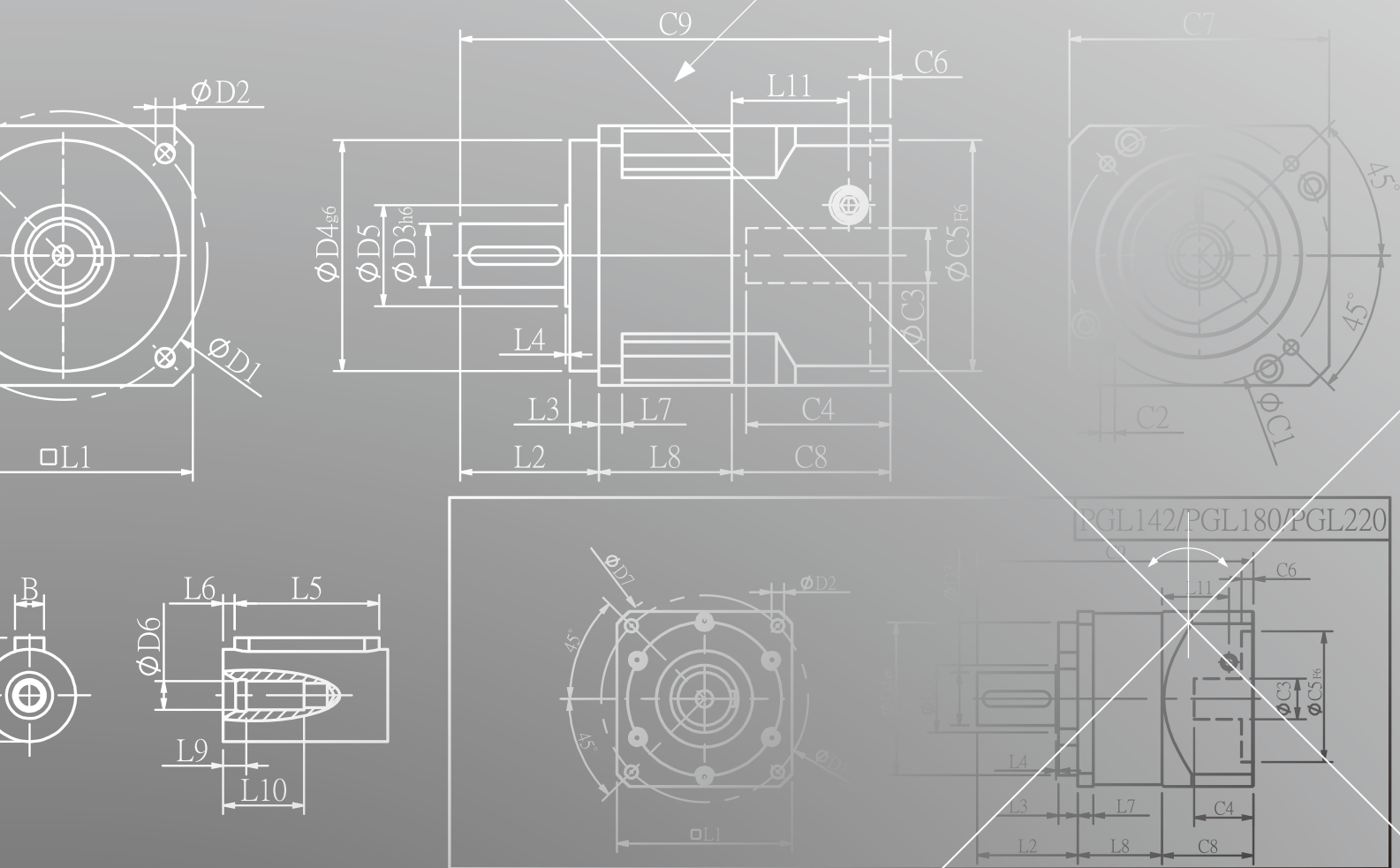
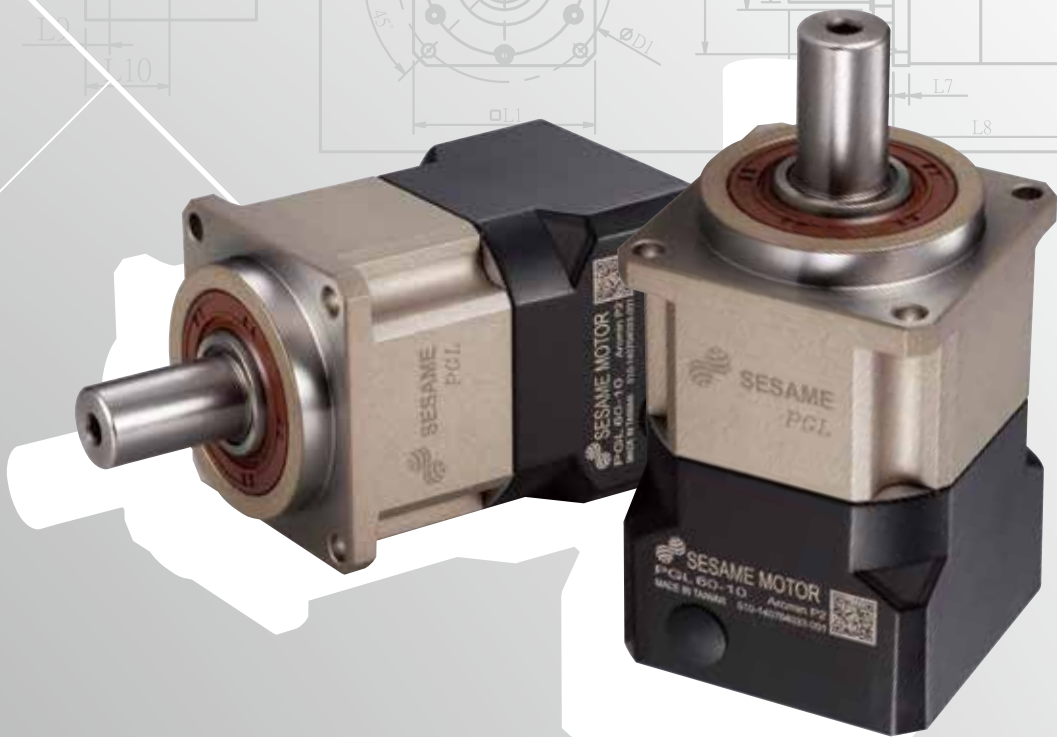
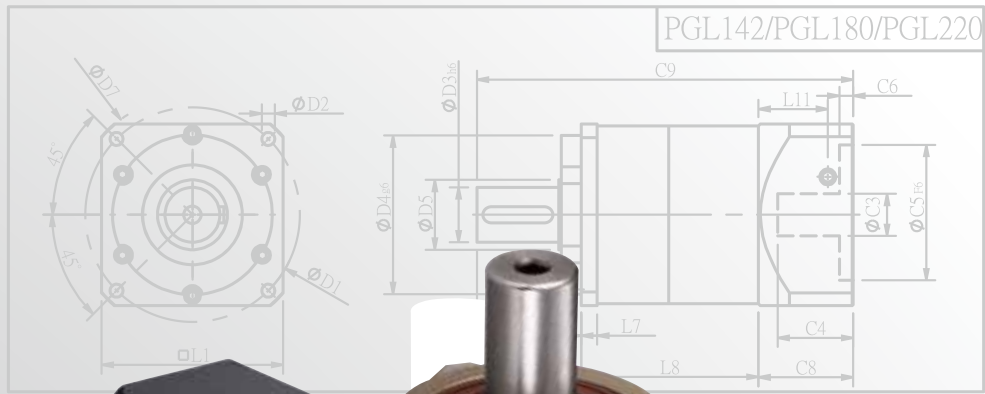
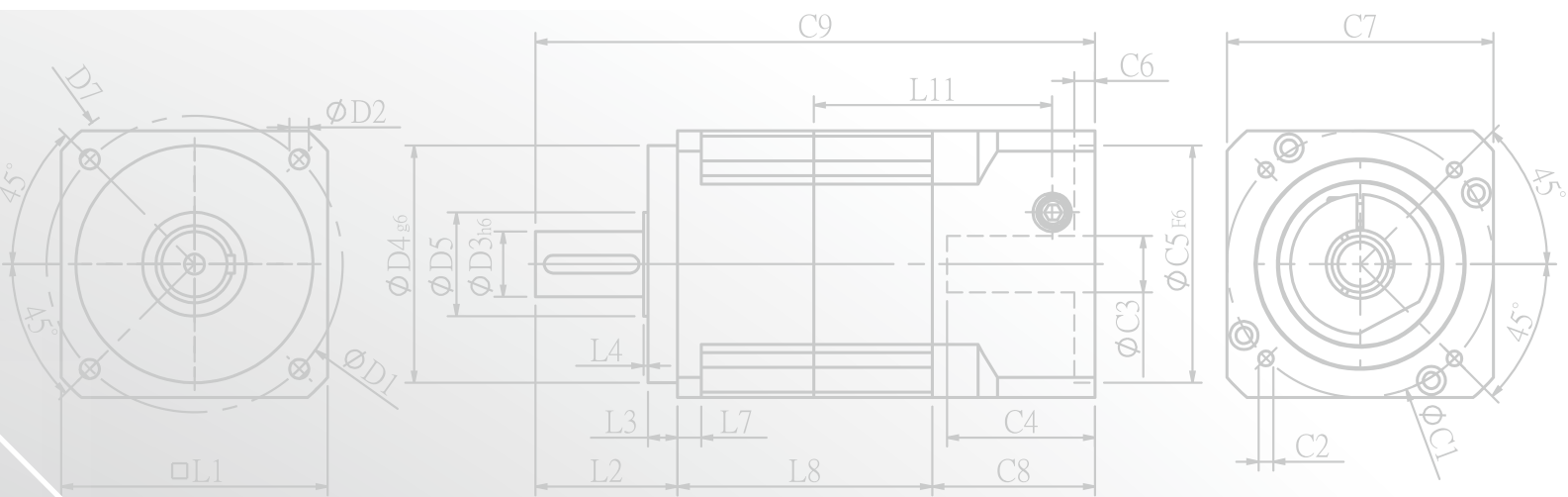


PGL SERIES





PGL SERIES FEATURES PGL系列 產品特點

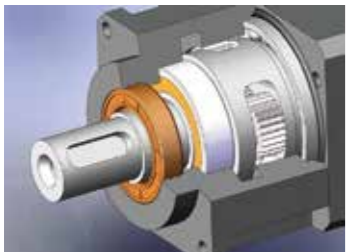


齒輪材質選用高級合金鋼，獨特熱處理至最佳硬度，並經過齒型研磨加工，以獲得最佳的精度、高耐磨耗及高耐衝擊韌性。
Alloy steel gear with unique heat treatment. Additionally, with gear grinding processing to get the best accuracy, high wear resistance and high impact toughness.

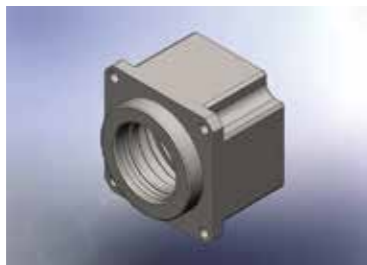


太陽齒前端軸承直接置入於行星固定架內，整體機械結構設計，以確保傳動元件的同心度。
The sun gear bearing is placed directly into the planetary arm bracket, the overall mechanical structure designed to ensure concentricity of the transmission components.

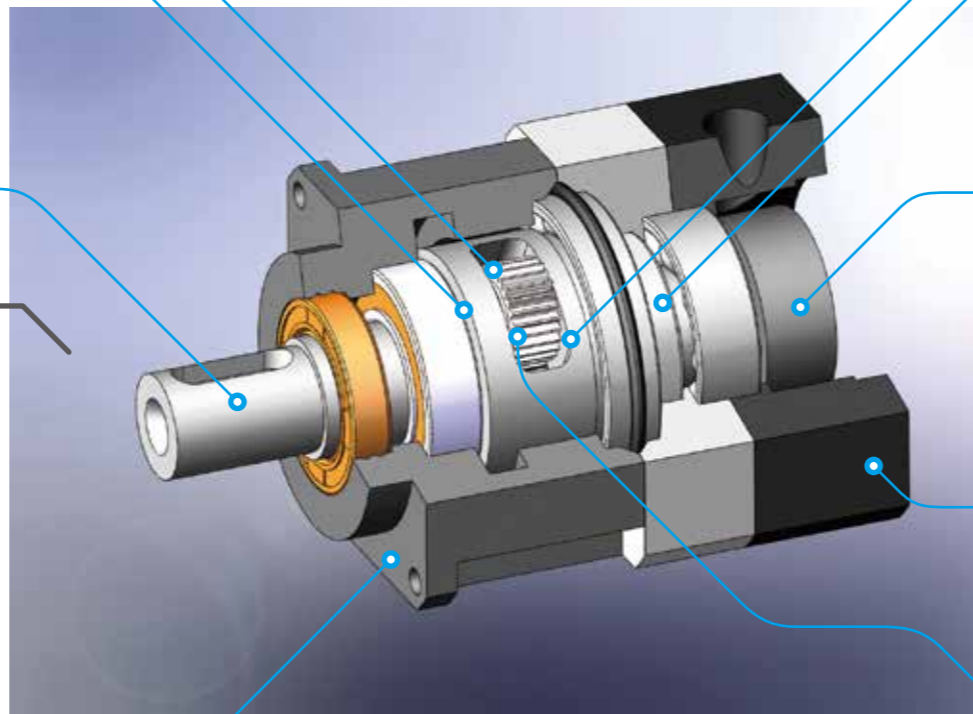
行星固定架及出力軸設計一體成型，且前後培林設定位置為大跨距，可達到最大扭轉剛性及出力軸高徑向負載能力。
Planetary arm bracket and output shaft are one-piece constructed, setting bearing apart for larger span to reach the largest reverse rigid and contribute high axis radial load capacity.



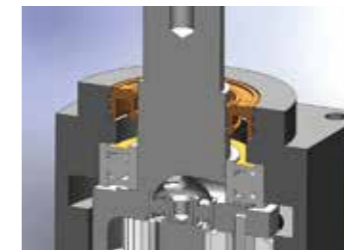
出力軸表面與油封搭配確保最低摩擦係數和減少啓動負載，保持最佳密封性，延長使用壽命。
Grinding process to smooth surface of output shaft, and with oil-seal to minimum friction coefficient and reducing start up load; result in the best seal-ability and extended lifespan.



先進無電解鍍表面處理，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。具有高精密度，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.



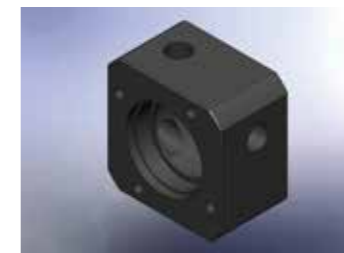
PGL 系列整體設計上可容許伺服馬達高轉速的輸入，達到最大扭力輸出。精密齒輪設計及專業齒輪加工，製造出低運轉背隙、高效率、低噪音及長壽命的行星減速機。
PGL Series overall design suitable for combination operation with servo motor high-speed input and achieves maximum torque output. Precision gear design and gear processing, create a low backlash operation, high efficiency, low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



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.



輸入端與馬達入力軸連結方法採用拴緊式機構，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 concentricity and zero slip power transmission at high speed.



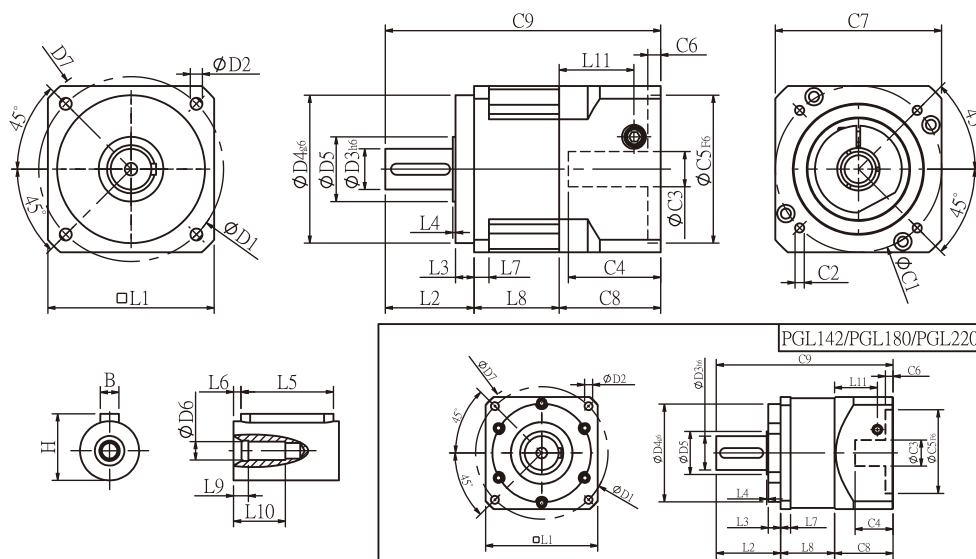
先進馬達連接板設計，配合入力軸襯套，安裝容易，可與各種廠牌之伺服、步進馬達完美搭配組合。
Advanced motor bracket design coupled with the input shaft bushing is easy to mount to any servo or stepper motor.



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.

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



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

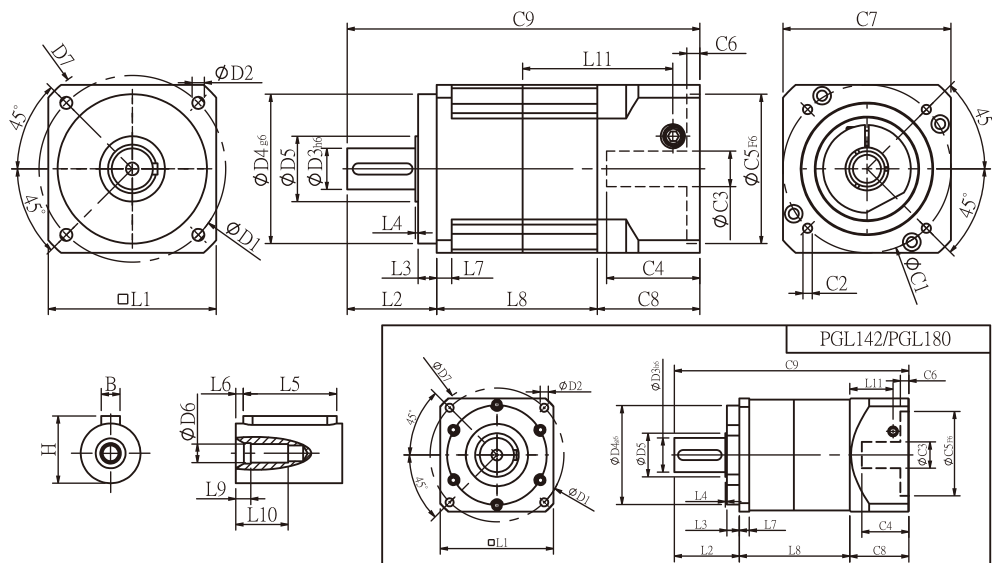
★ C1~C9是公製標準馬達連接板尺寸,請依所選用的馬達決定。

★ 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-1 PGL雙段外型尺寸圖-1

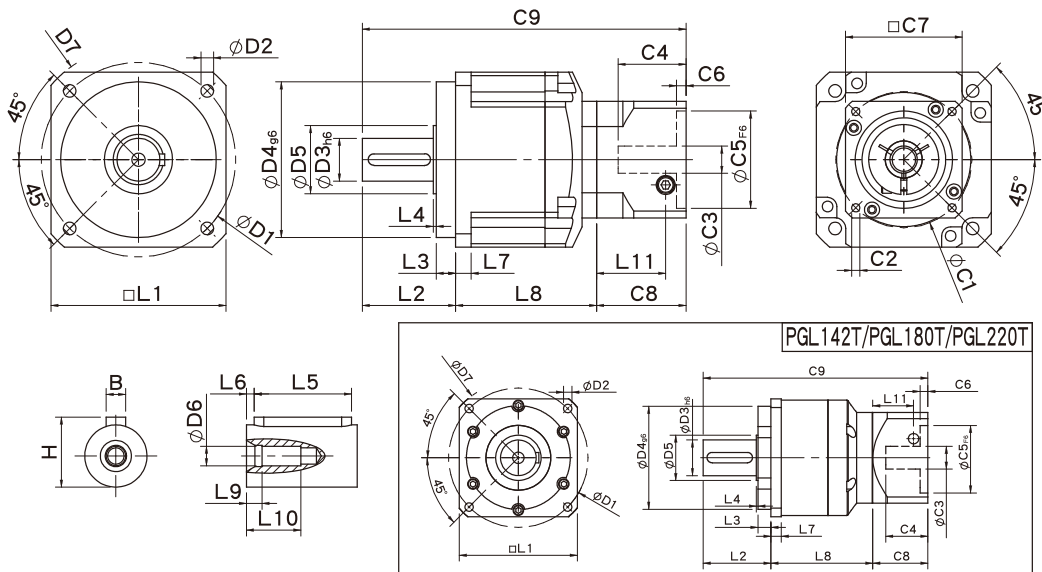


Specifications 規格 Unit:mm

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。
 ★ 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進行設計變更不先行告知。
 ★ Specification subject to change without notice.

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



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。

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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.

PGL Specifications Table PGL性能規格共表

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
	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	2000		
最大輸入轉速 n_{1max} Max. Input Speed	rpm	1,2	3-100	6000	6000	6000	5000	4000	4000	4000		
超精密背隙 Micro Backlash P0	arcmin	1	3-10	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3		
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	-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.

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