

SERVOBOX[®]

高精密行星減速機

Characteristic of SERVOBOX Series

SERVOBOX 系列產品特性

利明牌精密行星減速機 SERVOBOX 系列，以螺旋齒輪設計，採用精密 CNC 滾齒機加工，咬合精準、運轉順暢，低噪音。一體式的齒輪箱本體，與同規格型減速機相比，體積小 (省 1/4 以上體積與重量) 輸出扭力大、傳動效率高。

SERVOBOX series high precision planetary gear reducer employs helical gears. All gears are high precision machined by CNC gear hobbing machine, providing high accuracy gear engagement, smooth running and minimum noise.

LIMING gear box is one-piece fabricated. When comparing with the competitive gear reducer, LIMING gear reducer features smaller construction (saves over 1/4 of size and weight), higher output torque and higher transmission efficiency.

低 噪 音

低於 65dB。

Low Noise

Under 65dB.

低 背 隙

單段低於 7 弧分 (arcmin)，可選擇 1 弧分規格。
雙段減速在 9 弧分以內。

Low Backlash

Backlash for 1-stage model is under 7 arcmin. Available to select specification with 1 arcmin of backlash. Backlash for 2-stage model is under 9 arcmin.

高 效 率

單段式在 97% 以上，雙段式在 94% 以上。

High Efficiency

Efficiency for 1-stage model exceeds 97%; 2-stage model exceeds 94%.

高輸入轉速

可達 5,000 RPM。

High Input Speed

Input speed allows for 5,000 RPM.

高 扭 矩

比一般正齒輪行星減速機扭矩高。

High Torque

Higher output torque is in comparison with spur gear planetary gear reducers.

高穩定性

採用高強度合金鋼材，整顆齒輪經硬化處理，非只有表面硬化，確保使用壽命及長期使用仍保持最初的精密度。

High Stability

Employs high tensile strength alloy steel. Gear hardening is made for the entire gear instead of only surface hardening, which extends gear service life and maintain high accuracy after a long period of operation.

高減速比

採模組化設計，行星齒箱可相互連結，速比可達 1/10000 以上。

High Speed Reduction Ratio

The gear reducer is a modular design. The planetary gear box can be connected. Speed reduction ratio can reach over than 1/10000.



Features of SERVBOX Series

SERVBOX 系列產品特點



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 features extremely smooth running, low noise, high torque output and low backlash.



全合成潤滑油脂

採 IP65 防護等級的密封設計，潤滑油脂不洩漏免保養。

Synthetic Lubrication Grease

The protective class IP65 seals design avoids leakage problem. It features no maintenance.



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，並經動力平衡分析，以確保在高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。

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.



滿針滾針軸承設計

行星齒輪的傳動介面採用不含保持器之滿針滾針軸承，增加接觸面積以提高結構剛性及使用壽命。

Full Needle Roller Bearings Design

The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.

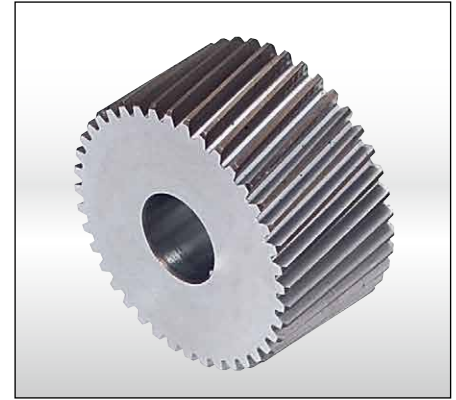


一體式行星臂架及雙懸臂設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。並使用一次加工完成，控制精度在公差之內。

Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy. The entire structure is one-time machined for controlling accuracy in the specified tolerance.



高精度齒輪加工

行星齒輪及太陽齒輪材料採用高級之鎳鉻鉬合金鋼 (SNCM220)，切削加工後，經滲碳熱處理至硬度 57~60HRC，再進行齒面研磨，確保齒輪精度在 DIN6 級以內，比只有表面的氮化處理，獲得最佳的耐磨耗和耐衝擊韌性，壽命更長。

High Precision Gear Machining

The planetary gear and sun gear are made by high quality Ni-Cr-Mo alloy steel (SNCM220), precision machined and carburized to hardness 57-60 HRC. Precision teeth grinding assures gear accuracy reaches DIN6 class. It provides better wear resistance, impact resistance and longer service life than gears with only surface nitrided.

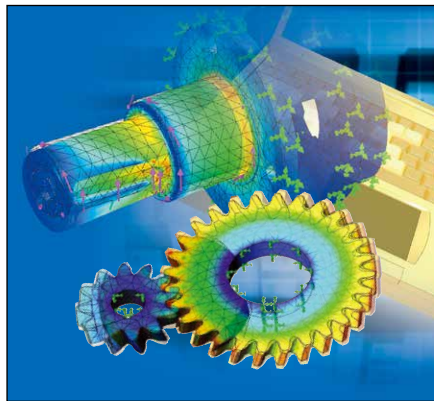


一體式齒輪箱本體

齒輪箱和內環齒輪採一體式的設計，材質為鎳鉻合金鋼 SCM440，經調質後加工，輸出扭矩大，齒輪精度達 DIN6 級，精密度高，表面防鏽處理，提高環境的耐受性和抗腐蝕能力。

One-piece Gear Box & Advanced Surface Treatment

The gear box and internal gear ring are one-piece constructed, which is made by Cr-Mo alloy steel (SCM440), and tempered for high torque output. High gear accuracy meets DIN6 class standard. Gearbox surface is anti-corrosive treated for upgrading environmental-resistant and corrosion-resistant capability.

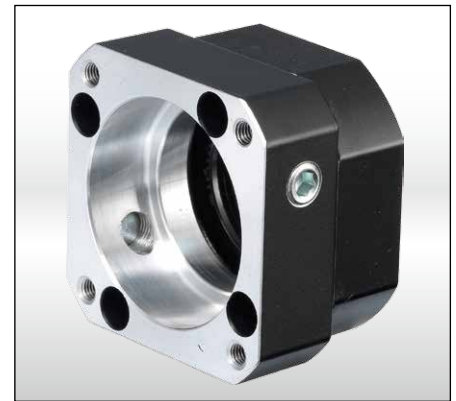


CAE 設計分析技術

利用 3D-CAE 軟體的設計分析技術，對減速機整體強度進行分析及螺旋齒面作齒形及導程修整，以降低齒輪對嚙入及嚙出的衝擊和噪音，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 modifying the helical teeth profile and lead. This reduces the impact and noise during teeth engage and disengage, while increasing the service life of gears and the gear reducer.



模組化馬達連接板設計

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

Modular Design of Motor Connection Plate

The special modular design of motor connection plate is suitable for any brand and any type of servomotor. It is made by aluminum alloy. Its surface is anti-oxidant treated for upgrading environmental-resistant and corrosion-resistant capability.



Indication of Model Numbers

機種型號表示

SB 90		10			P1	MOTOR
減速機型 Type	型號 Model	速比 Ratio	出力軸鍵槽 Output Shaft	入力軸鍵槽 Input Shaft	背隙等級 Backlash Class	馬達型號 Motor Type
SB	44	單段 1-Stage 3, 4, 5, 6, 7, 8, 9, 10	□標準品，有鍵槽 Standard (Keyway)	□無鍵槽 No Keyway	Ps P0 P1 P2	
SE	62					
SB-A	90					
SE-A	120	雙段 2-Stage 15 ~ 100	N: 實心軸，無鍵槽 Solid Output Shaft (No Keyway)	K: 有鍵槽 Keyway (142#~330#)		
SBL	142					
SEL	180	三段 3-Stage 125 ~ 1000				
SBL-A	220					
SEL-A	270	SBT 單段 1-Stage 3 ~ 50				
SBT	330					



Description of Standard and A-Type

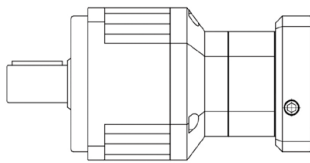
標準型及 A-Type 說明

在 2 段或 3 段減速時，減速比高，輸出扭矩大，標準型的 2 段或 3 段齒箱為大齒箱接小齒箱，可限制入力馬力，以符合額定輸出扭矩。

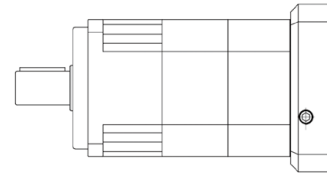
A-Type 為二個相同框號齒箱的連結。

The features of 2-stage or 3-stage gearbox are high gear ratio and large output torque. The standard type of 2-stage or 3-stage gearbox are combined by big and small gearboxes to have a limit to input power and then to meet rated output torque. A-Type has a combination of 2 gearboxes with same frame.

Standard



A-Type



例如：

使用伺服馬達，功率 0.5kW，額定輸出扭矩 2.39Nm，馬達軸心為 Ø24mm

1. 假設減速比為 1/50 時：

輸出扭矩為 2.39Nm x 50 x 94%(效率) = 112Nm

(1) 可選擇 SB-120-50

額定輸出扭矩 333Nm S.F.=2.97(安全系數)

(2) 亦可選擇 SB-90A-50

額定輸出扭矩 160Nm S.F.=1.42(降框號使用)

2. 假設減速比為 1/100 時：

輸出扭矩為 2.39 x 100 x 94%(效率) = 224Nm

可選用 SB-120-100 S.F.=1.3

選用 SB-90A-100 時 S.F.=0.62 安全系數不足，不建議使用

Example:

Servo motor 0.5 kW, rated output torque 2.39 Nm, motor shaft Ø24 mm.

1. Suppose the speed reduction ratio is 1/50:

Output torque is 2.39 Nm x 50 x 94% (efficiency) = 112 Nm.

(1) You can select SB-120-50 with rated output torque of

333 Nm and S.F. = 2.97

(2) You can select SB-90A-50 with rated output torque of

160 Nm and S.F. = 1.42

2. Suppose the speed reduction ratio is 1/100:

Output torque is 2.39 x 100 x 94% (efficiency) = 224 Nm.

You can select SB-120-100 and S.F. = 1.3. You are not suggested to choose SB-90A-100 because of low S.F. = 0.62.

Description Right Angle of L-Type and T-Type

直交軸 L-Type / L-Type 說明

SBL：螺旋傘齒輪段減速比 1:1、1:2

優點：總長度較短

缺點：減速比較少

SBT：螺旋傘齒輪段減速比 1:1、1:2、1:3、1:4、1:5

優點：減速比較多

缺點：總長度較長

SBL: Spiral Bevel Gear Ratio 1:1, 1:2

Pros: Shorter overall length.

Cons: Ratio less.

SBT: Spiral Bevel Gear Ratio 1:1, 1:2, 1:3, 1:4, 1:5

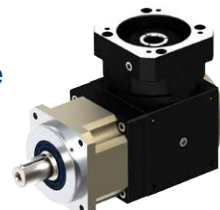
Pros: Ratio more.

Cons: Overall length is longer.

L-Type



T-Type



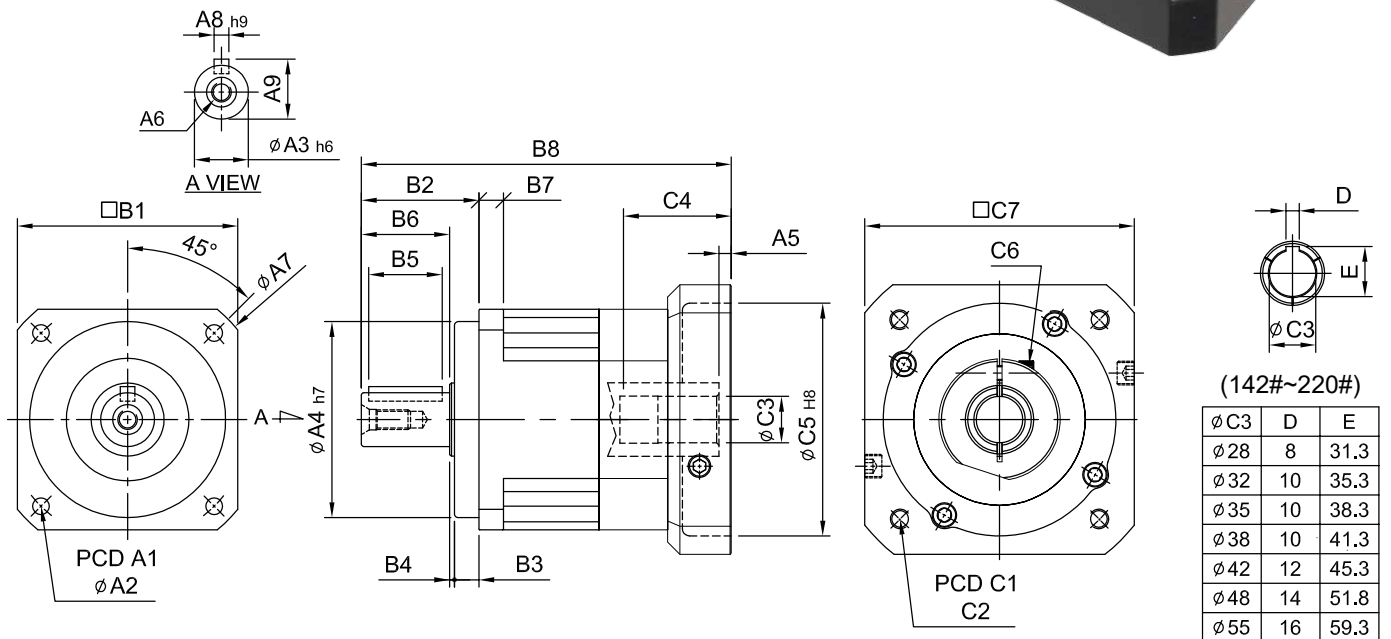
SERVOBOX Planetary Reducers



MODEL : SB

單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10

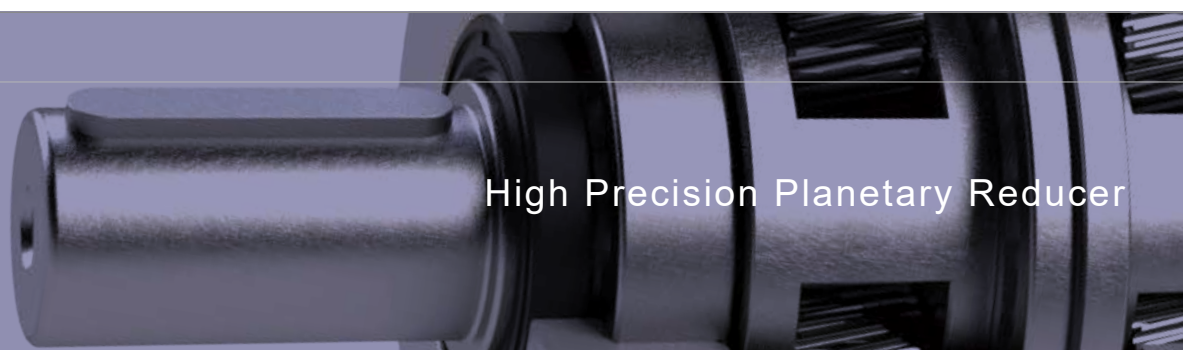


(142#~220#)

øC3	D	E
ø28	8	31.3
ø32	10	35.3
ø35	10	38.3
ø38	10	41.3
ø42	12	45.3
ø48	14	51.8
ø55	16	59.3

unit: mm

Model Code	44	62	90	120	142	180	220
A A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	13	16	22	32	40	55	75
A4	35	50	80	110	130	160	180
A5	5	6	9·23.5	10·20	10	11.5·14.5	12.5·14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B B1	44	62	90	120	142	180	220
B2	26	36	48	65	92	106	139
B3	5	7	10	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
B8	95	115·123	164.5·179	205·215	260.5	323.5·325.5	367.5
C C1	46·60·63	70·75·90	90·100·115·145	115·145·165	145·165·215	200·215·265·300	200·265·300
C2	M3·M4·M5	M4·M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12	M10·M12·M16	M12·M16
C3	8·9·11	11·14·16·19	16·19·22·24	22·24·28·32	28·32·35·38	35·38·42·48·55	38·42·48·55
C4	26·30.5	33.5·41.5	59·73.5	67·77	84.5	114.5·117.5	117.5·119.5
C5	30·40·50	50·60·70	70·80·95·110	95·110·130	110·130·180	114.3·180·230·250	114.3·230·250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46·55	64·70·80	92·110·130	122·130·150	146·150·190	182·200·250·265	222·250·265



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			9	13	44	145	278	516	993	1,694
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 10	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 10	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 10	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	3 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
背隙 Backlash P0		arcmin	3 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	3 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	3 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 10	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 10	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 10	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	3 ~ 10	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	3 ~ 10	≥ 97%						
使用溫度 Operating Temperature		°C	3 ~ 10	- 25° C ~ + 90° C						
潤滑 Lubrication			3 ~ 10	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			3 ~ 10	IP65						
安裝方向 Mounting Position			3 ~ 10	任意方向 Any						
噪音值 Noise Level		dB	3 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	3 ~ 10	0.6	1.28	3.6	8	14.3	28.3	42.5

 ■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	44	62	90	120	142	180	220
3	0.03	0.16	0.61	3.25	9.21	28.98	59.61
4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
10	0.03	0.13	0.44	2.57	7.03	22.51	50.56

SERVOBOX Planetary Reducers

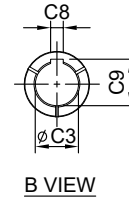
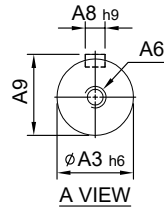
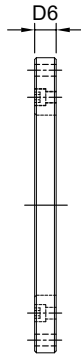
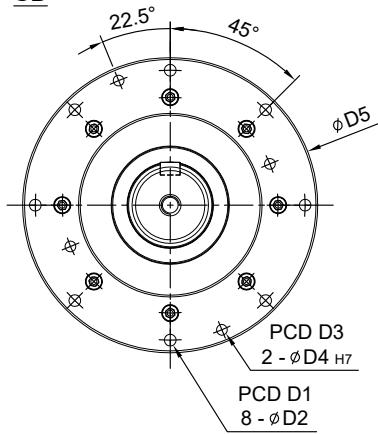
MODEL : SB SE

單段 1-Stage

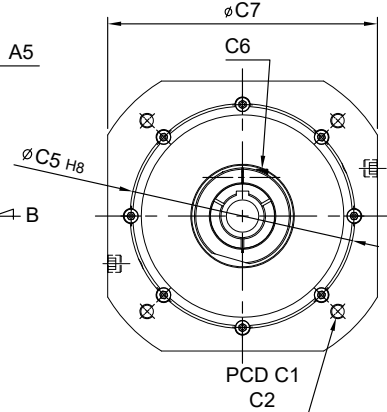
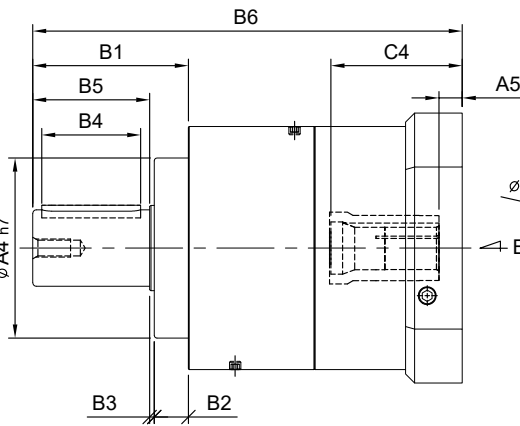
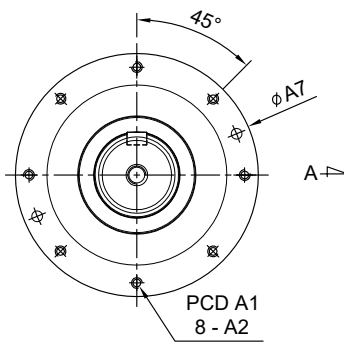
RATIO : 3, 4, 5, 7, 10



SB



SE

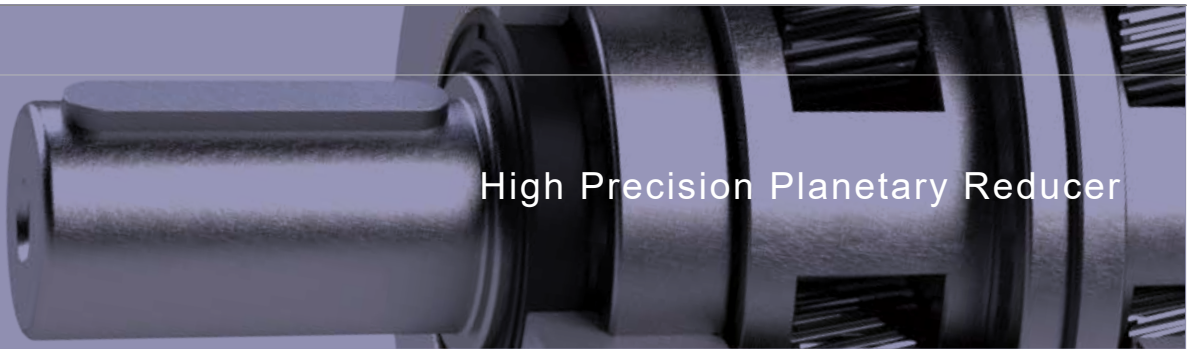


unit: mm

Model Code	270	330
A1	240	300
A2	M12 x P1.75	M16 x P2.0
A3	85	100
A4	200	250
A5	23·26	23·26
A6	M20 x P2.5	M24 x P3.0
A7	270	336
A8	22	28
A9	90	106
B1	173	187
B2	38	42
B3	5	5
B4	110	120
B5	130	140
B6	474.5·477.5	512·515

unit: mm

Model Code	270	330
C1	265·300·350	265·300·350
C2	M12·M16·M18	M12·M16·M18
C3	48·55·60·65·70	55·60·65·75
C4	143·146	143·146
C5	230·250·300	230·250·300
C6	M12 x P1.75	M12 x P1.75
C7	280·300·330	280·300·330
C8	14·16·18·20	16·18·20
C9	51.8·59.3·64.4·74.8	59.3·64.4·69.4·80
D1	300	380
D2	13	17
D3	300	380
D4	12	14
D5	328	416
D6	24	28



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	270	330
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	4,770	8,790
			4	4,730	8,730
			5	4,680	8,660
			7	4,570	8,520
			10	4,420	8,310
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 10	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque	
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 10	3 倍額定輸出力矩 3 Times of Rated Output Torque	
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 10	2,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 10	3,000	3,000
背隙 Backlash Ps		arcmin	3 ~ 10	≤ 1	≤ 1
背隙 Backlash P0		arcmin	3 ~ 10	≤ 3	≤ 3
背隙 Backlash P1		arcmin	3 ~ 10	≤ 5	≤ 5
背隙 Backlash P2		arcmin	3 ~ 10	≤ 7	≤ 7
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 10	510	980
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 10	107,100	224,910
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 10	53,550	112,455
使用壽命 Service Life	L_H	hr	3 ~ 10	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)	
效率 Efficiency	η	%	3 ~ 10	≥ 97%	
使用溫度 Operating Temperature		°C	3 ~ 10	- 25° C ~ + 90° C	
潤滑 Lubrication			3 ~ 10	全合成潤滑油脂 Synthetic Grease	
防護等級 Protection Class			3 ~ 10	IP65	
安裝方向 Mounting Position			3 ~ 10	任意方向 Any	
噪音值 Noise Level		dB	3 ~ 10	≤ 72	≤ 74
重量 Weight ±3%		Kg	3 ~ 10	SB : 97 · SE : 87.5	SB : 190 · SE : 172

■ 轉動慣量 (kg.cm²) Mass Moments of Inertia

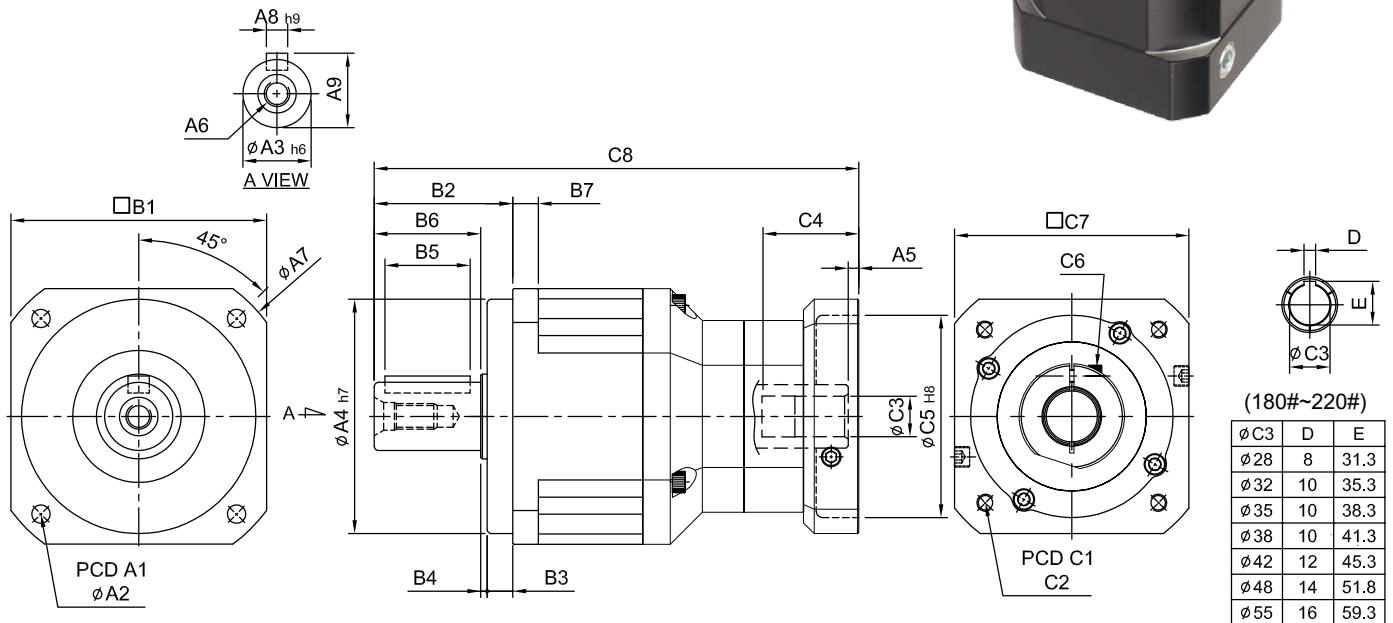
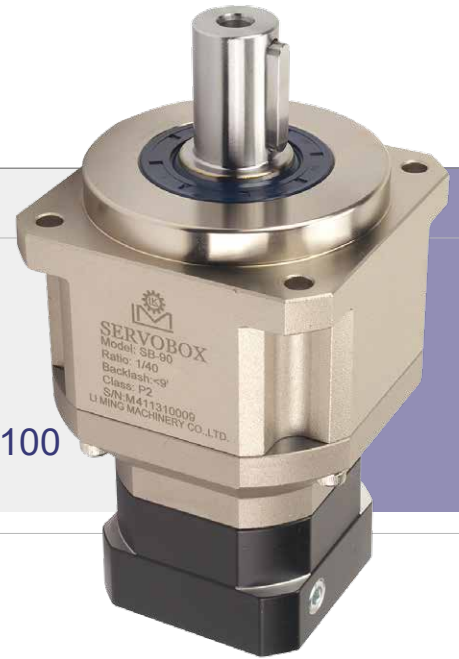
Ratio	270	330
3	122.20	252.96
4	111.46	230.72
5	109.20	226.05
7	104.49	216.29
10	103.65	214.55

SERVOBOX Planetary Reducers

MODEL : SB

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100

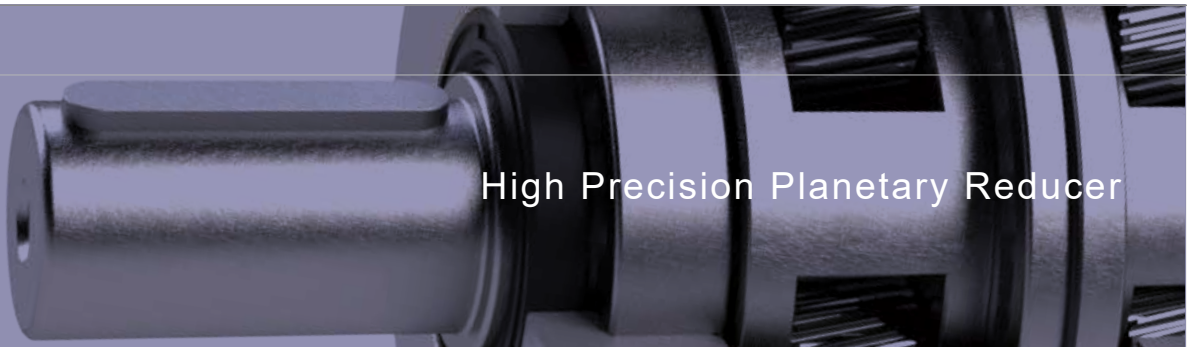


(180#~220#)

$\phi C3$	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	62	90	120	142	180	220
A						
A1	70	100	130	165	215	250
A2	5.5	6.8	9	11	13	17
A3	16	22	32	40	55	75
A4	50	80	110	130	160	180
A5	5	6	9·23.5	10·20	10	11.5·13.5
A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	80	116	148	186	238	288
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B						
B1	62	90	120	142	180	220
B2	36	48	65	92	106	139
B3	7	10	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	8	10	12	15	16	20
C						
C1	46·60·63	70·75·90	90·100·115·145	115·145·165	145·165·215	200·215·265
C2	M3·M4·M5	M4·M5·M6	M5·M6·M8·M10	M6·M8·M10	M8·M10·M12	M10·M12
C3	8·9·11	11·14·16·19	16·19·22·24	22·24·28·32	28·32·35·38	35·38·42·48·55
C4	26·30.5	33.5·41.5	59·73.5	67·77	84.5	114.5·116.5
C5	30·40·50	50·60·70	70·80·95·110	70·95·110·130	110·130·180	114.3·180·230
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46·55	64·70·80	92·110·130	122·130·150	146·180·190	182·200·250
C8	139.5	172.5·180.5	241·255.5	298.5·308.5	358.5	446.5



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
			90	44	145	278	516	993	1,694
			100	43	141	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque					
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque					
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	15 ~ 100	≥ 94%					
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C					
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			15 ~ 100	IP65					
安裝方向 Mounting Position			15 ~ 100	任意方向 Any					
噪音值 Noise Level		dB	15 ~ 100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	15 ~ 100	1.73	4.6	9.42	17.2	34.1	57.3

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.14	0.40	2.39	6.72	21.60

SERVOBOX Planetary Reducers

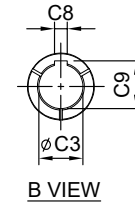
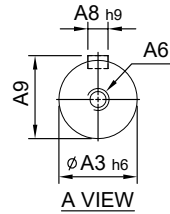
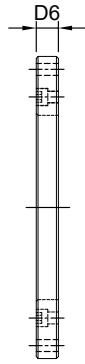
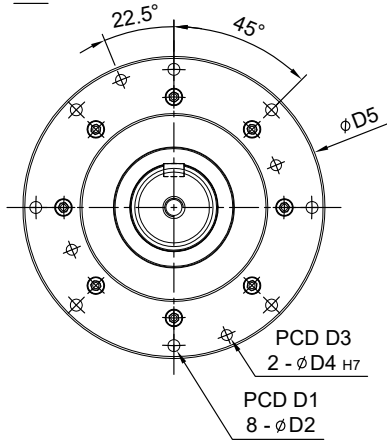
MODEL : SB SE

雙段 2-Stage

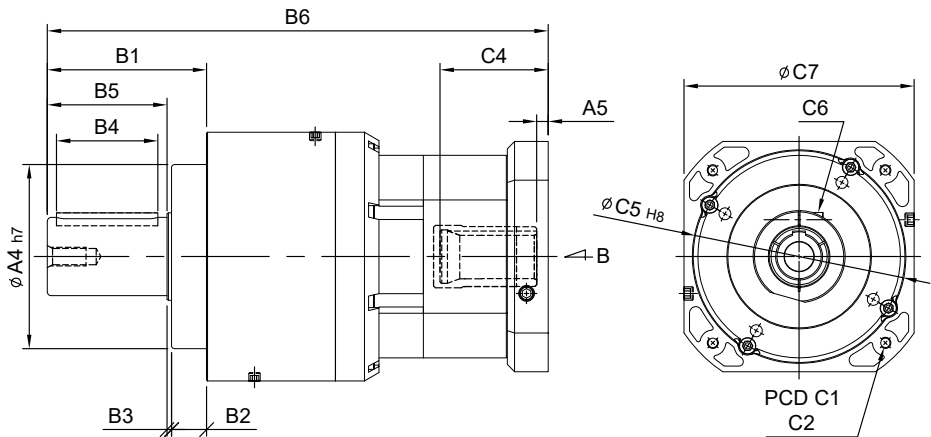
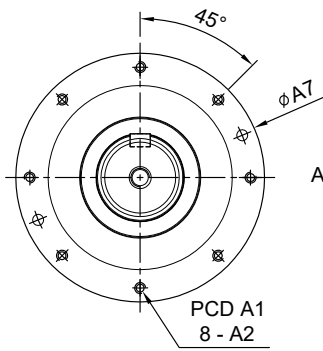
RATIO : 15, 20, 25, 30, 35,
40, 50, 70, 100



SB



SE

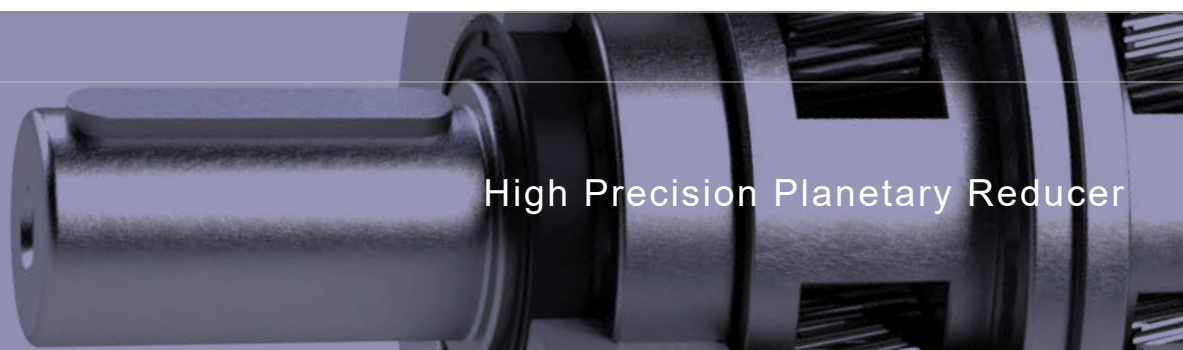


unit: mm

unit: mm

Model	270	330
A Code		
A1	240	300
A2	M12 x P1.75	M16 x P2.0
A3	85	100
A4	200	250
A5	12.5	26 · 23
A6	M20 x P2.5	M24 x P3.0
A7	270	336
A8	22	28
A9	90	106
B Code		
B1	173	187
B2	38	42
B3	5	5
B4	110	120
B5	130	140
B6	544 · 547	625 · 632.5 · 635.5

Model	270	330
C Code		
C1	200 · 265 · 300	265 · 300 · 350
C2	M12 · M16	M12 · M16 · M18
C3	38 · 42 · 48 · 55	48 · 55 · 60 · 65 · 70
C4	117.5 · 120.5	146 · 149
C5	114.3 · 230 · 250	230 · 250 · 300
C6	M10 x P1.5	M12 x P1.75
C7	222 · 250 · 265	280 · 300 · 330
C8	10 · 12 · 14 · 16	14 · 16 · 18 · 20
C9	41.3 · 45.3 · 51.8 · 59.3	51.8 · 59.3 · 64.4 · 69.4 · 74.8
D Code		
D1	300	380
D2	13	17
D3	300	380
D4	12	14
D5	328	416
D6	24	28



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	270	330
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	4,770	8,790
			20	4,730	8,730
			25	4,680	8,660
			30	4,770	8,610
			35	4,570	8,520
			40	4,730	8,440
			50	4,680	8,660
			70	4,570	8,520
			100	4,420	8,310
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque	
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque	
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	15 ~ 100	2,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	15 ~ 100	3,000	3,000
背隙 Backlash Ps		arcmin	15 ~ 100	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	510	980
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	107,100	224,910
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	53,550	112,455
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)	
效率 Efficiency	η	%	15 ~ 100	≥ 94%	
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C	
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease	
防護等級 Protection Class			15 ~ 100	IP65	
安裝方向 Mounting Position			15 ~ 100	任意方向 Any	
噪音值 Noise Level		dB	15 ~ 100	≤ 72	≤ 74
重量 Weight ±3%		Kg	15 ~ 100	SB : 137 · SE : 127.5	SB : 186 · SE : 176

 ■ 轉動慣量 (kg.cm²) Mass Moments of Inertia

Ratio	270	330
15	63.81	185.05
20	63.81	185.05
25	63.81	185.05
30	63.25	183.43
35	63.25	183.43
40	63.25	183.43
50	63.25	183.43
70	61.12	177.26
100	60.48	175.39

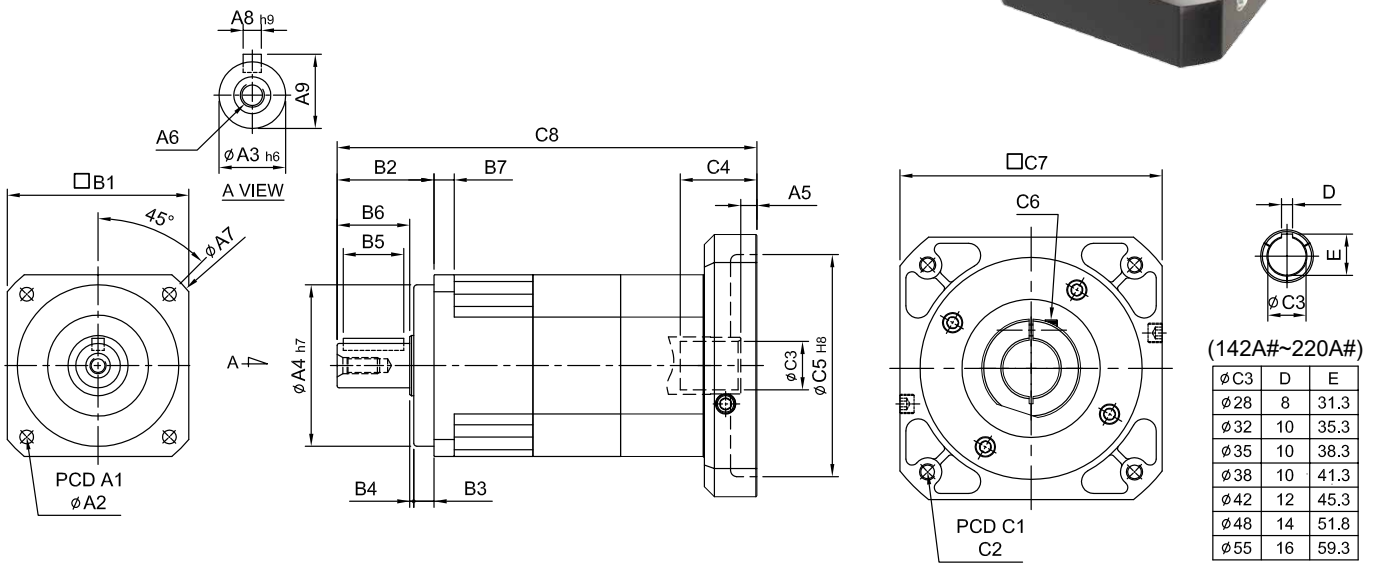
SERVOBOX Planetary Reducers



MODEL : SB-A

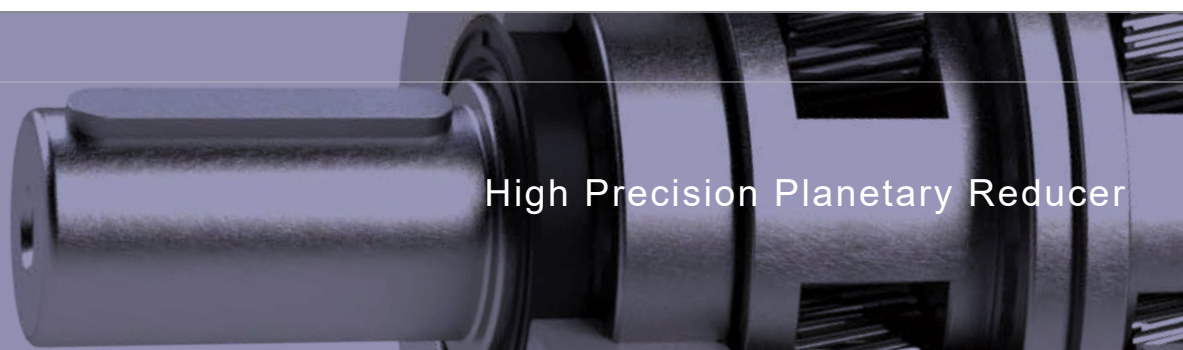
雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit: mm

Model Code	44A	62A	90A	120A	142A	180A	220A
A							
A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	13	16	22	32	40	55	75
A4	35	50	80	110	130	160	180
A5	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	58	80	116	148	186	238	288
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B							
B1	44	62	90	120	142	180	220
B2	26	36	48	65	92	106	139
B3	5	7	10	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
C							
C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12	M12 · M16
C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	26 · 30.5	33.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5	117.5 · 119.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.5	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265
C8	121	148.8	208 · 222.5	261 · 271	327	404.5	460.5



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44A	62A	90A	120A	142A	180A	220A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	19	59	165	335	625	1,206	2,030
			20	16	51	146	300	555	1,069	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			50	16	48	160	333	618	1,189	2,010
			60	15	45	151	311	583	1,118	1,911
			70	15	45	149	309	573	1,108	1,870
			80	14	43	143	298	553	1,070	1,824
			90	13	44	145	278	516	993	1,694
100	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 100	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	15 ~ 100	≥ 94%						
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C						
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			15 ~ 100	IP65						
安裝方向 Mounting Position			15 ~ 100	任意方向 Any						
噪音值 Noise Level		dB	15 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	15 ~ 100	0.6	2	5.5	11	21	42	59

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.03	0.14	0.46	2.63	7.30	22.79	56.98
20	0.03	0.14	0.46	2.63	7.30	22.79	56.98
25	0.03	0.14	0.46	2.63	7.10	22.79	56.98
30	0.03	0.14	0.46	2.43	7.10	22.59	56.48
35	0.03	0.14	0.44	2.43	7.10	22.59	56.48
40	0.03	0.14	0.44	2.43	6.92	22.59	56.48
50	0.03	0.14	0.44	2.43	6.92	22.59	56.48
60	0.03	0.14	0.43	2.39	6.72	21.83	54.58
70	0.03	0.14	0.43	2.39	6.72	21.83	54.58
80	0.03	0.14	0.43	2.39	6.72	21.83	54.58
90	0.03	0.14	0.40	2.39	6.72	21.60	54.00
100	0.03	0.14	0.43	2.39	6.72	21.83	54.58

SERVOBOX Planetary Reducers

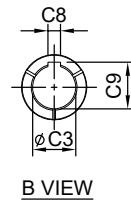
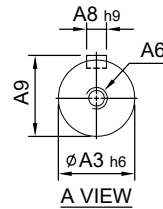
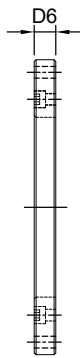
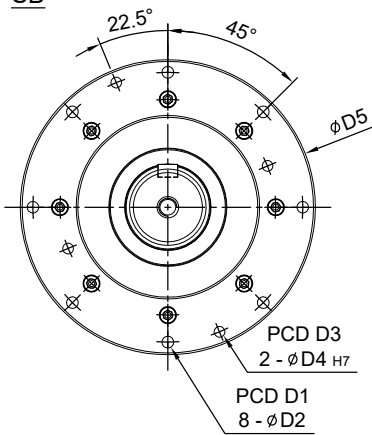
MODEL: SB-A SE-A

雙段 2-Stage

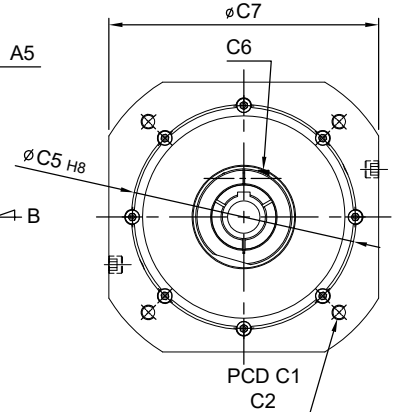
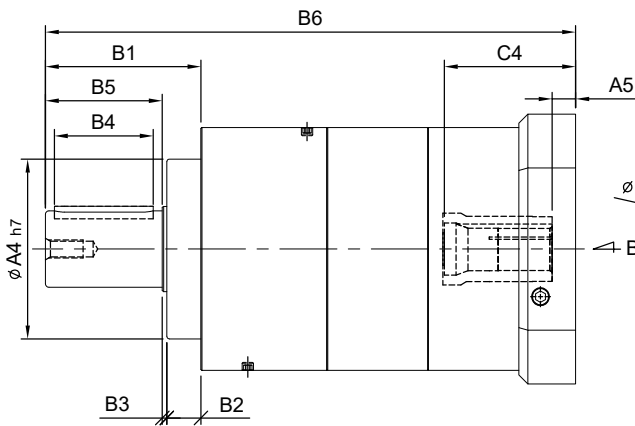
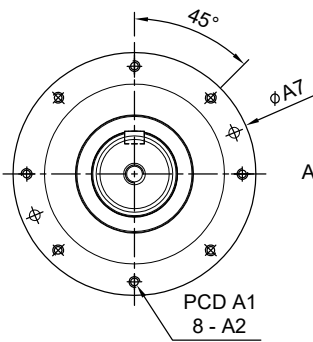
RATIO : 15, 20, 25, 30, 35,
40, 50, 70, 100



SB



SE

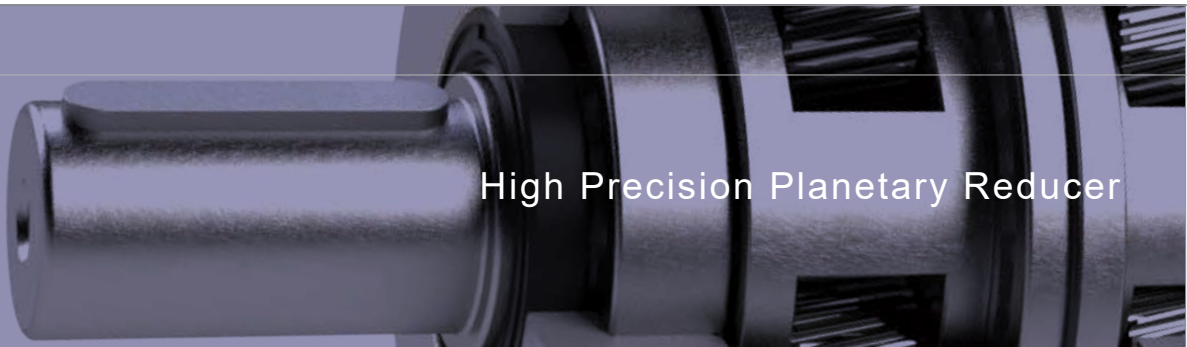


unit: mm

Model	270A
Code	
A1	240
A2	M12 x P1.75
A3	85
A4	200
A5	26 · 23
A6	M20 x P2.5
A7	270
A8	22
A9	90
B1	173
B2	38
B3	5
B4	110
B5	130
B6	586.5 · 589.5

unit: mm

Model	270A
Code	
C1	265 · 300 · 350
C2	M12 · M16 · M18
C3	48 · 55 · 60
C4	143 · 146 · 149
C5	230 · 250 · 300
C6	M12 x P1.75
C7	280 · 300 · 330
C8	14 · 16 · 18
C9	51.8 · 59.3 · 64.4
D1	300
D2	13
D3	300
D4	12
D5	328
D6	24



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	270A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	4,770
			20	4,730
			25	4,680
			30	4,770
			35	4,570
			40	4,730
			50	4,680
			70	4,570
100	4,420			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 100	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 100	3,000
背隙 Backlash P _s		arcmin	15 ~ 100	≤ 3
背隙 Backlash P ₀		arcmin	15 ~ 100	≤ 5
背隙 Backlash P ₁		arcmin	15 ~ 100	≤ 7
背隙 Backlash P ₂		arcmin	15 ~ 100	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	510
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	107,100
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	53,550
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)
效率 Efficiency	η	%	15 ~ 100	≥ 94%
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease
防護等級 Protection Class			15 ~ 100	IP65
安裝方向 Mounting Position			15 ~ 100	任意方向 Any
噪音值 Noise Level		dB	15 ~ 100	≤ 72
重量 Weight ±3%		Kg	15 ~ 100	SB : 146 · SE : 136.5

■ 轉動慣量 (kg.cm²) Mass Moments of Inertia

Ratio	270A
15	65.74
20	65.74
25	65.74
30	64.86
35	64.86
40	64.86
50	64.86
70	62.62
100	61.17

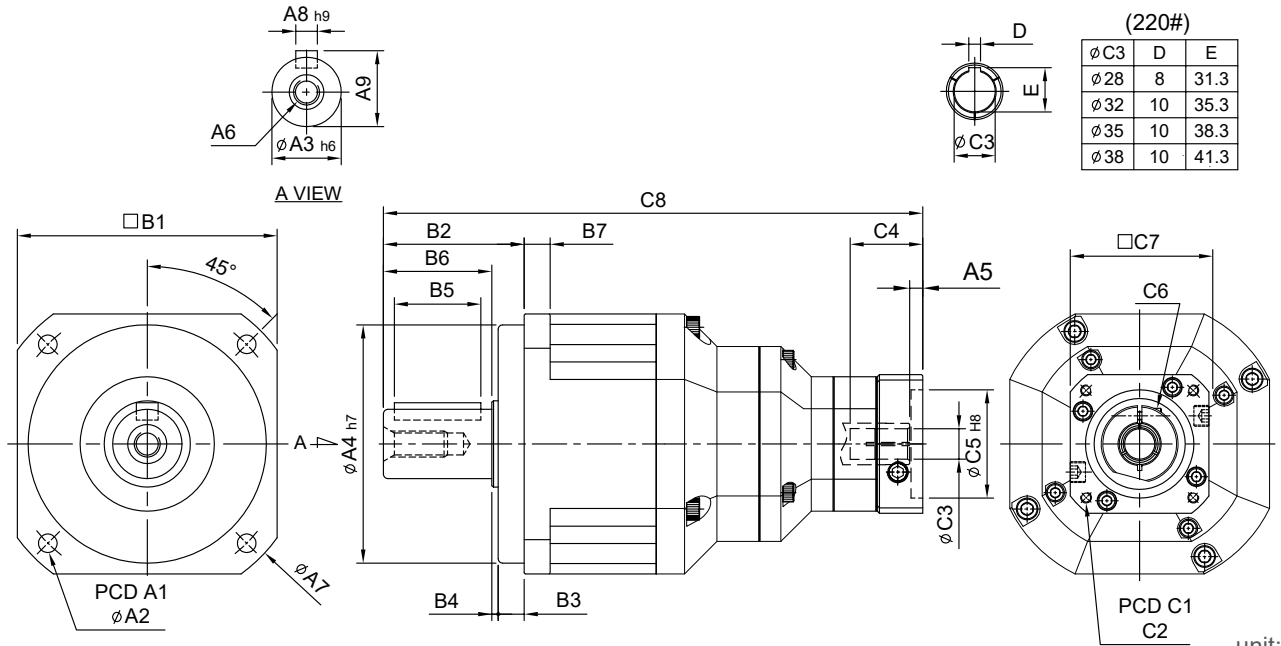
SERVOBOX Planetary Reducers



MODEL : SB

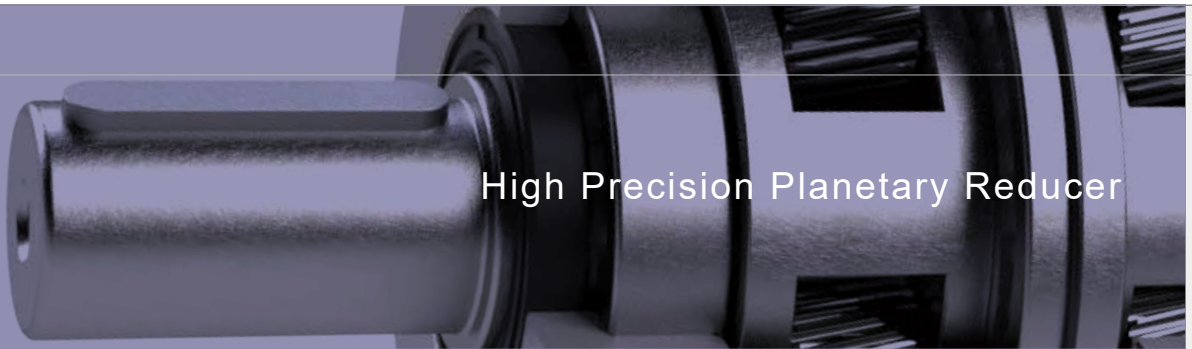
三段 3-Stage

RATIO : 125, 150, 175, 200, 250, 300, 350,
400, 450, 500, 600, 700, 800, 900, 1000



unit: mm

Model Code	90	120	142	180	220
A A1	100	130	165	215	250
A2	6.8	9	11	13	17
A3	22	32	40	55	75
A4	80	110	130	160	180
A5	5	6	9 · 23.5	10 · 20	10
A6	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	116	148	186	238	288
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
B B1	90	120	142	180	220
B2	48	65	92	106	139
B3	10	12	15	20	30
B4	2	3	3	4	5
B5	30	40	65	70	90
B6	36	50	74	82	104
B7	10	12	15	16	20
C C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12
C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38
C4	26 · 30.5	33.5 · 41.5	59 · 73.5	67 · 77	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	197	249 · 257	334.5 · 349	396.5 · 406.5	481.5



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	125	160	333	618	1,189	2,010
			150	165	335	583	1,206	2,030
			175	149	309	573	1,108	1,870
			200	146	300	555	1,069	1,804
			250	160	333	618	1,189	2,010
			300	151	311	583	1,118	1,911
			350	149	309	573	1,108	1,870
			400	143	298	553	1,070	1,824
			450	145	278	516	993	1,694
			500	160	333	618	1,189	2,010
			600	151	311	583	1,118	1,911
			700	149	309	573	1,108	1,870
800	143	298	553	1,070	1,824			
900	145	278	516	993	1,694			
1000	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	125 ~ 1000	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	125 ~ 1000	3 倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	125 ~ 1000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	125 ~ 1000	-	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P0		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
扭轉剛性 Torsional Rigidity		Nm/arcmin	125 ~ 1000	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	125 ~ 1000	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	125 ~ 1000	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	125 ~ 1000	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	125 ~ 1000	≥ 90%				
使用溫度 Operating Temperature		°C	125 ~ 1000	- 25° C ~ + 90° C				
潤滑 Lubrication			125 ~ 1000	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			125 ~ 1000	IP65				
安裝方向 Mounting Position			125 ~ 1000	任意方向 Any				
噪音值 Noise Level		dB	125 ~ 1000	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	125 ~ 1000	5.2	10	18.1	35	63.7

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	90	120	142	180	220
125	0.01	0.04	0.71	1.42	3.29
150	0.01	0.04	0.51	0.92	2.15
175	0.01	0.04	0.40	0.83	1.26
200	0.01	0.04	0.21	0.65	0.98
250	0.01	0.04	0.11	0.52	0.82
300	0.01	0.04	0.09	0.21	0.82
350	0.01	0.04	0.09	0.21	0.82
400	0.01	0.04	0.09	0.21	0.82
450	0.01	0.04	0.09	0.21	0.51
500	0.01	0.04	0.08	0.12	0.51
600	0.01	0.04	0.08	0.12	0.25
700	0.01	0.04	0.08	0.12	0.25
800	0.01	0.04	0.08	0.12	0.25
900	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.04	0.08	0.12	0.25

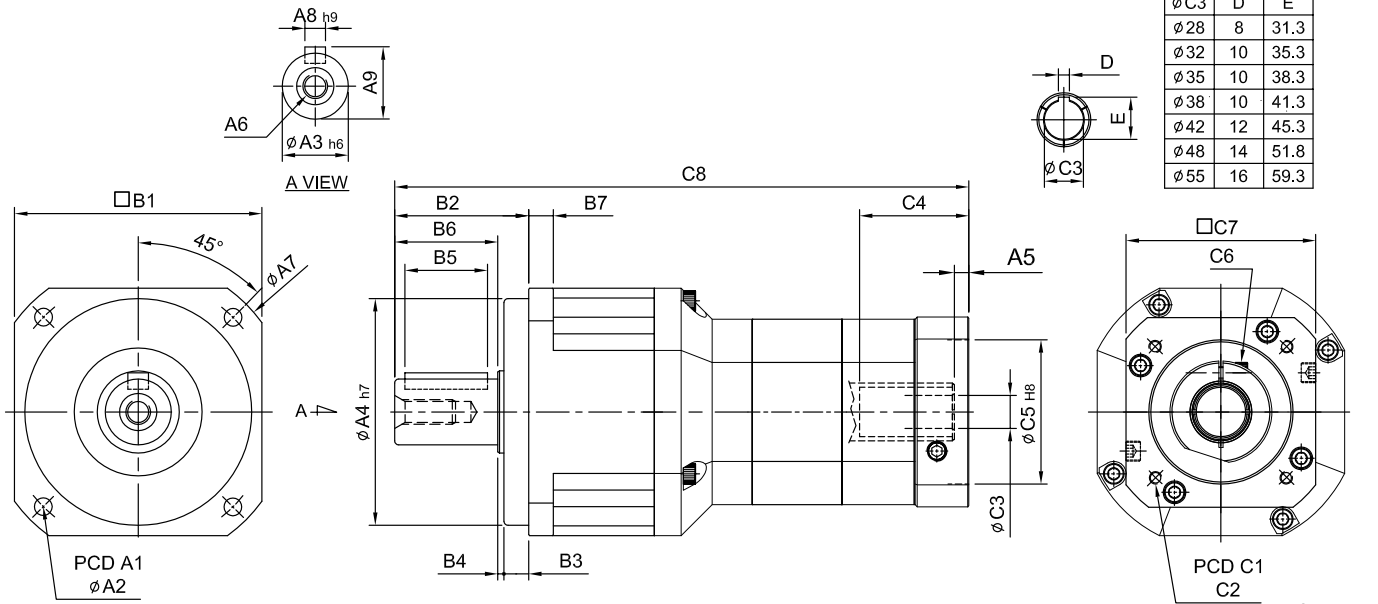
SERVOBOX Planetary Reducers



MODEL : SB-A

三段 3-Stage

RATIO : 125, 150, 175, 200, 250, 300, 350,
400, 450, 500, 600, 700, 800, 900, 1000

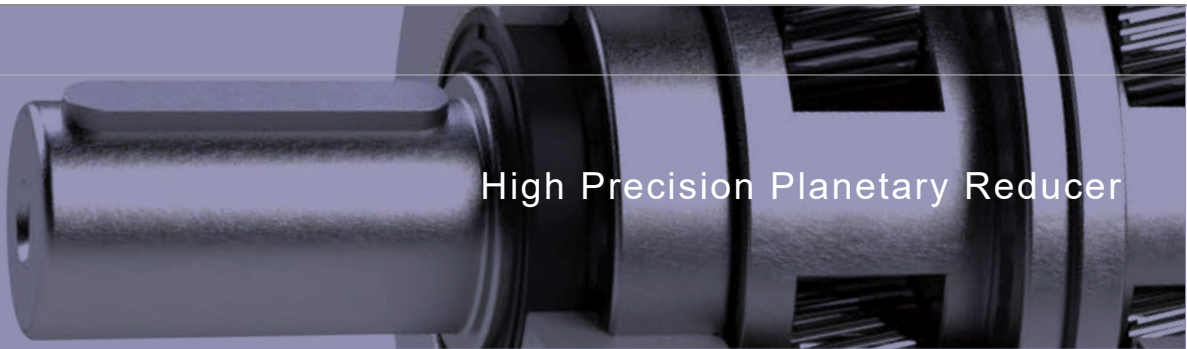


(180A#~220A#)

φC3	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	62A	90A	120A	142A	180A	220A
A						
A1	70	100	130	165	215	250
A2	5.5	6.8	9	11	13	17
A3	16	22	32	40	55	75
A4	50	80	110	130	160	180
A5	5	6	9・23.5	10・20	10	11.5・13.5
A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	80	116	148	186	238	288
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B						
B1	62	90	120	142	180	220
B2	36	48	65	92	106	139
B3	7	10	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
B7	8	10	12	15	16	20
C						
C1	46・63・60	70・75・90	90・100・115・145	115・145・165	145・165・215	200・215・265
C2	M3・M4・M5	M4・M5・M6	M5・M6・M8	M6・M8・M10	M8・M10・M12	M10・M12
C3	8・9・11	11・14・16・19	16・19・22・24	22・24・28・32	28・32・35・38	35・38・42・48・55
C4	26・30.5	33.5・41.5	59・73.5	67・77	84.5	114.5・116.5
C5	30・40・50	50・60・70	70・80・95・110	95・110・130	110・130・180	114.3・180・230
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46・55	64・70・80	92・110・130	122・130・150	146・150・190	182・200・250
C8	165.5	206.3・214.3	284.5・299	354.5・364.5	425	527.5



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62A	90A	120A	142A	180A	220A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	125	48	160	333	618	1,189	2,010
			150	59	165	335	583	1,206	2,030
			175	45	149	309	573	1,108	1,870
			200	51	146	300	555	1,069	1,804
			250	48	160	333	618	1,189	2,010
			300	45	151	311	583	1,118	1,911
			350	45	149	309	573	1,108	1,870
			400	43	143	298	553	1,070	1,824
			450	44	145	278	516	993	1,694
			500	48	160	333	618	1,189	2,010
			600	45	151	311	583	1,118	1,911
			700	45	149	309	573	1,108	1,870
800	43	143	298	553	1,070	1,824			
900	44	145	278	516	993	1,694			
1000	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	125 ~ 1000	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque					
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	125 ~ 1000	3 倍額定輸出力矩 3 Times of Rated Output Torque					
急停扭矩 Emergency Stop Torque				3 倍額定輸出力矩 3 Times of Rated Output Torque					
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	125 ~ 1000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	125 ~ 1000	-	-	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P0		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
扭轉剛性 Torsional Rigidity		Nm/arcmin	125 ~ 1000	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	125 ~ 1000	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	125 ~ 1000	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	125 ~ 1000	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	125 ~ 1000	≥ 90%					
使用溫度 Operating Temperature		°C	125 ~ 1000	-25° C ~ +90° C					
潤滑 Lubrication			125 ~ 1000	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			125 ~ 1000	IP65					
安裝方向 Mounting Position			125 ~ 1000	任意方向 Any					
噪音值 Noise Level		dB	125 ~ 1000	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	125 ~ 1000	4	6.5	13	30	57	87

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	62A	90A	120A	142A	180A	220A
125	0.01	0.01	0.04	0.71	1.42	3.29
150	0.01	0.01	0.04	0.51	0.92	2.15
175	0.01	0.01	0.04	0.40	0.83	1.26
200	0.01	0.01	0.04	0.21	0.65	0.98
250	0.01	0.01	0.04	0.11	0.52	0.82
300	0.01	0.01	0.04	0.09	0.21	0.82
350	0.01	0.01	0.04	0.09	0.21	0.82
400	0.01	0.01	0.04	0.09	0.21	0.82
450	0.01	0.01	0.04	0.09	0.21	0.51
500	0.01	0.01	0.04	0.08	0.12	0.51
600	0.01	0.01	0.04	0.08	0.12	0.25
700	0.01	0.01	0.04	0.08	0.12	0.25
800	0.01	0.01	0.04	0.08	0.12	0.25
900	0.01	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.01	0.04	0.08	0.12	0.25

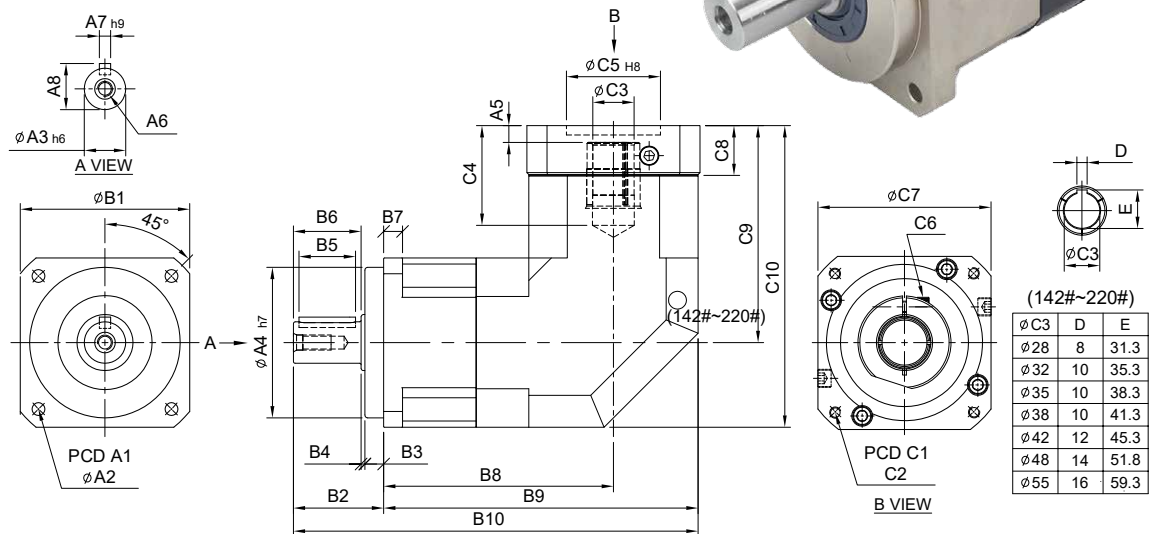
SERVOBOX Planetary Reducers



MODEL : SBL

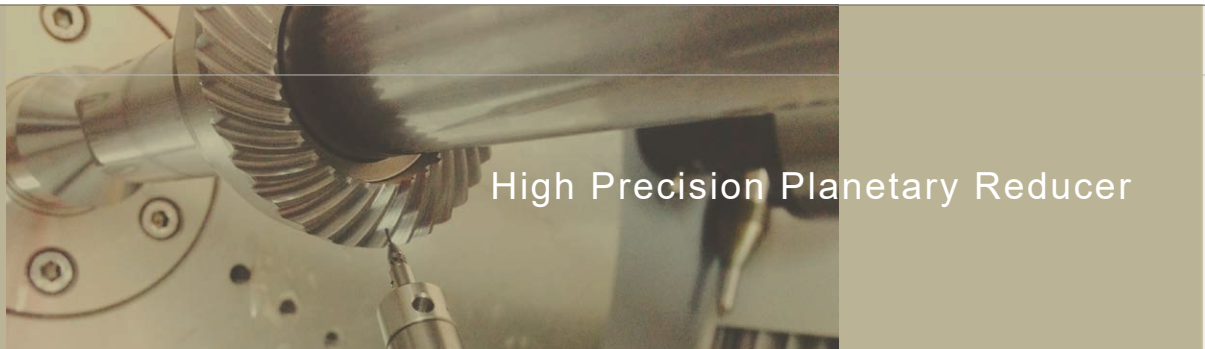
單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20



unit: mm

Model Code	44	62	90	120	142	180	220
A	A1	50	70	100	130	165	250
	A2	4.5	5.5	6.8	9	11	17
	A3	13	16	22	32	40	75
	A4	35	50	80	110	130	180
	A5	6	6	9·23.5	10·20	10	12.5·14.5
	A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	5	6	10	12	20
	A8	15	18	24.5	35	43	79.5
B	B1	44	62	90	120	142	180
	B2	26	36	48	65	92	139
	B3	5	7	10	12	15	30
	B4	1	1	2	3	3	5
	B5	15	20	30	40	65	90
	B6	20	28	36	50	74	104
	B7	5	8	10	12	15	20
	B8	76	84.5	122.1	148	165.5	223.6
	B9	98	115.5	167.1	208	236.5	341.6
	B10	124	151.5	215	273	328.5	480.6
C	C1	46·60·63	70·75·90	90·110·115·145	115·145·165	145·165·215	200·215·265
	C2	M3·M4·M5	M4·M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12	M10·M12·M16
	C3	8·11	11·14·16·19	16·19·22·24	24·28·32	28·32·35·38	35·38·42·48·55
	C4	27	33.5·42	53·58·67.5	67·77	67·84	117·119
	C5	30·40·50	50·60·70	70·80·95·110	95·110·130	110·130·180	114.3·180·230
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	46·55	64·70·80	92·110·130	122·130·150	146·150·190	182·200·250
	C8	16	21.5	26.5·41	35.5·45.5	35.5	45.5·47.5
	C9	61	77·85	115.3·129.8	141·151	165.7	235·237
	C10	83	108·116	160.3·174.8	201·211	236.7	325·327



規格 Parameter	代號	單位 Unit	速比 Ratio	44	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			9	13	44	145	278	516	993	1,694
			10	14	43	141	294	549	1,059	1,779
			12	15	45	151	311	583	1,118	1,911
			14	15	45	149	309	573	1,108	1,870
			16	14	43	143	298	553	1,070	1,824
18	13	44	145	278	516	993	1,694			
20	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 20	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 20	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 20	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	3 ~ 20	-	-	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
背隙 Backlash P0		arcmin	3 ~ 20	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P1		arcmin	3 ~ 20	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 Backlash P2		arcmin	3 ~ 20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 20	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 20	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 20	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	3 ~ 20	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	3 ~ 20	≥ 95%						
使用溫度 Operating Temperature		°C	3 ~ 20	- 25 °C ~ + 90 °C						
潤滑 Lubrication			3 ~ 20	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			3 ~ 20	IP65						
安裝方向 Mounting Position			3 ~ 20	任意方向 Any						
噪音值 Noise Level		dB	3 ~ 20	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	3 ~ 20	1	2.3	6.6	13.2	22.3	50	75.2

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

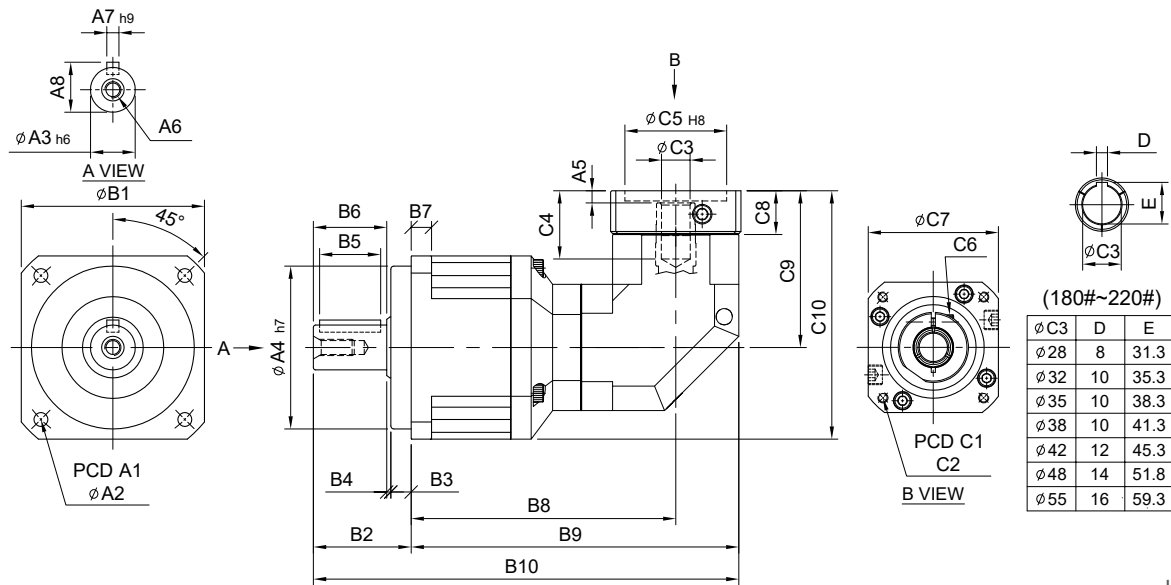
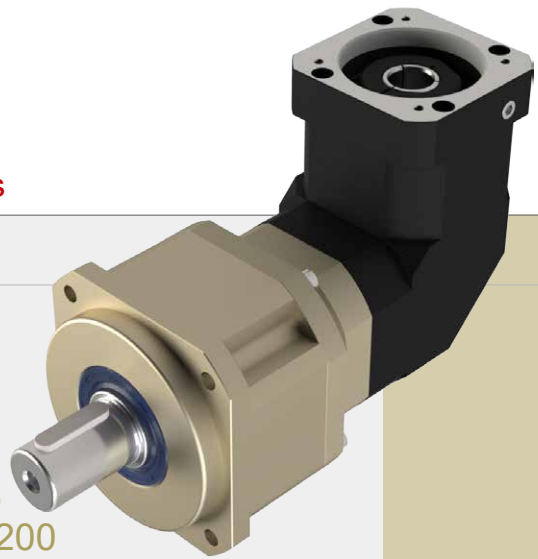
Ratio	44	62	90	120	142	180	220
3	0.09	0.36	2.28	6.85	23.5	68.2	135
4	0.09	0.36	2.28	6.85	23.5	68.2	135
5	0.09	0.36	2.28	6.85	23.5	68.2	135
6	0.09	0.36	2.28	6.85	23.5	68.2	135
7	0.09	0.36	2.28	6.85	23.5	68.2	135
8	0.09	0.36	2.28	6.85	23.5	68.2	135
9	0.09	0.36	2.28	6.85	23.5	68.2	135
10	0.09	0.36	2.28	6.85	23.5	68.2	135
12	0.03	0.08	1.88	6.2	21.8	65.5	119.2
14	0.03	0.08	1.88	6.2	21.8	65.5	119.2
16	0.03	0.08	1.88	6.2	21.8	65.5	119.2
18	0.03	0.08	1.88	6.2	21.8	65.5	119.2
20	0.03	0.08	1.88	6.2	21.8	65.5	119.2

SERVOBOX Planetary Reducers

MODEL : SBL

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70,
80, 90, 100, 120, 140, 160, 180, 200



unit: mm

Model Code	62	90	120	142	180	220	
A	A1	70	100	130	165	215	250
	A2	5.5	6.8	9	11	13	17
	A3	16	22	32	40	55	75
	A4	50	80	110	130	160	180
	A5	6	6	9 · 23.5	10 · 20	10	12.5 · 14.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
	A7	5	6	10	12	16	20
	A8	18	24.5	35	43	59	79.5
B	B1	62	90	120	142	180	220
	B2	36	48	65	92	106	139
	B3	7	10	12	15	20	30
	B4	1	2	3	3	4	5
	B5	20	30	40	65	70	90
	B6	28	36	50	74	82	104
	B7	8	10	12	15	16	20
	B8	110.5	130	181.6	214.5	249.5	313.6
	B9	132.5	161	266.6	274.5	320.5	403.6
	B10	168.5	209	291.6	366.5	426.5	542.6
C	C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8 · M10	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	C3	8 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	C4	27	33.5 · 42	53 · 58 · 67.5	67 · 77	67 · 84	117 · 119
	C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
	C8	16	21.5	26.5 · 41	35.5 · 45.5	35.5	45.5 · 47.5
	C9	61	77 · 85	115.3 · 129.8	141 · 151	165.7	235 · 237
	C10	92	122 · 130	175.3 · 189.8	212 · 222	255.7	345 · 347



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
			90	44	145	278	516	993	1,694
			100	43	141	294	549	1,059	1,779
			120	45	151	311	583	1,118	1,911
			140	45	149	309	573	1,108	1,870
			160	43	143	298	553	1,070	1,824
180	44	145	278	516	993	1,694			
200	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 200	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque					
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque					
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 200	6,000	6,000	5,000	5,000	4,000	4,000
背隙 Backlash Ps		arcmin	15 ~ 200	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 200	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 200	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 200	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	15 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	15 ~ 200	≥ 92%					
使用溫度 Operating Temperature		°C	15 ~ 200	- 25° C ~ + 90° C					
潤滑 Lubrication			15 ~ 200	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			15 ~ 200	IP65					
安裝方向 Mounting Position			15 ~ 200	任意方向 Any					
噪音值 Noise Level		dB	15 ~ 200	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	15 ~ 200	2	5.5	12.5	23.2	44.4	79.5

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

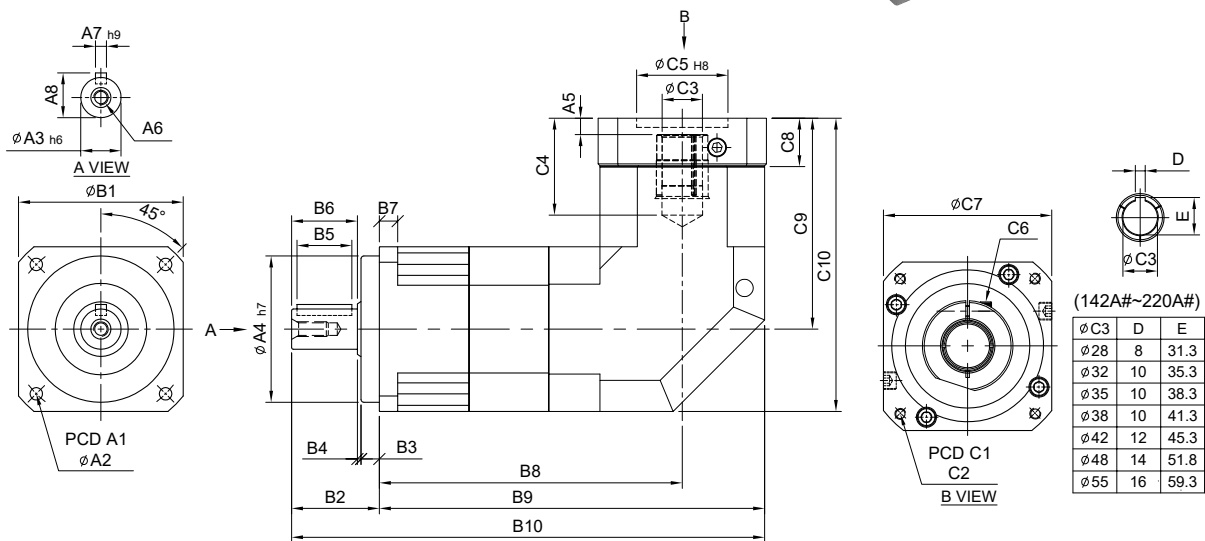
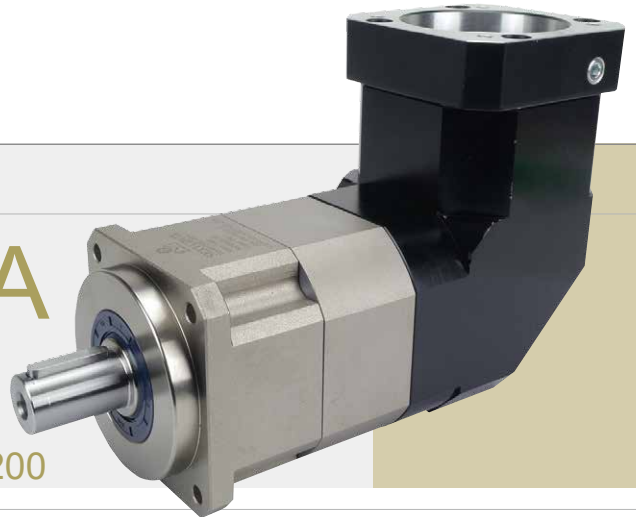
Ratio	62	90	120	142	180	220
15	0.09	0.36	2.28	6.85	26.2	70.1
20	0.09	0.36	2.28	6.85	26.2	70.1
25	0.09	0.36	2.28	6.85	23.1	68.2
30	0.09	0.36	2.28	6.85	23.1	68.2
35	0.09	0.36	2.28	6.85	23.1	68.2
40	0.09	0.36	2.28	6.85	23.1	68.2
50	0.09	0.36	2.28	6.85	23.1	68.2
60	0.09	0.36	2.28	6.85	23.1	68.2
70	0.09	0.36	2.28	6.85	23.1	68.2
80	0.09	0.36	2.28	6.85	23.1	68.2
90	0.09	0.36	2.28	6.85	23.1	68.2
100	0.09	0.36	2.28	6.85	23.1	68.2
120	0.03	0.10	1.88	6.20	21.2	65.1
140	0.03	0.10	1.88	6.20	21.2	65.1
160	0.03	0.10	1.88	6.20	21.2	65.1
180	0.03	0.10	1.88	6.20	21.2	65.1
200	0.03	0.10	1.88	6.20	21.2	65.1

SERVOBOX Planetary Reducers

MODEL : SBL-A

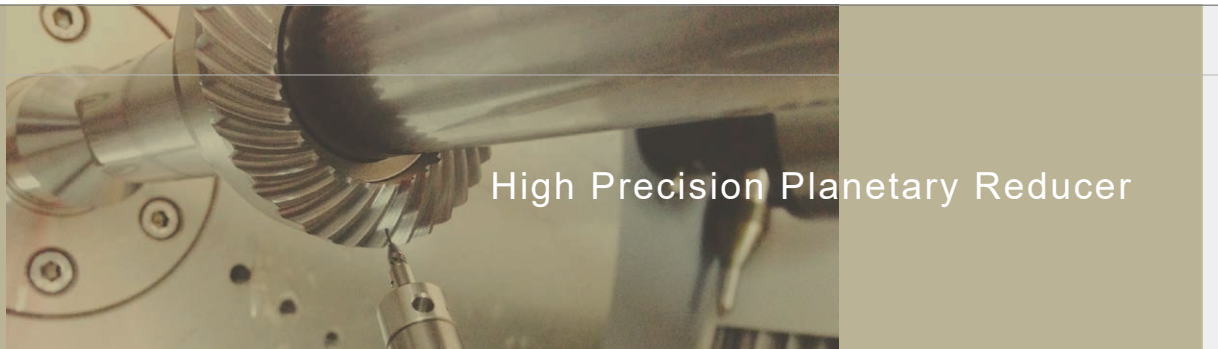
雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70,
80, 90, 100, 120, 140, 160, 180, 200



unit: mm

Model Code	44A	62A	90A	120A	142A	180A	220A
A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	13	16	22	32	40	55	75
A4	35	50	80	110	130	160	180
A5	6	6	9 · 23.5	10 · 20	10	12.5 · 14.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	5	5	6	10	12	16	20
A8	15	18	24.5	35	43	59	79.5
B1	44	62	90	120	142	180	220
B2	26	36	48	65	92	106	139
B3	5	7	10	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	5	8	10	12	15	16	20
B8	102	118.3	165.6	204	232	304.6	324.6
B9	124	149.3	210.6	264	303	394.6	434.6
B10	150	185.3	258.6	329	395	500.6	573.6
C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16
C3	8 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	27	33.5 · 42	53 · 58 · 67.5	67 · 77	67 · 84	117 · 119	117 · 119
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	220 · 250 · 265
C8	16	21.5	26.5 · 41	35.5 · 45.5	35.5	45.5 · 47.5	45.5 · 47.5
C9	61	77	115.3 · 129.8	141 · 151	165.7	235 · 237	235 · 237
C10	83	108	160.3 · 174.8	201 · 211	236.7	325 · 327	345 · 347



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44A	62A	90A	120A	142A	180A	220A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	19	59	165	335	625	1,206	2,030
			20	16	51	146	300	555	1,069	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			50	16	48	160	333	618	1,189	2,010
			60	15	45	151	311	583	1,118	1,911
			70	15	45	149	309	573	1,108	1,870
			80	14	43	143	298	553	1,070	1,824
			90	13	44	145	278	516	993	1,694
			100	14	43	141	294	549	1,059	1,779
			120	15	45	151	311	583	1,118	1,911
			140	15	45	149	309	573	1,108	1,870
160	14	43	143	298	553	1,070	1,824			
180	13	44	145	278	516	993	1,694			
200	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 200	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 200	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	15 ~ 200	-	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 200	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 200	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 200	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_{H1}	hr	15 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	15 ~ 200	≥ 92%						
使用溫度 Operating Temperature		°C	15 ~ 200	- 25° C ~ + 90° C						
潤滑 Lubrication			15 ~ 200	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			15 ~ 200	IP65						
安裝方向 Mounting Position			15 ~ 200	任意方向 Any						
噪音值 Noise Level		dB	15 ~ 200	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	15 ~ 200	1.2	3	8.2	12.5	23.2	52.4	94.5

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.09	0.36	2.28	6.85	23.45	55.2	80.2
20	0.09	0.36	2.28	6.85	23.45	55.2	80.2
25	0.09	0.36	2.28	6.85	23.45	50.4	76.5
30	0.09	0.36	2.28	6.85	23.5	50.4	76.5
35	0.09	0.36	2.28	6.85	23.5	50.4	76.5
40	0.09	0.36	2.28	6.85	23.5	50.4	76.5
50	0.09	0.36	2.28	6.85	23.5	50.4	76.5
60	0.09	0.36	2.28	6.85	23.5	50.4	76.5
70	0.09	0.36	2.28	6.85	23.5	50.4	76.5
80	0.09	0.36	2.28	6.85	23.5	50.4	76.5
90	0.09	0.36	2.28	6.85	23.5	50.4	76.5
100	0.09	0.36	2.28	6.85	23.5	50.4	76.5
120	0.03	0.08	1.88	6.2	21.8	48.7	74.2
140	0.03	0.08	1.88	6.2	21.8	48.7	74.2
160	0.03	0.08	1.88	6.2	21.8	48.7	74.2
180	0.03	0.08	1.88	6.2	21.8	48.7	74.2
200	0.03	0.08	1.88	6.2	21.8	48.7	74.2

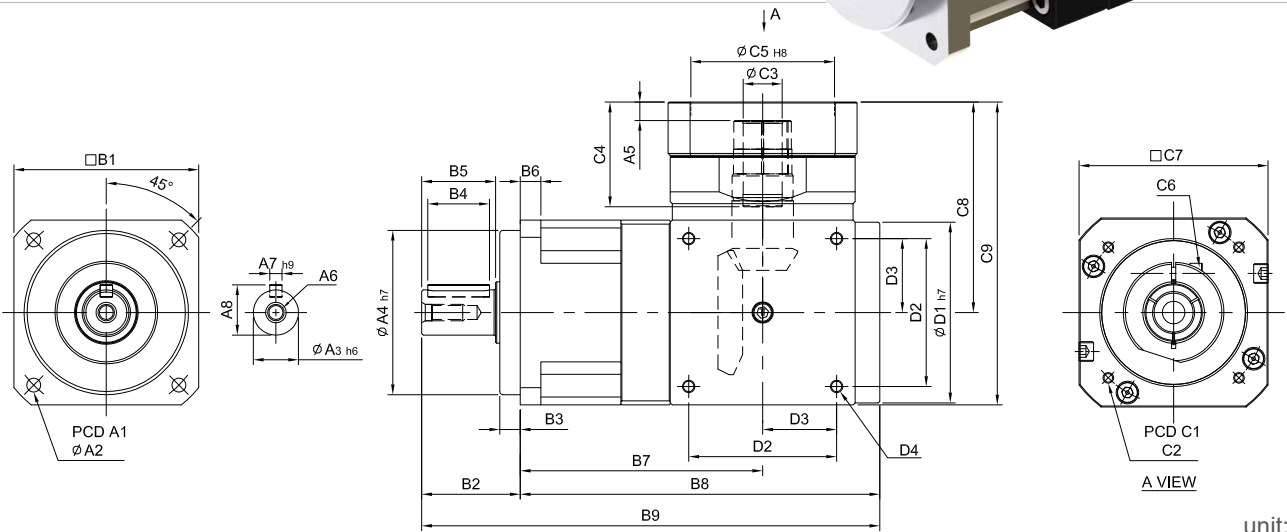
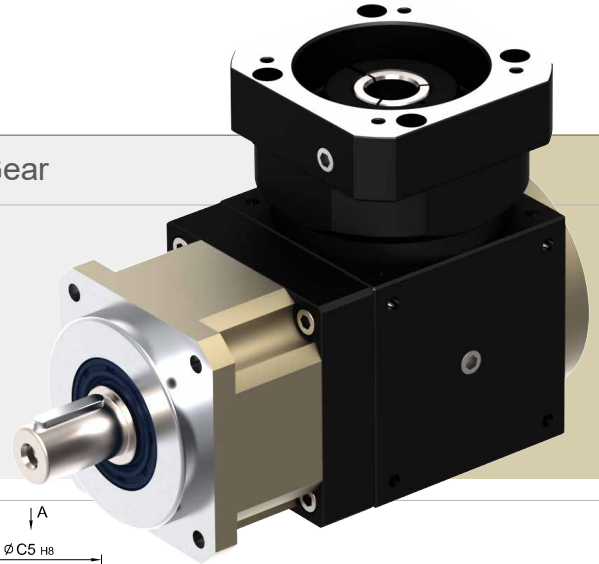
SERVOBOX Planetary Reducers

螺旋齒輪 Helical Gear & 螺旋傘齒輪 Spiral Bevel Gear

MODEL : SBT

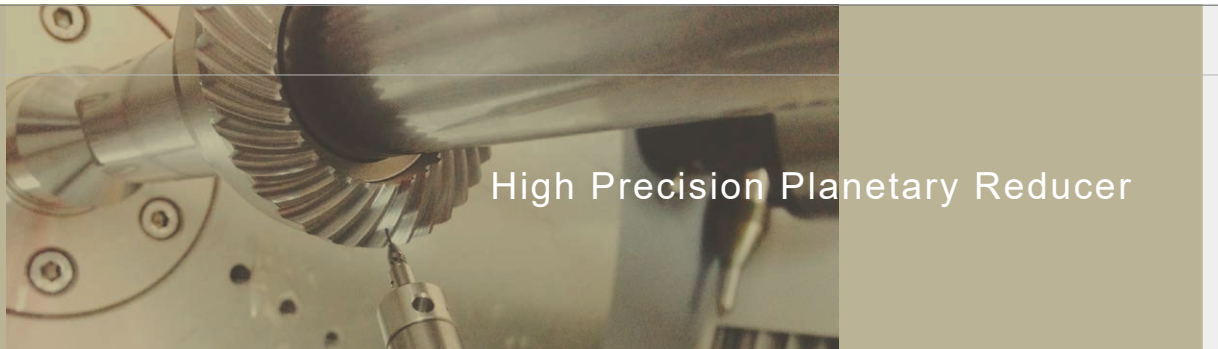
單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10, 15,
20, 25, 30, 35, 40, 45, 50



unit: mm

Model Code	44	62	90	120	142	180	220	
A	A1	50	70	100	130	165	215	250
	A2	4.5	5.5	6.8	9	11	13	17
	A3	13	16	22	32	40	55	75
	A4	35	50	80	110	130	160	180
	A5	5	7	9 · 23.5	9 · 23.5	10	9.5	14 · 16
	A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16xP2.0
	A7	5	5	6	10	12	16	20
	A8	15	18	24.5	35	43	59	79.5
	B	B1	44	62	90	120	142	180
B2		26	36	48	65	92	106	139
B3		5	7	10	12	15	20	30
B4		15	20	30	40	65	70	90
B5		20	28	36	50	74	82	104
B6		5	8	10	12	15	16	20
B7		67.5	87.5	118	145	175	207	237
B8		99.5	128	175	215	260	307	360
B9		125.5	164	223	280	352	413	499
C	C1	46	70 · 75 · 90	90 · 100 · 115 · 145	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M4	M4 · M5 · M6	M5 · M6 · M8	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	C3	8	11 · 14	19 · 24	22 · 24	28 · 32 · 35	35 · 38	42 · 48 · 55
	C4	26	36	51 · 65.5	51 · 65.5	68	84.5	117 · 119
	C5	30	50 · 60 · 70	70 · 80 · 95 · 110	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10xP1.5
	C7	42	64 · 70 · 80	92 · 110 · 130	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
	C8	57	77	103 · 117	122 · 136	154	189	252 · 254
	C9	82	110	148 · 162	182 · 196	225	279	362 · 364
D	D1	48	62	88	106	135	164	205
	D2	-	52	72	88	110	134	170
	D3	-	26	36	44	55	67	85
	D4	-	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16xP2.0



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			9	13	44	145	278	516	993	1,694
			10	16	48	160	333	618	1,189	1,779
			15	16	48	160	333	618	1,189	2,030
			20	16	48	160	333	618	1,189	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			45	13	44	145	278	516	993	1,694
50	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 50	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	3 ~ 50	3 倍額定輸出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque										
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 50	3,000	3,000	3,000	2,500	2,500	2,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 50	6,000	6,000	5,500	4,500	3,500	3,000	3,000
背隙 Backlash Ps		arcmin	3 ~ 50	-	-	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
背隙 Backlash P0		arcmin	3 ~ 50	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P1		arcmin	3 ~ 50	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 Backlash P2		arcmin	3 ~ 50	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 50	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 50	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 50	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	3 ~ 50	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	3 ~ 50	≥ 95%						
使用溫度 Operating Temperature		°C	3 ~ 50	-25° C ~ +90° C						
潤滑 Lubrication			3 ~ 50	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			3 ~ 50	IP65						
安裝方向 Mounting Position			3 ~ 50	任意方向 Any						
噪音值 Noise Level		dB	3 ~ 50	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 76
重量 Weight ±3%		Kg	3 ~ 50	1.2	2.2	7.1	13	24	48	78

行星減速機搭配傘齒輪減速機型號及速比一覽表

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

型號 Model	減速比 Ratio	法蘭盤框號 Flange Model	傘齒輪減速機 Bevel Gear Reducer Model
44		44	-
62		62	ST65
90	3·4·5·6·7 8·9·10·15·20 25·30·35·40 45·50	90	ST90
120		90	ST110
142		120	ST140
180		142	ST170
220		180	ST210

轉動慣量 Mass Moments of Inertia (kg.cm²)

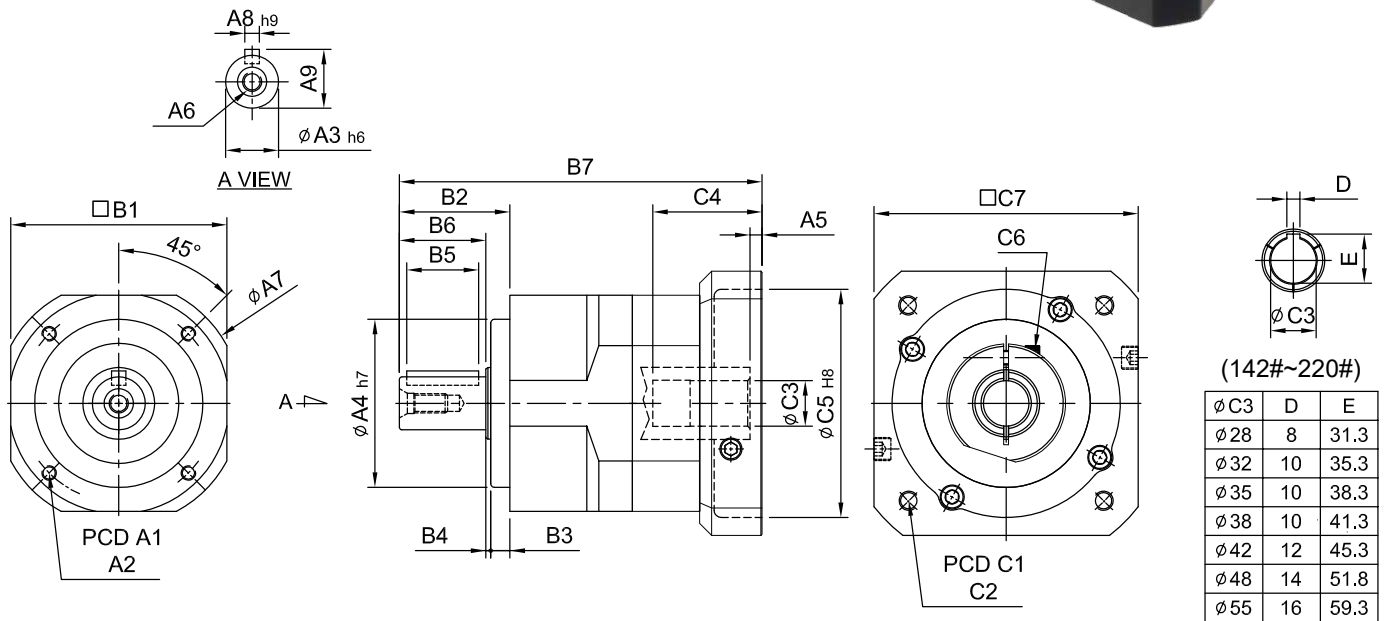
Ratio	44	62	90	120	142	180	220
3	0.09	0.36	2.28	6.85	23.5	68.2	135
4	0.09	0.36	2.28	6.85	23.5	68.2	135
5	0.09	0.36	2.28	6.85	23.5	68.2	135
6	0.09	0.36	2.28	6.85	23.5	68.2	135
7	0.09	0.36	2.28	6.85	23.5	68.2	135
8	0.09	0.36	2.28	6.85	23.5	68.2	135
9	0.09	0.36	2.28	6.85	23.5	68.2	135
10	0.09	0.36	2.28	6.85	23.5	68.2	135
15	0.06	0.22	2.05	6.21	21.2	61.3	135
20	0.06	0.22	2.05	6.21	21.2	61.3	135
25	0.06	0.22	2.05	6.21	21.2	61.3	135
30	0.06	0.22	2.05	6.21	21.2	61.3	135
35	0.06	0.22	2.05	6.21	21.2	61.3	135
40	0.06	0.22	2.05	6.21	21.2	61.3	135
45	0.06	0.22	2.05	6.21	21.2	61.3	135
50	0.06	0.22	2.05	6.21	21.2	61.3	135

SERVOBOX Planetary Reducers

MODEL : SE

單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10



unit: mm

Model Code	44	62	90	120	142	180	220
A							
A1	44	62	82	110	140	184	218
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	13	16	22	32	40	55	75
A4	35	50	70	90	120	160	180
A5	5	6	9 · 23.5	10 · 20	10	11.5 · 14.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	50	70	102	134	166	215	252
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B							
B1	44	62	90	120	142	180	220
B2	26	36	46	65	92	106	139
B3	5	7	8	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	95	115 · 123	164.5 · 179	205 · 215	260.5	323.5 · 326.5	367.5
C							
C1	46 · 60 · 63 · 90	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265 · 300	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12	M12 · M16
C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	26 · 30.5	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 117.5	117.5 · 119.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230 · 250	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250 · 265	222 · 250 · 265

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			9	13	44	145	278	516	993	1,694
			10	14	43	141	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 10	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 10	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	3 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	3 ~ 10	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	3 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
背隙 Backlash P0		arcmin	3 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	3 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	3 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 10	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 10	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 10	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	3 ~ 10	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	3 ~ 10	≥ 97%						
使用溫度 Operating Temperature		°C	3 ~ 10	- 25° C ~ + 90° C						
潤滑 Lubrication			3 ~ 10	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			3 ~ 10	IP65						
安裝方向 Mounting Position			3 ~ 10	任意方向 Any						
噪音值 Noise Level		dB	3 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	3 ~ 10	0.58	1.32	3.4	7.88	14	29.16	39

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

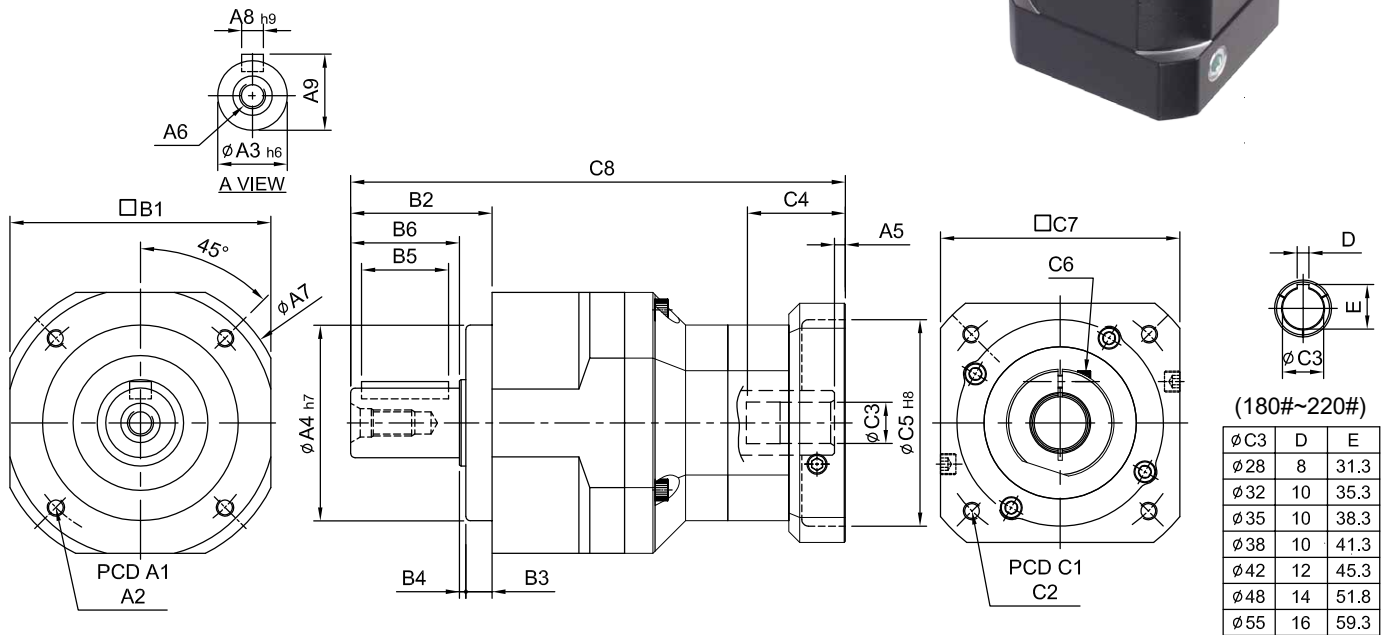
Ratio	44	62	90	120	142	180	220
3	0.03	0.16	0.61	3.25	9.21	28.98	69.61
4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
6	0.03	0.13	0.45	2.65	7.25	22.75	51.72
7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
9	0.03	0.13	0.44	2.57	7.04	22.53	50.63
10	0.03	0.13	0.44	2.57	7.03	22.51	50.56

SERVOBOX Planetary Reducers

MODEL : SE

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit: mm

Model Code	62	90	120	142	180	220
A A1	62	82	110	140	184	218
A2	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	16	22	32	40	55	75
A4	50	70	90	120	160	180
A5	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5
A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	70	102	134	166	215	252
A8	5	6	10	12	16	20
A9	18	24.5	35	43	59	79.5
B B1	62	90	120	142	180	220
B2	36	46	65	92	106	139
B3	7	8	12	15	20	30
B4	1	2	3	3	4	5
B5	20	30	40	65	70	90
B6	28	36	50	74	82	104
C C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12
C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
C4	26 · 30.5	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
C8	139.5	172.5 · 180.5	241 · 255.5	298.5 · 308.5	358.5	446.5

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
			90	44	145	278	516	993	1,694
			100	43	141	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque					
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque					
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000	4,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	15 ~ 100	≥ 94%					
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C					
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			15 ~ 100	IP65					
安裝方向 Mounting Position			15 ~ 100	任意方向 Any					
噪音值 Noise Level		dB	15 ~ 100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	15 ~ 100	1.68	4.4	9.3	15.5	34.8	56.5

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

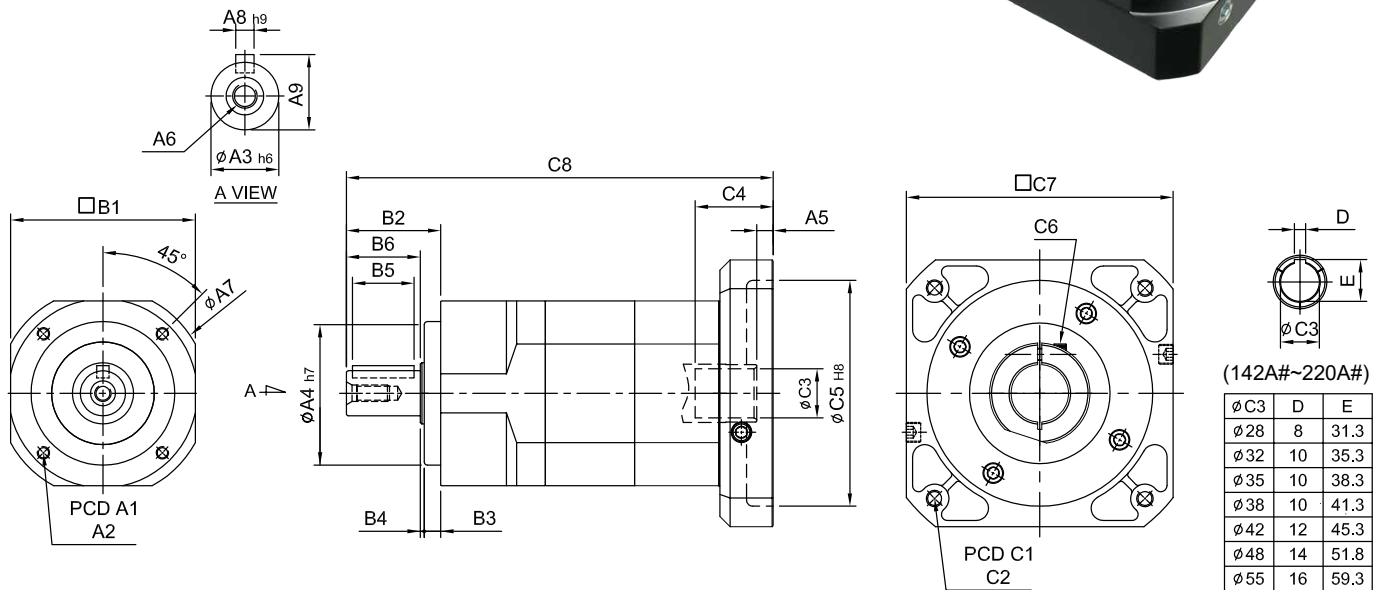
Ratio	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.14	0.43	2.39	6.72	21.83
90	0.03	0.14	0.40	2.39	6.72	21.60
100	0.03	0.14	0.40	2.39	6.72	21.60

SERVOBOX Planetary Reducers

MODEL : SE-A

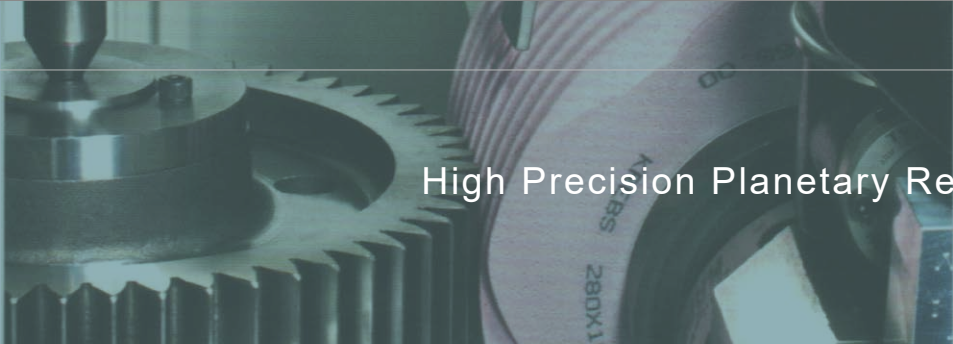
雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit: mm

Model Code	44A	62A	90A	120A	142A	180A	220A
A1	44	62	82	110	140	184	218
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	13	16	22	32	40	55	75
A4	35	50	70	90	120	160	180
A5	5	6	9 · 23.5	10 · 20	10	11.5 · 13.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	50	70	102	134	166	215	252
A8	5	5	6	10	12	16	20
A9	15	18	24.5	35	43	59	79.5
B1	44	62	90	120	142	180	220
B2	26	36	46	65	92	106	139
B3	5	7	8	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12	M12 · M16
C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	26 · 30.5	33.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5	117.5 · 119.5
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265
C8	121	148.8	208 · 222.5	261 · 271	327	404.5	460.5



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44A	62A	90A	120A	142A	180A	220A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	19	59	165	335	625	1,206	2,030
			20	16	51	146	300	555	1,069	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			50	16	48	160	333	618	1,189	2,010
			60	15	45	151	311	583	1,118	1,911
			70	15	45	149	309	573	1,108	1,870
			80	14	43	143	298	553	1,070	1,824
90	13	44	145	278	516	993	1,694			
100	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	15 ~ 100	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	15 ~ 100	≥ 94%						
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C						
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			15 ~ 100	IP65						
安裝方向 Mounting Position			15 ~ 100	任意方向 Any						
噪音值 Noise Level		dB	15 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	15 ~ 100	0.9	2	6	10.2	22.5	42	59

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

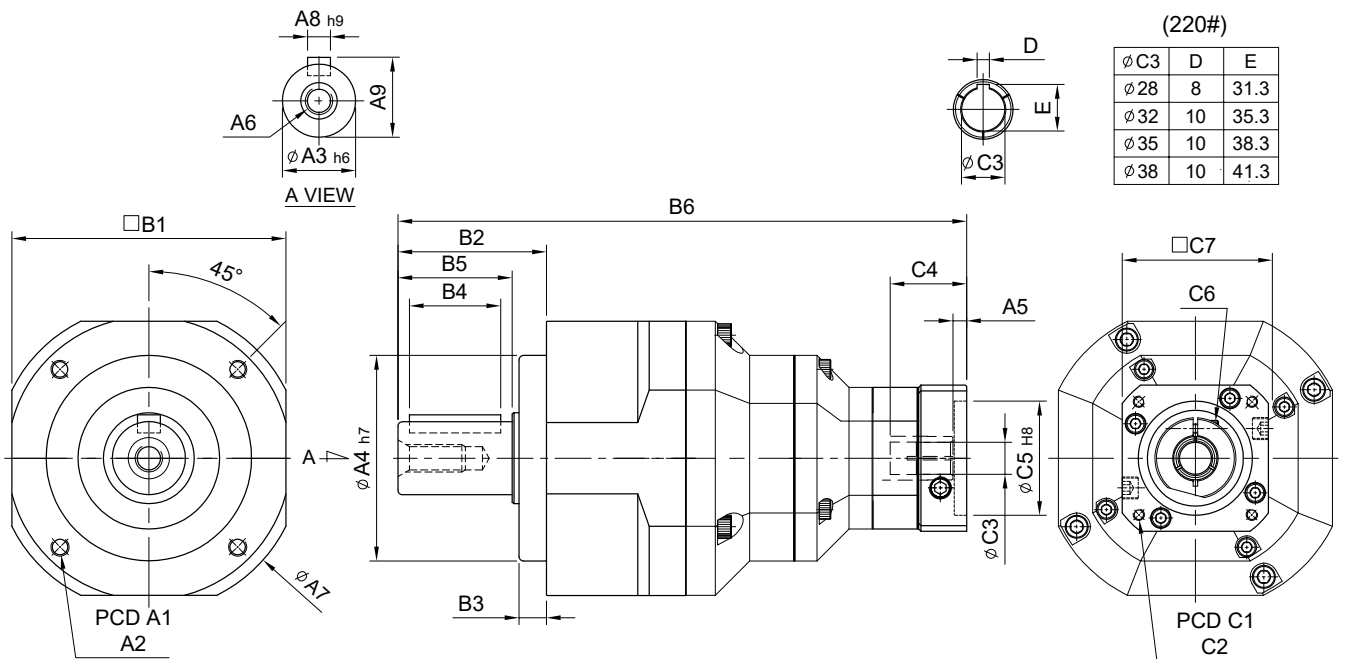
Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.03	0.14	0.46	2.63	7.30	22.79	56.98
20	0.03	0.14	0.46	2.63	7.30	22.79	56.98
25	0.03	0.14	0.46	2.63	7.10	22.79	56.98
30	0.03	0.14	0.46	2.43	7.10	22.59	56.48
35	0.03	0.14	0.44	2.43	7.10	22.59	56.48
40	0.03	0.14	0.44	2.43	6.92	22.59	56.48
50	0.03	0.14	0.44	2.39	6.92	22.59	56.48
60	0.03	0.14	0.43	2.39	6.72	21.83	54.58
70	0.03	0.14	0.43	2.39	6.72	21.83	54.58
80	0.03	0.14	0.43	2.39	6.72	21.83	54.58
90	0.03	0.14	0.40	2.39	6.72	21.60	54.00
100	0.03	0.14	0.40	2.39	6.72	21.60	54.00

SERVOBOX Planetary Reducers

MODEL : SE

三段 3-Stage

RATIO : 125, 150, 175, 200, 250, 300, 350,
400, 450, 500, 600, 700, 800, 900, 1000



unit: mm

Model Code	90	120	142	180	220
A					
A1	82	110	140	184	218
A2	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	22	32	40	55	75
A4	70	90	120	160	180
A5	5	6	9 · 23.5	10 · 20	10
A6	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	102	134	166	215	252
A8	6	10	12	16	20
A9	24.5	35	43	59	79.5
B					
B1	90	120	142	180	220
B2	46	65	92	106	139
B3	8	12	15	20	30
B4	30	40	65	70	90
B5	36	50	74	82	104
B6	195	249 · 257	334.5 · 349	396.5 · 406.5	481.5
C					
C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12
C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38
C4	26 · 30.5	33.5 · 41.5	59 · 73.5	67 · 77	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

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	125	160	333	618	1,189	2,010
			150	165	335	625	1,206	2,030
			175	149	309	573	1,108	1,870
			200	146	300	555	1,069	1,804
			250	160	333	618	1,189	2,010
			300	151	311	583	1,118	1,911
			350	149	309	573	1,108	1,870
			400	143	298	553	1,070	1,824
			450	145	278	516	993	1,694
			500	160	333	618	1,189	2,010
			600	151	311	583	1,118	1,911
			700	149	309	573	1,108	1,870
800	143	298	553	1,070	1,824			
900	145	278	516	993	1,694			
1000	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	125 ~ 1000	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	125 ~ 1000	3 倍額定輸出力矩 3 Times of Rated Output Torque				
急停扭矩 Emergency Stop Torque				3 倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	125 ~ 1000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	125 ~ 1000	-	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P0		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
扭轉剛性 Torsional Rigidity		Nm/arcmin	125 ~ 1000	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	125 ~ 1000	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	125 ~ 1000	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	125 ~ 1000	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation : >30,000 (S1 Continuous Operation : >15,000 hrs)				
效率 Efficiency	η	%	125 ~ 1000	≥ 90%				
使用溫度 Operating Temperature		°C	125 ~ 1000	-25 °C ~ +90 °C				
潤滑 Lubrication			125 ~ 1000	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			125 ~ 1000	IP65				
安裝方向 Mounting Position			125 ~ 1000	任意方向 Any				
噪音值 Noise Level		dB	125 ~ 1000	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	125 ~ 1000	4.9	10	23	47	70

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	90	120	142	180	220
125	0.01	0.04	0.71	1.42	3.29
150	0.01	0.04	0.51	0.92	2.15
175	0.01	0.04	0.40	0.83	1.26
200	0.01	0.04	0.21	0.65	0.98
250	0.01	0.04	0.11	0.52	0.82
300	0.01	0.04	0.09	0.21	0.82
350	0.01	0.04	0.09	0.21	0.82
400	0.01	0.04	0.09	0.21	0.82
450	0.01	0.04	0.09	0.21	0.51
500	0.01	0.04	0.08	0.12	0.51
600	0.01	0.04	0.08	0.12	0.25
700	0.01	0.04	0.08	0.12	0.25
800	0.01	0.04	0.08	0.12	0.25
900	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.04	0.08	0.12	0.25

SERVOBOX Planetary Reducers

MODEL : SE-A

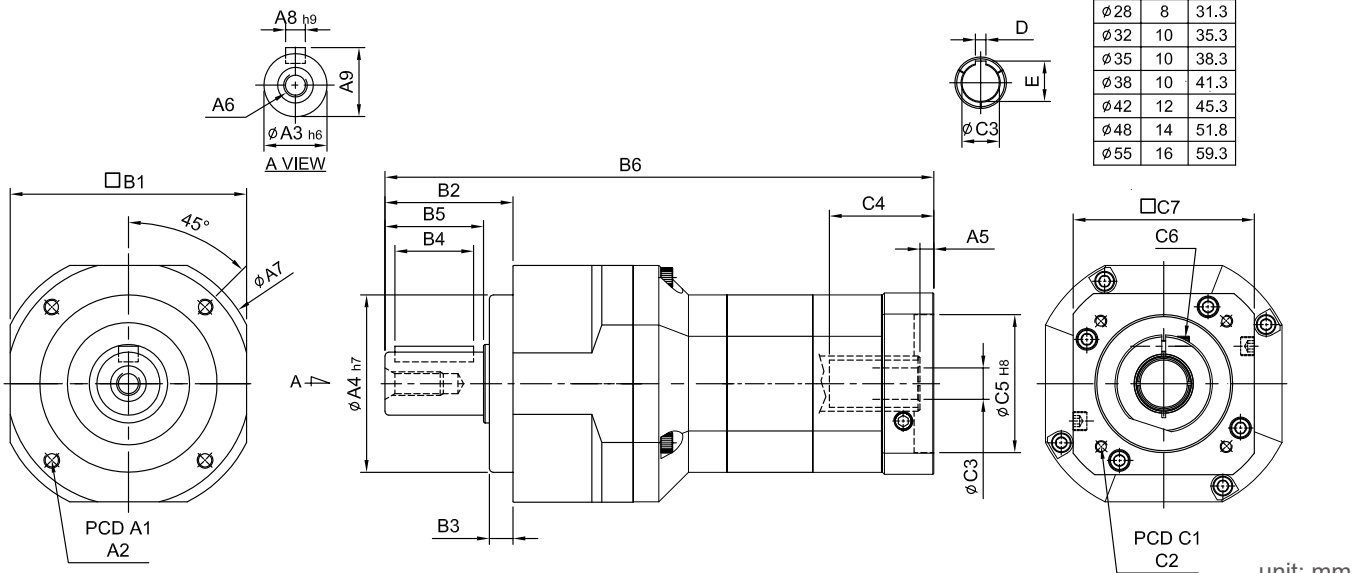
三段 3-Stage

RATIO : 125, 150, 175, 200, 250, 300, 350,
400, 450, 500, 600, 700, 800, 900, 1000



(180A#~220A#)

φC3	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	62A	90A	120A	142A	180A	220A	
A	A1	62	82	110	140	218	
	A2	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
	A3	16	22	32	40	55	75
	A4	50	70	90	120	160	180
	A5	6.5	6	9 · 23.5	10 · 20	10	11.5 · 13.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
	A7	70	102	134	166	215	252
	A8	5	6	10	12	16	20
	A9	18	24.5	35	43	59	79.5
B	B1	62	90	120	142	180	220
	B2	36	46	65	92	106	139
	B3	7	8	12	15	20	30
	B4	20	30	40	65	70	90
	B5	28	36	50	74	82	104
	B6	165.5	204.5 · 212.5	284.5	354.5	425	527.5
C	C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12
	C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	22 · 24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	C4	26 · 30.5	33.5 · 41.5	59 · 73.5	67 · 77	84.5	114.5 · 116.5
	C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62A	90A	120A	142A	180A	220A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	125	48	160	333	618	1,189	2,010
			150	59	165	335	625	1,206	2,030
			175	45	149	309	573	1,108	1,870
			200	51	146	300	555	1,069	1,804
			250	48	160	333	618	1,189	2,010
			300	45	151	311	583	1,118	1,911
			350	45	149	309	573	1,108	1,870
			400	43	143	298	553	1,070	1,824
			450	44	145	278	516	993	1,694
			500	48	160	333	618	1,189	2,010
			600	45	151	311	583	1,118	1,911
			700	45	149	309	573	1,108	1,870
800	43	143	298	553	1,070	1,824			
900	44	145	278	516	993	1,694			
1000	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	125 ~ 1000	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque					
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	125 ~ 1000	3 倍額定輸出力矩 3 Times of Rated Output Torque					
急停扭矩 Emergency Stop Torque									
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	125 ~ 1000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	125 ~ 1000	-	-	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P0		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
扭轉剛性 Torsional Rigidity		Nm/arcmin	125 ~ 1000	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	125 ~ 1000	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	125 ~ 1000	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	125 ~ 1000	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	125 ~ 1000	≥ 90%					
使用溫度 Operating Temperature		°C	125 ~ 1000	- 25° C ~ + 90° C					
潤滑 Lubrication			125 ~ 1000	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			125 ~ 1000	IP65					
安裝方向 Mounting Position			125 ~ 1000	任意方向 Any					
噪音值 Noise Level		dB	125 ~ 1000	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	125 ~ 1000	2.5	6.5	13	26	56.5	86

轉動慣量 Mass Moments of Inertia (kg.cm²)

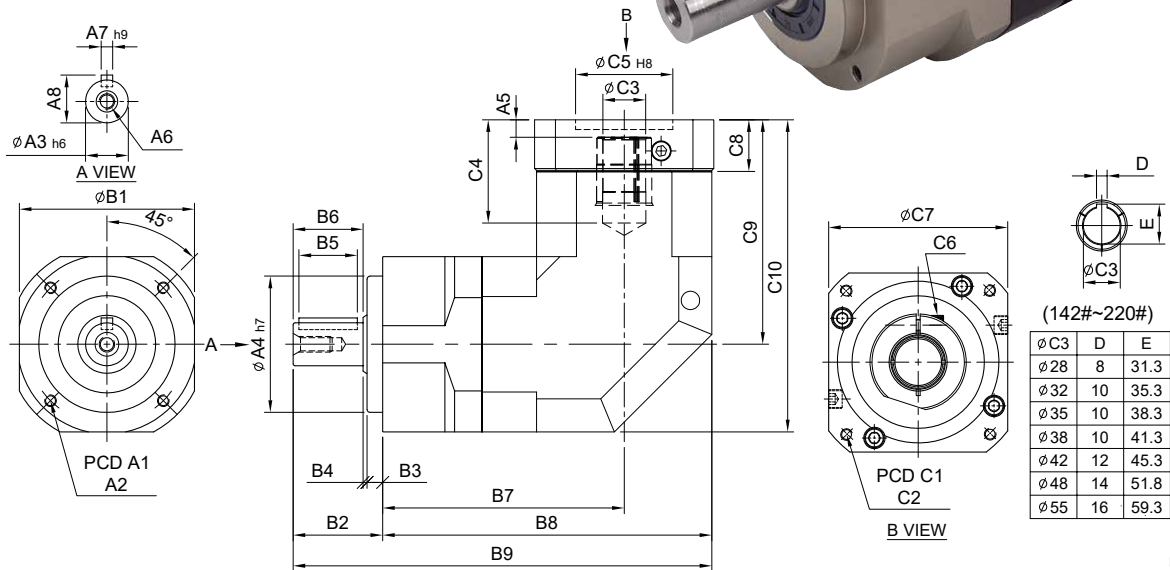
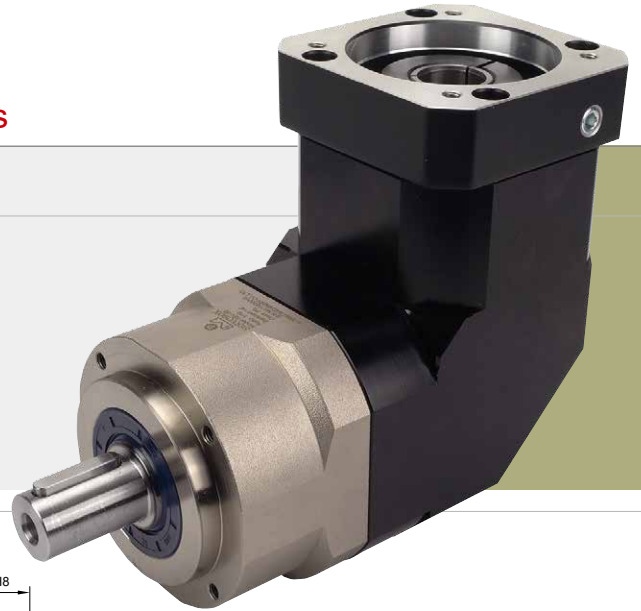
Ratio	62A	90A	120A	142A	180A	220A
125	0.01	0.01	0.04	0.71	1.42	3.29
150	0.01	0.01	0.04	0.51	0.92	2.15
175	0.01	0.01	0.04	0.4	0.83	1.26
200	0.01	0.01	0.04	0.21	0.65	0.98
250	0.01	0.01	0.04	0.11	0.52	0.82
300	0.01	0.01	0.04	0.09	0.21	0.82
350	0.01	0.01	0.04	0.09	0.21	0.82
400	0.01	0.01	0.04	0.09	0.21	0.82
450	0.01	0.01	0.04	0.09	0.21	0.51
500	0.01	0.01	0.04	0.08	0.12	0.51
600	0.01	0.01	0.04	0.08	0.12	0.25
700	0.01	0.01	0.04	0.08	0.12	0.25
800	0.01	0.01	0.04	0.08	0.12	0.25
900	0.01	0.01	0.04	0.08	0.12	0.25
1000	0.01	0.01	0.04	0.08	0.12	0.25

SERVOBOX Planetary Reducers

MODEL : SEL

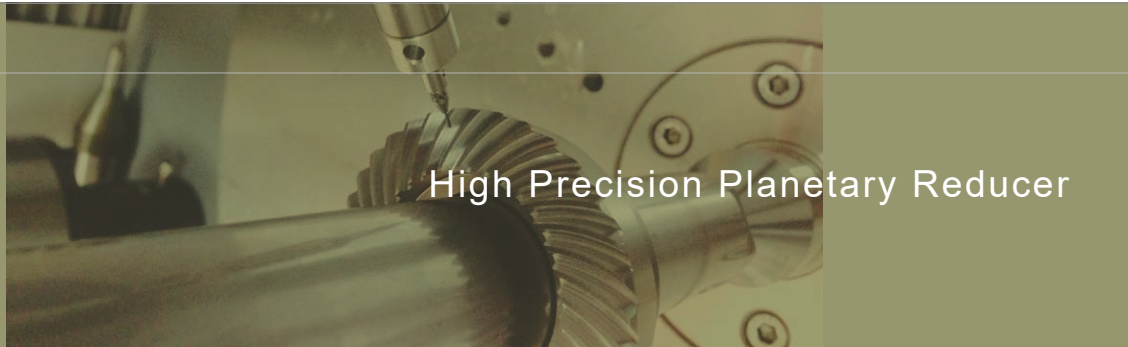
單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20



unit: mm

Model Code	44	62	90	120	142	180	220
A A1	44	62	82	110	140	184	218
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	13	16	22	32	40	55	75
A4	35	50	70	90	120	160	180
A5	6	6	9 · 23.5	10 · 20	10	12.5 · 14.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	5	5	6	10	12	16	20
A8	15	18	24.5	35	43	59	79.5
B B1	44	62	90	120	142	180	220
B2	26	36	46	65	92	106	139
B3	5	7	8	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	76	84.5	122.1	148	165.5	223.6	231.6
B8	98	115.5	167.1	208	236.5	313.6	341.6
B9	124	151.5	215.1	273	328.5	419.6	480.6
C C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16
C3	8 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	27	33.5 · 42	53 · 58 · 67.5	67 · 77	67 · 84	117 · 119	117 · 119
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 180 · 190	182 · 200 · 250	222 · 250 · 265
C8	16	21.5	26.5 · 41	35.5 · 45.5	35.5	45.5 · 47.5	45.5 · 47.5
C9	61	77 · 85	115.3 · 129.8	141 · 151	165.7	235 · 237	235 · 237
C10	83	108 · 116	160.3 · 174.8	201 · 211	236.7	325 · 327	345 · 347



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			9	13	44	145	278	516	993	1,694
			10	14	43	141	294	549	1,059	1,779
			12	15	45	151	311	583	1,118	1,911
			14	15	45	149	309	573	1,108	1,870
			16	14	43	143	298	553	1,070	1,824
			18	13	44	145	278	516	993	1,694
20	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 20	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 20	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 20	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	3 ~ 20	-	-	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
背隙 Backlash P0		arcmin	3 ~ 20	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P1		arcmin	3 ~ 20	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 Backlash P2		arcmin	3 ~ 20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 20	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 20	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 20	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_H	hr	3 ~ 20	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	3 ~ 20	≥ 95%						
使用溫度 Operating Temperature		°C	3 ~ 20	-25° C ~ +90° C						
潤滑 Lubrication			3 ~ 20	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			3 ~ 20	IP65						
安裝方向 Mounting Position			3 ~ 20	任意方向 Any						
噪音值 Noise Level		dB	3 ~ 20	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	3 ~ 20	0.8	2.8	6.3	9.2	22.5	52.3	75

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	44	62	90	120	142	180	220
3	0.09	0.36	2.28	6.85	23.5	68.2	135
4	0.09	0.36	2.28	6.85	23.5	68.2	135
5	0.09	0.36	2.28	6.85	23.5	68.2	135
6	0.09	0.36	2.28	6.85	23.5	68.2	135
7	0.09	0.36	2.28	6.85	23.5	68.2	135
8	0.09	0.36	2.28	6.85	23.5	68.2	135
9	0.09	0.36	2.28	6.85	23.5	68.2	135
10	0.09	0.36	2.28	6.85	23.5	68.2	135
12	0.03	0.08	1.88	6.2	21.8	65.5	119.2
14	0.03	0.08	1.88	6.2	21.8	65.5	119.2
16	0.03	0.08	1.88	6.2	21.8	65.5	119.2
18	0.03	0.08	1.88	6.2	21.8	65.5	119.2
20	0.03	0.08	1.88	6.2	21.8	65.5	119.2

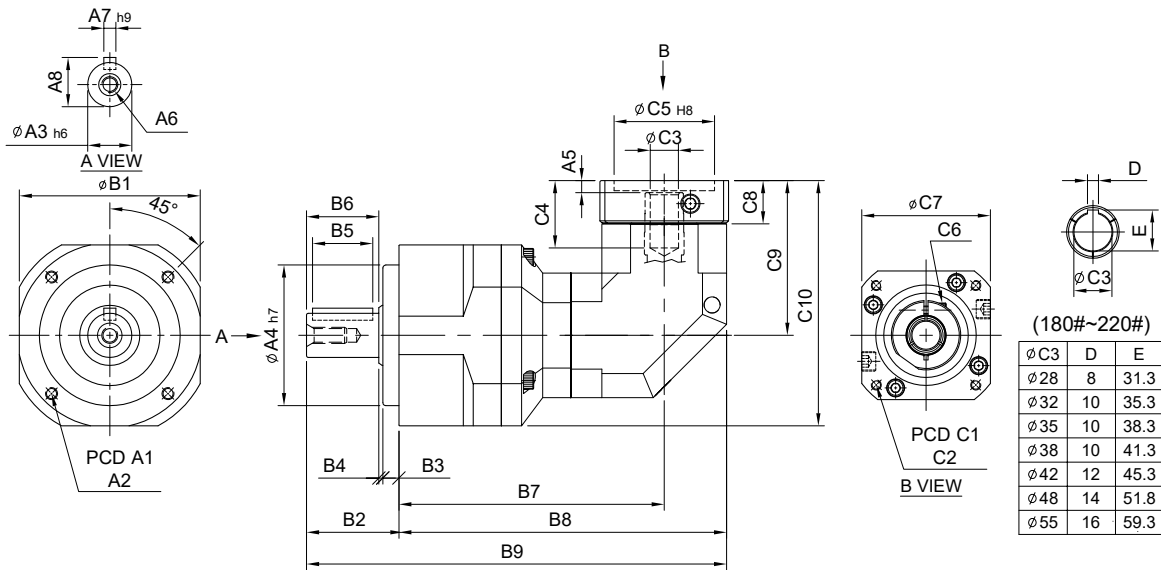
SERVOBOX Planetary Reducers



MODEL : SEL

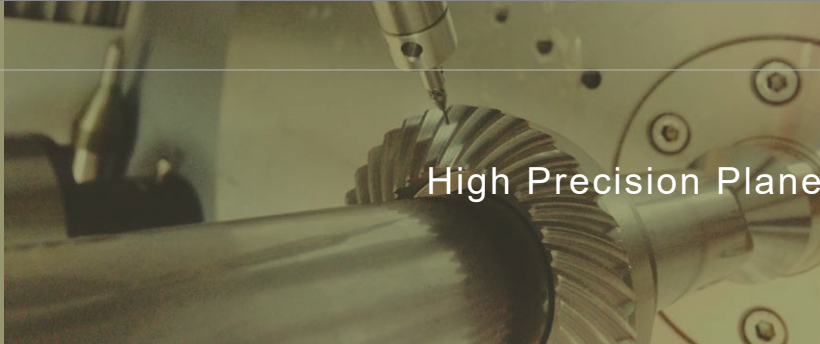
雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200



unit: mm

Model Code	62	90	120	142	180	220	
A	A1	62	82	110	140	218	
	A2	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
	A3	16	22	32	40	55	75
	A4	50	70	90	120	160	180
	A5	6	6	9 · 23.5	10 · 20	10	12.5 · 14.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
	A7	5	6	10	12	16	20
	A8	18	24.5	35	43	59	79.5
	B	B1	62	90	120	142	180
B2		36	46	65	92	106	139
B3		7	8	12	15	20	30
B4		1	2	3	3	4	5
B5		20	30	40	65	70	90
B6		28	36	50	74	82	104
B7		110.5	132	181.6	214.5	249.5	313.6
B8		132.5	163	226.6	274.5	320.5	403.6
B9		168.5	209	291.6	366.5	426.5	542.6
C	C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M12 · M16
	C3	8 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	C4	27	33.5 · 42	53 · 58 · 67.5	67 · 77	67 · 84	117 · 119
	C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 200 · 230 · 250
	C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 180 · 190	182 · 200 · 220 · 250 · 265
	C8	16	21.5	26.5 · 41	35.5 · 45.5	35.5	45.5 · 47.5
	C9	61	77 · 85	115.3 · 129.8	141 · 151	165.7	235 · 237
	C10	92	122 · 130	175.3 · 189.8	212 · 222	255.7	345 · 347



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	90	120	142	180	220
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
			90	44	145	278	516	993	1,694
			100	43	141	294	549	1,059	1,779
			120	45	151	311	583	1,118	1,911
			140	45	149	309	573	1,108	1,870
			160	43	143	298	553	1,070	1,824
180	44	145	278	516	993	1,694			
200	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 200	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque					
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque					
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 200	6,000	6,000	5,000	5,000	4,000	4,000
背隙 Backlash P _s		arcmin	15 ~ 200	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P ₀		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P ₁		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P ₂		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 200	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 200	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 200	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_{H1}	hr	15 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	15 ~ 200	≥ 92%					
使用溫度 Operating Temperature		°C	15 ~ 200	- 25° C ~ + 90° C					
潤滑 Lubrication			15 ~ 200	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			15 ~ 200	IP65					
安裝方向 Mounting Position			15 ~ 200	任意方向 Any					
噪音值 Noise Level		dB	15 ~ 200	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	15 ~ 200	1.8	5.8	12	22.8	43.9	78.5

轉動慣量 Mass Moments of Inertia (kg.cm²)

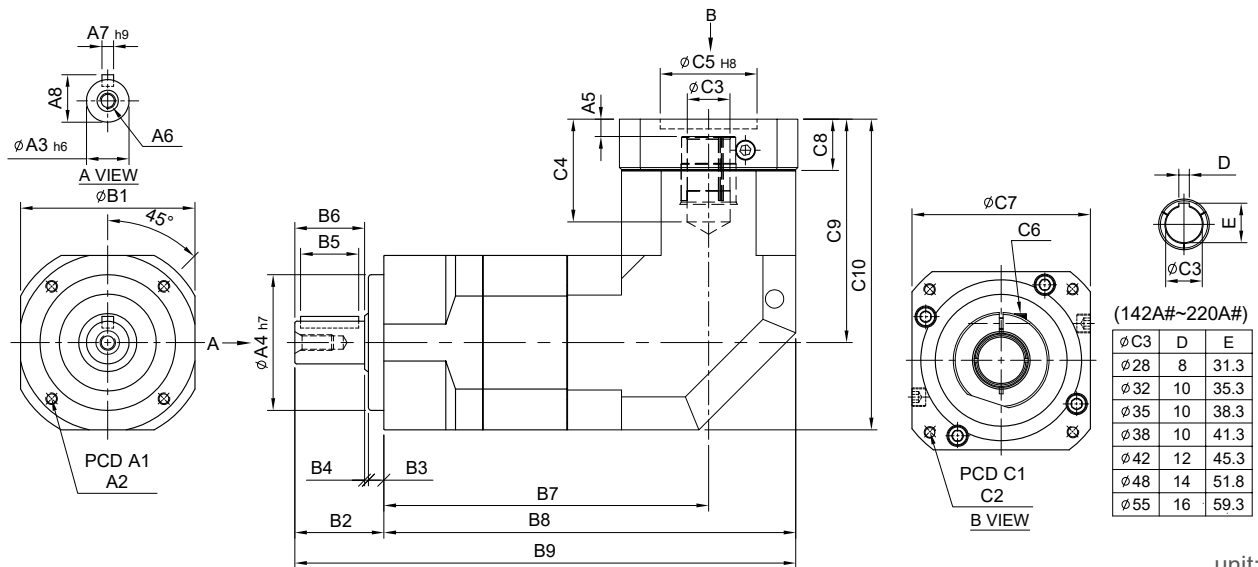
Ratio	62	90	120	142	180	220
15	0.09	0.36	6.28	6.85	26.2	70.1
20	0.09	0.36	6.28	6.85	26.2	70.1
25	0.09	0.36	2.28	6.85	23.1	68.2
30	0.09	0.36	2.28	6.85	23.1	68.2
35	0.09	0.36	2.28	6.85	23.1	68.2
40	0.09	0.36	2.28	6.85	23.1	68.2
50	0.09	0.36	2.28	6.85	23.1	68.2
60	0.09	0.36	2.28	6.85	23.1	68.2
70	0.09	0.36	2.28	6.85	23.1	68.2
80	0.09	0.36	2.28	6.85	23.1	68.2
90	0.09	0.36	2.28	6.85	23.1	68.2
100	0.09	0.36	2.28	6.85	23.1	68.2
120	0.03	0.1	1.88	6.2	21.2	65.1
140	0.03	0.1	1.88	6.2	21.2	65.1
160	0.03	0.1	1.88	6.2	21.2	65.1
180	0.03	0.1	1.88	6.2	21.2	65.1
200	0.03	0.1	1.88	6.2	21.2	65.1

SERVOBOX Planetary Reducers

MODEL : SEL-A

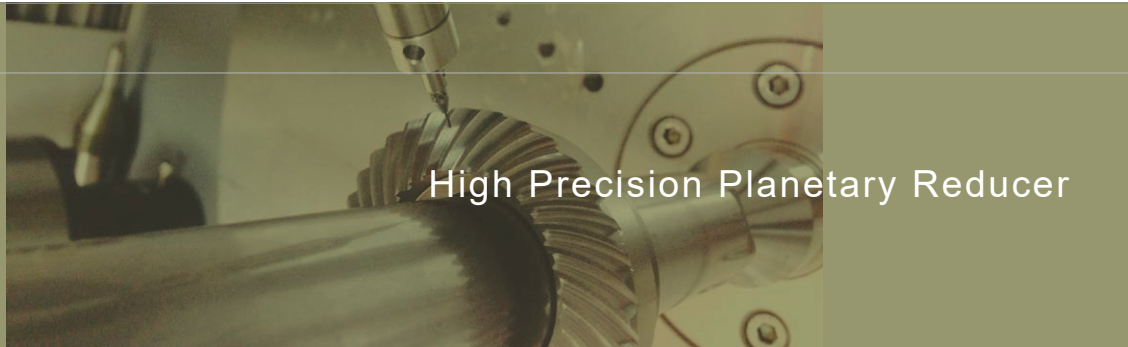
雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70,
80, 90, 100, 120, 140, 160, 180, 200



unit: mm

Model Code	44A	62A	90A	120A	142A	180A	220A
A							
A1	44	62	82	110	140	184	218
A2	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
A3	13	16	22	32	40	55	75
A4	35	50	70	90	120	160	180
A5	6	6	9 · 23.5	10 · 20	10	12.5 · 14.5	12.5 · 14.5
A6	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0
A7	5	5	6	10	12	16	20
A8	15	18	24.5	35	43	59	79.5
B							
B1	44	62	90	120	142	180	220
B2	26	36	46	65	92	106	139
B3	5	7	8	12	15	20	30
B4	1	1	2	3	3	4	5
B5	15	20	30	40	65	70	90
B6	20	28	36	50	74	82	104
B7	102	118.3	167.6	204	232	304.6	324.6
B8	124	149.3	212.6	264	303	394.6	434.6
B9	150	185.3	258.6	329	395	500.6	573.6
C							
C1	46 · 60 · 63	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16
C3	8 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	27	33.5 · 42	53 · 58 · 67.5	67 · 77	67 · 84	117 · 119	117 · 119
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	220 · 250 · 265
C8	16	21.5	26.5 · 41	35.5 · 45.5	35.5	45.5 · 47.5	45.5 · 47.5
C9	61	77	115.3 · 129.8	141 · 151	165.7	235 · 237	235 · 237
C10	83	108	160.3 · 174.8	201 · 211	236.7	325 · 327	345 · 347



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	44A	62A	90A	120A	142A	180A	220A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	19	59	165	335	625	1,206	2,030
			20	16	51	146	300	555	1,069	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			50	16	48	160	333	618	1,189	2,010
			60	15	45	151	311	583	1,118	1,911
			70	15	45	149	309	573	1,108	1,870
			80	14	43	143	298	553	1,070	1,824
			90	13	44	145	278	516	993	1,694
			100	14	43	141	294	549	1,059	1,779
			120	15	45	151	311	583	1,118	1,911
			140	15	45	149	309	573	1,108	1,870
160	14	43	143	298	553	1,070	1,824			
180	13	44	145	278	516	993	1,694			
200	14	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 200	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 200	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	15 ~ 200	-	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 200	3	6	14	27	60	140	240
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 200	380	1,180	3,200	6,800	9,300	15,600	51,000
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 200	190	590	1,600	3,400	4,650	7,800	25,500
使用壽命 Service Life	L_{tH}	hr	15 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	15 ~ 200	≥ 92%						
使用溫度 Operating Temperature		°C	15 ~ 200	-25 °C ~ +90 °C						
潤滑 Lubrication			15 ~ 200	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			15 ~ 200	IP65						
安裝方向 Mounting Position			15 ~ 200	任意方向 Any						
噪音值 Noise Level		dB	15 ~ 200	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	15 ~ 200	1	2.9	8	12	22.6	51.7	94.5

轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.09	0.36	2.28	6.85	23.45	55.2	80.2
20	0.09	0.36	2.28	6.85	23.45	55.2	80.2
25	0.09	0.36	2.28	6.85	23.45	50.4	76.5
30	0.09	0.36	2.28	6.85	23.5	50.4	76.5
35	0.09	0.36	2.28	6.85	23.5	50.4	76.5
40	0.09	0.36	2.28	6.85	23.5	50.4	76.5
50	0.09	0.36	2.28	6.85	23.5	50.4	76.5
60	0.09	0.36	2.28	6.85	23.5	50.4	76.5
70	0.09	0.36	2.28	6.85	23.5	50.4	76.5
80	0.09	0.36	2.28	6.85	23.5	50.4	76.5
90	0.09	0.36	2.28	6.85	23.5	50.4	76.5
100	0.09	0.36	2.28	6.85	23.5	50.4	76.5
120	0.03	0.08	1.88	6.2	21.8	48.7	74.2
140	0.03	0.08	1.88	6.2	21.8	48.7	74.2
160	0.03	0.08	1.88	6.2	21.8	48.7	74.2
180	0.03	0.08	1.88	6.2	21.8	48.7	74.2
200	0.03	0.08	1.88	6.2	21.8	48.7	74.2

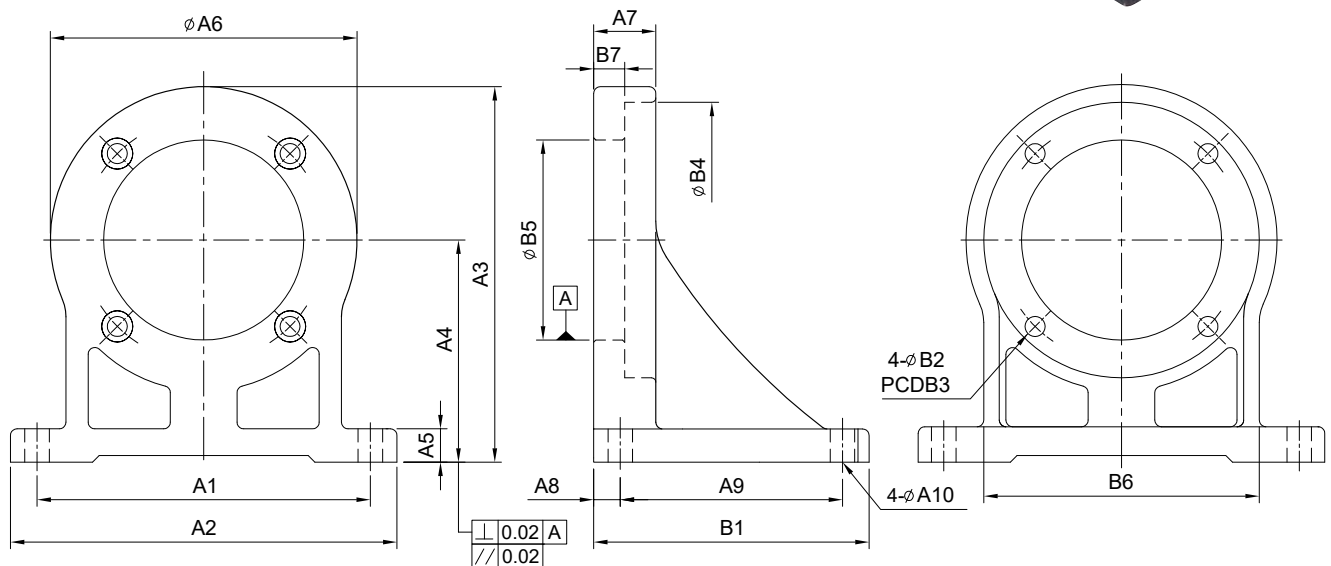
Accessories for SE

SE 選配件



L Type Base Kits

L 型腳座



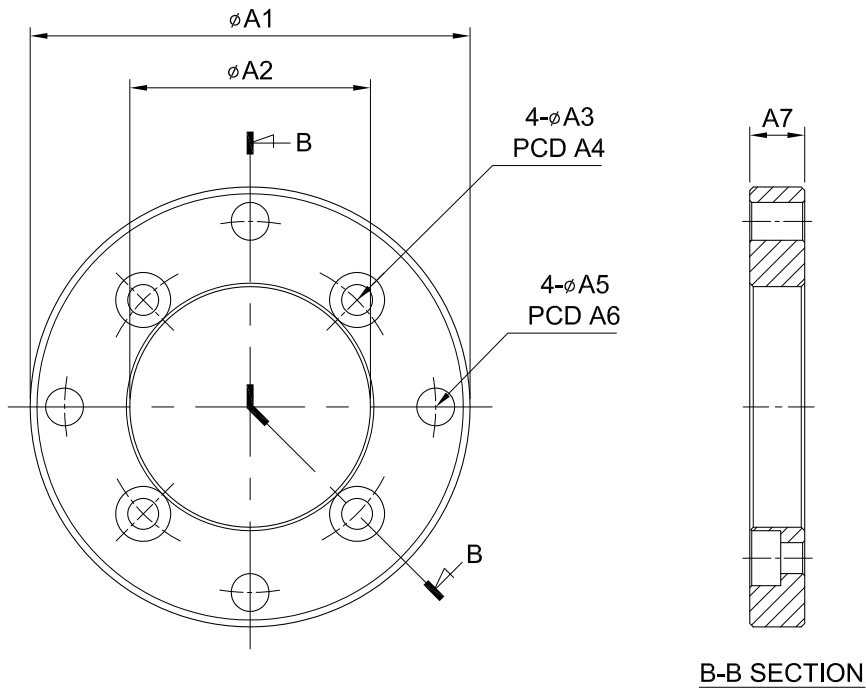
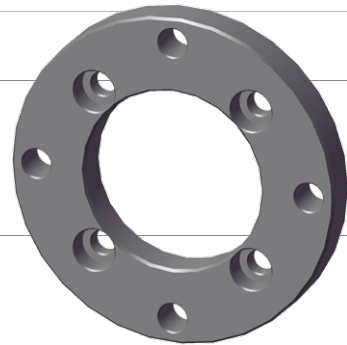
unit: mm

Model Code	44	62	90	120	142	180	220
A	A1	70	90	110	150	190	280
	A2	88	108	130	176	220	330
	A3	75.5	95.5	127	170	207.5	334
	A4	45	55	75	100	120	200
	A5	8	9	11	16	19	30
	A6	60	81	104	140	175	268
	A7	13	16	21	28	35	60
	A8	10	10	11	14	16	26
	A9	40	50	75	100	120	200
	A10	Ø7	Ø7	Ø9	Ø11	Ø13	Ø17
B	B1	60	70	97	128	152	252
	B2	Ø4.5	Ø5.5	Ø6.8	Ø9	Ø11	Ø17
	B3	44	62	82	110	140	218
	B4	50	70	92	124	155	242
	B5	35	50	70	90	120	180
	B6	50	70	90	125	156	230
	B7	6	8	9	14	16	30
Weight ±3% (Kg)		0.71	1.57	3.86	6.41	13.44	27.73

High Precision Planetary Reducer

Connecting Plate

連接板



B-B SECTION

unit: mm

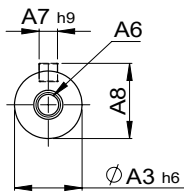
A	Model Code	44	62	90	120	142	180	220
	A1	64	88	123	158	188	238	298
A2	35	50	70	90	120	160	180	
A3	4.5	5.5	6.8	9	11	13	17	
A4	44	62	82	110	140	184	218	
A5	5.5	6.8	9	11	13	15	17	
A6	54	75	106	140	165	210	260	
A7	8	9	11	14	17	22	30	

SERVOBOX Planetary Reducers

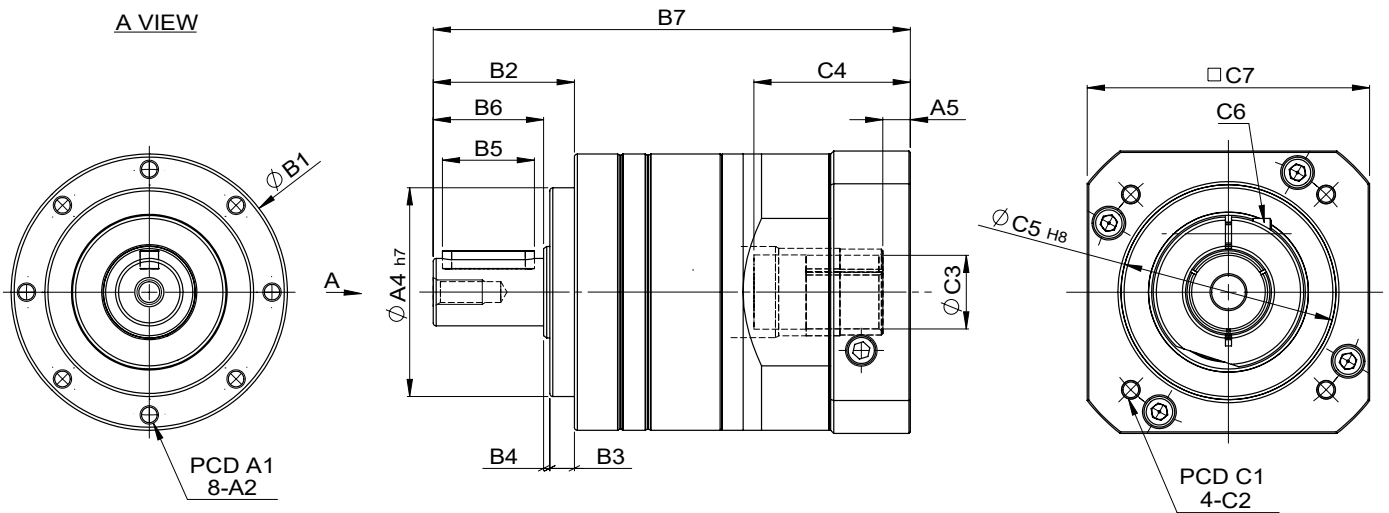
MODEL : SA

單段 1-Stage

RATIO : 3, 4, 5, 7, 10

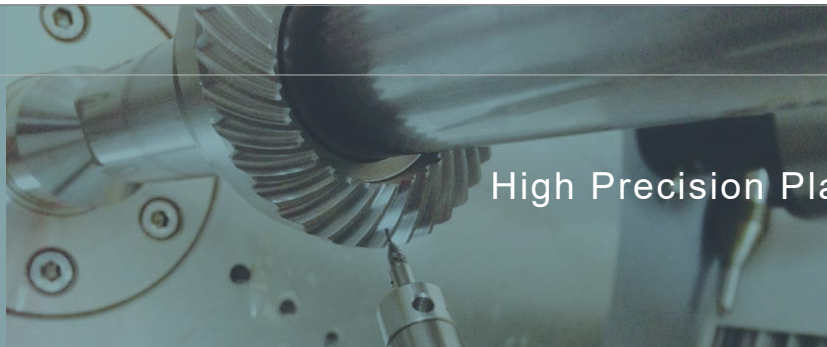


A VIEW



unit: mm

Model Code	50	70	90	120	160	
A	A1	44	62	80	108	140
	A2	M4 x 0.7	M5 x 0.8	M6 x 1.0	M8 x 1.25	M10 x 1.5
	A3	12	16	22	32	40
	A4	35	52	68	90	120
	A5	4.5	6	9 · 23.5	10 · 20	10
	A6	M4 x 0.7	M5 x 0.8	M8 x 1.25	M12 x 1.75	M12 x 1.75
	A7	4	5	6	10	12
	A8	13.5	18	24.5	35	43
B	B1	51	70	90	122	160
	B2	25.5	36	46	70	88
	B3	4	6.5	8	9	8
	B4	1.5	1.5	2	3	2
	B5	15	20	30	50	65
	B6	20	28	36	58	78
	B7	96.5	115	155.5 · 170	211 · 221	238.5
C	C1	45 · 46 · 63 · 70	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	165
	C2	M3 · M4 · M5	M5 · M6	M6 · M8	M6 · M8 · M10	M10
	C3	11 · 14	14 · 19	19 · 24	24 · 28 · 32	24 · 28 · 32
	C4	32	33.5 · 41	51 · 65.5	67 · 77	63
	C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	130
	C6	M4 x 0.7	M5 x 0.8	M6 x 1.0	M8 x 1.25	M8 x 1.25
	C7	46 · 55 · 60	70 · 75 · 80	92 · 110 · 130	122 · 130 · 150	150



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	50	70	90	120	160
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	17	54	165	216	625
			4	15	48	146	208	555
			5	14	45	155	333	618
			7	13	41	142	309	573
			10	12	40	136	294	549
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 10	1.8 倍額定輸出扭矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 10	3 倍額定輸出扭矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 10	3,000				
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 10	6,000	6,000	6,000	5,000	5,000
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 10	3	3	15	27	60
背隙 Backlash Ps		arcmin	3 ~ 10	-	-	≤ 1	≤ 1	≤ 1
背隙 Backlash P0		arcmin	3 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	3 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	3 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 10	320	800	4,150	8,760	9,300
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 10	160	400	3,780	7,500	4,650
使用壽命 Service Life	L_H	hr	3 ~ 10	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	3 ~ 10	≥ 97%				
使用溫度 Operating Temperature		°C	3 ~ 10	-25°C ~ +90°C				
潤滑 Lubrication			3 ~ 10	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			3 ~ 10	IP 65				
安裝方向 Mounting Position			3 ~ 10	任意方向 Any				
噪音值 Noise Level		dB	3 ~ 10	≤ 58	≤ 58	≤ 60	≤ 63	≤ 65
重量 Weight ±2%		Kg	3 ~ 10	0.6	1.4	2.8	6.7	13.25

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

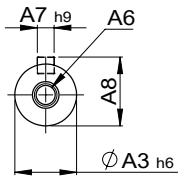
速比 Ratio	50	70	90	120	160
3	0.03	0.15	0.60	3.21	9.21
4	0.03	0.15	0.51	2.80	7.54
5	0.03	0.13	0.45	2.71	7.42
7	0.03	0.13	0.42	2.54	7.14
10	0.03	0.13	0.42	2.51	7.03

SERVOBOX Planetary Reducers

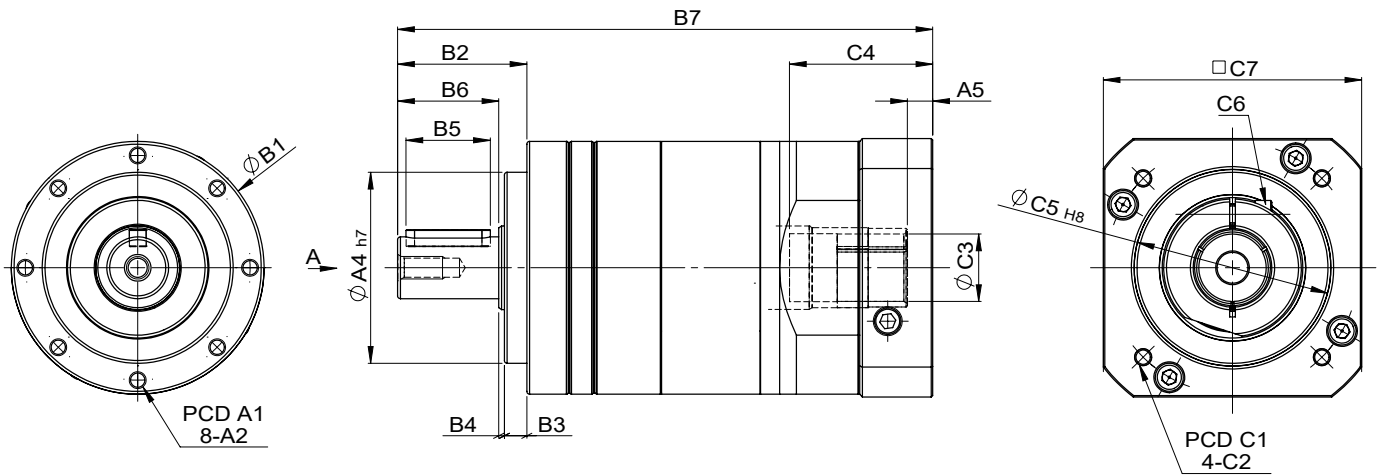
MODEL : SA

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100



A VIEW



unit: mm

Model	50	70	90	120	160
A					
Code					
A1	44	62	80	108	140
A2	M4 x 0.7	M5 x 0.8	M6 x 1.0	M8 x 1.25	M10 x 1.5
A3	12	16	22	32	40
A4	35	52	68	90	120
A5	4.5	6	9 · 23.5	10 · 20	10
A6	M4 x 0.7	M5 x 0.8	M8 x 1.25	M12 x 1.75	M12 x 1.75
A7	4	5	6	10	12
A8	13.5	18	24.5	35	43
B					
B1	51	70	90	122	160
B2	25.5	36	46	70	88
B3	4	6.5	8	9	8
B4	1.5	1.5	2	3	2
B5	15	20	30	50	65
B6	20	28	36	58	78
B7	122.5	148.8	190.5 · 205	257	298.5
C					
C1	45 · 46 · 63 · 70	70 · 75 · 90	90 · 100 · 115 · 145	115 · 145 · 165	115 · 145 · 165
C2	M3 · M4 · M5	M5 · M6	M6 · M8	M6 · M8 · M10	M6 · M8 · M10
C3	11 · 14	14 · 19	19 · 24	24 · 28 · 32	24 · 28 · 32
C4	32	33.5 · 41	51 · 65.5	67 · 77	67
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	95 · 110 · 130
C6	M4 x 0.7	M5 x 0.8	M6 x 1.0	M8 x 1.25	M8 x 1.25
C7	46 · 55 · 60	70 · 75 · 80	92 · 110 · 130	122 · 130 · 150	122 · 130 · 150

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	50	70	90	120	160
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	17	54	165	216	625
			20	15	48	146	208	555
			25	14	45	155	333	618
			30	17	54	165	216	625
			35	13	41	142	309	573
			40	15	48	146	208	555
			50	14	45	155	333	618
			70	13	41	142	309	573
100	12	40	136	294	549			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15~100	1.8 倍額定輸出扭矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15~100	3 倍額定輸出扭矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15~100	3,000				
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15~100	6,000	6,000	6,000	5,000	5,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	-	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15~100	3	3	15	27	60
容許徑向力 Max. Radial Force	F_{2rB}	N	15~100	320	800	4,150	8,760	9,300
容許軸向力 Max. Axial Force	F_{2aB}	N	15~100	160	400	2,075	7,500	4,650
使用壽命 Service Life	L_{H}	hr	15~100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	15~100	≥ 94%				
使用溫度 Operating Temperature		°C	15~100	-25°C ~+90°C				
潤滑 Lubrication			15~100	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			15~100	IP 65				
安裝方向 Mounting Position			15~100	任意方向 Any				
噪音值 Noise Level		dB	15~100	≤ 60 dB	≤ 60 dB	≤ 63 dB	≤ 63 dB	≤ 65 dB
重量 Weight ±2%		Kg	15~100	1.05	2.2	4.48	9.84	18.5

 ■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

速比 Ratio	50	70	90	120	160
15	0.03	0.13	0.13	0.47	2.63
20	0.03	0.13	0.13	0.47	2.63
25	0.03	0.13	0.13	0.47	2.63
30	0.03	0.13	0.13	0.47	2.43
35	0.03	0.13	0.13	0.47	2.43
40	0.03	0.13	0.13	0.47	2.43
50	0.03	0.13	0.13	0.44	2.43
70	0.03	0.13	0.13	0.44	2.39
100	0.03	0.13	0.13	0.44	2.39



Indication of Model Numbers

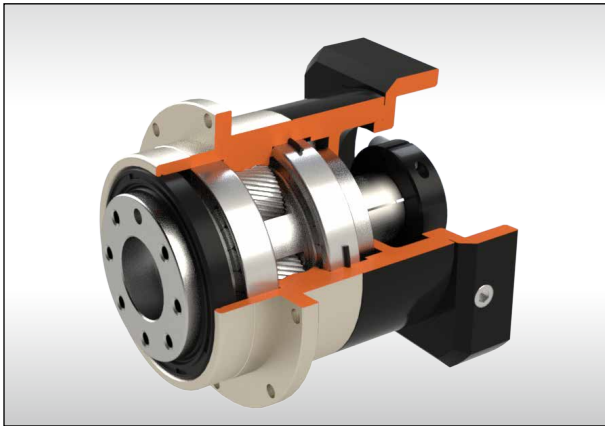
機種型號表示

SD		90	10			P1	MOTOR
減速機型 Type	型號 Model	速比 Ratio	出力軸承形式 Output Bearing	入力軸鍵槽 Input Shaft	背隙等級 Backlash Class	馬達型號 Motor Type	
SD	47	單段 1-Stage 4, 5, 7, 10	<input type="checkbox"/> 標準品， 滾珠軸承 Standard (Ball Bearing) (47#~255#)	<input type="checkbox"/> 無鍵槽 No Keyway	Ps		
SDL	64	雙段 2-Stage 20, 25, 35, 40, 50, 70, 100	T: 滾錐軸承 Taper Bearing (90#~255#)	K: 有鍵槽 Keyway (140#~255#)	P0		
SDD	90						
SDH	110	單段 1-Stage (SDL) 4, 5, 7, 10, 14, 20			P1		
	140	雙段 2-Stage (SDL) 20, 25, 35, 40, 50, 70, 100, 140, 200			P2		
	200	雙段 2-Stage (SDH) 20, 25, 35, 50, 70, 100, 150					
	255						



Features of SD / SDD / SDH Series

SD / SDD / SDH 系列產品特點

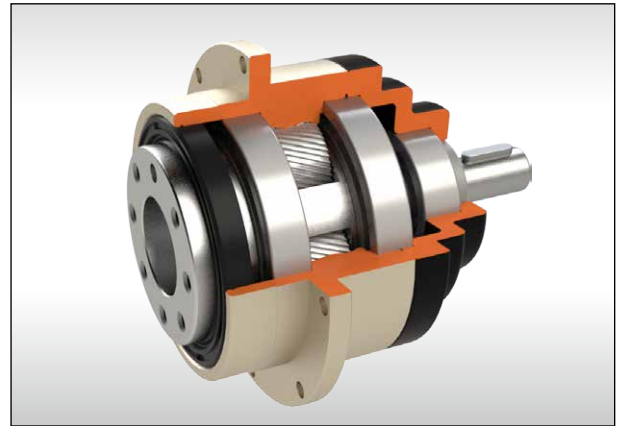


可彈性選擇軸承

標準品使用雙大滾珠軸承。也可以選用雙滾錐軸承，以達到最大的扭轉剛性及高軸向、高徑向負載。

Optional Bearings

Standard products use double large ball bearings. Double tapered bearings can also be used to achieve maximum torsional rigidity and high axial and radial loads.

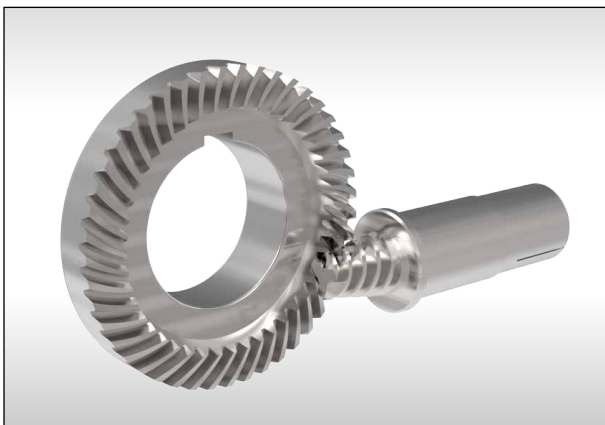


入力軸多種方式傳動

SDD 機種實心入力軸設計，方便使用皮帶輪，聯軸器等傳動方式。

Various Transmissions Mode at the input shaft

SDD models are designed with solid shafts to facilitate the use of pulleys, couplings and other transmission methods.



直交軸型減速機

入力端除了使用螺旋傘齒輪之外 (SDL)，也可以選擇戟齒齒輪 (SDH)，在有限的空間內，獲得更大的減速比。

Right Angle Reducer

In addition to the use of spiral bevel gears (SDL), hypoid gears (SDH) can also be selected to obtain a larger reduction ratio in a limited space.



一體式的行星臂架及雙懸臂設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。並使用一次加工完成，控制精度在公差之內。

Integrated Planetary Arm Bracket

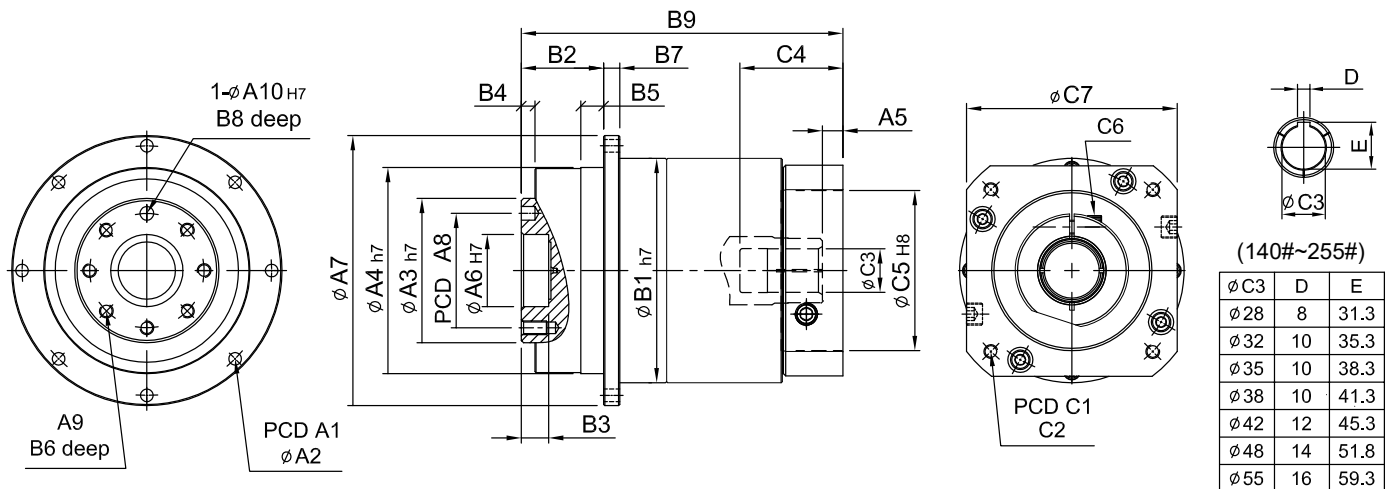
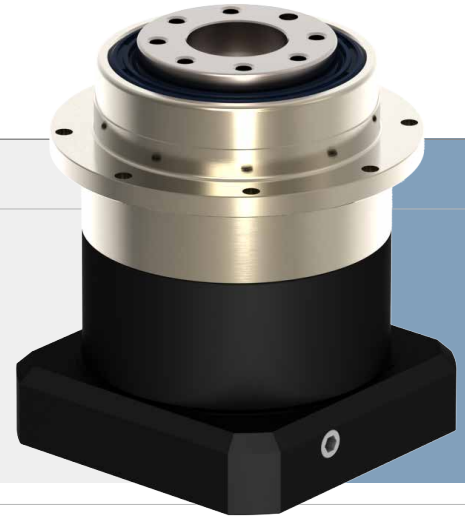
The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy. The entire structure is one-time machined for controlling accuracy in the specified tolerance.

SERVOBOX Planetary Reducers

MODEL : SD

單段 1-Stage

RATIO : 4, 5, 7, 10



unit: mm

Model Code	47	64	90	110	140	200	255
A A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	28	40	63	80	100	160	180
A4	47	64	90	110	140	200	255
A5	5	6	9·23.5	10·20	10	11.5·13.5	10.5·12.5
A6	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4 - M3 x P0.5	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	12 - M16 x P2.0
A10	3	5	6	6	8	10	12
B B1	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	8	12	12	16	22	32
B7	4	5	7	8	10	12	18
B8	4	6	6	7	7	10	10
B9	74.7	84.5·92.5	133·147.5	153·173	186.5	250.5·252.5	263·265
C C1	46·60·63	70·75·90	90·100·115·145	115·145·165	145·165·215	200·215·265	200·265·300
C2	M3·M4·M5	M4·M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12	M10·M12·M16	M12·M16
C3	8·11	11·14·16·19	16·19·22·24	24·28·32·35	28·32·35·38	35·38·42·48·55	38·42·48·55
C4	32	34·41.5	58.5·73	67·82	84.5	114.5·116.5	115.5·117.5
C5	30·40·50	50·60·70	70·80·95·110	95·110·130	110·130·180	114.3·180·230	114.3·230·250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46·55	64·70·80	92·110·130	122·130·150	146·150·190	182·200·250	222·250·265

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	4	22	60	160	335	650	1,200	2,020
			5	20	50	155	333	618	1,189	2,010
			7	19	47	142	309	573	1,108	1,870
			10	16	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	4 ~ 10	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	4 ~ 10	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	4 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	4 ~ 10	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	4 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
背隙 Backlash P0		arcmin	4 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	4 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	4 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭轉剛性 Torsional Rigidity		Nm/arcmin	4 ~ 10	6	14	30	86	155	450	1126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	4 ~ 10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	4 ~ 10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	4 ~ 10	-	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	4 ~ 10	-	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	4 ~ 10	31	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	4 ~ 10	-	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	4 ~ 10	S5 周期運轉: >30,000 (S1 連續運轉: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	4 ~ 10	≥ 97%						
使用溫度 Operating Temperature		°C	4 ~ 10	- 25° C ~ + 90° C						
潤滑 Lubrication			4 ~ 10	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			4 ~ 10	IP65						
安裝方向 Mounting Position			4 ~ 10	任意方向 Any						
噪音值 Noise Level		dB	4 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	4 ~ 10	0.7	1.4	4.2	7.4	13.9	32.4	55

※Applied to the output shaft center at 100 rpm.

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

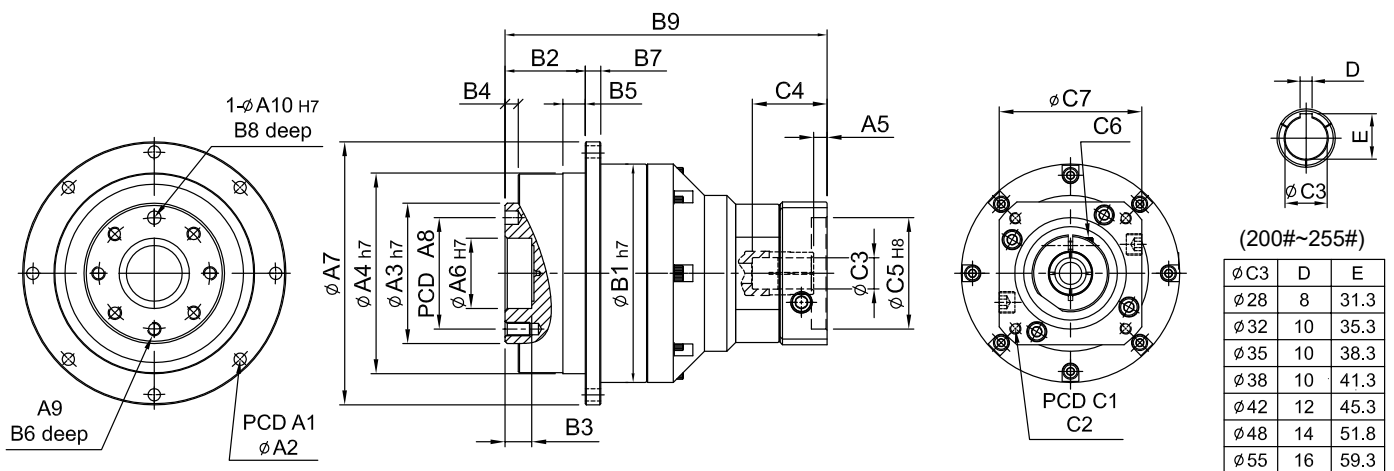
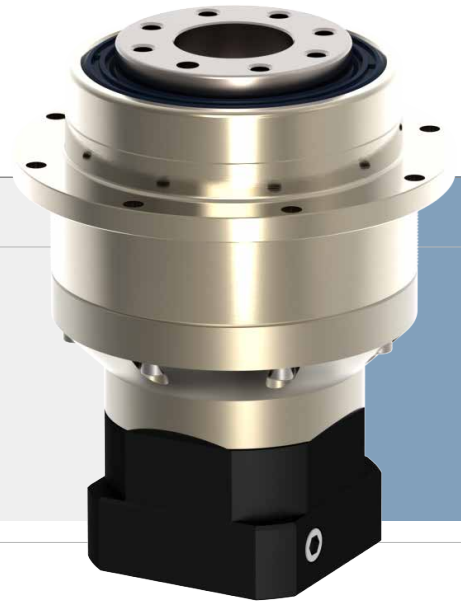
Ratio	47	64	90	110	140	200	255
4	0.03	0.13	0.47	2.75	7.46	24.00	55
5	0.03	0.12	0.45	2.70	7.41	23.23	53.19
7	0.03	0.12	0.45	2.64	7.12	22.11	50.78
10	0.03	0.12	0.43	2.56	7.01	22.21	50.50

SERVOBOX Planetary Reducers

MODEL : SD

雙段 2-Stage

RATIO : 20, 25, 35, 40, 50, 70, 100



unit: mm

Model Code	47	64	90	110	140	200	255
A							
A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	28	40	63	80	100	160	180
A4	47	64	90	110	140	200	255
A5	5	5	6	9·23	10·20	10	11.5·13.5
A6	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4 - M3 x P0.5	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	12 - M16 x P2.0
A10	3	5	6	6	8	10	12
B							
B1	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	8	12	12	16	22	32
B7	4	5	7	8	10	12	16
B8	4	6	6	7	7	10	10
B9	100.7	109	144.5·152.5	189·203.5	224.5·234.5·244.5	290.5	349·351
C							
C1	46·60·63	46·60·63	70·75·90	90·100·115·145	115·145·165	145·165·215	200·215·265
C2	M3·M4·M5	M3·M4·M5	M4·M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12	M10·M12·M16
C3	8·11	8·11	11·14·16·19	16·19·22·24	22·24·28·32·35	28·32·35·38	35·38·42·48·55
C4	26	26·30.5	33.5·41.5	59·73.5	67·77·82	84.5	114.5·116.5
C5	30·40·50	30·40·50	50·60·70	70·80·95·110	95·110·130	110·130·180	114.3·180·230
C6	M4 x P0.7	M4 x P0.7	M5 x P1.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46·55	46·55	64·70·80	92·110·130	122·130·150	146·150·190	182·200·250

High Precision Planetary Reducer

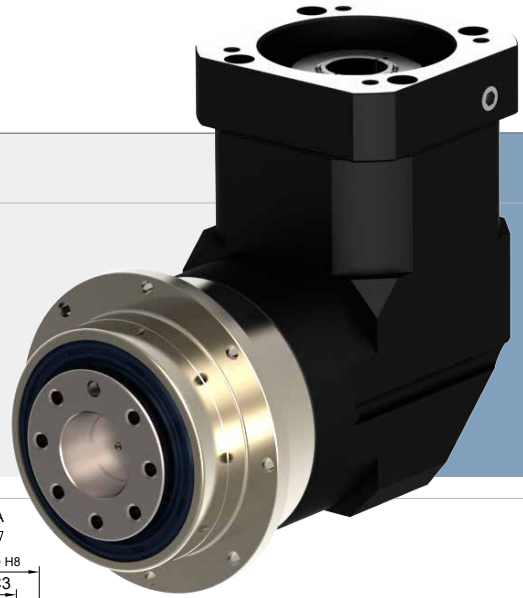
規格 Parameter	代號	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20	22	60	160	335	650	1,200	2,020
			25	20	50	155	333	618	1,189	2,010
			35	19	47	142	309	573	1,108	1,870
			40	22	60	160	335	650	1,200	2,020
			50	20	50	155	333	618	1,189	2,010
			70	19	47	142	309	573	1,108	1,870
			100	16	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	20 ~ 100	1.8 倍額定輸出力矩 1.8 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 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	20 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	20 ~ 100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	20 ~ 100	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	20 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	20 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	20 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	20 ~ 100	6	14	30	86	155	450	1,126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	20 ~ 100	2,040	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	20 ~ 100	1,020	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	20 ~ 100	-	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	20 ~ 100	-	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	20 ~ 100	31	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	20 ~ 100	-	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	20 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	20 ~ 100	≥ 94%						
使用溫度 Operating Temperature		°C	20 ~ 100	- 25° C ~ + 90° C						
潤滑 Lubrication			20 ~ 100	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			20 ~ 100	IP65						
安裝方向 Mounting Position			20 ~ 100	任意方向 Any						
噪音值 Noise Level		dB	20 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	20 ~ 100	1	1.9	4.8	9.4	16.7	40.12	64

※Applied to the output shaft center at 100 rpm.

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
20	0.03	0.03	0.15	0.45	2.7	7.22	23.22
25	0.03	0.03	0.15	0.45	2.7	7.22	23.22
35	0.03	0.03	0.15	0.45	2.7	7.22	23.22
40	0.03	0.03	0.15	0.45	2.7	7.22	23.22
50	0.03	0.03	0.14	0.4	2.6	7.05	23.07
70	0.03	0.03	0.14	0.4	2.6	7.05	23.07
100	0.03	0.03	0.14	0.4	2.6	7.01	22.67

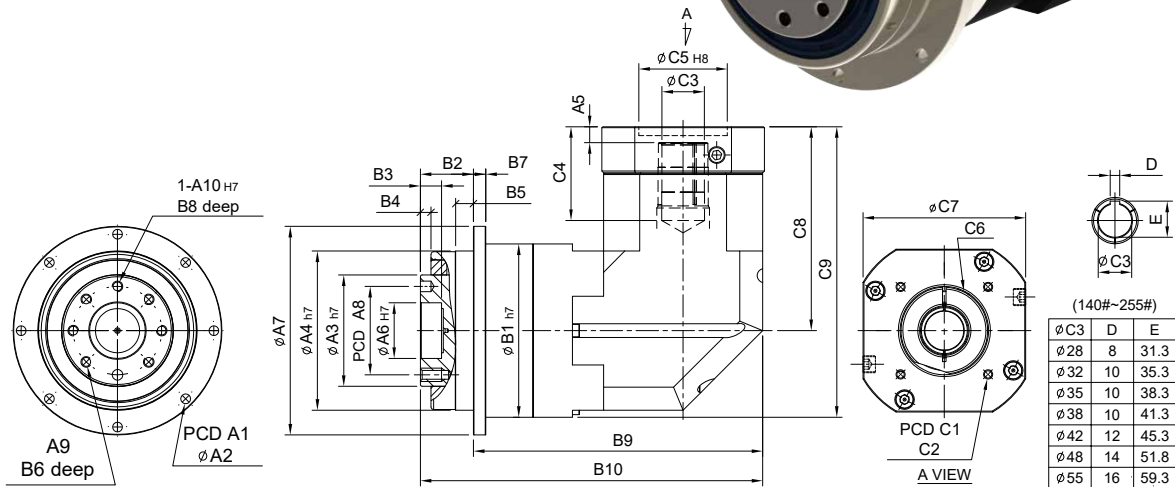
SERVOBOX Planetary Reducers



MODEL : SDL

單段 1-Stage

RATIO : 4, 5, 7, 10, 14, 20



unit: mm

Model Code	47	64	90	110	140	200	255
A							
A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	28	40	63	80	100	160	180
A4	47	64	90	110	140	200	255
A5	6	6	9 · 23.5	10 · 20	10	12.5 · 14.5	12.5 · 14.5
A6	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4 - M3 x P0.5	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	12 - M16 x P2.0
A10	3	5	6	6	8	10	12
B							
B1	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	8	12	12	16	22	32
B7	4	5	7	8	10	12	18
B8	4	6	6	7	7	10	10
B9	84.2	105.5	163.6	203	227.5	313	332.5
B10	103.7	125	193.6	232	265.5	363	398.5
C							
C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265	200 · 265 · 300
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16	M12 · M16
C3	8 · 9 · 11	11 · 14 · 19	16 · 19 · 22 · 24	24 · 28 · 32	32 · 35 · 38	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
C4	27	33.5 · 42	53 · 67.5	67 · 77	85	132 · 134	132 · 134
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230	114.3 · 230 · 250
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250	222 · 250 · 265
C8	61	77 · 85	115.3 · 129.8	141 · 151	165.7	235 · 237	235 · 273
C9	90.5	112 · 120	164.3 · 178.8	203.5 · 213.5	243.7	341 · 343	362 · 364

High Precision Planetary Reducer

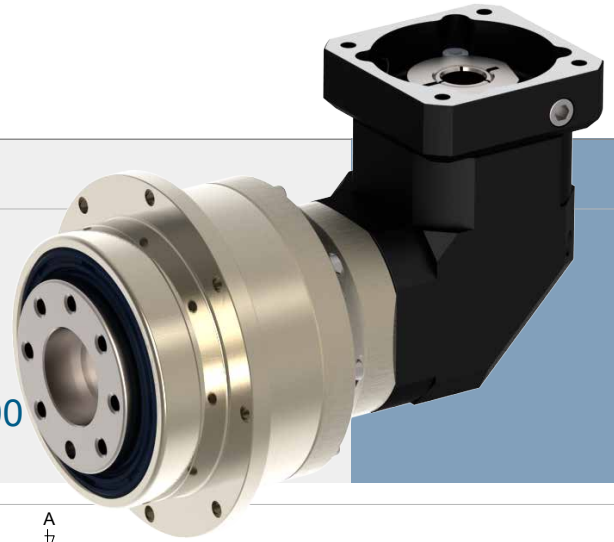
規格 Parameter	代號	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	4	22	60	160	335	650	1,200	2,020
			5	20	50	155	333	618	1,189	2,010
			7	19	47	142	309	573	1,108	1,870
			10	20	50	136	294	549	1,059	1,779
			14	19	47	142	309	573	1,108	1,870
			20	16	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	4 ~ 20	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	4 ~ 20	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	4 ~ 20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	4 ~ 20	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash P _s		arcmin	4 ~ 20	-	-	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2
背隙 Backlash P ₀		arcmin	4 ~ 20	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P ₁		arcmin	4 ~ 20	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 Backlash P ₂		arcmin	4 ~ 20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
扭轉剛性 Torsional Rigidity		Nm/arcmin	4 ~ 20	6	14	30	86	155	450	1,126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	4 ~ 20	2,040	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	4 ~ 20	1,020	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	4 ~ 20	-	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	4 ~ 20	-	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	4 ~ 20	31	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	4 ~ 20	-	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	4 ~ 20	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	4 ~ 20	≥ 95%						
使用溫度 Operating Temperature		°C	4 ~ 20	-25 °C ~ +90 °C						
潤滑 Lubrication			4 ~ 20	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			4 ~ 20	IP65						
安裝方向 Mounting Position			4 ~ 20	任意方向 Any						
噪音值 Noise Level		dB	4 ~ 20	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	4 ~ 20	1.1	2.3	6.9	13.4	23	80	90

※Applied to the output shaft center at 100 rpm.

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
4	0.09	0.36	2.28	6.85	23.5	68.1	134.8
5	0.09	0.36	2.28	6.85	23.5	68.1	134.8
7	0.09	0.36	2.28	6.85	23.5	68.1	134.8
10	0.09	0.36	2.28	6.85	23.5	68.1	134.8
14	0.03	0.08	1.88	6.2	21.8	66.5	120.2
20	0.03	0.08	1.88	6.2	21.8	66.3	118.8

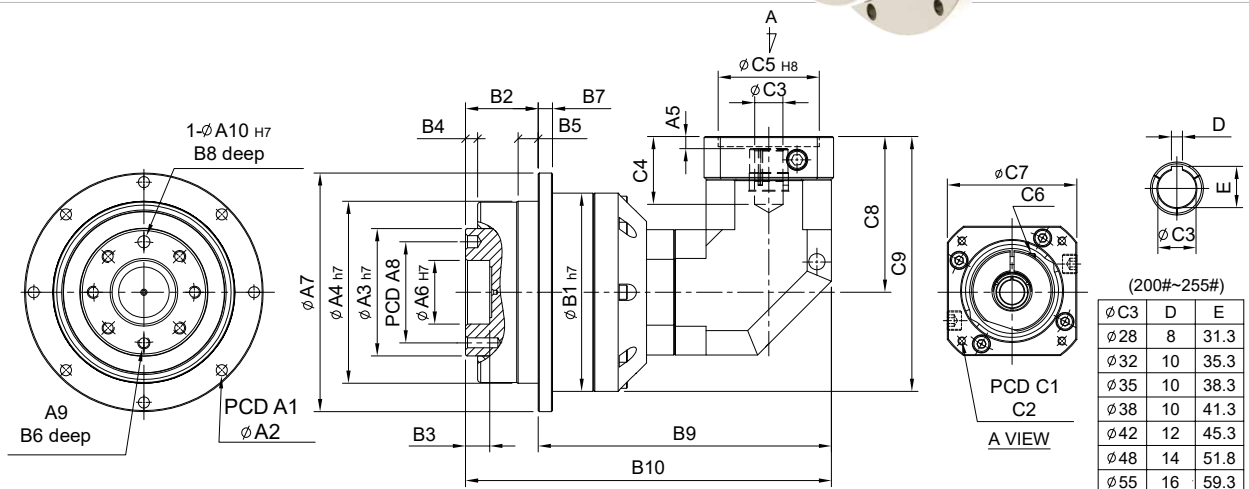
SERVOBOX Planetary Reducers



MODEL : SDL

雙段 2-Stage

RATIO : 20, 25, 35, 40, 50, 70, 100, 140, 200



unit: mm

Model Code	47	64	90	110	140	200	255
A A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	28	40	63	80	100	160	180
A4	47	64	90	110	140	200	255
A5	6	6	9·23	9·23.5	10	12.5	12.5·14.5
A6	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4 - M3 x P0.5	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	12 - M16 x P2.0
A10	3	5	6	6	8	10	12
B B1	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	8	12	12	16	22	32
B7	4	5	7	8	10	12	16
B8	4	6	6	7	7	10	10
B9	110.2	118.5	151	210.6	254.5	308.5	379.1
B10	129.7	138	181	239.6	292.5	358.5	445.1
C C1	46·60·63	46·60·63	70·75·90	90·110·115·145	115·145·165	145·165·215	200·215·265
C2	M3·M4·M5	M3·M4·M5	M4·M5·M6	M5·M6·M8·M10	M6·M8·M10	M8·M10·M12	M10·M12·M16
C3	8·9·11	8·9·11	14·16·19	16·19·22·24	24·28·32	28·32·35·38	35·38·42·48·55
C4	27	27	33.5·42	53·67.5	67·77	85	117·119
C5	30·40·50	30·40·50	50·60·70	70·80·95·110	95·110·130	110·130·180	114.3·180·230
C6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46·55	46·55	64·70·80	92·110·130	122·130·150	146·150·190	182·200·250
C8	61	61	77·85	115.3·129.8	141·151	165.7	235·237
C9	90.5	96	126·134	177.8·192.3	219·229	271.7	362.5·364.5

High Precision Planetary Reducer

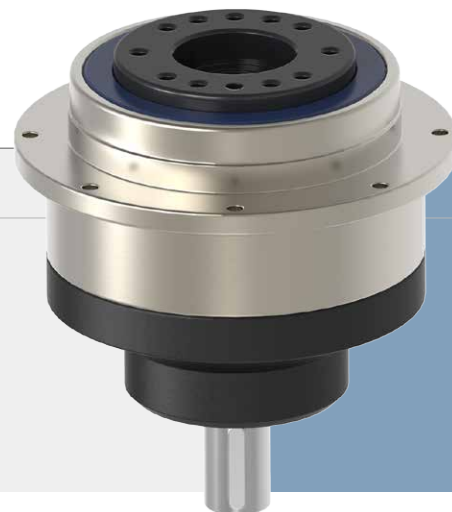
規格 Parameter	代號	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20	22	60	160	335	650	1,200	2,020
			25	20	50	155	333	618	1,189	2,010
			35	19	47	142	309	573	1,108	1,870
			40	22	60	160	335	650	1,200	2,020
			50	20	50	155	333	618	1,189	2,010
			70	19	47	142	309	573	1,108	1,870
			100	16	43	136	294	549	1,059	1,779
			140	19	47	142	309	573	1,108	1,870
200	16	43	136	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	20 ~ 200	1.8 倍額定輸出力矩 1.8 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 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	20 ~ 200	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	20 ~ 200	6,000	6,000	6,000	6,000	6,000	4,000	3,000
背隙 Backlash Ps		arcmin	20 ~ 200	-	-	-	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P0		arcmin	20 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	20 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	20 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	20 ~ 200	6	14	30	86	155	450	1,126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	20 ~ 200	2,040	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	20 ~ 200	1,020	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	20 ~ 200	-	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	20 ~ 200	-	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	20 ~ 200	31	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	20 ~ 200	-	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	20 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	20 ~ 200	≥ 92%						
使用溫度 Operating Temperature		°C	20 ~ 200	- 25 °C ~ + 90 °C						
潤滑 Lubrication			20 ~ 200	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			20 ~ 200	IP65						
安裝方向 Mounting Position			20 ~ 200	任意方向 Any						
噪音值 Noise Level		dB	20 ~ 200	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	20 ~ 200	1.4	2	6	11.8	22.3	48.5	97.5

※Applied to the output shaft center at 100 rpm.

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
20	0.09	0.36	2.28	6.85	23.5	22.8	68.2
25	0.09	0.36	2.28	6.85	23.5	22.8	68.2
35	0.09	0.36	2.28	6.85	23.5	22.8	68.2
40	0.09	0.36	2.28	6.85	23.5	22.8	68.2
50	0.09	0.36	2.28	6.85	23.5	22.8	68.2
70	0.09	0.36	2.28	6.85	23.5	22.8	68.2
100	0.09	0.36	2.28	6.85	23.5	22.8	68.2
140	0.03	0.08	1.88	6.2	21.8	21.1	64.9
200	0.03	0.08	1.88	6.2	21.8	21.1	64.9

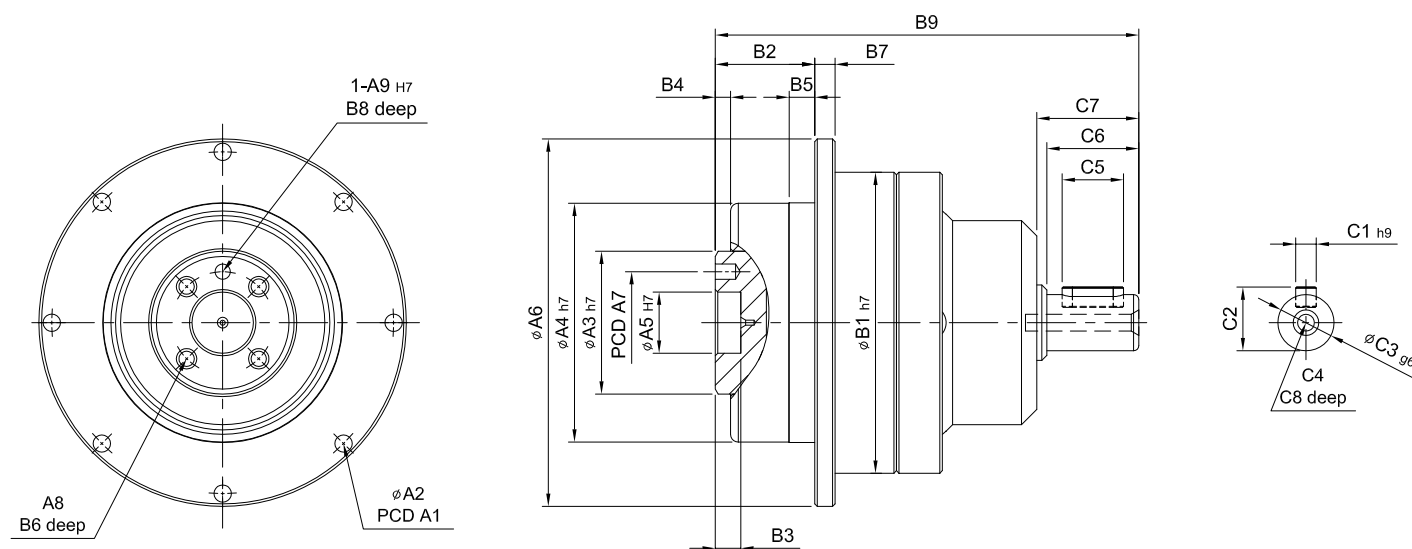
SERVOPBOX Planetary Reducers



MODEL : SDD

單段 1-Stage

RATIO : 4, 5, 7, 10



unit: mm

Model Code	47	64	90	110	140	200	255	
A	A1	67	79	109	135	168	233	280
	A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
	A3	28	40	63	80	100	160	180
	A4	47	64	90	110	140	200	255
	A5	12	20	31.5	40	50	80	100
	A6	72	86	118	146	179	248	300
	A7	20	31.5	50	63	80	125	140
	A8	4 - M3 x P0.5	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	12 - M16 x 2.0
	A9	3	5	6	6	8	10	12
B	B1	59	70	98	125	156	212	255
	B2	19.5	19.5	30	29	38	50	66
	B3	5	7	12	12	12	16	20
	B4	1.5	4	6	6	6	8	12
	B5	5	6	10	10	15	15	20
	B6	6.5	8	12	12	16	22	32
	B7	4	5	7	8	10	12	18
	B8	4	6	6	7	7	10	10
	B9	83	99	134	160	195	252	322.5
C	C1	4	5	5	6	10	12	16
	C2	12.5	16	18	24.5	35	43	59
	C3	11	14	16	22	32	40	55
	C4	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M12 x P1.75	M14 x P2.0	M16 x P2.0
	C5	12	20	20	30	40	50	75
	C6	18	24	28	36	50	60	85
	C7	20	26.3	31.5	40	54	65	90
	C8	8	10	12	16	24	28	32

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	4	22	60	160	335	650	1,200	2,020
5			20	50	155	333	618	1,189	2,010	
7			19	47	142	309	573	1,108	1,870	
10			16	43	136	294	549	1,059	1,779	
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	4 ~ 10	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque						
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	4 ~ 10	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	4 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	4 ~ 10	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	4 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
背隙 Backlash P0		arcmin	4 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	4 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	4 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭轉剛性 Torsional Rigidity		Nm/arcmin	4 ~ 10	6	14	30	86	155	450	1,126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	4 ~ 10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	4 ~ 10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	4 ~ 10	-	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	4 ~ 10	-	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	4 ~ 10	31	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	4 ~ 10	-	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	4 ~ 10	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	4 ~ 10	≥ 97%						
使用溫度 Operating Temperature		°C	4 ~ 10	- 25° C ~ + 90° C						
潤滑 Lubrication			4 ~ 10	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			4 ~ 10	IP65						
安裝方向 Mounting Position			4 ~ 10	任意方向 Any						
噪音值 Noise Level		dB	4 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	4 ~ 10	0.71	1.3	3.6	6.2	12	32	53

※Applied to the output shaft center at 100 rpm.

轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
4	0.03	0.13	0.47	2.75	7.46	24.00	55
5	0.03	0.12	0.45	2.70	7.41	23.23	53.19
7	0.03	0.12	0.45	2.64	7.12	22.11	50.78
10	0.03	0.12	0.43	2.56	7.01	22.21	50.50

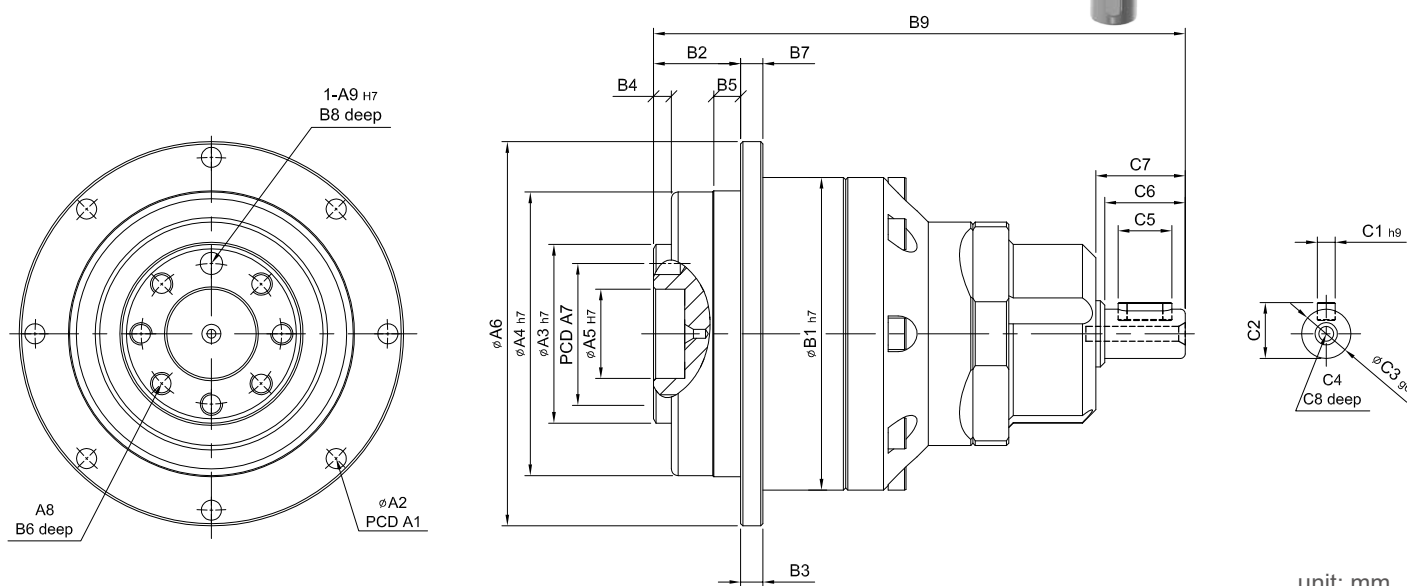
SERVBOX Planetary Reducers



MODEL : SDD

雙段 2-Stage

RATIO : 20, 25, 35, 40, 50, 70, 100



unit: mm

Model Code	47	64	90	110	140	200	255	
A	A1	67	79	109	135	168	233	280
	A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
	A3	28	40	63	80	100	160	180
	A4	47	64	90	110	140	200	255
	A5	12	20	31.5	40	50	80	100
	A6	72	86	118	146	179	248	300
	A7	20	31.5	50	63	80	125	140
	A8	4 - M3 x P0.5	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	12 - M16 x P2.0
	A9	3	5	6	6	8	10	12
B	B1	59	70	98	125	156	212	255
	B2	19.5	19.5	30	29	38	50	66
	B3	5	7	12	12	12	16	20
	B4	1.5	4	6	6	6	8	12
	B5	5	6	10	10	15	15	20
	B6	6.5	8	12	12	16	22	32
	B7	4	5	7	8	10	12	18
	B8	4	6	6	7	7	10	10
	B9	109	119	159	190	231.5	299	350.5
C	C1	4	4	5	5	6	10	12
	C2	12.5	12.5	16	18	24.5	35	43
	C3	11	11	14	16	22	32	40
	C4	M4 x P0.7	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M12 x P1.75	M14 x P2.0
	C5	12	12	20	20	30	40	50
	C6	18	18	24	28	36	50	60
	C7	20	20	26	31.5	40	54	65
	C8	8	8	10	12	16	24	28

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	47	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20	22	60	160	335	650	1,200	2,020
			25	20	50	155	333	618	1,189	2,010
			35	19	47	142	309	573	1,108	1,870
			40	22	60	160	335	650	1,200	2,020
			50	20	50	155	333	618	1,189	2,010
			70	19	47	142	309	573	1,108	1,870
			100	16	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	20 ~ 100	1.8 倍額定輸出力矩 1.8 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 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque						
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	20 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	20 ~ 100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash Ps		arcmin	20 ~ 100	-	-	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	20 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	20 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	20 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	20 ~ 100	6	14	30	86	155	450	1,126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	20 ~ 100	2,040	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	20 ~ 100	1,020	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	20 ~ 100	-	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	20 ~ 100	-	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	20 ~ 100	31	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	20 ~ 100	-	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	20 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	20 ~ 100	≥ 94%						
使用溫度 Operating Temperature		°C	20 ~ 100	- 25° C ~ + 90° C						
潤滑 Lubrication			20 ~ 100	全合成潤滑油脂 Synthetic Grease						
防護等級 Protection Class			20 ~ 100	IP65						
安裝方向 Mounting Position			20 ~ 100	任意方向 Any						
噪音值 Noise Level		dB	20 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	20 ~ 100	1.15	1.7	4.25	8.5	14.95	37.2	69

※Applied to the output shaft center at 100 rpm.

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
20	0.03	0.03	0.15	0.45	2.7	7.22	23.22
25	0.03	0.03	0.15	0.45	2.7	7.22	23.22
35	0.03	0.03	0.15	0.45	2.7	7.22	23.22
40	0.03	0.03	0.15	0.45	2.7	7.22	23.22
50	0.03	0.03	0.14	0.4	2.6	7.05	23.07
70	0.03	0.03	0.14	0.4	2.6	7.05	23.07
100	0.03	0.03	0.14	0.4	2.6	7.01	22.67

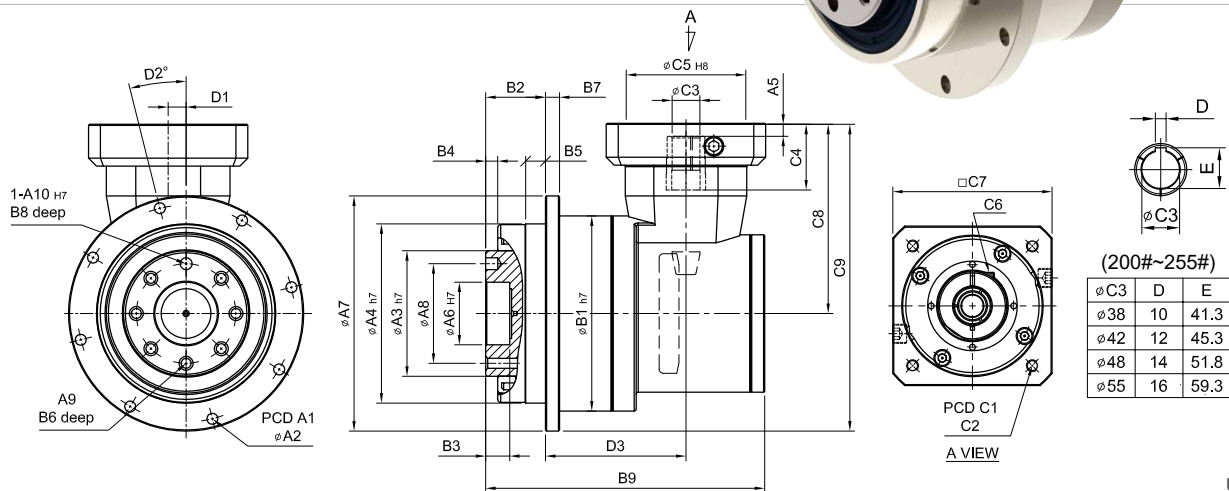
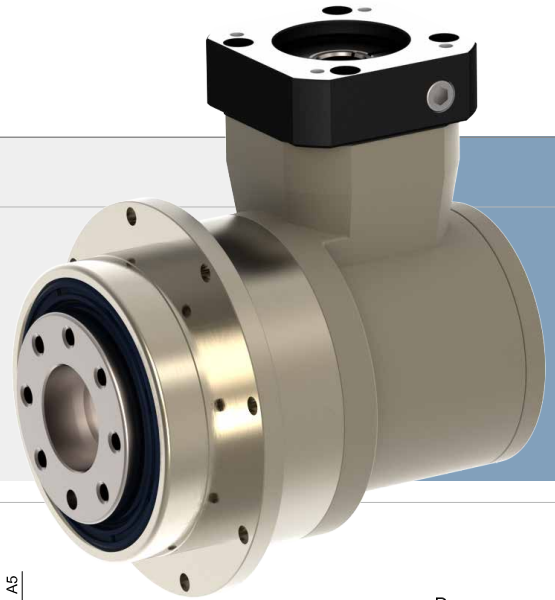
SERVOBOX Planetary Reducers

螺旋齒輪 Helical Gear & 戟齒輪 Hypoid Gear

MODEL : SDH

雙段 2-Stage

RATIO : 20, 25, 35, 50, 70, 100, 150



unit: mm

Model Code	64	90	110	140	200	255
A						
A1	79	109	135	168	233	280
A2	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	40	63	80	100	160	180
A4	64	90	110	140	200	255
A5	5	6	9	10	10	13
A6	20	31.5	40	50	80	100
A7	86	118	146	179	248	300
A8	31.5	50	63	80	125	140
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	12 - M16 x P2.0
A10	5	6	6	8	10	12
B						
B1	70	98	125	156	212	255
B2	19.5	30	29	38	50	66
B3	7	12	12	12	16	20
B4	4	6	6	6	8	12
B5	6	10	10	15	15	20
B6	8	12	12	16	22	32
B7	5	7	8	10	12	18
B8	6	6	7	7	10	10
B9	96	140	168	202	273	303.5
C						
C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
C3	8 · 9 · 11	14	24	32	38	42 · 48 · 55
C4	26	33	59	67	85	116
C5	30 · 40 · 50	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46 · 55	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
C8	69	95.5	126.5	149	203	259.5
C9	112	154.5	199.5	238.5	327	409.5
C10	1/8"PT	1/8"PT	1/8"PT	1/4"PT	1/4"PT	3/8"PT
D						
D1	9	9	14	18	27	32
D2	19	14	14	0	0	18
D3	46.2	70.5	90	103.8	144	147.5

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	64	90	110	140	200	255
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	20	60	160	335	650	1,200	2,020
			25	50	155	333	618	1,189	2,010
			35	47	142	309	573	1,108	1,870
			50	50	155	333	618	1,189	2,010
			70	47	142	309	573	1,108	1,870
			100	43	136	294	549	1,059	1,779
			150	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	20 ~ 150	1.8 倍額定輸出力矩 1.8 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 ~ 150	3 倍額定輸出力矩 3 Times of Rated Output Torque					
額定輸入轉速 Rated Input Speed	n_{IN}	rpm	20 ~ 150	3,000	3,000	3,000	3,000	2,000	2,000
最大輸入轉速 Max. Input Speed	n_{IB}	rpm	20 ~ 150	6,000	6,000	5,000	5,000	4,000	4,000
背隙 Backlash P0		arcmin	20 ~ 150	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P1		arcmin	20 ~ 150	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	20 ~ 150	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
扭轉剛性 Torsional Rigidity		Nm/arcmin	20 ~ 150	14	30	86	155	450	1,126
容許徑向力 Max. Radial Force 滾珠軸承 Ball Bearing	F_{2rB}	N	20 ~ 150	2,520	8,460	12,720	14,070	35,200	39,600
容許軸向力 Max. Axial Force 滾珠軸承 Ball Bearing	F_{2aB}	N	20 ~ 150	1,260	4,230	6,360	7,035	17,600	19,800
容許徑向力 Max. Radial Force 滾錐軸承 Taper Bearing	F_{2rB}	N	20 ~ 150	-	14,660	23,000	37,200	73,600	107,200
容許軸向力 Max. Axial Force 滾錐軸承 Taper Bearing	F_{2aB}	N	20 ~ 150	-	7,330	11,500	18,600	36,800	53,600
最大傾斜力矩 Max. Tilting Moment 滾珠軸承 Ball Bearing ※	M_{2K}	Nm	20 ~ 150	98	185	320	940	2,200	4,300
最大傾斜力矩 Max. Tilting Moment 滾錐軸承 Taper Bearing ※	M_{2K}	Nm	20 ~ 150	-	280	480	1,400	3,300	6,480
使用壽命 Service Life	L_H	hr	20 ~ 150	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 Efficiency	η	%	20, 25, 35, 50 70, 100, 150	≥ 92% ≥ 90%					
使用溫度 Operating Temperature		°C	20 ~ 150	- 25 °C ~ + 90 °C					
潤滑 Lubrication			20 ~ 150	全合成潤滑油脂 Synthetic Grease					
防護等級 Protection Class			20 ~ 150	IP65					
安裝方向 Mounting Position			20 ~ 150	任意方向 Any					
噪音值 Noise Level		dB	20 ~ 150	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	20 ~ 150	1.7	4.7	9.2	17.4	38.8	61.7

※Applied to the output shaft center at 100 rpm.

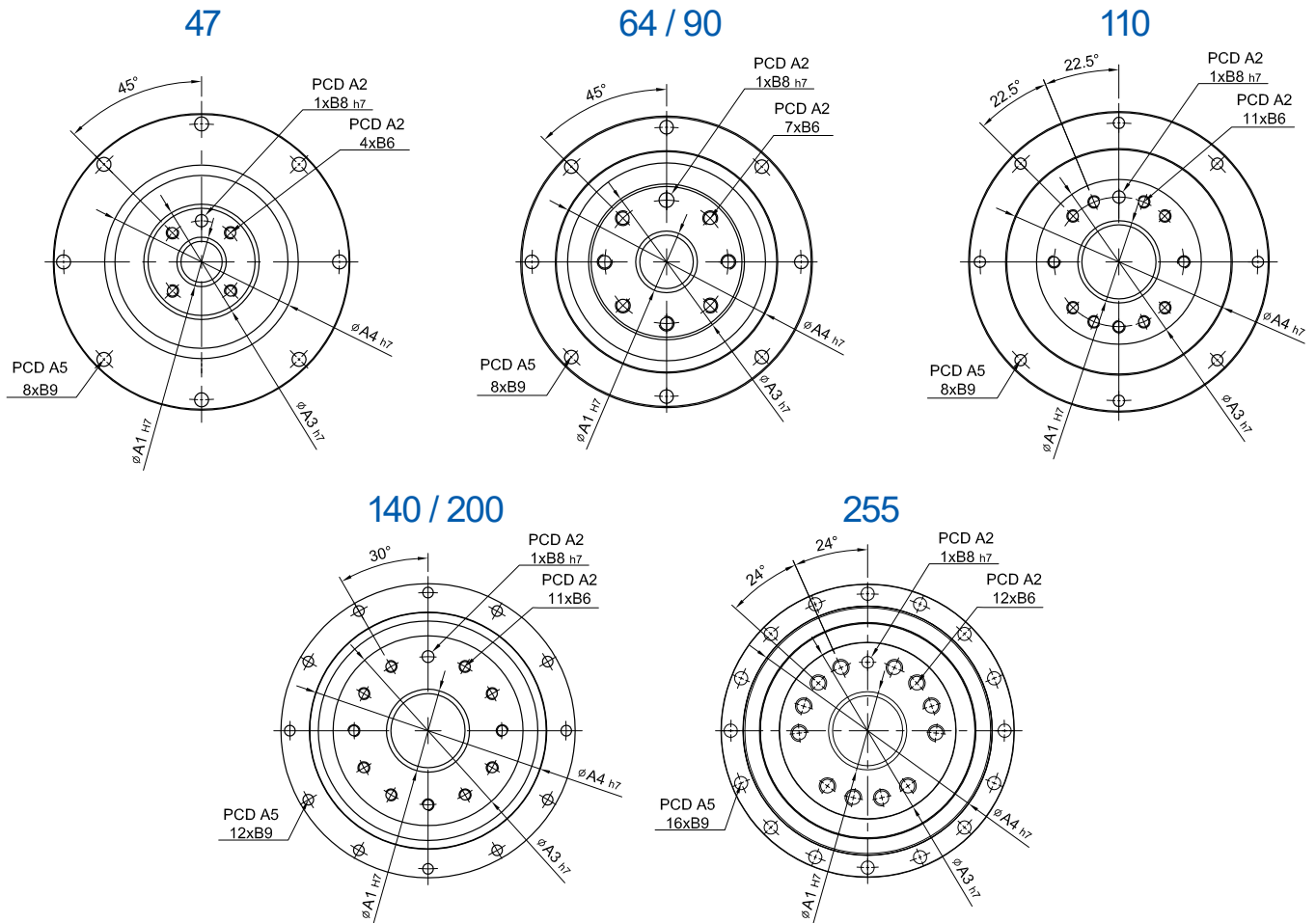
■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	64	90	110	140	200	255
20	0.03	0.15	0.45	2.7	7.22	23.22
25	0.22	1.37	4.11	14.1	40.8	80.8
35	0.22	1.37	4.11	14.1	40.8	80.8
50	0.18	1.14	3.43	11.7	34.0	67.4
70	0.03	0.14	0.4	2.6	7.05	23.07
100	0.03	0.14	0.4	2.6	7.01	22.67
150	0.03	0.14	0.4	2.6	7.01	22.67



Output Frame Dimension of SD, SDL, SDD Series

SD、SDL、SDD 系列出力法蘭尺寸表



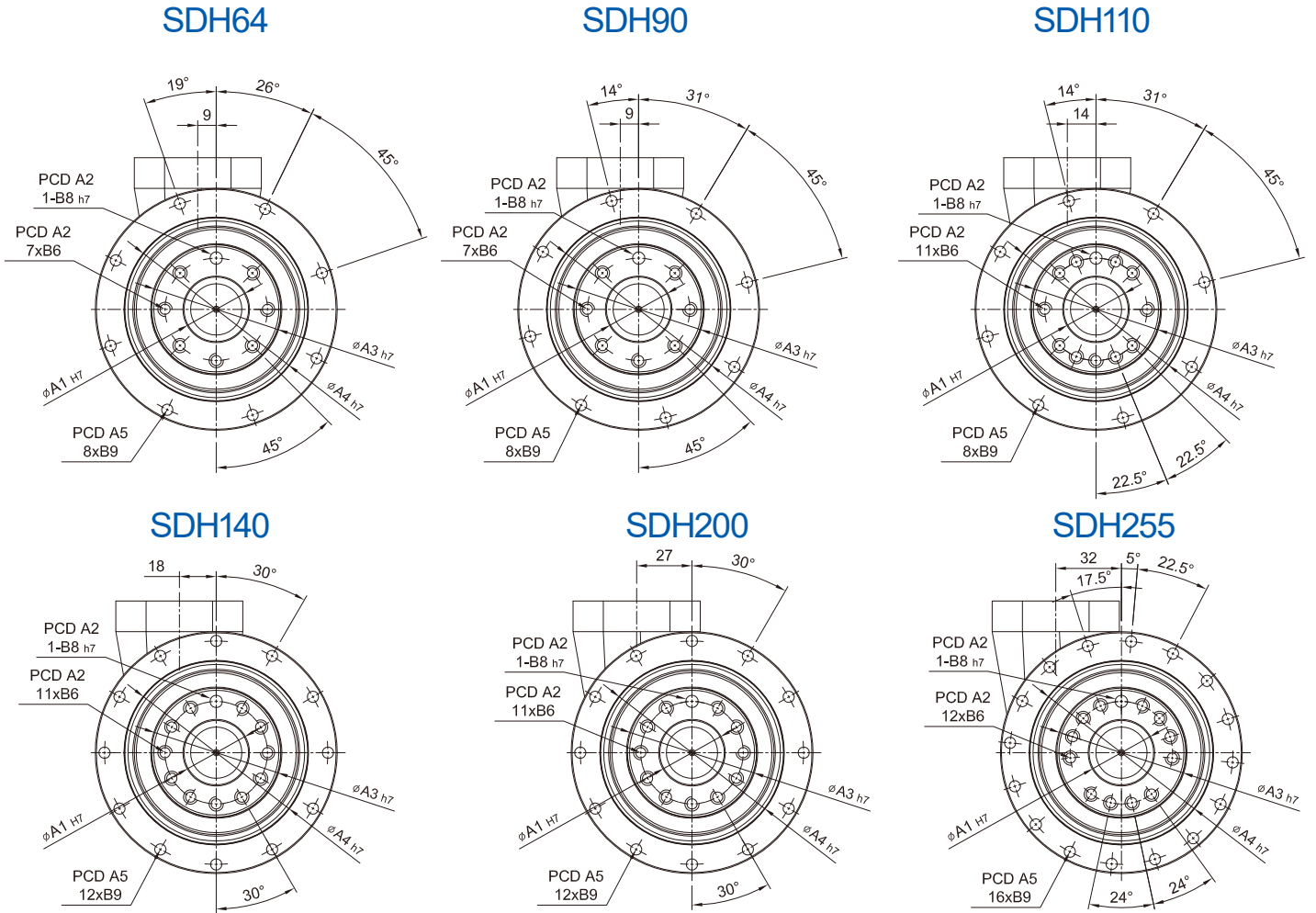
單段 1-Stage SD, SDL, SDD 雙段 2-Stage SD, SDL, SDD

unit: mm

Model Code	47	64	90	110	140	200	255
	A	A1	12	20	31.5	40	50
A2		20	31.5	50	63	80	140
A3		28	40	63	80	100	180
A4		47	64	90	110	140	255
A5		67	79	109	135	168	280
B	B6	M3 x P0.5	M5 x P0.8	M6 x P1	M6 x P1	M8 x P1.25	M10 x P1.5
	B8	3	5	6	6	8	12
	B9	3.4	4.5	5.5	5.5	6.6	13.5

Output Frame Dimension of SDH Series

SDH 系列出力法蘭尺寸表



雙段 2-Stage SDH

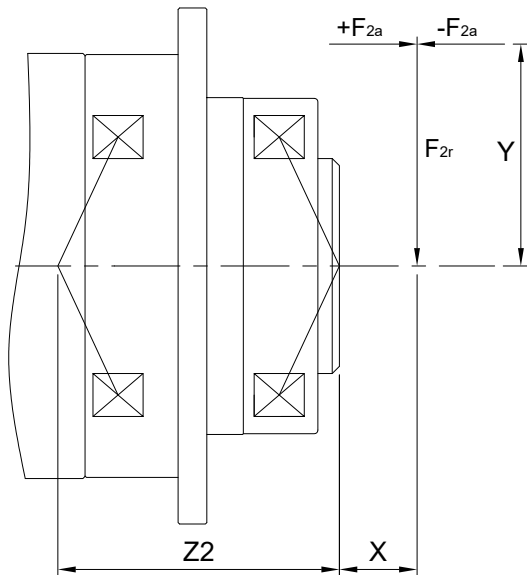
unit: mm

Code	Model	64	90	110	140	200	255
	A	A1	20	31.5	40	50	80
A2		31.5	50	63	80	125	140
A3		40	63	80	100	160	180
A4		64	90	110	140	200	255
A5		79	109	135	168	233	280
B	B6	M5 x P0.8	M6 x P1	M6 x P1	M8 x P1.25	M10 x P1.5	M16 x P2
	B8	5	6	6	8	10	12
	B9	4.5	5.5	5.5	6.6	9	13.5



Max. Tilting Moment M_{2K} of SD, SDL, SDD, SDH Series

SD、SDL、SDD、SDH 系列最大傾斜力矩



$$M_{2K} = \frac{F_{2a} \cdot Y + F_{2r} \cdot (X + Z2)}{1000}$$

M_{2K} : [Nm]

F_{2a}, F_{2r} : [N]

$X, Y, Z2$: [mm]

unit: mm

Model		47	64	90	110	140	200	255
Code								
Z2	滾珠軸承 Ball Bearing	22.5	28	34	41	48	60	68
	滾錐軸承 Taper Bearing	-	-	50	60.6	77	98.8	114.5

MEMO



Indication of Model Numbers

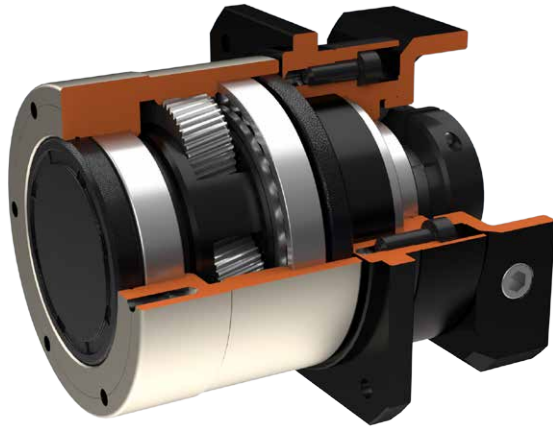
機種型號表示

SR	100	9	MOTOR
減速機型 Type	型號 Model	速比 Ratio	馬達型號 Motor Type
SR SRD	82 100 132	單段 1-Stage 2, 3, 4, 6, 9 雙段 2-Stage 10, 15, 20, 24, 30, 36, 40, 45, 60, 90	



Features of SR Series

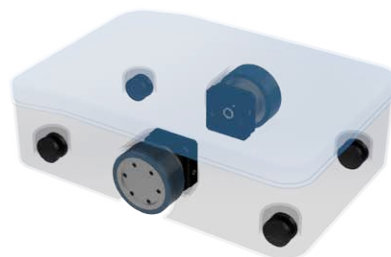
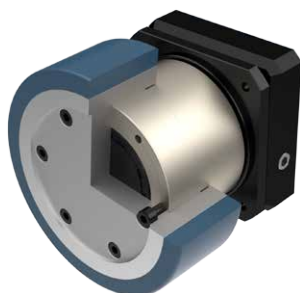
SR 系列產品特點



外轉式行星減速機由殼體直接傳動，節省使用空間。
The outer-rotating planetary reducer is directly driven by the housing, saving space.

Applications

減速機應用範例

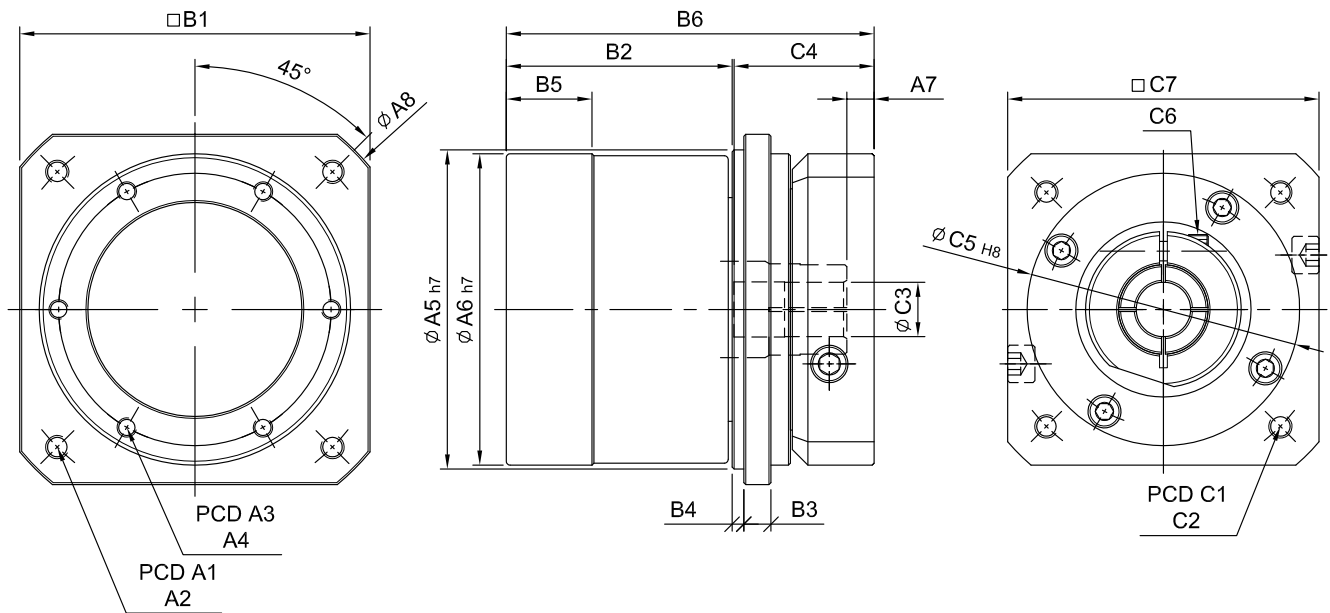
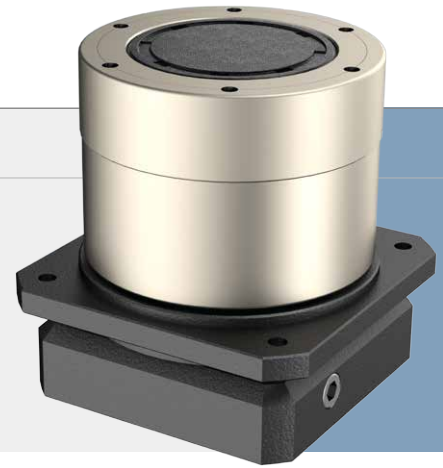


SERVOBOX Planetary Reducers

MODEL : SR

單段 1-Stage

RATIO : 2, 3, 4, 6, 9



unit: mm

Model		82	100	132
A	Code			
	A1	100	122	166
	A2	M6 x P1.0	M8 x P1.25	M10 x P1.5
	A3	70	84	114
	A4	M5 x P0.8	M6 x P1.0	M8 x P1.25
	A5	82	100	132
	A6	80	96	128
	A7	7·9	8·17	11.5
B	B1	90	108	140
	B2	58	63	85.5
	B3	7	9.5	12
	B4	3	3.5	4
	B5	22	24	34
	B6	94.5	111.5	143
C	C1	85	115	130
	C2	M6 x P1.0	M6 x P1.0	M8 x P1.25
	C3	14·19	19·24	24·28
	C4	36·43	47·56	63.5
	C5	70	95	110
	C6	M5 x P0.8	M6 x P1.0	M8 x P1.25
	C7	80	110	130

High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	82	100	132
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	2	86	131	271
			3	82	122	243
			4	76	115	239
			6	72	111	232
			9	68	104	221
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	2 ~ 9	1.5 倍額定輸出力矩 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 ~ 9	3 倍額定輸出力矩 3 Times of Rated Output Torque		
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	2 ~ 9	3,000		
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	2 ~ 9	6,000		
背隙 Backlash		arcmin	2 ~ 9	≤ 6	≤ 6	≤ 6
扭轉剛性 Torsional Rigidity		Nm/arcmin	2 ~ 9	10	14	27
容許徑向力 Max. Radial Force	F_{2rB}	N	2 ~ 9	3,000	3,400	7,200
容許軸向力 Max. Axial Force	F_{2aB}	N	2 ~ 9	1,500	1,700	3,600
使用壽命 Service Life	L_H	hr	2 ~ 9	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)		
效率 Efficiency	η	%	2 ~ 9	≥ 97%		
使用溫度 Operating Temperature		°C	2 ~ 9	- 25 °C ~ + 90 °C		
潤滑 Lubrication			2 ~ 9	全合成潤滑油脂 Synthetic Grease		
防護等級 Protection Class			2 ~ 9	IP65		
安裝方向 Mounting Position			2 ~ 9	任意方向 Any		
噪音值 Noise Level		dB	2 ~ 9	≤ 60	≤ 62	≤ 64
重量 Weight ±3%		Kg	2 ~ 9	2.5	4	8.9

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

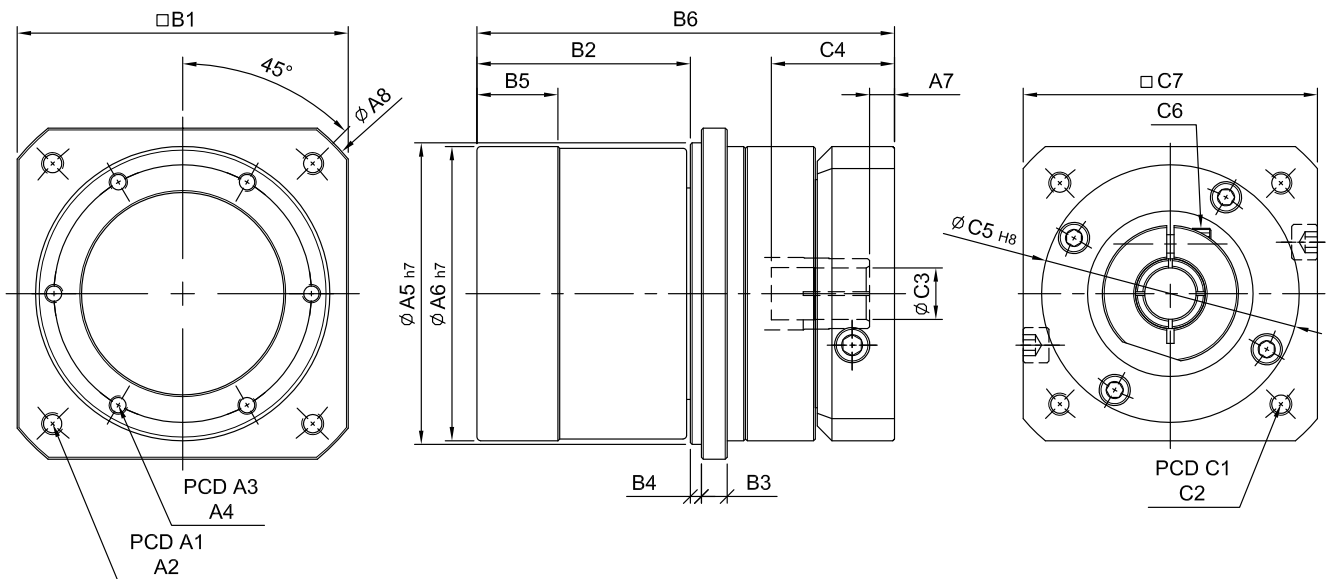
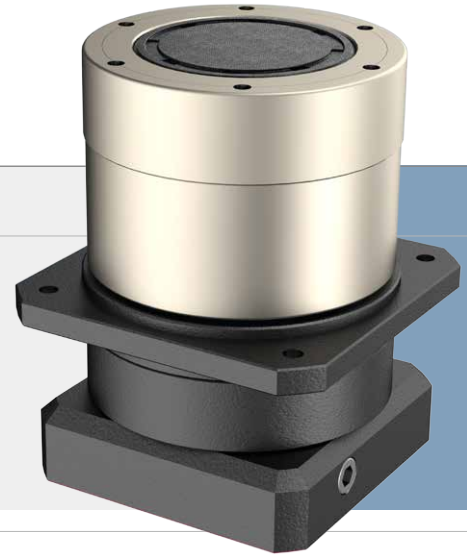
Ratio	82	100	132
2~9	0.7	0.9	3.2

SERVOBOX Planetary Reducers

MODEL : SR

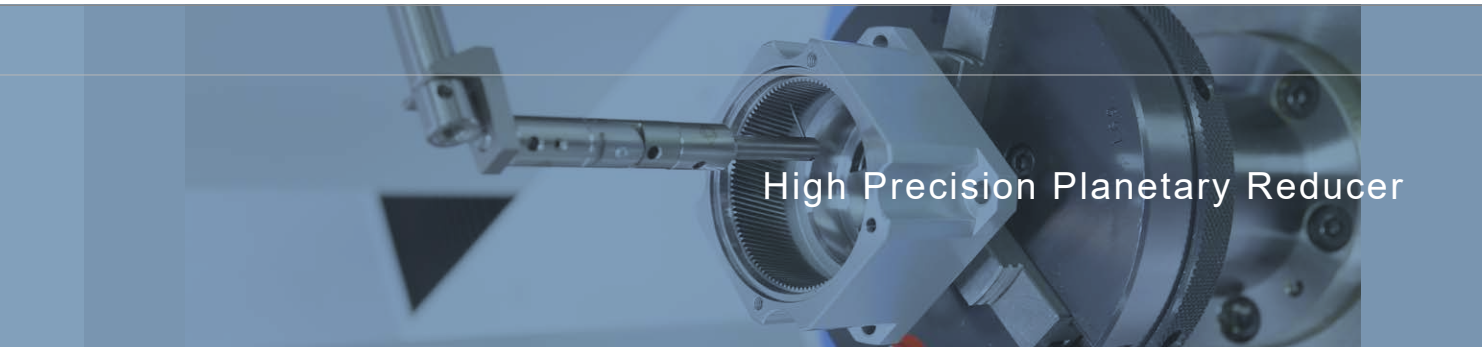
雙段 2-Stage

RATIO : 10, 15, 20, 24, 30, 36, 40, 45, 60, 90



unit: mm

Model	82	100	132
A			
A1	100	122	166
A2	M6 x P1.0	M8 x P1.25	M10 x P1.5
A3	70	84	114
A4	M5 x P0.8	M6 x P1.0	M8 x P1.25
A5	82	100	132
A6	80	96	128
A7	7 · 9	8	8
A8	116	139	184
B			
B1	90	108	140
B2	58	63	85.5
B3	7	9.5	12
B4	3	3.5	4
B5	22	24	34
B6	113.5	137	168
C			
C1	85	115	145
C2	M6 x P1.0	M6 x P1.0	M8 x P1.25
C3	14 · 19	19	19 · 24
C4	33.5 · 40.8	43.5	52
C5	70	95	110
C6	M5 x P0.8	M5 x P0.8	M8 x P1.25
C7	80	110	130



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	82	100	132
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	10	86	131	271
			15	82	122	243
			20	76	115	239
			24	72	111	232
			30	72	111	232
			36	68	104	221
			40	76	115	239
			45	68	104	221
			60	72	111	232
			90	68	104	221
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	10 ~ 90	1.5 倍額定輸出力矩 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 ~ 90	3 倍額定輸出力矩 3 Times of Rated Output Torque		
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	10 ~ 90	3,000		
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	10 ~ 90	6,000		
背隙 Backlash		arcmin	10 ~ 90	≤ 8	≤ 8	≤ 8
扭轉剛性 Torsional Rigidity		Nm/arcmin	10 ~ 90	10	14	27
容許徑向力 Max. Radial Force	F_{2rB}	N	10 ~ 90	3,000	3,400	7,200
容許軸向力 Max. Axial Force	F_{2aB}	N	10 ~ 90	1,500	1,700	3,600
使用壽命 Service Life	L_H	hr	10 ~ 90	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)		
效率 Efficiency	η	%	10 ~ 90	≥ 94%		
使用溫度 Operating Temperature		°C	10 ~ 90	- 25 °C ~ + 90 °C		
潤滑 Lubrication			10 ~ 90	全合成潤滑油脂 Synthetic Grease		
防護等級 Protection Class			10 ~ 90	IP65		
安裝方向 Mounting Position			10 ~ 90	任意方向 Any		
噪音值 Noise Level		dB	10 ~ 90	≤ 60	≤ 62	≤ 64
重量 Weight ±3%		Kg	10 ~ 90	2.8	4.6	10.1

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	82	100	132
10~90	0.3	0.5	0.8



Indication of Model Numbers

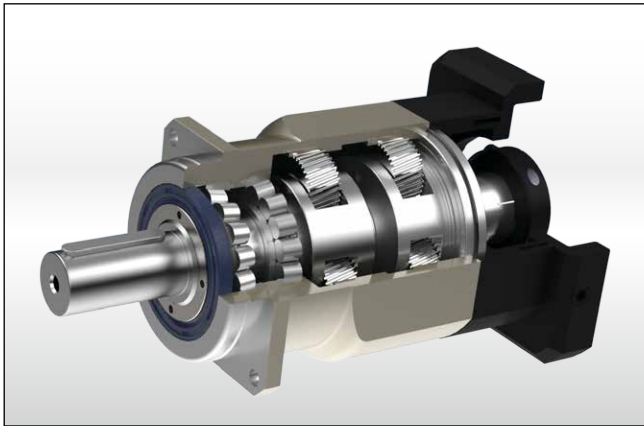
機種型號表示

SF		142	10			P1	MOTOR
減速機型 Type	型號 Model	速比 Ratio	出力軸鍵槽 Output Shaft	入力軸鍵槽 Input Shaft	背隙等級 Backlash Class	馬達型號 Motor Type	
SF	62	單段 1-Stage	<input type="checkbox"/> 標準品，有鍵槽 Standard (Keyway)	<input type="checkbox"/> 無鍵槽 No Keyway	Ps		
SF-A	75	3, 4, 5, 6, 7, 8, 9, 10	N: 實心軸，無鍵槽 Solid Output Shaft (No Keyway)	K: 有鍵槽 Keyway (142#~180#)	P0		
SFL	100	雙段 2-Stage				P1	
SFL-A	142 180	15 ~ 100			P2		



Features of SF Series

SF 系列產品特點

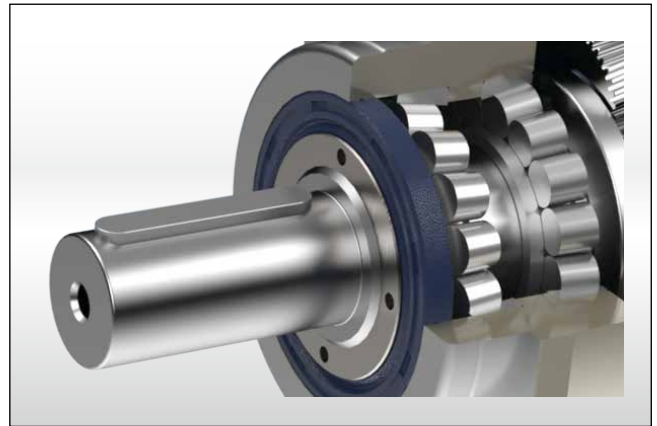


一體式的行星臂架及雙懸臂設計

行星臂架與輸出軸採一體式的結構設計，以確保提高扭轉剛性及精確度。

Integrated Planetary Arm Bracket

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy.

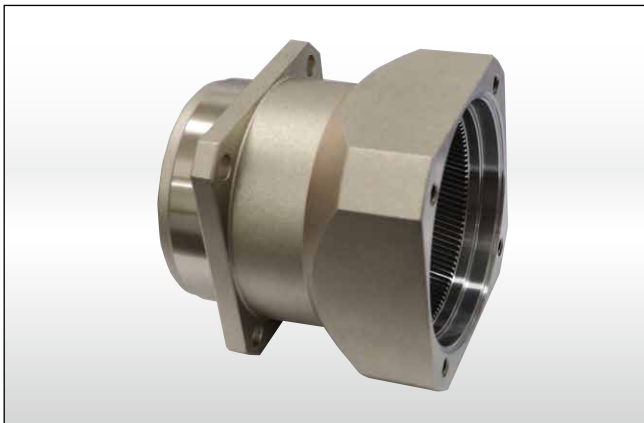


雙滾錐軸承設計

可同時承受高徑向負荷與軸向負荷。
結構強度比單一軸承設計更佳。

Double Tapered Bearing Design

Can withstand both high radial and axial loads.
Better structural strength than single bearing design.



一體式螺旋內齒輪箱

齒輪箱和內環齒輪採一體式的設計，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。

One-piece Helical Gear Box

The gear box and internal ring gear are one-piece constructed. 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 has features of extremely smooth running, low noise, high output torque and low backlash.



滿針滾針軸承設計

行星齒輪的傳動介面採用不含保持器之滿針滾針軸承，增加接觸面積以提高結構剛性及使用壽命。

Full Needle Roller Bearings Design

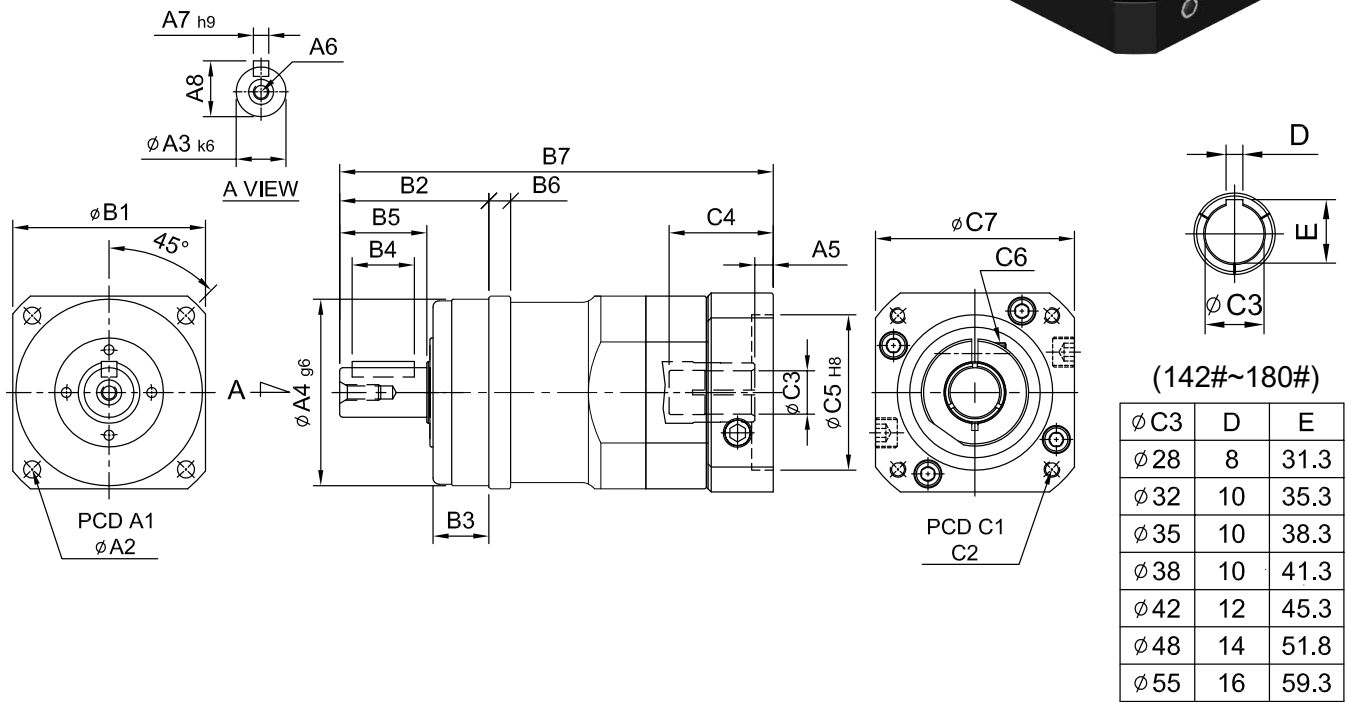
The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.

SERVOBOX Planetary Reducers

MODEL : SF

單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10



Model Code		62	75	100	142	180
A	A1	68	85	120	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	6	9.2	10.5	10	11.5 · 13.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
B	B1	62	76	106	142	180
	B2	48	56	88	112	112
	B3	18	18	27	27	26
	B4	20	32	50	70	70
	B5	28	36	58	82	82
	B6	6	7	10	12	15
	B7	139.5 · 147.5	191	242.5	306	360 · 362
C	C1	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	C3	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32 · 35	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	C4	33.5	59.2	67.5	84.5	114.5 · 116.5
	C5	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
	C6	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250

unit: mm



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	75	100	142	180
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	59	165	216	625	1,206
			4	51	146	208	555	1,069
			5	48	155	333	618	1,189
			6	45	150	315	583	1,118
			7	45	142	309	573	1,108
			8	43	141	305	553	1,070
			9	44	140	293	516	993
10	43	136	294	549	1,059			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 10	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	3 ~ 10	3 倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 10	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 10	6,000	6,000	6,000	5,000	4,000
背隙 Backlash Ps		arcmin	3 ~ 10	-	≤ 1	≤ 1	≤ 1	≤ 1
背隙 Backlash P0		arcmin	3 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	3 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	3 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 10	8	15	27	60	150
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 10	2,240	4,150	8,760	12,750	17,860
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 10	1,920	3,780	7,500	10,840	15,180
使用壽命 Service Life	L_H	hr	3 ~ 10	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	3 ~ 10	≥ 97%				
使用溫度 Operating Temperature		°C	3 ~ 10	- 25° C ~ + 90° C				
潤滑 Lubrication			3 ~ 10	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			3 ~ 10	IP65				
安裝方向 Mounting Position			3 ~ 10	任意方向 Any				
噪音值 Noise Level		dB	3 ~ 10	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67
重量 Weight ±3%		Kg	3 ~ 10	1.7	4.5	8.3	16.7	34.3

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

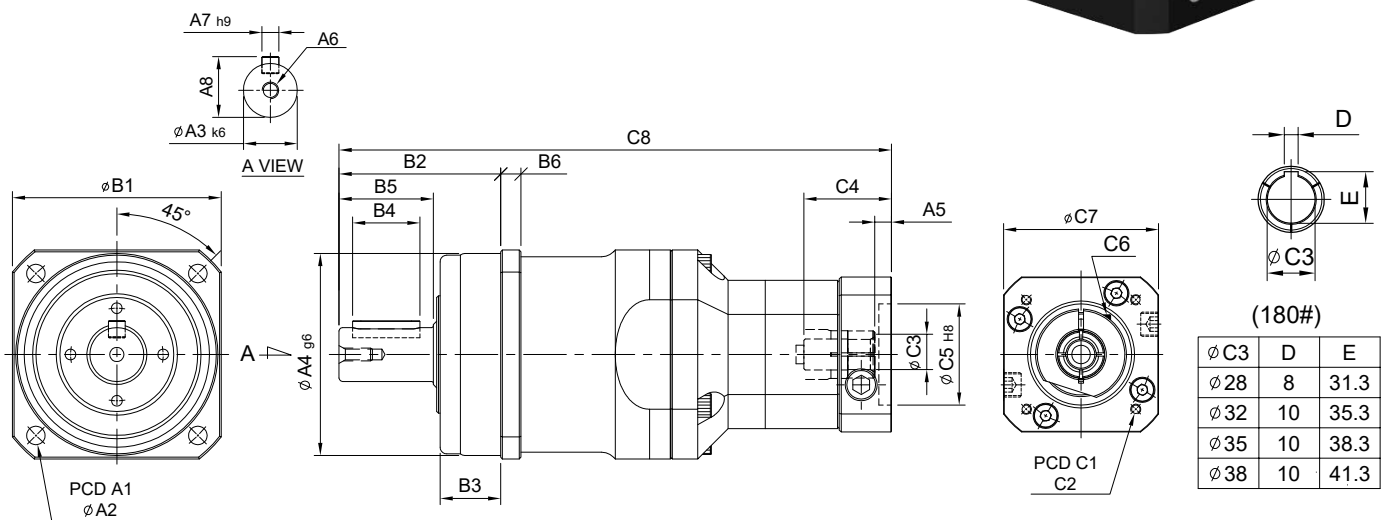
速比 Ratio	62	75	100	142	180
3	0.15	0.60	3.21	9.18	28.82
4	0.14	0.51	2.80	7.51	23.56
5	0.13	0.45	2.71	7.40	23.74
6	0.13	0.45	2.65	7.15	22.65
7	0.12	0.42	2.54	7.15	22.40
8	0.12	0.42	2.51	7.01	22.35
9	0.12	0.42	2.51	7.01	22.35
10	0.12	0.42	2.51	7.01	22.35

SERVOBOX Planetary Reducers

MODEL : SF

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100



unit: mm

Model Code	62	75	100	142	180	
A	A1	68	85	120	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	5	6	9	10	10
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
B	B1	62	76	106	142	180
	B2	48	56	88	112	112
	B3	18	18	27	27	26
	B4	20	32	50	70	70
	B5	28	36	58	82	82
	B6	6	7	10	12	15
C	C1	46·60·63	70·75·90	90·110·115·145	115·145·165	145·165·215
	C2	M3·M4·M5	M4·M5·M6	M5·M6·M8	M6·M8·M10	M8·M10·M12
	C3	8·9·11	11·14·16·19	16·19·22·24	22·24·28·32	28·32·35·38
	C4	26	33.5	59	67	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	164	198.8·206.8	278	344	395



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	75	100	142	180
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	216	625	1,206
			20	51	146	208	555	1,069
			25	48	155	333	618	1,189
			30	45	150	315	583	1,118
			35	45	142	309	573	1,108
			40	51	146	208	555	1,070
			50	48	155	333	618	1,189
			60	45	150	315	583	1,118
			70	45	142	309	573	1,108
			80	43	141	305	553	1,070
			90	44	140	293	516	993
100	43	136	294	549	1,059			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	-	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	8	15	27	60	140
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	2,240	4,150	8,760	12,750	17,860
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	1,920	3,780	7,500	10,840	15,180
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	15 ~ 100	≥ 94%				
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C				
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			15 ~ 100	IP65				
安裝方向 Mounting Position			15 ~ 100	任意方向 Any				
噪音值 Noise Level		dB	15 ~ 100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67
重量 Weight ±3%		Kg	15 ~ 100	2.52	4.8	8.48	19.98	37.3

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

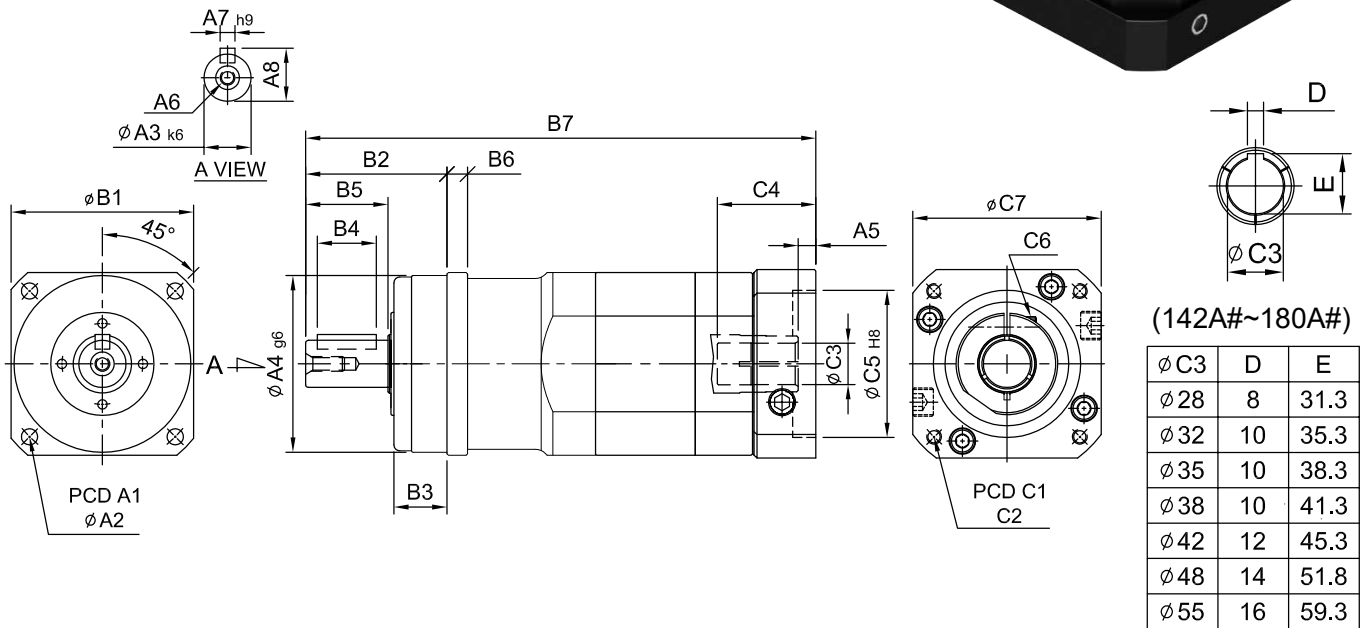
速比 Ratio	62	75	100	142	180
15	0.03	0.13	0.47	2.63	7.30
20	0.03	0.13	0.47	2.63	7.30
25	0.03	0.13	0.47	2.63	7.10
30	0.03	0.13	0.47	2.43	7.10
35	0.03	0.13	0.47	2.43	7.10
40	0.03	0.13	0.47	2.43	6.92
50	0.03	0.13	0.44	2.43	6.92
60	0.03	0.13	0.44	2.39	6.72
70	0.03	0.13	0.44	2.39	6.72
80	0.03	0.13	0.44	2.39	6.72
90	0.03	0.13	0.44	2.39	6.72
100	0.03	0.13	0.44	2.39	6.72

SERVOBOX Planetary Reducers

MODEL : SF-A

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 70, 100



unit: mm

Model Code	62A	75A	100A	142A	180A	
A	A1	68	85	120	215	
	A2	5.5	6.8	9	11	
	A3	16	22	32	40	
	A4	60	70	90	130	
	A5	6	8	10.5	10	11.5 · 13.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
B	B1	62	76	106	142	180
	B2	48	56	88	112	112
	B3	18	18	27	27	26
	B4	20	32	50	70	70
	B5	28	36	58	82	82
	B6	6	7	10	12	15
	B7	173.3 · 181.3	214	282.5	373	441 · 443
C	C1	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	C3	11 · 14 · 16 · 19	19 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
	C4	33.5	51	67.5	84.5	114.5 · 116.5
	C5	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
	C6	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62A	75A	100A	142A	180A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	216	625	1,206
			20	51	146	208	555	1,069
			25	48	155	333	618	1,189
			30	45	150	315	583	1,118
			35	45	142	309	573	1,108
			40	51	146	208	555	1,069
			50	48	155	333	618	1,189
			70	45	142	309	573	1,108
100	43	136	294	549	1,059			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 100	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque 急停扭矩 Emergency Stop Torque	T_{2NOT}	Nm	15 ~ 100	3 倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000
背隙 Backlash Ps		arcmin	15 ~ 100	-	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 100	8	15	27	60	140
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 100	2,240	4,150	8,760	12,750	17,860
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 100	1,920	3,780	7,500	10,840	15,180
使用壽命 Service Life	L_H	hr	15 ~ 100	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	15 ~ 100	≥ 94%				
使用溫度 Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C				
潤滑 Lubrication			15 ~ 100	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			15 ~ 100	IP65				
安裝方向 Mounting Position			15 ~ 100	任意方向 Any				
噪音值 Noise Level		dB	15 ~ 100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67
重量 Weight ±3%		Kg	15 ~ 100	2.6	8.2	11.5	25.6	43

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

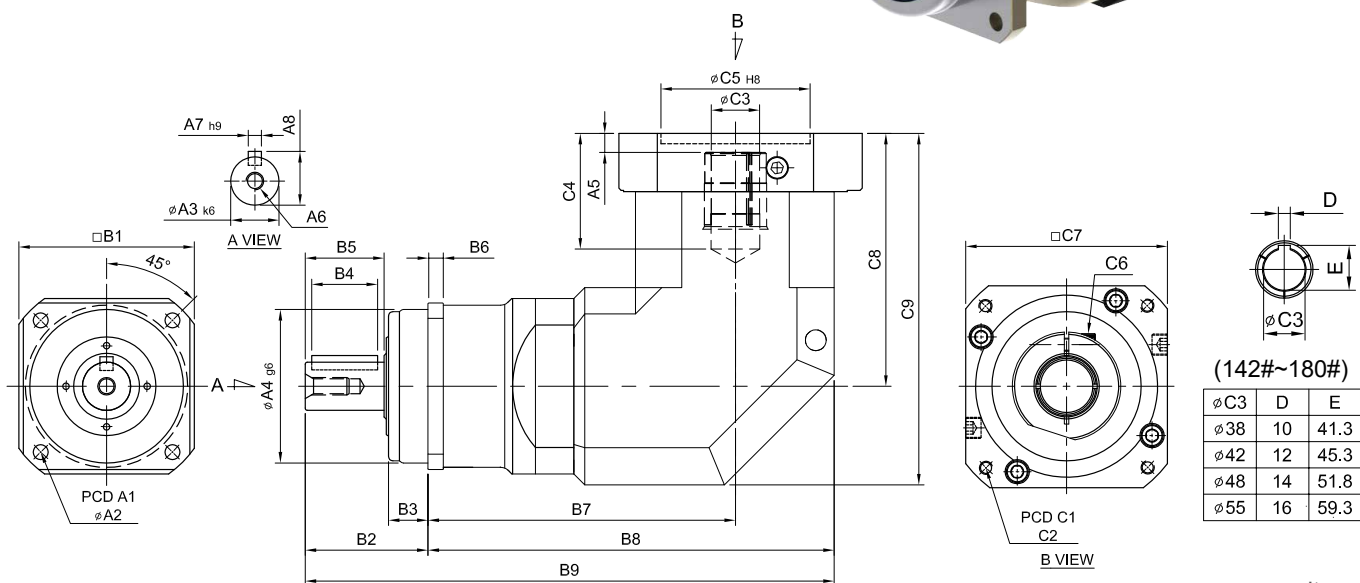
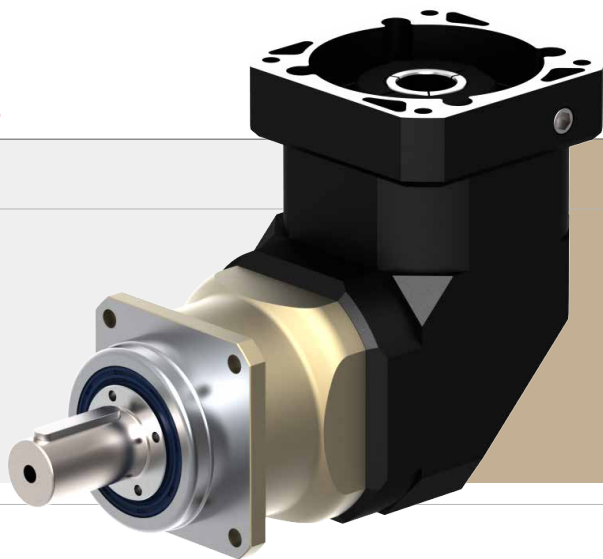
速比 Ratio	62A	75A	100A	142A	180A
15	0.15	0.60	3.21	9.18	28.82
20	0.14	0.51	2.80	7.51	23.56
25	0.13	0.45	2.71	7.40	23.24
30	0.15	0.60	3.21	9.18	28.82
35	0.12	0.42	2.54	7.15	22.40
40	0.14	0.51	2.80	7.51	23.56
50	0.13	0.45	2.71	7.40	23.24
70	0.12	0.42	2.54	7.15	22.40
100	0.12	0.42	2.51	7.01	22.35

SERVOBOX Planetary Reducers

MODEL : SFL

單段 1-Stage

RATIO : 3, 4, 5, 6, 7, 8, 9, 10, 12, 14,
16, 18, 20



(142#~180#)

φC3	D	E
φ38	10	41.3
φ42	12	45.3
φ48	14	51.8
φ55	16	59.3

unit: mm

Model Code	62	75	100	142	180
A					
A1	68	85	120	165	215
A2	5.5	6.8	9	11	13
A3	16	22	32	40	55
A4	60	70	90	130	160
A5	6	9	10	10	12.5 · 14.5
A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
A7	5	6	10	12	16
A8	18	24.5	35	43	59
B					
B1	62	76	106	142	180
B2	48	56	88	112	112
B3	18	18	27	27	26
B4	20	32	50	70	70
B5	28	36	58	82	82
B6	6	7	10	12	15
B7	97	142.9	162	191	254.1
B8	128	187.9	222	262	344.1
B9	176	243.9	310	374	456.1
C					
C1	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
C2	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
C3	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32	28 · 32 · 35 · 38	35 · 38 · 42 · 48 · 55
C4	33.5 · 41.5	53 · 67.5	67 · 77	85	117 · 119
C5	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
C6	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
C8	77 · 85	115.3	141	165.7	235 · 237
C9	108 · 116	160.3	201	236.7	325 · 327



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62	75	100	142	180
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	3	59	165	216	625	1,206
			4	51	146	208	555	1,069
			5	48	155	333	618	1,189
			6	45	150	315	583	1,118
			7	45	142	309	573	1,108
			8	43	141	305	553	1,070
			9	44	140	293	516	993
			10	43	136	294	549	1,059
			12	45	150	315	583	1,118
			14	45	142	309	573	1,108
			16	43	141	305	553	1,070
18	44	140	293	516	993			
20	43	138	294	549	1,059			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	3 ~ 20	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	3 ~ 20	3 倍額定輸出力矩 3 Times of Rated Output Torque				
急停扭矩 Emergency Stop Torque								
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	3 ~ 20	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	3 ~ 20	6,000	6,000	6,000	5,000	4,000
背隙 Backlash Ps		arcmin	3 ~ 20	-	≤ 2	≤ 2	≤ 2	≤ 2
背隙 Backlash P0		arcmin	3 ~ 20	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P1		arcmin	3 ~ 20	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 Backlash P2		arcmin	3 ~ 20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
扭轉剛性 Torsional Rigidity		Nm/arcmin	3 ~ 20	8	15	27	60	150
容許徑向力 Max. Radial Force	F_{2rB}	N	3 ~ 20	2,240	4,150	8,760	12,750	17,860
容許軸向力 Max. Axial Force	F_{2aB}	N	3 ~ 20	1,920	3,780	7,500	10,840	15,180
使用壽命 Service Life	L_H	hr	3 ~ 20	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	3 ~ 20	≥ 95%				
使用溫度 Operating Temperature		°C	3 ~ 20	- 25° C ~ + 90° C				
潤滑 Lubrication			3 ~ 20	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			3 ~ 20	IP65				
安裝方向 Mounting Position			3 ~ 20	任意方向 Any				
噪音值 Noise Level		dB	3 ~ 20	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76
重量 Weight ±3%		Kg	3 ~ 20	2.7	7.5	10.9	25.6	57.9

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

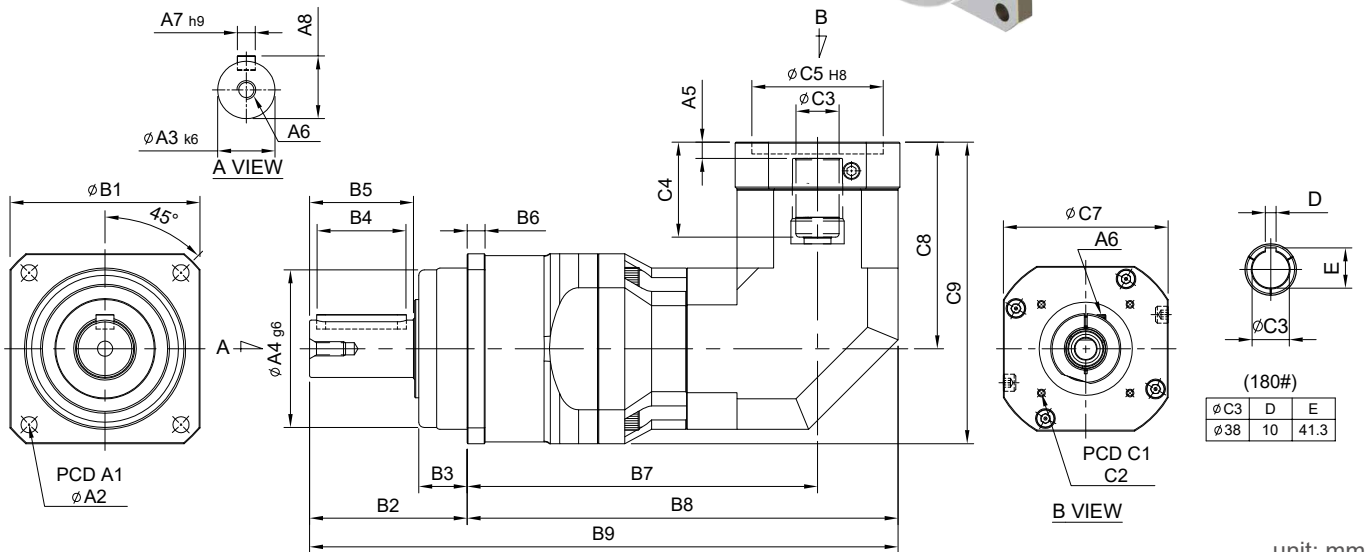
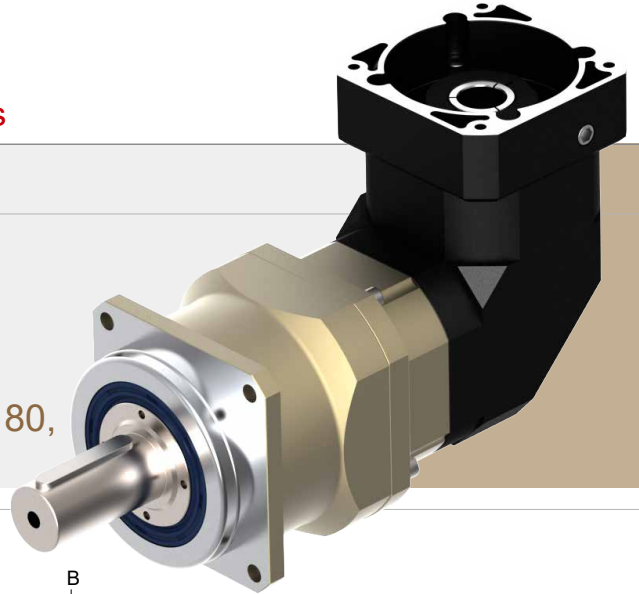
速比 Ratio	62	75	100	142	180
3	0.30	2.11	6.42	18.36	57.65
4	0.28	2.02	5.61	18.02	56.17
5	0.26	2.01	5.42	17.21	55.05
6	0.24	2.00	5.33	16.50	53.44
7	0.24	1.97	5.09	15.85	51.10
8	0.24	1.94	5.06	14.94	49.03
9	0.24	1.94	5.04	14.61	48.08
10	0.24	1.94	5.02	14.02	41.33
12	0.22	1.94	4.98	13.86	41.12
14	0.22	1.94	4.95	13.53	40.50
16	0.21	1.92	4.91	13.03	40.11
18	0.21	1.91	4.87	12.57	39.73
20	0.20	1.88	4.75	12.11	38.65

SERVOBOX Planetary Reducers

MODEL : SFL

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60, 70, 80,
90, 100, 120, 140, 160, 180, 200



unit: mm

Model Code	62	75	100	142	180	
A	A1	68	85	120	165	215
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	6	6	9	10	10
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
	B	B1	62	76	106	142
B2		48	56	88	112	112
B3		18	18	27	27	26
B4		20	32	50	70	70
B5		28	36	58	82	82
B6		6	7	10	12	15
B7		123	148.3	195.6	240	280
B8		145	179.3	240.6	300	351
B9		193	235.3	328.6	412	463
C	C1	46 · 60 · 63	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215
	C2	M3 · M4 · M5	M4 · M5 · M6	M5 · M6 · M8 · M10	M6 · M8 · M10	M8 · M10 · M12
	C3	8 · 9 · 11	11 · 14 · 16 · 19	16 · 19 · 22 · 24	24 · 28 · 32 · 35	28 · 32 · 35 · 38
	C4	27	33.5 · 41.5	53	67	85
	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	61	77 · 85	115.3	141	165.7
	C9	92	117 · 125	168.3	212	255.7



規格 Parameter	代號	單位 Unit	速比 Ratio	62	75	100	142	180
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	216	625	1,206
			20	51	146	208	555	1,069
			25	48	155	333	618	1,189
			30	45	150	315	583	1,118
			35	45	142	309	573	1,108
			40	43	141	305	553	1,070
			50	48	155	333	618	1,189
			60	45	150	315	583	1,118
			70	45	142	309	573	1,108
			80	43	141	305	553	1,070
			90	44	140	293	516	993
			100	43	136	294	549	1,059
			120	45	150	315	583	1,118
			140	45	142	309	573	1,108
160	43	141	305	553	1,070			
180	44	140	293	516	993			
200	51	146	208	555	1,069			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 200	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque				
急停扭矩 Emergency Stop Torque			15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque				
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 200	6,000	6,000	5,000	5,000	4,000
背隙 Backlash Ps		arcmin	15 ~ 200	-	-	≤ 4	≤ 4	≤ 4
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 200	8	15	27	60	150
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 200	2,240	4,150	8,760	12,750	17,860
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 200	1,920	3,780	7,500	10,840	15,180
使用壽命 Service Life	L_H	hr	15 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	15 ~ 200	≥ 92%				
使用溫度 Operating Temperature		°C	15 ~ 200	- 25° C ~ + 90° C				
潤滑 Lubrication			15 ~ 200	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			15 ~ 200	IP65				
安裝方向 Mounting Position			15 ~ 200	任意方向 Any				
噪音值 Noise Level		dB	15 ~ 200	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76
重量 Weight ±3%		Kg	15 ~ 200	2.93	4.8	11.38	21.5	46.47

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

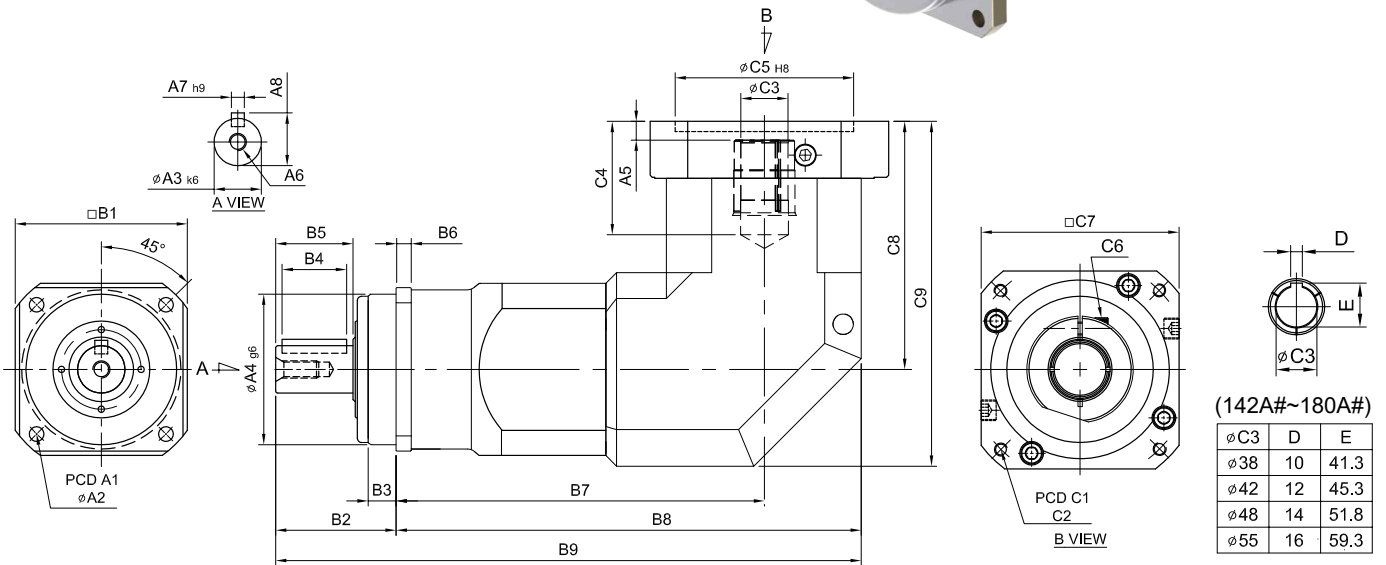
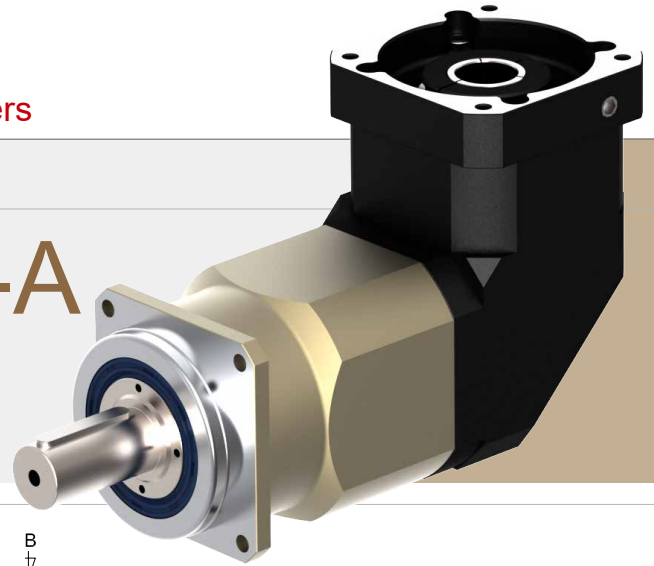
速比 Ratio	62	75	100	142	180
15	0.09	0.34	2.20	6.85	26.2
20	0.09	0.34	2.20	6.85	26.2
25	0.09	0.34	2.20	6.85	23.1
30	0.09	0.34	2.20	6.85	23.1
35	0.09	0.34	2.20	6.85	23.1
40	0.09	0.34	2.20	6.85	23.1
50	0.09	0.34	2.20	6.85	23.1
60	0.09	0.34	2.20	6.85	23.1
70	0.09	0.34	2.20	6.85	23.1
80	0.09	0.34	2.20	6.85	23.1
90	0.09	0.34	2.20	6.85	23.1
100	0.09	0.34	2.20	6.85	23.1
120	0.03	0.30	1.86	6.20	21.2
140	0.03	0.30	1.86	6.20	21.2
160	0.03	0.30	1.86	6.20	21.2
180	0.03	0.30	1.86	6.20	21.2
200	0.03	0.30	1.86	6.20	21.2

SERVOBOX Planetary Reducers

MODEL : SFL-A

雙段 2-Stage

RATIO : 15, 20, 25, 30, 35, 40, 50, 60,
70, 80, 100, 140, 200



unit: mm

Model Code	62A	75A	100A	142A	180A	
A	A1	68	85	120	215	
	A2	5.5	6.8	9	11	13
	A3	16	22	32	40	55
	A4	60	70	90	130	160
	A5	6	9	10	10	12.5 · 14.5
	A6	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0
	A7	5	6	10	12	16
	A8	18	24.5	35	43	59
	B	B1	62	76	106	142
B2		48	56	88	112	112
B3		18	18	27	27	26
B4		20	32	50	70	70
B5		28	36	58	82	82
B6		6	7	10	12	15
B7		130.8	173.9	206	258	335.1
B8		161.8	218.9	266	329	425.1
B9		209.8	274.9	354	441	537.1
C	C1	70 · 75 · 90	90 · 110 · 115 · 145	115 · 145 · 165	145 · 165 · 215	200 · 215 · 265
	C2	M4 · M5 · M6	M5 · M6 · M8	M6 · M8 · M10	M8 · M10 · M12	M10 · M12 · M16
	C3	14 · 19	19 · 22 · 24	24 · 28 · 32	28 · 32 · 35	38 · 42 · 48 · 55
	C4	33.5 · 41.5	53 · 67.5	67 · 77	85	117 · 119
	C5	50 · 60 · 70	70 · 80 · 95 · 110	95 · 110 · 130	110 · 130 · 180	114.3 · 180 · 230
	C6	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
	C7	64 · 70 · 80	92 · 110 · 130	122 · 130 · 150	146 · 150 · 190	182 · 200 · 250
	C8	77 · 85	115.3	141	165.7	235 · 237
	C9	108 · 116	160.3	201	236.7	325 · 327



High Precision Planetary Reducer

規格 Parameter	代號	單位 Unit	速比 Ratio	62A	75A	100A	142A	180A
額定輸出扭矩 Rated Output Torque (Nominal output torque)	T_{2N}	Nm	15	59	165	216	625	1,206
			20	51	146	208	555	1,069
			25	48	155	333	618	1,189
			30	45	150	315	583	1,118
			35	45	142	309	573	1,108
			40	43	141	305	555	1,070
			50	48	155	333	618	1,189
			60	45	150	315	583	1,118
			70	45	142	309	573	1,108
			80	43	141	305	553	1,070
			100	43	136	294	549	1,059
140	45	142	309	573	1,108			
200	51	146	208	555	1,069			
最大加速扭矩 Max. Acceleration Torque	T_{2B}	Nm	15 ~ 200	1.8 倍額定輸出力矩 1.8 Times of Rated Output Torque				
最大輸出扭矩 Max. Output Torque	T_{2NOT}	Nm	15 ~ 200	3 倍額定輸出力矩 3 Times of Rated Output Torque				
急停扭矩 Emergency Stop Torque								
額定輸入轉速 Rated Input Speed	n_{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000
最大輸入轉速 Max. Input Speed	n_{1B}	rpm	15 ~ 200	6,000	6,000	5,000	5,000	4,000
背隙 Backlash Ps		arcmin	15 ~ 200	-	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭轉剛性 Torsional Rigidity		Nm/arcmin	15 ~ 200	8	15	27	60	150
容許徑向力 Max. Radial Force	F_{2rB}	N	15 ~ 200	2,240	4,150	8,760	12,750	17,860
容許軸向力 Max. Axial Force	F_{2aB}	N	15 ~ 200	1,920	3,780	7,500	10,840	15,180
使用壽命 Service Life	L_H	hr	15 ~ 200	S5 周期運轉 : >30,000 (S1 連續運轉 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
效率 Efficiency	η	%	15 ~ 200	≥ 92%				
使用溫度 Operating Temperature		°C	15 ~ 200	- 25° C ~ + 90° C				
潤滑 Lubrication			15 ~ 200	全合成潤滑油脂 Synthetic Grease				
防護等級 Protection Class			15 ~ 200	IP65				
安裝方向 Mounting Position			15 ~ 200	任意方向 Any				
噪音值 Noise Level		dB	15 ~ 200	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76
重量 Weight ±3%		Kg	15 ~ 200	3.5	11.1	16.8	29.9	66.1

■ 轉動慣量 Mass Moments of Inertia (kg.cm²)

速比 Ratio	62A	75A	100A	142A	180A
15	0.15	0.60	3.21	9.18	28.82
20	0.14	0.51	2.80	7.51	23.56
25	0.13	0.45	2.71	7.40	23.24
30	0.12	0.43	2.66	7.32	22.91
35	0.12	0.42	2.54	7.15	22.40
40	0.14	0.51	2.80	7.51	23.56
50	0.13	0.45	2.71	7.40	23.24
60	0.12	0.43	2.66	7.32	22.91
70	0.12	0.42	2.54	7.15	22.40
80	0.14	0.51	2.80	7.51	23.56
100	0.13	0.45	2.71	7.40	23.24
140	0.12	0.42	2.54	7.15	22.40
200	0.11	0.41	2.48	7.02	22.14