

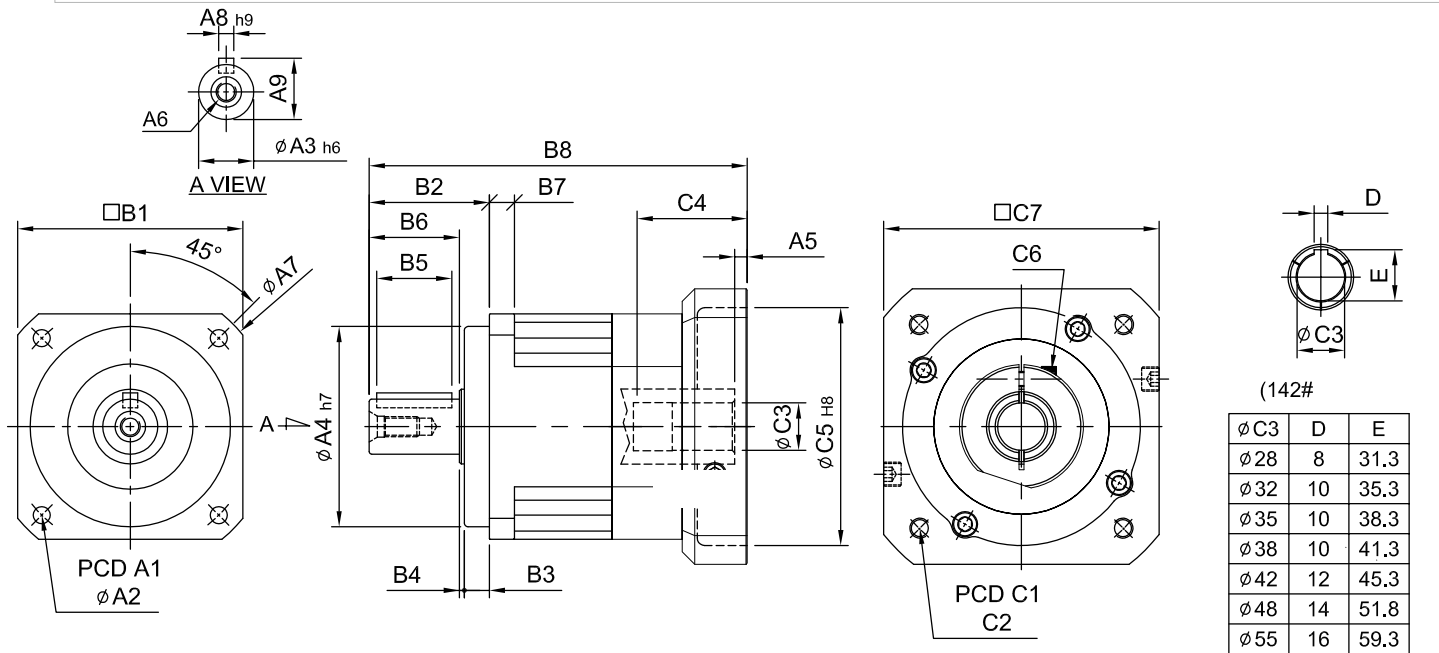
# SERVOBOX Planetary Reducers



## MODEL : SB

1-Stage

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

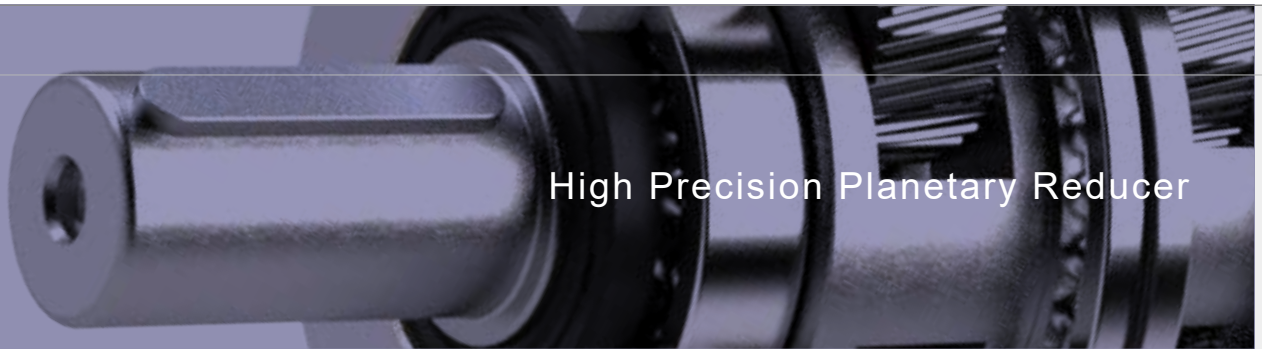


(142#)

$\phi C3$	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	44	62	90	120	142	180	220
<b>A</b> 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>B</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
<b>C</b> 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

Model No.		Unit	Ratio	44	62	90	120	142	180	220
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
Max. Acceleration Torque	$T_{2B}$	Nm	3 ~ 10	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	3 ~ 10	3 Times of Rated Output Torque						
Rated Input Speed	$n_{1N}$	rpm	3 ~ 10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	$n_{1B}$	rpm	3 ~ 10	6,000	6,000	6,000	5,000	5,000	4,000	3,000
Backlash P <sub>s</sub>		arcmin	3 ~ 10	-	-	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Backlash P <sub>0</sub>		arcmin	3 ~ 10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P <sub>1</sub>		arcmin	3 ~ 10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P <sub>2</sub>		arcmin	3 ~ 10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Torsional Rigidity		Nm/arcmin	3 ~ 10	3	6	14	27	60	140	240
Max. Radial Force	$F_{2rB}$	N	3 ~ 10	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force	$F_{2aB}$	N	3 ~ 10	190	590	1,600	3,400	4,650	7,800	25,500
Service Life	$L_H$	hr	3 ~ 10	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	$\eta$	%	3 ~ 10	≥ 97%						
Operating Temperature		°C	3 ~ 10	- 25° C ~ + 90° C						
Lubrication			3 ~ 10	Synthetic Grease						
Protection Class			3 ~ 10	IP65						
Mounting Position			3 ~ 10	Any						
Noise Level		dB	3 ~ 10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ±3%		Kg	3 ~ 10	0.6	1.28	3.6	8	14.3	28.3	42.5

### ■ Mass Moments of Inertia (kg.cm<sup>2</sup>)

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

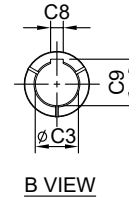
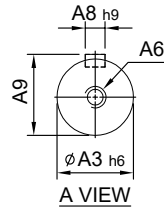
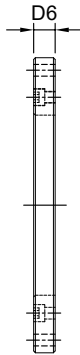
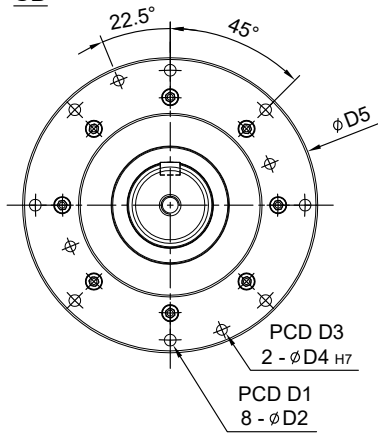
# SERVOBOX Planetary Reducers

## MODEL : SB SE

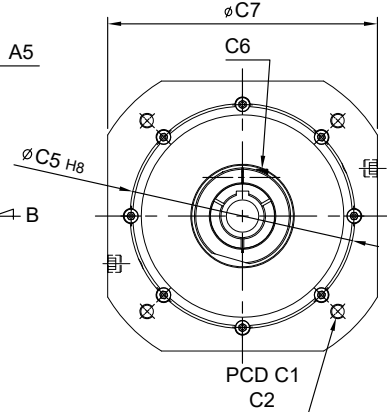
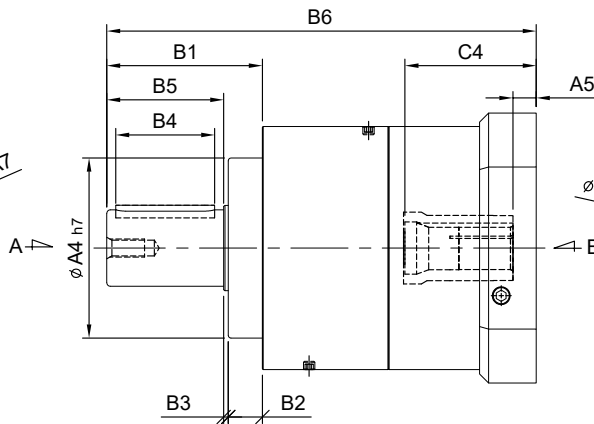
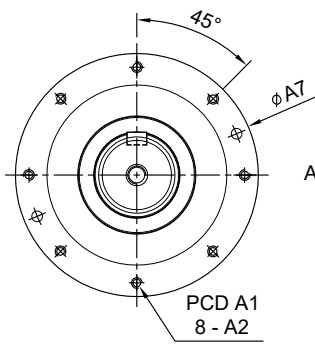
1-Stage RATIO : 3,  
4, 5, 7, 10



**SB**



**SE**

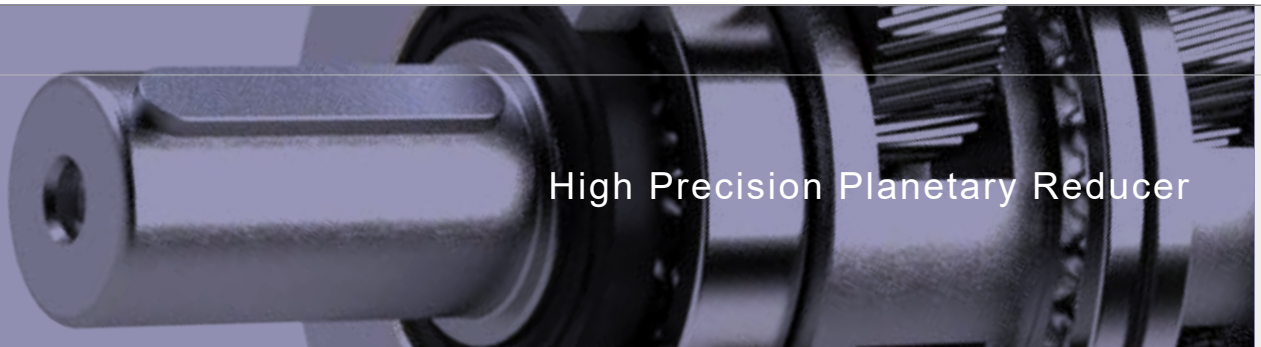


unit: mm

Model Code	270	330
A1	240	300
A2	M12 x P1.75	M16 x P2.0
A3	85	100
A4	200	250
A5	26 · 23	26 · 23
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 · 488	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 · 149	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

Model No.		Unit	Ratio	270	330
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
Max. Acceleration Torque	$T_{2B}$	Nm	3 ~ 10	1.8 Times of Rated Output Torque	
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	3 ~ 10	3 Times of Rated Output Torque	
Rated Input Speed	$n_{1N}$	rpm	3 ~ 10	2,000	2,000
Max. Input Speed	$n_{1B}$	rpm	3 ~ 10	3,000	3,000
Backlash Ps		arcmin	3 ~ 10	$\leq 1$	$\leq 1$
Backlash P0		arcmin	3 ~ 10	$\leq 3$	$\leq 3$
Backlash P1		arcmin	3 ~ 10	$\leq 5$	$\leq 5$
Backlash P2		arcmin	3 ~ 10	$\leq 7$	$\leq 7$
Torsional Rigidity		Nm/arcmin	3 ~ 10	510	980
Max. Radial Force	$F_{2rB}$	N	3 ~ 10	107,100	224,910
Max. Axial Force	$F_{2aB}$	N	3 ~ 10	53,550	112,455
Service Life	$L_{H1}$	hr	3 ~ 10	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)	
Efficiency	$\eta$	%	3 ~ 10	$\geq 97\%$	
Operating Temperature		°C	3 ~ 10	- 25° C ~ + 90° C	
Lubrication			3 ~ 10	Synthetic Grease	
Protection Class			3 ~ 10	IP65	
Mounting Position			3 ~ 10	Any	
Noise Level		dB	3 ~ 10	$\leq 72$	$\leq 74$
Weight $\pm 3\%$		Kg	3 ~ 10	SB : 97 · SE : 87.5	SB : 190 · SE : 172

### ■ (kg·cm<sup>2</sup>) 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

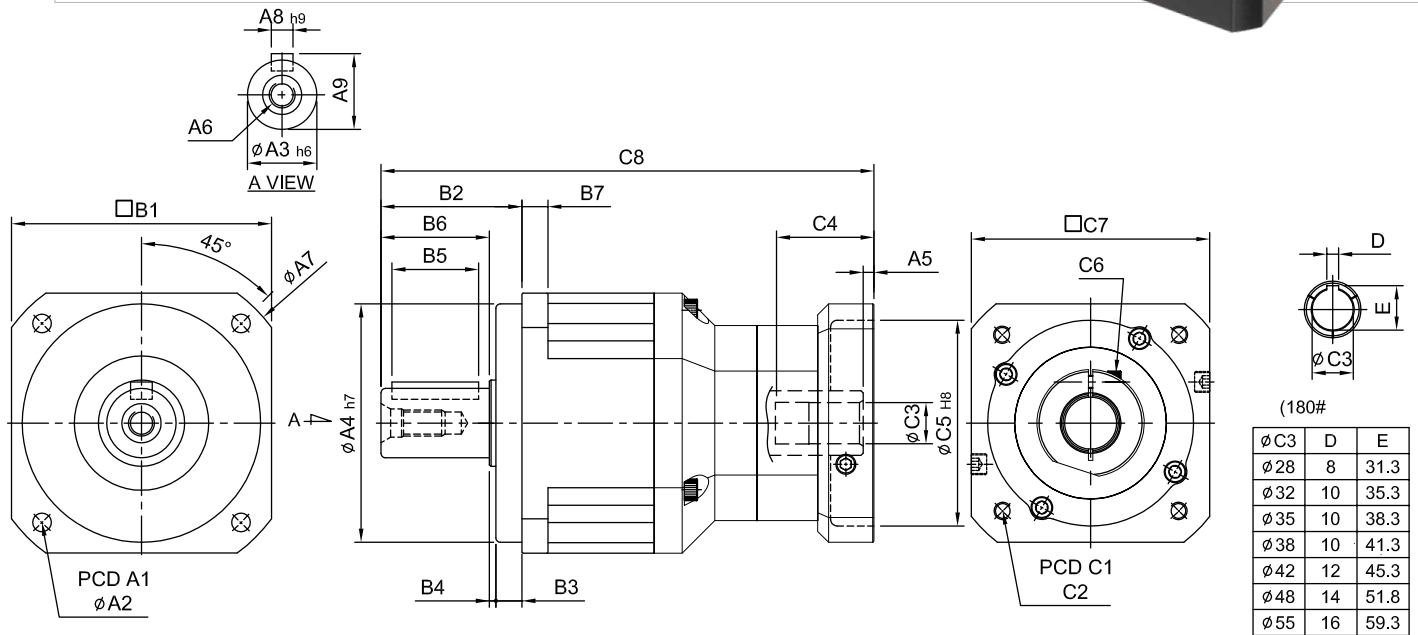
# SERVOBOX Planetary Reducers



## MODEL : SB

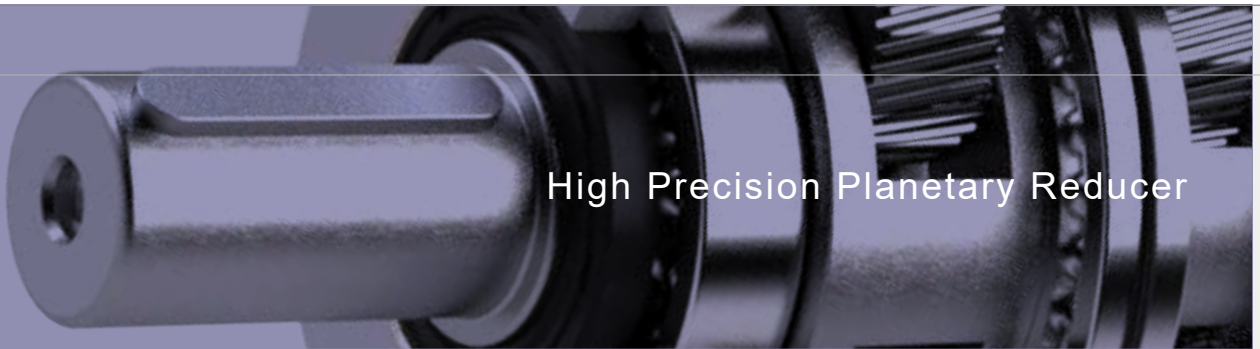
2-Stage

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



unit: mm

Model Code	62		90		120		142		180		220		
	A1	70	100	130	165	215	250	A2	5.5	6.8	9	11	13
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	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
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

Model No.		Unit	Ratio	62	90	120	142	180	220
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			
Max. Acceleration Torque	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque					
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque					
Rated Input Speed	$n_{1N}$	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	$n_{1B}$	rpm	15 ~ 100	6,000	6,000	5,000	5,000	4,000	3,000
Backlash Ps		arcmin	15 ~ 100	-	-	≤ 3	≤ 3	≤ 3	≤ 3
Backlash P0		arcmin	15 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P1		arcmin	15 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P2		arcmin	15 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Torsional Rigidity		Nm/arcmin	15 ~ 100	6	14	27	60	140	240
Max. Radial Force	$F_{2rB}$	N	15 ~ 100	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force	$F_{2aB}$	N	15 ~ 100	590	1,600	3,400	4,650	7,800	25,500
Service Life	$L_H$	hr	15 ~ 100	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
Efficiency	$\eta$	%	15 ~ 100	≥ 94%					
Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C					
Lubrication			15 ~ 100	Synthetic Grease					
Protection Class			15 ~ 100	IP65					
Mounting Position			15 ~ 100	Any					
Noise Level		dB	15 ~ 100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ±3%		Kg	15 ~ 100	1.73	4.6	9.42	17.2	34.1	57.3

### ■ Mass Moments of Inertia (kg.cm<sup>2</sup>)

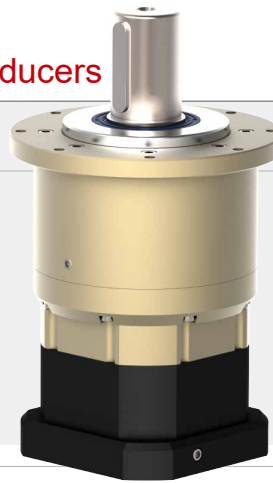
Ratio	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03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

2-Stage

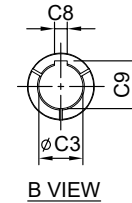
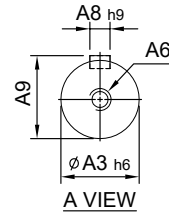
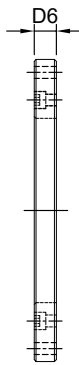
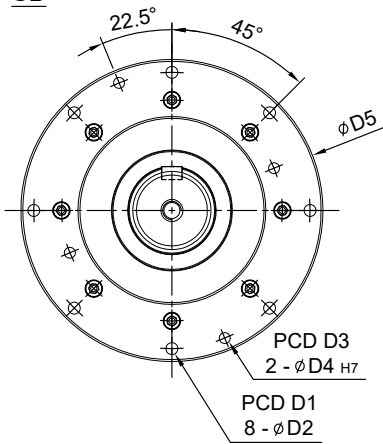
RATIO : 15, 20, 25, 30, 35,  
40, 50, 70, 100



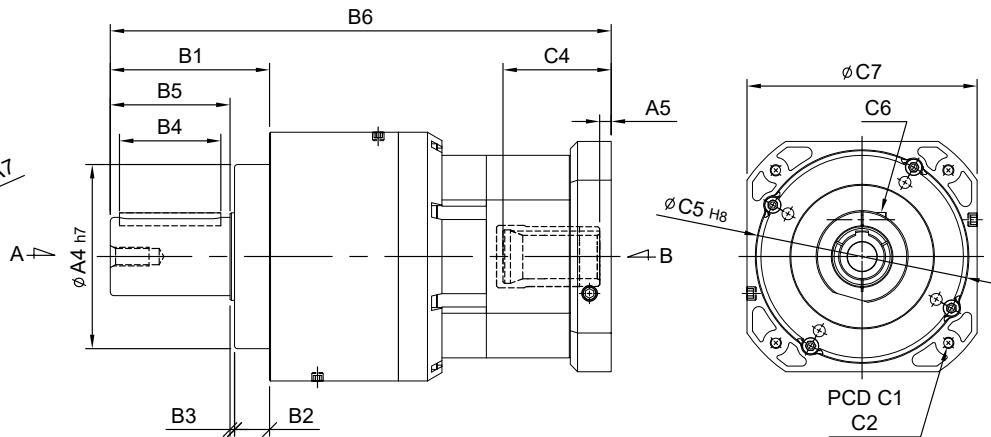
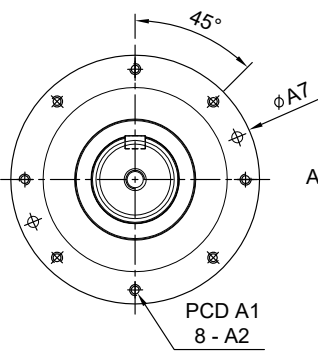
## SE



SB



SE



unit: mm

unit: mm

Model	270	330
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
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
Code		
C1	200 · 265 · 300	265 · 300 · 350
C2	M12 · M16	M12 · M16 · M18
C3	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	12 · 14 · 16	14 · 16 · 18 · 20
C9	45.3 · 51.8 · 59.3	51.8 · 59.3 · 64.4 · 69.4 · 74.8
D1	300	380
D2	13	17
D3	300	380
D4	12	14
D5	328	416
D6	24	28

## High Precision Planetary Reducer

Model No.		Unit	Ratio	270	330
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	4,620	8,610
			35	4,570	8,520
			40	4,520	8,440
			50	4,680	8,660
			70	4,570	8,520
			100	4,420	8,310
Max. Acceleration Torque	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque	
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque	
Rated Input Speed	$n_{1IN}$	rpm	15 ~ 100	2,000	2,000
Max. Input Speed	$n_{1B}$	rpm	15 ~ 100	3,000	3,000
Backlash P <sub>s</sub>		arcmin	15 ~ 100	≤ 3	≤ 3
Backlash P <sub>0</sub>		arcmin	15 ~ 100	≤ 5	≤ 5
Backlash P <sub>1</sub>		arcmin	15 ~ 100	≤ 7	≤ 7
Backlash P <sub>2</sub>		arcmin	15 ~ 100	≤ 9	≤ 9
Torsional Rigidity		Nm/arcmin	15 ~ 100	510	980
Max. Radial Force	$F_{2rB}$	N	15 ~ 100	107,100	224,910
Max. Axial Force	$F_{2aB}$	N	15 ~ 100	53,550	112,455
Service Life	$L_H$	hr	15 ~ 100	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)	
Efficiency	$\eta$	%	15 ~ 100	≥ 94%	
Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C	
Lubrication			15 ~ 100	Synthetic Grease	
Protection Class			15 ~ 100	IP65	
Mounting Position			15 ~ 100	Any	
Noise Level		dB	15 ~ 100	≤ 72	≤ 74
Weight ±3%		Kg	15 ~ 100	SB : 137 · SE : 127.5	SB : 186 · SE : 176

### ■ (kg.cm<sup>2</sup>) 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



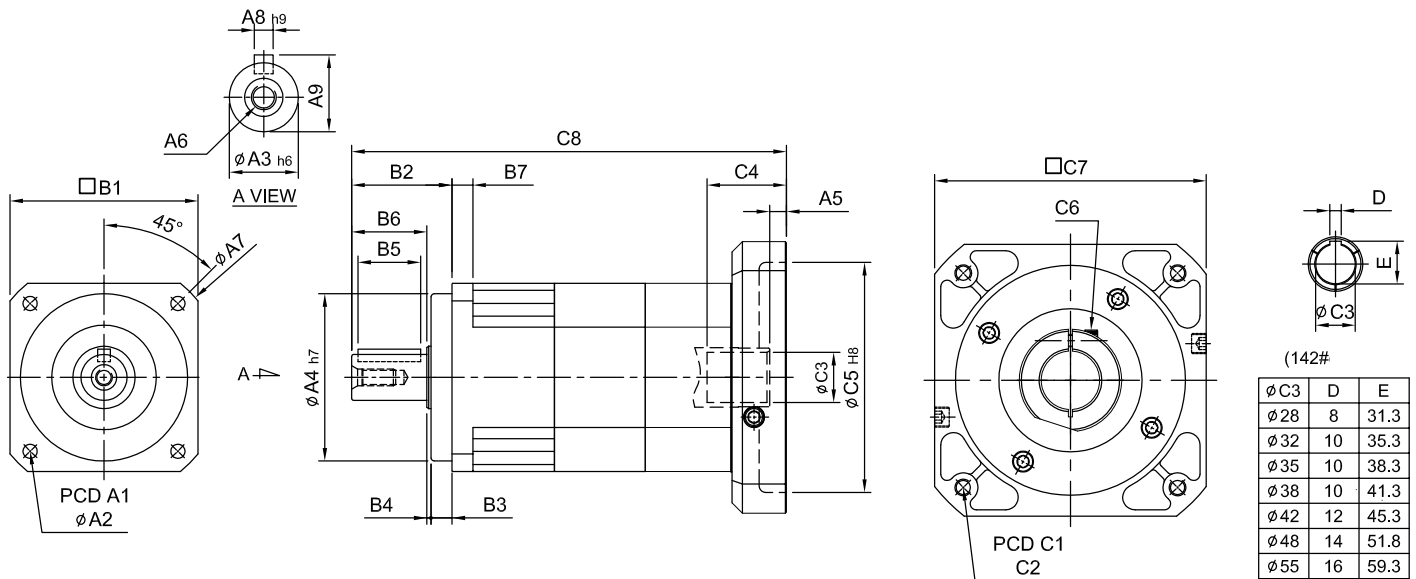
# SERVOBOX Planetary Reducers



## MODEL : SB-A

2-Stage

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

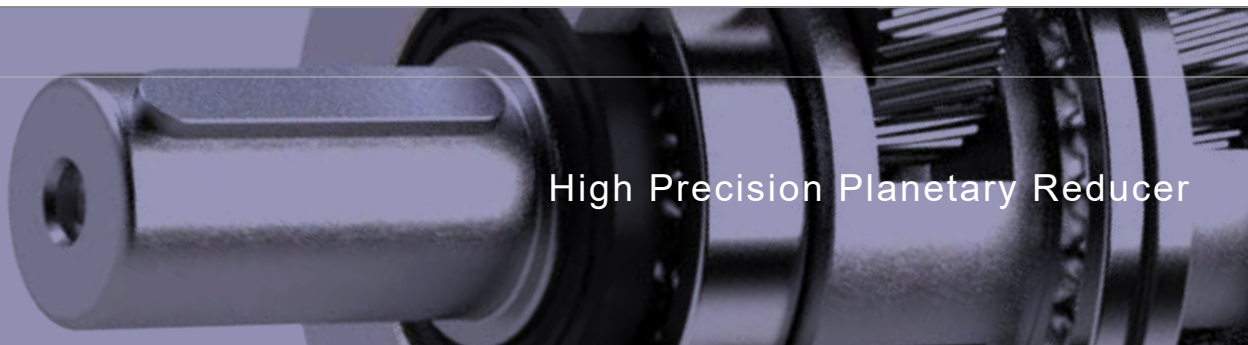


(142#)

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	44A	62A	90A	120A	142A	180A	220A
<b>A</b>							
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>B</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
<b>C</b>							
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

Model No.		Unit	Ratio	44A	62A	90A	120A	142A	180A	220A
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			
Acceleration Torque	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque						
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque						
Rated Input Speed	$n_{1N}$	rpm	15 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	$n_{1B}$	rpm	15 ~ 100	6,000	6,000	6,000	5,000	5,000	4,000	3,000
Backlash Ps		arcmin	15 ~ 100	-	-	-	$\leq 3$	$\leq 3$	$\leq 3$	$\leq 3$
Backlash P0		arcmin	15 ~ 100	$\leq 5$	$\leq 5$	$\leq 5$	$\leq 5$	$\leq 5$	$\leq 5$	$\leq 5$
Backlash P1		arcmin	15 ~ 100	$\leq 7$	$\leq 7$	$\leq 7$	$\leq 7$	$\leq 7$	$\leq 7$	$\leq 7$
Backlash P2		arcmin	15 ~ 100	$\leq 9$	$\leq 9$	$\leq 9$	$\leq 9$	$\leq 9$	$\leq 9$	$\leq 9$
Torsional Rigidity		Nm/arcmin	15 ~ 100	3	6	14	27	60	140	240
Max. Radial Force	$F_{2rB}$	N	15 ~ 100	380	1,180	3,200	6,800	9,300	15,600	51,000
Max. Axial Force	$F_{2aB}$	N	15 ~ 100	190	590	1,600	3,400	4,650	7,800	25,500
Service Life	$L_H$	hr	15 ~ 100	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
Efficiency	$\eta$	%	15 ~ 100	$\geq 94\%$						
Operating Temperature		$^{\circ}\text{C}$	15 ~ 100	$-25^{\circ}\text{C} \sim +90^{\circ}\text{C}$						
Lubrication			15 ~ 100	Synthetic Grease						
Protection Class			15 ~ 100	IP65						
Mounting Position			15 ~ 100	Any						
Noise Level		dB	15 ~ 100	$\leq 56$	$\leq 58$	$\leq 60$	$\leq 63$	$\leq 65$	$\leq 67$	$\leq 70$
Weight $\pm 3\%$		Kg	15 ~ 100	0.6	2	5.5	11	21	42	59

### ■ Mass Moments of Inertia (kg.cm<sup>2</sup>)

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

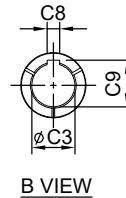
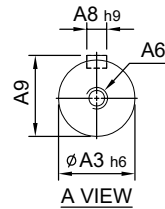
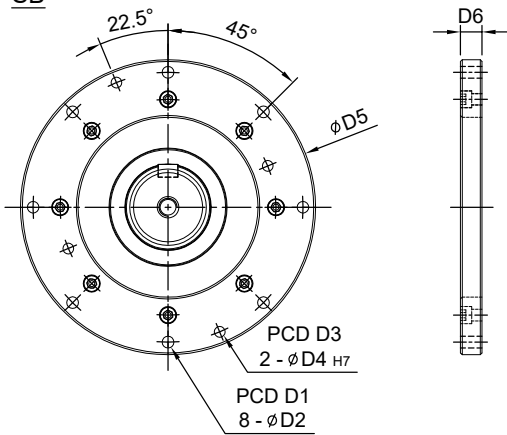
## MODEL: SB-A SE-A

2-Stage

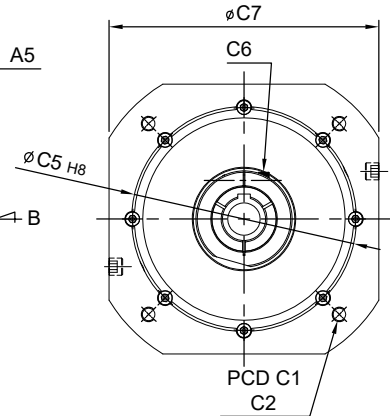
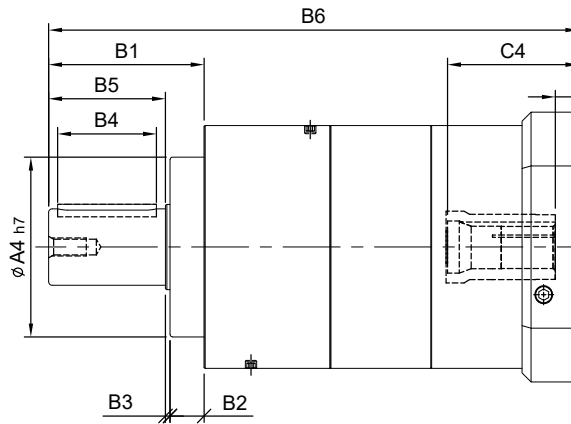
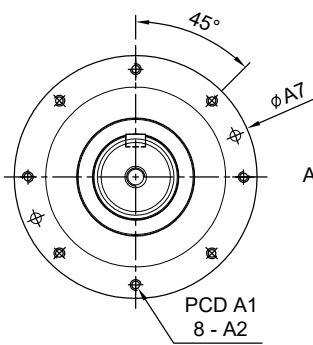
RATIO : 15, 20, 25, 30, 35,  
40, 50, 70, 100



SB



SE

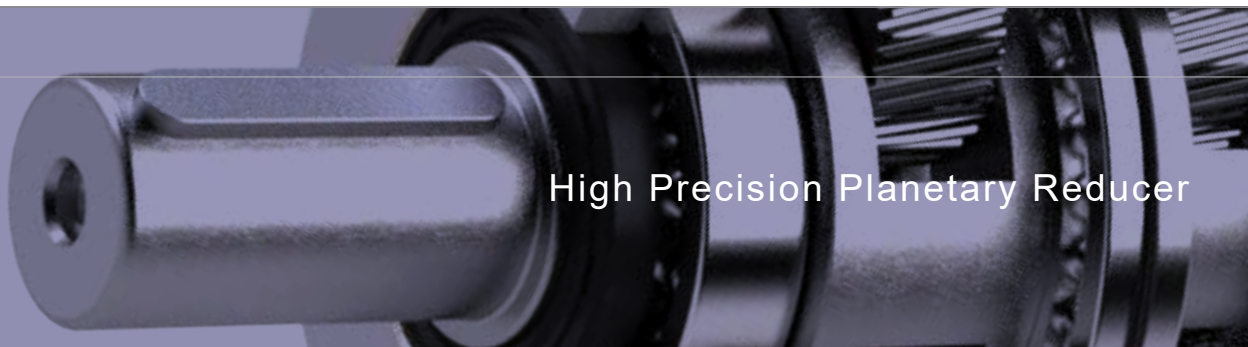


unit: mm

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

Model No.		Unit	Ratio	270A
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	4,770
			50	4,680
			70	4,570
	100	4,220		
Acceleration Torque	$T_{2B}$	Nm	15 ~ 100	1.8 Times of Rated Output Torque
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	15 ~ 100	3 Times of Rated Output Torque
Rated Input Speed	$n_{1N}$	rpm	15 ~ 100	2,000
Max. Input Speed	$n_{1B}$	rpm	15 ~ 100	3,000
Backlash P <sub>s</sub>		arcmin	15 ~ 100	≤ 3
Backlash P <sub>0</sub>		arcmin	15 ~ 100	≤ 5
Backlash P <sub>1</sub>		arcmin	15 ~ 100	≤ 7
Backlash P <sub>2</sub>		arcmin	15 ~ 100	≤ 9
Torsional Rigidity		Nm/arcmin	15 ~ 100	510
Max. Radial Force	$F_{2rB}$	N	15 ~ 100	107,100
Max. Axial Force	$F_{2aB}$	N	15 ~ 100	53,550
Service Life	$L_H$	hr	15 ~ 100	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)
Efficiency	$\eta$	%	15 ~ 100	≥ 94%
Operating Temperature		°C	15 ~ 100	- 25° C ~ + 90° C
Lubrication			15 ~ 100	Synthetic Grease
Protection Class			15 ~ 100	IP65
Mounting Position			15 ~ 100	Any
Noise Level		dB	15 ~ 100	≤ 72
Weight ±3%		Kg	15 ~ 100	SB : 146 · SE : 136.5

### ■ (kg.cm<sup>2</sup>) 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

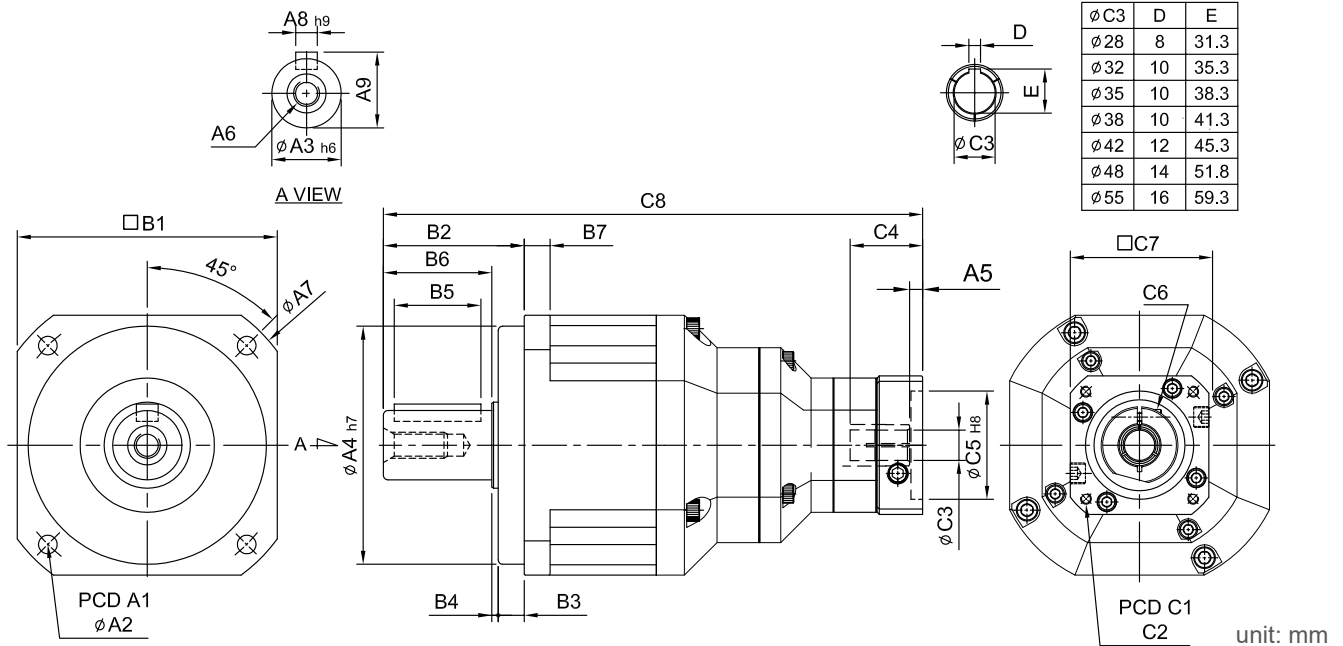


## MODEL : SB

3-Stage

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

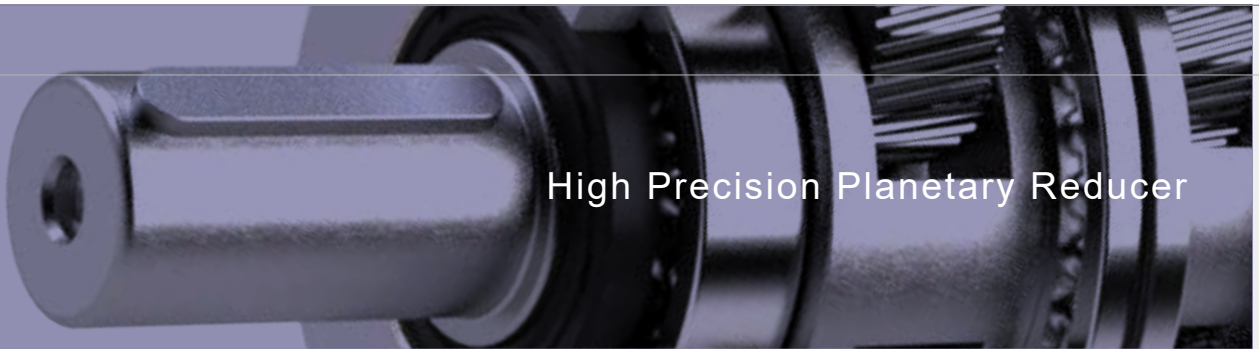
(220#)



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	90	120	142	180	220
<b>A</b>					
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>B</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
<b>C</b>					
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

Model No.		Unit	Ratio	90	120	142	180	220
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			
Max. Acceleration Torque	$T_{2B}$	Nm	125 ~ 1000	1.8 Times of Rated Output Torque				
Max. Output Torque Emergency Stop Torque	$T_{2NOT}$	Nm	125 ~ 1000	3 Times of Rated Output Torque				
Rated Input Speed	$n_{1N}$	rpm	125 ~ 1000	3,000	3,000	3,000	3,000	2,000
Max. Input Speed	$n_{1B}$	rpm	125 ~ 1000	6,000	5,000	5,000	4,000	3,000
Backlash Ps		arcmin	125 ~ 1000	-	≤ 5	≤ 5	≤ 5	≤ 5
Backlash P0		arcmin	125 ~ 1000	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Backlash P1		arcmin	125 ~ 1000	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
Backlash P2		arcmin	125 ~ 1000	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
Torsional Rigidity		Nm/arcmin	125 ~ 1000	14	27	60	140	240
Max. Radial Force	$F_{2rB}$	N	125 ~ 1000	3,200	6,800	9,300	15,600	51,000
Max. Axial Force	$F_{2aB}$	N	125 ~ 1000	1,600	3,400	4,650	7,800	25,500
Service Life	$L_H$	hr	125 ~ 1000	S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)				
Efficiency	$\eta$	%	125 ~ 1000	≥ 90%				
Operating Temperature		°C	125 ~ 1000	- 25° C ~ + 90° C				
Lubrication			125 ~ 1000	Synthetic Grease				
Protection Class			125 ~ 1000	IP65				
Mounting Position			125 ~ 1000	Any				
Noise Level		dB	125 ~ 1000	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
Weight ±3%		Kg	125 ~ 1000	5.2	10	18.1	35	63.7

### ■ Mass Moments of Inertia (kg.cm<sup>2</sup>)

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

3-Stage

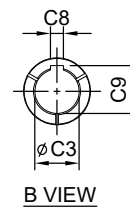
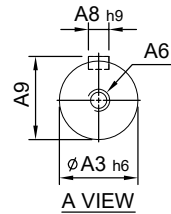
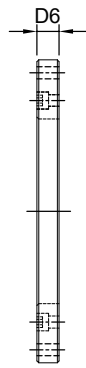
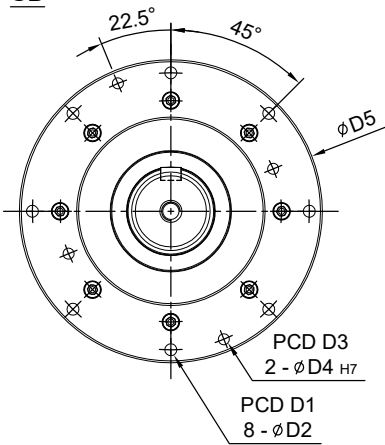
RATIO : 125, 150, 175, 200, 250, 300,  
350, 400, 450, 500, 600, 700, 800, 900, 1000



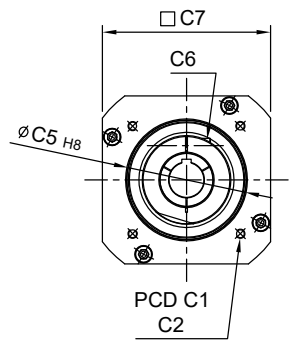
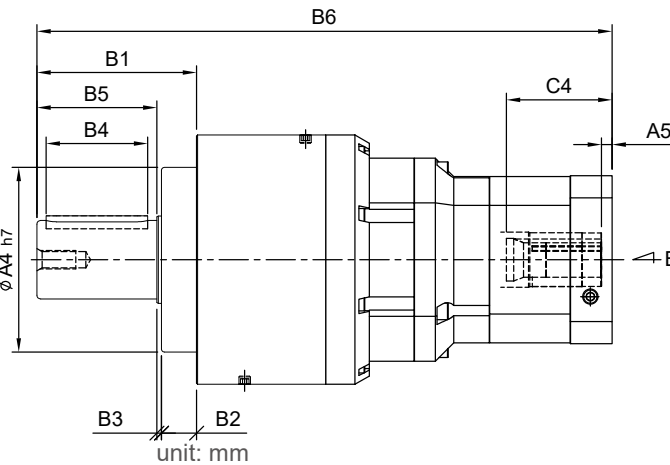
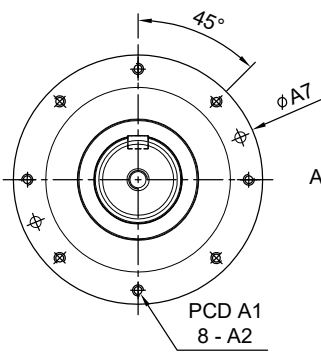
## SE



**SB**



**SE**



unit: mm

unit: mm

Model Code	270	330	
<b>A</b>	A1	240	300
	A2	M12xP1.75	M16xP2.0
	A3	85	100
	A4	200	250
	A5	11.5 · 14.5	12.5 · 14.5
	A6	M20xP2.5	M24xP3.0
	A7	270	336
	A8	22	28
	A9	90	106
<b>B</b>	B1	173	187
	B2	38	42
	B3	5	5
	B4	110	120
	B5	130	140
	B6	623 · 626	691.5 · 694.5

Model Code	270	330	
<b>C</b>	C1	200 · 215 · 265 · 300	200 · 265 · 300
	C2	M10 · M12 · M16	M12 · M16
	C3	35 · 38 · 42 · 48 · 55	38 · 42 · 48 · 55
	C4	114.5 · 117.5	117.5 · 120.5
	C5	114.3 · 180 · 230 · 250	114.3 · 230 · 250
	C6	M10xP1.5	M10xP1.5
	C7	182 · 200 · 250 · 265	222 · 250 · 265
	C8	10 · 12 · 14 · 16	10 · 12 · 14 · 16
	C9	38.3 · 41.3 · 45.3 · 51.8 · 59.3	41.3 · 45.3 · 51.8 · 59.3
<b>D</b>	D1	300	380
	D2	13	17
	D3	300	380
	D4	12	14
	D5	328	416
	D6	24	28