



Spiral Bevel Gearbox

螺旋傘齒輪減速機

PTS series



PTS SERIES





Servo Spiral Bevel Gearbox 螺旋傘齒輪減速機

世協螺旋傘齒輪減速機最適合搭配伺服馬達之高動態與精準定位運動控制的應用。其緊湊和高剛性的設計，確保在體積小與重量輕的條件下同時具備優異的性能。終身免換油潤滑系統與IP65防塵防水設計，在正常操作條件下壽命長達20,000小時。世協螺旋傘齒輪減速機提供5種機型尺寸，最高輸入轉速達8,500 rpm，標準背隙小於9弧分。伺服馬達連接板可依需求客製。

Sesame servo spiral bevel gearboxes are ideal for use in applications that require high dynamic and positioning motion control. The compact and rigid design ensure good performance with space and weight efficient at the same time. Lubricated for life and IP65 sealing benefit virtually maintenance-free under normal operating conditions for 20,000 hours. They are provided in five sizes with input speed up to 8,500 rpm and standard backlash less than 9 arc-minutes. A wide range of motor adapter are available for installation to virtually all servo motors.

- 結構緊湊，高剛性設計，確保在體積小、重量輕的情況下能達到最高性能
- 最高輸入轉速達8,500rpm
- IP65防護等級，不滲漏，免保養
- 傳動效率>98%，大大節省能源成本
- 低噪音、低震動，終身免換油
- Compact and rigid design ensure performance within light and small gearbox size
- The highest input speed up to 8,500 rpm
- Lubricated for life and IP65 sealing
- High operating efficiency more than 98%
- Low noise, low vibration, maintenance-free under normal operating conditions



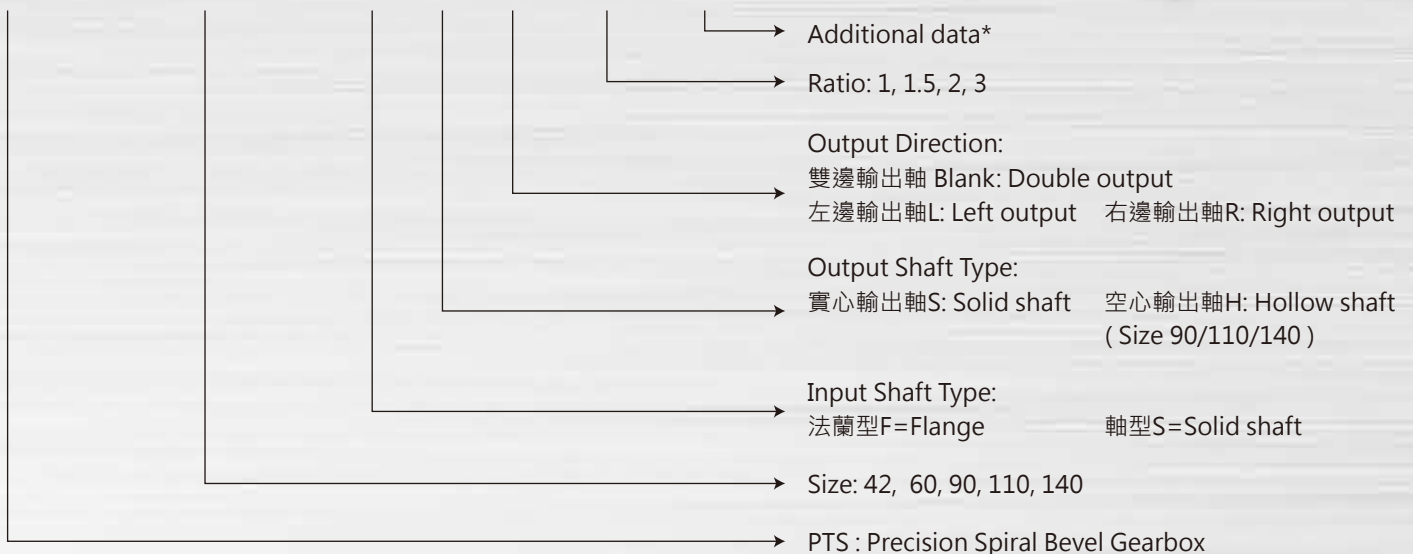
應用領域：中空旋轉平台、昇降設備、直交軸機器手臂、物料搬運處理驅動、自動化設備、航太工業、工具機、機器人等。

Typical applications: precision rotary axis drives, travel gantry and columns, material handling axis drives and industrial areas in automation, aerospace, machine tool and robotics.



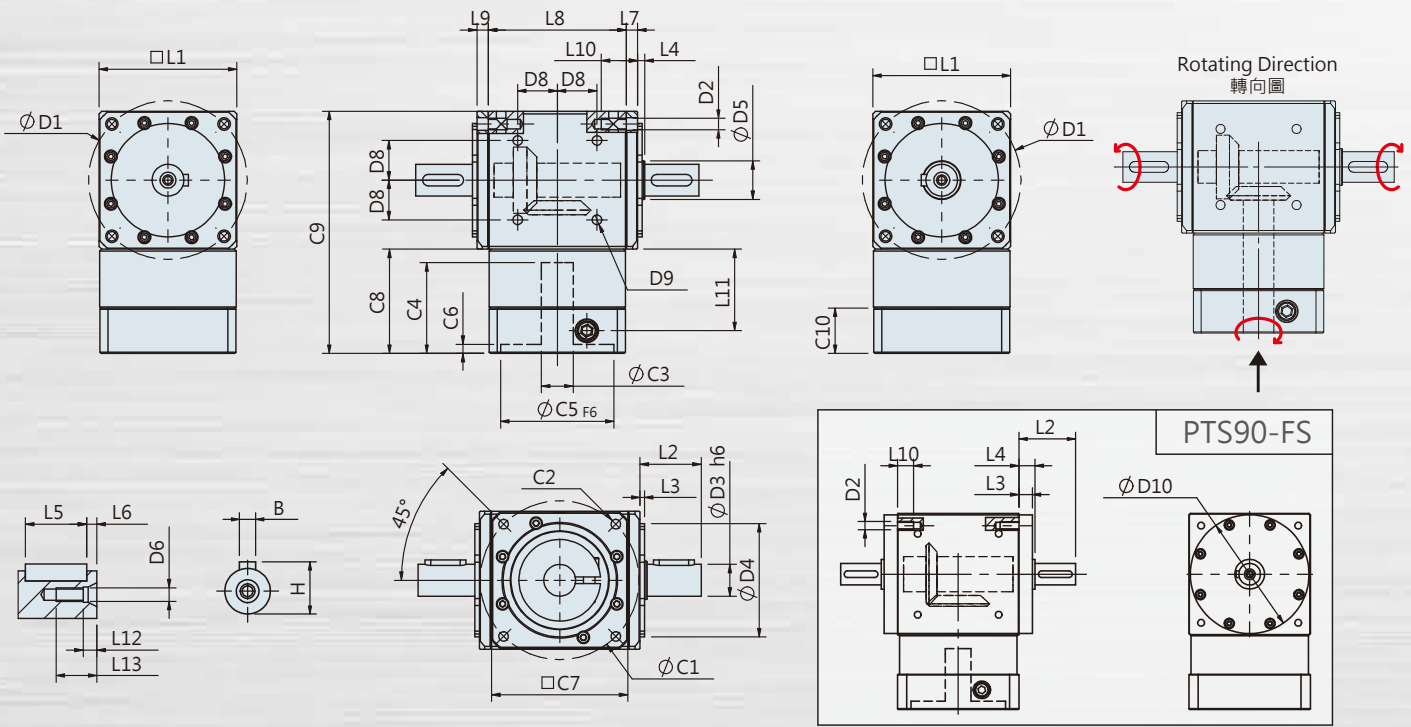
Coding System 型號定義

PTS - 0 9 0 - F S R - 3 -



附加數據包括輸入轉速、輸入扭矩和其他選項。訂購時請註明馬達輸出軸直徑、法蘭型式和尺寸。
 Note: The additional data include mounting position, input speed, input torque and options. Please indicate the input shaft diameter, flange version and flange dimensions when ordering.

PTS-FS Single Stage Dimensions PTS-FS單段外型尺寸圖



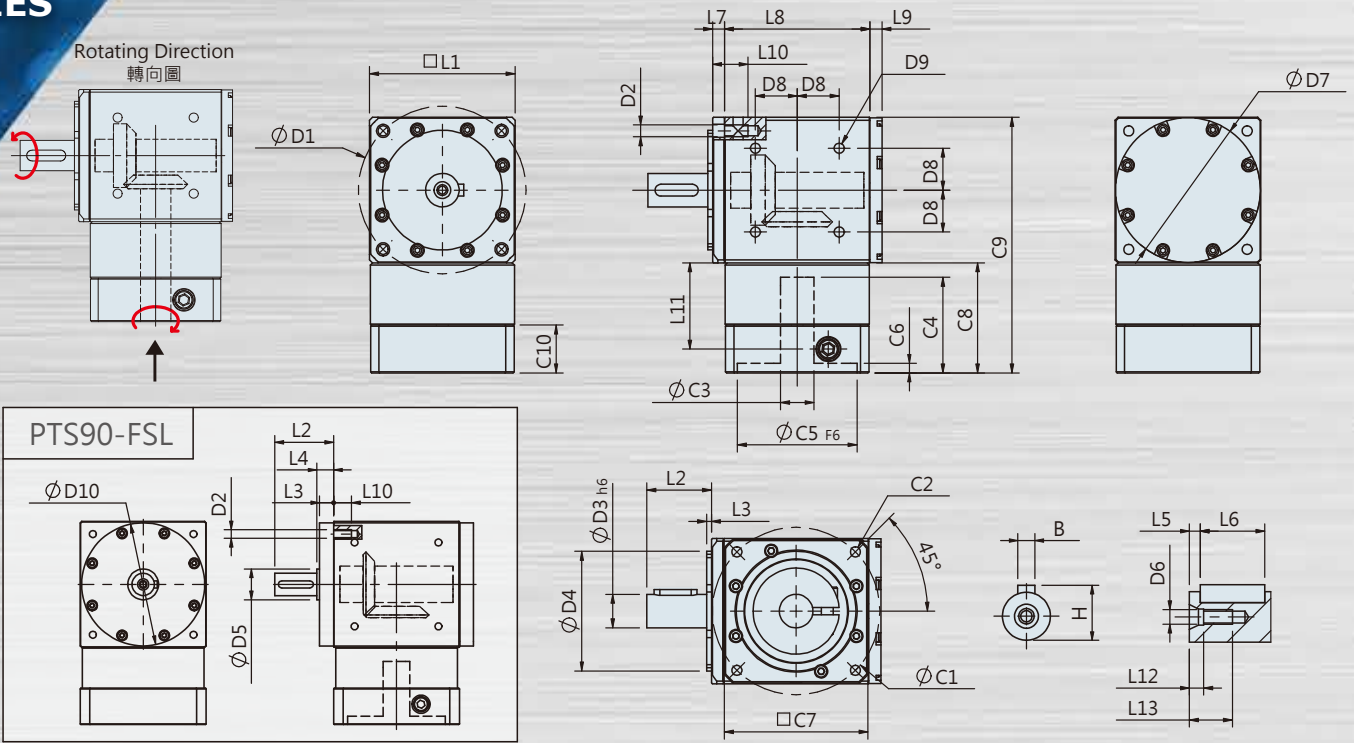
Specifications 規格

Unit: mm

Dimensions 尺寸	PTS42-FS	PTS42G-FS	PTS60-FS	PTS90-FS
D1	46	46	70	101.8
D2	M4x0.7P	M4x0.7P	M5x0.8P	M6x1.0P
D3 _{h6}	10	10	14	16
D4	30 ⁺⁰ _{-0.035}	30 ⁺⁰ _{-0.035}	50 ⁺⁰ _{-0.04}	-
D5	12	12	17	22
D6	-	M3x0.5P	M4x0.7P	M5x0.8P
D7	-	-	-	-
D8	-	16.27	24.75	36
D9	-	M4x0.7P	M5x0.8P	M6x1.0P
D10	-	-	-	88 ⁺⁰ _{-0.035}
L1	45	45	60.8	90
L2	22.5	22.5	27	42
L3	1.5	1.5	2	10
L4	2.5	2.5	3.2	12
L5	15	18	18	25
L6	2	2.5	3	2.5
L7	6	6	5	-
L8	42	42	60.8	90
L9	6	6	5	10
L10	14	14	15	12
L11	26.5	26.5	36	40.7
L12	-	3	4	4
L13	-	9	12	14
C1 ¹	46	46	70	90
C2 ¹	M4x0.7P	M4x0.7P	M5x0.8P	M6x1.0P
C3 ¹	≤8/≤11	≤8/≤11	≤14/≤19	≤19/≤24
C4 ¹	33	33	44	57
C5 ¹	30	30	50	70
C6 ¹ F6	4	4	4	6
C7 ¹	42.6	42.6	60	90
C8 ¹	35.5	35.5	46	55.2
C9 ¹	80.5	80.5	106.8	145.2
C10 ¹	18.5	18.5	20	26
B	4	3	5	5
H	11.5	11.2	16	18

*1. C1~C10 are motor specific dimensions (metric std shown), size may vary according to motor flange. C1~C10是公製標準馬達連接板尺寸，請依所選用的馬達決定。

★ Specification subject to change without notice. 本公司有權針對以上數據規格逕行設計變更不先行告知。



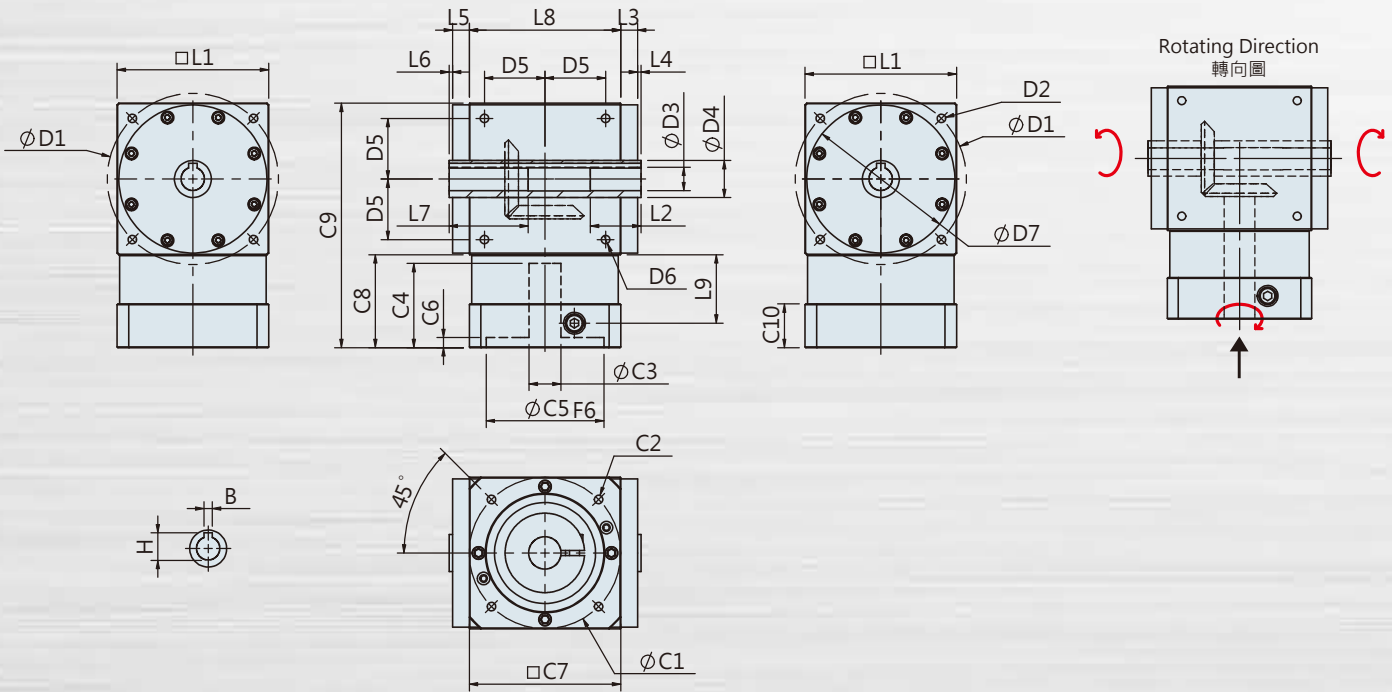
Specifications 規格

Unit: mm

Dimensions 尺寸	PTS42-FSL	PTS42G-FSL	PTS60-FSL	PTS90-FSL
D1	46	46	70	101.8
D2	M4x0.7P	M4x0.7P	M5x0.8P	M6x1.0P
D3 ^{h6}	10	10	14	16
D4	30 ^{+0/-0.035}	30 ^{+0/-0.035}	50 ^{+0/-0.04}	-
D5	-	12	-	22
D6	-	M3x0.5P	M4x0.7P	M5x0.8P
D7	44.7	44.7	60.5	88
D8	-	16.27	24.75	36
D9	-	M4x0.7P	M5x0.8P	M6x1.0P
D10	-	-	-	88 ^{+0/-0.035}
L1	45	45	60.8	90
L2	22.5	25.5	27	42
L3	1.5	1.5	2	10
L4	-	-	-	12
L5	15	18	18	25
L6	2	2.5	3	2.5
L7	6	6	5	-
L8	42	42	60.8	90
L9	5	6	5	10
L10	14	14	15	12
L11	26.5	26.5	36	40.7
L12	-	3	4	4
L13	-	9	12	14
C1 ¹	46	46	70	90
C2 ¹	M4x0.7P	M4x0.7P	M5x0.8P	M6x1.0P
C3 ¹	≤8/≤11	≤8/≤11	≤14/≤19	≤19/≤24
C4 ¹	33	33	44	57
C5 ¹ F6	30	30	50	70
C6 ¹	4	4	4	6
C7 ¹	42.6	42.6	60	90
C8 ¹	35.5	35.5	46	55.2
C9 ¹	80.5	80.5	106.8	145.2
C10 ¹	18.5	18.5	20	26
B	4	3	5	5
H	11.5	11.2	16	18

*1. C1~C10 are motor specific dimensions (metric std shown), size may vary according to motor flange. C1~C10是公製標準馬達連接板尺寸，請依所選用的馬達決定。
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PTS-FH Single Stage Dimensions PTS-FH單段外型尺寸圖



Specifications 規格

Unit: mm

Dimensions 尺寸	PTS90-FH	PTS110-FH	PTS140-FH
D1	101.8	-	-
D2	M6x1.0P	-	-
D3H7	14	-	-
D4	22	-	-
D5	36	-	-
D6	M6x1.0P	-	-
D7	88 ⁺⁰ _{-0.035}	-	-
L1	90	-	-
L2	30	-	-
L3	10	-	-
L4	2	-	-
L5	10	-	-
L6	2	-	-
L7	47	-	-
L8	90	-	-
C1 ¹	90	-	-
C2 ¹	M6x1.0P	-	-
C3 ¹	≤19≤24	-	-
C4 ¹	57	-	-
C5 ¹ F6	70	-	-
C6 ¹	6	-	-
C7 ¹	90	-	-
C8 ¹	55.2	-	-
C9 ¹	145.2	-	-
C10 ¹	26	-	-
B	5	-	-
H	16.3	-	-

*1. C1~C10 are motor specific dimensions (metric std shown), size may vary according to motor flange. C1~C10是公製標準馬達連接板尺寸，請依所選用的馬達決定。
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Flange Input Specs. Table 法蘭型性能規格共表

規格 Specifications		節數 Stage	減速比 Ratio	PTS42/PTS42G (FS/FSL/FSR)	PTS-60 (FS/FSL/FSR)	PTS90 (FS/FSL/FSR) (FH)	PTS110 (FS/FSL/FSR) (FH)	PTS140 (FS/FSL/FSR) (FH)	
額定輸出力矩 T _{2N} Nominal Output Torque	N · m	1	1	8	15	45	78	150	
			1.5	8	15	45	78	150	
			2	7	12	42	68	150	
			3	5.5	10	33	54	120	
急停力矩 T _{2NOT} Emergency Stop Torque	N · m	2.0倍額定輸出力矩 2.0 times of Nominal Output Torque * 最大輸出力矩 Max. Output Torque T _{2B} =1.5 times of Nominal Output Torque							
額定輸入轉速 n _{1N} Nominal Input Speed	rpm	1	1~3	4000	3500	3000	2800	2500	
最大輸入轉速 n _{1max} Max. Input Speed	rpm	1	1~3	8500	7500	7000	6000	5000	
精密背隙 Precision Backlash P1	arcmin	1	1~3	≤9	≤9	≤9	≤8	≤8	
標準背隙 Standard Backlash P2	arcmin	1	1~3	≤15	≤12	≤12	≤12	≤12	
容許徑向力 F _{2R} ¹ Max. Radial Load	N	1	1~3	400	600	1200	-	-	
容許軸向力 F _{2aB} ¹ Max. Axial Load	N	1	1~3	200	300	600	-	-	
使用溫度 Operating Temp.	°C	-10 °C ~ +90 °C							
使用壽命 Service Life	hr	20,000 (10,000/連續運轉 Continuous Operation)							
效率 Efficiency	%	≥ 98%							
重量 Weight	FS	kg	1	1~3	0.65	1.5	4.4	-	-
	FSL	kg	1	1~3	0.6	1.4	4.2	-	-
	FSR	kg	1	1~3	0.6	1.4	4.2	-	-
	FH	kg	1	1~3	-	-	4.1	-	-
安裝方向 Mounting Position	-	1	1~3	任意方向 Any Direction					
噪音值 Noise Level ²	dB(A)/1m	1	1~3	66	68	72	74	76	
防護等級 Protection Class	-	1	1~3	IP 65					
潤滑 Lubrication	-	1	1~3	全合成潤滑油脂 Synthetic Lubricant					

減速機轉動慣量 Inertia (J1)

節數 Stage	減速比 Ratio	單位 unit	PTS42/PTS42G (φ 8)	PTS-60(φ 14)	PTS-90(φ 19)	PTS-110(φ 24)	PTS-140(φ 32)
1	1	Kg · cm ²	0.07	0.40	2.30	-	-
	1.5		0.06	0.33	1.82	-	-
	2		0.05	0.30	1.51	-	-
	3		0.05	0.29	1.48	-	-

* 1. 輸出轉速400 rpm時，作用於輸出軸中心位置。Applied to the output shaft center @400 rpm.

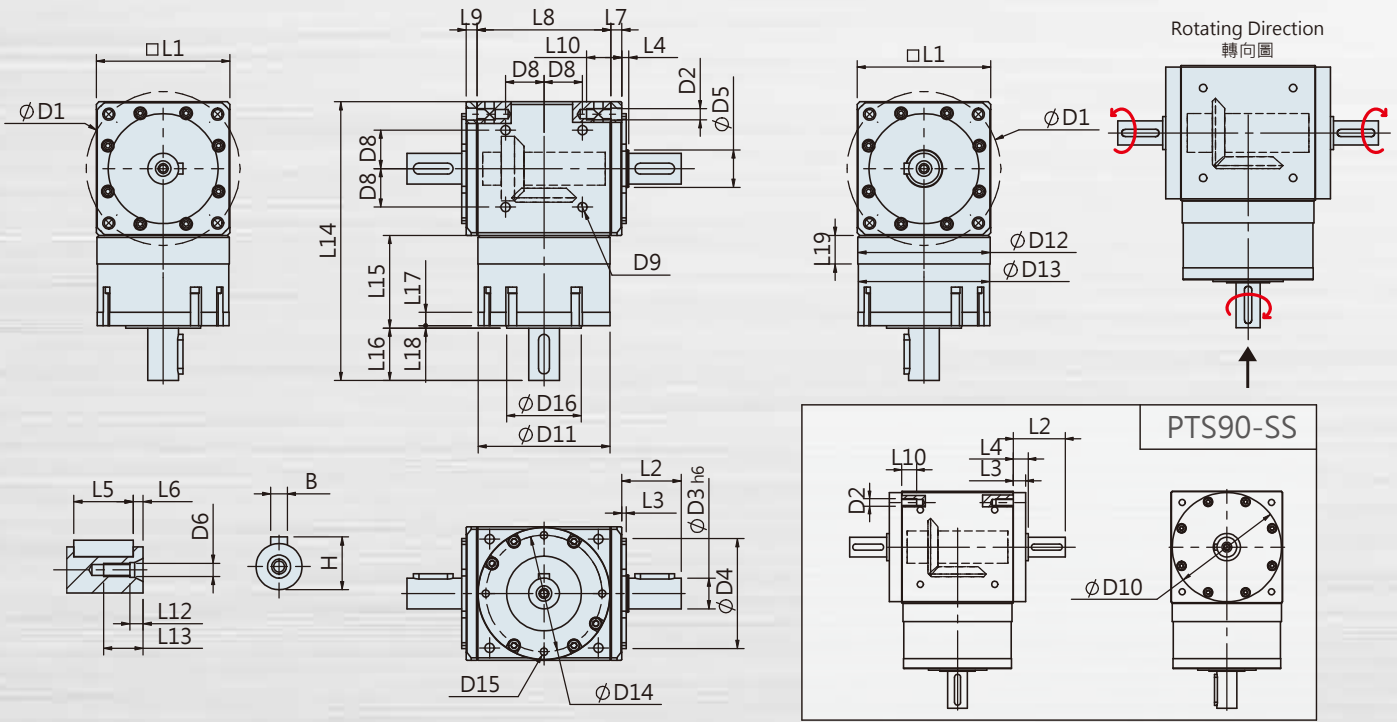
* 2. 1500 rpm空載量測。Measured at 1500 rpm with no load.

※ 本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.

產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

PTS-SS Single Stage Dimensions PTS-SS單段外型尺寸圖

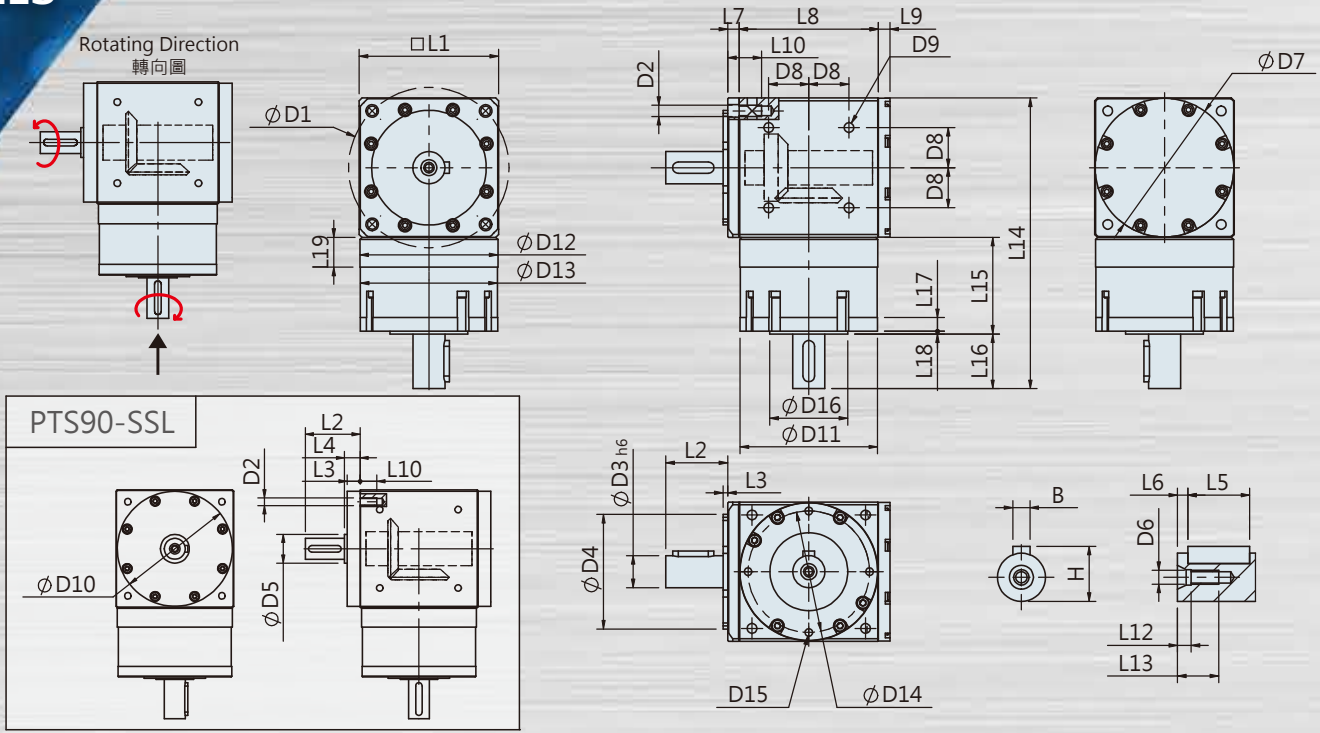


Specifications 規格

Unit: mm

Dimensions 尺寸	PTS42G-SS	PTS60-SS	PTS90-SS
D1	46	70	101.8
D2	M4x0.7P	M5x0.8P	M6x1.0P
D3 _{h6}	10	14	16
D4	30 ⁺⁰ _{-0.035}	50 ⁺⁰ _{-0.04}	-
D5	12	17	22
D6	M3x0.5P	M4x0.7P	M5x0.8P
D7	-	-	-
D8	16.27	24.75	36
D9	M4x0.7P	M5x0.8P	M6x1.0P
D10	-	-	88 ⁺⁰ _{-0.035}
D11 _{g6}	41.7	60	87
D12	41.8 ⁺⁰ _{-0.03}	60.2 ⁺⁰ _{-0.03}	88 ⁺⁰ _{-0.035}
D13	41	59.8	86.5
D14	36	53	76
D15	M3x0.5Px6L	M4x0.7Px8L	M5x0.8Px12L
D16	19.5	34	47
L1	45	60.8	90
L2	22.5	27	42
L3	1.5	2	10
L4	2.5	3.2	12
L5	18	18	25
L6	2.5	3	2.5
L7	6	5	-
L8	42	60.8	90
L9	6	5	10
L10	14	15	12
L11	-	-	-
L12	3	4	4
L13	9	12	14
L14	103	126.8	175
L15	35	42.2	55
L16	23	23.8	30
L17	4.5	6	8
L18	2.5	1.2	2
L19	9	13	15
B	3	5	5
H	11.2	16	18

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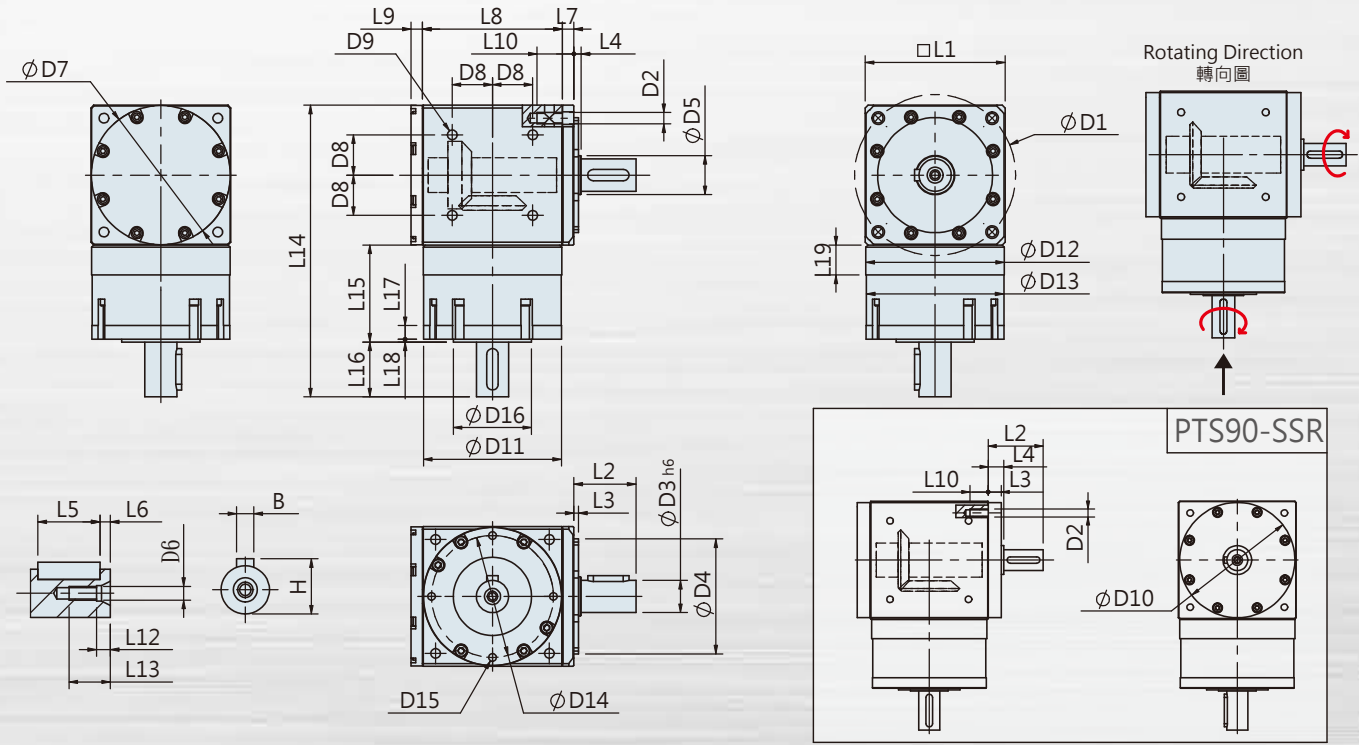
Specifications 規格

Unit: mm

Dimensions 尺寸	PTS42G-SSL	PTS60-SSL	PTS90-SSL
D1	46	70	101.8
D2	M4x0.7P	M5x0.8P	M6x1.0P
D3 h6	10	14	16
D4	30 ⁺⁰ _{-0.035}	50 ⁺⁰ _{-0.04}	-
D5	12	-	22
D6	M3x0.5P	M4x0.7P	M5x0.8P
D7	44.7	60.5	88
D8	16.27	24.75	36
D9	M4x0.7P	M5x0.8P	M6x1.0P
D10	-	-	88 ⁺⁰ _{-0.035}
D11 g6	41.7	60	87
D12	41.8 ⁺⁰ _{-0.03}	60.2 ⁺⁰ _{-0.04}	88 ⁺⁰ _{-0.035}
D13	41	59.8	86.5
D14	36	53	76
D15	M3x0.5Px6L	M4x0.7Px8L	M5x0.8Px12L
D16	19.5	34	47
L1	45	60.8	90
L2	25.5	27	42
L3	1.5	2	10
L4	-	-	12
L5	18	18	25
L6	2.5	3	2.5
L7	6	5	-
L8	42	60.8	90
L9	5	5	10
L10	14	15	12
L11	-	-	-
L12	3	4	4
L13	9	12	14
L14	103	126.8	175
L15	35	42.2	55
L16	23	23.8	30
L17	4.5	6	8
L18	2.5	1.2	2
L19	9	13	15
B	3	5	5
H	11.2	16	18

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PTS-SSR Single Stage Dimensions PTS-SSR單段外型尺寸圖



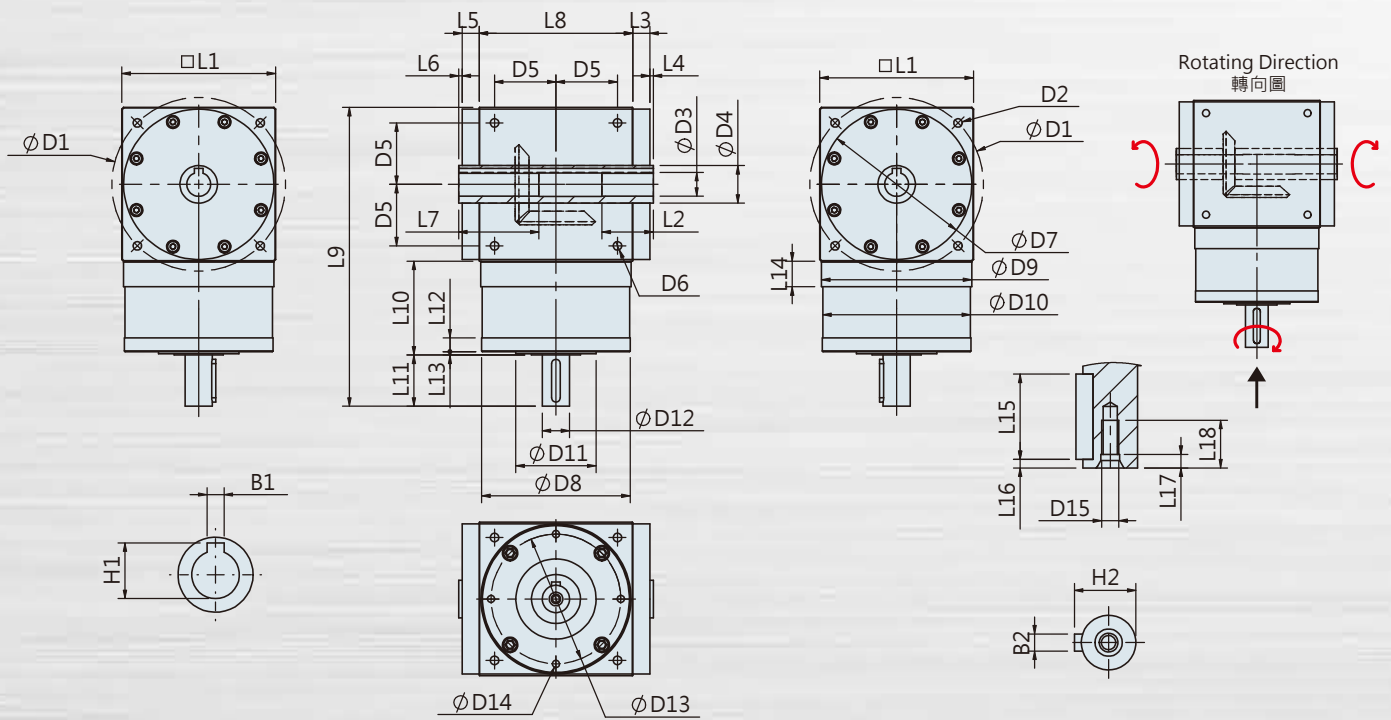
Specifications 規格

Unit: mm

Dimensions 尺寸	PTS42G-SSR	PTS60-SSR	PTS90-SSR
D1	46	70	101.8
D2	M4x0.7P	M5x0.8P	M6x1.0P
D3 h6	10	14	16
D4	30 ⁺⁰ _{-0.035}	50 ⁺⁰ _{-0.04}	-
D5	12	17	22
D6	M3x0.5P	M4x0.7P	M5x0.8P
D7	44.7	60.5	88
D8	16.27	24.75	36
D9	M4x0.7P	M5x0.8P	M6x1.0P
D10	-	-	88 ⁺⁰ _{-0.035}
D11 g6	41.7	60	87
D12	41.8 ⁺⁰ _{-0.03}	60.2 ⁺⁰ _{-0.04}	88 ⁺⁰ _{-0.035}
D13	41	59.8	86.5
D14	36	53	76
D15	M3x0.5Px6L	M4x0.7Px8L	M5x0.8Px12L
D16	19.5	34	47
L1	45	60.8	90
L2	22.5	27	42
L3	1.5	2	10
L4	2.5	3.2	12
L5	18	18	25
L6	2.5	3	2.5
L7	6	5	-
L8	42	60.8	90
L9	5	5	10
L10	14	15	12
L11	-	-	-
L12	3	4	4
L13	9	12	14
L14	103	126.8	175
L15	35	42.2	55
L16	23	23.8	30
L17	4.5	6	8
L18	2.5	1.2	2
L19	9	13	15
B	3	5	5
H	11.2	16	18

★ Specification subject to change without notice. 本公司有權針對以上數據規格進行設計變更不先行告知。

PTS-SH Single Stage Dimensions PTS-SH單段外型尺寸圖



Specifications 規格

Unit: mm

Dimensions 尺寸	PTS90-SH	PTS110-SH	PTS140-SH
D1	101.8	-	-
D2	M6x1.0P	-	-
D3 _{H7}	14	-	-
D4	22	-	-
D5	36	-	-
D6	M6x1.0P	-	-
D7	88 ⁺⁰ _{-0.035}	-	-
D8 _{g6}	87	-	-
D9	88 ⁺⁰ _{-0.035}	-	-
D10	86.5	-	-
D11	47	-	-
D12 _{h6}	16	-	-
D13	76	-	-
D14	M5x0.8Px12L	-	-
D15	M5x0.8P	-	-
L1	90	-	-
L2	30	-	-
L3	10	-	-
L4	2	-	-
L5	10	-	-
L6	2	-	-
L7	47	-	-
L8	90	-	-
L9	175	-	-
L10	55	-	-
L11	30	-	-
L12	8	-	-
L13	2	-	-
L14	15	-	-
L15	25	-	-
L16	2.5	-	-
L17	4	-	-
L18	14	-	-
B1	5	-	-
H1	16.3	-	-
B2	5	-	-
H2	18	-	-

★ Specification subject to change without notice. 本公司有權針對以上數據規格逕行設計變更不先行告知。

Solid Shaft Input Specs. Table 軸型性能規格共表

規格 Specifications		節數 Stage	減速比 Ratio	PTS42G (SS/SSL/SSR)	PTS-60 (SS/SSL/SSR)	PTS90 (SS/SSL/SSR) (SH)	PTS110 (SS/SSL/SSR) (SH)	PTS140 (SS/SSL/SSR) (SH)	
額定輸出力矩 T_{2N} Nominal Output Torque	N · m	1	1	8	15	45	78	150	
			1.5	8	15	45	78	150	
			2	7	12	42	68	150	
			3	5.5	10	33	54	120	
急停力矩 T_{2NOT} Emergency Stop Torque	N · m	2.0倍額定輸出力矩 2.0 times of Nominal Output Torque * 最大輸出力矩 Max. Output Torque $T_{2B}=1.5$ times of Nominal Output Torque							
額定輸入轉速 n_{1N} Nominal Input Speed	rpm	1	1~3	4000	3500	3000	2800	2500	
最大輸入轉速 n_{1max} Max. Input Speed	rpm	1	1~3	8500	7500	7000	6000	5000	
精密背隙 Precision Backlash P1	arcmin	1	1~3	≤9	≤9	≤9	≤8	≤8	
標準背隙 Standard Backlash P2	arcmin	1	1~3	≤15	≤12	≤12	≤12	≤12	
輸出軸容許徑向力 F_{2rB}^1 Max. Radial Load on Output Shaft	N	1	1~3	400	600	1200	-	-	
輸出軸容許軸向力 F_{2aB}^1 Max. Axial Load on Output Shaft	N	1	1~3	200	300	600	-	-	
輸入軸容許徑向力 F_{2rB}^1 Max. Radial Load on Input Shaft	N	1	1~3	260	520	1050	-	-	
輸入軸容許軸向力 F_{2aB}^1 Max. Axial Load on Input Shaft	N	1	1~3	130	260	525	-	-	
使用溫度 Operating Temp.	°C	-10 °C ~ +90 °C							
使用壽命 Service Life	hr	20,000 (10,000/連續運轉 Continuous Operation)							
效率 Efficiency	%	≥ 98%							
重量 Weight	SS	kg	1	1~3	0.6	1.4	4.2	-	-
	SSL	kg	1	1~3	0.55	1.3	4.1	-	-
	SSR	kg	1	1~3	0.55	1.3	4.1	-	-
	SH	kg	1	1~3	-	-	4.0	-	-
安裝方向 Mounting Position	-	1	1~3	任意方向 Any Direction					
噪音值 Noise Level ²	dB(A)/1m	1	1~3	66	68	72	74	76	
防護等級 Protection Class	-	1	1~3	IP 65					
潤滑 Lubrication	-	1	1~3	全合成潤滑油脂 Synthetic Lubricant					

減速機轉動慣量 Inertia (J1)

節數 Stage	減速比 Ratio	單位 unit	PTS42G ($\phi 8$)	PTS-60 ($\phi 14$)	PTS-90 ($\phi 19$)	PTS-110 ($\phi 24$)	PTS-140 ($\phi 32$)
1	1	Kg · cm ²	0.07	0.40	2.30	-	-
	1.5		0.06	0.33	1.82	-	-
	2		0.05	0.30	1.51	-	-
	3		0.05	0.29	1.48	-	-

* 1. 輸出轉速400 rpm時，作用於輸出軸中心位置。Applied to the output shaft center @400 rpm.

* 2. 1500 rpm空載量測。Measured at 1500 rpm with no load.

※ 本公司有權對以上數據規格逕行設計變更不先行告知。The above figures/specifications are subject to change without prior notice.

產品因人為原因或天災等因素導致不良或損壞，不在保固範圍內。

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

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