



## MSS Series

Square output flange  
Straight type gearbox, Standard



## MAS Series

Square output flange  
Right-angle type gearbox, Standard

MSS / MAS

- 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

		MSS					
Stage	Gear ratio	045	060	090	115	142	180
1A	3~10	○	○	○	○	○	○
2B	15~100	⊗	○	○	○	○	○
2A	15~100	○	○	○	○	○	○
1M/2M	3~100	⊗	⊗	⊗	⊗	⊗	⊗

		MAS					
Stage	Gear ratio	045	060	090	115	142	180
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.

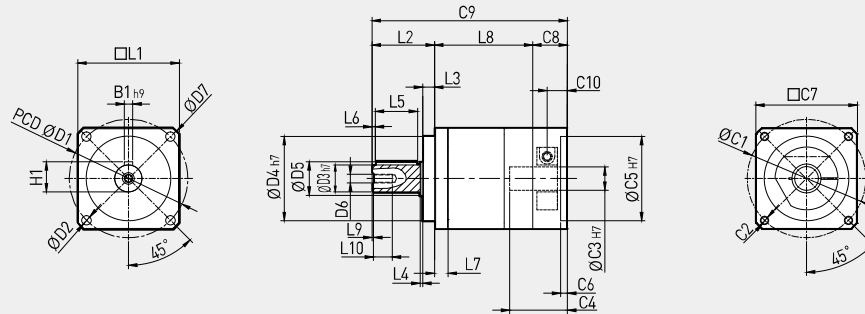


Division	Stage	Gear ratio	045	060	090	115	142	180	
Nominal Output Torque (Nm)	1	3	20	57	148	272	484	897	
		4	18	51	143	295	549	1,060	
		5	19	54	160	332	634	1,195	
		6	18	50	151	311	592	1,109	
		7	17	48	145	305	562	1,104	
		8	16	44	132	279	527	1,035	
		9	14	42	123	254	483	947	
		10	14	42	121	262	500	980	
		2	15	20	57	148	272	484	897
			20	18	51	143	295	549	1,060
	25		19	54	160	332	634	1,195	
	30		18	50	151	311	592	1,109	
	35		17	48	145	305	562	1,104	
	40		16	44	132	279	527	1,035	
	45		14	42	123	254	483	947	
	50		19	54	160	332	634	1,195	
	60		18	50	151	311	592	1,109	
	70		17	48	145	305	562	1,104	
	80	16	44	132	279	527	1,035		
	90	14	42	123	254	483	947		
100	14	42	121	262	500	980			
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	7	14	26	55	143	
Max. Radial Load (N)	1,2	3~100	750	1,280	3,200	6,800	9,300	15,100	
Max. Axial Load (N)	1,2	3~100	390	690	1,600	3,400	4,500	7,500	
Backlash (Arcmin)	S	1	3~10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
		2	15~100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
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	≤ 26.0	
	2A	15~100	≤ 0.8	≤ 1.8	≤ 5.0	≤ 10.3	≤ 19.6	≤ 30.0	
	2B	15~100	-	≤ 1.6	≤ 4.7	≤ 9.6	≤ 18.0	≤ 30.0	
Operating Temp (°C)	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	≤ 52	≤ 54	≤ 56	≤ 59	≤ 62	≤ 64	
Inertia (kgcm <sup>2</sup> )	1A	3	0.03	0.17	0.64	3.12	9.23	29.98	
		4	0.03	0.15	0.51	2.84	7.66	24.78	
		5	0.03	0.13	0.48	2.81	7.52	24.29	
		6	0.03	0.13	0.47	2.75	7.34	23.89	
		7	0.03	0.13	0.45	2.69	7.16	23.48	
		8	0.03	0.13	0.45	2.64	7.11	23.56	
		9	0.03	0.13	0.44	2.59	7.05	23.63	
		10	0.03	0.13	0.44	2.59	7.05	23.51	
	2B	15~45	0.03	0.03	0.13	0.48	2.81	7.52	
		50~100	0.03	0.03	0.13	0.44	2.69	7.05	
	2A	15~45	-	0.13	0.48	2.81	7.52	24.29	
		50~100	-	0.13	0.44	2.69	7.05	23.63	

(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.lselectric.com/gearbox](http://www.lselectric.com/gearbox)), because the dimensions differ according to the applied motor.

Dimension	MSS0451A	MSS0601A	MSS0901A	MSS1151A	MSS1421A	MSS1801A
D1	50	70	100	130	165	215
D2	3.5	5.5	6.8	8.7	11	13
D3 h7	13	16	22	32	40	55
D4 h7	35	50	80	110	130	160
D5	15	20	30	39.5	60	75
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
D7	58	80	116	152	185	240
L1	45	60	90	115	142	180
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	15	25	32	40	65	70
L6	2	2	3	5	5	6
L7	6.5	8	11	12	19	18
L8	45.5	58	78.9	96.5	116.5	139
L9	1.5	1.5	1.5	2	2	2
L10	9.5	10.5	13.5	18	34	42
* 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 H7	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
* C4	26.5	34	43.1	62	82	86
* C5 H7	30	50	70	110	114.3	114.3
* C6	4	4	6	7	7	7
* C7	45	60	90	132	180	180
* C8	17	20.5	23.5	42	47	47
* C9	89	115.5	150.4	202.5	260.5	291
* C10	10	12	13.4	28	29.5	28.5
B1 h9	5	5	6	10	12	16
H1	15	18	24.5	35	43	59

(1) 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.lselectric.com/gearbox](http://www.lselectric.com/gearbox).

(2) In XXYY, YY means fit tolerance (KS B 0401).

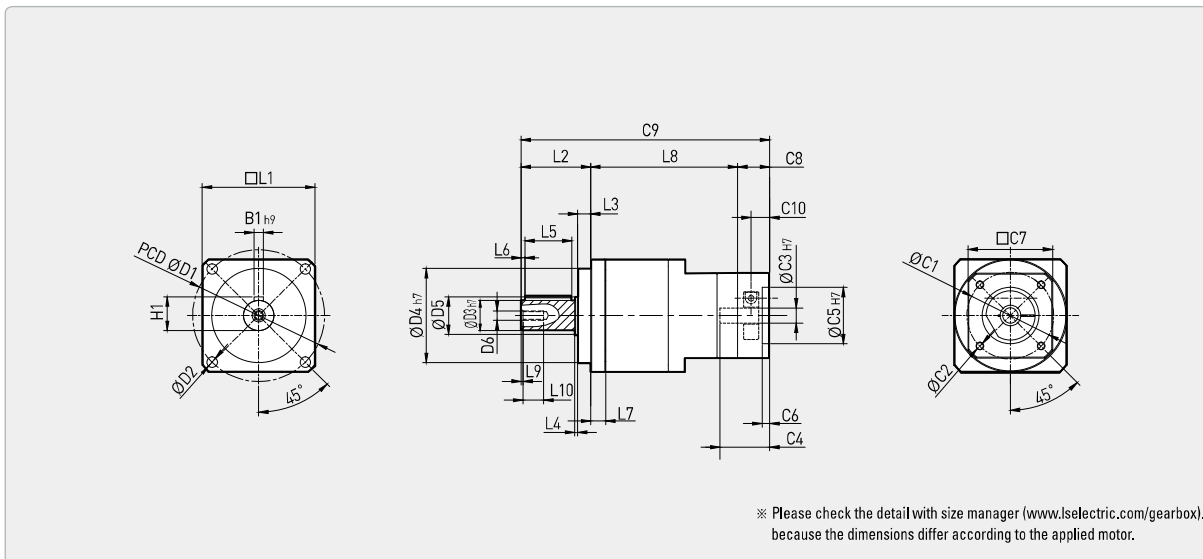
(3) ( is M Type-made to order.



MSS Series

## Double Stage B Type

### Drawing of Planetary Gearbox



Dimension	MSS0602B	MSS0902B	MSS1152B	MSS1422B	MSS1802B
D1	70	100	130	165	215
D2	5.5	6.8	8.7	11	13
D3 h7	16	22	32	40	55
D4 h7	50	80	110	130	160
D5	20	30	39.5	60	75
D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P	M20 X 2.5P
D7	80	116	152	185	240
L1	60	90	115	142	180
L2	37	48	64	97	105
L3	7	10	12	15	20
L4	1.5	1.5	2	3	3
L5	25	32	40	65	70
L6	2	3	5	5	6
L7	8	11	12	19	18
L8	78	101.5	135.4	161	198
L9	1.5	1.5	2	2	2
L10	10.5	13.5	18	34	42
* 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)	14 (19)	19 (24)	24 (35)	35 (42)
* 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	132	170	222.9	300	350
* C10	10	12	13.4	28	29.5
B1 h9	5	6	10	12	16
H1	18	24.5	35	43	59

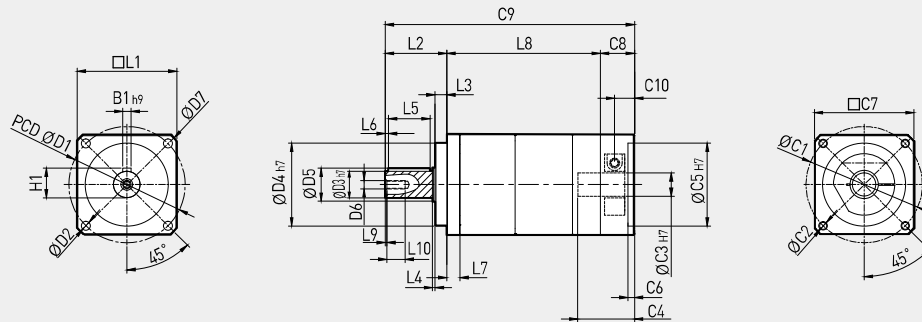
(1) C(C1-C10) is dimension for input shaft parts. Dimensions differ by motor types and makers. Find CAD file for exact dimensions of gearbox in [www.lselectric.com/gearbox](http://www.lselectric.com/gearbox).

(2) In XYY, 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.lselectric.com/gearbox](http://www.lselectric.com/gearbox)), because the dimensions differ according to the applied motor.

Dimension	MSS0452A	MSS0602A	MSS0902A	MSS1152A	MSS1422A	MSS1802A
D1	50	70	100	130	165	215
D2	3.5	5.5	6.8	8.7	11	13
D3 h7	13	16	22	32	40	55
D4 h7	35	50	80	110	130	160
D5	15	20	30	39.5	60	75
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
D7	58	80	116	152	185	240
L1	45	60	90	115	142	180
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	15	25	32	40	65	70
L6	2	2	3	5	5	6
L7	6.5	8	11	12	19	18
L8	74.5	92.5	122.9	136.8	174.5	198
L9	1.5	1.5	1.5	2	2	2
L10	9.5	10.5	13.5	18	34	42
* 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 H7	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
* C4	26.5	34	43.1	62	82	82
* C5 H7	30	50	70	110	114.3	114.3
* C6	4	4	6	7	7	7
* C7	45	60	90	132	180	180
* C8	17	20.5	23.5	42	47	47
* C9	118	150	194.4	242.8	318.5	350
* C10	10	12	13.4	28	29.5	28.5
B1 h9	5	5	6	10	12	16
H1	15	18	24.5	35	43	59

(1) 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.lselectric.com/gearbox](http://www.lselectric.com/gearbox).

(2) In XXYY, YY means fit tolerance (KS B 0401).

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