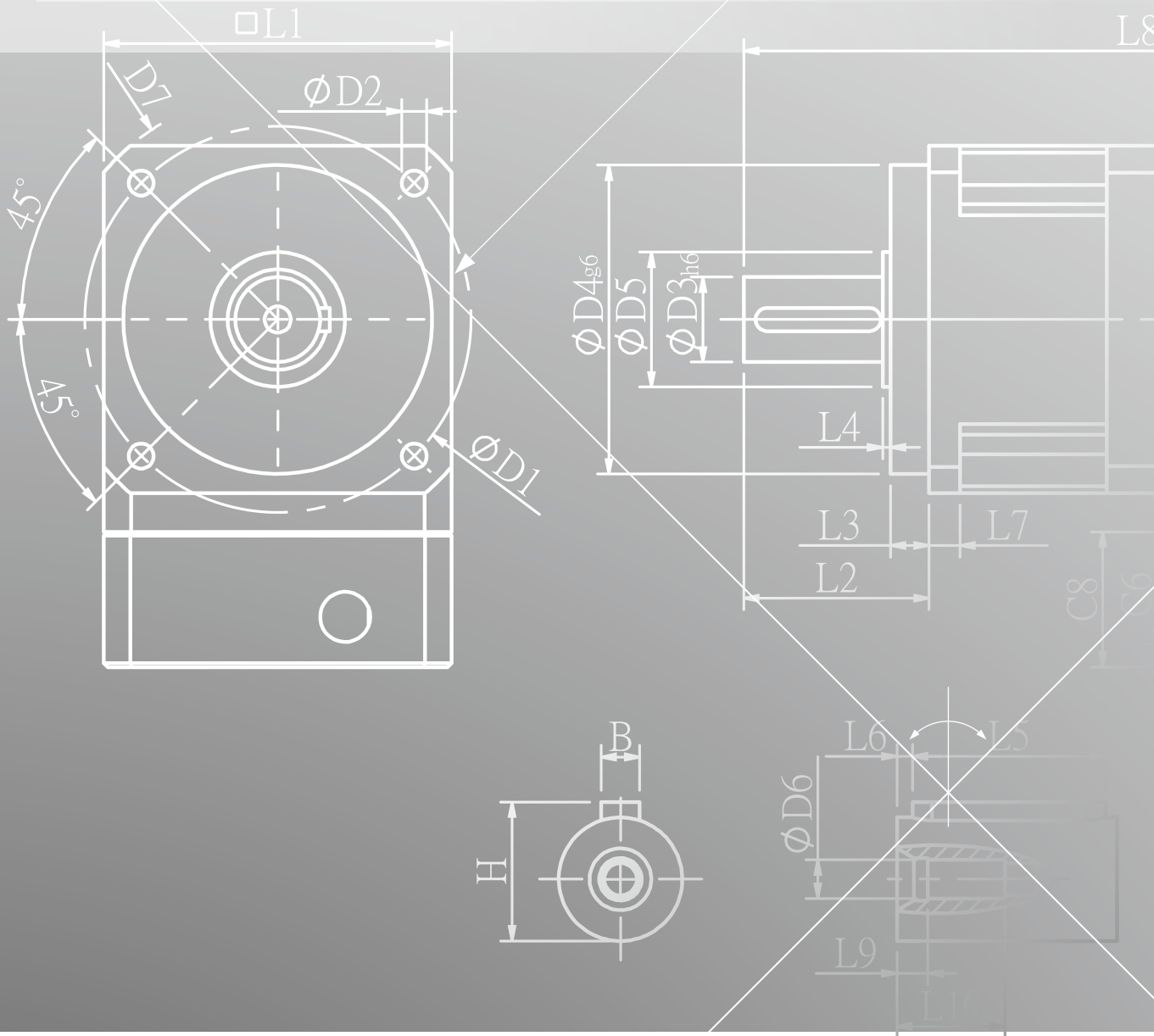
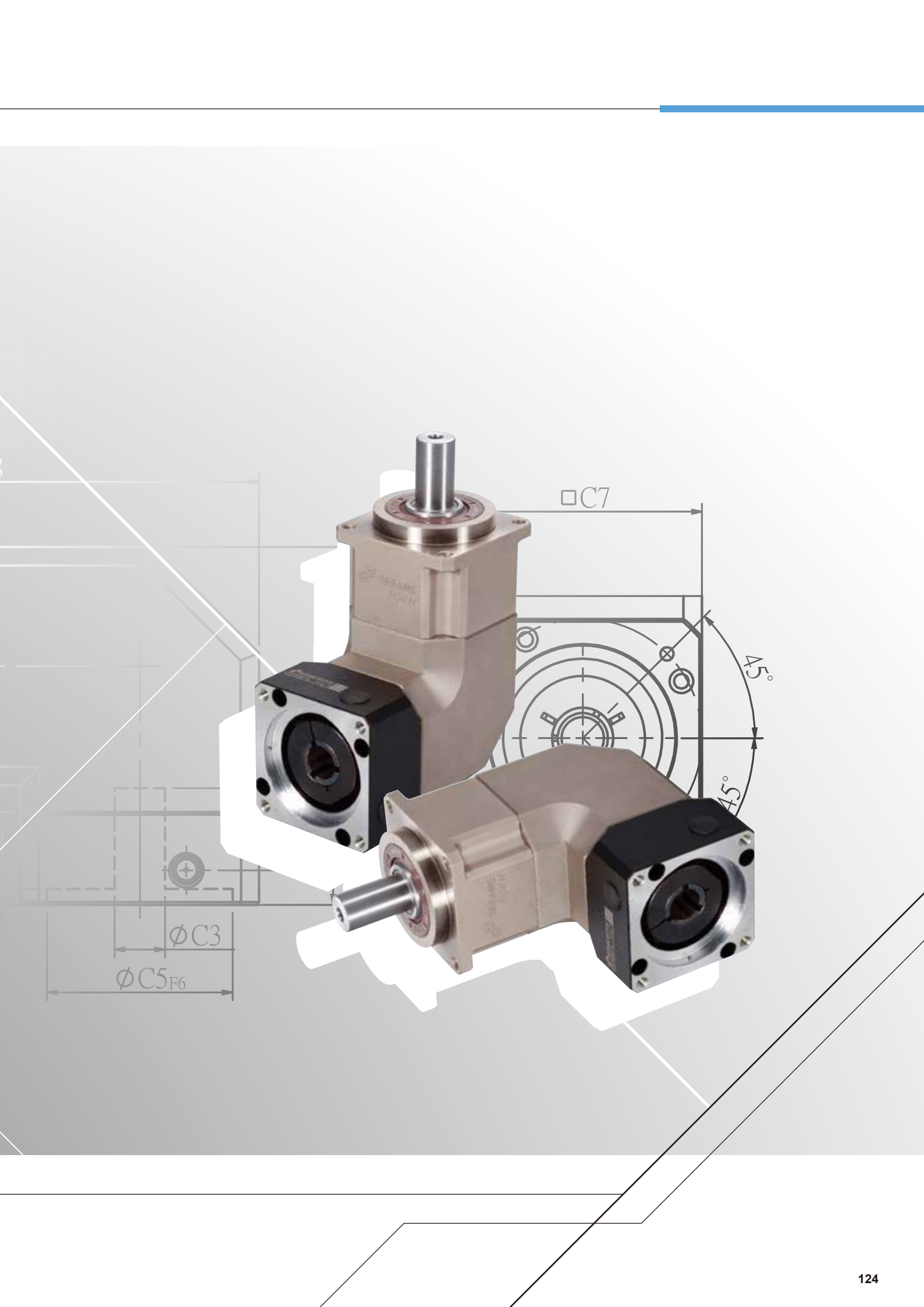
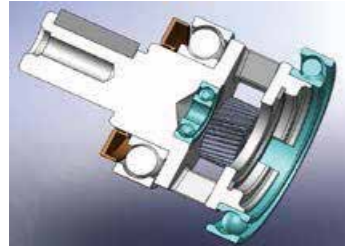


# PGRH SERIES

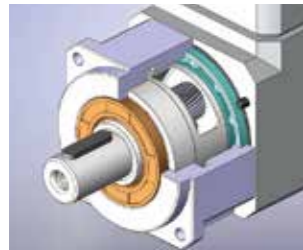




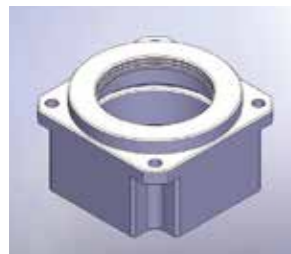
PGRH SERIES FEATURES PGRH系列 產品特點



行星固定架及出力軸設計一體成型，目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.



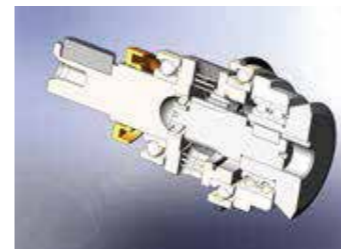
出力軸表面與油封搭配確保最低磨擦係數和減少啓動負載，保持最佳密封性，延長使用壽命。  
Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan.



先進無電鍍表面處理，耐刮，耐腐蝕，最適合高科技設備嚴苛要求。  
本體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。  
Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.  
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.



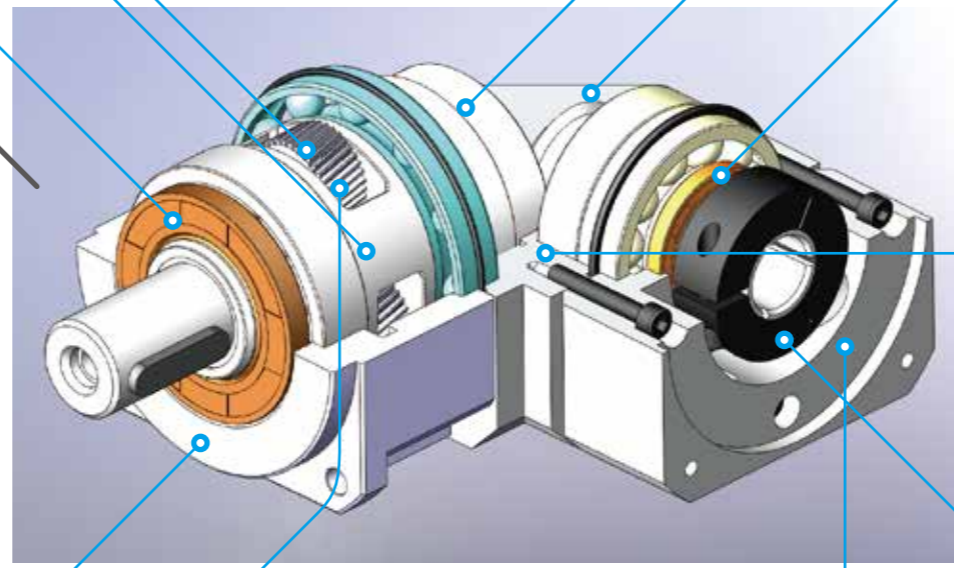
齒輪材質選用高級合金鋼，獨特熱處理至最佳硬度，兼具表面硬度及心部韌度，並經過齒型研磨加工，以獲得最佳的精度、高耐磨耗及高耐衝擊韌性。  
Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.



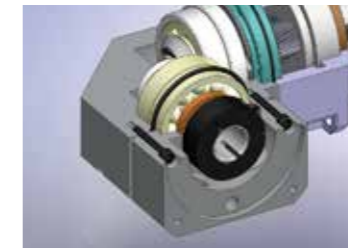
太陽齒前端軸承直接置入於行星固定架內，整體機械結構設計，以確保傳動元件的同軸度。  
The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.



螺旋傘型齒輪採用高級合金鋼為材質，在滾齒加工及熱處理後，達到高精度咬合點及低背隙、低噪音。  
Alloy steel spiral bevel gears selected after hobbing and heat treatment to ensure high accuracy of the engagement point, low backlash and low noise.



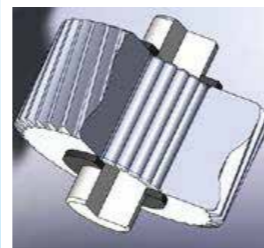
**PGRH系列整體設計上可容許伺服馬達高轉速的輸入，達到最大扭力輸出。直角設計可節省空間。精密齒輪設計及專業齒輪加工，製造出低運轉背隙、高效率、低噪音及長壽命的行星減速機。**  
**PGRH Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Right-angular designed drastically reducing the installation space. Precision gear design and gear processing create a planetary gearhead with low backlash operation, high efficiency, low noise and long lifespan.**



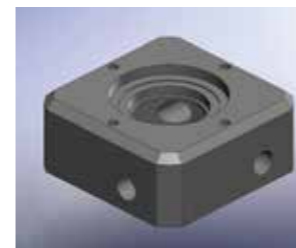
高科技油封設計上唇為防塵唇，下唇為防油唇。採IP65防護等級的密封設計，採用高級潤滑油脂，不洩漏、免保養。  
High-tech oil seal design on the upper lip guard against dust intruder, lower lip to guard against oil leak. Advanced lubricants grease and IP65 protection safeguards fully avoid leaking and given it maintenance-free.



直角加工採用高精度CNC設備。超越業界技術門檻與齒輪獲得最高精密組合。螺旋傘齒箱表面無電鍍處理，耐刮及耐腐蝕最適合高科技設備嚴苛需求。  
Right angular gear box processed by precision CNC equipment to obtain the highest combination with spiral bevel gears. Advanced electroless nickel plating surface treatment resists scratch and corrosion. Suitable for stringent require of high-tech equipment.



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.



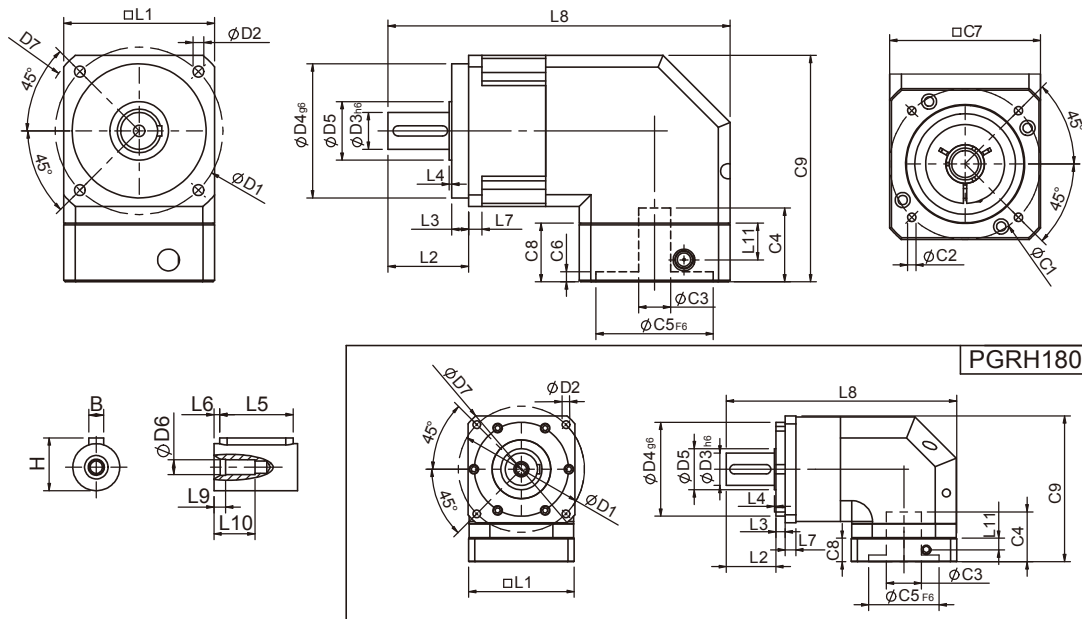
先進馬達連接板設計，配合入力軸襯套，安裝容易，可與各種廠牌之伺服、步進馬達完美搭配組合。  
Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.



輸入端與馬達入力軸連結方法採用控緊式機構，鎖緊環經過動平衡分析，確保高轉速下，結合介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.

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 <sub>h6</sub>	13	16	22	32	40	55	75
D4 <sub>g6</sub>	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 <sup>2</sup>	46	70	90	115	145	200	215
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P	M12x1.75P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50	≤55
C4 <sup>2</sup>	29	34	44	53	76.8	78.8	98.7
C5 <sup>2</sup> <sub>F6</sub>	30	50	70	95	110	114.3	180
C6 <sup>2</sup>	6	5	5	6	9	6	6
C7 <sup>2</sup>	42.6	60	90	115	140	182	220
C8 <sup>2</sup>	25	33	35	48	65	40	85
C9 <sup>2</sup>	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。

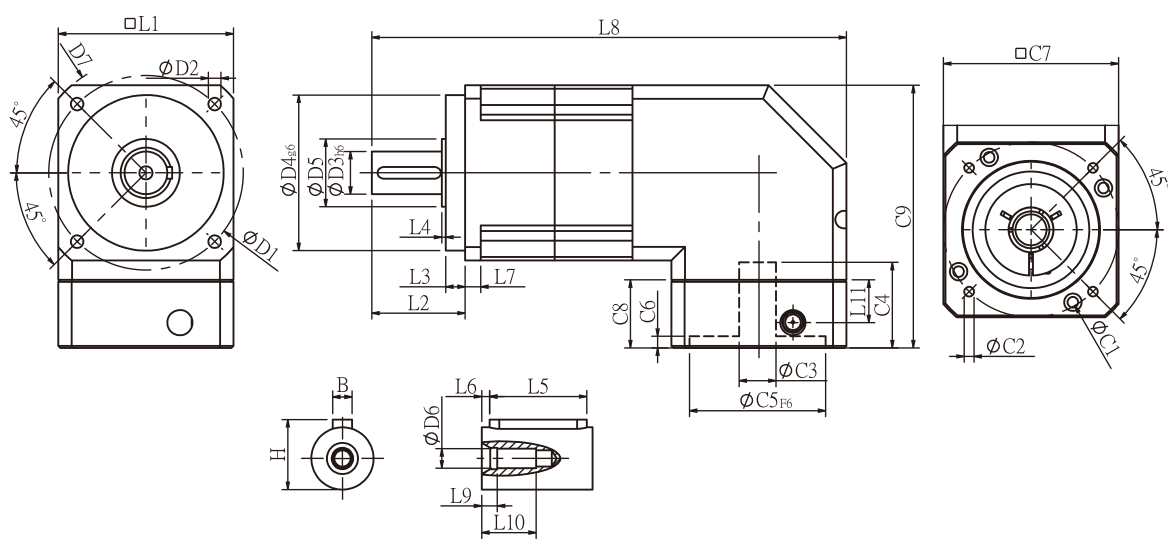
★ 本公司有權針對以上數據規格進行設計變更不先行告知。

★ 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-1 PGRH雙段外型尺寸圖-1

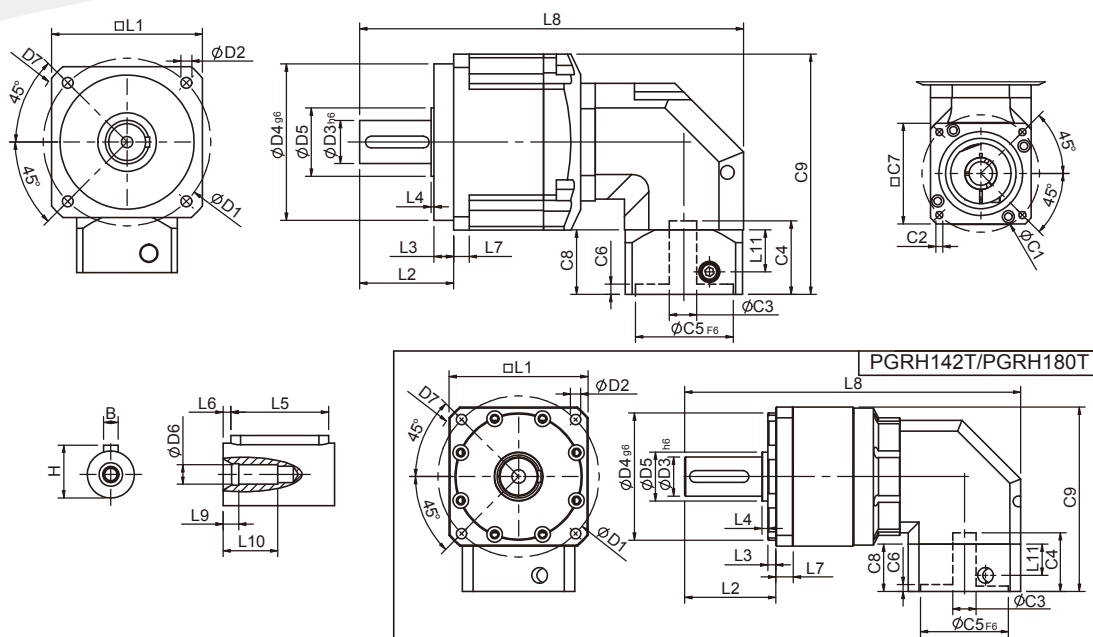


## Specifications 規格 Unit:mm

尺寸 Dimensions	PGRH42	PGRH60	PGRH90
D1	50	70	100
D2	3.4	5.5	6.5
D3 <sub>h6</sub>	13	16	22
D4 <sub>g6</sub>	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 <sup>2</sup>	46	70	90
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24
C4 <sup>2</sup>	29	34	44
C5 <sup>2</sup> <sub>F6</sub>	30	50	70
C6 <sup>2</sup>	6	5	5
C7 <sup>2</sup>	42.6	60	90
C8 <sup>2</sup>	25	33	35
C9 <sup>2</sup>	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 <sub>h6</sub>	16	22	32	40	55	75
D4 <sub>g6</sub>	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 <sup>2</sup>	46	70	90	115	145	200
C2 <sup>2</sup>	M4x0.7P	M5x0.8P	M6x1.0P	M8x1.25P	M8x1.25P	M12x1.75P
C3 <sup>2</sup>	≤8/≤11	≤14/≤19	≤19/≤24	≤24/≤32	≤35	≤50
C4 <sup>2</sup>	29	34	45.2	53.5	76.8	78.8
C5 <sup>2</sup> <sub>F6</sub>	30	50	70	95	110	114.3
C6 <sup>2</sup>	6	5	5	6	9	6
C7 <sup>2</sup>	42.6	60	90	115	140	180
C8 <sup>2</sup>	25	33	35	48	65	65
C9 <sup>2</sup>	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。

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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.

## PGRH Specifications Table PGRH性能規格共表

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 <sub>2N</sub> 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
		2	減速比 Ratio	PGRH-42	PGRH-60 (T)	PGRH-90(T)	PGRH-115T	PGRH-142T	PGRH-180T	PGRH-220T
			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 <sub>2NOT</sub> 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 <sub>2B</sub> =60% of Emergency Stop Torque)							
額定輸入轉速 n <sub>1N</sub> Nominal Input Speed	rpm	1,2	3-200	5000	5000	4000	4000	3000	3000	2000
最大輸入轉速 n <sub>1max</sub> 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
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 <sub>2RB</sub> <sup>1</sup> Max. Radial Load	N	1,2	3-200	760	1570	2780	5340	9000	14000	31810
容許軸向力 F <sub>2aB</sub> <sup>1</sup> 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 <sup>2</sup>	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 <sup>2</sup>	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	Kg • cm <sup>2</sup>	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.

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