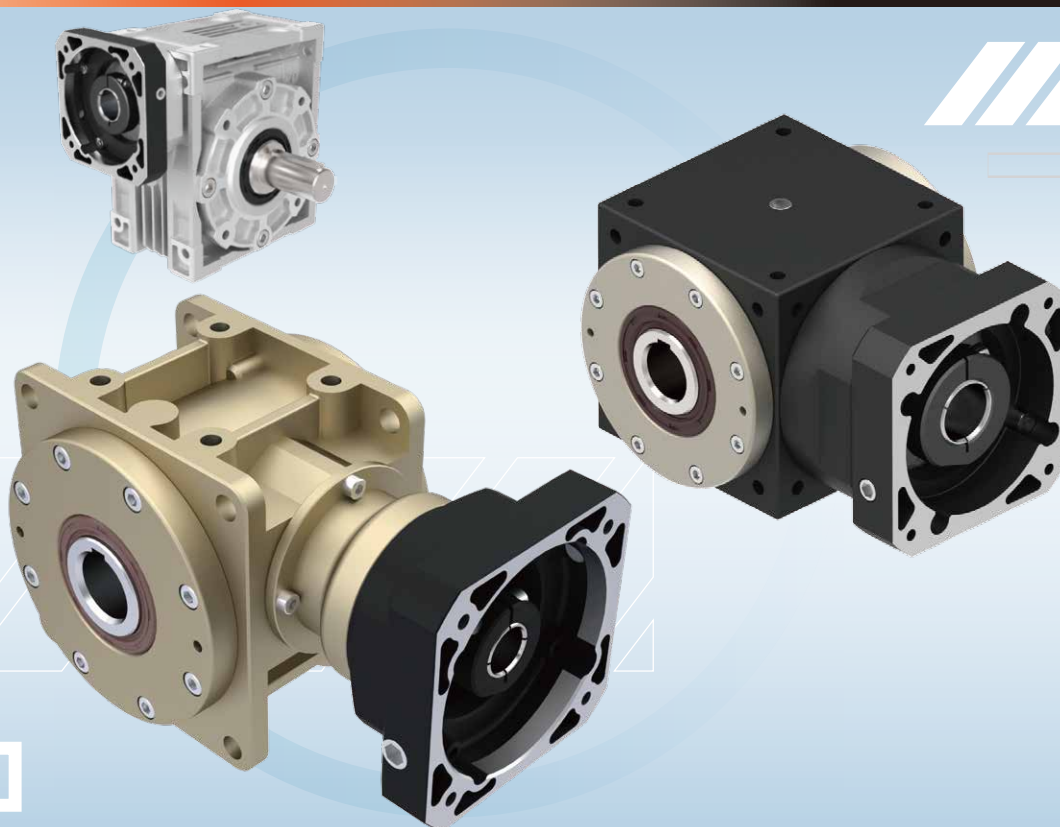


Right Angle Reducers 高精密伺服用直交軸減速機

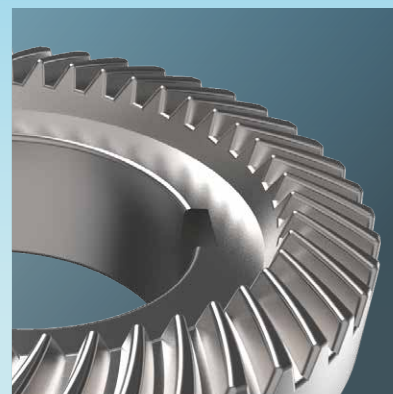
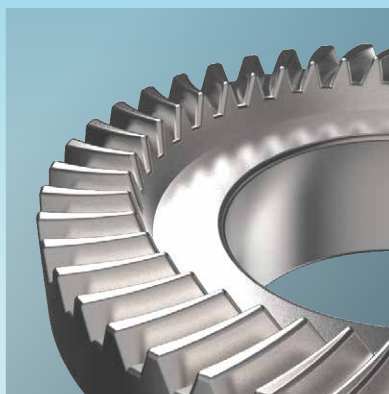


Hollow Rotary Reducers 高精密中空旋轉平台減速機

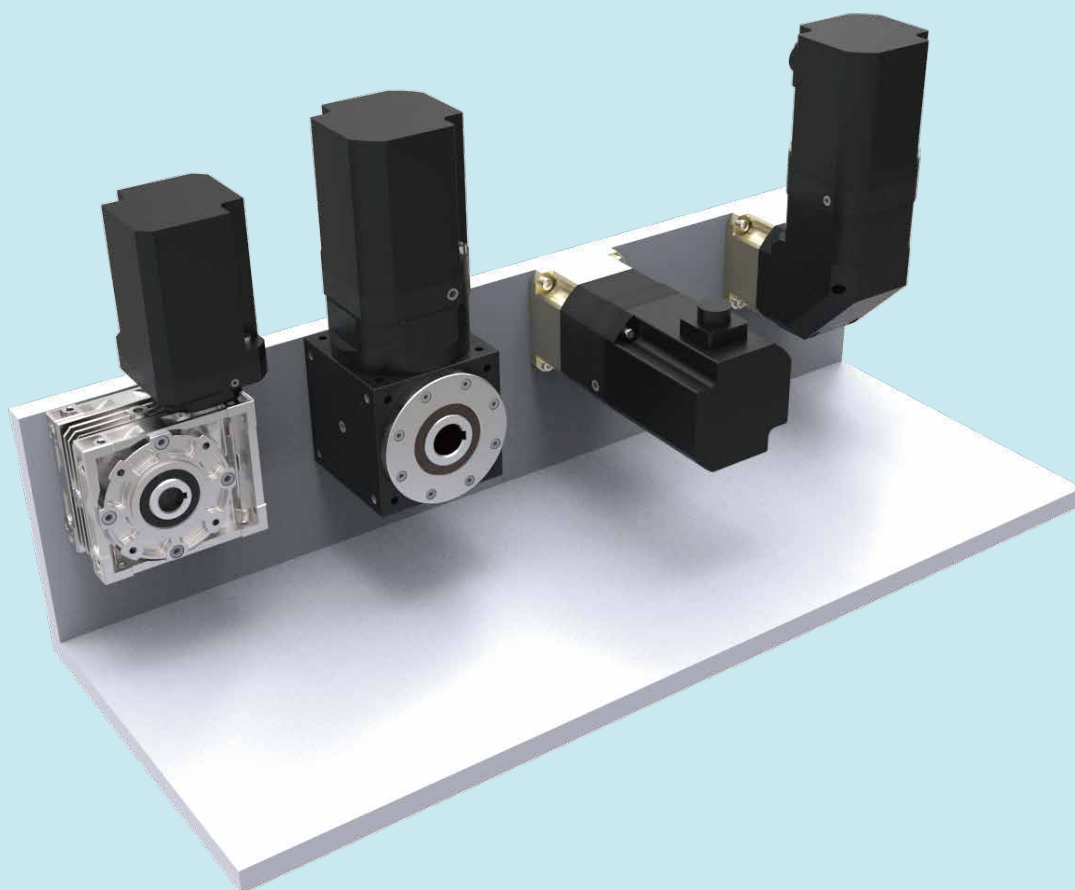


【 傳動裝置的解決方案 / 減速機的領導品牌 】

LI MING MACHINERY CO., LTD.



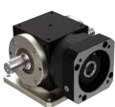
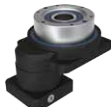
Quality Supreme & Customer's Satisfaction



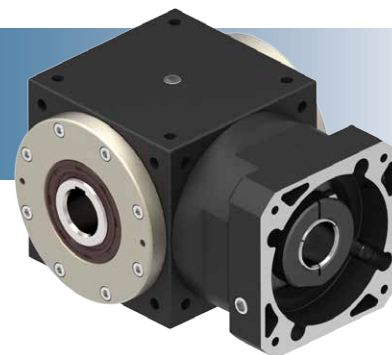
使用直交軸減速機，能更有效地利用空間

Space can be more effectively used by right angle reducer



MODEL		ST	FT	JT	HY	HK	HF	WE	PW	GT
Page		 2	 38	 48	 60	 90	 93	 104	 114	 130
Ratio 1-Stage		1、2 3、4 5	2、3 4、5	2	5、10 15	5、10 15	5、10 15	5、15 10、20 30、40 50、60	50、75 100、150 200、250 300、400 500	5、10 18
Ratio 2-Stage		10 ~ 50	10 ~ 50	10	25 ~ 150	-	25~150	-	-	25、50、 100
最小背隙 Min. Backlash	arcmin	≤ 3	≤ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 8	≤ 8	≤ 1
容許最大入力馬力 Max. Input Power	kW	45	0.4	1.5	45	11	11	1.5	0.75	5.5
額定輸入轉速 Rated Input Speed	rpm	700 ~ 3,000	2,000 ~ 3,000	3,000	400 ~ 3,900	700 ~ 4,000	700 ~ 4,000	2,000	2,000	3,000
最大輸入轉速 Max. Input Speed	rpm	3,000 ~ 6,000	6,000	6,000	4,000 ~ 6,000	3,000 ~ 6,000	3,000 ~ 6,000	3,000	3,000	4,500 ~ 6,000
效率 Efficiency	%	94% ~ 98%	94% ~ 98%	≥ 96%	93% ~ 96%	93% ~ 96%	93% ~ 96%	55% ~ 94%	57% ~ 91%	≥ 98%

ST series



Indication of Model Numbers

機種型號表示

ST	90	F	N	B	5	L	P0
減速機機型 Type	型號 Model	入力表示 Input	出力表示 Output	軸承形式 Bearing	速比 Ratio	軸向 Shaft Direction	背隙等級 Backlash Class
ST	65	F: 入力法蘭 Input Flange	O: 出力中空軸 Hollow Output Shaft	B: 滾珠軸承 Ball Bearing	單段 1-Stage 1, 2, 3, 4, 5	L: 左軸 Left Shaft	P0
	75					R: 右軸 Right Shaft	P1
	90	R44: 減速機 Reducer	N: 單邊免鍵軸套 (有鍵槽) Single Clamping (Keyway)	(65#~280#) (Ratio: 1~5)	-----		P2
	110	1-Stage:			搭配單段 行星減速機		
	140	R44、R62...	(Keyway)		With 1-Stage Planetary		
	170	2-Stage:	N1: 單邊免鍵軸套 (無鍵槽) Single Clamping (No Keyway)	T: 滾錐軸承 Taper Bearing	Reducer	1. 出力形式 N、S 可以選 擇軸向 Shaft direction is optional for output type N, S.	
	210	R62S...			10 ~ 50		
	240	2-Stage (A-Type):	M: 雙邊免鍵軸套 Double Clamping	(75#~280#) (Ratio: 2~5)	搭配雙段 行星減速機	2. 出力形式 P 為 R 軸向 Output type P only for R shaft.	
	280	R44A、R62A...	S: 單出力軸心 (有鍵槽) Single Output Shaft (Keyway)		With 2-Stage Planetary		
		D: 單入力軸心 (有鍵槽) Single Input Shaft (Keyway)	S1: 單出力軸心 (無鍵槽) Single Output Shaft (No Keyway)		Reducer		
		D1: 單入力軸心 (無鍵槽) Single Input Shaft (No Keyway)	V: 雙出力軸心 (有鍵槽) Double Output Shaft (Keyway)		75 ~ 500		
		Y: 雙入力軸心 (有鍵槽) Double Input Shaft (Keyway)	V1: 雙出力軸心 (無鍵槽) Double Output Shaft (No Keyway)				
		Y1: 雙入力軸心 (無鍵槽) Double Input Shaft (No Keyway)	P: 螺桿式 Ball Screw (75#~210#) 限用滾錐軸承 Taper Bearing Only				

The Model & Ratio Table of Bevel Gear Reducer Assembly Planetary Reducer

傘齒輪減速機搭配行星減速機型號及速比一覽表

Model	Ratio	法蘭盤框號 Flange Model	行星減速機框號 Planetary Reducer Model	單段行星減速機減速比 Ratio of 1-Stage Planetary Reducer 5、10	雙段行星減速機減速比 Ratio of 2-Stage Planetary Reducer 25、50、100
65	1 2 3 4 5	62	44	搭配單段行星減速機減速比 Ratio of Bevel Gear Reducer Fitted with 1-Stage Planetary Reducer 10、15、20、25、30、40、50	搭配單段行星減速機減速比 Ratio of Bevel Gear Reducer Fitted with 1-Stage Planetary Reducer 75、100、125、150、200、 250、300、400、500
75		62	44、62		
90		90	62		
110		90	80		
140		120	90		
170		142	120		
210		180	142		
240		220	180		
280		220	220		

Selection of Type

產品樣式選擇

入力形式 Input Type

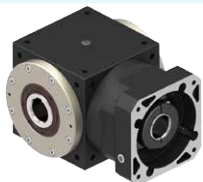
F 入力法蘭
Input Flange

R 減速機
Reducer

D 單入力軸心
Single Input Shaft

Y 雙入力軸心
Double Input Shaft

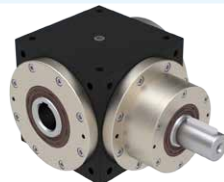
O
出力中空軸
Hollow
Output
Shaft



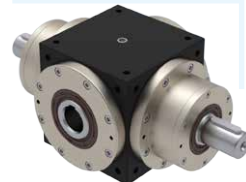
FO



RO



DO



YO

N
單邊
免鍵軸套
Single
Clamping



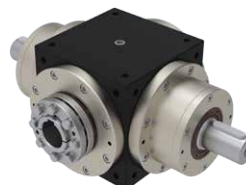
FN



RN



DN



YN

M
雙邊
免鍵軸套
Double
Clamping



FM



RM



DM



YM

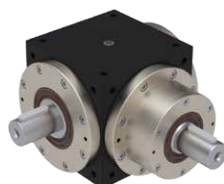
S
單出力軸心
Single
Output Shaft



FS



RS



DS



YS

V
雙出力軸心
Double
Output Shaft



FV



RV



DV



YV

P
螺桿式
Ball Screw



FP



RP



DP



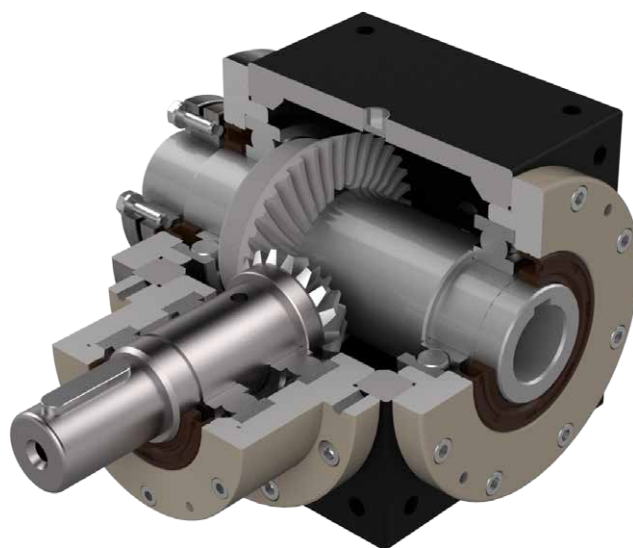
YP

- 出力形式 N、S 可以選擇軸向。Shaft direction is optional for output type N, S.
- 出力形式 P 為 R 軸向。Output type P only for R shaft.

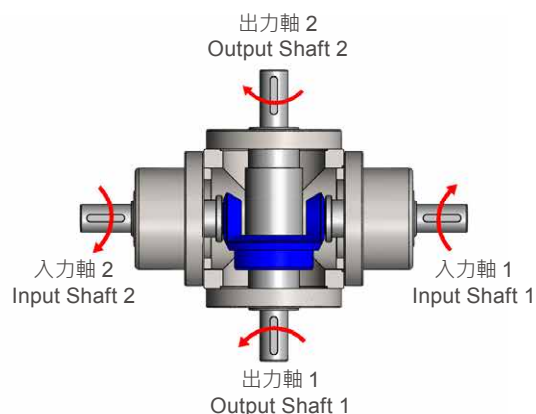
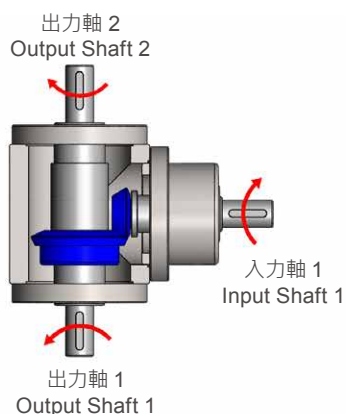
Rotating Direction

旋轉方向說明

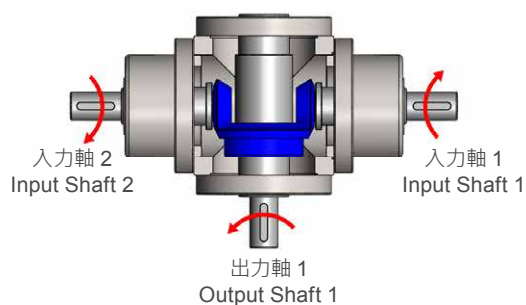
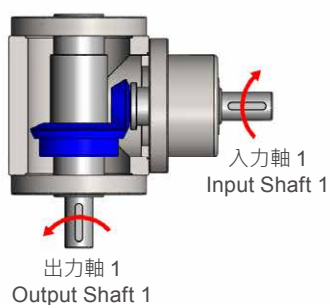
ST



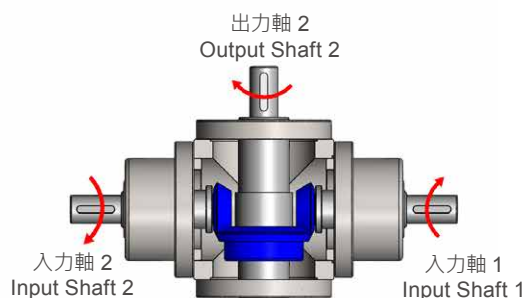
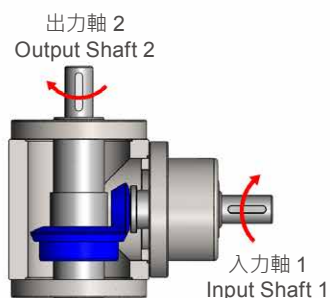
L 軸向
Shaft Direction



L 軸向
Shaft Direction



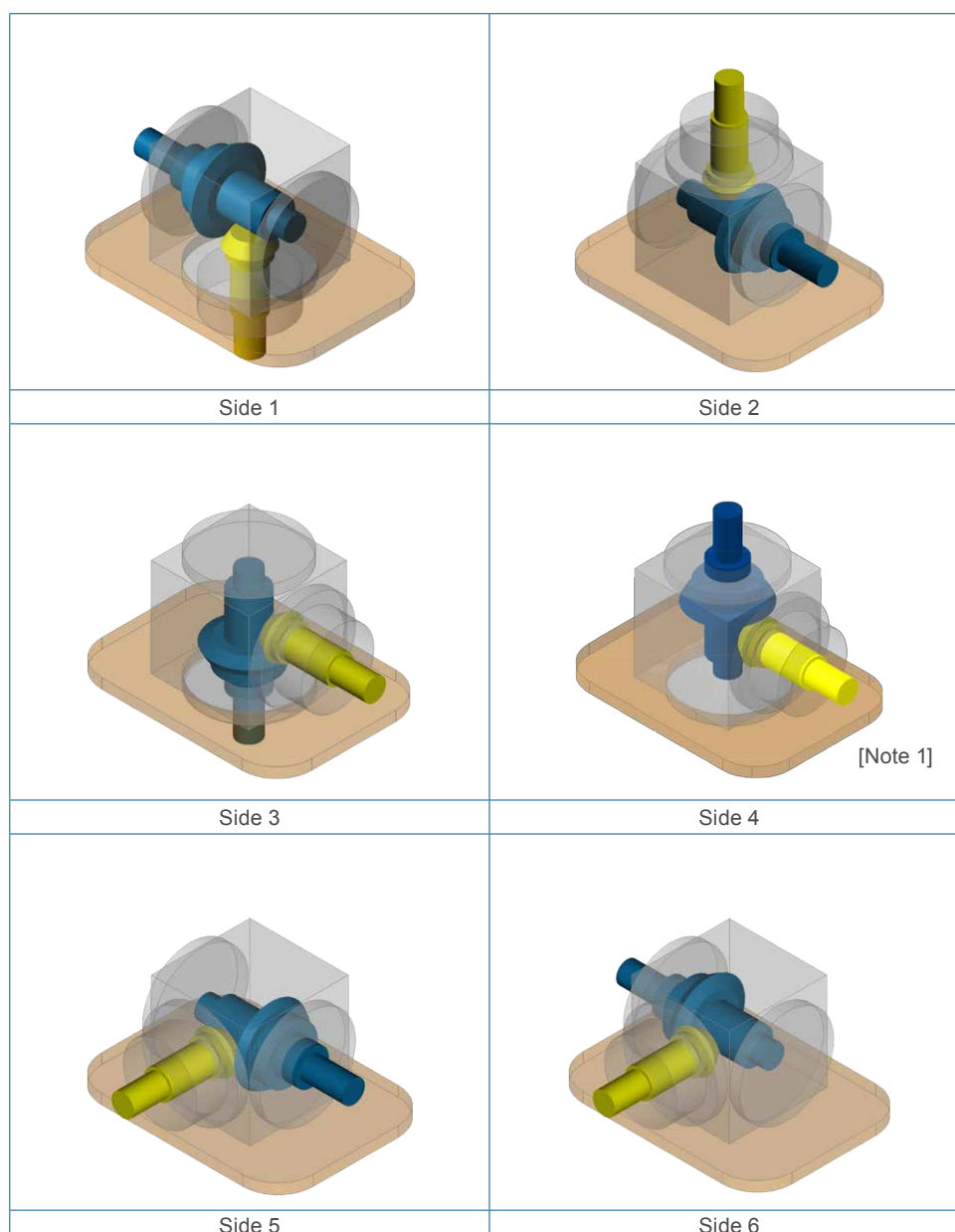
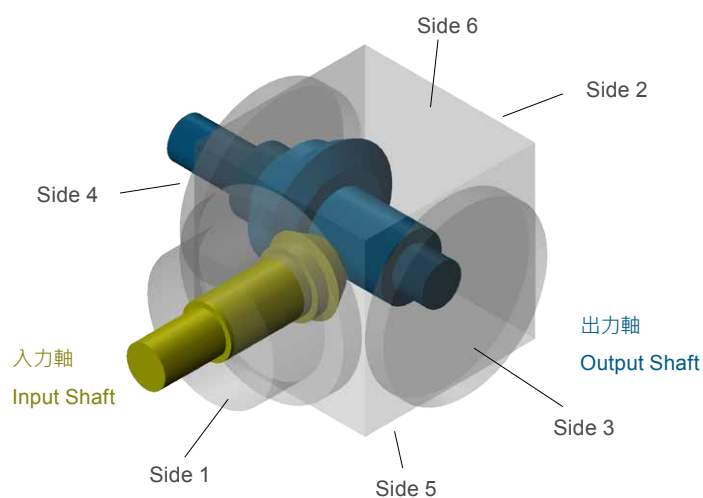
R 軸向
Shaft Direction



Note:
本公司出廠標準品使用「標準軸向」，R 軸向請於訂單上註明。
Standard product is L shaft direction, R shaft direction is optional.

Selection Direction of Installation

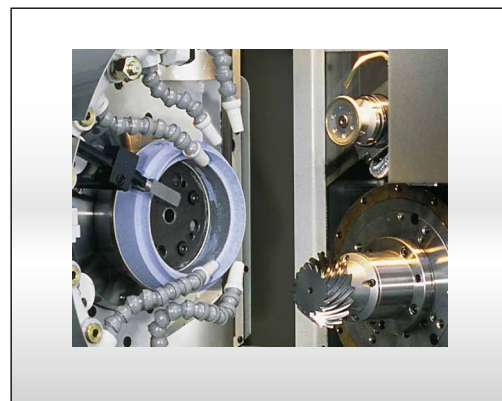
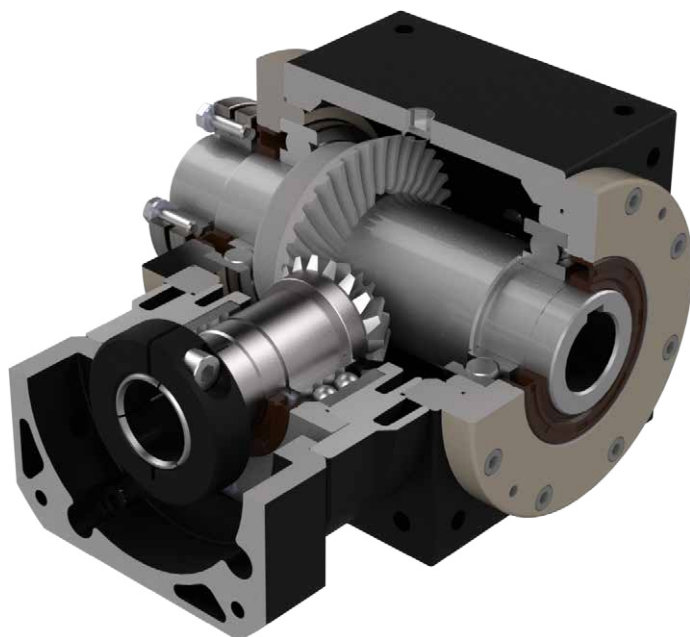
安裝方向選擇



[Note 1] 出力軸端面基準線朝上時，需特別告知其使用方式。
Side 4 operation shall be avoid.

Features of ST Series

ST 系列產品特點

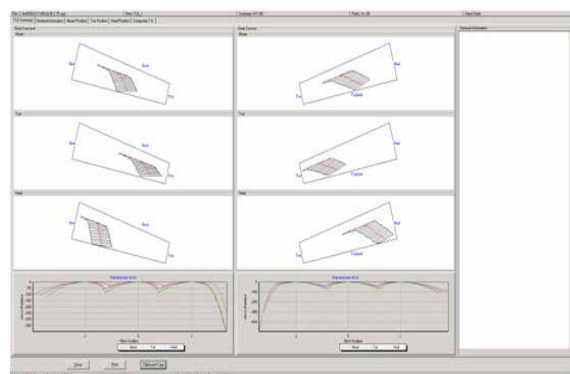
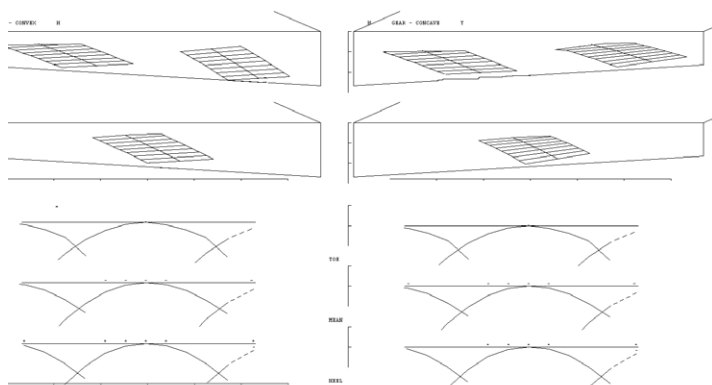


高強度、高精度螺旋傘齒輪

- 齒輪採高強力滲碳合金鋼，研磨精密度符合 AGMA12 級標準以內。

High precision grinded and carburized spiral bevel gears

- High precision grinded and carburized spiral bevel gears to meet standard AGMA12.



最優化的設計及 CAE 分析技術

- 採用 Gleason 參數齒輪設計軟件，得到最佳化接觸面積的齒印參數，保證了最高扭矩以及最小噪音。
- 並利用 3D-CAE 軟體的設計分析技術，對減速機整體強度及螺旋傘齒輪進行分析，增加齒輪系及減速機的使用壽命。

Optimized Design and CAE Analysis

- Use Gleason's design software to design new spiral bevel gears. Through the ideal gear contact pattern for application, achieve high permissible output torque.
- Employs 3D-CAE software for analysis and design, the software allows for analyzing the strength of the entire gear reducer and helical teeth. Increasing the service life of gears and the gear reducer.

Features of ST Series

ST 系列產品特點

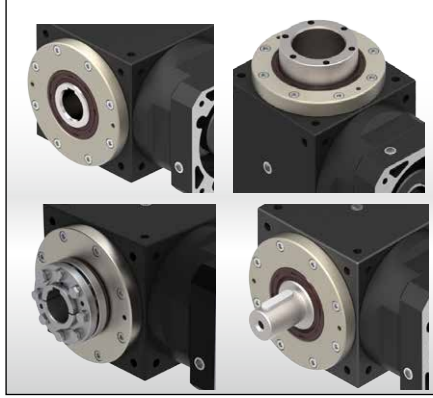


低背隙

- 使用 Gleason 參數齒輪加工設備，加工研磨等級的螺旋傘齒輪，確保低背隙、低噪音。
- 背隙最小可達 2 弧分以內。

Low Backlash

- Using Gleason high precision CNC grinding machine to grinding the spiral bevel gears.
- Torsional backlash depending on design up to <2 arcmin.

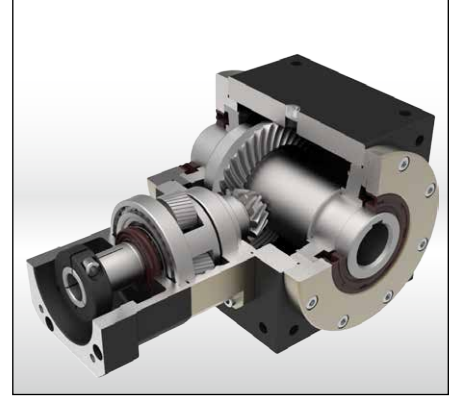


安裝位置

- 多重精密加工表面易於組裝，適用於任意安裝方向。
- 入出力軸的設計可以適用於各種工業上應用的需求。

Mounting Position

- Multiple precision machined surface is easy for assembly, suitable for any optional mounting orientation.
- Output shaft and input shaft are designed to suit for various industries applications.

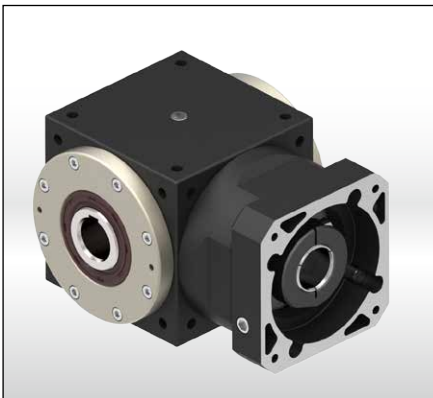


更高的減速比

- 高精密研磨的蝸線傘齒輪組結合最佳化設計的行星式齒輪組可以達到 500:1 的減速比。

More High Gear Ratio

- High precision grinded and carburized spiral bevel gears with optimal designed planetary gear can do ratio 500: 1.



免保養

- 免保養無須更換潤滑油，運轉壽命長。

No Maintenance

- It features no maintenance and long service life.

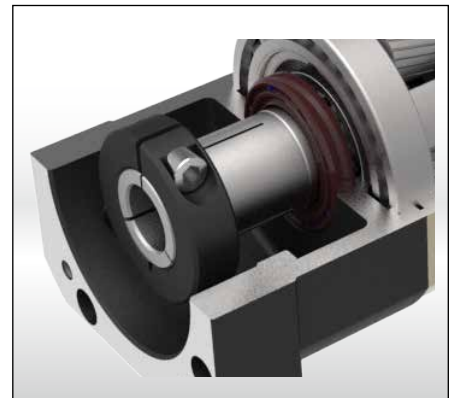


高扭矩密度

- 一體式齒箱本體確保最大剛性與耐蝕性。
- 結構緊湊，富有剛性的設計保證了在小體積、重量輕的情況下能夠達到最高扭矩及較大的減速比。

High Output Torque

- The gear box is one-piece constructed to ensure the high rigidity and corrosion-resistant capability.



筒夾式連結機構

- 輸入端與馬達的連結採用筒夾式的鎖緊機構，並經動平衡分析，以確保在高輸入轉速下結合界面的同心度和平衡度，及零背隙的動力傳遞。

Collet Locking Mechanism

- The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.

Characteristic of ST Series

ST 系列產品特性

單段減速機 1-Stage

規格 Parameter	Code	Unit	Ratio	65	75	90	110	140	170	210	240	280
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	1	25	45	78	150	360	585	1,300	1,688	2,110
			2	24	42	68	150	330	544	1,220	1,510	2,666
			3	18	33	54	120	270	450	1,020	1,266	2,213
			4	13	28	52	100	224	376	860	1,048	2,026
			5	12	25	40	85	196	320	740	1,022	1,888
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	1~5	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque								
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	1~5	2 倍額定輸出扭矩 2 Times of Rated Output Torque								
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	1	1,000	1,000	1,000	900	900	700	700	700	700
			2	2,000	2,000	2,000	1,250	1,250	1,000	1,000	1,000	1,000
			3~5	3,000	3,000	3,000	2,500	2,500	2,000	2,000	2,000	2,000
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	1~5	6,000	6,000	5,500	4,500	3,500	3,000	3,000	3,000	3,000
背隙 / Backlash		arcmin	P0	-	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
			P1	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
			P2	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	1~5	700	1,050	1,500	2,360	3,080	4,800	6,400	8,200	9,500
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	1~5	350	525	750	1,180	1,540	2,400	3,200	4,100	4,750
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	2~5	-	2,400	3,200	5,000	6,500	9,100	13,000	17,000	19,300
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	2~5	-	1,200	1,600	2,500	3,250	4,550	6,500	8,500	9,650
使用壽命 / Service Life	L_H	hr	1~5	65#~210# : S5 周期運轉 Cycle Operation: >30,000 240#~280# : S5 周期運轉 Cycle Operation: >20,000								
效 率 / Efficiency	η	%	1~5	94% ~ 98%								
使用溫度 / Operating Temperature		°C	1~5	-10°C ~ +90°C								
潤 滑 / Lubrication			1~5	全合成潤滑油 Synthetic Oil								
噪 音 值 / Noise Level		dB	1~5	≤ 65	≤ 67	≤ 71	≤ 73	≤ 74	≤ 75	≤ 77	≤ 80	≤ 82

轉動慣量 Mass Moments of Inertia (kgcm²)

Ratio	65	75	90	110	140	170	210	240	280
1	0.51	1.79	4.93	12.5	36.8	85.9	287	428.4	668.7
2	0.44	0.95	2.78	7.41	15.6	39.3	123	250.8	526.5
3	0.43	0.78	2.34	6.18	10.9	28.5	84.1	183.5	357.0
4	0.43	0.72	2.18	5.71	9.19	24.5	69.9	157.4	309.2
5	0.43	0.69	2.10	5.48	8.32	22.6	62.7	137.4	267.7

Characteristic of ST Series

ST 系列產品特性

雙段減速機 2-Stage

規格 Parameter	Code	Unit	Ratio	65	75	90	110	140	170	210	240	280
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	10	24	42	68	150	330	544	1,220	1,510	2,666
			15	18	33	54	120	270	450	1,020	1,266	2,213
			20	13	28	52	100	224	376	860	1,048	2,026
			25	12	25	40	85	196	320	740	1,022	1,888
			30	18	33	54	120	270	450	1,020	1,266	2,213
			40	13	28	52	100	224	376	860	1,048	2,026
			50	12	25	40	85	196	320	740	1,022	1,888
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	10~50	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque								
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	10~50	2 倍額定輸出扭矩 2 Times of Rated Output Torque								
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	10~50	3,000	3,000	3,000	3,000	3,000	3,000	3,000	2,500	2,500
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	10~50	6,000	6,000	6,000	6,000	6,000	5,000	5,000	4,000	4,000
背隙 / Backlash		arcmin	P0	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
			P1	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
			P2	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	10~50	700	1,050	1,500	2,360	3,080	4,800	6,400	8,200	9,500
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	10~50	350	525	750	1,180	1,540	2,400	3,200	4,100	4,750
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	10~50	-	2,400	3,200	5,000	6,500	9,100	13,000	17,000	19,300
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	10~50	-	1,200	1,600	2,500	3,250	4,550	6,500	8,500	9,650
使用壽命 / Service Life	L_H	hr	10~50	65#~210# : S5 周期運轉 Cycle Operation: >30,000 240#~280# : S5 周期運轉 Cycle Operation: >20,000								
效 率 / Efficiency	η	%	10~50	90% ~ 94%								
使用溫度 / Operating Temperature		°C	10~50	-10°C ~ +90°C								
潤 滑 / Lubrication			10~50	全合成潤滑油 Synthetic Oil								
噪 音 值 / Noise Level		dB	10~50	≤ 68	≤ 69	≤ 73	≤ 74	≤ 75	≤ 76	≤ 78	≤ 82	≤ 84

轉動慣量 Mass Moments of Inertia (kgcm²)

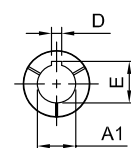
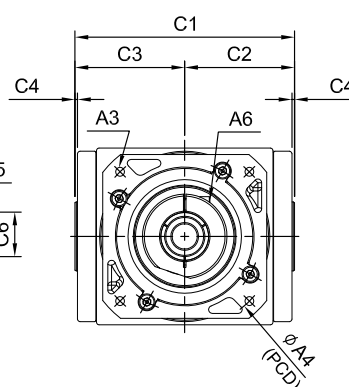
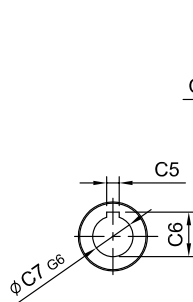
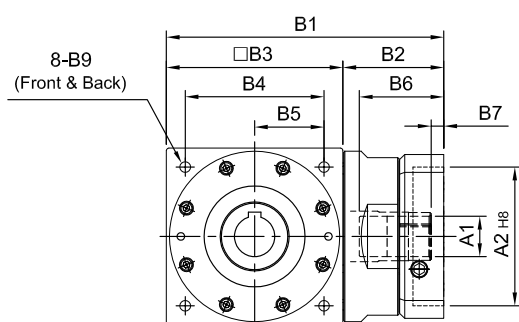
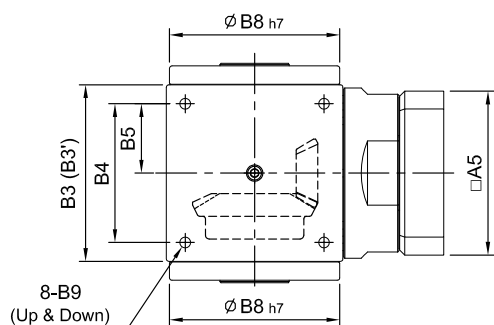
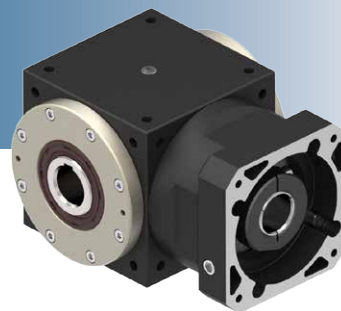
Ratio	65	75	90	110	140	170	210	240	280
10	0.05	0.15	0.18	0.41	0.56	3.25	8.9	23.29	53.27
15	0.05	0.15	0.18	0.41	0.56	3.25	8.9	23.29	53.27
20	0.05	0.15	0.18	0.41	0.56	3.25	8.9	23.29	53.27
25	0.05	0.15	0.18	0.41	0.56	3.25	8.9	23.29	53.27
30	0.05	0.15	0.16	0.38	0.53	3.09	8.4	22.51	50.56
40	0.05	0.15	0.16	0.38	0.53	3.09	8.4	22.51	50.56
50	0.05	0.15	0.16	0.38	0.53	3.09	8.4	22.51	50.56

ST-FO series

RATIO : 1.2.3.4.5 (單段 1-Stage)

入力法蘭 - 出力中空軸

Input Flange - Hollow Output Shaft



(170#~280#)

φA1	D	E
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3
φ60	18	64.4
φ65	18	69.4

unit: mm

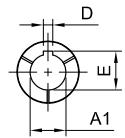
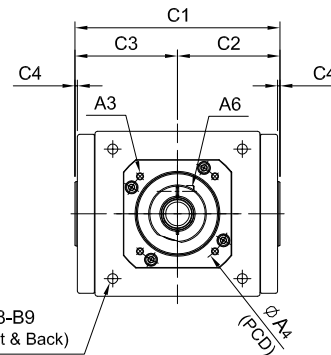
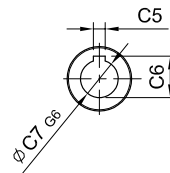
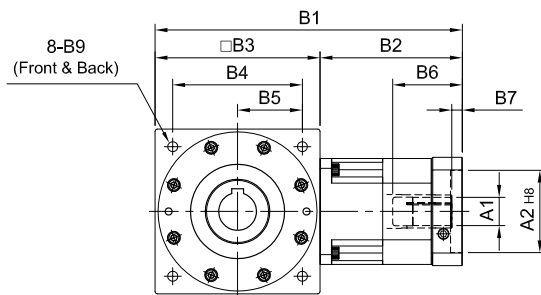
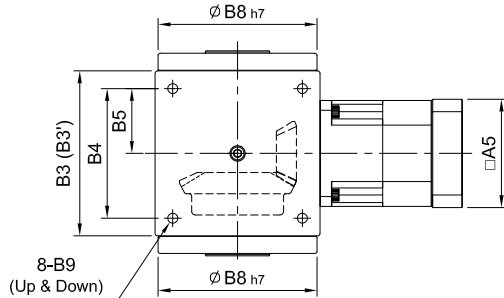
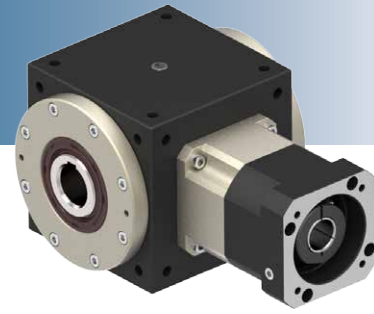
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	9 · 11 · 14		14 · 19	16 · 19 · 22 · 24	19 · 22 · 24	24 · 28 · 32 · 35	35 · 38	35 · 38 · 42 · 48 · 55	48 · 55 · 60	55 · 60 · 65
	A2	50 · 60 · 70		50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M4 · M5 · M6		M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16	M12 · M16
	A4	70 · 75 · 90		70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300	200 · 215 · 265 · 300
	A5	64 · 70 · 80		64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265	222 · 220 · 250 · 265
	A6	M5 x P0.8		M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B	B1	110		115 · 124	148 · 162	177 · 191	224 · 238	274	357 · 359	394.5 · 421.5 · 424.5	453.5 · 483
	B2	45		40 · 49	58 · 72	67 · 81	84 · 98	104	147	154.5 · 181.5 · 184.5	173.5 · 203
	B3(B3')	65		75(74)	90	110	140	170(168)	210	240	280
	B4	52		60	72	88	110	134	170	190	220
	B5	26		30	36	44	55	67	85	95	110
	B6	36		36 · 42	51 · 65.5	51 · 65.5	68 · 81	84.5	117 · 119	115 · 142 · 145	112.5 · 142
	B7	7		7	9 · 23.5	9 · 23.5	9 · 10	9.5	14 · 16	12.5 · 15.5	12.5 · 42
	B8	62	64	73	88	106	135	164	205	228	275
C	B9	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	84	89	100	118	144	174	204	250	292	328
	C2	42	44.5	50	59	72	87	102	125	146	164
	C3	42	44.5	50	59	72	87	102	125	146	164
	C4	2		2	2	2	2	2	2	2	3
	C5	5		5	6	6	10	12	14	16	18
	C6	16.3		16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
	C7	14		14	18	22	32	40	50	55	60
Weight ±3% (kg)		1.7		2.4	4.3	7.1	14.9	24.5	46	60.7	

ST-RO series

RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

搭配行星減速機 - 出力中空軸

Fitted with Planetary Reducer - Hollow Output Shaft



(210#~280#)

φA1	D	E
φ28	8	31.3
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3

unit: mm

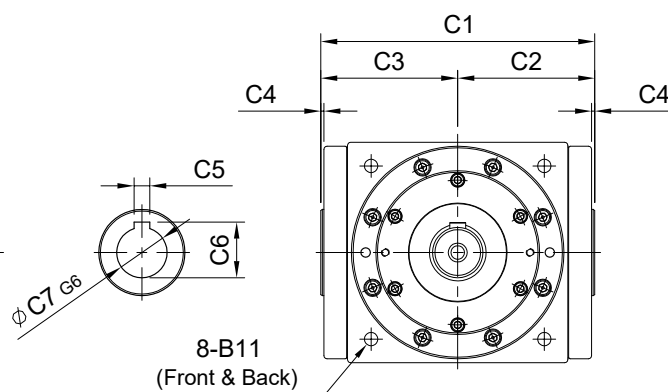
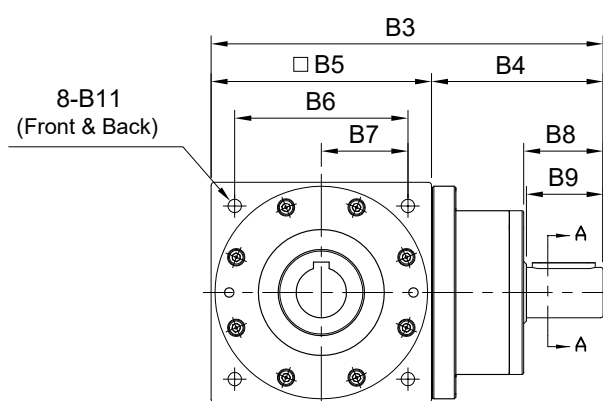
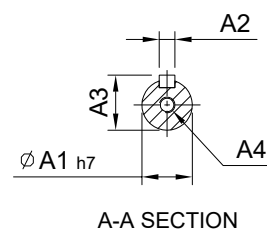
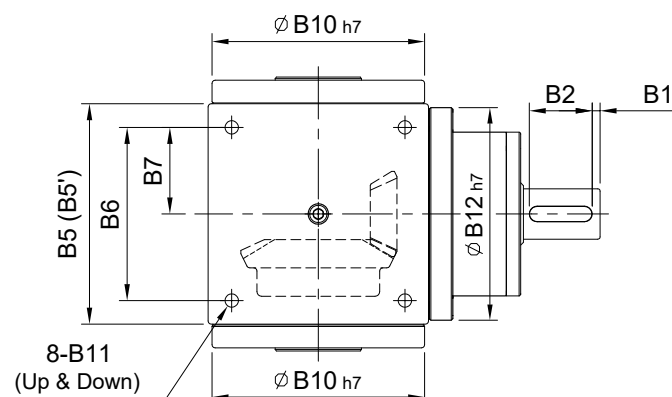
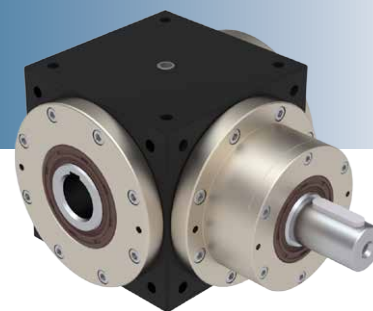
Model Code	65	75	90	110	140	170	210	240	280
A1	8 · 9 · 11	8 · 9 · 11	11 · 14 · 16 · 19	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
A2	30 · 40 · 50	30 · 40 · 50	50 · 60 · 70	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230 · 250
A3	M3 · M4 · M5	M3 · M4 · M5	M4 · M5 · M6	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
A4	46 · 60 · 63	46 · 60 · 63	70 · 75 · 90	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265 · 300
A5	46 · 55	46 · 55	64 · 70 · 80	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250 · 265
A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
B1	132	137	149 · 157	165 · 173	(191) · 203	260	313 · 334	399	479.5
B2	67	62	74 · 82	75 · 83	(81) · 93	120	143 · 164	189	239.5
B3(B3')	65	75(74)	75(74)	90	110	140	170(168)	210	280
B4	52	60	60	72	88	110	134	170	220
B5	26	30	30	36	44	55	67	85	95
B6	26	26	33.5 · 41.5	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	85	116.5
B7	5	5	6	6	(6) · 10	9	10 · 11	10	13.5
B8	62	73	73	88	106	135	164	205	228
B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0
C1	84	100	100	118	144	174	204	250	292
C2	42	50	50	59	72	87	102	125	146
C3	42	50	50	59	72	87	102	125	146
C4	2	2	2	2	2	2	2	2	3
C5	5	5	5	6	6	10	12	14	16
C6	16.3	16.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3
C7	14	14	14	18	22	32	40	50	55
Weight ±3% (kg)	1.9	3.6	3.4	4.8	8.5	14.2	24	52	73.7

ST-DO series

RATIO : 1.2.3.4.5 (單段 1-Stage)

單入力軸心 - 出力中空軸

Single Input Shaft - Hollow Output Shaft



unit: mm

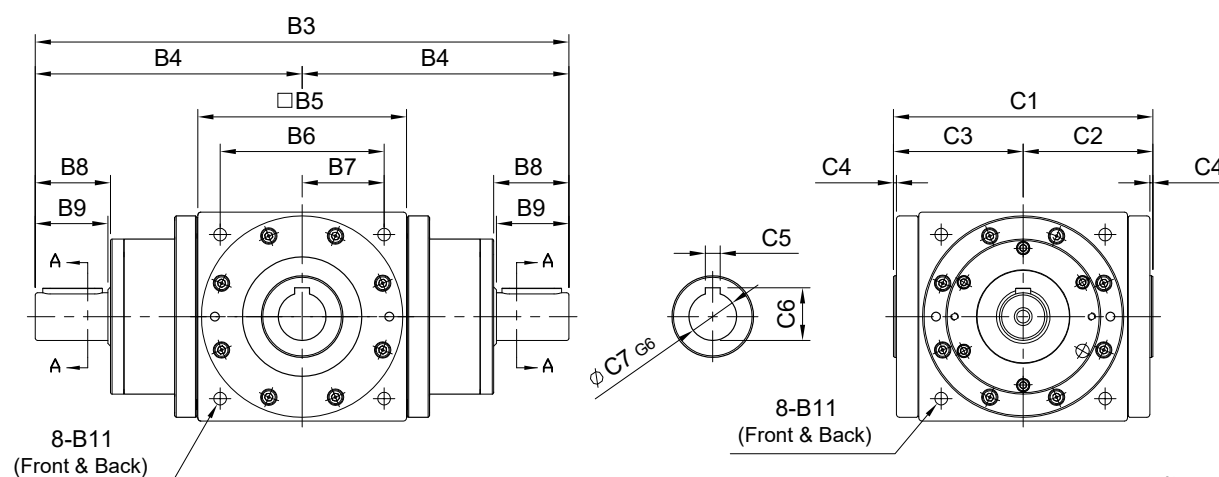
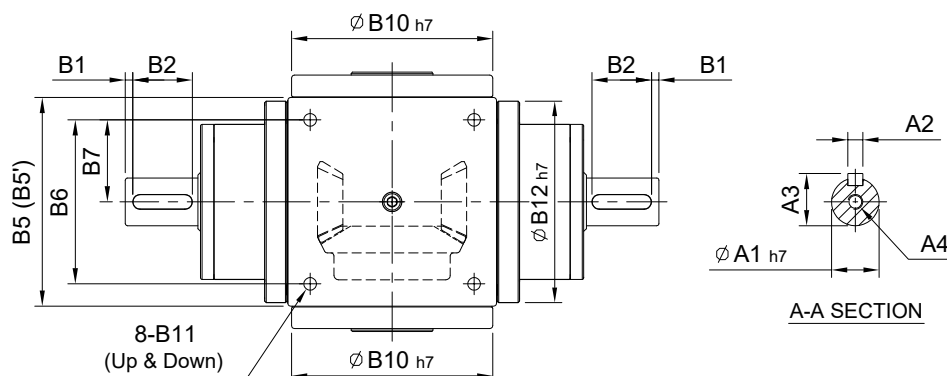
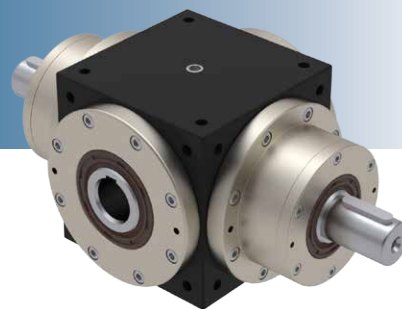
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	127.5		143	168.5	207	250	300	375	430	505
	B4	62.5		68	78.5	97	110	130	165	190	225
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	84	89	100	118	144	174	204	250	292	328
	C2	42	44.5	50	59	72	87	102	125	146	164
	C3	42	44.5	50	59	72	87	102	125	146	164
	C4	2		2	2	2	2	2	2	2	3
	C5	5		5	6	6	10	12	14	16	18
	C6	16.3		16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
	C7	14		14	18	22	32	40	50	55	60
Weight $\pm 3\%$ (kg)		2.1		2.8	4.9	9	15.5	25	53	73.4	

ST-YO series

RATIO : 1.2.3.4.5 (單段 1-Stage)

雙入力軸心 - 出力中空軸

Double Input Shaft - Hollow Output Shaft



unit: mm

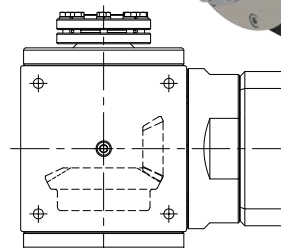
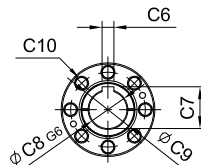
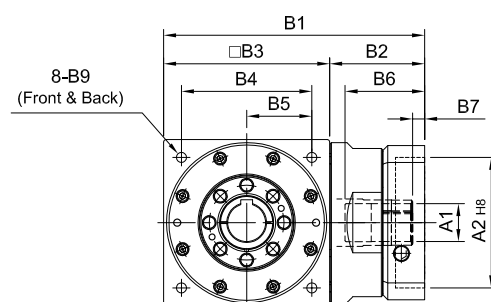
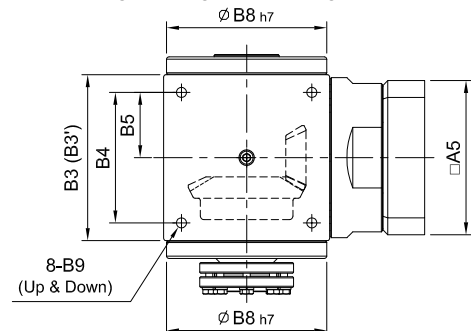
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	190		210	247	304	360	430	540	620	730
	B4	95		105	123.5	152	180	215	270	310	365
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62 64		73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	84 89		100	118	144	174	204	250	292	328
	C2	42 44.5		50	59	72	87	102	125	146	164
	C3	42 44.5		50	59	72	87	102	125	146	164
	C4	2		2	2	2	2	2	2	2	3
	C5	5		5	6	6	10	12	14	16	18
	C6	16.3		16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
	C7	14		14	18	22	32	40	50	55	60
Weight ±3% (kg)		2.85		3.6	6.2	11.5	18	28	57	95	

ST-FN series

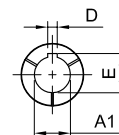
RATIO : 1.2.3.4.5 (單段 1-Stage)

入力法蘭 - 單邊免鍵軸套

Input Flange - Single Clamping



R 軸
Shaft Direction



(170#~280#)

φA1	D	E
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3
φ60	18	64.4
φ65	18	69.4

unit: mm

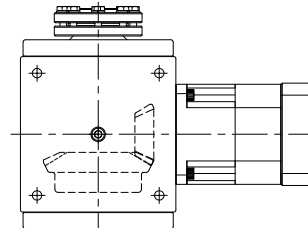
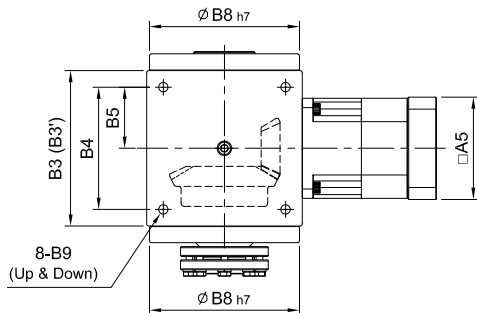
Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A1	9 · 11 · 14		14 · 19	16 · 19 · 22 · 24	19 · 22 · 24	24 · 28 · 32 · 35	35 · 38	35 · 38 · 42 · 48 · 55	48 · 55 · 60	55 · 60 · 65
A2	50 · 60 · 70		50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250	114.3 · 180 · 230 · 250
A3	M4 · M5 · M6		M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16	M12 · M16
A4	70 · 75 · 90		70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300	200 · 215 · 265 · 300
A5	64 · 70 · 80		64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265	222 · 220 · 250 · 265
A6	M5 x P0.8		M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B1	110		115 · 124	148 · 162	177 · 191	224 · 238	274	357 · 359	394.5 · 421.5 · 424.5	453.5 · 483
B2	45		40 · 49	58 · 72	67 · 81	84 · 98	104	147	154.5 · 181.5 · 184.5	173.5 · 203
B3(B3')	65		75(74)	90	110	140	170(168)	210	240	280
B4	52		60	72	88	110	134	170	190	220
B5	26		30	36	44	55	67	85	95	110
B6	36		36 · 42	51 · 65.5	51 · 65.5	68 · 81	84.5	117	115 · 142 · 145	112.5 · 142
B7	7		7	9 · 23.5	9 · 23.5	9 · 10	9.5	14 · 16	12.5 · 15.5	12.5 · 42
B8	62	64	73	88	106	135	164	205	228	275
B9	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
C1	104	109	120	138	169	202	240	285	324	370
C2	42	44.5	50	59	72	87	102	125	146	164
C3	62	64.5	70	79	97	115	138	160	178	206
C4	2		2	2	2	2	2	2	2	3
C5	110	113	124	142	171	202	242	288	329	369.8
C6	5		5	6	6	10	12	14	16	18
C7	16.3		16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
C8	14		14	18	22	32	40	50	55	60
C9	22		22	28	34	44	52	65	73	83
C10	6-M6		6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)	1.7		2.4	4.3	7.1	14.9	24.5	46	61.2	

ST-RN series

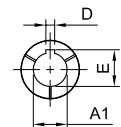
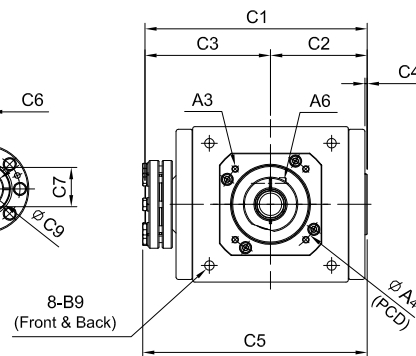
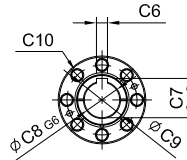
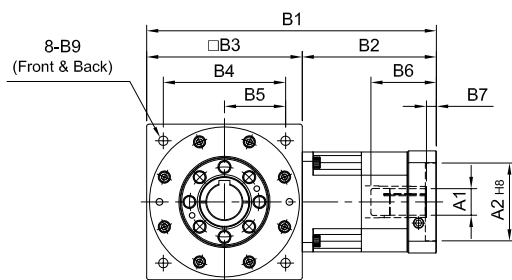
RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

搭配行星減速機 - 單邊免鍵軸套

Fitted with Planetary Reducer - Single Clamping



R 軸
Shaft Direction



(210#~280#)

Ø A1	D	E
Ø 28	8	31.3
Ø 32	10	35.3
Ø 35	10	38.3
Ø 38	10	41.3
Ø 42	12	45.3
Ø 48	14	51.8
Ø 55	16	59.3

unit: mm

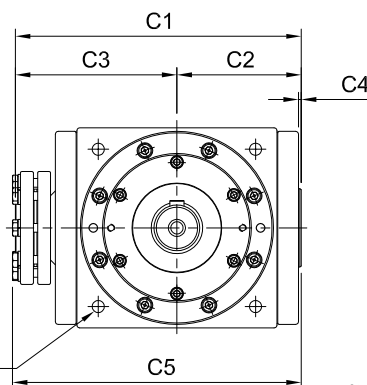
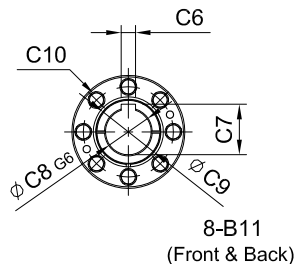
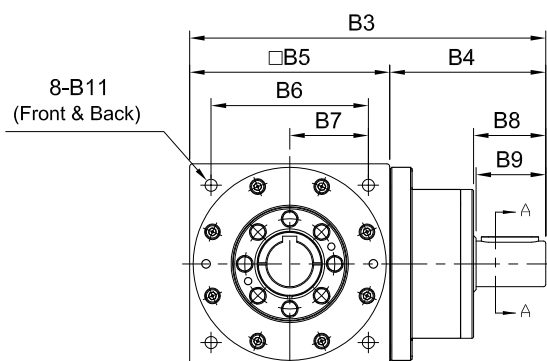
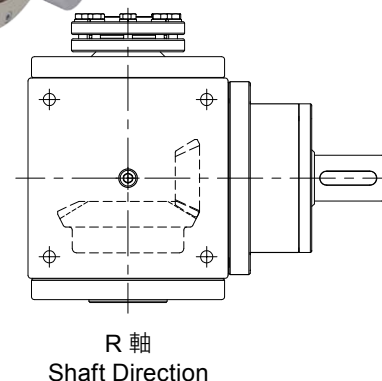
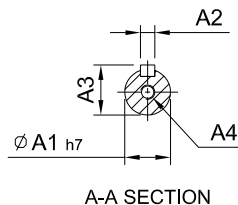
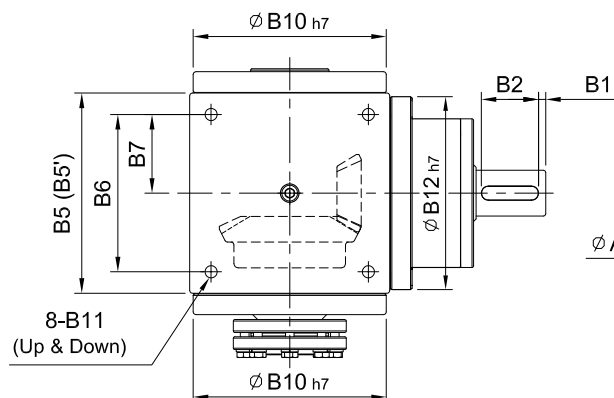
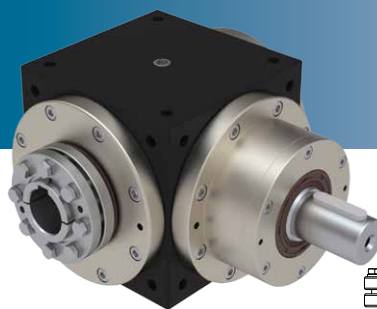
	Model Code	65	75		90	110	140	170	210	240	280
	A1	8・9・11	8・9・11	11・14・16・19	11・14・16・19	(14)・16・19	16・19・22・24	22・24・28・32・35	28・32・35・38	35・38・42・48・55	38・42・48・55
A	A2	30・40・50	30・40・50	50・60・70	50・60・70	50・70・80・95	70・80・95・110	95・110・130	110・130・180	114.3・180・230・250	114.3・180・230・250
	A3	M3・M4・M5	M3・M4・M5	M4・M5・M6	M4・M5・M6	M5・M6	M5・M6・M8	M6・M8・M10	M8・M10・M12	M10・M12・M16	M12・M16
	A4	46・60・63	46・60・63	70・75・90	70・75・90	70・90・100・115	90・100・115・145	115・145・165	145・165・200	200・215・265・300	200・215・265・300
	A5	46・55	46・55	64・70・80	64・70・80	80・92・110	92・110・130	122・130・150	146・150・190	182・200・250・265	222・220・250・265
	A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
	B	B1	132	137	149・157	165・173	(191)・203	260	313・334	399	479.5
B2		67	62	74・82	75・83	(81)・93	120	143・164	189	239.5	300.5
B3(B3')		65	75(74)	75(74)	90	110	140	170(168)	210	240	280
B4		52	60	60	72	88	110	134	170	190	220
B5		26	30	30	36	44	55	67	85	95	110
B6		26	26	33.5・41.5	33.5・41.5	(33.5)・45.5	59	67・83	85	116.5	117.5
B7		5	5	6	6	(6)・10	9	10・11	10	13.5	12.5
B8		62	73	73	88	106	135	164	205	228	275
C	B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	104	120	120	138	169	200	240	285	324	370
	C2	42	50	50	59	72	87	102	125	146	164
	C3	62	70	70	79	97	113	138	160	178	206
	C4	2	2	2	2	2	2	2	2	2	3
	C5	118	124	124	142	171	202	242	288	329	369.8
	C6	5	5	5	6	6	10	12	14	16	18
	C7	16.3	16.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
	C8	14	14	14	18	22	32	40	50	55	60
	C9	22	22	22	28	34	44	52	65	73	83
	C10	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		1.9	3.6	3.4	4.8	8.5	14.2	24	52	74.2	

ST-DN series

RATIO : 1.2.3.4.5 (單段 1-Stage)

單入力軸心 - 單邊免鍵軸套

Single Input Shaft - Single Clamping



unit: mm

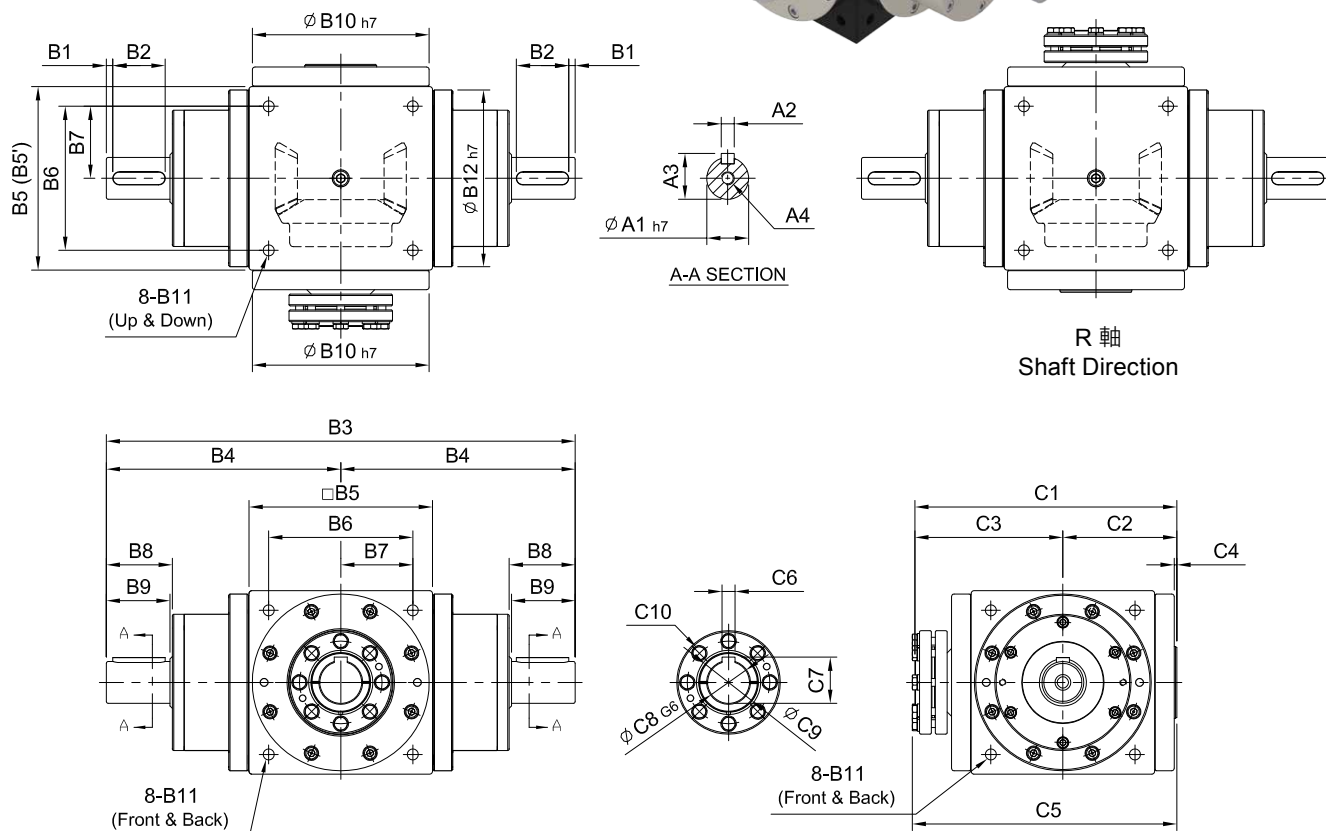
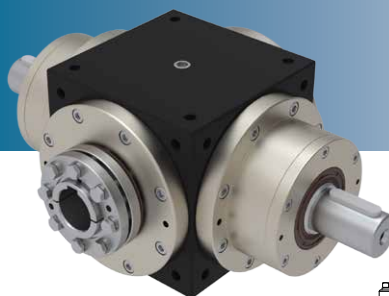
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	127.5		143	168.5	207	250	300	375	430	505
	B4	62.5		68	78.5	97	110	130	165	190	225
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	104	109	120	138	169	202	240	285	324	370
	C2	42	44.5	50	59	72	87	102	125	146	164
	C3	62	64.5	70	79	97	115	138	160	178	206
	C4	2		2	2	2	2	2	2	2	3
	C5	110	113	124	142	171	202	242	288	329	369.8
	C6	5		5	6	6	10	12	14	16	18
	C7	16.3		16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
	C8	14		14	18	22	32	40	50	55	60
	C9	22		22	28	34	44	52	65	73	83
	C10	6-M6		6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		2.1		2.8	4.9	8.59	15.5	25	53	73.9	

ST-YN series

RATIO : 1.2.3.4.5 (單段 1-Stage)

雙入力軸心 - 單邊免鍵軸套

Double Input Shaft - Single Clamping



unit: mm

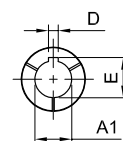
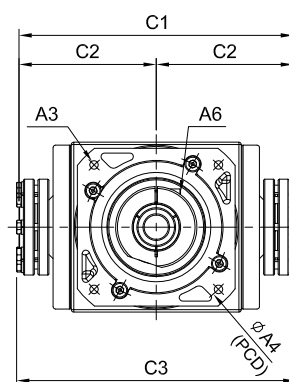
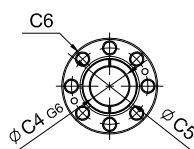
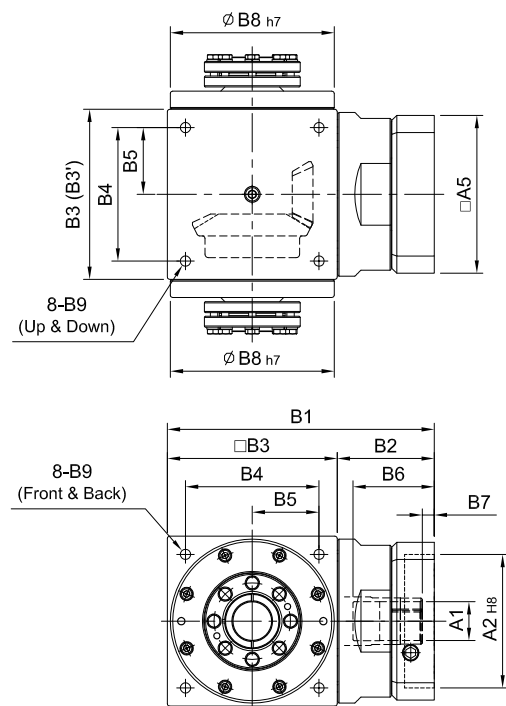
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	190		210	247	304	360	430	540	620	730
	B4	95		105	123.5	152	180	215	270	310	365
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
C	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
	C1	104	109	120	138	169	200	240	285	324	370
	C2	42	44.5	50	59	72	87	102	125	146	164
	C3	62	64.5	70	79	97	113	138	160	178	206
	C4	2		2	2	2	2	2	2	2	3
	C5	110	113	124	142	171	202	242	288	329	369.8
	C6	5		5	6	6	10	12	14	16	18
	C7	16.3		16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4
	C8	14		14	18	22	32	40	50	55	60
	C9	22		22	28	34	44	52	65	73	83
	C10	6-M6		6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		2.85		3.6	6.2	11.5	18	28	57	95.5	

ST-FM series

RATIO : 1.2.3.4.5 (單段 1-Stage)

入力法蘭 - 雙邊免鍵軸套

Input Flange - Double Clamping



(170#~280#)

ø A1	D	E
ø 35	10	38.3
ø 38	10	41.3
ø 42	12	45.3
ø 48	14	51.8
ø 55	16	59.3
ø 60	18	64.4
ø 65	18	69.4

unit: mm

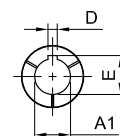
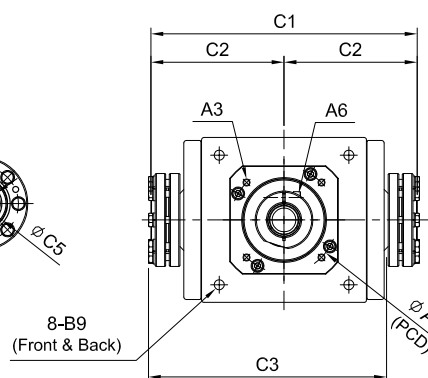
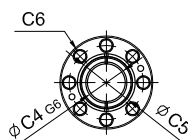
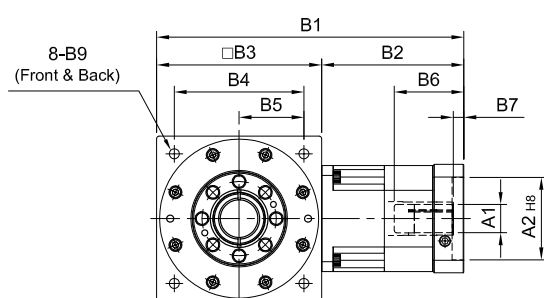
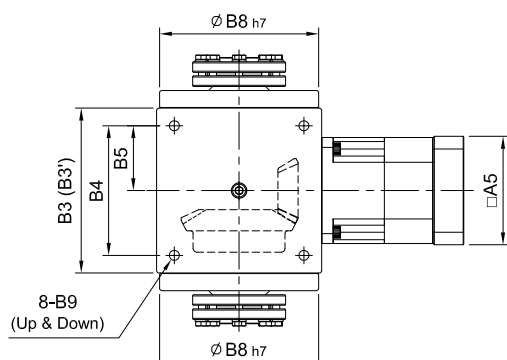
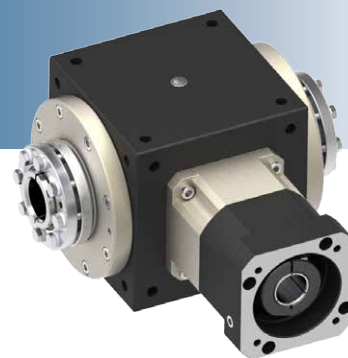
Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	9 · 11 · 14	14 · 19	16 · 19 · 22 · 24	19 · 22 · 24	24 · 28 · 32 · 35	35 · 38	35 · 38 · 42 · 48 · 55	48 · 55 · 60	55 · 60 · 65
	A2	50 · 60 · 70	50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M4 · M5 · M6	M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16	M12 · M16
	A4	70 · 75 · 90	70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300	200 · 215 · 265 · 300
	A5	64 · 70 · 80	64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265	222 · 220 · 250 · 265
	A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B	B1	110	115 · 124	148 · 162	177 · 191	224 · 238	274	357 · 359	394.5 · 21.5 · 424.5	453.5 · 483
	B2	45	40 · 49	58 · 72	67 · 81	84 · 98	104	147	154.5 · 181.5 · 184.5	173.5 · 203
	B3(B3')	65	75(74)	90	110	140	170(168)	210	240	280
	B4	52	60	72	88	110	134	170	190	220
	B5	26	30	36	44	55	67	85	95	110
	B6	36	36 · 42	51 · 65.5	51 · 65.5	68 · 81	84.5	117	115 · 142 · 145	112.5 · 142
	B7	7	7	9 · 23.5	9 · 23.5	9 · 10	9.5	14 · 16	12.5 · 15.5	12.5 · 42
	B8	62	64	73	88	106	135	164	205	228
C	B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	124	129	140	158	194	230	276	320	356
	C2	62	64.5	70	79	97	115	138	160	178
	C3	136	138	150	166	198	232	280	327	370
	C4	14	14	18	22	32	40	50	55	60
	C5	22	22	28	34	44	52	65	73	83
	C6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		1.7	2.4	4.3	7.1	14.9	24.5	46	61.8	

ST-RM series

RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

搭配行星減速機 - 雙邊免鍵軸套

Fitted with Planetary Reducer - Double Clamping



(210#~280#)

$\phi A1$	D	E
$\phi 28$	8	31.3
$\phi 32$	10	35.3
$\phi 35$	10	38.3
$\phi 38$	10	41.3
$\phi 42$	12	45.3
$\phi 48$	14	51.8
$\phi 55$	16	59.3

unit: mm

	Model Code	65	75		90	110	140	170	210	240	280
	A1	8・9・11	8・9・11	11・14・16・19	11・14・16・19	(14)・16・19	16・19・22・24	22・24・28・32・35	28・32・35・38	35・38・42・48・55	38・42・48・55
A	A2	30・40・50	30・40・50	50・60・70	50・60・70	50・70・80・95	70・80・95・110	95・110・130	110・130・180	114.3・180・230・250	114.3・180・230・250
	A3	M3・M4・M5	M3・M4・M5	M4・M5・M6	M4・M5・M6	M5・M6	M5・M6・M8	M6・M8・M10	M8・M10・M12	M10・M12・M16	M12・M16
	A4	46・60・63	46・60・63	70・75・90	70・75・90	70・90・100・115	90・100・115・145	115・145・165	145・165・200	200・215・265・300	200・215・265・300
	A5	46・55	46・55	64・70・80	64・70・80	80・92・110	92・110・130	122・130・150	146・150・190	182・200・250・265	222・220・250・265
	A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
	B	B1	132	137	149・157	165・173	(191)・203	260	313・334	399	479.5
B2		67	62	74・82	75・83	(81)・93	120	143・164	189	239.5	300.5
B3(B3')		65	75(74)	75(74)	90	110	140	170(168)	210	240	280
B4		52	60	60	72	88	110	134	170	190	220
B5		26	30	30	36	44	55	67	85	95	110
B6		26	26	33.5・41.5	33.5・41.5	(33.5)・45.5	59	67・83	85	116.5	117.5
B7		5	5	5	6	(6)・10	9	10・11	10	13.5	12.5
B8		62	73	73	88	106	135	164	205	228	275
C	B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	124	140	140	158	194	230	276	320	356	412
	C2	62	70	70	79	97	115	138	160	178	206
	C3	136	150	150	166	198	232	280	327	370	411.7
	C4	14	14	14	18	22	32	40	50	55	60
	C5	22	22	22	28	34	44	52	65	73	83
	C6	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		1.9	3.6	3.4	4.8	8.5	14.2	24	52	78.6	

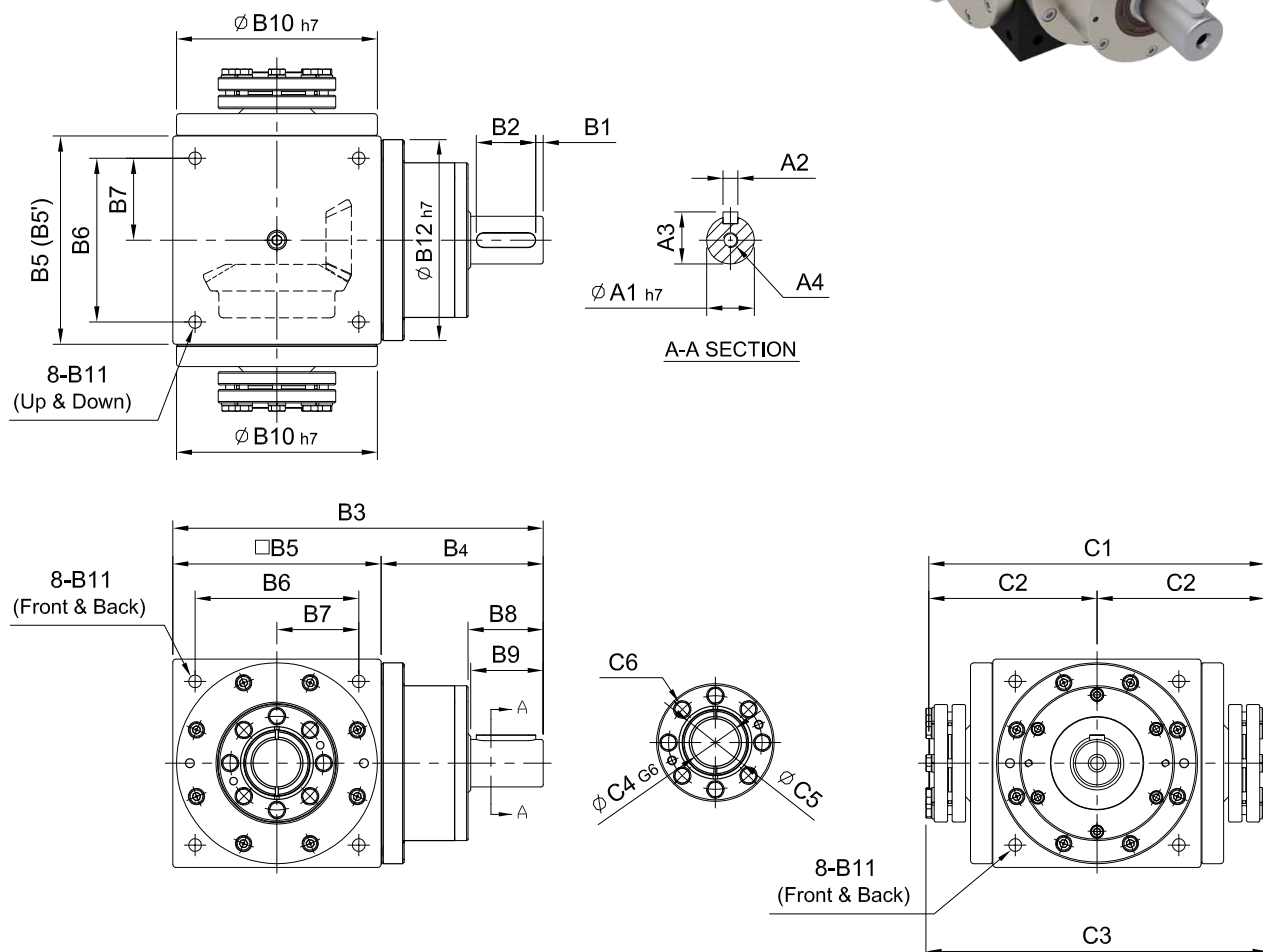
ST-DM series

RATIO : 1.2.3.4.5 (單段 1-Stage)



單入力軸心 - 雙邊免鍵軸套

Single Input Shaft - Double Clamping

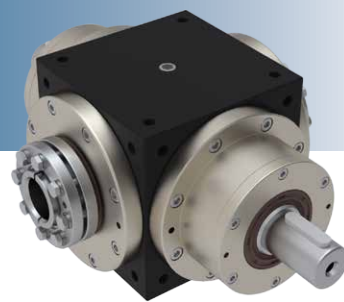


unit: mm

	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	127.5		143	168.5	207	250	300	375	430	505
	B4	62.5		68	78.5	97	110	130	165	190	225
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	124	129	140	158	194	230	276	320	356	412
	C2	62	64.5	70	79	97	115	138	160	178	206
	C3	136	138	150	166	198	232	280	327	370	411.7
	C4	14		14	18	22	32	40	50	55	60
	C5	22		22	28	34	44	52	65	73	83
	C6	6-M6		6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		2.1		2.8	4.9	8.59	15.5	25	53	74.4	

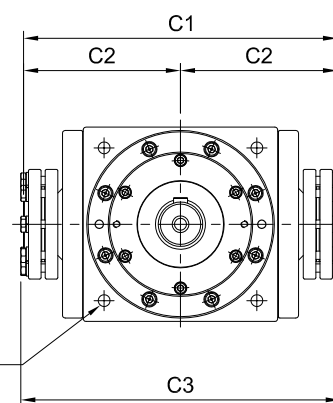
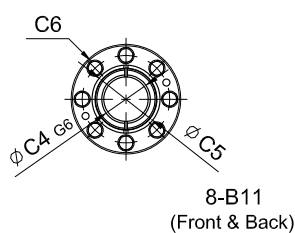
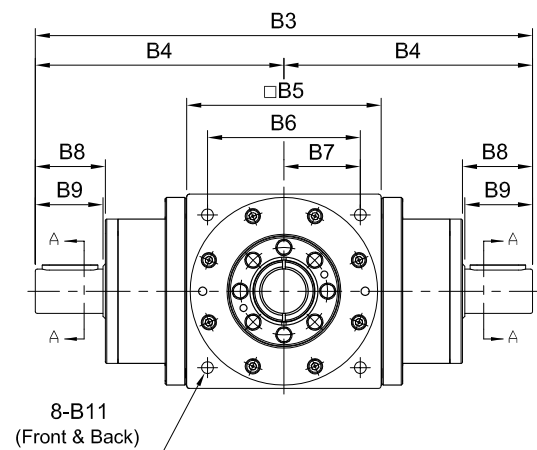
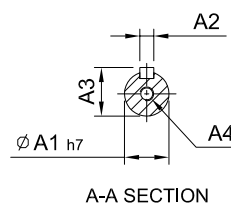
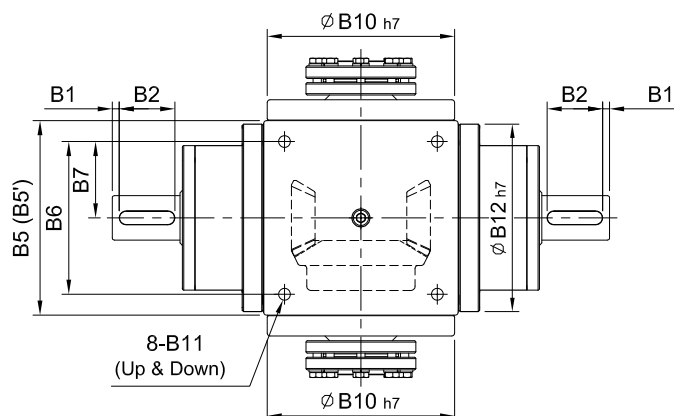
ST-YM series

RATIO : 1.2.3.4.5 (單段 1-Stage)



雙入力軸心 - 雙邊免鍵軸套

Double Input Shaft - Double Clamping



unit: mm

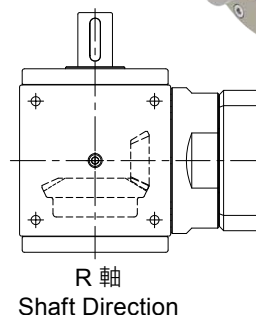
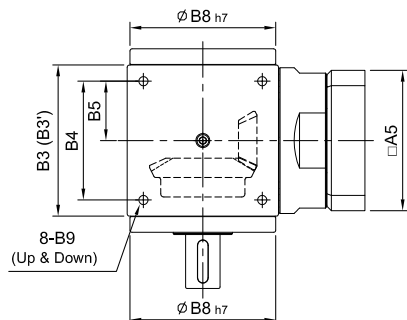
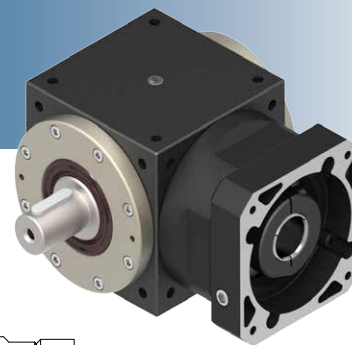
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	190		210	247	304	360	430	540	620	730
	B4	95		95	123.5	152	180	215	270	310	365
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	124	129	140	158	194	230	276	320	356	412
	C2	62	64.5	70	79	97	115	138	160	178	206
	C3	136	138	150	166	198	232	280	327	370	411.7
	C4	14		14	18	22	32	40	50	55	60
	C5	22		22	28	34	44	52	65	73	83
	C6	6-M6		6-M6	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8
Weight ±3% (kg)		2.85		3.6	6.2	11.5	18	28	57	96	

ST-FS series

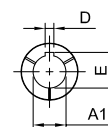
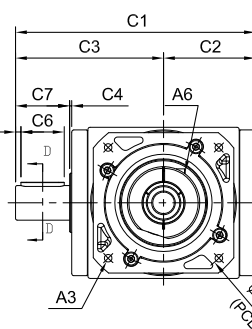
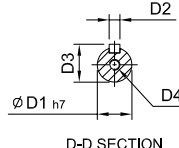
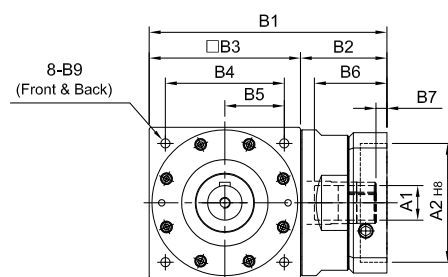
RATIO : 1.2.3.4.5 (單段 1-Stage)

入力法蘭 - 單出力軸心

Input Flange - Single Output Shaft



R 軸
Shaft Direction



(170#~280#)

φA1	D	E
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3
φ60	18	64.4
φ65	18	69.4

unit: mm

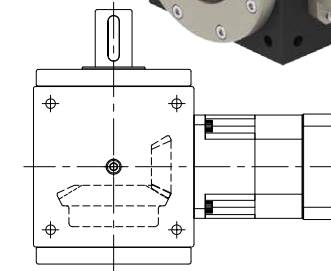
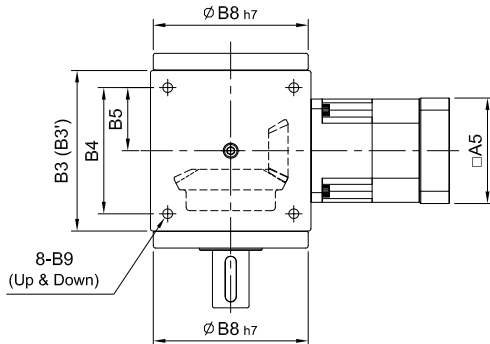
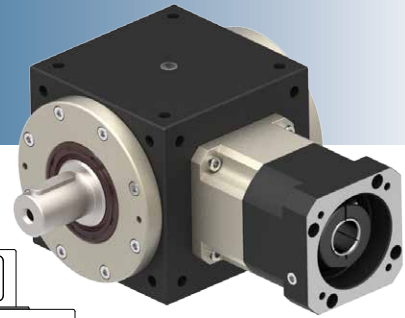
Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A1	9 · 11 · 14		14 · 19	16 · 19 · 22 · 24	19 · 22 · 24	24 · 28 · 32 · 35	35 · 38	35 · 38 · 42 · 48 · 55	48 · 55 · 60	55 · 60 · 65
A2	50 · 60 · 70		50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250	114.3 · 180 · 230 · 250
A3	M4 · M5 · M6		M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16	M12 · M16
A4	70 · 75 · 90		70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300	200 · 215 · 265 · 300
A5	64 · 70 · 80		64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265	222 · 220 · 250 · 265
A6	M5 x P0.8		M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B1	110		115 · 124	148 · 162	177 · 191	224 · 238	274	357 · 359	394.5 · 421.5 · 424.5	453.5 · 483
B2	45		40 · 49	58 · 72	67 · 81	84 · 98	104	147	154.5 · 181.5 · 184.5	173.5 · 203
B3(B3')	65		75(74)	90	110	140	170(168)	210	240	280
B4	52		60	72	88	110	134	170	190	220
B5	26		30	36	44	55	67	85	95	110
B6	36		36 · 42	51 · 65.5	51 · 65.5	68 · 81	84.5	117	115 · 142 · 145	112.5 · 142
B7	7		7	9 · 23.5	9 · 23.5	9 · 10	9.5	14 · 16	12.5 · 15.5	12.5 · 42
B8	62	64	73	88	106	135	164	205	228	275
B9	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
C1	102	107	128	151	182	222	262	323	370	425
C2	40	42.5	48	57	70	85	100	123	144	161
C3	62	64.5	80	94	112	137	162	200	226	264
C4	2		2	2	2	2	2	2	2	3
C5	2.5		2.5	5	5	5	5	5	5	5
C6	15		25	25	30	40	50	65	70	90
C7	20		30	35	40	50	60	75	80	100
D1	14		16	18	22	32	40	50	55	60
D2	5		5	6	6	10	12	14	16	18
D3	16		18	20.5	24.5	35	43	53.5	59	64
D4	M5 x P0.8		M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)	1.7		2.4	4.3	7.1	14.9	24.5	46	68.5	

ST-RS series

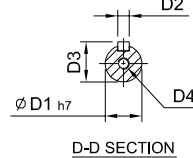
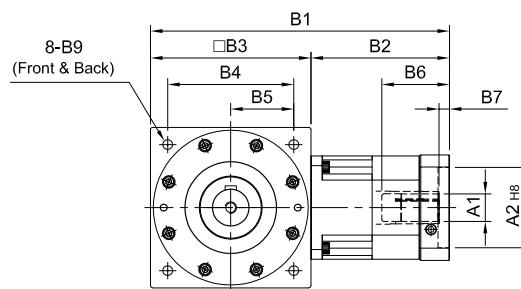
RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

搭配行星減速機 - 單出力軸心

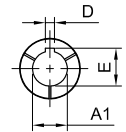
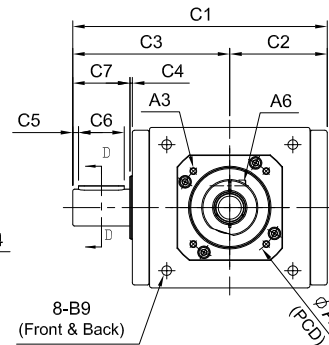
Fitted with Planetary Reducer - Single Output Shaft



R 軸
Shaft Direction



D-D SECTION



(210#~280#)

φA1	D	E
φ28	8	31.3
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3

unit: mm

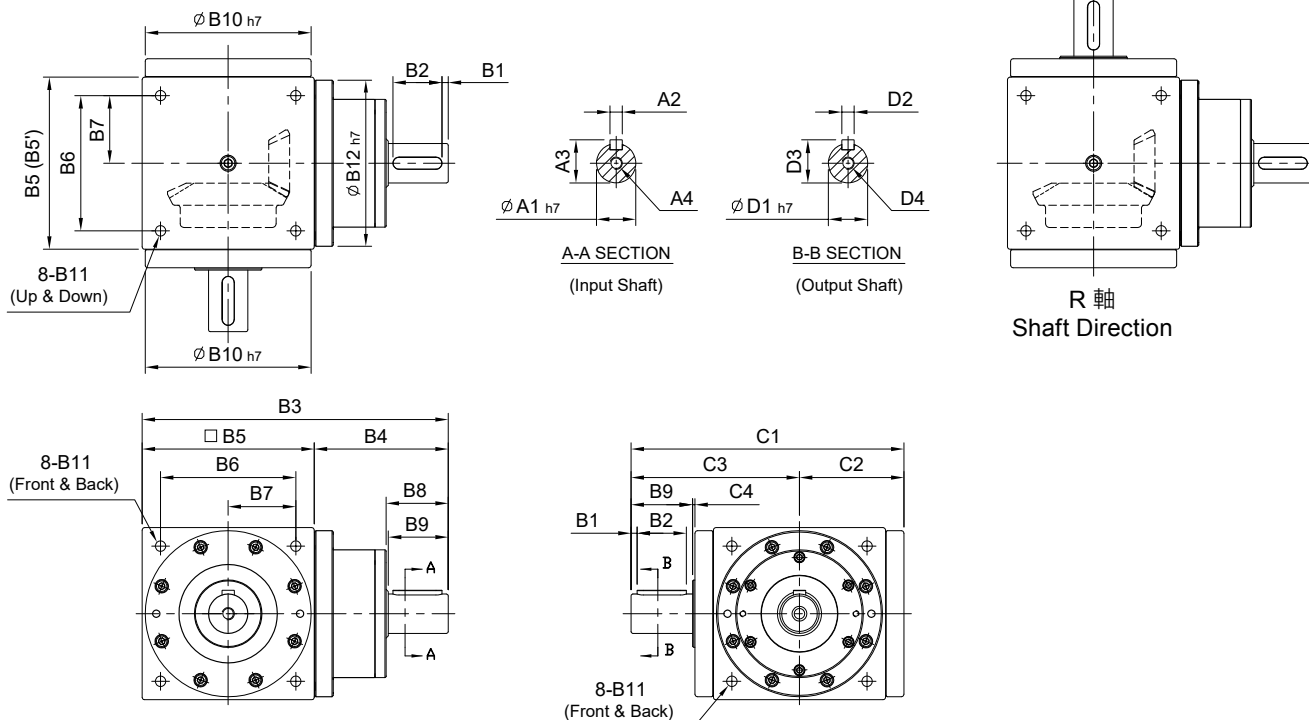
	Model Code	65	75	90	110	140	170	210	240	280
A	A1	8 · 9 · 11	8 · 9 · 11	11 · 14 · 16 · 19	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	A2	30 · 40 · 50	30 · 40 · 50	50 · 60 · 70	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230 · 250
	A3	M3 · M4 · M5	M3 · M4 · M5	M4 · M5 · M6	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	A4	46 · 60 · 63	46 · 60 · 63	70 · 75 · 90	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265 · 300
	A5	46 · 55	46 · 55	64 · 70 · 80	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250 · 265
	A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
B	B1	132	137	149 · 157	165 · 173	(191) · 203	260	313 · 334	399	479.5
	B2	67	62	74 · 82	75 · 83	(81) · 93	120	143 · 164	189	239.5
	B3(B3')	65	75(74)	75(74)	90	110	140	170(168)	210	280
	B4	52	60	60	72	88	110	134	170	220
	B5	26	30	30	36	44	55	67	85	110
	B6	26	26	33.5 · 41.5	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	85	116.5
	B7	5	5	5	6	(6) · 10	9	10 · 11	10	13.5
	B8	62	73	73	88	106	135	164	205	228
C	B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0
	C1	102	128	128	151	182	222	262	323	370
	C2	40	48	48	57	70	85	100	123	144
	C3	62	80	80	94	112	137	162	200	226
	C4	2	2	2	2	2	2	2	2	3
	C5	2.5	2.5	2.5	5	5	5	5	5	5
	C6	15	25	25	25	30	40	50	65	70
D	C7	20	30	30	35	40	50	60	75	80
	D1	14	16	16	18	22	32	40	50	55
	D2	5	5	5	6	6	10	12	14	16
	D3	16	18	18	20.5	24.5	35	43	53.5	59
	D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0
Weight ±3% (kg)		1.9	3.6	3.4	4.8	8.5	14.2	24	52	79.8

ST-DS series

RATIO : 1.2.3.4.5 (單段 1-Stage)

單入力軸心 - 單出力軸心

Single Input Shaft - Single Output Shaft



unit: mm

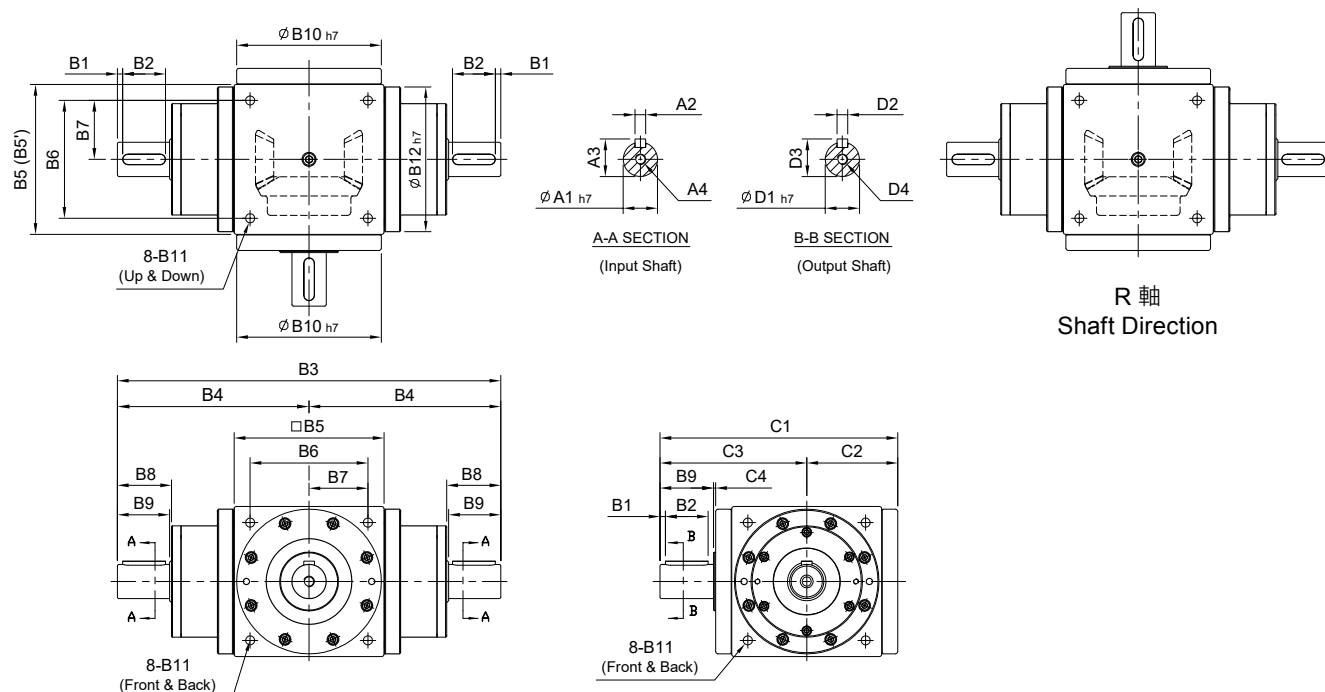
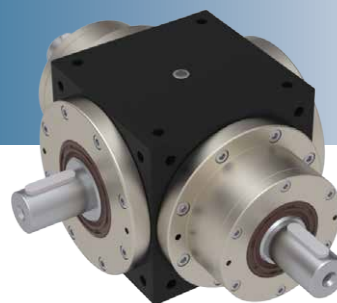
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	127.5		143	168.5	207	250	300	375	430	505
	B4	62.5		68	78.5	97	110	130	165	190	225
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	102	107	128	151	182	222	262	323	370	425
	C2	40	42.5	48	57	70	85	100	123	144	161
	C3	62	64.5	80	94	112	137	162	200	226	264
	C4	2		2	2	2	2	2	2	2	3
D	D1	14		16	18	22	32	40	50	55	60
	D2	5		5	6	6	10	12	14	16	18
	D3	16		18	20.5	24.5	35	43	53.5	59	64
	D4	M5 x P0.8		M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)		2.1		2.8	4.9	8.59	15.5	25	53	79.5	

ST-YS series

RATIO : 1.2.3.4.5 (單段 1-Stage)

雙入力軸心 - 單出力軸心

Double Input Shaft - Single Output Shaft



unit: mm

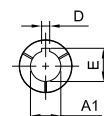
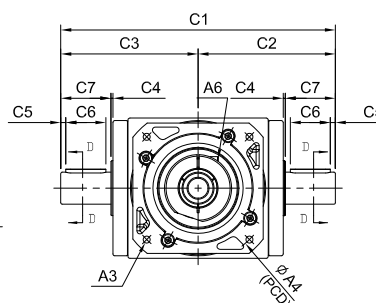
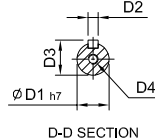
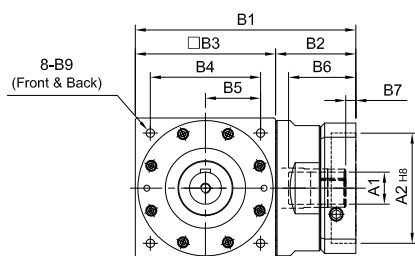
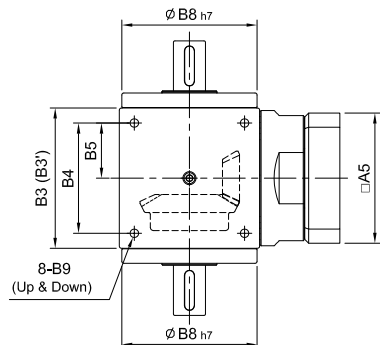
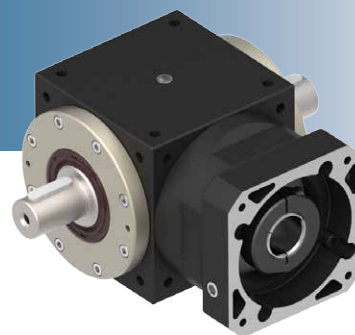
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	190		210	247	304	360	430	540	620	730
	B4	95		105	123.5	152	180	215	270	310	365
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	102	107	128	151	182	222	262	323	370	425
	C2	40	42.5	48	57	70	85	100	123	144	161
	C3	62	64.5	80	94	112	137	162	200	226	264
	C4	2		2	2	2	2	2	2	2	3
D	D1	14		16	18	22	32	40	50	55	60
	D2	5		5	6	6	10	12	14	16	18
	D3	16		18	20.5	24.5	35	43	53.5	59	64
	D4	M5 x P0.8		M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)		2.85		3.6	6.2	11.5	18	28	57	101.1	

ST-FV series

RATIO : 1.2.3.4.5 (單段 1-Stage)

入力法蘭 - 雙出力軸心

Input Flange - Double Output Shaft



(170#~280#)

φA1	D	E
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3
φ60	18	64.4
φ65	18	69.4

unit: mm

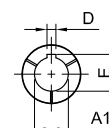
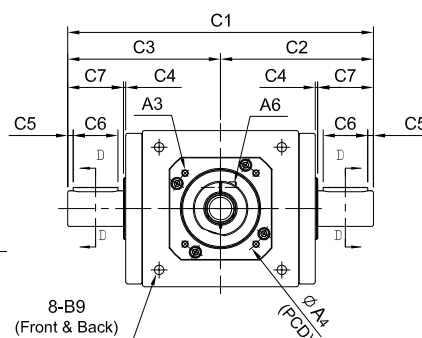
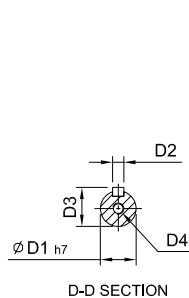
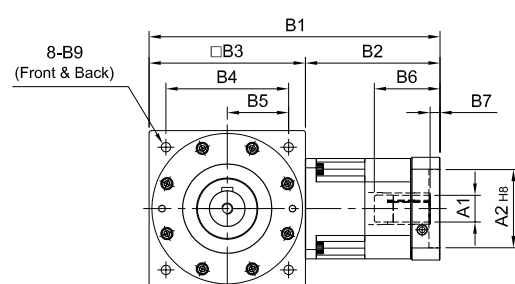
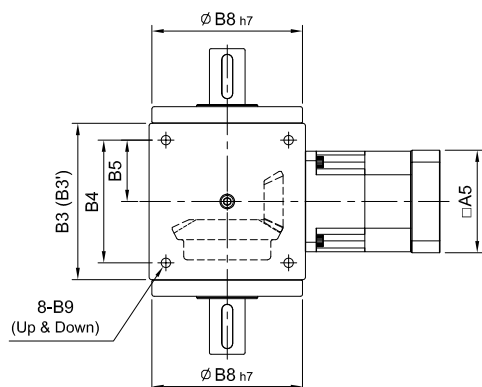
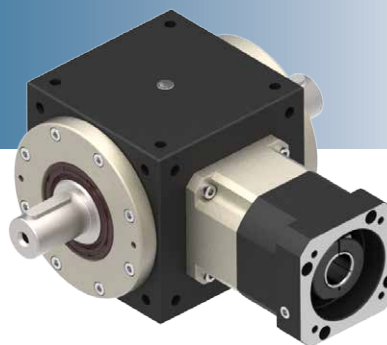
Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	9 · 11 · 14	14 · 19	16 · 19 · 22 · 24	19 · 22 · 24	24 · 28 · 32 · 35	35 · 38	35 · 38 · 42 · 48 · 55	48 · 55 · 60	55 · 60 · 65
	A2	50 · 60 · 70	50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M4 · M5 · M6	M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M120	M10 · M12 · M16	M12 · M16	M12 · M16
	A4	70 · 75 · 90	70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300	200 · 215 · 265 · 300
	A5	64 · 70 · 80	64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265	222 · 220 · 250 · 265
	A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B	B1	110	115 · 124	148 · 162	177 · 191	224 · 238	274	357 · 359	394.5 · 421.5 · 424.5	453.5 · 483
	B2	45	40 · 49	58 · 72	67 · 81	84 · 98	104	147	154.5 · 181.5 · 184.5	173.5 · 203
	B3(B3')	65	75(74)	90	110	140	170(168)	210	240	280
	B4	52	60	72	88	110	134	170	190	220
	B5	26	30	36	44	55	67	85	95	110
	B6	36	36 · 42	51 · 65.5	51 · 65.5	68 · 81	84.5	117	115 · 142 · 145	112.5 · 142
	B7	7	7	9 · 23.5	9 · 23.5	9 · 10	9.5	14 · 16	12.5 · 15.5	12.5 · 42
	B8	62 64	73	88	106	135	164	205	228	275
C	B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	124 129	160	188	224	274	324	400	452	528
	C2	62 64.5	80	94	112	137	162	200	226	264
	C3	62 64.5	80	94	112	137	162	200	226	264
	C4	2	2	2	2	2	2	2	2	3
	C5	2.5	2.5	5	5	5	5	5	5	5
	C6	15	25	25	30	40	50	65	70	90
	C7	20	30	35	40	50	60	75	80	100
D	D1	14	16	18	22	32	40	50	55	60
	D2	5	5	6	6	10	12	14	16	18
	D3	16	18	20.5	24.5	35	43	53.5	59	64
	D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)		1.7	2.4	4.3	7.1	14.9	24.5	46	70.8	

ST-RV series

RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

搭配行星減速機 - 雙出力軸心

Fitted with Planetary Reducer - Double Output Shaft



(210#~280#)

$\phi A1$	D	E
$\phi 28$	8	31.3
$\phi 32$	10	35.3
$\phi 35$	10	38.3
$\phi 38$	10	41.3
$\phi 42$	12	45.3
$\phi 48$	14	51.8
$\phi 55$	16	59.3

unit: mm

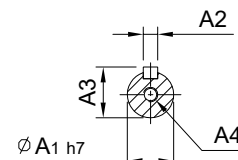
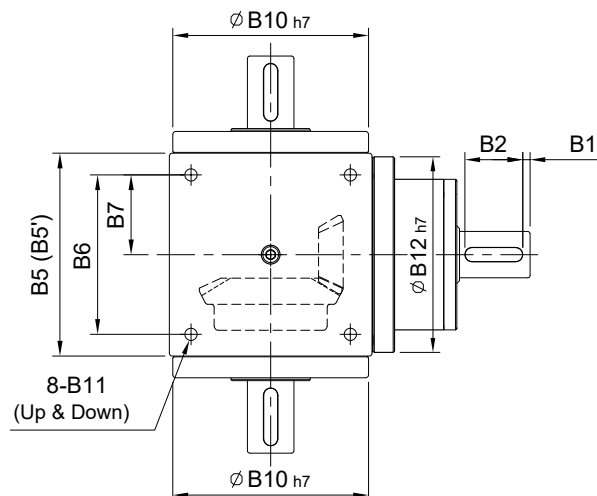
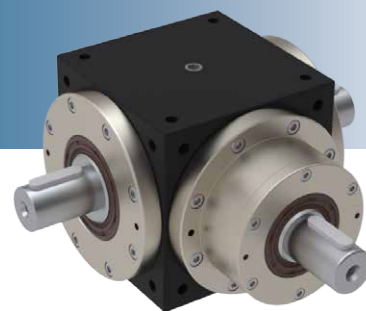
	Model Code	65	75		90	110	140	170	210	240	280
A	A1	8・9・11	8・9・11	11・14・16・19	11・14・16・19	(14)・16・19	16・19・22・24	22・24・28・32・35	28・32・35・38	35・38・42・48・55	38・42・48・55
	A2	30・40・50	30・40・50	50・60・70	50・60・70	50・70・80・95	70・80・95・110	95・110・130	110・130・180	114.3・180・230・250	114.3・180・230・250
	A3	M3・M4・M5	M3・M4・M5	M4・M5・M6	M4・M5・M6	M5・M6	M5・M6・M8	M6・M8・M10	M8・M10・M12	M10・M12・M16	M12・M16
	A4	46・60・63	46・60・63	70・75・90	70・75・90	70・90・100・115	90・100・115・145	115・145・165	145・165・200	200・215・265・300	200・215・265・300
	A5	46・55	46・55	64・70・80	64・70・80	80・92・110	92・110・130	122・130・150	146・150・190	182・200・250・265	222・220・250・265
	A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
B	B1	132	137	149・157	165・173	(191)・203	260	313・334	399	479.5	580.5
	B2	67	62	74・82	75・83	(81)・93	120	143・164	189	239.5	300.5
	B3(B3')	65	75(74)	75(74)	90	110	140	170(168)	210	240	280
	B4	52	60	60	72	88	110	134	170	190	220
	B5	26	30	30	36	44	55	67	85	95	110
	B6	26	26	33.5・41.5	33.5・41.5	(33.5)・45.5	59	67・83	85	116.5	117.5
	B7	5	5	5	6	(6)・10	9	10・11	10	13.5	12.5
	B8	62	73	73	88	106	135	164	205	228	275
C	B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	124	160	160	188	224	274	324	400	452	528
	C2	62	80	80	94	112	137	162	200	226	264
	C3	62	80	80	94	112	137	162	200	226	264
	C4	2	2	2	2	2	2	2	2	2	3
	C5	2.5	2.5	2.5	5	5	5	5	5	5	5
	C6	15	25	25	25	30	40	50	65	70	90
D	C7	20	30	30	35	40	50	60	75	80	100
	D1	14	16	16	18	22	32	40	50	55	60
	D2	5	5	5	6	6	10	12	14	16	18
	D3	16	18	18	20.5	24.5	35	43	53.5	59	64
	D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)		1.9	3.6	3.4	4.8	8.5	14.2	24	52	82.1	

ST-DV series

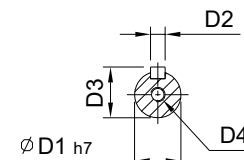
RATIO : 1.2.3.4.5 (單段 1-Stage)

單入力軸心 - 雙出力軸心

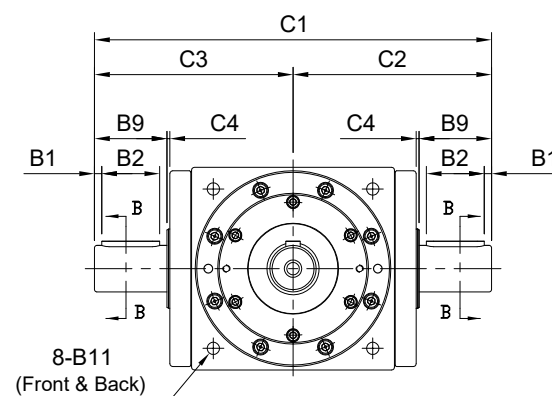
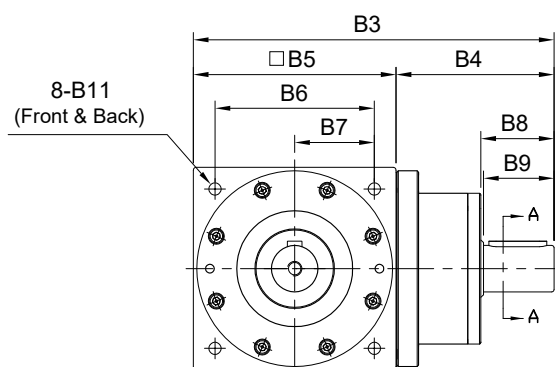
Single Input Shaft - Double Output Shaft



A-A SECTION
(Input Shaft)



B-B SECTION
(Output Shaft)



unit: mm

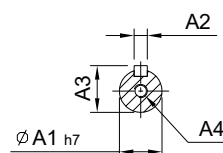
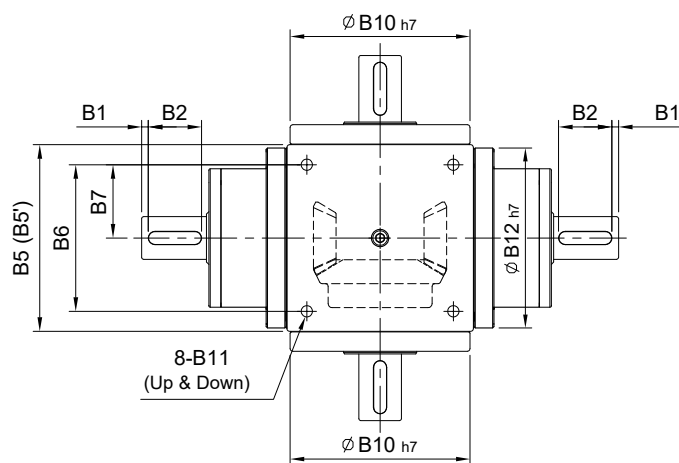
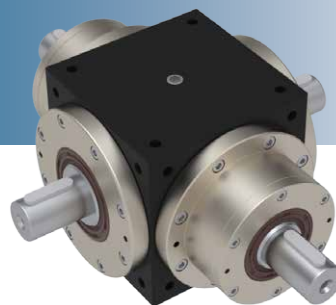
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	127.5		143	168.5	207	250	300	375	430	505
	B4	62.5		68	78.5	97	110	130	165	190	225
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	124	129	160	188	224	274	324	400	452	528
	C2	62	64.5	80	94	112	137	162	200	226	264
	C3	62	64.5	80	94	112	137	162	200	226	264
	C4	2		2	2	2	2	2	2	2	3
D	D1	14		16	18	22	32	40	50	55	60
	D2	5		5	6	6	10	12	14	16	18
	D3	16		18	20.5	24.5	35	43	53.5	59	64
	D4	M5 x P0.8		M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)		2.1		2.8	4.9	8.59	15.5	25	53	81.8	

ST-YV series

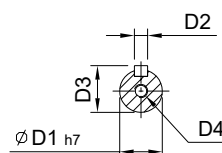
RATIO : 1.2.3.4.5 (單段 1-Stage)

雙入力軸心 - 雙出力軸心

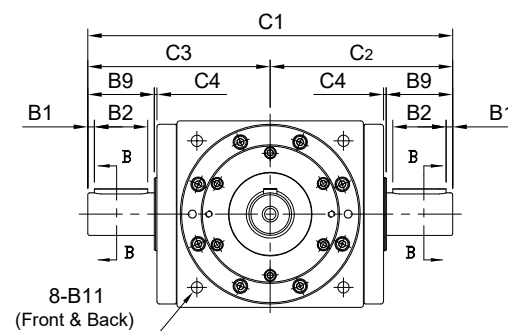
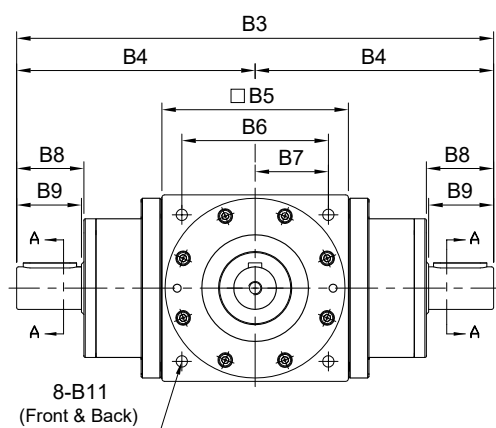
Double Input Shaft - Double Output Shaft



A-A SECTION
(Input Shaft)



B-B SECTION
(Output Shaft)



unit: mm

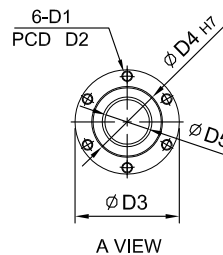
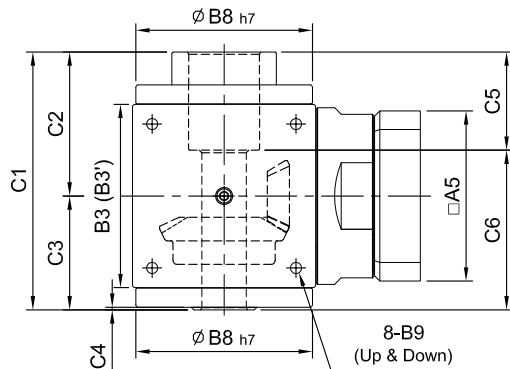
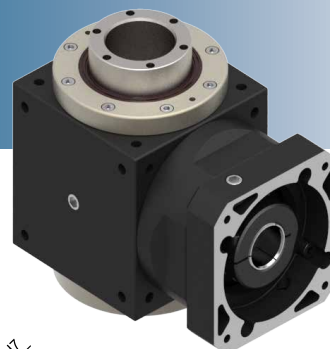
	Model Code	65	65 (1:1)	75	90	110	140	170	210	240	280
A	A1	14		16	18	22	32	40	50	55	60
	A2	5		5	6	6	10	12	14	16	18
	A3	16		18	20.5	24.5	35	43	53.5	59	64
	A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5		2.5	5	5	5	5	5	5	5
	B2	15		25	25	30	40	50	65	70	90
	B3	190		210	247	304	360	430	540	620	730
	B4	95		105	123.5	152	180	215	270	310	365
	B5(B5')	65		75(74)	90	110	140	170(168)	210	240	280
	B6	52		60	72	88	110	134	170	190	220
	B7	26		30	36	44	55	67	85	95	110
	B8	22		32	38	43	53.5	64	77	82	105
	B9	20		30	35	40	50	60	75	80	100
	B10	62	64	73	88	106	135	164	205	228	275
	B11	M5 x P0.8		M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0	M16 x P2.0
	B12	-		73	88	106	135	164	205	228	219
C	C1	124	129	160	188	224	274	324	400	452	528
	C2	62	64.5	80	94	112	137	162	200	226	264
	C3	62	64.5	80	94	112	137	162	200	226	264
	C4	2		2	2	2	2	2	2	2	3
D	D1	14		16	18	22	32	40	50	55	60
	D2	5		5	6	6	10	12	14	16	18
	D3	16		18	20.5	24.5	35	43	53.5	59	64
	D4	M5 x P0.8		M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
Weight ±3% (kg)		2.85		3.6	6.2	11.5	18	28	57	103.4	

ST-FP series

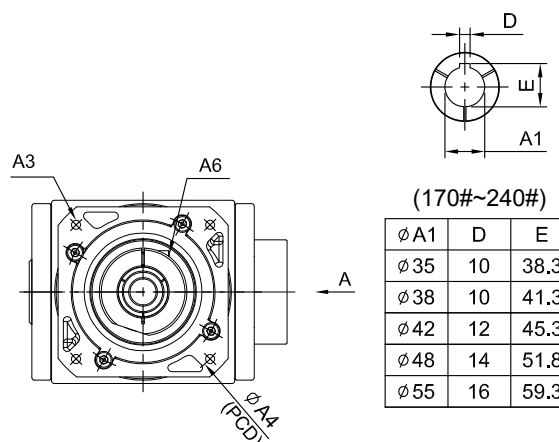
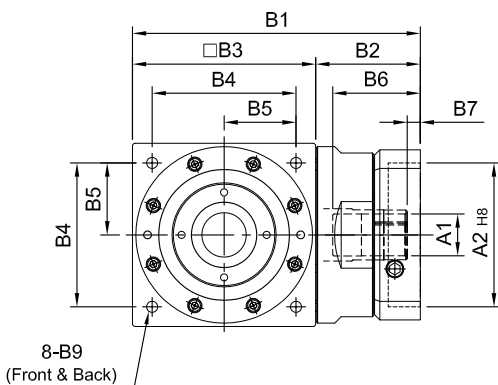
RATIO : 2.3.4.5 (單段 1-Stage)

入力法蘭 - 螺桿式

Input Flange - Ball Screw



R 軸
Shaft Direction



unit: mm

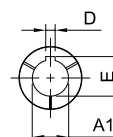
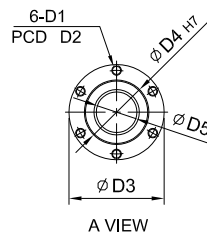
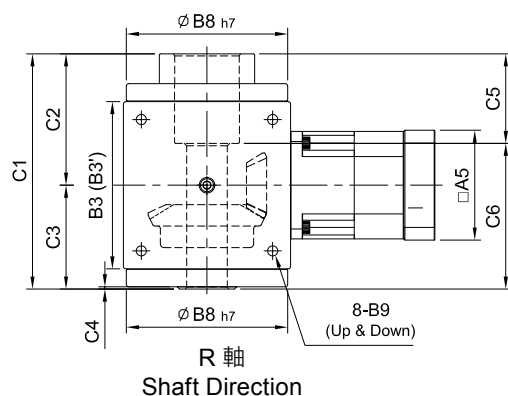
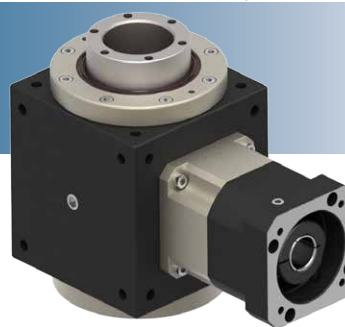
	Model Code	75	90	110	140	170	210	240
	A1	14 · 19	16 · 19 · 22 · 24	19 · 22 · 24	24 · 28 · 32 · 35	35 · 38	35 · 38 · 42 · 48 · 55	48 · 55 · 60
A	A2	50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
	A3	M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M120	M10 · M12 · M16	M12 · M16
	A4	70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265	200 · 265 · 300
	A5	64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265
	A6	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
	B1	115 · 124	148 · 162	177 · 191	224 · 238	274	357 · 359	394.5 · 421.5 · 424.5
B	B2	40 · 49	58 · 72	67 · 81	84 · 98	104	147	154.5 · 181.5 · 184.5
	B3(B3')	75(74)	90	110	140	170(168)	210	240
	B4	60	72	88	110	134	170	190
	B5	30	36	44	55	67	85	95
	B6	36 · 42	51 · 65.5	51 · 65.5	68 · 81	84.5	117	115 · 142 · 145
	B7	7	9 · 23.5	9 · 23.5	9 · 10	9.5	14 · 16	12.5 · 15.5
	B8	73	88	106	135	164	205	228
	B9	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0
	C1	106	127	156	197	223	267	309
C	C2	57	68	84	109	121	142	162.5
	C3	49	59	72	88	102	125	146.5
	C4	1.25	2	2	2	2.25	2.25	2.5
	C5	33	44	55	75	72	82	92
	C6	73	83	101	122	153	185	217
	D1	M4 x P0.7	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
D	D2	36	40	45	70	77	84	97
	D3	41.7	46.7	57.7	79.7	89.7	99.7	117.5
	D4	26	30	36	54	58	64	75
	D5	15	18	22	34	38	42	54
Weight ±3% (kg)		2.4	4.3	7.1	14.9	24.5	46	

ST-RP series

RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

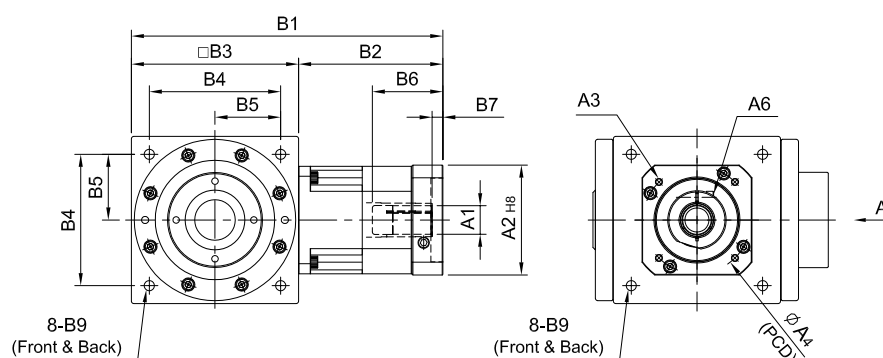
搭配行星減速機 - 螺桿式

Fitted with Planetary Reducer - Ball Screw



(210#~240#)

φA1	D	E
φ28	8	31.3
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3



unit: mm

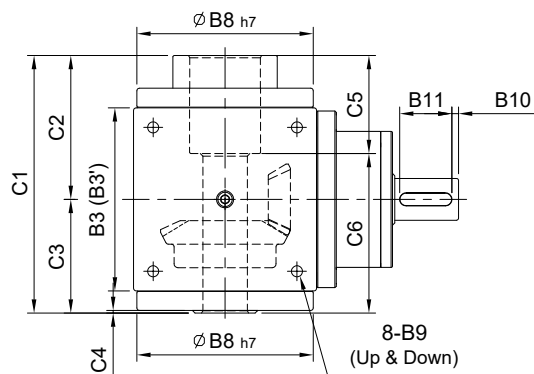
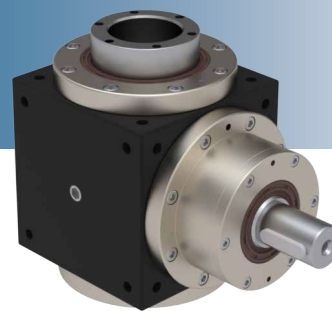
	Model Code	75		90	110	140	170	210	240
A	A1	8 · 9 · 11	11 · 14 · 16 · 19	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	A2	30 · 40 · 50	50 · 60 · 70	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230 · 250
	A3	M3 · M4 · M5	M4 · M5 · M6	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	A4	46 · 60 · 63	70 · 75 · 90	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	200 · 215 · 265 · 300
	A5	46 · 55	64 · 70 · 80	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250 · 265
	A6	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
B	B1	137	149 · 157	165 · 173	(191) · 203	260	313 · 334	399	479.5
	B2	62	74 · 82	75 · 83	(81) · 93	120	143 · 164	189	239.5
	B3(B3')	75(74)	75(74)	90	110	140	170(168)	210	240
	B4	60	60	72	88	110	134	170	195
	B5	30	30	36	44	55	67	85	95
	B6	26	33.5 · 41.5	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	85	116.5
	B7	5	5	6	(6) · 10	9	10 · 11	10	13.5
	B8	73	73	88	106	135	164	205	228
C	B9	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0
	C1	106	106	127	156	197	223	267	309
	C2	57	57	68	84	109	121	142	162.5
	C3	49	49	59	72	88	102	125	146.5
	C4	1.25	1.25	2	2	2	2.25	2.25	2.5
	C5	33	33	44	55	75	72	82	92
D	C6	73	73	83	101	122	153	185	217
	D1	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	D2	36	36	40	45	70	77	84	97
	D3	41.7	41.7	46.7	57.7	79.7	89.7	99.7	117.5
	D4	26	26	30	36	54	58	64	75
	D5	15	15	18	22	34	38	42	54
Weight ±3% (kg)		3.6	3.6	4.8	8.5	14.2	24	52	

ST-DP series

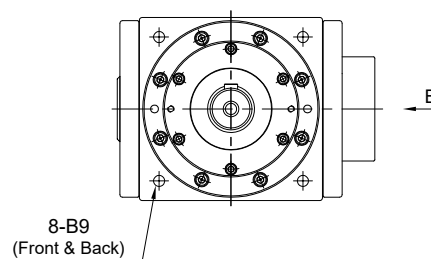
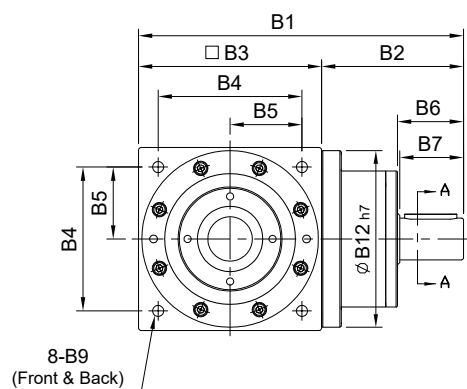
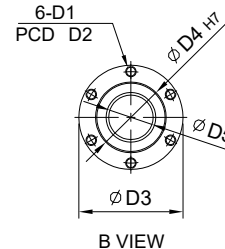
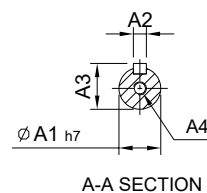
RATIO : 2.3.4.5 (單段 1-Stage)

單入力軸心 - 螺桿式

Single Input Shaft - Ball Screw



R 軸
Shaft Direction



unit: mm

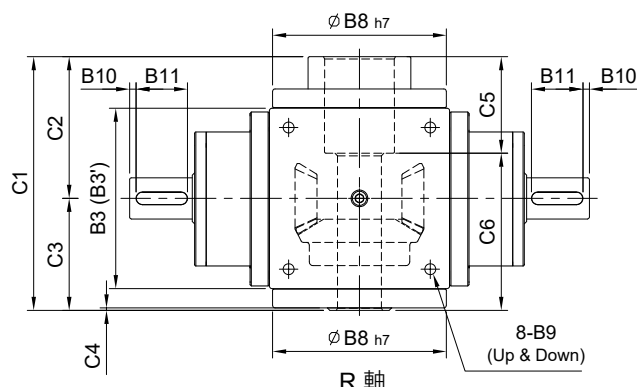
	Model Code	75	90	110	140	170	210	240
A	A1	16	18	22	32	40	50	55
	A2	5	6	6	10	12	14	16
	A3	18	20.5	24.5	35	43	54	59
	A4	M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0
B	B1	143	169	207	250	300	375	430
	B2	68	79	97	110	130	165	190
	B3(B3')	75(74)	90	110	140	170(168)	210	240
	B4	60	72	88	110	134	170	190
	B5	30	36	44	55	67	85	95
	B6	32	38	43	53.5	64	77	82
	B7	30	35	40	50	60	75	80
	B8	73	88	106	135	164	205	228
	B9	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0
	B10	2.5	5	5	5	5	5	5
	B11	25	25	30	40	50	65	70
	B12	73	88	106	135	164	205	228
C	C1	106	127	156	197	223	267	309
	C2	57	68	84	109	121	142	162.5
	C3	49	59	72	88	102	125	146.5
	C4	1.25	2	2	2	2.25	2.25	2.5
	C5	33	44	55	75	72	82	92
	C6	73	83	101	122	153	185	217
D	D1	M4 x P0.7	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	D2	36	40	45	70	77	84	97
	D3	41.7	46.7	57.7	79.7	89.7	99.7	117.5
	D4	26	30	36	54	58	64	75
	D5	15	18	22	34	38	42	54
Weight ±3% (kg)		2.8	4.9	8.59	15.5	25	53	

ST-YP series

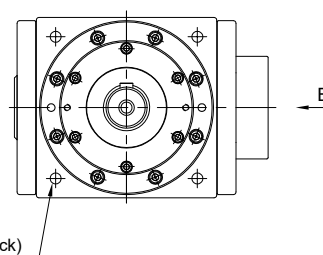
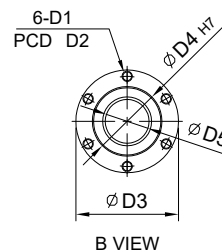
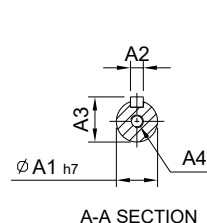
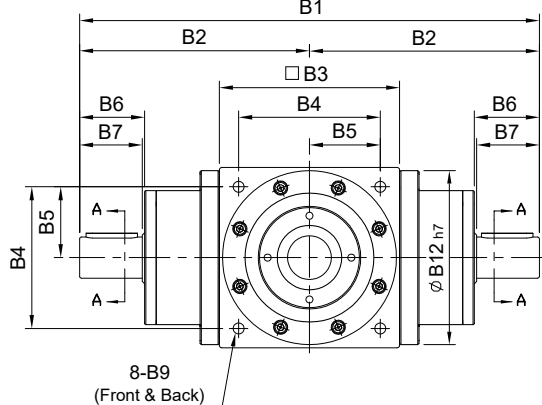
RATIO : 2.3.4.5 (單段 1-Stage)

雙入力軸心 - 螺桿式

Double Input Shaft - Ball Screw



R 軸
Shaft Direction
B1

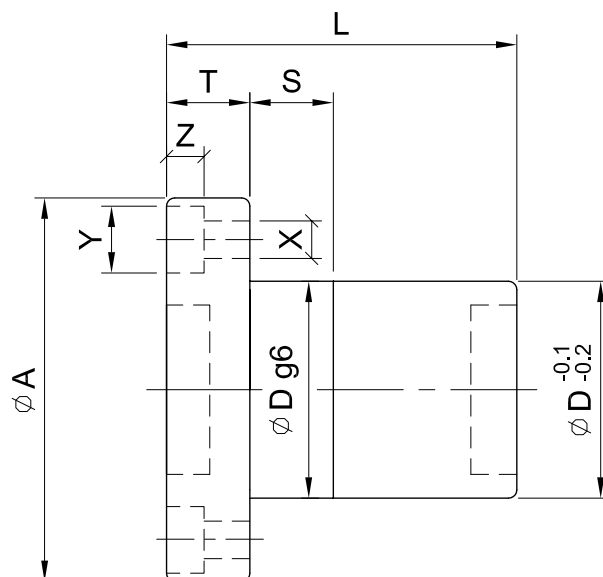
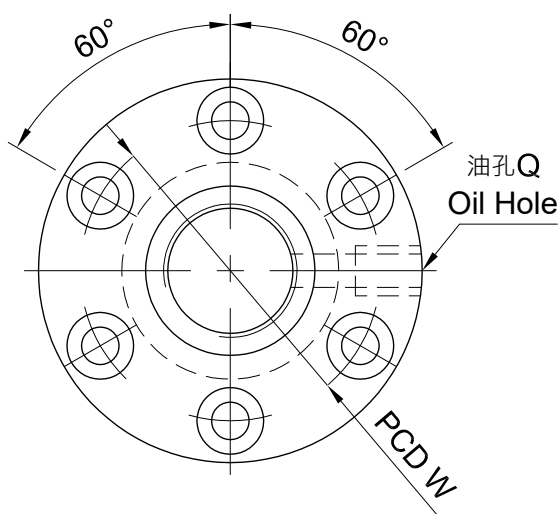
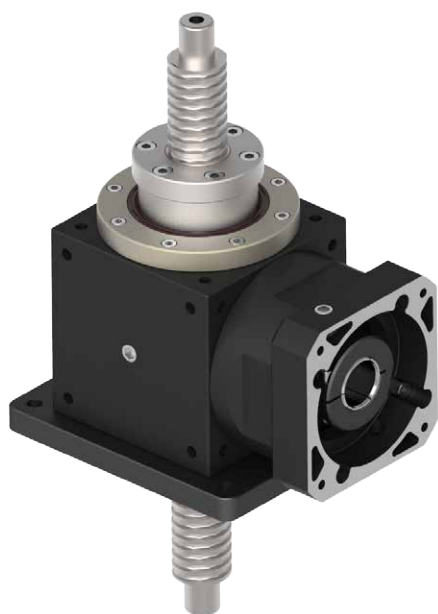


unit: mm

A	Model Code	75	90	110	140	170	210	240
	A1	16	18	22	32	40	50	55
B	A2	5	6	6	10	12	14	16
	A3	18	20.5	24.5	35	43	54	59
	A4	M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0
	B1	210	247	304	360	430	540	620
	B2	105	123.5	152	180	215	270	310
	B3(B3')	75(74)	90	110	140	170(168)	210	240
	B4	60	72	88	110	134	170	190
	B5	30	36	44	55	67	85	95
	B6	32	38	43	53.5	64	77	82
	B7	30	35	40	50	60	75	80
	B8	73	88	106	135	164	205	228
	B9	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0	M16 x P2.0
	B10	2.5	5	5	5	5	5	5
	B11	25	25	30	40	50	65	70
	B12	73	88	106	135	164	205	228
	C	C1	106	127	156	197	223	267
C2		57	68	84	109	121	142	162.5
C3		49	59	72	88	102	125	146.5
C4		1.25	2	2	2	2.25	2.25	2.5
C5		33	44	55	75	72	82	92
C6		73	83	101	122	153	185	217
D	D1	M4 x P0.7	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	D2	36	40	45	70	77	84	97
	D3	41.7	46.7	57.7	79.7	89.7	99.7	117.5
	D4	26	30	36	54	58	64	75
	D5	15	18	22	34	38	42	54
Weight ±3% (kg)		3.6	6.2	11.5	18	28	57	

Reference Information of Ball Screw

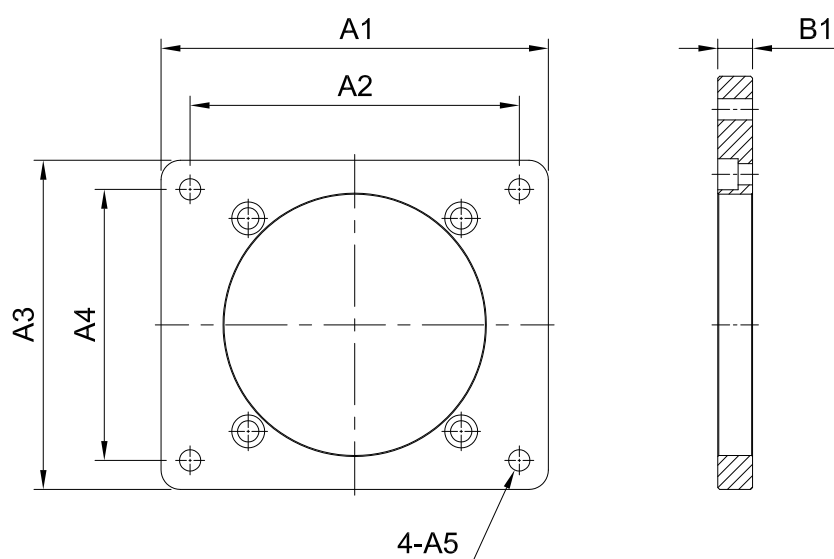
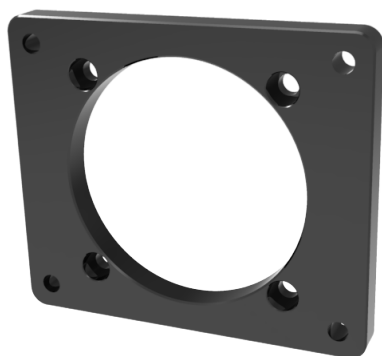
滾珠螺桿參考資料



配合 減速機 型號 Model of Reducer	螺桿尺寸 Screw Size		基本額定負荷 Basic Rate Load (kgf)		螺帽 Nut		法蘭 Flange			配合 FIT	螺絲孔 Screw Bolt			油孔 Oil Hole	螺桿 長度 Length
	外徑 O.D.	導程 Lead	動負荷 Dynamic	靜負荷 Static	Dg6	L	A	T	W	S	X	Y	Z	Q	
75	14	5	720	1010	26	42	46	10	36	10	4.5	8	4.5	M6 x P1.0	≤ 500
90	16	6	980	1650	30	55	54	12	40	12	5.5	9.5	5.5	M6 x P1.0	≤ 800
110	20	10	860	1710	36	66	57	12	45	12	5.5	9.5	5.5	M6 x P1.0	≤ 1000
140	32	10	3340	7080	54	90	88	16	70	15	9	14	8.5	M8 x P1	≤ 1200
170	36	10	3600	8280	58	89	98	18	77	20	11	17.5	11	M8 x P1	≤ 1500
210	40	10	4670	11830	64	99	106	18	84	20	11	17.5	11	M8 x P1	≤ 1500
240	50	12	5770	14870	75	111	121	22	97	20	14	20	13	1/8"PT	≤ 1500

Fixing Plate

固定座



Indication of Fixing Plate

固定座料號表示

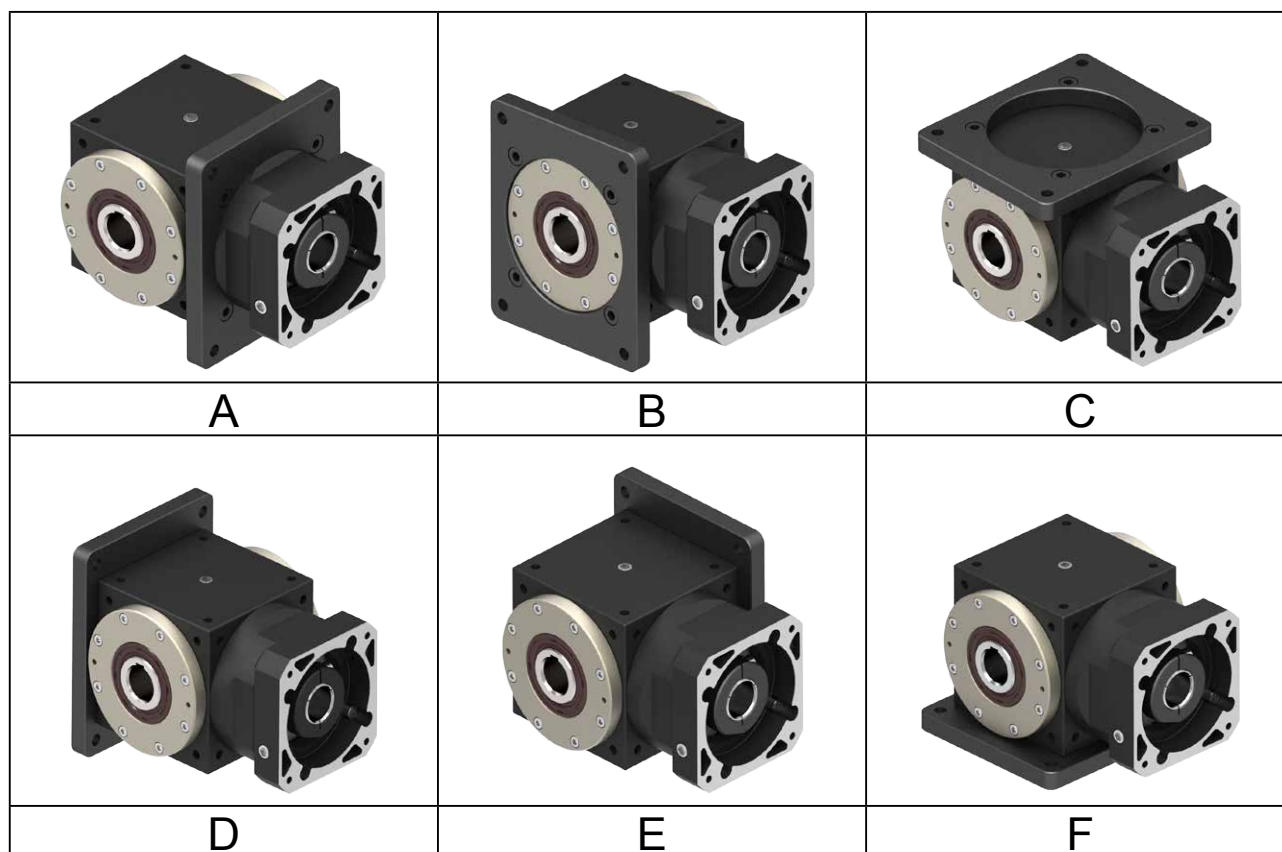
FP	90	F
固定座機型 Type	型號 Model	安裝方式 Direction
FP	65、75、90、110、 140、170、210	A、B、C、D、E、F

		unit:mm						
A	Model Code	65	75	90	110	140	170	210
	A1	100	110	130	160	200	230	280
	A2	85	95	110	135	170	200	240
	A3	85	90	110	135	170	200	250
	A4	70	75	90	110	140	170	210
	A5	7	7	7	9	11	13	17
B	B1	10	12	13	16	18	18	25

Selection Direction of Fixing Plate

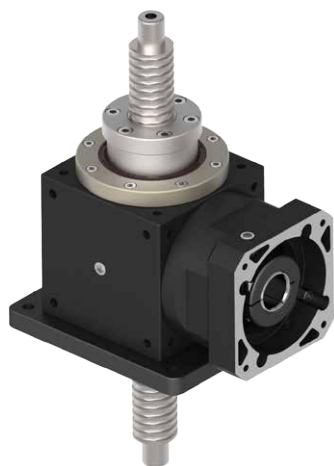
固定座安裝方式選擇

ST



Installation Example of Fixing Plate

固定座安裝方式範例

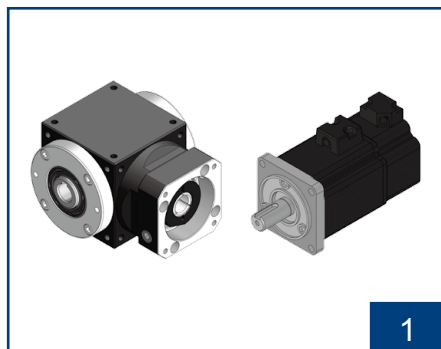


ST140-FPT-5 +
FP140-F

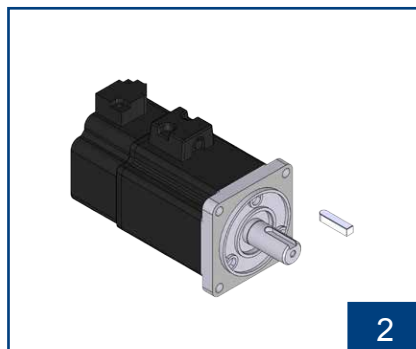


ST110-FSB-5 +
FP110-A

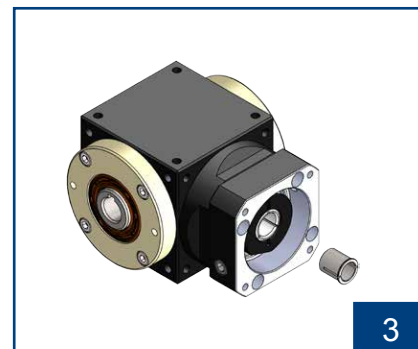
High Precision Spiral Bevel Gear Reducer and Motor Mounting Instructions 高精密螺旋傘齒輪減速機與馬達安裝指南



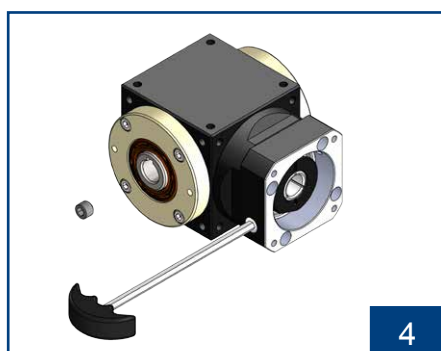
核對馬達型號與減速機規格是否正確。並將配合面擦拭乾淨。
Confirm the motor, and gearbox size. Clean up the mounting surface.



確認減速機與馬達是否有鍵配合。
Confirm whether the reducer and motor are keyed together.



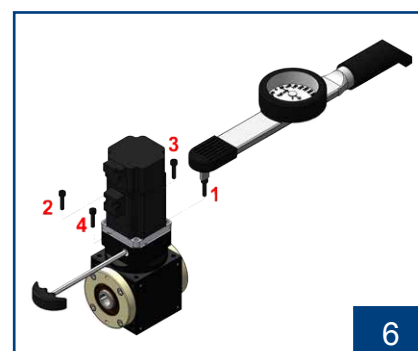
檢查馬達出力軸尺寸，如需軸套，請先裝進減速機入力孔內。
Check motor shaft size and insert bushing into input bore of the gear box if necessary.



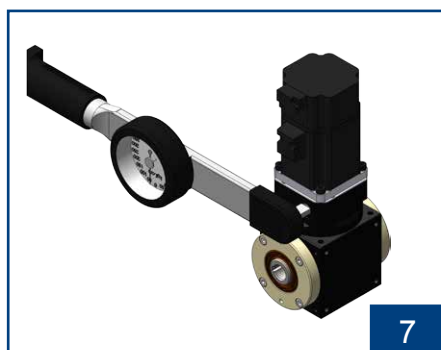
取出塞頭，使用六角扳手將迫緊環螺絲鬆開。並將扳手與螺絲對準孔位。
Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.



將馬達垂直裝入減速機。
Put the motor into the gearbox vertically.



依序 1~4 使用扭力扳手鎖上內六角螺絲。
Tighten the mounting bolt in 1~4 order with torque wrench.



使用扭力扳手將迫緊環螺絲鎖緊。
Tighten the set collar bolt with torque wrench.



裝回塞頭並鎖緊。
Tighten back the screw plug.

1. 務必先鎖緊馬達固定面，才能鎖緊馬達軸心迫緊環。
Please be sure to tighten motor flange on gear box flange first and then to tighten the set collar on motor shaft.
2. 請依步驟順序組裝，尤其步驟 6、7 不可顛倒。
Please assembly in order according to above steps, especially for step 6 and step 7.
3. 安裝完畢後，請將塞頭回塞，避免細小物品掉入減速機中。
Please noted that tighten back the screw plug to protect the gear box.

FT series

Indication of Model Numbers

機種型號表示

FT	60	F	O	B	5	MOTOR
減速機機型 Type	型號 Model	入力表示 Input	出力表示 Output	軸承形式 Bearing	速比 Ratio	馬達型號 Motor Type
FT	42 50 60 70	F: 入力法蘭 Input Flange R44: 減速機 Reducer 1-Stage: R44、R62... 2-Stage: R44S、R62S... 2-Stage (A-Type): R62A...	O: 中空軸 (60#~70#) Hollow Shaft P: 出力盤式 (60#~70#) Fixing Flange C: 迫緊環 (60#~70#) Set Collar S: 單出力軸心 Single Output Shaft V: 雙出力軸心 Double Output Shaft	B: 滾珠軸承 Ball Bearing	2 3 4 5 10 15 20 25 30 40 50	



Characteristic of FT Series

FT 系列產品特性

規格 Parameter	Code	Unit	單段 1-Stage					雙段 2-Stage			
			Ratio	42	50	60	70	Ratio	50	60	70
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	2	10	13	15	22	10	13	15	22
			3	9	11	13	18	15	11	13	18
			4	7	9	13	18	20	9	13	18
			5	6	8	12	16	25	8	12	16
			-	-	-	-	-	30	11	13	18
			-	-	-	-	-	40	9	13	18
			-	-	-	-	-	50	8	12	16
最大加速扭矩 / Max. cceleration Torque	T_{2B}	Nm	2~5, 10~50	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque							
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	2	2,000				10~50	3,000		
			3~5	3,000							
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	2~5	6,000				10~50	6,000		
背隙 / Backlash		arcmin	2~5	≤ 10				10~50	≤ 12		
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	2~5	300	488	600	800	10~50	488	600	800
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	2~5	150	244	300	400	10~50	244	300	400
使用壽命 / Service Life	L_H	hr	2~5, 10~50	S5 周期運轉 Cycle Operation: >20,000							
效 率 / Efficiency	η	%	2~5	94% ~ 98%				10~50	90% ~ 94%		
使用溫度 / Operating Temperature		℃	2~5, 10~50	-10℃ ~ +90℃							
潤 滑 / Lubrication			2~5, 10~50	全合成潤滑油脂 Synthetic Grease							
噪 音 值 / Noise Level		dB	2~5	64	66	68	70	10~50	68	70	72

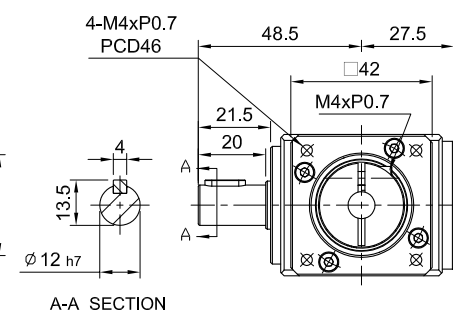
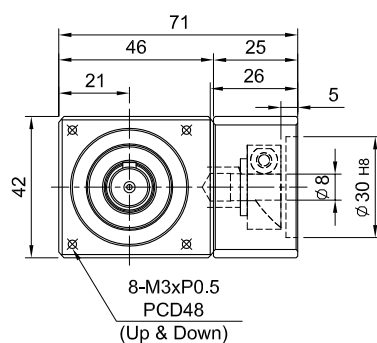
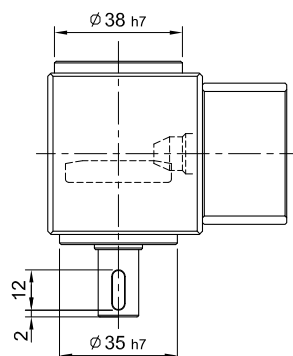
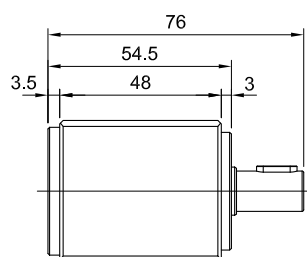
轉動慣量 Mass Moments of Inertia (kgcm²)

單段 1-Stage					雙段 2-Stage			
Ratio	42	50	60	70	Ratio	50	60	70
2	0.08	0.15	0.32	0.80	10	0.04	0.04	0.10
3	0.08	0.15	0.30	0.75	15	0.04	0.04	0.10
4	0.08	0.15	0.30	0.70	20	0.04	0.04	0.10
5	0.09	0.16	0.29	0.68	25	0.04	0.04	0.10
-	-	-	-	-	30	0.04	0.04	0.10
-	-	-	-	-	40	0.04	0.04	0.10
-	-	-	-	-	50	0.04	0.04	0.10

MODEL : FT42

RATIO : 2.3.4.5 (單段 1-Stage)

FT

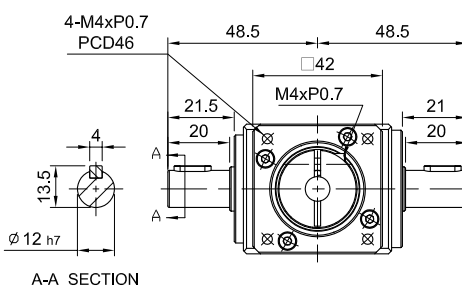
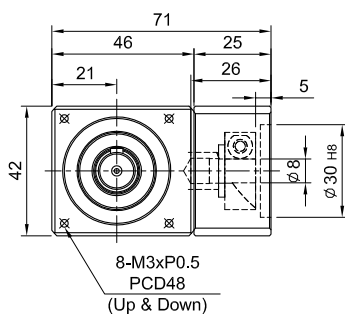
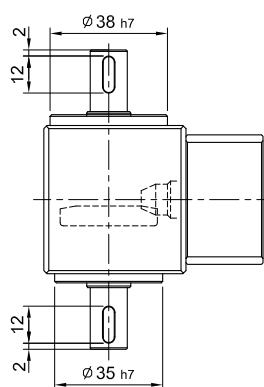
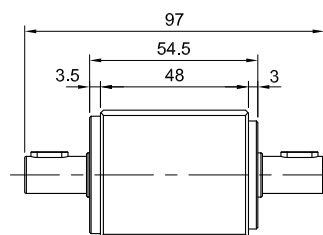


A-A SECTION

FT-FS

入力法蘭 - 單出力軸心
Input Flange
- Single Output Shaft

Model Code	42
Weight ±3% (kg)	0.5



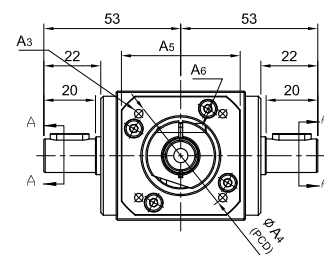
A-A SECTION

FT-FV

入力法蘭 - 雙出力軸心
Input Flange
- Double Output Shaft

Model Code	42
Weight ±3% (kg)	0.44

RATIO : 2.3.4.5 (單段 1-Stage)



MODEL : FT50

RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

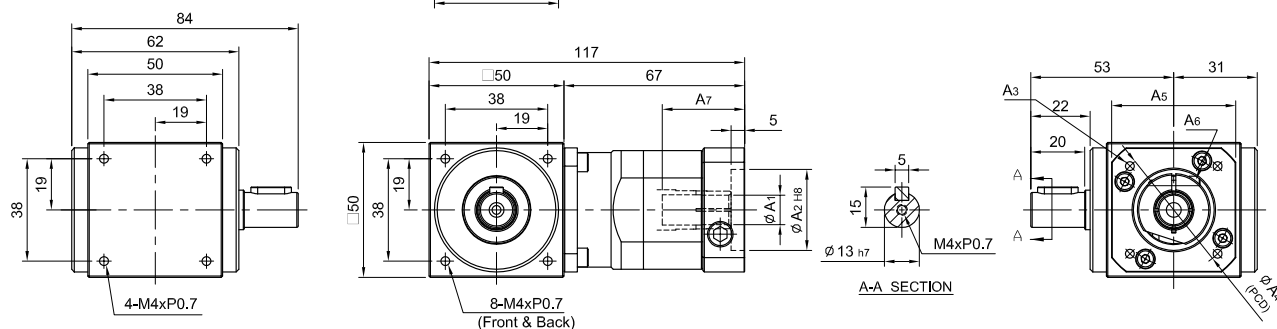
FT



FT-RS

搭配行星減速機 - 單出力軸心
Fitted with Planetary Reducer
- Single Output Shaft

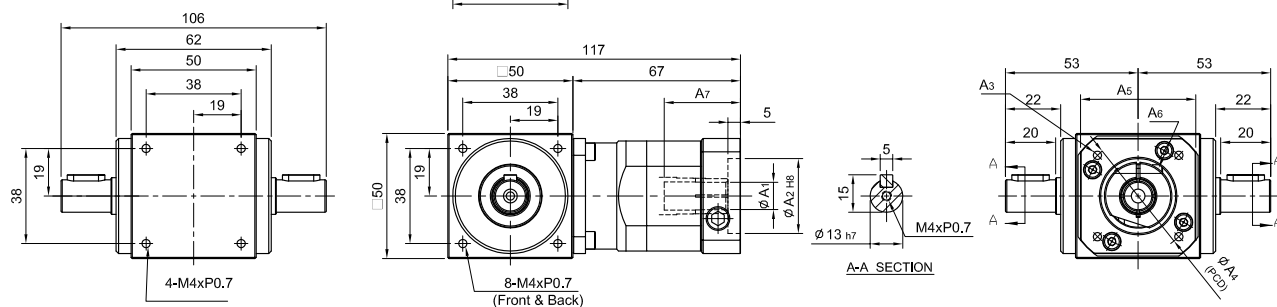
unit:mm	
Model Code	50
A1	8 · 11
A2	30 · 40 · 50
A3	M3 · M4 · M5
A4	46 · 60 · 63
A5	46 · 55
A6	M4 x P0.7
A7	26 · 30.5
Weight ±3% (kg)	1.02



FT-RV

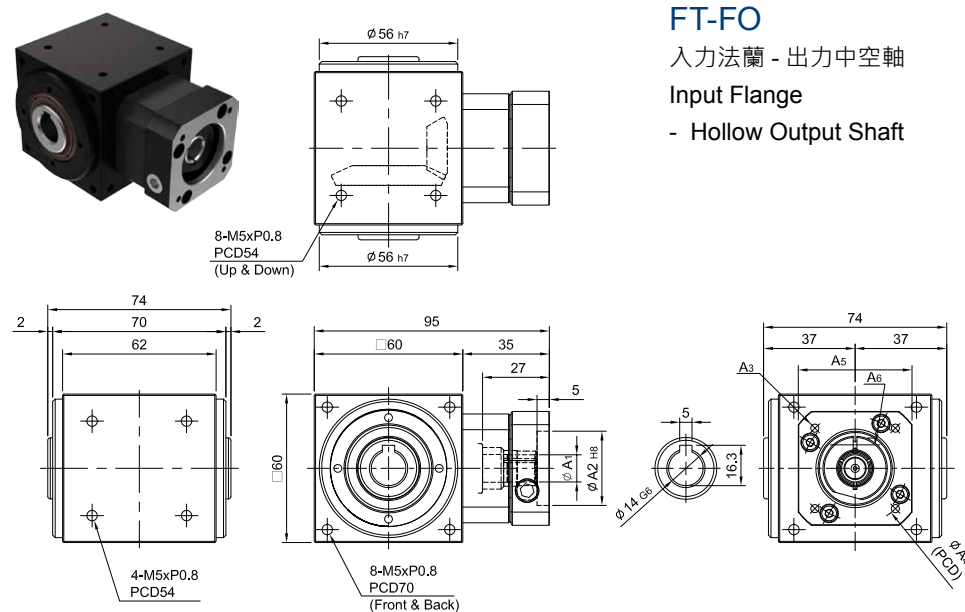
搭配行星減速機 - 雙出力軸心
Fitted with Planetary Reducer
- Double Output Shaft

unit:mm	
Model Code	50
A1	8 · 11
A2	30 · 40 · 50
A3	M3 · M4 · M5
A4	46 · 60 · 63
A5	46 · 55
A6	M4 x P0.7
A7	26 · 30.5
Weight ±3% (kg)	1.05



MODEL : FT60

RATIO : 2.3.4.5 (單段 1-Stage)



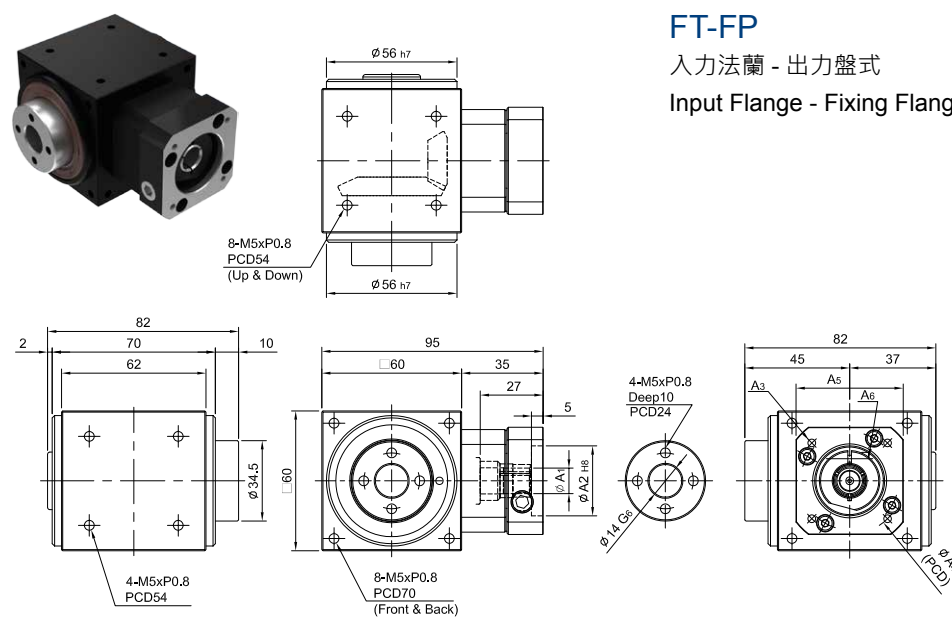
FT-FO

入力法蘭 - 出力中空軸

Input Flange

- Hollow Output Shaft

unit:mm	
Model Code	60
A1	11
A2	30・40・50
A3	M3・M4・M5
A4	46・60・63
A5	46・55
A6	M4 x P0.7
Weight	1.1
±3% (kg)	

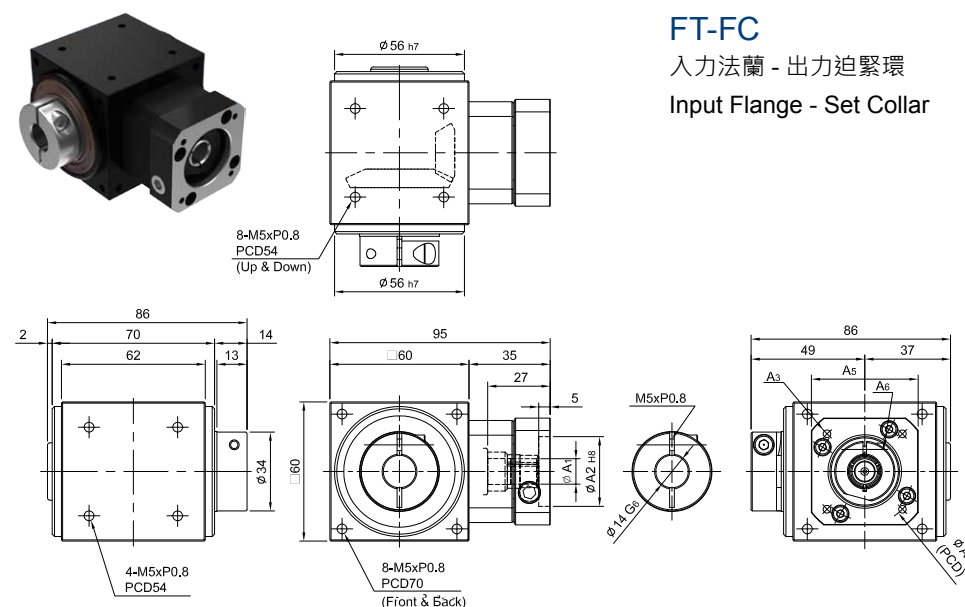


FT-FP

入力法蘭 - 出力盤式

Input Flange - Fixing Flange

unit:mm	
Model Code	60
A1	11
A2	30・40・50
A3	M3・M4・M5
A4	46・60・63
A5	46・55
A6	M4 x P0.7
Weight	
±3% (kg)	



FT-FC

入力法蘭 - 出力迫緊環

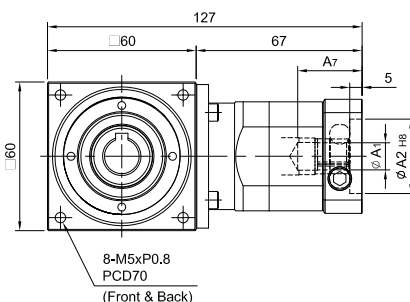
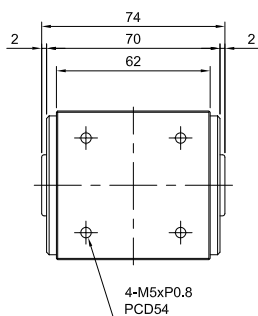
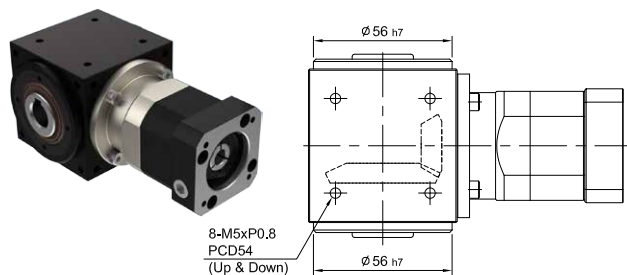
Input Flange - Set Collar

unit:mm	
Model Code	60
A1	11
A2	30・40・50
A3	M3・M4・M5
A4	46・60・63
A5	46・55
A6	M4 x P0.7
Weight	
±3% (kg)	

MODEL : FT60

RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

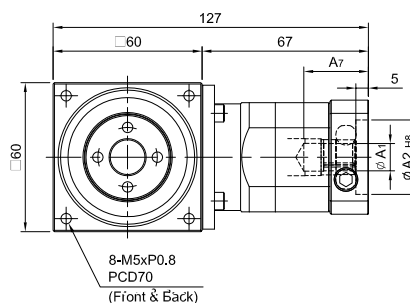
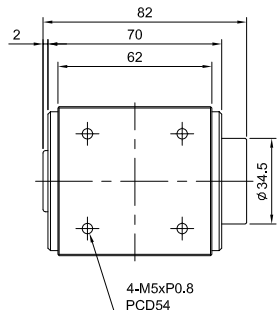
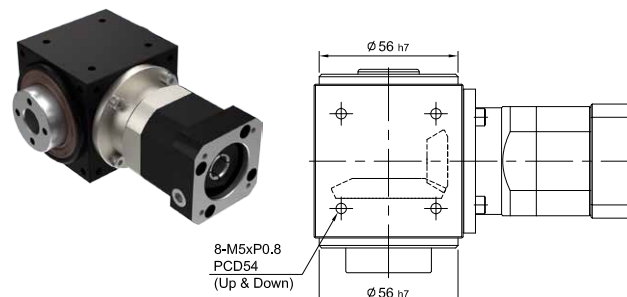
FT



FT-RO

搭配行星減速機 - 出力中空軸
Fitted with Planetary Reducer
- Hollow Output Shaft

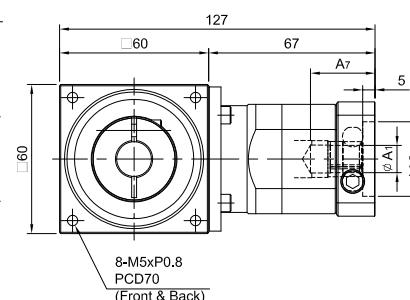
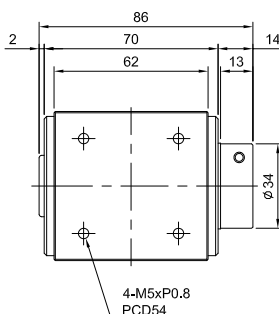
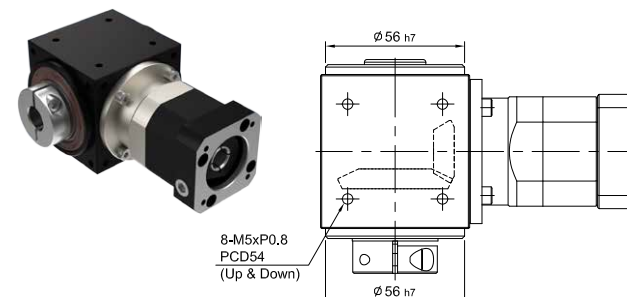
unit:mm	
Model Code	60
A1	8 · 11
A2	30 · 40 · 50
A3	M3 · M4 · M5
A4	46 · 60 · 63
A5	46 · 55
A6	M4 x P0.7
A7	26 · 30.5
Weight ±3% (kg)	1.4



FT-RP

搭配行星減速機 - 出力盤式
Fitted with Planetary Reducer
- Fixing Flange

unit:mm	
Model Code	60
A1	8 · 11
A2	30 · 40 · 50
A3	M3 · M4 · M5
A4	46 · 60 · 63
A5	46 · 55
A6	M4 x P0.7
A7	26 · 30.5
Weight ±3% (kg)	



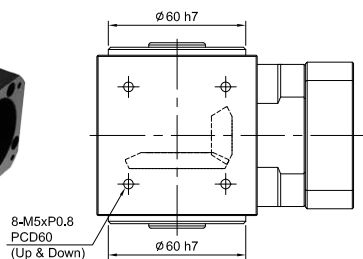
FT-RC

搭配行星減速機 - 出力迫緊環
Fitted with Planetary Reducer
- Set Collar

unit:mm	
Model Code	60
A1	8 · 11
A2	30 · 40 · 50
A3	M3 · M4 · M5
A4	46 · 60 · 63
A5	46 · 55
A6	M4 x P0.7
A7	26 · 30.5
Weight ±3% (kg)	

MODEL : FT70

RATIO : 2.3.4.5 (單段 1-Stage)



FT-FO

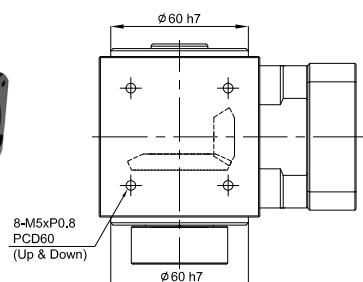
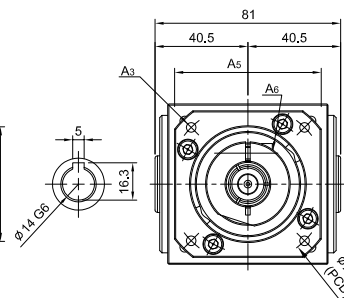
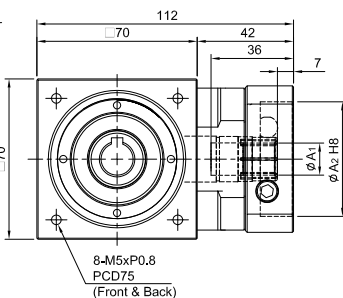
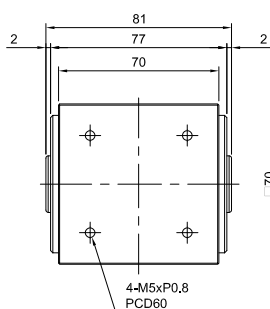
入力法蘭 - 出力中空軸

Input Flange

- Hollow Output Shaft

unit:mm

Model Code	70
A1	14
A2	50・60・70
A3	M4・M5・M6
A4	70・75・90
A5	64・70・80
A6	M5 x P0.8
Weight ±3% (kg)	1.47



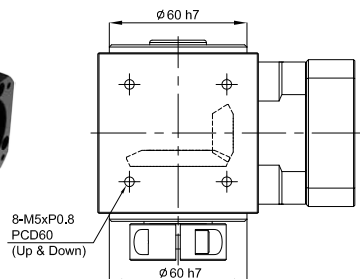
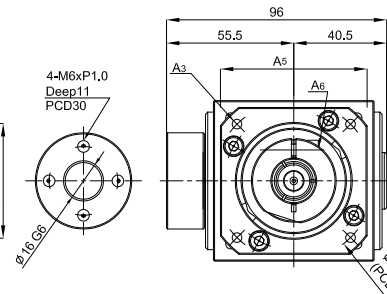
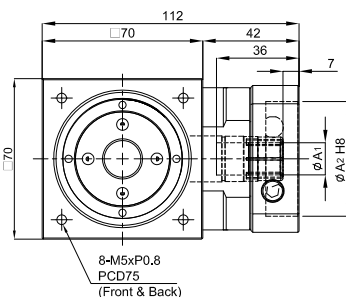
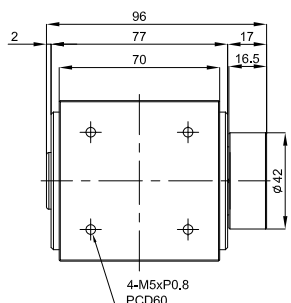
FT-FP

入力法蘭 - 出力盤式

Input Flange - Fixing Flange

unit:mm

Model Code	70
A1	14
A2	50・60・70
A3	M4・M5・M6
A4	70・75・90
A5	64・70・80
A6	M5 x P0.8
Weight ±3% (kg)	1.75



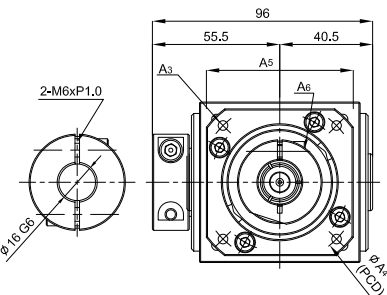
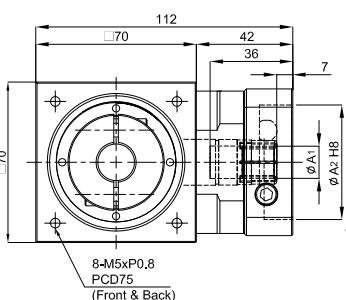
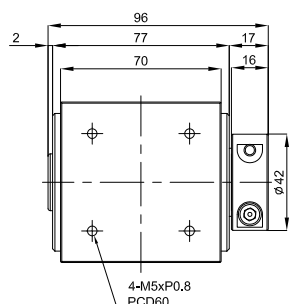
FT-FC

入力法蘭 - 出力迫緊環

Input Flange - Set Collar

unit:mm

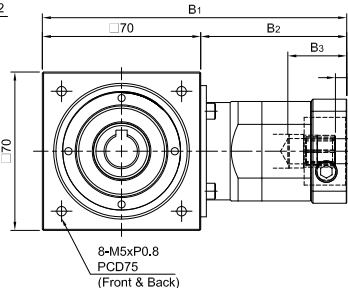
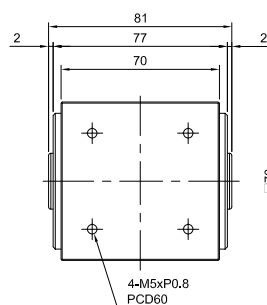
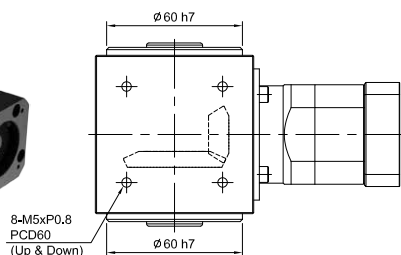
Model Code	70
A1	14
A2	50・60・70
A3	M4・M5・M6
A4	70・75・90
A5	64・70・80
A6	M5 x P0.8
Weight ±3% (kg)	1.6



MODEL : FT70

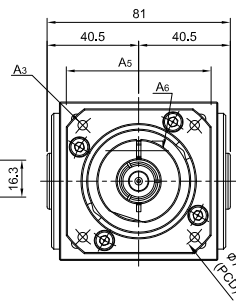
RATIO : 10.15.20.25.30.40.50 (雙段 2-Stage)

FT

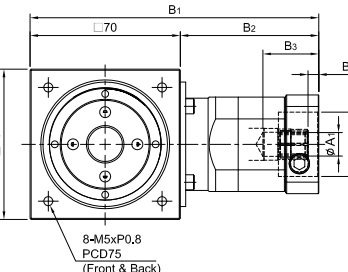
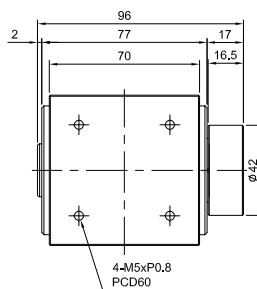
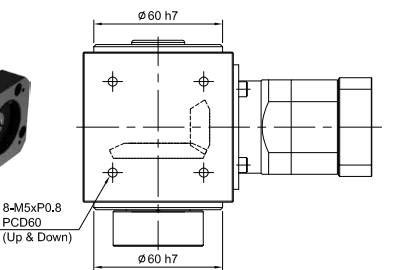


FT-RO

搭配行星減速機 - 出力中空軸
Fitted with Planetary Reducer
- Hollow Output Shaft

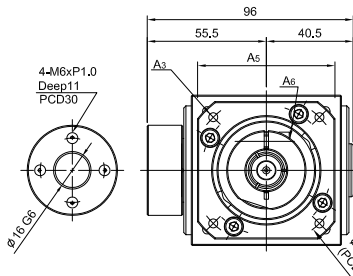


unit:mm		
Model Code	70	
A1	8、11	14
A2	30、40、50	50、60、70
A3	M3、M4、M5	M4、M5、M6
A4	46、60、63	70、75、90
A5	46、55	64、70、80
A6	M4 x P0.7	M5 x P0.8
B1	135	146
B2	65	76
B3	26、30.5	33.5
B4	5	6
Weight ±3% (kg)	2.2	

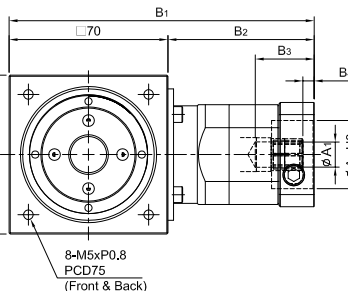
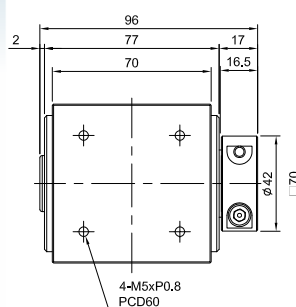
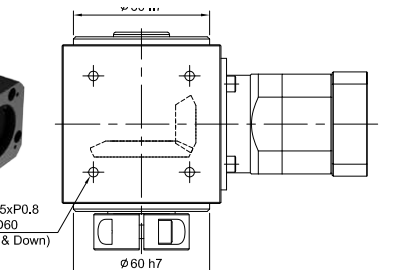


FT-RP

搭配行星減速機 - 出力盤式
Fitted with Planetary Reducer
- Fixing Flange

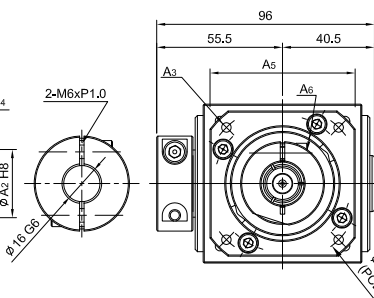


unit:mm		
Model Code	70	
A1	8、11	14
A2	30、40、50	50、60、70
A3	M3、M4、M5	M4、M5、M6
A4	46、60、63	70、75、90
A5	46、55	64、70、80
A6	M4 x P0.7	M5 x P0.8
B1	135	146
B2	65	76
B3	26、30.5	33.5
B4	5	6
Weight ±3% (kg)	2.5	



FT-RC

搭配行星減速機 - 出力迫緊環
Fitted with Planetary Reducer
- Set Collar



unit:mm		
Model Code	70	
A1	8、11	14
A2	30、40、50	50、60、70
A3	M3、M4、M5	M4、M5、M6
A4	46、60、63	70、75、90
A5	46、55	64、70、80
A6	M4 x P0.7	M5 x P0.8
B1	135	146
B2	65	76
B3	26、30.5	33.5
B4	5	6
Weight ±3% (kg)	2.35	

[illegible]

JT series

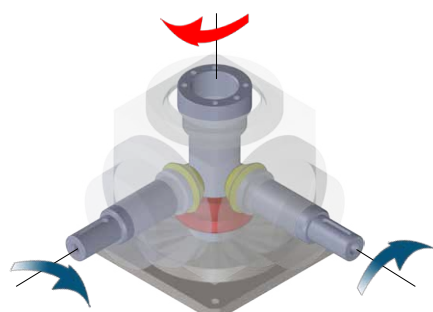
Indication of Model Numbers

機種型號表示

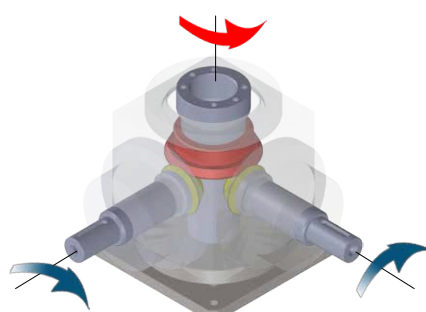
JT	90	R	P		T	10	L	P0
減速機機型 Type	型號 Model	入力表示 Input	出力表示 Output	樣式 Shaft	軸承形式 Bearing	速比 Ratio	軸向 Shaft Direction	背隙等級 Backlash Class
JT	90	F: 入力法蘭 Input Flange R: 減速機 Reducer D: 入力軸心 Input Shaft	P: 滾珠螺桿式 Ball Screw V: 雙出力軸心 Double Output Shaft	1: 1 出軸 1 Shaft 2: 2 出軸 2 Shaft 3: 3 出軸 3 Shaft	T: 滾錐軸承 Taper Bearing	單段 1-Stage 2 雙段 2-Stage 10	L: 左軸 Left Shaft R: 右軸 Right Shaft 出力形式 P 可 以選擇軸向 Shaft direction is optional for output type P.	P0 P1 P2

Rotating Direction

旋轉方向說明



L 軸向
Shaft Direction
(標準 Standard)



R 軸向
Shaft Direction
(可選 Optional)

Note:

本公司出廠標準品使用「標準軸向」，R 軸向請於訂單上註明。
Standard product is L shaft direction, R shaft direction is optional.

Selection of Type

產品樣式選擇

入力形式 Input Type

F 入力法蘭
Input Flange

R 減速機
Reducer

D 入力軸心
Input Shaft

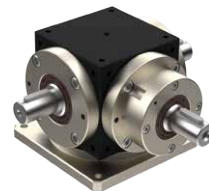
V
雙出力軸心
Double
Output Shaft



FV



RV



DV

P1
滾珠螺桿式
1 出軸
Ball Screw
1 Shaft



FP1



RP1



DP1

P2
滾珠螺桿式
2 出軸
Ball Screw
2 Shaft



FP2



RP2



DP2

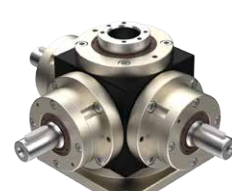
P3
滾珠螺桿式
3 出軸
Ball Screw
3 Shaft



FP3



RP3



DP3

出力形式 Output Type

出力形式 P 可以選擇軸向。 Shaft direction is optional for output type P.

Characteristic of JT Series

JT 系列產品特性

JT

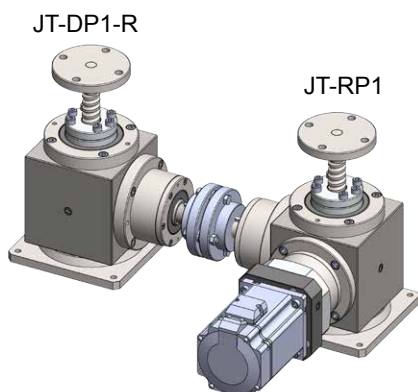
規格 Parameter	Code	Unit	Ratio	90
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	2 ÷ 10	68
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	2 ÷ 10	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	2 ÷ 10	2 倍額定輸出扭矩 2 Times of Rated Output Torque
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	2 ÷ 10	3,000
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	2 ÷ 10	6,000
背隙 / Backlash	J_t	arcmin	P0	≤ 3
			P1	≤ 6
			P2	≤ 9
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	2 ÷ 10	3,200
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	2 ÷ 10	1,600
使用壽命 / Service Life	L_H	hr	2 ÷ 10	S5 周期運轉 Cycle Operation: >30,000
效 率 / Efficiency	η	%	2 ÷ 10	$\geq 96\%$
使用溫度 / Operating Temperature		°C	2 ÷ 10	-10°C ~ +90°C
潤 滑 / Lubrication			2 ÷ 10	全合成潤滑油 Synthetic Oil
噪 音 值 / Noise Level		dB	2 ÷ 10	≤ 74

Applications

減速機應用範例

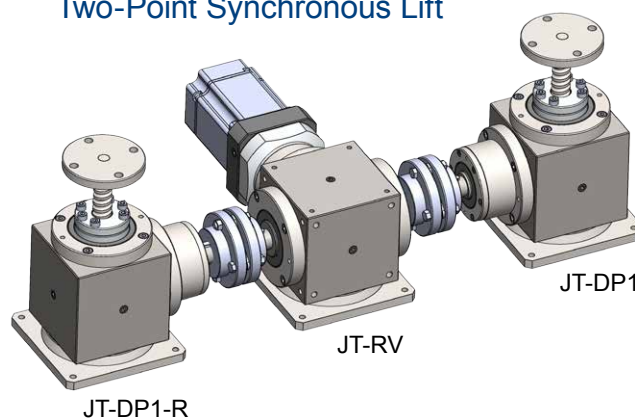
○兩點同步升降

Two-Point Synchronous Lift



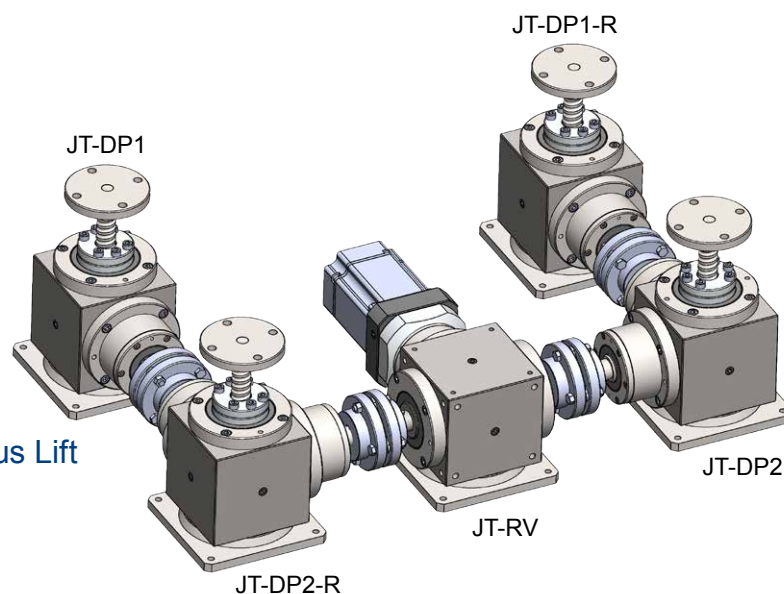
○兩點同步升降

Two-Point Synchronous Lift



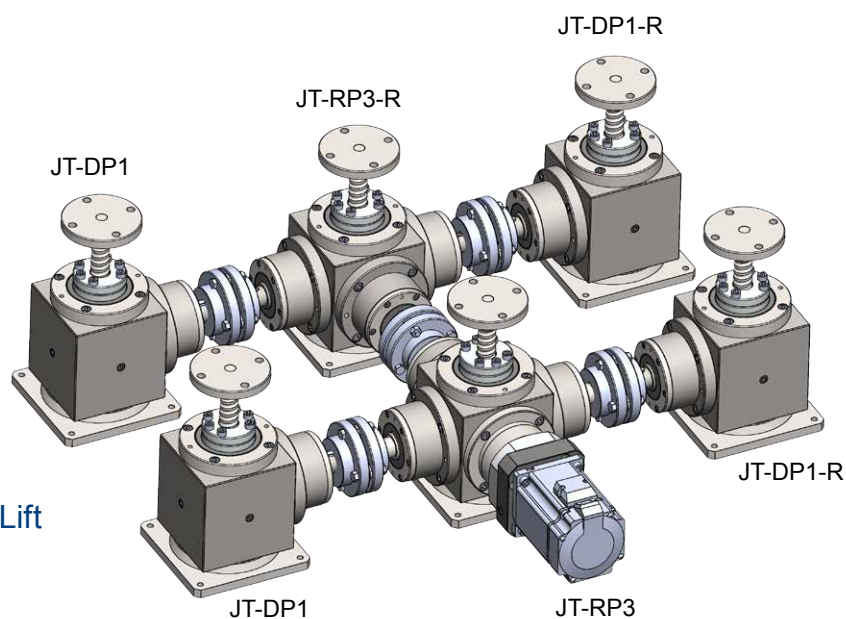
○四點同步升降

Four-Point Synchronous Lift



○六點同步升降

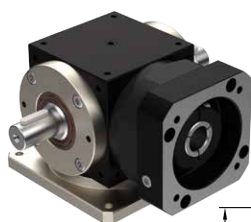
Six-Point Synchronous Lift



MODEL : JT90

RATIO : 2 (單段 1-Stage)

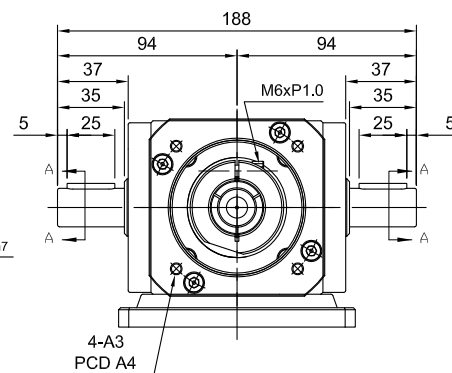
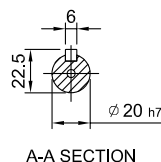
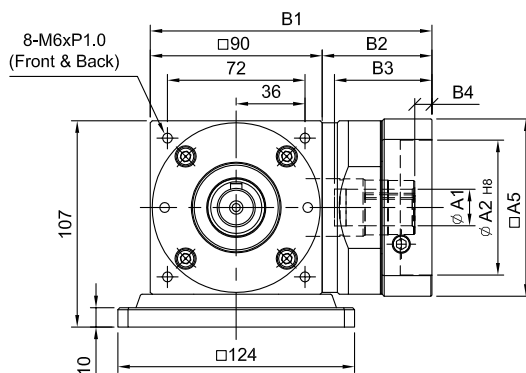
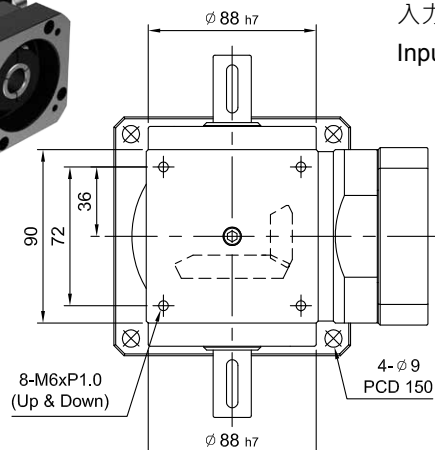
JT



JT-FV

入力法蘭 - 雙出力軸心

Input Flange - Double Output Shaft



Model Code	90
A1	16 · 19 · 22 · 24
A2	70 · 80 · 95 · 110
A3	M5 · M6 · M8
A4	90 · 100 · 115 · 145
A5	92 · 110 · 130
B1	148 · 162
B2	58 · 72
B3	51 · 65.5
B4	9 · 23.5
Weight ±3% (kg)	5.4

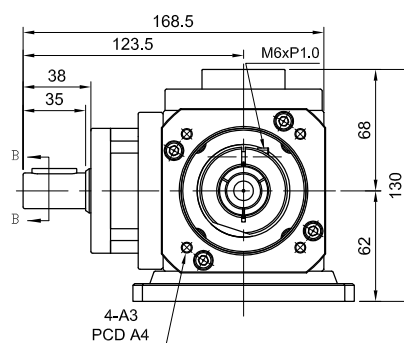
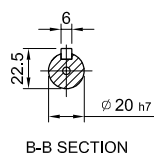
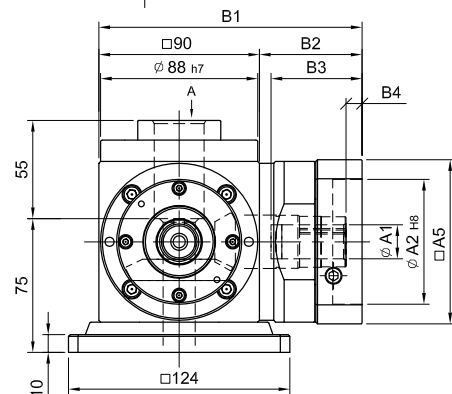
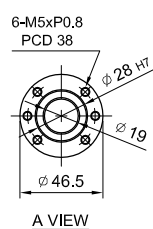
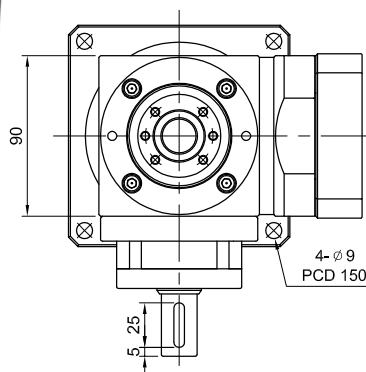
unit:mm



JT-FP1

入力法蘭 - 滾珠螺桿式 - 1 出軸

Input Flange - Ball Screw - 1 Shout



Model Code	90
A1	16 · 19 · 22 · 24
A2	70 · 80 · 95 · 110
A3	M5 · M6 · M8
A4	90 · 100 · 115 · 145
A5	92 · 110 · 130
B1	148 · 162
B2	58 · 72
B3	51 · 65.5
B4	9 · 23.5
Weight ±3% (kg)	7.1

unit:mm

R 軸
Shaft Direction

MODEL : JT90

RATIO : 2 (單段 1-Stage)



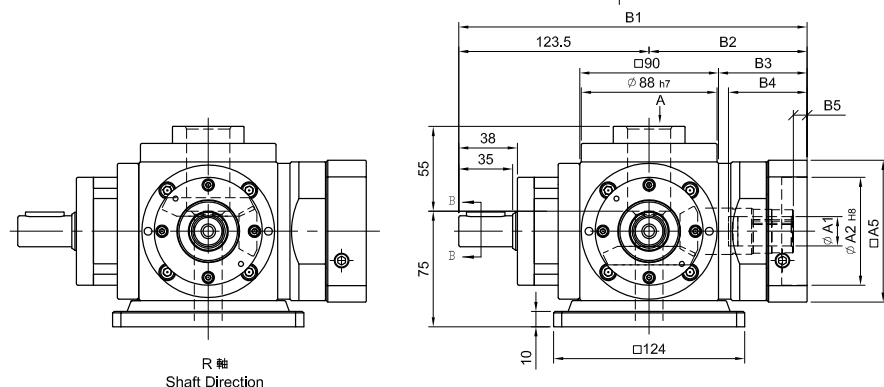
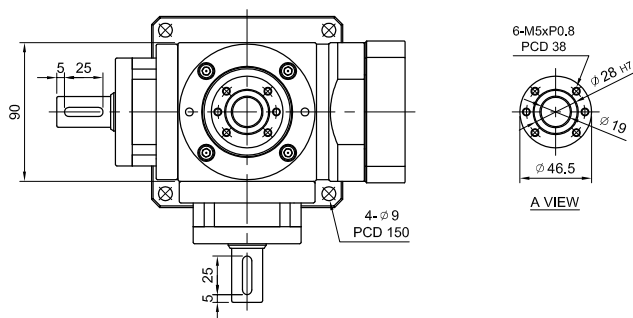
JT-FP2

入力法蘭 - 滾珠螺桿式 - 2 出軸

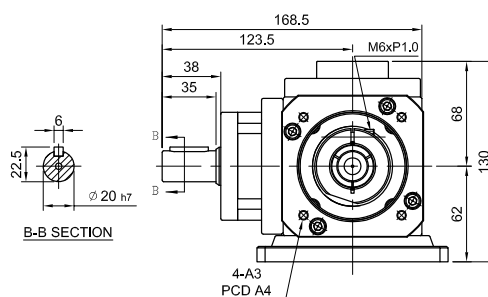
Input Flange - Ball Screw - 2 Shout

unit:mm

Model Code	90
A1	16 · 19 · 22 · 24
A2	70 · 80 · 95 · 110
A3	M5 · M6 · M8
A4	90 · 100 · 115 · 145
A5	92 · 110 · 130
B1	226 · 240.5
B2	102.5 · 117
B3	58 · 72
B4	51 · 65.5
B5	9 · 23.5
Weight ±3% (kg)	8.5



R 軸
Shaft Direction



B-B SECTION

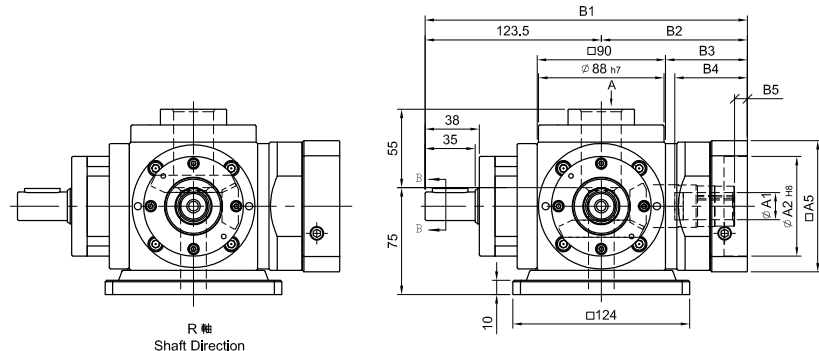
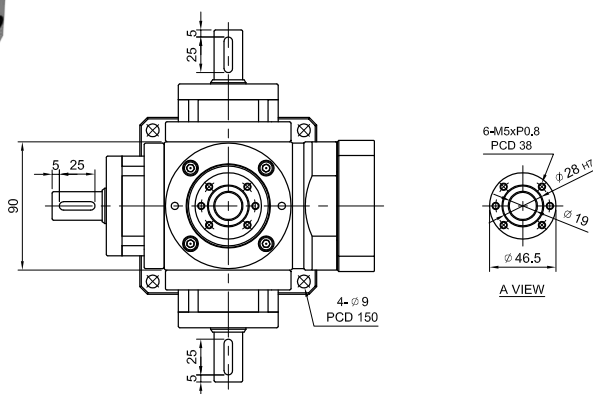
JT-FP3

入力法蘭 - 滾珠螺桿式 - 3 出軸

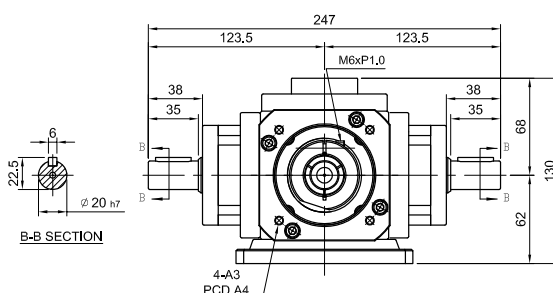
Input Flange - Ball Screw - 3 Shout

unit:mm

Model Code	90
A1	16 · 19 · 22 · 24
A2	70 · 80 · 95 · 110
A3	M5 · M6 · M8
A4	90 · 100 · 115 · 145
A5	92 · 110 · 130
B1	226 · 240.5
B2	102.5 · 117
B3	58 · 72
B4	51 · 65.5
B5	9 · 23.5
Weight ±3% (kg)	9.9



R 軸
Shaft Direction



B-B SECTION

MODEL : JT90

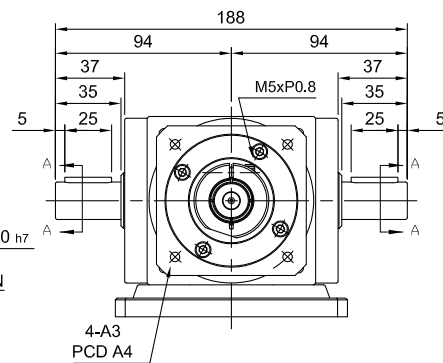
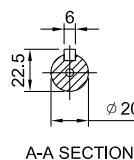
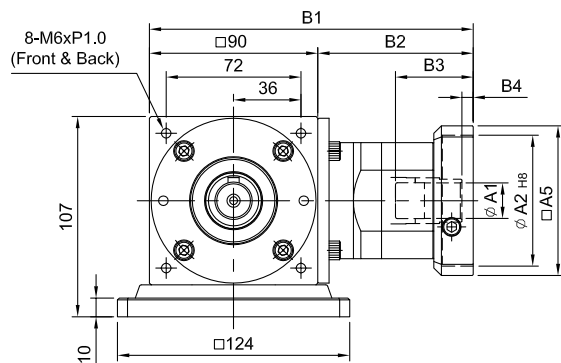
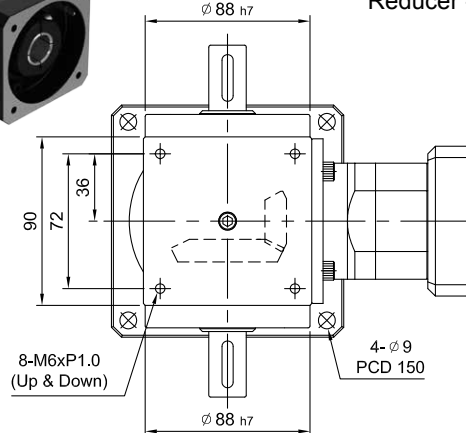
RATIO : 10 (雙段 2-Stage)



JT-RV

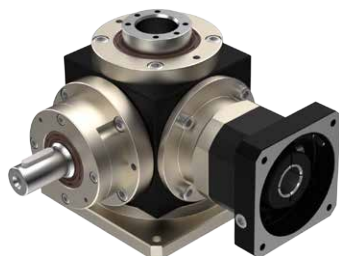
減速機 - 雙出力軸心

Reducer - Double Output Shaft



unit:mm

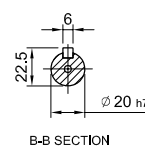
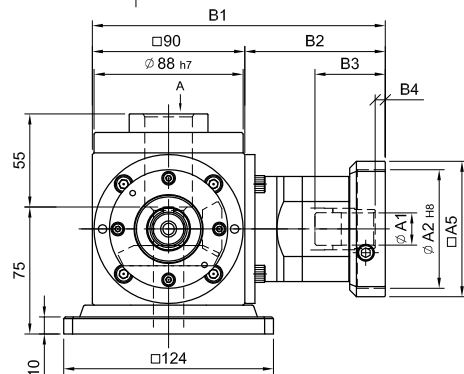
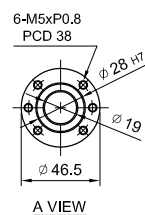
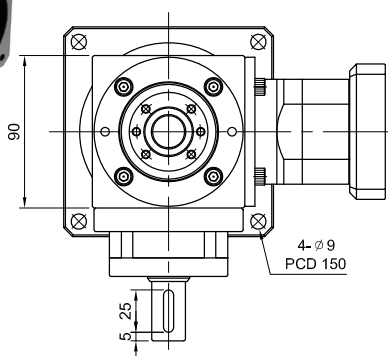
Model Code	90
A1	11 · 14 · 16 · 19
A2	50 · 60 · 70
A3	M4 · M5 · M6
A4	70 · 75 · 90
A5	64 · 70 · 80
B1	165 · 173
B2	75 · 83
B3	33.5 · 41.5
B4	6
Weight ±3% (kg)	5.9



JT-RP1

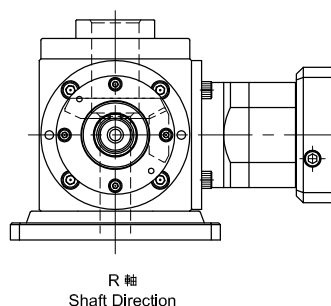
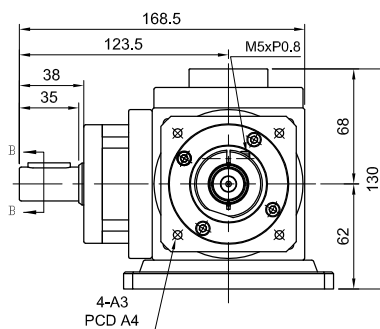
減速機 - 滾珠螺桿式 - 1 出軸

Reducer - Ball Screw - 1 Shout



unit:mm

Model Code	90
A1	11 · 14 · 16 · 19
A2	50 · 60 · 70
A3	M4 · M5 · M6
A4	70 · 75 · 90
A5	64 · 70 · 80
B1	165 · 173
B2	75 · 83
B3	33.5 · 41.5
B4	6
Weight ±3% (kg)	10.1



MODEL : JT90

RATIO : 10 (雙段 2-Stage)



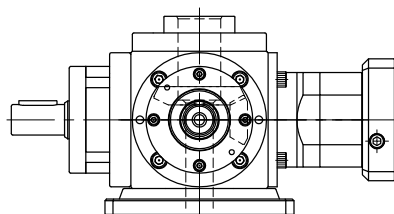
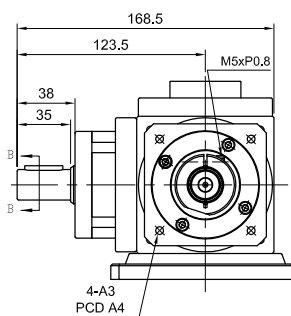
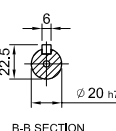
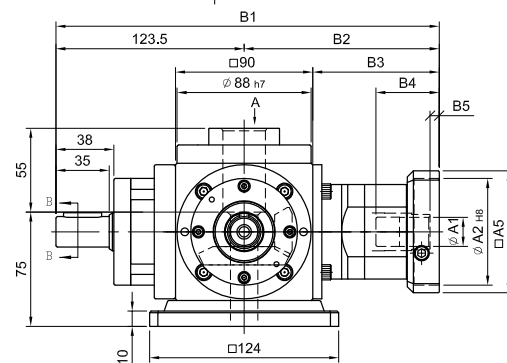
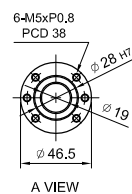
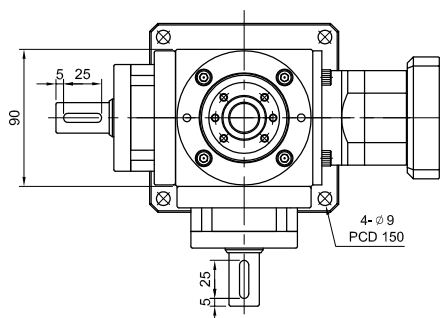
JT-RP2

減速機 - 滾珠螺桿式 - 2 出軸

Reducer - Ball Screw - 2 Shout

unit:mm

Model Code	90
A1	11 · 14 · 16 · 19
A2	50 · 60 · 70
A3	M4 · M5 · M6
A4	70 · 75 · 90
A5	64 · 70 · 80
B1	243.5 · 251.5
B2	120 · 128
B3	75 · 83
B4	33.5 · 41.5
B5	6
Weight ±3% (kg)	11.5



R 軸
Shaft Direction

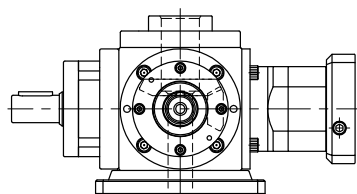
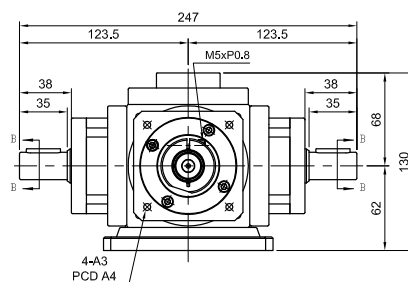
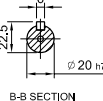
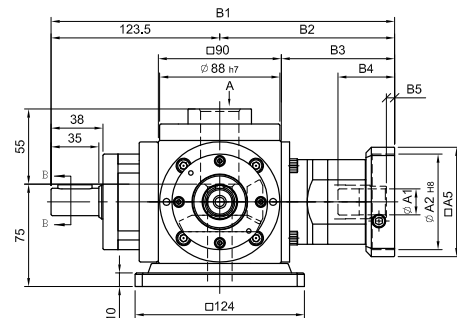
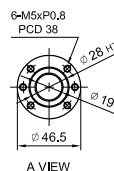
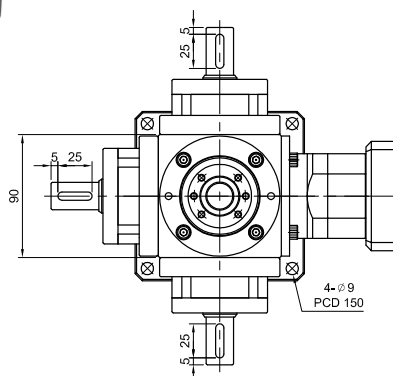
JT-RP3

減速機 - 滾珠螺桿式 - 3 出軸

Reducer - Ball Screw - 3 Shout

unit:mm

Model Code	90
A1	11 · 14 · 16 · 19
A2	50 · 60 · 70
A3	M4 · M5 · M6
A4	70 · 75 · 90
A5	64 · 70 · 80
B1	243.5 · 251.5
B2	120 · 128
B3	75 · 83
B4	33.5 · 41.5
B5	6
Weight ±3% (kg)	13

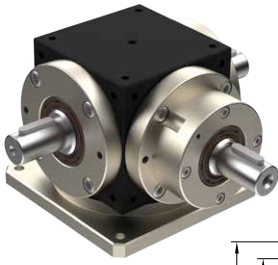


R 軸
Shaft Direction

MODEL : JT90

RATIO : 2 (單段 1-Stage)

JT

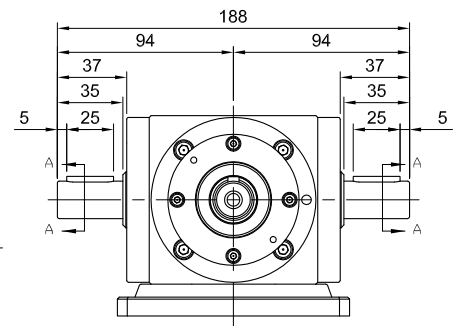
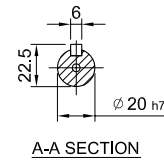
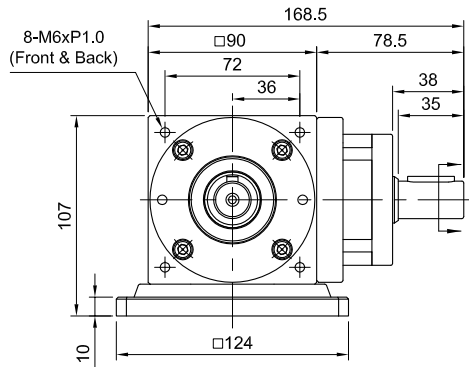
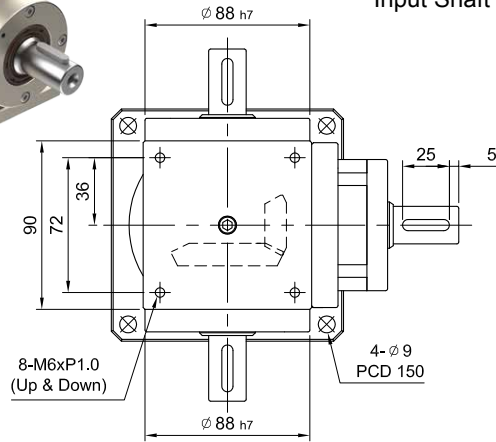


JT-DV

入力軸心 - 雙出力軸心

Input Shaft - Double Output Shaft

Model Code	90
Weight	5.9
±3% (kg)	

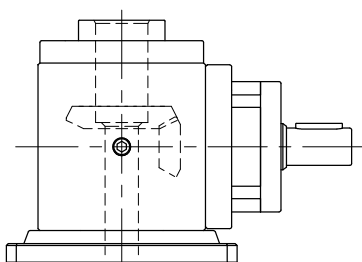
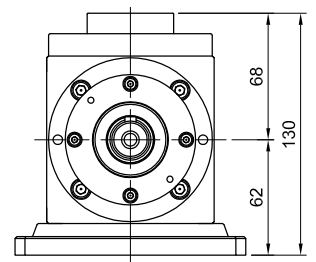
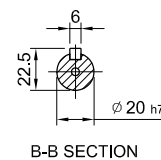
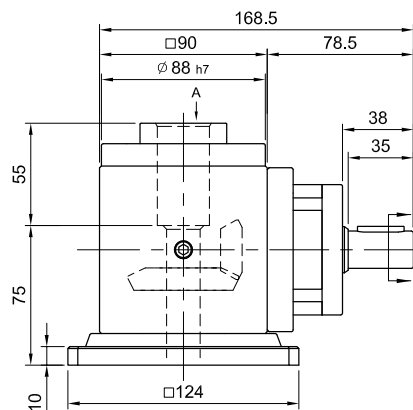
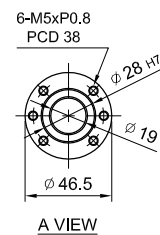
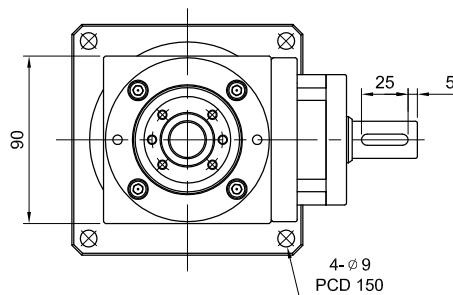


JT-DP1

入力軸心 - 滾珠螺桿式 - 1 出軸

Input Shaft - Ball Screw - 1 Shout

Model Code	90
Weight	6.02
±3% (kg)	



R 軸
Shaft Direction

MODEL : JT90

RATIO : 2 (單段 1-Stage)

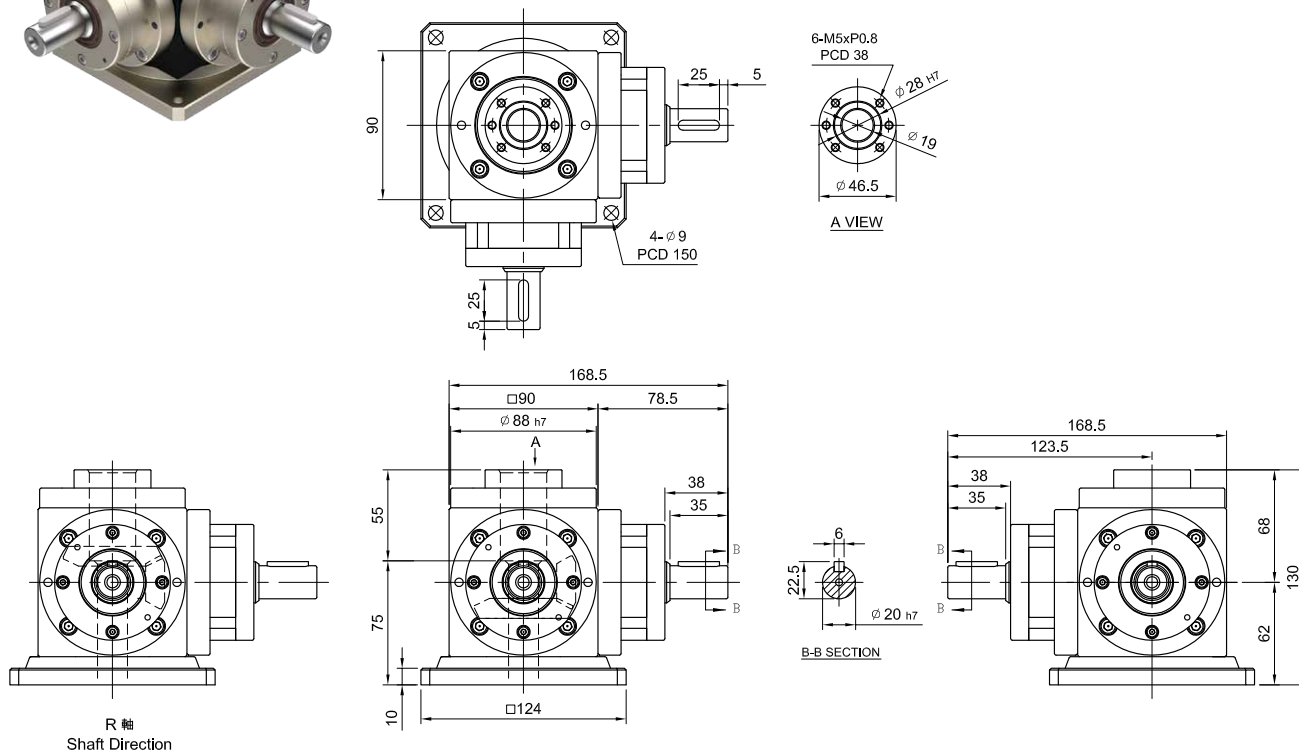


JT-DP2

入力軸心 - 滾珠螺桿式 -2 出軸

Input Shaft - Ball Screw - 2 Shout

Model Code	90
Weight ±3% (kg)	7.46

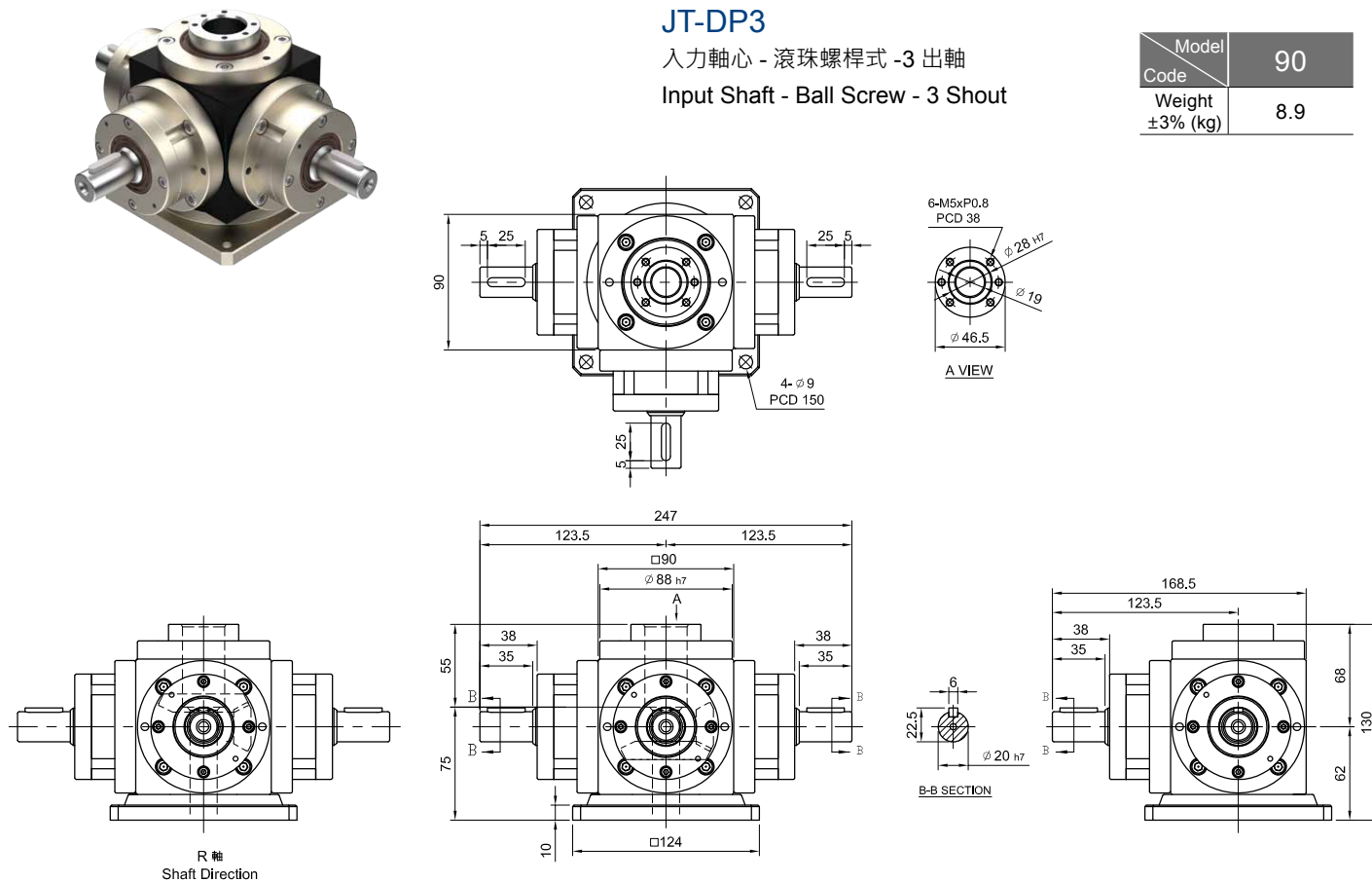


JT-DP3

入力軸心 - 滾珠螺桿式 -3 出軸

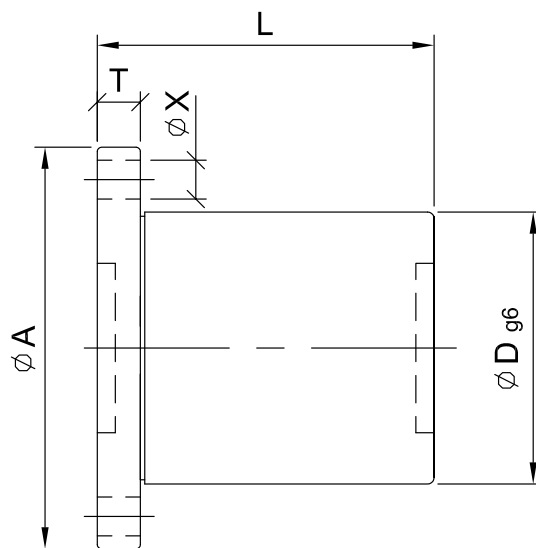
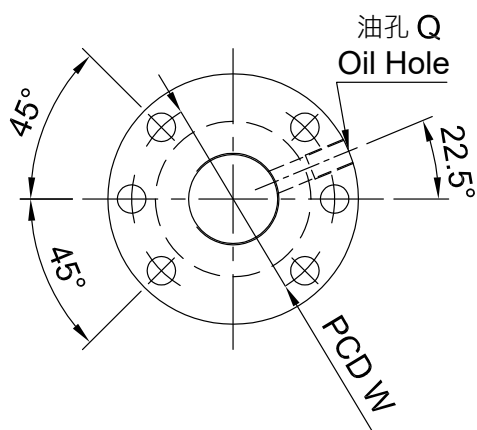
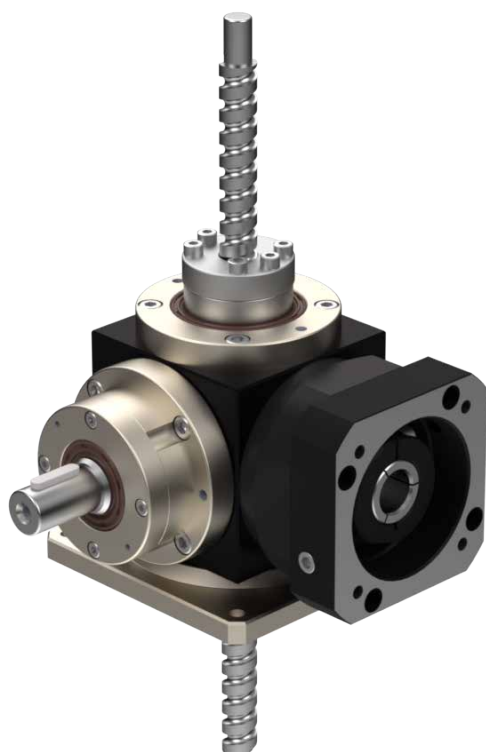
Input Shaft - Ball Screw - 3 Shout

Model Code	90
Weight ±3% (kg)	8.9



Reference Information of Ball Screw

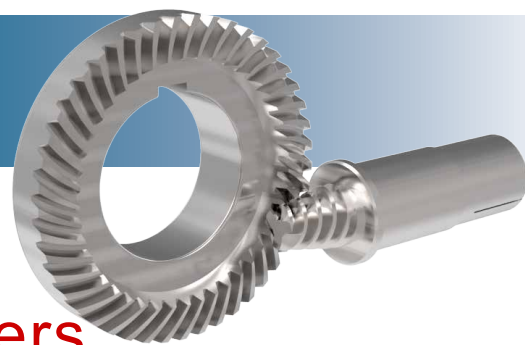
滾珠螺桿參考資料



配合 減速機 型號 Model of Reducer	螺桿尺寸 Screw Size		基本額定負荷 Basic Rate Load (kgf)		螺帽 Nut		法蘭 Flange			螺絲孔 Screw Bolt	油孔 Oil Hole	螺桿 長度 Length
	外徑 O.D.	導程 Lead	動負荷 Dynamic	靜負荷 Static	D	L	A	T	W	X	Q	
90	15	5	1210	2130	28	39	48	10	38	5.5	M6xP1.0	
	15	10	950	1650	28	47	48	10	38	5.5	M6xP1.0	
	15	16	910	1600	28	64	48	10	38	5.5	M6xP1.0	

[illegible]

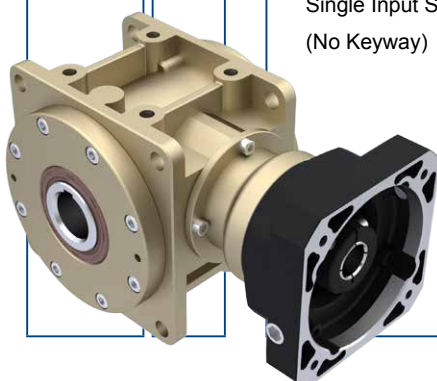
HY series



Indication of Model Numbers

機種型號表示

HY	55	F	O	B	5	L	P0
減速機機型 Type	型號 Model	入力表示 Input	出力表示 Output	軸承形式 Bearing	速比 Ratio	軸向 Shaft Direction	背隙等級 Backlash Class
HY	55	F: 入力法蘭	O: 出力中空軸	B: 滾珠軸承	單段 1-Stage	L: 左軸	P0
	75	Input Flange	Hollow Output Shaft	Ball Bearing	5, 10, 15	Left Shaft	P1
	90	R44: 減速機 Reducer	N: 單邊免鍵軸套	(55#~270#)		R: 右軸	P2
	115	1-Stage:	Single Clamping		-----	Right Shaft	
	130	R44、R62...	M: 雙邊免鍵軸套	T: 滾錐軸承	搭配單段		
	140	2-Stage:	Double Clamping	Taper	行星減速機		
	160	R62S...	S: 單出力軸心 (有鍵槽)	Bearing	With 1-Stage	1. 出力形式 N、S 可以選擇軸向	
	190	2-Stage (A-Type):	Single Output Shaft	(90#~270#)	Planetary	Shaft direction	
	230	R44A、R62A...	(Keyway)		Reducer	is optional for	
	270	D: 單入力軸心 (有鍵槽)	S1: 單出力軸心 (無鍵槽)		25 ~ 150	output type N, S.	
		Single Input Shaft	Single Output Shaft		搭配雙段		
		(Keyway)	(No Keyway)		行星減速機		
		D1: 單入力軸心 (無鍵槽)	V: 雙出力軸心 (有鍵槽)		With 2-Stage	2. 出力形式 P 為 R 軸向	
		Single Input Shaft	Double Output Shaft		Planetary	Output type P	
		(No Keyway)	(Keyway)		Reducer	only for R shaft.	
			V1: 雙出力軸心 (無鍵槽)		250 ~ 1500		
			Double Output Shaft				
			(No Keyway)				
			P: 螺桿式 (75#~190#)				
			Ball Screw				
			限用滾錐軸承				
			Taper Bearing Only				



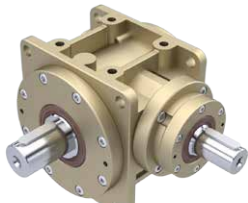
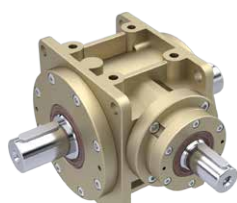
The Model & Ratio Table of Hypoid Gear Reducer Assembly Planetary Reducer

蝕齒輪減速機搭配行星減速機型號及速比一覽表

型號 Model	減速比 Ratio	法蘭盤框號 Flange Model	減速機框號 Planetary Reducer Model	單段行星減速機減速比 Ratio of 1-Stage Planetary Reducer 5、10	雙段行星減速機減速比 Ratio of 2-Stage Planetary Reducer 25、50、100
55	5 10 15	44	44	搭配單段行星減速機減速比 Ratio of Bevel Gear Reducer with 1-Stage Planetary Reducer 25、50、75、100、150	搭配雙段行星減速機減速比 Ratio of Bevel Gear Reducer with 2-Stage Planetary Reducer 250、500、750、1000、1500
75		62	62		
90		90	80		
115		90	90		
130		120	120		
140		142	142		
160		142	142		
190		180	180		
230		180	180		
270		220	220		

Selection of Type

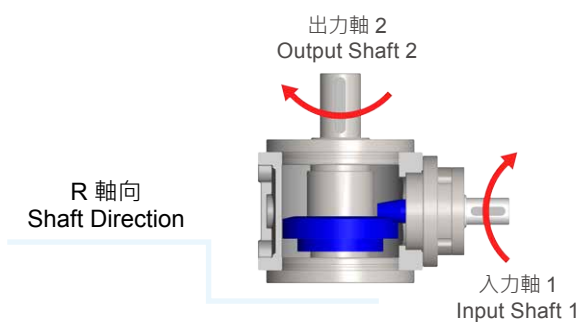
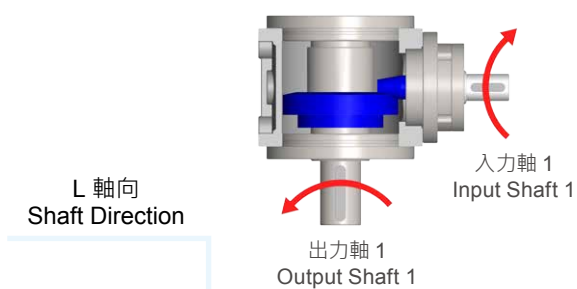
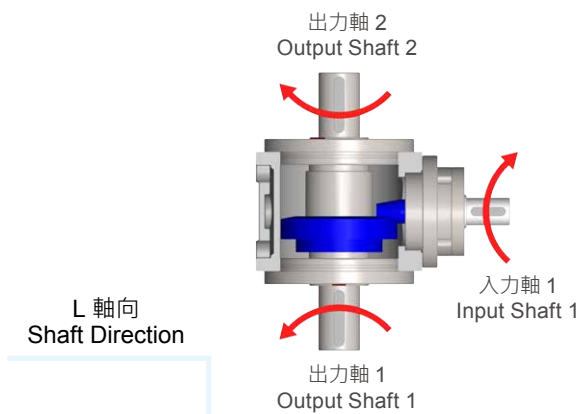
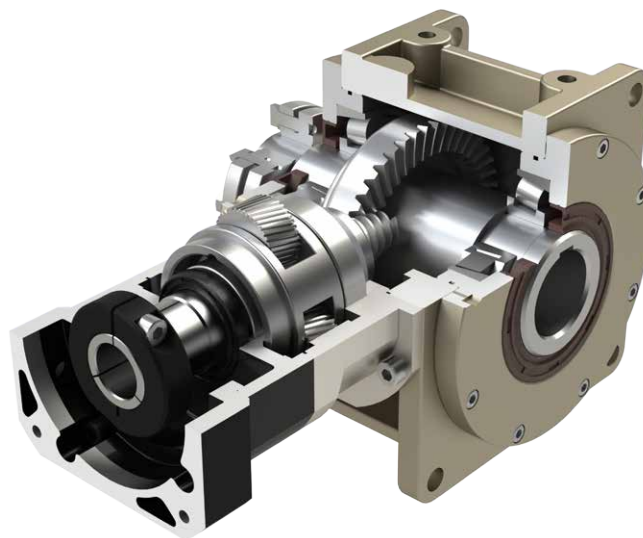
產品樣式選擇

		入力形式 Input Type		
出力形式 Output Type	F 入力法蘭 Input Flange	R 減速機 Reducer	D 單入力軸心 Single Input Shaft	
	O 出力中空軸 Hollow Output Shaft			
		FO	RO	DO
	N 單邊 免鍵軸套 Single Clamping			
		FN	RN	DN
	M 雙邊 免鍵軸套 Double Clamping			
		FM	RM	DM
S 單出力軸心 Single Output Shaft				
	FS	RS	DS	
	V 雙出力軸心 Double Output Shaft			
P 螺桿式 Ball Screw				
	FP	RP	DP	

- 出力形式 N、S 可以選擇軸向。Shaft direction is optional for output type N, S.
- 出力形式 P 為 R 軸向。Output type P only for R shaft.

Rotating Direction

旋轉方向說明

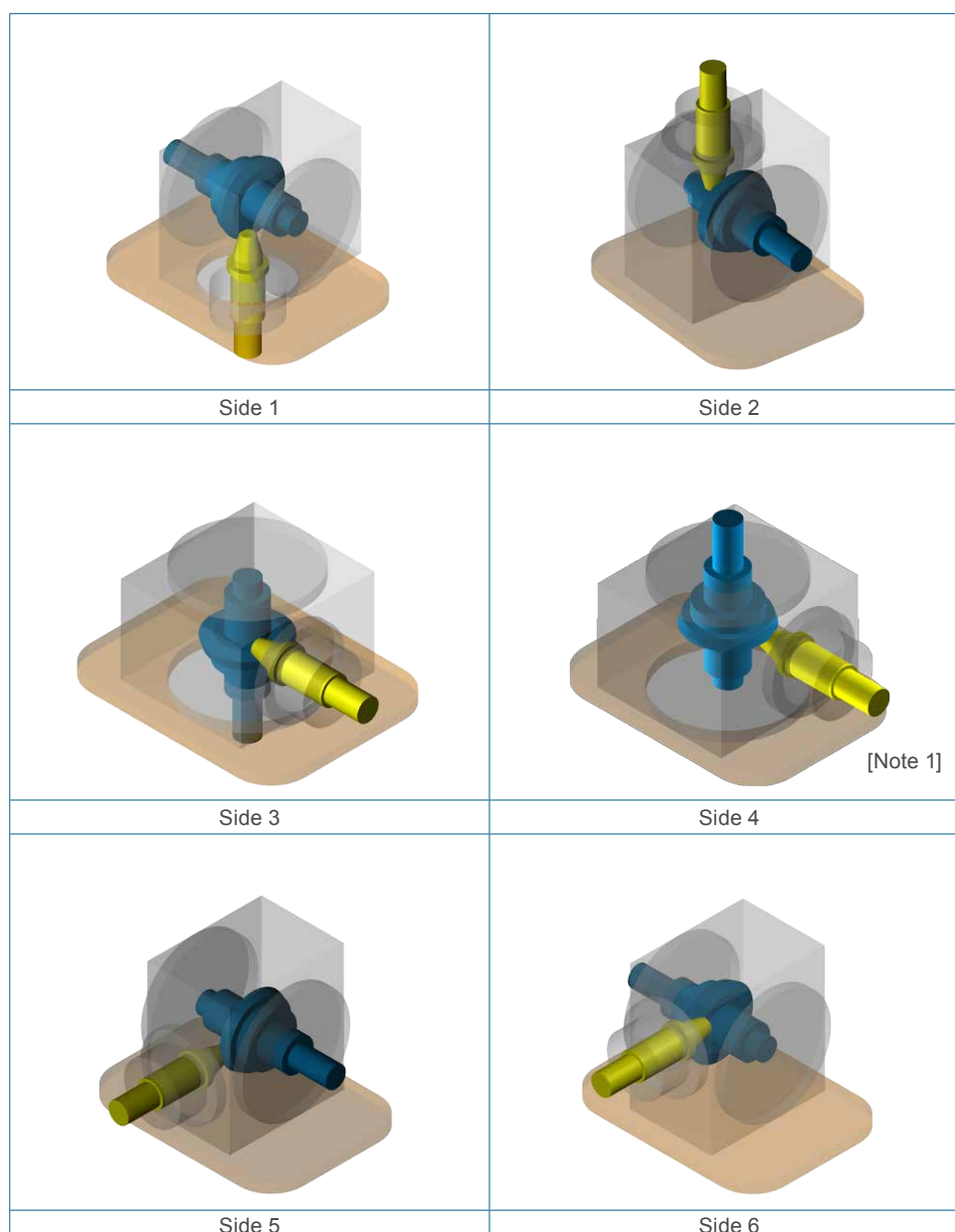
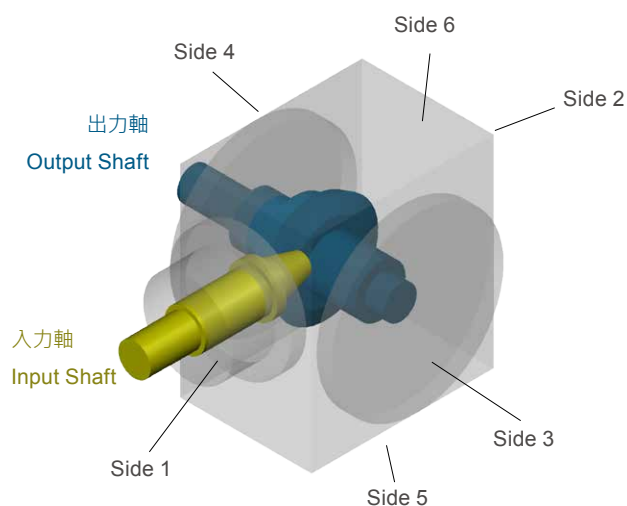


Note:

本公司出廠標準品使用「標準軸向」，R 軸向請於訂單上註明。
Standard product is L shaft direction, R shaft direction is optional.

Selection Direction of Installation

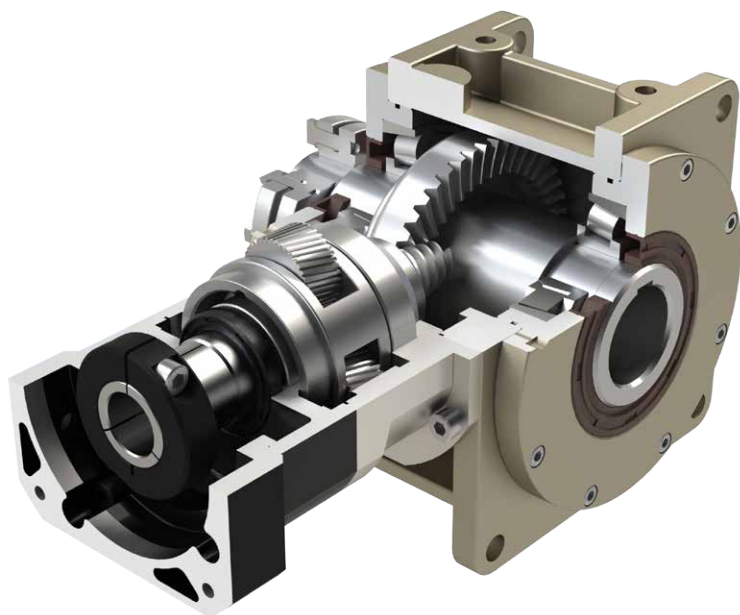
安裝方向選擇



[Note 1] 出力軸端面基準線朝上時，需特別告知其使用方式。
Side 4 operation shall be avoid.

Features of HY Series

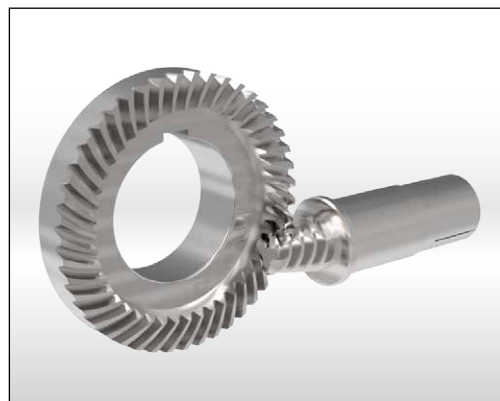
HY 系列產品特點



在設計 HYGear 時，已充分考慮到它將運用在及其廣泛的領域中。特別是在高動力伺服驅動應用中，將帶給用戶獨一無二的優勢。

Strong Performance for the HY Series

The best solutions for almost every high torque application.

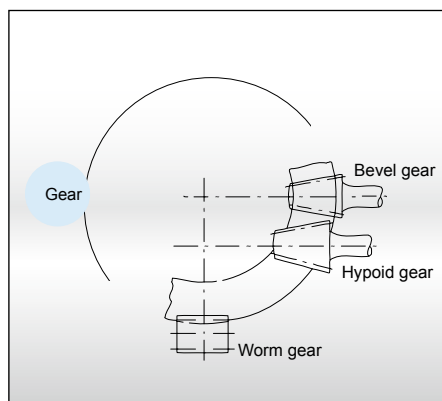


單級高減速比

- 格里森高減速比蝕齒輪，標準品單級可達 1/15。
- 可訂製減速比單級 1/20~1/60。

Super-Reduction-Hypoid Gear

- Gleason super-reduction-hypoid gear tooth system, the max. single stage ratio is 1/15.
- Single stage ratio 1/20~1/60 is optional.

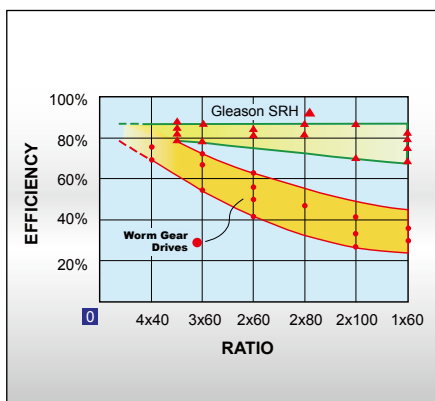


高扭矩密度

- 一體式齒箱本體確保最大剛性與耐蝕性。
- 結構緊湊，富有剛性的設計保證了在小體積，重量輕的情況下能夠達到最高扭矩及較大的減速比。

High Output Torque

- The gear box is one-piece constructed to ensure the high rigidity and corrosion-resistant capability.

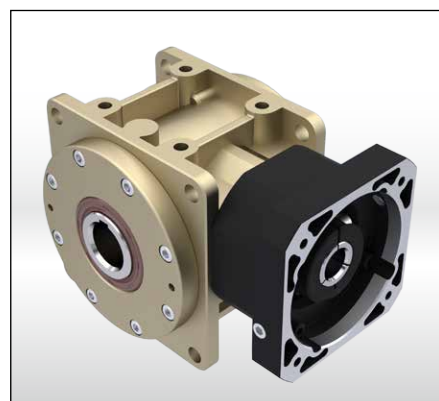


高扭矩密度

- 減速機的效率高達 90% 大大節省能源成本。

High Output Torque

- High running efficiency, the efficiency more than 90%.



免保養

- 免保養無須更換潤滑油，運轉壽命長。

No Maintenance

- It features no maintenance and long service life.

Features of HY Series

HY 系列產品特點



低背隙

- 使用 Gleason 參數齒輪加工設備，加工研磨等級的螺旋傘齒輪，確保低背隙、低噪音。
- 背隙最小可達 2 弧分以內。

Low Backlash

- Using Gleason high precision CNC grinding machine to grinding the spiral bevel gears.
- Torsional backlash depending on design up to <2 arcmin

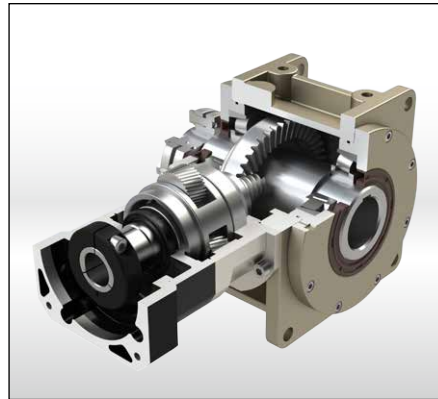


安裝位置

- 多重精密加工表面易於組裝，適用於任意安裝方向。
- 入出力軸的設計可以適用於各種工業上應用的需求。

Mounting Position

- Multiple precision machined surface is easy for assembly, suitable for any optional mounting orientation.
- Output shaft and input shaft are designed to suit for various industries applications.

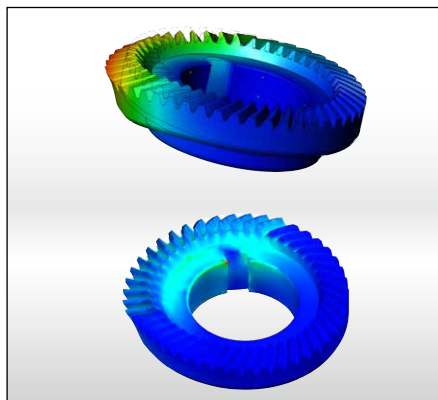


更高的減速比

- 高精密研磨的蝸線傘齒輪組結合最佳化設計的行星式齒輪組可以達到 1500:1 的減速比。

More High Gear Ratio

- High precision grinded and carburized spiral bevel gears with optimal designed planetary gear can do ratio 1500: 1.

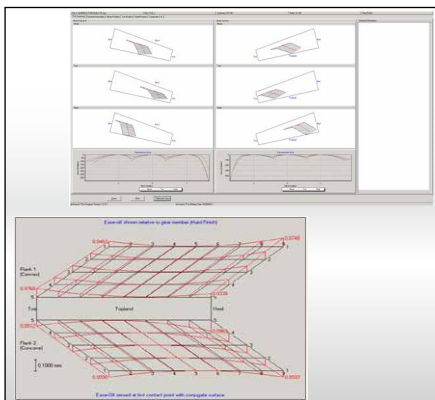


CAE 設計分析技術

- 利用 3D-CAE 軟體的設計分析技術，對減速機整體強度及螺旋傘齒輪進行分析，增加齒輪系及減速機的使用壽命。

CAE Design and Analysis

- Employs 3D-CAE software for analysis and design, the software allows for analyzing the strength of the entire gear reducer and helical teeth. Increasing the service life of gears and the gear reducer.

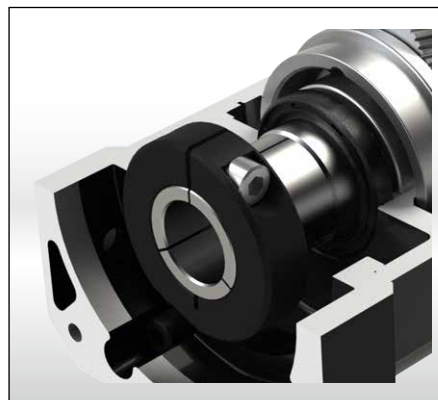


最優化的設計

- 採用 Gleason 參數齒輪設計軟件，得到最佳化接觸面積的齒印參數，保證了最高扭矩以及最小噪音。

Optimized Design

- Use Gleason's design software to design new spiral bevel gears. Through the ideal gear contact pattern for application, achieve high permissible output torque.



筒夾式連結機構

- 輸入端與馬達的連結採用筒夾式的鎖緊機構，並經動平衡分析，以確保在高輸入轉速下結合界面的同心度和平衡度，及零背隙的動力傳遞。

Collet Locking Mechanism

- The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.

Characteristic of HY Series

HY 系列產品特性

單段減速機 1-Stage

規格 Parameter	Code	Unit	Ratio	55	75	90	115	130	140	160	190	230	270
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	5	35	70	140	260	430	720	1,100	1,440	2,090	2,720
			10	30	60	117	220	365	615	957	1,230	1,710	2,200
			15	25	50	95	180	300	510	815	1,020	1,418	1,906
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	5~15	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque									
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	5~15	2 倍額定輸出扭矩 2 Times of Rated Output Torque									
額定輸入轉速 / Nominal Input Speed	n_{1N}	rpm	5	2,100	1,800	1,500	1,150	1,000	700	600	550	500	400
			10	3,200	2,700	2,200	1,800	1,500	1,200	1,100	1,000	900	800
			15	3,900	3,300	2,800	2,300	2,000	1,600	1,350	1,300	1,100	1,000
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	5~15	6,000	6,000	6,000	6,000	5,000	5,000	4,000	4,000	4,000	4,000
背隙 / Backlash	J_t	arcmin	P0	-	-	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
			P1	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
			P2	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
輸出的背隙剛性 / Backlash Stiffness at the Output	C_{121}	Nm/ arcmin	5~15	2.1	4.2	10.5	23.4	39.6	61.8	90.0	126.0	167.0	218.0
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	5~15	1,495	2,366	2,691	4,797	5,837	7,020	9,490	12,337	15,500	17,360
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	5~15	748	1,183	1,346	2,399	2,919	3,510	4,745	6,169	7,750	8,680
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	5~15	-	5,000	6,545	9,100	12,320	14,420	18,620	24,080	30,800	33,600
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	5~15	-	2,500	3,273	4,550	6,160	7,210	9,310	12,040	15,400	16,800
使用壽命 / Service Life	L_H	hr	5~15	S5 周期運轉 Cycle Operation: >30,000									
滿載傳動效率 / Efficiency Rating at full Load	η	%	5~10	≥ 96%									
			15	≥ 93%									
使用溫度 / Operating Temperature		°C	5~15	-10°C ~ +90°C									
潤滑 / Lubrication			5~15	全合成潤滑油 Synthetic Oil									
噪音值 / Noise Level ($n_1=3000 \text{ min}^{-1}$)		dB	5~15	≤ 67	≤ 67	≤ 69	≤ 69	≤ 71	≤ 71	≤ 72	≤ 72	≤ 74	≤ 76

轉動慣量 Mass Moments of Inertia (kgcm²)

Ratio	55	75	90	115	130	140	160	190	230	270
5	0.23	0.58	1.41	4.00	7.12	13.53	24.76	44	63	69
10	0.15	0.38	1.00	2.46	4.27	7.38	12.47	21	56	57
15	0.13	0.34	0.81	2.07	3.45	5.76	9.23	16	52	50

Characteristic of HY Series

HY 系列產品特性

雙段減速機 2-Stage

規格 Parameter	Code	Unit	Ratio	55	75	90	115	130	140	160	190	230	270
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	25, 50	35	70	140	260	430	720	1,100	1,440	2,090	2,720
			100	30	60	117	220	365	615	957	1,230	1,710	2,200
			75,150	25	50	95	180	300	510	815	1,020	1,418	1,906
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	25~150	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque									
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	25~150	2 倍額定輸出扭矩 2 Times of Rated Output Torque									
額定輸入轉速 / Nominal Input Speed	n_{1N}	rpm	25~150	3,500	3,000	3,000	2,500	2,500	2,500	2,500	2,500	2,000	2,000
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	25~150	6,000	6,000	6,000	6,000	5,000	5,000	4,000	4,000	4,000	4,000
背隙 / Backlash	J_t	arcmin	P0	-	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
			P1	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
			P2	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
輸出的背隙剛性 / Backlash Stiffness at the Output	C_{t2l}	Nm/ arcmin	25~150	2.1	4.1	10.2	22.8	37.8	60.1	86.5	119.2	167.0	218.0
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	25~150	1,495	2,366	2,691	4,797	5,837	7,020	9,490	12,337	15,500	17,360
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	25~150	748	1,183	1,346	2,399	2,919	3,510	4,745	61,69	7,750	8,680
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	25~150	-	5,000	6,545	9,100	12,320	14,420	18,620	24,080	30,800	33,600
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	25~150	-	2,500	3,273	4,550	6,160	7,210	9,310	12,040	15,400	16,800
使用壽命 / Service Life	L_H	hr	25~150	S5 周期運轉 Cycle Operation: >30,000									
滿載傳動效率 / Efficiency Rating at full Load	η	%	25~150	$\geq 92\%$									
使用溫度 / Operating Temperature		°C	25~150	-10°C ~ +90°C									
潤滑 / Lubrication			25~150	全合成潤滑油 Synthetic Oil									
噪音值 / Noise Level ($n_1=3000 \text{ min}^{-1}$)		dB	25~150	≤ 67	≤ 67	≤ 69	≤ 69	≤ 71	≤ 71	≤ 72	≤ 72	≤ 74	≤ 76

轉動慣量 Mass Moments of Inertia (kgcm^2)

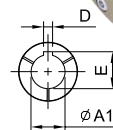
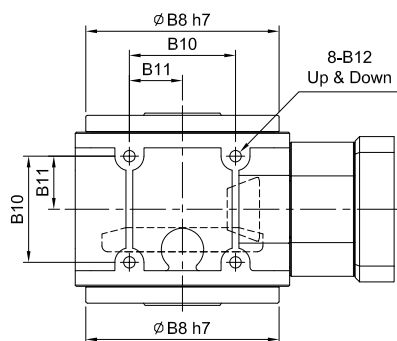
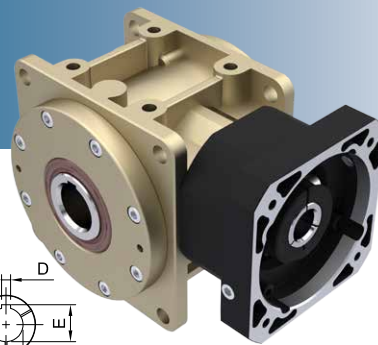
Ratio	55	75	90	115	130	140	160	190	230	270
25	0.39	1.15	1.18	4.9	4.99	7.99	8.27	8.75	53.27	53.27
50	0.36	1.05	1.06	4.07	4.09	6.31	6.36	6.45	50.56	50.56
75	0.35	0.94	0.96	3.17	3.24	4.04	4.23	4.56	53.27	53.27
100	0.34	0.93	0.94	3.12	3.14	3.87	3.92	4.01	50.56	50.56
150	0.33	0.92	0.93	3.08	3.06	3.73	3.68	3.59	50.56	50.56

HY-FO series

RATIO : 5.10.15 (單段 1-Stage)

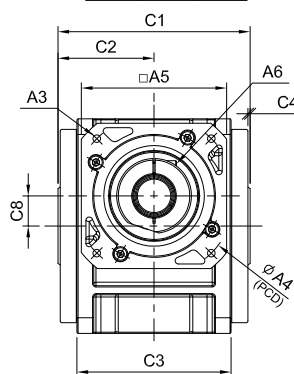
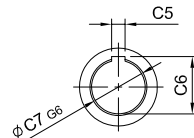
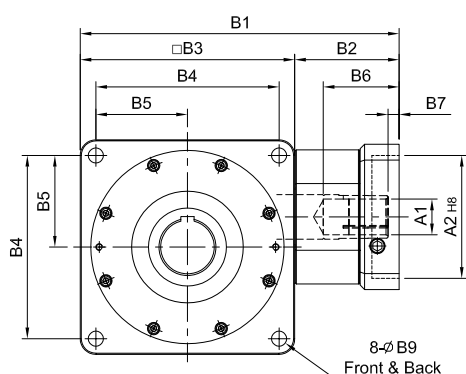
入力法蘭 - 出力中空軸

Input Flange - Hollow Output Shaft



(140#~270#)

ØA1	D	E
Ø32	10	35.3
Ø35	10	38.3
Ø38	10	41.3
Ø42	12	45.3
Ø48	14	51.8
Ø55	16	59.3
Ø60	18	64.4
Ø65	18	69.4

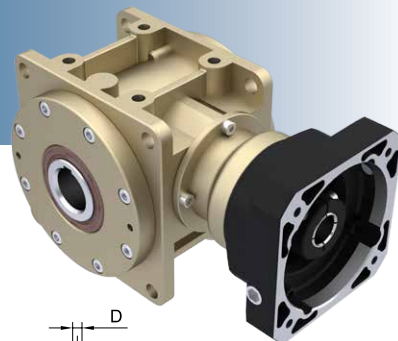


unit: mm

Model Code	55	75	90	115	130	140	160	190	230	270
A1	8 · 11 · 14	14	14 · 19 · 24	19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	32 · 35 · 38	42 · 48 · 55	42 · 48 · 55 · 60	48 · 55 · 60 · 65
A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16	M12 · M16
A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300	200 · 215 · 265 · 300
A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265	222 · 220 · 250 · 265
A6	M3 x P.05	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5 · M12 x P1.75
B1	135	172	202 · 221 · 206.5	241	286	333	358	417 · 419	470 · 473	515.5 · 518.5 · 545
B2	45	57	62 · 81 · 66.5	71	94	118	118	153 · 155	170 · 173	165.5 · 168.5 · 195
B3	90	115	140	170	192	215	240	264	300	350
B4	78	98	118	144	164	182	206	224	260	300
B5	39	49	59	72	82	91	103	112	130	150
B6	28 · 33	38	49 · 68.5 · 54	58	69.5	81.5	81.5	114.5 · 116.5	112 · 115 · 120 · 123	112.5 · 115.5 · 142
B7	5	6	9 · 23.5	8	10	10	10	11.5 · 13.5	12 · 15	12.5 · 15.5 · 42
B8	84	103	128	148	173	200	227	254	295	328
B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
B10	44	54	66	80	95	104	120	140	180	200
B11	22	27	33	40	47.5	52	60	70	90	100
B12	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C1	88	108	132	156	172	187	212	242	298	332
C2	44	54	66	78	86	93.5	106	121	149	166
C3	60	80	100	120	138	146	166	196	250	280
C4	2	2	2	2	2	2	2	2	3	3
C5	6	8	8	12	14	16	18	20	22	25
C6	22.8	28.3	33.3	43.3	51.8	59.3	64.3	74.9	85.4	95.4
C7	20	25	30	40	48	55	60	70	80	90
C8	9	14	18	23	27	32	38	42	50	56
Weight ±3% (kg)	2.2	4.1	7.9	13.2	18.6	27.3	38.3	54.3		

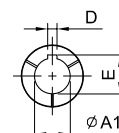
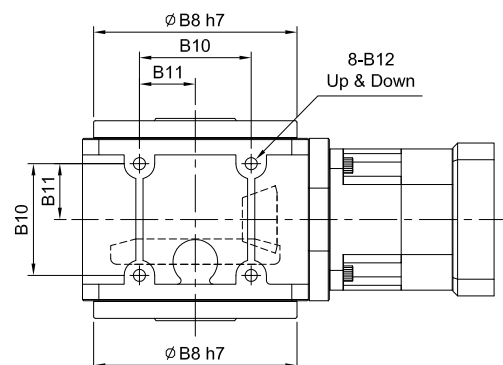
HY-RO series

RATIO : 25.50.75.100.150 (雙段 2-Stage)



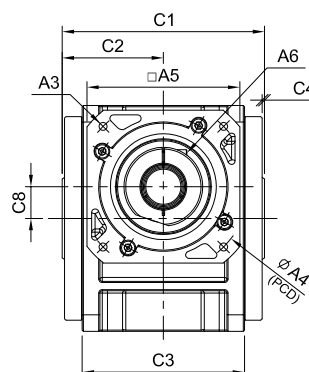
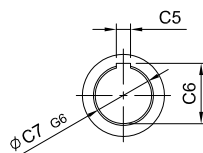
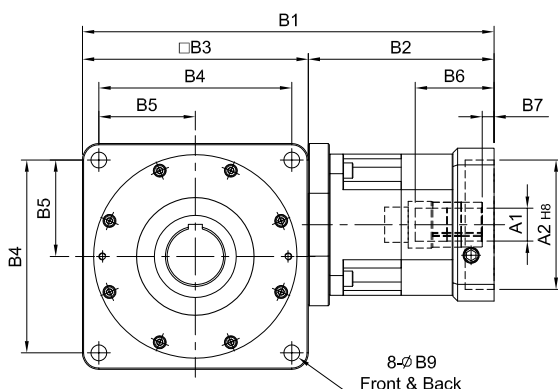
搭配行星減速機 - 出力中空軸

Fitted with Planetary Reducer - Hollow Output Shaft



(140#~270#)

$\phi A1$	D	E
$\phi 28$	8	31.3
$\phi 32$	10	35.3
$\phi 35$	10	38.3
$\phi 38$	10	41.3
$\phi 42$	12	45.3
$\phi 48$	14	51.8
$\phi 55$	16	59.3



unit: mm

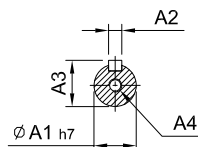
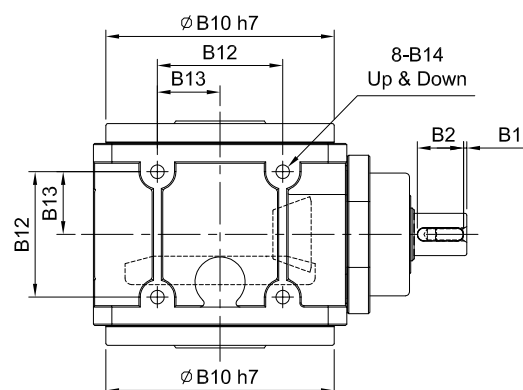
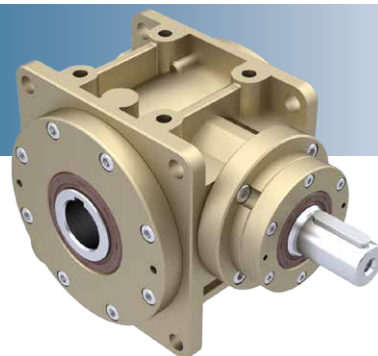
Model Code	55	75	90	115	130	140	160	190	230	270
A1	8 · 9 · 11 · 14	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16	M12 · M16
A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300	200 · 215 · 265 · 300
A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265	222 · 220 · 250 · 265
A6	M3 x P.05	M5 x P.0.8	M5 x P.0.8	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5
B1	157	201 · 209	(224.5) · 237	287	340 · 360	405	430	508 · 510	572	642.5
B2	67	86 · 94	(84.5) · 97	117	148 · 168	190	190	244 · 246	272	292.5
B3	90	115	140	170	192	215	240	264	300	350
B4	78	98	118	144	164	182	206	224	260	300
B5	39	49	59	72	82	91	103	112	130	150
B6	26	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	84.5	84.5	114.5 · 116.5	114.5	117.5
B7	5	6	(6) · 10	9	10 · 11	10	10	11.5 · 13.5	11.5	12.5
B8	84	103	128	148	173	200	227	254	295	328
B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
B10	44	54	66	80	95	104	120	140	180	200
B11	22	27	33	40	47.5	52	60	70	90	100
B12	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M12 x P.1.75	M12 x P.1.75	M14 x P.2.0	M16 x P.2.0	M16 x P.2.0	M16 x P.2.0	M20 x P.2.0
C1	88	108	132	156	172	187	212	242	298	332
C2	44	54	66	78	86	93.5	106	121	149	166
C3	60	80	100	120	138	146	166	196	250	280
C4	2	2	2	2	2	2	2	2	3	3
C5	6	8	8	12	14	16	18	20	22	25
C6	22.8	28.3	33.3	43.3	51.8	59.3	64.3	74.9	85.4	95.4
C7	20	25	30	40	48	55	60	70	80	90
C8	9	14	18	23	27	32	38	42	50	56
Weight ±3% (kg)	2.5	4.8	8.5	14.1	23.2	35.5	46.3	71.1		

HY-DO series

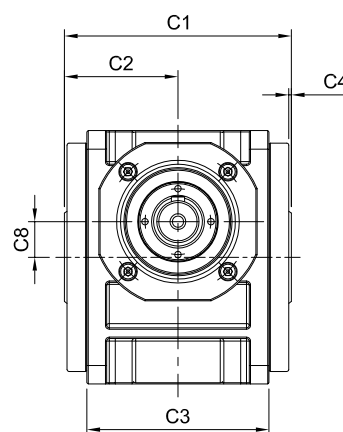
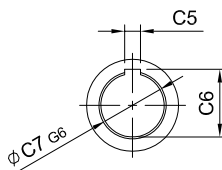
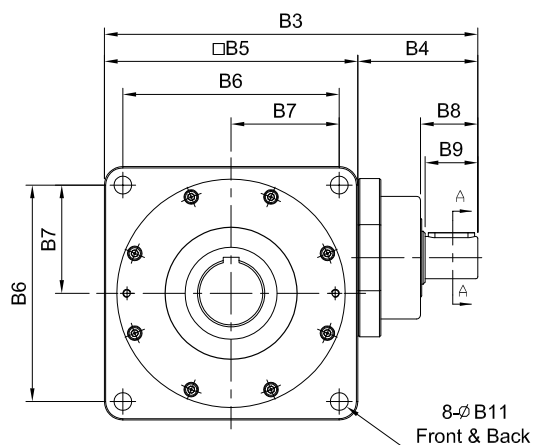
RATIO : 5.10.15 (單段 1-Stage)

單入力軸心 - 出力中空軸

Single Input Shaft - Hollow Output Shaft



A-A SECTION



unit: mm

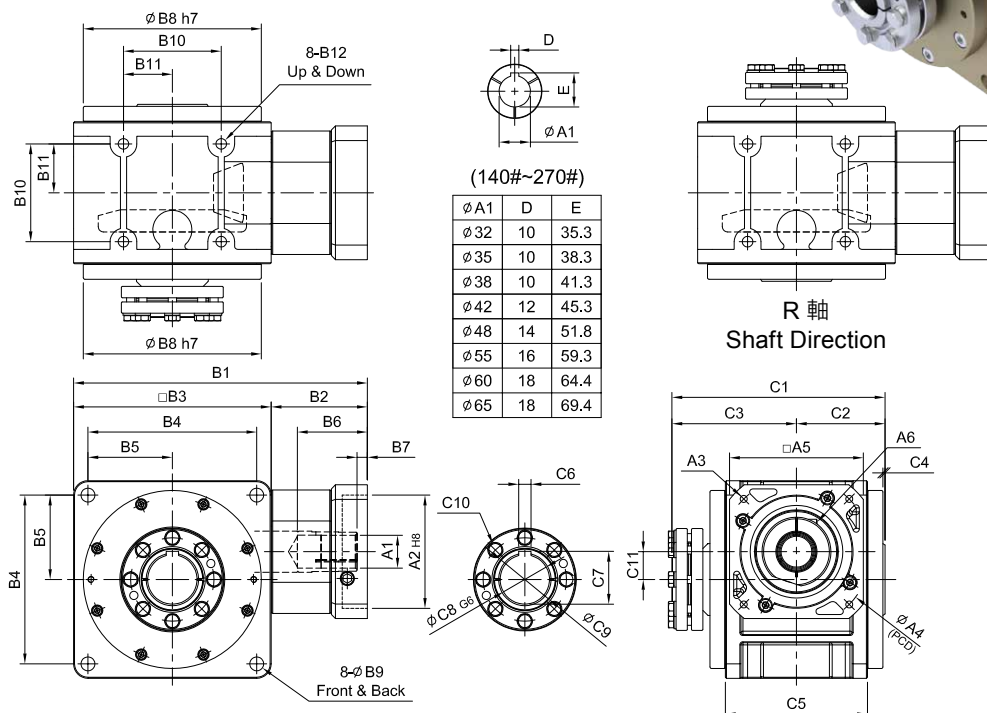
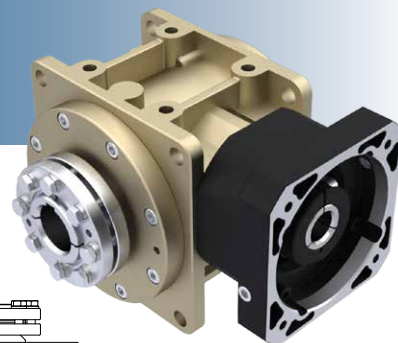
	Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	14	19	24	28	32	32	38	40	55	60
	A2	5	6	8	8	10	10	12	12	16	18
	A3	16	21.5	27	31	35	35	41	43	59	64
	A4	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5	2.5	2.5	2.5	5	5	5	5	5	5
	B2	20	25	35	35	40	40	50	50	70	90
	B3	147	181	218	260	293	315	367	403	483	567
	B4	57	66	78	90	101	100	127	139	183	217
	B5	90	115	140	170	192	215	240	264	300	350
	B6	78	98	118	144	164	182	206	224	260	300
	B7	39	49	59	72	82	91	103	112	130	150
	B8	27	32	42.5	42.5	52.5	51.5	63	63.5	83	105
	B9	25	30	40	40	50	50	60	60	80	100
	B10	84	103	128	148	173	200	227	254	295	328
	B11	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
	B12	44	54	66	80	95	104	120	140	180	200
	B13	22	27	33	40	47.5	52	60	70	90	100
	B14	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C	C1	88	108	132	156	172	187	212	242	298	332
	C2	44	54	66	78	86	93.5	106	121	149	166
	C3	60	80	100	120	138	146	166	196	250	280
	C4	2	2	2	2	2	2	2	2	3	3
	C5	6	8	8	12	14	16	18	20	22	25
	C6	22.8	28.3	33.3	43.3	51.8	59.3	64.3	74.9	85.4	95.4
	C7	20	25	30	40	48	55	60	70	80	90
	C8	9	14	18	23	27	32	38	42	50	56
Weight ±3% (kg)		2.9	4.6	8.4	13.7		27.7		54.5		

HY-FN series

RATIO : 5.10.15 (單段 1-Stage)

入力法蘭 - 單邊免鍵軸套

Input Flange - Single Clamping



unit: mm

Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	8 · 11 · 14	14	14 · 19 · 24	19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	32 · 35 · 38	42 · 48 · 55	48 · 55 · 60 · 65
	A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16
	A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	222 · 220 · 250 · 265
	A6	M3 x P.05	M5 x P.0.8	M5 x P.0.8	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5
B	B1	135	172	202 · 221 · 206.5	241	286	333	358	417 · 419	470, 473
	B2	45	57	62 · 81 · 66.5	71	94	118	118	153 · 155	170 · 173
	B3	90	115	140	170	192	215	240	264	300
	B4	78	98	118	144	164	182	206	224	260
	B5	39	49	59	72	82	91	103	112	130
	B6	28 · 33	38	49 · 68.5 · 54	58	69.5	81.5	81.5	114.5 · 116.5	112 · 115 · 120 · 123
	B7	5	6	9 · 23.5	8	10	10	10	11.5 · 13.5	12 · 15
	B8	84	103	128	148	173	200	227	254	295
	B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5
	B10	44	54	66	80	95	104	120	140	180
	B11	22	27	33	40	47.5	52	60	70	90
	B12	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0
C	C1	109	134	160	189	207	224	249	281	344
	C2	44	54	66	78	86	93.5	106	121	149
	C3	65	80	94	111	121	130.5	143	160	195
	C4	2	2	2	2	2	2	2	3	3
	C5	60	80	100	120	138	146	166	196	250
	C6	6	8	8	12	14	16	18	20	22
	C7	22.8	28.3	33.3	43.3	51.8	59.3	64.3	74.9	85.4
	C8	20	25	30	40	48	55	60	70	80
	C9	28	34	44	52	60	73	73	83	100
	C10	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8	12-M8	12-M10
	C11	9	14	18	23	27	32	38	42	50

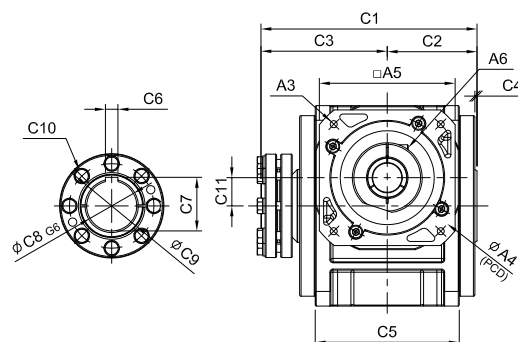
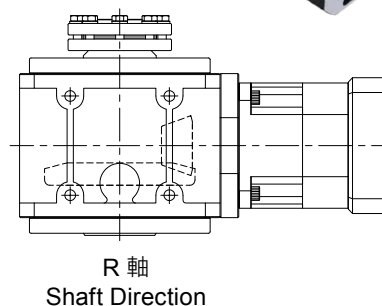
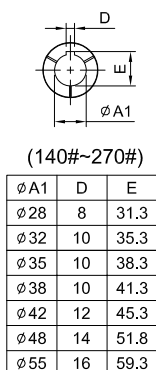
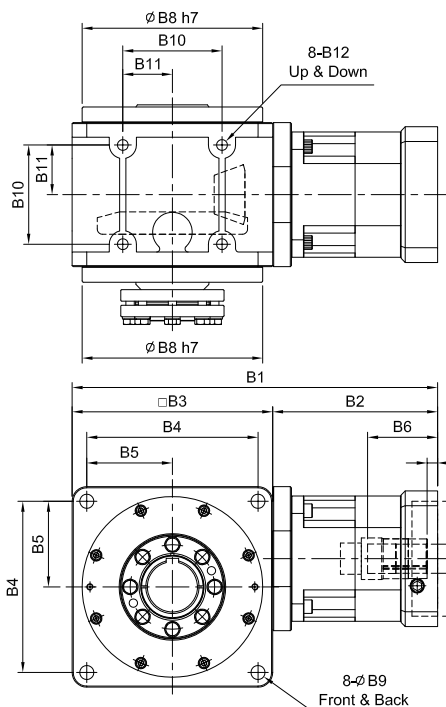
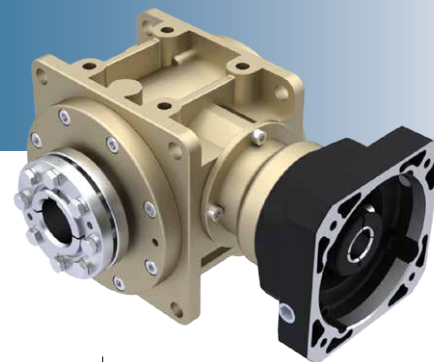
Weight ±3% (kg)

HY-RN series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

搭配行星減速機 - 單邊免鍵軸套

Fitted with Planetary Reducer - Single Clamping



unit: mm

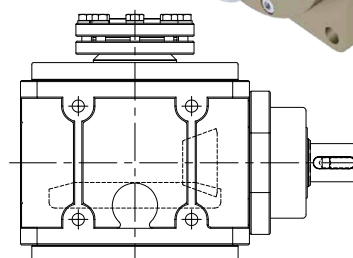
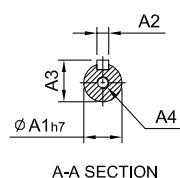
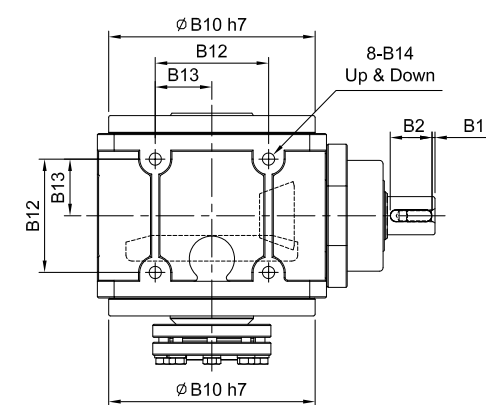
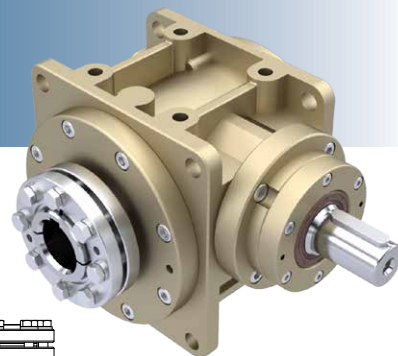
Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	8 · 9 · 11 · 14	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	42 · 48 · 55	48 · 55
	A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16
	A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265
	A6	M3 x P.05	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B	B1	157	201 · 209	(224.5) · 237	287	340 · 360	405	430	508 · 510	572
	B2	67	86 · 94	(84.5) · 97	117	148 · 168	190	190	244 · 246	272
	B3	90	115	140	170	192	215	240	264	300
	B4	78	98	118	144	164	182	206	224	260
	B5	39	49	59	72	82	91	103	112	130
	B6	26	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	84.5	84.5	114.5 · 116.5	114.5
	B7	5	6	(6) · 10	9	10 · 11	10	10	11.5 · 13.5	11.5
	B8	84	103	128	148	173	200	227	254	295
	B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5
	B10	44	54	66	80	95	104	120	140	180
	B11	22	27	33	40	47.5	52	60	70	90
	B12	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0
C	C1	109	134	160	189	207	224	249	281	344
	C2	44	54	66	78	86	93.5	106	121	149
	C3	65	80	94	111	121	130.5	143	160	195
	C4	2	2	2	2	2	2	2	3	3
	C5	60	80	100	120	138	146	166	196	250
	C6	6	8	8	12	14	16	18	20	22
	C7	22.8	28.3	33.3	43.3	51.8	59.3	64.3	74.9	85.4
	C8	20	25	30	40	48	55	60	70	80
	C9	28	34	44	52	60	73	73	83	100
	C10	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8	12-M8	12-M10
	C11	9	14	18	23	27	32	38	42	50
Weight ±3% (kg)		2.9	5.4	8.9	15.2	24.1	37.5	48.2	73.2	

HY-DN series

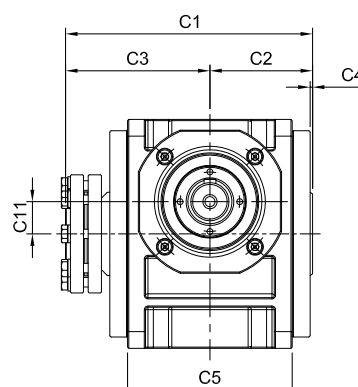
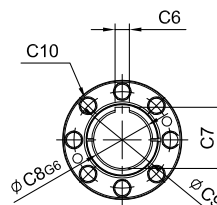
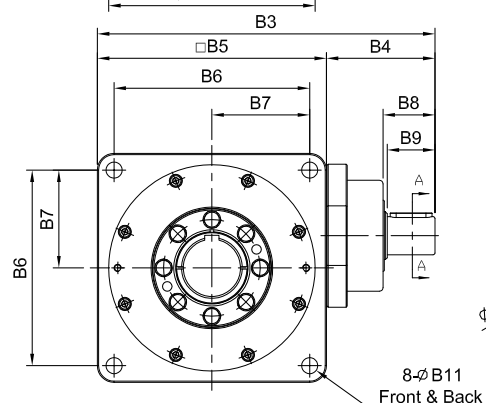
RATIO : 5.10.15 (單段 1-Stage)

單入力軸心 - 單邊免鍵軸套

Single Input Shaft - Single Clamping



R 軸
Shaft Direction



unit: mm

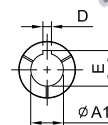
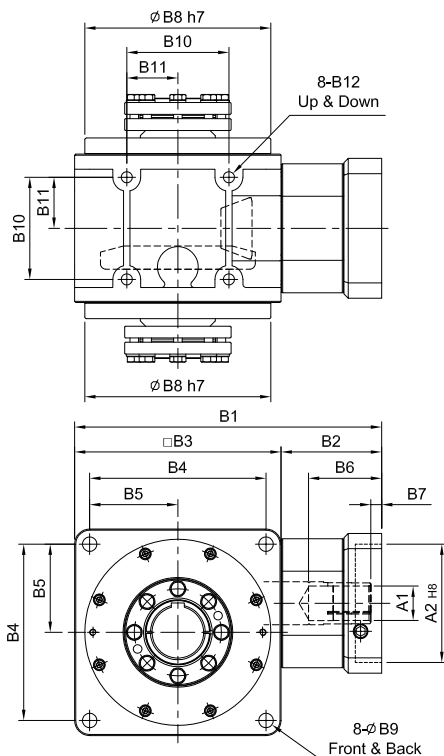
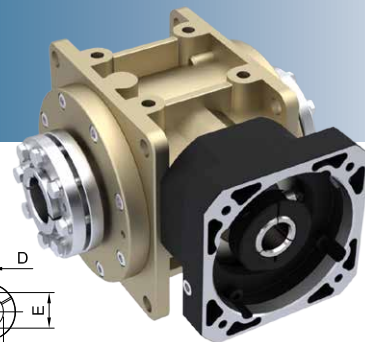
	Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	14	19	24	28	32	32	38	40	55	60
	A2	5	6	8	8	10	10	12	12	16	18
	A3	16	21.5	27	31	35	35	41	43	59	64
	A4	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5	2.5	2.5	2.5	5	5	5	5	5	5
	B2	20	25	35	35	40	40	50	50	70	90
	B3	147	181	218	260	293	315	367	403	483	567
	B4	57	66	78	90	101	100	127	139	183	217
	B5	90	115	140	170	192	215	240	264	300	350
	B6	78	98	118	144	164	182	206	224	260	300
	B7	39	49	59	72	82	91	103	112	130	150
	B8	27	32	42.5	42.5	52.5	51.5	63	63.5	83	105
	B9	25	30	40	40	50	50	60	60	80	100
	B10	84	103	128	148	173	200	227	254	295	328
	B11	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
	B12	44	54	66	80	95	104	120	140	180	200
	B13	22	27	33	40	47.5	52	60	70	90	100
	B14	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C	C1	109	134	160	189	207	224	249	281	344	378
	C2	44	54	66	78	86	93.5	106	121	149	166
	C3	65	80	94	111	121	130.5	143	160	195	212
	C4	2	2	2	2	2	2	2	2	3	3
	C5	60	80	100	120	138	146	166	196	250	280
	C6	6	8	8	12	14	16	18	20	22	25
	C7	22.8	28.3	33.3	43.3	51.8	59.3	64.3	74.9	85.4	95.4
	C8	20	25	30	40	48	55	60	70	80	90
	C9	28	34	44	52	60	73	73	83	100	110
	C10	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8	12-M8	12-M10	12-M10
	C11	9	14	18	23	27	32	38	42	50	56
Weight ±3% (kg)		3.2	5.0	9.2	14.8		28.5		54.8		

HY-FM series

RATIO : 5.10.15 (單段 1-Stage)

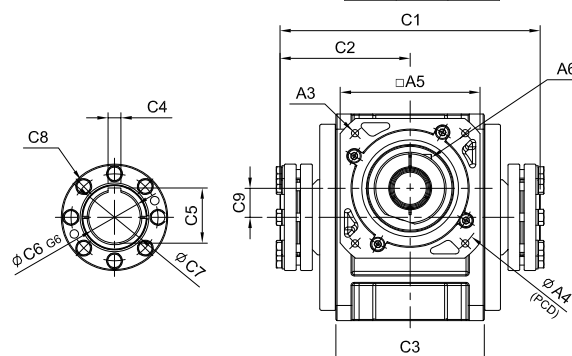
入力法蘭 - 雙邊免鍵軸套

Input Flange - Double Clamping



(140#~270#)

φA1	D	E
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3
φ60	18	64.4
φ65	18	69.4



unit: mm

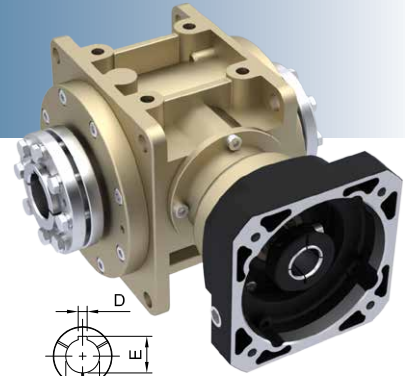
Model Code	55	75	90	115	130	140	160	190	230	270
A1	8 · 11 · 14	14	14 · 19 · 24	19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	32 · 35 · 38	42 · 48 · 55	42 · 48 · 55 · 60	48 · 55 · 60 · 65
A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16	M12 · M16
A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300	200 · 215 · 265 · 300
A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265	222 · 220 · 250 · 265
A6	M3 x P.05	M5 x P.0.8	M5 x P.0.8	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5 M12 x P.1.75
B1	135	172	202 · 221 · 206.5	241	286	333	358	417 · 419	470 · 473	515.5 · 518.5 · 545
B2	45	57	62 · 81 · 66.5	71	94	118	118	153 · 155	170 · 173	165.5 · 168.5 · 195
B3	90	115	140	170	192	215	240	264	300	350
B4	78	98	118	144	164	182	206	224	260	300
B5	39	49	59	72	82	91	103	112	130	150
B6	28 · 33	38	49 · 68.5 · 54	58	69.5	81.5	81.5	114.5 · 116.5	112 · 115 · 120 · 123	112.5 · 115.5 · 142
B7	5	6	9 · 23.5	8	10	10	10	11.5 · 13.5	12 · 15	12.5 · 15.5 · 42
B8	84	103	128	148	173	200	227	254	295	328
B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
B10	44	54	66	80	95	104	120	140	180	200
B11	22	27	33	40	47.5	52	60	70	90	100
B12	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M12 x P.1.75	M12 x P.1.75	M14 x P.2.0	M16 x P.2.0	M16 x P.2.0	M16 x P.2.0	M20 x P.2.0
C1	130	160	188	222	242	261	286	320	390	424
C2	65	80	94	111	121	130.5	143	160	195	212
C3	60	80	100	120	138	146	166	196	250	280
C4	-	-	-	-	14	16	18	20	22	25
C5	-	-	-	-	51.8	59.3	64.3	74.9	85.4	95.4
C6	20	25	30	40	48	55	60	70	80	90
C7	28	34	44	52	60	73	73	83	100	110
C8	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8	12-M8	12-M10	12-M10
C9	9	14	18	23	27	32	38	42	50	56
Weight ±3% (kg)		4.8	8.2	15.2	19.5	30.7	41.5	59.7	92.97	

HY-RM series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

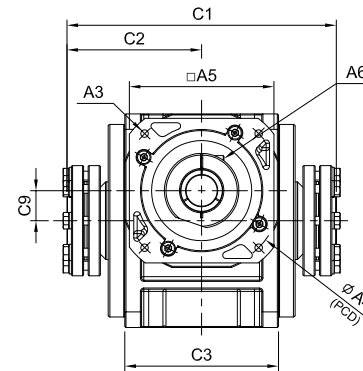
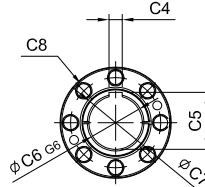
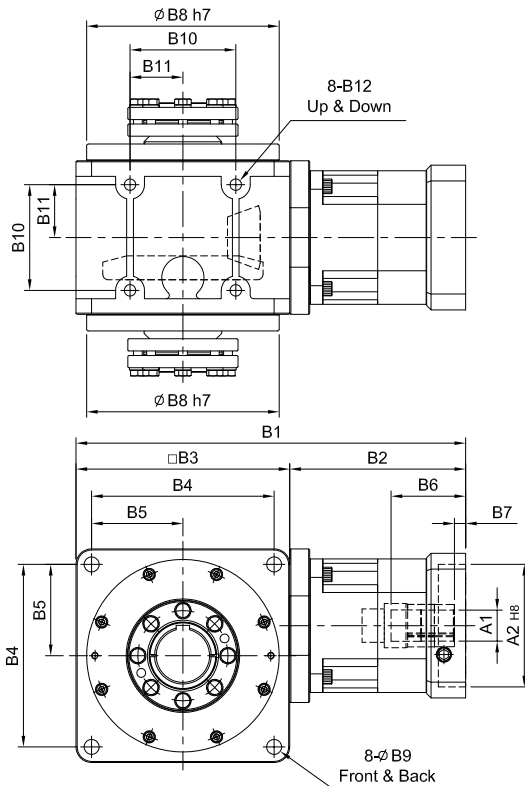
搭配行星減速機 - 雙邊免鍵軸套

Fitted with Planetary Reducer - Double Clamping



(140#~270#)

φA1	D	E
φ28	8	31.3
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3



unit: mm

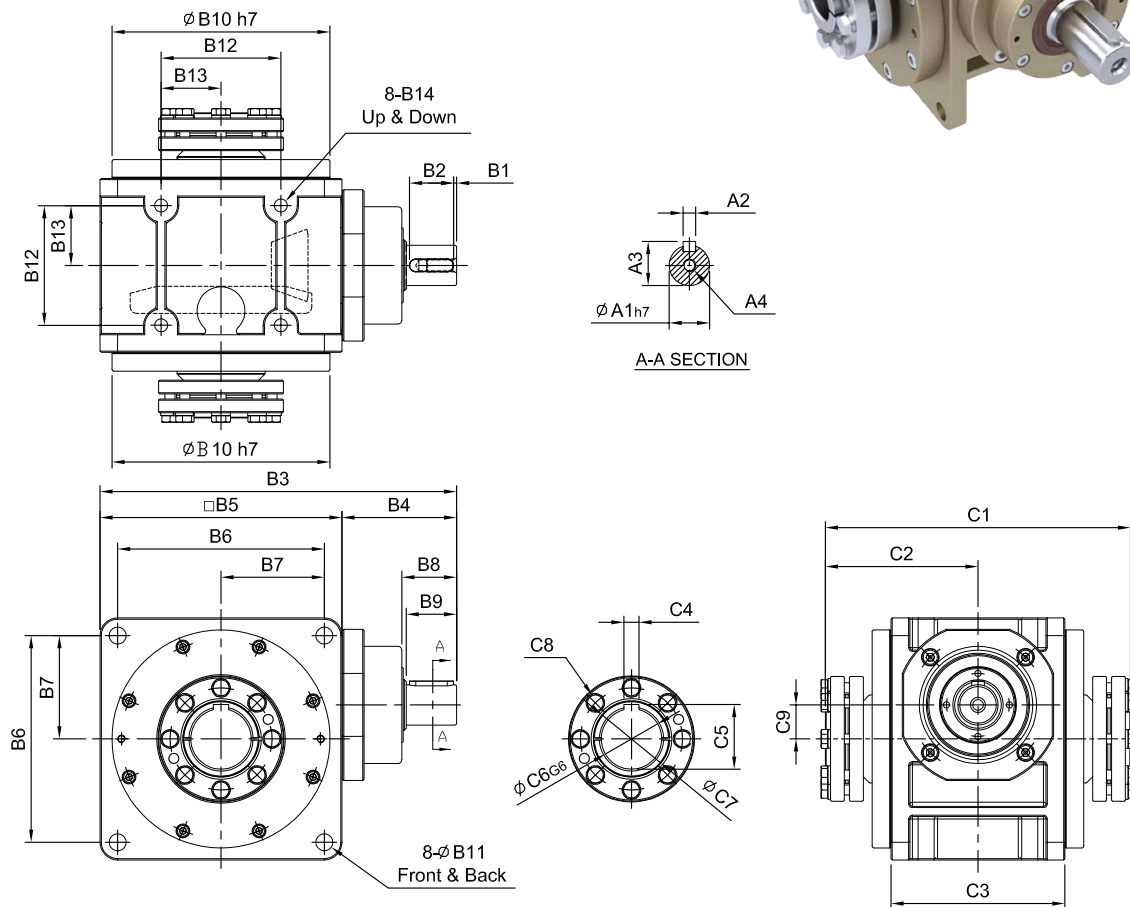
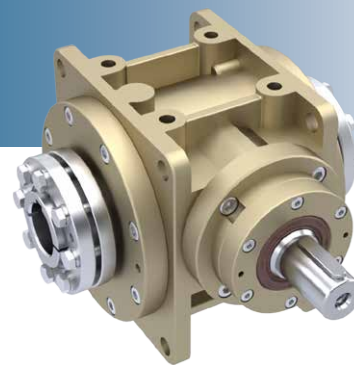
Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	8 · 9 · 11 · 14	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	35 · 38 · 42 · 48 · 55
	A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16
	A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265
	A6	M3 x P.05	M5 x P.0.8	M5 x P.0.8	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5
B	B1	157	201 · 209	(224.5) · 237	287	340 · 360	405	430	508 · 510	572
	B2	67	86 · 94	(84.5) · 97	117	148 · 168	190	190	244 · 246	272
	B3	90	115	140	170	192	215	240	264	300
	B4	78	98	118	144	164	182	206	224	260
	B5	39	49	59	72	82	91	103	112	130
	B6	26	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	84.5	84.5	114.5 · 116.5	114.5
	B7	5	6	(6) · 10	9	10 · 11	10	10	11.5 · 13.5	11.5
	B8	84	103	128	148	173	200	227	254	295
	B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5
	B10	44	54	66	80	95	104	120	140	180
	B11	22	27	33	40	47.5	52	60	70	90
	B12	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M12 x P.1.75	M12 x P.1.75	M14 x P.2.0	M16 x P.2.0	M16 x P.2.0	M16 x P.2.0
C	C1	130	160	188	222	242	261	286	320	390
	C2	65	80	94	111	121	130.5	143	160	195
	C3	60	80	100	120	138	146	166	196	250
	C4	-	-	-	-	14	16	18	20	22
	C5	-	-	-	-	51.8	59.3	64.3	74.9	85.4
	C6	20	25	30	40	48	55	60	70	80
	C7	28	34	44	52	60	73	73	83	100
	C8	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8	12-M8	12-M10
	C9	9	14	18	23	27	32	38	42	50
Weight ±3% (kg)		3.2	5.7	9.9	16.4	25.7	39.4	50.7	74.4	

HY-DM series

RATIO : 5.10.15 (單段 1-Stage)

單入力軸心 - 雙邊免鍵軸套

Single Input Shaft - Double Clamping



unit: mm

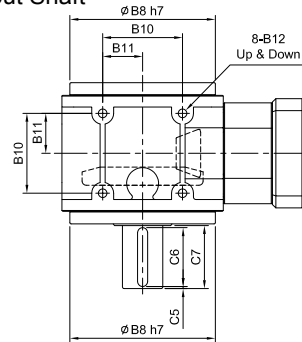
	Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	14	19	24	28	32	32	38	40	55	60
	A2	5	6	8	8	10	10	12	12	16	18
	A3	16	21.5	27	31	35	35	41	43	59	64
	A4	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5	2.5	2.5	2.5	5	5	5	5	5	5
	B2	20	25	35	35	40	40	50	50	70	90
	B3	147	181	218	260	293	315	367	403	483	567
	B4	57	66	78	90	101	100	127	139	183	217
	B5	90	115	140	170	192	215	240	264	300	350
	B6	78	98	118	144	164	182	206	224	260	300
	B7	39	49	59	72	82	91	103	112	130	150
	B8	27	32	42.5	42.5	52.5	51.5	63	63.5	83	105
	B9	25	30	40	40	50	50	60	60	80	100
	B10	84	103	128	148	173	200	227	254	295	328
	B11	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
	B12	44	54	66	80	95	104	120	140	180	200
	B13	22	27	33	40	47.5	52	60	70	90	100
	B14	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C	C1	130	160	188	222	242	261	286	320	390	424
	C2	65	80	94	111	121	130.5	143	160	195	212
	C3	60	80	100	120	138	146	166	196	250	280
	C4	-	-	-	-	14	16	18	20	22	25
	C5	-	-	-	-	51.8	59.3	64.3	74.9	85.4	95.4
	C6	20	25	30	40	48	55	60	70	80	90
	C7	28	34	44	52	60	73	73	83	100	110
	C8	6-M6	8-M6	8-M6	8-M6	8-M8	12-M8	12-M8	12-M8	12-M10	12-M10
	C9	9	14	18	23	27	32	38	42	50	56
Weight $\pm 3\%$ (kg)			5.4	9.9	15.9		29.3		56.0		

HY-FS series

RATIO : 5.10.15 (單段 1-Stage)

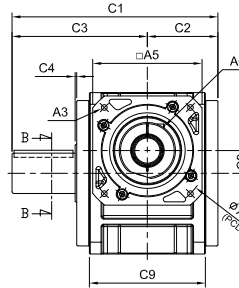
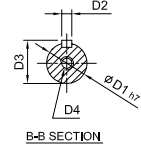
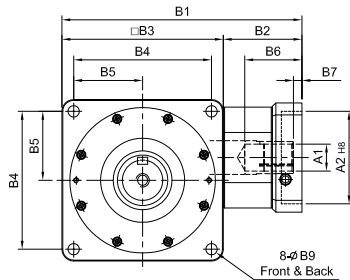
入力法蘭 - 單出力軸心

Input Flange - Single Output Shaft



(140#~270#)

ØA1	D	E
Ø32	10	35.3
Ø35	10	38.3
Ø38	10	41.3
Ø42	12	45.3
Ø48	14	51.8
Ø55	16	59.3
Ø60	18	64.4
Ø65	18	69.4



R 軸
Shaft Direction

unit: mm

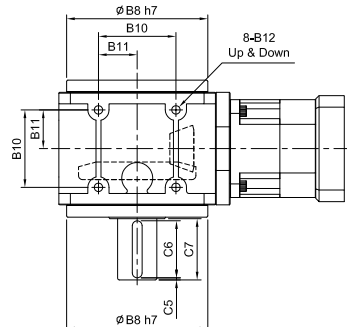
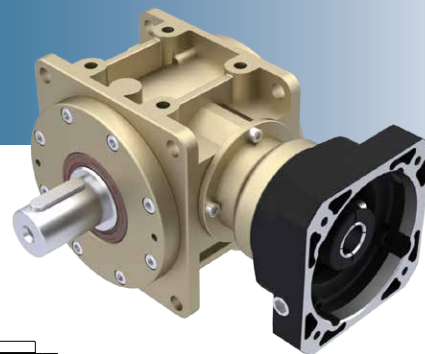
Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	8 · 11 · 14	14	14 · 19 · 24	19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	32 · 35 · 38	42 · 48 · 55	48 · 55 · 60 · 65
	A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16
	A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	222 · 220 · 250 · 265
	A6	M3 x P.05	M5 x P.0.8	M5 x P.0.8	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5 M12 x P.1.75
B	B1	135	172	202 · 221 · 206.5	241	286	333	358	417 · 419	515.5 · 518.5 · 545
	B2	45	57	62 · 81 · 66.5	71	94	118	118	153 · 155	165.5 · 168.5 · 195
	B3	90	115	140	170	192	215	240	264	300
	B4	78	98	118	144	164	182	206	224	260
	B5	39	49	59	72	82	91	103	112	130
	B6	28 · 33	38	49 · 68.5 · 54	58	69.5	81.5	81.5	114.5 · 116.5	112 · 115 · 120 · 123
	B7	5	6	9 · 23.5	8	10	10	10	11.5 · 13.5	12 · 15
	B8	84	103	128	148	173	200	227	254	295
	B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5
	B10	44	54	66	80	95	104	120	140	180
	B11	22	27	33	40	47.5	52	60	70	90
	B12	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M12 x P.1.75	M12 x P.1.75	M14 x P.2.0	M16 x P.2.0	M16 x P.2.0	M16 x P.2.0
C	C1	121	146	180	214	245	275	310	350	415
	C2	42	52	64	76	84	91.5	103	118	146
	C3	79	94	120	138	161	183.5	206	231	269
	C4	2	2	2	2	2	2	2	2	3
	C5	5	5	5	5	5	5	5	5	10
	C6	25	30	40	50	65	80	90	100	100
	C7	35	40	50	60	75	90	100	110	120
	C8	9	14	18	23	27	32	38	42	50
	C9	60	80	100	120	138	146	166	196	250
D	D1	20	24	32	40	48	55	60	70	80
	D2	6	8	10	12	14	16	18	20	22
	D3	22.5	27	35	43	51.5	59	64	74.5	85
	D4	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M12 x P.1.75	M16 x P.2.0	M20 x P.2.5	M20 x P.2.5	M20 x P.2.5
Weight ±3% (kg)		2.6	4.5	9.0	14.9	22.2	32.3		65.5	138.28

HY-RS series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

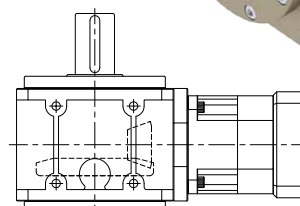
搭配行星減速機 - 單出力軸心

Fitted with Planetary Reducer - Single Output Shaft

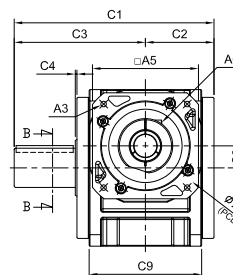
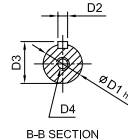
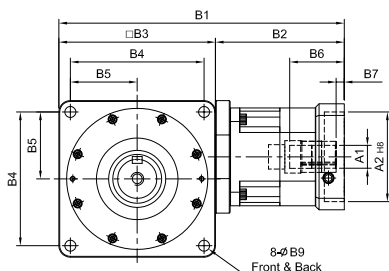


(140#~270#)

φA1	D	E
φ28	8	31.3
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3



R 軸
Shaft Direction

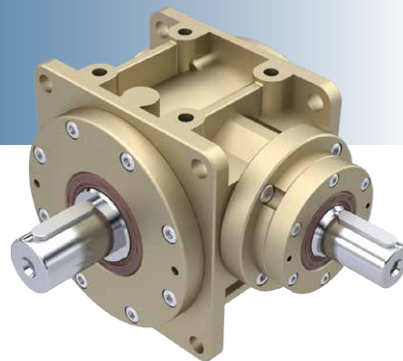


unit: mm

	Model Code	55	75	90	115	130	140	160	190	230	270
	A1	8·9·11·14	11·14·16·19	(14)·16·19	16·19·22·24	22·24·28·32·35	28·32·35·38	28·32·35·38	35·38·42·48·55	35·38·42·48·55	38·42·48·55
A	A2	30·40·50	50·60·70	50·70·80·95	70·80·95·110	95·110·130	110·130·180	110·130·180	114.3·180·230·250	114.3·180·230·250	114.3·180·230·250
	A3	M3·M4·M5	M4·M5·M6	M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12	M8·M10·M12	M12·M16	M12·M16	M12·M16
	A4	46·60·63	70·75·90	70·90·100·115	90·100·115·145	115·145·165	145·165·200	145·165·200	200·215·265·300	200·215·265·300	200·215·265·300
	A5	46·55	64·70·80	80·92·110	92·110·130	122·130·150	146·150·190	146·150·190	182·200·250·265	182·200·250·265	222·220·250·265
	A6	M3 x P.05	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5 M12 x P1.75
	B	B1	157	201·209	(224.5)·237	287	340·360	405	430	508·510	572
B2		67	86·94	(84.5)·97	117	148·168	190	190	244·246	272	292.5
B3		90	115	140	170	192	215	240	264	300	350
B4		78	98	118	144	164	182	206	224	260	300
B5		39	49	59	72	82	91	103	112	130	150
B6		26	33.5·41.5	(33.5)·45.5	59	67·83	84.5	84.5	114.5·116.5	112·115	112.5·115.5·142
B7		5	6	(6)·10	9	10·11	10	10	11.5·13.5	12·15	12.5·15.5·42
B8		84	103	128	148	173	200	227	254	295	328
B9		6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
B10		44	54	66	80	95	104	120	140	180	200
B11		22	27	33	40	47.5	52	60	70	90	100
B12		M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C	C1	121	146	180	214	245	275	310	350	415	459
	C2	42	52	64	76	84	91.5	103	118	146	163
	C3	79	94	120	138	161	183.5	206	231	269	296
	C4	2	2	2	2	2	2	2	2	3	3
	C5	5	5	5	5	5	5	5	5	10	10
	C6	25	30	40	50	65	80	90	100	100	110
	C7	35	40	50	60	75	90	100	110	120	130
	C8	9	14	18	23	27	32	38	42	50	56
	C9	60	80	100	120	138	146	166	196	250	280
D	D1	20	24	32	40	48	55	60	70	80	90
	D2	6	8	10	12	14	16	18	20	22	25
	D3	22.5	27	35	43	51.5	59	64	74.5	85	95
	D4	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5	M20 x P2.5	M20 x P2.5
Weight ±3% (kg)		2.9	5.5	9.5	16.2	27.7	41.0	54.2	82.2		

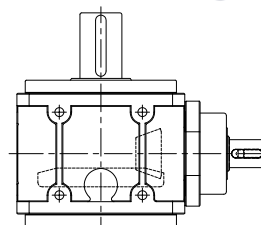
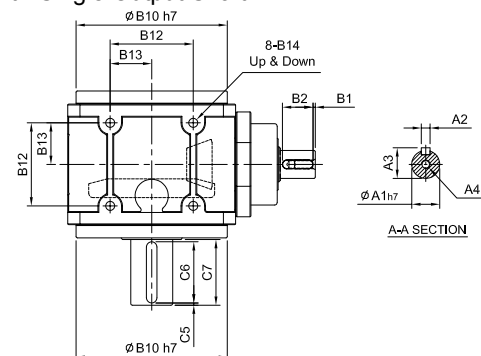
HY-DS series

RATIO : 5.10.15 (單段 1-Stage)

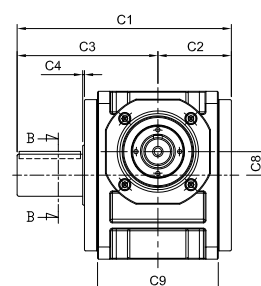
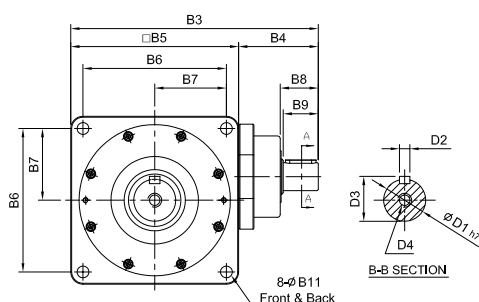


單入力軸心 - 單出力軸心

Single Input Shaft - Single Output Shaft



R 軸
Shaft Direction



unit: mm

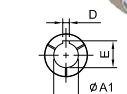
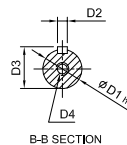
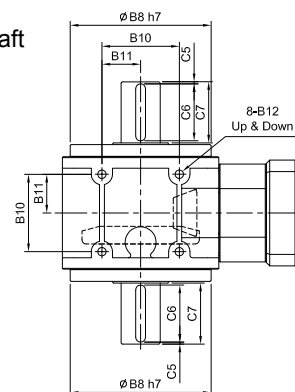
	Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	14	19	24	28	32	32	38	40	55	60
	A2	5	6	8	8	10	10	12	12	16	18
	A3	16	21.5	27	31	35	35	41	43	59	64
	A4	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5	2.5	2.5	2.5	5	5	5	5	5	5
	B2	20	25	35	35	40	40	50	50	70	90
	B3	147	180.5	218	260	293	315	367	402.5	483	567
	B4	57	65.5	78	90	101	100	127	138.5	183	217
	B5	90	115	140	170	192	215	240	264	300	350
	B6	78	98	118	144	164	182	206	224	260	300
	B7	39	49	59	72	82	91	103	112	130	150
	B8	27	32	42.5	42.5	52.5	51.5	63	63.5	83	105
	B9	25	30	40	40	50	50	60	60	80	100
	B10	84	103	128	148	173	200	227	254	295	328
	B11	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
	B12	44	54	66	80	95	104	120	140	180	200
	B13	22	27	33	40	47.5	52	60	70	90	100
	B14	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C	C1	121	146	180	214	245	275	310	350	415	459
	C2	42	52	64	76	84	91.5	103	118	146	163
	C3	79	94	120	138	161	183.5	206	231	269	296
	C4	2	2	2	2	2	2	2	2	3	3
	C5	5	5	5	5	5	5	5	5	10	10
	C6	25	30	40	50	65	80	90	100	100	110
	C7	35	40	50	60	75	90	100	110	120	130
	C8	9	14	18	23	27	32	38	42	50	56
	C9	60	80	100	120	138	146	166	196	250	280
D	D1	20	24	32	40	48	55	60	70	80	90
	D2	6	8	10	12	14	16	18	20	22	25
	D3	22.5	27	35	43	51.5	59	64	74.5	85	95
	D4	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5	M20 x P2.5	M20 x P2.5
Weight ±3% (kg)		3.1	5.1		15.9		33.2		64.8		

HY-FV series

RATIO : 5.10.15 (單段 1-Stage)

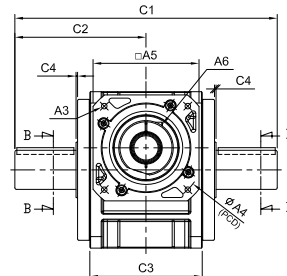
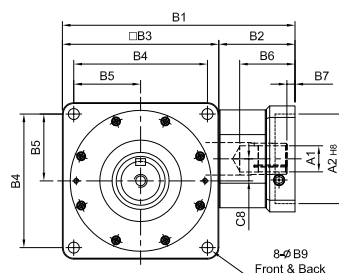
入力法蘭 - 雙出力軸心

Input Flange - Double Output Shaft



(140#~270#)

φA1	D	E
φ32	10	35.3
φ35	10	38.3
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3
φ60	18	64.4
φ65	18	69.4



unit: mm

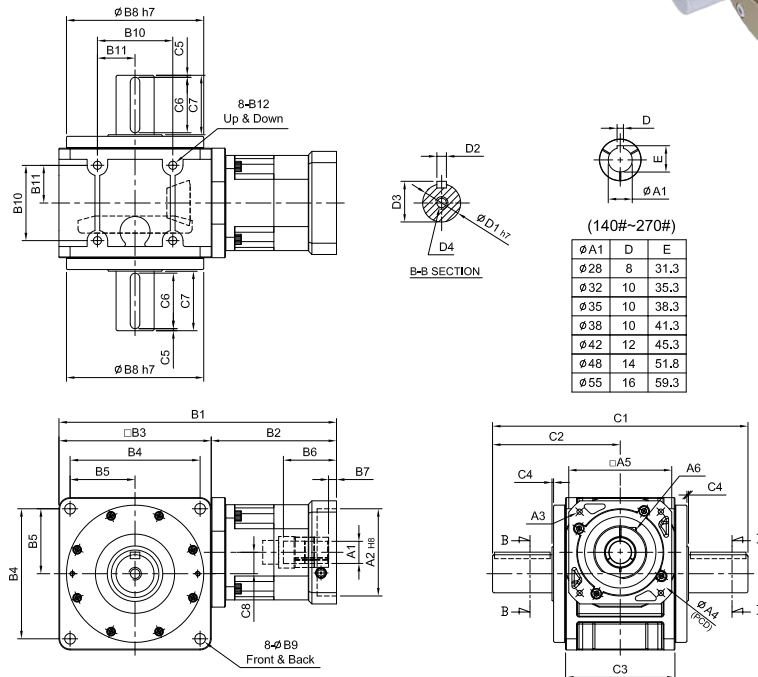
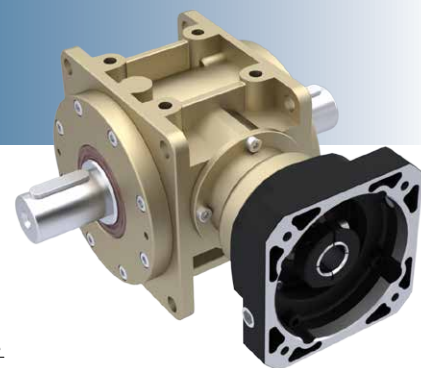
	Model Code	55	75	90	115	130	140	160	190	230	270	
	A	A1	8 · 11 · 14	14	14 · 19 · 24	19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	32 · 35 · 38	42 · 48 · 55	42 · 48 · 55 · 60	48 · 55 · 60 · 65
	A	A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A	A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16	M12 · M16
	A	A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A	A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265	222 · 220 · 250 · 265
	A	A6	M3 x P.05	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5 M12 x P1.75
		B	B1	135	172	202 · 221 · 206.5	241	286	333	358	417 · 419	470,473
B		B2	45	57	62 · 81 · 66.5	71	94	118	118	153 · 155	170 · 173	165.5 · 168.5 · 195
B		B3	90	115	140	170	192	215	240	264	300	350
B		B4	78	98	118	144	164	182	206	224	260	300
B		B5	39	49	59	72	82	91	103	112	130	150
B		B6	28 · 33	38	49 · 68.5 · 54	58	69.5	81.5	81.5	114.5 · 116.5	112 · 115 · 120 · 123	112.5 · 115.5 · 142
B		B7	5	6	9 · 23.5	8	10	10	10	11.5 · 13.5	12 · 15	12.5 · 15.5 · 42
B		B8	84	103	128	148	173	200	227	254	295	328
B		B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
B		B10	44	54	66	80	95	104	120	140	180	200
B		B11	22	27	33	40	47.5	52	60	70	90	100
B		B12	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
	C	C1	158	188	232	276	322	367	412	462	538	592
	C	C2	79	94	116	138	161	183.5	206	231	269	296
	C	C3	60	80	100	120	138	146	166	196	250	280
	C	C4	2	2	2	2	2	2	2	2	3	3
	C	C5	5	5	5	5	5	5	5	5	10	10
	C	C6	25	30	40	50	65	80	90	100	100	110
	C	C7	35	40	50	60	75	90	100	110	120	130
	C	C8	9	14	18	23	27	32	38	42	50	56
	D	D1	20	24	32	40	48	55	60	70	80	90
	D	D2	6	8	10	12	14	16	18	20	22	25
	D	D3	22.5	27	35	43	51.5	59	64	74.5	85	95
	D	D4	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5	M20 x P2.5	M20 x P2.5
Weight ±3% (kg)							35.1	47.3	70.7			

HY-RV series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

搭配行星減速機 - 雙出力軸心

Fitted with Planetary Reducer - Double Output Shaft



unit: mm

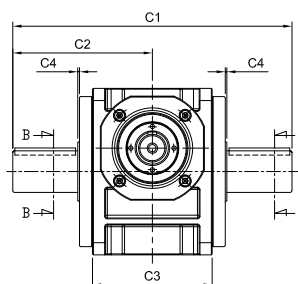
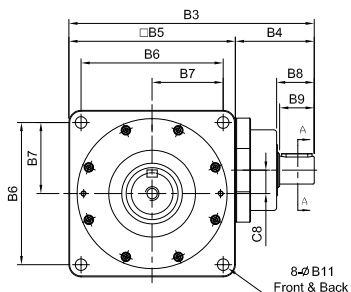
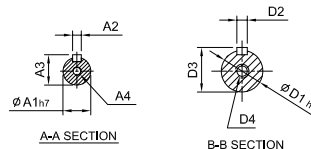
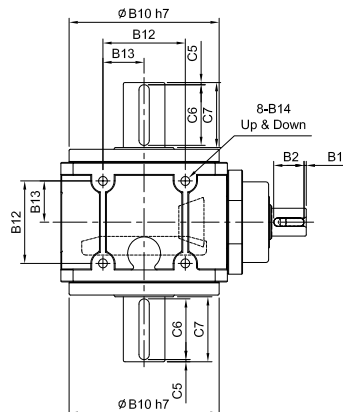
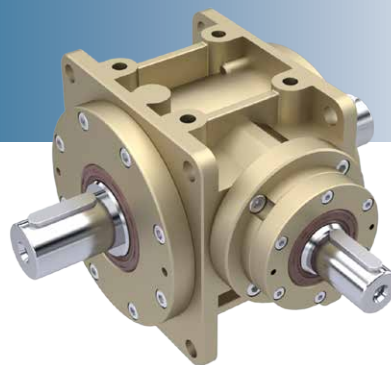
Model Code	55	75	90	115	130	140	160	190	230	270
A1	8 · 9 · 11 · 14	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
A2	30 · 40 · 50	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
A3	M3 · M4 · M5	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16	M12 · M16
A4	46 · 60 · 63	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300	200 · 215 · 265 · 300
A5	46 · 55	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265	222 · 220 · 250 · 265
A6	M3 x P.05	M5 x P.0.8	M5 x P.0.8	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5	M10 x P.1.5 M12 x P.1.75
B1	157	201 · 209	(224.5) · 237	287	340 · 360	405	430	508 · 510	572	642.5
B2	67	86 · 94	(84.5) · 97	117	148 · 168	190	190	244 · 246	272	292.5
B3	90	115	140	170	192	215	240	264	300	350
B4	78	98	118	144	164	182	206	224	260	300
B5	39	49	59	72	82	91	103	112	130	150
B6	26	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	84.5	84.5	114.5 · 116.5	112, 115	112.5 · 115.5 · 142
B7	5	6	(6) · 10	9	10 · 11	10	10	11.5 · 13.5	12 · 15	12.5 · 15.5 · 42
B8	84	103	128	148	173	200	227	254	295	328
B9	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
B10	44	54	66	80	95	104	120	140	180	200
B11	22	27	33	40	47.5	52	60	70	90	100
B12	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M12 x P.1.75	M12 x P.1.75	M14 x P.2.0	M16 x P.2.0	M16 x P.2.0	M16 x P.2.0	M20 x P.2.0
C1	158	188	232	276	322	367	412	462	538	592
C2	79	94	116	138	161	183.5	206	231	269	296
C3	60	80	100	120	138	146	166	196	250	280
C4	2	2	2	2	2	2	2	2	3	3
C5	5	5	5	5	5	5	5	5	10	10
C6	25	30	40	50	65	80	90	100	100	110
C7	35	40	50	60	75	90	100	110	120	130
C8	9	14	18	23	27	32	38	42	50	56
D1	20	24	32	40	48	55	60	70	80	90
D2	6	8	10	12	14	16	18	20	22	25
D3	22.5	27	35	43	51.5	59	64	74.5	85	95
D4	M6 x P.1.0	M8 x P.1.25	M10 x P.1.5	M10 x P.1.5	M12 x P.1.75	M16 x P.2.0	M20 x P.2.5	M20 x P.2.5	M20 x P.2.5	M20 x P.2.5
Weight ±3% (kg)	3.0	5.6	9.8	18.0	28.5	42.6	55.2	84.0		

HY-DV series

RATIO : 5.10.15 (單段 1-Stage)

單入力軸心 - 雙出力軸心

Single Input Shaft - Double Output Shaft

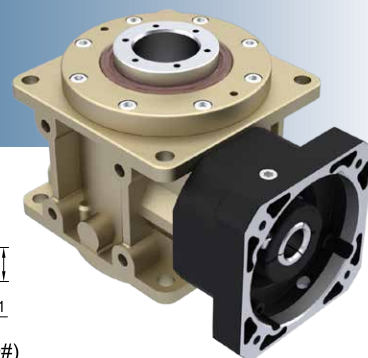


unit: mm

	Model Code	55	75	90	115	130	140	160	190	230	270
A	A1	14	19	24	28	32	32	38	40	55	60
	A2	5	6	8	8	10	10	12	12	16	18
	A3	16	21.5	27	31	35	35	41	43	59	64
	A4	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0	M16 x P2.0
B	B1	2.5	2.5	2.5	2.5	5	5	5	5	5	5
	B2	20	25	35	35	40	40	50	50	70	90
	B3	147	181	218	260	293	315	367	403	483	567
	B4	57	66	78	90	101	100	127	139	183	217
	B5	90	115	140	170	192	215	240	264	300	350
	B6	78	98	118	144	164	182	206	224	260	300
	B7	39	49	59	72	82	91	103	112	130	150
	B8	27	32	42.5	42.5	52.5	51.5	63	63.5	83	105
	B9	25	30	40	40	50	50	60	60	80	100
	B10	84	103	128	148	173	200	227	254	295	328
	B11	6.8	9	11	11	13.5	15	17.5	17.5	17.5	22
	B12	44	54	66	80	95	104	120	140	180	200
	B13	22	27	33	40	47.5	52	60	70	90	100
	B14	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0	M20 x P2.0
C	C1	158	188	232	276	322	367	412	462	538	592
	C2	79	94	116	138	161	183.5	206	231	269	296
	C3	60	80	100	120	138	146	166	196	250	280
	C4	2	2	2	2	2	2	2	2	3	3
	C5	5	5	5	5	5	5	5	5	10	10
	C6	25	30	40	50	65	80	90	100	100	110
	C7	35	40	50	60	75	90	100	110	120	130
	C8	9	14	18	23	27	32	38	42	50	56
D	D1	20	24	32	40	48	55	60	70	80	90
	D2	6	8	10	12	14	16	18	20	22	25
	D3	22.5	27	35	43	51.5	59	64	74.5	85	95
	D4	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75	M16 x P2.0	M20 x P2.5	M20 x P2.5	M20 x P2.5	M20 x P2.5
Weight ±3% (kg)		3.2	5.2	9.7	16.4		34.4		67.9		

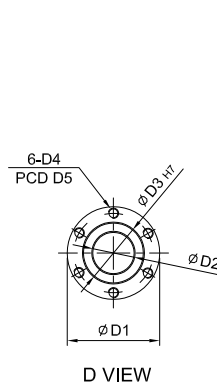
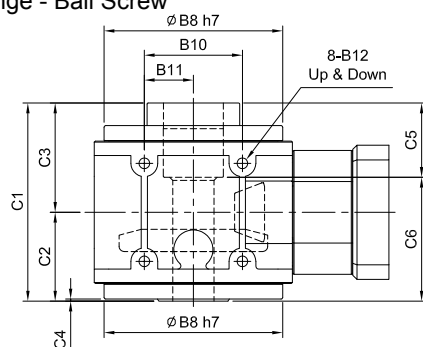
HY-FP series

RATIO : 5.10.15 (單段 1-Stage)



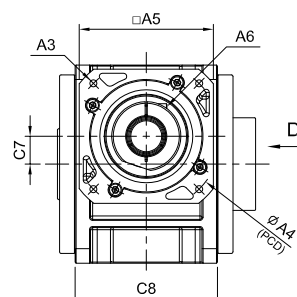
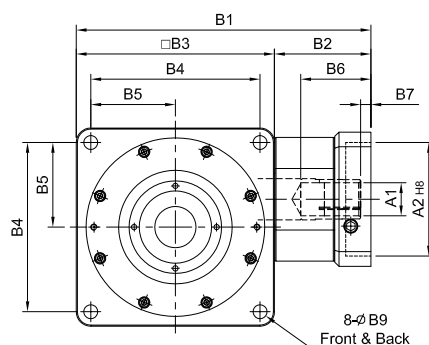
入力法蘭 - 螺桿式

Input Flange - Ball Screw



(140#~230#)

ØA1	D	E
Ø32	10	35.3
Ø35	10	38.3
Ø38	10	41.3
Ø42	12	45.3
Ø48	14	51.8
Ø55	16	59.3
Ø60	18	64.4



unit: mm

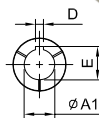
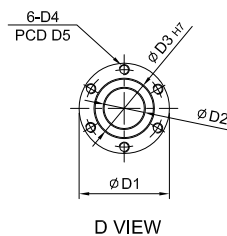
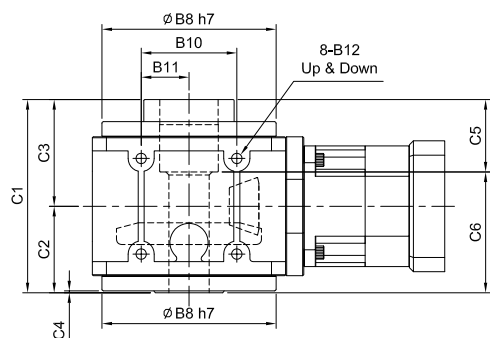
	Model Code	75	90	115	130	140	160	190	230
	A	A1	14	14 · 19 · 24	19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	32 · 35 · 38	42 · 48 · 55
B	A2	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16
	A4	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A5	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265
	A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
	B1	172	202 · 221 · 206.5	241	286	333	358	417 · 419	470 · 473
	B2	57	62 · 81 · 66.5	71	94	118	118	153 · 155	170 · 173
	B3	115	140	170	192	215	240	264	300
	B4	98	118	144	164	182	206	224	260
	B5	49	59	72	82	91	103	112	130
	B6	38	49 · 68.5 · 54	58	69.5	81.5	81.5	114.5 · 116.5	112 · 115 · 120 · 123
	B7	6	9 · 23.5	8	10	10	10	11.5 · 13.5	12 · 15
C	B8	103	128	148	173	200	227	254	295
	B9	9	11	11	13.5	15	17.5	17.5	17.5
	B10	54	66	80	95	104	120	140	180
	B11	27	33	40	47.5	52	60	70	90
	B12	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0
	C1	125	140	177	193	205	230	260	313
	C2	58	66	78.5	87	94	107	123	149
	C3	67	74	98.5	106	111	123	137	164
D	C4	3.25	2	2.5	2	2.5	2.5	3	3
	C5	50	58	72	72	82	92	117	117
	C6	75	82	105	121	123	138	143	196
	C7	14	18	23	27	32	38	42	50
	C8	80	100	120	138	146	166	196	250
D	D1	54.7	64.7	89.7	89.7	99.7	117.7	129.7	139.5
	D2	22	30	38	40	44	54	65	65
	D3	34	40	58	58	64	75	90	90
	D4	M5 x P0.8	M5 x P0.8	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M12 x P1.75
	D5	45	51	77	77	84	97	112	112
Weight ±3% (kg)		4.5	8.2	13.3	20.0	29.1	56.3	56.3	

HY-RP series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

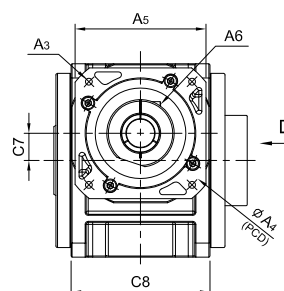
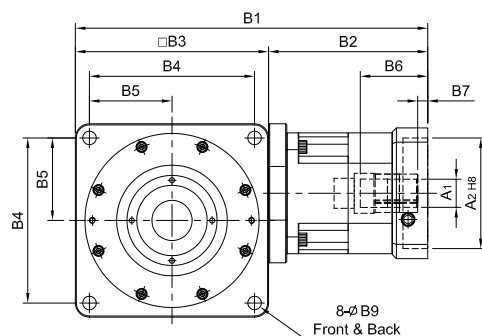
搭配行星減速機 - 螺桿式

Fitted with Planetary Reducer - Ball Screw



(140#~230#)

ø A1	D	E
ø 28	8	31.3
ø 32	10	35.3
ø 35	10	38.3
ø 38	10	41.3
ø 42	12	45.3
ø 48	14	51.8
ø 55	16	59.3

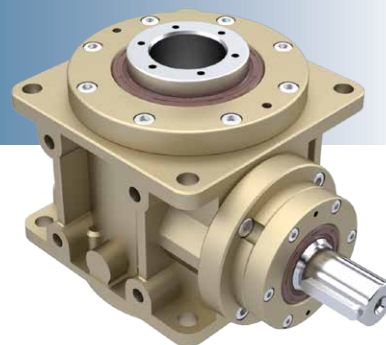


unit: mm

	Model Code	75	90	115	130	140	160	190	230
A	A1	11 · 14 · 16 · 19	(14) · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32 · 35	28 · 32 · 35 · 38	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	35 · 38 · 42 · 48 · 55
	A2	50 · 60 · 70	50 · 70 · 80 · 95	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 180 · 230 · 250
	A3	M4 · M5 · M6	M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M8 · M10 · M12	M12 · M16	M12 · M16
	A4	70 · 75 · 90	70 · 90 · 100 · 115	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200	145 · 165 · 200	200 · 215 · 265 · 300	200 · 215 · 265 · 300
	A5	64 · 70 · 80	80 · 92 · 110	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	146 · 150 · 190	182 · 200 · 250 · 265	182 · 200 · 250 · 265
	A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
B	B1	201 · 209	(224.5) · 237	287	340 · 360	405	430	508 · 510	571.5
	B2	86 · 94	(84.5) · 97	117	148 · 168	190	190	244 · 246	271.5
	B3	115	140	170	192	215	240	264	300
	B4	98	118	144	164	182	206	224	260
	B5	49	59	72	82	91	103	112	130
	B6	33.5 · 41.5	(33.5) · 45.5	59	67 · 83	84.5	84.5	114.5 · 116.5	114.5
	B7	6	(6) · 10	9	10 · 11	10	10	11.5 · 13.5	11.5
	B8	103	128	148	173	200	227	254	295
	B9	9	11	11	13.5	15	17.5	17.5	17.5
	B10	54	66	80	95	104	120	140	180
	B11	27	33	40	47.5	52	60	70	90
	B12	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0
C	C1	125	140	177	193	205	230	260	313
	C2	58	66	78.5	87	94	107	123	149
	C3	67	74	98.5	106	111	123	137	164
	C4	3.25	2	2.5	2	2.5	2.5	3	3
	C5	50	58	72	72	82	92	117	117
	C6	75	82	105	121	123	138	143	196
	C7	14	18	23	27	32	38	42	50
	C8	80	100	120	138	146	166	196	250
D	D1	54.7	64.7	89.7	89.7	99.7	117.7	129.7	139.5
	D2	22	30	38	40	44	54	65	65
	D3	34	40	58	58	64	75	90	90
	D4	M5 x P0.8	M5 x P0.8	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M12 x P1.75
	D5	45	51	77	77	84	97	112	112
Weight ±3% (kg)		5.4	8.9	15.4		38.0			

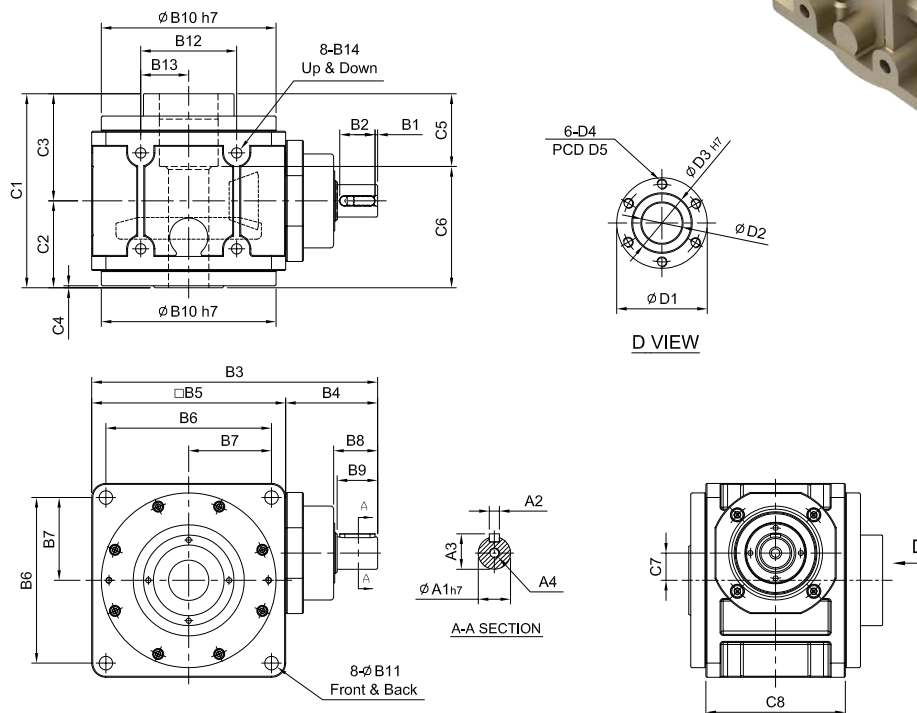
HY-DP series

RATIO : 5.10.15 (單段 1-Stage)



單入力軸心 - 螺桿式

Single Input Shaft - Ball Screw



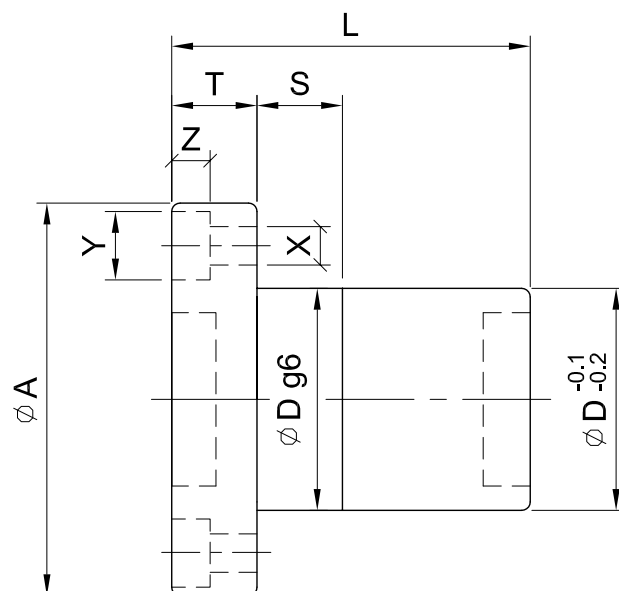
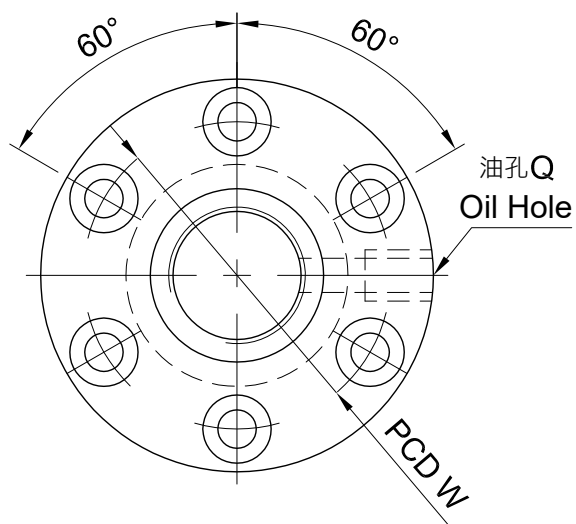
unit: mm

Model Code	75	90	115	130	140	160	190	230
A1	19	24	28	32	32	38	40	55
A2	6	8	8	10	10	12	12	16
A3	21.5	27	31	35	35	41	43	59
A4	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M16 x P2.0
B1	2.5	2.5	2.5	5	5	5	5	5
B2	25	35	35	40	40	50	50	70
B3	181	218	260	293	315	367	403	483
B4	66	78	90	101	100	127	139	183
B5	115	140	170	192	215	240	264	300
B6	98	118	144	164	182	206	224	260
B7	49	59	72	82	91	103	112	130
B8	32	42.5	42.5	52.5	51.5	63	63.5	83
B9	30	40	40	50	50	60	60	80
B10	103	128	148	173	200	227	254	295
B11	9	11	11	13.5	15	17.5	17.5	17.5
B12	54	66	80	95	104	120	140	180
B13	27	33	40	47.5	52	60	70	90
B14	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	M14 x P2.0	M16 x P2.0	M16 x P2.0	M16 x P2.0
C1	125	140	177	193	205	230	260	313
C2	58	66	78.5	87	94	107	123	149
C3	67	74	98.5	106	111	123	137	164
C4	3.25	2	2.5	2	2.5	2.5	3	3
C5	50	58	72	72	82	92	117	117
C6	75	82	105	121	123	138	143	196
C7	14	18	23	27	32	38	42	50
C8	80	100	120	138	146	166	196	250
D1	54.7	64.7	89.7	89.7	99.7	117.7	129.7	139.5
D2	22	30	38	40	44	54	65	65
D3	34	40	58	58	64	75	90	90
D4	M5 x P0.8	M5 x P0.8	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.75	M12 x P1.75	M12 x P1.75
D5	45	51	77	77	84	97	112	112

Weight $\pm 3\%$ (kg)

Reference Information of Ball Screw

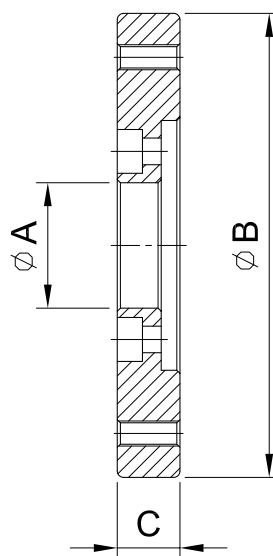
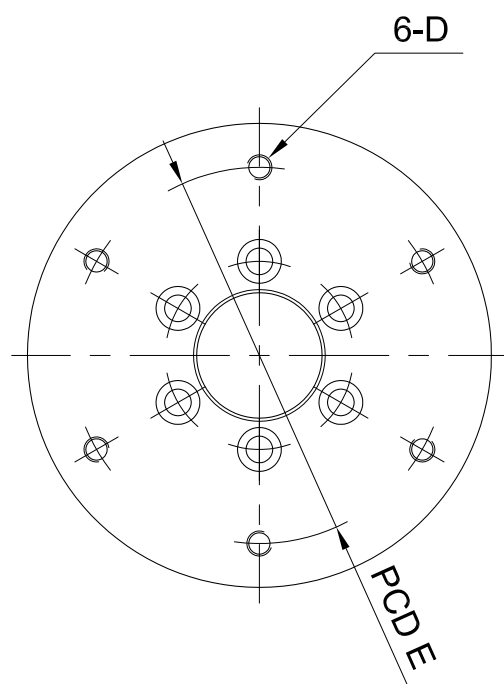
滾珠螺桿參考資料



配合 減速機 型號 Model of Reducer	螺桿尺寸 Screw Size		基本額定負荷 Basic Rate Load (kgf)		螺帽 Nut		法蘭 Flange			配合 FIT	螺絲孔 Screw Bolt				油孔 Oil Hole	螺桿 長度 Length
	外徑 O.D.	導程 Lead	動負荷 Dynamic	靜負荷 Static	Dg6	L	A	T	W	S	X	Y	Z	Q		
55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
75	20	6	1,380	2,730	34	61	57	12	45	12	5.5	9.5	5.5	M6 x P1	≤ 1500	
90	25	8	1,630	3,650	40	69	63.5	12	51	15	5.5	9.5	5.5	M8 x P1	≤ 1500	
115	36	10	3,600	8,280	58	89	98	18	77	20	11	17.5	11	M8 x P1	≤ 1500	
130	36	10	3,600	8,280	58	89	98	18	77	20	11	17.5	11	M8 x P1	≤ 1500	
140	40	10	4,670	11,830	64	99	106	18	84	20	11	17.5	11	M8 x P1	≤ 1500	
160	50	12	5,770	14,870	75	111	121	22	97	20	14	20	13	1/8"PT	≤ 1500	
190	63	12	9,320	29,150	90	136	136	22	112	20	14	20	13	1/8"PT	≤ 1500	
230	63	12	9,320	29,150	90	136	136	22	112	20	14	20	13	1/8"PT	≤ 1500	

Flange (B)

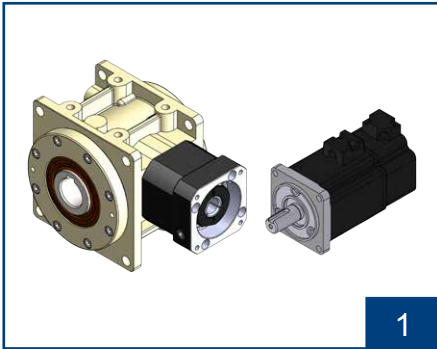
旋盤 (B)



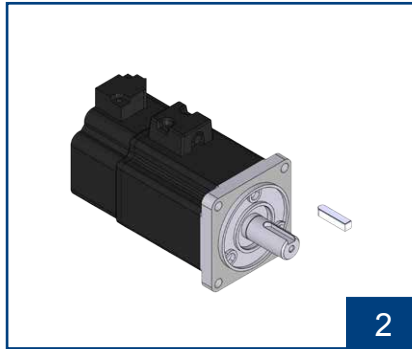
Model Code	55	75	90	115	130	140	160	190
A	-	25	30	40	45	50	55	60
B	-	102	128	148	168	198	228	248
C	-	15	16	20	23	24	23	27
D	-	M6 x P1.0	M8 x P1.25	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5	M12 x P1.25
E	-	80	100	120	140	160	180	200

High Precision Hypoid Gear Reducer and Motor Mounting Instructions 伺服用精密戟齒輪減速機與馬達安裝指南

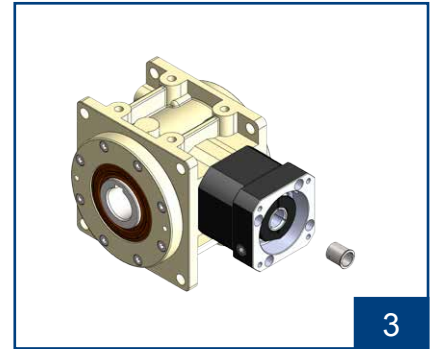
HY



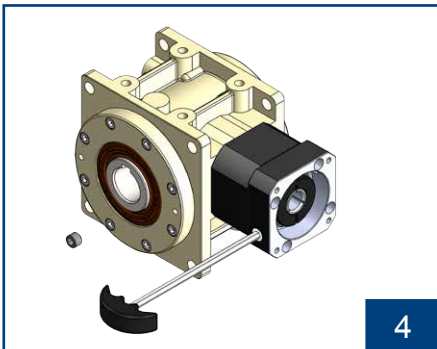
核對馬達型號與減速機規格是否正確。並將配合面擦拭乾淨。
Confirm the motor, and gearbox size. Clean up the mounting surface.



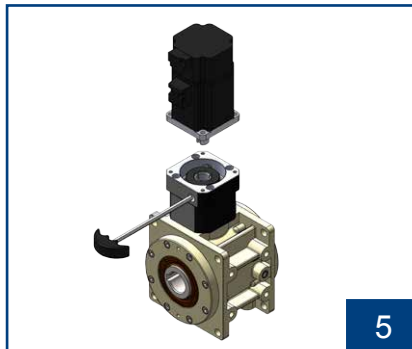
確認減速機與馬達是否有鍵配合。
Confirm whether the reducer and motor are keyed together.



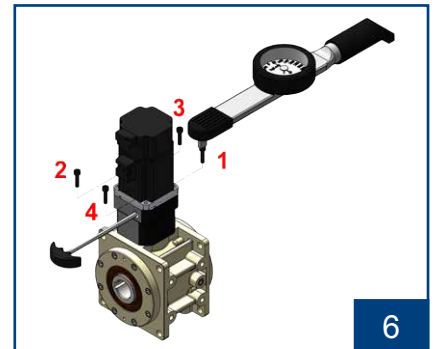
檢查馬達出力軸尺寸，如需軸套，請先裝進減速機入力孔內。
Check motor shaft size and insert bushing into input bore of the gear box if necessary.



取出塞頭，使用六角扳手將迫緊環螺絲鬆開。並將扳手與螺絲對準孔位。
Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.



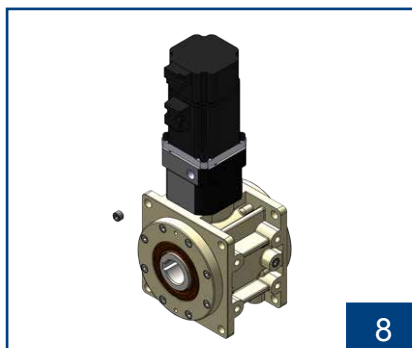
將馬達垂直裝入減速機。
Put the motor into the gearbox vertically.



依序 1~4 使用扭力扳手鎖上內六角螺絲。
Tighten the mounting bolt in 1~4 order with torque wrench.



使用扭力扳手將迫緊環螺絲鎖緊。
Tighten the set collar bolt with torque wrench.



裝回塞頭並鎖緊。
Tighten back the screw plug.

1. 務必先鎖緊馬達固定面，才能鎖緊馬達軸心迫緊環。
Please be sure to tighten motor flange on gear box flange first and then to tighten the set collar on motor shaft.
2. 請依步驟順序組裝，尤其步驟 6、7 不可顛倒。
Please assembly in order according to above steps, especially for step 6 and step 7.
3. 安裝完畢後，請將塞頭回塞，避免細小物品掉入減速機中。
Please noted that tighten back the screw plug to protect the gear box.

[illegible]

HK series

HK

Indication of Model Numbers

機種型號表示

減速機機型 Type	型號 Model	出力表示 Output	軸承形式 Bearing	速比 Ratio	背隙等級 Backlash Class
HK	64 90 110 140 200		B : 滾珠軸承 Ball Bearing T : 滾錐軸承 Taper Bearing	5 10 15	P0 ≤ 3 P1 ≤ 6 P2 ≤ 9



Characteristic of HK Series

HK 系列產品特性

單段減速機 1-Stage

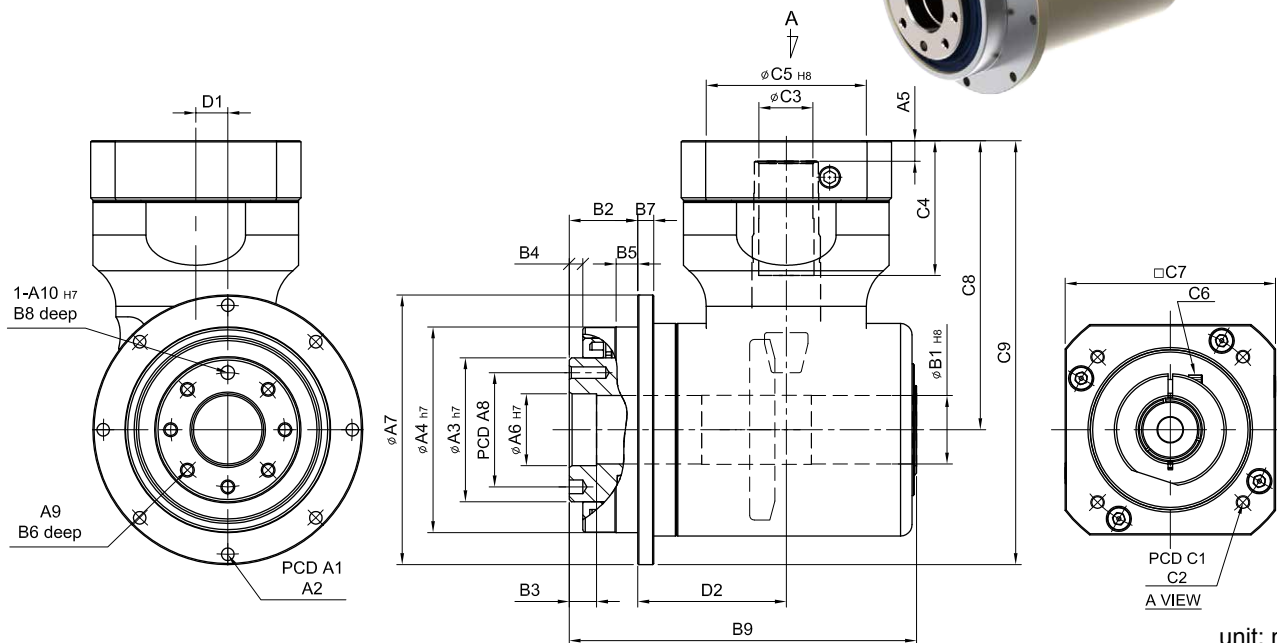
規格 Parameter	Code	Unit	Ratio	64	90	110	140	200
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	5	30	70	140	260	720
			10	25	60	117	220	615
			15	20	50	95	180	510
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	5~15	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	5~15	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	5	2,100	1,800	1,500	1,150	700
			10	3,200	2,700	2,200	1,800	1,200
			15	3,900	3,300	2,800	2,300	1,600
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	5~15	6,000	6,000	6,000	6,000	5,000
背隙 / Backlash	J_t	arcmin	P0	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
			P1	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
			P2	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	5~15	1,040	2,366	3,900	5,837	7,020
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	5~15	520	1183	1950	2919	3,510
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	5~15	3,370	6,920	11,300	17,300	20,200
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	5~15	1,685	3,460	5,650	8,650	10,100
使用壽命 / Service Life	L_H	hr	5~15	S5 周期運轉 Cycle Operation: >30,000				
效 率 / Efficiency	η	%	5	≥ 96%				
			10~15	≥ 93%				
使用溫度 / Operating Temperature		°C	5~15	-10°C ~ +90°C				
潤 滑 / Lubrication			5~15	全合成潤滑油 Synthetic Oil				
噪 音 值 / Noise Level		dB	5~15	≤ 66	≤ 67	≤ 68	≤ 69	≤ 70

轉動慣量 Mass Moments of Inertia (kgcm²)

Ratio	64	90	110	140	200
5	0.23	0.58	1.41	4.00	13.53
10	0.15	0.38	1.00	2.46	7.38
15	0.13	0.34	0.81	2.07	5.76

HK series

RATIO : 5.10.15 (單段 1-Stage)



unit: mm

Model Code	64	90	110	140	200
A1	79	109	135	168	233
A2	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0
A3 h7	40	63	80	100	160
A4 h7	64	90	110	140	200
A5	5	6	9	10	10
A6 H7	20	31.5	40	50	80
A7	86	118	146	179	248
A8	31.5	50	63	80	125
A9	7-M5 x P0.8	7-M6 x P1.0	11-M6 x P1.0	11-M8 x P1.25	11-M10 x P1.5
A10 H7	5	6	6	8	10
B1 H8	15	30	30	40	55
B2	18.5	30	29	38	50
B3	10	12	12	12	16
B4	3	6	6	6	8
B5	9.5	10	10	15	15
B6	10	12	12	16	22
B7	5	7	8	10	12
B8	6	6	7	7	10
B9	102.5	152	168	200	260
C1	46·60·63	90·110·115·145	115·145·165	115·145·165	145·165·200
C2	M3·M4·M5	M5·M6·M8	M6·M8·M10	M6·M8·M10	M8·M10·M12
C3	11	19·24	24·32	28·35	38·42
C4	26	59	67	82	84.5
C5 H8	30·40·50	70·80·95·110	95·110·130	95·110·130	110·130·180
C6	M3 x P0.5	M6 x P1.0	M8 x P1.25	M8 x P1.25	M10 x P1.5
C7	46·55	92·110·130	122·130·150	122·130·150	146·150·190
C8	69	126.5	149	179	228
C9	112	185.5	222.5	268.5	352.5
C10	1/8"PT	1/8"PT	1/4"PT	1/4"PT	1/4"PT
D1	9	14	18	23	32
D2	43.5	65	77	90	117
Weight ±3% (kg)	1.55	5.26		17	39.3

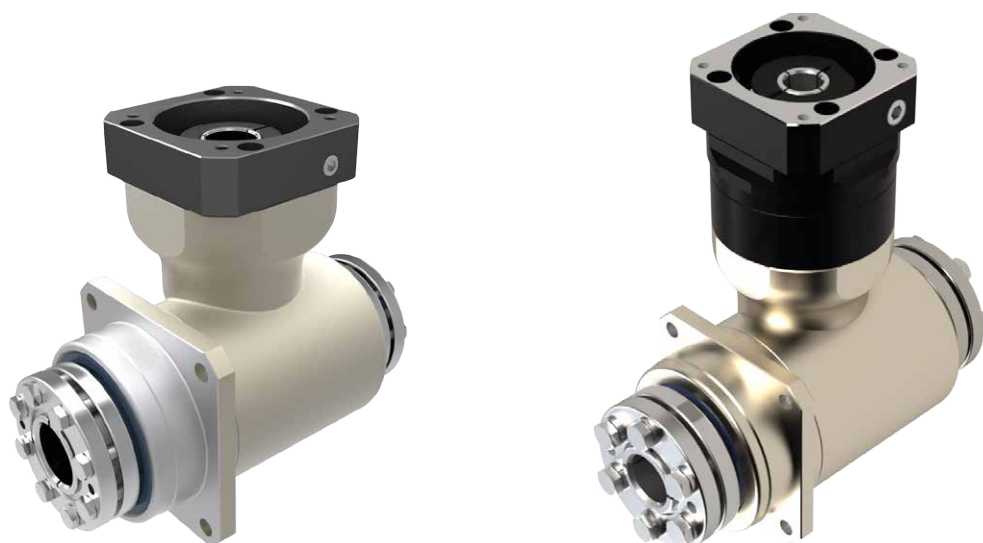
HF series

HF

Indication of Model Numbers

機種型號表示

HF	60	F	O	B	3	P0
減速機機型 Type	型號 Model	入力表示 Input	出力表示 Output	軸承形式 Bearing	速比 Ratio	背隙等級 Backlash Class
HF	60 75 100 140 180	F : 入力法蘭 Input Flange R44: 減速機 Reducer 1-Stage: R44、R62...	O: 出力中空軸 Hollow Output Shaft N: 單邊免鍵軸套 (有鍵槽) Single Clamping (Keyway) N1: 單邊免鍵軸套 (無鍵槽) Single Clamping (No Keyway) M: 雙邊免鍵軸套 Double Clamping S: 單出力軸心 (有鍵槽) Single Output Shaft (Keyway) S1: 單出力軸心 (無鍵槽) Single Output Shaft (No Keyway)	B : 滾珠軸承 Ball Bearing T: 滾錐軸承 Taper Bearing	單段 1-Stage 5, 10, 15 ----- 搭配單段 行星減速機 With 1-Stage Planetary Reducer 25 ~ 150	P0 ≤ 3 P1 ≤ 6 P2 ≤ 9



Characteristic of HF Series

HF 系列產品特性

單段減速機 1-Stage

規格 Parameter	Code	Unit	Ratio	60	75	100	140	180
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	5	30	35	70	260	720
			10	25	30	60	220	615
			15	20	25	50	180	510
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	5~15	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	5~15	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	5	2,100	2,100	1,800	1,150	700
			10	3,200	3,200	2,700	1,800	1,200
			15	3,900	3,900	3,300	2,300	1,600
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	5~15	6,000	6,000	6,000	6,000	5,000
背隙 / Backlash	J_t	arcmin	P0	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
			P1	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
			P2	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	5~15	1,040	1,495	2,366	5,837	7,020
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	5~15	520	748	1,183	2,919	3,510
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	5~15	3,370	6,920	11,300	17,300	20,200
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	5~15	1,685	2,460	5,650	8,650	10,100
使用壽命 / Service Life	L_H	hr	5~15	S5 周期運轉 Cycle Operation: >30,000				
效 率 / Efficiency	η	%	5~10	≥ 96%				
			15	≥ 93%				
使用溫度 / Operating Temperature		°C	5~15	-10°C ~ +90°C				
潤 滑 / Lubrication			5~15	全合成潤滑油 Synthetic Oil				
噪 音 值 / Noise Level		dB	5~15	≤ 66	≤ 66	≤ 66	≤ 68	≤ 70

轉動慣量 Mass Moments of Inertia (kgcm²)

Ratio	60	75	100	140	180
5~15	0.03	0.13	0.78	6.74	5.78

Characteristic of HF Series

HF 系列產品特性

雙段減速機 2-Stage

規格 Parameter	Code	Unit	Ratio	60	75	100	140	180
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	25 · 50	30	35	70	260	720
			100	25	30	60	220	615
			75 · 150	20	25	50	180	510
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	25~150	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	25~150	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	25~150	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	25~150	6,000	6,000	6,000	6,000	5,000
背隙 / Backlash	J_t	arcmin	P0	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
			P1	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
			P2	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
容許徑向力 / Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	25~150	1,040	1,495	2,366	5,837	7,020
容許軸向力 / Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	25~150	520	748	1,183	2,919	3,510
容許徑向力 / Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	25~150	3,370	6,920	11,300	17,300	20,200
容許軸向力 / Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	25~150	1,685	2,460	5,650	8,650	10,100
使用壽命 / Service Life	L_{Ht}	hr	25~150	S5 周期運轉 Cycle Operation: >30,000				
效 率 / Efficiency	η	%	25 · 50	≥ 92%				
			75 · 100 · 150	≥ 90%				
使用溫度 / Operating Temperature		°C	25~150	-10°C ~ +90°C				
潤 滑 / Lubrication			25~150	全合成潤滑油 Synthetic Oil				
噪 音 值 / Noise Level		dB	25~150	≤ 66	≤ 66	≤ 66	≤ 68	≤ 70

轉動慣量 Mass Moments of Inertia (kgcm²)

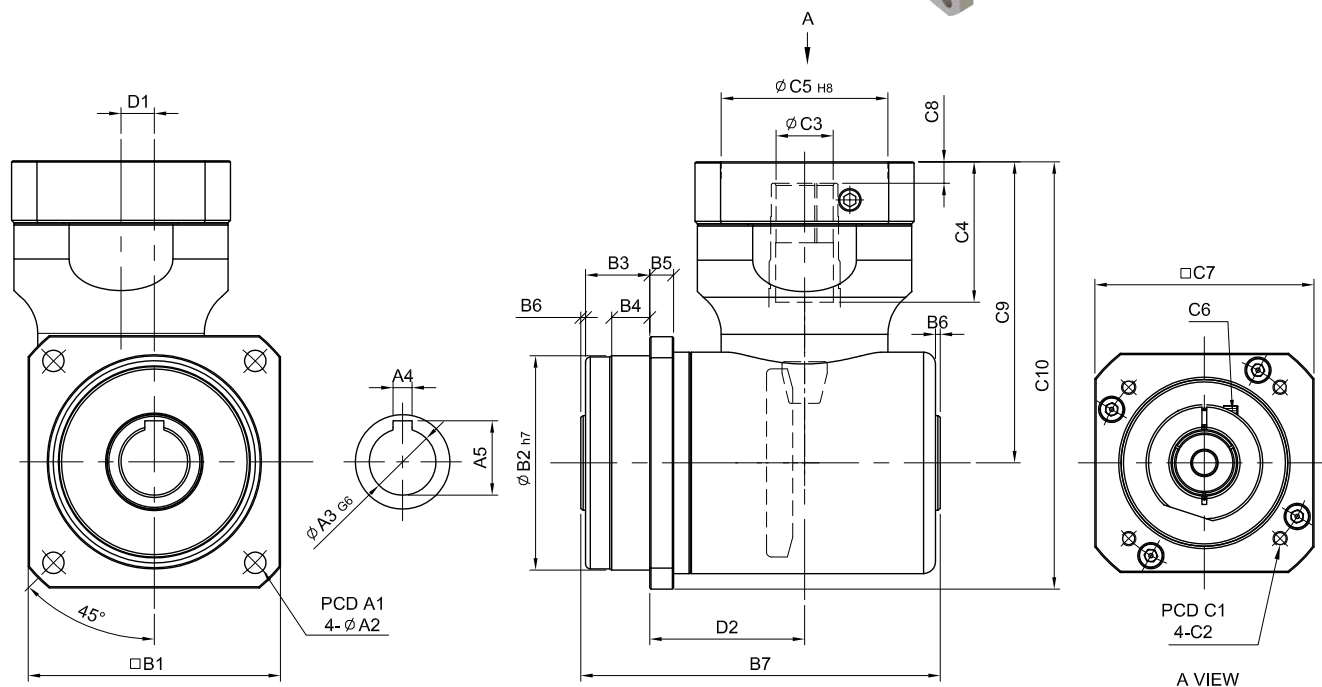
Ratio	60	75	100	140	180
25~150	0.04	0.13	0.13	0.47	2.71

HF-FO series

RATIO : 5.10.15 (單段 1-Stage)

入力法蘭 - 出力中空軸

Input Flange - Hollow Output Shaft



unit: mm

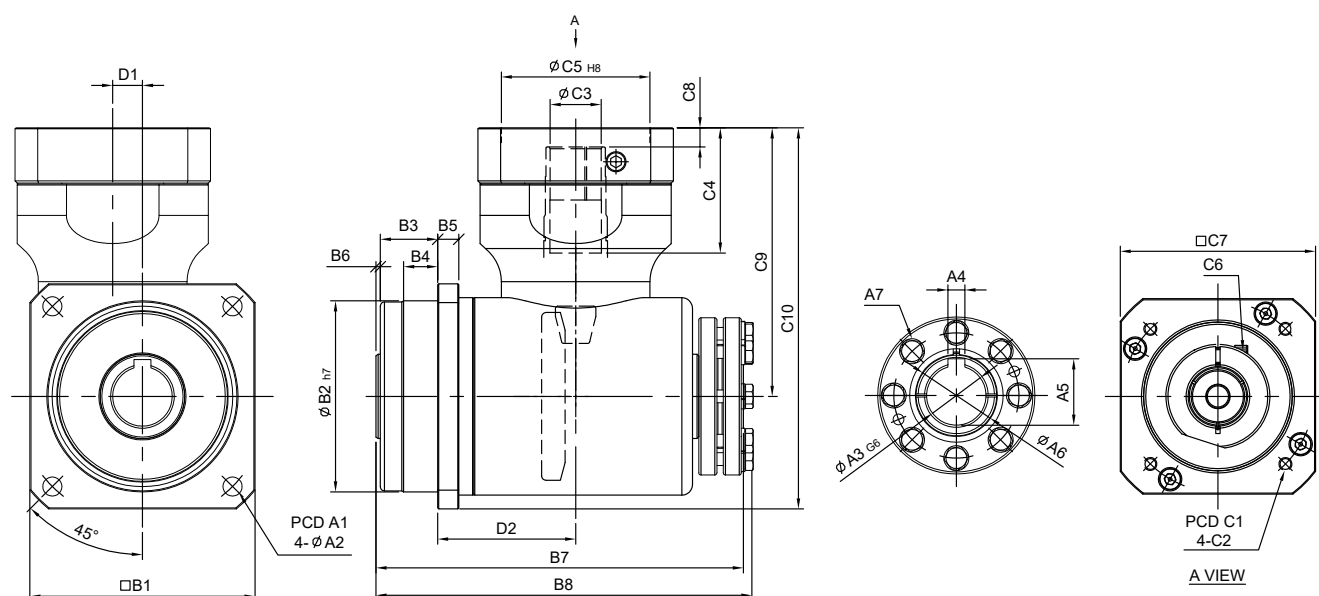
	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	15	20	28	40	55
	A4	4	5	8	12	14
	A5	16.7	22.3	31.3	43.3	58.8
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	2	2	2	3	3
	B7	103	113	151	193	247
C	C1	46・60・63	70・75・90	90・100・115・145	115・145・165	145・165・200
	C2	M3・M4・M5	M4・M5・M6	M5・M6・M8	M6・M8・M10	M8・M10・M12
	C3	11	14	24	35	42
	C4	26	33	59	82	84.5
	C5	30・40・50	50・60・70	70・80・95・110	95・110・130	110・130・180
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
	C7	46・55	64・70・80	92・110・130	122・130・150	146・150・190
	C8	5	6	9	10	10
	C9	69	95.5	126.5	179	228
	C10	100	133.5	179.5	250	323
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		1.5	2.6	6.42	15.6	35.3

HF-FN series

RATIO : 5.10.15 (單段 1-Stage)

入力法蘭 - 單邊免鍵軸套

Input Flange - Single Clamping



unit: mm

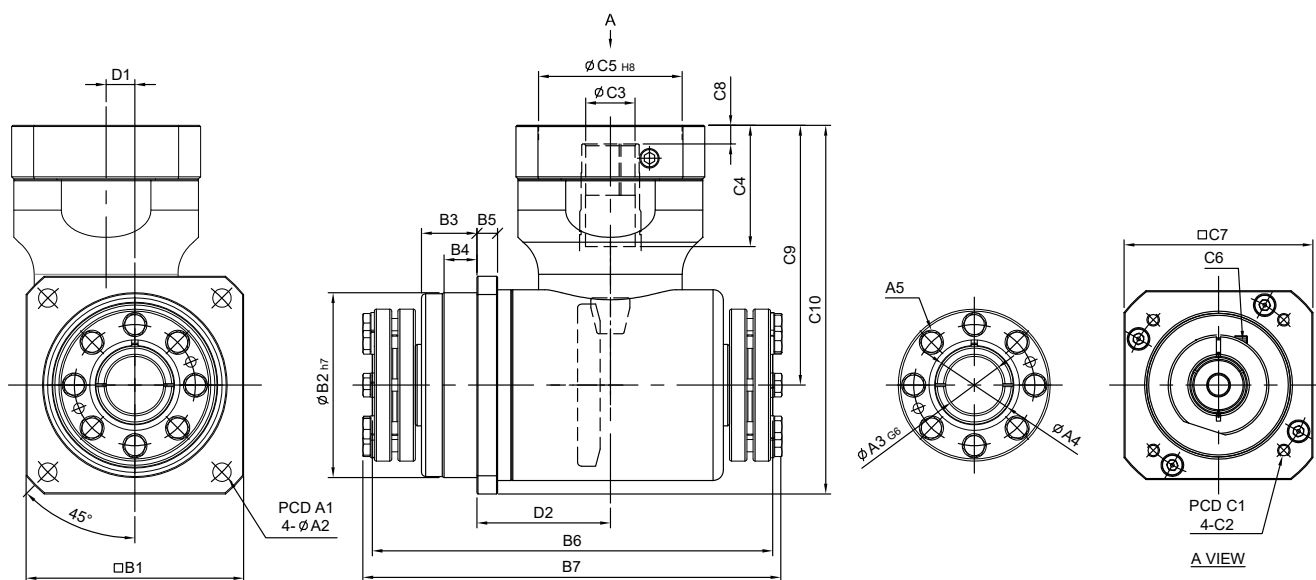
	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	15	20	28	40	55
	A4	4	5	8	12	14
	A5	16.7	22.3	31.3	43.3	58.8
	A6	22	28	38	52	73
	A7	6-M6	6-M6	8-M6	8-M6	12-M8
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	2	2	2	3	3
	B7	123.5	134	173	223	279
C	B8	127	138	177	229	284
	C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200
	C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12
	C3	11	14	24	35	42
	C4	26	33	59	82	84.5
	C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
	C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190
	C8	5	6	9	10	10
	C9	69	95.5	126.5	179	228
	C10	100	133.5	179.5	250	323
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		1.53	2.64	6.5	15.8	35.3

HF-FM series

RATIO : 5.10.15 (單段 1-Stage)

入力法蘭 - 雙邊免鍵軸套

Input Flange - Double Clamping



unit: mm

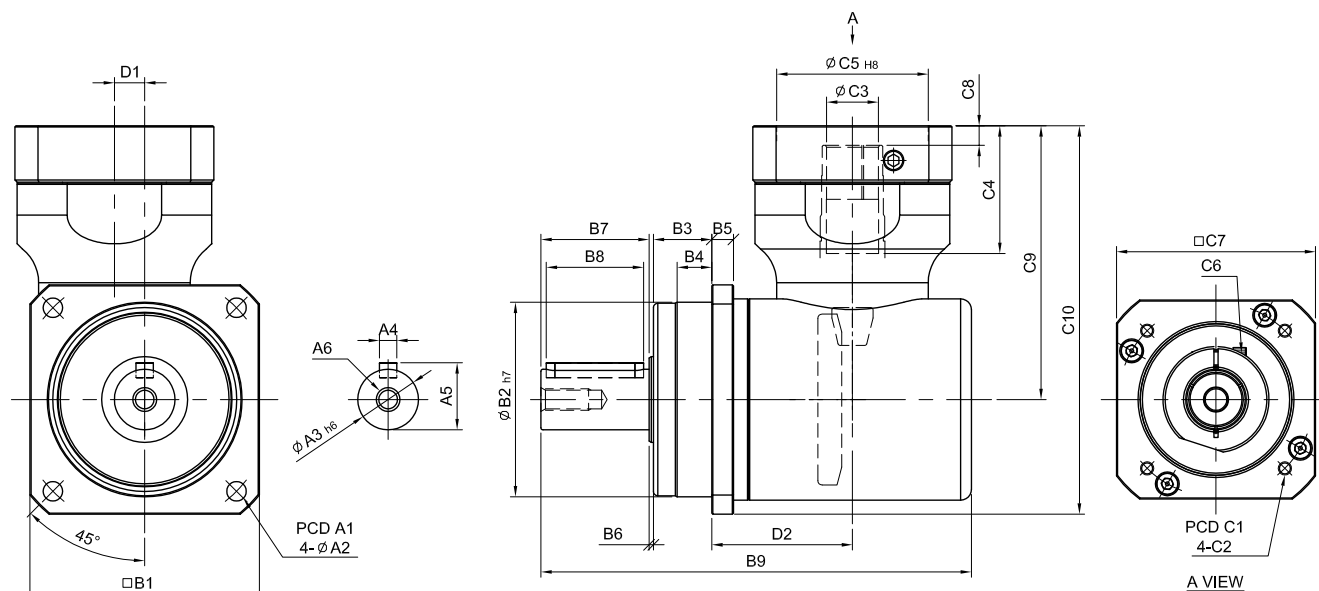
	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	15	20	28	40	55
	A4	22	28	38	52	73
	A5	6-M6	6-M6	8-M6	8-M6	12-M8
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	144	155	195	253	311
	B7	153	162	202	264	320
C	C1	46·60·63	70·75·90	90·100·115·145	115·145·165	145·165·200
	C2	M3·M4·M5	M4·M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12
	C3	11	14	24	35	42
	C4	26	33	59	82	84.5
	C5	30·40·50	50·60·70	70·80·95·110	95·110·130	110·130·180
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
	C7	46·55	64·70·80	92·110·130	122·130·150	146·150·190
	C8	5	6	9	10	10
	C9	69	95.5	126.5	179	228
	C10	100	133.5	179.5	250	323
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		1.6	2.71	6.63	16.1	35.8

HF-FS series

RATIO : 5.10.15 (單段 1-Stage)

入力法蘭 - 單出力軸心

Input Flange - Single Output Shaft



unit: mm

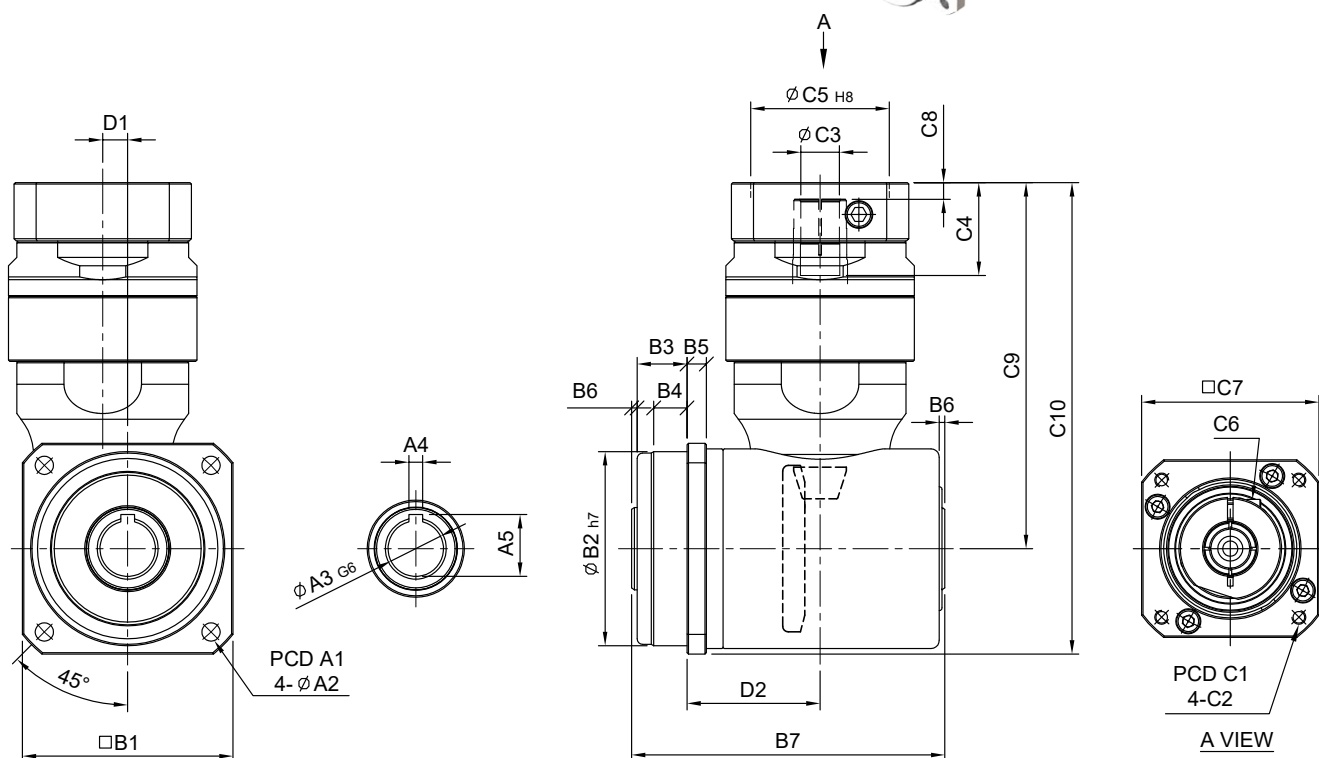
	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	16	22	28	40	55
	A4	5	6	8	12	16
	A5	18	24.5	31	43	59
	A6	M5 x P0.8	M8 x P.125	M10 x 1.5	M12 x P1.75	M16 x P20
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	2	2	2	3	3
	B7	28	36	50	70	82
	B8	25	32	45	60	70
	B9	129	147	199	260	326
C	C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 200
	C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12
	C3	11	14	24	35	42
	C4	26	33	59	82	84.5
	C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
	C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190
	C8	5	6	9	10	10
	C9	69	95.5	126.5	179	228
	C10	100	133.5	179.5	250	323
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		1.64	2.9	7.3	17.9	40.2

HF-RO series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

搭配行星減速機 - 出力中空軸

Fitted with Planetary Reducer - Hollow Output Shaft



unit: mm

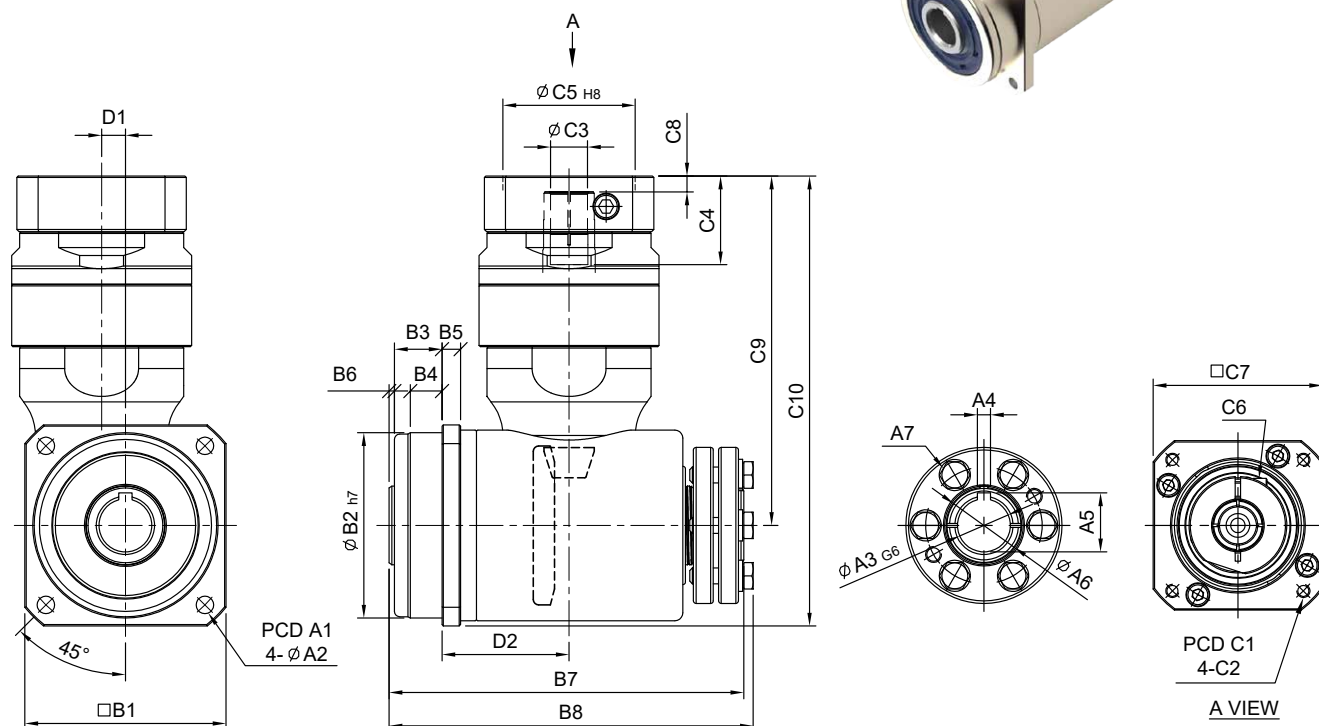
A	Model Code	60	75	100	140	180	
	A1	68	85	120	165	215	
	A2	5.5	6.5	9	11	13	
	A3	15	20	28	40	55	
	A4	4	5	8	12	14	
	A5	16.7	22.3	31.3	43.3	58.8	
B	B1	62	76	106	142	190	
	B2	60	70	90	130	160	
	B3	18	18	27	27	26	
	B4	11	12	16	15.5	15.5	
	B5	6	7	10	12	15	
	B6	2	2	2	3	3	
C	B7	103	113	151	193	247	
	C1	46·60·63	70·75·90	70·75·90·115		90·100·115·145	115·145·165
	C2	M3·M4·M5	M4·M5·M6	M4·M5·M6·M8		M5·M6·M8	M6·M8·M10
	C3	8·9·11	11·14	11·14	16·19	16·19·22·24	22·24·28·32
	C4	26	33.5	33.5	41.5	59.2	67.5
	C5	30·40·50	50·60·70	50·60·70·95		70·80·95·110	95·110·130
	C6	M4 x P0.7	M5 x P0.8	M5 x P0.8		M6 x P1.0	M8 x P1.25
	C7	46·55	64·70·80	64·70·80·100		92·110·130	122·130·150
	C8	5	6	6		9.2	10.5
	C9	98	132	155	163	220	278.5
D	C10	129	170	208	216	294.5	382.5
	D1	9	9	14		23	32
	D2	41.5	48	65		90	125
Weight ±3% (kg)		2.3	3.5	8.81		18.1	43.4

HF-RN series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

搭配行星減速機 - 單邊免鍵軸套

Fitted with Planetary Reducer - Single Clamping



unit: mm

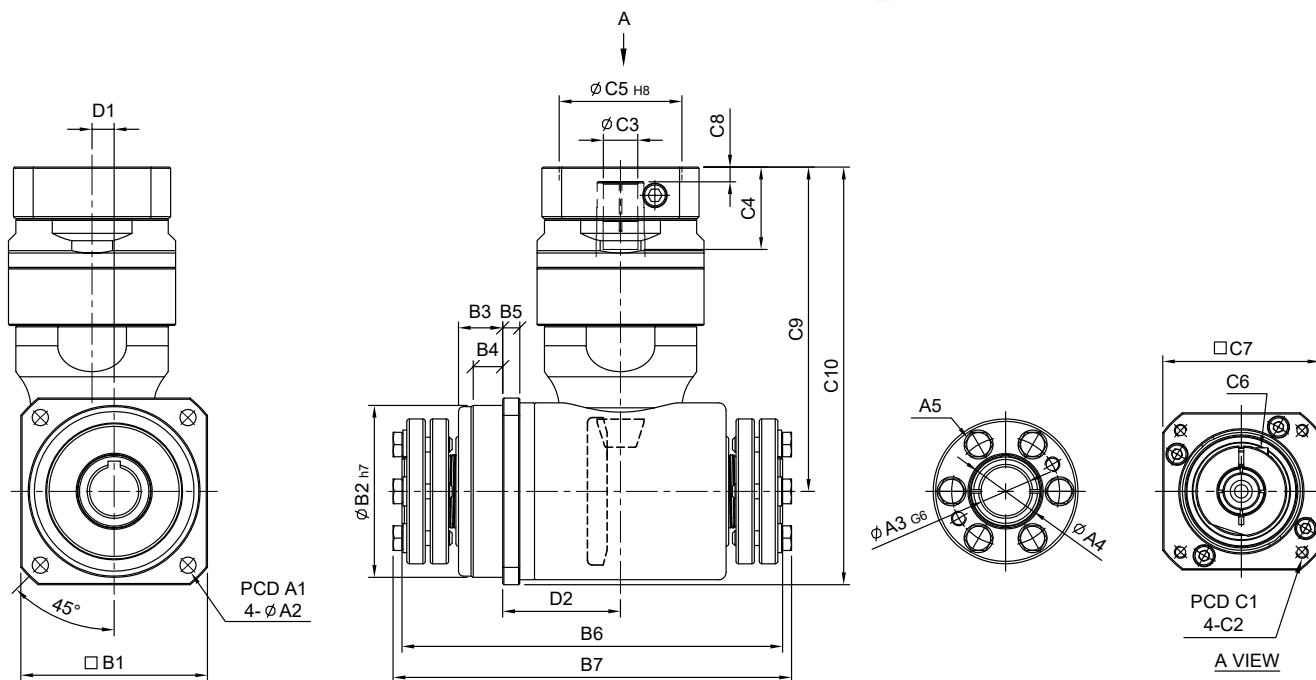
	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	15	20	28	40	55
	A4	4	5	8	12	14
	A5	16.7	22.3	31.3	43.3	58.8
	A6	22	28	38	52	73
	A7	6-M6	6-M6	8-M6	8-M6	12-M8
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	2	2	2	3	3
	B7	123.5	134	173	223	279
C	B8	127	138	177	229	284
	C1	46·60·63	70·75·90	70·75·90·115	90·100·115·145	115·145·165
	C2	M3·M4·M5	M4·M5·M6	M4·M5·M6·M8	M5·M6·M8	M6·M8·M10
	C3	8·9·11	11·14	11·14 16·19	16·19·22·24	22·24·28·32
	C4	26	33.5	33.5 41.5	59.2	67.5
	C5	30·40·50	50·60·70	50·60·70·95	70·80·95·110	95·110·130
	C6	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25
	C7	46·55	64·70·80	64·70·80·100	92·110·130	122·130·150
	C8	5	6	6	9.2	10.5
	C9	98	132	155 163	220	278.5
	C10	129	170	208 216	294.5	382.5
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		2.3	3.5	8.9	18.3	43.4

HF-RM series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

搭配行星減速機 - 雙邊免鍵軸套

Fitted with Planetary Reducer - Double Clamping



unit: mm

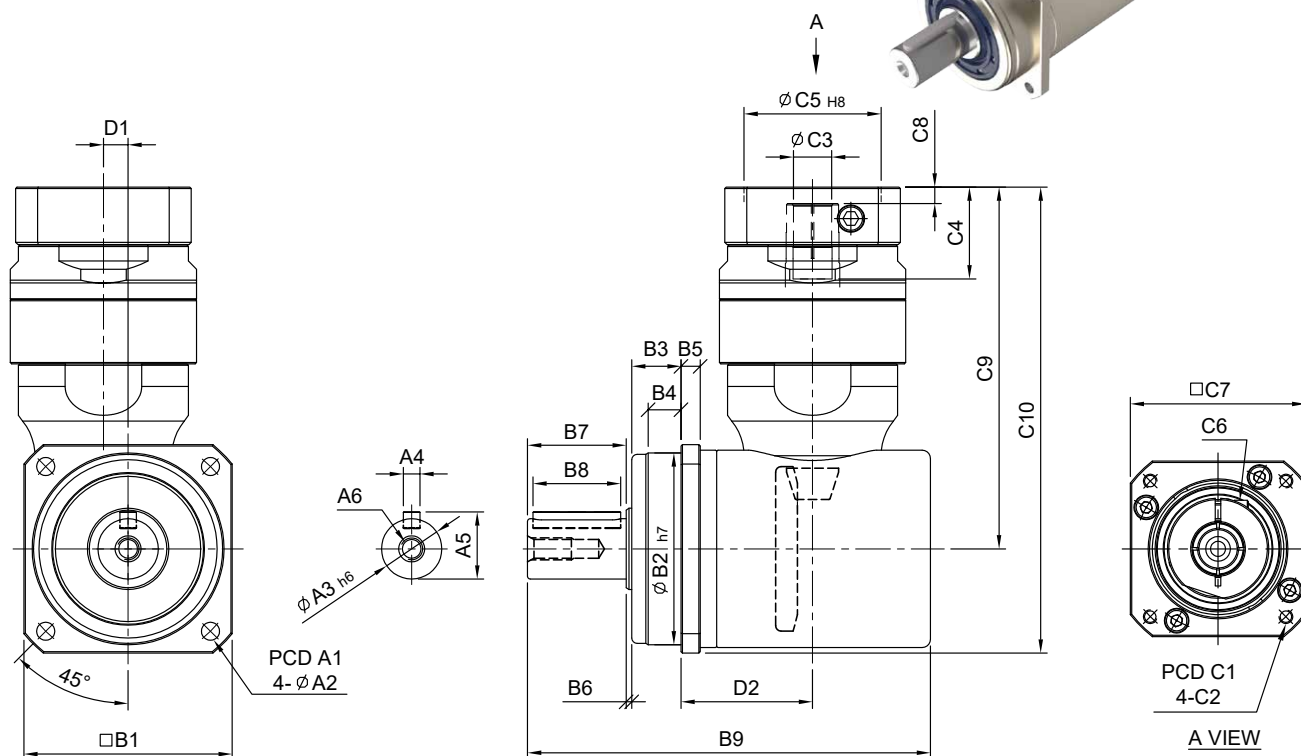
	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	15	20	28	40	55
	A4	22	28	38	52	73
	A5	6-M6	6-M6	8-M6	8-M6	12-M8
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	144	155	195	253	311
	B7	153	162	202	264	320
C	C1	46·60·63	70·75·90	70·75·90·115	90·100·115·145	115·145·165
	C2	M3·M4·M5	M4·M5·M6	M4·M5·M6·M8	M5·M6·M8	M6·M8·M10
	C3	8·9·11	11·14	11·14 16·19	16·19·22·24	22·24·28·32
	C4	26	33.5	33.5 41.5	59.2	67.5
	C5	30·40·50	50·60·70	50·60·70·95	70·80·95·110	95·110·130
	C6	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25
	C7	46·55	64·70·80	64·70·80·100	92·110·130	122·130·150
	C8	5	6	6	9.2	10.5
	C9	98	132	155 163	220	278.5
	C10	129	170	208 216	294.5	382.5
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		3.6	3.61	9	18.6	44

HF-RS series

RATIO : 25.50.75.100.150 (雙段 2-Stage)

搭配行星減速機 - 單出力軸心

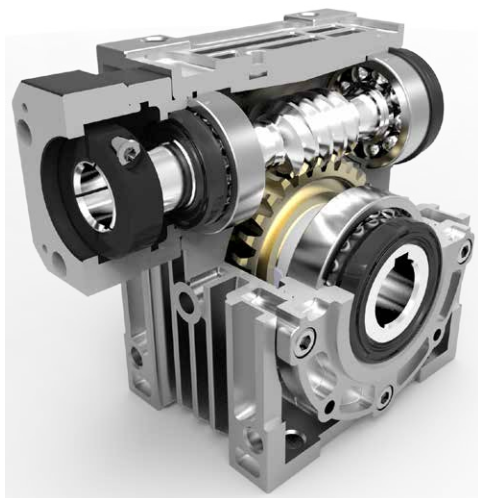
Fitted with Planetary Reducer - Single Output Shaft



unit: mm

	Model Code	60	75	100	140	180
A	A1	68	85	120	165	215
	A2	5.5	6.5	9	11	13
	A3	16	22	28	40	55
	A4	5	6	8	12	16
	A5	18	24.5	31	43	59
	A6	M5 x P0.8	M8 x P.125	M10 x 1.5	M12 x P1.75	M16 x P20
B	B1	62	76	106	142	190
	B2	60	70	90	130	160
	B3	18	18	27	27	26
	B4	11	12	16	15.5	15.5
	B5	6	7	10	12	15
	B6	2	2	2	3	3
	B7	28	36	50	70	82
	B8	25	32	45	60	70
	B9	129	147	199	260	326
C	C1	46·60·63	70·75·90	70·75·90·115	90·100·115·145	115·145·165
	C2	M3·M4·M5	M4·M5·M6	M4·M5·M6·M8	M5·M6·M8	M6·M8·M10
	C3	8·9·11	11·14	11·14 16·19	16·19·22·24	22·24·28·32
	C4	26	33.5	33.5 41.5	59.2	67.5
	C5	30·40·50	50·60·70	50·60·70·95	70·80·95·110	95·110·130
	C6	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25
	C7	46·55	64·70·80	64·70·80·100	92·110·130	122·130·150
	C8	5	6	6	9.2	10.5
	C9	98	132	155 163	220	278.5
	C10	129	170	208 216	294.5	382.5
D	D1	9	9	14	23	32
	D2	41.5	48	65	90	125
Weight ±3% (kg)		3.64	3.8	9.64	20.4	48.3

WE series



- 全系列小於 8 弧分
Backlash ≤ 8 arcmin

適用於精密定位、連續運轉時，需注意減速機表面溫度，不超出 90°C 以上。

Suitable for precision positioning. If operated continuously, be mindful of the surface temperature of the reducer, ensuring it does not exceed 90° C."

Indication of Model Numbers

機種型號表示

WE	N		60	30	L	MOTOR
減速機機型 Type	出力軸 Output Shaft	出力法蘭 Output Flange	型號 Model	速比 Ratio	軸向 Shaft Dirction	馬達型號 Motor Type
WE	S: 實心軸 Solid	☐ 無 None	30 40 50 60 70	1/5 1/10 1/15 1/20 1/30 1/40 1/50 1/60	R L	
	O: 中空軸 Hollow	F: 出力法蘭 Output Flange				
	N: 免鍵軸套 Clamping					

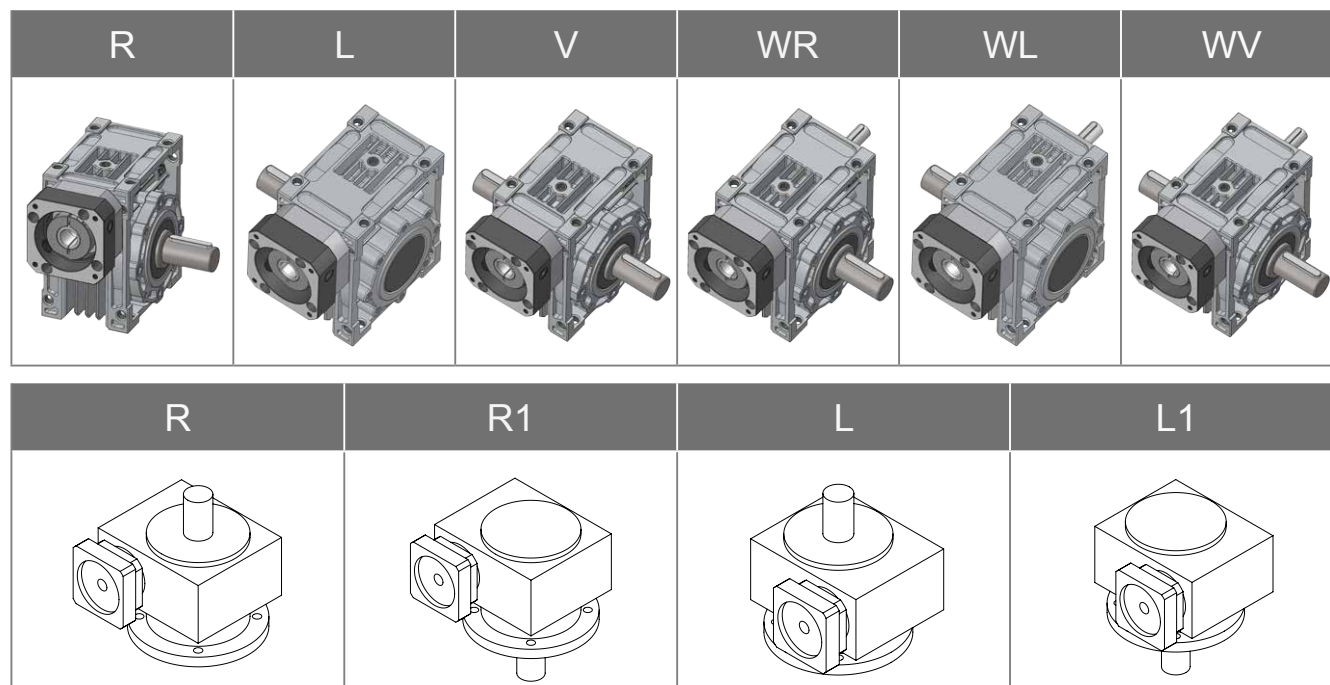
WE 系列 WE Series		
Model	油量 Volume (cc)	油重 Volume (g)
30#	30 cc	25 g
40#	70 cc	70 g
50#	140 cc	150 g
60#	260 cc	285 g
70#	360 cc	390 g

Characteristic of WE Series

WE 系列產品特性

Shaft Direction

軸向



R: 右軸 (腳座貼地面, 輸入端面向自己, 此時輸出端位於右側)

L: 左軸 (腳座貼地面, 輸入端面向自己, 此時輸出端位於左側)

W: 雙入力軸單出力軸

WV: 雙入力軸和雙出力軸

S: 特殊軸 (訂貨時請註明或附圖面)

R: Right Shaft (when facing input shaft and foot on the ground, output shaft is on the right)

L: Left Shaft (when facing input shaft and foot on the ground, output shaft is on the left)

W: Double Input Shaft & Single Output Shaft

WV: Double Input Shaft & Single Output Shaft

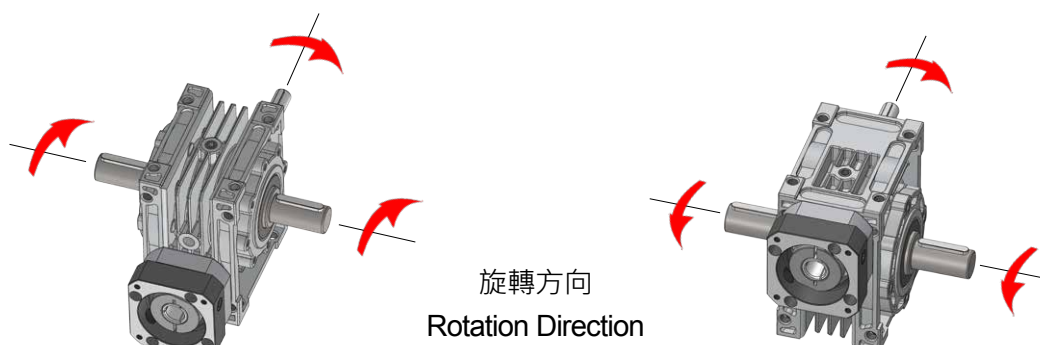
S: Special shaft (Please specify your need clearly or attach drawing)

Rotary Direction

旋向

設計上蝸桿使用右旋牙, 故入力軸以順時針方向旋轉時, 出力軸以逆時針方向旋轉, 如需特殊旋向時請註明。

Upper worm for right-directed thread, so the input shaft is rotating clockwise and the output shaft counterclockwise; for any rotating direction required, be sure to specify it.



Characteristic of WE Series

WE 系列產品特性

WE



WES

○實心軸 Solid output shaft



WESF

○實心軸 Solid output shaft



WEO

○中空軸 Hollow output shaft



WEOF

○中空軸 Hollow output shaft



WEN

○中空軸免鍵式 Clamping output shaft



WENF

○中空軸免鍵式 Clamping output shaft

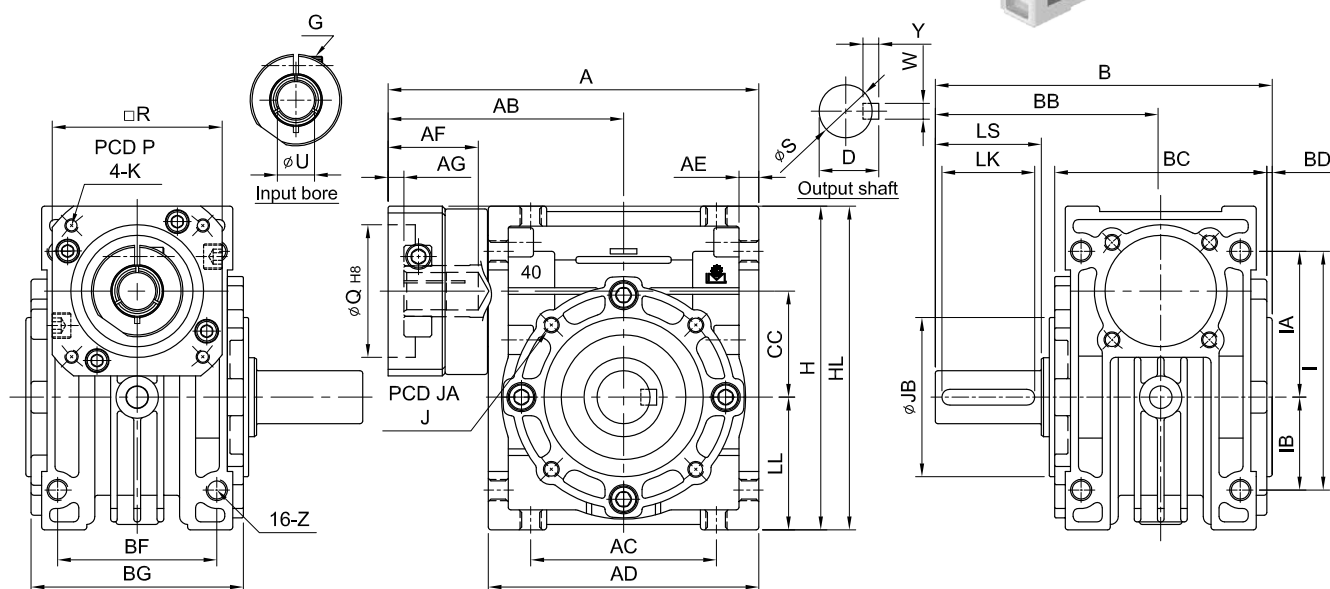
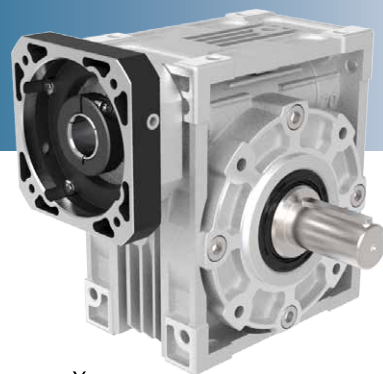
Characteristic of WE Series

WE 系列產品特性

規格 Parameter	Code	Unit	Ratio	30	40	50	60	70
額定輸出扭矩 / Rated Output Torque (Nominal output torque) / 效 率 / Efficiency	T_{2N}	Nm	5	8.3	22.3	30.6	41.2	70.6
				90.3	92.3	92.6	92.6	93.6
			10	8.8	20.7	41.9	65.9	92
				83.7	86.6	89.6	90.1	90.5
			15	11.4	26.2	40.9	64.5	90
				81.9	83.7	85.3	86.1	86.6
			20	9.52	22.6	40.7	63.5	106.1
				72.3	76.6	81.7	82.4	85.1
			30	12.1	27.4	43.2	67.9	95
				69.6	72.3	74.5	75.9	76.7
			40	9.2	24.3	43.8	69.1	111
				56.8	66.3	69.2	70.3	74.3
			50	10.4	24	43.6	69.2	105.6
				58.7	64.6	67.7	68.9	71.2
			60	9.6	20.5	36.1	58.3	100.5
				54.6	56.8	59.3	61.3	68.8
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	5~60	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	5~60	2,000				
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	5~60	3,000				
背 隙 / Backlash Ps		arcmin	5~60	≤ 8				
容許徑向力 / Max. Radial Force	F_{2rB}	N	5~60	1,830	3,490	4,840	6,270	7,380
容許軸向力 / Max. Axial Force	F_{2aB}	N	5~60	915	1,745	2,420	3,135	3,690
使用壽命 / Service Life	L_H	hr	5~60	S5 周期運轉: >12,000 (S1 連續運轉: >6,000hrs) S5 Cycle Operation: >12,000 (S1 Continuous Operation: >6,000hrs)				
使用溫度 / Operating Temperature		°C	5~60	-15° C ~ +90° C				
潤 滑 / Lubrication			5~60	全合成潤滑油 Synthetic Oil				
防護等級 / Protection Class			5~60	IP65				
安裝方向 / Mounting Position			5~60	任意方向 Any				

WES series

RATIO : 5.10.15.20.30.40.50.60



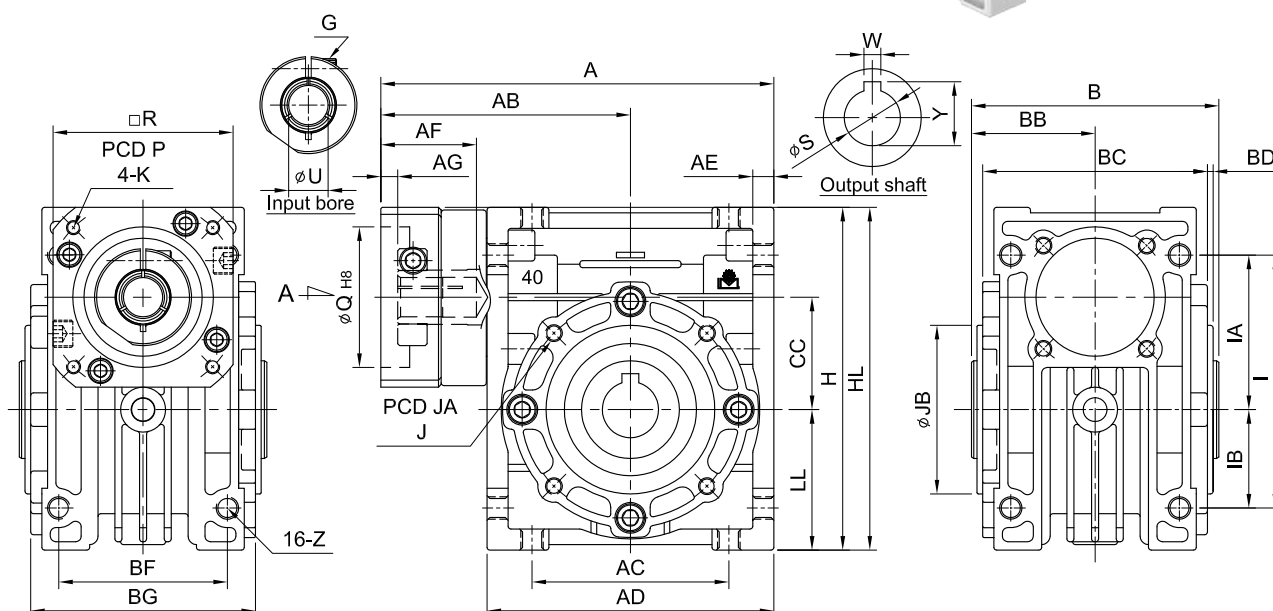
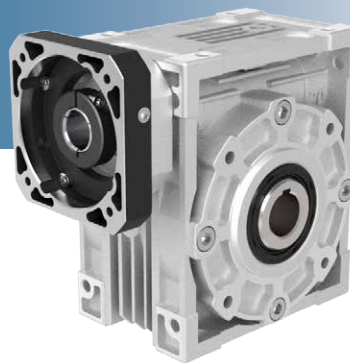
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BF	BG	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	108	68	55	80	6	32	5	99.5	67.5	60	2	45	58	30	40	72	45	27	M6	98	1.4
40	140	89	70	102	7.5	34	6	127	85	80	2	60	72	40	50	90	55	35	M8	122	2.6
50	158	98	80	120	8.5	41	6	150	100	94	3	70	85	50	60	105	65	40	M10	145	4.7
60	195	122	100	146	10	59	9	159	105	102	3	85	103	60	75	136	83	53	M10	180	7.5
70	219	134	120	170	12	59	9	187	125	118	3	90	110	70	85	150	90	60	M10	200	10.6

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	16	20	25	25	30
	Y	5	6	7	7	7
	W	5	6	8	8	8
	D	18	22.5	28	28	33
	LS	35	40	50	50	60
	LK	30	35	45	45	55
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
MOTOR FLANGE & INPUT BORE	P	46、60、63	70、75、90	70、75、90	90、100、115、145	90、100、115、145
	K	M3 x P0.5 M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M5 x P0.8 M6 x P1.0 M8 x P1.25	M5 x P0.8 M6 x P1.0 M8 x P1.25
	R	46、55	64、70、80	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0
	Q	30、40、50	50、60、70	50、60、70	70、80、95、110	70、80、95、110
	U	8	14	19	24	24
	HL	100	122、125、130	145、150	181、190、200	210、220

WEO series

RATIO : 5.10.15.20.30.40.50.60

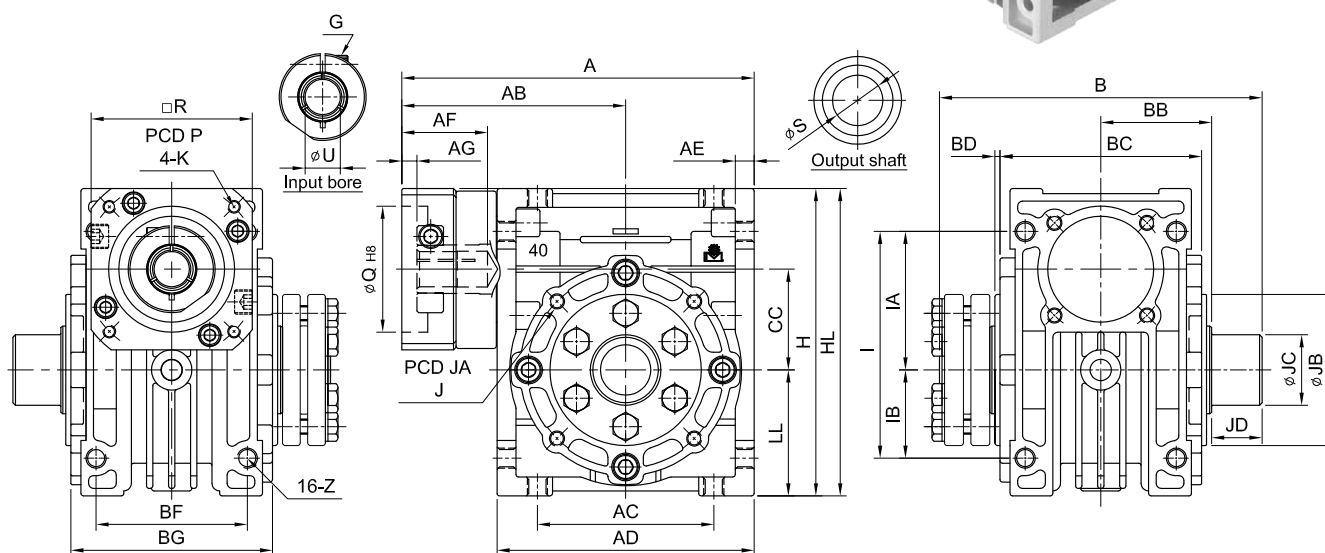
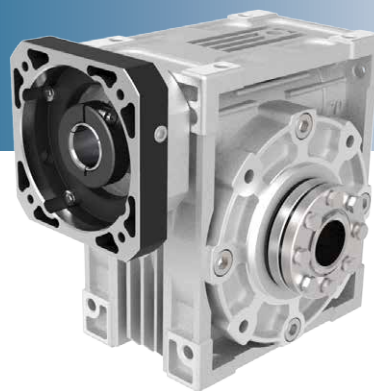


Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BF	BG	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	108	68	55	80	6	32	5	65	32.5	60	2	45	58	30	40	72	45	27	M6	98	1.3
40	140	89	70	102	7.5	34	6	88	44	80	2	60	72	40	50	90	55	35	M8	122	2.5
50	158	98	80	120	8.5	41	6	98	50	94	3	70	85	50	60	105	65	40	M10	145	4
60	195	122	100	146	10	59	9	108	54	102	3	85	103	60	75	136	83	53	M10	180	6.7
70	219	134	120	170	12	59	9	128	64	118	3	90	110	70	85	150	90	60	M10	200	9

		unit : mm									
Code	Model	30	40	50	60	70					
OUTPUT SHAFT	S	14	20	25	25	30					
	Y	16.3	22.8	28.3	28.3	33.3					
	W	5	6	8	8	8					
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5					
	JA	65	77	95	120	140					
	JB	55	60	70	80	90					
MOTOR FLANGE & INPUT BORE	P	46、60、63	70、75、90	70、75、90	90、100、115、145	90、100、115、145					
	K	M3 x P0.5 M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M5 x P0.8 M6 x P1.0 M8 x P1.25	M5 x P0.8 M6 x P1.0 M8 x P1.25					
	R	46、55	64、70、80	64、70、80	92、110、130	92、110、130					
	G	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0					
	Q	30、40、50	50、60、70	50、60、70	70、80、95、110	70、80、95、110					
	U	8	14	19	24	24					
	HL	100	122、125、130	145、150	181、190、200	210、220					

WEN series

RATIO : 5.10.15.20.30.40.50.60



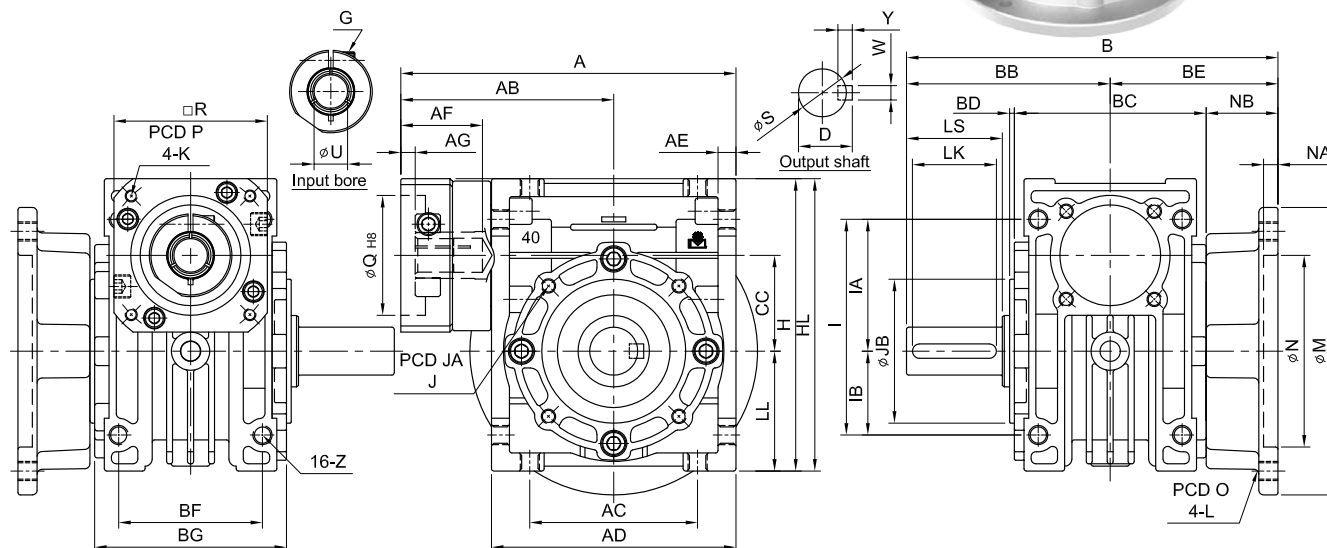
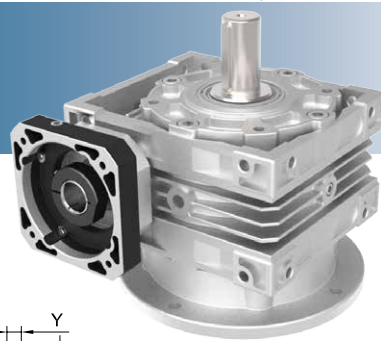
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BF	BG	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	108	68	55	80	6	32	5	108	36	60	2	45	58	30	40	72	45	27	M6	98	1.6
40	140	89	70	102	7.5	34	6	128	46	80	2	60	72	40	50	90	55	35	M8	122	2.8
50	158	98	80	120	8.5	41	6	146	53	94	3	70	85	50	60	105	65	40	M10	145	4.3
60	195	122	100	146	10	59	9	154	57	102	3	85	103	60	75	136	83	53	M10	180	7
70	219	134	120	170	12	59	9	172	65	118	3	90	110	70	85	150	90	60	M10	200	10.6

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	JC	22	28	34	35	40
	JD	18	18	20	20	21
MOTOR FLANGE & INPUT BORE	P	46、60、63	70、75、90	70、75、90	90、100、115、145	90、100、115、145
	K	M3 x P0.5 M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M5 x P0.8 M6 x P1.0 M8 x P1.25	M5 x P0.8 M6 x P1.0 M8 x P1.25
	R	46、55	64、70、80	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0
	Q	30、40、50	50、60、70	50、60、70	70、80、95、110	70、80、95、110
	U	8	14	19	24	24
	HL	100	122、125、130	145、150	181、190、200	210、220

WESF series

RATIO : 5.10.15.20.30.40.50.60



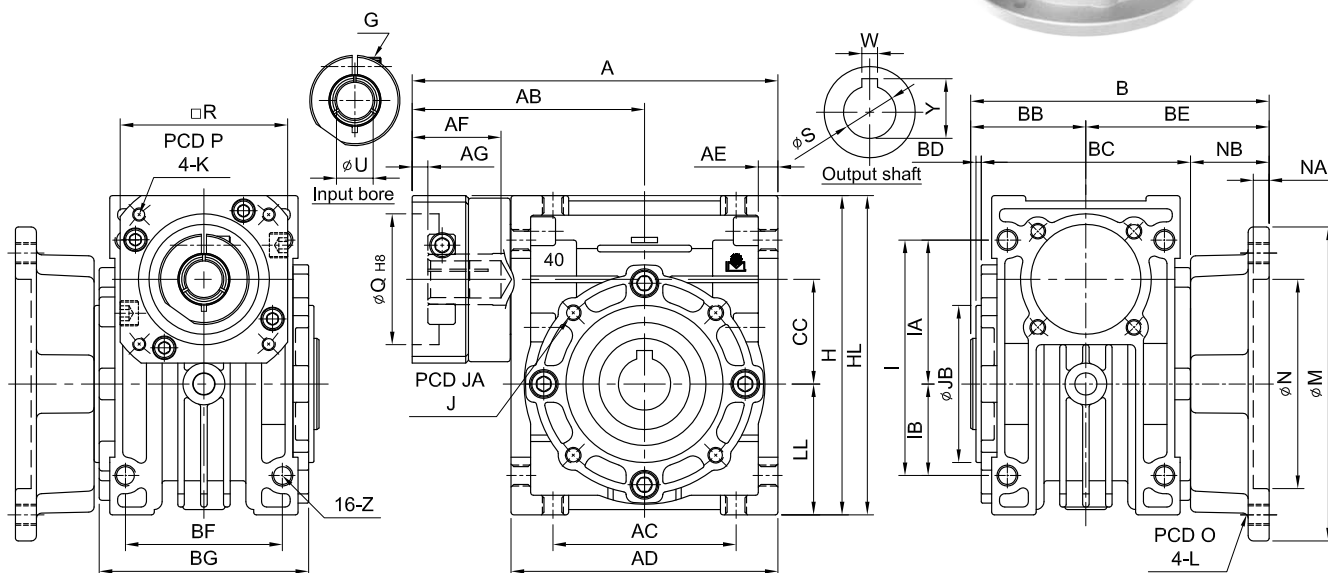
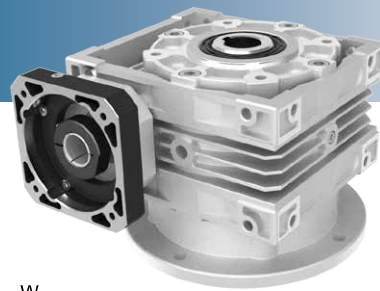
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BE	BF	BG	NB	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	108	68	55	80	6	32	5	127.5	67.5	60	2	60	45	58	30	30	40	72	45	27	M6	98	1.5
40	140	89	70	102	7.5	34	6	155	85	80	2	70	60	72	30	40	50	90	55	35	M8	122	2.8
50	158	98	80	120	8.5	41	6	180	100	94	3	80	70	85	33	50	60	105	65	40	M10	145	5
60	195	122	100	146	10	59	9	205	105	102	3	100	85	103	49	60	75	136	83	53	M10	180	8
70	219	134	120	170	12	59	9	225	125	118	3	100	90	110	41	70	85	150	90	60	M10	200	11.6

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	16	20	25	25	30
	Y	5	6	7	7	7
	W	5	6	8	8	8
	D	18	22.5	28	28	33
	LS	35	40	50	50	60
	LK	30	35	45	45	55
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	N	70	80	95	130	150
	NA	5	6	6	7	7
	O	85	100	120	160	185
	L	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	M	100	120	140	180	210
MOTOR FLANGE & INPUT BORE	P	46、60、63	70、75、90	70、75、90	90、100、115、145	90、100、115、145
	K	M3 x P0.5 M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M5 x P0.8 M6 x P1.0 M8 x P1.25	M5 x P0.8 M6 x P1.0 M8 x P1.25
	R	46、55	64、70、80	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0
	Q	30、40、50	50、60、70	50、60、70	70、80、95、110	70、80、95、110
	U	8	14	19	24	24
	HL	100	122、125、130	145、150	181、190、200	210、220

WEOF series

RATIO : 5.10.15.20.30.40.50.60



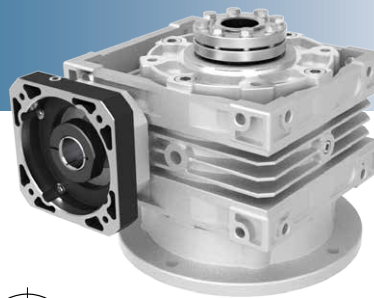
Code	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BE	BF	BG	NB	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	108	68	55	80	6	32	5	92.5	32.5	60	2	60	45	58	30	30	40	72	45	27	M6	98	1.4
40	140	89	70	102	7.5	34	6	114	44	80	2	70	60	72	30	40	50	90	55	35	M8	122	2.7
50	158	98	80	120	8.5	41	6	130	49	94	3	80	70	85	33	50	60	105	65	40	M10	145	4.3
60	195	122	100	146	10	59	9	154	54	102	3	100	85	103	49	60	75	136	83	53	M10	180	7.3
70	219	134	120	170	12	59	9	164	64	118	3	100	90	110	41	70	85	150	90	60	M10	200	10

unit : mm

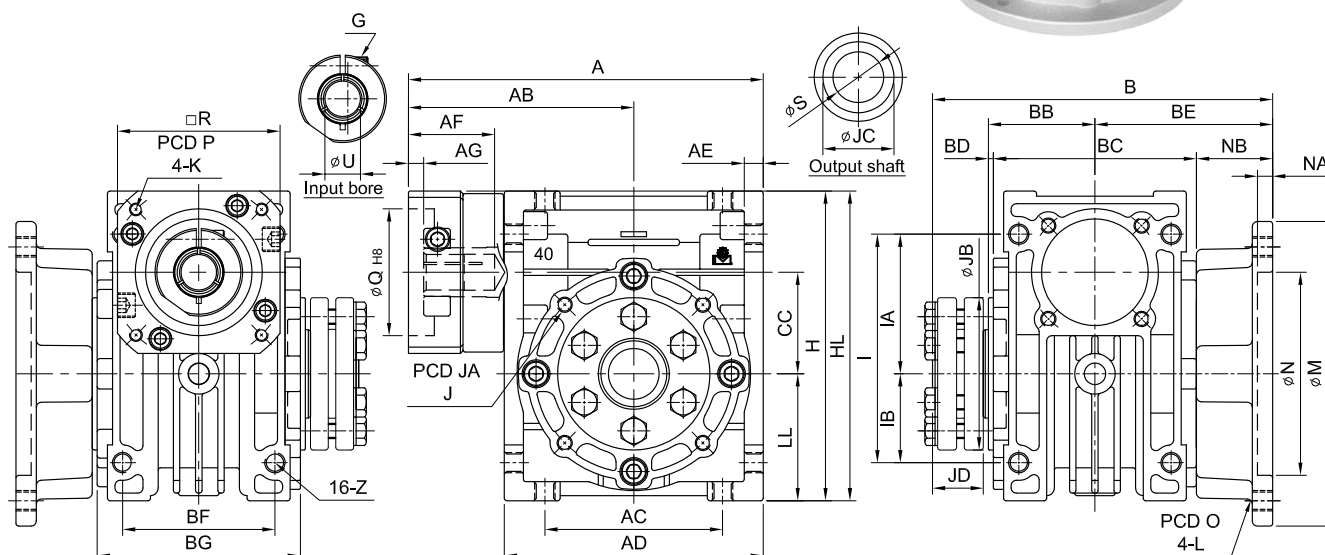
Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	Y	16.3	22.8	28.3	28.3	33.3
	W	5	6	8	8	8
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	N	70	80	95	130	150
	NA	5	6	6	7	7
	O	85	100	120	160	185
	L	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	M	100	120	140	180	210
MOTOR FLANGE & INPUT BORE	P	46、60、63	70、75、90	70、75、90	90、100、115、145	90、100、115、145
	K	M3 x P0.5 M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M5 x P0.8 M6 x P1.0 M8 x P1.25	M5 x P0.8 M6 x P1.0 M8 x P1.25
	R	46、55	64、70、80	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0
	Q	30、40、50	50、60、70	50、60、70	70、80、95、110	70、80、95、110
	U	8	14	19	24	24
	HL	100	122、125、130	145、150	181、190、200	210、220

WENF series

RATIO : 5.10.15.20.30.40.50.60



WE



Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BE	BF	BG	NB	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	108	68	55	80	6	32	5	114	32.5	60	2	60	45	58	30	30	40	72	45	27	M6	98	1.7
40	140	89	70	102	7.5	34	6	134	44	80	2	70	60	72	30	40	50	90	55	35	M8	122	2.9
50	158	98	80	120	8.5	41	6	153	49	94	3	80	70	85	33	50	60	105	65	40	M10	145	4.6
60	195	122	100	146	10	59	9	177	54	102	3	100	85	103	49	60	75	136	83	53	M10	180	7.5
70	219	134	120	170	12	59	9	186	64	118	3	100	90	110	41	70	85	150	90	60	M10	200	11.6

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	JC	22	28	34	35	40
	JD	20	20	21	21	22
	N	70	80	95	130	150
	NA	5	6	6	7	7
	O	85	100	120	160	185
	L	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	M	100	120	140	180	210
MOTOR FLANGE & INPUT BORE	P	46、60、63	70、75、90	70、75、90	90、100、115、145	90、100、115、145
	K	M3 x P0.5 M4 x P0.7 M5 x P0.8	M4 x P0.7 M5 x P0.8 M6 x P1.0	M4 x P0.7 M5 x P0.8 M6 x P1.0	M5 x P0.8 M6 x P1.0 M8 x P1.25	M5 x P0.8 M6 x P1.0 M8 x P1.25
	R	46、55	64、70、80	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0
	Q	30、40、50	50、60、70	50、60、70	70、80、95、110	70、80、95、110
	U	8	14	19	24	24
	HL	100	122、125、130	145、150	181、190、200	210、220

PW series



■ 全系列小於 8 弧分
Backlash $\leq$ 8 arcmin

適用於精密定位、連續運轉時，需注意減速機表面溫度，不超出 90°C 以上。

Suitable for precision positioning. If operated continuously, be mindful of the surface temperature of the reducer, ensuring it does not exceed 90° C."

Indication of Model Numbers

機種型號表示

PW	N		60	30	L	MOTOR
減速機機型 Type	出力軸 Output Shaft	出力法蘭 Output Flange	型號 Model	速比 Ratio	軸向 Shaft Dirction	馬達型號 Motor Type
PW	S: 實心軸 Solid	☐ 無 None	30	1/50	R	
	O: 中空軸 Hollow	F: 出力法蘭 Output Flange	40	1/75	L	
	N: 免鍵軸套 Clamping		50	1/100		
			60	1/150		
			70	1/200		
				1/250		
				1/300		
				1/400		
				1/500		

Characteristic of PW Series

PW 系列產品特性



PWS

○實心軸 Solid output shaft



PWSF

○實心軸 Solid output shaft



PWO

○中空軸 Hollow output shaft



PWOF

○中空軸 Hollow output shaft



PWN

○中空軸免鍵式 Clamping output shaft



PWNF

○中空軸免鍵式 Clamping output shaft

Characteristic of PW Series

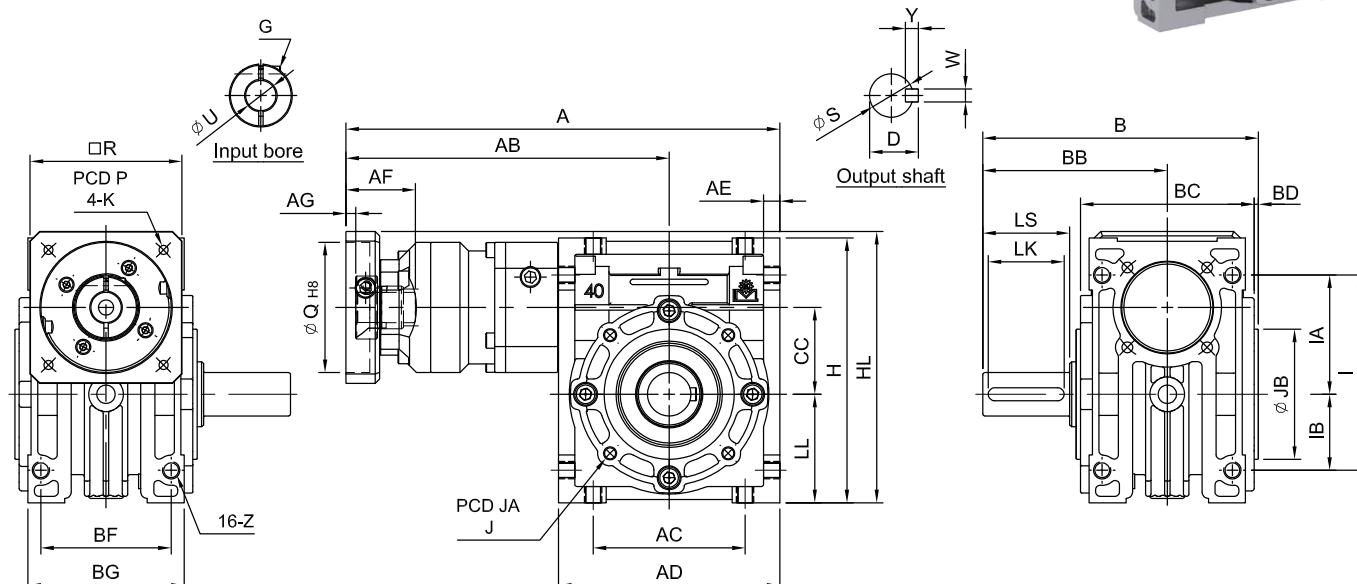
PW 系列產品特性

PW

規格 Parameter	Code	Unit	Ratio	30	40	50	60	70
額定輸出扭矩 / Rated Output Torque (Nominal output torque) / 效 率 / Efficiency	T_{2N}	Nm	50	8.8	20.7	41.9	65.9	92
				83.7	86.6	89.6	90.1	90.5
			75	11.4	26.2	40.9	64.5	90
				81.9	83.7	85.3	86.1	86.6
			100	9.52	22.6	40.7	63.5	106.1
				72.3	76.6	81.7	82.4	85.1
			150	12.1	27.4	43.2	67.9	95
				96.6	72.3	74.5	75.9	76.7
			200	9.2	24.3	43.8	69.1	111
				56.8	66.3	69.2	70.3	74.3
			250	10.4	24	43.6	69.2	105.6
				58.7	64.6	67.7	68.9	71.2
			300	12.1	27.4	43.2	67.9	95
				69.6	72.3	74.5	75.9	76.7
			400	9.2	24.3	43.8	69.1	111
				56.8	66.3	69.2	70.3	74.3
			500	10.4	24	43.6	69.2	105.6
				58.7	64.6	67.7	68.9	71.2
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	50~500	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
額定輸入轉速 / Rated Input Speed	n_{1N}	rpm	50~500	2,000				
最大輸入轉速 / Max. Input Speed	n_{1B}	rpm	50~500	3,000				
背 隙 / Backlash Ps		arcmin	50~500	≤ 8				
容許徑向力 / Max. Radial Force	F_{2rB}	N	50~500	1,830	3,490	4,840	6,270	7,380
容許軸向力 / Max. Axial Force	F_{2aB}	N	50~500	915	1,745	2,420	3,135	3,690
使用壽命 / Service Life	L_H	hr	50~500	S5 周期運轉 : >12,000 (S1 連續運轉 : >6,000hrs) S5 Cycle Operation: >12,000 (S1 Continuous Operation: >6,000hrs)				
使用溫度 / Operating Temperature		°C	50~500	-15° C ~ +90 ° C				
潤 滑 / Lubrication			50~500	全合成潤滑油 Synthetic Oil				
防護等級 / Protection Class			50~500	IP65				
安裝方向 / Mounting Position			50~500	任意方向 Any				
噪 音 值 / Noise Level		dB	50~500	≤ 58	≤ 58	≤ 58	≤ 60	≤ 60

PWS series

RATIO : 50.75.100.150.200.250.300.400.500



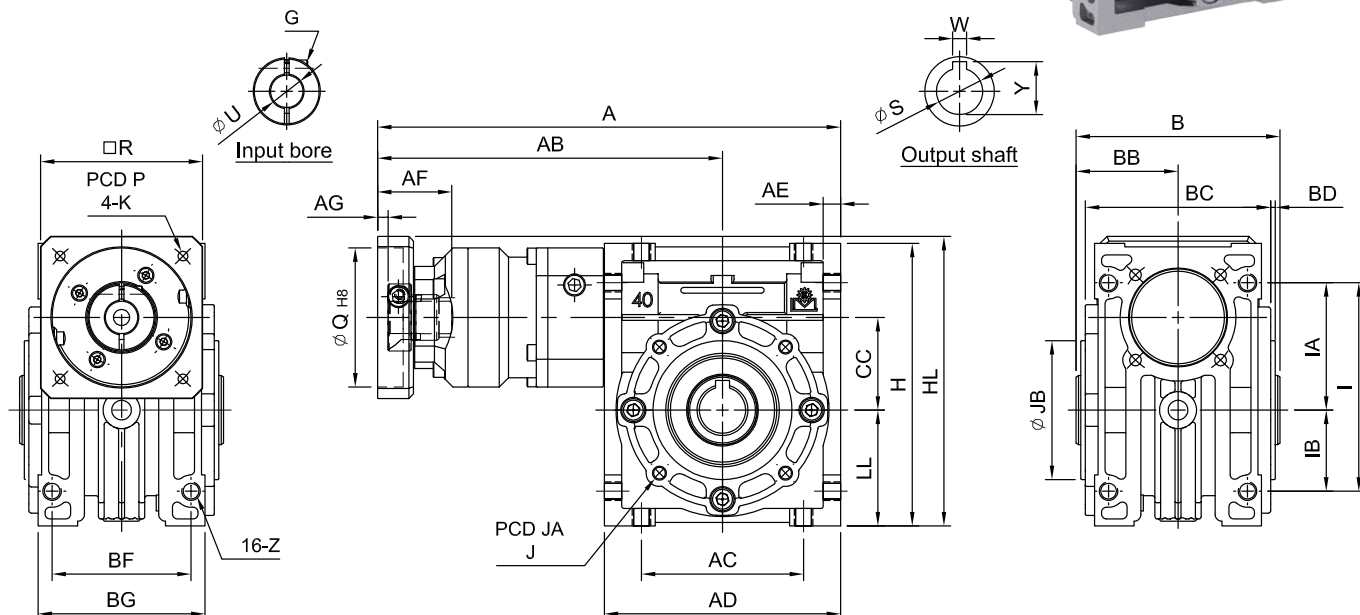
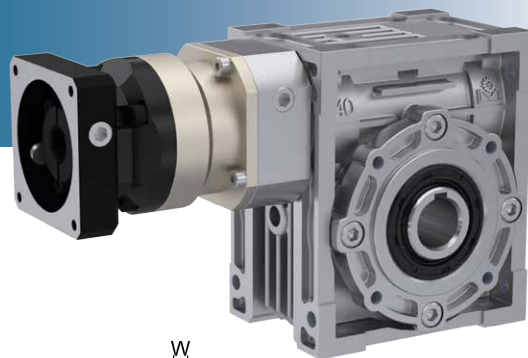
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BF	BG	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	169	129	55	80	6	26、30.5	5	99.5	67.5	60	2	45	58	30	40	72	45	27	M6	98	2
40	201	150	70	102	7.5	33	5.5	127	85	80	2	60	72	40	50	90	55	35	M8	122	3.6
50	227	167	80	120	8.5	33.5	6	150	100	94	3	70	85	50	60	105	65	40	M10	145	5.7
60	278	205	100	146	10	45.5	10	159	105	102	3	85	102	60	75	136	83	53	M10	180	9.1
70	303	218	120	170	12	45.5	10	187	125	118	3	90	110	70	85	150	90	60	M10	200	12.2

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	16	20	25	25	30
	Y	5	6	7	7	7
	W	5	6	8	8	8
	D	18	22.5	28	28	33
	LS	35	40	50	50	60
	LK	30	35	45	45	55
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
MOTOR FLANGE & INPUT BORE	JB	55	60	70	80	90
	P	45、46、63、70	45、46、63、70	70、75、85	90、100、115、145	90、100、115、145
	K	M3、M4、M5	M3、M4、M5	M5、M6	M6、M8	M6、M8
	R	46、55、60	46、55、60	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8
	Q	30、40、50	30、40、50	50、60、70	70、80、95、110	70、80、95、110
	U	8、11	8、14	14	19	19
	HL	100	122、125	145、150	181、190、200	181、190、200

PWO series

RATIO :50.75.100.150.200.250.300.400.500



Code	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BF	BG	CC	LL	I	IA	IB	Z	H	Weight (kg)
Model																					
30	169	129	55	80	6	26、30.5	5	65	32.5	60	2	45	58	30	40	72	45	27	M6	98	1.9
40	201	150	70	102	7.5	33	5.5	88	44	80	2	60	72	40	50	90	55	35	M8	122	3.5
50	227	167	80	120	8.5	33.5	6	100	50	94	3	70	85	50	60	105	65	40	M10	145	5
60	278	205	100	146	10	45.5	10	108	54	102	3	85	102	60	75	136	83	53	M10	180	8.15
70	303	218	120	170	12	45.5	10	128	64	118	3	90	110	70	85	150	90	60	M10	200	10.6

unit : mm

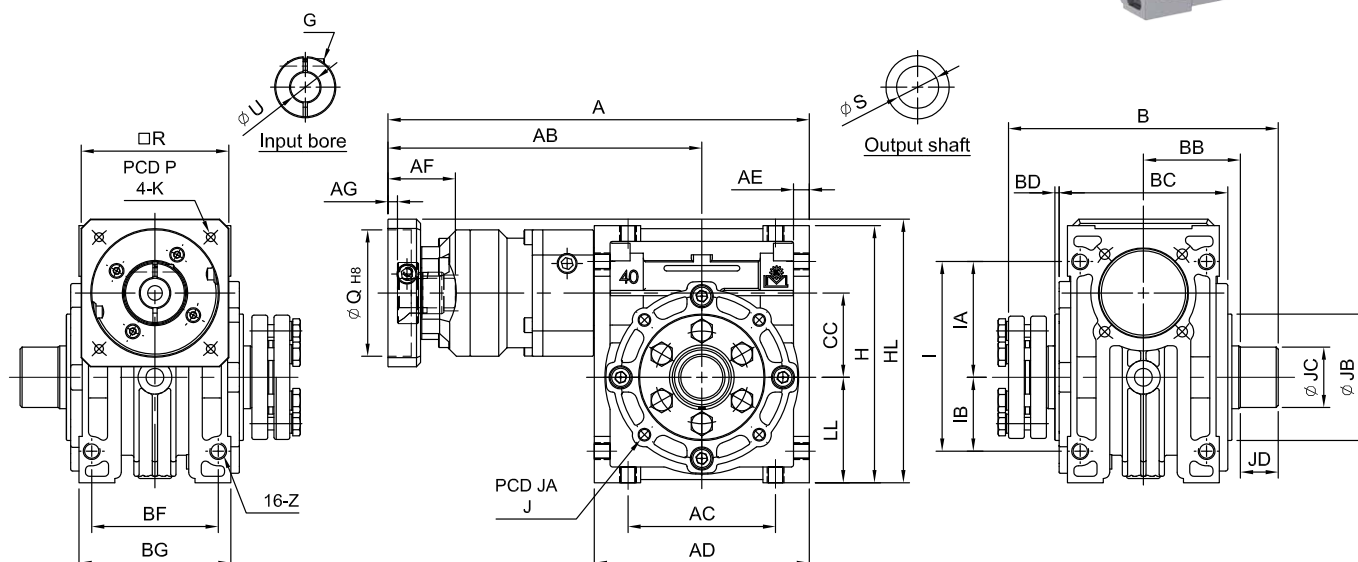
Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	Y	16.3	22.8	28.3	28.3	33.3
	W	5	6	8	8	8
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
MOTOR FLANGE & INPUT BORE	P	45、46、63、70	45、46、63、70	70、75、85	90、100、115、145	90、100、115、145
	K	M3、M4、M5	M3、M4、M5	M5、M6	M6、M8	M6、M8
	R	46、55、60	46、55、60	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8
	Q	30、40、50	30、40、50	50、60、70	70、80、95、110	70、80、95、110
	U	8、11	8、14	14	19	19
	HL	100	122、125	145、150	181、190、200	181、190、200

PWN series

RATIO : 50.75.100.150.200.250.300.400.500



PWN



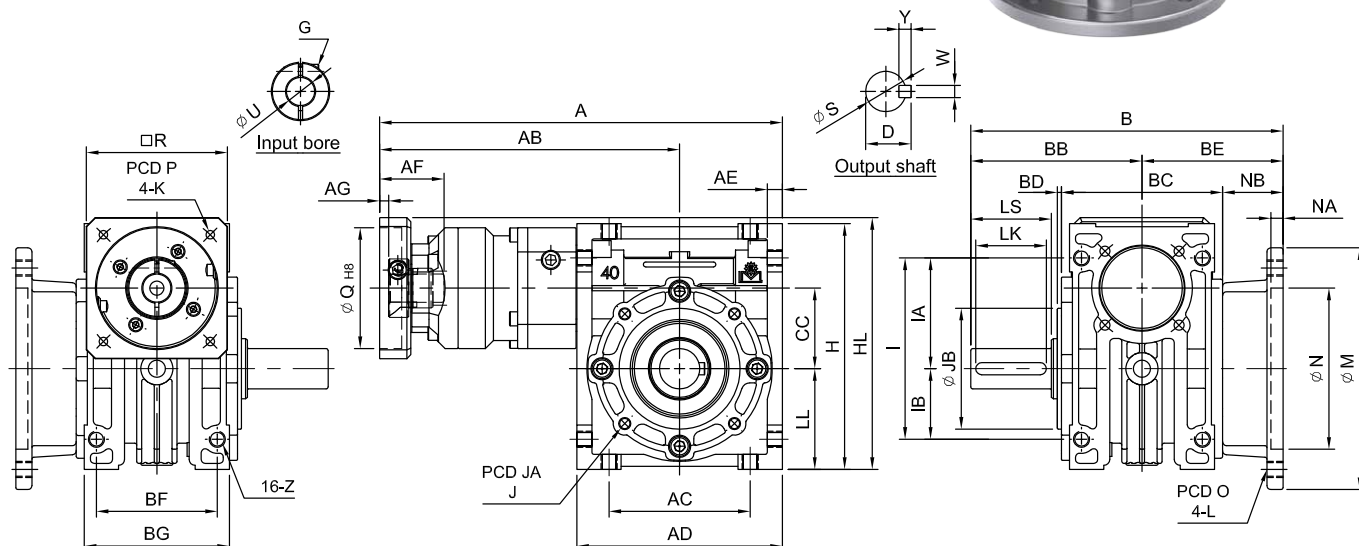
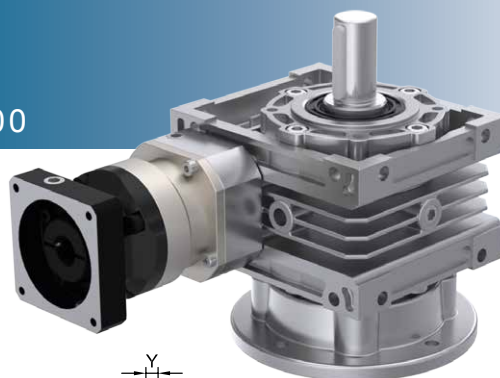
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BF	BG	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	169	129	55	80	6	26、30.5	5	108	36	60	2	45	58	30	40	72	45	27	M6	98	2.18
40	201	150	70	102	7.5	33	5.5	128	46	80	2	60	72	40	50	90	55	35	M8	122	3.8
50	227	167	80	120	8.5	33.5	6	146	53	94	3	70	85	50	60	105	65	40	M10	145	5.3
60	278	205	100	146	10	45.5	10	154	57	102	3	85	102	60	75	136	83	53	M10	180	8.6
70	303	218	120	170	12	45.5	10	172	65	118	3	90	110	70	85	150	90	60	M10	200	12.2

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	JC	22	28	34	34	40
	JD	18	18	20	20	21
MOTOR FLANGE & INPUT BORE	P	45、46、63、70	45、46、63、70	70、75、85	90、100、115、145	90、100、115、145
	K	M3、M4、M5	M3、M4、M5	M5、M6	M6、M8	M6、M8
	R	46、55、60	46、55、60	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8
	Q	30、40、50	30、40、50	50、60、70	70、80、95、110	70、80、95、110
	U	8、11	8、14	14	19	19
	HL	100	122、125	145、150	181、190、200	181、190、200

PWSF series

RATIO :50.75.100.150.200.250.300.400.500



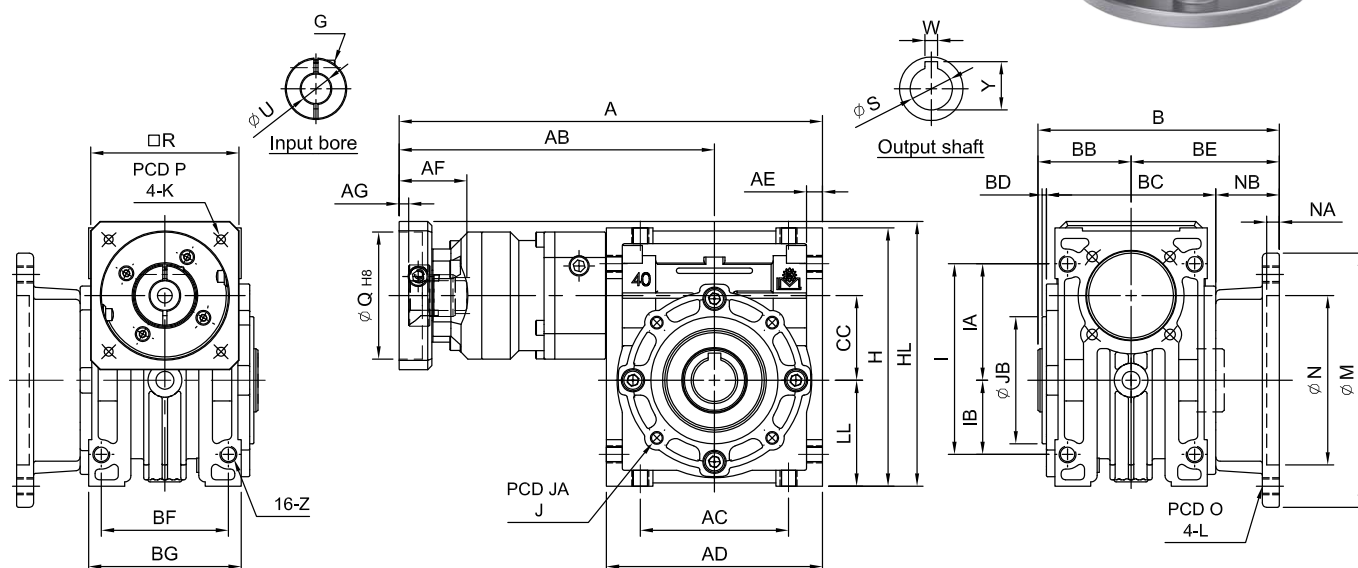
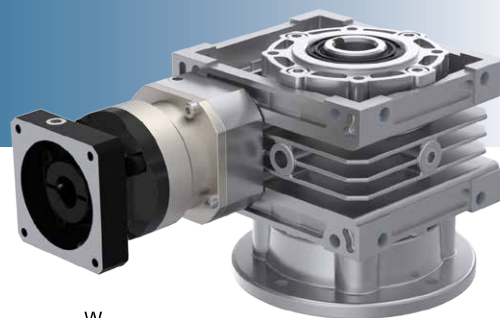
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BE	BF	BG	NB	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	169	129	55	80	6	26、30.5	5	99.5	67.5	60	2	60	45	58	30	30	40	72	45	27	M6	98	0.87
40	201	150	70	102	7.5	33	5.5	127	85	80	2	70	60	72	30	40	50	90	55	35	M8	122	3.8
50	227	167	80	120	8.5	33.5	6	150	100	94	3	80	70	85	33	50	60	105	65	40	M10	145	6
60	278	205	100	146	10	45.5	10	159	105	102	3	100	85	102	49	60	75	136	83	53	M10	180	9.6
70	303	218	120	170	12	45.5	10	187	125	118	3	100	90	110	41	70	85	150	90	60	M10	200	13.2

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	16	20	25	25	30
	Y	5	6	7	7	7
	W	5	6	8	8	8
	D	18	22.5	28	28	33
	LS	35	40	50	50	60
	LK	30	35	45	45	55
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	N	70	80	95	130	150
	NA	5	6	6	7	7
	O	85	100	120	160	185
	L	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	M	100	120	140	180	210
MOTOR FLANGE & INPUT BORE	P	45、46、63、70	45、46、63、70	70、75、85	90、100、115、145	90、100、115、145
	K	M3、M4、M5	M3、M4、M5	M5、M6	M6、M8	M6、M8
	R	46、55、60	46、55、60	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8
	Q	30、40、50	30、40、50	50、60、70	70、80、95、110	70、80、95、110
	U	8、11	8、14	14	19	19
	HL	100	122、125	145、150	181、190、200	181、190、200

PWOF series

RATIO : 50.75.100.150.200.250.300.400.500



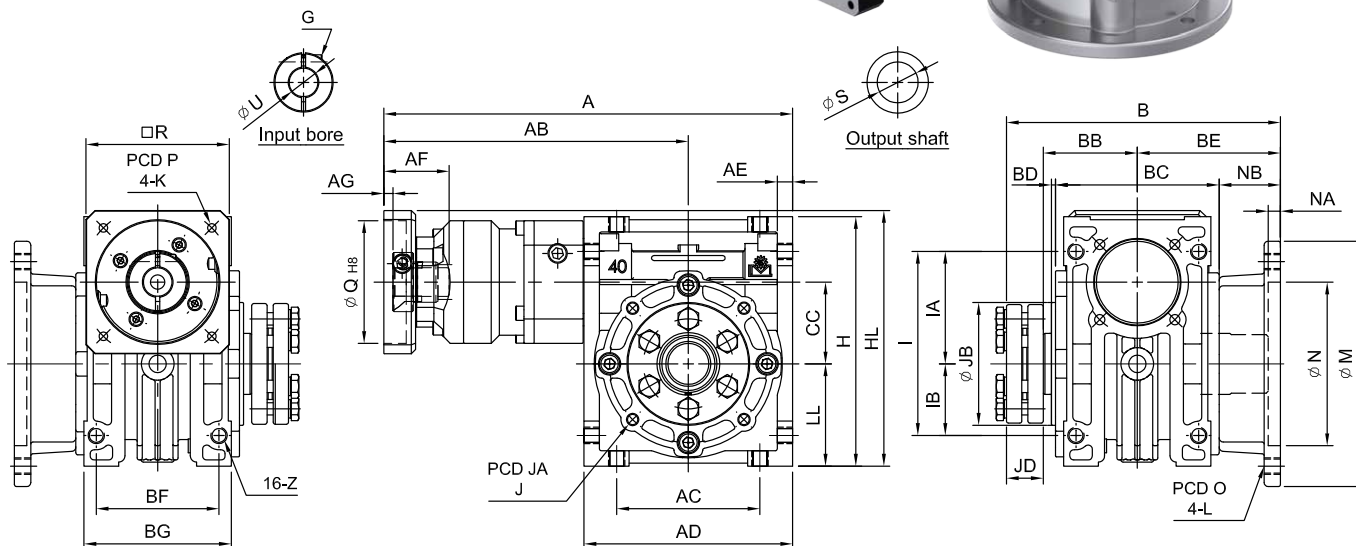
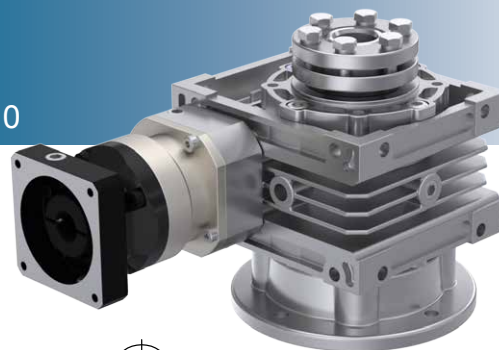
Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BE	BF	BG	NB	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	169	129	55	80	6	26、30.5	5	65	32.5	60	2	60	45	58	30	30	40	72	45	27	M6	98	2
40	201	150	70	102	7.5	33	5.5	88	44	80	2	70	60	72	30	40	50	90	55	35	M8	122	3.7
50	227	167	80	120	8.5	33.5	6	100	50	94	3	80	70	85	33	50	60	105	65	40	M10	145	5.3
60	278	205	100	146	10	45.5	10	108	54	102	3	100	85	102	49	60	75	136	83	53	M10	180	8.65
70	303	218	120	170	12	45.5	10	128	64	118	3	100	90	110	41	70	85	150	90	60	M10	200	11.6

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	Y	16.3	22.8	28.3	28.3	33.3
	W	5	6	8	8	8
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	N	70	80	95	130	150
	NA	5	6	6	7	7
	O	85	100	120	160	185
	L	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	M	100	120	140	180	210
MOTOR FLANGE & INPUT BORE	P	45、46、63、70	45、46、63、70	70、75、85	90、100、115、145	90、100、115、145
	K	M3、M4、M5	M3、M4、M5	M5、M6	M6、M8	M6、M8
	R	46、55、60	46、55、60	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8
	Q	30、40、50	30、40、50	50、60、70	70、80、95、110	70、80、95、110
	U	8、11	8、14	14	19	19
	HL	100	122、125	145、150	181、190、200	181、190、200

PWNF series

RATIO :50.75.100.150.200.250.300.400.500



Code Model	A	AB	AC	AD	AE	AF	AG	B	BB	BC	BD	BE	BF	BG	NB	CC	LL	I	IA	IB	Z	H	Weight (kg)
30	169	129	55	80	6	26、30.5	5	108	36	60	2	60	45	58	30	30	40	72	45	27	M6	98	2.3
40	201	150	70	102	7.5	33	5.5	128	46	80	2	70	60	72	30	40	50	90	55	35	M8	122	3.9
50	227	167	80	120	8.5	33.5	6	146	53	94	3	80	70	85	33	50	60	105	65	40	M10	145	5.6
60	278	205	100	146	10	45.5	10	154	57	102	3	100	85	102	49	60	75	136	83	53	M10	180	9.1
70	303	218	120	170	12	45.5	10	172	65	118	3	100	90	110	41	70	85	150	90	60	M10	200	13.2

unit : mm

Code	Model	30	40	50	60	70
OUTPUT SHAFT	S	14	20	25	25	30
	J	8-M6 x P1.0	12-M6 x P1.0	12-M6 x P1.0	12-M8 x P1.25	12-M10 x P1.5
	JA	65	77	95	120	140
	JB	55	60	70	80	90
	JC	22	28	34	34	40
	JD	18	18	20	20	21
	N	70	80	95	130	150
	NA	5	6	6	7	7
	O	85	100	120	160	185
	L	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M12 x P1.75
	M	100	120	140	180	210
	P	45、46、63、70	45、46、63、70	70、75、85	90、100、115、145	90、100、115、145
MOTOR FLANGE & INPUT BORE	K	M3、M4、M5	M3、M4、M5	M5、M6	M6、M8	M6、M8
	R	46、55、60	46、55、60	64、70、80	92、110、130	92、110、130
	G	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8
	Q	30、40、50	30、40、50	50、60、70	70、80、95、110	70、80、95、110
	U	8、11	8、14	14	19	19
	HL	100	122、125	145、150	181、190、200	181、190、200

Technical Information

技術資料

潤滑油

當實際工作環境溫度超過表格中所記載的範圍時，須依據其實際工作環境而做不同之因應措施或與原廠技術人員連繫。

當工作環境低於攝氏 -15°C 或高於 45°C 時，必須更換耐熱油封。

當工作環境低於攝氏 0°C 時，必須考慮下列條件：

- (1) 使用的馬達必須適合在低溫環境中工作。
- (2) 馬達的功率必須要滿足在低溫起動時較大的扭矩要求。
- (3) 在設備剛使用時，潤滑油的黏度會有較高的問題時，應該先讓機器空載運轉幾分鐘再加負載，避免導致設備故障。

最初使用 300 小時後，洗淨內部、換上新油以後每 2000 小時換油，而更換時間也因看實際操作環境有所變動。

Lubrication

In cases of ambient temperatures not envisaged in the table, call our Technical Service.

In the case of temperatures under -15°C or over 45°C it is necessary to use oil seals with special properties.

For operating ranges with temperatures under 0°C it is necessary to consider the following:

- (1) The motors need to be suitable for operation at the envisaged ambient temperature.
- (2) The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
- (3) During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.

After Initial 300 hours of usage, the interior of the reducing gear should be cleaned up and refill new oil.

And then, after every 2000 hours of usage replace new oil again. The period depends on the type of service and the environment where the reduction unit works.

Technical Information

技術資料

安裝與操作限制

如果須使用其它的安裝方式或者特殊的輸入轉數時，請參考下面附表裡面的各個相對參數。此外，當使用者遇到下面所列的任何情況時也必須跟原廠技術人員聯繫：

- 使用條件超出額定轉速時。
- 使用條件超出額定扭矩時。
- 當減速機出現故障時有可能導致使用者受傷的情況時。
- 將安裝於旋轉慣性特別大的設備上時。
- 將用於起重的捲揚機上 (需要逆止特性) 時。
- 當減速機外殼會承受高度動態的負載時。
- 當工作環境超過攝氏 -5 度到 +40 度的範圍內時。
- 將安裝於有腐蝕性化學品的環境中。
- 將安裝在鹽份濕度較高的環境中。
- 輻射性高的環境中。
- 安裝於氣壓異於正常大氣壓力的環境中。

避免把減速機 (整臺或部分) 浸在水裡或其它液體中。

實際使用時的最高負載扭矩 (*) 絕對不能超過性能表上的額定扭矩 (當 $f.s.=1$) 的三倍。

(*) 所述的參數是指能承受瞬間短暫的過載，這種情況常出現在滿載啟動，剎車，震動或其它動態操作環境中。

Critical applications

For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit.

It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

- When the application conditions exceed the rated speed.
- When the application conditions exceed the rated torque.
- Use in services that could be hazardous for people if the reduction unit fails.
- Applications with especially high inertia.
- Use as a lifting winch.
- Applications with high dynamic strain on the case of the reduction unit.
- In places with T° under $-5^{\circ} C$ or over $40^{\circ} C$.
- Use in chemically aggressive environments.
- Use in a salty environment.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque (*) that the gear reducer can support must not exceed three times the nominal torque ($f.s.=1$) stated in the performance tables.

(*) intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

Technical Information

技術資料

安裝注意事項

當安裝減速機時，請注意下列的事項：

- 減速機安裝到機器上之前，必須再次確認減速機的輸出軸旋轉方向是否正確。
- 減速機必須牢固地安裝在機器上，避免有任何鬆動或振動的情況。
- 安裝時，確保所有螺絲和連接件已經牢固地預緊，避免因震動或摩擦造成螺絲鬆動。
- 避免將減速機置於高溫高濕或極端惡劣的環境中。若無法避免，請盡可能為減速機提供防護措施，以延長其使用壽命。

Installation

To install the reducer unit, it is necessary to note the following recommendations:

- Check the correct direction of rotation of the reducer unit output shaft before fitting the unit to the machine.
- The mounting on the machine must be stable to avoid any vibration.
- Make sure that all bolts and fasteners are properly preloaded to prevent loosening due to vibration or friction.
- Whenever possible, protect the reducer unit from high temperatures, high humidity, and adverse weather conditions.

Technical Information

技術資料

操作系數

減速機的操作系數 $f.s.$ 是取決於減速機實際操作的運轉狀況。

正確選擇最合適的使用系數時，必須考慮到下列的幾種因素：

● 運轉機器的負載類型：A — B — C

● 每日運轉的時間：小時 / 每天 (Δ)

● 啟動的頻率：啟動次數 / 小時。 (*)

負載類型： A — 均勻負載 $fa \leq 0.3$

B — 中等衝擊 $fa \leq 3$

C — 劇烈衝擊 $fa \leq 10$

$fa = Je/Jm$

● Je (kgm²) 驅動軸上的外圍轉動慣量

● Jm (kgm²) 馬達的轉動慣量

如果 $fa > 10$ 請與原裝技術人員聯繫。

A — 輕負載的螺旋輸送機，風扇裝備線，輕負載輸送帶，小型攪拌器，升降機，清洗機，罐裝機，控制機。

B — 卷揚機，木材加工進料機，貨物升降機，平衡器，絞螺紋機器，中型攪拌器，重型輸送帶，絞盤，滑動閘門，刮料機，包裝機械，混凝土攪拌機，吊車驅動裝置，銑床，摺床，齒輪泵。

C — 大型攪拌機，剪床，沖壓機，離心機，旋轉式支撐架，重型絞盤和起重機，磨床，碎石機，斗式挖土機，鑽床，衝床，凸輪壓力機，摺床，轉盤，滾桶清潔裝置，振動器，粉碎機。

Service factor

The service factor (f.s.) depends on the operating conditions the reduction unit is subjected to.

The parameters that need to be taken into

consideration to select the most adequate service factor correctly comprise:

● type of load of the operated machine : A - B - C

● length of daily operating time : hours/day (Δ)

● start-up frequency : starts/hour (*)

TYPE OF LOAD : A - uniform $fa \leq 0.3$

B - moderate shocks $fa \leq 3$

C - heavy shocks $fa \leq 10$

$fa = Je/Jm$

● fa factor of inertia

● Je (kgm²) moment of reduced external inertia at the drive-shaft

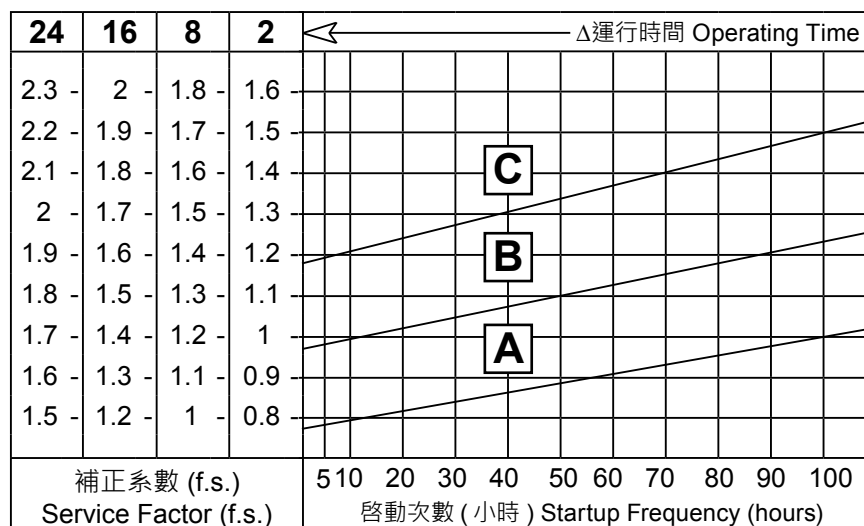
● Jm (kgm²) moment of inertia of motor

If $fa > 10$ call our Technical Service.

A -Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

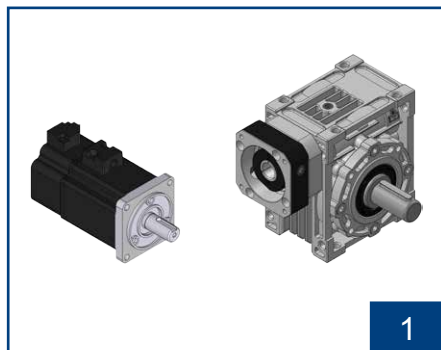
B -Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

C -Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.



Aluminum Alloy Worm Reducer and Motor Mounting Instructions

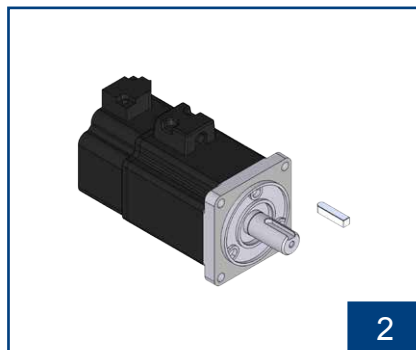
鋁合金蝸輪減速機與馬達安裝指南



1

核對馬達型號與減速機規格是否正確。並將配合面擦拭乾淨。

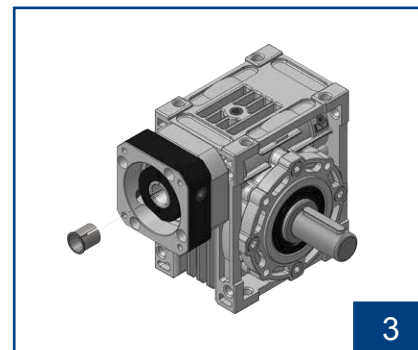
Confirm the motor, and gearbox size. Clean up the mounting surface.



2

確認減速機與馬達是否有鍵配合。

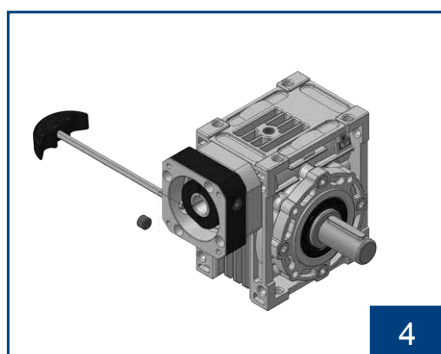
Confirm whether the reducer and motor are keyed together.



3

檢查馬達出力軸尺寸，如需軸套，請先裝進減速機入力孔內。

Check motor shaft size and insert bushing into input bore of the gear box if necessary.



4

取出塞頭，使用六角扳手將迫緊環螺絲鬆開。並將扳手與螺絲對準孔位。

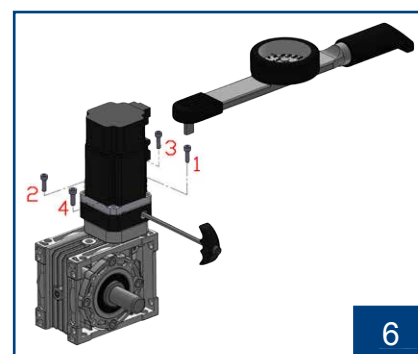
Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.



5

將馬達垂直裝入減速機。

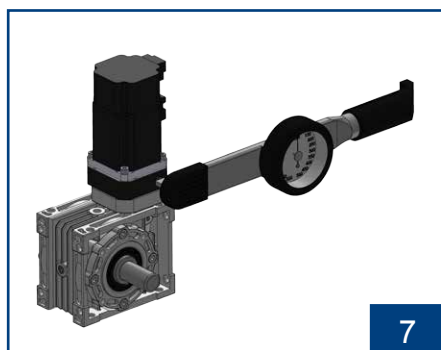
Put the motor into the gearbox vertically.



6

依序 1~4 使用扭力扳手鎖上內六角螺絲。

Tighten the mounting bolt in 1~4 order with torque wrench.



7

使用扭力扳手將迫緊環螺絲鎖緊。

Tighten the set collar bolt with torque wrench.



8

裝回塞頭並鎖緊。

Tighten back the screw plug.

1. 務必先鎖緊馬達固定面，才能鎖緊馬達軸心迫緊環。

Please be sure to tighten motor flange on gear box flange first and then to tighten the set collar on motor shaft.

2. 請依步驟順序組裝，尤其步驟 6、7 不可顛倒。

Please assembly in order according to above steps, especially for step 6 and step 7.

3. 安裝完畢後，請將塞頭回塞，避免細小物品掉入減速機中。
Please noted that tighten back the screw plug to protect the gear box.

ANE series

ANE 系列可調背隙蝸輪減速機

雙導程設計·高扭力·高剛性·低噪音·低震動·低背隙 (0~6 弧分)

- 背隙調整容易，倍增精度壽命
- 特殊規格歡迎訂製
- 適用高精度傳動及分度，定位，定寸之應用
 - 工具機第四軸
 - 旋轉工作檯，分度盤
 - 機器人
 - 各式產業機械定位，定寸裝置



ANE Series Adjustable Backlash Worm Gear Reducer Characteristic:

Dual-lead design, high output torque, high rigidity,
low noise, low vibration and low backlash (0~6 arcmin).

- Easy to adjust backlash for increasing accuracy and service life.
- Customized specifications are available.
- Suitable for high-accuracy transmission system, indexing, positioning and sizing applications:
 - 4th-axis of machine tables
 - Rotary tables and index tables
 - Robots
 - Positioning and sizing devices of various industrial machinery

生產機型 Type & 速比 Raio:

- 40# : 1/20
- 50# : 1/30
- 60# : 1/40
- 70# : 1/50
- 110# : 1/40、1/50、1/60



ANE110

○中空軸免鍵式 Clamping output shaft



ANE

○實心軸傳動 Solid output shaft



ANEOM

○中空軸傳動 Hollow output shaft

Characteristic of ANE Series

ANE 系列產品特性



雙導程蝸桿傳動及齒隙調整原理

由於普通蝸桿蝸輪是用蝸桿沿蝸輪徑向移動來調整嚙合側隙，因而改變了傳動組的中心距，中心距的改變會引起齒面接觸情況變差，甚至加劇磨損，不利於保持蝸輪組的精度；而雙導程蝸桿是用蝸桿軸向移動來調整嚙合側隙，不會改變傳動組的中心距，可避免上述缺點。

雙導程蝸桿簡單說就是蝸桿的齒厚是變化的，左齒面與右齒面導程長度不同，使得齒厚形成有連續變化的齒形，蝸輪的齒面也為了與蝸桿配合，而製作成左右不同的齒面，這樣就可以調整蝸輪蝸桿的間隙達到最佳狀態。當使用過程由於蝸輪磨損，造成蝸輪蝸桿的間隙變大，可以通過調整蝸桿的軸向位置，使蝸輪蝸桿的間隙變小。

雙導程蝸桿傳動具有改變嚙合側隙的特點，能夠始終保持正確的嚙合關係；並且結構緊湊，調整方便，因而在要求連續精確分度的結構中被採用，以便調整嚙合側隙到最小程度。

Principle of Dual-lead Worm Transmission and Backlash Adjustment

The backlash adjustment on a conventional worm / worm gear set is made by moving the worm along the worm gear in radial direction, which may result in a change of center distance of the transmission set. Such change of center distance will cause poor contact between teeth, wearing and affection on accuracy of worm / worm gear set.

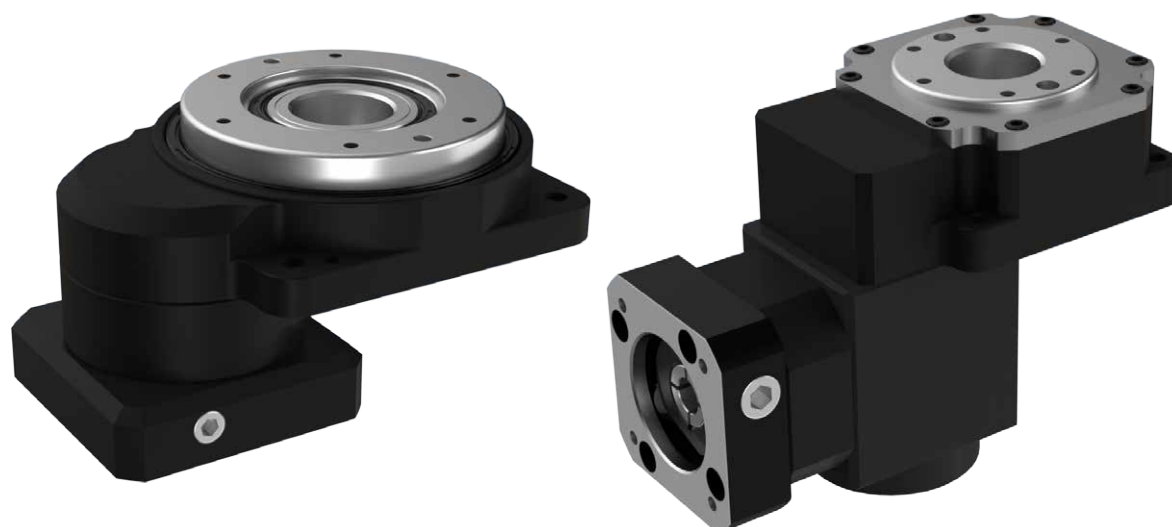
However, the backlash adjustment on a dual-lead worm is made by moving worm in axial direction, which does not change the distance of the transmission set and avoid above problems.

The dual-lead worm features varied teeth thickness. There is a different lead length between the right and left tooth faces, that creates a continuous teeth shapes. To properly engage with the worm, the teeth faces of worm gear are also designed with different right and left tooth faces. This permits backlash adjustment to achieve the best condition.

After a period of operation, if a backlash between worm and worm gear increases due to wear, it can be adjusted by moving the worm in axial direction until a proper backlash is obtained.

The dual-lead worm transmission allows for changing side backlash to keep correct teeth-engagement at all times. In addition, it has a compact structure and easy adjustment. Therefore, it is ideally suited for indexing devices that require continuous accuracy by adjusting teeth backlash to the minimum extent.

GT series



Indication of Model Numbers

機種型號表示

GT	60	B	10	MOTOR
減速機機型 Type	型號 Model	輸出平台支撐軸承 Output Table Supporting Bearing	速比 Ratio	馬達型號 Motor Type
GT GTL	60 85 110 135 200 250	B: 深溝滾珠軸承 Ball Bearing C: 交叉斜角滾柱軸承 Crossed Roller Bearing H: 深溝滾珠軸承大中空 (60#) Ball Bearing 交叉斜角滾柱軸承大中空 Crossed Roller Bearing (85#~250#)	GT : Type B、C : 單段 1-Stage : 5, 10, 18 雙段 2-Stage : 25, 50, 100 Type H : 單段 1-Stage : 10, 18 雙段 2-Stage : 50, 100 ----- GTL : Type B、C、H : 單段 1-Stage : 20, 30, 40, 50	
GT	170	C: 交叉斜角滾柱軸承 (60#~200#) Crossed Roller Bearing	單段 1-Stage : 5 雙段 2-Stage : 25	

靜音

使用研磨等級螺旋齒輪實現順暢安靜地運轉。

Quiet operation

Grinding spiral bevel gear & Helical gears contribute to reduce vibration and noise.

高剛性、高扭矩

使用交叉斜角滾柱軸承，提高了剛性和扭矩。

High Rigidity & High Torque

High rigidity & high torque are achieved by crossed roller bearings.

高效率

效率在 98% 以上。

High Efficiency

Efficiency exceeds 98%.

Characteristic of GT Series

GT 系列產品特性

彈性電機連接

可搭配各廠牌伺服或步進電機。

輸入端與馬達的連結採用筒夾式的鎖緊機構，並經動平衡分析，以確保輸入轉速下結合介面的同心度和平衡度，及零背隙的動力傳遞。

Flexible Motor Connection

The modular design of motor connection plate is suitable for any brand servomotor and stepmotor.

The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.

軸承

採用高精密交叉斜角滾柱軸承，體積小、結構緊湊，可同時承載徑向及軸向負荷。

在軸向負荷較小的應用場合，亦可選用滾珠軸承。

Bearing

Utilizing high-precision cross-roller bearings with a small size and compact structure, capable of simultaneously handling radial and axial loads.

In applications with lower axial loads, ball bearings can also be chosen.

中空結構

配管、配線便利

Hollow Structure Design

Make it convenient for electric wiring or piping work.

螺旋齒輪設計

減速機構採用螺旋齒輪設計，齒形嚙合率為一般正齒輪的二倍以上，具有運轉平順、低噪音、高輸出扭矩和低背隙的特性。

Helical Gear Design

The speed reduction mechanism employs helical gears, which provides two times meshing rate of teeth when comparing with regular spur gears. In addition, it also Specification extremely smooth running, low noise, high torque output and low backlash.

高精度定位

重覆定位精度 $\pm 10 \text{ sec}$

回程間隙 $\leq 1 \text{ arcmin}$

動態齒隙差 2 arcmin

High Accuracy

Repetitive Positioning Accuracy $\pm 10 \text{ sec}$

Torsional Backlash $\leq 1 \text{ arcmin}$

Lost Motion 2 arcmin



直接連結

轉盤面可與承載物直接鎖固

Direct Mounting of Workpiece

The rotating table allows for direct mounting of workpiece for added convenience in workpiece loading.



高精度加工

旋轉盤本體使用鋁合金材料，經高精密 CNC 加工，及檢測設備，確保各部之精密度。

齒輪經滲碳熱處理及齒輪研磨，精密度達 DIN6 級以內。

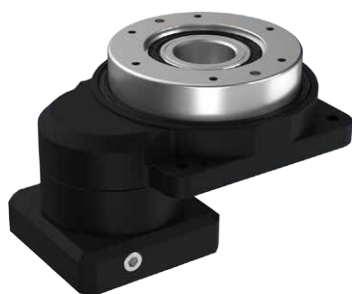
High Precision Gear Machining

The housing of reducer is made by aluminum alloy, and precision machining by CNC machine.

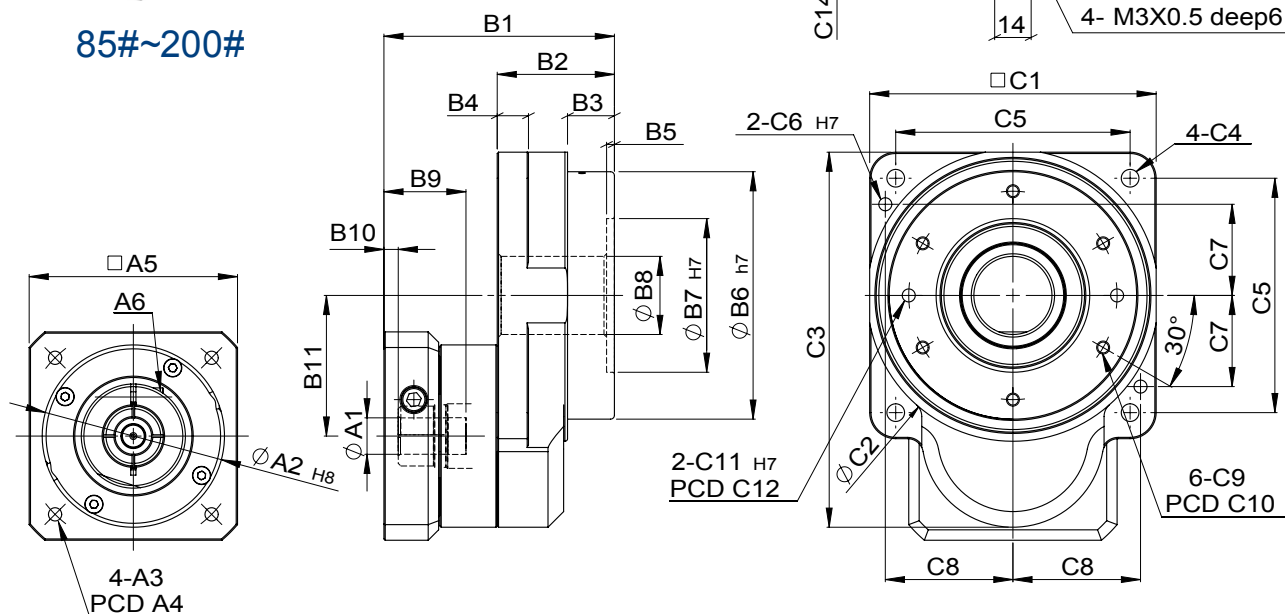
Precision teeth grinding assures gear accuracy reaches DIN6 class.

MODEL : GT-B

RATIO : 5.10.18 (單段 1-Stage)



85#~200#



unit: mm

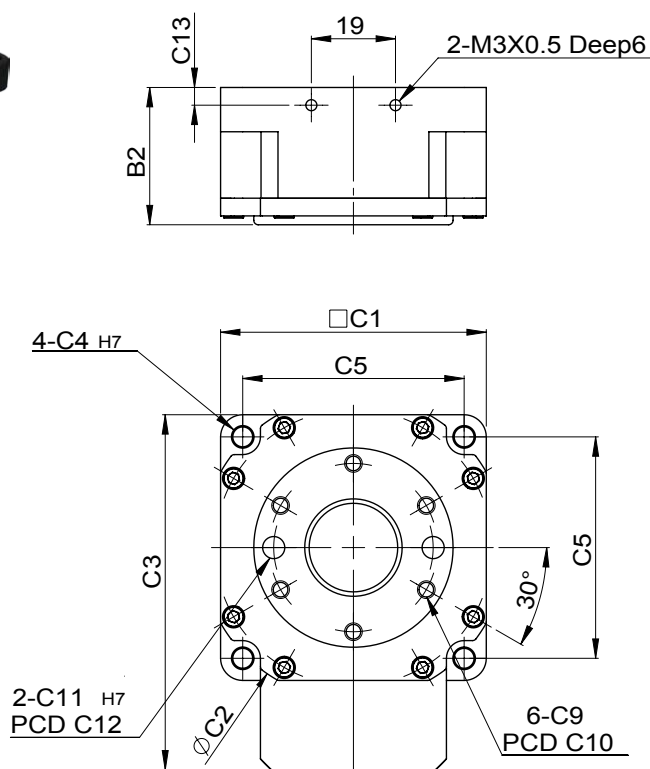
	Model Code	unit: mm				
		60	85	110	135	200
A	A1	8	8、14	14	14、19	19、24
	A2	30、40、50	30、40、50	50、60、70	50、60、70	70、80、95、110
	A3	M3、M4、M5	M3、M4、M5	M4、M5、M6	M4、M5、M6	M5、M6、M8
	A4	46、63、60	46、63、60	70、75、90	70、75、90	90、100、115、145
	A5	46、55	46、55	64、70、80	64、70、80	92、110、130
	A6	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0
B	B1	66	86.5	90.5	111	125.5、139.5
	B2	31	44.5	45	55	70
	B3	6	21.5	18	22	30
	B4	10	10	12	15	20
	B5	2	3	3	3	4
	B6	45	70	95	115	170
	B7	-	52	59	92	120
	B8	20	22	30	50	75
	B9	26.5	31	31.5	41	44.5、57.5
	B10	6.5	5	5.5	6	8.5、7.5
	B11	29.2	41.6	54	66.6	92.5
C	C1	60	85	110	135	200
	C2	69	87	112	138	202
	C3	80.2	110.1	144	169.1	242.5
	C4	4.5	5.5	6.8	9	11
	C5	50	70	90	110	170
	C6	-	4	5	5	8
	C7	-	28	35	45	68
	C8	-	38	49	60	85
	C9	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0
	C10	38	62.5	80	104	155
	C11	5 deep6	5 deep6	5 deep6	5 deep5	8 deep8
	C12	36	62.5	80	104	155
	C13	4	4	5	5.5	9
	C14	-	7.5	12.5	17	24

Characteristic of GT-B 1-Stage Series

GT-B 單段系列產品特性



60#



GT-B 單段減速機 1-Stage

特性 Parameter	Code	Unit	Ratio	60B	85B	110B	135B	200B
輸出平台支撐軸 / Output Table Supporting Bearing			5~18	深溝滾珠軸承 / Ball Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	5	5	18	33	43	142
			10	4	14	26	34	112
			18	3	10	19	25	85
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	5~18	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	5~18	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
慣性慣量 / Inertia Moment		kg.m ²	5~18	777 x 10 ⁻⁷	1268 x 10 ⁻⁶	1562 x 10 ⁻⁶	2918 x 10 ⁻⁶	29072 x 10 ⁻⁶
出力容許轉速 / Output Permissible Speed		rpm	5~18	300	300	300	300	300
回程間隙 / Torsional Backlash		arcmin	5~18	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
動態齒輪差 / Lost Motion		arcmin	5~18	2(0.033°)				
重複定位精度 / Repetitive Positioning Accuracy		arcsec	5~18	±10(0.0028°)				
容許載重 / Permissible Thrust Load		N	5~18	350	600	800	1450	2500
容許彎矩負載 / Permissible Moment Load		Nm	5~18	7	12	16	30	50
工作台面偏擺 / Runout of Output Table Surface		mm	5~18	0.01	0.01	0.015	0.015	0.02
工作台面同心度 / Runout of Output Table Inner / Outer Diameter		mm	5~18	0.01	0.01	0.015	0.015	0.02
工作台面平行度 / Parallelism of Output Table		mm	5~18	0.02	0.02	0.025	0.025	0.03
重量 / Weight		kg	5~18	0.54	1.17	2.54	3.83	10.09

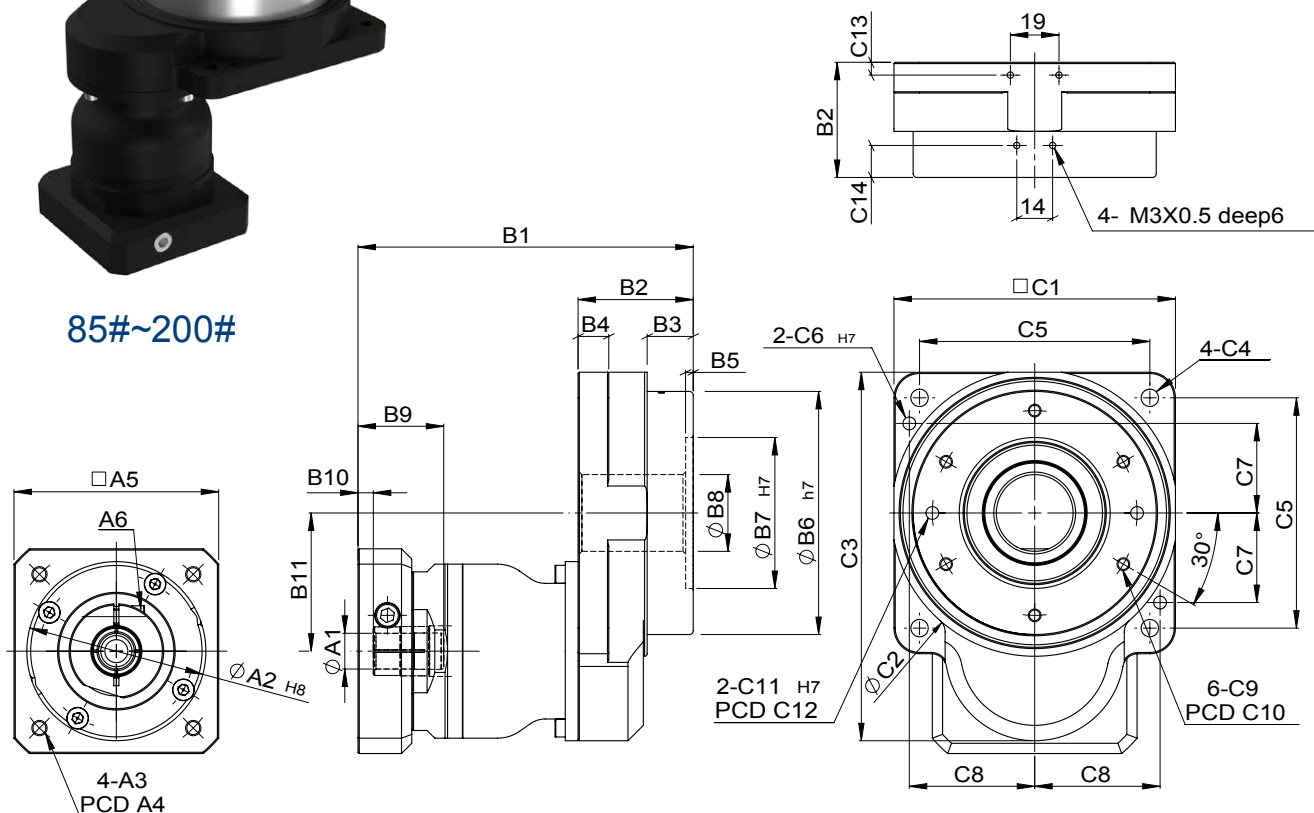
MODEL : GT-B

RATIO : 25.50.100 (雙段 2-Stage)

GT



85#~200#



unit: mm

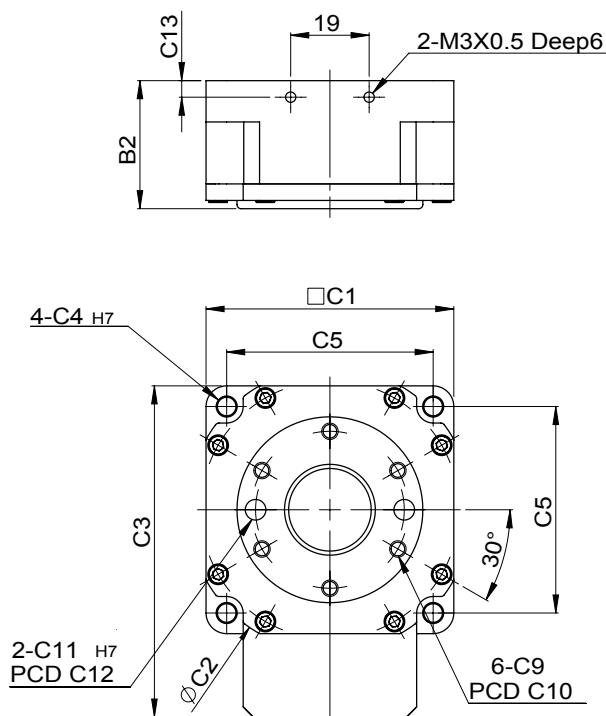
Model Code	60	85	110	135	200
A	A1	8	8、14	14	19
	A2	30、40、50	30、40、50	50、60、70	50、60、70
	A3	M3、M4、M5	M3、M4、M5	M4、M5、M6	M4、M5、M6
	A4	46、63、60	46、63、60	70、75、90	70、75、90
	A5	46、55	46、55	64、70、80	64、70、80
	A6	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8
B	B1	103	116.5	141	166.5
	B2	31	44.5	55	70
	B3	6	21.5	18	30
	B4	10	10	12	20
	B5	2	3	3	4
	B6	45	70	95	170
	B7	-	52	59	120
	B8	20	22	30	75
	B9	32	32	33.5	45.5
	B10	4.5	5	6	10
	B11	29.2	41.6	54	92.5
C	C1	60	85	110	200
	C2	69	87	112	202
	C3	80.2	110.1	144	242.5
	C4	4.5	5.5	6.8	11
	C5	50	70	90	170
	C6	-	4	5	8
	C7	-	28	35	68
	C8	-	38	49	85
	C9	M4 x 0.7	M4 x 0.7	M5 x 0.8	M6 x 1.0
	C10	38	62.5	80	155
	C11	5 deep6	5 deep6	5 deep6	8 deep8
	C12	36	62.5	80	155
	C13	4	4	5	9
	C14	-	7.5	12.5	24

Characteristic of GT-B 2-Stage Series

GT-B 雙段系列產品特性



60#



GT-B 雙段減速機 2-Stage

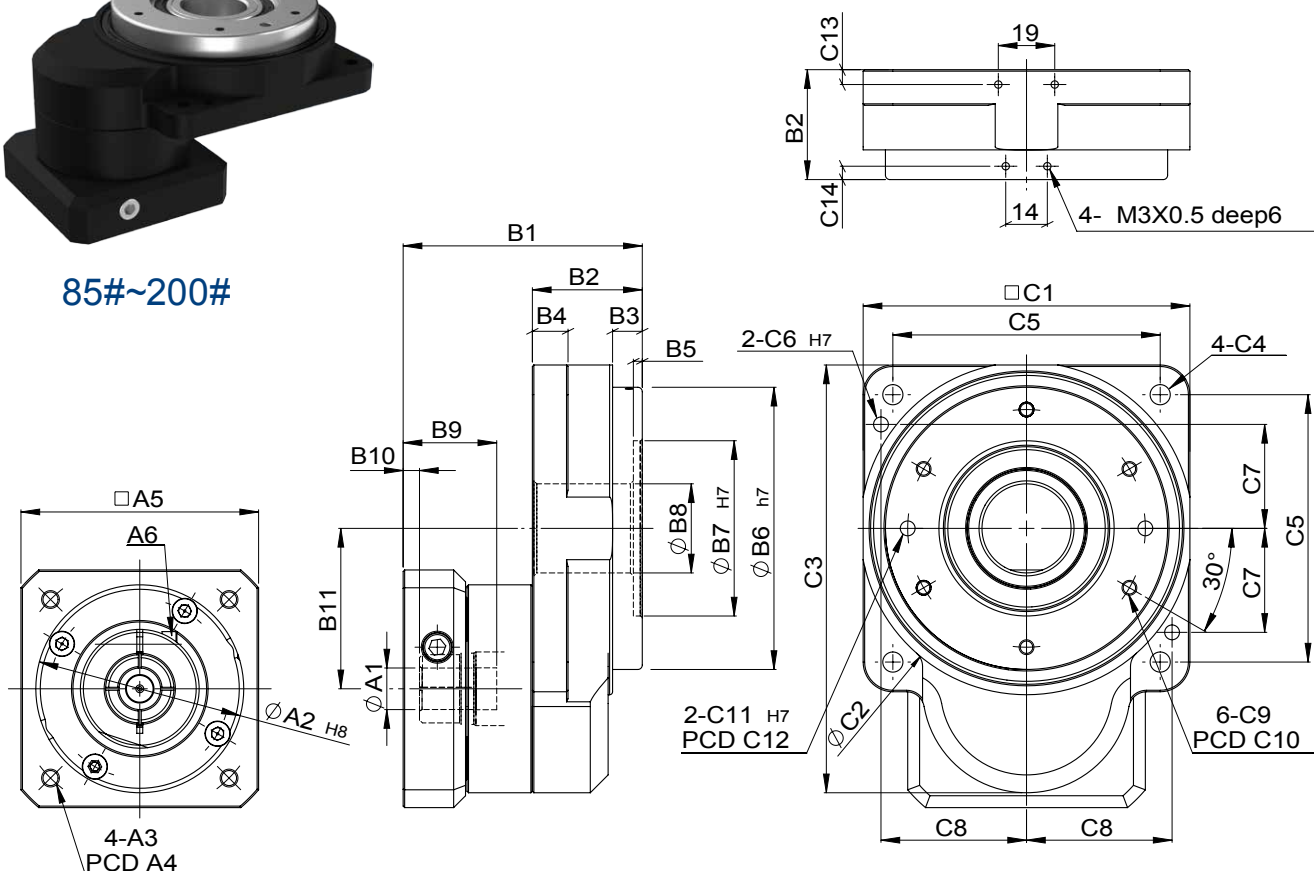
特性 Parameter	Code	Unit	Ratio	60B	85B	110B	135B	200B
輸出平台支撐軸 / Output Table Supporting Bearing			25~100	深溝滾珠軸承 / Ball Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	25	5	18	33	43	142
			50	4	14	26	34	112
			100	4	14	26	34	112
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	25~100	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	25~100	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
慣性慣量 / Inertia Moment		kg.m ²	25~100	777×10^{-7}	1268×10^{-6}	1562×10^{-6}	2918×10^{-6}	29072×10^{-6}
出力容許轉速 / Output Permissible Speed		rpm	25~100	300	300	300	300	300
回程間隙 / Torsional Backlash		arcmin	25~100	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
動態齒輪差 / Lost Motion		arcmin	25~100	3(0.05°)				
重複定位精度 / Repetitive Positioning Accuracy		arcsec	25~100	±15(0.0042°)				
容許載重 / Permissible Thrust Load		N	25~100	350	600	800	1450	2500
容許彎矩負載 / Permissible Moment Load		Nm	25~100	7	12	16	30	50
工作台面偏擺 / Runout of Output Table Surface		mm	25~100	0.01	0.01	0.015	0.015	0.02
工作台同心度 / Runout of Output Table Inner / Outer Diameter		mm	25~100	0.01	0.01	0.015	0.015	0.02
工作台平行度 / Parallelism of Output Table		mm	25~100	0.02	0.02	0.025	0.025	0.03
重量 / Weight		kg	25~100	1.1	1.95	3.76	4.92	11.8

MODEL : GT-C

RATIO : 5.10.18 (單段 1-Stage)



85#~200#



unit: mm

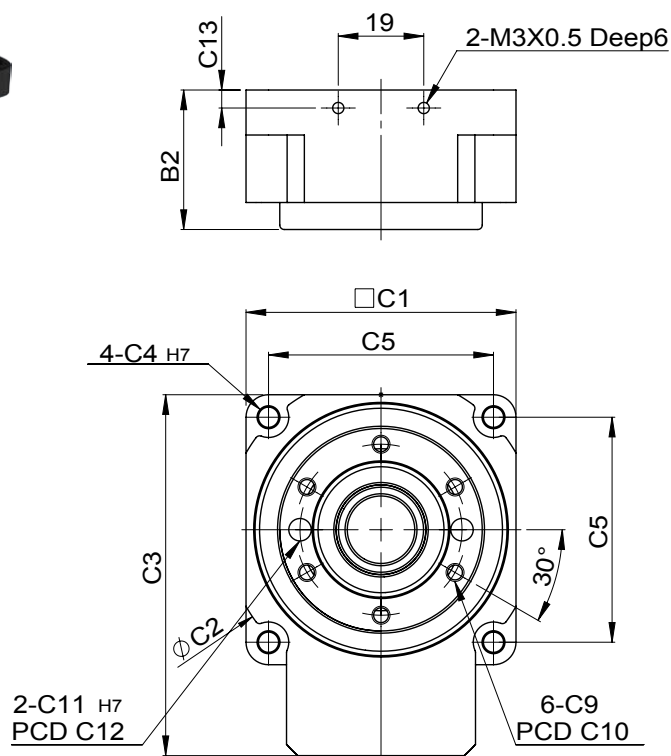
Model Code	60	85	110	135	170	200
A	A1	8	8 · 14	14	14 · 19	19 · 24
	A2	30 · 40 · 50	30 · 40 · 50	50 · 60 · 70	50 · 60 · 70	70 · 80 · 95 · 110
	A3	M3 · M4 · M5	M3 · M4 · M5	M4 · M5 · M6	M4 · M5 · M6	M5 · M6 · M8
	A4	46 · 63 · 60	46 · 63 · 60	70 · 75 · 90	70 · 75 · 90	90 · 100 · 115 · 145
	A5	46 · 55	46 · 55	64 · 70 · 80	64 · 70 · 80	92 · 110 · 130
	A6	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0
B	B1	66	78.5	82.5	98	115.5 · 128.5
	B2	31	36.5	37	42	60
	B3	6	13.5	10	9	6
	B4	10	10	12	15	36
	B5	2	3	3	3	6
	B6	45	70	95	115	135
	B7	30	52	59	92	104
	B8	15	22	30	50	85
	B9	26.5	31	31.5	41	44.5 · 57.5
	B10	6.5	5	5.5	6	8.5 · 7.5
	B11	29.2	41.6	54	66.6	92.5
C	C1	60	85	110	135	170
	C2	69	87	112	138	176
	C3	80.2	110.1	144	169.1	227.5
	C4	4.5	5.5	6.8	9	11
	C5	50	70	90	110	145
	C6	-	4	5	5	6
	C7	-	28	35	45	60
	C8	-	38	49	60	72.5
	C9	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M8 x 1.25
	C10	38	62.5	80	104	120
	C11	5 deep6	5 deep6	5 deep6	5 deep5	6 deep8
	C12	36	62.5	80	104	120
	C13	4	4	5	5.5	-
	C14	-	5	4.5	4	-

Characteristic of GT-C 1-Stage Series

GT-C 單段系列產品特性



60#



GT-C 單段減速機 1-Stage

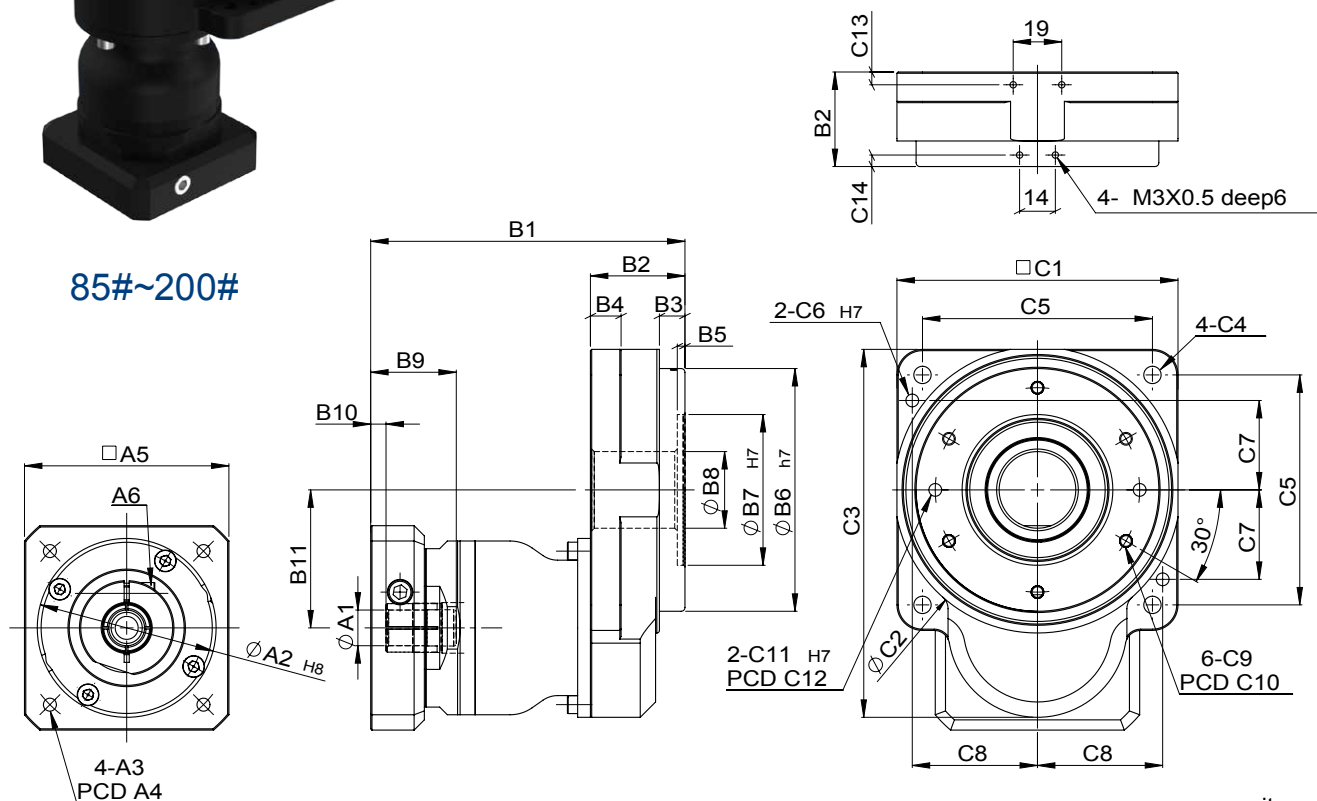
特性 Parameter	Code	Unit	Ratio	60C	85C	110C	135C	170C	200C
輸出平台支撐軸 / Output Table Supporting Bearing			5~18	交叉斜角滾柱軸承 / Crossed Roller Bearing					
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	5	5	18	33	43	100	142
			10	4	14	26	34	-	112
			18	3	10	19	25	-	85
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	5~18	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque					
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	5~18	2 倍額定輸出扭矩 2 Times of Rated Output Torque					
慣性慣量 / Inertia Moment		kg.m ²	5~18	735×10^{-7}	1203×10^{-6}	1483×10^{-6}	2772×10^{-6}	27619×10^{-6}	27619×10^{-6}
出力容許轉速 / Output Permissible Speed		rpm	5~18	200	200	200	200	200	200
回程間隙 / Torsional Backlash		arcmin	5~18	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
動態齒輪差 / Lost Motion		arcmin	5~18	2(0.033°)					
重複定位精度 / Repetitive Positioning Accuracy		arcsec	5~18	$\pm 10(0.0028^\circ)$					
容許載重 / Permissible Thrust Load		N	5~18	500	900	1200	2200	4000	4000
容許彎矩負載 / Permissible Moment Load		Nm	5~18	10	18	24	45	65	80
工作台面偏擺 / Runout of Output Table Surface		mm	5~18	0.01	0.01	0.015	0.015	0.02	0.02
工作台面同心度 / Runout of Output Table Inner / Outer Diameter		mm	5~18	0.01	0.01	0.015	0.015	0.02	0.02
工作台面平行度 / Parallelism of Output Table		mm	5~18	0.02	0.02	0.025	0.025	0.03	0.03
重量 / Weight		kg	5~18	0.62	1.1	2.04	3.13		8.66

MODEL : GT-C

RATIO : 25.50.100 (雙段 2-Stage)



85#~200#



unit: mm

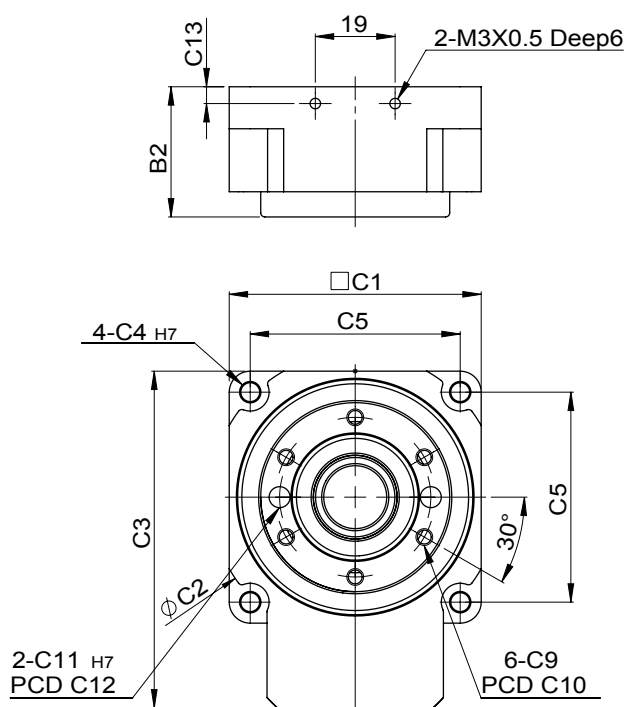
Model Code	60	85	110	135	170	200
A	A1	8	8 · 14	14	14	19
	A2	30 · 40 · 50	30 · 40 · 50	50 · 60 · 70	50 · 60 · 70	50 · 60 · 70
	A3	M3 · M4 · M5	M3 · M4 · M5	M4 · M5 · M6	M4 · M5 · M6	M4 · M5 · M6
	A4	46 · 63 · 60	46 · 63 · 60	70 · 75 · 90	70 · 75 · 90	70 · 75 · 90
	A5	46 · 55	46 · 55	64 · 70 · 80	64 · 70 · 80	64 · 70 · 80
	A6	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M5 x 0.8
B	B1	103	108.5	123	128	156.5
	B2	31	36.5	37	42	58
	B3	6	13.5	10	9	6
	B4	10	10	12	15	36
	B5	2	3	3	3	6
	B6	45	70	95	115	135
	B7	30	52	59	92	104
	B8	15	22	30	50	85
	B9	32	32	33.5	33.5	45.5
	B10	4.5	5	6	6	10
	B11	29.2	41.6	54	66.6	92.5
C	C1	60	85	110	135	170
	C2	69	87	112	138	176
	C3	80.2	110.1	144	169.1	227.5
	C4	4.5	5.5	6.8	9	11
	C5	50	70	90	110	145
	C6	-	4	5	5	6
	C7	-	28	35	45	60
	C8	-	38	49	60	72.5
	C9	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M8 x 1.25
	C10	38	62.5	80	104	120
	C11	5 deep6	5 deep6	5 deep6	5 deep5	6 deep8
	C12	36	62.5	80	104	120
	C13	4	4	5	5.5	-
	C14	-	5	4.5	4	-

Characteristic of GT-C 2-Stage Series

GT-C 雙段系列產品特性



60#



GT-C 雙段減速機 2-Stage

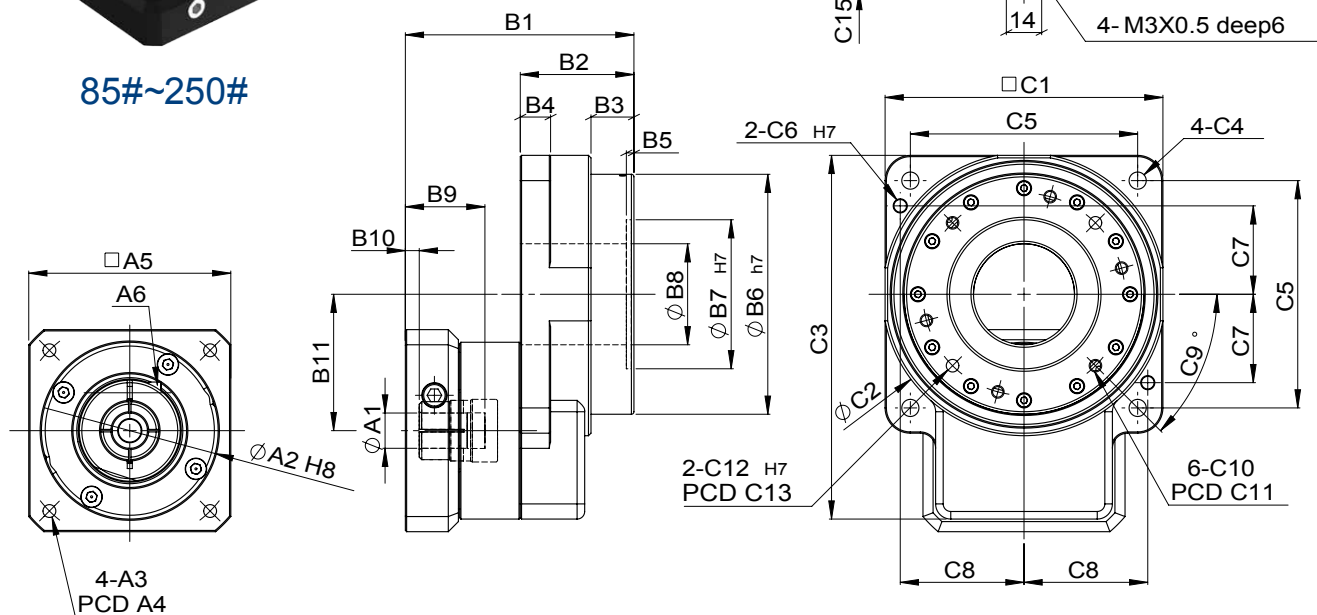
特性 Characteristic	Code	Unit	Ratio	60C	85C	110C	135C	170C	200C
輸出平台支撐軸 / Output Table Supporting Bearing			25~100	交叉斜角滾柱軸承 / Crossed Roller Bearing					
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	25	5	18	33	43	100	142
			50	4	14	26	34	-	112
			100	4	14	26	34	-	112
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	25~100	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque					
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	25~100	2 倍額定輸出扭矩 2 Times of Rated Output Torque					
慣性慣量 / Inertia Moment		kg.m ²	25~100	735×10^{-7}	1203×10^{-6}	1483×10^{-6}	2772×10^{-6}	27619×10^{-6}	27619×10^{-6}
出力容許轉速 / Output Permissible Speed		rpm	25~100	200	200	200	200	200	200
回程間隙 / Torsional Backlash		arcmin	25~100	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
動態齒輪差 / Lost Motion		arcmin	25~100	3(0.05°)					
重覆定位精度 / Repetitive Positioning Accuracy		arcsec	25~100	$\pm 15(0.0042^\circ)$					
容許載重 / Permissible Thrust Load		N	25~100	500	900	1200	2200	4000	4000
容許彎矩負載 / Permissible Moment Load		Nm	25~100	10	18	24	45	65	80
工作台面偏擺 / Runout of Output Table Surface		mm	25~100	0.01	0.01	0.015	0.015	0.02	0.02
工作台同心度 / Runout of Output Table Inner / Outer Diameter		mm	25~100	0.01	0.01	0.015	0.015	0.02	0.02
工作平台平行度 / Parallelism of Output Table		mm	25~100	0.02	0.02	0.025	0.025	0.03	0.03
重量 / Weight		kg	25~100	1.1	1.78	3.51	4.21	10.3	10.3

MODEL : GT-H

RATIO : 10.18 (單段 1-Stage)



85#~250#



unit: mm

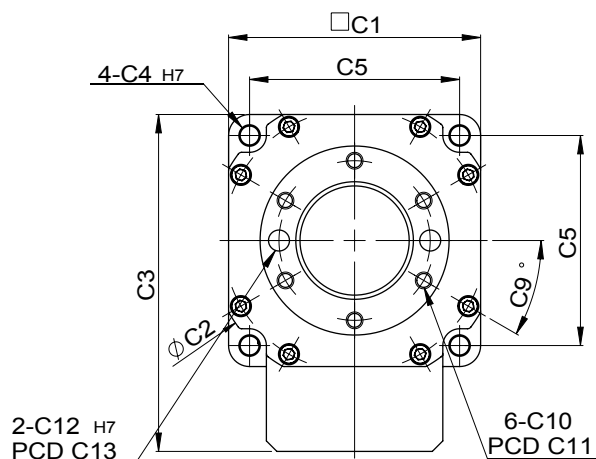
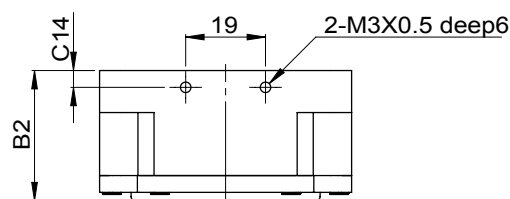
	Model Code	60	85	110	135	200	250
	A1	8	8、14	14	14、19	19、24	35
A	A2	30、40、50	30、40、50	50、60、70	50、60、70	70、80、95、110	95、110、114.3
	A3	M3、M4、M5	M3、M4、M5	M4、M5、M6	M4、M5、M6	M5、M6、M8	M6、M8、M12
	A4	46、63、60	46、63、60	70、75、90	70、75、90	90、100、115、145	115、145、200
	A5	46、55	46、55	64、70、80	64、70、80	92、110、130	122、130、180
	A6	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0	M10 x 1.5
	B1	66	78.5	90.5	104	125.5、139.5	184
B	B2	31	38.5	45	48	70	84
	B3	6	13	17	12	25	27.5
	B4	10	10	12	15	20	25
	B5	2	3	3	3	4	5
	B6	45	70	95	115	170	218
	B7	-	52	59	92	140	160
	B8	26	33	40	63	100	120
	B9	26.5	31	31.5	41	44.5、57.5	82
	B10	6.5	5	5.5	6	8.5、7.5	10
	B11	29.2	41.6	54	66.6	98.5	122
	C	C1	60	85	110	135	200
C2		69	87	112	138	202	254
C3		80.2	110.1	144	169.1	248.5	307
C4		4.5	5.5	6.8	9	11	13
C5		50	70	90	110	170	220
C6		-	4	5	5	8	10
C7		-	28	35	45	68	90
C8		-	38	49	60	85	110
C9		30	30	45	30	30	30
C10		M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0	M8 x 1.25
C11		38	62.5	80	104	155	200
C12		5 deep6	5 deep6	5 deep5	5 deep5	8 deep8	8 deep14.5
C13		36	62.5	80	104	155	200
C14		4	4	5	5.5	9	9
C15		-	5	4.5	6	12	8

Characteristic of GT-H 1-Stage Series

GT-H 單段系列產品特性



60#



GT-H 單段減速機 1-Stage

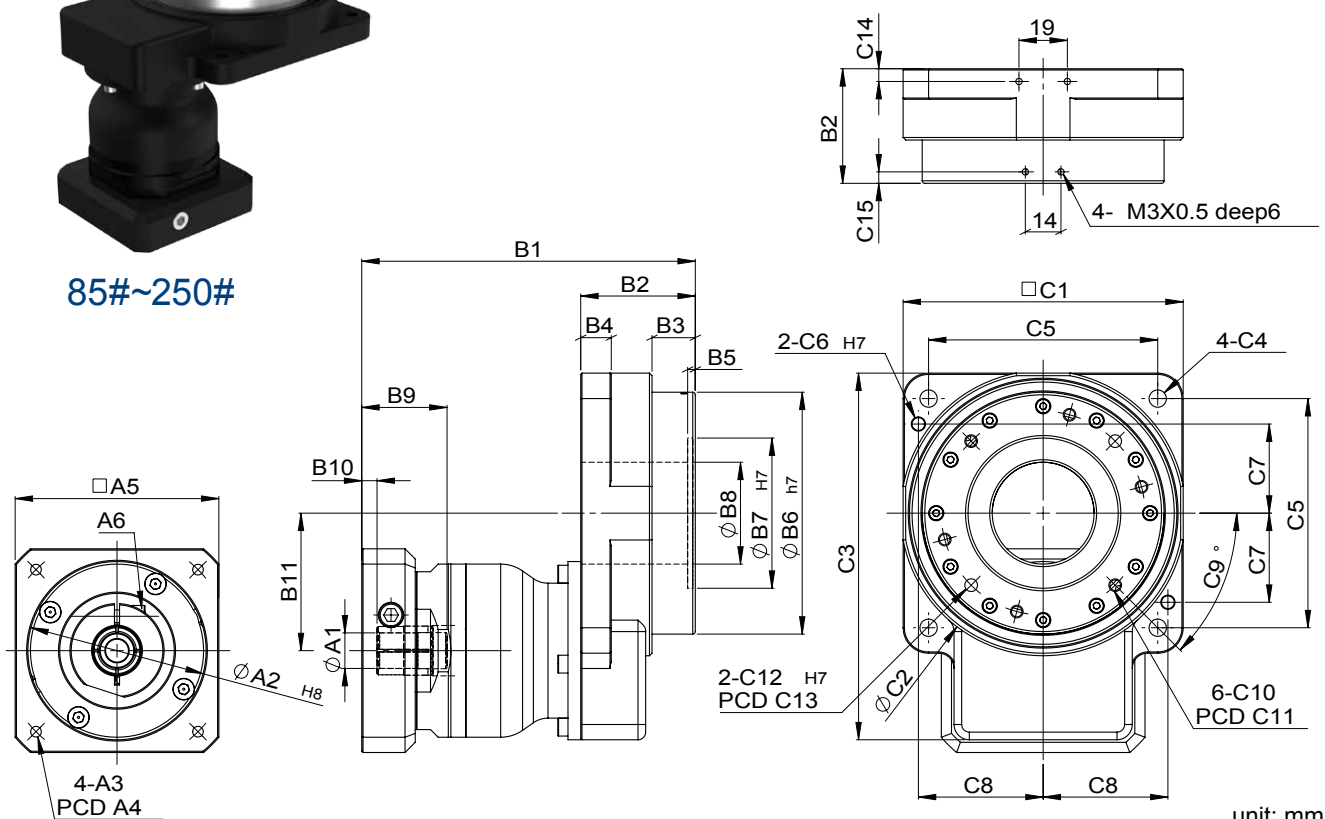
特性 Parameter	Code	Unit	Ratio	60H	85H	110H	135H	200H	250H
輸出平台支撐軸 / Output Table Supporting Bearing			10 ÷ 18	深溝滾珠軸承 / Ball Bearing	交叉斜角滾柱軸承大中空 / Crossed Roller Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	10	4	14	26	34	183	334
			18	3	10	19	25	128	234
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	10 ÷ 18	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque					
最大輸出扭矩 / Max. Output Torque	T_{2NOT}	Nm	10 ÷ 18	2 倍額定輸出扭矩 2 Times of Rated Output Torque					
急停扭矩 / Emergency Stop Torque									
慣性慣量 / Inertia Moment		kg.m ²	10 ÷ 18	777×10^{-7}	1203×10^{-6}	1483×10^{-6}	2772×10^{-6}	27619×10^{-6}	53551×10^{-6}
出力容許轉速 / Output Permissible Speed		rpm	10 ÷ 18	300	200	200	200	200	200
回程間隙 / Torsional Backlash		arcmin	10 ÷ 18	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
動態齒輪差 / Lost Motion		arcmin	10 ÷ 18	2(0.033°)					
重覆定位精度 / Repetitive Positioning Accuracy		arcsec	10 ÷ 18	±10(0.0028°)					
容許載重 / Permissible Thrust Load		N	10 ÷ 18	350	900	1200	2200	4000	5060
容許彎矩負載 / Permissible Moment Load		Nm	10 ÷ 18	7	18	24	45	80	100
工作台面偏擺 / Runout of Output Table Surface		mm	10 ÷ 18	0.01	0.01	0.015	0.015	0.02	0.025
工作台面同心度 / Runout of Output Table Inner / Outer Diameter		mm	10 ÷ 18	0.01	0.01	0.015	0.015	0.02	0.025
工作台面平行度 / Parallelism of Output Table		mm	10 ÷ 18	0.02	0.02	0.025	0.025	0.03	0.035
重量 / Weight		kg	10 ÷ 18	0.595	1.1	2.25	3.3	9.7	20.1

MODEL : GT-H

RATIO : 50.100 (雙段 2-Stage)



85#~250#



unit: mm

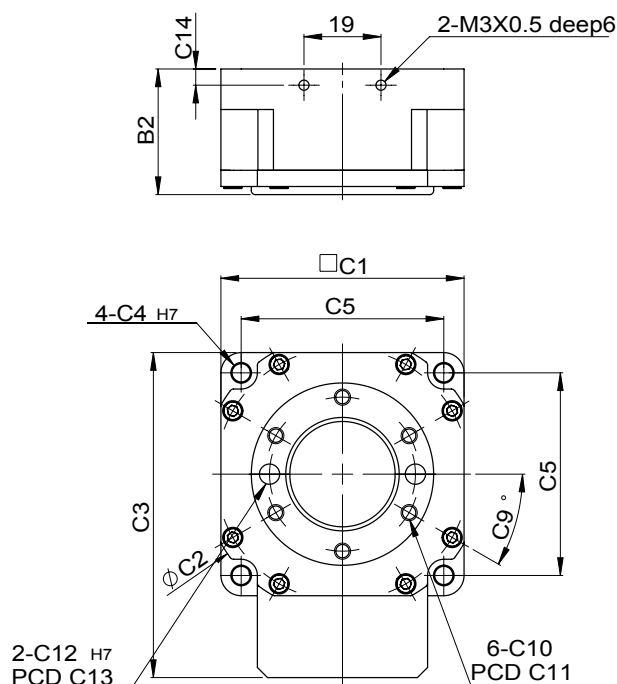
Model Code	60	85	110	135	200	250
A	A1	8	8・14	14	14	19・24
	A2	30・40・50	30・40・50	50・60・70	50・60・70	70・80・95・110
	A3	M3・M4・M5	M3・M4・M5	M4・M5・M6	M4・M5・M6	M5・M6・M8
	A4	46・63・60	46・63・60	70・75・90	70・75・90	90・100・115・145
	A5	46・55	46・55	64・70・80	64・70・80	92・110・130
	A6	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0
B	B1	103	108.5	131	166.5	198・212.5
	B2	31	36.5	45	70	84
	B3	6	13	17	25	27.5
	B4	10	10	12	15	25
	B5	2	3	3	4	5
	B6	45	70	95	115	218
	B7	-	52	59	92	160
	B8	26	33	40	63	120
	B9	32	32	33.5	33.5	45.5
	B10	4.5	5	6	6	10
	B11	29.2	41.6	54	66.6	98.5
C	C1	60	85	110	135	200
	C2	69	87	112	138	202
	C3	80.2	110.1	144	169.1	248.5
	C4	4.5	5.5	6.8	9	11
	C5	50	70	90	110	170
	C6	-	4	5	5	8
	C7	-	28	35	45	68
	C8	-	38	49	60	85
	C9	30	30	45	30	30
	C10	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0
	C11	38	62.5	80	104	155
	C12	5 deep6	5 deep6	5 deep5	5 deep5	8 deep8
	C13	36	62.5	80	104	155
	C14	4	4	5	5.5	9
	C15	-	5	4.5	6	12

Characteristic of GT-H 2-Stage Series

GT-H 雙段系列產品特性



60#



GT-H 雙段減速機 2-Stage

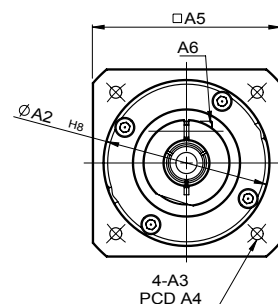
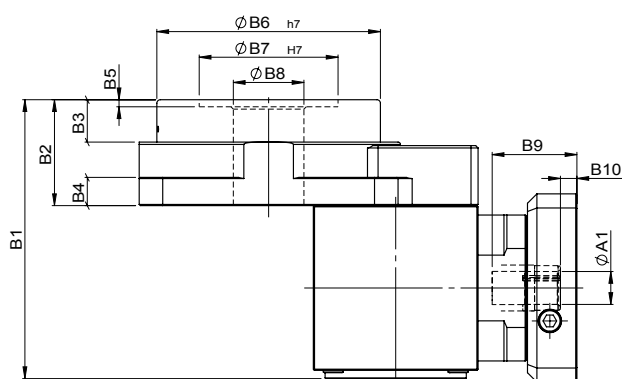
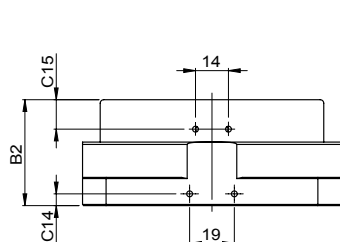
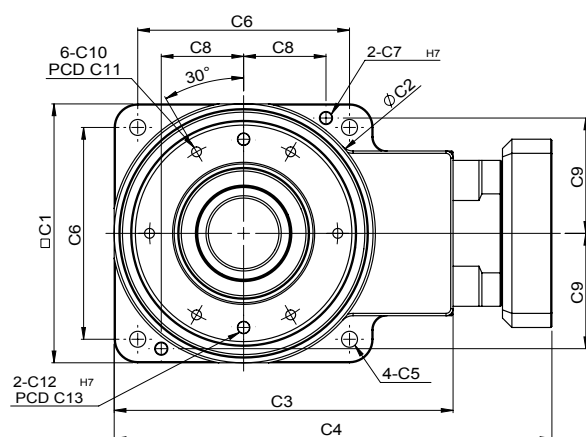
特性 Parameter	Code	Unit	Ratio	60H	85H	110H	135H	200H	250H
輸出平台支撐軸 / Output Table Supporting Bearing			50、100	深溝滾珠軸承 / Ball Bearing	交叉斜角滾柱軸承大中空 / Crossed Roller Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	50、100	4	14	26	34	183	334
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	50、100	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque					
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	50、100	2 倍額定輸出扭矩 2 Times of Rated Output Torque					
慣性慣量 / Inertia Moment		kg.m ²	50、100	777×10^{-7}	1203×10^{-6}	1483×10^{-6}	2772×10^{-6}	27619×10^{-6}	53551×10^{-6}
出力容許轉速 / Output Permissible Speed		rpm	50、100	300	200	200	200	200	200
回程間隙 / Torsional Backlash		arcmin	50、100	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
動態齒輪差 / Lost Motion		arcmin	50、100	3(0.05°)					
重覆定位精度 / Repetitive Positioning Accuracy		arcsec	50、100	±15(0.0042°)					
容許載重 / Permissible Thrust Load		N	50、100	350	900	1200	2200	4000	5060
容許彎矩負載 / Permissible Moment Load		Nm	50、100	7	18	24	45	80	100
工作台面偏擺 / Runout of Output Table Surface		mm	50、100	0.01	0.01	0.015	0.015	0.02	0.025
工作台面同心度 / Runout of Output Table Inner / Outer Diameter		mm	50、100	0.01	0.01	0.015	0.015	0.02	0.025
工作台面平行度 / Parallelism of Output Table		mm	50、100	0.02	0.02	0.025	0.025	0.03	0.035
重量 / Weight		kg	50、100	1.1	1.7	2.9	4	9.2	18.5

MODEL : GTL-B

RATIO : 20.30.40.50 (單段 1-Stage)



85#~200#



unit: mm

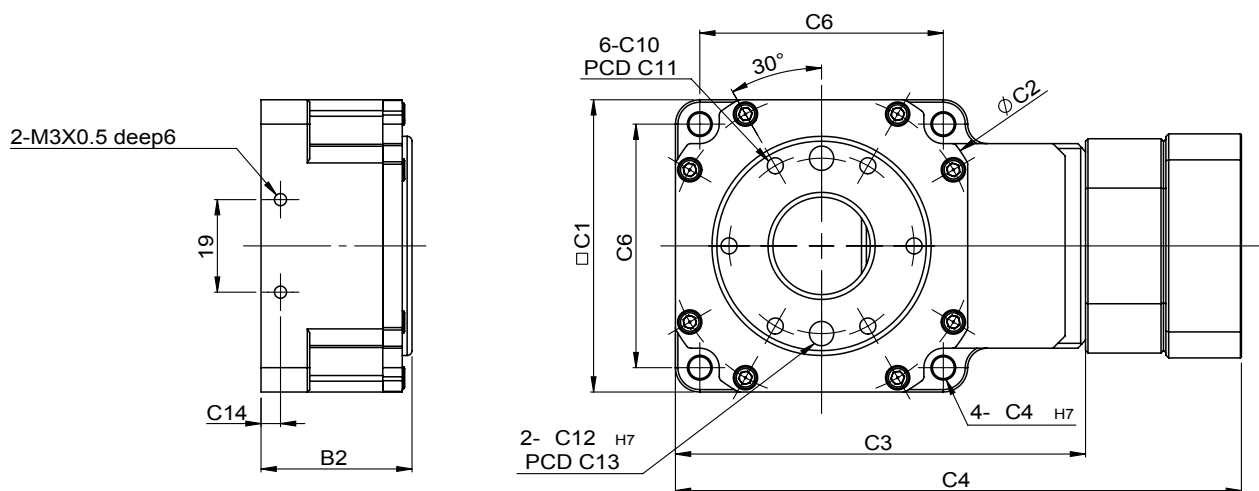
	Model	60	85	110	135	200
	Code					
A	A1	8	8	14	14	19、24
	A2	30	30	50、60、70	50、60、70	70、80、95、110
	A3	M4	M4	M4、M5、M6	M4、M5、M6	M5、M6、M8
	A4	46	46	70、75、90	70、75、90	90、100、115、145
	A5	46	46	64、70、80	64、70、80	92、110、130
	A6	M4x0.7	M4x0.7	M5x0.8	M5x0.8	M6x1.0
B	B1	87.5	102.5	118.5	128.5	172
	B2	31	44.5	45	55	70
	B3	2	21.5	18	22	30
	B4	10	10	12	15	20
	B5	-	3	3	3	4
	B6	45	70	95	115	170
	B7	-	52	59	92	120
	B8	20	22	30	50	75
	B9	26	26	36	36	51、65.5
	B10	5	5	7	7	9、23.5
C	C1	60	85	110	135	200
	C2	60	85	110	135	200
	C3	69	87	112	138	202
	C4	80.2	110.1	144	169.1	242.5
	C5	4.5	5.5	6.8	9	11
	C6	50	70	90	110	170
	C7	-	4	5	5	8
	C8	-	28	35	45	68
	C9	-	38	49	60	85
	C10	M4 x 0.7	M4 x 0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0
	C11	38	62.5	80	104	155
	C12	5 deep6	5 deep6	5 deep6	5 deep5	8 deep8
	C13	36	62.5	80	104	155
	C14	4	4	5	5.5	9
	C15	-	7.5	12.5	17	24

Characteristic of GTL-B 1-Stage Series

GTL-B 單段系列產品特性



60#



GTL-B 單段減速機 1-Stage

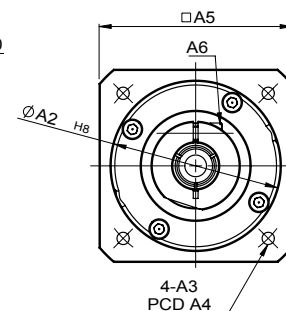
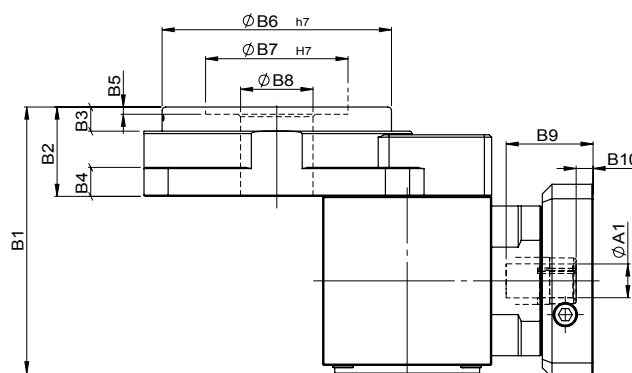
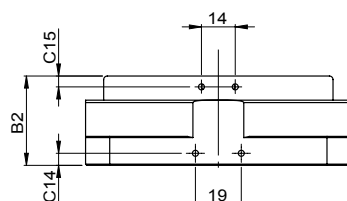
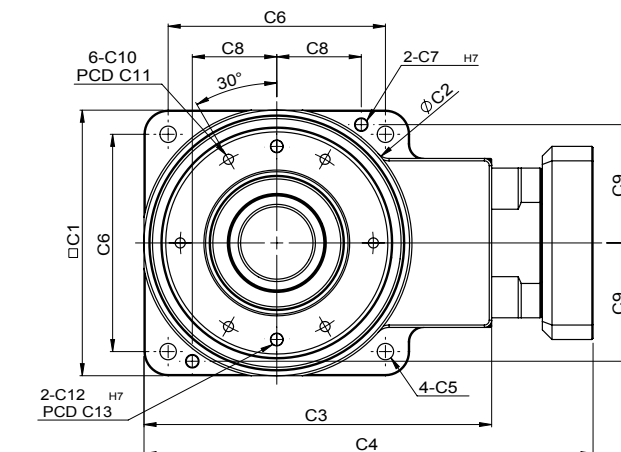
特性 Parameter	Code	Unit	Ratio	60B	85B	110B	135B	200B
輸出平台支撐軸 / Output Table Supporting Bearing			20~50	深溝滾珠軸承 / Ball Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20~50	4	14	26	34	112
最大加速扭距 / Max. Acceleration Torque	T_{2B}	Nm	20~50	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	20~50	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
慣性慣量 / Inertia Moment		kg.m ²	20~50	8×10^{-6}	1.5×10^{-5}	8×10^{-5}	8×10^{-5}	2.78×10^{-4}
入力容許轉速 / Input Permissible Speed		rpm	20~50	3,000	3,000	3,000	3,000	3,000
回程間隙 / Torsional Backlash		arcmin	20~50	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
動態齒輪差 / Lost Motion		arcmin	20~50	2(0.033°)				
重覆定位精度 / Repetitive Positioning Accuracy		arcsec	20~50	$\pm 20(0.0056^\circ)$				
容許載重 / Permissible Thrust Load		N	20~50	350	600	800	1450	2500
容許彎矩負載 / Permissible Moment Load		Nm	20~50	7	12	16	30	50
工作台面偏擺 / Runout of Output Table Surface		mm	20~50	0.01	0.01	0.015	0.015	0.02
工作台同心度 / Runout of Output Table Inner / Outer Diameter		mm	20~50	0.01	0.01	0.015	0.015	0.02
工作台面平行度 / Parallelism of Output Table		mm	20~50	0.02	0.02	0.025	0.025	0.03
重量 / Weight		kg	20~50	1.0	2.1	3.7	5	11

MODEL : GTL-C

RATIO : 20.30.40.50 (單段 1-Stage)



85#~200#



unit: mm

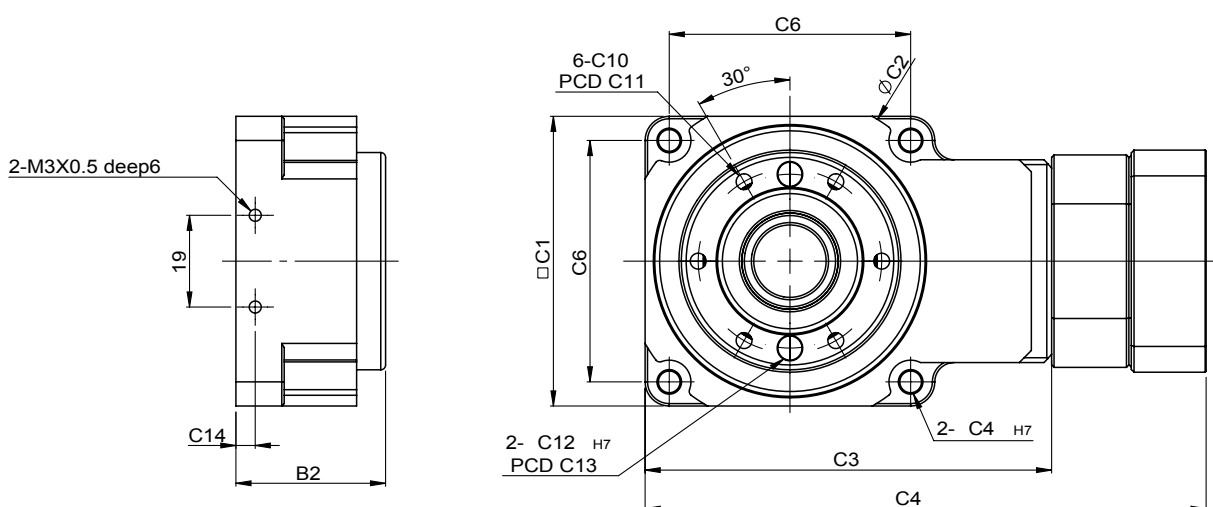
	Model Code	60	85	110	135	200
A	A1	8	8	14	14	19、24
	A2	30	30	50、60、70	50、60、70	70、80、95、110
	A3	M4	M4	M4、M5、M6	M4、M5、M6	M5、M6、M8
	A4	46	46	70、75、90	70、75、90	90、100、115、145
	A5	46	42	64、70、80	64、70、80	92、110、130
	A6	M4x0.7	M4x0.7	M5x0.8	M5x0.8	M6x1.0
B	B1	87.5	94.5	110.5	115.5	160
	B2	31	36.5	37	42	58
	B3	6	13.5	10	9	18
	B4	10	10	12	15	20
	B5	2	3	3	3	4
	B6	45	70	95	115	170
	B7	30	52	59	92	120
	B8	15	22	30	50	75
	B9	26	26	36	36	51、65.5
	B10	5	5	7	7	9、23.5
C	C1	60	85	110	135	200
	C2	69	87	112	138	202
	C3	84	109	144	169	242.5
	C4	116	141	186	211	295、309.5
	C5	4.5	5.5	6.8	9	11
	C6	50	70	90	110	170
	C7	-	4	5	5	8
	C8	-	28	35	45	68
	C9	-	38	49	60	85
	C10	M4x0.7	M4x0.7	M5x0.8	M5x0.8	M6x1.0
	C11	38	62.5	80	104	155
	C12	5 deep6	5 deep6	5 deep6	5 deep5	8 deep8
	C13	36	62.5	80	104	155
	C14	4	4	5	5.5	9
	C15	-	5	4.5	4	12

Characteristic of GTL-C 1-Stage Series

GTL-C 單段系列產品特性



60#



GTL-C 單段減速機 1-Stage

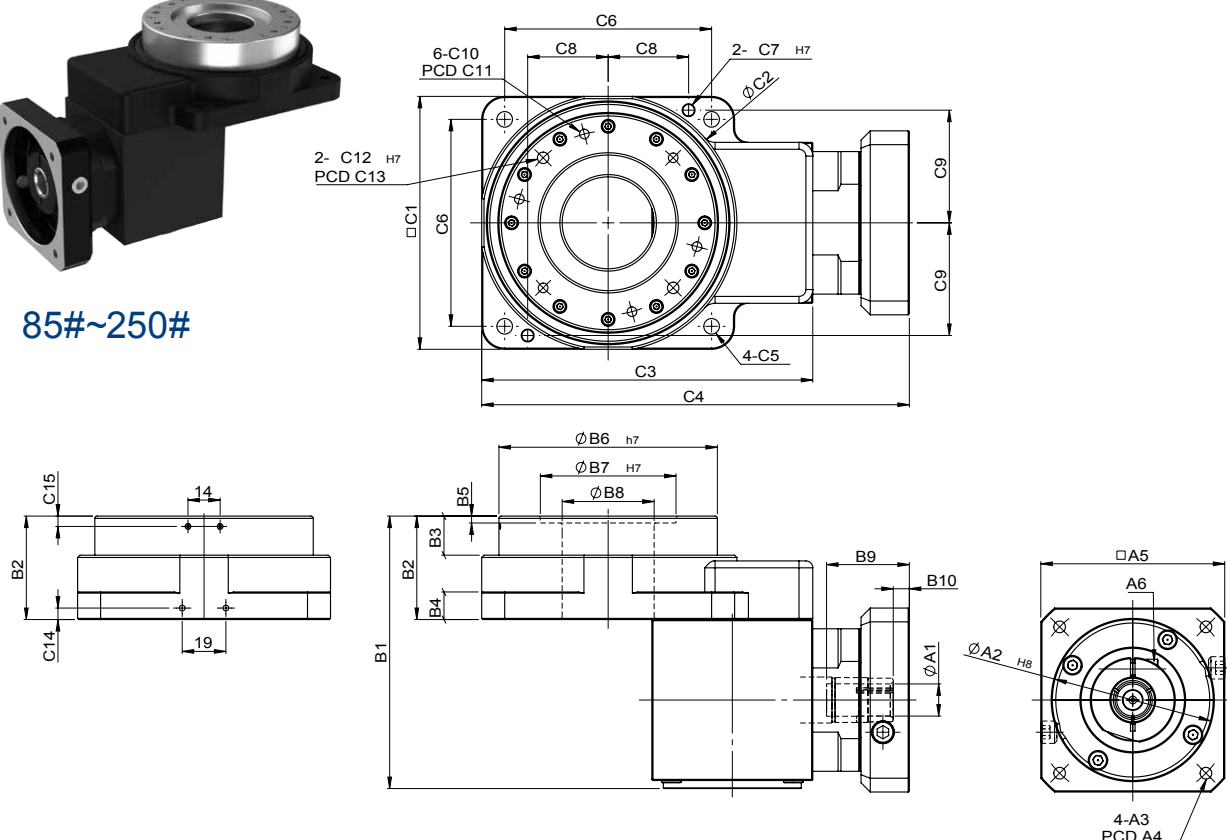
特性 Parameter	Code	Unit	Ratio	60C	85C	110C	135C	200C
輸出平台支撐軸 / Output Table Supporting Bearing			20~50	交叉斜角滾柱軸承 / Crossed Roller Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20~50	4	14	26	34	112
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	20~50	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque				
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	20~50	2 倍額定輸出扭矩 2 Times of Rated Output Torque				
慣性慣量 / Inertia Moment		kg.m ²	20~50	8×10^{-6}	1.5×10^{-5}	8×10^{-5}	8×10^{-5}	2.78×10^{-4}
入力容許轉速 / Input Permissible Speed		rpm	20~50	3,000	3,000	3,000	3,000	3,000
回程間隙 / Torsional Backlash		arcmin	20~50	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
動態齒輪差 / Lost Motion		arcmin	20~50	2(0.033°)				
重複定位精度 / Repetitive Positioning Accuracy		arcsec	20~50	±20(0.0056°)				
容許載重 / Permissible Thrust Load		N	20~50	500	900	1200	2200	4000
容許彎矩負載 / Permissible Moment Load		Nm	20~50	10	18	24	45	80
工作台面偏擺 / Runout of Output Table Surface		mm	20~50	0.01	0.01	0.015	0.015	0.02
工作台面同心度 / Runout of Output Table Inner / Outer Diameter		mm	20~50	0.01	0.01	0.015	0.015	0.02
工作台面平行度 / Parallelism of Output Table		mm	20~50	0.02	0.02	0.025	0.025	0.03
重量 / Weight		kg	20~50		1.8	3.1	5.5	

MODEL : GTL-H

RATIO : 20.30.40.50 (單段 1-Stage)



85#~250#



unit: mm

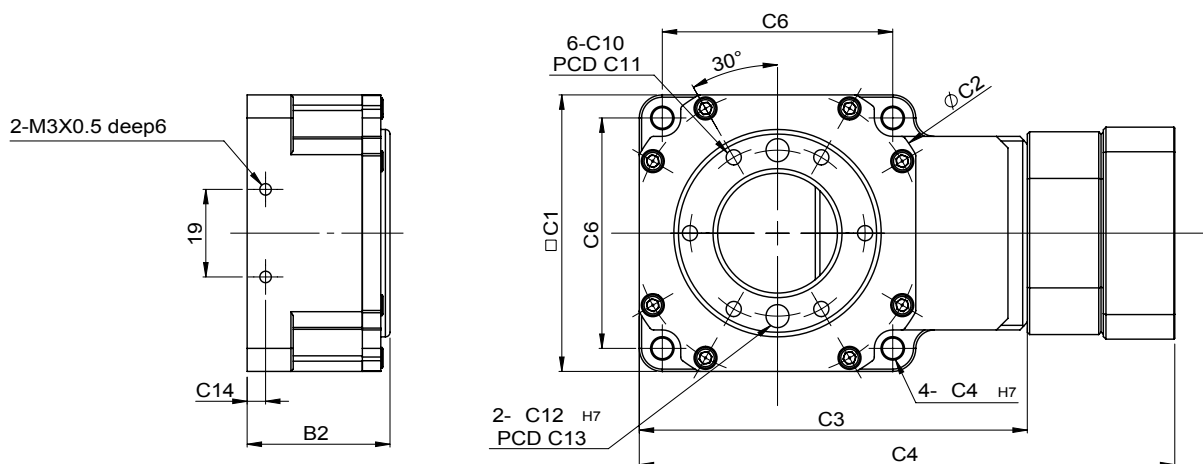
	Model Code	60	85	110	135	200	250
A	A1	8	8	14	14	19、24	19、24
	A2	30	30	50、60、70	50、60、70	70、80、95、110	70、80、95、110
	A3	M4	M4	M4、M5、M6	M4、M5、M6	M5、M6、M8	M5、M6、M8
	A4	46	46	70、75、90	70、75、90	90、100、115、145	90、100、115、145
	A5	46	46	64、70、80	64、70、80	92、110、130	92、110、130
	A6	M4x0.7	M4x0.7	M5 x 0.8	M5 x 0.8	M6 x 1.0	M6 x 1.0
B	B1	87.5	94.5	118.5	121.5	172	186
	B2	31	36.5	45	48	70	84
	B3	6	13	17	12	25	27.5
	B4	10	10	12	15	20	25
	B5	-	3	3	3	4	5
	B6	45	70	95	115	170	218
	B7	-	52	59	92	140	160
	B8	26	33	40	63	100	120
	B9	26	26	36	36	51、65.5	51、65.5
	B10	5	5	7	7	9、23.5	9、23.5
C	C1	60	85	110	135	200	250
	C2	69	87	112	138	202	254
	C3	84	109	144	169	248.5	307
	C4	116	141	186	211	295、309.5	349.5、364
	C5	4.5	5.5	6.8	9	11	13
	C6	50	70	90	110	170	220
	C7	-	4	5	5	8	10
	C8	-	28	35	45	68	90
	C9	-	38	49	60	85	110
	C10	M4x0.7	M4x0.7	M5x0.8	M5x0.8	M6x1.0	M8 x 1.25
	C11	38	62.5	80	104	155	200
	C12	5 deep6	5 deep6	5 deep5	5 deep5	8 deep11.5	8 deep14.5
	C13	36	62.5	80	104	155	200
	C14	4	4	5	5.5	9	9
	C15	-	5	4.5	6	8	8

Characteristic of GTL-H 1-Stage Series

GTL-H 單段系列產品特性



60#



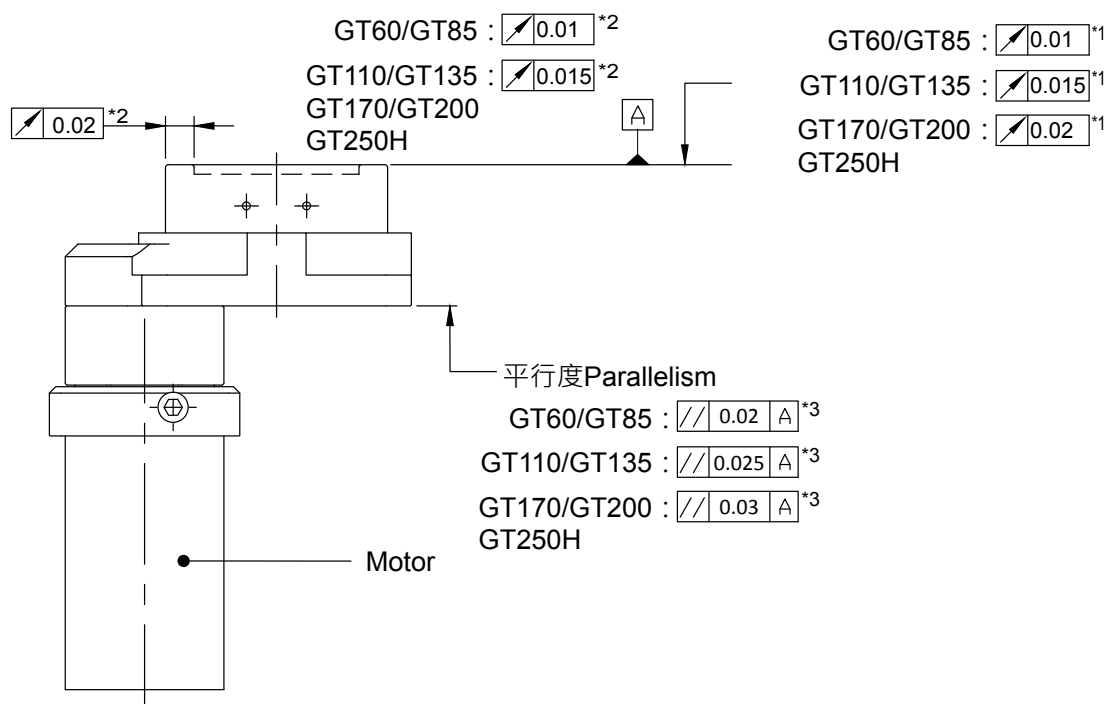
GTL-H 單段減速機 1-Stage

特性 Parameter	Code	Unit	Ratio	60H	85H	110H	135H	200H	250H
輸出平台支撐軸 / Output Table Supporting Bearing			20~50	深溝滾珠軸承 / Ball Bearing	交叉斜角滾柱軸承大中空 / Crossed Roller Bearing				
額定輸出扭矩 / Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20~50	4	14	26	34	183	334
最大加速扭矩 / Max. Acceleration Torque	T_{2B}	Nm	20~50	1.5 倍額定輸出扭矩 1.5 Times of Rated Output Torque					
最大輸出扭矩 / Max. Output Torque 急停扭矩 / Emergency Stop Torque	T_{2NOT}	Nm	20~50	2 倍額定輸出扭矩 2 Times of Rated Output Torque					
慣性慣量 / Inertia Moment		kg.m ²	20~50	8×10^{-6}	1.5×10^{-5}	8×10^{-5}	8×10^{-5}	2.78×10^{-4}	2.78×10^{-4}
入力容許轉速 / Input Permissible Speed		rpm	20~50	3,000	3,000	3,000	3,000	3,000	3,000
回程間隙 / Torsional Backlash		arcmin	20~50	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
動態齒輪差 / Lost Motion		arcmin	20~50	2(0.033°)					
重覆定位精度 / Repetitive Positioning Accuracy		arcsec	20~50	$\pm 20(0.0056^\circ)$					
容許載重 / Permissible Thrust Load		N	20~50	350	900	1200	2200	4000	5060
容許彎矩負載 / Permissible Moment Load		Nm	20~50	7	18	24	45	80	100
工作台面偏擺 / Runout of Output Table Surface		mm	20~50	0.01	0.01	0.015	0.015	0.02	0.025
工作台面同心度 / Runout of Output Table Inner / Outer Diameter		mm	20~50	0.01	0.01	0.015	0.015	0.02	0.025
工作台面平行度 / Parallelism of Output Table		mm	20~50	0.02	0.02	0.025	0.025	0.03	0.035
重量 / Weight		kg	20~50					11.7	21.9

Permissible Moment Load

容許彎矩負載

GT60/GT85/GT110/GT135/GT170/GT200/GT250H



* 1輸出平台面振幅

Runout of output table surface

* 2輸出平台內外徑振幅

Runout of output table inner and outer diameter

* 3輸出平台平行度 (安裝面標準)

Parallelism of output table (against the installation surface)

工作台面偏擺：指無負載下輸出平台運轉時，輸出平台安裝面的偏轉最大值。

工作台同心度：指無負載下使輸出平台運轉時，平台內徑或外徑的偏轉度最大值。

工作台平行度：減速機安裝面與輸出平台的安裝面傾斜的程度。

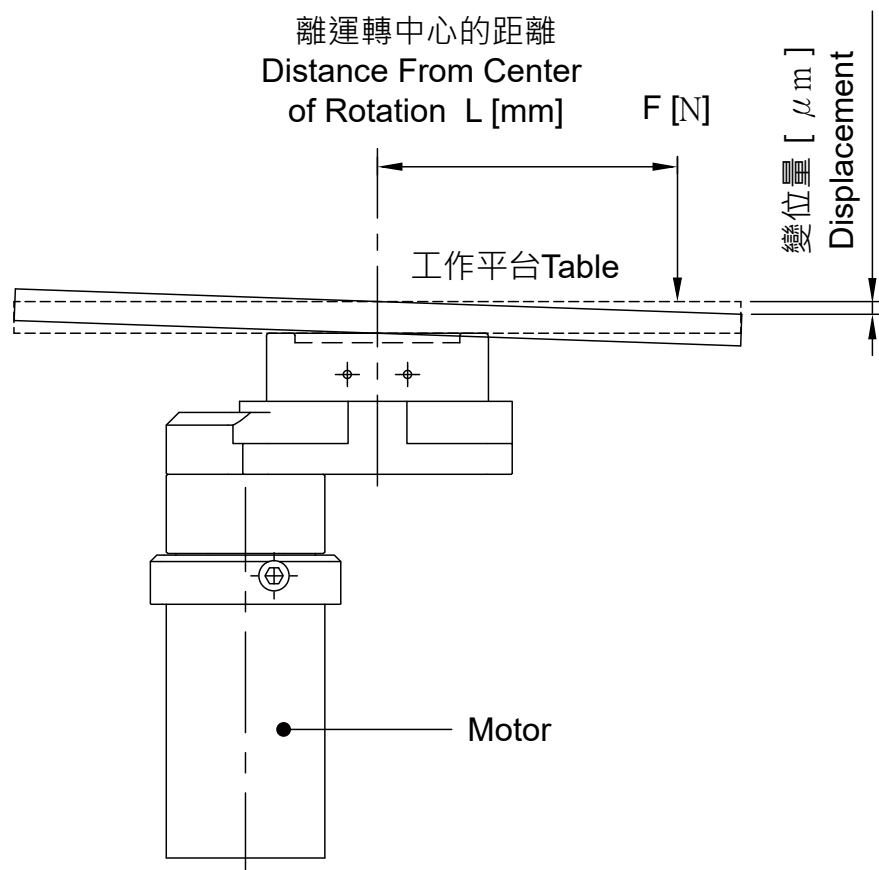
Runout of Output Table Surface: This is the max. value of runout of the installation surface of the output table when the output table is rotated under no load.

Runout of Output Table Inner / Outer Diameter: This is the max. value of runout of the inner diameter or outer diameter of the table when the output table is rotated under no load.

Parallelism of Output Table: This is the inclination of the installation surface of the output table compared with the actuator installation surface on the equipment side.

Permissible Moment Load

容許彎矩負載



慣量載重Moment Load [Nm] = $0.001 \times F(\text{N}) \times L(\text{mm})$

慣量載重引起的變位量 (參考值)

在輸出台上施加慣量載重時會引起變位。

圖表上的變位量是使慣量載重作用一個方向時，自輸出平台運轉中心距離 L 的變位量。

慣量載重在正負兩方向作用時，變位量約為 2 倍。

Displacement by Moment Load (Reference Value)

The output table will be displaced when it receives the moment load.

The graph plots the table displacement that occurs at distance L from the rotation center of the output table when a given moment load is applied in the negative direction.

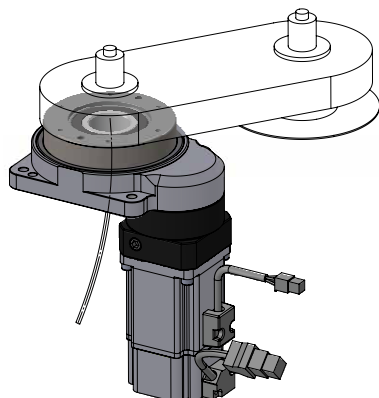
The displacement becomes approximately twofold when the moment load is applied in both the positive and negative directions.

Applications

減速機應用範例

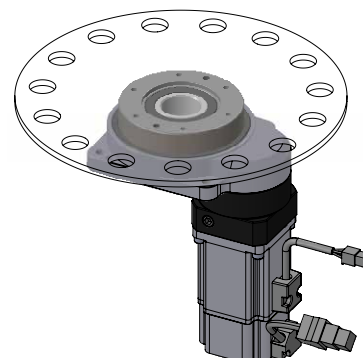
○施加力矩負載的應用

Torque Loading Application



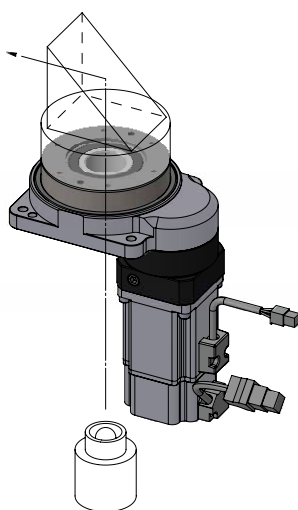
○高精度定位應用

High-precision Positioning Application



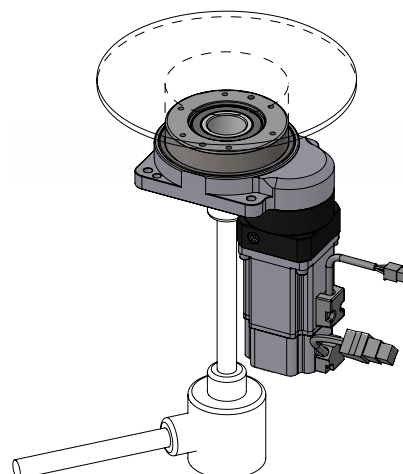
○使用中空孔光學應用

Hollow Hole for Optical Application



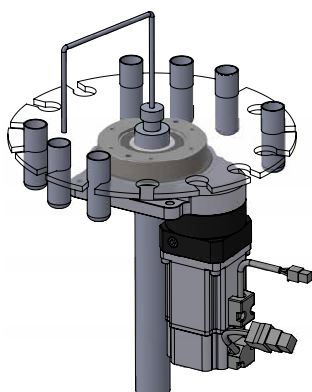
○使用中空孔的應用

Hollow Hole Application



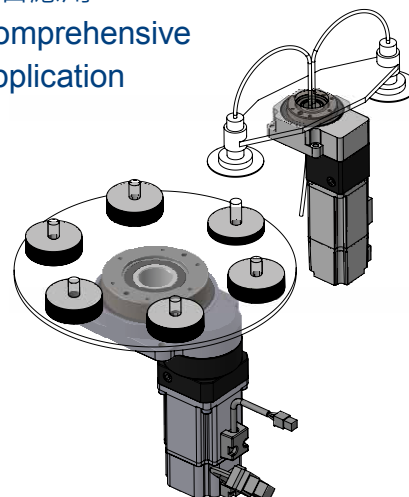
○高精度中空孔定位應用

High-precision Hollow Hole Positioning Application



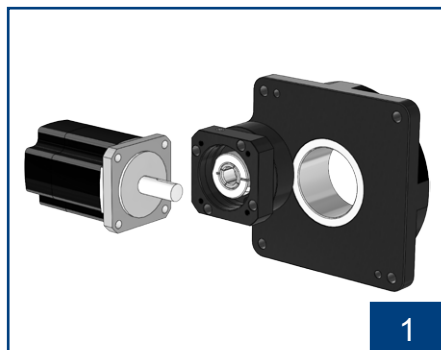
○綜合應用

Comprehensive Application



Hollow Rotary Reducer and Motor Mounting Instructions

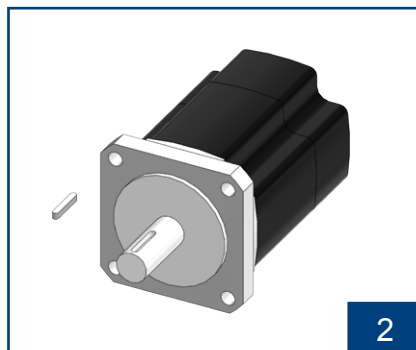
高精密中空旋轉平台減速機與馬達安裝指南



1

核對馬達型號與減速機規格是否正確。並將配合面擦拭乾淨。

Confirm the motor, and gearbox size. Clean up the mounting surface.



2

確認減速機與馬達是否有鍵配合。

Confirm whether the reducer and motor are keyed together.



3

檢查馬達出力軸尺寸，如需軸套，請先裝進減速機入力孔內。

Check motor shaft size and insert bushing into input bore of the gear box if necessary.



4

取出塞頭，使用六角扳手將迫緊環螺絲鬆開。並將扳手與螺絲對準孔位。

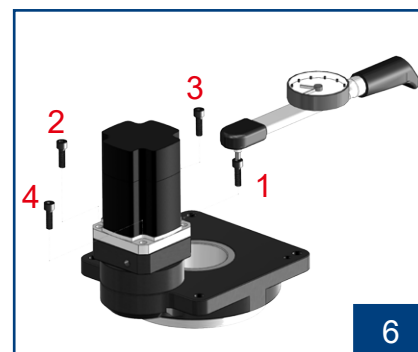
Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.



5

將馬達垂直裝入減速機。

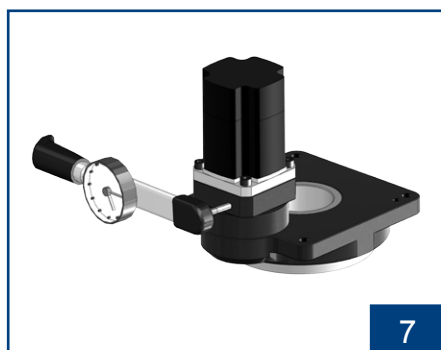
Put the motor into the gearbox vertically.



6

依序 1~4 使用扭力扳手鎖上內六角螺絲。

Tighten the mounting bolt in 1~4 order with torque wrench.



7

使用扭力扳手將迫緊環螺絲鎖緊。

Tighten the set collar bolt with torque wrench.



8

裝回塞頭並鎖緊。

Tighten back the screw plug.

1. 務必先鎖緊馬達固定面，才能鎖緊馬達軸心迫緊環。

Please be sure to tighten motor flange on gear box flange first and then to tighten the set collar on motor shaft.

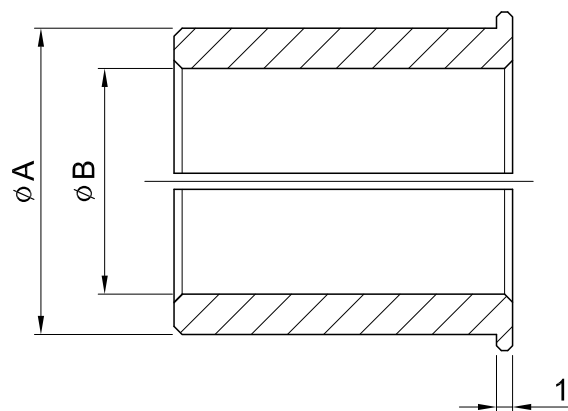
2. 請依步驟順序組裝，尤其步驟 6、7 不可顛倒。

Please assembly in order according to above steps, especially for step 6 and step 7.

3. 安裝完畢後，請將塞頭回塞，避免細小物品掉入減速機中。
Please noted that tighten back the screw plug to protect the gear box.

Bushing

軸套

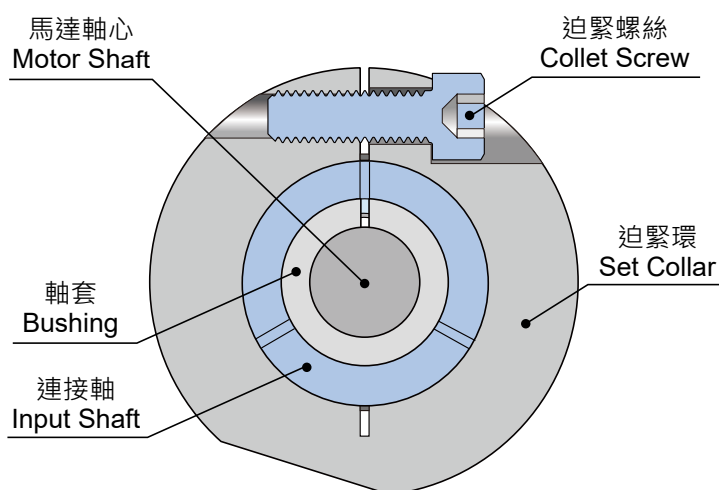


軸套內徑為所使用伺服馬達的輸出軸軸徑。
 下表中的情況下需要插入軸套，在您所使用的輸出軸軸徑的近似值中選擇大值。
 For motor shaft diameters not listed, gearboxes will be supplied with a bush to suit.
 The bore sizes may be supplied as a larger bore with a bush.

連接軸 孔徑 Shaft Bore øA 軸套 孔徑 Bushing Bore øB	8	11	14	19	22	24	28	32	35
6	●	●							
6.35	●								
8		●							
9		●							
10			●						
11			●						
12			●						
12.7			●						
14				●					
15.85				●					
16				●		●	●		
19					●	●	●		
22						●	●	●	
24							●		●
28								●	●
32									●

Collet Locking Mechanism

筒夾式連結機構



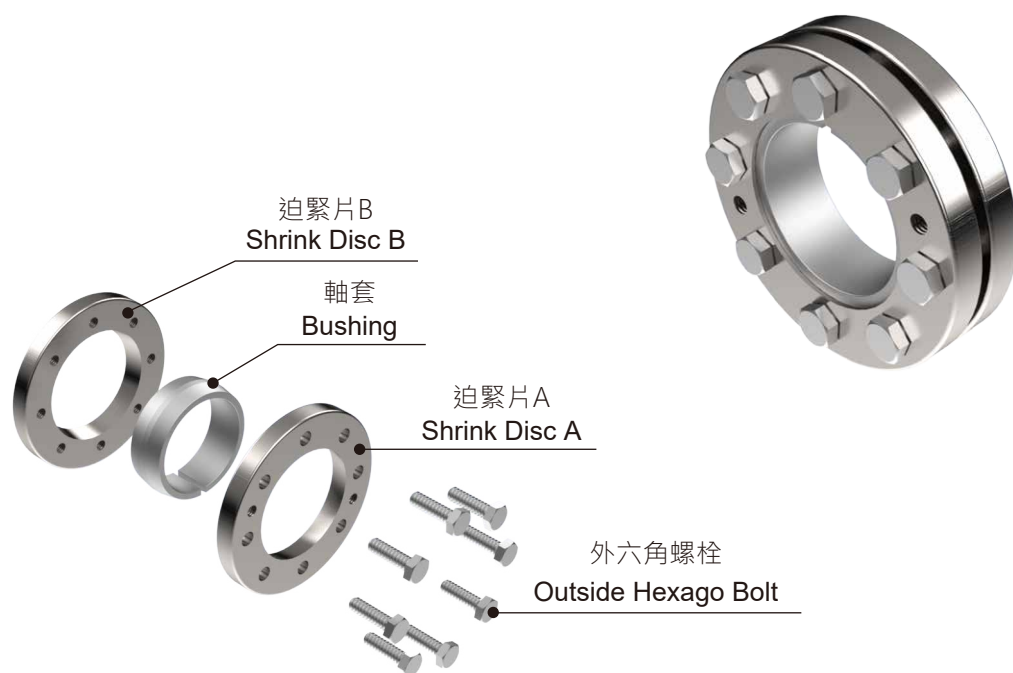
迫緊環螺絲及迫緊環扭矩表 Collet Screw & Collar Torque Table

Model					迫緊環螺絲規格 Spec. of Collet Screw	螺絲強度等級 Screw Grade	螺絲鎖緊扭矩 Tighten Torque (Nm)	迫緊扭矩 Clench Torque (Nm)
ST	HY	WE ANE	PW	GT GTL				
-	55	30 40	30 40	60 85	M4 x P0.7	12.9	4.83	87
65 75	75	50	50 60 70	110 135 170(雙段 2-Stage) 200(雙段 2-Stage)	M5 x P0.8	12.9	10	164
90 110	90 115	60 70	-	170(單段 1-Stage) 200(單段 1-Stage)	M6 x P1.0	12.9	16.3	233
140	130	-	-	-	M8 x P1.25	12.9	41	423
170 210 240	140 160 190 230	-	-	-	M10 x P1.5	12.9	81	678
280	270	-	-	-	M10 x P1.5 M12 x P1.75	12.9	81 110	678 813

※ 馬達扭矩超過迫緊環扭矩時，可能導致打滑。It will cause slip when motor torque exceed clench torque.

Clamping Sets

免鍵式軸套組



免鍵式軸套組 Clamping sets

Model				出力軸孔徑 Output Bore (mm)	螺絲規格 Spec. of Screw	螺絲鎖緊扭矩 Tighten Torque (Nm)	迫緊扭矩 Clench Torque (Nm)	螺絲數量 Quantity of Screw
ST	HY	HF	WE · PW					
65	-	-	30	Ø14	M6 x P1.0	10	100	6
75	-	60	-	Ø15	M6 x P1.0	10	100	6
90	-	-	-	Ø18	M6 x P1.0	10	160	6
-	55	75	40	Ø20	M6 x P1.0	10	160	6
110	-	-	-	Ø22	M6 x P1.0	10	300	8
-	75	-	50 60	Ø25	M6 x P1.0	10	300	8
-	-	100	-	Ø28	M6 x P1.0	10	300	8
-	90	-	70	Ø30	M6 x P1.0	10	300	8
140	-	-	-	Ø32	M6 x P1.0	10	750	8
170	-	-	-	Ø40	M6 x P1.0	10	1000	8
-	115	140	-	Ø40	M6 x P1.0	10	750	8
-	130	-	-	Ø48	M8 x P1.25	34	900	8
210	-	-	-	Ø50	M8 x P1.25	34	2600	8
240	-	-	-	Ø55	M8 x P1.25	34	3376	12
-	140	180	-	Ø55	M8 x P1.25	34	1440	12
-	160	-	-	Ø60	M8 x P1.25	34	2200	12
280	-	-	-	Ø60	M8 x P1.25	34	4220	12
-	190	-	-	Ø70	M8 x P1.25	34	2880	12
-	230	-	-	Ø80	M10 x P1.5	40	4180	12
-	270	-	-	Ø90	M10 x P1.5	40	5440	12

Clamping Sets

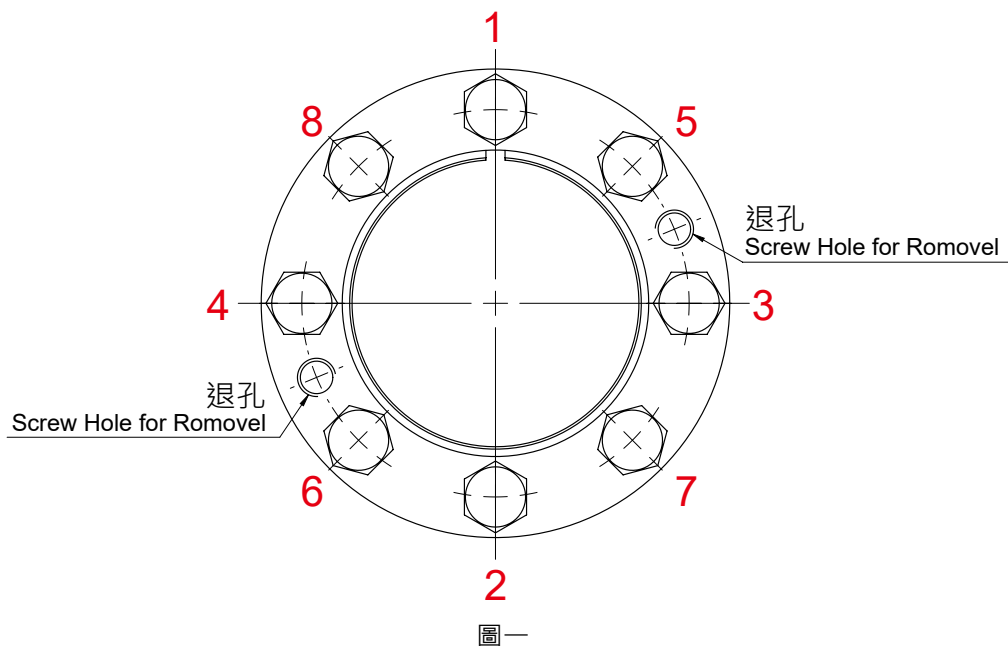
免鍵式軸套組

免鍵式軸套組安裝指南

1. 檢查尺寸，減速機出力軸孔徑公差為 G6，與之配合的軸徑公差需為 h7。
2. 請清潔軸心與減速機出力軸孔徑及免鍵式軸套組安裝面的髒污和油漬。
3. 將免鍵式軸套組裝於減速機出力軸上，免鍵式軸套組需與出力軸端面齊平。
4. 放入至指定的位置後，依 (圖一) 順序手轉免鍵式軸套組螺絲，至迫緊片中間間隙平均對稱。
5. 使用扭力扳手依圖一順序將螺絲鎖至約 30% 的螺絲鎖緊扭矩。
6. 再依圖一順序將螺絲鎖至約 65% 的鎖緊扭矩。
7. 最後依圖一順序將螺絲鎖至約 100% 的鎖緊扭矩。
8. 以順時針方向檢查各螺絲是否達標準的鎖緊扭矩。

Clamping Sets Mounting Instructions

1. The tolerance of gear box's output bore is G6, the recommended tolerance of Shaft is h7.
2. Wipe off the output bore surface and Clamping Sets.
3. Put the Clamping Sets on the output shaft of the gearbox, make sure the it is flush with output shaft.
4. Please insert the screw by hand after assembling the shrink Disc B and shrink Disc A.
5. Tighten the locking screws using a torque wrench follow Figure 1 step, beginning lightly (approx. 30% of the predetermined tightening torque).
6. Tighten the screws further to an increased torque (approximately 65% of specified torque).
7. Tighten the screws up to the specified torque.
8. Finally checking the locking screws in circumferential order.



免鍵軸套拆卸

1. 依圖一順序鬆脫螺絲
請勿一次性將螺絲完全拆卸，避免免鍵式軸套組拆卸時導致迫緊片彈出。
2. 將螺絲鎖進圖一的退孔螺絲孔，以對稱力量方式鎖固螺絲，至迫緊片鬆脫，即可取出

Clamping Sets Disassembly

1. Please follow the Figure 1 step by step to loose the screw, the shrink Disc may pop out if loose the screw at one time.
2. Insert a screw in a hole for removal and tighten evenly.

Selection Table of Motor for Reference

馬達選用參考表

單段 1-Stage

Model	ST	-	-	65	-	75	-	90	-	110	140		170	210	240	280
	FT	42	50、60	-	70	-	-	-	-	-	-	-	-	-	-	-
	HY		55	-	75	-	90	-	-	115	130	140	160	190、230	-	270
	WE	-	30	-	40	50	-	-	60、70	-	-	-	-	-	-	-
	GT	60	-	-	85、110	135	-	-	170、200	-	-	-	-	-	-	-
	GTL	60、85	-	-	110、135	-	-	-	200、250	-	-	-	-	-	-	-
Power Input Bore		8	8 9 11	9 11 14	14	14 19	14 19 24	16 19 22 24	19 24	19 22 24	24 28 32	32 35	35 38	42 48 55	48 55 60	55 60 65
100 W		●	●	●												
200 W				●												
400 W				●	●	●	●									
750 W						●	●	●	●	●						
1 kW							●	●	●	●	●					
1.5 kW							●	●	●	●	●					
2.2 kW											●					
3.75 kW											●	●	●			
5.5 kW												●	●			
7.5 kW													●			
11 kW														●		
15 kW														●	●	
22 kW														●	●	●
30kW														●	●	●

雙段 2-Stage

Model	ST	-	-	65、75	75	-	110	140	-	-	170	-	210	240		280
	FT	-	50、60	70	-	-	-	-	-	-	-	-	-	-	-	-
	HY	-	-	55	75	-	90	115	-	-	130	140	160	190		230、270
	PW	-	30	40	-	50	-	-	60、70	-	-	-	-	-	-	-
	GT	60	-	-	-	85、110 135	-	-	-	170 200	-	-	-	-	-	-
Power \ Input Bore		8	8 9 11	8 9 11 14	11 14 16 19	14	14 16 19	16 19 22 24	19	19 24	22 24 28 32	28 32 35	28 32 35 38	35 38	42 48 55	38 42 48 55
100 W	●	●	●	●												
200 W			●	●												
400 W			●	●	●	●	●									
750 W				●		●	●	●	●							
1 kW							●		●	●						
1.5 kW							●		●	●						
2.2 kW										●	●	●				
3.75 kW											●	●	●	●		
5.5 kW												●	●	●		●
7.5 kW													●	●		●
11 kW															●	●
15 kW															●	●
22 kW															●	●
30 kW															●	●

[illegible]

Glossary

減速機專用名詞解釋

速比 i

輸出轉速與輸入轉速的比值，減速比 = 輸入轉速 ÷ 輸出轉速。

例如：減速機輸入端轉速 $n_1=3000\text{RPM}$ ，輸入扭矩 $T_1=20\text{Nm}$ ，減速比為 10，或稱 $i=10$ 。

輸出端轉速 $n_2 = \text{輸入轉速 } n_1 / i = 300\text{RPM}$ 。

輸出端扭矩 $T_2 = \text{輸入扭矩 } T_1 \cdot i = 200\text{Nm}$ (不考慮效率時)

輸出端慣量 $J_2 = \text{輸入端慣量 } J_1 \cdot i^2$

Gear Ratio (i)

The gear ratio i indicates the factor by which the gearbox transforms the three relevant parameters of motion (speed, torque and mass moment of inertia). The factor is a result of the geometry of the gearing elements (Example: $i = 10$).

$$\begin{array}{lcl} n_1 = 3000 \text{ rpm} & \xrightarrow{\div i} & n_2 = 300 \text{ rpm} \\ T_1 = 20 \text{ Nm} & \xrightarrow{\cdot i} & T_2 = 200 \text{ Nm} \\ J_2 = 10 \text{ kgm}^2 & \xrightarrow{\cdot i^2} & J_1 = 0.10 \text{ kgm}^2 \end{array}$$

輸入轉速 n_1 [rpm]

減速機的驅動速度，如減速機與電機直接相連，則轉速值與電機轉速相同。

Input Speed (n_1) [rpm]

Input Speed is same as motor speed, if the motor direct connected gearbox.

輸出轉速 n_2 [rpm]

輸出轉速按照下列公式通過輸入轉速 n_1 和傳動比 i 計算出來。

$$n_2 = \frac{n_1}{i}$$

Output Speed (n_2) [rpm]

The output speed is calculated by the formula related to input speed n_1 and reduction ratio i .

額定輸入轉速 n_{1N} [rpm]

連續運轉模式 (S1)，輸入轉速須小於等於額定輸入轉速，本目錄中的額定輸入轉速是在環境溫度為 20°C 的條件下測得的，環境溫度較高時，或齒箱表面溫度超過 90°C 請降低輸入轉速 n_1 。

Nominal Input Speed (n_{1N}) [rpm]

Input speed of gearbox shall be less than nominal input speed in the model of continuous operation (S1). Nominal input speed (n_{1N}) is measured at environment temperature 20°C . If the environment temperature is higher or the temperature of gearbox surface exceeds 90°C , please lower input speed (n_1).

Glossary

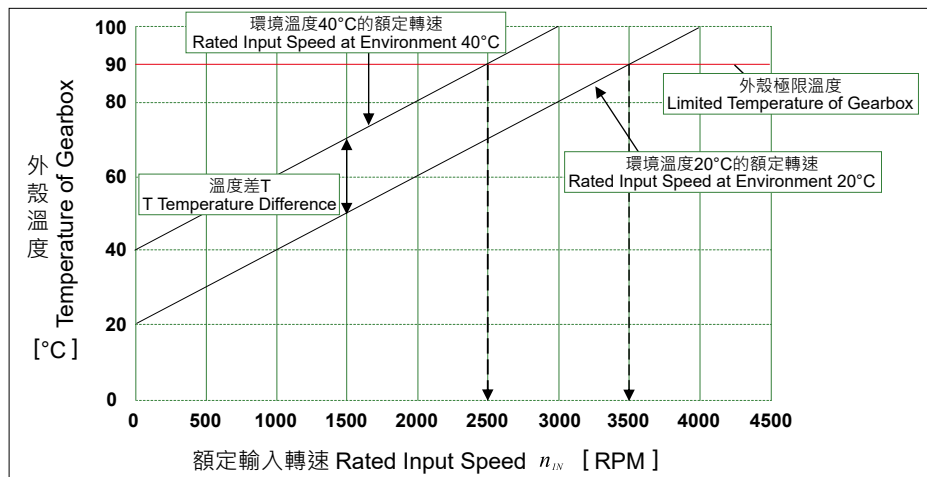
減速機專用名詞解釋

轉速 n [rpm]

減速機選型時必須要考慮的兩個轉速是最大輸入轉速和額定輸入轉速。為間歇工作制選用減速機時，要考慮不能超過最大輸入轉速 n_{IB} 。為連續工作制選用減速機時，要考慮不能超出額定輸入轉速 n_{IN} 。額定轉速受到減速機外殼溫度的限制，這個溫度不能超過 90°C 。從下圖中可以看出，環境溫度越高時，減速機的溫度也提前達到額定溫度。換句話說，在環境溫度高時必須降低轉速。

Speed (n) [rpm]

Two speeds are of relevance when selecting a gearbox: the maximum speed and the nominal speed at the input. The maximum permissible speed n_{IB} must not be exceeded because it serves as the basis at cyclic operation. The nominal speed n_{IN} must not be exceeded at continuous operation. The housing temperature limits the nominal speed, which must not exceed 90°C . The nominal input speed specified in the catalogue applies to an ambient temperature of 20°C . As can be seen in the diagram below, the temperature limit is reached more quickly in the presence of an elevated outside temperature. In other words, the nominal input speed must be reduced if the ambient temperature is high. The values applicable to your gearbox are available from LIMING on request.



背隙等級 P2, 背隙 <8 arcmin, 額定轉矩輸出
P2, Backlash <8 arcmin, Rated Torque Output

- A. 背隙愈小、溫升愈高、背隙 P0(<3ArcMin) 時平均上升 3~5 度。
- B. 背隙為 Ps 時 (<1ArcMin) 時平均上升 5~10 度。
- C. 背隙為 Ps、P0 時適用於 S5 間歇運轉模式，背隙 P2 可用於 S1 連續運轉模式。
- D. 背隙為 Ps、P0 時，入力轉速應在額定輸入轉速 (Rated Input Speed) 以內。
- E. 輸入轉速為最大輸入轉速 (Max Input Speed) 適用於 S5 間歇運轉模式。
- F. 特殊運用場合請與本公司連繫。

- A. The smaller the backlash, the higher the temperature rise. When the backlash P0 (<"3" arcmin), the average rise is 3~5 degrees.
- B. When the backlash is Ps (<1 arcmin), the average rise is 5~10 degrees.
- C. When the backlash is Ps and P0, it is suitable for cyclic operation S5, and the backlash P2 can be used for continuous operation S1.
- D. When the backlash is Ps and P0, the input rotation speed should be within the Rated Input Speed.
- E. The Max Input Speed is suitable for cyclic operation S5.
- F. Please contact our company for special applications.

Glossary

減速機專用名詞解釋

最大輸入轉速 n_{1B} [rpm]

適用間歇工作制模式 (S5)。本目錄中的最大輸入轉速是在環境溫度為 20° C 的條件下測得的，環境溫度較高時，或齒箱表面溫度超過 90° C 請降低輸入轉速 n_1 。

Max Input Speed (n_{1B}) [rpm]

It is applied to cyclic operation (S5). Max. input speed is measured at environment temperature 20° C. If the environment temperature is higher or the temperature of gearbox surface exceeds 90° C, please lower input speed (n_1).

額定輸出扭矩 T_{2N} [Nm]

指減速機長時間（連續工作制）可以加載的扭矩（無磨損）。

Nominal torque (Rated Output Torque) (T_{2N}) [Nm]

The nominal torque T_{2N} is the torque continuously transmitted by a gearbox during a long period of time, i.e. in continuous operation (without wear).

加速扭矩 T_{2B} [Nm]

指工作周期每小時少於 1000 次時允許短時間加載到輸出端的最大扭矩。工作周期每小時大於 1000 次時，須考慮沖擊因素。 T_{2B} 是周期工作制選型時的最大值，實際使用中的加速扭矩 (T_{2b}) 必須小於 T_{2B} 。否則會縮短減速機的壽命。

Acceleration Torque (T_{2B}) [Nm]

The acceleration torque T_{2B} is the maximum permissible torque that can briefly be transmitted at the gearbox output end under the duty cycle < 1000/h cycles. For > 1000/h cycles, the impact factor must be taken into account. T_{2B} is the max. parameter in cyclic operation. Application acceleration torque (T_{2b}) shall be smaller than T_{2B} ; otherwise the gearbox service life will be reduced.

空載扭矩 T_{012} [Nm]

指加載到減速機上以克服齒輪箱內的摩擦力的扭矩。

No Load Running Torque (T_{012}) [Nm]

The no load running torque is the torque which must be applied to a gearbox in order to overcome the internal friction; it is therefore considered lost torque.

逆轉扭矩 [Nm]

從出力軸端施力，開始旋轉時的最小扭矩，較大的型號或較高的減速比需要較大的扭矩來逆轉。

Back Driving Torque [Nm]

The back driving torque is the minimum torque to start the rotation from the output side of gearbox. A larger size or a higher ratio gearbox requires greater back driving torque.

Glossary

減速機專用名詞解釋

急停扭矩 (最大輸出扭矩) T_{2NOT} [Nm]

指減速機輸出端所能加載的最大扭矩。這個扭矩可在減速機壽命期內加載 1000 次。超過 1000 次可能會造成內部零件的破壞。

Emergency Stop Torque (Max. Output Torque) (T_{2NOT}) [Nm]

The emergency stop torque T_{2NOT} is the maximum permissible torque at the gearbox output end and must not be reached more than 1000 times during the service life of the gearbox. It must never be exceeded to prevent inside parts from damage.

平均壽命 [h]

指減速機在週期運轉、額定負載下，額定輸入轉速時的工作時間，連續運轉使用時降低使用壽命 1/2。平均壽命，不是任何具體的減速機實際使用壽命的保證，它是一個平均「計算壽命」，衍生自產業公式（註），專有的計算和假設，和其他因素，例如實際測試結果或模擬軟件 (CAE)。這些因素考慮到金屬材料，熱處理，齒輪和軸承的設計等。實際的使用壽命，根據客戶的應用及實際現場條件，可能與標稱的使用壽命有差異。

Average Service Life [h]

Average service life is the working time of gearbox running at rated loading and nominal input speed at cyclic operation.

The service life is not a guarantee of the actual service life of the gear reducer. It is an average calculated life derived from industry formulas (*), and other factors such as running test results, CAE (Computer Aided Engineering) software and so on. These factors take into consideration the metal composition, heat treatment, the design of the gearing and bearings, as well as calculated loads. Service life calculations are not based on actual field conditions or applications, and do not represent a guarantee with respect to expected life, performance, or other characteristics of gear reducer in any given application or use. The actual service life could vary substantially from the nominal service life.

註：產業公式參考以下組織所訂之標準 Industry formula Refer to the following standardization organization
GB/T 3480-1997, ISO 6336-1~6336-3:1996

ISO: 國際標準組織 International Organization for Standardization

GB: 中華人民共和國國家標準 (國標 GB) Guobiao standards (Chinese National Standards)

DIN: 德國標準 Deutsches Institut für Normung : (German Institute for Standardization)

AGMA: 美國齒輪製造協會 American Gear Manufacturers Association

JIS: 日本標準協會 Japanese Standards Association

軸向力 F_{2A} [N]

是指平行於軸心的一個力，它平行於輸出軸，它的作用點與輸出軸端有一定的軸向偏 (y_2) 時，會形成一個額外的彎撓扭矩。軸向力超過樣本所示的額定值時，須用聯軸器來抵消這種彎撓力。

Axial Force (F_{2A}) [N]

The axial force F_{2A} acting on a gearbox runs parallel to its output shaft. The force runs perpendicular to its output shaft. It may be applied with axial offset via a lever arm y_2 under certain circumstances, in which case it also generates a bending moment. If the axial force exceeds the permissible catalogue values, additional design features (e.g. couplings) must be implemented to absorb these forces.

Glossary

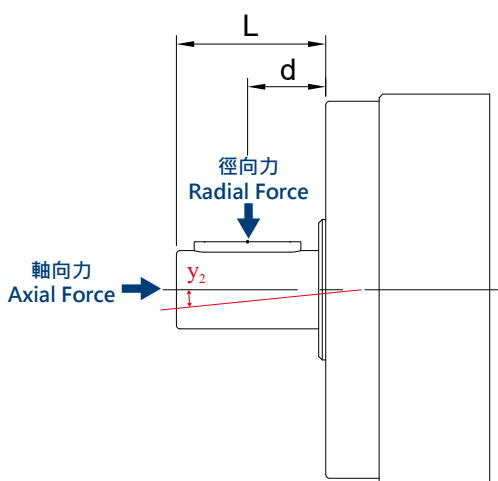
減速機專用名詞解釋

徑向力 F_{2R} [N]

指垂直作用於軸向力的一個力。它的作用點與軸端有一定的軸向距離 (d)，這個點成一個槓桿點，橫向力形成一個彎撓扭矩。

Radial Force (F_{2R}) [N]

The radial force is the force acting at right angles to axial force. It acts perpendicular to the axial force and can assume an axial distance of (d) in relation to the shaft end, which acts as a lever arm. The radial force produces a bending moment.



從減速機出力軸連接鏈條齒輪等傳動機構時，會承受徑向力，徑向力。

OHL 的計算公式如下：

T = 機構端扭力

s = 負荷系數

f = 驅動方式的載重系數

R = 皮帶輪或鏈輪半徑

p = 位置系數：負載點小於等於 d 時， $p=1$

負載點大於 d 時， $p=1.5$

$$OHL = \frac{T \cdot s \cdot f \cdot p}{R}$$

The gearbox will bear radial force while its output shaft connected with transmission machinery, such as chain pulley. The O.H.L. formula of radial force is as below :

T = Torque of transmission machinery

s = Service factor

f = Driven Coefficient

R = Radius of pulley or chain wheel

p = Position Factor: loading position less than d , $p=1$

loading position larger than d , $p=1.5$

$$OHL = \frac{T \cdot s \cdot f \cdot p}{R}$$

軸伸徑向載荷、軸向載荷

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

Shaft Extension Radial Load, Axial Load

Additional concerned for selecting the gear box is the radial load and axial load on the extended end of the output shaft. The strength of the shaft and the load-bearing capacity of the bearing determine the allowable radial load of the shaft extension. The maximum allowable value given in the product catalog refers to the force acting in the most unfavorable direction at the midpoint of the extended end of the shaft (i.e. at $1/2L$). When the force is not at the midpoint. The closer to the shaft shoulder, the greater the allowable radial load; conversely, the farther the point of action is from the shaft shoulder, the smaller the allowable radial load.

荷系數表 (s) Service factor table

傳動機負荷等級 Loading classification	每日使用時間 Running per Day			
	0.50 hr	2 hr	8-10 hr	10-24 hr
均一負荷 Uniform	0.80	0.90	1.00	1.25
中衝擊 Medium shock	0.90	1.00	1.25	1.50
重衝擊 Heavy shock	1.00	1.25	1.50	1.75

驅動方式載重系數 Driven Coefficient (f)

驅動方式 Driving Mode	(f)
鏈條、齒型皮帶 Chain Pulley	1.00
齒輪 Gear	1.25
V 型皮帶 V-Belt	1.50
平皮帶 Flat-Belt	2.50

● 正轉、逆轉或起動、停止，1 小時內達 10 次以上者，請將右表的值乘以 1.2。

CW/CCW operation or start-up/stop reaches 10 times or more within 1 hour, please multiply by 1.2.

Glossary

減速機專用名詞解釋

容許徑向力 F_{2rB} [N]

當輸出轉速為 100RPM，徑向作用力在出力軸 1/2 處時所容許之最大力，轉速增加時遞減。

Permitted Radial Force (F_{2rB}) [N]

The maximum allowed radial force in the 1/2 position of output shaft in the condition of output speed 100 RPM. This value is decreasing when the running speed is increasing.

容許軸向力 F_{2aB} [N]

當輸出轉速為 100RPM 時，最大容許之軸向作用力。

Permitted Axial Force (F_{2aB}) [N]

The maximum allowed axial force in the condition of output speed 100 RPM.

傳動效率 η [%]

由於摩擦引起的損失總是使有效率小於 1，也就是少於 100%。樣本上的效率是齒輪箱在額定負載情況下，減速機的傳輸效率。

Transmission efficiency η [%]

Efficiency (η) is the ratio of output power to input power. Power lost through friction reduces efficiency to less than 1 or 100%.

$$\eta = \frac{P_{out}}{P_{in}} = \frac{P_{in} - P_{lost}}{P_{in}}$$

噪音 [dB]

樣本上的數值是輸入轉速為 3000rpm，減速比 $i=10$ ，或 $i=100$ (2 段時)，不帶負載，離減速機一米距離時測量的。一般而言電機轉速越高時，噪音越高；負載越大時，噪音越大。

Noise Level [dB]

The operating noise specified in our catalog relates to gearboxes with the ratio $i=10$ or $i=100$ (2 stage) at input speed 3,000 rpm and no loading running. Noise level is measured at 1M distance from the gearbox. Higher speed results to higher noise level; higher loading results to higher noise level.

Glossary

減速機專用名詞解釋

轉動慣量 J [Kg.cm²]

表示一個物體盡力保持自己轉動狀態（或靜止或轉動）特性的一個值。樣本中的值均指輸入端。

Mass moment of inertia (J) [Kg.cm²]

The mass moment of inertia J is a measurement of the effort applied by an object to maintain its momentary condition (at rest or moving).

慣量比 λ

是指負載慣量與傳動系統慣量（電機加上減速機）之間的比值。這個比值決定了系統的可控性。 λ 值越大，也就是各轉動慣量差值越大，高動態的動作過程就越難精確控制，建議盡可能將入值控制在 < 5 。減速機可以將負載慣量降低 $1/i^2$ 。

Rate of mass moment of inertia (λ)

The ratio of mass moment of inertia λ is the ratio of external inertia (application side) to internal inertia (motor and gearbox). It is an important parameter determining the controllability of an application. Accurate control of dynamic processes becomes more difficult with differing mass moments of inertia and as λ becomes greater. LIMING recommends that a guideline value of $\lambda < 5$ is maintained. A gearbox reduces the external mass moment of inertia by a factor of $1/i^2$.

Simple applications ≤ 10

Dynamic applications ≤ 5

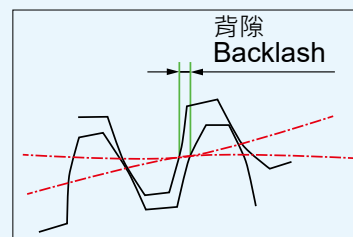
Highly dynamic applications ≤ 1

回程間隙 j_t [arcmin]

指減速機輸出軸與輸入端的最大偏差角，測量時先將齒輪輸入端固定住，然後在輸出軸加載額定扭矩的 2% 扭矩，減速機輸出端有一個微小的角位移，此角位移即為回程間隙。單位是“弧分”，即一度的六十分之一度。

Torsional Backlash (j_t) [arcmin]

Torsional backlash j_t is the maximum angle of torsion of the output shaft in relation to the input. Torsional backlash is measured with the input shaft locked. The output is then loaded with a defined test torque (2% rated output torque) in order to overcome the internal gearhead friction. The main factor affecting torsional backlash is the face clearance between the gear teeth.



動態齒隙差 [arcmin]

即正反轉定位精度差。將輸出平台在某個位置從正轉方向定位時，從逆轉方向在相同位置定位時停止角度之差。

Lost Motion [arcmin]

This is the difference in stopped angles achieved when the output table is positioned to the same position in the forward and reverse directions.

Glossary

減速機專用名詞解釋

弧分 [Arcmin]

一個圓有 360 度，1 度可分為 60 弧分，即一個圓有 21600 弧分，如回程間隙標為 1 arcmin 時，意思是說減速機轉一圈，輸出端的角偏差 1/60°。

在實際應用中，這個角偏差與軸直徑及轉盤大小有關。

例如：輸出端轉盤半徑為 500mm 時，齒輪箱精度為 $j_t = 3'$ 時，減速機轉一圈的偏差為 $b = 0.44\text{mm}$ 。

$$b = \frac{2 \cdot \pi \cdot r \cdot j_t}{21600}$$

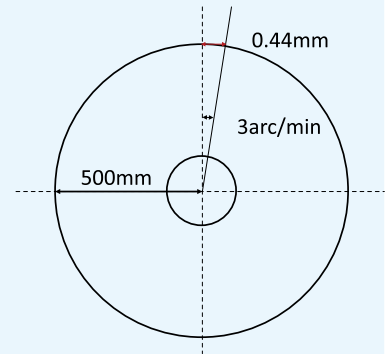
Angular minute [Arcmin]

A degree is subdivided into 60 angular minutes (= 60 arcmin = 60').

In other words, if the torsional backlash is specified as 1 arcmin, for example, the output can be turned 1/60°. The repercussions for the actual application are determined by the arc length.

EX: A pinion with a radius $r = 500\text{ mm}$ on a gearhead with standard torsional backlash $j_t = 3'$ can be turned $b = 0.44\text{ mm}$.

$$b = \frac{2 \cdot \pi \cdot r \cdot j_t}{21600}$$



遲滯曲線

遲滯檢測是為了得出減速機的扭轉剛度，通過檢測得到遲滯曲線。檢測時，先將減速機輸入端固定住，然後在輸出

端的兩個旋轉方向分別持續地加載到 T_{2B} 最大加速扭矩，繼而逐步卸載，用儀器記錄下扭矩的仿差角，得到的曲線

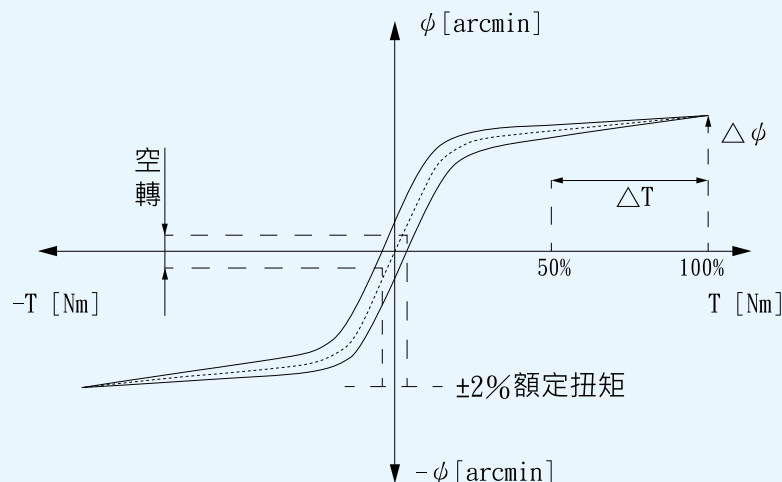
是一條閉合曲線，從中可以計算出減速機的回程間隙 (j_t) 和扭轉剛度 (C_{t21})。

Hysteresis Curve

The hysteresis is measured to determine the torsional rigidity of a gearbox. The result of this measurement

is known as the hysteresis curve. If the input shaft is locked, the gearhead is loaded with a torque that increases continuously up to T_{2B} and is then relieved at the output in both directions. The torsional angle is plotted against the torque. This yields a closed curve from which the torsional backlash and torsional rigidity can be calculated.

$$C_{t21} = \frac{\Delta T}{\Delta \phi}$$



Glossary

減速機專用名詞解釋

扭轉剛度 C_{t21} [Nm/Arcmin]

由加載力距和所產生的扭轉角之間的比率來定義。
$$C_{t21} = \frac{\Delta T}{\Delta \phi}$$

它說明需要用多大的扭矩才能把輸出軸轉動一弧分。扭轉剛度是從遲滯曲線得出的。在曲線圖上只需要關注 T_{2B} 的 50% 和 100% 這個範圍。這個範圍內，曲線可看成是一條直線。

Torsional rigidity (C_{t21}) [Nm/Arcmin]

Torsional rigidity is defined as the quotient of applied torque and generated torsion angle.

$$C_{t21} = \frac{\Delta T}{\Delta \phi}$$

It consequently shows the torque required to turn the output shaft by one angular minute. The torsional rigidity can be determined from the hysteresis curve. Only the area between 50% and 100% of T_{2B} is considered because this area of the curve profile can be considered linear.

運轉模式

選擇減速機時必需考慮運轉的模式。(連續運轉 S1，週期運轉模式 S5)

Operating modes

(continuous operation S1 and cyclic operation S5)

When selecting a gearbox, it is important to consider whether the motion profile is characterized by frequent acceleration and deceleration phases in cyclic operation (S5) as well as pauses, or whether it is designed for continuous operation (S1), i.e. with long phases of constant motion.

連續運轉模式 (S1)

連續運轉模式有工作週期所定義，假如工作週期 ED 大於 60%，或連續運轉時間大於 20 分鐘，則為連續轉模式 (S1)。

Continuous operation (S1)

Continuous operation is defined by the duty cycle. If the duty cycle is greater than 60% or longer than 20 minutes, this qualifies as continuous operation.

週期運轉模式 (S5)

連續運轉模式有工作週期所定義，假如工作週期 ED 小於 60%，或連續運轉時間小於 20 分鐘，則為週期運轉模式 (S5)。

Cyclic operation (S5)

Cyclic operation is defined by the duty cycle. If the duty cycle is less than 60% and shorter than 20 minutes, it qualified as cyclic operation.

Glossary

減速機專用名詞解釋

工作週期 (ED)

$$t_{\text{work}} = t_{\text{加速}} + t_{\text{勻速}} + t_{\text{減速}} = t_a + t_c + t_d$$

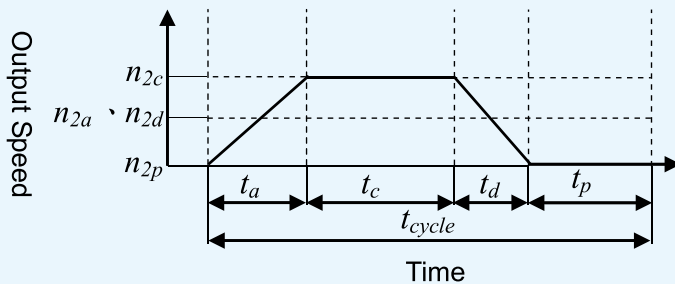
$$t_{\text{cycle}} = t_{\text{加速}} + t_{\text{勻速}} + t_{\text{減速}} + t_{\text{暫停}} = t_a + t_c + t_d + t_p$$

$$ED[\%] = t_{\text{work}} / t_{\text{cycle}} \times 100\%$$

$$ED[\text{min}] = t_{\text{work}}$$

Duty cycle (ED)

The duty cycle ED is determined by one cycle. The times for acceleration (t_a), constant travel if applicable (t_c) and deceleration (t_d) combined yield the duty cycle in minutes. The duty cycle is expressed as a percentage with inclusion of the pause time t_p .



$$ED = \frac{t_a + t_c + t_d}{t_{\text{cycle}}}, t_{\text{work}} = t_a + t_c + t_d$$

t_a Acceleration , t_c Constant ,

t_d Deceleration , t_p Pause

工作溫度

是指減速機在連續工作和週期工作狀態下所能允許的溫度。

Operating Temperature

The Operating Temperature indicates the allowable temperature of gearbox at continuous and cyclic operation.

潤滑

減速機在整個使用期間無需更換潤滑油。本公司標準品使用全合成潤滑脂(油)，可視情況選用其他潤滑油。

Lubrication

It's no essential to replace lubricant during the service life. Lubrication of standard products uses synthetic grease (oil). It depends on the application, there are other grease available.

Glossary

減速機專用名詞解釋

輸出平台支撐軸承

使用於輸出平台的軸承種類。

Output Table Supporting Bearing

This is the type of the bearing used for the output table.

出力容許轉速 [rpm]

減速機的機械性強度，可容許的輸出平台轉速。

Output Permissible Speed [rpm]

This is the output table speed that can be tolerated by the mechanical strength of the speed reduction mechanism.

重覆定位精度 [arcsec]

在同位置從同方向反覆定位所產生誤差值。

Repetitive Positioning Accuracy [arcsec]

This is a value indicating the degree of error that generates when positioning is performed repeatedly to the same position in the same direction.

容許載重 [N]

表示施加在輸出平台的軸方向推力載重的容許值。

Permissible Thrust Load [N]

This is the permissible value of thrust load applied to the output table in the axial direction.

容許彎矩負載 [N.m]

在從輸出平台中心偏心的位置施加载重時，產生使輸出平台傾斜的作用力。
是指離此時中心的偏心量 × 載重而計算的慣量載重容許值。

Permissible Moment Load [N.m]

When a load is applied to a position away from the center of the output table, the output table receives a tilting force. The permissible moment load refers to the permissible value of moment load calculated by the eccentricity from the center by the applied load.

工作台面偏擺 [mm]

指無負載下輸出平台運轉時，輸出平台安裝面的偏轉最大值。

Runout of Output Table Surface [mm]

This is the max. value of runout of the installation surface of the output table when the output table is rotated under no load.

Glossary

減速機專用名詞解釋

工作台同心度 [mm]

指無負載下使輸出平台運轉時，平台內徑或外徑的偏轉度最大值。

Runout of Output Table Inner / Outer Diameter [mm]

This is the max. value of runout of the inner diameter or outer diameter of the table when the output table is rotated under no load.

工作台平行度 [mm]

減速機安裝面與輸出平台的安裝面傾斜的程度。

Parallelism of Output Table [mm]

This is the inclination of the installation surface of the output table compared with the actuator installation surface on the equipment side.

重量 Weight [kg]

實物重量。 Product weight.

筒夾式鎖緊機構

利用摩擦力連接馬達軸心及減速機，並經動平衡分析，以確保在高輸入轉速下結合面的同心度和零背隙的動力傳遞。

Collet Clamping

The Collet Clamping ensure a frictional between motor shaft and gearbox. It has passed dynamical balance analysis to assure concentricity and no backlash at high input speed operation.

軸套

當馬達軸徑比減速機入力孔小時，需要一個軸套去補償尺寸才能夾緊。

Bushing

If the motor shaft diameter is smaller than the input bore of gearbox, a bushing is used to compensate the difference in diameter.

連接版設計

適合各種廠牌伺服馬達及其它馬達安裝，安裝最容易。本型錄只列出一般尺寸，需要其它尺寸時，請上本公司網站查詢。

Design of connecting plate

Design of connecting plate is suitable for various servo motors or others, and also easy for installation. General dimension is shown on the catalogue. Please find other dimensions from our website.

1. 計算減速比 i (公式 1)



2. 計算應用端平均扭矩 T_{2m} (公式 2)
應用端平均扭矩 $T_{2m} < \text{額定輸出扭矩 } T_{2N}$



3. 判斷運轉模式 (S1 或 S5)
S5: 負載運轉週期 $ED < 60\%$
S5: 負載運轉時間 $t_{work} < 20$ 分鐘 (公式 3)



4. 假如運轉模式為週期性運轉模式 (S5)
計算應用端最大加速扭矩 T_{2max} (公式 4)
應用端最大加速扭矩 $T_{2max} < \text{最大加速扭矩 } T_{2B}$



5. 計算應用端所需平均轉速 n_{2m} 及
減速機額定輸出速度 n_{2N} (公式 5)
 $n_{2m} < n_{2N}$



6. 計算減速機輸出所受之平均徑向力 F_{2rm} (公式 6)
平均徑向力 $F_{2rm} < \text{容許徑向力 } F_{2rB}$



7. 計算減速機輸出所受之平均軸向力 F_{2am} (公式 7)
平均軸向力 $F_{2am} < \text{容許軸向力 } F_{2aB}$



8. 選擇所需的減速機精度及輸出軸型式



9. 選擇完成

S5 週期運轉之建議事項

一般的應用慣量須符合以下公式：

$$\frac{J_L}{i^2} \leq 4 \cdot J_m$$

最適當的應用慣量須符合以下公式：

$$\frac{J_L}{i^2} \cong J_m$$

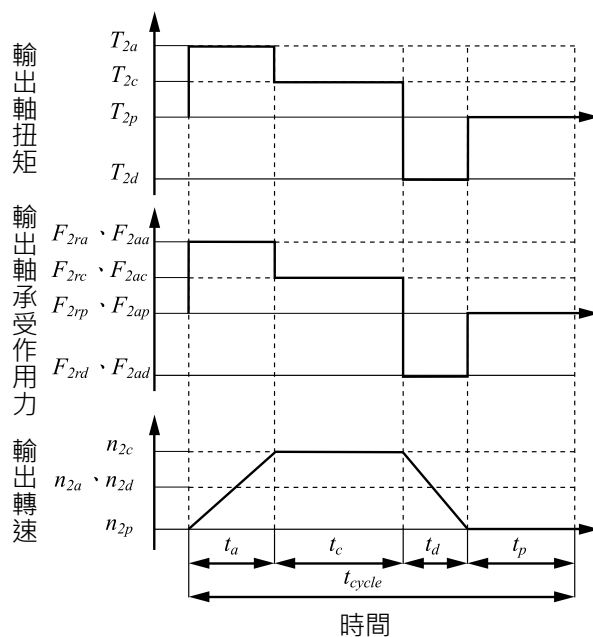
J_L 負載慣量 · J_m 馬達慣量

T_{2N} : 請參考目錄「額定輸出扭矩」

F_{2rB} : 請參考目錄「容許徑向力」

公式 1. $i \cong \frac{n_m}{n_{work}}$

n_m : 馬達輸出速度 · n_{work} : 實際應用速度



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

公式 3. $ED = \frac{t_a + t_c + t_d}{t_{cycle}}, t_{work} = t_a + t_c + t_d$
 t_a : 加速, t_c : 等速, t_d : 減速, t_p : 停止

公式 4. $T_{2max} = T_{mB} \cdot i \cdot k_s \cdot \eta$

T_{mB} : 馬達最大輸出扭矩 · η : 減速機運轉效率

K_s 負載係數

K_s	週期次數 / 小時
1.0	0 ~ 1,000
1.1	1,000 ~ 1,500
1.3	1,500 ~ 2,000
1.6	2,000 ~ 3,000
1.8	3,000 ~ 5,000

公式 5. $n_{2a} = n_{2d} = \frac{n_{2c}}{2}$
 $n_{2m} = \frac{n_{2a} \cdot t_a + n_{2c} \cdot t_c + n_{2d} \cdot t_d}{t_a + t_c + t_d}$

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

公式 6. $F_{2rm} = \sqrt[3]{\frac{n_{2a} \cdot t_a \cdot F_{2ra}^3 + n_{2c} \cdot t_c \cdot F_{2rc}^3 + n_{2d} \cdot t_d \cdot F_{2rd}^3}{n_{2a} \cdot t_a + n_{2c} \cdot t_c + n_{2d} \cdot t_d}}$

公式 7. $F_{2am} = \sqrt[3]{\frac{n_{2a} \cdot t_a \cdot F_{2aa}^3 + n_{2c} \cdot t_c \cdot F_{2ac}^3 + n_{2d} \cdot t_d \cdot F_{2ad}^3}{n_{2a} \cdot t_a + n_{2c} \cdot t_c + n_{2d} \cdot t_d}}$

1. Calculate Ratio i (Eq.1)



2. Calculate mean output torque T_{2m} (Eq.2)
Mean output torque $T_{2m} < \text{Nominal output torque } T_{2N}$



3. To determine Operation mode (S1 或 S5)
S5 : $ED < 60\%$
S5 : $t_{work} < 20\text{min}$ (Eq.3)



4. If operation mode is (S5)
then calculate the Max. Acceleration Torque T_{2max} (Eq.4)
Max acceleration torque $T_{2max} < \text{acceleration torque } T_{2B}$



5. Calculate the Mean Output speed n_{2m}
and the Nominal Output speed n_{2N} of Gearbox (Eq.5)
 $n_{2m} < n_{2N}$



6. Calculate the mean radial force F_{2rm} (Eq.6)
mean radial force $F_{2rm} < \text{Max. radial force } F_{2rB}$



7. Calculate the mean Axial force F_{2am} (Eq.7)
mean axial force $F_{2am} < \text{Max. axial force } F_{2aB}$



8. Select the Required Backlash and Shaft Option



9. Order your LIMING Gearbox

Recommended (for S5 Cyclic Operation)

The general design is given for

$$\frac{J_L}{i^2} \leq 4 \cdot J_m$$

The optimal design is given for

$$\frac{J_L}{i^2} \cong J_m$$

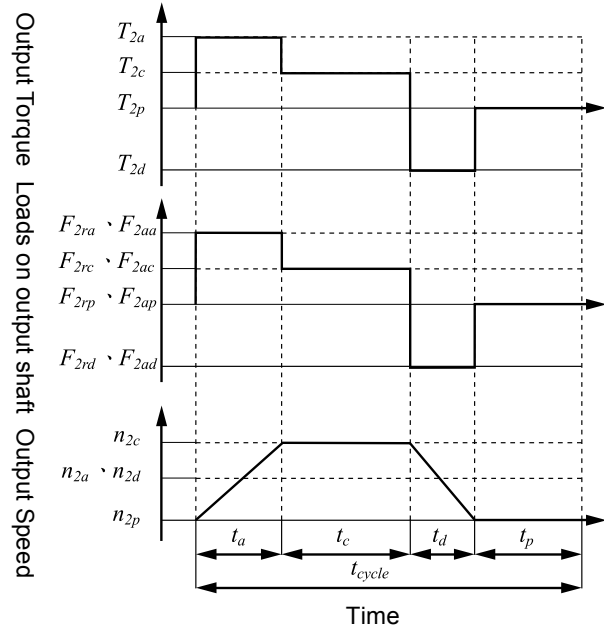
Where J_L is Load Inertia and J_m is Motor Inertia.

T_{2N} please reference catalog 「Rated Output Torque」

F_{2rB} please reference catalog 「Max. Radial Force」

$$\text{Eq.1 } i \cong \frac{n_m}{n_{work}}$$

n_m is output speed of the motor, n_{work} is working speed



$$\text{Eq.2 } T_{2m} = \sqrt[3]{\frac{n_{2a} \cdot t_a \cdot T_{2a}^3 + n_{2c} \cdot t_c \cdot T_{2c}^3 + n_{2d} \cdot t_d \cdot T_{2d}^3}{n_{2a} \cdot t_a + n_{2c} \cdot t_c + n_{2d} \cdot t_d}}$$

$$\text{Eq.3 } ED = \frac{t_a + t_c + t_d}{t_{cycle}}, t_{work} = t_a + t_c + t_d$$

t_a is the time for acceleration, t_c is constant travel,

t_d is the time for deceleration and t_p is the time for pause.

$$\text{Eq.4 } T_{2max} = T_{mB} \cdot i \cdot k_s \cdot \eta$$

T_{mB} is the Max. output torque of the motor and η is the efficiency of the gearbox

K_s service factor

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

$$\text{Eq.5 } n_{2a} = n_{2d} = \frac{n_{2c}}{2}$$

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

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

$$\text{Eq.6 } F_{2rm} = \sqrt[3]{\frac{n_{2a} \cdot t_a \cdot F_{2ra}^3 + n_{2c} \cdot t_c \cdot F_{2rc}^3 + n_{2d} \cdot t_d \cdot F_{2rd}^3}{n_{2a} \cdot t_a + n_{2c} \cdot t_c + n_{2d} \cdot t_d}}$$

$$\text{Eq.7 } F_{2am} = \sqrt[3]{\frac{n_{2a} \cdot t_a \cdot F_{2aa}^3 + n_{2c} \cdot t_c \cdot F_{2ac}^3 + n_{2d} \cdot t_d \cdot F_{2ad}^3}{n_{2a} \cdot t_a + n_{2c} \cdot t_c + n_{2d} \cdot t_d}}$$

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利明牌減速機系列產品

伺服用減速機 Reducers for Servo Motor

高精度行星減速機 High Precision Planetary Reducers



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諧波減速機 Harmonic Reducers



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一般傳動減速機 General Speed Reducers

齒輪減速機 Gear Reducers



蝸輪減速機 Worm Gear Reducers



電梯主機 Traction Machine



一般傳動減速機 Reducers

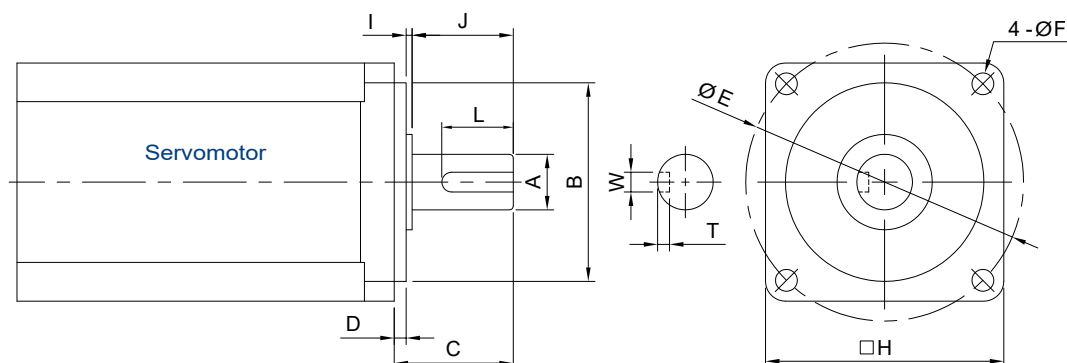


傳動軸用減速機 Gearbox for Power Transmission



Inquiry Information

顧客詢問資料



A	B	C	D	E	F	H	I	J	L	W	T

減速機訂購編號 Reducer Ordering Number

		—			—		
減速機機型 Type	型號 Model		速比 Ratio	出力軸鍵槽 Output Shaft Keyway	入力軸鍵槽 Input Shaft Keyway		背隙等級 Backlash Class
							馬達型號 MOTOR NO.

訂貨須知：

- ◆機種、型號、馬力
- ◆減速比或每分鐘回轉數
- ◆荷重狀況及聯結方式
- ◆數量及被安裝的機械名稱
- ◆入力方式和入力轉速
- ◆馬達廠牌型號或法蘭及馬達軸尺寸

General Notices:

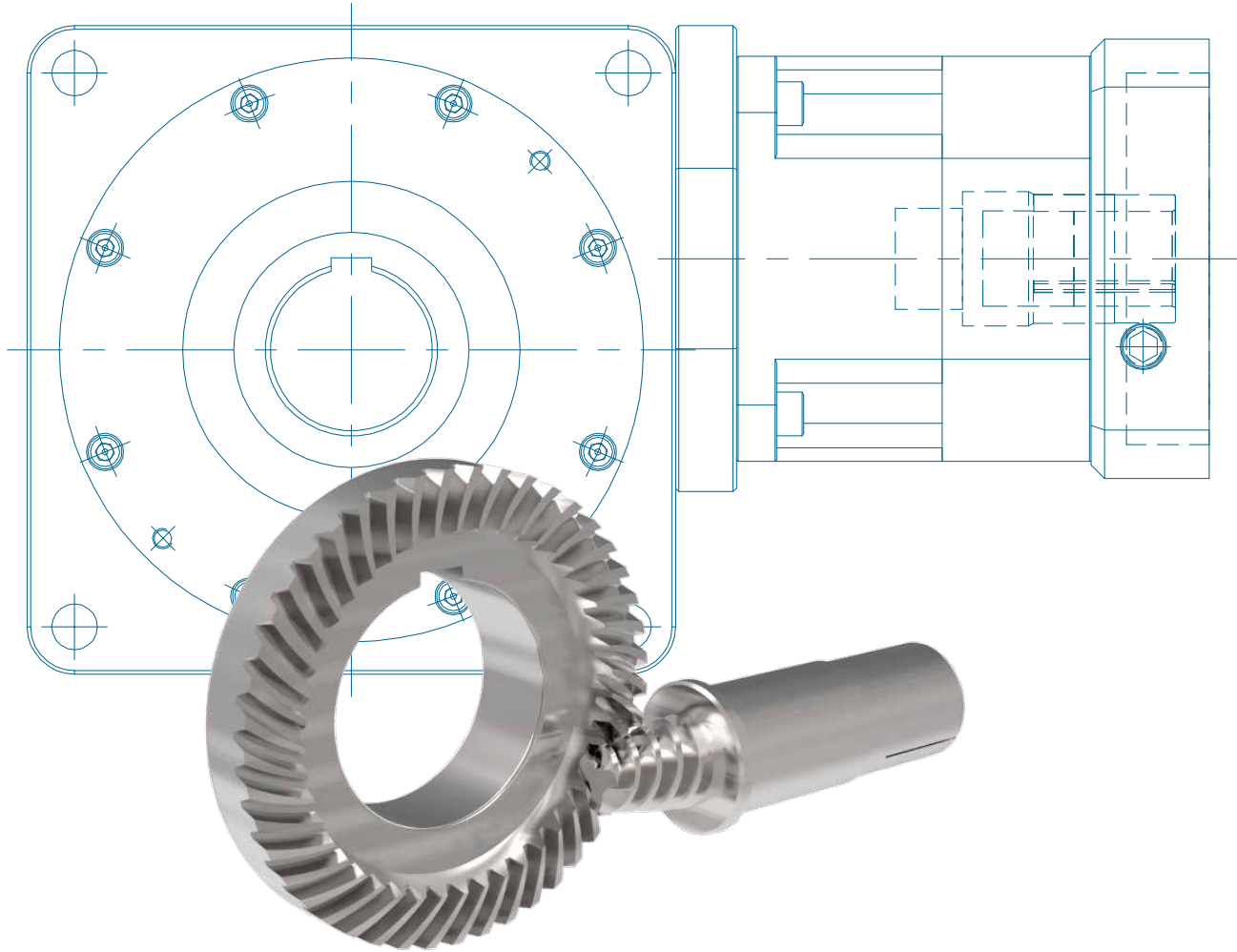
- ◆ Type, model and horsepower
- ◆ Speed ratio or R.P.M of output shaft
- ◆ Method of connection and loading
- ◆ Quantity and applied mechanism
- ◆ Input connection method and input speed
- ◆ Motor band Model no or frame & motor shaft dimension

公司名稱 Company Name		聯絡人 Contact Person	
地址 Address			
電話 Tel	傳真 Fax	電子信箱 E-Mail	
備註 Notes			

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MEMO

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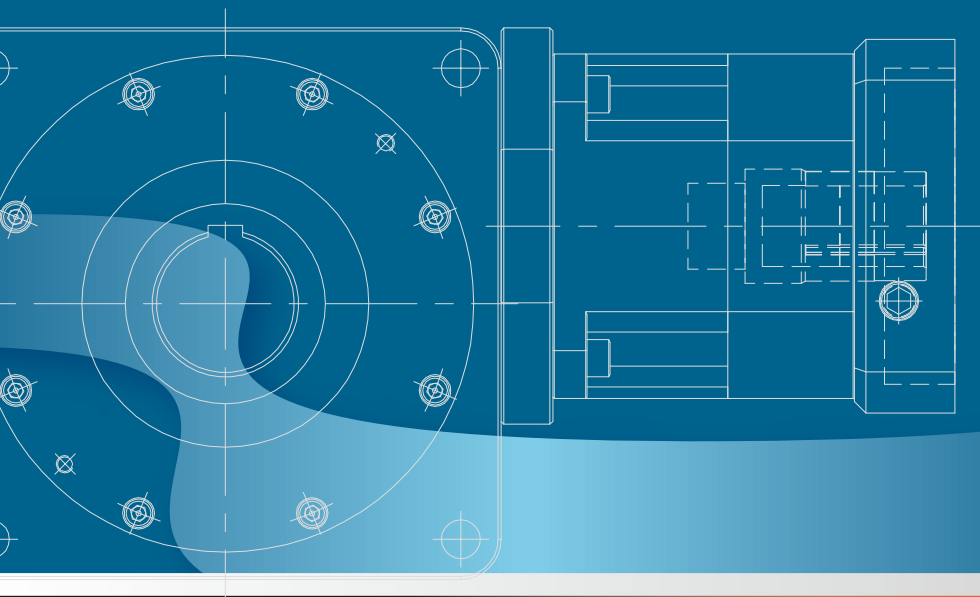


2025年7月版

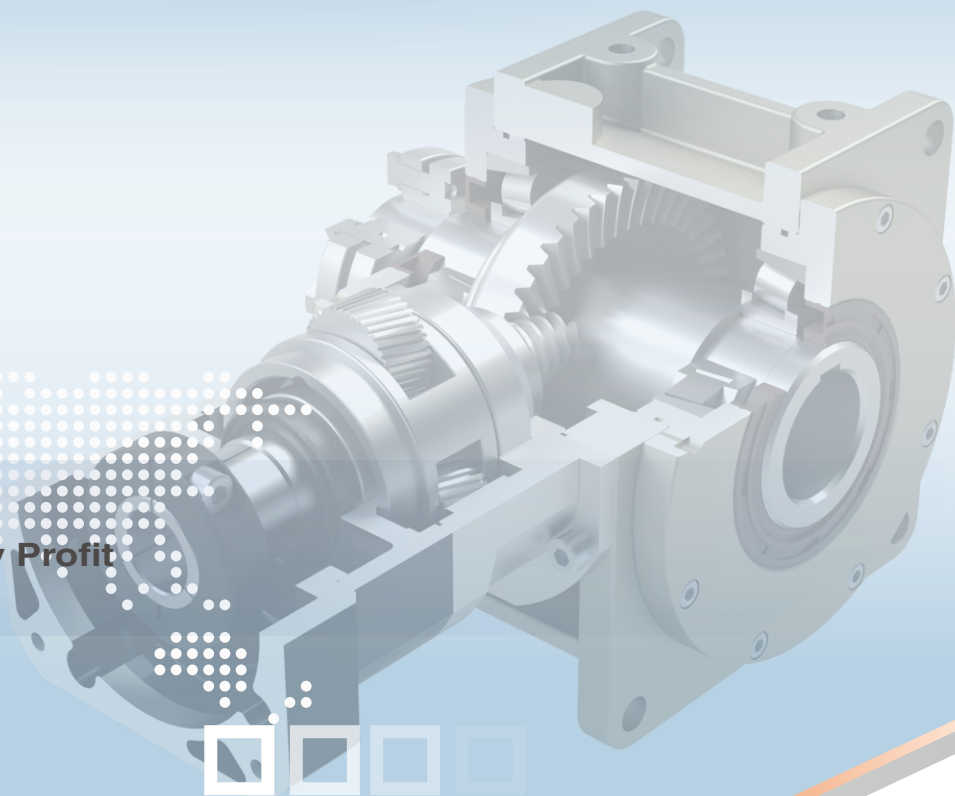
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July, 2025

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