



High Precision Planetary Gearheads for Servo motors

SPL Series

- ▶ Spur Gear
- ▶ Compact size
- ▶ High Precision, High Durability
- ▶ High Efficiency
- ▶ Easy Mount
- ▶ Protection grade IP65

SPL Series

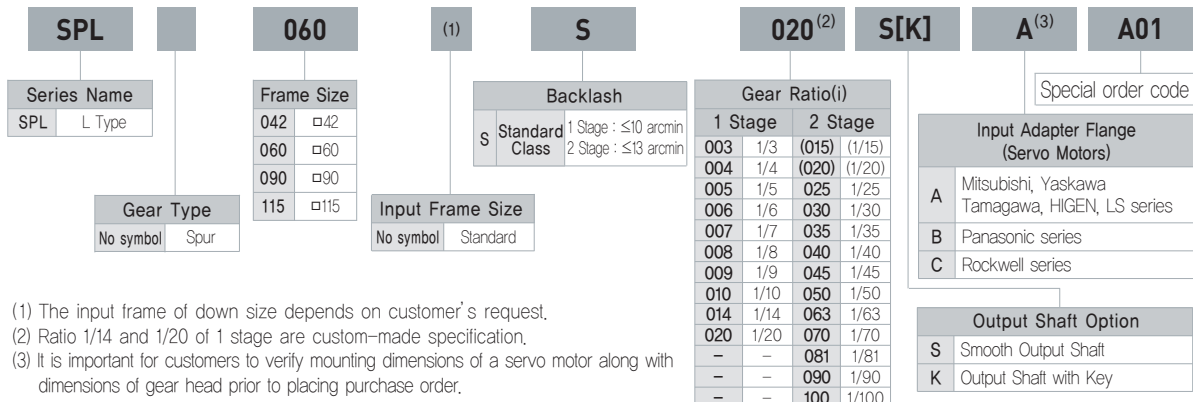
Specifications

Description	Unit	Stage	Ratio (1)	Model No.						
				SPL 042	SPL 060	SPL 060D	SPL 090	SPL 090D	SPL 115	SPL 115D
Nominal Output torque T_{2N} (2)	Nm	1	3	7.5	13.5	-	78	-	171	-
			4	10	18	-	102	-	205	-
			5	12.5	22.5	-	112	-	235	-
			6	-	27	-	103	-	-	-
			7	14	31.5	-	100	-	210	-
			8	-	36	-	102	-	-	-
			9	14	34	-	96	-	160	-
			10	10	29	-	80	-	191	-
			14	-	31.5	-	100	-	210	-
			20	-	29	-	80	-	191	-
		2	15	15	-	-	-	-	-	-
			20	14	-	-	-	-	-	-
			25	19	42	42	112	112	235	235
			30	15	46	46	110	112	190	235
			35	19	42	42	112	112	235	235
			40	14	35	35	102	112	205	235
			45	19	42	42	112	112	235	235
			50	19	42	42	112	112	235	235
			63	14	38	38	100	100	210	210
			70	14	38	38	100	100	210	210
81	14	34	34	96	96	160	160			
90	14	34	34	96	96	160	160			
100	10	29	29	80	80	191	191			
Max Acceleration torque T_{2B}	Nm	1,2	3~100	3 times of Nominal Output torque						
Nominal Input speed n_1	rpm	1,2	3~100	3,000	3,000	3,000	3,000	3,000	3,000	
Max. Input speed N_i	rpm	1,2	3~100	6,000	6,000	6,000	5,000	5,000	5,000	
Backlash (Standard class)	arcmin	1	3~20	≤ 13	≤ 13	-	≤ 13	-	≤ 13	-
		2	15~100	≤ 16	≤ 16	≤ 16	≤ 16	≤ 16	≤ 16	≤ 16
Torsional Rigidity	Nm/arcmin	1,2	3~100	2	3	3	12	12	23	23
Max. Radial load F_r max (2)	N	1,2	3~100	400	1,100	1,100	2,400	2,400	4,000	4,000
Max. Axial load F_a max (2)	N	1,2	3~100	300	600	600	1,800	1,800	2,500	2,500
Service life (2)	hr	1,2	3~100	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Noise level (3)	dB(A)	1,2	3~100	≤ 61	≤ 63	≤ 63	≤ 65	≤ 65	≤ 68	≤ 68
		1	3~20	0.9	2.0	-	5.7	-	12.9	-
Weight	kg	2	15~100	1.1	2.4	2	7.0	5.9	16.7	14.1
		1	3~20	0.04	0.15	-	0.8	-	2.8	-
Mass Moment of Inertia (4)	kg·cm ²	2	15~100	0.03	0.07	0.07	0.5	0.5	1.5	1.5
		1,2	3~100	-10 ~ +90						
Operating Temp. (5)	°C	1,2	3~100	High temperature & Extreme pressure Lubricant						
Lubrication		1,2	3~100	All directions						
Mounting position		1,2	3~100	≥ 95						
Efficiency η	%	1	3~20	≥ 92						
		2	15~100	IP 65						
Degree of protection		1,2	3~100							

(1) Ratio = N_{in} / N_{out} (2) Values were measured at the following conditions : 100 rpm at the output, Load applied to the middle of the output shaft, Load coefficient(K_a) = 1, Continuous operation($S_1=10,000$ hrs), (3) Noise level : A measurement 1m away from the gear head, 3000 input rpm and at no load condition, (Background noise 21dB(A)) (4) Moment of inertia : A measurement at the input shaft and representatives from each ratio.($i=1/5$) (5) Operating temperature : Surface temperature of gear case in -10°C~40°C of ambient temperature.

* The data in the above table are representative values, Specifications are subject to change without notice to improve product performances.

Coding System



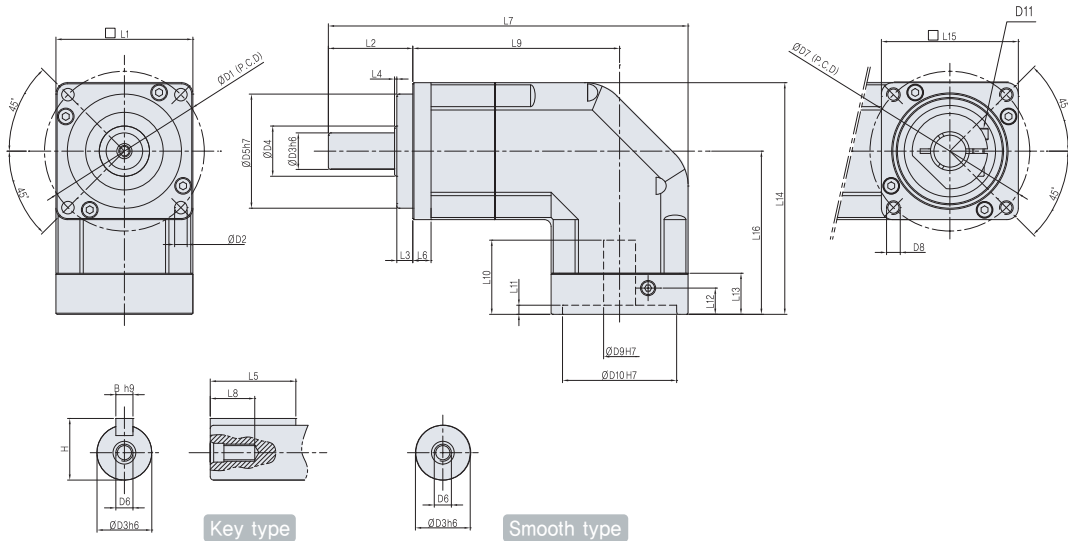
(1) The input frame of down size depends on customer's request.

(2) Ratio 1/14 and 1/20 of 1 stage are custom-made specification.

(3) It is important for customers to verify mounting dimensions of a servo motor along with dimensions of gear head prior to placing purchase order.

Planetary Gearheads

■ Dimensions (1 Stage, Ratio(i) = 1/3 ~ 1/20)



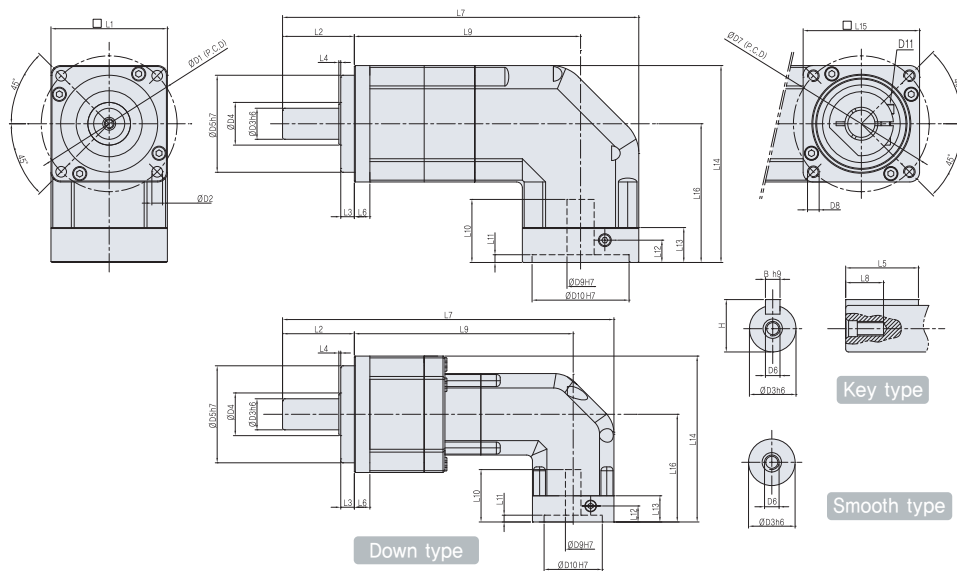
(Unit : mm)

Dimension \ Model	SPL 042	SPL 060	SPL 090	SPL 115
D1	50	70	100	130
D2	3.4	5.5	6.5	9
D3 h6	13	16	22	32
D4	14.5	19.7	24.8	39.8
D5 h7	35	50	80	110
D6	M4xP0.7	M5xP0.8	M8xP1.25	M12xP1.75
D7	A	46	70	90
	B	45	70	90
	C	46	70	90
D8	A	M4 DP 8	M5 DP 12	M6 DP 12
	B	M3 DP 6	M4 DP 12	M5 DP 12
	C	M4 DP 8	M5 DP 12	M6 DP 12
D9 H7	≤ 8	≤ 14	≤ 19	≤ 32
D10 H7	30	50	70	110
D11	M3	M5	M5	M8
L1	42	60	90	115
L2	24.5	37	46	65
L3	4	7	8	12
L4	1	1	1.5	2
L5	16	25	32	45
L6	7	8	10	14
L7	121.6	157.6	216.2	283.8
L8	13	13	19	28
L9	76.1	90.6	125.2	153.8
L10	A, B	27	35.5	42.5
	C	30.5	40	47.5
L11	3.5	4	4	7
L12	A, B	8.3	11.5	11.5
	C	11.8	16	16
L13	A, B	13.5	18	18
	C	17	22.5	22.5
L14	A, B	76.5	101.5	133.1
	C	80	106	138.1
L15	42	60	90	130
L16	A, B	55.5	71.5	88.1
	C	59	76	93.1
B h9	5	5	6	10
H	15	18	24.5	35

- Note) 1. Specifications are subject to change without notice to improve product performances.
 2. The values of D7 through D11 and L10 through L16 on the above table may vary by servo motor.
 3. CAD files are available to download from website(www.spg.co.kr).

SPL Series

■ Dimensions (2 Stage, Ratio(i) = 1/25 ~ 1/100)



(Unit : mm)

Dimension \ Model	SPL 042	SPL 060	SPL 060D	SPL 090	SPL 090D	SPL 115	SPL 115D
D1	50	70	70	100	100	130	130
D2	3.4	5.5	5.5	6.5	6.5	9	9
D3 h6	13	16	16	22	22	32	32
D4	14.5	19.7	19.7	24.8	24.8	39.8	39.8
D5 h7	35	50	50	80	80	110	110
D6	M4xP0.7	M5xP0.8	M5xP0.8	M8xP1.25	M8xP1.25	M12xP1.75	M12xP1.75
D7	A	46	70	46	90	70	145
	B	45	70	45	90	70	-
	C	46	70	46	90	70	90
D8	A	M4 DP 8	M5 DP 12	M4 DP 8	M6 DP 12	M5 DP 12	M8 DP 20
	B	M3 DP 6	M4 DP 12	M3 DP 6	M5 DP 12	M4 DP 12	-
	C	M4 DP 8	M5 DP 12	M4 DP 8	M6 DP 12	M5 DP 12	M5 DP 12
D9 H7	≤ 8	≤ 14	≤ 8	≤ 19	≤ 14	≤ 32	≤ 19
D10 H7	30	50	30	70	50	110	70
D11	M3	M5	M3	M5	M5	M8	M5
L1	42	60	60	90	90	115	115
L2	24.5	37	37	46	46	65	65
L3	4	7	7	8	8	12	12
L4	1	1	1	1.5	1.5	2	2
L5	16	25	25	32	32	45	45
L6	7	8	8	10	10	14	14
L7	146.6	183.6	170.8	254.2	217.1	333.8	297.9
L8	13	13	13	19	19	28	28
L9	101.1	116.6	112.8	163.2	141.1	203.8	187.9
L10	A, B	27	35.5	27	42.5	35.5	73
	C	30.5	40	30.5	47.5	40	-
L11	3.5	4	3.5	4	4	7	4
L12	A, B	8.3	11.5	8.3	11.5	11.5	27.5
	C	11.8	16	11.8	16	16	-
L13	A, B	13.5	18	13.5	18	18	42
	C	17	22.5	17	23	22.5	-
L14	A, B	76.5	101.5	85.5	133.1	116.5	188.8
	C	80	106	89	138.1	121	-
L15	42	60	42	90	60	130	90
L16	A, B	55.5	71.5	55.5	88.1	71.5	131.3
	C	59	76	59	93.1	76	-
B h9	5	5	5	6	6	10	10
H	15	18	18	24.5	24.5	35	35

- Note) 1. Specifications are subject to change without notice to improve product performances.
 2. The values of D7 through D11 and L10 through L16 on the above table may vary by servo motor.
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