SSO Series

Circle output flange
Straight type gearbox, Standard / Premium

SAO Series

Circle output flange
Right-angle type gearbox, Standard / Premium

- Best-in-class backlash
- High output torque
- Low noise level
- High efficiency
- Maintenance free
- Balanced motor pinion
- Gear ratios available from 3:1 up to 200:1
- No need to replace lubrication to expand the lifespan

SSO						
Stage	Gear ratio	040	060	080	120	160
1A	3~10	○	○	○	○	○
2B	15~100	☏	○	○	○	○
2A	15~100	○	○	○	○	○
1M/2M	3~100	☏	☏	☏	☏	☏

SAO						
Stage	Gear ratio	040	060	080	120	160
1A	3~10	○	○	○	○	○
	14, 20	☏	○	○	○	○
2B	15, 20	☏	☏	☏	☏	☏
	25~100	☏	○	○	○	○
	120~200	☏	☏	○	○	○
2A	15, 20	○	☏	☏	☏	☏
	25~100	○	○	○	○	○
	120~200	☏	○	○	○	○
1M/2M	3~200	☏	☏	☏	☏	☏

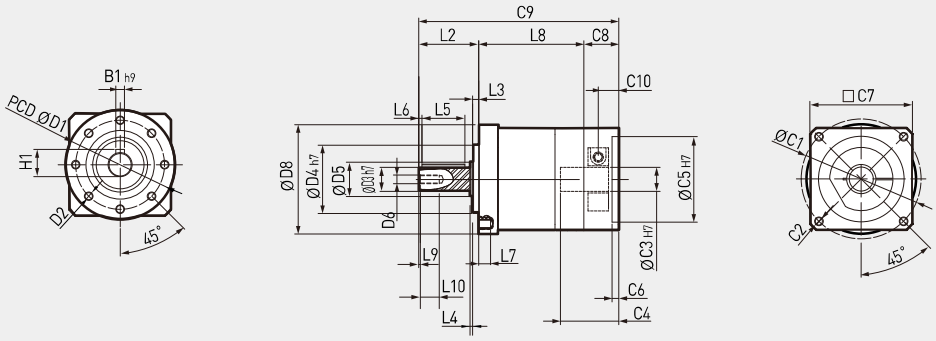
○ : Standard, △: Custom made, ☏ : Contact sales person.

Division		Stage	Gear ratio	040	060	080	120	160
Nominal Output Torque (Nm)		1	3	★	55	138	255	448
			4	17	49	134	280	517
			5	18	53	146	304	580
			7	16	46	132	279	512
			9	13	40	110	229	431
			10	13	40	108	238	451
		2	15	19	55	138	255	448
			20	17	49	134	280	517
			25	18	53	146	304	580
			30	★	48	138	281	533
			35	16	46	132	279	512
			40	17	49	134	280	517
			45	13	40	108	234	446
			50	18	53	146	304	580
			63	17	48	138	281	533
			70	16	46	132	284	512
			81	13	40	110	229	431
			90	13	40	110	229	431
			100	13	40	108	238	451
Emergency Stop Torque (Nm)		1,2	3~100	3 times nominal output torque				
Nominal Input Speed (rpm)		1,2	3~100	5,000	5,000	4,000	4,000	3,000
Max. Input Speed (rpm)		1,2	3~100	10,000	10,000	8,000	8,000	6,000
Torsional Rigidity (Nm/Arcmin)		1,2	3~100	3	6	12	22	50
Max. Radial Load (N)		1,2	3~100	700	1,200	3,200	6,800	9,300
Max. Axial Load (N)		1,2	3~100	360	650	1,600	3,400	4,500
Backlash (Arcmin)	**S**	1	3~10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
		2	15~100	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
	P	1	3~10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
		2	15~100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Service Life (Hrs)		1,2	3~100	20,000 (10,000 under continuous operation)				
Efficiency (%)		1	3~10	≥ 97				
		2	15~100	≥ 94				
Weight (kg)		1A	3~10	≤ 0.6	≤ 1.3	≤ 3.8	≤ 7.6	≤ 15.0
		2A	15~100	≤ 0.8	≤ 1.8	≤ 5.0	≤ 10.3	≤ 19.6
		2B	15~100	-	≤ 1.6	≤ 4.7	≤ 9.6	≤ 18.0
Operating Temp (℃)		1,2	3~100	-10 ~ 90				
Lubrication		1,2	3~100	Grease (VIGO Grease RE #0)				
Degree of Gearbox Protection		1,2	3~100	IP65				
Noise (dB)		1,2	3~100	≤ 55.0	≤ 57.0	≤ 59.0	≤ 62.0	≤ 64.0
Inertia ($kgcm^2$)		1A	3	0.03	0.17	0.64	3.12	9.23
			4	0.03	0.15	0.51	2.84	7.66
			5	0.03	0.13	0.48	2.81	7.52
			7	0.03	0.13	0.45	2.69	7.16
			9	0.03	0.13	0.44	2.59	7.05
			10	0.03	0.13	0.44	2.59	7.05
		2B	15~45	-	0.03	0.13	0.48	2.81
			50~100	-	0.03	0.13	0.44	2.69
		2A	15~45	0.03	0.13	0.48	2.81	7.52
			50~100	0.03	0.13	0.44	2.69	7.05

Please contact LSIS sales person for ★ gear ratio. (1) Considering safety factors, nominal output torque is calculated. (2) Max. output torque is equivalent to 60% of the emergency stop torque.

Single Stage

Drawing of Planetary Gearbox



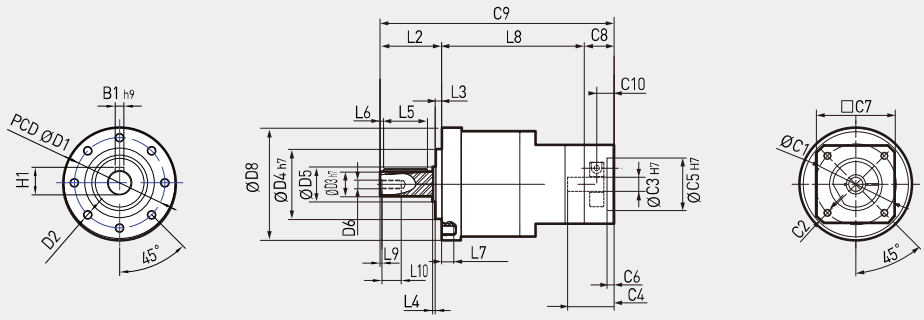
※ Please check the detail with size manager (www.lsis.com/gearbox).
because the dimensions differ according to the applied motor.

Dimension	SSO0401A	SSO0601A	SSO0801A	SSO1201A	SSO1601A
D1	34	52	70	100	145
D2	M4 X 0.7P , DP:7	M5 X 0.8P , DP:8	M6 X 1.0P , DP:10	M10 X 1.5 , DP:16	M12 X 1.75 , DP:22
D3 h7	10	14	20	25	40
D4 h7	26	40	60	80	130
D5	15	20	30	32	60
D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P
D7	-	-	-	-	-
D8	49	64	94	119	159
L1	-	-	-	-	-
L2	26	35	40.5	55	87
L3	2	3.5	2.5	4	5
L4	1	1.5	1.5	5	3
L5	18	25	28	40	65
L6	1	2	3	3	5
L7	7	8	10	16	22
L8	49	61.5	86.4	105.5	126.5
L9	1.5	1.5	1.5	2	2
L10	9.5	12	14.5	18	34
*** C1**	46	70	90	145	200
*** C2**	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P
*** C3** H7	8	14	19	24	35
*** C4**	26.5	34	43.1	62	82
*** C5** H7	30	50	70	110	114.3
*** C6**	4	4	6	7	7
*** C7**	45	60	90	132	180
*** C8**	17	20.5	23.5	42	47
*** C9**	92	117	150.4	202.5	260.5
*** C10**	10	12	13.4	28	29.5
B1 h9	3	5	6	8	12
H1	11.2	16	22.5	28	43

(1) C(C1~C10)is dimension for input shaft parts. Dimensions differ by motor types and makers. Find CAD file for exact dimensions of gearbox in www.lsis.com/gearbox.
(2) In XXYY, YY means fit tolerance (KS B 0401) .
(3) ( )is M Type-made to order.

Double Stage B Type

Drawing of Planetary Gearbox



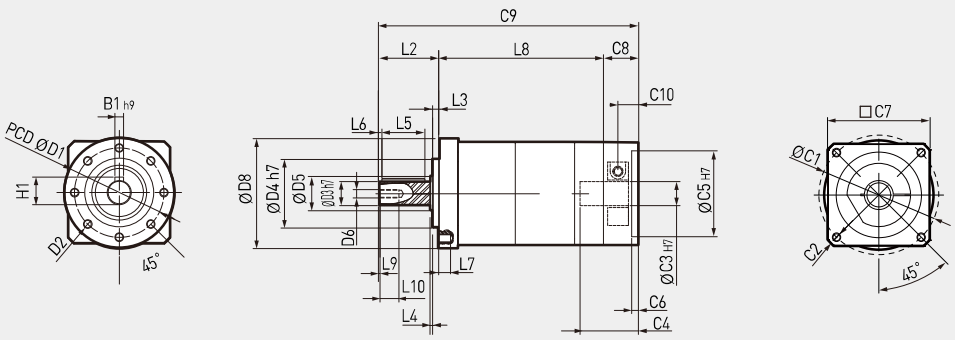
※ Please check the detail with size manager (www.lsis.com/gearbox).
because the dimensions differ according to the applied motor.

Dimension	SSO0602B	SSO0802B	SSO1202B	SSO1602B
D1	52	70	100	145
D2	M5 X 0.8P , DP:8	M6 X 1.0P , DP:10	M10 X 1.5 , DP:16	M12 X 1.75 , DP:22
D3 h7	14	20	25	40
D4 h7	40	60	80	130
D5	20	30	32	60
D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P
D7	-	-	-	-
D8	64	94	119	159
L1	-	-	-	-
L2	35	40.5	55	87
L3	3.5	2.5	4	5
L4	1.5	1.5	5	3
L5	25	28	40	65
L6	2	3	3	5
L7	8	10	16	22
L8	81.5	90.5	144.4	171
L9	1.5	1.5	2	2
L10	12	14.5	18	34
*** C1**	46	70	90	145
*** C2**	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P
*** C3** H7	8	14	19	24
*** C4**	26.5	34	43.1	62
*** C5** H7	30	50	70	110
*** C6**	4	4	6	7
*** C7**	45	60	90	132
*** C8**	17	20.5	23.5	42
*** C9**	133.5	170	222.9	300
*** C10**	10	12	13.4	28
B1 h9	5	6	8	12
H1	16	22.5	28	43

(1) C(C1~C10)is dimension for input shaft parts. Dimensions differ by motor types and makers. Find CAD file for exact dimensions of gearbox in www.lsis.com/gearbox.
(2) In XXYY, YY means fit tolerance (KS B 0401) .
(3) ( )is M Type-made to order.

Double Stage A Type

Drawing of Planetary Gearbox



※ Please check the detail with size manager (www.lsis.com/gearbox).
because the dimensions differ according to the applied motor.

Dimension	SSO0402A	SSO0602A	SSO0802A	SSO1202A	SSO1602A
D1	34	52	70	100	145
D2	M4 X 0.7P , DP:7	M5 X 0.8P , DP:8	M6 X 1.0P , DP:10	M10 X 1.5 , DP:16	M12 X 1.75 , DP:22
D3 h7	10	14	20	25	40
D4 h7	26	40	60	80	130
D5	15	20	30	32	60
D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P
D7	-	-	-	-	-
D8	49	64	94	119	159
L1	-	-	-	-	-
L2	26	35	40.5	55	87
L3	2	3.5	2.5	4	5
L4	1	1.5	1.5	5	3
L5	18	25	28	40	65
L6	1	2	3	3	5
L7	7	8	10	16	22
L8	78	96	130.4	145.8	184.5
L9	1.5	1.5	1.5	2	2
L10	9.5	12	14.5	18	34
*** C1**	46	70	90	145	200
*** C2**	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P
*** C3 H7**	8	14	19	24	35
*** C4**	26.5	34	43.1	62	82
*** C5 H7**	30	50	70	110	114.3
*** C6**	4	4	6	7	7
*** C7**	45	60	90	132	180
*** C8**	17	20.5	23.5	42	47
*** C9**	121	151.5	194.4	242.8	318.5
*** C10**	10	12	13.4	28	29.5
B1 h9	3	5	6	8	12
H1	11.2	16	22.5	28	43

(1) C(C1~C10)is dimension for input shaft parts. Dimensions differ by motor types and makers. Find CAD file for exact dimensions of gearbox in www.lsis.com/gearbox.
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