FUTURING SMART ENERGY

www.lsis.com

Precision Planetary Gearbox

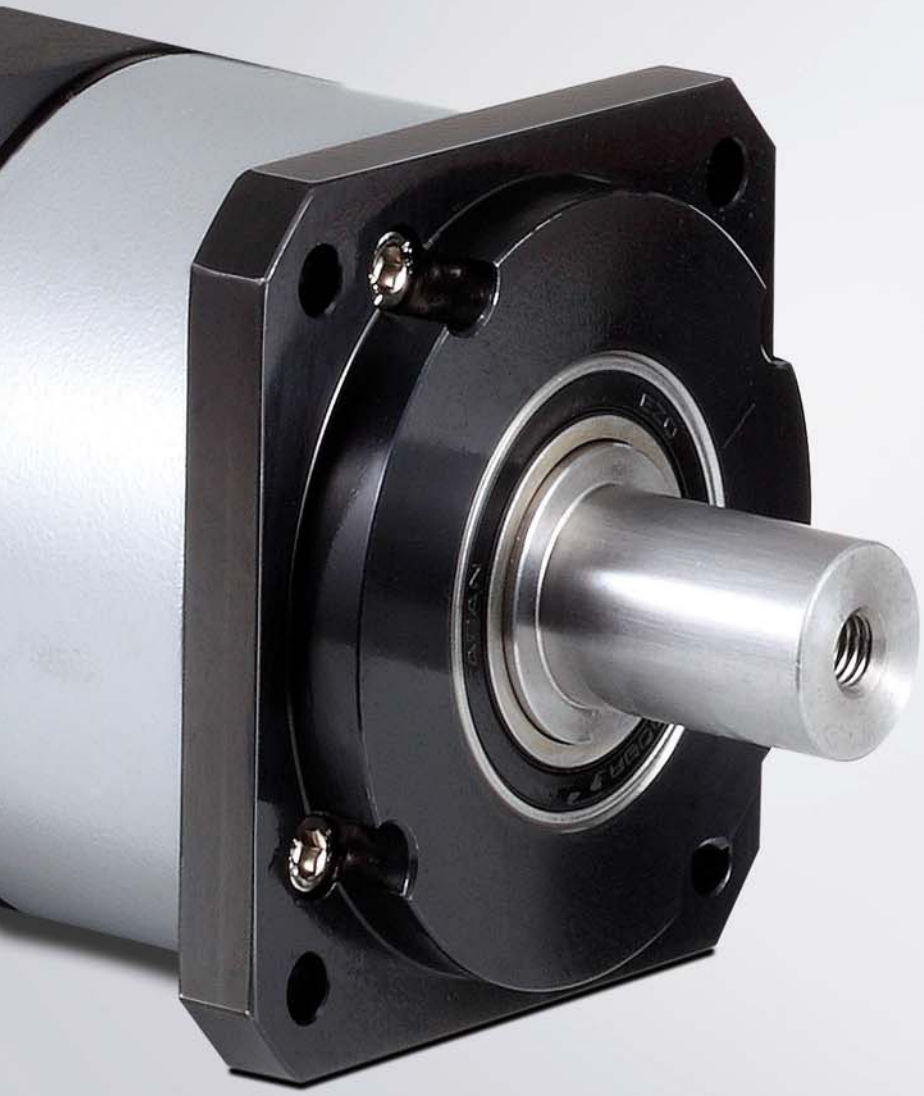
LS IS

Precision Planetary Gearbox

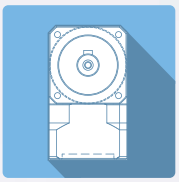
LSIS is always with our customers to provide everything needed in factory automation, from PLC to even Precision Planetary Gearbox for servo motors.

Series	Backlash	Running noise	Allowable Radial Load	Nominal Output Torque	Lifespan	Type	Output Flange
SSS	◑	◑	◑	◑	◑	Straight	Square
SAS	○	○	◑	◑	◑	Angle	Square
SSW	◑	◑	●	◑	●	Straight	Square
SAW	○	○	●	◑	●	Angle	Square
SSC	◑	◑	◑	◑	◑	Straight	Circular
SAC	○	○	◑	◑	◑	Angle	Circular

- Comparison among LSIS planetary gearboxes
- ○ : Standard, ◑ : Strong, ● : Best

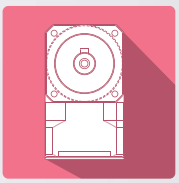


SSS Series
6 ~ 11



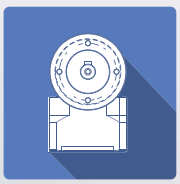
SAS Series
12 ~ 17

SSW Series
18 ~ 23



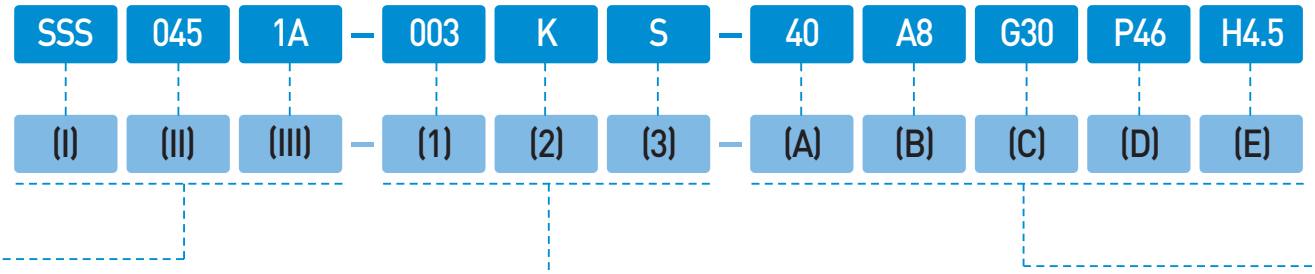
SAW Series
24 ~ 29

SSC Series
30 ~ 35



SAC Series
36 ~ 41

Part Number



Type : (I), (II), (III)

(I) : Series	
SSS	Spur, Straight, Standard
SAS	Spur, Angle, Standard
SSW	Spur, Straight, Weight
SAW	Spur, Angle, Weight
SSC	Spur, Straight, Circular
SAC	Spur, Angle, Circular

(II) : Frame Size (mm)		
SSS/SAS	SSW/SAW	SSC/SAC
045	050	052
060	065	070
090	100	104
115	120	120
142	155	155
180	200	205
220	-	235

(III) : Stage and Input Shaft Hole	
1A / 1M1	Single stage
2A / 2M1	Double stage
2B	Double stage

• A : Standard input shaft hole is provided.
B : Input shaft diameter is one level smaller than standard one.
M1 : Input shaft diameter is one level larger than standard one.
* Single stage provides A type and M1 type.
* M1 type is avaialble only with A type.
* See C3 in drawings to check input shaft's diameter size.

Character : (1), (2), (3)

(1) : Gear Ratio			
Single stage		Double stage	
003	3	015	15
004	4	020	20
005	5	025	25
007	7	030	30
009	9	035	35
010	10	045	45
014	14	050	50
020	20	063	63
-	-	070	70
-	-	090	90
-	-	100	100
-	-	126	126
-	-	140	140
-	-	180	180
-	-	200	200

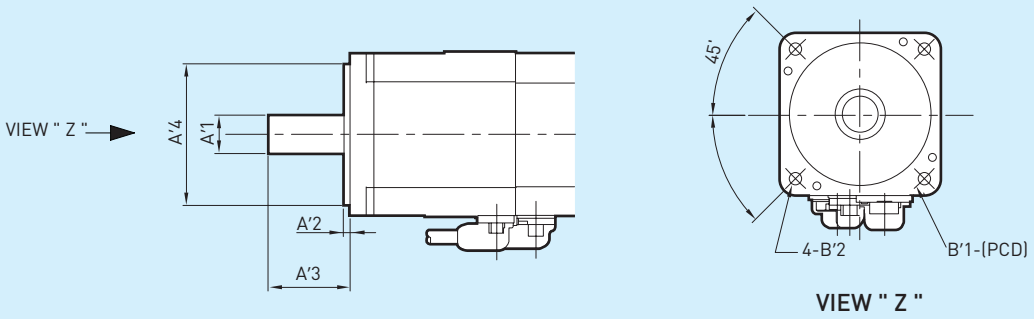
• See pages of each series for further details.

(2) : Shaft Option	
N	Smooth output shaft
K	Keyed output shaft

(3) : Backlash / Accuracy	
S	Standard backlash
P	High precision backlash

• See pages of each series for further details.

Drawing of Motor



External Dimension of Motor : (A),(B),(C),(D),(E)

[Unit : mm]

(A) : Frame size	(B) : Axis diameter(A' 1) A=Axis		(C) : Guide diameter(A' 4) G=Guide		(D) : PCD diameter(B' 1) P=PCD		(E) : PCD hole diameter(B' 2) H=PCD Hole	
38	A8	8	G22	22	P45	45	H3.4	3.4
40	A11	11	G30	30	P46	46	H4.3	4.3
42	A14	14	G50	50	P48	48	H4.5	4.5
60	A16	16	G70	70	P70	70	H5.5	5.5
62	A19	19	G80	80	P90	90	H5.8	5.8
80	A22	22	G95	95	P100	100	H6	6
90	A24	24	G110	110	P115	115	H6.6	6.6
100	A28	28	G114.3	114.3	P145	145	H7	7
110	A35	35	G180	180	P200	200	H9	9
120	A42	42	G200	200	P215	215	H10	10
130	A45	45	G230	230	P220	220	H10.2	10.2
180	A48	48	G250	250	P235	235	H13.5	13.5
176	A55	55	G300	300	P265	265	H14.5	14.5
180	A60	60			P300	300	H19	19
200	A65	65			P350	350	H24	24
220	A80	80						
250								

• See pages 36~43 for further details.

SSS Series

Straight type planetary gearbox with square output flange, spur gears and ball bearings at the output

- Best-in-class backlash
- High output torque
- Balanced motor pinion
- 17 gear ratios available from 3:1 up to 100:1
- Low noise level
- Maintenance free: No need to replace lubrication for the life of the unit
- High efficiency

Product

Stage	Gear ratio	SSS045	SSS060	SSS090	SSS115	SSS142	SSS180	SSS220
1A	3~10	○	○	○	○	○	○	△
2A	15~100	○	○	○	○	○	○	△
2B	15~100	-	○	○	○	○	○	△

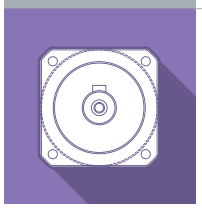
• ○ : Standard, △ : Made to order, - : Ask sales person for customizability

Division		Stage	Gear ratio	SSS045	SSS060	SSS090	SSS115	SSS142	SSS180	SSS220
Nominal output torque (Nm) (1)		1	3	19 *	55	138	255	448	828	1,463
			4	17	49	134	280	517	995	1,644
			5	18	53	146	304	580	1,125	1,885
			7	16	46	132	279	512	1,038	1,723
			9	13	40	110	229	431	888	1,495
			10	13	40	108	238	451	915	1,533
		2	15	19 *	55	138	255	448	828	1,463
			20	17	49	134	280	517	995	1,644
			25	18	53	146	304	580	1,125	1,885
			30	17 *	48	138	281	533	1,043	1,790
			35	16	46	132	279	512	1,038	1,723
			40	17	49	134	280	517	995	1,644
			45	13	40	108	236	446	921	1,553
			50	18	53	146	304	580	1,125	1,885
			63	17	48	138	281	533	1,043	1,790
			70	16	46	132	284	512	1,038	1,723
			90	13	40	110	229	431	888	1,495
			100	13	40	108	238	451	915	1,533
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	3,000	2,000
Max. input speed (rpm)		1, 2	3~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Torsional rigidity (Nm/arcmin)		1, 2	3~100	3	6	12	22	50	140	215
Max. radial load (N)		1, 2	3~100	700	1,200	3,200	6,800	9,300	15,100	50,000
Max. axial load (N)		1, 2	3~100	360	650	1,600	3,400	4,500	7,500	28,000
Backlash (arcmin)	S	1	3~10	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
		2	15~100	≤ 9	≤ 9	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
	P	1	3~10	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
		2	15~100	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Service life (Hour)		1, 2	3~100	20,000 (For continuous operation, the service life time is less than 10,000 hrs.)						
Efficiency (%)		1	3~10	≥ 97						
		2	15~100	≥ 94						
Weight (kg)		1	3~10	≤ 0.6	≤ 1.3	≤ 3.8	≤ 7.8	≤ 14.0	≤ 29.0	≤ 45.0
		2	15~100	≤ 0.8	≤ 1.8	≤ 5.3	≤ 9.0	≤ 17.0	≤ 33.0	≤ 54.0
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	≤ 57	≤ 59	≤ 62	≤ 64	≤ 66	≤ 69
Inertia (kgcm²)		1A	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
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			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
		2A	15~45	0.03	0.13	0.47	2.71	7.42	7.42	53.27
			50~100	0.03	0.13	0.44	2.57	7.03	7.03	50.56
		2B	15~45	-	0.03	0.13	0.47	2.71		23.29
			50~100	-	0.03	0.13	0.44	2.57		22.51

(1) Considering safety factors, nominal output torque is calculated.

(2) Max. output torque is equivalent to 60% of the emergency stop torque

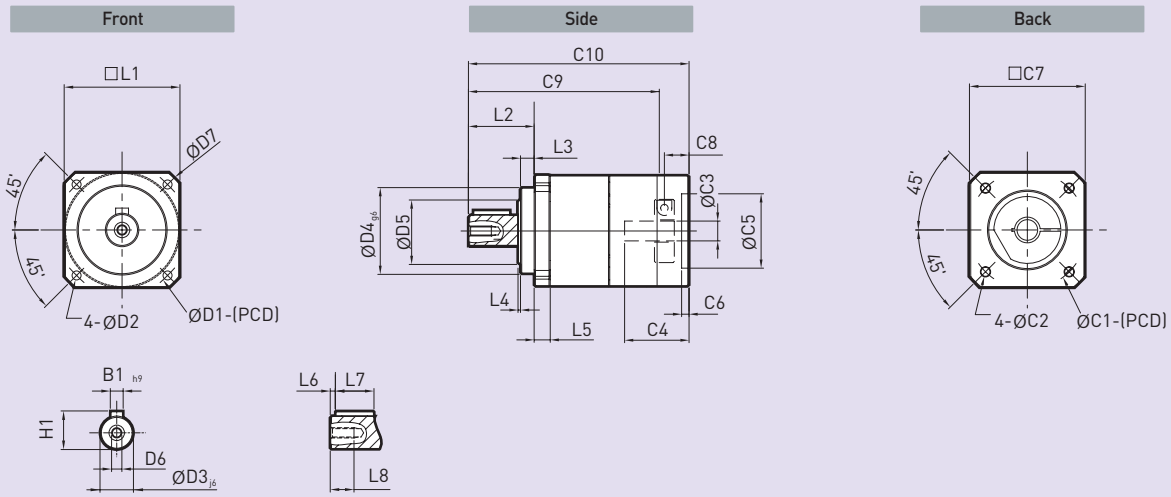
* SSS045's gear ratios 3/15/30 will be available as of Aug. 2017



SSS Series

Single Stage

Drawing of Planetary Gearbox



Division		SSS0451A	SSS0601A	SSS0901A	SSS1151A	SSS1421A	SSS1801A	SSS2201A
D	D1	50	70	100	130	165	215	250
	D2	3.4	5.5	6.6	9	11	13	17
	$D3_{j6}$ (2)	13	16	22	32	40	55	75
	$D4_{g6}$ (2)	35	50	80	110	130	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
	D7	58	80	116	152	185	240	292
L	L1	45	60	90	115	142	180	220
	L2	26.5	37	48	64	97	105	138
	L3	5.5	7	10	12	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6.5	8	11	12	14.5	18	25
	L6	2	2	3	5	5	6	7
	L7	16	25	32	40	63	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	72	95	126.9	160.5	213.5	244	310
	C10	89	115.5	150.4	202.5	260.5	291	365
B	$B1_{h9}$ (2)	5	5	6	10	12	16	20
H	H1	15	18	24.5	35	43	59	79.5

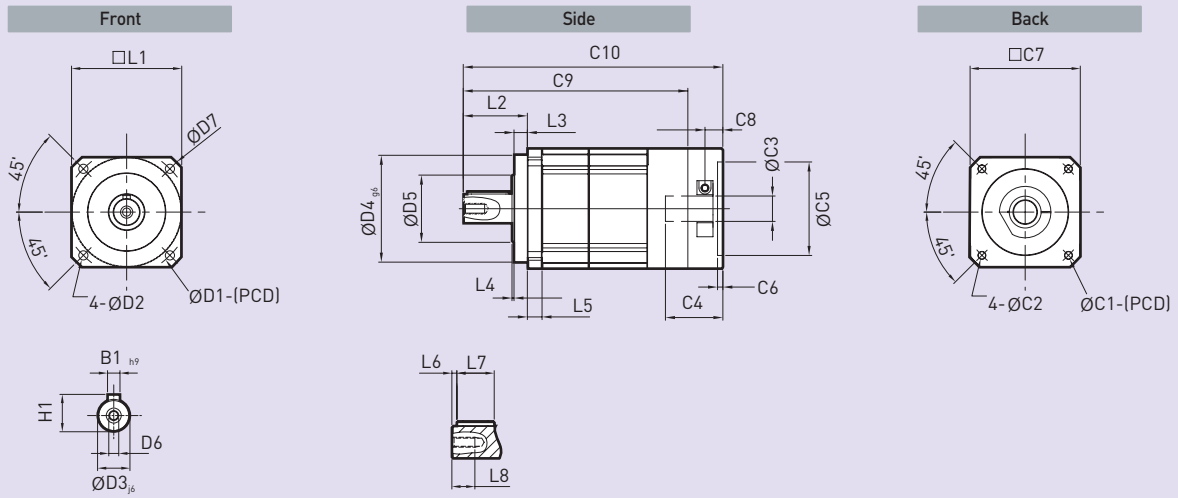
(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In $XX_{yy, yy}$ means fit tolerance (KS B 0401)

(3) ( ) is M1 Type - made to order.

Double Stage A Type

Drawing of Planetary Gearbox

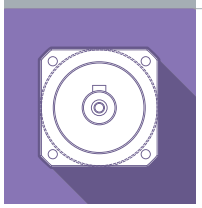


Division		SSS0452A	SSS0602A	SSS0902A	SSS1152A	SSS1422A	SSS1802A	SSS2202A
D	D1	50	70	100	130	165	215	250
	D2	3.4	5.5	6.6	9	11	13	17
	$D3_{j6}$ (2)	13	16	22	32	40	55	75
	$D4_{g6}$ (2)	35	50	80	110	130	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
	D7	58	80	116	152	185	240	292
L	L1	45	60	90	115	142	180	220
	L2	26.5	37	48	64	97	105	138
	L3	5.5	7	10	12	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6.5	8	11	12	14.5	18	25
	L6	2	2	3	5	5	6	7
	L7	16	25	32	40	63	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	101	129.5	170.5	200.8	271.5	318	395
	C10	118	150	194	242.8	318.5	365	450
B	$B1_{h9}$ (2)	5	5	6	10	12	16	20
H	H1	15	18	24.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, $_{YY}$ means fit tolerance (KS B 0401)

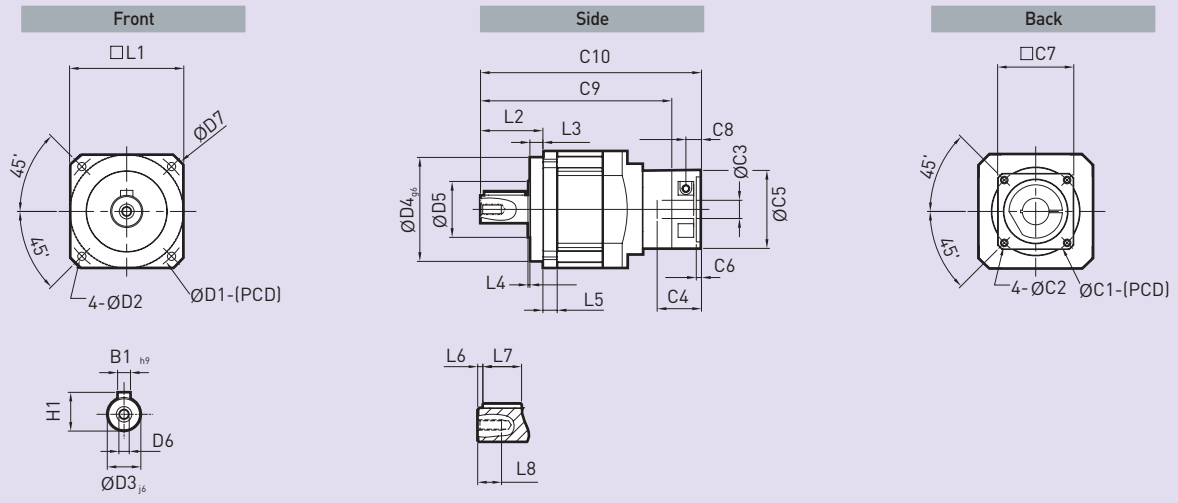
(3) ( ) is M1 Type - made to order.



SSS Series

Double Stage B Type

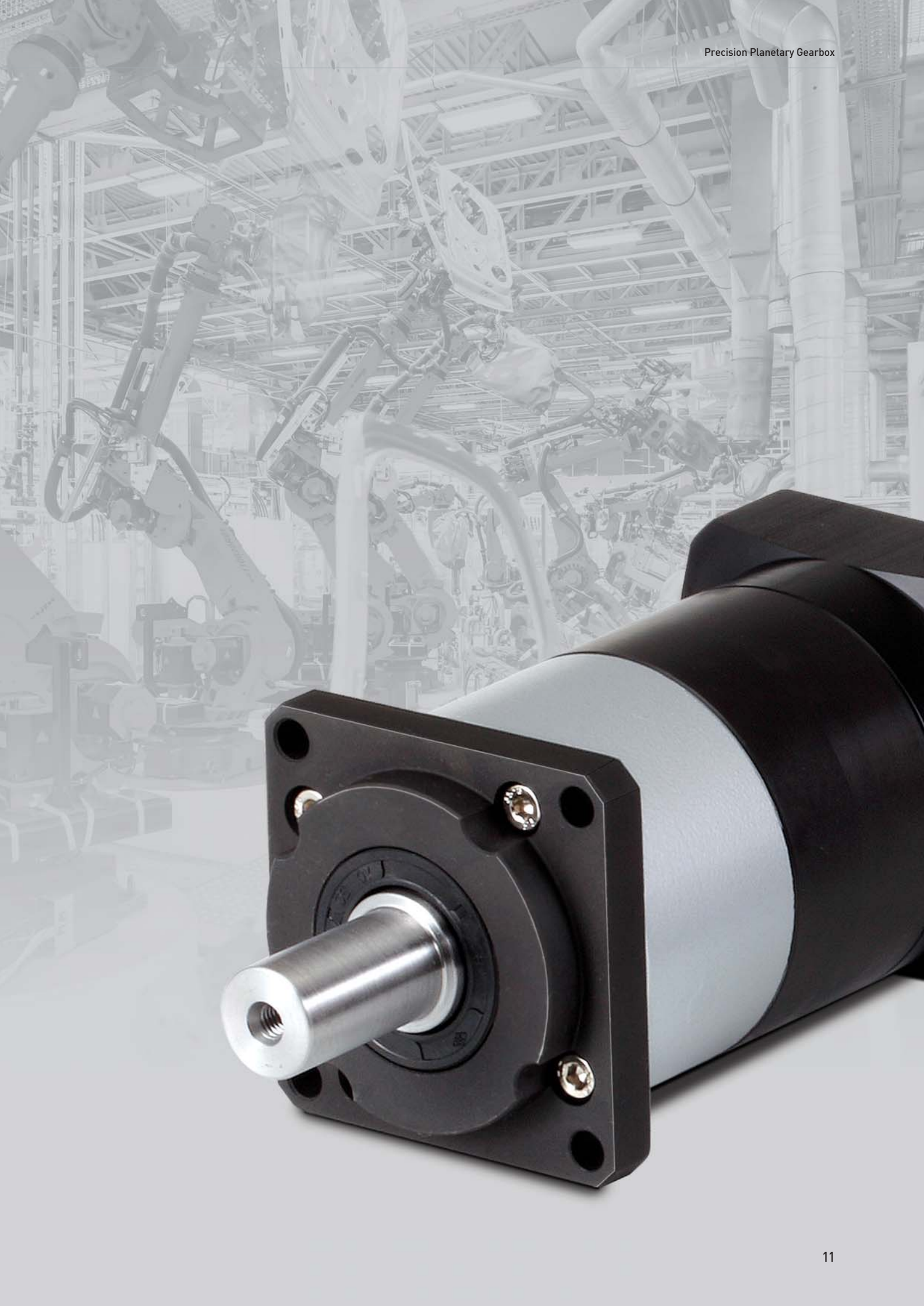
Drawing of Planetary Gearbox



Division		SSS0602B	SSS0902B	SSS1152B	SSS1422B	SSS1802B	SSS2202B
D	D1	70	100	130	165	215	250
	D2	5.5	6.6	9	11	13	17
	$D3_{j6}$ (2)	16	22	32	40	55	75
	$D4_{g6}$ (2)	50	80	110	130	160	180
	D5	20	30	40	70	75	100
	D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
	D7	80	116	152	185	240	292
L	L1	60	90	115	142	180	220
	L2	37	48	64	97	105	138
	L3	7	10	12	15	20	30
	L4	1.5	1.5	2	3	3	3
	L5	8	11	12	14.5	18	25
	L6	2	3	5	5	6	7
	L7	25	32	40	63	70	90
	L8	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3	8	14	19	24	35	42
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	45	60	90	132	180	180
	C8	9.5	11	13.5	28	21	21
	C9	115	149.5	199.7	254	292	373
	C10	132	170	223.2	296	339	420
B	$B1_{h9}$ (2)	5	6	10	12	16	20
H	H1	18	24.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{yy}, yy means fit tolerance (KS B 0401)



SAS Series

Right-angle planetary gearbox with square output flange, spur / spiral bevel gears and ball bearings at the output

- Best-in-class backlash
- High output torque
- Balanced motor pinion
- 23 gear ratios available from 3:1 up to 200:1
- Low noise level
- Maintenance free: No need to replace lubrication for the life of the unit
- High efficiency

Product

Stage	Gear ratio	SAS045	SAS060	SAS090	SAS115	SAS142	SAS180	SAS220
1A	3~10	○	○	○	○	○	○	△
	14, 20	-	○	○	○	○	○	△
2A	15, 20	○	-	-	-	-	-	-
	25~100	○	○	○	○	○	○	△
	126~200	-	○	○	○	○	○	△
2B	15, 20	-	-	-	-	-	-	-
	25~100	-	○	○	○	○	○	△
	126~200	-	-	○	○	○	○	△

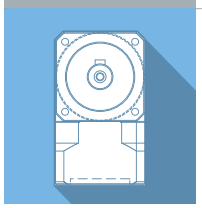
• ○ : Standard, △ : Made to order, - : Ask sales person for customizability

Division		Stage	Gear ratio	SAS045	SAS060	SAS090	SAS115	SAS142	SAS180	SAS220
Nominal output torque (Nm) (1)		1	3	19 *	55	138	255	448	828	1,463
			4	17	49	134	280	517	995	1,644
			5	18	53	146	304	580	1,125	1,885
			7	16	46	132	279	512	1,038	1,723
			9	13	40	110	229	431	888	1,495
			10	13	40	108	238	451	915	1,533
			14	-	46	132	279	512	1,038	1,723
			20	-	40	108	238	451	915	1,533
		2	15	19 *	-	-	-	-	-	-
			20	17	-	-	-	-	-	-
			25	18	53	146	304	580	1,125	1,885
			30	17 *	48	138	281	533	1,043	1,790
			35	16	46	132	279	512	1,038	1,723
			40	17	49	134	280	517	995	1,644
			45	13	40	108	236	446	921	1,553
			50	18	53	146	304	580	1,125	1,885
			63	17	48	138	281	533	1,043	1,790
			70	16	46	132	284	512	1,038	1,723
			90	13	40	110	229	431	888	1,495
			100	13	40	108	238	451	915	1,533
			126	-	-	132	279	512	1,038	1,723
			140	-	-	132	279	512	1,038	1,723
			180	-	-	110	229	431	888	1,495
			200	-	-	108	238	451	915	1,533
Emergency stop torque (Nm)		1, 2	3~200	3 times nominal output torque						
Nominal input speed (rpm)		1, 2	3~200	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. input speed (rpm)		1, 2	3~200	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Torsional rigidity (Nm/arcmin)		1, 2	3~200	3	6	12	22	50	140	215
Max. radial load (N)		1, 2	3~200	700	1,200	3,200	6,800	9,300	15,100	50,000
Max. axial load (N)		1, 2	3~200	360	650	1,600	3,400	4,500	7,500	28,000
Backlash (arcmin)	S	1	3~20	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
		2	15~200	≤ 10	≤ 10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
	P	1	3~20	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
		2	15~200	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Service life (Hour)		1, 2	3~200	20,000 (For continuous operation, the service life time is less than 10,000 hrs.)						
Efficiency (%)		1	3~20	≥ 97						
		2	15~200	≥ 94						
Weight (kg)		1	3~20	≤ 0.9	≤ 1.5	≤ 6.0	≤ 12.0	≤ 24.0	≤ 24.0	≤ 80.0
		2	15~200	≤ 1.2	≤ 2.0	≤ 7.5	≤ 13.5	≤ 26.0	≤ 26.0	≤ 90.0
Operating Temp (℃)		1, 2	3~200	-10 ~ 90						
Lubrication		1, 2	3~200	Grease (VIGO Grease RE #0)						
Degree of Gearbox protection		1, 2	3~200	IP65						
Noise (dB)		1, 2	3~200	≤ 61	≤ 63	≤ 66	≤ 69	≤ 71	≤ 73	≤ 75
Inertia (kgcm²)		1A	3~10	0.09	0.35	2.25	6.84	23.4	68.9	135.4
			14, 20	-	0.07	1.87	6.25	21.8	65.6	119.8
		2A	15, 20	0.09	-	-	-	-	-	-
			25~100	0.09	0.09	0.35	2.25	6.84	23.4	68.9
			120~200	-	-	0.31	1.87	6.25	21.8	65.6
		2B	15, 20	-	-	-	-	-	-	-
			25~100	-	0.09	0.35	2.25	6.84	23.4	68.9
			120~200	-	-	0.31	1.87	6.25	21.8	65.6

(1) Considering safety factors, nominal output torque is calculated.

(2) Max. output torque is equivalent to 60% of the emergency stop torque

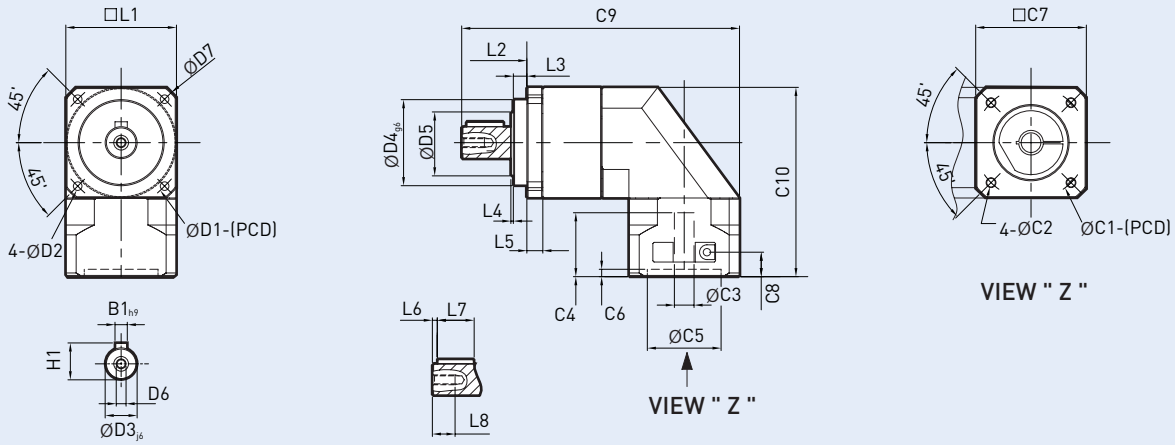
* SSS045's gear ratios 3/15/30 will be available as of Aug. 2017



SAS Series

Single Stage

Drawing of Planetary Gearbox



Division		SAS0451A	SAS0601A	SAS0901A	SAS1151A	SAS1421A	SAS1801A	SAS2201A
D	D1	50	70	100	130	165	215	250
	D2	3.4	5.5	6.6	9	11	13	17
	$D3_{j6}$ (2)	13	16	22	32	40	55	75
	$D4_{g6}$ (2)	35	50	80	110	130	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
	D7	58	80	116	152	185	240	292
L	L1	45	60	90	115	142	180	220
	L2	26.5	37	48	64	97	105	138
	L3	5.5	7	10	12	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6.5	8	11	12	14.5	18	25
	L6	2	2	3	5	5	6	7
	L7	16	25	32	40	63	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	114	143	202	275	354	395	480
	C10	73	97.3	137.4	185.5	229	285.5	370
B	$B1_{h9}$ (2)	5	5	6	10	12	16	20
H	H1	15	18	24.5	35	43	59	79.5

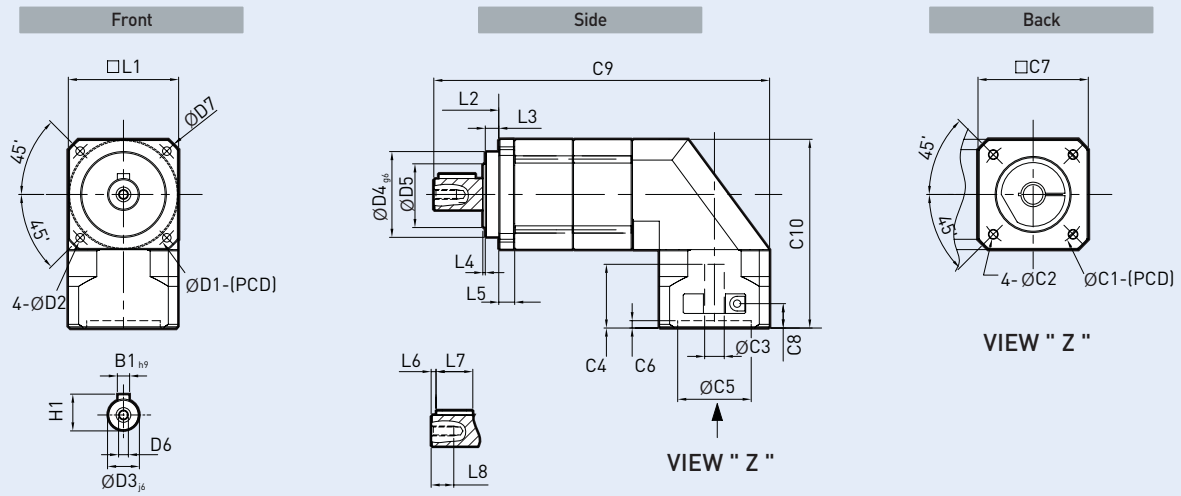
(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)

(3) ( ) is M1 Type - made to order.

Double Stage A Type

Drawing of Planetary Gearbox

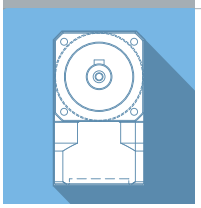


Division		SAS0452A	SAS0602A	SAS0902A	SAS1152A	SAS1422A	SAS1802A	SAS2202A
D	D1	50	70	100	130	165	215	250
	D2	3.4	5.5	6.6	9	11	13	17
	$D3_{j6}$ (2)	13	16	22	32	40	55	75
	$D4_{g6}$ (2)	35	50	80	110	130	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
	D7	58	80	116	152	185	240	292
L	L1	45	60	90	115	142	180	220
	L2	26.5	37	48	64	97	105	138
	L3	5.5	7	10	12	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6.5	8	11	12	14.5	18	25
	L6	2	2	3	5	5	6	7
	L7	16	25	32	40	63	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	143	177.5	246	315.3	412	469	565
	C10	73	97.3	137.4	185.5	229	285.5	370
B	$B1_{h9}$ (2)	5	5	6	10	12	16	20
H	H1	15	18	24.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, $_{YY}$ means fit tolerance (KS B 0401)

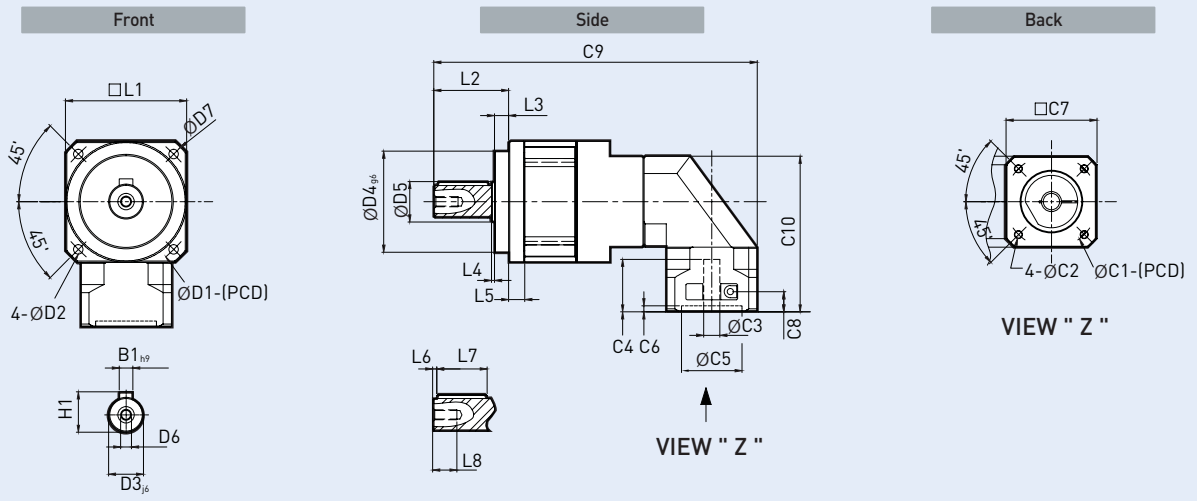
(3) ( ) is M1 Type - made to order.



SAS Series

Double Stage B Type

Drawing of planetary gearbox



Division		SAS060B	SAS090B	SAS115B	SAS142B	SAS180B	SAS220B
D	D1	70	100	130	165	215	250
	D2	5.5	6.6	9	11	13	17
	$D3_{j6}$ (2)	16	22	32	40	55	75
	$D4_{g6}$ (2)	50	80	110	130	160	180
	D5	20	30	40	70	75	100
	D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
	D7	80	116	152	185	240	292
L	L1	60	90	115	142	180	220
	L2	37	48	64	9	105	138
	L3	7	10	12	15	20	30
	L4	1.5	1.5	2	3	3	3
	L5	8	11	12	14.5	18	25
	L6	2	3	5	5	6	7
	L7	25	32	40	63	70	90
	L8	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3	8	14	19	24	35	42
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	45	60	90	132	180	180≥
	C8	9.5	11	13.5	28	21	20.5
	C9	125	153.5	226.4	292.8	386	439
	C10	73	97.3	137.4	185.5	229	285.5
B	$B1_{h9}$ (2)	5	6	10	12	16	20
H	H1	18	24.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In $XX_{YY, YY}$ means fit tolerance (KS B 0401)

SSW Series

Square output flange, spur gear, suitable for high radial and axial forces, long service time, lower vibration, triple ball bearings at the output.

- Best-in-class backlash
- High output torque
- Balanced motor pinion
- 17 gear ratios available from 3:1 up to 100:1
- Low noise level
- Maintenance free: No need to replace lubrication for the life of the unit
- High efficiency

Product

Stage	Gear ratio	SSW050	SSW065	SSW100	SSW125	SSW155	SSW200
1A	3~10	○	○	○	○	○	○
2A	15~100	○	○	○	○	○	○
2B	15~100	-	○	○	○	○	○

• ○ : Standard, △ : Made to order, - : Ask sales person for customizability

Division		Stage	Gear ratio	SSW050	SSW065	SSW100	SSW125	SSW155	SSW200
Nominal output torque (Nm) (1)		1	3	19 *	55	138	255	448	828
			4	17	49	134	280	517	995
			5	18	53	146	304	580	1125
			7	16	46	132	279	512	1,038
			9	13	40	110	229	431	888
			10	13	40	108	238	451	915
		2	15	19 *	55	138	255	448	828
			20	17	49	134	280	517	995
			25	18	53	146	304	580	1,125
			30	17 *	48	138	281	533	1,043
			35	16	46	132	279	512	1,038
			40	17	49	134	280	517	995
			45	13	40	108	236	446	921
			50	18	53	146	304	580	1,125
			63	17	48	138	281	533	1,043
			70	16	46	132	284	512	1,038
			90	13	40	110	229	431	888
			100	13	40	108	238	451	915
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	3,000
Max. input speed (rpm)		1, 2	3~100	10,000	10,000	8,000	8,000	6,000	6,000
Torsional rigidity (Nm/arcmin)		1, 2	3~100	3	6	12	22	50	140
Max. radial load (N)		1, 2	3~100	1,400	2,400	6,400	13,600	18,600	30,200
Max. axial load (N)		1, 2	3~100	540	975	2,400	5,100	6,750	11,250
Backlash (arcmin)	S	1	3~10	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6	≤ 6
		2	15~100	≤ 10	≤ 10	≤ 9	≤ 9	≤ 9	≤ 9
	P	1	3~10	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4
		2	15~100	≤ 8	≤ 7	≤ 6	≤ 6	≤ 6	≤ 6
Service life (Hour)		1, 2	3~100	30,000 (For continuous operation, the service life time is less than 15,000 hrs.)					
Efficiency (%)		1	3~10	≥ 97					
		2	15~100	≥ 94					
Weight (kg)		1	3~10	≤ 0.8	≤ 1.6	≤ 4.5	≤ 8.5	≤ 16.0	≤ 29.5
		2	15~100	≤ 1.0	≤ 2.0	≤ 6.0	≤ 9.7	≤ 19.0	≤ 33.5
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	≤ 57	≤ 59	≤ 62	≤ 64	≤ 66
Inertia (kgcm²)		1A	3	0.03	0.16	0.61	3.25	9.21	28.98
			4	0.03	0.14	0.48	2.74	7.54	23.67
			5	0.03	0.13	0.47	2.71	7.42	23.29
			7	0.03	0.13	0.45	2.62	7.14	22.48
			9	0.03	0.13	0.44	2.57	7.04	22.53
			10	0.03	0.13	0.44	2.57	7.03	22.51
		2A	15~45	0.03	0.13	0.47	2.71	7.42	7.42
			50~100	0.03	0.13	0.44	2.57	7.03	7.03
		2B	15~45	-	0.03	0.13	0.47	2.71	-
			50~100	-	0.03	0.13	0.44	2.57	-

(1) Considering safety factors, nominal output torque is calculated.

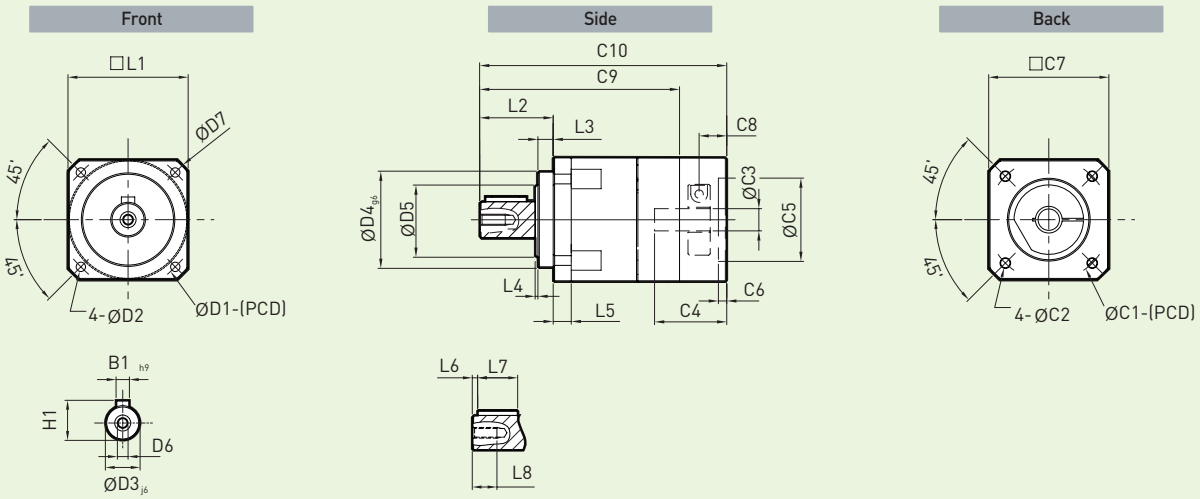
(2) More load and more lifetime than SSS series.

(3) Max. output torque is equivalent to 60% of the emergency stop torque

* SSW050's gear ratios 3/15/30 will be available as of Aug. 2017

Single Stage

Drawing of Planetary Gearbox



Division		SSW0501A	SSW0651A	SSW1001A	SSW1251A	SSW1551A	SSW2001A
D	D1	50	70	100	130	165	215
	D2	3.4	5.5	6.6	9	11	13
	$D3_{j6}$ (2)	13	16	22	32	40	55
	$D4_{g6}$ (2)	35	50	80	110	130	160
	D5	15	20	30	40	70	75
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P
	D7	58	80	116	152	185	240
L	L1	50	65	100	125	155	240
	L2	26.5	37	48	64	97	105
	L3	5.5	7	10	12	15	20
	L4	1	1.5	1.5	2	3	3
	L5	18.5	10	28.6	30.5	44	57
	L6	2	2	3	5	5	6
	L7	16	25	32	40	63	70
	L8	10	12.5	19	28	36	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	50	65	100	132	180	180
	C8	9.5	11	13.5	28	21	20.5
	C9	84	97	144.5	179	243	283
	C10	101	117.5	168	221	290	330
B	$B1_{h9}$ (2)	5	5	6	10	12	16
H	H1	15	18	24.5	35	43	59

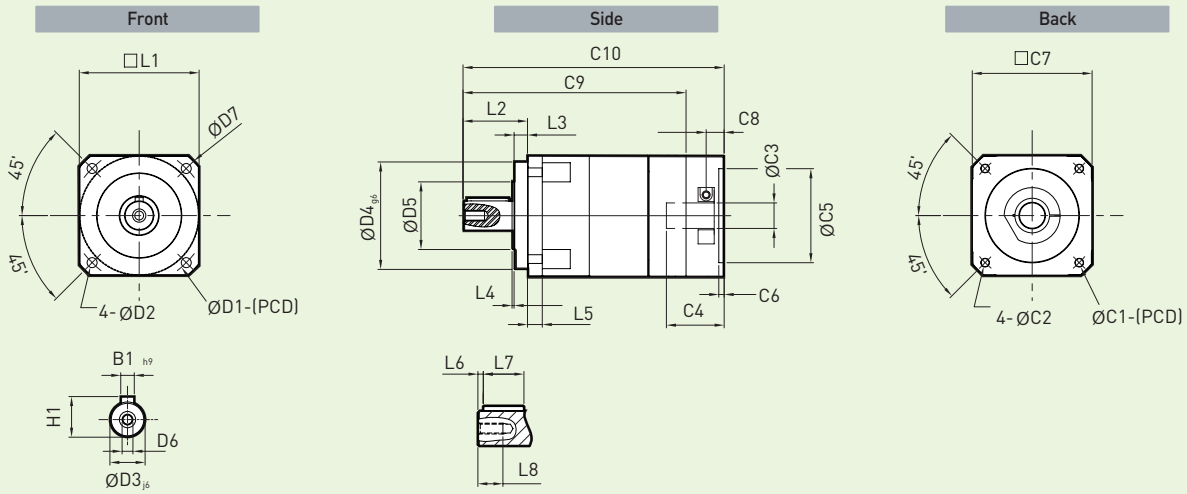
(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In $XX_{YY, YY}$ means fit tolerance (KS B 0401)

(3) ( ) is M1 Type - made to order.

Double Stage A Type

Drawing of Planetary Gearbox

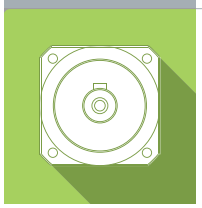


Division		SSW0502A	SSW0652A	SSW1002A	SSW1252A	SSW1552A	SSW2002A
D	D1	50	70	100	130	165	215
	D2	3.4	5.5	6.6	9	11	13
	$D3_{j6}$ (2)	13	16	22	32	40	55
	$D4_{g6}$ (2)	35	50	80	110	130	160
	D5	15	20	30	40	70	75
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P
	D7	58	80	116	152	185	240
L	L1	50	65	100	125	155	200
	L2	26.5	37	48	64	97	105
	L3	5.5	7	10	12	15	20
	L4	1	1.5	1.5	2	3	3
	L5	18.5	10	28.6	30.5	44	57
	L6	2	2	3	5	5	6
	L7	16	25	32	40	63	70
	L8	10	12.5	19	28	36	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	50	65	100	132	180	180
	C8	9.5	11	13.5	28	21	20.5
	C9	113	131.5	188.5	219.3	301	357
	C10	130	152	212	261.3	348	404
B	$B1_{h9}$ (2)	5	5	6	10	12	16
H	H1	15	18	24.5	35	43	59

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)

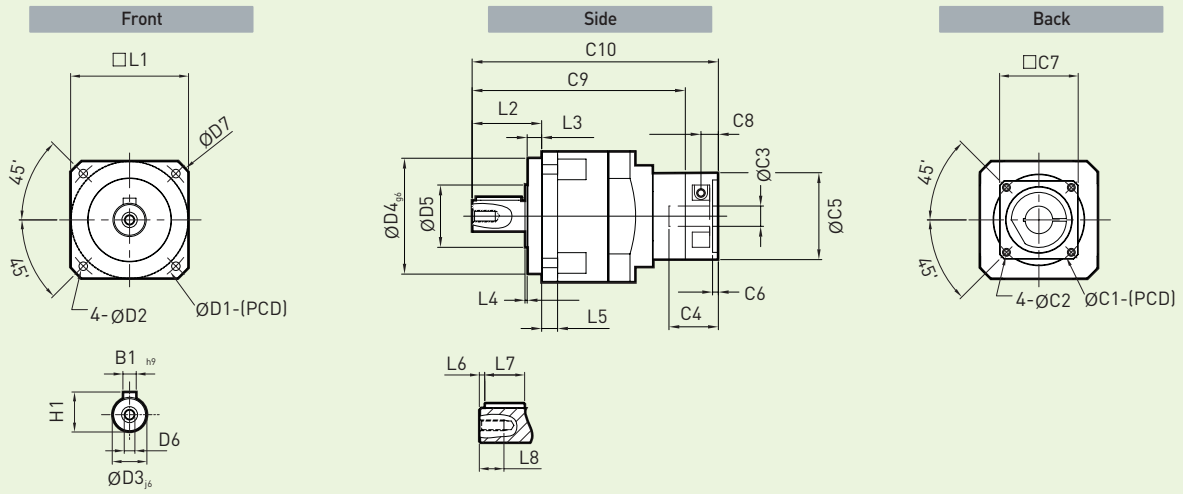
(3) ( ) is M1 Type - made to order.



SSW Series

Double Stage B Type

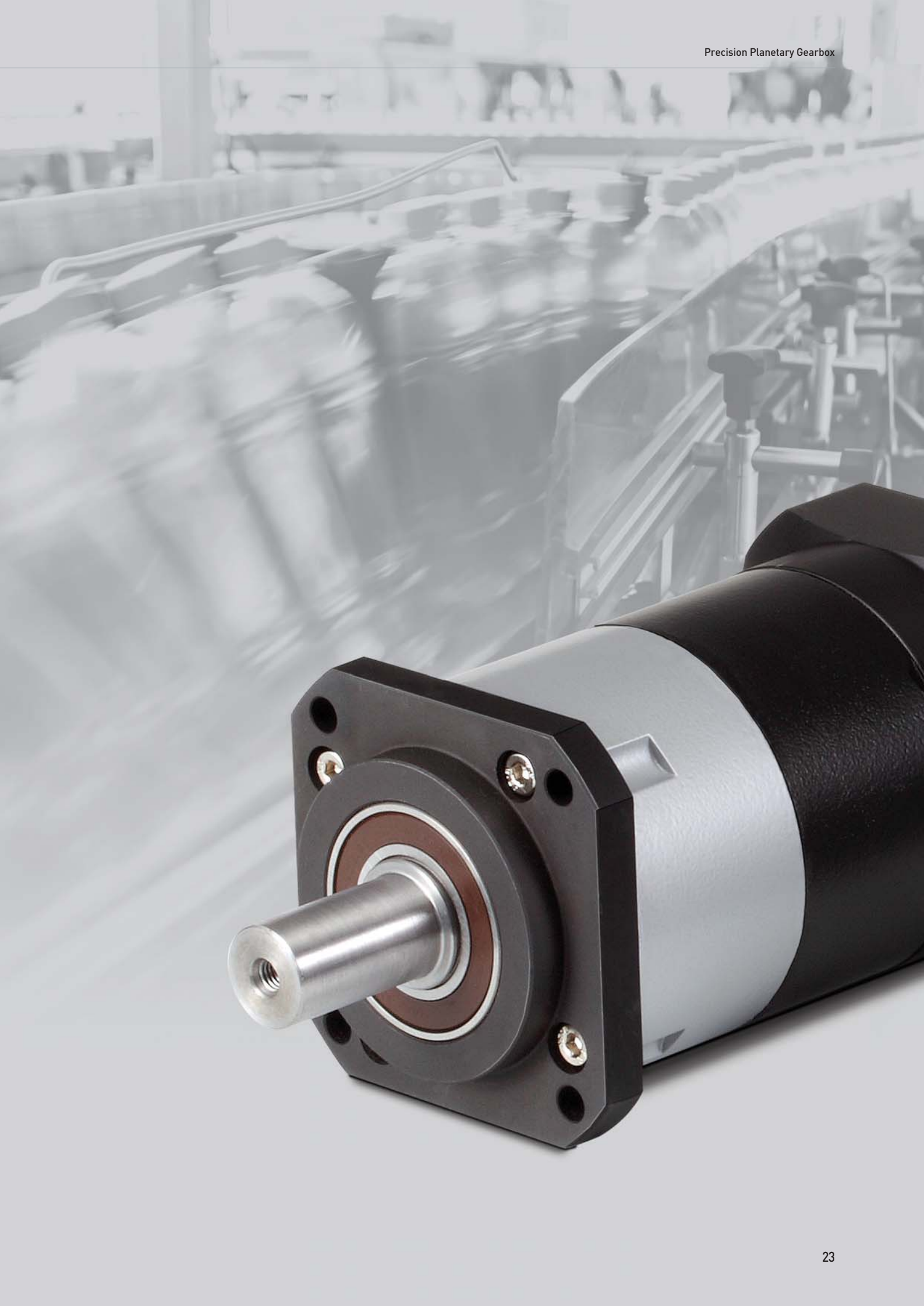
Drawing of Planetary Gearbox



Division		SSW0652B	SSW1002B	SSW1252B	SSW1552B	SSW2002B
D	D1	70	100	130	165	215
	D2	5.5	6.6	9	11	13
	$D3_{j6}$ (2)	16	22	32	40	55
	$D4_{g6}$ (2)	50	80	110	130	160
	D5	20	30	40	70	75
	D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P
	D7	80	116	152	185	240
L	L1	65	100	125	155	200
	L2	37	48	64	97	105
	L3	7	10	12	15	20
	L4	1.5	1.5	2	3	3
	L5	10	28.6	30.5	44	57
	L6	2	3	5	5	6
	L7	25	32	40	63	70
	L8	12.5	19	28	36	42
C (1)	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	8	14	19	24	35
	C4	26.5	34	43.1	62	82
	C5	30	50	70	110	114.3
	C6	4	4	4	7	7
	C7	50	65	100	132	180
	C8	9.5	11	13.5	28	21
	C9	117	167.1	218.2	283.5	331
	C10	134	187.6	241.7	325.5	378
B	$B1_{h9}$ (2)	5	6	10	12	16
H	H1	18	24.5	35	43	59

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)



SAW Series

Square output flange, spur gear and bevel gear, suitable for high radial and axial forces, long service time, lower vibration, triple ball bearings at the output

- Best-in-class backlash
- High output torque
- Balanced motor pinion
- 23 gear ratios available from 3:1 up to 200:1
- Low noise level
- Maintenance free: No need to replace lubrication for the life of the unit
- High efficiency

Product

Stage	Gear ratio	SAW050	SAW065	SAW100	SAW125	SAW155	SAW200
1A	3~10	○	○	○	○	○	○
	14, 20	-	○	○	○	○	○
2A	15, 20	○	-	-	-	-	-
	25~100	○	○	○	○	○	○
	126~200	-	○	○	○	○	○
2B	15, 20	-	-	-	-	-	-
	25~100	-	○	○	○	○	○
	126~200	-	-	○	○	○	○

• ○ : Standard, △ : Made to order, - : Ask sales person for customizability

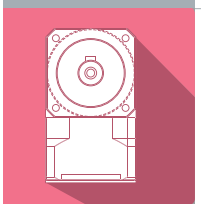
Division		Stage	Gear ratio	SAW050	SAW065	SAW100	SAW125	SAW155	SAW200
Nominal output torque (Nm) (1)		1	3	19 *	55	138	255	448	828
			4	17	49	134	280	517	995
			5	18	53	146	304	580	1,125
			7	16	46	132	279	512	1,038
			9	13	40	110	229	431	888
			10	13	40	108	238	451	915
			14	-	46	132	279	512	1,038
			20	-	40	108	238	451	915
		2	15	19 *	-	-	-	-	-
			20	17	-	-	-	-	-
			25	18	53	146	304	580	1,125
			30	17 *	48	138	281	533	1,043
			35	16	46	132	279	512	1,038
			40	17	49	134	280	517	995
			45	13	40	108	236	446	921
			50	18	53	146	304	580	1,125
			63	17	48	138	281	533	1,043
			70	16	46	132	284	512	1,038
			90	13	40	110	229	431	888
			100	13	40	108	238	451	915
			126	-	-	132	279	512	1,038
			140	-	-	132	279	512	1,038
			180	-	-	110	229	431	888
			200	-	-	108	238	451	915
Emergency stop torque (Nm)		1, 2	3~200	3 times nominal output torque					
Nominal input speed (rpm)		1, 2	3~200	5,000	5,000	4,000	4,000	3,000	3,000
Max. input speed (rpm)		1, 2	3~200	10,000	10,000	8,000	8,000	6,000	6,000
Torsional rigidity (Nm/arcmin)		1, 2	3~200	3	6	12	22	50	140
Max. radial load (N)		1, 2	3~200	1,400	2,400	6,400	13,600	18,600	30,200
Max. axial load (N)		1, 2	3~200	540	975	2,400	5,100	6,750	11,250
Backlash (arcmin)	S	1	3~20	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7
		2	15~200	≤ 10	≤ 10	≤ 8	≤ 8	≤ 8	≤ 8
	P	1	3~20	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5
		2	15~200	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7
Service life (Hour)		1, 2	3~200	30,000 (For continuous operation, the service life time is less than 15,000 hrs.)					
Efficiency (%)		1	3~20	≥ 97					
		2	15~200	≥ 94					
Weight (kg)		1	3~20	≤ 1.1	≤ 1.8	≤ 6.7	≤ 12.7	≤ 26.0	≤ 48.5
		2	15~200	≤ 1.4	≤ 2.2	≤ 8.2	≤ 14.2	≤ 28.0	≤ 50.5
Operating Temp (℃)		1, 2	3~200	-10 ~ 90					
Lubrication		1, 2	3~200	Grease (VIGO Grease RE #0)					
Degree of Gearbox protection		1, 2	3~200	IP65					
Noise (dB)		1, 2	3~200	≤ 61	≤ 63	≤ 66	≤ 69	≤ 71	≤ 73
Inertia ($kgcm^2$)		1A	3~10	0.09	0.35	2.25	6.84	23.4	68.9
			14, 20	-	0.07	1.87	6.25	21.8	65.6
		2A	15, 20	0.09	-	-	-	-	-
			25~100	0.09	0.09	0.35	2.25	6.84	23.4
			120~200	-	-	0.31	1.87	6.25	21.8
		2B	15, 20	-	-	-	-	-	-
			25~100	-	0.09	0.35	2.25	6.84	23.4
			120~200	-	-	0.31	1.87	6.25	21.8

(1) Considering safety factors, nominal output torque is calculated.

(2) More load and more lifetime than SSS series

(3) Max. output torque is equivalent to 60% of the emergency stop torque

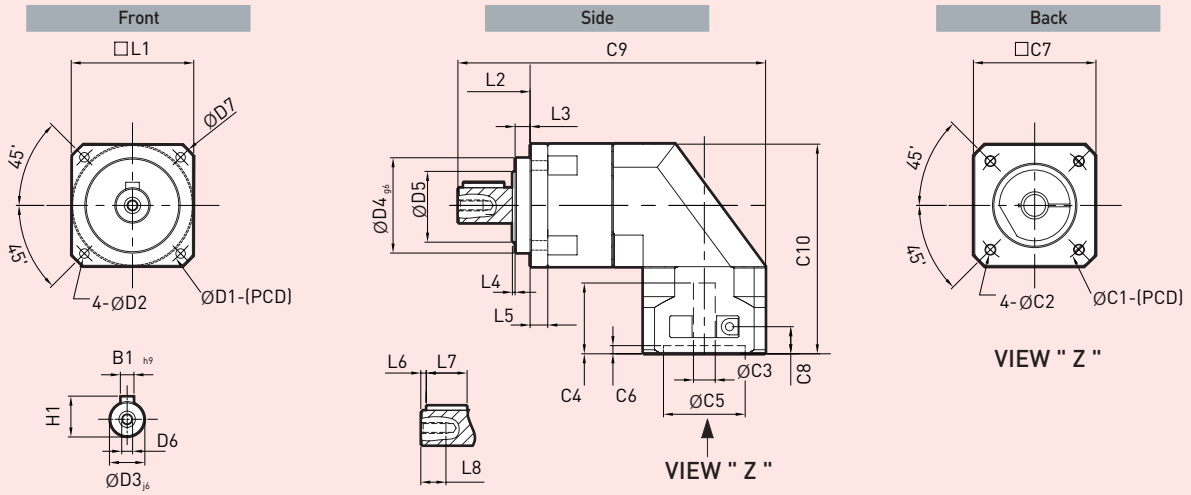
* SAW050's gear ratios 3/15/30 will be available as of Aug. 2017



SAW Series

Single Stage

Drawing of Planetary Gearbo



Division		SAW0501A	SAW0651A	SAW1001A	SAW1251A	SAW1551A	SAW2001A
D	D1	50	70	100	130	165	215
	D2	3.4	5.5	6.6	9	11	13
	$D3_{j6}$ (2)	13	16	22	32	40	55
	$D4_{g6}$ (2)	35	50	80	110	130	160
	D5	15	20	30	40	70	75
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P
	D7	58	80	116	152	185	240
L	L1	50	65	100	125	155	200
	L2	26.5	37	48	64	97	105
	L3	5.5	7	10	12	15	20
	L4	1	1.5	1.5	2	3	3
	L5	18.5	10	28.6	30.5	44	57
	L6	2	2	3	5	5	6
	L7	16	25	32	40	63	70
	L8	10	12.5	19	28	36	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	50	65	100	132	180	180
	C8	9.5	11	13.5	28	21	20.5
	C9	126	145	219.6	293.5	383.5	434
	C10	78	102.3	147.4	195.5	242	305.5
B	$B1_{h9}$ (2)	5	5	6	10	12	16
H	H1	15	18	24.5	35	43	59

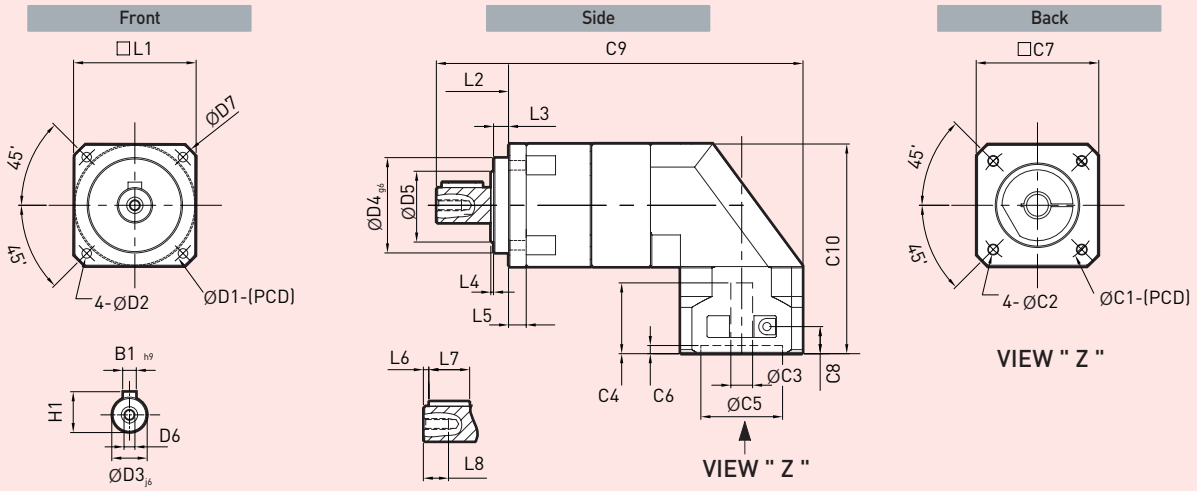
(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)

(3) ( ) is M1 Type - made to order.

Double Stage A Type

Drawing of Planetary Gearbo

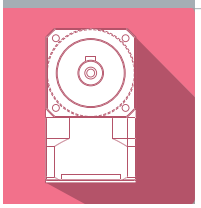


Division		SAW0502A	SAW0652A	SAW1002A	SAW1252A	SAW1552A	SAW2002A
D	D1	50	70	100	130	165	215
	D2	3.4	5.5	6.6	9	11	13
	$D3_{j6}$ (2)	13	16	22	32	40	55
	$D4_{g6}$ (2)	35	50	80	110	130	160
	D5	15	20	30	40	70	75
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P
	D7	58	80	116	152	185	240
L	L1	50	65	100	125	155	200
	L2	26.5	37	48	64	97	105
	L3	5.5	7	10	12	15	20
	L4	1	1.5	1.5	2	3	3
	L5	18.5	10	28.6	30.5	44	57
	L6	2	2	3	5	5	6
	L7	16	25	32	40	63	70
	L8	10	12.5	19	28	36	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	50	65	100	132	180	180
	C8	9.5	11	13.5	28	21	20.5
	C9	155	179.5	263.6	333.8	441.5	508
	C10	78	102.3	147.4	195.5	242	305.5
B	$B1_{h9}$ (2)	5	5	6	10	12	16
H	H1	15	18	24.5	35	43	59

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)

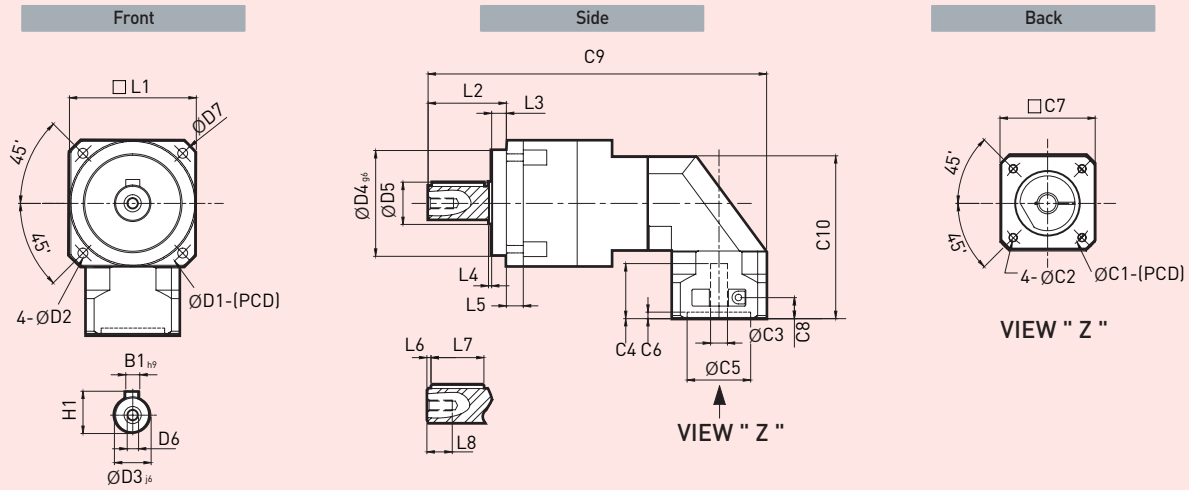
(3) ( ) is M1 Type - made to order.



SAW Series

Double Stage B Type

Drawing of Planetary Gearbo



Division		SAW065B	SAW100B	SAW125B	SAW155B	SAW200B
D	D1	70	100	130	165	215
	D2	5.5	6.6	9	11	13
	$D3_{j6}$ (2)	16	22	32	40	55
	$D4_{g6}$ (2)	50	80	110	130	160
	D5	20	30	40	70	75
	D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P
	D7	80	116	152	185	240
L	L1	65	100	125	155	200
	L2	37	48	64	9	105
	L3	7	10	12	15	20
	L4	1.5	1.5	2	3	3
	L5	10	28.6	30.5	44	57
	L6	2	3	5	5	6
	L7	25	32	40	63	70
	L8	12.5	19	28	36	42
C (1)	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	8	14	19	24	35
	C4	26.5	34	43.1	62	82
	C5	30	50	70	110	114.3
	C6	4	4	4	7	7
	C7	50	65	100	132	180
	C8	9.5	11	13.5	28	21
	C9	137	155.1	244	311.3	415.5
	C10	78	102.3	147.4	195.5	242
B	$B1_{h9}$ (2)	5	6	10	12	16
H	H1	18	24.5	35	43	59

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In $XX_{YY, YY}$ means fit tolerance (KS B 0401)

SSC Series

Circle output flange, spur gear,

optimized ball bearings at the output.

- Best-in-class backlash
- High output torque
- Balanced motor pinion
- 17 gear ratios available from 3:1 up to 100:1
- Low noise level
- Maintenance free: No need to replace lubrication for the life of the unit
- High efficiency

Product

Stage	Gear ratio	SSC052	SSC070	SSC104	SSC120	SSC155	SSC205	SSC235
1A	3~10	○	○	○	○	○	○	△
2A	15~100	○	○	○	○	○	○	△
2B	15~100	-	○	○	○	○	○	△

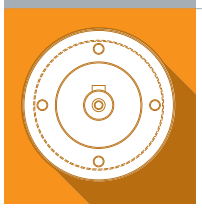
• ○ : Standard, △ : Made to order, - : Ask sales person for customizability

Division		Stage	Gear ratio	SSC052	SSC070	SSC104	SSC120	SSC155	SSC205	SSC235
Nominal output torque (Nm) [1]		1	3	19 *	55	138	255	448	828	1,463
			4	17	49	134	280	517	995	1,644
			5	18	53	146	304	580	1,125	1,885
			7	16	46	132	279	512	1,038	1,723
			9	13	40	110	229	431	888	1,495
			10	13	40	108	238	451	915	1,533
		2	15	19 *	55	138	255	448	828	1,463
			20	17	49	134	280	517	995	1,644
			25	18	53	146	304	580	1,125	1,885
			30	17 *	48	138	281	533	1,043	1,790
			35	16	46	132	279	512	1,038	1,723
			40	17	49	134	280	517	995	1,644
			45	13	40	108	236	446	921	1,553
			50	18	53	146	304	580	1,125	1,885
			63	17	48	138	281	533	1,043	1,790
			70	16	46	132	284	512	1,038	1,723
			90	13	40	110	229	431	888	1,495
			100	13	40	108	238	451	915	1533
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	3,000	2,000
Max. input speed (rpm)		1, 2	3~100	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Torsional rigidity (Nm/arcmin)		1, 2	3~100	3	6	12	22	50	140	215
Max. radial load (N)		1, 2	3~100	700	1,200	3,200	6,800	9,300	15,100	50,000
Max. axial load (N)		1, 2	3~100	360	650	1,600	3,400	4,500	7,500	28,000
Backlash (arcmin)	S	1	3~10	≤ 7	≤ 7	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
		2	15~100	≤ 9	≤ 9	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
	P	1	3~10	≤ 5	≤ 5	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
		2	15~100	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Service life (Hour)		1, 2	3~100	20,000 (For continuous operation, the service life time is less than 10,000 hrs.)						
Efficiency (%)		1	3~10	≥ 97						
		2	15~100	≥ 94						
Weight (kg)		1	3~10	≤ 0.6	≤ 1.6	≤ 4.5	≤ 8.5	≤ 16.0	≤ 29.5	≤ 46
		2	15~100	≤ 0.8	≤ 2.0	≤ 6.0	≤ 9.7	≤ 19.0	≤ 33.5	≤ 55.0
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	≤ 57	≤ 59	≤ 62	≤ 64	≤ 66	≤ 69
Inertia (kgcm²)		1A	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
			7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
			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
		2A	15~45	0.03	0.03	0.13	0.47	2.71	-	23.29
			50~100	0.03	0.03	0.13	0.44	2.57	-	23.29
		2B	15~45	-	0.03	0.13	0.47	2.71	-	23.29
			50~100	-	0.03	0.13	0.44	2.57	-	23.29

(1) Considering safety factors, nominal output torque is calculated.

(2) Max. output torque is equivalent to 60% of the emergency stop torque

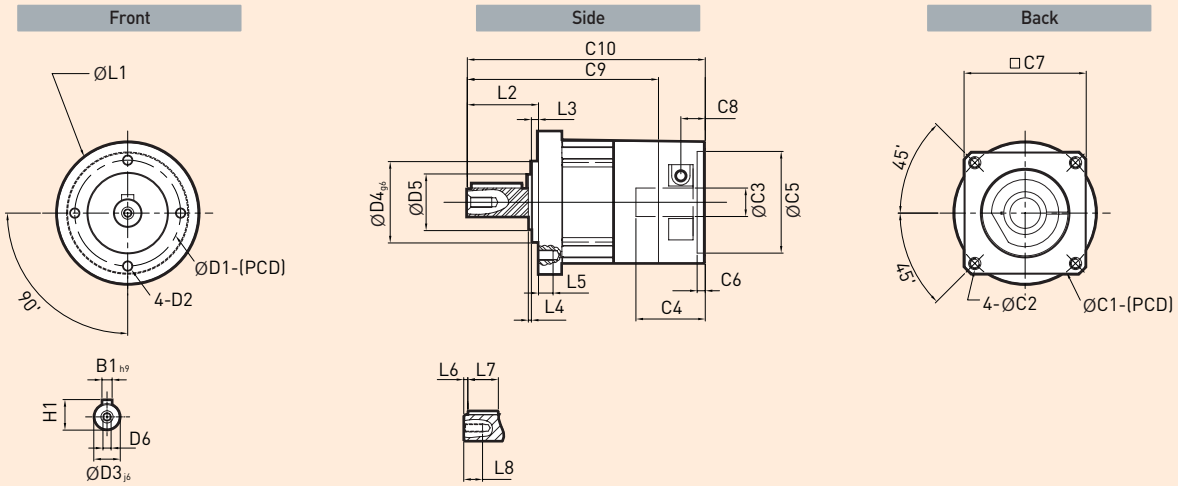
* SSC052's gear ratios 3/15/30 will be available as of Aug. 2017



SSC Series

Single Stage

Drawing of Planetary Gearbo



Division		SSC0521A	SSC0701A	SSC1041A	SSC1201A	SSC1551A	SSC2051A	SSC2351A
D	D1	34	52	70	108	140	184	210
	D2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M10 X 1.5P	M12 X 1.75P	M16 X 2P
	$D3_{j6}$ (2)	10	14	20	32	40	55	75
	$D4_{g6}$ (2)	26	40	60	90	120	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
L	L1	52	70	104	120	155	205	235
	L2	26	35	40.5	58	97	105	138
	L3	2	3.5	2.5	6	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6	8	10	15	18	22	28
	L6	1	2.3	4	5	5	6	7
	L7	20	25	28	40	65	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	81	96.5	126.9	160.5	213.5	244	310
	C10	98	117	150.4	202.5	260.5	291	365
B	$B1_{h9}$ (2)	3	5	6	10	12	16	20
H	H1	11	16	22.5	35	43	59	79.5

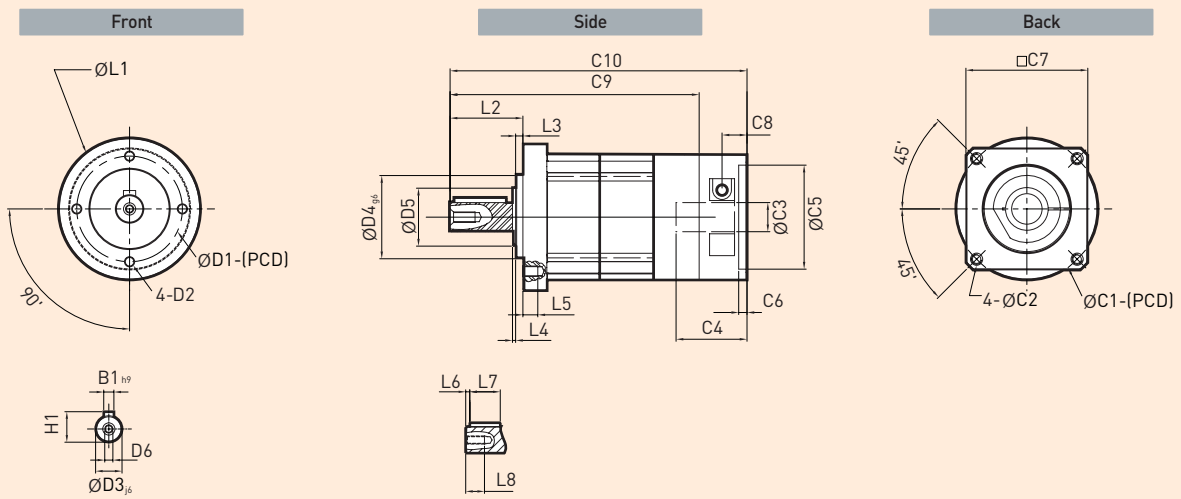
(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In $XX_{YY, YY}$ means fit tolerance (KS B 0401)

(3) ( ) is M1 Type - made to order.

Double Stage A Type

Drawing of Planetary Gearbo

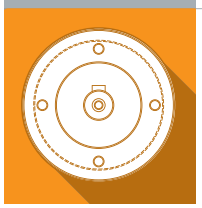


Division		SSC052A	SSC0702A	SSC1042A	SSC1202A	SSC1552A	SSC2052A	SSC2352A
D	D1	34	52	70	108	140	184	210
	D2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M10 X 1.5P	M12 X 1.75P	M16 X 2P
	$D3_{j6}$ (2)	10	14	20	32	40	55	75
	$D4_{g6}$ (2)	26	40	60	90	120	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
L	L1	52	70	104	120	155	205	235
	L2	26	35	40.5	58	97	105	138
	L3	2	3.5	2.5	6	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6	8	10	15	18	22	28
	L6	1	2.3	4	5	5	6	7
	L7	20	25	28	40	65	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	110	131	170.9	200.8	271.5	318	395
	C10	127	151.5	194.5	242.8	318.5	365	450
B	$B1_{h9}$ (2)	3	5	6	10	12	16	20
H	H1	11	16	22.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)

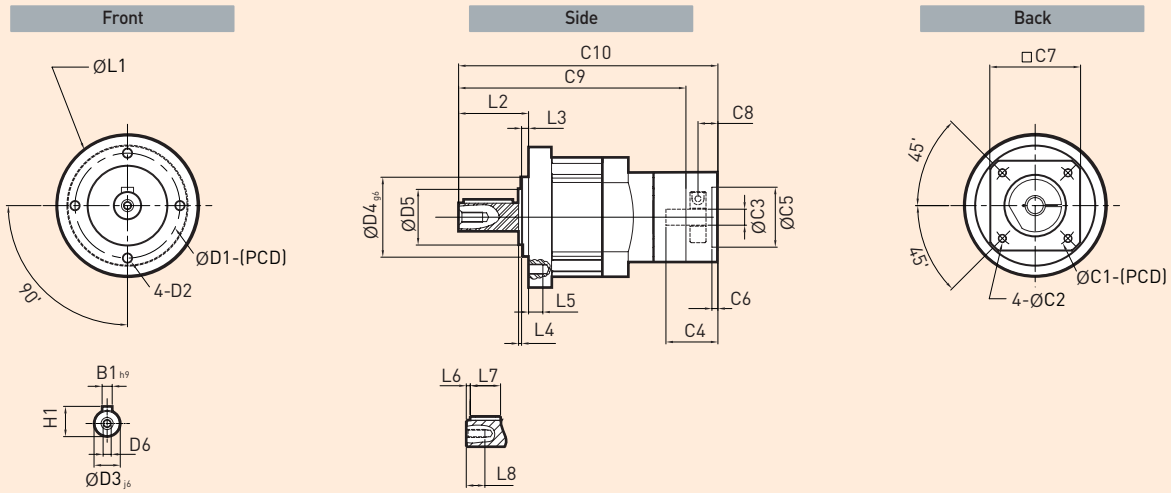
(3) ( ) is M1 Type - made to order.



SSC Series

Double Stage B Type

Drawing of Planetary Gearbo



Division		SSC0702B	SSC1042B	SSC1202B	SSC1552B	SSC2052B	SSC2352B
D	D1	52	70	108	140	184	210
	D2	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M10 X 1.5P	M12 X 1.75P	M16 X 2P
	$D3_{j6}$ (2)	14	20	32	40	55	75
	$D4_{g6}$ (2)	40	60	90	120	160	180
	D5	20	30	40	70	75	100
	D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
L	L1	70	104	120	155	205	235
	L2	35	40.5	58	97	105	138
	L3	3.5	2.5	6	15	20	30
	L4	1.5	1.5	2	3	3	3
	L5	8	10	15	18	22	28
	L6	2.3	4	5	5	6	7
	L7	25	28	40	65	70	90
	L8	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3	8	14	19	24	35	42
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	45	60	90	132	180	180
	C8	9.5	11	13.5	28	21	20.5
	C9	116.5	149.5	199.7	254	292	373
	C10	133.5	170	223.2	296	339	420
B	$B1_{h9}$ (2)	5	6	10	12	16	20
H	H1	16	22.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{YY}, YY means fit tolerance (KS B 0401)

SAC Series

The right angle planetary gearbox with circle output flange spur gear and bevel gear optimized ball bearings at the output.

- Best-in-class backlash
- High output torque
- Balanced motor pinion
- 23 gear ratios available from 3:1 up to 200:1
- Low noise level
- Maintenance free: No need to replace lubrication for the life of the unit
- High efficiency

Product

Stage	Gear ratio	SAC052	SAC070	SAC104	SAC120	SAC155	SAC205	SAC235
1A	3~10	○	○	○	○	○	○	△
	14, 20	-	○	○	○	○	○	△
2A	15, 20	○	-	-	-	-	-	-
	25~100	○	○	○	○	○	○	△
	126~200	-	○	○	○	○	○	△
2B	15, 20	-	-	-	-	-	-	-
	25~100	-	○	○	○	○	○	△
	126~200	-	-	○	○	○	○	△

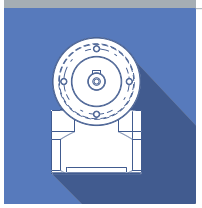
• ○ : Standard, △ : Made to order, - : Ask sales person for customizability

Division		Stage	Gear ratio	SAC052	SAC070	SAC104	SAC120	SAC155	SAC205	SAC235
Nominal output torque (Nm) [1]		1	3	19 *	55	138	255	448	828	1,463
			4	17	49	134	280	517	995	1,644
			5	18	53	146	304	580	1,125	1,885
			7	16	46	132	279	512	1,038	1,723
			9	13	40	110	229	431	888	1,495
			10	13	40	108	238	451	915	1,533
			14	-	46	132	279	512	1,038	1,723
			20	-	40	108	238	451	915	1,533
		2	15	19 *	-	-	-	-	-	-
			20	17	-	-	-	-	-	-
			25	18	53	146	304	580	1,125	1,885
			30	17 *	48	138	281	533	1,043	1,790
			35	16	46	132	279	512	1,038	1,723
			40	17	49	134	280	517	995	1.644
			45	13	40	108	236	446	921	1,553
			50	18	53	146	304	580	1,125	1,885
			63	17	48	138	281	533	1,043	1,790
			70	16	46	132	284	512	1,038	1,723
			90	13	40	110	229	431	888	1,495
			100	13	40	108	238	451	915	1,533
			126	-	-	132	279	512	1,038	1,723
			140	-	-	132	279	512	1,038	1,723
			180	-	-	110	229	431	888	1,495
			200	-	-	108	238	451	915	1,533
Emergency stop torque (Nm)		1, 2	3~200	3 times nominal output torque						
Nominal input speed (rpm)		1, 2	3~200	5,000	5,000	4,000	4,000	3,000	3,000	2,000
Max. input speed (rpm)		1, 2	3~200	10,000	10,000	8,000	8,000	6,000	6,000	4,000
Torsional rigidity (Nm/arcmin)		1, 2	3~200	3	6	12	22	50	140	215
Max. radial load (N)		1, 2	3~200	700	1,200	3,200	6,800	9,300	15,100	50,000
Max. axial load (N)		1, 2	3~200	360	650	1,600	3,400	4,500	7,500	28,000
Backlash (arcmin)	S	1	3~20	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
		2	15~200	≤ 10	≤ 10	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
	P	1	3~20	≤ 6	≤ 6	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
		2	15~200	≤ 8	≤ 8	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
Service life (Hour)		1, 2	3~200	20,000 (For continuous operation, the service life time is less than 10,000 hrs.)						
Efficiency (%)		1	3~20	≥ 97						
		2	15~200	≥ 94						
Weight (kg)		1	3~20	≤ 1.1	≤ 1.8	≤ 6.7	≤ 12.7	≤ 26.0	≤ 48.5	≤ 81.0
		2	15~200	≤ 1.4	≤ 2.2	≤ 8.2	≤ 14.2	≤ 28.0	≤ 50.5	≤ 91.0
Operating Temp (℃)		1, 2	3~200	-10 ~ 90						
Lubrication		1, 2	3~200	Grease (VIGO Grease RE #0)						
Degree of Gearbox protection		1, 2	3~200	IP65						
Noise (dB)		1, 2	3~200	≤ 61	≤ 63	≤ 66	≤ 69	≤ 71	≤ 73	≤ 75
Inertia ($kgcm^2$)		1A	3~10	0.09	0.35	2.25	6.84	23.4	68.9	135.4
			14, 20	-	0.07	1.87	6.25	21.8	65.6	119.8
		2A	15, 20	0.09	-	-	-	-	-	-
			25~100	0.09	0.09	0.35	2.25	6.84	23.4	68.9
			120~200	-	-	0.31	1.87	6.25	21.8	65.6
		2B	15, 20	-	-	-	-	-	-	-
			25~100	-	0.09	0.35	2.25	6.84	23.4	68.9
			120~200	-	-	0.31	1.87	6.25	21.8	65.6

(1) Considering safety factors, nominal output torque is calculated.

(2) Max. output torque is equivalent to 60% of the emergency stop torque

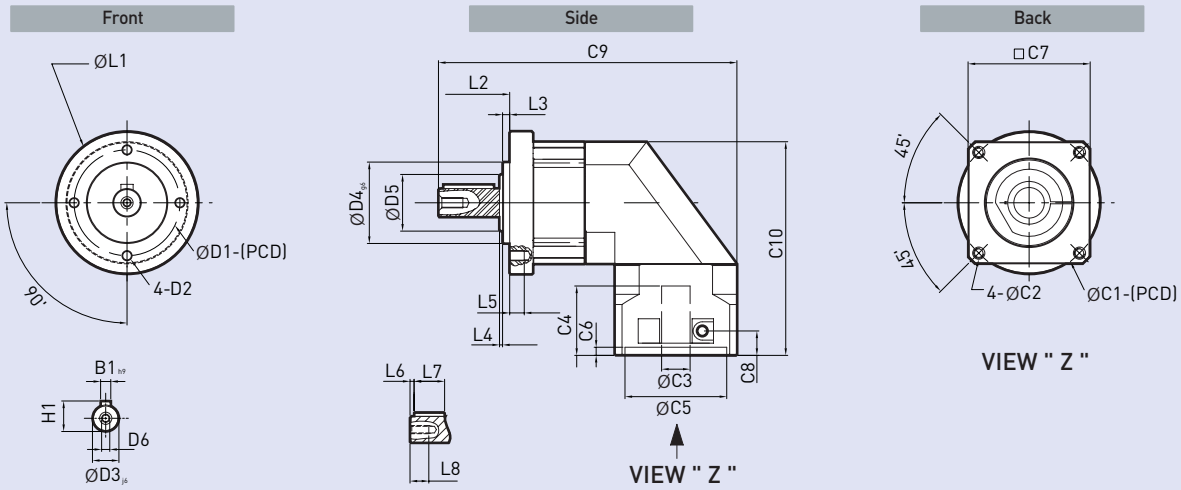
* SAC052's gear ratios 3/15/30 will be available as of Aug. 2017



SAC Series

Single Stage

Drawing of Planetary Gearbo



Division		SAC0521A	SAC0701A	SAC1041A	SAC1201A	SAC1551A	SAC2051A	SAC2351A
D	D1	34	52	70	108	140	184	210
	D2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M10 X 1.5P	M12 X 1.75P	M16 X 2.0P
	$D3_{j6}$ (2)	10	14	20	32	40	55	75
	$D4_{g6}$ (2)	26	40	60	90	120	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P	M20 X 2.5P	M20 X 2.5P
L	L1	52	70	104	120	155	205	235
	L2	26	35	40.5	58	97	105	138
	L3	2	3.5	2.5	6	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6	8	10	15	18	22	28
	L6	1	2.3	4	5	5	6	7
	L7	20	25	28	40	65	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	123	144.5	202	275	354	395	480
	C10	80	107.3	151.4	190.5	242	310.5	385
B	$B1_{h9}$ (2)	3	5	6	10	12	16	20
H	H1	11	16	22.5	35	43	59	79.5

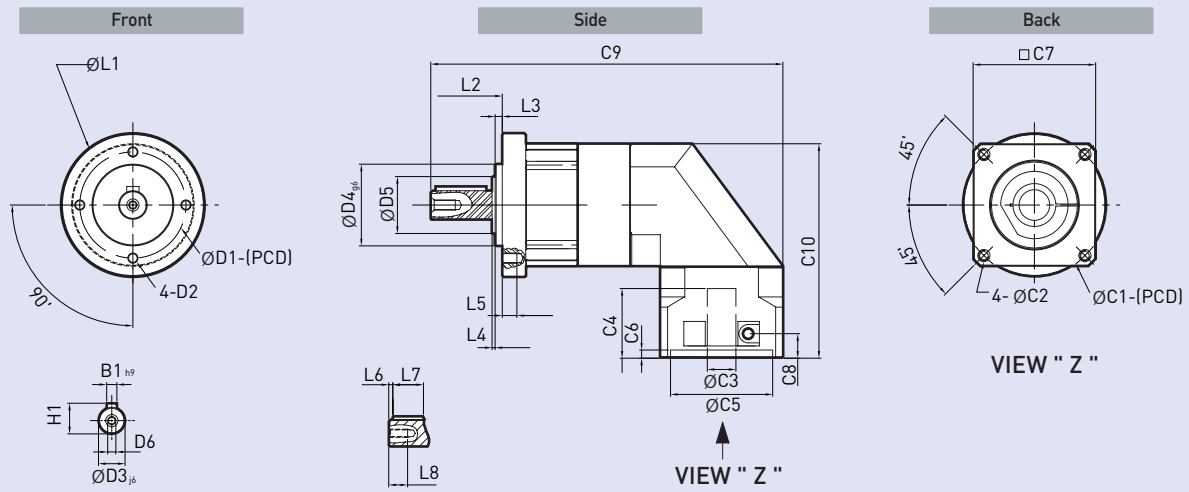
(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{yy}, yy means fit tolerance (KS B 0401)

(3) ( ) is M1 Type - made to order.

Double Stage A Type

Drawing of Planetary Gearbo

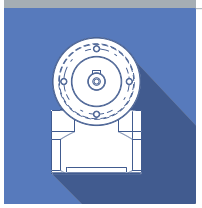


Division		SAC0522A	SAC0702A	SAC1042A	SAC1202A	SAC1552A	SAC2052A	SAC2352A
D	D1	34	52	70	108	140	184	210
	D2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M10 X 1.5P	M12 X 1.75P	M16 X 2.0P
	$D3_{j6}$ (2)	10	14	20	32	40	55	75
	$D4_{g6}$ (2)	26	40	60	90	120	160	180
	D5	15	20	30	40	70	75	100
	D6	M4 X 0.7P	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P	M20 X 2.5P	M20 X 2.5P
L	L1	52	70	104	120	155	205	235
	L2	26	35	40.5	58	97	105	138
	L3	2	3.5	2.5	6	15	20	30
	L4	1	1.5	1.5	2	3	3	3
	L5	6	8	10	15	18	22	28
	L6	1	2.3	4	5	5	6	7
	L7	20	25	28	40	65	70	90
	L8	10	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200	235
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P	M12 X 1.75P
	C3 (3)	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)	55
	C4	26.5	34	43.1	62	82	86	116
	C5	30	50	70	110	114.3	114.3	200
	C6	4	4	4	7	7	12	12
	C7	45	60	90	132	180	180	220
	C8	9.5	11	13.5	28	21	20.5	35
	C9	152	179	246	315.3	412	469	565
	C10	80	107.3	151.4	190.5	242	310.5	385
B	$B1_{h9}$ (2)	3	5	6	10	12	16	20
H	H1	11	16	22.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{yy}, $_{yy}$ means fit tolerance (KS B 0401)

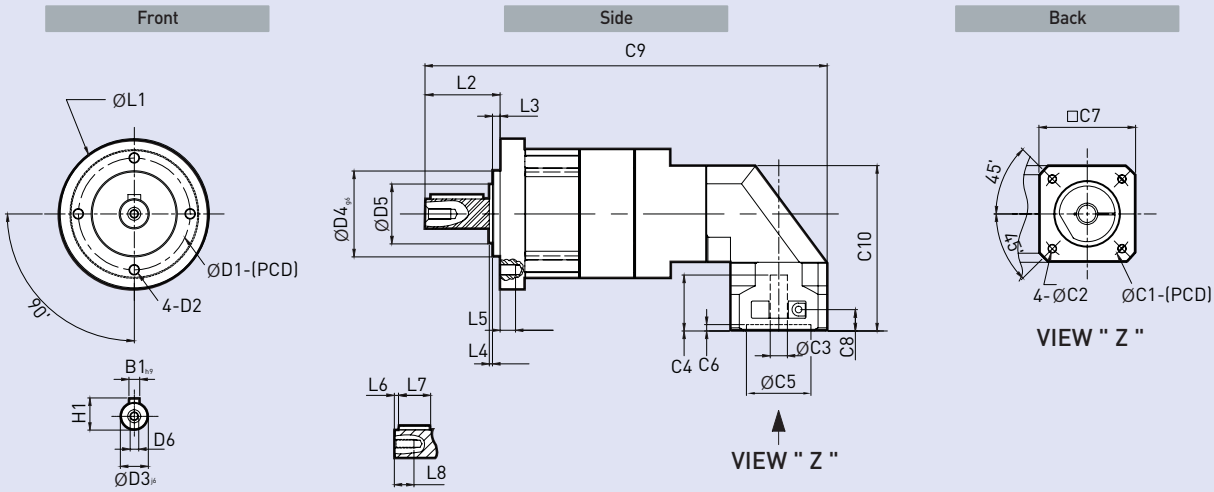
(3) ( ) is M1 Type - made to order.



SAC Series

Double Stage B Type

Drawing of Planetary Gearbo



Division		SAC070B	SAC104B	SAC120B	SAC155B	SAC205B	SAC235B
D	D1	52	70	108	140	184	210
	D2	M5 X 0.8P	M6 X 1P	M8 X 1.25P	M10 X 1.75P	M12 X 1.75P	M16 X 2P
	$D3_{j6}$ (2)	14	20	32	40	55	75
	$D4_{g6}$ (2)	40	60	90	120	160	180
	D5	20	30	40	70	75	100
	D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2P	M20 X 2.5P	M20 X 2.5P
L	L1	70	104	120	155	205	235
	L2	35	40.5	58	97	105	138
	L3	3.5	2.5	6	15	20	30
	L4	1.5	1.5	2	3	3	3
	L5	8	10	15	18	22	28
	L6	2.3	4	5	5	6	7
	L7	25	28	40	65	70	90
	L8	12.5	19	28	36	42	42
C (1)	C1	46	70	90	145	200	200
	C2	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
	C3	8	14	19	24	35	42
	C4	26.5	34	43.1	62	82	86
	C5	30	50	70	110	114.3	114.3
	C6	4	4	4	7	7	12
	C7	45	60	90	132	180	180≥
	C8	9.5	11	13.5	28	21	20.5
	C9	161	221.6	295.7	389.5	443	535
	C10	80	107.3	151.4	190.5	242	310.5
B	$B1_{h9}$ (2)	5	6	10	12	16	20
H	H1	16	22.5	35	43	59	79.5

(1) C(C1~C9) is dimension for input shaft parts. Dimensions differ by motor types and makers. See CAD files for exact dimensions of gearboxes in www.lsis.com.

(2) In XX_{yy}, yy means fit tolerance (KS B 0401)

Dimensions of Applicable Servo Motors

LSIS

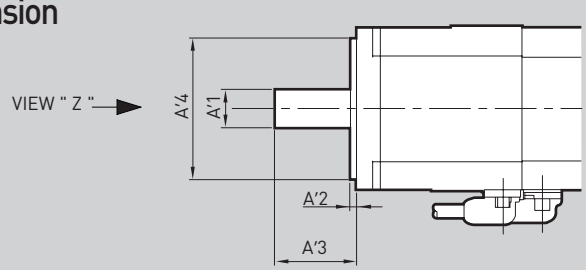
Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
XML-F	FALR5A, FAL01A, FAL015A	40	8	2.5	25	30	46	4.5	40A8G30P46H4.5
	FBL01A, FBL02A, FBL04A	60	14	3	30	50	70	6	60A14G50P70H6
	FCL04A, FCL03D	80	14	3	40	70	90	6.6	80A14G70P90H6.6
	FCL06A, FCL05D, FCL08A, FCL06D, FCL10A, FCL07D	80	19	3	40	70	90	6.6	80A19G70P90H6.6
	FB01A, FB02A, FB04A	62	14	3	30	50	70	6	62A14G50P70H6
	FC04A, FC03D	80	14	3	40	70	90	6.6	80A14G70P90H6.6
	FC06A, FC05D, FC08A, FC06D, FC10A, FC07D	80	19	3	40	70	90	6.6	80A19G70P90H6.6
	FE09A, FE06D, FE05G, FE03M, FEP09A, FEP06D, FEP05G, FEP03M, FE15A, FE11D, FE09G, FE06M, FEP15A, FEP11D, FEP09G, FEP06M	130	19	6	58	110	145	9	130A19G110P145H9
	FE22A, FE16D, FE13G, FE09M, FEP22A, FEP16D, FEP13G, FEP09M	130	22	6	58	110	145	9	130A22G110P145H9
	FE30A, FE22D, FE17G, FE12M, FEP30A, FEP22D, FEP17G, FEP12M	130	24	6	58	110	145	9	130A24G110P145H9
	FF30A, FF22D, FF20G, FF12M, FFP30A, FFP22D, FFP20G, FFP12M, FF50A, FF35D, FF30G, FF20M, FFP50A, FFP35D, FFP30G, FFP20M, FF55D, FF44G, FF30M, FFP55D, FFP44G, FFP30M	180	35	3.2	79	114.3	200	13.5	180A35G114.3P200H13.5
	FF75D, FF60G, FF44M, FFP75D, FFP60G, FFP44M	180	42	3.2	79	114.3	200	13.5	180A42G114.3P200H13.5
	FF75G, FFP75G	180	42	3.2	113	114.3	200	13.5	180A42G114.3P200H13.5
	FG22D, FG20G, FG12M, FGP22D, FGP20G, FGP12M, FG35D, FG30G, FG20M, FGP35D, FGP30G, FGP20M, FG55D, FG44G, FG30M, FGP55D, FGP44G, FGP30M	220	35	4	65	200	235	13.5	220A35G200P235H13.5
	FG75D, FG60G, FG44M, FGP75D, FGP60G, FGP44M	220	42	4	65	200	235	13.5	220A42G200P235H13.5
XML-S	SAR3A, SAR5A, SAR01A, SAR015A	40	8	2.5	25	30	45	4.5	40A8G30P45H4.5
	SB01A, SB02A, SB04A	62	14	3	30	50	70	6	62A14G50P70H6
	SC04A, SC03D	80	14	3	40	70	90	6.6	80A14G70P90H6.6
	SC06A, SC05D, SC08A, SC06D, SC10A, SC07D	80	16	3	40	70	90	6.6	80A16G70P90H6.6
	SE09A, SE06D, SE05G, SE03M, SE15A, SE11D, SE09G, SE06M, SEP15A	130	19	6	58	110	145	9	130A19G110P145H9
	SE22A, SE16D, SE13G, SE09M, SE30A, SE22D, SE17G, SE12M	130	22	6	58	110	145	9	130A22G110P145H9

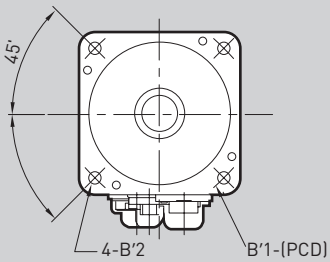
• If you need planetary gearbox for other motors, please contact LSIS sales people.
• A'2 and A'3 are data for your reference only, hence not indicated in servo motor part numbers.

Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
XML-S	SF30A, SF22D, SF20G, SF12M, SF50A, LF35D, LF30G, SF20M, SF55D, SF44G, LF30M, SF75D, SF60G, SF44M	180	35	3.2	79	114.3	200	13.5	180A35G114.3P200H13.5
	SF75G	180	35	3.2	113	114.3	200	13.5	180A35G114.3P200H13.5
	SG22D, SG20G, SG12M, SG20M, SG55D, SG44G, SG75D, SG60G, SG44M	220	35	4	65	200	235	13.5	220A35G200P235H13.5
	SG110D, SG85G, SG60M	220	45	4	65	200	235	13.5	220A45G200P235H13.5
	SG110G	220	42	4	115	200	235	13.513.5	220A42G200P235H13.5
	SG150G	220	55	4	115	200	235	13.5	220A55G200P235H13.5
XML-L	LG35D, LG30G, LG30M	220	35	4	65	200	235		220A35G200P235H13.5

• If you need planetary gearbox for other motors, please contact LSIS sales people.
• A'2, A'3 is reference data, LSIS code doesn't include it.

Motor Dimension





VIEW " Z "

Dimensions of Applicable Servo Motors

MITSUBISHI

Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
HF-KP/MP	KP053, KP13, MP053, MP13	40	8	2.5	25	30	46	4.5	40A8G30P46H4.5
	KP23, KP43, MP23, MP43	60	14	3	30	50	70	5.8	60A14G50P70H5.8
	KP73, MP73	80	19	3	40	70	90	6.6	80A19G70P90H6.6
HF-SP	SP51, SP81, SP52, SP102, SP152, SP524, SP1024, SP1524	130	24	3	55	110	145	9	130A24G110P145H9
	SP121, SP201, SP301, SP421, SP202, SP352, SP502, SP702, SP2024, SP3524, SP5024, SP7024	176	35	3	79	114.3	200	13.5	176A35G114.3P200H13.5
HF-JP	JP53, JP73, JP103, JP153, JP203, JP534, JP734, JP1034, JP1534, JP2034	90	16	5	40	80	100	6.6	90A16G80P100H6.6
	JP353, JP503, JP3534, JP5034	130	28	3	55	110	145	9	130A28G110P145H9
	JP703, HFJP903, HFJP7034, HFJP9034	176	35	3	79	114.3	200	13.5	176A35G114.3P200H13.5
	JP11K1M, JP15K1M, JP11K1M4, JP15K1M4	220	55	4	116	200	235	13.5	220A55G200P235H13.5
HC-LP	LP52, LP102, LP152	130	24	3	55	110	145	9	130A24G110P145H9
	LP202, LP302	176	35	3	79	114.3	200	13.5	176A35G114.3P200H13.5
HC-RP	RP103, RP153, RP203	100	24	3	45	95	115	9	100A24G95P115H9
	RP353, RP503	130	28	3	63	110	145	9	130A28G110P145H9
HC-UP	UP72	176	22	3	55	114.3	200	13.5	176A22G114.3P200H13.5
	UP152	176	28	3	55	114.3	200	13.5	176A28G114.3P200H13.5
	UP202, UP352, UP502	220	35	4	65	200	235	13.5	220A35G200P235H13.5
HA-LP	LP502, LP702, LP601, LP6014, LP701M, LP701M4, LP11K2, LP11K24	200	42	3	85	180	215	14.5	200A42G180P215H14.5
	LP801, LP12K1, LP8014, LP12K14, LP11K1M, LP15K1M, LP11K1M4, LP15K1M4, LP15K2, LP22K2, LP15K24, LP22K24	250	55	2	110	230	265	14.5	250A55G230P265H14.5
	LP15K1, LP20K1, LP15K14, LP20K14, LP22K1M, LP22K1M4, LP30K1M4, LP30K24, LP37K24, LP30K1M, LP30K2, LP37K2	280	60	5	140	250	300	19	280A60G250P300H19
	LP25K1, LP30K1, LP25K14, LP30K14, LP37K1M, LP37K1M4, LP45K1M4, LP45K24, LP55K24	350	65	5	140	300	350	19	350A65G300P350H19
	LP37K1, LP37K14, LP50K1M4	350	80	5	170	300	350	19	350A80G300P350H19
HG-KR/MR	KR053, KR13, MR053, MR13	40	8	2.5	25	30	46	4.5	40A8G30P46H4.5
	KR23, KR43, MR23, MR43	60	14	3	30	50	70	5.8	60A14G50P70H5.8
	KR73, MR73	80	19	3	40	70	90	6.6	80A19G70P90H6.6

• If you need planetary gearbox for other motors, please contact LSIS sales people.
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Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
HG-SR	SR51, SR81, SR52, SR102, SR152, SR524, SR1024, SR1524	130	24	3	55	110	145	9	130A24G110P145H9
	SR121, SR201, SR301, SR421, SR202, SR352, SR502, SR702, SR2024, SR3524, SR5024, SR7024	176	35	3	79	114.3	200	13.5	176A35G114.3P200H13.5
HG-JR	JR53, JR73, JR103, JR153, JR203, JR534, JR734, JR1034, JR1534, JR2034	90	16	5	40	80	100	6.6	90A16G80P100H6.6
	JR353, JR503, JR3534, JR5034	130	28	3	55	110	145	9	130A28G110P145H9
	JR703, JR903, JR7034, JR9034	176	35	3	79	114.3	200	13.5	176A35G114.3P200H13.5
	JR601, JR701M, JR6014, JR701M4	220	42	4	85	200	235	13.5	220A42G200P235H13.5
	JR801, JR12K1, JR8014, JR12K14, JR11K1M, JR15K1M, JR11K1M4, JR15K1M4	220	55	4	116	200	235	13.5	220A55G200P235H13.5
	JR15K1, JR20K1, JR25K1, JR15K14, JR20K14, JR25K14, JR22K1M, JR30K1M, JR37K1M, JR22K1M4, JR30K1M4, JR37K1M4	250	65	5	140	230	265	24	250A65G230P265H24
	JR30K1, JR37K1, JR30K14, JR37K14, JR45K1M4, JR55K1M4	280	80	5	140	250	300	24	280A80G250P300H24
HG-RR	RR103, RR153, RR203	100	24	3	45	95	115	9	100A24G95P115H9
	RR353, RR503	130	28	3	63	110	145	9	130A28G110P145H9
HG-UR	UR72	176	22	3	55	114.3	200	13.5	176A22G114.3P200H13.5
	UR152	176	28	3	55	114.3	200	13.5	176A28G114.3P200H13.5
	UR202, UR352, UR502	220	35	4	65	200	235	13.5	220A35G200P235H13.5
HG-KN	KN13	60	8	2.5	25	30	46	4.5	60A8G30P46H4.5
	KN23, KN43	60	14	3	30	50	70	5.8	60A14G50P70H5.8
	KN73	80	19	3	40	70	90	6.6	80A19G70P90H6.6
HG-SN	SN52, SN102, SN152	130	24	3	55	110	145	9	130A24G110P145H9
	SN202, SN302	176	35	3	79	114.3	200	13.5	176A35G114.3P200H13.5

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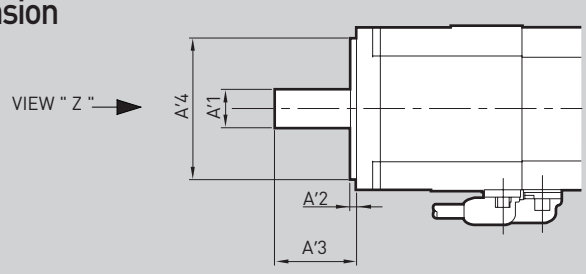
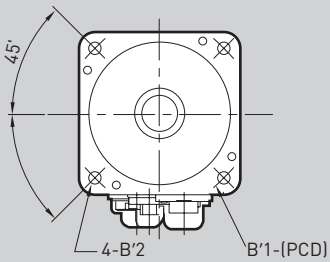
Motor Dimension





VIEW " Z "

Dimensions of Applicable Servo Motors

PANASONIC

Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
MSMD	5AZ, 011, 012	38	8	3	25	30	45	3.4	38A8G30P45H3.4
	021, 022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	041, 042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	082	80	19	3	35	70	90	6	80A19G70P90H6
MHMD	021, 022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	041, 042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	082	80	19	3	35	70	90	6	80A19G70P90H6
MSME	5AZ, 011, 012	38	8	3	25	30	45	3.4	38A8G30P45H3.4
	021, 022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	041, 042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	082	80	19	3	35	70	90	6	80A19G70P90H6
	102, 152, 202, 084, 104, 154, 204	100	19	3	55	95	115	9	100A19G95P115H9
	302, 304	120	22	3	55	110	145	9	120A22G110P145H9
	402, 502, 404, 504	130	24	6	65	110	145	9	130A24G110P145H9
MDME	044, 064	110	19	3	55	95	115	9	110A19G95P115H9
	102, 152, 202, 104, 154, 204	130	22	6	55	110	145	9	130A22G110P145H9
	302, 304	130	24	6	65	110	145	9	130A24G110P145H9
	402, 502, 404, 504	176	35	3.2	70	114.3	200	13.5	176A35G114.3P200H13.5
	752, 754	176	42	3.2	113	114.3	200	13.5	176A42G114.3P200H13.5
	C12, C52, C14, C54	220	55	4	116	200	235	13.5	220A55G200P235H13.5
MFME	152, 154	176	35	3.2	65	114.3	200	13.5	176A35G114.3P200H13.5
	252, 254	220	35	4	65	200	235	13.5	220A35G200P235H13.5
	452, 454	220	35	4	70	200	235	13.5	220A35G200P235H13.5
MGME	092, 094	130	22	6	70	110	145	9	130A22G110P145H9
	202, 302, 204, 304	176	35	3.2	80	114.3	200	13.5	176A35G114.3P200H13.5
	452, 602, 454, 604	176	42	3.2	113	114.3	200	13.5	176A42G114.3P200H13.5
MHME	102, 152, 104, 154	130	22	6	70	110	145	9	130A22G110P145H9
	202, 302, 402, 502, 204, 304, 404, 504	176	35	3.2	80	114.3	200	13.5	176A35G114.3P200H13.5
	752, 754	176	42	3.2	113	114.3	200	13.5	176A42G114.3P200H13.5
MSM	022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	082	80	19	3	35	70	90	6	80A19G70P90H6
MUMA	5A, 01	42	8	2	24	22	48	3.4	42A8G22P48H3.4
	02	42	11	2	24	22	48	3.4	42A11G22P48H3.4
	022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	04, 042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	082	80	19	3	35	70	90	6	80A19G70P90H6

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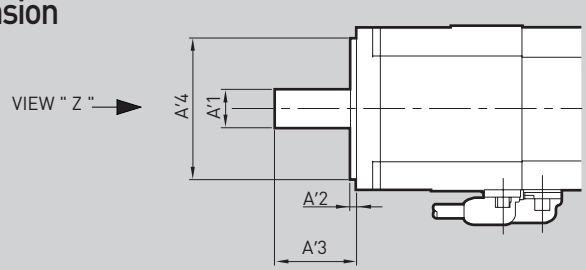
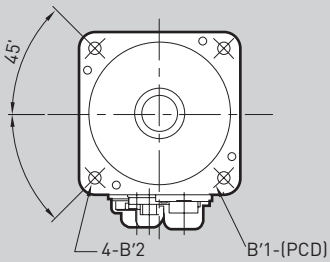
Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
MSMF	5AZ, 011, 012	38	8	3	25	30	45	3.4	38A8G30P45H3.4
	021, 022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	041, 042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	082, 092	80	19	3	35	70	90	6	80A19G70P90H6
	102, 152, 202	100	19	3	55	95	115	9	100A19G95P115H9
	302	120	22	3	55	110	145	9	120A22G110P145H9
	402, 502	130	24	6	65	110	145	9	130A24G110P145H9
MQMF	011, 012	60	8	3	25	50	70	4.5	60A8G50P70H4.5
	011, 012(Protective Lip)	60	8	12.1	30	50	70	4.5	60A8G50P70H4.5
	021, 022	80	11	3	30	70	90	6	80A11G70P90H6
	021, 022(Protective Lip)	80	11	12.1	35	70	90	6	80A11G70P90H6
	041, 042	80	14	3	30	70	90	6	80A14G70P90H6
	041, 042(Protective Lip)	80	14	12.1	35	70	90	6	80A14G70P90H6
MHMF	5AZ, 011, 012	40	8	3	25	30	46	4.3	40A8G30P46H4.3
	5AZ, 011, 012(Protective Lip)	40	8	12.1	30	30	46	4.3	40A8G30P46H4.3
	021, 022	60	11	3	30	50	70	4.5	60A11G50P70H4.5
	021, 022(Protective Lip)	60	11	12.1	35	50	70	4.5	60A11G50P70H4.5
	041, 042	60	14	3	30	50	70	4.5	60A14G50P70H4.5
	041. 042(Protective Lip)	60	14	12.1	35	50	70	4.5	60A14G50P70H4.5
	082, 092	80	19	3	35	70	90	6	80A19G70P90H6
	082, 092(Protective Lip)	80	19	12.1	40	70	90	6	80A19G70P90H6
	102, 152	130	22	6	70	110	145	9	130A22G110P145H9
	202, 302, 402, 502	176	35	3.2	80	114.3	200	13.5	176A35G114.3P200H13.5
MDMF	102, 152, 202	130	22	6	55	110	145	9	130A22G110P145H9
	302	130	24	6	65	110	145	9	130A24G110P145H9
	402, 502	176	35	3.2	70	114.3	220	13.5	176A35G114.3P220H13.5
MGMF	092, 132, 182	130	22	6	55	110	145	9	130A22G110P145H9
	292, 442	176	35	3.2	70	114.3	200	13.5	176A35G114.3P200H13.5

• If you need planetary gearbox for other motors, please contact LSIS sales people.
• A'2, A'3 is reference data, LSIS code doesn't include it.

Motor Dimension





VIEW " Z "

Dimensions of Applicable Servo Motors

YASKAWA

Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
SGM7J	A5A, 01A, C2A	40	8	2.5	25	30	46	4.3	40A8G30P46H4.3
	02A, 04A, 06A	60	14	3	30	50	70	5.5	60A14G50P70H5.5
	08A	80	19	3	40	70	90	7	80A19G70P90H7
SGM7A	A5A, 01A, C2A	40	8	2.5	25	30	46	4.3	40A8G30P46H4.3
	02A, 04A, 06A	60	14	3	30	50	70	5.5	60A14G50P70H5.5
	08A, 10A	80	19	3	40	70	90	7	80A19G70P90H7
	15A, 20A, 25A	100	24	3	45	95	115	7	100A24G95P115H7
	30A, 40A, 50A	130	28	6	63	110	145	9	130A28G110P145H9
SGM7P	01A	60	8	3	25	50	70	5.5	60A8G50P70H5.5
	02A, 04A	80	14	3	30	70	90	7	80A14G70P90H7
	08A, 15A	120	19	3.5	40	110	145	10.2	120A19G110P145H10.2
SGM7G	03A, 05A	90	16	5	40	80	100	6.6	90A16G80P100H6.6
	09A, 13A, 20A	130	24	6	58	110	145	9	130A24G110P145H9
	30A, 44A	180	35	3.2	79	114.3	200	13.5	180A35G114.3P200H13.5
	55A, 75A	180	42	3.2	113	114.3	200	13.5	180A42G114.3P200H13.5
	1AA	220	42	4	116	200	235	13.5	220A42G200P235H13.5
	1EA	220	55	4	116	200	235	13.5	220A55G200P235H13.5
SGMJV	A5A, 01A, C2A	40	8	2.5	25	30	46	4.3	40A8G30P46H4.3
	02A, 04A, 06A	60	14	3	30	50	70	5.5	60A14G50P70H5.5
	08A	80	19	3	40	70	90	7	80A19G70P90H7
SGMAV	A5A, 01A, C2A	40	8	2.5	25	30	46	4.3	40A8G30P46H4.3
	02A, 04A, 06A	60	14	3	30	50	70	5.5	60A14G50P70H5.5
	08A, 10A	80	19	3	40	70	90	7	80A19G70P90H7
SGMPS	01A	60	8	3	25	50	70	5.5	60A8G50P70H5.5
	02A, 04A	80	14	3	30	70	90	7	80A14G70P90H7
	08A	120	16	3.5	40	110	145	10	120A16G110P145H10
	15A	120	19	3.5	40	110	145	10	120A19G110P145H10
SGMGV	03	90	14	5	37	80	100	6.6	90A14G80P100H6.6
	05	90	16	5	40	80	100	6.6	90A16G80P100H6.6
	09	130	19	6	58	110	145	9	130A19G110P145H9
	13	130	22	6	58	110	145	9	130A22G110P145H9
	20	130	24	6	58	110	145	9	130A24G110P145H9
	30, 44	180	35	3.2	79	114.3	200	13.5	180A35G114.3P200H13.5
	55, 75	180	42	3.2	113	114.3	200	13.5	180A42G114.3P200H13.5
	1A	220	42	4	116	200	235	13.5	220A42G200P235H13.5
	1E	220	55	4	116	200	235	13.5	220A55G200P235H13.5
SGMSV	10, 15, 20, 25	100	24	3	45	95	115	7	100A24G95P115H7
	30, 40, 50	130	28	6	63	110	145	9	130A28G110P145H9

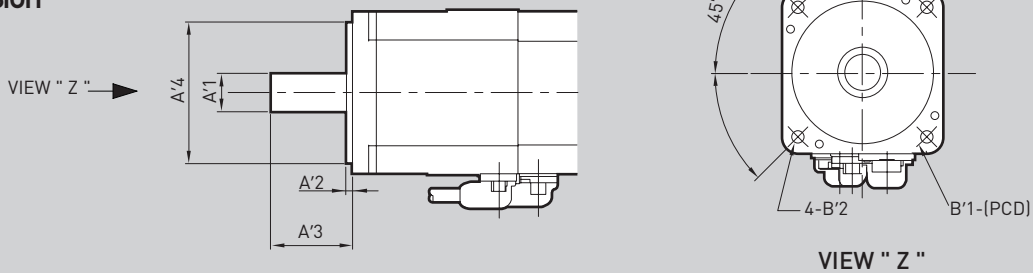
• If you need planetary gearbox for other motors, please contact LSIS sales people.
• A'2, A'3 is reference data, LSIS code doesn't include it.

Heizen Motors

Series	Items	Flange	A' 1	A' 2	A' 3	A' 4	B' 1	B' 2	Code
FMA-CJ	CJZ5, CJ01	40	8	2.5	25	30	46	4.5	40A8G30P46H4.5
	CJ02, CJ04	60	14	3	30	50	70	6	60A14G50P70H6
FMA-CN	CN01, CN02, CN03, CN04, CN05	60	14	3	30	50	70	6	60A14G50P70H6
	CN04A	80	14	3	35	70	90	7	80A14G70P90H7
	CN06, CN08, CN10	80	16	3	40	70	90	7	80A16G70P90H7
	CN09, CN15	130	19	6	58	110	145	9	130A19G110P145H9
	CN22, CN30	130	22	6	58	110	145	9	130A22G110P145H9
	CN30A, CN50A	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5
FMA-KN	KN03	80	14	3	35	70	90	7	80A14G70P90H7
	KN05, KN06, KN07	80	16	3	40	70	90	7	80A16G70P90H7
	KN06A, KN11	130	19	6	58	110	145	9	130A19G110P145H9
	KN16, KN22	130	22	6	58	110	145	9	130A22G110P145H9
	KN22A, KN35, KN55, KN70	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5
FMA-TN	TN05, TN09	130	19	6	58	110	145	9	130A19G110P145H9
	TN13, TN17	130	22	6	58	110	145	9	130A22G110P145H9
	TN20, TN30, TN44, TN55, TN75N	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5
	TN110	220	42	4	112	200	235	13.5	220A42G200P235H13.5
	TN150(Standard)	220	55	4	112	200	235	13.5	220A55G200P235H13.5
	TN150(Brake)	220	48	4	112	200	235	13.5	220A48G200P235H13.5
	TN220, TN300, TN370	250	60	5	140	230	265	13.5	250A60G230P265H13.5
FMA-LN	LN03, LN06	130	19	6	58	110	145	9	130A19G110P145H9
	LN09, LN12	130	22	6	58	110	145	9	130A22G110P145H9
	LN12A, LN20, LN30, LN40, LN55	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5
FMA-KF	KF08, KF10	130	19	6	58	110	145	9	130A19G110P145H9
	KF15	130	22	6	58	110	145	9	130A22G110P145H9
	KF22, KF35, KF50	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5
FMA-TF	TF05, TF09	130	19	6	58	110	145	9	130A19G110P145H9
	TF13	130	22	6	58	110	145	9	130A22G110P145H9
	TF20, TF30, TF44	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5
FAM-LF	LF03, LF06	130	19	6	58	110	145	9	130A19G110P145H9
	LF09	130	22	6	58	110	145	9	130A22G110P145H9
	LF12, LF20, LF30	180	35	3.2	79.2	114.3	200	13.5	180A35G114.3P200H13.5

• If you need planetary gearbox for other motors, please contact LSIS sales people.
• A'2, A'3 is reference data, LSIS code doesn't include it.

Motor Dimension



Frame Dimensions of Servo Motors

[Unit : mm]

Flange size	Axis diameter	Guide diameter	PCD diameter	PCD hole diameter	Part number
38	8	30	45	3.4	38A8G30P45H3.4
40	8	30	46	4.3	40A8G30P46H4.3
40	8	30	46	4.5	40A8G30P46H4.5
42	11	22	48	3.4	42A11G22P48H3.4
42	8	22	48	3.4	42A8G22P48H3.4
60	11	50	70	4.5	60A11G50P70H4.5
60	14	50	70	4.5	60A14G50P70H4.5
60	14	50	70	5.5	60A14G50P70H5.5
60	14	50	70	5.8	60A14G50P70H5.8
60	14	50	70	6	60A14G50P70H6
60	8	30	46	4.5	60A8G30P46H4.5
60	8	50	70	4.5	60A8G50P70H4.5
60	8	50	70	5.5	60A8G50P70H5.5
62	14	50	70	6	62A14G50P70H6
80	11	70	90	6	80A11G70P90H6
80	14	70	90	6	80A14G70P90H6
80	14	70	90	6.6	80A14G70P90H6.6
80	14	70	90	7	80A14G70P90H7
80	16	70	90	6.6	80A16G70P90H6.6
80	16	70	90	7	80A16G70P90H7
80	19	70	90	6	80A19G70P90H6
80	19	70	90	6.6	80A19G70P90H6.6
80	19	70	90	7	80A19G70P90H7
90	14	80	100	6.6	90A14G80P100H6.6
90	16	80	100	6.6	90A16G80P100H6.6
100	19	95	115	9	100A19G95P115H9
100	24	95	115	7	100A24G95P115H7
100	24	95	115	9	100A24G95P115H9

Flange size	Axis diameter	Guide diameter	PCD diameter	PCD hole diameter	Part number
110	19	95	115	9	110A19G95P115H9
120	16	110	145	10	120A16G110P145H10
120	19	110	145	10	120A19G110P145H10
120	19	110	145	10.2	120A19G110P145H10.2
120	22	110	145	9	120A22G110P145H9
130	19	110	145	9	130A19G110P145H9
130	22	110	145	9	130A22G110P145H9
130	24	110	145	9	130A24G110P145H9
130	28	110	145	9	130A28G110P145H9
176	22	114.3	200	13.5	176A22G114.3P200H13.5
176	28	114.3	200	13.5	176A28G114.3P200H13.5
176	35	114.3	200	13.5	176A35G114.3P200H13.5
176	35	114.3	220	13.5	176A35G114.3P220H13.5
176	42	114.3	200	13.5	176A42G114.3P200H13.5
180	35	114.3	200	13.5	180A35G114.3P200H13.5
180	42	114.3	200	13.5	180A42G114.3P200H13.5
200	42	180	215	14.5	200A42G180P215H14.5
220	35	200	235	13.5	220A35G200P235H13.5
220	42	200	235	13.5	220A42G200P235H13.5
220	45	200	235	13.5	220A45G200P235H13.5
220	48	200	235	13.5	220A48G200P235H13.5
220	55	200	235	13.5	220A55G200P235H13.5
250	55	230	265	14.5	250A55G230P265H14.5
250	60	230	265	13.5	250A60G230P265H13.5
250	65	230	265	24	250A65G230P265H24

Selection Guide

Motor Frame Size and Output Shaft Diameter

Rated power \ Shaft diameter (mm)	5.65~11	6.35~19	14~24	19~32	22~38	38~55	42~55
100W	0451A	0601A					
200W	0452A	0602A					
400W	0602B		0901A				
750W		0902B	0902A	1151A	1421A		
1kW			1152B	1152A	1422A		
1.5kW							
2.2kW							
3.75kW							
5.5kW							
7.5kW							
11kW					1802B	1801A	2201A
15kW						1802A	2202A
22kW						2202B	
30kW							

Planetary Gearbox Frame Size and Motor Frame Size

Gearbox flange size \ Motor size	38~42	60~62	80~100	110~130	176~200	220~250
45	0451A 0452A					
60	0602B	0601A 0602A				
90		0902B	0901A 0902B			
115			1152B	1151A 1152A		
142				1422B	1421A 1422A	
180					1801A 1802A / B	
220					2202B	2201A 2202A

• The table above refers to SSS or SAA series gearboxes.

Frame Sizes of LSIS Planetary Gearboxes

SSS/SAS	45	60	90	115	142	180	220
SSW/SAW	50	65	100	120	155	200	-
SSC/SAC	52	70	104	120	155	205	235

Motor Coupling Bolt

Motor Installation Bolt

[Unit : Nm]

Bolt strength(T) / Bolt size	8.8	10.9	12.9
M3 X 0.5P	1.3	1.8	2.1
M4 X 0.7P	2	4.1	4.9
M5 X 0.8P	6.1	8.2	9.8
M6 X 1.0P	11	14	17
M8 X 1.25P	25	34	41
M10 X 1.5P	49	67	80
M12 X 1.75P	85	116	139
M14 X 2P	137	186	223
M16 X 2P	210	286	343

Clamp Installation Bolt

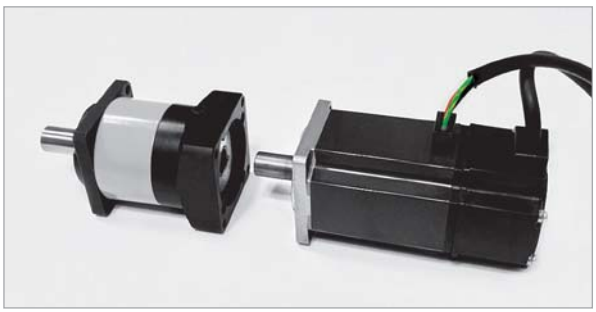
[Unit : Nm]

Planetary gearbox frame size		Motor shaft diameter	Bolt size	Strength12.9(N-m)
45	1A	≤ 11mm	M4 X 0.7P	4.9
	2A	≤ 11mm	M4 X 0.7P	4.9
60	1A	≤ 14mm	M5 X 0.8P	9.8
	2A	≤ 14mm	M5 X 0.8P	9.8
	2B	≤ 11mm	M4 X 0.7P	4.9
90	1A	≤ 19mm	M6 X 1.0P	17
	2A	≤ 19mm	M6 X 1.0P	17
	2B	≤ 14mm	M5 X 0.8P	9.8
115	1A	≤ 24mm	M8 X 1.25P	41
	2A	≤ 24mm	M8 X 1.25P	41
	2B	≤ 19mm	M6 X 1.0P	17
142	1A	≤ 35mm	M8 X 1.25P	41
	2A	≤ 35mm	M8 X 1.25P	41
	2B	≤ 24mm	M6 X 1.0P	17
180	1A	≤ 42mm	M8 X 1.25P	41
	2A	≤ 42mm	M8 X 1.25P	41
	2B	≤ 35mm	M8 X 1.25P	41
220	1A	≤ 55mm	M12 X 1.75P	139
	2A	≤ 55mm	M12 X 1.75P	139
	2B	≤ 42mm	M8 X 1.25P	41

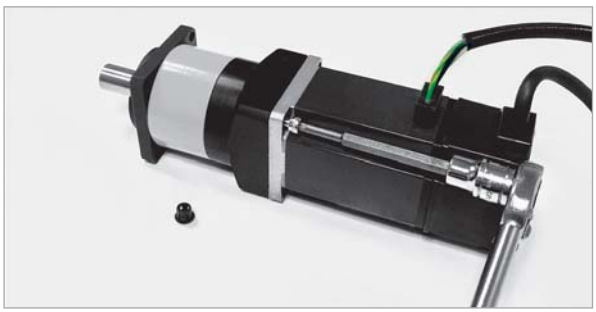
Installation Instruction

① Check to see if the gearbox is the proper one for the motor you have. Clean the combining surface.

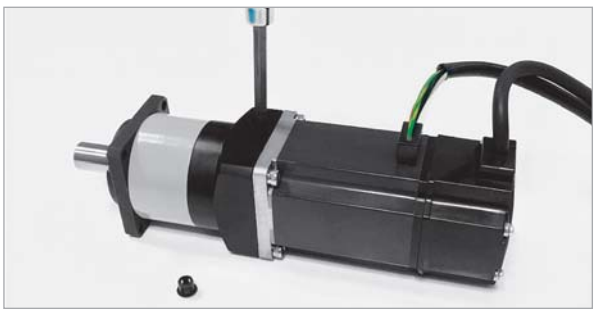
② Remove the plug from the gearbox adapter' s clamp hole. Loosen the shaft collar bolt through clamp hole on gearbox adapter.



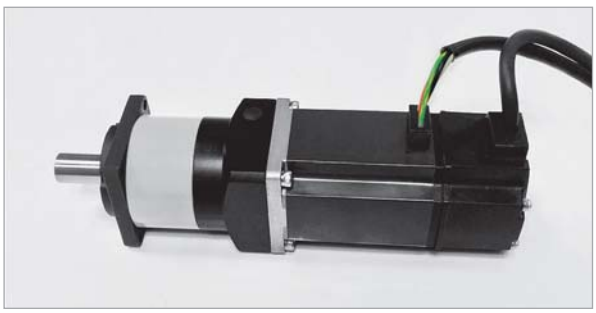
③ Mount the motor to the gearbox.



④ Tighten the bolts with torque wrench to the torque specified in the "Motor Installation Bolt' sheet.

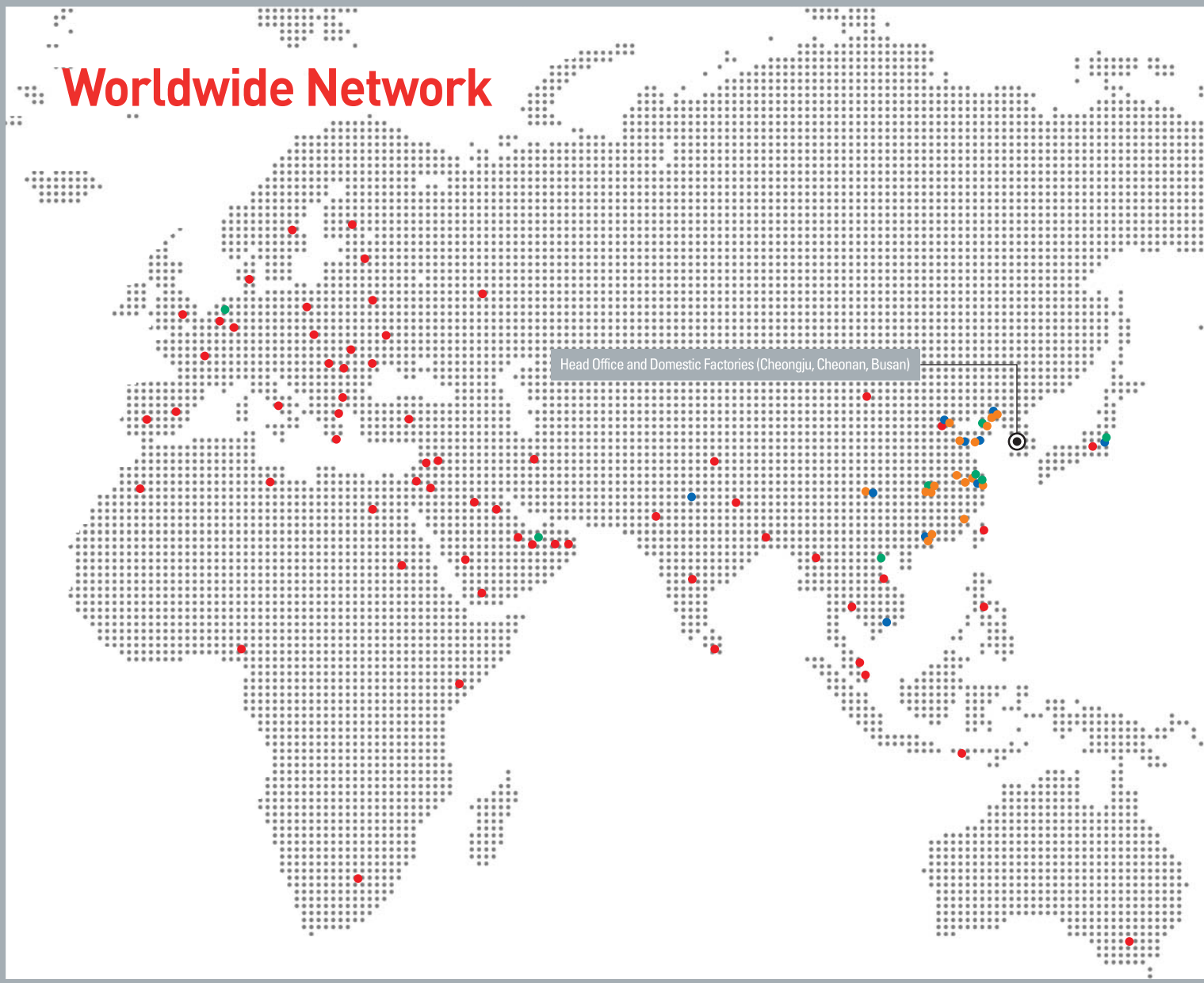


⑤ Tighten the shaft collar bolt with torque wrench to the torque specified in the "Shaft Collar Bolt" sheet.



⑥ Install the plug into the gearbox adapter' s clamp hole.

Worldwide Network



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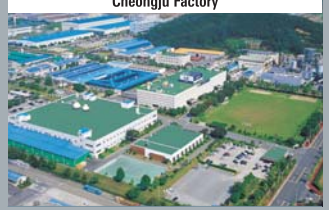
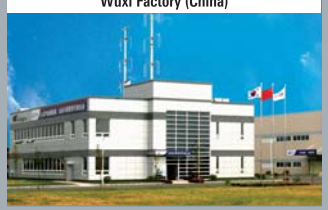
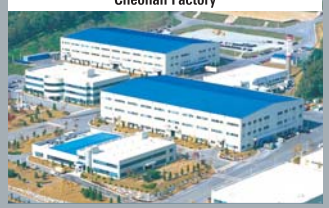
Cheongju Factory



Wuxi Factory (China)



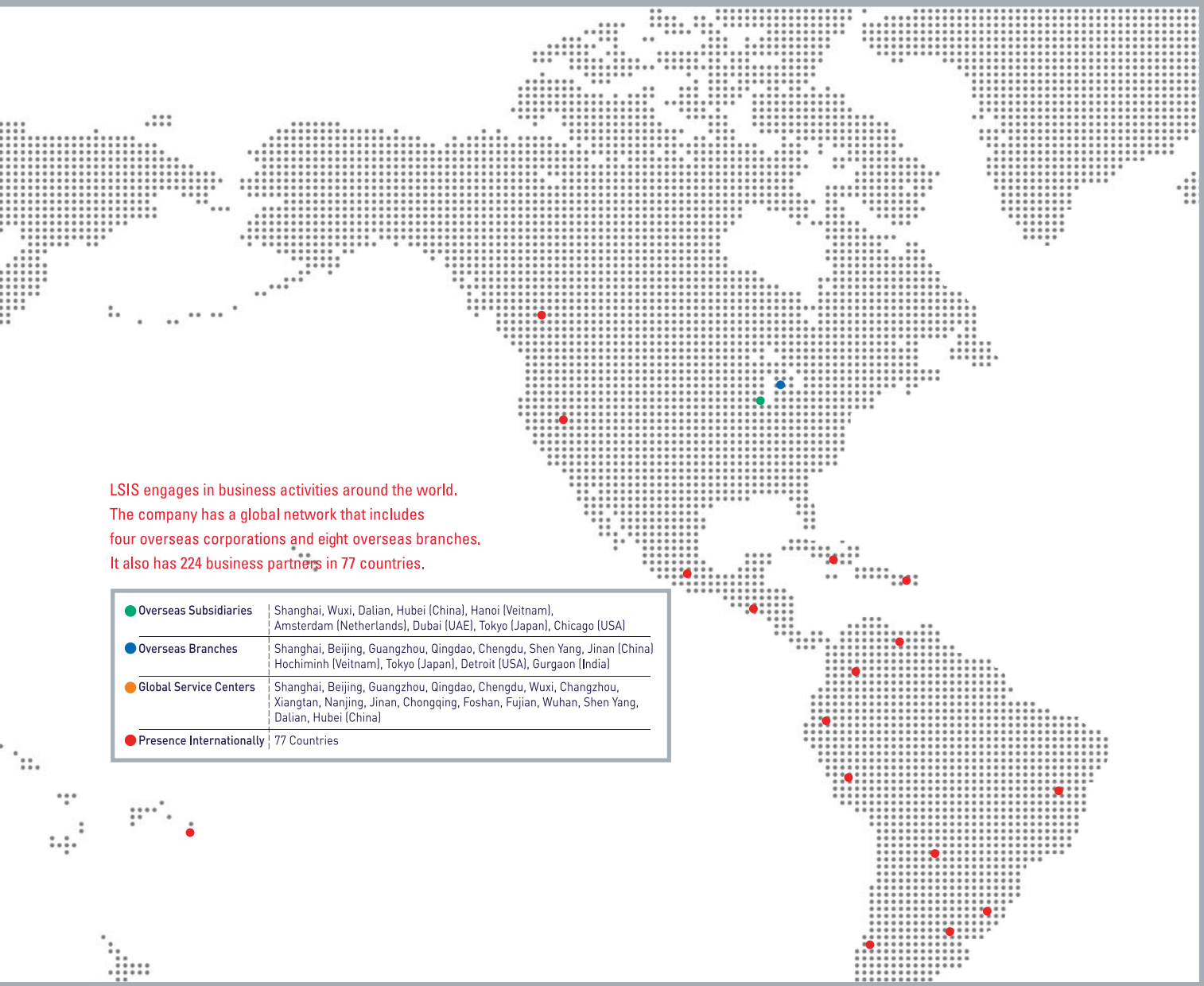
Cheonan Factory



Dalian Factory (China)

Busan Factory

Hanoi Factory (Vietnam)



LSIS engages in business activities around the world.
The company has a global network that includes
four overseas corporations and eight overseas branches.
It also has 224 business partners in 77 countries.

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Presence Internationally	77 Countries

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FUTURING SMART ENERGY

Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
  Do not disassemble or repair by yourself !
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

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2017. 01

Precision Planetary Gearbox (E) 2017. 01/ (01) 2017.01 Printed in Korea HumanPower