. * 2. 3000rpm 空載量測。Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. ※本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.										

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.
產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

PGH Single Stage Dimensions PGH單段外型尺寸圖

PGH142/PGH180/PGH220



Specifications 規格

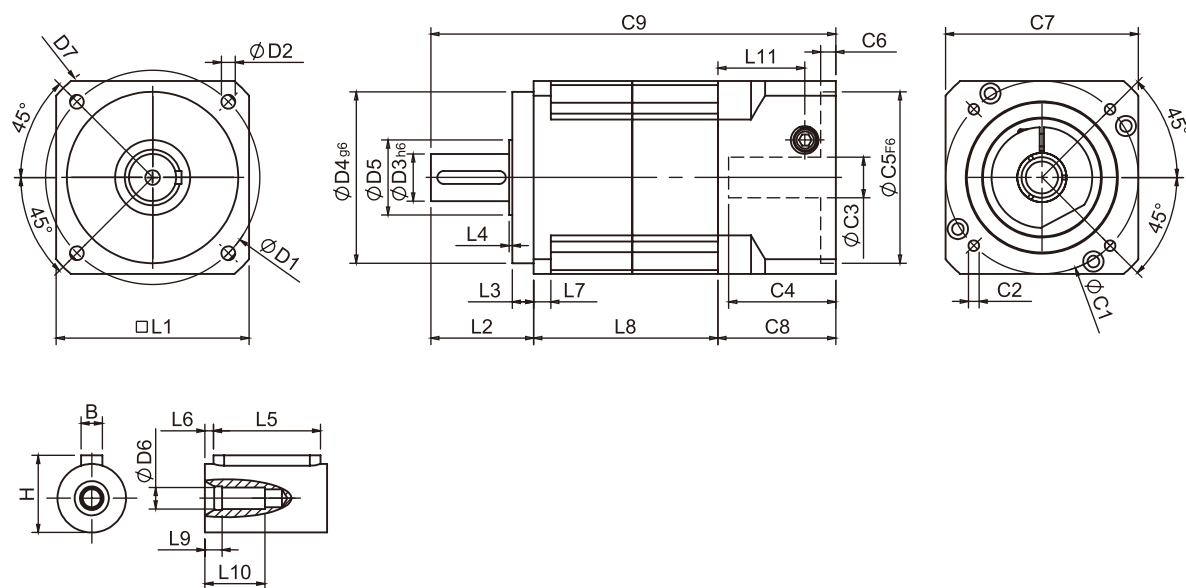
Unit:mm

尺寸 Dimensions	PGH42	PGH60	PGH90	PGH115	PGH142	PGH180	PGH220
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 _{h6}	13	16	22	32	40	55	75
D4 _{g6}	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	114.4
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	182	220
L2	26	37	48	63	91.5	100.5	138
L3	5.5	7	10	10	10	16	30
L4	1	1.5	1.5	3.5	2.5	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	11	16	18	20
L8	28.3	37	46	57	75.5	94	111
L9	4	4	4.5	6	6	8	15
L10	14	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5	96
C1 ²	46	70	90	115	145	200	235
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38	≤50	≤55
C4 ²	27	37	47	56	66.5	82	112
C5 ² _{F6}	30	50	70	95	110	114.3	200
C6 ²	4	4	6	10	6	13	6
C7 ²	42.6	60	90	115	140	180	220
C8 ²	38.5	46	55	63	80	95	120
C9 ²	92.8	120	149	183	247	289.5	369
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ 本公司有權針對以上數據規格逕行設計變更不先行告知。
★ Specification subject to change without notice.

PGH Double Stage Dimensions-1 PGH雙段外型尺寸圖-1

PGH60T/PGH90T/PGH115T



Specifications 規格

Unit:mm

尺寸 Dimensions	PGH42	PGH60	PGH60T	PGH90	PGH90T	PGH115T
D1	50	70		100		130
D2	3.4	5.5		6.5		8.5
D3 _{h6}	13	16		22		32
D4 _{g6}	35	50		80		110
D5	15	25		35		45
D6	M4x0.7P	M5x0.8P		M8x1.25P		M12x1.75P
D7	56	80		118		148
L1	42.6	60		90		115
L2	26	37		48		63
L3	5.5	7		10		10
L4	1	1.5		1.5		3.5
L5	15	25		32		40
L6	2	2		3		5
L7	4	6		8		11
L8	55.3	70	65.5	86	78.5	99.5
L9	4	4		4.5		6
L10	14	16.5		20.5		30
L11	29	35.5	29	40.5	35.5	40.5
C1 ²	46	70	46	90	70	90
C2 ²	M4x0.7P	M5x0.8P	M4x0.7P	M6x1.0P	M5x0.8P	M6x1.0P
C3 ²	≤8/≤11	≤14/≤19	≤8/≤11	≤19/≤24	≤14	≤19/≤24
C4 ²	27	37	27	47	37	47
C5 ² _{F6}	30	50	30	70	50	70
C6 ²	4	4	4	6	4	6
C7 ²	42.6	60	42.6	90	60	90
C8 ²	38.5	46	38.5	55	46	55
C9 ²	119.8	153	141	189	172.5	217.5
B	5	5		6		10
H	15	18		24.5		35

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

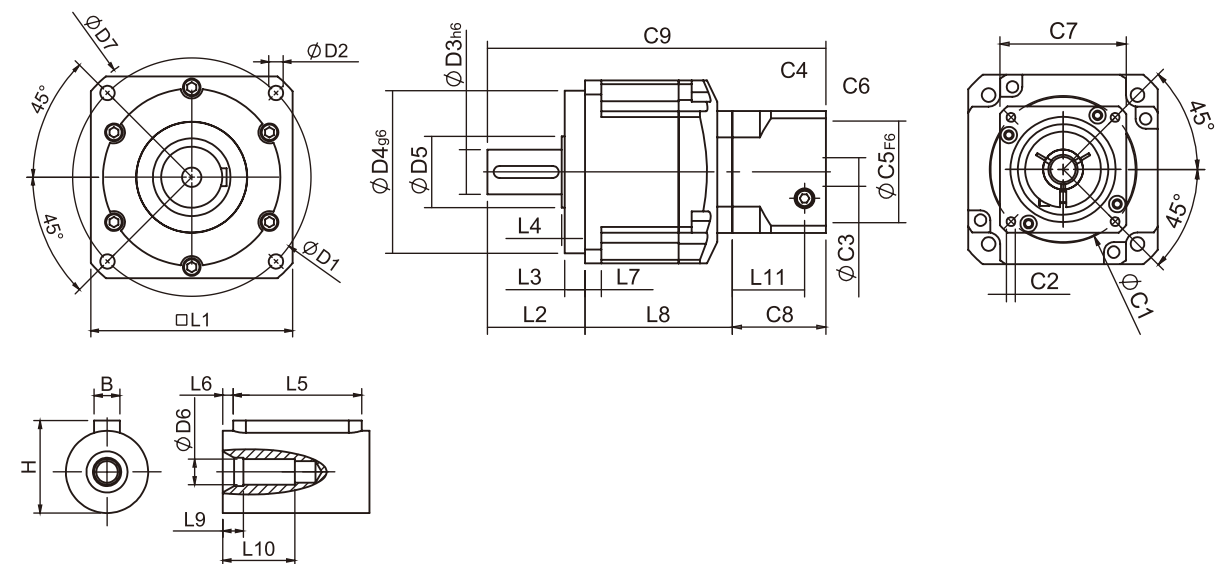
★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

PGH Double Stage Dimensions-2 PGH雙段外型尺寸圖-2

PGH142T/PGH180T/PGH220T



Specifications 規格

Unit:mm

尺寸 Dimensions	PGH142T	PGH180T	PGH220T
D1	165	215	250
D2	10.5	13	17
D3 _{h6}	40	55	75
D4 _{g6}	130	160	180
D5	50	70	114.4
D6	M16x2.0P	M20x2.5P	M20x1.5P
D7	186	239	292
L1	142	182	220
L2	91.5	100.5	138
L3	10	16	30
L4	2.5	2.5	3
L5	60	70	90
L6	5	6	7
L7	16	18	20
L8	127.5	166	202
L9	6	8	15
L10	38	48	42
L11	42	63	74
C1 ²	115	145	200
C2 ²	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤24/≤32/≤38	≤35/≤38	≤50
C4 ²	56	66.5	81
C5 ² _{F6}	95	110	114.3
C6 ²	10	6	6
C7 ²	115	140	180
C8 ²	63	80	93
C9 ²	282	346.5	433
B	12	16	20
H	43	59	79.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

PGL系列-效率最大化
PGL SERIES-MAXIMIZING EFFICIENCY

为精密而生
BORN FOR PRECISION

我们为客户定制高精度、高刚性、高扭矩的超精密行星减速器；PGL系列在技术方面为您提供创新和先进的解决方案以达到效率最大化。

We customize precise planetary reducers with high precision, high rigidity and high torque for customers. The PGL series provides you with innovative and advanced solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	1~7
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



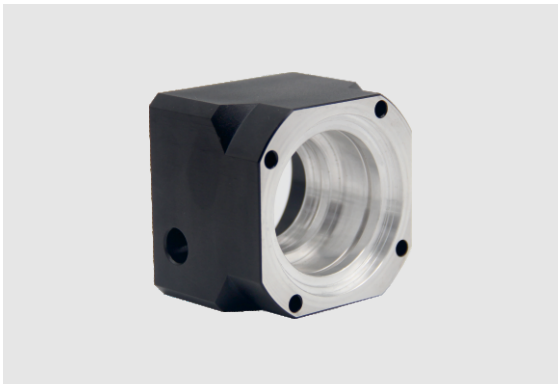
一体化设计，实现高输出，高精度



内齿环与壳体一体化设计，精密，耐磨



优选高级合金钢，渗碳处理
确保最佳精度



一体化连接板设计,与各种伺服,
马达完美配合

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

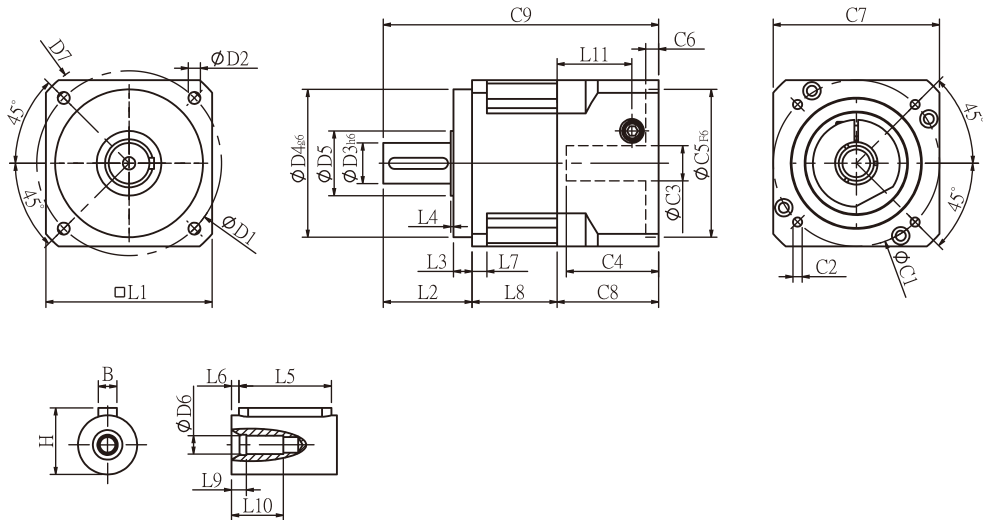
减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGL-42	PGL-60	PGL-90	PGL-115	PGL-142	PGL-180	PGL-220	
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	3	13.8	44.2	95.2	283	482	1151	1670	
			4	11.9	35.9	74.6	249	490	1055	1574	
			5	13.8	43.0	95.2	283	473	1151	1670	
			6	12.5	39.4	90.9	266	436	1055	1574	
			7	11.9	36.0	85.6	219	400	1055	1574	
			8	10.9	32.4	85.0	216	363	860	1184	
			9	9.8	28.7	80.0	210	320	764	1185	
			10	10.1	25.0	75.0	210	320	763	1184	
		2	節數 Stage	減速比 Ratio	PGL-42	PGL -60 / 60T	PGL -90 / 90T	PGL -115 / 115T	PGL -142 / 142T	PGL -180 / 180T	PGL -220 / 220T
			15	13.8	44.2	95.2	283	482	1151	1670	
			20	11.9	35.9	74.6	249	490	1055	1574	
			25	13.8	43.0	95.2	283	473	1151	1670	
			30	13.8	43.0	95.2	283	473	1151	1670	
			35	13.8	43.0	95.2	283	473	1151	1670	
			40	13.8	43.0	95.2	283	473	1151	1670	
			45	13.8	43.0	95.2	283	473	1151	1670	
			50	13.8	43.0	95.2	283	473	1151	1670	
			60	12.5	39.4	90.9	266	436	1055	1574	
			70	11.9	36.0	85.6	219	400	1055	1574	
			80	10.9	32.4	85.0	216	363	860	1184	
			90	9.8	28.7	80.0	210	320	764	1185	
			100	10.1	25.0	75.0	210	320	763	1184	
急停力矩 T _{2NOT} Emergency Stop Torque	N • m	3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)									
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	3-100	3000	3000	3000	2500	2000	2000		
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	3-100	6000	6000	6000	5000	4000	4000		
超精密背隙 Micro Backlash P0	arcmin	1	3-10	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3	
		2	12-100	-	-	-	≤ 5	≤ 5	≤ 5	≤ 5	
精密背隙 Precision Backlash P1	arcmin	1	3-10	-	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5	
		2	12-100	-	≤ 9	≤ 9	≤ 7	≤ 7	≤ 7	≤ 7	
標準背隙 Standard Backlash P2	arcmin	1	3-10	≤ 12	≤ 9	≤ 9	≤ 7	≤ 7	≤ 7	≤ 7	
		2	12-100	≤ 15	≤ 12	≤ 12	≤ 9	≤ 9	≤ 9	≤ 9	
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	3-100	1.0	2.8	7.5	15.5	30	57	110	
容許徑向力 F _{2rB} ¹ Max. Radial Load	N	1,2	3-100	450	1200	2050	4250	7680	9080	13500	
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1,2	3-100	320	900	1420	2930	4680	5100	7300	
使用溫度 Operating Temp.	°C		3-100	-10°C ~ +90°C							
使用壽命Service Life	hr		3-100	20,000 (10,000/連續運轉 Continuous operation)							
效率 Efficiency	%	1	3-10	≥ 96%							
		2	12-100	≥ 92%							
重量 Weight	kg	1	3-10	0.6	1.2	3.2	7.5	15.6	26	56	
		2	12-100	0.8	1.9/1.5	5.3/3.6	12/8.8	20.7/17.2	36/31	80/62	
安裝方向 Mounting Position	-	1,2	3-100	任意方向 Any direction							
噪音值 Noise Level ²	dBA/1m	1,2	3-100	60	62	65	65	70	70	75	
防護等級 Protection Class	-	1,2	3-100	IP65							
潤滑 Lubrication	-	1,2	3-100	全合成潤滑油脂 Synthetic Lubricant							
減速機轉動慣量 Inertia(J1)											
節數Stage	減速比Ratio	單位unit		PGL-42	PGL-60	PGL-90	PGL-115	PGL-142	PGL-180	PGL-220	
1	3	Kg • cm ²		0.03	0.20	0.81	2.20	7.89	25.2	77.9	
	4			0.02	0.16	0.65	1.80	5.83	19.8	56.5	
	5			0.02	0.15	0.62	1.61	5.38	18.3	53.3	
	6/7/8			0.02	0.14	0.60	1.55	5.22	17.8	53.0	
	9/10			0.02	0.14	0.60	1.53	5.20	17.6	52.9	
節數Stage	減速比Ratio		PGL-42	PGL-60(T)	PGL-90(T)	PGL-115(T)	PGL-142(T)	PGL-180(T)	PGL-220 T		
2	15/20/25		0.02	0.15(0.02)	0.62(0.15)	1.61(0.62)	5.38(1.61)	18.3(5.38)	53.9(18.3)		
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	1.55(0.60)	5.22(1.55)	17.8(5.22)	53.0(17.8)		
	45/50/60/70/80/90/100		0.02	0.14(0.02)	0.60(0.14)	1.53(0.60)	5.20(1.53)	17.6(5.20)	52.9(17.6)		
* 1. 輸出轉速 100rpm 時，作用於輸出軸中心位置。Applied to the output shaft center @100rpm. * 2. 3000rpm 空載量測。Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. ※本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.											

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.
產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

PGL Single Stage Dimensions PGL單段外型尺寸圖

PGL142/PGL180/PGL220



Specifications 規格

Unit:mm

尺寸 Dimensions	PGL42	PGL60	PGL90	PGL115	PGL142	PGL180	PGL220
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 h6	13	16	22	32	40	55	75
D4 g6	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	90
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	182	220
L2	26	37	48	62	93	104.5	138
L3	5.5	7	10	8	8	20	30
L4	1.5	1.5	1.5	3	6	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	12	18	16	20
L8	28.3	36	46	59	79	87.5	117.5
L9	4	4	4.5	6	6	8	7
L10	14	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5	102.2
C1 ²	46	70	90	115	145	200	235
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤8	≤14	≤19/≤24	≤24/≤28	≤35	≤50	≤55
C4 ²	27	37	47	58	66	82	98
C5 ² F6	30	50	70	95	110	114.3	200
C6 ²	4	4	6	10	6	13	12
C7 ²	42.6	60	90	115	140	182	220
C8 ²	38.5	46	55	63	80	95	130
C9 ²	92.8	119	149	184	252	287	385.5
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定.

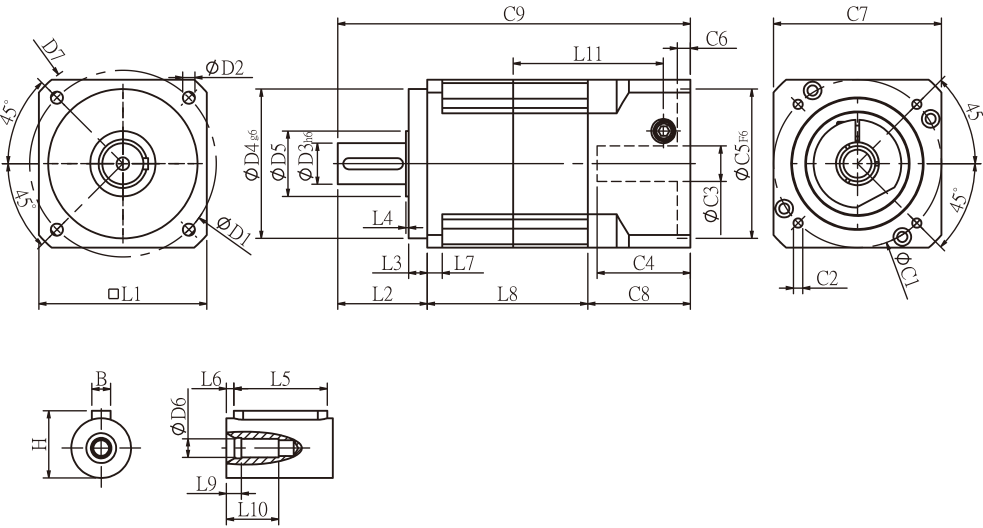
★ 本公司有權針對以上數據規格逕行設計變更不先行告知.

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

PGL Double Stage Dimensions-1 PGL雙段外型尺寸圖-1

PGL142/PGL180



Specifications 規格

Unit:mm

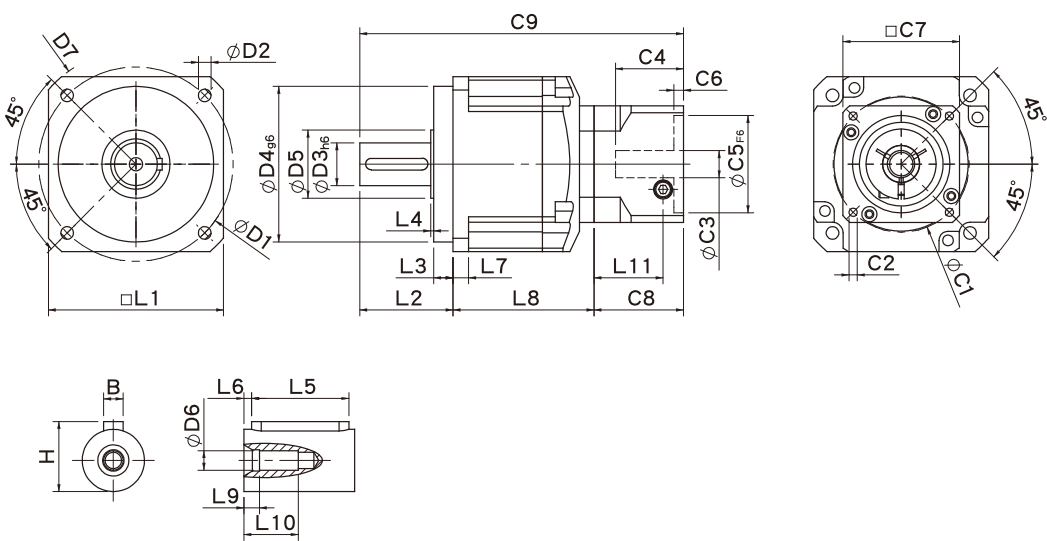
尺寸 Dimensions	PGL42	PGL60	PGL90	PGL115	PGL142	PGL180
D1	50	70	100	130	165	215
D2	3.4	5.5	6.5	8.5	10.5	13
D3 _{h6}	13	16	22	32	40	55
D4 _{g6}	35	50	80	110	130	160
D5	15	25	35	45	50	70
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	56	80	118	148	186	239
L1	42.6	60	90	115	142	182
L2	26	37	48	62	93	104.5
L3	5.5	7	10	8	8	20
L4	1.5	1.5	1.5	3	6	2.5
L5	15	25	32	40	60	70
L6	2	2	3	5	5	6
L7	4	6	8	12	18	16
L8	54.3	64	86	107	140	177.5
L9	4	4	4.5	6	6	8
L10	14	16.5	20.5	30	38	48
L11	29	35.5	40.5	42	63	69.5
C1 ²	46	70	90	115	145	200
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤8	≤14	≤19/≤24	≤24/≤28	≤35	≤50
C4 ²	27	37	47	58	66	82
C5 ² _{F6}	30	50	70	95	110	114.3
C6 ²	4	4	6	10	6	13
C7 ²	42.6	60	90	115	140	182
C8 ²	38.5	46	55	63	80	95
C9 ²	118.8	147	189	232	313	377
B	5	5	6	10	12	16
H	15	18	24.5	35	43	59

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.
★ Specification subject to change without notice.

PGL Double Stage Dimensions-2 PGL雙段外型尺寸圖-2

PGL142T/PGL180T/PGL220T



Specifications 規格

Unit:mm

尺寸 Dimensions	PGL60T	PGL90T	PGL115T	PGL142T	PGL180T	PGL220T
D1	70	100	130	165	215	250
D2	5.5	6.5	8.5	10.5	13	17
D3 _{h6}	16	22	32	40	55	75
D4 _{g6}	50	80	110	130	160	180
D5	25	35	45	50	70	90
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	80	118	148	186	239	292
L1	60	90	115	142	182	220
L2	37	48	62	93	104.5	138
L3	7	10	8	8	20	30
L4	1.5	1.5	3	6	2.5	3
L5	25	32	40	60	70	90
L6	2	3	5	5	6	7
L7	6	8	12	18	16	20
L8	58.8	72.5	97.4	127	157	199.5
L9	4	4.5	6	6	8	7
L10	16.5	20.5	30	38	48	42
L11	29	35.5	40.5	42	63	69.5
C1 ²	46	70	90	115	145	200
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤8	≤14	≤19/≤24	≤24/≤28	≤35	≤50
C4 ²	27	37	47	58	66	82
C5 ² _{F6}	30	50	70	95	110	114.3
C6 ²	4	4	6	10	6	13
C7 ²	42.6	60	90	115	140	182
C8 ²	38.5	46	55	63	80	95
C9 ²	134.3	166.5	214.4	283	341.5	432.5
B	5	6	10	12	16	20
H	18	24.5	35	43	59	79.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.
★ Specification subject to change without notice.

PGCH系列-效率最大化
PGCH SERIES-MAXIMIZING EFFICIENCY

为精密而生
BORN FOR PRECISION

我们为客户定制高精度、高刚性、
高扭矩的超精密行星减速器；
PGCH系列在技术方面为您提供
创新和先进的解决方案以达到效率最大化。

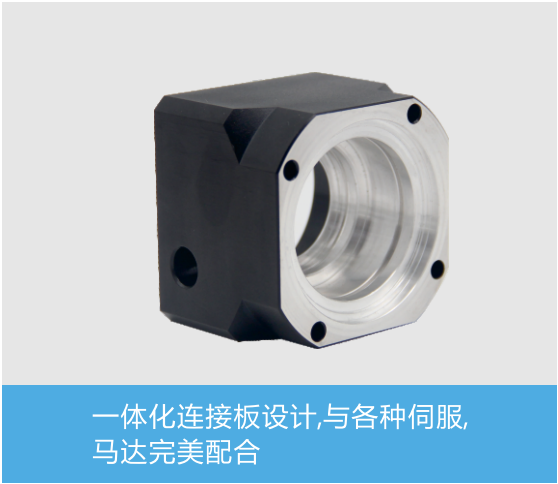
We customize precise planetary reducers with high precision,
high rigidity and high torque for customers.
The PGCH series provides you with innovative and advanced
solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

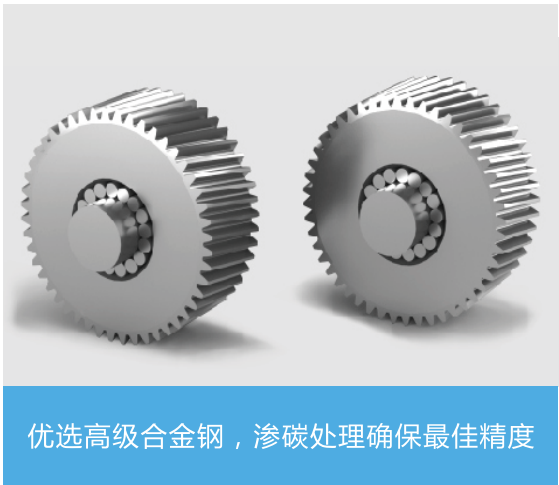
回程间隙	arcmin	1~5
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



臂架与输出轴一体化设计
确保最大扭转刚性



一体化连接板设计,与各种伺服,
马达完美配合



优选高级合金钢，渗碳处理确保最佳精度

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

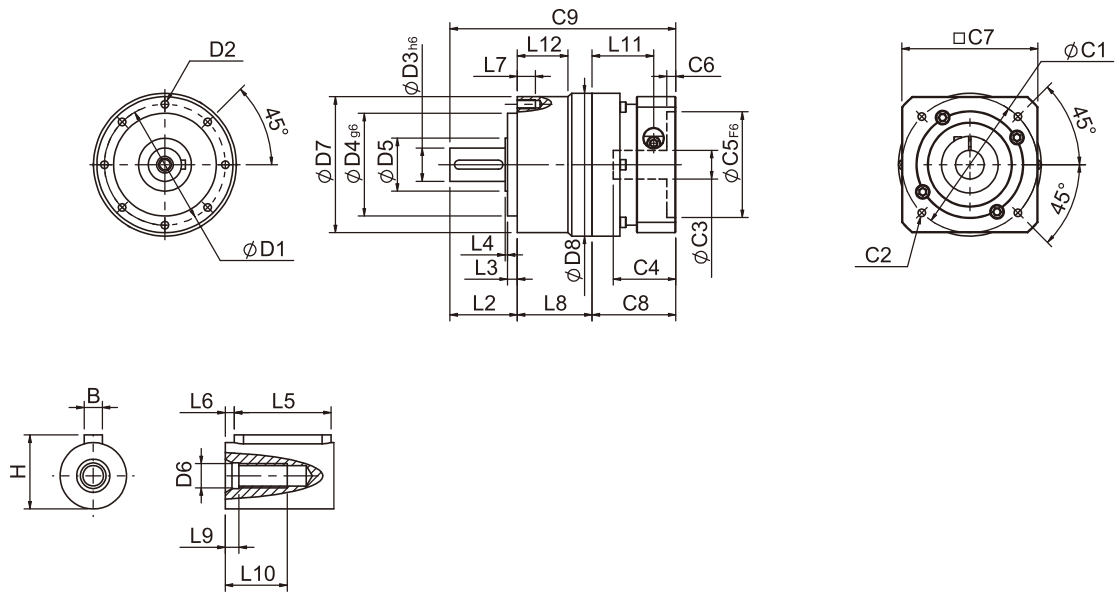
PGCH Specifications Table PGCH性能規格共表

規格 Specifications		節數 Stage	減速比 Ratio	PGCH-50	PGCH-70	PGCH-90	PGCH-120	PGCH-155	PGCH-205	
額定輸出力矩T _{2N} Nominal Output Torque	N · m	1	3	19	53	145	290	520	950	
			4	20	55	150	300	550	1000	
			5	17	54	140	290	600	1050	
			6	15	46	135	280	560	1000	
			7	14	44	125	270	530	960	
			8	12	41	110	240	480	900	
			9	11	37	95	220	430	800	
		2	10	11	37	95	220	430	800	
			節數 Stage	減速比 Ratio	PGCH-50	PGCH-70(T)	PGCH-90(T)	PGCH-120T	PGCH-155T	PGCH-205T
			15	19	53	145	290	520	950	
			20	20	55	150	300	550	1000	
			25	17	54	140	290	600	1050	
			30	17	54	140	290	600	1050	
			35	17	54	140	290	600	1050	
			40	17	54	140	290	600	1050	
			45	17	54	140	290	600	1050	
			50	17	54	140	290	600	1050	
			60	15	46	135	280	560	1000	
			70	14	44	125	270	530	960	
			80	12	41	110	240	480	900	
			90	11	37	95	220	430	800	
			100	11	37	95	220	430	800	
急停力矩 T _{2NOT} Emergency Stop Torque	N · m	3.0倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)								
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	3-100	4000	4000	3000	3000	2500	2500	
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	3-100	8000	8000	6000	6000	5000	4000	
精密背隙 Micro Backlash P0	arcmin	1	3-10	≤ 4	≤ 4	≤ 4	≤ 3	≤ 3	≤ 3	
		2	12-100	≤ 6	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	
精密背隙 Precision Backlash P1	arcmin	1	3-10	≤ 6	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	
		2	12-100	≤ 8	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	
標準背隙 Standard Backlash P2	arcmin	1	3-10	≤ 8	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	
		2	12-100	≤ 10	≤ 10	≤ 10	≤ 9	≤ 9	≤ 9	
扭轉剛性 Torsional Rigidity	N · m /arcmin	1,2	3-100	2.5	6	12	23	50	145	
容許徑向力 F _{2rB} ¹ Max. Radial Load	N	1,2	3-100	640	1260	2230	4300	7140	11050	
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1,2	3-100	410	600	1500	3310	4670	6460	
使用溫度 Operating Temp.	°C		3-100	-10°C ~ +90°C						
使用壽命 Service Life	hr		3-100	20,000 (10,000/連續運轉 Continuous operation)						
效率 Efficiency	%	1	3-10	≥ 97%						
		2	12-100	≥ 94%						
重量 Weight	kg	1	3-10	0.6	1.3	3.5	7.8	16.1	27	
		2	12-100	0.9	2.0/1.6	5.6/3.9	9.5	19	34	
安裝方向 Mounting Position	-	1,2	3-100	任意方向 Any Direction						
噪音值 Noise Level ²	dBA/1m	1,2	3-100	58	60	63	65	67	68	
防護等級 Protection Class	-	1,2	3-100	IP65						
潤滑 Lubrication	-	1,2	3-100	全合成潤滑油脂 Synthetic Lubricant						
減速機轉動慣量 Inertia(J1)										
節數 Stage	減速比 Ratio	單位 unit		PGCH-50	PGCH-70	PGCH-90	PGCH-120	PGCH-155	PGCH-205	
1	3	Kg · cm ²	0.03	0.23	0.97	2.35	10.00	30.50		
	4		0.02	0.18	0.67	1.66	7.17	25.86		
	5		0.02	0.17	0.65	1.50	6.52	23.63		
	6/7/8		0.02	0.14	0.60	1.45	6.17	22.92		
	9/10		0.02	0.14	0.58	1.41	6.10	22.73		
節數 Stage	減速比 Ratio			PGCH-50	PGCH-70(T)	PGCH-90(T)	PGCH-120T	PGCH-155T	PGCH-205T	
2	15/20/25		0.02	0.17(0.02)	0.65(0.17)	0.65	1.50	6.52		
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	0.60	1.45	6.17		
	45/50/60/70/80/90/100		0.02	0.14(0.02)	0.58(0.14)	0.58	1.41	6.10		
* 1. 輸出轉速 100rpm 時，作用於輸出軸中心位置。Applied to the output shaft center @100rpm. * 2. 3000rpm 空載量測。Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. ※本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.										

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.
產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

PGCH Single Stage Dimensions PGCH單段外型尺寸圖

PGCH155/PGCH205



Specifications 規格

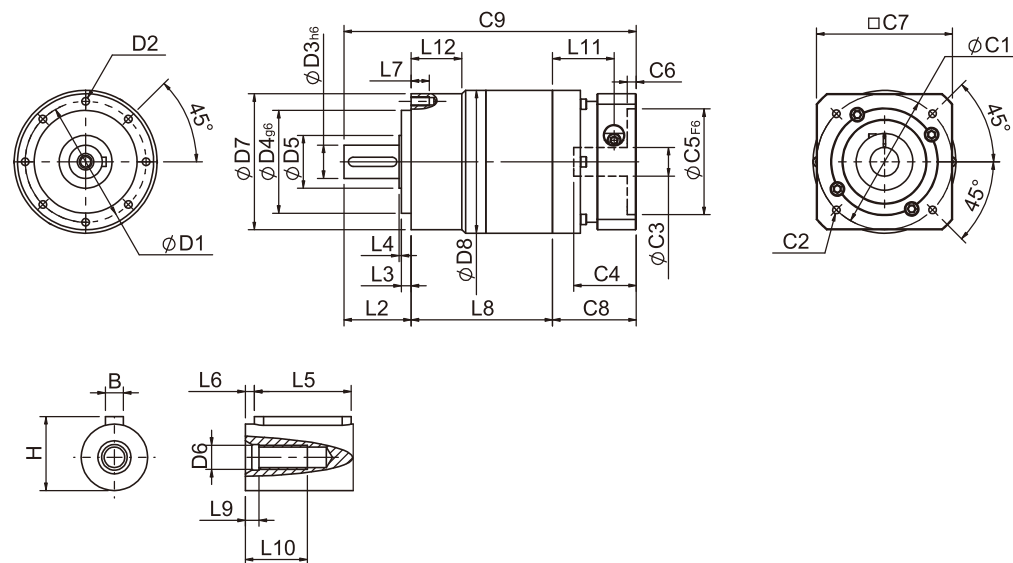
Unit:mm

尺寸 Dimensions	PGCH50	PGCH70	PGCH90	PGCH120	PGCH155	PGCH205
D1	44	62	80	108	140	184
D2	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P	M12x1.75P
D3 _{h6}	12	16	22	32	40	55
D4 _{g6}	35	52	68	90	120	160
D5	15	25	35	45	50	70
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	50	70	90	120	155	205
D8	-	-	94.5	-	-	-
L2	24.5	36	44.5	60	89.5	96.5
L3	4	6	6.5	7	8	12
L4	1	1.5	1.5	3.5	2.5	2.5
L5	15	25	32	40	60	70
L6	2	2	3	5	5	6
L7	8	10	12	16	16	20
L8	29.8	38	49.5	60	77.5	98
L9	4	4	4.5	6	6	8
L10	12	16.5	20.5	30	38	48
L11	29	35.4	40.7	53.7	63	69.5
L12	-	-	33.5	-	-	-
C1 ²	46	70	90	115	145	200
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38	≤50
C4 ²	26.5	37.6	41.4	51.3	66.5	77
C5 ² _{F6}	30	50	70	95	110	114.3
C6 ²	4.1	4.5	6	6	5.5	6
C7 ²	42	60	90	115	140	180
C8 ²	38.1	46.5	55.4	70	80	90
C9 ²	92.4	120.5	149.4	190	247	284.5
B	4	5	6	10	12	16
H	13.5	18	24.5	35	43	59

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to the motor flange chosen.
★ 本公司有權針對以上數據規格逕行設計變更不先行告知。
★ Specification subject to change without notice.

PGCH Double Stage Dimensions-1 PGCH雙段外型尺寸圖-1

PGCH155/PGCH205



Specifications 規格

Unit:mm

尺寸 Dimensions	PGCH50	PGCH70	PGCH90
D1	4	62	80
D2	M4x0.7P	M5x0.8P	M6x1.0P
D3 _{h6}	12	16	22
D4 _{g6}	35	52	68
D5	15	25	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	50	70	90
D8	-	-	94.5
L2	24.5	36	44.5
L3	4	6	6.5
L4	1	1.5	1.5
L5	15	25	32
L6	2	2	3
L7	8	10	12
L8	56.8	71	93.5
L9	4	4	4.5
L10	12	16.5	20.5
L11	29	35.4	40.7
L12	-	-	33.5
C1 ²	46	70	90
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24
C4 ²	26.5	37.6	41.4
C5 ² _{F6}	30	50	70
C6 ²	4.1	4.5	6
C7 ²	42	60	90
C8 ²	38.1	46.5	55.4
C9 ²	119.4	153.5	193.4
B	4	5	6
H	13.5	18	24.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

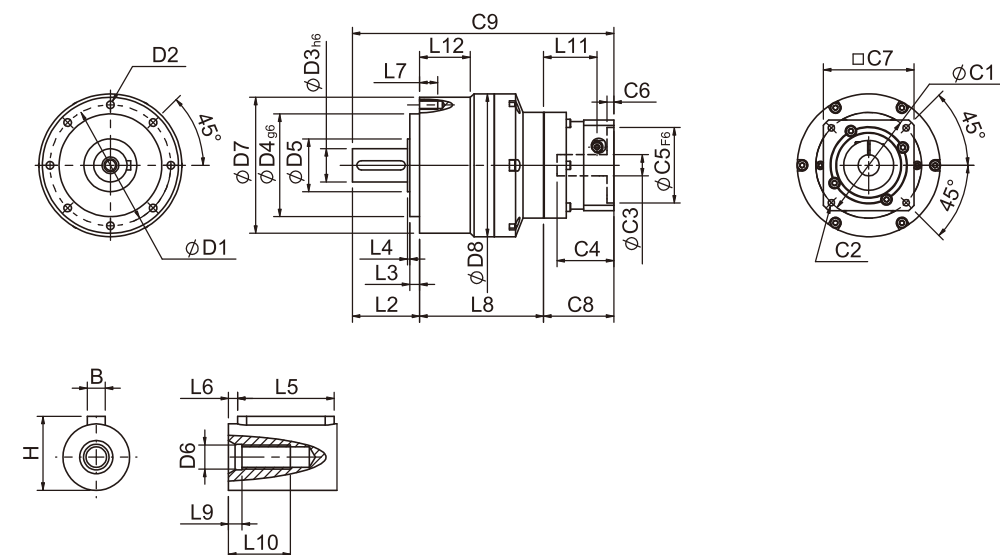
★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown).
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

PGCH Double Stage Dimensions-2 PGCH雙段外型尺寸圖-2

PGCH155T/PGCH205T



Specifications 規格

Unit:mm

尺寸 Dimensions	PGCH70T	PGCH90T	PGCH120T	PGCH155T	PGCH205T
D1	62	80	108	140	184
D2	M5x0.8P	M6x1.0P	M8x1.25P	M10x1.5P	M12x1.75P
D3 _{h6}	16	22	32	40	55
D4 _{g6}	52	68	90	120	160
D5	25	35	45	50	70
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P
D7	70	90	120	155	205
D8	-	94.5	-	-	-
L2	36	44.5	60	89.5	96.5
L3	6	6.5	7	8	12
L4	1.5	1.5	3.5	2.5	2.5
L5	25	32	40	60	70
L6	2	3	5	5	6
L7	10	12	16	16	20
L8	66.5	82	102.5	129.5	170
L9	4	4.5	6	6	8
L10	16.5	20.5	30	38	48
L11	29	35.4	40.7	53.7	63
L12	-	33.5	-	-	-
C1 ²	46	70	90	115	145
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38
C4 ²	26.5	37.6	41.4	51.3	66.5
C5 ² _{F6}	30	50	70	95	110
C6 ²	4.1	4.5	6	6	5.5
C7 ²	42	60	90	115	140
C8 ²	38.1	46.5	55.4	70	80
C9 ²	140.6	173	217.9	289	346.5
B	5	6	10	12	16
H	18	24.5	35	43	59

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown).
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

PGC系列-效率最大化
PGC SERIES-MAXIMIZING EFFICIENCY

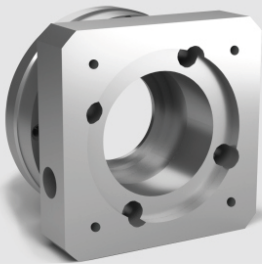
为精密而生
BORN FOR PRECISION

我们为客户定制高精度、高刚性、
高扭矩的超精密行星减速器；
PGC系列在技术方面为您提供
创新和先进的解决方案以达到效率最大化。

We customize precise planetary reducers with high precision,
high rigidity and high torque for customers.
The PGC series provides you with innovative and advanced
solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	7~12
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



安装简便与各种伺服马达完美配合



优选高级合金钢，渗碳处理
确保最佳精度

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

型号说明 / MODEL ILLUMINATE

PGC42

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马达

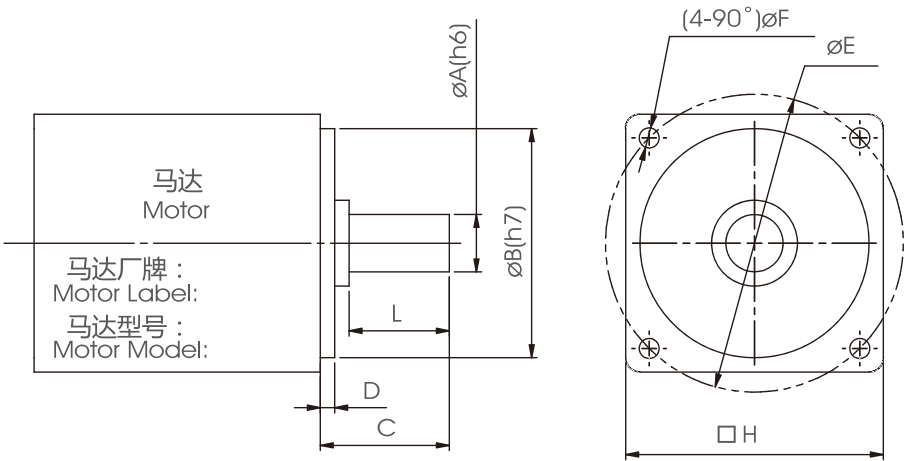
减速机型号:
PGC42/PGC60/PGC90/
PGC120/PGC160

减速比 :单级(L1): 3, 4, 5, 7, 8,10
双级(L2): 12, 15, 20, 25 30, 35,
40, 50, 70, 100

马达型号 :
马达制造及型号

选用范例 : PGC90-10-P2/马达型号MHMD-082G1U

FILL IN DATA OF MOTOR 客户填写资料



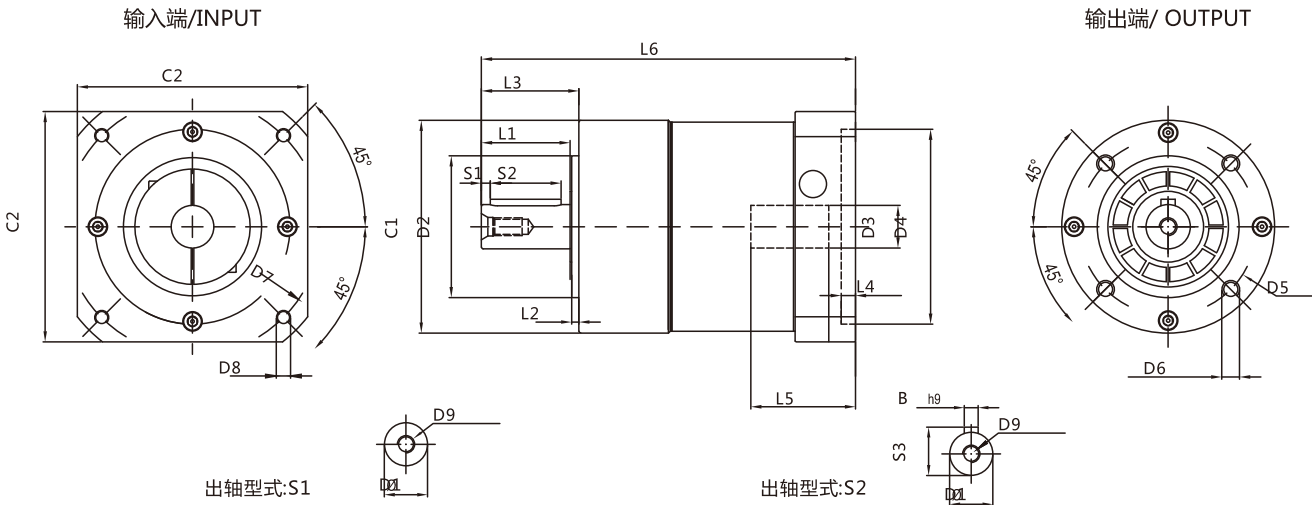
规格 SPECIFICATIONS

Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
øA(h6)	øB(h7)	C	D	øE	øF	□H	L	P0/P1/P2

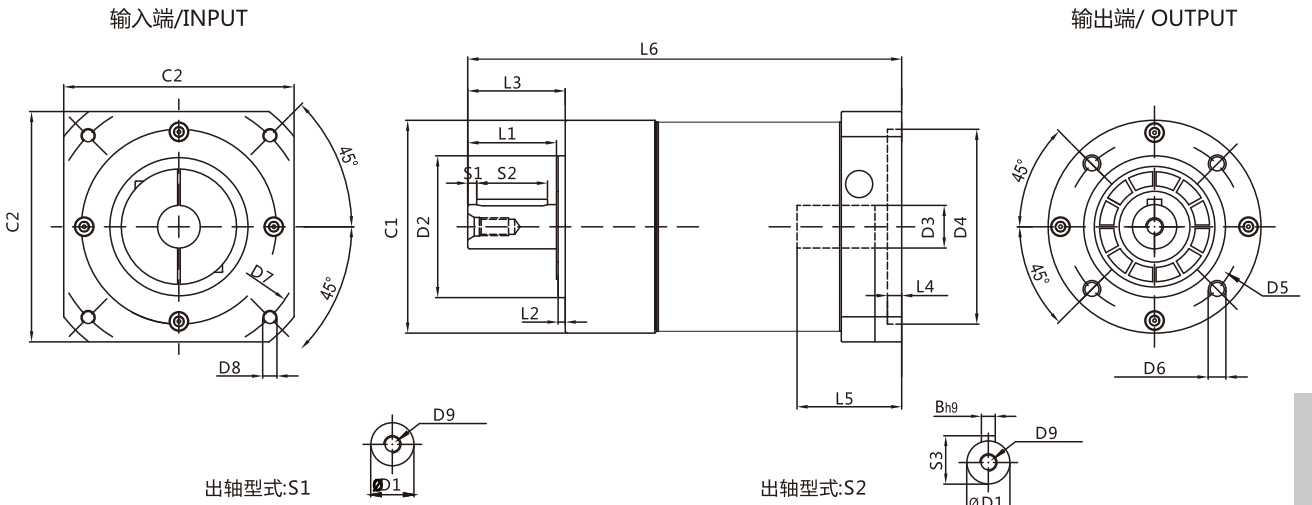
减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGC42	PGC60	PGC90	PGC120	PGC160	
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	3	15	15	70	125	420	
			4	14	32	100	230	550	
			5	13	33	100	220	550	
			7	13	33	80	180	410	
			8	10	33	80	180	390	
			10	10	15	50	125	300	
		2	節數 Stage	減速比 Ratio	PGC42(T)	PGC60(T)	PGC90(T)	PGC120(T)	PGC160(T)
			12	15	15	70	110	420	
			15	15	32	100	230	423	
			16	15	32	110	260	650	
			20	12	32	110	260	650	
			25	14	32	105	250	560	
			30	13	32	110	250	560	
			35	13	35	102	250	560	
			40	12	35	106	260	660	
			50	14	35	105	250	560	
			70	12	30	105	210	520	
			100	10	15	50	125	300	
急停力矩 T _{2NOT} Emergency Stop Torque	N • m	3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)							
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	3-100	3000	3000	3000	3000	2500	
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	3-100	5000	5000	5000	5000	4000	
精密背隙 Precision Backlash P1	arcmin	1 2	3-10 12-100	- -	- -	- -	- -	- -	
標準背隙 Standard Backlash P2	arcmin	1 2	3-10 12-100	≤8 ≤10	≤8 ≤10	≤8 ≤10	≤8 ≤10	≤8 ≤10	
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	3-100	1.1	3	9.2	15	50	
容許徑向力 F _{2rB} ² Max.Radial Load	N • m	1,2	3-100	305	680	1770	3100	6480	
容許軸向力 F _{2aB} ² Max. Axial Load	N	1,2	3-100	160	345	880	1550	3305	
使用壽命Service Life	hr	1,2	3-100	20,000 (10,000/ 連續運轉 Continuous operation)					
效率 Efficiency	%	1 2	3-10 15-100	≥ 97% ≥ 94%					
重量 Weight	kg	1 2	3-10 15-100	0.73 1.05	1.1 1.4	3 4	8 9.5	19.5 24.2	
使用溫度 Operating Temp.	°C	1,2	3-100	-15 °C ~+90 °C					
潤滑 Lubrication	-	1,2	3-100	全合成潤滑油 Synthetic Lubricant					
防護等級 Protection Class	-	1,2	3-100	IP65					
安裝方向 Mounting Position	-	1,2	3-100	任意方向Any direction					
噪音值 Noise Level ²	dBA/1m	1,2	3-100	≤58	≤60	≤65	≤67	≤70	
減速機轉動慣量 Inertia(J1)									
節數Stage	減速比Ratio	單位unit	PGC42	PGC60	PGC90	PGC120	PGC160		
1	3	Kg • cm ²	0.03	0.20	0.81	2.20	7.89		
	4		0.03	0.16	0.65	1.80	5.83		
	5		0.03	0.15	0.62	1.61	5.38		
	7		0.03	0.14	0.60	1.55	5.22		
	10		0.03	0.14	0.60	1.53	5.20		
	節數Stage		減速比Ratio	PGC42(T)	PGC60(T)	PGC90(T)	PGC120(T)	PGC160(T)	
2	15/20/25		0.02	0.15(0.02)	0.62(0.15)	1.61(0.62)	5.38(1.61)		
	30/35/40		0.02	0.14(0.02)	0.60(0.14)	1.55(0.60)	5.22(1.55)		
	50/70/100		0.02	0.14(0.02)	0.60(0.14)	1.53(0.60)	5.20(1.53)		
	* 1. 輸出轉速 100rpm 時,作用於輸出軸中心位置 Applied to the output shaft center @100rpm. * 2. 3000rpm 空載重測 Measured at 3000rpm with no load ※本公司有權對以上數據規格進行設計變更不先行告知。 The above figures/specifications are subject to change without prior notice.								

PGC Single Stage Dimensions PGC單段外型尺寸圖



PGC Single Stage Dimensions PGC雙段外型尺寸圖



Specifications 規格

Unit:mm

尺寸 Dimensions	PGC42-L1	PGC60-L1	PGC90-L1	PGC120-L1	PGC160-L1
D1	φ10	φ14 (16)	φ20 (22)	φ25 (32)	φ40
D2	φ26	φ50	φ80	φ110	φ130
D3	φ8 (≤11)	φ14 (≤19)	φ19 (≤24)	φ24 (≤32)	φ35 (≤42)
D4	φ30 (30-50)	φ50 (30-70)	φ70 (50-110)	φ110 (50-130)	φ114.3 (110-180)
D5	φ34	φ52	φ80	φ100	φ145
D6	4-φ3.4	4-φ5.5	4-φ6.5	4-φ9	4-φ11
D7	φ45 (45-70)	φ70 (70-130)	φ90 (70-145)	φ145 (70-165)	φ200 (90-230)
D8	4-M4×8L	4-M5×10L	4-M6×12L	4-M8×16L	4-M12×25L
D9	M4×0.7P	M5×1.0P	M6×1.2P	M10×1.5P	M16×2.0P
L1	18	28	36	50	80
L2	3	3	3	4	5
L3	4	10	10	15	18
L4	22.5	32	40	55	86
L5	4	4	7	10	10
L6	32	33	41	68	82
L7	88	110	155	212	293
S1	2	2	3	5	7
S2	14	25	30	40	65
S3	13.5	16 (18)	22.5 (24.5)	28 (35)	43
B	4	5	6	8	12
C1	42	60	90	120	165
C2	42	60	90	120	178

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
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★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.
★ Specification subject to change without notice.

Specifications 規格

Unit:mm

尺寸 Dimensions	PGC42-L2	PGC60-L2	PGC90-L2	PGC120-L2	PGC160-L2
D1	φ10	φ14 (16)	φ20 (22)	φ25 (32)	φ40
D2	φ26	φ50	φ80	φ110	φ130
D3	φ8 (≤11)	φ14 (≤19)	φ19 (≤24)	φ24 (≤32)	φ35 (≤42)
D4	φ30 (30-50)	φ50 (30-70)	φ70 (50-110)	φ110 (50-130)	φ114.3 (110-180)
D5	φ34	φ52	φ80	φ100	φ145
D6	4-φ3.4	4-φ5.5	4-φ6.5	4-φ9	4-φ11
D7	φ45 (45-70)	φ70 (70-130)	φ90 (70-145)	φ145 (70-165)	φ200 (90-230)
D8	4-M4×8L	4-M5×10L	4-M6×12L	4-M8×16L	4-M12×25L
D9	M4×0.7P	M5×1.0P	M6×1.2P	M10×1.5P	M16×2.0P
L1	18	28	36	50	80
L2	3	3	3	4	5
L3	4	10	10	15	18
L4	22.5	32	40	55	86
L5	4	4	7	10	10
L6	32	33	41	68	82
L7	88	110	155	212	293
S1	2	2	3	5	7
S2	14	25	30	40	65
S3	13.5	16 (18)	22.5 (24.5)	28 (35)	43
B	4	5	6	8	12
C1	42	60	90	120	165
C2	42	60	90	120	178

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
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★ Specification subject to change without notice.

PGCR系列-效果最大化
PGCR SERIES-MAXIMIZING EFFICIENCY

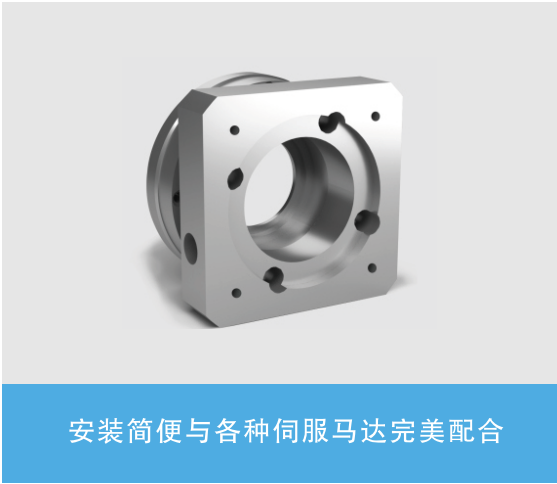
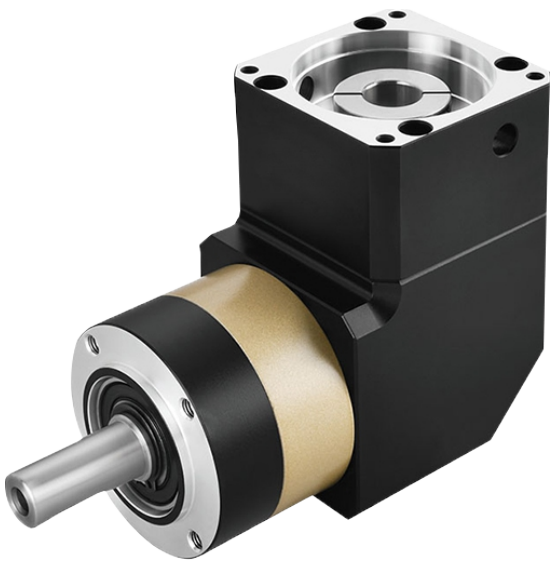
为精密而生
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我们为客户定制高精度、高刚性、
高扭矩的超精密行星减速器；
PGCR系列在技术方面为您提供
创新和先进的解决方案以达到效率最大化。

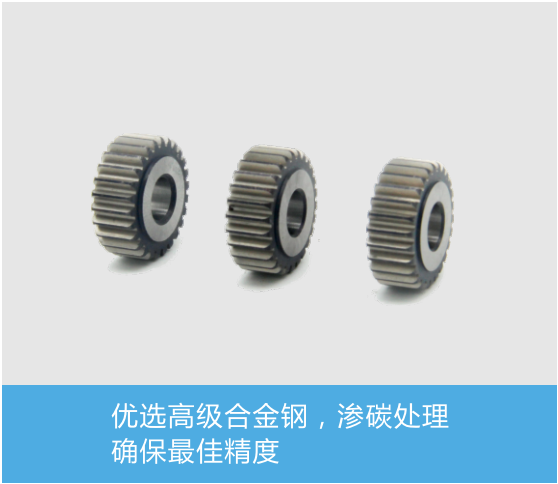
We customize precise planetary reducers with high precision,
high rigidity and high torque for customers.
The PGCRseries provides you with innovative and advanced
solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	7~12
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



安装简便与各种伺服马达完美配合



优选高级合金钢，渗碳处理
确保最佳精度

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

型号说明 / MODEL ILLUMINATE

PGCR60

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马达

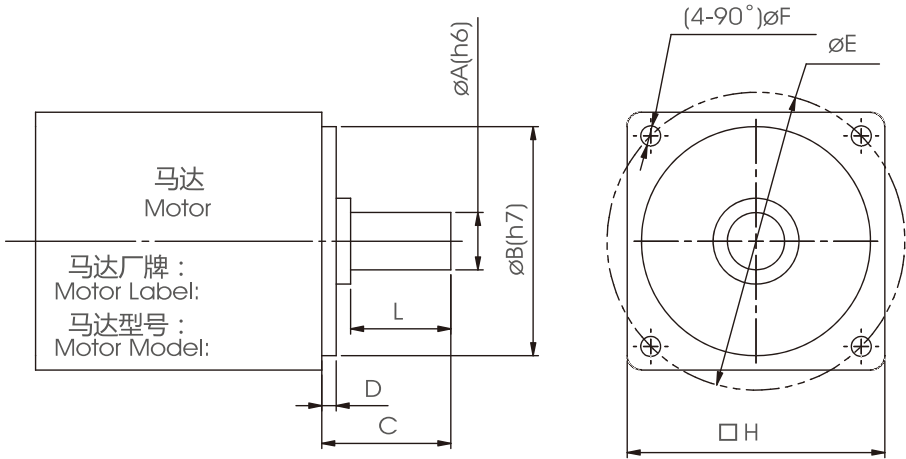
减速机型号:
PGCR60/PGCR90/PGCR120
PGCR160

减速比 :单级(L1): 3, 4, 5, 7, 8, 10
双级(L2): 12, 15, 20, 25, 30, 35,
40, 50, 70, 100

马达型号:
马达制造及型号

选用范例 : PGCR90-10-P2/马达型号MHMD-082G1U

FILL IN DATA OF MOTOR 客户填写资料



规格 SPECIFICATIONS

Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
øA(h6)	øB(h7)	C	D	øE	øF	□H	L	P0/P1/P2

PGCR Specifications Table PGCR性能规格共表

规格Specifications	单位unit	节数Stage	减速比Ratio	PGCR060	PGCR090	PGCR120	PGCR160
额定出力矩T2N Nominal Output Torque	N.m	1	3	32.6	95.2	283	482
			4	30.1	74.6	249	490
			5	32.3	95.2	283	473
			7	30.9	85.6	219	400
		2	10	25.0	75.0	210	320
			12	32.6	95.2	283	482
			15	32.6	95.2	283	482
			20	30.1	74.6	249	490
			25	32.3	95.2	283	473
			30	32.3	95.2	283	473
			35	32.3	95.2	283	473
			40	32.3	95.2	283	473
			50	32.3	95.2	283	473
			70	30.9	85.0	219	400
			100	25.0	75.0	210	320
急停力矩T2NOT Emergency Stop Torque	N.m	1、2	3 ~ 100	3倍额定出力矩 (3.0 times of Nominal Output Torque)			
额定输入转速n1 Nominal Input Speed	rpm	1、2	3 ~ 100	3000	3000	2500	2000
最大输入转速n1max Max.Input Speed	rpm	1、2	3 ~ 100	6000	6000	5000	4000
超精密背隙P0 Ultraprecise Backlash	arcmin	1	3 ~ 10	—	—	—	—
		2	12 ~ 100	—	—	—	—
精密背隙P1 Precise Backlash	arcmin	1	3 ~ 10	—	—	—	—
		2	12 ~ 100	—	—	—	—
标准背隙P2 Standard Backlash	arcmin	1	3 ~ 10	≤12	≤9	≤7	≤7
		2	12 ~ 100	≤15	≤12	≤9	≤9
扭转刚性 Torsional Rigidity	N.m /arcmin	1、2	3 ~ 100	2.6	7.5	15.5	30
容许径向力F2rB Max.Radial Load	N	1、2	3 ~ 100	889	1630	3380	6450
容许轴向力F2aB Max.Axial Load	N	1、2	3 ~ 100	850	1420	2930	5510
使用温度 Operating Temp	° C	1、2	3 ~ 100	-10° C ~ +90° C			
使用寿命 Service Life	hr	1、2	3 ~ 100	20,000 (10,000/连续运转continiu operationg)			
效率η Efficiency	%	1	3 ~ 10	≥96%			
		2	12 ~ 100	≥92%			
重量 Weight	kg	1	3 ~ 10	1.3	3.0	7.3	15.6
		2	12 ~ 100	2.0	5.0	11.5	20.7
安装方向 mounting Position	—	1、2	3 ~ 100	任意方向 Any direction			
噪音值 Noise Level	dBA/1m	1、2	3 ~ 100	60	65	65	70
防护等级 Protection Class	—	1、2	3 ~ 100	Ip65			
润滑 Lubrication		1、2	3 ~ 100	全合成润滑脂油 Synthetic Lubricant			

减速机转动惯量

规格Specifications	单位unit	节数Stage	减速比Ratio	PGCR060	PGCR090	PGCR120	PGCR160
转动惯量J1 Inertia	kg.cm ²	1	3	0.25	0.81	2.2	7.89
			4	0.18	0.65	1.8	5.83
			5	0.16	0.62	1.61	5.83
			7	0.14	0.60	1.55	5.22
		2	10	0.14	0.60	1.53	5.20
			12	0.16	0.62	1.61	5.83
			15	0.16	0.62	1.61	5.83
			20	0.16	0.62	1.61	5.83
			25	0.16	0.62	1.61	5.83
			30	0.14	0.60	1.55	5.22
			35	0.14	0.60	1.55	5.22
			40	0.14	0.60	1.55	5.22
			50	0.14	0.60	1.55	5.22
			70	0.14	0.60	1.53	5.20
			100	0.14	0.60	1.53	5.20

PGE系列-效率最大化
PGE SERIES-MAXIMIZING EFFICIENCY

为精密而生
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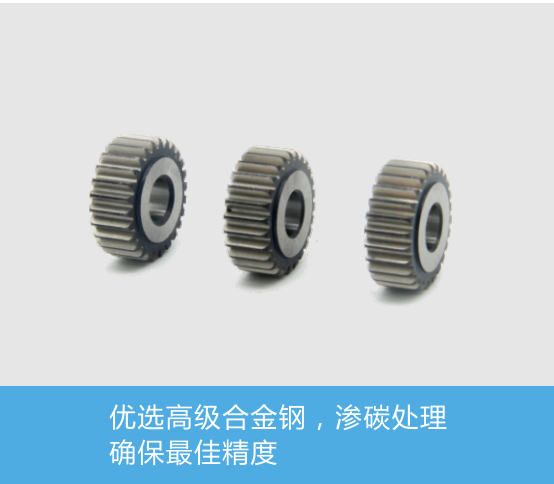
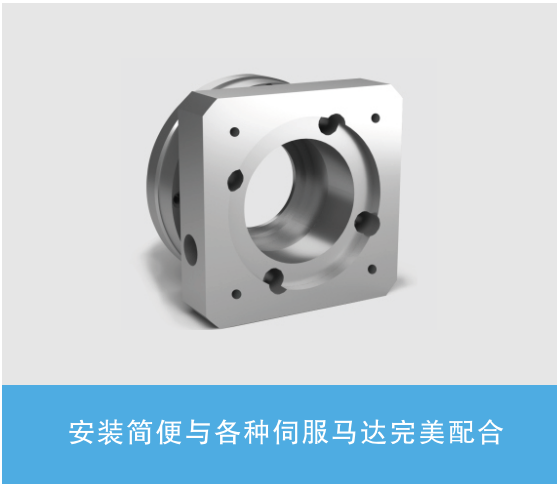


我们为客户定制高精度、高刚性、高扭矩的超精密行星减速器；PGE系列在技术方面为您提供创新和先进的解决方案以达到效率最大化。

We customize precise planetary reducers with high precision, high rigidity and high torque for customers. The PGE series provides you with innovative and advanced solutions in technology to maximize efficiency.

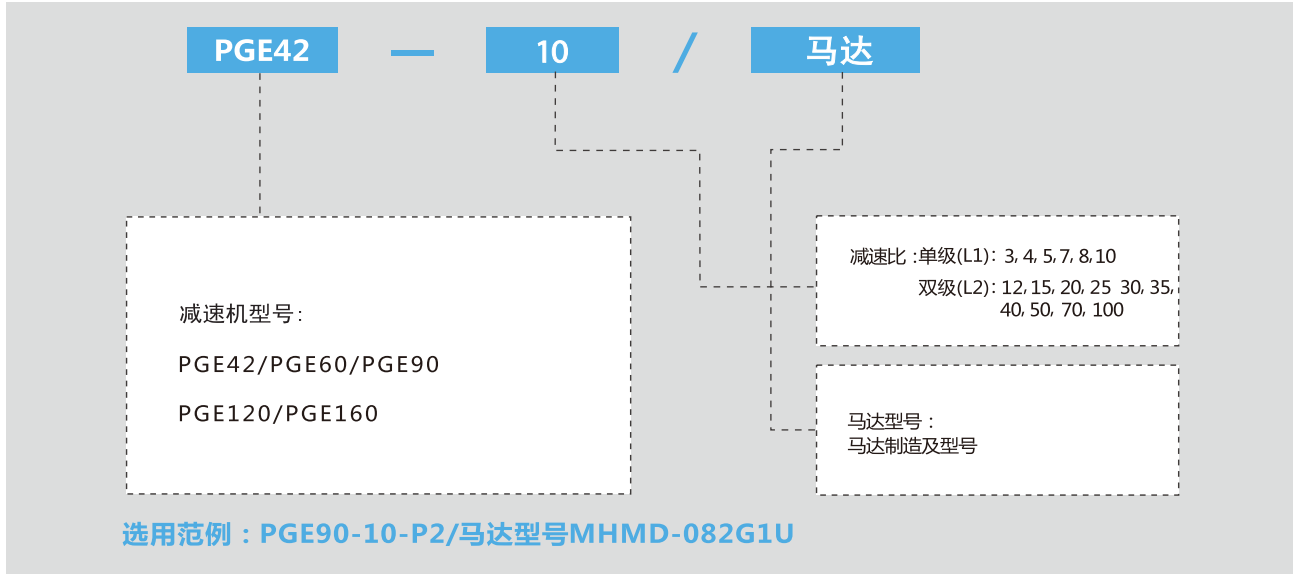
技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	7~12
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000

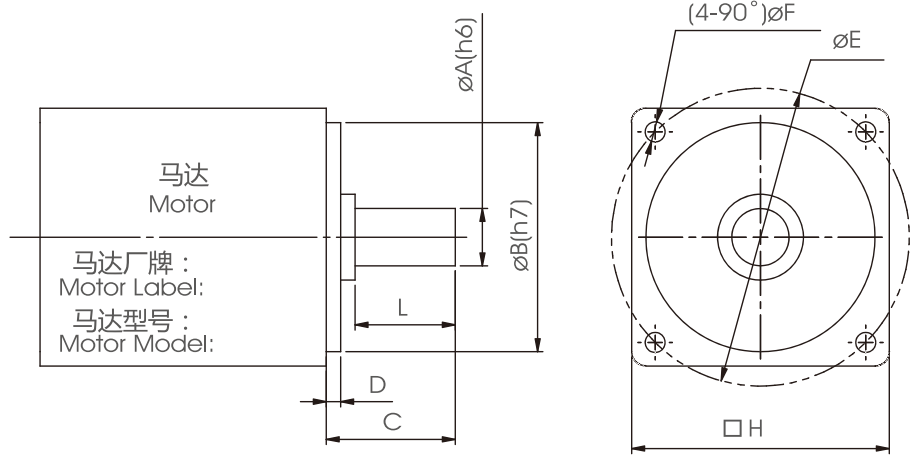


PGH
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PGFR

型号说明 / MODEL ILLUMINATE



FILL IN DATA OF MOTOR 客户填写资料



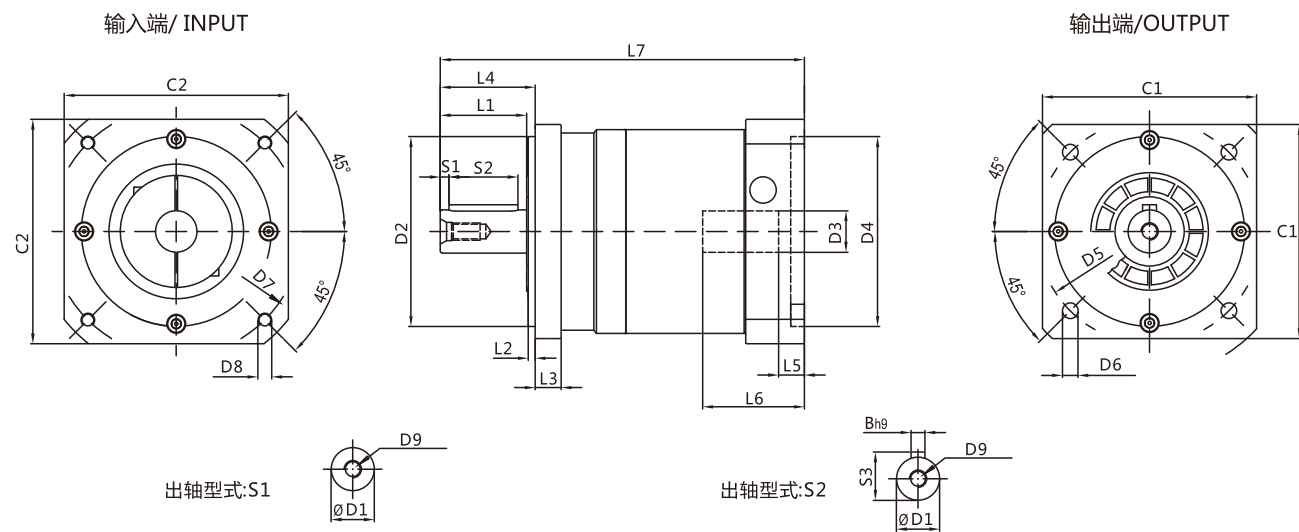
规格 SPECIFICATIONS

Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
$\phi A(h6)$	$\phi B(h7)$	C	D	ϕE	ϕF	$\square H$	L	P0/P1/P2

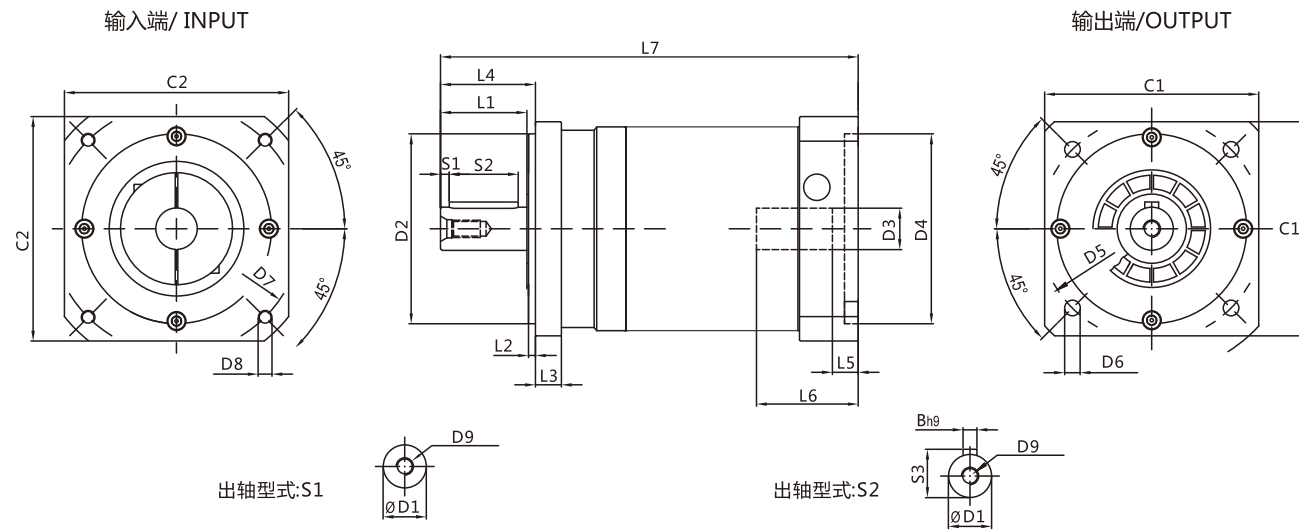
减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGE42	PGE60	PGE90	PGE120	PGE160
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	3	15	15	70	125	420
			4	14	32	100	230	550
			5	13	33	100	220	550
			7	13	33	80	180	410
			8	10	33	80	180	390
			10	10	15	50	125	300
		節數 Stage	減速比 Ratio	PGE42(T)	PGE60(T)	PGE90(T)	PGE120(T)	PGE160(T)
		2	12	15	15	70	110	420
			15	15	32	100	230	423
			16	15	32	110	260	650
			20	12	32	110	260	650
			25	14	32	105	250	560
			30	13	32	110	250	560
			35	13	35	102	250	560
			40	12	35	106	260	660
			50	14	35	105	250	560
			70	12	30	105	210	520
			100	10	15	50	125	300
急停力矩 T _{2NOT} Emergency Stop Torque	N • m		3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)					
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	3-100	3000	3000	3000	3000	2500
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	3-100	5000	5000	5000	5000	4000
精密背隙 Precision Backlash P1	arcmin	1 2	3-10 12-100	- -	- -	- -	- -	- -
標準背隙 Standard Backlash P2	arcmin	1 2	3-10 12-100	≤8 ≤10	≤8 ≤10	≤8 ≤10	≤8 ≤10	≤8 ≤10
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	3-100	1.1	3	9.2	15	50
容許徑向力 F _{2rB} ² Max.Radial Load	N • m	1,2	3-100	305	680	1770	3100	6480
容許軸向力 F _{2aB} ² Max. Axial Load	N	1,2	3-100	160	345	880	1550	3305
使用壽命Service Life	hr	1,2	3-100	20,000 (10,000/ 連續運轉 Continuous operation)				
效率 Efficiency	%	1 2	3-10 15-100	≥ 97% ≥ 94%				
重量 Weight	kg	1 2	3-10 15-100	0.7 1	1.2 1.4	3 3.6	8.5 9.5	21.5 26
使用溫度 Operating Temp.	°C	1,2	3-100	-15 °C ~+90 °C				
潤滑 Lubrication	-	1,2	3-100	全合成潤滑油 Synthetic Lubricant				
防護等級 Protection Class	-	1,2	3-100	IP65				
安裝方向 Mounting Position	-	1,2	3-100	任意方向Any direction				
噪音值 Noise Level ²	dBA/1m	1,2	3-100	≤58	≤60	≤65	≤67	≤70
減速機轉動慣量 Inertia(J1)								
節數Stage	減速比Ratio	單位unit		PGE42	PGE60	PGE90	PGE120	PGE160
1	3	Kg • cm ²		0.03	0.20	0.81	2.20	7.89
	4			0.03	0.16	0.65	1.80	5.83
	5			0.03	0.15	0.62	1.61	5.38
	7			0.03	0.14	0.60	1.55	5.22
	10			0.03	0.14	0.60	1.53	5.20
節數Stage	減速比Ratio			PGE42(T)	PGE60(T)	PGE90(T)	PGE120(T)	PGE160(T)
2	15/20/25			0.02	0.15(0.02)	0.62(0.15)	1.61(0.62)	5.38(1.61)
	30/35/40			0.02	0.14(0.02)	0.60(0.14)	1.55(0.60)	5.22(1.55)
	50/70/100			0.02	0.14(0.02)	0.60(0.14)	1.53(0.60)	5.20(1.53)
* 1. 輸出轉速 100rpm 時,作用於輸出軸中心位置 Applied to the output shaft center @100rpm. * 2. 3000rpm 空載重測 Measured at 3000rpm with no load ※本公司有權對以上數據規格運行設計變更不先行告知。 The above figures/specifications are subject to change without prior notice.								

PGE Single Stage Dimensions PGE單段外型尺寸圖



PGE Single Stage Dimensions PGE雙段外型尺寸圖



Specifications 規格

Unit:mm

尺寸 Dimensions	PGE42-L1	PGE60-L1	PGE90-L1	PGE120-L1	PGE160-L1
D1	φ10	φ14 (16)	φ20 (22)	φ25 (32)	φ40
D2	φ26	φ50	φ80	φ110	φ130
D3	φ8 (≤11)	φ14 (≤19)	φ19 (≤24)	φ24 (≤32)	φ35 (≤42)
D4	φ30 (30-50)	φ50 (30-70)	φ70 (50-110)	φ110 (50-130)	φ114.3 (110-180)
D5	φ48	φ70	φ100	φ130	φ185 (165)
D6	4-φ3.4	4-φ5.5	4-φ6.5	4-φ9	4-φ11
D7	φ45 (45-70)	φ70 (70-130)	φ90 (70-145)	φ145 (70-165)	φ200 (90-230)
D8	4-M4×8L	4-M5×10L	4-M6×12L	4-M8×16L	4-M12×25L
D9	M4×0.7P	M5×1.0P	M6×1.2P	M10×1.5P	M16×2.0P
L1	18	28	36	50	80
L2	3	3	3	4	5
L3	4	10	10	15	18
L4	22.5	32	40	55	86
L5	4	4	7	10	10
L6	32	33	41	68	82
L7	88	110	155	212	293
S1	2	2	3	5	7
S2	14	25	30	40	65
S3	13.5	16 (18)	22.5 (24.5)	28 (35)	43
B	4	5	6	8	12
C1	42	60	90	120	165
C2	42	60	90	120	178

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),

★ Specification subject to change without notice.

Specifications 規格

Unit:mm

尺寸 Dimensions	PGE42-L2	PGE60-L2	PGE90-L2	PGE120-L2	PGE160-L2
D1	φ10	φ14 (16)	φ20 (22)	φ25 (32)	φ40
D2	φ26	φ50	φ80	φ110	φ130
D3	φ8 (≤11)	φ14 (≤19)	φ19 (≤24)	φ24 (≤32)	φ35 (≤42)
D4	φ30 (30-50)	φ50 (30-70)	φ70 (50-110)	φ110 (50-130)	φ114.3 (110-180)
D5	φ48	φ70	φ100	φ130	φ185 (165)
D6	4-φ3.4	4-φ5.5	4-φ6.5	4-φ9	4-φ11
D7	φ45 (45-70)	φ70 (70-130)	φ90 (70-145)	φ145 (70-165)	φ200 (90-230)
D8	4-M4×8L	4-M5×10L	4-M6×12L	4-M8×16L	4-M12×25L
D9	M4×0.7P	M5×1.0P	M6×1.2P	M10×1.5P	M16×2.0P
L1	18	28	36	50	80
L2	3	3	3	4	5
L3	4	10	10	15	18
L4	22.5	32	40	55	86
L5	4	4	7	10	10
L6	32	33	41	68	82
L7	88	110	155	212	293
S1	2	2	3	5	7
S2	14	25	30	40	65
S3	13.5	16 (18)	22.5 (24.5)	28 (35)	43
B	4	5	6	8	12
C1	42	60	90	120	165
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PGER系列-效果最大化
PGER SERIES-MAXIMIZING EFFICIENCY

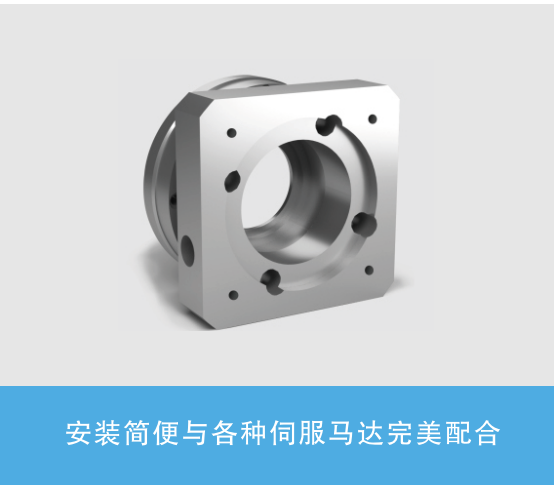
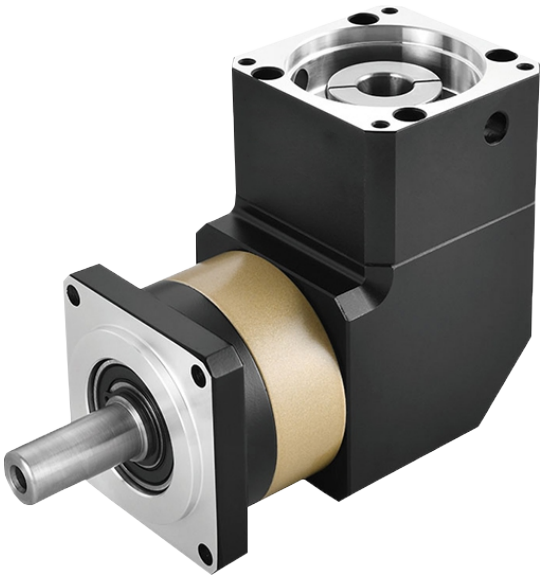
为精密而生
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We customize precise planetary reducers with high precision,
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The PGER series provides you with innovative and advanced
solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	7~12
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

型号说明 / MODEL ILLUMINATE

PGER60

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马达

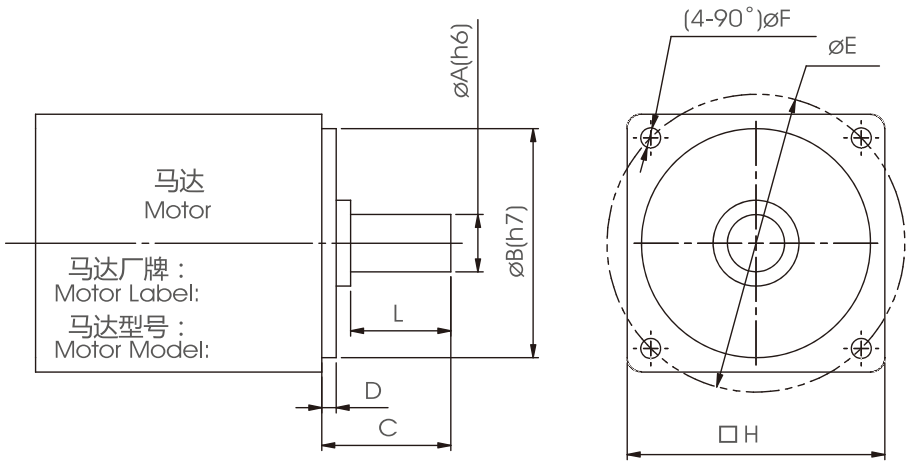
减速机型号：
PGER60/PGER90/PGER120
PGER160

减速比：单级(L1)： 3, 4, 5, 7, 8, 10
双级(L2)： 12, 15, 20, 25, 30, 35,
40, 50, 70, 100

马达型号：
马达制造及型号

选用范例：PGER90-10-P2/马达型号MHMD-082G1U

FILL IN DATA OF MOTOR 客户填写资料



规格 SPECIFICATIONS

Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
øA(h6)	øB(h7)	C	D	øE	øF	□H	L	P0/P1/P2

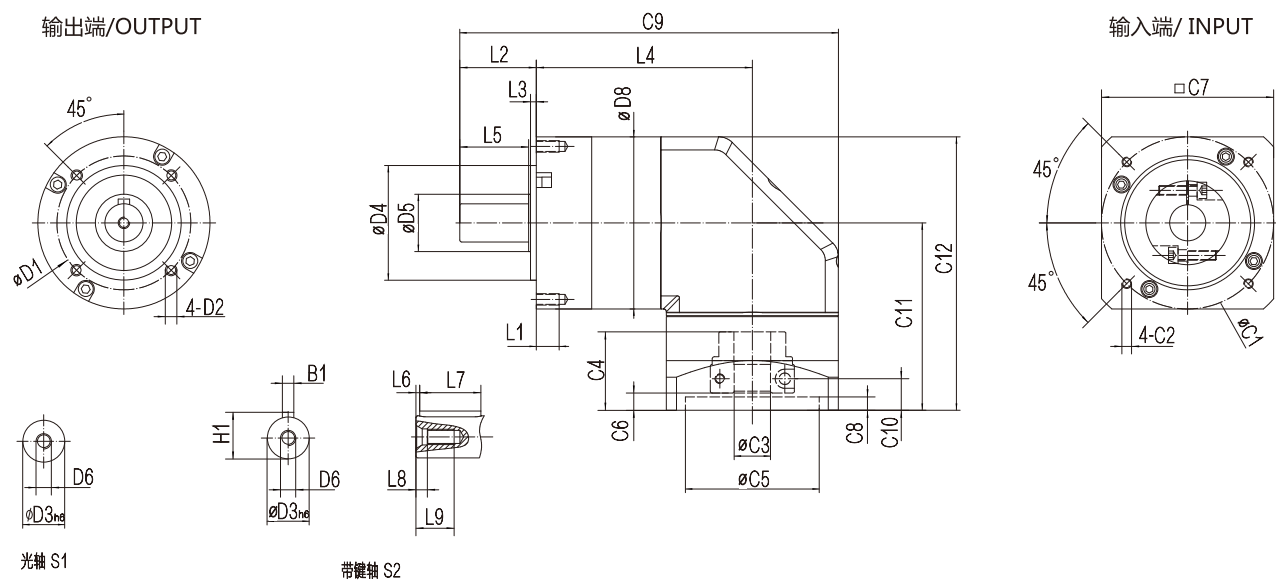
PGER Specifications Table PGER性能规格共表

规格Specifications	单位unit	节数Stage	减速比Ratio	PGER060	PGER090	PGER120	PGER160
额定输出力矩T2N Nominal Output Torque	N.m	1	3	32.6	95.2	283	482
			4	30.1	74.6	249	490
			5	32.3	95.2	283	473
			7	30.9	85.6	219	400
		2	10	25.0	75.0	210	320
			12	32.6	95.2	283	482
			15	32.6	95.2	283	482
			20	30.1	74.6	249	490
			25	32.3	95.2	283	473
			30	32.3	95.2	283	473
			35	32.3	95.2	283	473
			40	32.3	95.2	283	473
			50	32.3	95.2	283	473
			70	30.9	85.0	219	400
			100	25.0	75.0	210	320
急停力矩T2NOT Emergency Stop Torque	N.m	1、2	3 ~ 100	3倍额定输出力矩 (3.0 times of Nominal Output Torque)			
额定输入转速n1 Nominal Input Speed	rpm	1、2	3 ~ 100	3000	3000	2500	2000
最大输入转速n1max Max.Input Speed	rpm	1、2	3 ~ 100	6000	6000	5000	4000
超精密背隙P0 Ultraprecise Backlash	arcmin	1	3 ~ 10	-	-	-	-
		2	12 ~ 100	-	-	-	-
精密背隙P1 Precise Backlash	arcmin	1	3 ~ 10	-	-	-	-
		2	12 ~ 100	-	-	-	-
标准背隙P2 Standard Backlash	arcmin	1	3 ~ 10	≤12	≤9	≤7	≤7
		2	12 ~ 100	≤15	≤12	≤9	≤9
扭转刚性 Torsional Rigidity	N.m /arcmin	1、2	3 ~ 100	2.6	7.5	15.5	30
容许径向力F2rB Max.Radial Load	N	1、2	3 ~ 100	889	1630	3380	6450
容许轴向力F2aB Max.Axial Load	N	1、2	3 ~ 100	850	1420	2930	5510
使用温度 Operating Temp	° C	1、2	3 ~ 100	-10° C ~ +90° C			
使用寿命 Service Life	hr	1、2	3 ~ 100	20,000 (10,000/连续运转continuiu operationsg)			
效率η Efficiency	%	1	3 ~ 10	≥96%			
		2	12 ~ 100	≥92%			
重量 Weight	kg	1	3 ~ 10	1.3	3.0	7.3	15.6
		2	12 ~ 100	2.0	5.0	11.5	20.7
安装方向 mounting Position	-	1、2	3 ~ 100	任意方向 Any direction			
噪音值 Noise Level	dBA/1m	1、2	3 ~ 100	60	65	65	70
防护等级 Protection Class	-	1、2	3 ~ 100	Ip65			
润滑 Lubrication		1、2	3 ~ 100	全合成润滑脂油 Synthetic Lubricant			

减速机转动惯量

规格Specifications	单位unit	节数Stage	减速比Ratio	PGER060	PGER090	PGER120	PGER160
转动惯量J1 Inertia	kg.cm ²	1	3	0.25	0.81	2.2	7.89
			4	0.18	0.65	1.8	5.83
			5	0.16	0.62	1.61	5.83
			7	0.14	0.60	1.55	5.22
		2	10	0.14	0.60	1.53	5.20
			12	0.16	0.62	1.61	5.83
			15	0.16	0.62	1.61	5.83
			20	0.16	0.62	1.61	5.83
			25	0.16	0.62	1.61	5.83
			30	0.14	0.60	1.55	5.22
			35	0.14	0.60	1.55	5.22
			40	0.14	0.60	1.55	5.22
			50	0.14	0.60	1.55	5.22
			70	0.14	0.60	1.53	5.20
			100	0.14	0.60	1.53	5.20

PGER ingle Stage Dimensions PGER 單段外型尺寸圖

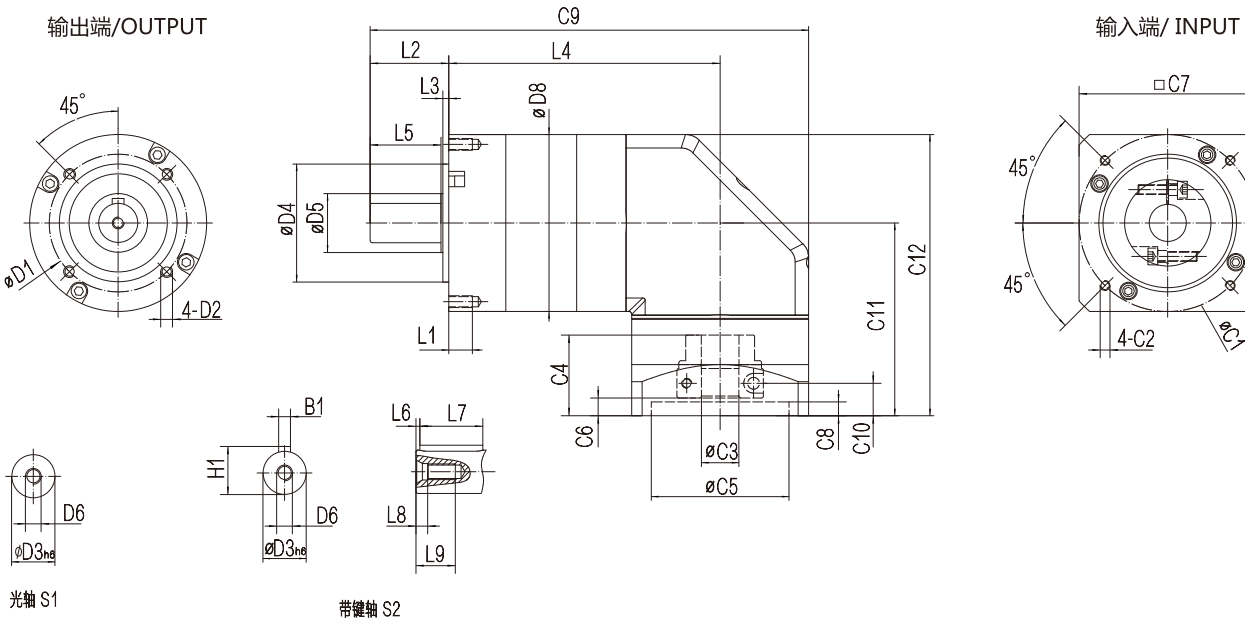


Specifications 規格

Unit:mm

尺寸 Dimensions	PGER60		PGER90		PGER120	
D1	52		70		145	
D2	M5×0.8P		M6×1P		M10×1.5P	
D3 _{h6}	14	16	20	22	25	32
D4 _{h7}	40		60		80	
D5	27		30		40	
D6	M5×0.8P		M6×1P		M10×1.5P	
D7	80		120		162	
D8	60		90		120	
L1	10		12		20	
L2	32		40		55	
L3	3		3		4	
L4*	73		113		151	
L5	28		36		50	
L6	2		3		5	
L7	25		30		40	
L8	1		1		3	
L9	10		12		23	
C1*	70		90		145	
C2*	M4×0.7P		M5×0.8P		M8×1.25P	
C3*	6≤C3≤14		12.7≤C3≤24		19≤C3≤28	
C4*	33		41		60	
C5*	50		70		110	
C6*	8		9		21	
C7*	60		90		130	
C8*	4		7		30	
C9*	135		198		266	
C10*	13.5		16.5		28	
C11*	67		98		132	
C12*	97		143		192	
B1	5	5	6	6	8	10
H1	16	18	22.5	24.5	28	35

PGER Single Stage Dimensions PGER 雙段外型尺寸圖



Specifications 規格

Unit:mm

尺寸 Dimensions	PGER60		PGER90		PGER120	
D1	52		70		145	
D2	M5×0.8P		M6×1P		M10×1.5P	
D3 _{h6}	14	16	20	22	25	32
D4 _{h7}	40		60		80	
D5	27		30		40	
D6	M5×0.8P		M6×1P		M10×1.5P	
D7	80		120		162	
D8	60		90		120	
L1	10		12		20	
L2	32		40		55	
L3	3		3		4	
L4*	89.5		138		183	
L5	28		36		50	
L6	2		3		5	
L7	25		30		40	
L8	1		1		3	
L9	10		12		23	
C1*	70		90		145	
C2*	M4×0.7P		M5×0.8P		M8×1.25P	
C3*	6≤C3≤14		12.7≤C3≤24		19≤C3≤28	
C4*	33		41		60	
C5*	50		70		110	
C6*	8		9		21	
C7*	60		90		130	
C8*	4		7		30	
C9*	151.5		223		298	
C10*	13.5		16.5		28	
C11*	67		98		132	
C12*	97		143		192	
B1	5	5	6	6	8	10
H1	16	18	22.5	24.5	28	35

PGRH系列-效率最大化
PGRH SERIES-MAXIMIZING EFFICIENCY

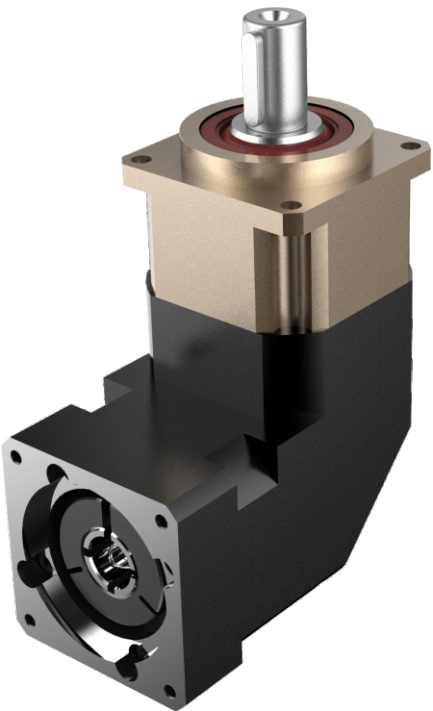
为精密而生
BORN FOR PRECISION

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We customize precise planetary reducers with high precision, high rigidity and high torque for customers. The PGRH series provides you with innovative and advanced solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	3~10
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



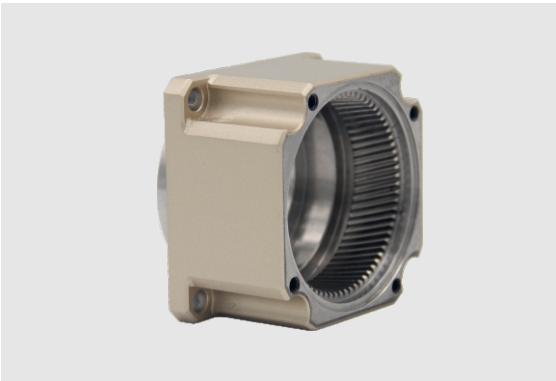
臂架与输出轴一体化设计
确保最大扭转刚性



高精度，高强度的齿轮传动装置



高精度一体化角块系统



输出法兰与内齿一体化设计
更精密 耐用

PGRH

PGL

PGRH

PGR

PGRH

PGR

PGRH

PGRH

PGR

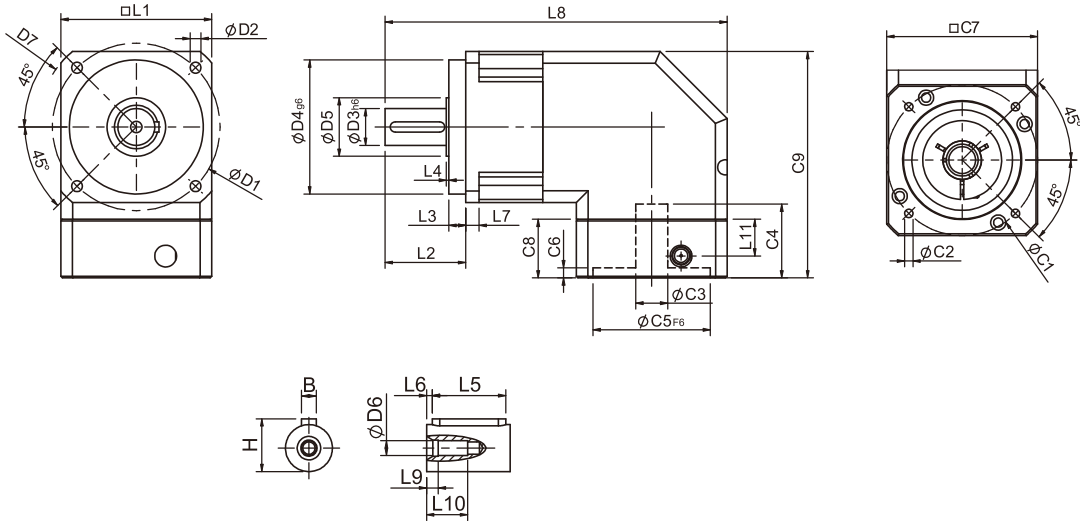
PGRH

减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGRH-42	PGRH-60	PGRH-90	PGRH-115	PGRH-142	PGRH-180	PGRH-220
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	3	19	53	145	220	380	750	950
			4	20	55	150	270	500	1000	1500
			5	17	54	140	290	600	1050	1800
			6	15	46	135	230	500	1000	1620
			7	14	44	125	270	530	960	1750
			8	12	41	110	240	470	900	1550
			9	11	37	95	220	430	800	1500
			10	17	50	130	260	530	900	1500
			14	14	44	125	270	530	960	1750
			20	11	37	95	220	430	800	1450
		節數 Stage	減速比 Ratio	PGRH-42	PGRH-60 (T)	PGRH-90(T)	PGRH-115T	PGRH-142T	PGRH-180T	PGRH-220T
		2	15	19	53	145	290	520	950	2000
			20	20	55	150	300	500	1000	2000
			25	17	54	140	290	600	1050	2000
			30	17	54	140	290	600	1050	2000
			35	17	54	140	290	600	1050	2000
			40	17	54	140	290	600	1050	2000
			45	17	54	140	290	600	1050	2000
			50	17	54	140	290	600	1050	2000
			60	15	46	135	280	560	1000	2000
			70	14	44	125	270	530	960	1750
			80	12	41	110	240	480	900	1700
			90	11	37	95	220	430	800	1500
			100	11	37	95	220	430	800	1450
			120	15	46	135	280	560	1000	1850
			140	14	44	125	270	530	960	1750
			160	12	41	110	240	480	900	1550
			180	11	37	95	220	430	800	1500
			200	11	37	95	220	430	800	1450
急停力矩 T _{2NOT} Emergency Stop Torque	N • m	3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)								
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	3-200	5000	5000	4000	4000	3000	3000	2000
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	3-200	10000	10000	8000	8000	6000	6000	4000
超精密背隙 Micro Backlash P0	arcmin	1	3-20	-	-	≤ 3	≤ 2	≤ 2	≤ 2	≤ 2
		2	15-200	-	-	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4
精密背隙 Precision Backlash P1	arcmin	1	3-20	≤ 5	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4
		2	15-200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
標準背隙 Standard Backlash P2	arcmin	1	3-20	≤ 7	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6	≤ 6
		2	15-200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	3-200	2.5	6	12	23	50	145	220
容許徑向力 F _{2rB} ¹ Max. Radial Load	N	1,2	3-200	760	1570	2780	5340	9000	14000	31810
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1,2	3-200	410	750	1870	3310	4670	6460	18530
使用溫度 Operating Temp.	°C		3-200	-10 °C ~ +90 °C						
使用壽命Service Life	hr		3-200	20,000 (10,000/ 連續運轉 Continuous operation)						
效率 Efficiency	%	1	3-20	≥ 95%						
		2	15-200	≥ 92%						
重量 Weight	kg	1	3-20	1.0	2.6	6.8	13.5	25.1	42	75
		2	15-200	1.4	3.3/2.9	8.9/7.2	14.8	26.7	46	88
安裝方向 Mounting Position	-	1,2	3-200	任意方向Any direction						
噪音值 Noise Level ²	dBA/1m	1,2	3-200	62	64	66	68	70	72	74
防護等級 Protection Class	-	1,2	3-200	IP65						
潤滑 Lubrication	-	1,2	3-200	全合成潤滑油脂 Synthetic Lubricant						
減速機轉動慣量 Inertia(J1)										
節數Stage	減速比Ratio	單位unit		PGRH-42	PGRH-60	PGRH-90	PGRH-115	PGRH-142	PGRH-180	PGRH-220
1	3/4/5/7/9	Kg • cm ²		0.06	0.40	2.28	6.87	24.2	69.8	138.2
	6/8/10/14/20			0.05	0.30	1.45	4.76	14.5	50.3	103.6
節數Stage	減速比Ratio			PGRH-42	PGRH-60(T)	PGRH-90(T)	PGRH-115T	PGRH-142T	PGRH-180T	PGRH-220T
2	15/20/25/35/45			0.06	0.40(0.08)	2.28(0.72)	3.02	7.83	27.7	80.3
	others			0.05	0.30(0.06)	1.45(0.38)	1.64	5.00	15.9	55.3
* 1. 輸出轉速 100rpm 時 · 作用於輸出軸中心位置 · Applied to the output shaft center @100rpm. * 2. 3000rpm 空載量測 · Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. ※本公司有權對以上數據規格逕行設計變更不先行告知 · The above figures/specifications are subject to change without prior notice.										

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.
產品因人為原因或天災等因素導致不良或損壞 · 不在保固範圍內 ·

PGRH Single Stage Dimensions PGRH單段外型尺寸圖

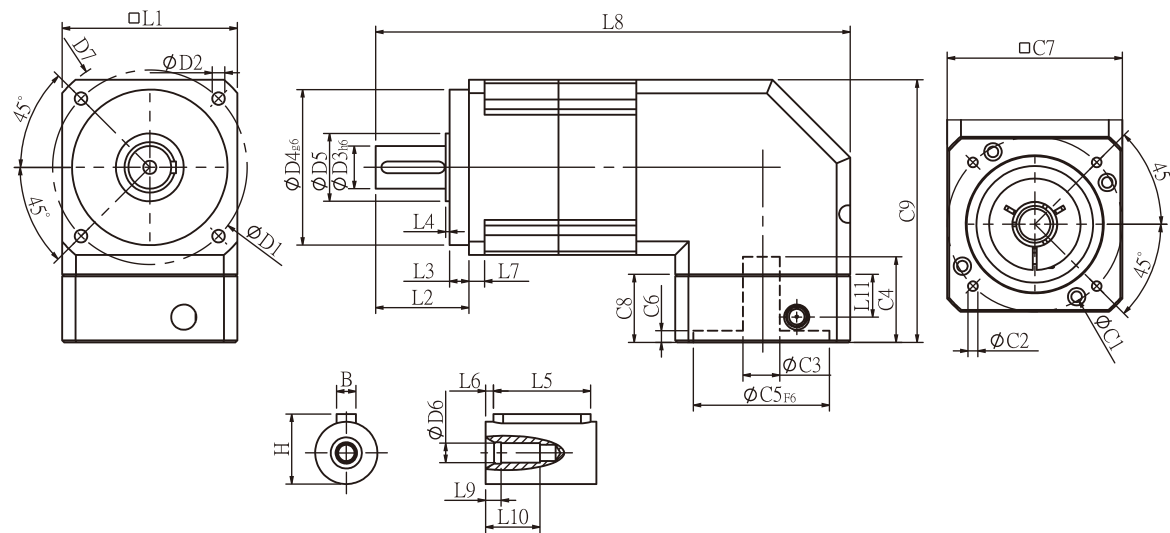


Specifications 規格 Unit:mm

尺寸 Dimensions	PGRH42	PGRH60	PGRH90	PGRH115	PGRH142	PGRH180	PGRH220
D1	50	70	100	130	165	215	250
D2	3.4	5.5	6.5	8.5	10.5	13	17
D3 _{h6}	13	16	22	32	40	55	75
D4 _{g6}	35	50	80	110	130	160	180
D5	15	25	35	45	50	70	114.4
D6	M4x0.7P	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20x2.5P
D7	56	80	118	148	186	239	292
L1	42.6	60	90	115	142	180	220
L2	26	37	48	63	91.5	100.5	138
L3	5.5	7	10	10	10	16	30
L4	1	1.5	1.5	3.5	2.5	2.5	3
L5	15	25	32	40	60	70	90
L6	2	2	3	5	5	6	7
L7	4	6	8	11	16	18	20
L8	103.6	148.2	204	246.5	325	392.7	490.2
L9	4	4	4.5	6	6	8	15
L10	14	16.5	20.5	30	38	48	42
L11	13.5	21.5	22	32	44.7	20	60
C1 ²	46	70	90	115	145	200	215
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50	≤55
C4 ²	29	34	44	53	76.8	78.8	98.7
C5 ² _{F6}	30	50	70	95	110	114.3	180
C6 ²	6	5	5	6	9	6	6
C7 ²	42.6	60	90	115	140	182	220
C8 ²	25	33	35	48	65	40	85
C9 ²	70.8	107.8	135	174.5	207	248.5	287.5
B	5	5	6	10	12	16	20
H	15	18	24.5	35	43	59	79.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.
★ 本公司有權針對以上數據規格逕行設計變更不先行告知。
★ Specification subject to change without notice.

○ PGRH Double Stage Dimensions-1 PGRH雙段外型尺寸圖-1



○ Specifications 規格

Unit:mm

尺寸 Dimensions	PGRH42	PGRH60	PGRH90
D1	50	70	100
D2	3.4	5.5	6.5
D3 _{h6}	13	16	22
D4 _{g6}	35	50	80
D5	15	25	35
D6	M4x0.7P	M5x0.8P	M8x1.25P
D7	56	80	118
L1	42.6	60	90
L2	26	37	48
L3	5.5	7	10
L4	1	1.5	1.5
L5	15	25	32
L6	2	2	3
L7	4	6	8
L8	130.6	181.2	248
L9	4	4	4.5
L10	14	16.5	20.5
L11	13.5	21.5	22
C1 ²	46	70	90
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24
C4 ²	29	34	44
C5 ² _{F6}	30	50	70
C6 ²	6	5	5
C7 ²	42.6	60	90
C8 ²	25	33	35
C9 ²	70.8	107.8	135
B	5	5	6
H	15	18	24.5

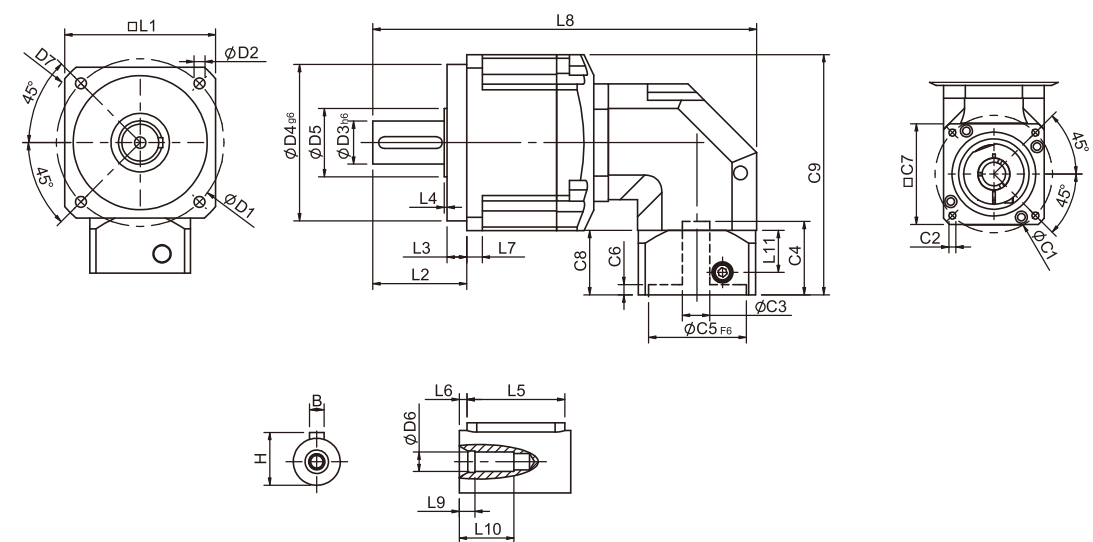
★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

○ PGRH Double Stage Dimensions-2 PGRH雙段外型尺寸圖-2



○ Specifications 規格

Unit:mm

尺寸 Dimensions	PGRH60T	PGRH90T	PGRH115T	PGRH142T	PGRH180T	PGRH220T
D1	70	100	130	165	215	250
D2	5.5	6.5	8.5	10.5	13	17
D3 _{h6}	16	22	32	40	55	75
D4 _{g6}	50	80	110	130	160	180
D5	25	35	45	50	70	114.4
D6	M5x0.8P	M8x1.25P	M12x1.75P	M16x2.0P	M20x2.5P	M20X2.5P
D7	80	118	148	186	239	292
L1	60	90	115	142	182	220
L2	37	48	63	91.5	100.5	138
L3	7	10	10	10	16	30
L4	1.5	1.5	3.5	2.5	2.5	3
L5	25	32	40	60	70	90
L6	2	3	5	5	6	7
L7	6	8	11	16	18	20
L8	151.8	200.7	272.5	345.5	424.5	537.2
L9	4	4.5	6	6	8	15
L10	16.5	20.5	30	38	48	42
L11	13.5	21.5	22	32	44.7	44
C1 ²	46	70	90	115	145	200
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50
C4 ²	29	34	45.2	53.5	76.8	78.8
C5 ² _{F6}	30	50	70	95	110	114.3
C6 ²	6	5	5	6	9	6
C7 ²	42.6	60	90	115	140	180
C8 ²	25	33	35	48	65	65
C9 ²	79.5	122.8	147.5	188	207	267.5
B	5	6	10	12	16	20
H	18	24.5	35	43	59	79.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange chosen.

★ Specification subject to change without notice.

PGF系列-效率最大化
PGF SERIES-MAXIMIZING EFFICIENCY

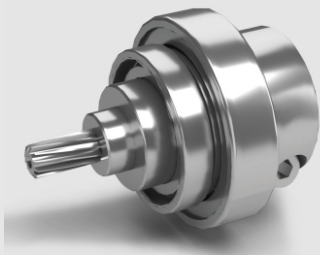
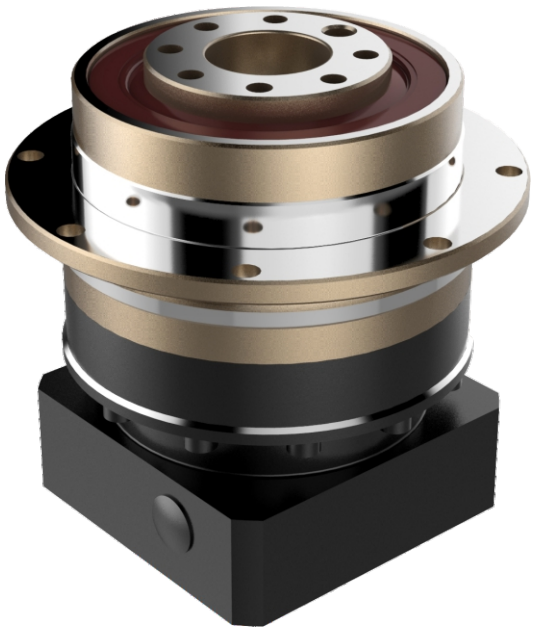
为精密而生
BORN FOR PRECISION

我们为客户定制高精度、高刚性、
高扭矩的超精密行星减速器；
PGF系列在技术方面为您提供
创新和先进的解决方案以达到效率最大化。

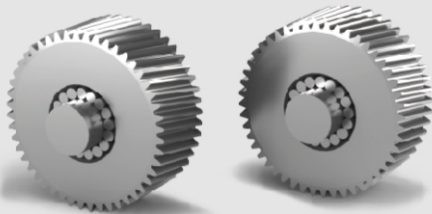
We customize precise planetary reducers with high precision,
high rigidity and high torque for customers.
The PGF series provides you with innovative and advanced
solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	1~7
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



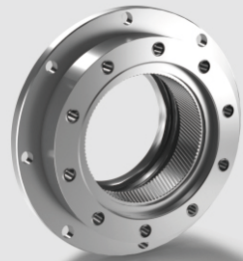
锁紧环经动平衡分析确保
同心度和零滑差传递



优选高级合金钢,渗碳处理
确保最佳精度



出力轴为法兰盘输出设计大幅缩
小安装空间提高输出联接精度



内齿与外壳一体结构
精密,耐磨

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

型号说明 / MODEL ILLUMINATE

PGF42

—

10

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P2

/

马达

减速机型式：
PGF42/PGF60/PGF90
PGF115/PGF142/PGF180/PGF220

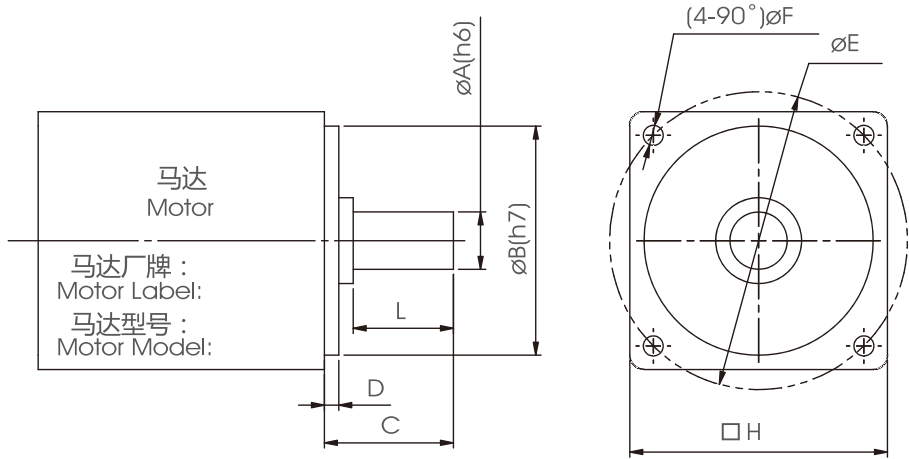
背隙：P0：超精密背隙
P1：精密背隙
P2：标准背隙

减速比：单级(L1)：4, 5, 7, 8, 10
双级(L2)：20, 25, 35, 40, 50, 70, 100

马达型号：
马达制造及型号

选用范例：PGF90-10-P2/马达型号MHMD-082G1U

FILL IN DATA OF MOTOR 客户填写资料



规格 SPECIFICATIONS

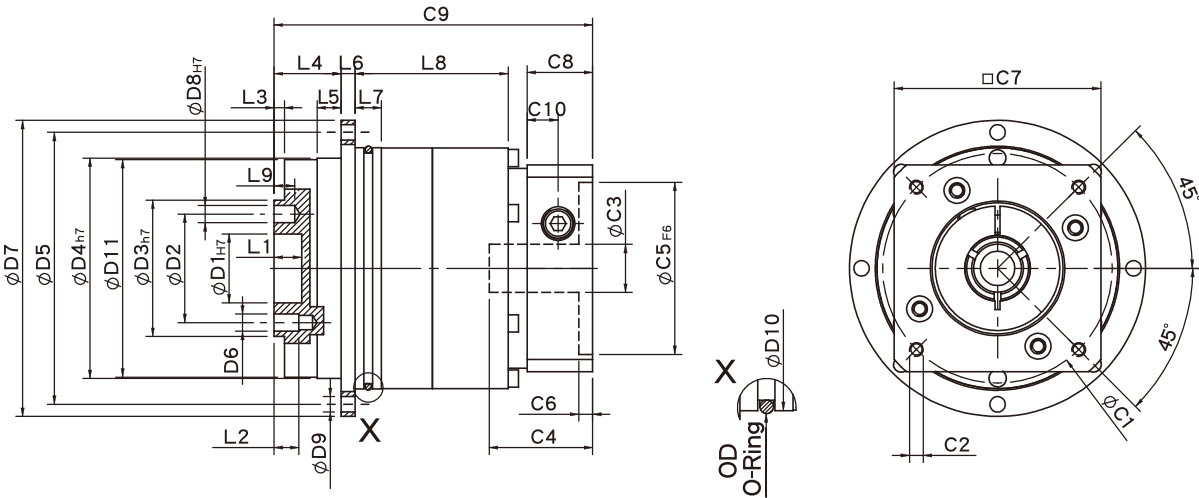
Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
øA(h6)	øB(h7)	C	D	øE	øF	□H	L	P0/P1/P2

减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGF-42	PGF-60	PGF-90	PGF-115	PGF-142	PGF-200	PGF-255	
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	4	16	43	110	240	500	1100	1700	
			5	17	50	130	290	600	1200	2000	
			7	14	44	125	270	530	1100	1750	
			10	11	37	95	220	430	900	1450	
		節數 Stage	減速比 Ratio	PGF-42	PGF-60 (T)	PGF-90(T)	PGF-115T	PGF-142T	PGF-200T	PGF-255T	
		2	16	-	40	105	180	600	1200	2000	
			20	16	43	110	240	600	1200	2000	
			25	17	50	130	290	600	1200	2000	
			35	17	50	130	290	600	1200	2000	
			40	17	50	130	290	600	1200	2000	
			50	17	50	130	290	600	1200	2000	
			70	14	44	125	270	530	1100	1750	
100	11		37	95	220	430	900	1450			
急停力矩 T _{2NOT} Emergency Stop Torque	N • m	3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)									
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	4-100	5000	5000	4000	4000	3000	3000	2000	
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	4-100	10000	10000	8000	8000	6000	5000	4000	
超精密背隙 Micro Backlash P0	arcmin	1 2	4-10 16-100	≤ 2 ≤ 4	≤ 2 ≤ 4	≤ 2 ≤ 4	≤ 1 ≤ 3	≤ 1 ≤ 3	≤ 1 ≤ 3	≤ 1 ≤ 3	
精密背隙 Precision Backlash P1	arcmin	1 2	4-10 16-100	≤ 4 ≤ 6	≤ 4 ≤ 6	≤ 4 ≤ 6	≤ 3 ≤ 5	≤ 3 ≤ 5	≤ 3 ≤ 5	≤ 3 ≤ 5	
標準背隙 Standard Backlash P2	arcmin	1 2	4-10 16-100	≤ 6 ≤ 8	≤ 6 ≤ 8	≤ 6 ≤ 8	≤ 5 ≤ 7	≤ 5 ≤ 7	≤ 5 ≤ 7	≤ 5 ≤ 7	
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	4-100	6	12	30	80	150	450	1000	
容許彎曲力矩 M _{2kB} ¹ Max. Bending Moment	N • m	1,2	4-100	43	125	288	503	1470	2950	6080	
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1,2	4-100	1015	1340	2868	3890	9850	12560	21850	
使用溫度 Operating Temp.	°C		4-100	-10 °C ~ +90 °C							
使用壽命Service Life	hr		4-100	30,000 (15,000/ 連續運轉 Continuous operation)							
效率 Efficiency	%	1 2	4 -10 16-100	≥ 97% ≥ 94%							
重量 Weight	kg	1 2	4 -10 16-100	0.7 1.1	1.5 2.3(1.8)	3.3 6.0(4.1)	6.2 8.1	13.6 17.9	32.1 38.6	63.3 79.5	
安裝方向 Mounting Position	-	1,2	4-100	任意方向Any direction							
噪音值 Noise Level ²	dB(A)/1m	1,2	4-100	56	58	60	63	65	67	70	
防護等級 Protection Class	-	1,2	4-100	IP65							
潤滑 Lubrication	-	1,2	4-100	全合成潤滑油脂 Synthetic Lubricant							
減速機轉動慣量 Inertia(J1)											
節數Stage	減速比Ratio	單位unit		PGF-42	PGF-60	PGF-90	PGF-115	PGF-142	PGF-200	PGF-255	
1		Kg • cm ²		-	0.19	0.72	2.35	9.05	29.80	72.50	
	4			0.02	0.18	0.67	1.66	7.17	25.86	58.21	
	5			0.02	0.17	0.65	1.50	6.52	23.63	54.36	
	7			0.02	0.14	0.60	1.45	6.17	22.92	54.12	
	10			0.02	0.14	0.58	1.41	6.10	22.73	53.98	
節數Stage	減速比Ratio			PGF-42	PGF-60(T)	PGF-90(T)	PGF-115T	PGF-142T	PGF-200T	PGF-255T	
2	16/20			0.02	0.17(0.02)	0.65(0.17)	0.65	2.35	9.05	29.8	
	25/30/35/40			0.02	0.14(0.02)	0.60(0.14)	0.60	1.45	6.17	22.92	
	50/70/100			0.02	0.14(0.02)	0.58(0.14)	0.58	1.41	6.10	22.73	
* 1. 輸出轉速 100rpm 時，作用於輸出軸中心位置。Applied to the output shaft center @100rpm. * 2. 3000rpm 空載量測。Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. ※本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.											

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.
產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

PGF Single Stage Dimensions PGF單段外型尺寸圖



Specifications 規格

Unit:mm

尺寸 Dimensions	PGF42	PGF60	PGF90	PGF115	PGF142	PGF200	PGF255
D1 _{H7}	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 _{H7}	28	40	63	80	100	160	180
D4 _{H7}	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P	M16x2.0P
D7	72	86	118	145	179	247	300
D8 _{H7}	3	5	6	6	8	10	12
D9	3.4	4.5	5.5	5.5	6.6	9	13.5
D10	60	70	95	120	152	212	255
D11	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	12	20
L2	6	7.2	12	13.5	16	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	5	7.7	8	10	12	17	39.5
L8	25	37.5	36.5	54.5	65	92	118
L9	4	6	7	7	7	10	10
C1 ²	46	70	90	115	145	200	235
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38	≤50	≤55
C4 ²	28.1	36.5	41.2	51.1	69.7	81	112
C5 ² _{F6}	30	50	70	95	110	114.3	200
C6 ²	4	4	6.7	6	8.5	6	6
C7 ²	42	60	90	115	140	182	220
C8 ²	16.5	19	25.5	30	38	40	50
C9 ²	74.8	92.5	107	131.5	171.5	215	271
C10 ²	7.4	9	11.3	13.9	17.8	21	21
OD	56x2	66x2	90x3	110x3	145x3	200x5	238x5

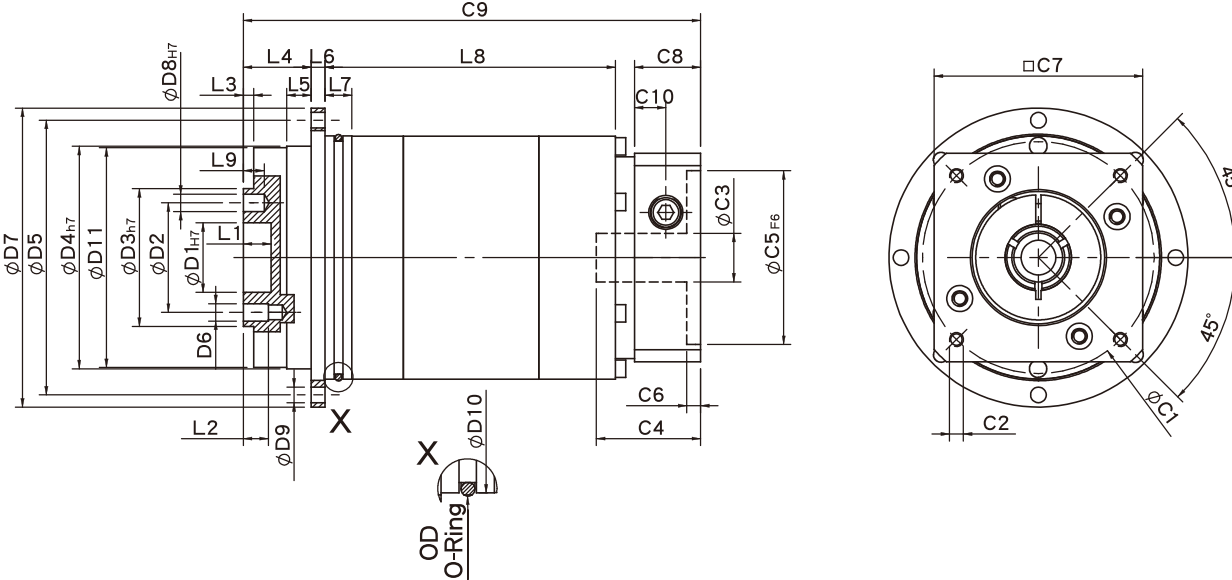
★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定.

★ 本公司有權針對以上數據規格進行設計變更不先行告知.

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to motor flange.

★ Specification subject to change without notice.

PGF Double Stage Dimensions-1 PGF雙段外型尺寸圖-1



Specifications 規格

Unit:mm

尺寸 Dimensions	PGF42	PGF60	PGF90
D1 _{H7}	12	20	31.5
D2	20	31.5	50
D3 _{H7}	28	40	63
D4 _{H7}	47	64	90
D5	67	79	109
D6	M3x0.5P	M5x0.8P	M6x1.0P
D7	72	86	118
D8 _{H7}	3	5	6
D9	3.4	4.5	5.5
D10	60	70	95
D11	46.2	63.2	89.2
L1	4	8	12
L2	6	7.2	12
L3	3	3	6
L4	19.5	19.5	30
L5	7	7	10
L6	4	4	7
L7	5	7.7	8
L8	54.5	72.5	81.5
L9	4	6	7
C1 ²	46	70	90
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24
C4 ²	28.1	36.4	41.2
C5 ² _{F6}	30	50	70
C6 ²	4	4	6.7
C7 ²	42	60	90
C8 ²	16.5	19	25.5
C9 ²	102.5	127.5	151.1
C10 ²	7.4	9	11.3
OD	56x2	66x2	90x3

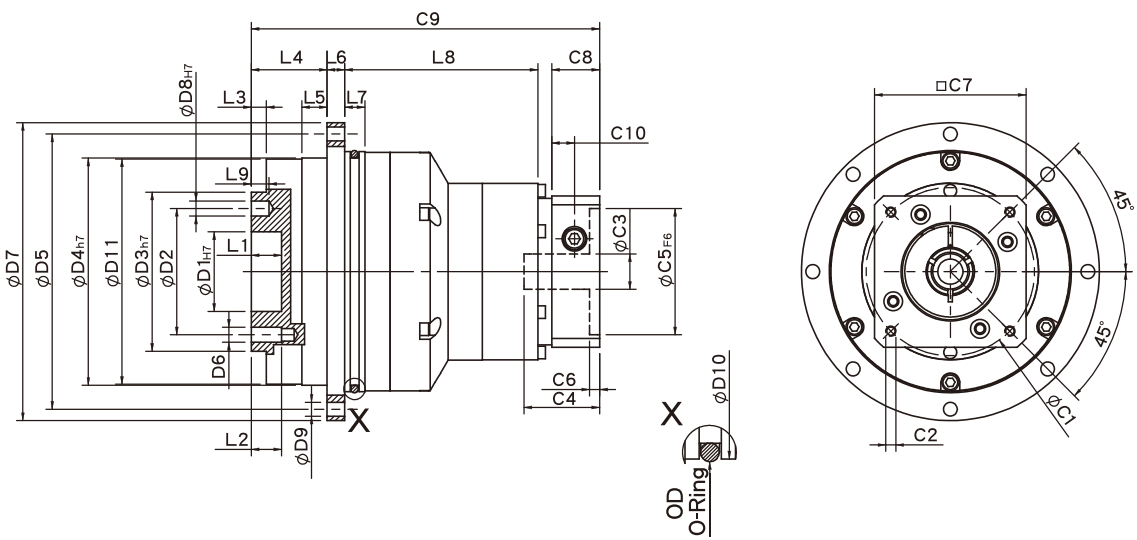
★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定.

★ 本公司有權針對以上數據規格進行設計變更不先行告知.

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to the motor flange.

★ Specification subject to change without notice.

PGF Double Stage Dimensions-2 PGF雙段外型尺寸圖-2



Specifications 規格

Unit:mm

尺寸 Dimensions	PGF60T	PGF90T	PGF115T	PGF142T	PGF200T	PGF255T
D1 H7	20	31.5	40	50	80	100
D2	31.5	50	63	80	125	140
D3 h7	40	63	80	100	160	180
D4 h7	64	90	110	140	200	255
D5	79	109	135	168	233	280
D6	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P	M16x2.0P
D7	86	118	145	179	247	300
D8 H7	5	6	6	8	10	12
D9	4.5	5.5	5.5	6.6	9	13.5
D10	70	95	120	152	212	255
D11	63.2	89.2	109.2	139.2	199.2	254.2
L1	8	12	12	12	12	20
L2	7.2	12	13.5	16	22.5	30.5
L3	3	6	6	6	8	12
L4	19.5	30	29	38	50	66
L5	7	10	10	14.6	15	20
L6	4	7	8	10	12	18
L7	7.7	8	10	12	17	39.5
L8	65.2	69.5	93.5	110	161.7	192
L9	6	7	7	7	10	10
C1 ²	46	70	90	115	145	200
C2 ²	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32/≤38	≤35/≤38	≤50
C4 ²	28.1	36.5	41.2	51.1	69.7	81
C5 ² F6	30	50	70	95	110	114.3
C6 ²	4	4	6.7	6	8.5	6
C7 ²	42	60	90	115	140	180
C8 ²	16.5	19	25.5	30	38	40
C9 ²	113.2	138	163.1	198	281	335
C10 ²	7.4	9	11.3	13.9	17.8	21
OD	66x2	90x3	110x3	145x3	200x5	238x5

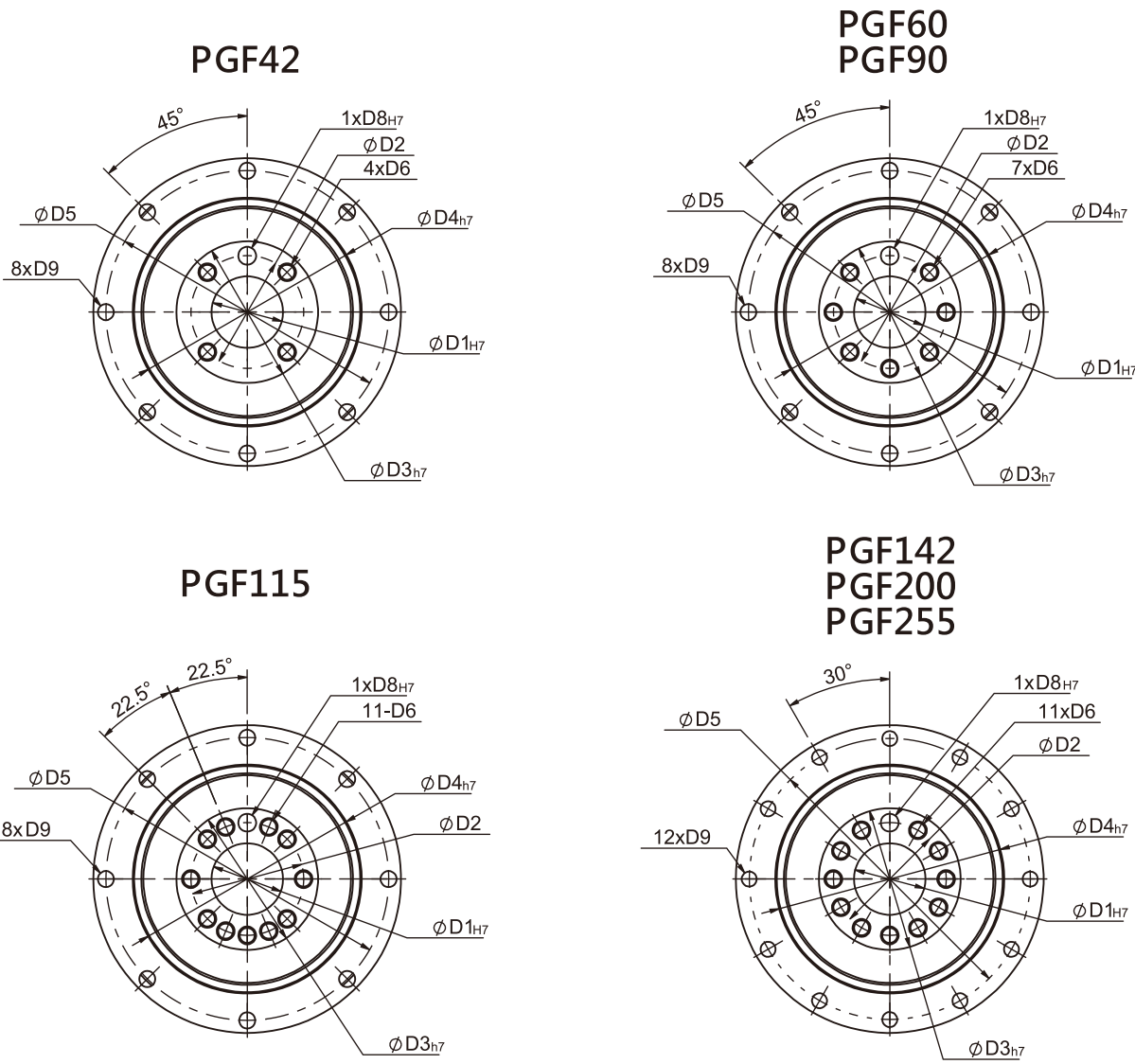
★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 本公司有權針對以上數據規格逕行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown), Size may vary according to motor flange.

★ Specification subject to change without notice.

PGF Flange Dimensions PGF法蘭面尺寸圖



Specifications 規格

Unit:mm

尺寸 Dimensions	PGF42	PGF60	PGF90	PGF115	PGF142	PGF200	PGF255
D1 H7	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 h7	28	40	63	80	100	160	180
D4 h7	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P	M16x2.0P
D8 H7	3	5	6	6	8	10	12
D9	3.4	4.5	5.5	5.5	6.6	9	13.5

★ 本公司有權針對以上數據規格逕行設計變更不先行告知。

★ Specification subject to change without notice.

PGFR系列-效率最大化
PGFR SERIES-MAXIMIZING EFFICIENCY

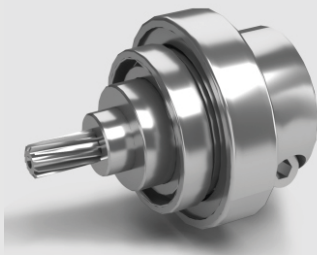
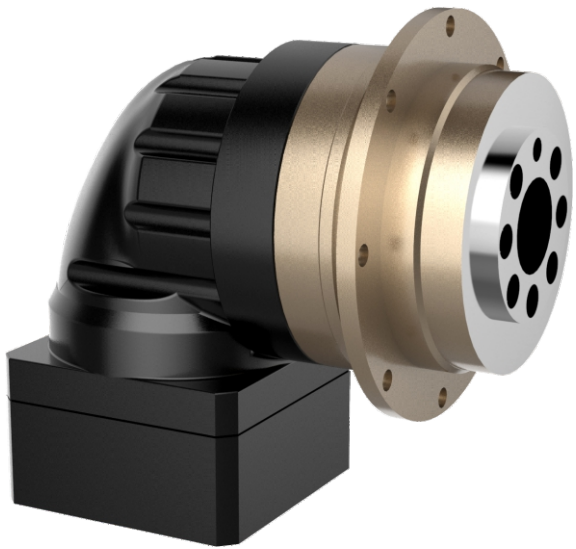
为精密而生
BORN FOR PRECISION

我们为客户定制高精度、高刚性、高扭矩的超精密行星减速器；PGFR系列在技术方面为您提供创新和先进的解决方案以达到效率最大化。

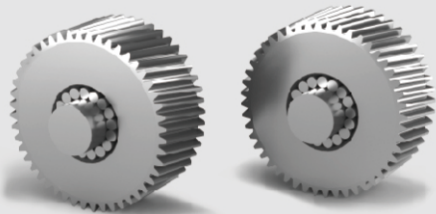
We customize precise planetary reducers with high precision, high rigidity and high torque for customers. The PGFR series provides you with innovative and advanced solutions in technology to maximize efficiency.

技术参数 TECHNICAL PARAMETERS

回程间隙	arcmin	1~7
速比	I	3~100
额定输出力矩	Nm	14~2000
使用温度℃	℃	-10~90
噪音	dB (A)	56~70
工作效率	%	97
工作寿命	h	30000



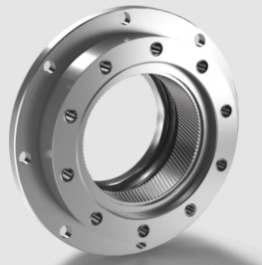
锁紧环经动平衡分析确保同心度和零滑差传递



优选高级合金钢,渗碳处理确保最佳精度



出力轴为法兰盘输出设计大幅缩小安装空间提高输出联接精度



内齿与外壳一体结构精密,耐磨

PGH

PGL

PGCH

PGC

PGCR

PGE

PGER

PGRH

PGF

PGFR

型号说明 / MODEL ILLUMINATE

PGFR42

10

P2

马达

减速机型式：
PGFR42/PGFR60/PGFR90/PGFR115
PGFR142/PGFR180/PGFR220

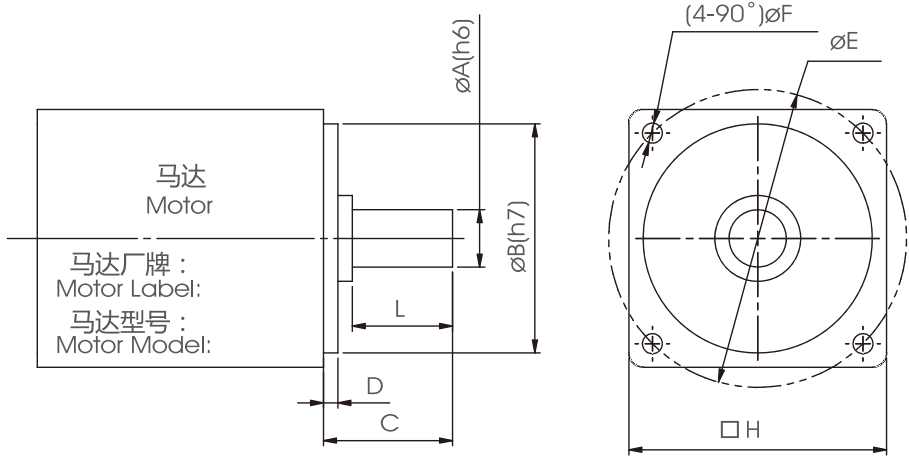
背隙：P0：超精密背隙
P1：精密背隙
P2：标准背隙

减速比：单级(L1): 4, 5, 7, 8, 10, 14, 20
双级(L2): 20, 25, 35, 40, 50, 70, 100, 140, 200

马达型号：
马达制造及型号

选用范例：PGFR90-10-P2/马达型号MHMD-082G1U

FILL IN DATA OF MOTOR 客户填写资料



规格 SPECIFICATIONS

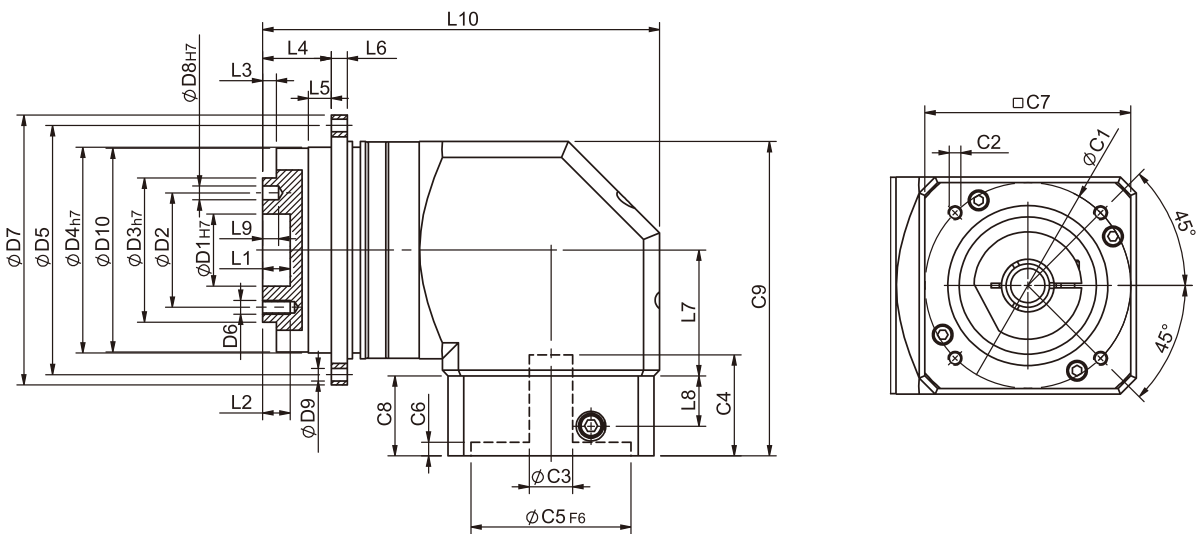
Motor Shaft Dia.	Flange Dia.	Motor Shaft Length	Flange Height	P.C.D of Bore	Bore Dia.	Motor Flange Square	Actual Length of Motor Shaft	Backlash
马达轴外径	马达凸缘外径	马达轴长度	马达凸缘高度	螺丝孔中心距	螺丝孔直径	马达面尺寸	马达轴有效长	要求背隙
øA(h6)	øB(h7)	C	D	øE	øF	□H	L	P0/P1/P2

减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

規格 Specifications		節數 Stage	減速比 Ratio	PGFR-42	PGFR-60	PGFR-90	PGFR-115	PGFR-142	PGFR-200	PGFR-255
額定輸出力矩 T _{2N} Nominal Output Torque	N • m	1	4	16	43	110	240	500	1100	1500
			5	17	50	130	290	600	1200	1800
			7	14	44	125	270	530	1100	1750
			8							
			10	17	50	130	260	540	900	1500
			14	14	44	125	270	530	1100	1750
			20	11	37	95	220	430	900	1450
		節數 Stage	減速比 Ratio	PGFR-42	PGFR-60 (T)	PGFR-90(T)	PGFR-115T	PGFR-142T	PGFR-200T	PGFR-255T
		2	16	-	40	105	180	600	1200	2000
			20	16	43	110	240	600	1200	2000
			25	17	50	130	290	600	1200	2000
			35	17	50	130	290	600	1200	2000
			40	16	43	110	240	600	1200	2000
			50	17	50	130	290	600	1200	2000
			70	14	44	125	270	530	1100	1750
			80							
			100	11	37	95	220	430	900	1450
			140	14	44	125	270	530	1100	1750
			200	11	37	95	220	430	900	1450
急停力矩 T _{2NOT} Emergency Stop Torque	N • m		3.0 倍額定輸出力矩 (3.0 times of Nominal Output Torque) (* 最大輸出力矩 Max. Output Torque T _{2B} =60% of Emergency Stop Torque)							
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1,2	4-200	5000	5000	4000	4000	3000	3000	2000
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1,2	4-200	10000	10000	8000	8000	6000	6000	4000
超精密背隙 Micro Backlash P0	arcmin	1 2	4-20 16-200	- -	- -	≤ 5 ≤ 7	≤ 5 ≤ 7	≤ 5 ≤ 7	≤ 5 ≤ 7	≤ 5 ≤ 7
精密背隙 Precision Backlash P1	arcmin	1 2	4-20 16-200	≤ 7 ≤ 9	≤ 7 ≤ 9	≤ 7 ≤ 9	≤ 7 ≤ 9	≤ 7 ≤ 9	≤ 7 ≤ 9	≤ 7 ≤ 9
標準背隙 Standard Backlash P2	arcmin	1 2	4-20 16-200	≤ 9 ≤ 12	≤ 9 ≤ 12	≤ 9 ≤ 12	≤ 9 ≤ 12	≤ 9 ≤ 12	≤ 9 ≤ 12	≤ 9 ≤ 12
扭轉剛性Torsional Rigidity	N • m /arcmin	1,2	4-200	6	12	30	80	150	450	1000
容許彎曲力矩 M _{2kB} ¹ Max. Bending Moment	N • m	1,2	4-200	43	125	288	503	1470	2950	6500
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1,2	4-200	1015	1340	2868	3890	9850	12560	21850
使用溫度 Operating Temp.	°C		4-200	-10 °C ~ +90 °C						
使用壽命Service Life	hr		4-200	20,000 (10,000/ 連續運轉 Continuous operation)						
效率 Efficiency	%	1 2	4-20 16-200	≥ 95% ≥ 92%						
重量 Weight	kg	1 2	4-20 16-200	1.1 1.6	2.3 3.2/2.2	6.6 8.6/5.3	13.5 14.8	25.1 26.7	50 55	85 88
安裝方向 Mounting Position	-	1,2	4-200	任意方向Any direction						
噪音值 Noise Level ²	dBA/1m	1,2	4-200	62	64	66	68	70	72	74
防護等級 Protection Class	-	1,2	4-200	IP65						
潤滑 Lubrication	-	1,2	4-200	全合成潤滑油脂 Synthetic Lubricant						
減速機轉動慣量 Inertia(J1)										
節數Stage	減速比Ratio	單位unit		PGFR-42	PGFR-60	PGFR-90	PGFR-115	PGFR-142	PGFR-200	PGFR-255
1	4/5/7/8/9	Kg • cm ²		0.06	0.40	2.28	6.87	24.2	69.8	138.2
	10/14/20			0.05	0.30	1.45	4.76	14.5	50.3	103.6
節數Stage	減速比Ratio			PGFR-42	PGFR-60(T)	PGFR-90(T)	PGFR-115T	PGFR-142T	PGFR-200T	PGFR-255T
2	16/15/20/25/35/40			0.06	0.40(0.08)	2.28(0.72)	3.02	7.83	27.7	80.3
	50/70/80/100/140/200			0.05	0.30(0.06)	1.45(0.38)	1.64	5.00	15.9	55.3
* 1. 輸出轉速 100rpm 時，作用於輸出軸中心位置。Applied to the output shaft center @100rpm. * 2. 3000rpm 空載量測。Measured at 3000 rpm with no load. These values are measured by gearbox with ratio = 10 (1-stage) or ratio = 100 (2-stage) at nominal input speed or 3000 rpm (if nominal input speed is higher than 3000 rpm) with no load. ※本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.										

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.
產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

PGFR Single Stage Dimensions PGFR單段外型尺寸圖



Specifications 規格

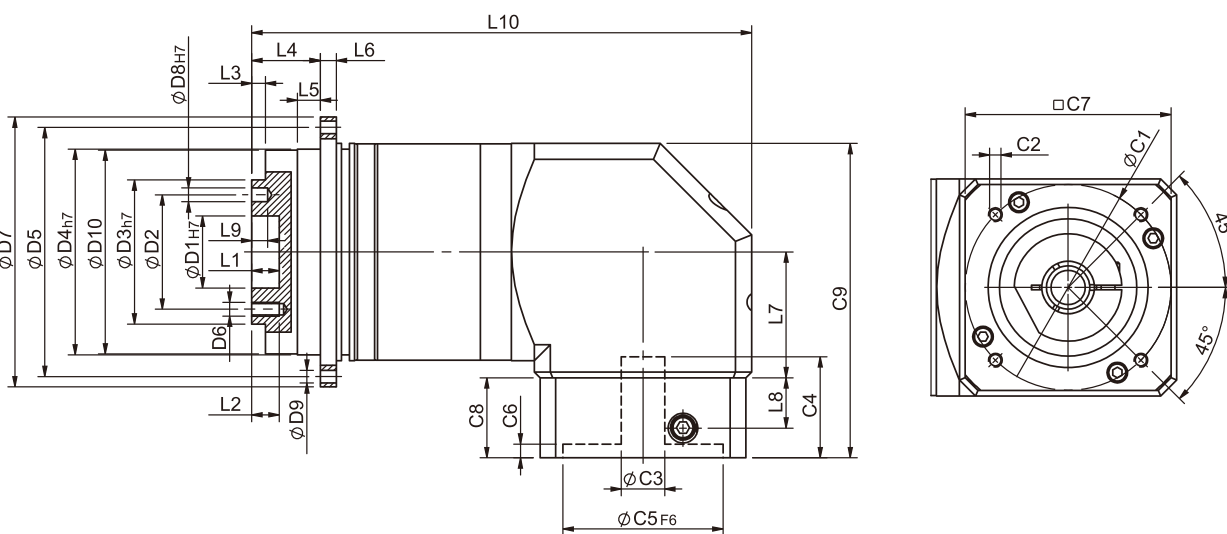
Unit:mm

尺寸 Dimensions	PGFR42	PGFR60	PGFR90	PGFR115	PGFR142	PGFR200	PGFR255
D1 _{H7}	12	20	31.5	40	50	80	100
D2	20	31.5	50	63	80	125	140
D3 _{H7}	28	40	63	80	100	160	180
D4 _{H7}	47	64	90	110	140	200	255
D5	67	79	109	135	168	233	280
D6	M3x0.5P	M5x0.8P	M6x1.0P	M6x1.0P	M8x1.25P	M10x1.5P	M16x2.0P
D7	72	86	118	145	179	247	300
D8 _{H7}	3	5	6	6	8	10	12
D9	3.4	4.5	5.5	5.5	6.6	9	13.5
D10	46.2	63.2	89.2	109.2	139.2	199.2	254.2
L1	4	8	12	12	12	16	20
L2	6	7.2	12	13.5	16	22.5	30.5
L3	3	3	6	6	6	8	12
L4	19.5	19.5	30	29	38	50	66
L5	7	7	10	10	14.6	15	20
L6	4	4	7	8	10	12	18
L7	32.2	44.8	55	69	71	92.5	92.5
L8	13.5	21.5	22	32	44.7	44	60
L9	4	6	7	7	7	10	10
L10	92.2	128.3	173.6	204.2	250.7	330.7	392.2
C1 ²	46	70	90	90	145	200	215
C2 ²	M4x0.7P	M5x08P	M6x1.0P	M6x1.0P	M8x1.25P	M12x1.75P	M12x1.75P
C3 ²	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50	≤55
C4 ²	29	34	44	53.5	76.8	78.8	98.7
C5 ² _{F6}	30	50	70	70	110	114.3	180
C6 ²	6	5	5	5.5	9	6	6
C7 ²	42.6	60	90	115	140	180	220
C8 ²	25	33	35	48	65	65	85
C9 ²	78.5	112.8	137.5	176.5	225.5	246.5	266.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ 本公司有權針對以上數據規格逕行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to motor flange.
★ Specification subject to change without notice.

PGFR Double Stage Dimensions-1 PGFR雙段外型尺寸圖-1



Specifications 規格

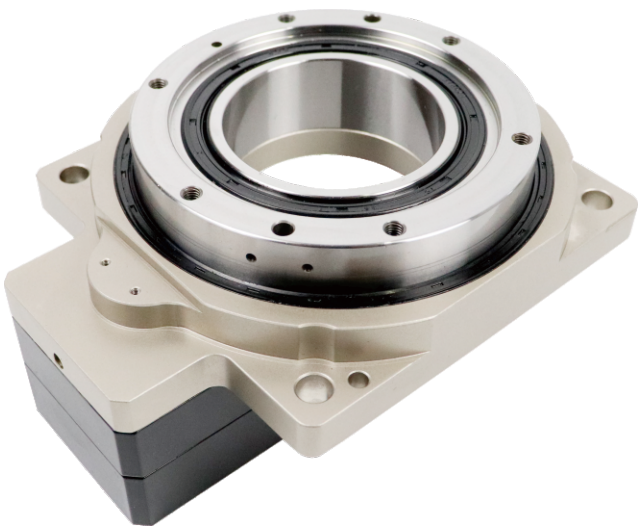
Unit:mm

尺寸 Dimensions	PGFR42	PGFR60	PGFR90
D1 _{H7}	12	20	31.5
D2	20	31.5	50
D3 _{H7}	28	40	63
D4 _{H7}	47	64	90
D5	67	79	109
D6	M3x0.5P	M5x0.8P	M6x1.0P
D7	72	86	118
D8 _{H7}	3	5	6
D9	3.4	4.5	5.5
D10	46.2	63.2	89.2
L1	4	8	12
L2	6	7.2	12
L3	3	3	6
L4	19.5	19.5	30
L5	7	7	10
L6	4	4	7
L7	32.2	44.8	55
L8	13.5	21.5	22
L9	4	6	7
L10	119.9	163.3	218.6
C1 ²	46	70	90
C2 ²	M4x0.7P	M5x08P	M6x1.0P
C3 ²	≤8	≤14	≤19/≤24
C4 ²	29	34	44
C5 ² _{F6}	30	50	70
C6 ²	6	5	5
C7 ²	42.6	60	90
C8 ²	25	33	35
C9 ²	78.5	112.8	137.5

★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。
★ 本公司有權針對以上數據規格逕行設計變更不先行告知。

★ C1~C9 are motor specific dimensions(metric std shown),
Size may vary according to motor flange.
★ Specification subject to change without notice.

中空旋转平台-JH系列



JH系列减速机能满足一些非常特殊的需求，高刚度、高性能和结构紧凑，多变化是该系列产品最主要的特点，您始终可以找到您所需的解决方案

技术参数 TECHNICAL PARAMETERS

回程间隙	sec	15
速比	I	5-18
额定输出力矩	Nm	3.5-65
使用温度℃	℃	-10-90

Specifications Table 性能规格共表

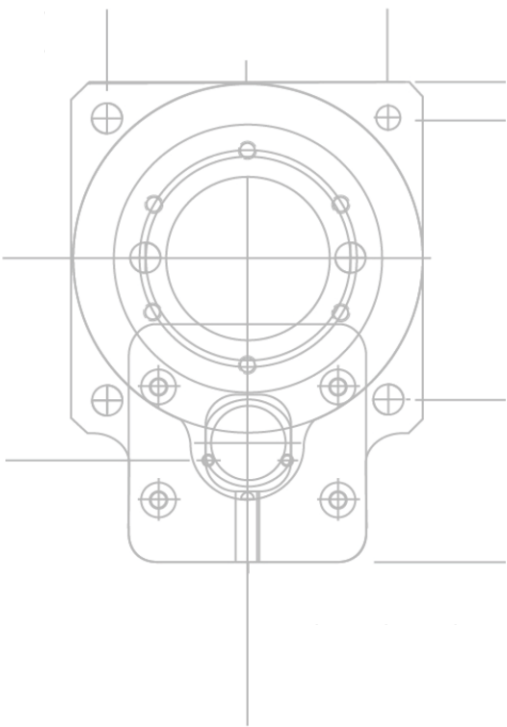
规格	单位	JH-062	JH-085	JH-130	JH-200
匹配伺服马达	W	100W	200-400W	200-400W	750-1000W
容许扭矩	Nw	3.5	25	40	75
转动惯量	kgm2	2480×10 ⁻⁶	2498×10 ⁻⁶	9472×10 ⁻⁶	93571×10 ⁻⁶
允许转速	rpm	200	200	200	200
减速比		1/5	1/5,1/10	1/10,1/18	1/10,1/18
定位精度	sec	≤12	≤12	≤12	≤12
反复定位精度	sec	±10	±5	±5	±5
容许推力载重	kgf	30	200	300	500
容许惯性载重	Nm	10	75	85	320
旋转平台平行度	um	±5	±2	±2	±2
旋转平台同心度	mm	±0.01	±0.01	±0.01	±0.01
重量	kg	2.2	3	5.5	11

Application range 应用范围

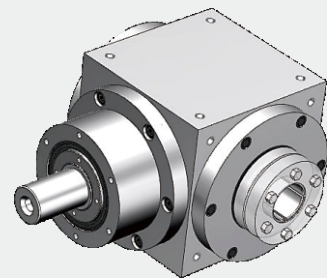
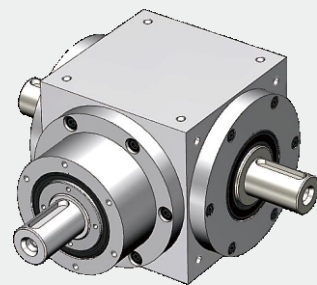
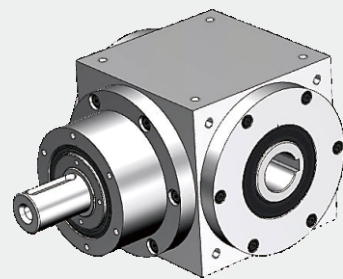
数控分度装置/自动化生产线/机械手关节/机床的第四加工轴/合作自动检测设备

Features 产品特点

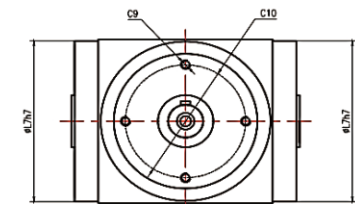
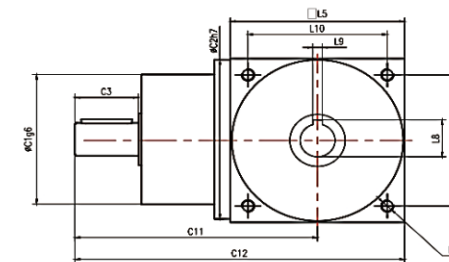
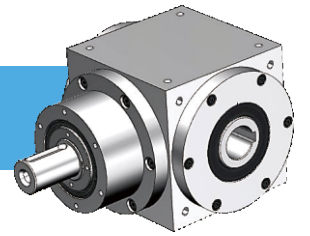
- 1.任意角度定位，定位精度高
传动齿轮经过研磨处理，反复定位精度为±5sec，定位精度为±15sec
- 2.高刚性，高扭矩
使用高精度齿轮结构和径向轴承，提供了扭矩和刚性。
- 3.短时间定位
可在短时间内实现惯性负载的定位。
- 4.简单原点回归
省去设计与零件采购的麻烦
- 5.直接连接
与分割器和DD马达相同，可将重物直接放在平台上传动。
- 6.中控结构
方便设计，装配时加的配管和配件
- 7.搭配方便
可任意搭配任何品牌的伺服马达。



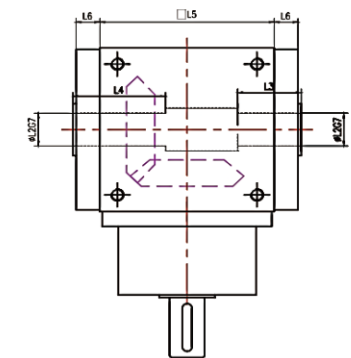
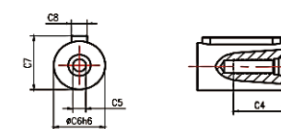
转向器-JH系列



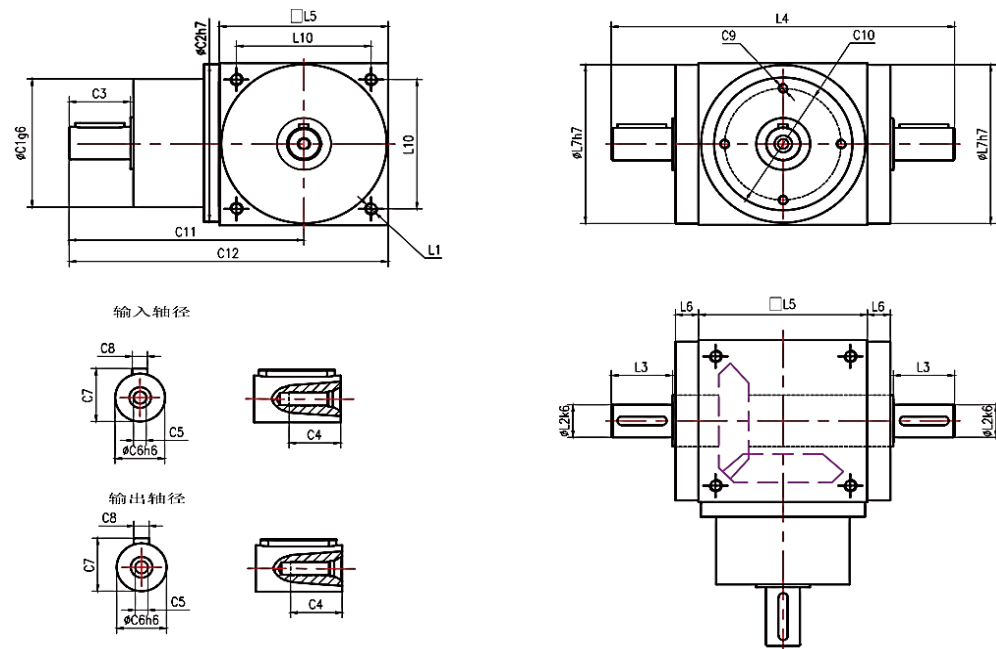
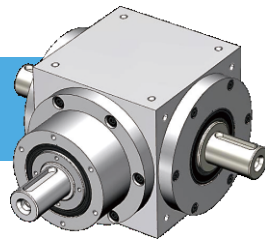
JH-H系列 (单段减速比*i* = 1-2)



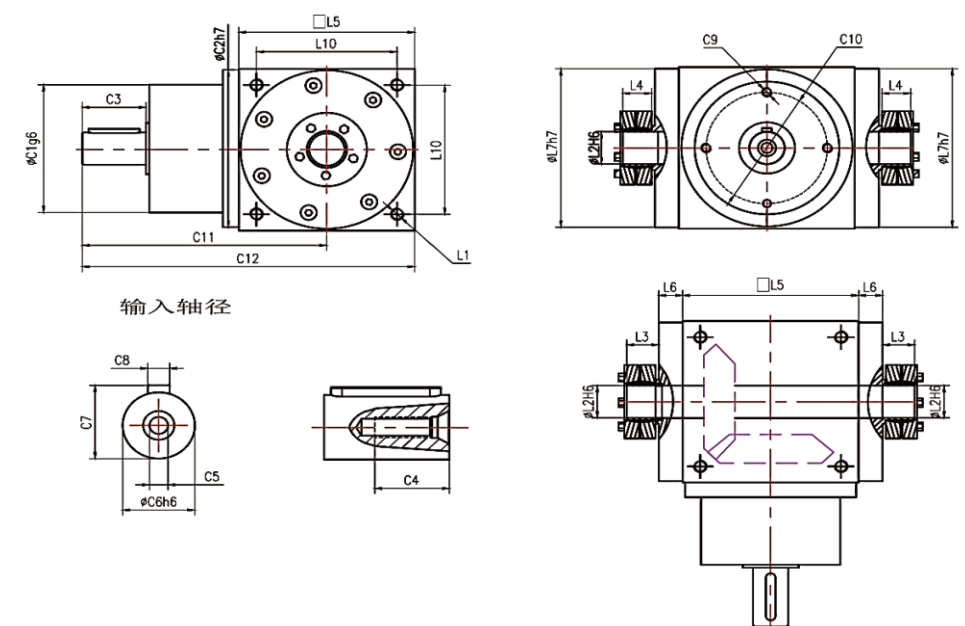
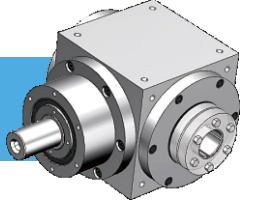
输入轴径



尺寸	065-H	075-H	090-H	110-H	140-H	170-H	210-H
L1	M4	M6	M6	M8	M10	M12	M16
L2	13	14	18	22	32	40	50
L3	30	32	35	35	50	55	65
L4	42	47	53	55	72	78	91
L5	65	75	90	110	140	170	210
L6	13	14.5	15	15	15	15	20
L7	63	73	88	108	135	165	205
L8	15.3	16.3	20.8	24.8	35.3	43.3	53.8
L9	5	5	6	6	10	12	14
L10	54	60	72	88	110	134	170
C1	Φ62.9	Φ72.9	Φ87	Φ107	Φ103	Φ127	Φ158
C2	Φ69	Φ73	Φ88	Φ108	Φ135	Φ165	Φ205
C3	20	30	35	40	50	60	75
C4	10	13	13	20	30	35	35
C5	M4	M5	M5	M8	M12	M16	M16
C6	Φ13	Φ16	Φ18	Φ22	Φ32	Φ40	Φ50
C7	15	18	20.5	24.5	35	43	53.5
C8	5	5	6	6	10	12	14
C9	4-M4	4-M5	4-M5	6-M6	6-M6	6-M8	6-M8
C10	53	62	76	95	92	114	142
C11	95	120	135	155	180	215	270
C12	127.5	157.5	180	210	250	300	380

JH-L系列 (单段减速比 $i=1-2$)

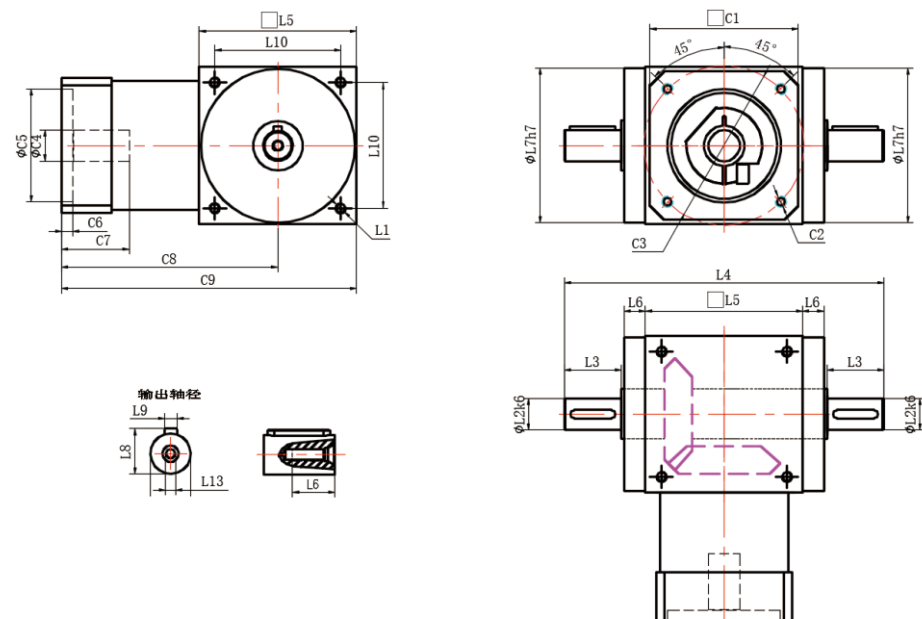
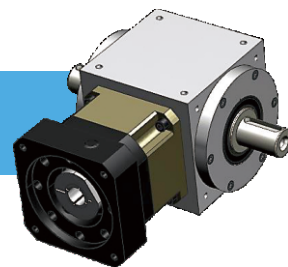
尺寸	065-L	075-L	090-L	110-L	140-L	170-L	210-L
L1	M4	M6	M6	M8	M10	M12	M16
L2	Φ13	Φ16	Φ18	Φ22	Φ32	Φ40	Φ50
L3	20	30	35	40	50	60	75
L4	134	168	194	224	274	324	404
L5	65	75	90	110	140	170	210
L6	13	14.5	15	15	15	15	20
L7	63	73	88	108	135	165	205
L8	15.3	16.3	20.8	24.8	35.3	43.3	53.8
L9	5	5	6	6	10	12	14
L10	54	60	72	88	110	134	170
C1	Φ62.9	Φ72.9	Φ87	Φ107	Φ103	Φ127	Φ158
C2	Φ69	Φ73	Φ88	Φ108	Φ135	Φ165	Φ205
C3	20	30	35	40	50	60	75
C4	10	13	13	20	30	35	35
C5	M4	M5	M5	M8	M12	M16	M16
C6	Φ13	Φ16	Φ18	Φ22	Φ32	Φ40	Φ50
C7	15	18	20.5	24.5	35	43	53.5
C8	5	5	6	6	10	12	14
C9	4-M4	4-M5	4-M5	6-M6	6-M6	6-M8	6-M8
C10	53	62	76	95	92	114	142
C11	95	120	135	155	180	215	270
C12	127.5	157.5	180	210	250	300	380

JH-C系列 (单段减速比 $i=1-2$)

尺寸	065-C	075-C	090-C	110-C	140-C	170-C	210-C
L1	M4	M6	M6	M8	M10	M12	M16
L2	13	14	18	22	32	40	50
L3	14	14	18	18	24	26	29
L4	15	15	20	20	26	28	31
L5	65	75	90	110	140	170	210
L6	13	14.5	15	15	15	15	20
L7	63	73	88	108	135	165	205
L8	15.3	16.3	20.8	24.8	35.3	43.3	53.8
L9	5	5	6	6	10	12	14
L10	54	60	72	88	110	134	170
C1	Φ62.9	Φ72.9	Φ87	Φ107	Φ103	Φ127	Φ158
C2	Φ69	Φ73	Φ88	Φ108	Φ135	Φ165	Φ205
C3	20	30	35	40	50	60	75
C4	10	13	13	20	30	35	35
C5	M4	M5	M5	M8	M12	M16	M16
C6	Φ13	Φ16	Φ18	Φ22	Φ32	Φ40	Φ50
C7	15	18	20.5	24.5	35	43	53.5
C8	5	5	6	6	10	12	14
C9	4-M4	4-M5	4-M5	6-M6	6-M6	6-M8	6-M8
C10	53	62	76	95	92	114	142
C11	95	120	135	155	180	215	270
C12	127.5	157.5	180	210	250	300	380

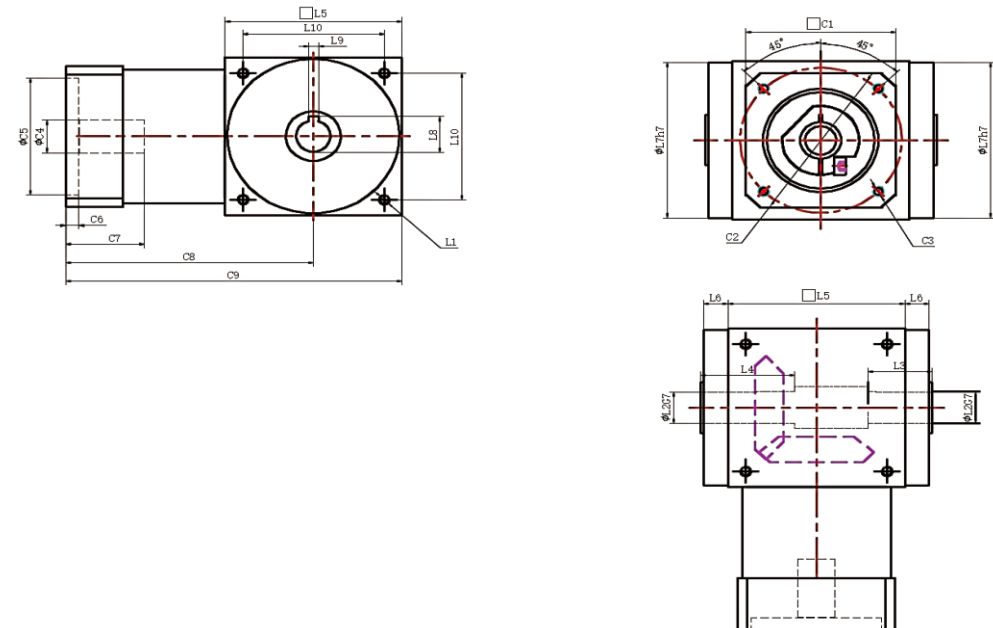
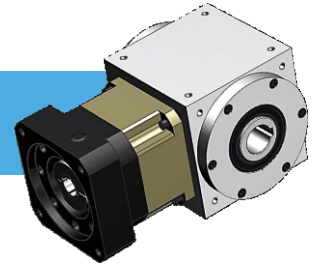
性能表-精密转角 JH-L,H,C系列

产品型号Model					额定输出扭矩 Rated Output Torque		故障停止 扭矩 Fault stop torque	回程间隙 Backlash	输出最大 径向力 output maximum Axis force	输出最大 轴向力 Output maximum Axis force	输入最大 径向力Enter maximum m Axis force	输入最大 轴向力Input maximum m Axis force	平均寿命 Average life span	效率 Efficiency	噪音' Noise	最大输入 速度 'Max input speed	额定输入 速度 Rated input speed'	转动惯是 Moment of inertia		重是Weight			
					Nm		Nm	larcmin	N	N	N	N	h	%	dB(A)	min'	min''	kg/cm'		kg			
JH065L	JH065L1	JH065R	JH065H	JH065C	35	33	2倍额定输出扭矩	≤6	950	390	700	295	20000	≥98%	≤67	3500	2500	0.8	0.65	3.5	3.3	3	3.4
JH075L	JH075L1	JH075R	JH075H	JH075C	45	42		≤6	1100	550	950	425			≤70	3500	2500	1.3	1.11	4.2	4.1	3.9	4.2
JH090L	JH090L1	JH090R	JH090H	JH090C	78	68		≤6	1700	850	1450	725			≤74	3500	2500	3.16	2.7	6.8	6.7	6.4	6.9
JH110L	JH110L1	JH110R	JH110H	JH110C	150	150		≤6	2700	1350	2100	1050			≤76	3000	2000	7.7	6.31	11.6	11.5	11	11.4
JH140L	JH140L1	JH140R	JH140H	JH140C	360	330		≤6	4800	2400	2700	1350			≤77	3000	2000	23.57	17.75	19.8	19.5	18.1	19.6
JH170L	JH170L1	JH170R	JH170H	JH170C	585	544		≤6	6600	3300	3800	1900			≤78	2500	1500	58.99	45.35	34.8	34.2	31.6	33.7
JH210L	JH210L1	JH210R	JH210H	JH210C	1300	1220		≤8	11500	5750	7800	3900			≤80	2500	1500	195.4	140.24	66.2	65.1	60	63.3
Ratio					1	2	1~2	1~2	1~2	1~2	1~2	1~2	1~2	1~2	1~2	1~2	1~2	1	2	L系列	LI系列	H系列	C系列
Stage					1		1	1	1	1	1	1	1	1	1	1	1	1	1				

JH-FL系列 (单段减速比 $i=3-100$)

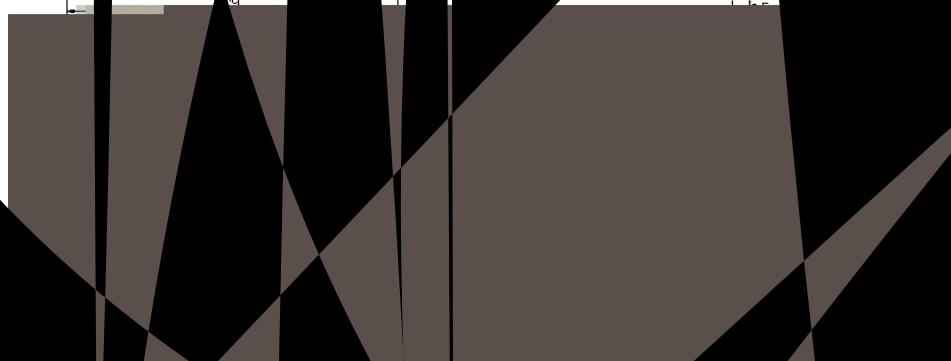
尺寸	065-FL	075-FL	090-FL	110-FL	140-FL	170-FL	210-FL
L1	M4	M6	M6	M8	M10	M12	M16
L2	Φ13	Φ16	Φ18	Φ22	Φ32	Φ40	Φ50
L3	20	30	35	40	50	60	75
L4	134	168	194	224	274	324	404
L5	65	75	90	110	140	170	210
L6	13	14.5	15	15	15	15	20
L7	63	73	88	108	135	165	205
L8	15.3	16.3	20.8	24.8	35.3	43.3	53.8
L9	5	5	6	6	10	12	14
L10	54	60	72	88	110	134	170
C1	60	60	90	90	130	150	180
C2	Φ70	Φ70	Φ100	Φ100	Φ145	Φ175	Φ200
C3	M4	M4	4-M6	4-M6	4-M8	4-M10	4-M12
C4	Φ14	Φ14	Φ19	Φ19	Φ24	Φ32	Φ42
C5	Φ50	Φ50	Φ80	Φ80	Φ110	Φ130	Φ114.3
C6	5	5	7	7	10	10	10
C7	38	38	47.5	47.5	59	81	86
C8	101	117	125	141.5	175	202.5	264
C9	133.5	154.5	170	196.5	245	287.5	369

C1~C9是公制公制标准马达连接尺寸，可根据客户要求单独定制。

JH-FH系列 (单段减速比 $i=3-100$)

尺寸	065-FH	075-FH	090-FH	110-FH	140-FH	170-FH	210-FH
L1	M4	M6	M6	M8	M10	M12	M16
L2	13	14	18	22	32	40	50
L3	30	32	35	35	50	55	65
L4	42	47	53	55	72	78	91
L5	65	75	90	110	140	170	210
L6	13	14.5	15	15	15	15	20
L7	63	73	88	108	135	165	205
L8	15.3	16.3	20.8	24.8	35.3	43.3	53.8
L9	5	5	6	6	10	12	14
L10	54	60	72	88	110	134	170
C1	60	60	90	90	130	150	180
C2	Φ70	Φ70	Φ100	Φ100	Φ145	Φ175	Φ200
C3	M4	M4	4-M6	4-M6	4-M8	4-M10	4-M12
C4	Φ14	Φ14	Φ19	Φ19	Φ24	Φ32	Φ42
C5	Φ50	Φ50	Φ80	Φ80	Φ110	Φ130	Φ114.3
C6	5	5	7	7	10	10	10
C7	38	38	47.5	47.5	59	81	86
C8	101	117	125	141.5	175	202.5	264
C9	133.5	154.5	170	196.5	245	287.5	369

C1~C9是公制公制标准马达连接尺寸，可根据客户要求单独定制。



NOTE 1: 部分制标准与公制尺寸, 可相

零件尺寸, 可相

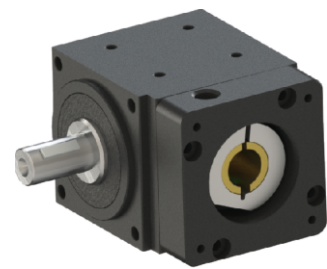
性能表-精密转角 JH-F系列

产品型号 Model					额定输出扭矩 Rated Output Torque																	故障停 止扭矩 Fault stop torque'	回程间隙 Backlash		输出最大 径向力 Output maximum Axis force	输出最 大轴向力 Output maximum Axis force	平均寿命 Average life span	单级效率 Single stage Efficiency	噪音 Noise
					Nm																	Nm	arcmin		N	N	hr	%	dB(A)
JH065FL	JH065FL1	JH065FR	JH065FH	JH065FC	25	24	18	15	12	48	42	42	42	33	33	42	42	45	42	45	42	2倍额 定输出 扭矩	≤6	≤8	1100	550	20000	≥98%	≤72
JH075FL	JH075FL1	JH075FR	JH075FH	JH075FC	45	42	33	28	25	59	42	42	42	33	33	36	42	48	48	42	42		≤6	≤8	1700	850			≤76
JH090FL	JH090FL1	JH090FR	JH090FH	JH090FC	78	68	54	48	40	73	68	68	54	54	68	62	62	68	68	64	68		≤6	≤8	2700	1350			≤77
JH110FL	JH110FL1	JH110FR	JH110FH	JH110FC	150	150	155	100	85	135	150	150	150	120	120	150	150	150	150	150	150		≤6	≤8	4800	2400			≤78
JH140FL	JH140FL1	JH140FR	JH140FH	JH140FC	360	330	270	224	196	275	330	330	330	270	270	330	330	330	330	330	330		≤6	≤8	6600	3300			≤79
JH170FL	JH170FL1	JH170FR	JH170FH	JH170FC	585	544	450	376	320	440	544	544	544	450	450	544	544	544	544	544	544		≤8	≤10	11500	5750			≤81
JH210FL	JH210FL1	JH210FR	JH210FH	JH210FC	1300	1220	1020	860	740	980	1220	1220	1220	1020	1020	1220	1220	1220	1220	1220	1220		≤10	≤12	16000	8500			≤83
Ratio					1	2	3	4	5	7	10	16	20	25	30	35	40	50	70	80	100	1~100	1~6	8~30	1~400	1~400	1~2	1~2	1~2
Stage					1		2				3										1~3	1	2	1~3	1~3	1	1	1	

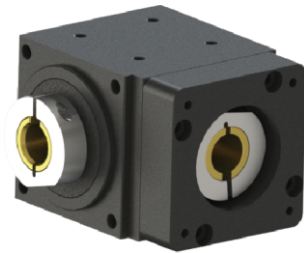
RA系列直角型減速機
AS RIGHT-ANGLE REDUCERS

RA系列採用傘型齒輪設計，背隙可以調整，精巧的外型可以搭配任何方向定位，安裝容易能配合多種馬達或加裝減速機。

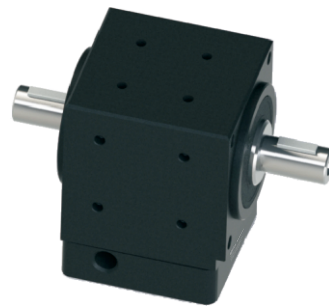
RA series bevel gear can adjust backlash, compact housing design can be used with any orientation, Easy to install or retrofit can meet a variety of motor reducer.



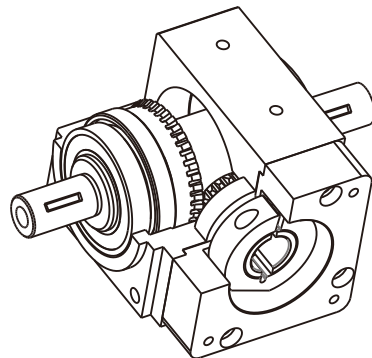
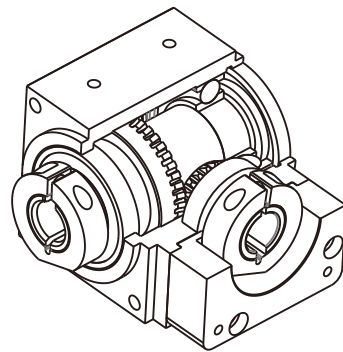
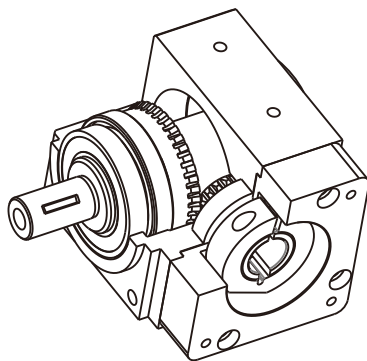
RAS(實心軸)



RAH(空心軸)



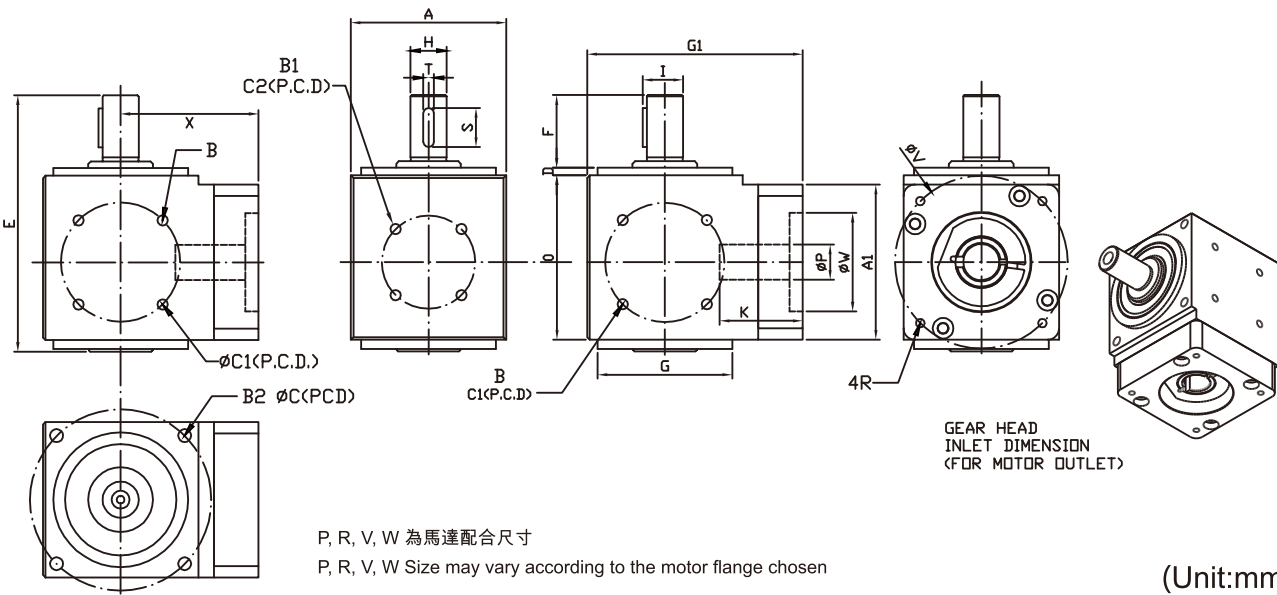
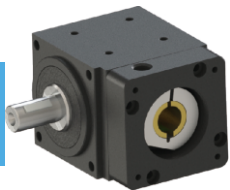
RAD(雙出力軸)



Specifications Table 性能規格共表

規格 Model No	單位 Unit	RA042	RA060	RA090	RA120	RA150
外框尺寸/Size	mm	42	60	90	120	142
額定出力軸轉矩 Rated Output Torque	Nm	15	20	45	90	115
最大出力軸轉矩 Max.Output Torque	Nm	3倍額定輸出力矩/3Times of Nominal Output Torque				
額定入力端馬達轉速 Rated Input Speed	rpm	1500	1000	1000	800	800
入力軸轉動慣量 Rotational Inertia	kg-cm ²	0.02	0.06	0.4	0.8	1.72
容許最大徑向負載 Max.Radial Force	N	300	500	1200	1600	2500
容許最大軸向負載 Max.Axial Force	N	150	200	500	1000	1800
扭轉剛性/Torsional Rigidity	Nm/弧分	1.2	1.5	5	12	21
可選用減速比/Ratio		2:1,5:1	2:1,5:1	2:1,5:1	2:1	2:1,5:1
重量/Weight	kg	0.7	1.3	4.1	8.5	14

RAS系列直角型減速機
RAS RIGHT-ANGLE REDUCERS

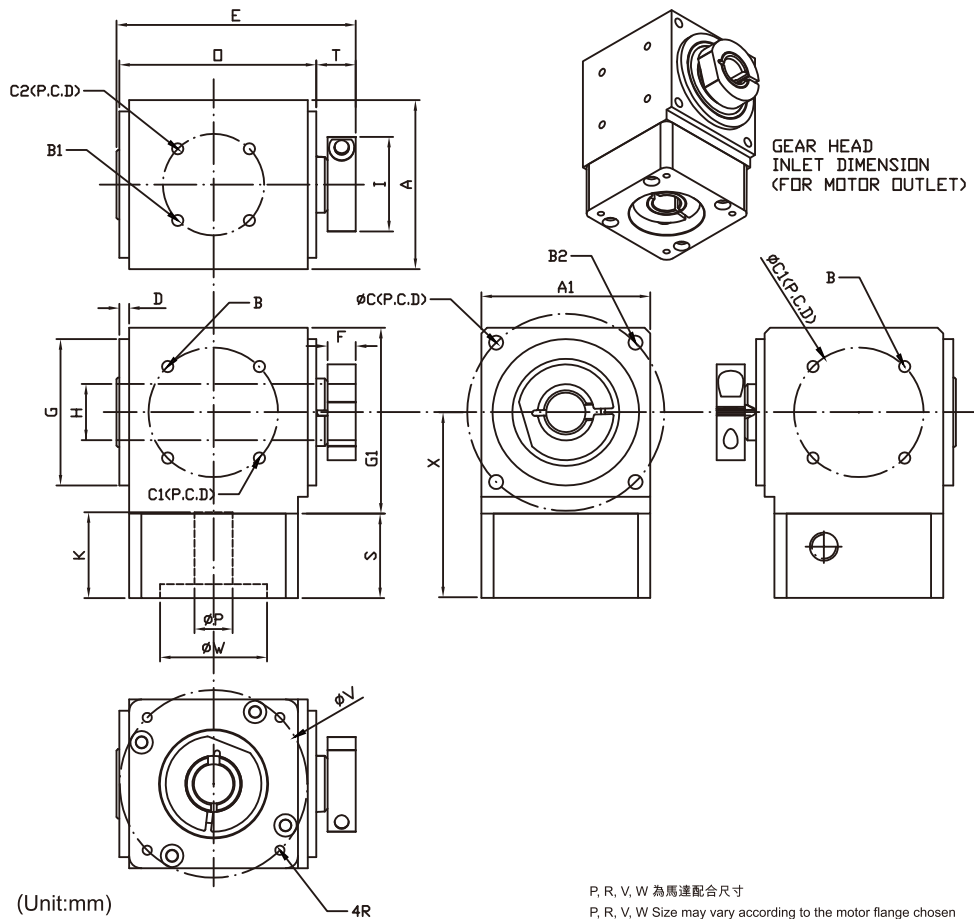
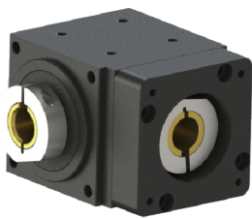


Specifications 規格

Unit:mm

尺寸 Dimensions	RAS042-02	RAS042-05	RAS060-02	RAS060-05	RAS090-02	RAS090-05	RAS120-02	RAS150-02
A	42.5	42.5	60	60	90	90	116	142
A1	42.5	42.5	60	60	90	90	116	142
B	M3	M3	M4	M4	M5	M5	M8	M10
B1	M3	M3	M4	M4	M5	M5	M8	M10
B2	M3	M3	M5	M5	M6	M6	M8	M10
C	48	48	70	70	100	100	145	165
C1	42	42	46	46	70	70	113.14	130
C2	35	35	36	36	60	60	113.14	115
D	3	3	3	3	5	5	4	4
E	75.5	75.5	99	98.5	145	149	172	240
F	10	10	28	27.3	42	46	46	73.5
G	36	36	52	52	80	80	110	130
G1	62.3	74.8	83.2	93.7	128.7	138.5	162	206
H	12	12	14	14	20	20	25	40
I	28	28	15.5	15.5	22.5	22.5	28	44.5
K	27	27	32	30	52	46	60	60
O	47	47	63.5	63.5	92	92	116	154
S	15.5	28	15	15	25	25	30	50
T	4	4	4	4	6	6	8	10
X	41	53.5	53.2	63.8	83.7	93.5	104	134

RAH系列直角型減速機
RAH RIGHT-ANGLE REDUCERS

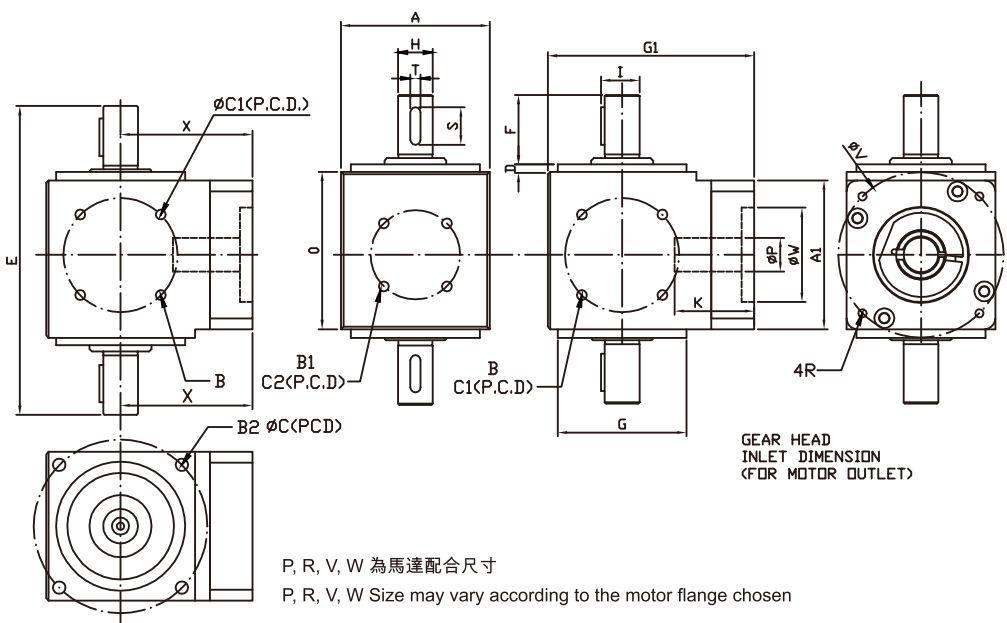
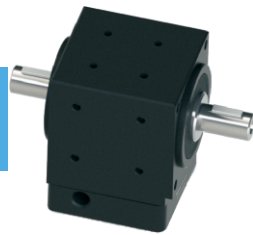


○ Specifications 規格

Unit:mm

尺寸 Dimensions	RAH042-02	RAH042-05	RAH060-02	RAH060-05	RAH090-02	RAH090-05	RAH120-02
A	42.5	42.5	60	60	90	90	116
A1	42.5	42.5	60	60	90	90	116
B	M3	M3	M4	M4	M5	M5	M8
B1	M3	M3	M4	M4	M5	M5	M8
B2	M3	M3	M5	M5	M6	M6	M8
C	46	46	70	70	100	100	145
C1	42	42	46	46	70	70	113.14
C2	35	35	36	36	60	60	113.14
D	3	3	3	3	5	5	4
E	66.5	66.5	84.2	85	122.7	124.5	150
F	10	10	10.5	10.5	14	14	20
G	36	36	52	52	80	80	110
G1	62.3	74.8	83.2	93.7	128.7	138.5	162
H	12	12	14	14	20	20	25
I	28	28	34	34	48	48	63
K	27	27	32	30	52	46	60
O	47	47	63.5	63.5	92	92	116
S	15.5	28	17.2	27.7	31.7	41.5	45
T	12.5	12.5	13.2	14	20	22	24
X	41	53.5	53.2	63.8	83.7	93.5	104

RAD系列直角型減速機
RAD RIGHT-ANGLE REDUCERS

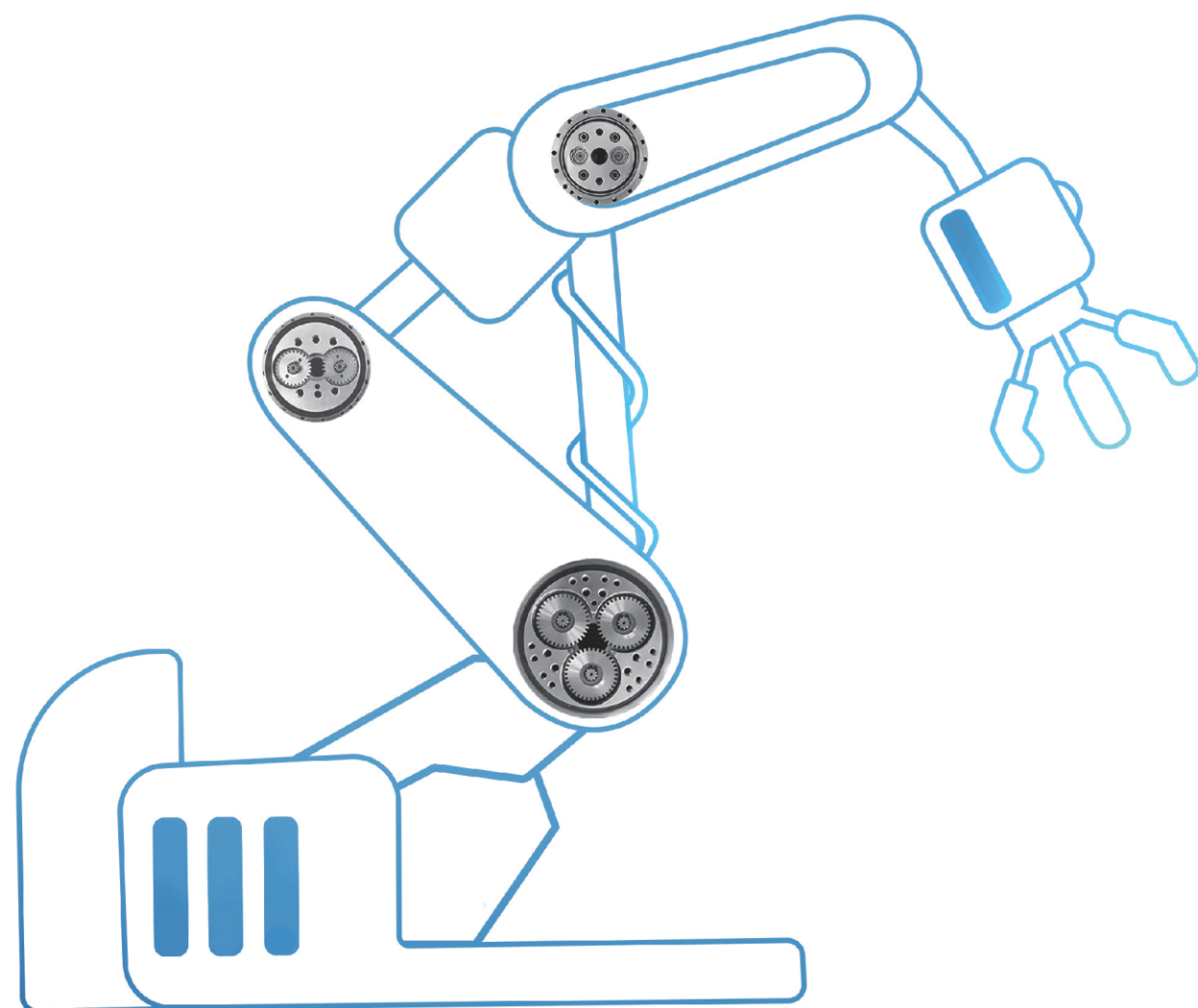


○ Specifications 規格

Unit:mm

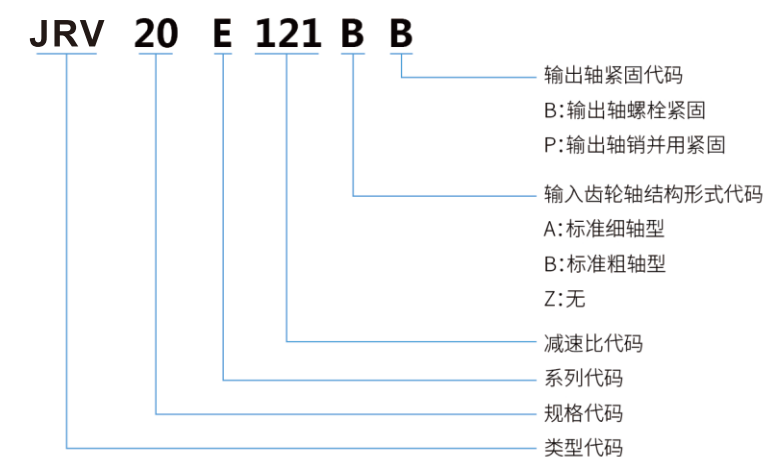
尺寸 Dimensions	RAD042-02	RAD042-05	RAD060-02	RAD060-05	RAD090-02	RAD090-05	RAD120-02	RAD150-02
A	42.5	42.5	60	60	90	90	116	142
A1	42.5	42.5	60	60	90	90	116	142
B	M3	M3	M4	M4	M5	M5	M8	M10
B1	M3	M3	M4	M4	M5	M5	M8	M10
B2	M3	M3	M5	M5	M6	M6	M8	M10
C	48	48	70	70	100	100	145	165
C1	42	42	46	46	70	70	113.14	130
C2	35	35	36	36	60	60	113.14	115
D	3	3	3	3	5	5	4	4
E	97	97	125	125	189	189	218	313.5
F	10	10	27	27	46	46	46	73.5
G	36	36	52	52	80	80	110	130
G1	62.3	74.8	83.2	93.7	128.5	138.5	162	206
H	12	12	14	14	20	20	25	40
I	28	28	15.5	15.5	22.5	22.5	28	44.5
K	27	27	32	32	52	46	60	60
O	47	47	63.5	63.5	92	92	116	154
S	15.5	28	15	15	25	25	30	50
T	4	4	4	4	6	6	8	10
X	41	53.5	53.2	63.8	83.7	93.5	104	134

RV减速器



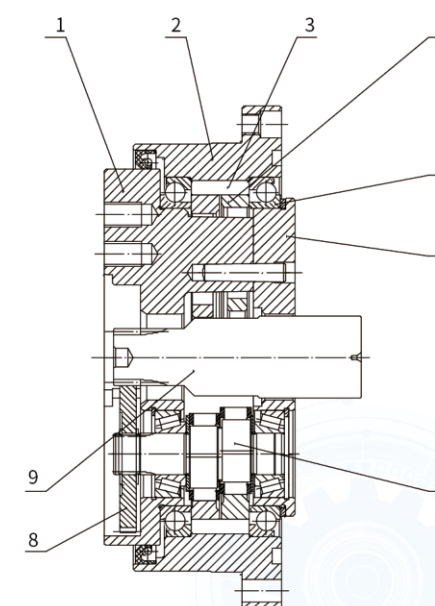
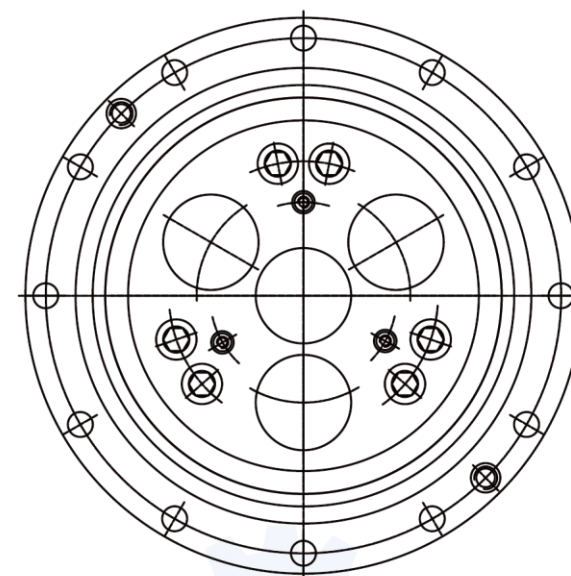
1、JRVE系列型号代码说明

E系列产品图片



2、结构和工作原理

结构



- 1 行星架座
- 2 针齿壳
- 3 滚针
- 4 摆线轮
- 5 主轴承
- 6 行星架座

- 7 偏心轴
- 8 行星齿轮
- 9 齿轮轴

谐波减速器



一、传动原理

1、谐波减速器的由来

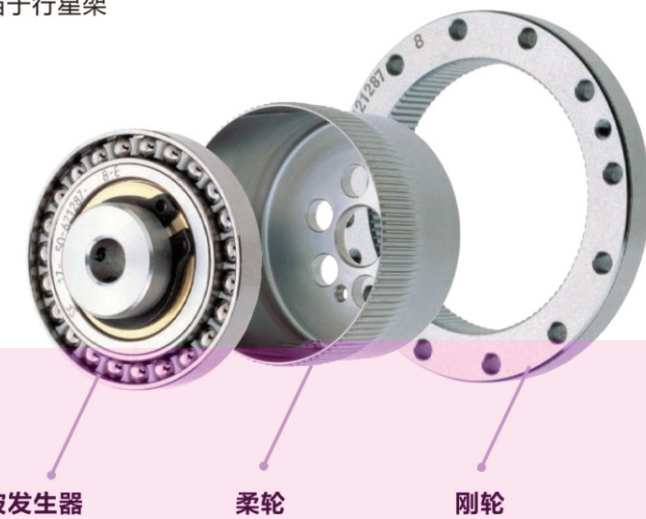
谐波传动是50年代中期随着空间科学技术的发展在薄壳弹性变形理论上发展起来的一种新型传动。该传动的基本原理由美国联合制鞋公司研究顾问C. Walt Musser (1909~1998)于1955年提出。1960年，C. Walt Musser在发表于美国机械设计杂志的论文中使用了Harmonic Drive一词，中文翻译为谐波传动或谐波齿轮传动。

谐波减速器是一种靠波发生器使柔轮产生可控的弹性变形波，通过与刚轮的相互作用，实现运动和动力传递的传动装置。

2、谐波减速器基本机构

它主要由三个基本构件组成:

- (1)钢轮：带有内齿圈的刚性齿轮，它相当于行星系中的中心轮;
- (2)柔轮：带有外齿圈的柔性齿轮，它相当于行星齿轮
- (3)波发生器：它相当于行星架



谐波传动的特点：

- 1、承载能力高，谐波传动中齿与齿的啮合是面接触，加上同时啮合齿数(重叠系数)比较多，因而单位面积载荷小，承载能力较其他传动形式高。
- 2、传动比大，单级谐波齿轮传动的传动比，可达 $i=50\sim500$ 。
- 3、体积小、重量轻。
- 4、传动效率高、寿命长。
- 5、传动平稳、无冲击，无噪音，运动精度高。

○ Tightening Torque Table 鎖緊扭力表

Tightening Torque Recommended for Motor Mounting Bolt / 與馬達組合鎖緊螺絲扭力建議表

螺絲尺寸 Bolt Size	六角頭尺寸 Width Across Flats	強度8.8螺絲之鎖緊扭力 Strength 8.8 Tightening Torque		強度10.9螺絲之鎖緊扭力 Strength 10.9 Tightening Torque		強度12.9螺絲之鎖緊扭力 Strength 12.9 Tightening Torque	
	mm	N-m	In-lbs	N-m	In-lbs	N-m	In-lbs
M3*0.5P	2.5	1.3	12	1.8	16	2.1	19
M4*0.7P	3	3	27	4.1	37	4.9	44
M5*0.8P	4	6.1	55	8.2	73	9.8	87
M6*1P	5	11	98	14	124	17	151
M8*1.25P	6	25	222	34	302	41	364
M10*1.5P	8	49	434	67	594	80	709
M12*1.75P	10	85	753	116	1028	139	1232
M14*2P	12	137	1214	186	1648	223	1976
M16*2P	14	210	1860	286	2534	343	3038

减速机专业制造商
Reducer professional manufacturer