

**VARITRON<sup>®</sup>**  
Take Control In Speed

驅動科技系列產品  
*Power Transmission Technologies*



# Precision Planetary Gearbox

## 精密行星減速機

### Quiet Operation 靜音

Feature design to reduce vibration and noise to under 65dB.

採用防振動、低噪音的行星設計構造，低於65dB。

### High Precision Low Backlash 高精度 低背隙

High precision machined allows up to 3 Arcmin (0.05°) can be chosen.

(DA Series)

精密加研磨，背隙最高3弧分(0.05°)可選擇。(DA系列)

### High Efficiency 高效率

Exceeds 95% for single stage and 92% for Double Stage.

一段效率高達95%和二段92%。

### High Torque and Stability 高扭矩與穩定性

High tensile strength alloy steel and improved gear hardening technics employed to maintain high accuracy and long service life.

齒輪選用高級鉻鉬合金鋼，切削加工後，經滲碳熱處理，在進行兩次加工skiving或研磨加工確保齒輪高精度與壽命。

### High Precision Gear

The planetary gear and sun gear are manufactured from high quality Ni-Cr-Mo alloy steel. Precision machined and carburized, then for precision tooth grinding or skiving assures gears high precision.

### Single-piece Gearbox & Advanced Surface Treatment

The gearbox and internal gear ring are single price design and constructed, which is manufactured from Cr-Mo alloy steel, and tempered for high torque output. Gearbox surface is anti-corrosive treated for upgrading environmental resistant and corrosion resistant capability.

### Modular Design of Motor Connection Flange

The special modular design of motor connection flange is suitable for any brand and any type of servo motor. Manufactured from aluminum alloy, its surface is anodized treated for upgrading environmental-resistant and corrosion-resistant capability.

### Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are single piece design constructed to increase torsional rigidity and accuracy. The entire structure is one-time machined for controlling accuracy in the specified tolerance. (except for DH and DL series below 90)

### Modular Input Shaft

Modular input shaft design and motor shaft are coupled through a dynamic balanced collar clamping mechanism to ensure connection concentricity and zero slip power transmission at high speed.



### 高精度齒輪

行星齒輪及太陽齒輪選用高級鉻鉬合金鋼，切削加工後經滲碳熱處理，在進行兩次加工skiving或研磨加工確保齒輪高精度。

### 一體式齒輪箱本體

齒輪箱和內齒輪採一體式的設計，採用鉻鉬合金鋼經調質後加工，輸出扭矩大，精密度高。表面防銹處理，提高環境的耐受性和抗腐蝕能力。

### 模組化馬達連接法蘭設計

獨特的馬達連接板模組化設計，適用於任何廠牌和型式的伺服馬達，材質採用鋁合金，表面抗氧化陽極處理，提高環境的耐受性和抗腐蝕能力。

### 一體式的行星臂架及雙軸承加大誇距設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。並採用滾珠軸承大誇距配置設計，增加輸出軸之徑向負荷。(除DH及DL90以下系列)

### 入力軸模組化

模組化輸入軸與馬達入力軸連結方式採用拴緊式機構，確保高轉速下，結合界面的同心度及零滑差動力傳遞。

Catalog 目錄



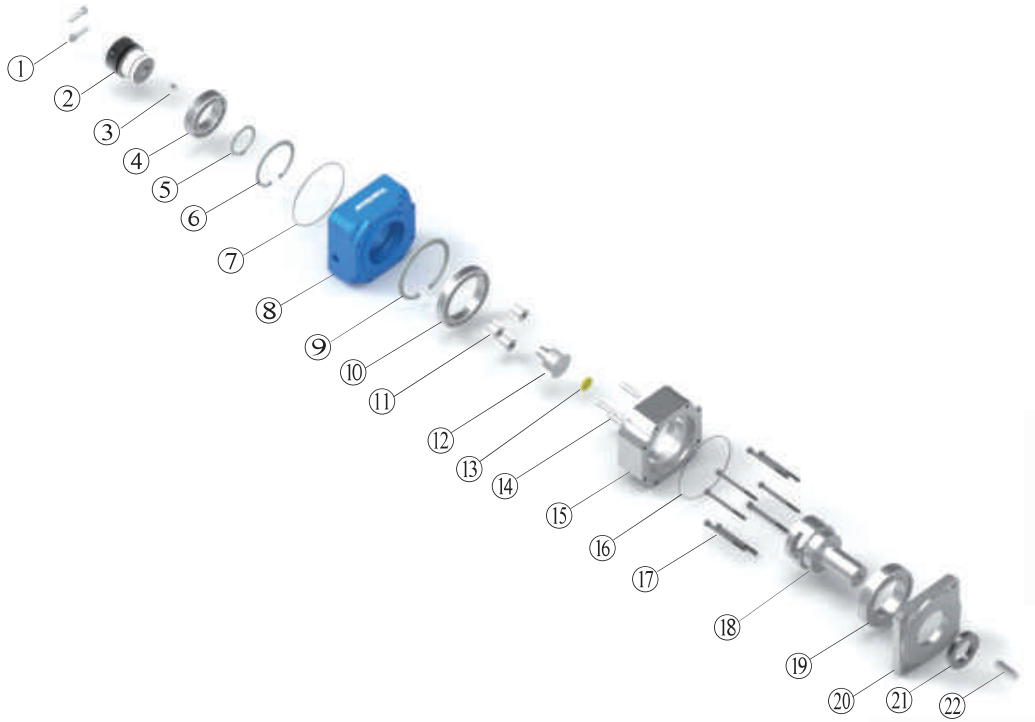
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Manual 保養手冊



gear.fyi/ppm

# Construction Drawing 構造圖



Item 項次	Component 零組件	Item 項次	Component 零組件	Item 項次	Component 零組件
1	Screw 螺絲	10	Bearing 軸承	19	Bearing 軸承
2	Input Shaft 入力軸	11	Planetary gear 行星齒	20	Slow Speed End Cap 出力蓋
3	Key 鍵	12	Sun gear 太陽齒	21	Oil Seal 油封
4	Bearing 軸承	13	Stopping plate 止推銅	22	Key 鍵
5	Snap Ring 扣環	14	Needle roller 滾針 (滿針)		
6	Snap Ring 扣環	15	Inner tooth ring 內齒		
7	O-ring O型環	16	O-ring O型環		
8	Input cover 入力蓋	17	Screw 螺絲		
9	Snap Ring 扣環	18	Output Shaft 出力軸		

# Series Specifications 系列規格表

Model 型式	DA	DG	DGT	DM/DML	RAM-S	RAM-SS	RAM-H	RAM-D	RAM-F	DF	DH/DL	RAH-S	RAH-SS	RAH-H	RAH-D	RAH-F	DN
Inline 直線型	●	●	●	●						●	●						●
Right Angle 直角型					●	●	●	●	●			●	●	●	●	●	
Helical Gear 斜齒輪	●	●	●														
Spur Gear 正齒輪				●	●	●	●	●	●	●	●	●	●	●	●	●	●
Backlash 背隙 1 Stage 單段	≤1	≤5	≤5	≤5	≤8	≤8	≤8	≤8	≤8	≤5	≤10	≤13	≤13	≤13	≤13	≤13	≤10
Backlash 背隙 2 Stage 雙段	≤3	≤8	≤8	≤8	≤10	≤10	≤10	≤10	≤10	≤8	≤12	≤15	≤15	≤15	≤15	≤15	≤12
Radial Load 徑向力	GREAT	GREAT	BEST	GREAT	GOOD	GOOD	GREAT	GREAT	GREAT	GREAT	GREAT	GOOD	GOOD	GREAT	GREAT	GREAT	BEST
Axial Load 軸向力	GREAT	GREAT	BEST	BEST	GOOD	GOOD	GOOD	GOOD	GOOD	BEST	GREAT	GOOD	GOOD	GOOD	GOOD	GOOD	GREAT
Output shaft 出力軸	●	●	●	●	●	●					●	●	●				●
Output flange 出力法蘭									●	●							●
Output Bore 出力中空軸							●	●						●	●		

※ Contact Varitron® for lower backlash and custom design. 更低背隙或其他規格可定制。\*BEST: 最佳, GREAT: 佳, GOOD: 好。



# I How to order 選型

## DG 090 - L1 - 3 - S - B - P - M - A - R

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

①	Model 型式	<p>DA: Helical Gear High Precision Planetary Gearbox 斜齒輪高精密型</p> <p>DG: Helical Gear High Precision Planetary Gearbox 斜齒輪高精密型</p> <p>DGT: High R-A Load Helical Gear High Precision Planetary 斜齒輪軸徑向負高精密型</p> <p>DM: Spur Gear High Precision Planetary Gearbox 正齒輪高精密型</p> <p>DML: Spur Gear High Precision Planetary Gearbox 正齒輪高精密型</p> <p>DF: Spur Gear High Precision Flange Type Planetary Gearbox 正齒輪法蘭式高精密型</p> <p>DH: Spur Gear Precision Planetary Gearbox 正齒輪精密型</p> <p>DL: Spur Gear Precision Planetary Gearbox 正齒輪精密型</p> <p>DN: High R-A Load Spur Gear Precision Planetary Gearbox 正齒輪軸徑向負荷精密型</p> <p>RAM-S: High Precision Shaft Output Spiral Bevel Gearbox 高精密單出力軸直角型</p> <p>RAM-SS: High Precision Double Shaft Spiral Bevel Gearbox 高精密雙出力軸直角型</p> <p>RAM-H: High Precision Hollow Shaft Spiral Bevel Gearbox 高精密中空軸直角型</p> <p>RAM-D: High Precision Clamping Shaft Spiral Bevel Gearbox 高精密束軸直角型</p> <p>RAM-F: High Precision Flange Spiral Bevel Gearbox 高精密法蘭直角型</p> <p>RAH-S: Precision Shaft Output Spiral Bevel Gearbox 精密單出力軸直角型</p> <p>RAH-SS: Precision Double Shaft Spiral Bevel Gearbox 精密雙出力軸直角型</p> <p>RAH-H: Precision Hollow Shaft Spiral Bevel Gearbox 精密中空軸直角型</p> <p>RAH-D: Precision Clamping Shaft Spiral Bevel Gearbox 精密束軸直角型</p> <p>RAH-F: Precision Flange Spiral Bevel Gearbox 精密法蘭直角型</p>
②	Frame Size 型號	042,060,070,080,090,120,150,180,220 ... Refer to Gearbox Quick Selection Table Page B35. 請參考快速選擇表第 B35 頁
③	Stage 段數	L1, L2, L3
④	Ratio 減速比	<p>L1: 3 / 4 / 5 / 7 / 10</p> <p>L2: 9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 40 / 49 / 50 / 70</p> <p>L3: 36 / 45 / 60 / 75 / 80 / 150 / 200 / 300 / 400 / 500 / 700 / 1000</p> <p>Refer to each series Specifications Table. 請參考各型號規格表</p>
⑤	Motor Shaft Diameter 馬達軸心直徑(S)	Customized according to customer requirement. 依客戶需求訂製
⑥	Motor Pilot Diameter 馬達引導外徑(B)	Customized according to customer requirement. 依客戶需求訂製
⑦	Motor Guide Depth 馬達引導深度(P)	Customized according to customer requirement. 依客戶需求訂製
⑧	Installing Screw P.C.D 安裝螺絲孔直徑(M)	Customized according to customer requirement. 依客戶需求訂製
⑨	Installing Screw Size 安裝螺絲孔內徑(A)	Customized according to customer requirement. 依客戶需求訂製
⑩	Motor Shaft Length 馬達出力軸長度(R)	Customized according to customer requirement. 依客戶需求訂製

※ Dimensions and specifications in the catalog are subject to change without notice. 尺寸及規格若有變動，將不另行通知。



## Model 型式 ①

### Helical Gear High Precision Planetary 斜齒輪高精行星減速機

DA	DG	DGT
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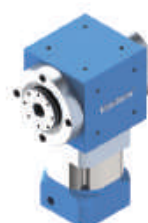


### Spur Gear High Precision Planetary 正齒輪高精行星減速機

DM	DML	DF	RAM-S
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RAM-SS	RAM-H	RAM-D	RAM-F
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### Spur Gear Precision Planetary 正齒輪精密行星減速機

DH	DL	DN	RAH-S
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RAH-SS	RAH-H	RAH-D	RAH-F
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# DA Helical Gear High Precision Planetary Gearbox 斜齒輪高精密型

## Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DA060	DA090	DA120	DA150	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/9/10/12/15/21/30	120	360	690	1350	
	4/16/20/40	180	525	1020	1950	
	5/25/50	165	495	990	1800	
	7/28/35/49/70	150	480	900	1650	
Defined Output Torque 額定輸出扭矩 (Nm)	3/9/10/12/15/21/30	40	120	230	450	
	4/16/20/40	60	175	340	650	
	5/25/50	55	165	330	600	
	7/28/35/49/70	50	160	300	550	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10				
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70				
	L3: 3 Stage 三段	100 / 200 / 250				
Defined Input Rotational Speed 額定輸入轉速 (rpm)	L1,L2,L3	5000	4000	4000	3000	
Backlash 精密背隙 (arcmin)	3~10 (L1)	P0 ≤ 1 / P1 ≤ 3 / P2 ≤ 5				
	12~100 (L2)	P0 ≤ 3 / P1 ≤ 5 / P2 ≤ 7				
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1,L2,L3)	6.5	14	27	48	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1,L2,L3)	1600	4000	7000	10000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1,L2,L3)	800	2000	3500	5000	
Full Load Efficiency 滿載時使用效率 (%)	3~10 (L1)	≥ 97				
	12~70(L2)	≥ 94				
Service Life 使用壽命 (hrs)	3~100 (L1,L2,L3)	20000*				
Weight 重量 (kgs)	3~10 (L1)	1.3	3.9	6.9	17.8	
	12~70 (L2)	1.8	5.1	9.1	22.6	
Noise 噪音值 (db)		58	60	63	65	
Temperature 使用溫度範圍 (°C)		-15°C ~ +90°C				
Protection Rank 防護等級		IP64 / IP65 (IP66 by request 訂購製作)				
Lubricating Oil 潤滑油		Synthetic Lubricant 合成潤滑油				
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.180	1.39	3.05	16.19
		4	0.121	0.92	2.02	10.11
		5	0.099	0.77	1.68	7.68
		7	0.089	0.70	1.51	7.05
		10	0.077	0.64	1.37	6.37
	L2	9	0.160	1.22	2.78	14.65
		12	0.155	1.19	2.71	14.63
		15	0.150	1.17	2.65	14.58
		16	0.107	0.83	1.86	9.11
		20	0.091	0.73	1.59	8.11
		21	0.149	1.16	2.53	13.44
		25	0.091	0.73	1.58	7.08
		28	0.087	0.69	1.48	6.77
		30	0.077	0.62	1.35	6.34
		35	0.084	0.67	1.44	6.65
		40	0.077	0.64	1.37	6.37
		49	0.084	0.67	1.44	6.65
		50	0.077	0.64	1.35	6.18
	70	0.076	0.62	1.33	6.12	
	L3	100	0.091	0.72	1.56	2.07

\* For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

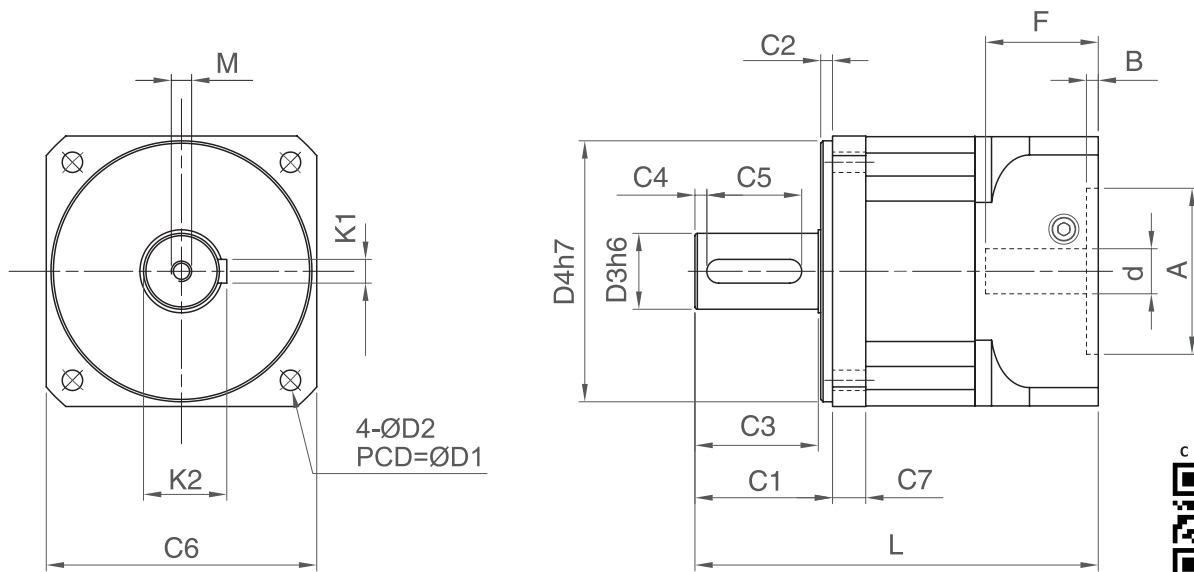
\* Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。

\* Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

\* Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

## DA Helical Gear High Precision Planetary Gearbox 斜齒輪高精密型

## Dimensions 外型尺寸表



Dimensions 尺寸	DA060	DA090	DA120	DA150	
D1	70	105	130	165	
D2	5.5	6.8	8.6	10.5	
※D3	16 (12~16)	20 (18~22)	32 (24~35)	42 (38~45)	
D4	50	80	110	130	
C1	35	56	58	74	
C2	7	6	5	4	
C3	27	49	52	67	
C4	3	5	5	5	
C5	20	25	40	45	
C6	60	94	114	142	
C7	15	17	18.7	18	
L	L1 一段	127	167	170.5	262
	L2 二段	149	195.5	198.5	314
M	M4 x P0.7 x 15	M6 x P1.0 x 20	M8 x P1.25 x 27	M12 x P1.75 x 32	
K1	5	6	10	12	
K2	18	22.5	35	45	
d	≤ 14	≤ 24	≤ 28	≤ 42	
△A	30~50	50~80	50~110	95~130	
B	6	6	5	10	
△F	≤ 35	≤ 47.5	≤ 47.5	≤ 66.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」 會因不同伺服馬達而有所變動。

DG Helical Gear High Precision Planetary Gearbox 斜齒輪高精型

Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DG060	DG090	DG115	DG142	DG180	DG220	
Defined Output Torque 額定輸出扭矩 (Nm)	L1: 1 Stage 單段	3	55	130	208	342	588	1140
		4	50	140	290	542	1050	1700
		5	60	160	330	650	1200	2000
		6	55	150	310	600	1100	1900
		7	50	140	300	550	1100	1800
		8	45	120	260	500	1000	1600
	L2: 2 Stage 雙段	10	40	100	230	450	900	1500
		12	50	140	290	542	1050	1700
		15	55	130	208	342	588	1140
		16	50	140	290	542	1050	1700
		20	50	140	290	542	1050	1700
		25	60	160	330	650	1200	2000
		28	50	140	300	550	1100	1800
		30	55	150	310	600	1100	1900
		32	45	120	260	500	1000	1600
		35	50	140	300	550	1100	1800
		40	45	120	260	500	1000	1600
		50	60	160	330	650	1200	2000
L3: 3 Stage 三段	60	55	150	310	600	1100	1900	
	70	50	140	300	550	1100	1800	
	80	45	120	260	500	1000	1600	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩	3~100 (L1, L2, L3)	3x Times of Defined Output Torque 三倍而定輸出扭矩						
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~100 (L1, L2, L3)	5000	4000	4000	3000	3000	2000	
Backlash 精密背隙 (arcmin)	3~10 (L1, L2)	≤5	≤5	≤5	≤5	≤5	≤5	
	12~70 (L2)	≤7	≤7	≤7	≤7	≤7	≤7	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1, L2, L3)	2.0	5.0	8.0	16	48	75	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1, L2, L3)	1300	3200	5600	8000	13000	42000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1, L2, L3)	650	1600	2800	4000	6500	21000	
Full Load Efficiency 滿載時使用效率 %	3~10 (L1, L2)	≥97						
	12~70 (L2)	≥94						
Service Life 使用壽命 (hrs)	3~100 (L1, L2, L3)	20000						
Weight 重量 (kgs)	3~10 (L1, L2)	1.4	3.8	7.9	13.5	26.0	45.8	
	12~100 (L2)	1.6	4.2	9.1	18.0	32.0	57.0	
Noise 噪音值 (db)	3~100 (L1, L2, L3)	≤58	≤60	≤63	≤65	≤67	≤70	
Temperature 使用溫度範圍 °C	3~100 (L1, L2, L3)	-10°C ~ +90°C						
Protection Rank 防護等級	3~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)						
Lubricating Oil 潤滑油	3~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油						
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.155	1.20	2.63	13.96	44.7	109.6
		4	0.107	0.81	1.79	8.95	28.6	70.2
		5	0.090	0.70	1.53	6.98	22.3	54.6
		6	0.085	0.68	1.49	6.78	21.7	53.3
		7	0.083	0.66	1.41	6.59	21.1	51.6
		8	0.077	0.64	1.36	6.21	20.5	49.9
	L2	10	0.074	0.61	1.30	6.07	19.4	47.7
		12	0.146	1.12	2.56	13.80	44.1	107.8
		15	0.141	1.11	2.50	13.75	44.0	108.0
		16	0.101	0.78	1.75	8.59	27.5	67.5
		20	0.086	0.69	1.50	7.65	24.5	59.9
		25	0.086	0.69	1.49	6.68	21.4	52.1
		28	0.082	0.66	1.40	6.39	20.4	49.4
		30	0.073	0.59	1.29	6.04	19.3	46.7
		32	0.081	0.66	1.40	6.39	20.4	49.4
		35	0.080	0.64	1.37	6.33	20.3	49.1
		40	0.074	0.61	1.30	6.07	19.4	47.1
		50	0.073	0.61	1.29	5.89	18.8	45.5
L3	60	0.072	0.59	1.28	5.85	18.7	45.3	
	70	0.072	0.59	1.27	5.83	18.7	45.2	
	80	0.072	0.59	1.27	5.83	18.7	45.2	

※ For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

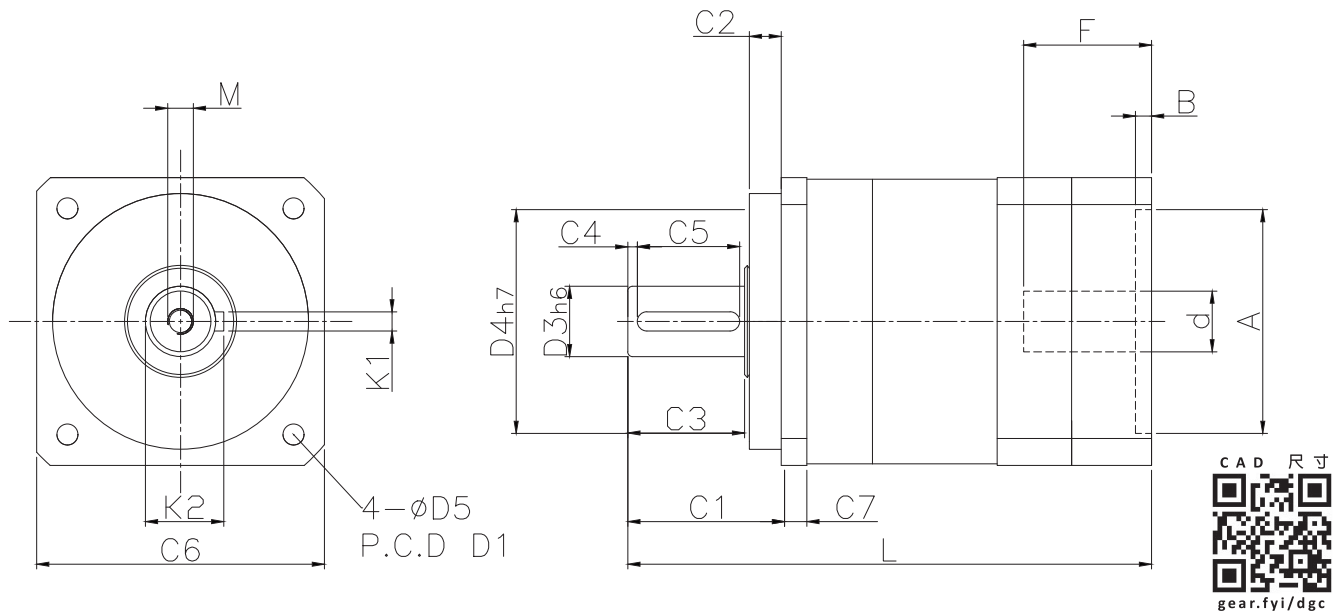
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※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

※ Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

# DG Helical Gear High Precision Planetary Gearbox 斜齒輪高精度型

## Dimensions 外型尺寸表



Dimensions 尺寸	DG060	DG090	DG115	DG142	DG180	DG220	
D1	70	100	130	165	215	250	
D2	5.5	6.6	9	11	13	17	
※D3	16	22	32	40	55	75	
D4	50	80	110	130	160	180	
C1	37	48	65	97	105	138	
C2	7	10	12	15	20	30	
C3	28.5	36.5	51	79	82	105	
C4	2	3	5	5	6	7	
C5	25	32	40	65	70	90	
C6	60	90	115	142	180	220	
C7	6	8	10	12	15	20	
L	L1 一段	131.5	163.8	212.9	281	330.6	385.4
	L2 二段	159	197.8	257.3	333	392.7	455.8
M	M5xP0.8	M8xP1.25	M12xP1.75	M16xP2.0	M20xP2.5	M20xP2.5	
K1	5	6	10	12	16	20	
K2	18	4.5	35	43	59	79.5	
d	≤19	≤24	≤32	≤42	≤55	≤65	
△A	50	70	95	110	114.3	180	
B	6	6	5	10	11	12	
△F	≤35	≤42	≤47.5	≤66.5	≤85	≤88.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」 會因不同伺服馬達而有所變動。



DGT High R-A Load Helical Gear High Precision Planetary 斜齒輪軸徑向負高精度型

Series Specifications 規格表

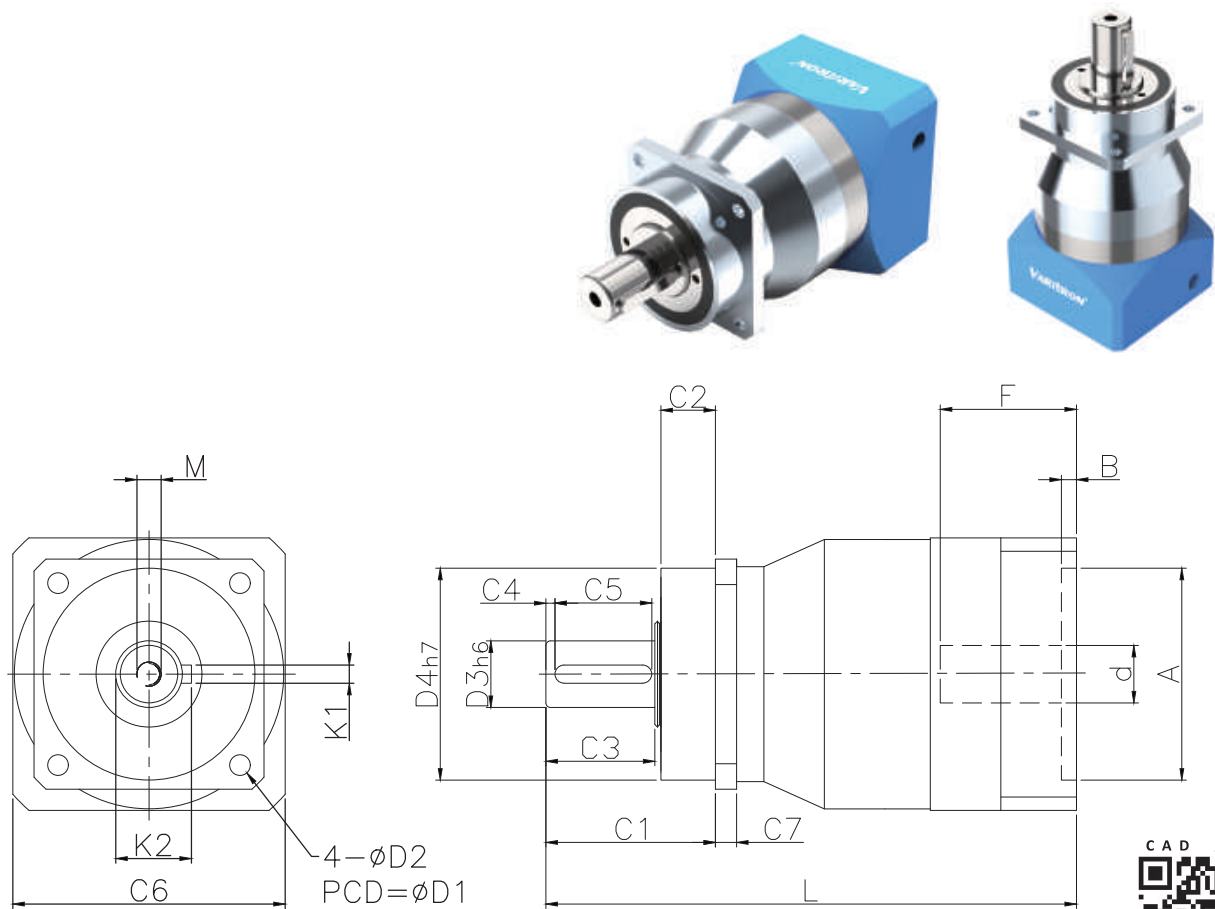
Specification 規格	Ratio 減速比 (Stage 段數)	DGT060	DGT075	DGT100	DGT140	DGT180	DGT220	
Defined Output Torque 額定輸出扭矩 (Nm)	L1: 1 Stage 單段	3	55	130	208	342	588	1140
		4	50	140	290	542	1050	1700
		5	60	160	330	650	1200	2000
		6	55	150	310	600	1100	1900
		7	50	140	300	550	1100	1800
		8	45	120	260	500	1000	1600
	L2: 2 Stage 雙段	10	40	100	230	450	900	1500
		12	50	140	290	542	1050	1700
		15	55	130	208	342	588	1140
		16	50	140	290	542	1050	1700
		20	50	140	290	542	1050	1700
		25	60	160	330	650	1200	2000
		28	50	140	300	550	1100	1800
		30	55	150	310	600	1100	1900
		32	45	120	260	500	1000	1600
		35	50	140	300	550	1100	1800
		40	45	120	260	500	1000	1600
		50	60	160	330	650	1200	2000
60	55	150	310	600	1100	1900		
70	50	140	300	550	1100	1800		
80	45	120	260	500	1000	1600		
L3: 3 Stage 三段	100	40	100	230	450	900	1500	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩	3~100 (L1, L2, L3)	3x Times of Defined Output Torque 三倍而定輸出扭矩						
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~100 (L1, L2, L3)	5000	4000	4000	3000	3000	2000	
Backlash 精密背隙 (arcmin)	3~10 (L1, L2)	≤5	≤5	≤5	≤5	≤5	≤5	
	12~70 (L2)	≤7	≤7	≤7	≤7	≤7	≤7	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1, L2, L3)	2.0	5.0	8.0	16	48	75	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1, L2, L3)	1800	4400	7800	11000	18000	58000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1, L2, L3)	2000	4800	8600	12000	20000	64000	
Full Load Efficiency 滿載時使用效率 %	3~10 (L1, L2)	≥97						
	12~70 (L2)	≥94						
Service Life 使用壽命 (hrs)	3~100 (L1, L2, L3)	20000						
Weight 重量 (kgs)	3~10 (L1, L2)	1.5	3.9	8.0	13.8	26.7	46.0	
	12~100 (L2)	1.7	4.3	9.2	18.5	32.6	58.5	
Noise 噪音值 (db)	3~100 (L1, L2, L3)	≤58	≤60	≤63	≤65	≤67	≤70	
Temperature 使用溫度範圍 °C	3~100 (L1, L2, L3)	-10°C ~ +90°C						
Protection Rank 防護等級	3~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)						
Lubricating Oil 潤滑油	3~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油						
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.155	1.20	2.63	13.96	44.7	109.6
		4	0.107	0.81	1.79	8.95	28.6	70.2
		5	0.090	0.70	1.53	6.98	22.3	54.6
		6	0.085	0.68	1.49	6.78	21.7	53.3
		7	0.083	0.66	1.41	6.59	21.1	51.6
		8	0.077	0.64	1.36	6.21	20.5	49.9
	L2	10	0.074	0.61	1.30	6.07	19.4	47.7
		12	0.146	1.12	2.56	13.80	44.1	107.8
		15	0.141	1.11	2.50	13.75	44.0	108.0
		16	0.101	0.78	1.75	8.59	27.5	67.5
		20	0.086	0.69	1.50	7.65	24.5	59.9
		25	0.086	0.69	1.49	6.68	21.4	52.1
		28	0.082	0.66	1.40	6.39	20.4	49.4
		30	0.073	0.59	1.29	6.04	19.3	46.7
		32	0.081	0.66	1.40	6.39	20.4	49.4
		35	0.080	0.64	1.37	6.33	20.3	49.1
		40	0.074	0.61	1.30	6.07	19.4	47.1
		50	0.073	0.61	1.29	5.89	18.8	45.5
60	0.072	0.59	1.28	5.85	18.7	45.3		
70	0.072	0.59	1.27	5.83	18.7	45.2		
80	0.072	0.59	1.27	5.83	18.7	45.2		
L3	100	0.086	0.69	1.49	6.68	21.4	51.9	

\* For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

\* Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。

\* Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

\* Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

**DGT High R-A Load Helical Gear High Precision Planetary 斜齒輪軸徑向負高精密型****Dimensions 外型尺寸表**

Dimensions 尺寸	DGT060	DGT075	DGT100	DGT140	DGT180	DGT220	
D1	68	85	120	165	215	250	
D2	5.5	6.8	9	11	13	17	
※D3	16	22	32	40	55	75	
D4	60	70	90	130	160	180	
C1	48	56	88	112	112	138	
C2	18	18	27	27	26	30	
C3	28	36	58	82	82	105	
C4	2	3	5	5	6	7	
C5	20	32	40	65	70	90	
C6	62	76	106	142	180	220	
C7	6	7	10	12	15	20	
L	L1 一段	146	175.3	230.4	286.5	324.1	375.9
	L2 二段	173.5	209.3	274.8	338.5	386.2	446.3
M	M5xP0.8	M8xP1.25	M12xP1.75	M16xP2.0	M20xP2.5	M20xP2.5	
K1	5	6	10	12	16	20	
K2	18	4.5	35	43	59	79.5	
d	≤19	≤24	≤32	≤42	≤55	≤65	
△A	50	70	95	110	114.3	180	
B	6	6	5	10	11	12	
△F	≤35	≤42	≤47.5	≤66.5	≤85	≤88.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

DM Spur Gear High Precision Planetary Gearbox 正齒輪高精型

Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DM042	DM060	DM070	DM090	DM120	DM150	DM180	DM220	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/10/9/12/15/21/30	51	132	144	504	780	1500	2970	4680	
	4/16/20/40	72	192	210	564	918	1980	3840	7080	
	5/25/50/100	69	180	198	540	876	1860	3750	6600	
	7/28/35/49/70	63	165	183	528	855	1830	3570	5640	
Defined Output Torque 額定輸出扭矩 (Nm)	3/10/9/12/15/21/30	17	44	48	168	260	500	990	1560	
	4/16/20/40	24	64	70	188	306	660	1280	2360	
	5/25/50/100	23	60	66	180	292	620	1250	2200	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10								
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70								
	L3: 3 Stage 三段	100 / 200 / 250								
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~100 (L1,L2,L3)	5000	5000	5000	4000	4000	3000	3000	2000	
Backlash 精密背隙 (arcmin)	3~10 (L1)	≤5	≤5	≤5	≤5	≤5	≤5	≤5	≤5	
	12~100 (L2)	≤8	≤8	≤8	≤8	≤8	≤8	≤8	≤8	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1,L2,L3)	3	6.5	7	14	27	48	115	218	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1,L2,L3)	800	1600	1600	4000	7000	10000	16000	52000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1,L2,L3)	400	800	800	2000	3500	5000	8000	26000	
Full Load Efficiency 滿載時使用效率 (%)	3~10 (L1)	≥97								
	12~70 (L2)	≥94								
Service Life 使用壽命 Lh2 (hrs)	3~100 (L1,L2,L3)	20000*								
Weight 重量 (kgs)	3~10 (L1)	0.5	1.4	2.4	4.0	7.0	17.5	33.4	69.8	
	12~70 (L2)	0.6	1.7	3.0	5.0	9.1	22.8	48.5	74.5	
Noise 噪音值 (db)		56	58	58	60	63	65	67	70	
Temperature 使用溫度範圍 °C		-15°C ~ +90°C								
Protection Rank 防護等級		IP64 / IP65 (IP66 by request 訂購製作)								
Lubricating Oil 潤滑油		Synthetic Lubricant 合成潤滑油								
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.036	0.155	0.179	1.20	2.63	13.96	44.7	109.6
		4	0.025	0.107	0.123	0.81	1.79	8.95	28.6	70.2
		5	0.022	0.090	0.103	0.70	1.53	6.98	22.3	54.6
		7	0.021	0.083	0.095	0.66	1.41	6.59	21.1	51.6
		10	0.018	0.074	0.085	0.61	1.30	6.07	19.4	47.7
	L2	9	0.035	0.151	0.173	1.15	2.62	13.82	44.2	108.5
		12	0.033	0.146	0.168	1.12	2.56	13.80	44.1	107.8
		15	0.032	0.141	0.163	1.11	2.50	13.75	44.0	108.0
		16	0.025	0.101	0.116	0.78	1.75	8.59	27.5	67.5
		20	0.022	0.086	0.099	0.69	1.50	7.65	24.5	59.9
		21	0.030	0.129	0.148	1.00	2.18	11.59	37.1	91.0
		25	0.022	0.086	0.099	0.69	1.49	6.68	21.4	52.1
		28	0.020	0.082	0.094	0.66	1.40	6.39	20.4	49.4
		30	0.018	0.073	0.084	0.59	1.29	6.04	19.3	46.7
		35	0.020	0.080	0.092	0.64	1.37	6.33	20.3	49.1
		40	0.018	0.074	0.085	0.61	1.30	6.07	19.4	47.1
		49	0.020	0.080	0.092	0.64	1.37	6.33	20.3	49.1
		50	0.018	0.073	0.084	0.61	1.29	5.89	18.8	45.5
		70	0.018	0.072	0.083	0.59	1.27	5.83	18.7	45.2
		L3	100	0.022	0.086	0.099	0.69	1.49	6.68	21.4

※ For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

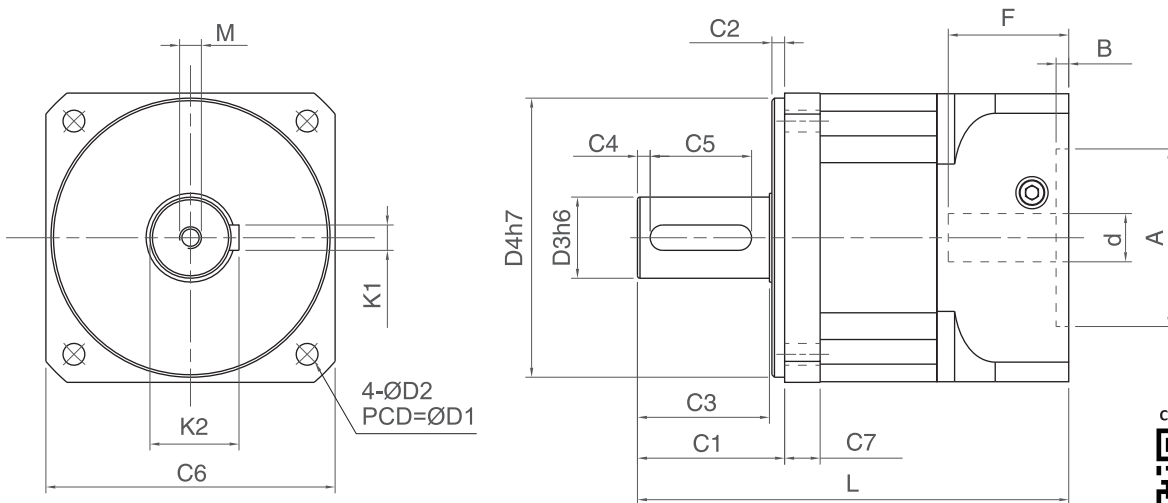
※ Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。

※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

※ Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

# DM Spur Gear High Precision Planetary Gearbox 正齒輪高精密型

## Dimensions 外型尺寸表



Dimensions 尺寸	DM042	DM060	DM070	DM090	DM120	DM150	DM180	DM220	
D1	50	70	75	105	130	165	215	250	
D2	4.2	5.5	5.5	6.8	8.6	10.5	13	17	
※D3	12	16(12~16)	16(12~16)	20(16~22)	32(24~35)	42(38~45)	55(50~60)	75(50~75)	
D4	35	50	60	80	110	130	160	180	
C1	25	35	33	56	58	74	107	124	
C2	4	7	5	6	5	4	10	15	
C3	20	27	27	49	52	67	96	106	
C4	3	3	3	5	5	5	6	7	
C5	12	20	20	25	40	45	70	90	
C6	42	60	68	94	114	142	180	220	
C7	8	15	17	17	18.7	18	20	28	
L	L1 一段	98	127	127	167	170.5	262	333	354
	L2 二段	113	149	149	195.5	198.5	314	415.5	460.5
M	M4xP0.7x15	M4xP0.7x15	M4xP0.7x15	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32	M12xP1.75x40	M14xP2.0x40	
K1	4	5	5	6	10	12	14	20	
K2	13.5	18	18	22.5	35	45	58.5	79.5	
d	≤8	≤14	≤14	≤24	≤28	≤42	≤55	≤65	
△A	22~30	30~50	30~60	50~80	50~110	95~130	95~150	110~200	
B	5	6	6	6	5	10	11	12	
△F	≤25	≤35	≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」 會因不同伺服馬達而有所變動。

# DML Spur Gear High Precision Planetary Gearbox 正齒輪高精密型

## Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DML042	DML060	DML090	DML120	DML150	DML180	DML220	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/10/9/12/15/21/30	51	132	504	780	1500	2970	4680	
	4/16/20/40	72	192	564	918	1980	3840	7080	
	5/25/50/100	69	180	540	876	1860	3750	6600	
	7/28/35/49/70	63	165	528	855	1830	3570	5640	
Defined Output Torque 額定輸出扭矩 (Nm)	3/10/9/12/15/21/30	17	44	168	260	500	990	1560	
	4/16/20/40	24	64	188	306	660	1280	2360	
	5/25/50/100	23	60	180	292	620	1250	2200	
	7/28/35/49/70	21	55	176	285	610	1190	1880	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10							
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70							
	L3: 3 Stage 三段	100 / 200 / 250							
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~100 (L1,L2,L3)	5000	5000	4000	4000	3000	3000	2000	
Backlash 精密背隙 (arcmin)	3~10 (L1)	≤5	≤5	≤5	≤5	≤5	≤5	≤5	
	12~100 (L2)	≤8	≤8	≤8	≤8	≤8	≤8	≤8	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1,L2,L3)	3	6.5	14	27	48	115	218	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1,L2,L3)	720	1440	3600	6300	9000	14400	46800	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1,L2,L3)	400	800	2000	3500	5000	8000	26000	
Full Load Efficiency 滿載時使用效率 (%)	3~10 (L1)	≥97							
	12~70 (L2)	≥94							
Service Life 使用壽命 Lh2 (hrs)	3~100 (L1,L2,L3)	20000*							
Weight 重量 (kgs)	3~10 (L1)	0.5	1.4	4.0	7.0	17.5	33.4	69.8	
	12~70 (L2)	0.6	1.7	5.0	9.1	22.8	48.5	74.5	
Noise 噪音值 (db)		56	58	60	63	65	67	70	
Temperature 使用溫度範圍 °C		-15°C ~ +90°C							
Protection Rank 防護等級		IP64 / IP65 (IP66 by request 訂購製作)							
Lubricating Oil 潤滑油		Synthetic Lubricant 合成潤滑油							
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.036	0.155	1.20	2.63	13.96	44.7	109.6
		4	0.025	0.107	0.81	1.79	8.95	28.6	70.2
		5	0.022	0.090	0.70	1.53	6.98	22.3	54.6
		7	0.021	0.083	0.66	1.41	6.59	21.1	51.6
		10	0.018	0.074	0.61	1.30	6.07	19.4	47.7
	L2	9	0.035	0.151	1.15	2.62	13.82	44.2	108.5
		12	0.033	0.146	1.12	2.56	13.80	44.1	107.8
		15	0.032	0.141	1.11	2.50	13.75	44.0	108.0
		16	0.025	0.101	0.78	1.75	8.59	27.5	67.5
		20	0.022	0.086	0.69	1.50	7.65	24.5	59.9
		21	0.030	0.129	1.00	2.18	11.59	37.1	91.0
		25	0.022	0.086	0.69	1.49	6.68	21.4	52.1
		28	0.020	0.082	0.66	1.40	6.39	20.4	49.4
		30	0.018	0.073	0.59	1.29	6.04	19.3	46.7
		35	0.020	0.080	0.64	1.37	6.33	20.3	49.1
		40	0.018	0.074	0.61	1.30	6.07	19.4	47.1
		49	0.020	0.080	0.64	1.37	6.33	20.3	49.1
		50	0.018	0.073	0.61	1.29	5.89	18.8	45.5
	70	0.018	0.072	0.59	1.27	5.83	18.7	45.2	
	L3	100	0.022	0.086	0.69	1.49	6.68	21.4	51.9

\* For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

\* Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。

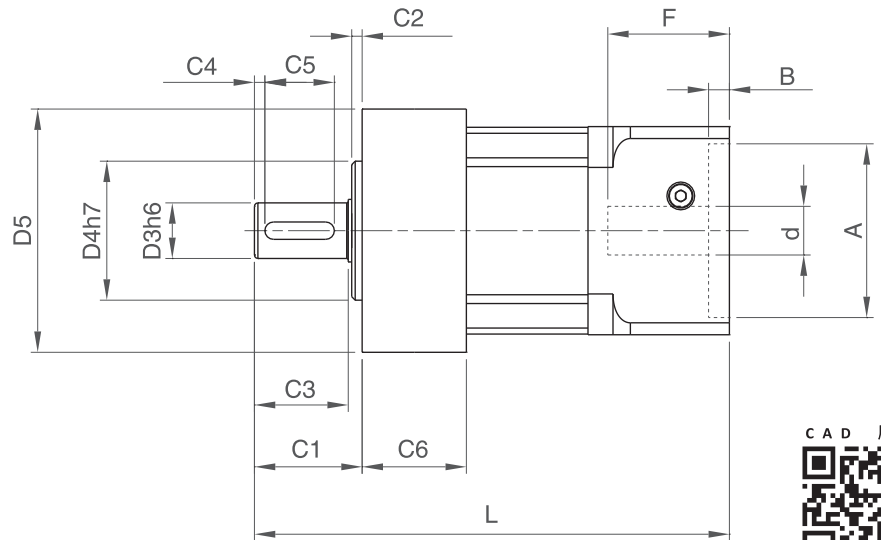
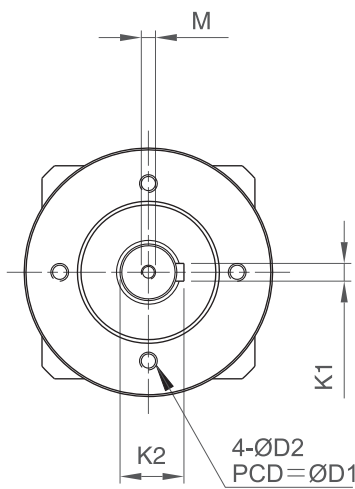
\* Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

\* Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。



## DML Spur Gear High Precision Planetary Gearbox 正齒輪高精型

## Dimensions 外型尺寸表



Dimensions 尺寸	DML042	DML060	DML090	DML120	DML150	DML180	DML220	
D1	44	62	80	108	140	184	210	
D2	M4	M5	M6	M8	M10	M12	M16	
※D3	12	16	22	32	40	55	75	
D4	35	52	68	90	120	160	180	
D5	50	70	101	128	162	208	250	
C1	24.5	36	46	70	97	100	126	
C2	4	6.5	8.5	17.5	15	15	18	
C3	19.5	28.5	36.5	51	79	82	105	
C4	2	2	3	5	5	6	7	
C5	15	25	32	40	65	70	90	
C6	19.5	15.5	29.5	39	33	35	35	
L	L1 一段	103.5	128.5	169.5	203	300	341	373
	L2 二段	118.5	150.5	198	231	352	423	479.5
M	M4xP0.7x10	M5xP0.8x12	M8xP1.25x19	M12xP1.75x28	M16xP2.0x36	M20xP2.5x42	M20xP2.5x42	
K1	4	5	6	10	12	16	20	
K2	13.5	18	24.5	35	43	59	79.5	
d	≤8	≤14	≤24	≤28	≤42	≤55	≤65	
△A	22~30	30~50	50~80	50~110	95~130	95~150	110~200	
B	5	6	6	5	10	11	12	
△F	≤25	≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」&「F」會因不同伺服馬達而有所變動。

# DF Spur Gear High Precision Flange Type Planetary Gearbox 正齒輪法蘭式高精度型

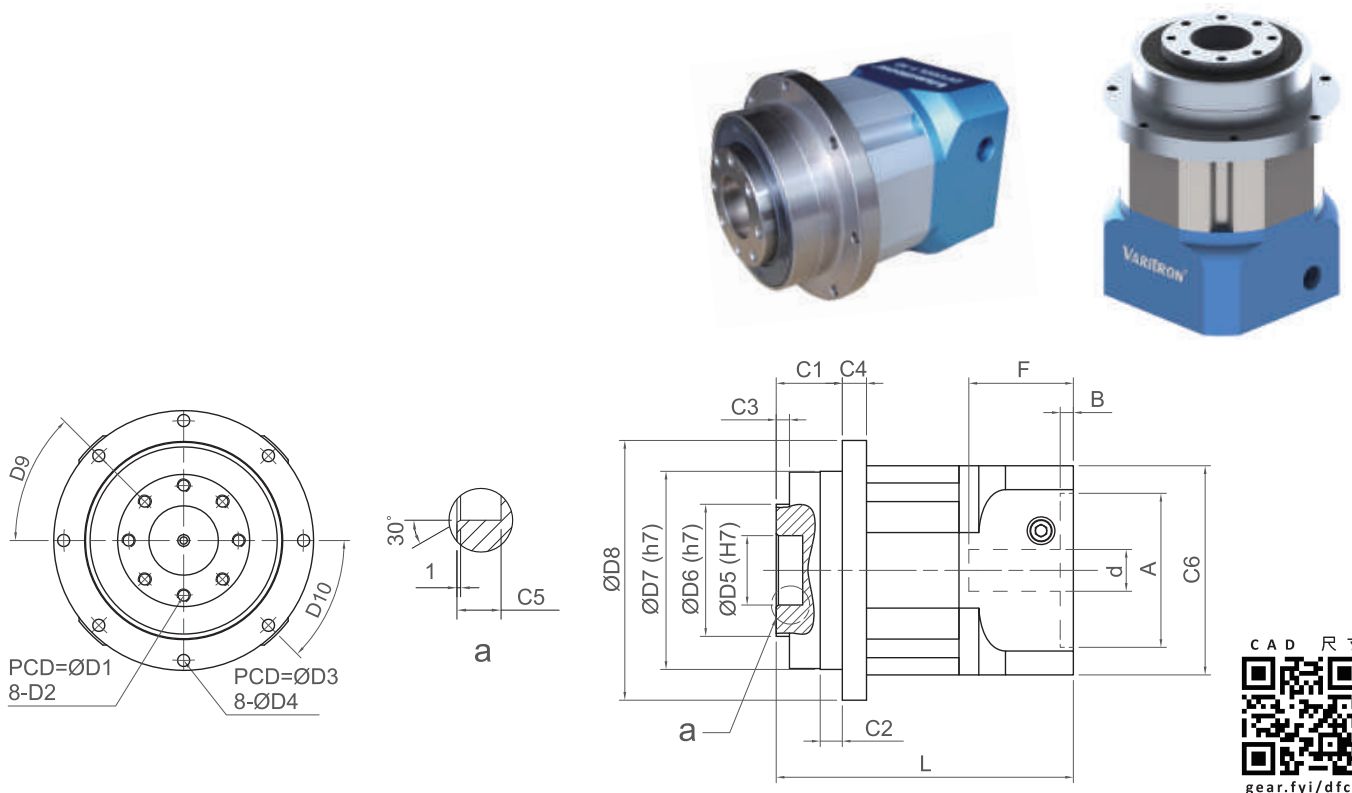
## Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DF060	DF090	DF120	DF150	DF180	DF220	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	10	132	504	780	1500	2970	4680	
	4/16/20/40	192	564	918	1980	3840	7080	
	5/25/50/100	180	540	876	1860	3750	6600	
	7/28/35/49/70	165	528	855	1830	3570	5640	
Defined Output Torque 額定輸出扭矩 (Nm)	10	44	168	260	500	990	1560	
	4/16/20/40	64	188	306	660	1280	2360	
	5/25/50/100	60	180	292	620	1250	2200	
	7/28/35/49/70	55	176	285	610	1190	1880	
Reduction Ratio 減速比	L1: 1 Stage 單段	4 / 5 / 7 / 10						
	L2: 2 Stage 雙段	16 / 20 / 25 / 28 / 35 / 40 / 49 / 50 / 70						
	L3: 3 Stage 三段	100 / 200 / 250						
Defined Input Rotational Speed 額定輸入轉速 (rpm)	4~100 (L1,L2,L3)	5000	4000	4000	3000	3000	2000	
Backlash 精密背隙 (arcmin)	4~10 (L1)	≤5	≤5	≤5	≤5	≤5	≤5	
	12~70 (L2)	≤8	≤8	≤8	≤8	≤8	≤8	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	4~100 (L1,L2,L3)	14	50	82	150	450	1000	
Max. Bending Moment 最大彎曲力矩 (Nm)	4~100 (L1,L2,L3)	130	250	450	1300	3000	6000	
Allowable Axial Force 容許軸向力 (N)	4~100 (L1,L2,L3)	1100	2800	3000	11000	17000	30000	
Full Load Efficiency 滿載時使用效率 (%)	4~10 (L1)	≥ 97						
	12~70 (L2)	≥ 94						
Service Life 使用壽命 Lh2 (hrs)	4~100 (L1,L2,L3)	20000*						
Weight 重量 (kgs)	4~10 (L1)	2.3	4.7	9.3	21.2	46.9	77.4	
	12~70 (L2)	2.7	6.0	10.9	27.5	61.9	92.7	
Noise 噪音值 (db)	4~100 (L1,L2,L3)	58	60	63	65	67	70	
Temperature 使用溫度範圍 °C	4~100 (L1,L2,L3)	-15°C ~ +90°C						
Protection Rank 防護等級	4~100 (L1,L2,L3)	IP64 / IP65 (IP66 by request 訂購製作)						
Lubricating Oil 潤滑油	4~100 (L1,L2,L3)	Synthetic Lubricant 合成潤滑油						
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	4	0.13	0.75	2.72	7.62	18.2	46.7
		5	0.11	0.63	2.28	6.39	15.2	39.1
		7	0.09	0.53	1.93	5.41	12.9	33.1
		10	0.08	0.47	1.71	4.81	11.5	29.4
		16	0.11	0.63	2.29	6.43	15.3	39.4
	L2	20	0.09	0.54	1.95	5.48	13.1	33.6
		25	0.09	0.54	1.95	5.48	13.1	33.6
		28	0.09	0.51	1.86	5.21	12.4	31.9
		35	0.08	0.48	1.73	4.87	11.6	29.8
		40	0.08	0.44	1.59	4.46	10.6	27.3
		49	0.08	0.48	1.73	4.87	11.6	29.8
		50	0.07	0.43	1.57	4.42	10.5	27.0
		70	0.07	0.43	1.56	4.37	10.4	26.7
	L3	100	0.09	0.51	1.86	5.23	12.5	32.0

※ For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。  
 ※ Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。  
 ※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。  
 ※ Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

## DF Spur Gear High Precision Flange Type Planetary Gearbox 正齒輪法蘭式高精密型

## Dimensions 外型尺寸表



Dimensions 尺寸	DF060	DF090	DF120	DF150	DF180	DF220	
D1	31.5	50	63	80	125	140	
D2	8xM5xP0.8	8xM6xP1.0	12xM6xP1.0	12xM8xP1.25	12xM10xP1.5	12xM16xP2.0	
D3	79	109	135	168	233	280	
D4	8x4.5	8x5.5	8x5.5	12x6.6	12x9	16x13.5	
D5	20	31.5	40	50	80	100	
D6	40	60	80	95	160	180	
D7	64	90	110	140	200	255	
D8	86	118	145	179	247	300	
D9	45°	45°	45°	30°	30°	30°	
D10	45°	45°	30°	30°	30°	22.5°	
C1	19.5	30	29	37	50	66	
C2	16.5	10	10	15	15	20	
C3	3	6	6	4	8	12	
C4	20.5	11	17.7	25	37	32	
C5	8	12	12	12	16	20	
C6	60	94	114	142	180	220	
d	≤14	≤24	≤28	≤42	≤55	≤65	
△A	30~50	50~80	50~100	95~130	95~150	110~200	
B	6	6	5	10	11	12	
△F	≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5	
L	L1 一段	117	135	140	232	278	300
	L2 二段	139	163.3	168.5	284	360.5	406.5

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ DF180, DF220 modle available, contact Varitron® or your sales personal. 如需 DF180、DF220 型號，請洽中國變速。

※ Output shaft can be custom size upon ordering 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# DH Spur Gear Precision Planetary Gearbox 正齒輪精密型

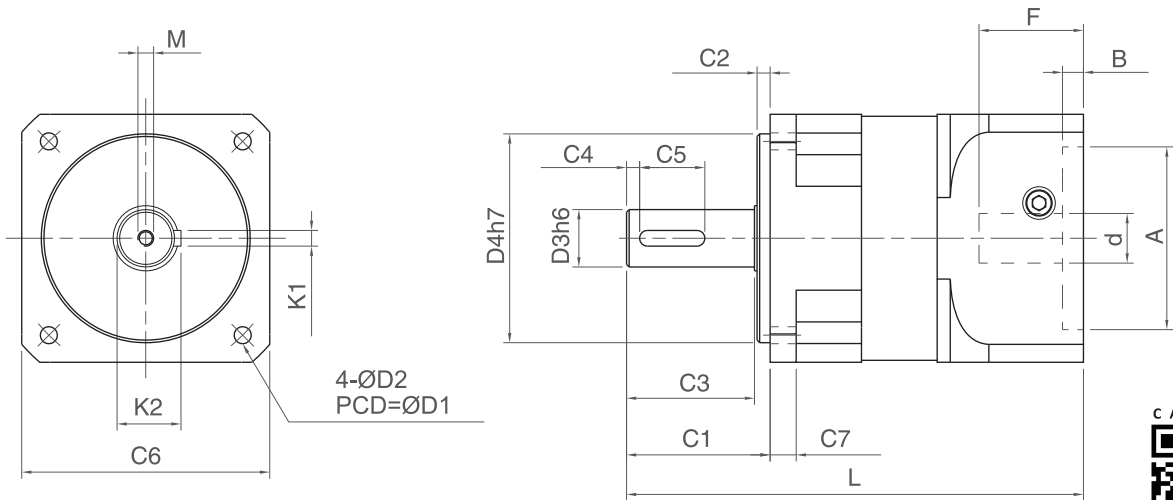
## Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DH042	DH060	DH080	DH090	DH120	DH150	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/10/9/12/15/21/30	51	120	345	420	780	1500	
	4/16/20/40	72	150	405	504	918	1980	
	5/25/50/100	69	132	396	498	876	1890	
	7/28/35/49/70	63	126	378	465	855	1830	
Defined Output Torque 額定輸出扭矩 (Nm)	3/10/9/12/15/21/30	17	40	115	140	260	500	
	4/16/20/40	24	50	135	168	306	660	
	5/25/50/100	23	44	132	166	292	630	
	7/28/35/49/70	21	42	126	155	285	610	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10						
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70						
	L3: 3 Stage 三段	100 / 200 / 250						
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~100 (L1, L2, L3)	5000	5000	4000	4000	4000	3000	
Backlash 精密背隙 (arcmin)	3~10 (L1, L2)	≤10	≤10	≤10	≤10	≤10	≤10	
	12~70 (L2)	≤12	≤12	≤12	≤12	≤12	≤12	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1, L2, L3)	0.8	2.1	5	7	15	30	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1, L2, L3)	500	1100	1400	1600	5000	10000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1, L2, L3)	250	550	700	800	2500	5000	
Full Load Efficiency 滿載時使用效率 %	3~10 (L1, L2)	≥97						
	12~70 (L2)	≥94						
Service Life 使用壽命 (hrs)	3~100 (L1, L2, L3)	20000						
Weight 重量 (kgs)	3~10 (L1, L2)	0.4	1.2	2.7	3.5	6.7	16.4	
	12~100 (L2)	0.7	1.5	3.4	4.6	8.6	20.8	
Noise 噪音值 (db)	3~100 (L1, L2, L3)	56	58	60	60	63	65	
Temperature 使用溫度範圍 °C	3~100 (L1, L2, L3)	-15°C ~ +90°C						
Protection Rank 防護等級	3~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)						
Lubricating Oil 潤滑油	3~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油						
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.031	0.135	0.77	0.92	2.63	12.14
		4	0.022	0.093	0.52	0.62	1.79	7.78
		5	0.019	0.078	0.45	0.54	1.53	6.07
		7	0.018	0.072	0.42	0.50	1.41	5.73
		10	0.016	0.064	0.39	0.47	1.30	5.28
	L2	9	0.030	0.131	0.74	0.89	2.62	12.02
		12	0.029	0.127	0.72	0.86	2.56	12.00
		15	0.028	0.123	0.71	0.85	2.50	11.96
		16	0.022	0.088	0.50	0.60	1.75	7.47
		20	0.019	0.075	0.44	0.53	1.50	6.65
		21	0.026	0.112	0.64	0.77	2.18	10.08
		25	0.019	0.075	0.44	0.53	1.49	5.81
		28	0.017	0.071	0.42	0.50	1.40	5.56
		30	0.016	0.063	0.38	0.46	1.29	5.25
		35	0.017	0.070	0.41	0.49	1.37	5.50
		40	0.016	0.064	0.39	0.47	1.30	5.28
		49	0.017	0.070	0.41	0.49	1.37	5.50
		50	0.016	0.063	0.39	0.47	1.29	5.12
		70	0.016	0.063	0.38	0.46	1.27	5.07
		L3	100	0.019	0.075	0.44	0.53	1.49

- ※ For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。
- ※ Use larger model when large moment of inertia is needed. 慣性距較大時, 選大一級減速機型號。
- ※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。
- ※ Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

## DH Spur Gear Precision Planetary Gearbox 正齒輪精密型

## Dimensions 外型尺寸表



Dimensions 尺寸	DH042	DH060	DH080	DH090	DH120	DH150	
D1	50	70	90	105	130	165	
D2	4.2	5.2	6.8	6.8	8.5	10.5	
※D3	12	16(12~16)	20(18~24)	20(18~24)	32(24~35)	42(38~45)	
D4	35	50	70	80	110	130	
C1	25	35	56	55	58	74	
C2	4	7	6	5	5	4	
C3	20	27	49	49	52	67	
C4	3	3	5	5	5	5	
C5	12	20	25	25	40	45	
C6	42	62	80	95	115	145	
C7	8	9.6	16	10	18.7	23.5	
L	L1 一段	95	118	173.5	172.5	170.5	262
	L2 二段	109	135.5	199.5	198.5	198.5	314
M	M4xP0.7x8	M4xP0.7x15	M6xP1.0x20	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32	
K1	4	5	6	6	10	12	
K2	13.5	18	22.5	22.5	35	45	
d	≤8	≤14	≤24	≤24	≤28	≤42	
△A	22~30	30~50	50~70	50~80	50~110	95~130	
B	5	6	8	8	5	10	
△F	≤25	≤32	≤40	≤40	≤47.5	≤66.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」 會因不同伺服馬達而有所變動。



# DL Spur Gear Precision Planetary Gearbox 正齒輪精密型

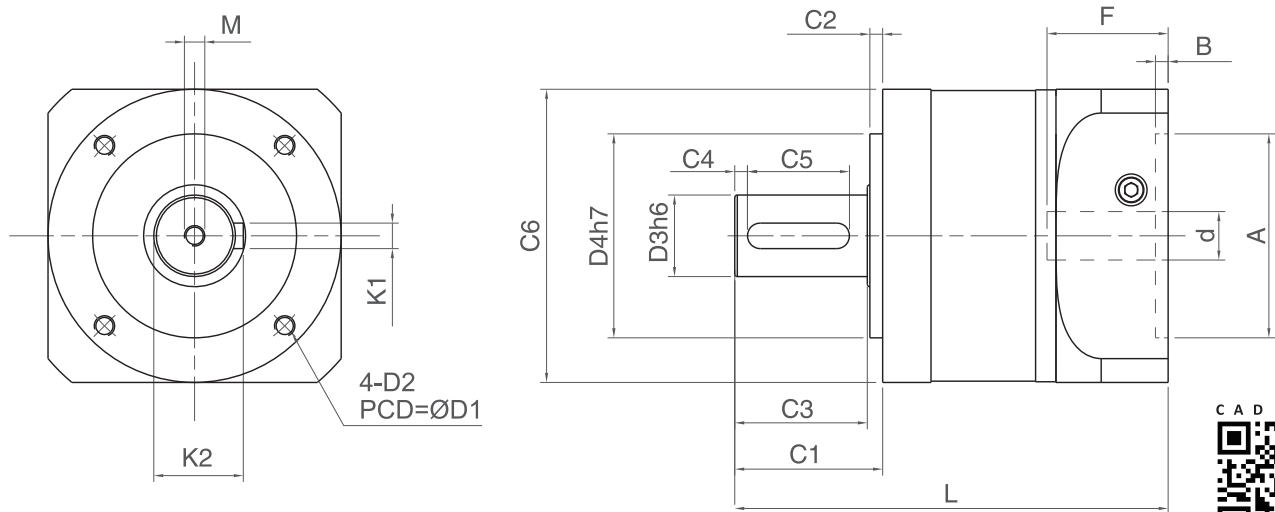
## Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DH042	DH060	DH080	DH090	DH120	DH150	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/10/9/12/15/21/30	51	120	345	420	780	1500	
	4/16/20/40	72	150	405	504	918	1980	
	5/25/50/100	69	132	396	498	876	1890	
	7/28/35/49/70	63	126	378	465	855	1830	
Defined Output Torque 額定輸出扭矩 (Nm)	3/10/9/12/15/21/30	17	40	115	140	260	500	
	4/16/20/40	24	50	135	168	306	660	
	5/25/50/100	23	44	132	166	292	630	
	7/28/35/49/70	21	42	126	155	285	610	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10						
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70						
	L3: 3 Stage 三段	100 / 200 / 250						
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~100 (L1, L2, L3)	5000	5000	4000	4000	4000	3000	
Backlash 精密背隙 (arcmin)	3~10 (L1,L2)	≤10	≤10	≤10	≤10	≤10	≤10	
	12~70 (L2)	≤12	≤12	≤12	≤12	≤12	≤12	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	3~100 (L1, L2, L3)	0.8	2.1	5	7	15	30	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1, L2, L3)	500	1100	1400	1600	5000	10000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1, L2, L3)	250	550	700	800	2500	5000	
Full Load Efficiency 滿載時使用效率 %	3~10 (L1, L2)	≥97						
	12~70 (L2)	≥94						
Service Life 使用壽命 (hrs)	3~100 (L1, L2, L3)	20000						
Weight 重量 (kgs)	3~10 (L1, L2)	0.4	1.2	2.7	3.5	6.7	16.4	
	12~100 (L2)	0.7	1.5	3.4	4.6	8.6	20.8	
Noise 噪音值 (db)	3~100 (L1, L2, L3)	56	58	60	60	63	65	
Temperature 使用溫度範圍 °C	3~100 (L1, L2, L3)	-15°C ~ +90°C						
Protection Rank 防護等級	3~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)						
Lubricating Oil 潤滑油	3~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油						
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.031	0.135	0.77	0.92	2.63	12.14
		4	0.022	0.093	0.52	0.62	1.79	7.78
		5	0.019	0.078	0.45	0.54	1.53	6.07
		7	0.018	0.072	0.42	0.50	1.41	5.73
		10	0.016	0.064	0.39	0.47	1.30	5.28
	L2	9	0.030	0.131	0.74	0.89	2.62	12.02
		12	0.029	0.127	0.72	0.86	2.56	12.00
		15	0.028	0.123	0.71	0.85	2.50	11.96
		16	0.022	0.088	0.50	0.60	1.75	7.47
		20	0.019	0.075	0.44	0.53	1.50	6.65
		21	0.026	0.112	0.64	0.77	2.18	10.08
		25	0.019	0.075	0.44	0.53	1.49	5.81
		28	0.017	0.071	0.42	0.50	1.40	5.56
		30	0.016	0.063	0.38	0.46	1.29	5.25
		35	0.017	0.070	0.41	0.49	1.37	5.50
		40	0.016	0.064	0.39	0.47	1.30	5.28
		49	0.017	0.070	0.41	0.49	1.37	5.50
		50	0.016	0.063	0.39	0.47	1.29	5.12
		70	0.016	0.063	0.38	0.46	1.27	5.07
	L3	100	0.019	0.075	0.44	0.53	1.49	5.81

※ For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。  
 ※ Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。  
 ※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。  
 ※ Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

# DL Spur Gear Precision Planetary Gearbox 正齒輪精密型

## Dimensions 外型尺寸表



Dimensions 尺寸	DL042	DL060	DL080	DL090	DL120	DL150	
D1	34	50	70	70	100	145	
D2	M4xP0.7	M5xP0.8	M6xP1.0	M6xP1.0	M8xP1.25	M12xP1.75	
※D3	12	16(12~16)	20(18~24)	20(18~24)	32(24~32)	42(38~45)	
D4	26	40	60	60	80	130	
C1	23	31	56	55	58	74	
C2	2	3	6	5	5	4	
C3	20	27	49	49	52	67	
C4	3	3	5	5	5	5	
C5	12	20	25	25	40	45	
C6	42	60	78.8	93	115	159	
L	L1 一段	95	118	173.5	172.5	170.5	262
	L2 二段	109	135.5	199.5	198.5	198.5	314
M	M4xP0.7x15	M4xP0.7x15	M6xP1.0x20	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32	
K1	4	5	6	6	10	12	
K2	13.5	18	22.5	22.5	35	45	
d	≤8	≤14	≤24	≤24	≤28	≤42	
△A	22~30	30~50	50~70	50~80	50~110	95~130	
B	5	6	8	8	5	10	
△F	≤25	≤32	≤40	≤40	≤47.5	≤66.5	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」 會因不同伺服馬達而有所變動。

DN High R-A Load Spur Gear Precision Planetary Gearbox 正齒輪徑軸向負荷標準型

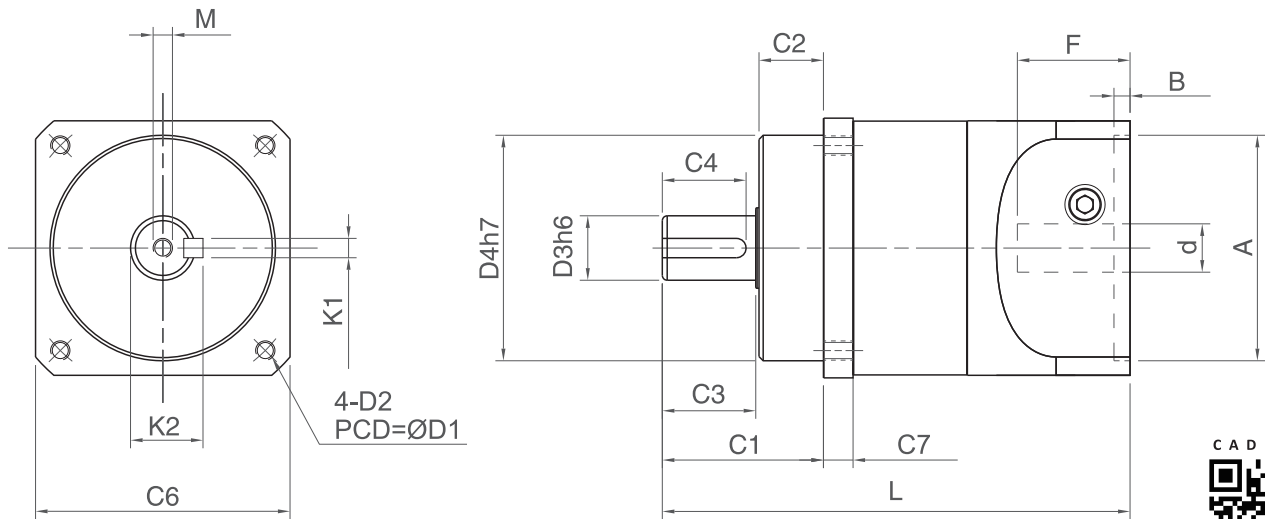
Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	DN060	DN080	DN100	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	4/16/20/40	120	345	780	
	5/25/50	180	405	918	
	7/28/35/49/70	150	396	855	
	9/10/12/15/21/30/36	165	378	876	
Defined Output Torque 額定輸出扭矩 (Nm)	4/16/20/40	40	115	260	
	5/25/50	60	135	306	
	7/28/35/49/70	50	132	285	
	9/10/12/15/21/30/36	55	126	292	
Reduction Ratio 減速比	L1: 1 Stage 單段	4 / 5 / 7 / 9 / 10			
	L2: 2 Stage 雙段	12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 36 / 40 / 49 / 50 / 70			
	L3: 3 Stage 三段	100 / 200 / 250			
Defined Input Rotational Speed 額定輸入轉速 (rpm)	4~100 (L1, L2, L3)	5000	4000	4000	
Backlash 精密背隙 (arcmin)	4~10 (L1)	≤ 10	≤ 10	≤ 10	
	16~70 (L2)	≤ 12	≤ 12	≤ 12	
Torsional Rigidity 扭轉剛性 (Nm/arcmin)	4~100 (L1, L2, L3)	7	8	27	
Allowable Radial Force 容許徑向力 (N)	4~100 (L1, L2, L3)	1800	2600	4200	
Allowable Axial Force 容許軸向力 (N)	4~100 (L1, L2, L3)	900	1300	2100	
Full Load Efficiency 滿載時使用效率 %	4~10 (L1)	≥ 97			
	16~70 (L2)	≥ 94			
Service Life 使用壽命 (hrs)	4~70 (L1, L2)	20000			
Weight 重量 (kgs)	4~10 (L1)	1.3	2.3	6	
	16~70 (L2)	1.6	3.3	7.2	
Noise 噪音值 (db)	4~100 (L1, L2, L3)	58	59	60	
Temperature 使用溫度範圍 °C	4~100 (L1, L2, L3)	-15°C ~ +90°C			
Protection Rank 防護等級	4~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)			
Lubricating Oil 潤滑油	4~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油			
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	4	0.093	0.52	0.85
		5	0.078	0.45	0.74
		7	0.072	0.42	0.69
		9	0.065	0.40	0.65
		10	0.064	0.39	0.64
	L2	12	0.127	0.72	1.18
		15	0.123	0.71	1.16
		16	0.088	0.50	0.82
		20	0.075	0.44	0.72
		21	0.112	0.64	1.05
		25	0.075	0.44	0.72
		28	0.071	0.42	0.69
		30	0.063	0.38	0.62
		35	0.070	0.41	0.67
		40	0.064	0.39	0.64
		49	0.070	0.41	0.67
		50	0.063	0.39	0.64
		70	0.063	0.38	0.62
	L3	100	0.075	0.44	0.72

※ For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。  
 ※ Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。  
 ※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。  
 ※ Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。

## DN High R-A Load Spur Gear Precision Planetary Gearbox 正齒輪徑軸向負荷標準型

## Dimensions 外型尺寸表



Dimensions 尺寸	DN060	DN080	DN100	
D1	70	90	115	
D2	M5xP0.8	M6 xP1.0	M8 xP1.25	
※D3	16(12~16)	19(18~22)	24(22~30)	
D4	50	70	90	
C1	32	50	55	
C2	11	20	14	
C3	20	29	40	
C4	18	25	35	
C6	62	79	98	
C7	13.5	9	15.4	
L	L1 一段	116	145.5	165.5
	L2 二段	135.5	176	194
M	M4xP0.7x15	M6xP1.0x15	M6xP1.0x20	
K1	5	6	8	
K2	18	21.5	27	
d	≤14	≤24	≤28	
△A	30~50	50~70	50~80	
B	6	6	8	
△F	≤32	≤35	≤47	

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」&「F」會因不同伺服馬達而有所變動。

# RAM High Precision Right Angle Series 高精密直角型

## Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	RAM060	RAM090	RAM120	RAM150	RAM180	RAM220	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/10/9/12/15/21/30	66	252	390	750	1320	2085	
	4/16/20/40	96	282	397	765	1320	2085	
	5/25/50/100	90	270	397	765	1320	2085	
	7/28/35/49	82	264	397	765	1320	2085	
Defined Output Torque 額定輸出扭矩 (Nm)	3/10/9/12/15/21/30	44	168	260	500	880	1390	
	4/16/20/40	64	188	265	510	880	1390	
	5/25/50/100	60	180	265	510	880	1390	
	7/28/35/49	55	176	265	510	880	1390	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10						
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70						
	L3: 3Stage 三段	100 / 200 / 250						
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~10 (L1)	7500	5500	4500	3500	3000	2200	
	9~70 (L2)	8000	6000	6000	6000	6000	4800	
Backlash 精密背隙 (arcmin)	3~10 (L1)	≤8	≤8	≤8	≤8	≤8	≤8	
	9~70 (L2)	≤10	≤10	≤10	≤10	≤10	≤10	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1, L2, L3)	1600	2700	3100	4800	7000	13000	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1, L2, L3)	800	1350	1550	2400	3500	6500	
Noise 噪音值 (db)	3~100 (L1, L2, L3)	76	77	77	78	79	80	
Full Load Efficiency 滿載時使用效率 %	3~10 (L1)	≥94						
	9~70 (L2)	≥92						
Service Life 使用壽命 (hrs)	3~100 (L1, L2, L3)	20000*						
Temperature 使用溫度範圍 °C	3~100 (L1, L2, L3)	-15°C ~ +90°C						
Protection Rank 防護等級	3~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)						
Lubricating Oil 潤滑油	3~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油						
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.372	2.31	4.74	20.85	62.9	163.2
		4	0.229	1.44	2.98	12.83	38.9	100.3
		5	0.168	1.10	2.29	9.46	28.9	73.9
		7	0.123	0.86	1.80	7.86	24.4	61.4
		10	0.093	0.71	1.49	6.69	21.0	52.5
	L2	9	0.175	1.28	2.85	14.59	46.2	114.4
		12	0.160	1.19	2.69	14.23	45.2	111.1
		15	0.150	1.15	2.58	14.03	44.7	110.1
		16	0.109	0.82	1.82	8.83	28.1	69.4
		20	0.091	0.71	1.55	7.81	24.9	61.1
		21	0.309	1.92	3.94	17.30	52.2	135.4
		25	0.089	0.70	1.52	6.78	21.7	52.8
		28	0.084	0.67	1.42	6.47	20.6	50.0
		30	0.075	0.60	1.31	6.11	19.5	47.2
		35	0.082	0.65	1.39	6.38	20.4	49.5
		40	0.075	0.61	1.31	6.11	19.5	47.4
		49	0.082	0.65	1.39	6.38	20.4	49.5
		50	0.074	0.61	1.30	5.91	18.9	45.7
	70	0.073	0.59	1.27	5.84	18.7	45.3	
L3	100	0.086	0.69	1.49	6.69	21.4	52.0	

\* For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

\* Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。

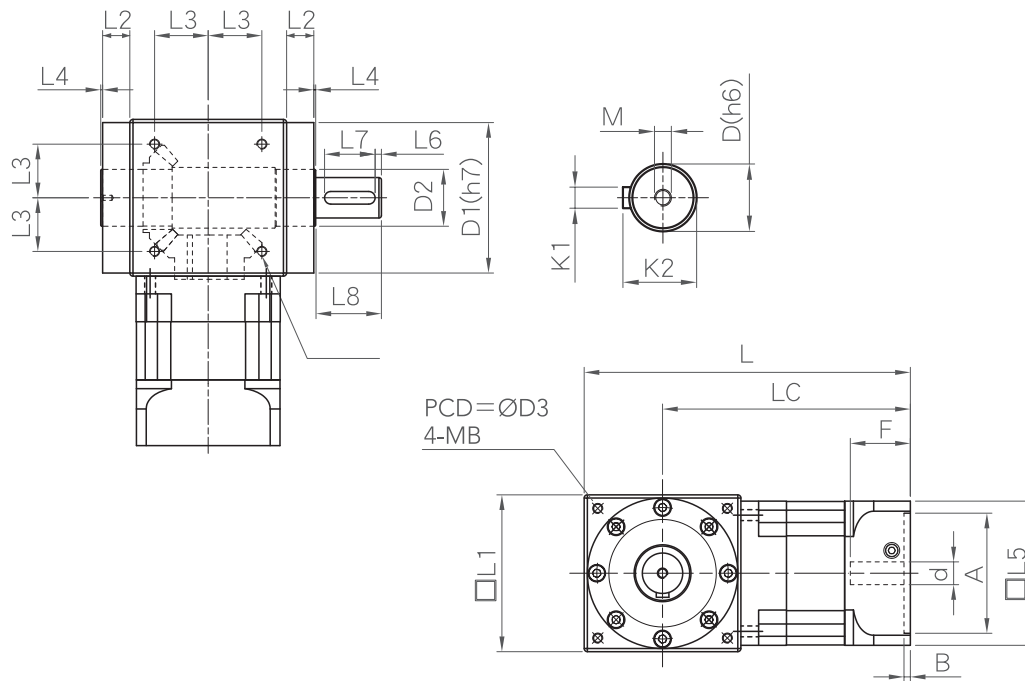
\* Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

\* Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。



## RAM-S High Precision Shaft Output Spiral Bevel Gearbox 高精密單出力軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸		RAM060-S	RAM090-S	RAM120-S	RAM150-S	RAM180-S	RAM220-S
L1		83	114	124	154	183	220
L2		17	21.5	21.5	19	20	20
L3		28.284	33.587	38.89	45.962	56.569	72.478
MA		M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16
L4		1.5	1.5	1.5	1.5	1.5	1.5
L5		60	94	114	142	180	220
L6		3	5	5	5	6	7
L7		20	25	40	45	70	90
L8		27	49	52	67	96	106
LC	L1 一段	146.2	187	196.8	282	327	340
	L2 二段	168.2	215.5	224.8	334	409.5	446.5
L	L1 一段	187.7	244	258.8	359	418.5	450
	L2 二段	209.7	272.5	286.8	411	501	556.5
※D		16	20	32	42	55	75
D1		79	109	119	149	169	217
D2		25	35	45	55	65	105
D3		100	130	145	190	185	240
MB		M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16
M		M4xP0.7x15	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32	M14xP2.0x40	M14xP2.0x40
K1		5	6	10	12	14	20
K2		18	22.5	35	45	58.5	79.5
D		≤14	≤24	≤28	≤42	≤55	≤65
△A		30~50	50~80	50~110	95~130	95~150	110~200
B		6	6	5	10	11	12
△F		≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5
Weight 重量(kg)	L1 一段	3.7	10.0	14.3	31.1	55.4	97.4
	L2 二段	3.8	10.5	15.2	33.4	65.4	66.7

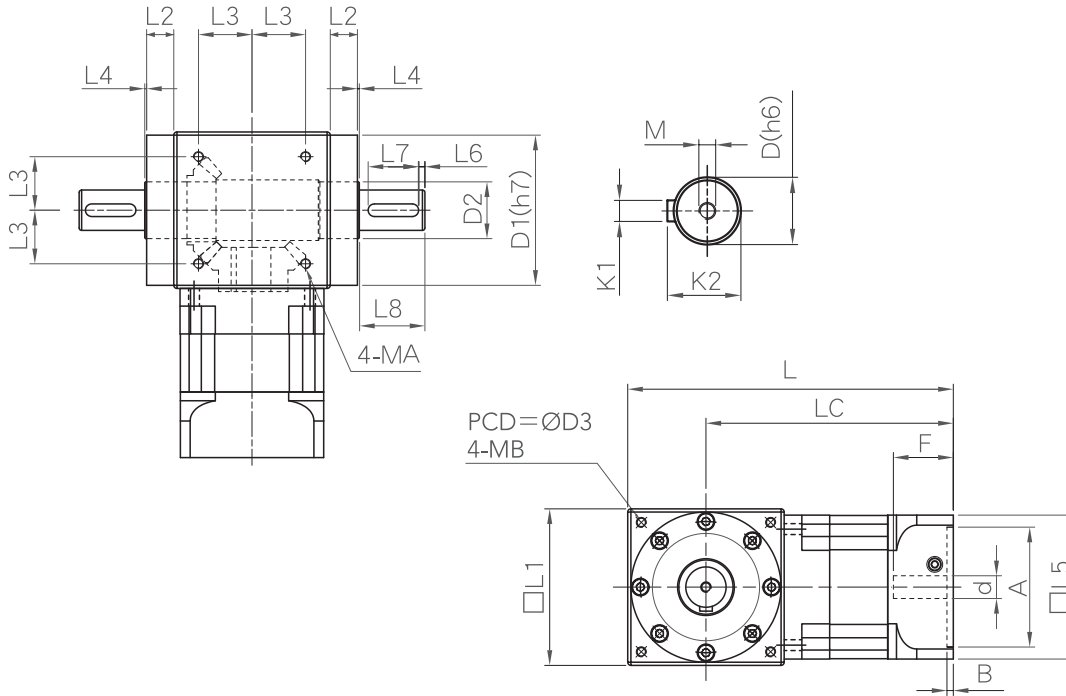
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# RAM-SS High Precision Double Shaft Spiral Bevel Gearbox 高精密雙出力軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAM060-SS	RAM090-SS	RAM120-SS	RAM150-SS	RAM180-SS	RAM220-SS	
L1	83	114	124	154	183	220	
L2	17	21.5	21.5	19	20	20	
L3	28.284	33.587	38.89	45.962	56.569	72.478	
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16	
L4	1.5	1.5	1.5	1.5	1.5	1.5	
L5	60	94	114	142	180	220	
L6	3	5	5	5	6	7	
L7	20	25	40	45	70	90	
L8	27	49	52	67	96	106	
LC	L1 一段	146.2	187	196.8	282	327	340
	L2 二段	168.2	215.5	224.8	334	409.5	446.5
L	L1 一段	187.7	244	258.8	359	418.5	450
	L2 二段	209.7	272.5	286.8	411	501	556.5
※D	16	20	32	42	55	75	
D1	79	109	119	149	169	217	
D2	25	35	45	55	65	105	
D3	100	130	145	190	185	240	
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16	
M	M4xP0.7x15	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32	M14xP2.0x40	M16xP2.0x40	
K1	5	6	10	12	14	20	
K2	18	22.5	35	45	58.5	79.5	
d	≤14	≤24	≤28	≤42	≤55	≤65	
△A	30~50	50~80	50~110	95~130	95~150	110~200	
B	6	6	5	10	11	12	
△F	≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5	
Weight 重量(kg)	L1 一段	3.9	10.2	14.6	32.4	57.4	101.3
	L2 二段	4.2	11.2	16.7	36.9	72.4	117.3

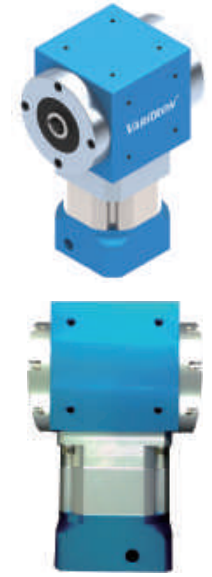
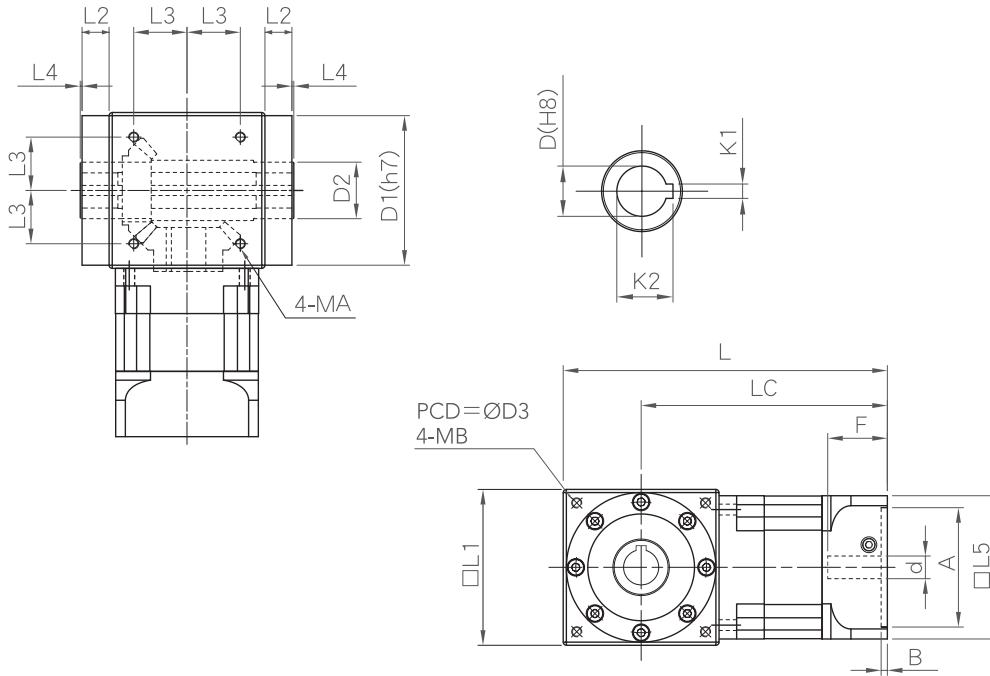
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# RAM-H High Precision Hollow Shaft Spiral Bevel Gearbox 高精密中空軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAM060-H	RAM090-H	RAM120-H	RAM150-H	RAM180-H	RAM220-H	
L1	83	114	124	154	183	220	
L2	17	21.5	21.5	19	20	20	
L3	28.284	33.587	38.89	45.962	56.569	72.478	
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16	
L4	1.5	1.5	1.5	1.5	1.5	1.5	
L5	60	94	114	142	180	220	
LC	L1 一段	146.2	187	196.8	282	327	340
	L2 二段	168.2	215.5	224.8	334	409.5	446.5
L	L1 一段	187.7	244	258.8	359	418.5	450
	L2 二段	209.7	272.5	286.8	411	501	556.5
※D	16	20	28	40	50	75	
D1	79	109	119	149	169	217	
D2	25	35	45	55	65	15	
D3	100	130	145	190	185	240	
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16	
K1	5	6	8	12	14	20	
K2	18.3	22.8	31.3	43.3	53.8	79.9	
d	≤14	≤24	≤28	≤42	≤55	≤65	
△A	30~50	50~80	50~110	95~130	95~150	110~200	
B	6	6	5	10	11	12	
△F	≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5	
Weight L1 一段	3.5	9.5	13.2	28.4	50.4	51.7	
重量(kg) L2 二段	3.8	10.5	15.2	33.4	65.4	66.7	

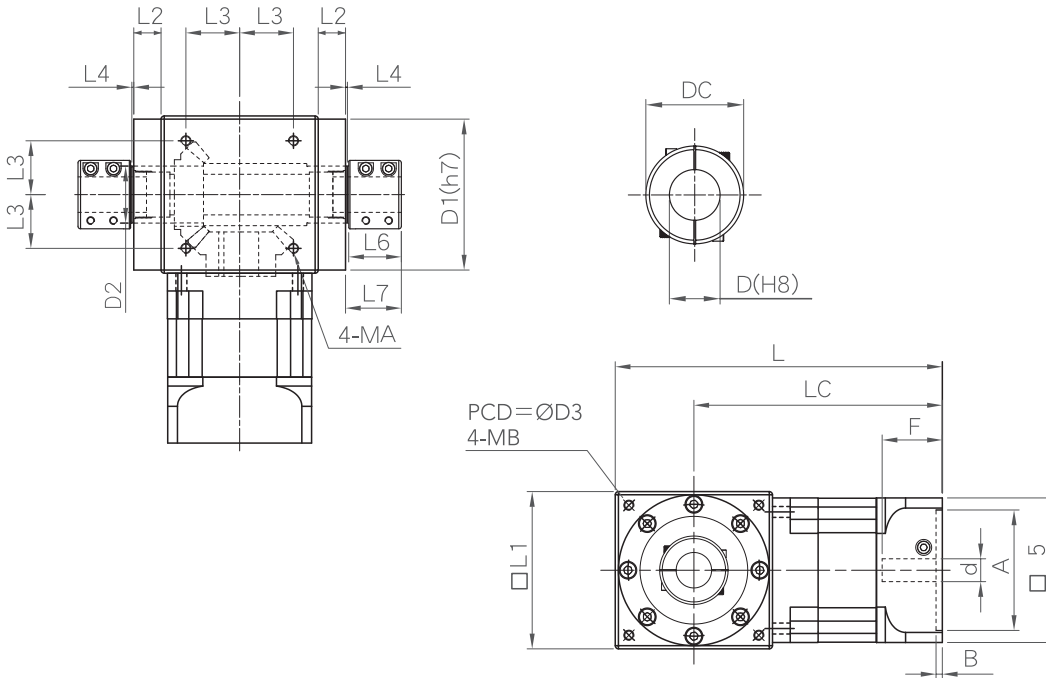
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」&「F」會因不同伺服馬達而有所變動。

# RAM-D High Precision Clamping Shaft Spiral Bevel Gearbox 高精密束軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸		RAM060-D	RAM090-D	RAM120-D	RAM150-D	RAM180-D	RAM220-D
L1		83	114	124	154	183	220
L2		17	21.5	21.5	19	20	20
L3		28.284	33.587	38.89	45.962	56.569	72.478
MA		M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16
L4		1.5	1.5	1.5	1.5	1.5	1.5
L5		60	94	114	142	180	220
L6		33.5	33.5	42.5	42.5	57.5	57.5
L7		35	35	44	44	59	59
LC	L1 一段	146.2	187	196.8	282	327	340
	L2 二段	168.2	215.5	224.8	334	409.5	446.5
L	L1 一段	187.7	244	258.8	359	418.5	450
	L2 二段	209.7	272.5	286.8	411	501	556.5
DC		30	36	54	66	82	120
*D		16	20	28	40	50	75
D1		79	109	119	149	169	217
D2		25	35	45	55	65	105
D3		100	130	145	190	185	240
MB		M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16
d		≤14	≤24	≤28	≤42	≤55	≤65
△A		30-50	50-80	50-110	95-130	95~150	110~200
B		6	6	5	10	11	12
△F		≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5
Weight 重量(kg)	L1 一段	3.6	9.4	13.2	28.5	51.7	83.5
	L2 二段	3.9	10.4	15.3	33.5	66.7	99.5

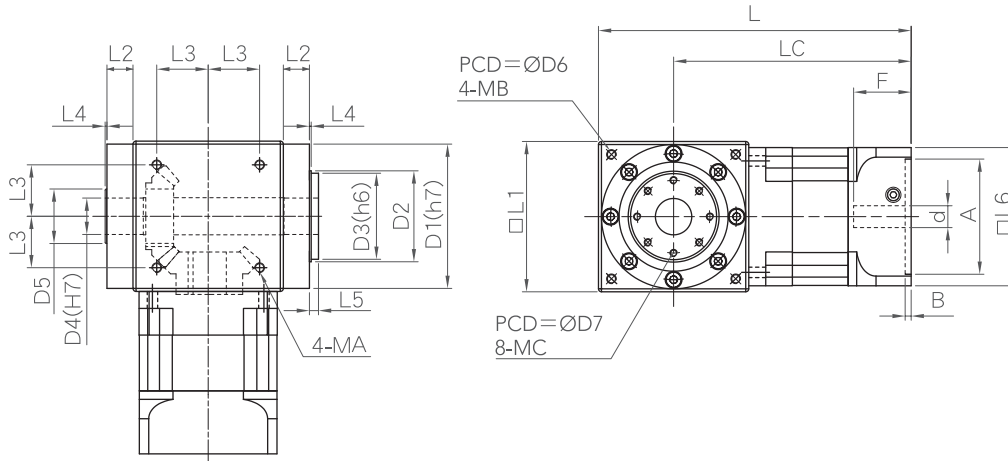
\* For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

\* Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

\* For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

## RAM-F High Precision Flange Spiral Bevel Gearbox 高精密法蘭直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAM060-F	RAM090-F	RAM120-F	RAM150-F	RAM180-F	RAM220-F	
L1	83	114	124	154	183	220	
L2	17	21.5	21.5	19	20	20	
L3	28.284	33.587	38.89	45.962	56.569	72.478	
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16	
L4	1.5	1.5	1.5	1.5	1.5	1.5	
L5	7.5	7.5	7.5	7.5	7.5	7.5	
L6	60	94	114	142	180	220	
LC	一段	146.2	187	196.8	282	327	340
	二段	168.2	215.5	224.8	334	409.5	446.5
L	一段	187.7	244	258.8	359	418.5	450
	二段	209.7	272.5	286.8	411	501	556.5
D1	79	109	119	149	169	217	
D2	45	60	75	80	90	125	
D3	44	59	71	79	89	124	
D4	15	20	30	35	50	75	
D5	25	35	45	55	65	105	
D6	100	130	145	190	185	240	
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	M12xP1.75x22	M16xP2.0x16	
※D7	35	50	60	68	76	111	
※MC	8-M5xP0.8x10	8-M5xP0.8x15	8-M6xP1.0x15	12-M6xP1.0x15	12-M8xP1.25x15	12-M8xP1.25x15	
d	≤14	≤24	≤28	≤42	≤55	≤65	
△A	30~50	50~80	55~110	95~130	95~150	110~200	
B	6	6	5	10	11	12	
△F	≤35	≤47.5	≤47.5	≤66.5	≤82.5	≤88.5	
Weight 重量(kg)	L1 一段	3.7	9.9	13.5	29.4	51.0	85.8
	L2 二段	4.0	10.9	15.6	34.4	66.0	101.5

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」&「F」會因不同伺服馬達而有所變動。

RAH Precision Right Angle Series 精密直角型

Series Specifications 規格表

Specification 規格	Ratio 減速比 (Stage 段數)	RAH060	RAH090	RAH120	RAH150	
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	3/10/9/12/15/21/30	60	210	390	750	
	4/16/20/40	75	252	397	765	
	5/25/50/100	66	249	397	765	
	7/28/35/49	63	232	397	765	
Defined Output Torque 額定輸出扭矩 (Nm)	3/10/9/12/15/21/30	40	140	260	500	
	4/16/20/40	50	168	265	510	
	5/25/50/100	44	166	265	510	
	7/28/35/49	42	155	265	510	
Reduction Ratio 減速比	L1: 1 Stage 單段	3 / 4 / 5 / 7 / 10				
	L2: 2 Stage 雙段	9 / 12 / 15 / 16 / 20 / 21 / 25 / 28 / 30 / 35 / 40 / 49 / 50 / 70				
	L3: 3Stage 三段	100 / 200 / 250				
Defined Input Rotational Speed 額定輸入轉速 (rpm)	3~10 (L1)	7500	5500	4500	3500	
	9~70 (L2)	8000	6000	6000	6000	
Backlash 精密背隙 (arcmin)	3~10 (L1)	≤13	≤13	≤13	≤13	
	9~70 (L2)	≤15	≤15	≤15	≤15	
Allowable Radial Force 容許徑向力 (N)	3~100 (L1, L2, L3)	1600	2700	3100	4800	
Allowable Axial Force 容許軸向力 (N)	3~100 (L1, L2, L3)	800	1350	1550	2400	
Noise 噪音值 (db)	3~100 (L1, L2, L3)	76	77	77	78	
Full Load Efficiency 滿載時使用效率 %	3~10 (L1)	≥94				
	9~70 (L2)	≥92				
Service Life 使用壽命 (hrs)	3~100 (L1, L2, L3)	20000*				
Temperature 使用溫度範圍 °C	3~100 (L1, L2, L3)	-15°C ~ +90°C				
Protection Rank 防護等級	3~100 (L1, L2, L3)	IP64 / IP65 (IP66 by request 訂購製作)				
Lubricating Oil 潤滑油	3~100 (L1, L2, L3)	Synthetic Lubricant 合成潤滑油				
Moment Of Inertia 轉動慣量 (kg.cm <sup>2</sup> )	L1	3	0.352	2.04	4.74	19.03
		4	0.215	1.25	2.98	11.66
		5	0.156	0.94	2.29	8.55
		7	0.112	0.71	1.80	7.00
		10	0.084	0.57	1.49	5.90
	L2	9	0.155	1.01	2.85	12.79
		12	0.141	0.93	2.69	12.43
		15	0.132	0.90	2.58	12.24
		16	0.096	0.64	1.82	7.71
		20	0.080	0.55	1.55	6.81
		21	0.292	1.69	3.94	15.79
		25	0.078	0.54	1.52	5.91
		28	0.074	0.52	1.42	5.64
		30	0.066	0.47	1.31	5.32
		35	0.071	0.50	1.39	5.55
		40	0.065	0.47	1.31	5.32
		49	0.071	0.50	1.39	5.55
		50	0.064	0.47	1.30	5.14
	70	0.063	0.46	1.27	5.08	
L3	100	0.075	0.53	1.49	5.82	

\* For 3 stage technical data, contact Varitron® or your sales personal. 如需三段技術資料請洽中國變速。

\* Use larger model when large moment of inertia is needed. 慣性距較大時,選用大一級減速機型號。

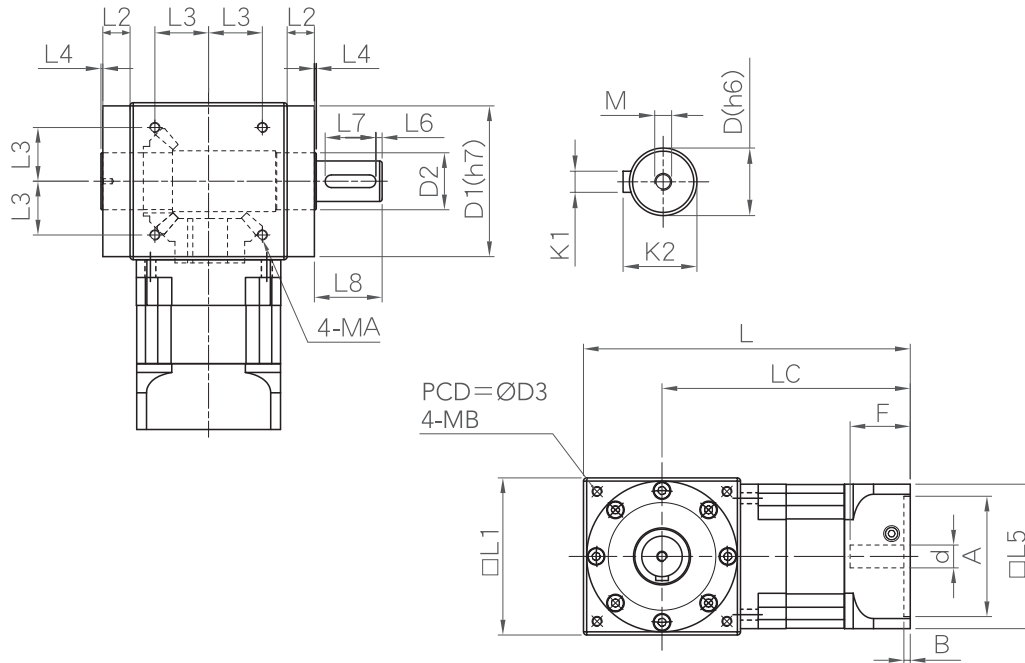
\* Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

\* Noise Level tested on ratio 10 without loading. 噪音測試值為無負載減速比 10 時的測試結果。



## RAH-S Precision Shaft Output Spiral Bevel Gearbox 精密單出力軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAH060-S	RAH090-S	RAH120-S	RAH150-S
L1	83	114	124	154
L2	17	21.5	21.5	19
L3	28.284	33.587	38.89	45.962
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
L4	1.5	1.5	1.5	1.5
L5	62	95	115	143
L6	3	5	5	5
L7	20	25	40	45
L8	27	49	52	67
LC	L1 一段	136	193.5	196.8
	L2 二段	153.5	219.5	224.8
L	L1 一段	177.5	250.5	258.8
	L2 二段	195	276.5	286.6
※D	16	20	32	42
D1	79	109	119	149
D2	25	35	45	55
D3	100	130	145	190
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
M	M4xP0.7x15	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32
K1	5	6	10	12
K2	18	22.5	35	45
d	≤14	≤24	≤28	≤42
△A	30~50	50~80	55~110	95~130
B	6	6	5	10
△F	≤32	≤40	≤47.5	≤66.5
Weight 重量(kg)	L1 一段	3.5	10.2	14.3
	L2 二段	3.8	11.2	16.4

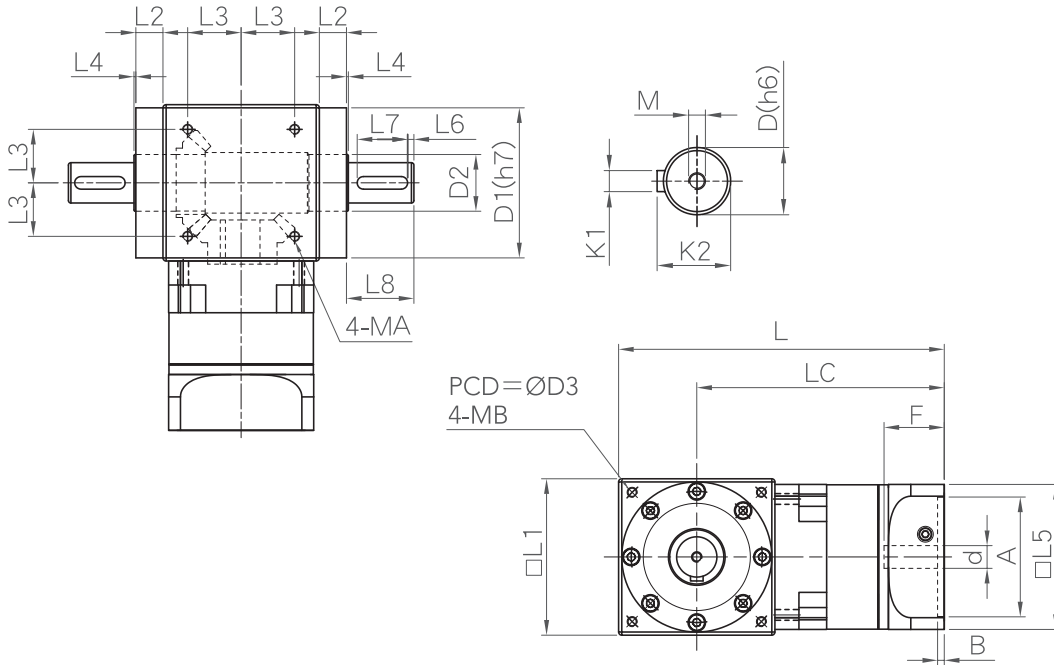
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# RAH-SS Precision Double Shaft Spiral Bevel Gearbox 精密雙出力軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAH060-SS	RAH090-SS	RAH120-SS	RAH150-SS
L1	83	114	124	154
L2	17	21.5	21.5	19
L3	28.284	33.587	38.89	45.962
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
L4	1.5	1.5	1.5	1.5
L5	62	95	115	143
L6	3	5	5	5
L7	20	25	40	45
L8	27	49	52	67
LC	L1 一段	136	193.5	196.8
	L2 二段	153.5	219.5	224.8
L	L1 一段	177.5	250.5	258.8
	L2 二段	195	276.5	286.8
※D	16	20	32	42
D1	79	109	119	149
D2	25	35	45	55
D3	100	130	145	190
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
M	M4xP0.7x15	M6xP1.0x20	M8xP1.25x27	M12xP1.75x32
K1	5	6	10	12
K2	18	22.5	35	45
d	≤14	≤24	≤28	≤42
△A	30~50	50~80	50~110	95~130
B	6	8	5	10
△F	≤32	≤40	≤47.5	≤66.5
Weight 重量(kg)	L1 一段	3.5	10.4	14.6
	L2 二段	3.9	11.4	16.7

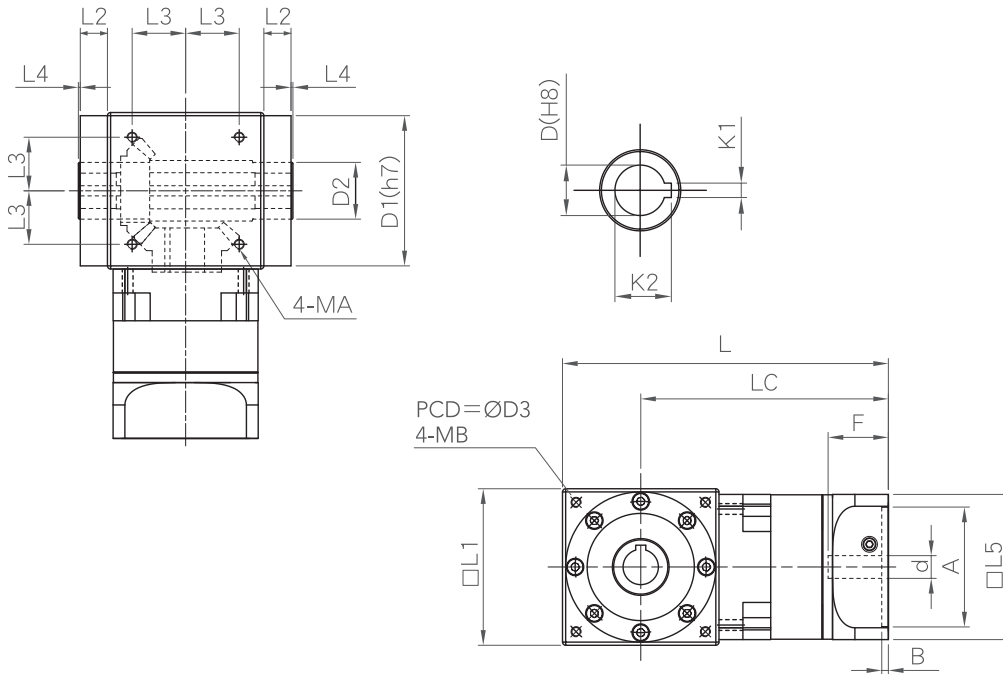
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# RAH-H Precision Hollow Shaft Spiral Bevel Gearbox 精密中空軸直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAH060-H	RAH090-H	RAH120-H	RAH150-H
L1	83	114	124	154
L2	17	21.5	21.5	19
L3	28.284	33.587	38.89	45.962
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
L4	1.5	1.5	1.5	1.5
L5	62	95	115	143
LC	L1 一段	136	193.5	196.8
	L2 二段	153.5	219.5	224.8
L	L1 一段	177.5	250.5	258.8
	L2 二段	195	276.5	286.8
※D	16	20	28	40
D1	79	109	119	149
D2	25	35	45	55
D3	100	130	145	190
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
K1	5	6	8	12
K2	18.3	22.8	31.3	43.3
d	≤14	≤24	≤28	≤42
△A	30~50	50~80	55~110	95~130
B	6	8	5	10
△F	≤32	≤47.5	≤47.5	≤66.5
Weight 重量(kg)	L1 一段	3.3	9.8	13.2
	L2 二段	3.6	10.8	15.2

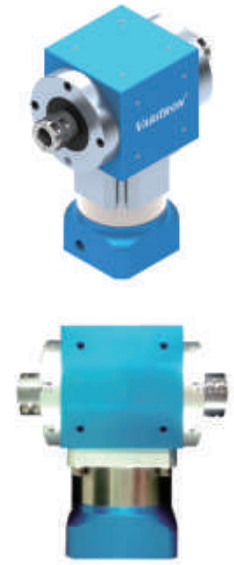
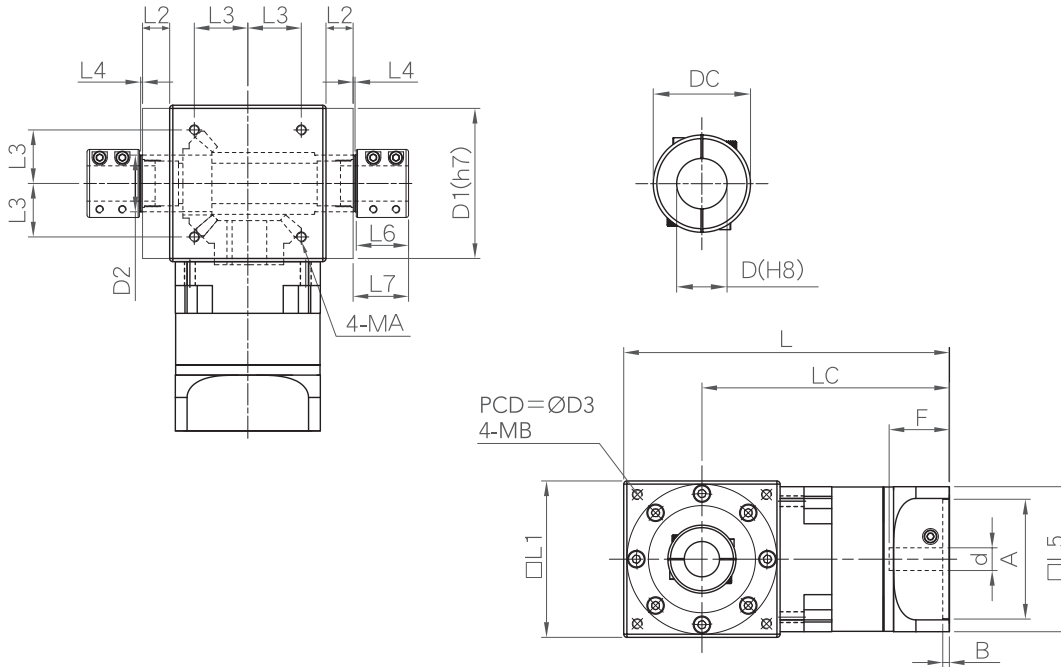
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」&「F」會因不同伺服馬達而有所變動。

RAH-D Precision Clamping Shaft Spiral Bevel Gearbox 精密束軸直角型

Dimensions 外型尺寸表



Dimensions 尺寸		RAH060D	RAH090D	RAH120D	RAH150D
L1		83	114	124	154
L2		17	21.5	21.5	19
L3		28.284	33.587	38.89	45.962
MA		M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
L4		1.5	1.5	1.5	1.5
L5		62	95	115	143
L6		33.5	33.5	42.5	42.5
L7		35	35	44	44
LC	L1 一段	136	193.5	196.8	282
	L2 二段	153.5	219.5	224.8	334
L	L1 一段	177.5	250.5	258.8	359
	L2 二段	195	276.5	286.8	411
DC		30	36	54	66
※D		16	20	28	40
D1		79	109	119	149
D2		25	35	45	55
D3		100	130	145	190
MB		M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22
D		≤14	≤24	≤28	≤42
△A		30~50	50~80	50~110	95~130
B		6	8	5	10
△F		≤32	≤40	≤47.5	≤66.5
Weight 重量(kg)	L1 一段	3.4	9.6	13.3	27.4
	L2 二段	3.7	10.6	15.3	31.8

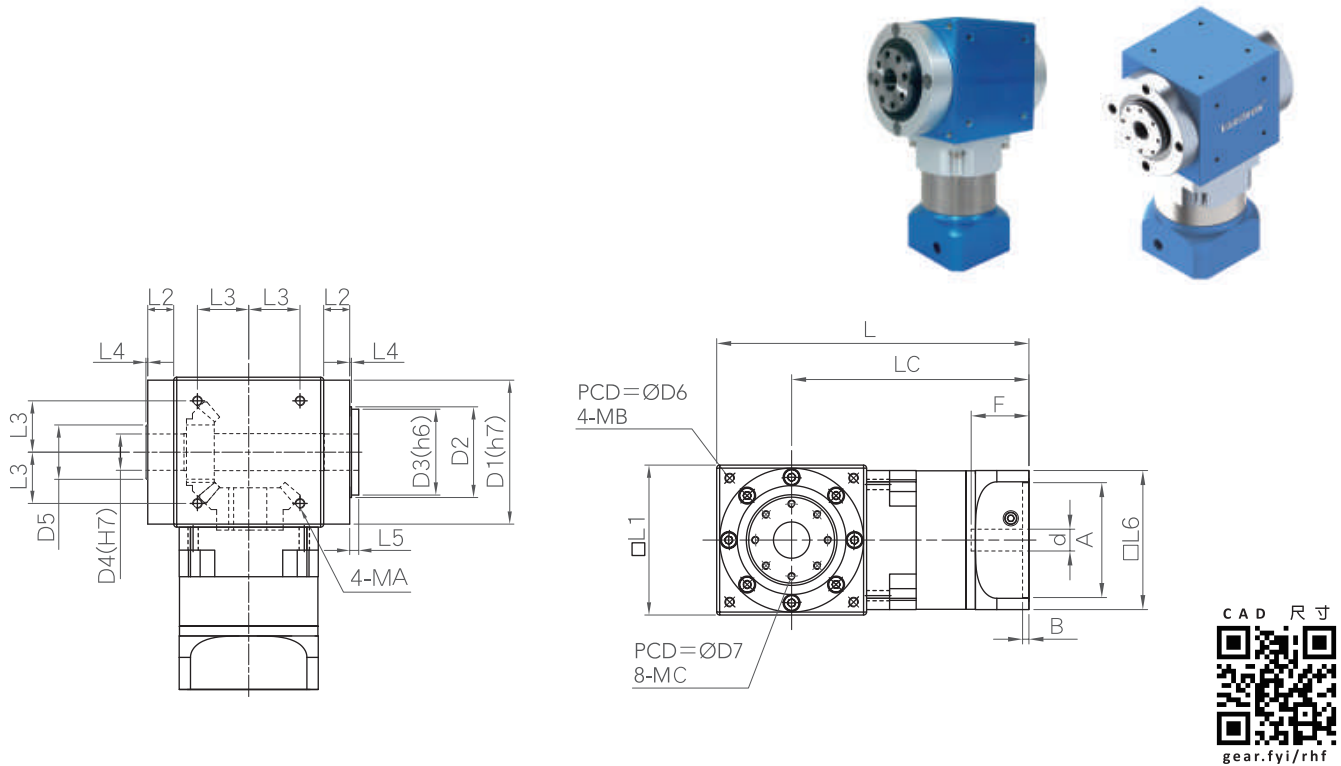
※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# RAH-F Precision Flange Spiral Bevel Gearbox 精密標準法蘭直角型

## Dimensions 外型尺寸表



Dimensions 尺寸	RAH060-F	RAH090-F	RAH120-F	RAH150-F	
L1	83	114	124	154	
L2	17	21.5	21.5	19	
L3	28.284	33.587	38.89	45.962	
MA	M5xP0.8x10	M6xP1.0x12	M8xP1.2x14	M10xP1.5x22	
L4	1.5	1.5	1.5	1.5	
L5	7.5	7.5	7.5	7.5	
L6	62	95	115	143	
LC	L1 一段	136	193.5	282	
	L2 二段	153.5	219.5	334	
L	L1 一段	177.5	250.5	359	
	L2 二段	195	276.5	411	
D1	79	109	119	149	
D2	45	60	75	80	
D3	44	59	71	79	
D4	15	20	30	35	
D5	25	35	45	55	
D6	100	130	145	190	
MB	M5xP0.8x10	M6xP1.0x12	M8xP1.25x14	M10xP1.5x22	
※D7	35	50	60	68	
※MC	8-M5xP0.8x12	8-M5xP0.8x15	8-M6xP1.0x15	12-M6xP1.0x15	
d	≤ 14	≤ 24	≤ 28	≤ 42	
△A	30~50	50~80	50~110	95~130	
B	6	6	5	10	
△F	≤ 32	≤ 40	≤ 47.5	≤ 66.5	
Weight 重量(kg)	L1 一段	3.5	10.2	13.5	27.9
	L2 二段	3.8	11.2	14.6	32.6

※ For 3 stage dimension, contact Varitron® or your sales personal. 如需三段尺寸請洽中國變速。

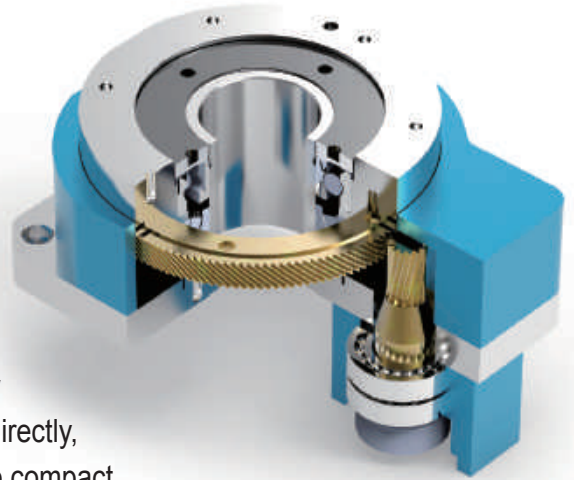
※ Output shaft can be custom size upon ordering. 減速機出力軸可依需求訂製。

※ For 'A' & 'F' dimension, may array according to different servo motor. 「A」 & 「F」會因不同伺服馬達而有所變動。

# Hollow Rotary Platform

## 中空旋轉平台

中空旋轉平台系列(Hollow Rotary Platform, HRP)採用中空式旋轉工作平台，大型圓盤設備或機械手臂可直接安裝於其旋轉盤面上，具有優異的精度，緊湊的結構設計使之可安裝於任何位置，此系列適用於製造、檢驗、定位、研究、追蹤及醫療應用上。依據應用需求可選擇搭配伺服馬達或步進馬達，可廣泛應用於滑台與有中空過管線需求之機構上。



Hollow Rotary Platform (actuator) , HRP series, features a hollow table that allows inertia-large discs or robot arms to be installed directly, offers optimized load capacity, torque, speed, and resolution. The compact mechanism can be mounted in any position which are suitable for use in manufacturing, inspection, positioning, research, tracking, and medical applications. It offers the easiest possible installation of rotary table applications. Depending on your application you can choose between servo and stepper motors.

### High Accuracy 高精度定位

Repetitive positioning accuracy 重複定位精度 10~15 arcmin  
Torsional backlash  $\leq 1$  arcmin 回程間隙  $\leq 1$  弧分

### High efficiency motor connection 高效率馬達連接設計

Input side design with coupling type locking mechanism to ensure concentricity and balance with no backlash during high speed transmission.  
輸入端採夾筒式的鎖緊機構，以確保高輸入轉速下結合面的同心度與平衡度，及零背隙的動力傳遞。

### Direct Mounting of Workpiece 工作平台可直接連接

Allows direct mounting of workpiece loading to rotating table, for convenience design  
工作平台可直接與工件配合，提高便利性

### Hollow Structure Design 中空結構

Convenient for wiring or piping work 配線、配管便利

### Helical Gear Design 螺旋齒輪設計

Speed reduction mechanism employs helical gear, which provide double meshing rate of teeth compare to spur gear. Helical gear design provides extremely smooth operation, low noise, high torque and low backlash.  
減速機機構採用螺旋齒輪設計，齒形嚙合率為一般正齒輪的兩倍以上，具運轉平順，低噪音，高輸出扭矩和低背隙特性。

### High rigidity Bearing 高剛性軸承

Precision Tapered Roller Bearings employs, high axial and radian loading with small size and compact design.  
採用精密圓錐滾子軸承，體積小、結構緊湊，可同時承受徑向基軸向負荷。





## How to order 選型

**HRP 100H - 3 - S - B - P - M - A - R**

①                      ②                      ③                      ④                      ⑤                      ⑥                      ⑦                      ⑧                      ⑨

①	Model 型式	HRP: Hollow Rotary Platform (actuators)                      中空旋轉平台
②	Frame Size 型號	060, 060H, 100, 100H, 130, 130H, 200, 200H, 275, 275H Refer to Gearbox Quick Selection Table Page B37. 請參考快速選擇表第 B37 頁
③	Ratio 減速比	HRP: 5 / 8 / 10 HRP-H: 15 / 20 / 24 / 25 / 30 / 32 / 35 / 40 / 50 / 56 / 70 / 80 / 100 Refer to Specifications Table Page B37. 請參考規格表第 B37 頁
④	Motor Shaft Diameter 馬達軸心直徑(S)	Customized according to customer requirement. 依客戶需求訂製
⑤	Motor Pilot Diameter 馬達引導外徑(B)	Customized according to customer requirement. 依客戶需求訂製
⑥	Motor Guide Depth 馬達引導深度(P)	Customized according to customer requirement. 依客戶需求訂製
⑦	Installing Screw P.C.D 安裝螺絲孔直徑(M)	Customized according to customer requirement. 依客戶需求訂製
⑧	Installing Screw Size 安裝螺絲孔內徑(A)	Customized according to customer requirement. 依客戶需求訂製
⑨	Motor Shaft Length 馬達出力軸長度(R)	Customized according to customer requirement. 依客戶需求訂製

## Model 型式 ①

HRP



HRP-H



# HRP Hollow Rotary Platform 精密中空旋轉平台

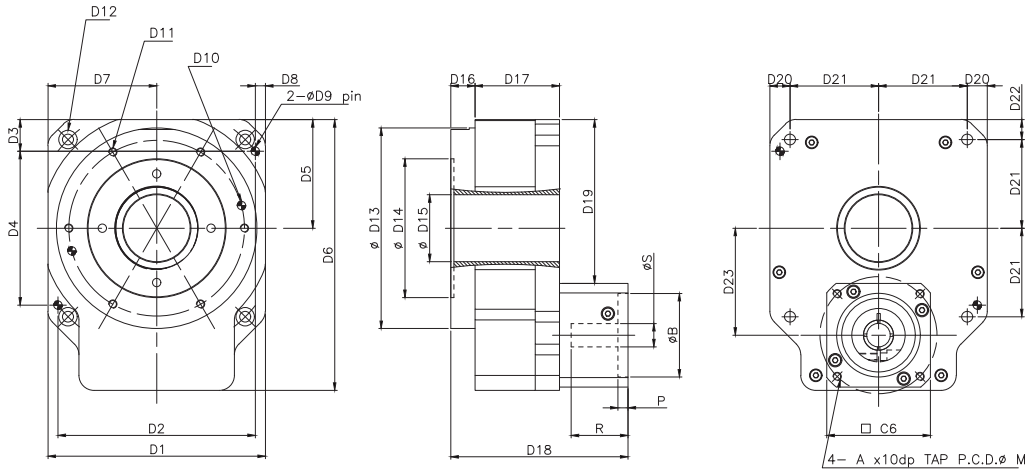
## Series Specifications 規格表

Specification 規格	HRP060	HRP060-H	HRP100	HRP100-H	HRP130	HRP130-H	HRP200	HRP200-H	HRP275	HRP275-H
Platform Supporting Bearing 旋轉平台軸承	Ball Bearing 深溝滾珠軸承 & Tapered Roller Bearings 圓錐滾子軸承						Tapered Roller Bearings 圓錐滾子軸承			
Defined Output Torque 額定輸出扭矩 (Nm)	5	5	45	45	45	45	80	80	80	80
Instantaneous Max. Output Torque 瞬間最大輸出扭矩 (Nm)	10	10	90	90	90	90	160	160	160	160
Permissible Thrust Load 容許推力載重 (kgf)	20	20	200	200	200	200	500	500	500	500
Permissible Output Speed 容許輸出轉速 (rpm)	200	200	200	200	200	200	200	200	200	200
Accuracy Service Life 精度壽命	15000	15000	20000	20000	20000	20000	20000	20000	20000	20000
Reduction Ratio 減速比	5	15,20,25, 35,50	8	24,32,40, 56,80	10	30,40,50, 70,100	10	30,40,50, 70,100	10	30,40,50, 70,100
Repetitive Positioning Accuracy 重覆定位精度 (arcsec)	≤15	≤70	≤10	≤60	≤10	≤60	≤10	≤60	≤10	≤60
Torsional Backlash 定位精度 (arcsec)	≤1	≤1	≤1	≤1	≤1	≤2	≤1	≤2	≤1	≤2
Parallelism of Platform 旋轉平台平行度 (mm)	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02	≤0.02
Concentricity of Platform 旋轉平台同心度 (mm)	≤0.02	≤0.02	≤0.02	≤0.02	≤0.015	≤0.015	≤0.015	≤0.015	≤0.015	≤0.015
Protection Class 防護等級	IP40									
Weight 重量 (kgs)	1.1	1.5	3.1	4.5	5.8	7.1	17.3	20.8	20.8	24.5
Lubricating Oil 潤滑油	Synthetic Lubricant 合成潤滑油									

※ Continuous operating will reduce service life. 連續運轉將會減少減速機的使用壽命。

# HRP Hollow Rotary Platform 精密中空旋轉平台

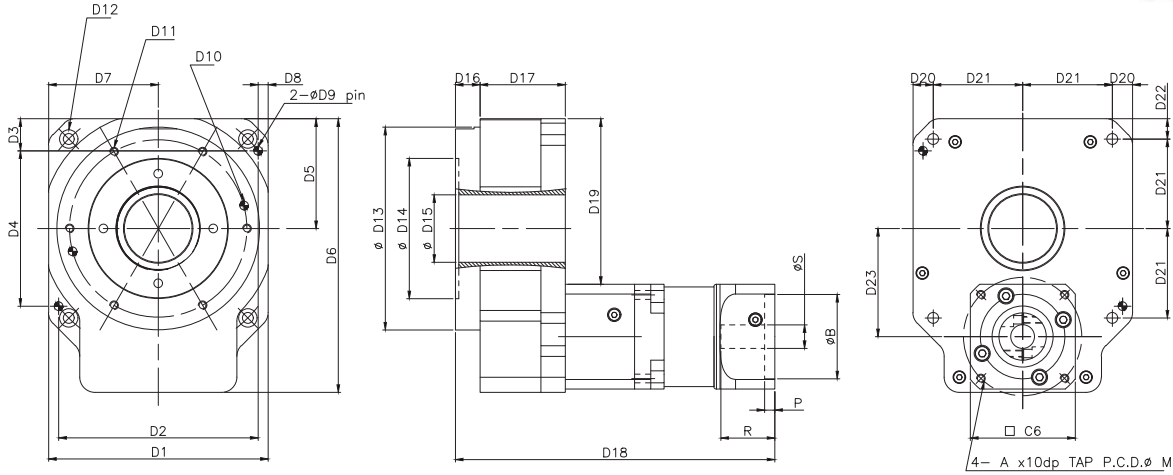
## Dimensions 外型尺寸表



Dimensions 尺寸	HRP060	HRP100	HRP130	HRP200	HRP275
D1	60	100	130	200	200
D2	-	92	118	186	186
D3	-	18	19	30	30
D4	-	64	92	140	140
D5	31	50	65	100	100
D6	84	135	162	255	255
D7	30	50	65	100	100
D8	-	4	6	7	7
D9	-	4	5	8	8
D10	2-Ø4x10dp PCDØ27	2-Ø5x10dp PCDØ80	2-Ø5x10dp PCDØ105	2-Ø5x15dp PCDØ170	2-Ø5x15dp PCDØ170
D11	6-M4x8dp TAP PCDØ27	6-M5x10dp TAP PCDØ80	6-M5x10dp TAP PCDØ105	6-M6x15dp TAP PCDØ170	6-M8x15dp TAP PCDØ170
D12	4-Ø8x6dp xØ4.5	4-Ø9.5x7dp xØ5.5	4-Ø11x7dp xØ6.5	4-Ø18x10dp xØ10.5	4-Ø18x10dp xØ10.5
D13	35	95	120	190	190
D14	-	56	83	81	-
D15	20	29	40	40	75
D16	3	13	14.5	14	41
D17	34	38.5	50.5	51	51
D18	74	167	106	126.5	153.5
D19	41	72.4	98	157.5	157.5
D20	5	10	12	18	18
D21	25	40	53	82	82
D22	6	10	12	18	18
D23	31	52.4	64	102.5	102.5
C6	42	62	62	90	90
S	8	14	14	19	19
B	30	50	50	70	70
P	5	6	6	8	8
M	46	70	70	90	90
A	M4	M5	M5	M6	M6
R	30	32	34	50	50

# HRP-H Hollow Rotary Platform 精密中空旋轉平台

## Dimensions 外型尺寸表



Dimensions 尺寸	HRP060-H	HRP100-H	HRP130-H	HRP200-H	HRP275-H
D1	60	100	130	200	200
D2	-	92	118	186	186
D3	-	18	19	30	30
D4	-	64	92	140	140
D5	31	50	65	100	100
D6	84	135	162	255	255
D7	30	50	65	100	100
D8	-	4	6	7	7
D9	-	4	5	8	8
D10	2-04x10dp PCD027	2-05x10dp PCD080	2-05x10dp PCD0105	2-05x15dp PCD0170	2-05x15dp PCD0170
D11	6-M4x8dp TAP PCD027	6-M5x10dp TAP PCD080	6-M5x10dp TAP PCD0105	6-M6x15dp TAP PCD0170	6-M8x15dp TAP PCD0170
D12	4-08x6dp x04.5	4-09.5x7dp x05.5	4-011x7dp x06.5	4-018x10dp x010.5	4-018x10dp x010.5
D13	35	95	120	190	190
D14	-	56	83	81	-
D15	20	29	40	40	75
D16	3	13	14.5	14	41
D17	34	38.5	50.5	51	51
D18	144	167	189	244	271
D19	41	72.4	98	157.5	157.5
D20	5	10	12	18	18
D21	25	40	53	82	82
D22	6	10	12	18	18
D23	31	52.4	64	102.5	102.5
C6	42	62	62	95	95
S	≤ 8	≤ 14	≤ 14	≤ 24	≤ 24
B	22~30	30~50	30~50	50~80	50~80
P	5	6	6	8	8
M	≤ 46	≤ 70	≤ 70	≤ 90	≤ 90
A	M4	M5	M5	M6	M6
R	≤ 25	≤ 32	≤ 32	≤ 40	≤ 40

※ For 'S', 'B', 'M', 'A' & 'R' dimension, may array according to different servo motor. 「S」「B」「M」「A」 & 「R」會因不同伺服馬達而有所變動。

# POWER TRANSMISSION INDEX

## A1

### Cycloidal Drive Reducer

賽驅樂減速機

HM



Pg.A47

HX



Pg.A55

H



Pg.A61

VM



Pg.A64

VX



Pg.A72

V



Pg.A78

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## A2

### RV Precision Cycloidal Gear

高精密擺線減速機

RV-E



Pg.A84

RV-C



Pg.A84

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## B1

### Precision Planetary Gearbox

精密行星減速機

DA



Pg.B06

DG



Pg.B08

DGT



Pg.B10

DM



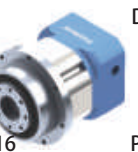
Pg.B12

DML



Pg.B14

DF



Pg.B16

DH



Pg.B18

DL



Pg.B20

DN



Pg.B22

RAM-S



Pg.B24

RAM-SS



Pg.B25

RAM-H



Pg.B26

RAM-D



Pg.B27

RAM-F



Pg.B28

RAH-S



Pg.B30

RAH-SS



Pg.B31

RAH-H



Pg.B32

RAH-D



Pg.B33

RAH-F



Pg.B34

HRP



Pg.B38

HRP-H



Pg.B39

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## B2

### Planetary Gear Reducer

遊星式減速機

HF



Pg.B47

VF



Pg.B48

HS



Pg.B49

VS



Pg.B50

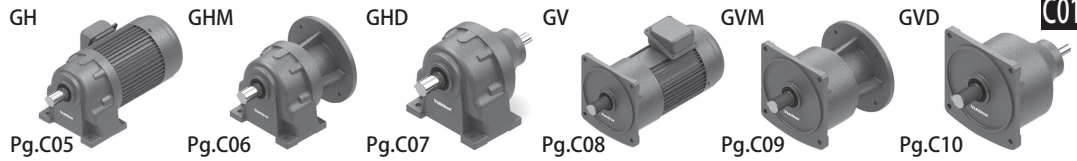
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**C1**

**Compact Helical Gear Motor Reducers**

小型齒輪減速機



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**C2**

**Helical Gear Motor Reducers**

齒輪減速機



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**C3**

**SEW Type Gear Reducer**

歐規齒輪減速機



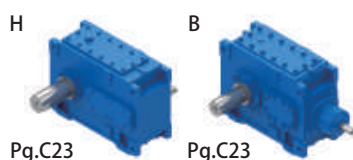
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**C4**

**Industrial Helical Bevel Gearbox**

齒輪箱



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C22~C23



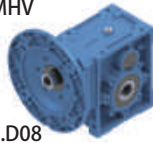
# POWER TRANSMISSION INDEX

## D1

### NMHV Hypoid-Helical Gear Reducer

萬向螺旋齒輪減速機

NMHV



Pg.D08

NHV



Pg.D09

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## D2

### NMRV Worm Gear Reducer

萬向蝸輪減速機

NMRV



Pg.D20

NMRV-NMRV



Pg.D21

NRV



Pg.D22

NRV-NMRV



Pg.D22

PC-NMRV



Pg.D23

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## D3

### Worm Gear Speed Reducer

蝸輪減速機

HW



Pg.D33

HMW



Pg.D34

HOM



Pg.D35

LW



Pg.D36

LMW



Pg.D37

HOW



Pg.D38

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LOW



Pg.D38

VW



Pg.D39

VMW



Pg.D40

VOW



Pg.D41

VOM



Pg.D42

UW



Pg.D43

UMW



Pg.D44

TW



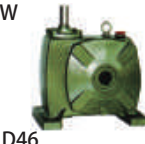
Pg.D45

TMW



Pg.D45

TOW



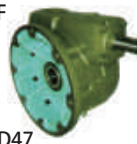
Pg.D46

TOM



Pg.D46

VOF



Pg.D47

VOFM



Pg.D47

LH



Pg.D48

LHM



Pg.D48

LOH



Pg.D49

LOHM



Pg.D49

VH



D50

UH



Pg.D50

VHM



Pg.D51

UHM



Pg.D51

VOH



Pg.D52

VOHM



Pg.D52

## E1

### Disco Speed Variator

無段變速機



Pg.E07

Pg.E07

Pg.E07

Pg.E07

Pg.E07



Pg.E08

Pg.E08

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## E2

### Belt Stepless Variable Speed Drive

皮帶變速機



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## E3

### Five Steps Buffered Speed Changer

五段緩衝式變速機



Pg.E11

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## E4

### PIV Chain Variable Speed Drive

鍊條無段變速機



Pg.E13

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## F1

### Spiral Bevel Gear Box

十字轉向機



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## F2

### Spiral Screw Rod Actuators

螺桿升降機



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## G

### Induction Electric Motor

感應馬達



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Pg.G10

Pg.G10

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## H

### Agitator Mixer

攪拌機



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Pg.H06

Pg.H07

Pg.H08

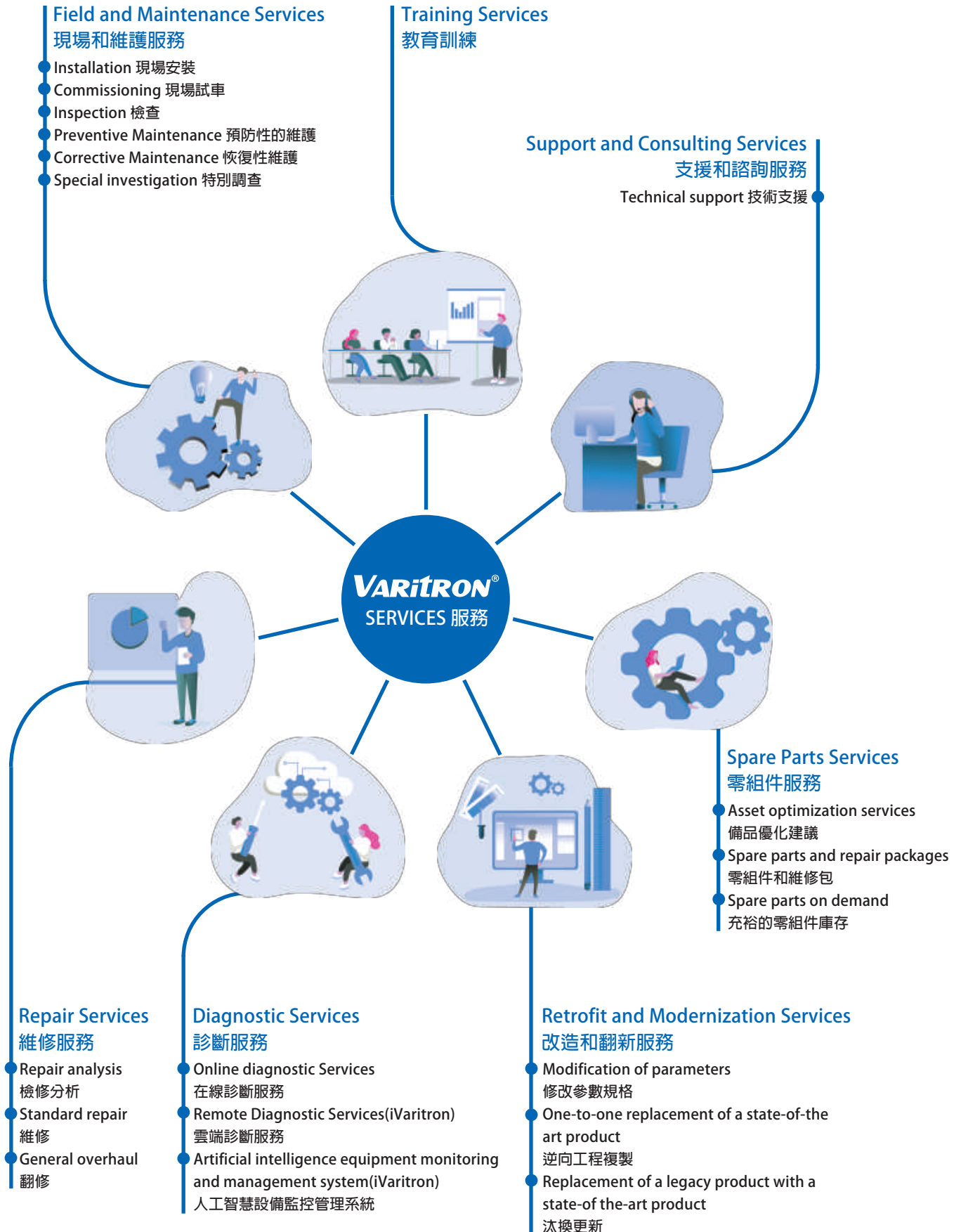
Pg.H09

Pg.H10

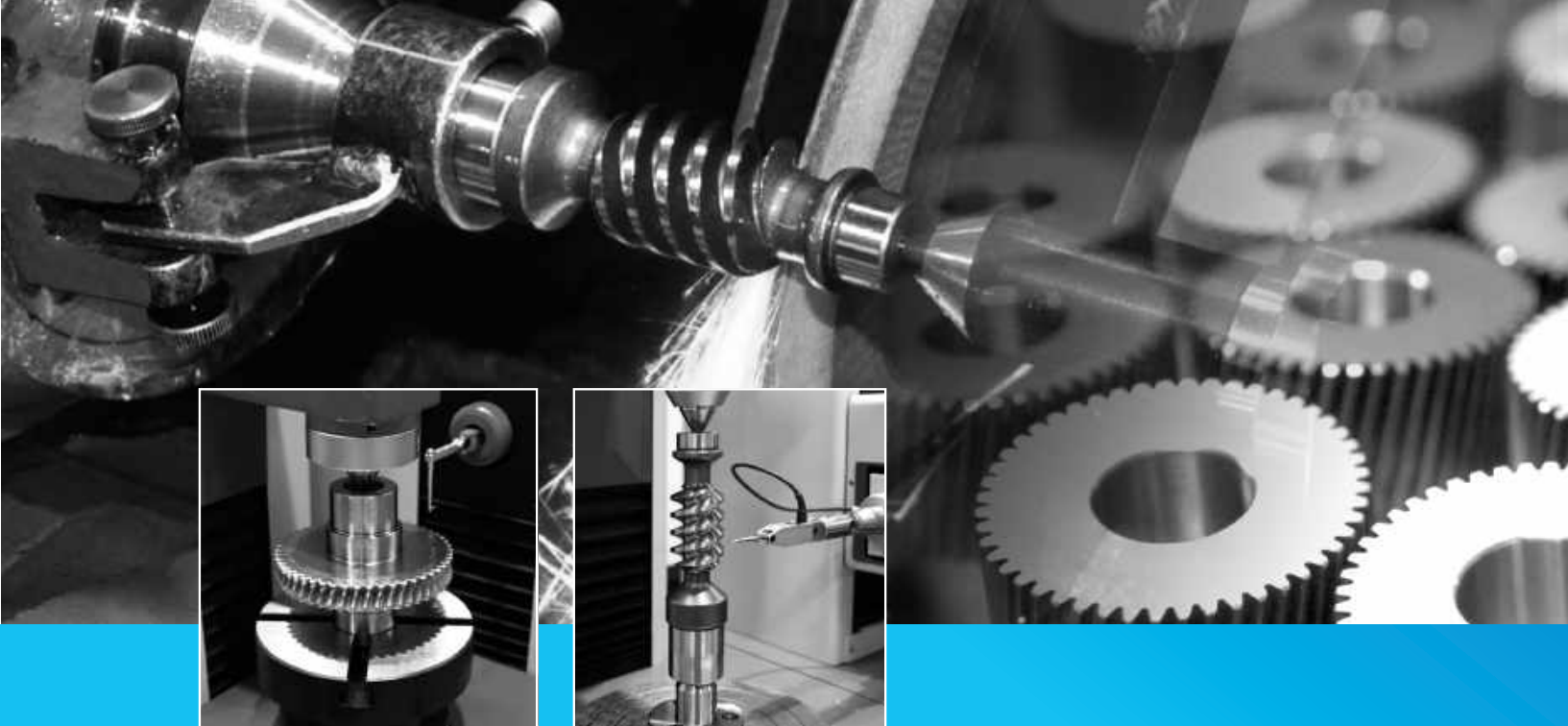
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# VARITRON® Total Solution for Transmission Units

## 全方位的驅動產品服務







## MADE IN TAIWAN

Service perfection, Quality superiority, Research and Development are the core enterprise spirits of VARITRON since 1971. Responding to both domestic customers and international market demands, we never stop to make innovation for gearbox function, efficiency and quality improvement, accompany with accurate and in-time after service. To improve quality control, VARITRON has been certified with ISO9001 since 2008.

Varitron wide power transmission product line including Cycloidal Drive, Precision Planetary Gearbox, Helical Gearmotor, Planetary Gear Reducers, Worm Gearbox, Variator and Induction Motor provides different industries sectors including CNC Machineries, Semi-conductor, Chemical, Steel Industries, Factory facilities, Automation Machineries, robo-tic arm With Varitron strong mechanical engineering team, Varitron provides customizes transmission gearbox and many newly innovated pattern products.

### Service

Towards Varitron's Half-century, we serve more than 40 countries. VARITRON has more than 10 service points in cooperation with regional agents globally to timely assist our customers not only for hardware, like parts and maintenance, but also for software, like design consultant

### Quality

Quality Perfection is Varitron's core value, new machinery and quality check equipment is deploy in the manufacturing. Minimum 30 quality check point is done from raw material to final gearbox. In-house testing laboratory, ISO9001 and ISO14001 quality control system to ensure every gearbox meets perfection.

### Innovation

Our specialized R&D teams constantly developing new gearbox, gear motor and motors for effectively fabricating transmission products, and working to improve machine quality. VARITRON never stops doing market surveys and attending international exhibitions. With decades of knowledge accumulated about market information and changes in machineries trends, we can provide the most valuable information to our clients and assist our clients in industrial upgrading.



**VARITRON®**  
Take Control In Speed

「服務」、「品質」、「研發」是中國變速工程股份有限公司自1971年成立以來一直秉持的核心精神。為因應國際多元化的市場需求，我們不斷挑戰速度及品質的極限亦擁有領先且精密的技術，在近半世紀的努力下，終於從一家國內的減速機工廠蛻變為國際優秀的工業自動化領導品牌。

本公司生產之減速機種類多元，包含賽驅樂減速機、低背隙行星減速機、齒輪減速機、遊星式減速機、蝸輪減速機、無段變速機、攪拌機系列等等，其工業品上的應用更是跨足不同產業，從CNC自動化、汙水處理廠、造紙廠、機械手臂、半導體及到化工廠等等…。為了滿足客戶各項傳動需求，我們尚提供客製化技術，為客戶量身打造一套屬於自己的產品，為客戶節省更多測試及人力成本。

我們具有性能卓越的獨家技術、不斷研發的專利產品，同時還有完善的售前/後服務，才能讓本公司於眾多製造廠商中脫穎而出。

#### 服務

經過半世紀的努力，我們的客戶已超過40個國家，為因應海外市場龐大的業務量及秉持服務品質不縮水的精神，我們已在海外增設多個據點，提供給客戶更即時性的服務。

#### 品質

因為品質的堅持是我們最重要的信念，所以本公司引進最新型、最先進的技術及機器，生產的每樣產品從原料到成品皆須歷經30道以上的檢驗關卡，我們希望透過最嚴謹的製造流程，來確保品質的無虞，並致力通過ISO9001及ISO14001的認證。除證實我們對於品質與自我的要求外，更帶領我們達到積極追求的目標 - 「提供高效率且環境友善的產品」，為環境永續更盡一份心力。

#### 研發

本公司憑藉著永續經營、鍥而不捨的研發精神，不斷吸納專業人才、研發新技術，並努力拓銷至國際市場(韓國、日本、東南亞、澳洲、美國及歐洲等四十多個國家)，歡迎您來體驗中國變速所帶給您的傳動新感受。

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