



MSR Series

Circle output flange
Straight type gearbox, Standard



MAR Series

Circle output flange
Right-angle type gearbox, Standard

MSR / MAR

- 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

		MSR					
Stage	Gear ratio	045	070	090	120	155	205
1A	3~10	○	○	○	○	○	○
2B	15~100	⊗	○	○	○	○	○
2A	15~100	○	○	○	○	○	○
1M/2M	3~100	⊗	⊗	⊗	⊗	⊗	⊗

		MAR					
Stage	Gear ratio	050	070	090	120	155	205
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.



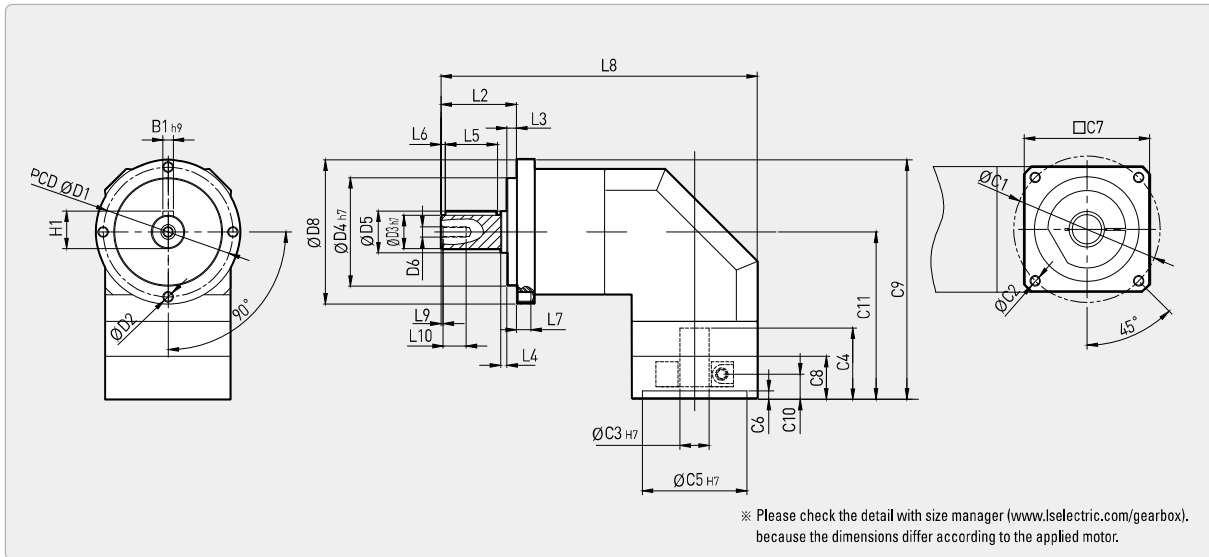
MAR Series

Division	Stage	Gear ratio	050	070	090	120	155	205
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
		14	-	44	145	305	562	1,104
		15	14	-	-	-	-	-
	20	14	42	121	262	500	980	
	2	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
		120	-	-	151	311	592	1,109
		140	-	-	145	305	562	1,104
		160	-	-	132	279	527	1,035
		180	-	-	123	254	483	947
200		-	-	121	262	500	980	
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	7	14	26	55	143
Max. Radial Load (N)	1,2	3~200	750	1,280	3,200	6,800	9,300	15,100
Max. Axial Load (N)	1,2	3~200	390	690	1,600	3,400	4,500	7,500
Backlash (Arcmin)	S	1	3~20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
		2	25~200	≤ 11	≤ 11	≤ 11	≤ 11	≤ 11
Service Life (Hrs)	1,2	3~200	20,000 (10,000 under continuous operation)					
Efficiency (%)	1	3~20	≥ 95					
	2	25~100	≥ 92					
Weight (kg)	1A	3~20	≤ 0.9	≤ 1.5	≤ 6.0	≤ 12.0	≤ 24.0	≤ 51.0
	2A	25~200	≤ 1.2	≤ 2.0	≤ 7.5	≤ 13.5	≤ 26.0	≤ 54.0
	2B	25~200	-	≤ 1.9	≤ 7.3	≤ 12.8	≤ 25.0	≤ 53.0
Operating Temp (°C)	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	≤ 58	≤ 60	≤ 63	≤ 66	≤ 69	≤ 72
Inertia (kgcm ²)	1A	3~10	0.09	0.36	2.27	6.88	23.50	69.2
		14, 20	-	0.08	1.89	6.23	21.75	66.3
		15, 20	-	-	-	-	-	-
	2B	25~100	-	0.09	0.36	2.27	6.88	23.5
		120~200	-	-	0.32	1.89	6.23	21.75
	2A	15, 20	0.09	-	-	-	-	-
		25~100	0.09	0.36	2.27	6.88	23.50	69.2
		120~200	-	-	1.89	6.23	21.75	66.3

(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



Dimension	MAR0501A	MAR0701A	MAR0901A	MAR1201A	MAR1551A	MAR2051A
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
D8	45	60	90	115	142	180
L1	26.5	37	48	64	97	105
L2	5.5	7	10	12	15	20
L3	1	1.5	1.5	2	3	3
L4	15	25	32	40	65	70
L5	2	2	3	5	5	6
L6	6.5	8	11	12	19	18
L7	114	151.2	203	270	333	375.5
* L8	1.5	1.5	1.5	2	2	2
L9	9.5	10.5	13.5	18	34	42
L10	46	70	90	145	200	200
* C1	M4 X 0.7P	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M12 X 1.75P	M12 X 1.75P
* C2	8 (14)	14 (19)	19 (24)	24 (35)	35 (42)	42 (55)
* C3 H7	26.5	34	43.1	62	82	86
* C4	30	50	70	110	114.3	114.3
* C5 H7	4	4	6	7	7	7
* C6	45	60	90	132	180	180
* C7	17	20.5	23.5	42	47	47
* C8	83	110	152	200	240	288
* C9						
* C10						
C11	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.

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

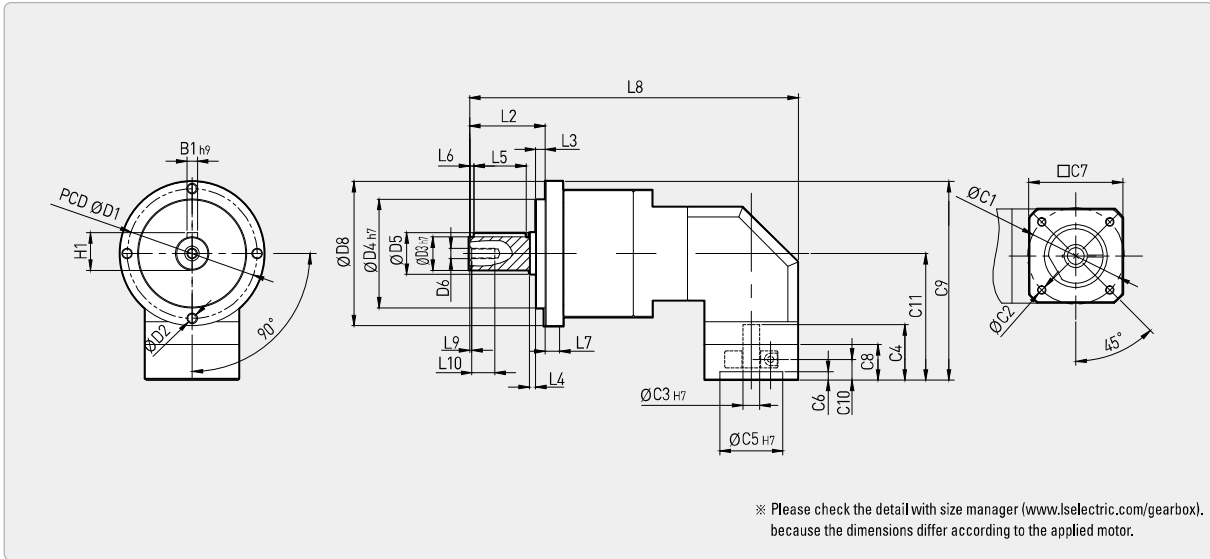
(3) (is M Type-made to order.



MAR Series

Double Stage B Type

Drawing of Planetary Gearbox



Dimension	MAR0702B	MAR0902B	MAR1202B	MAR1552B	MAR2052B
D1	62	80	108	140	184
D2	M5 X 0.8P	M6 X 1.0P	M8 X 1.25P	M10 X 1.5P	M12 X 1.75P
D3 h7	16	22	32	40	55
D4 h7	52	68	90	120	160
D5	20	30	40	60	75
D6	M5 X 0.8P	M8 X 1.25P	M12 X 1.75P	M16 X 2.0P	M20 X 2.5P
D7	-	-	-	-	-
D8	69	94	119	155	205
L1	-	-	-	-	-
L2	36	46	70	97	100
L3	4.5	6	7	15	15
L4	3	3.5	5	3	3
L5	25	32	40	65	70
L6	2	3	10	5	6
L7	7.5	10	12	15	20
* L8	157	205.7	286.5	367.5	441.5
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	95	127	166.5	220	271.5
* C10	10	12	13.4	28	29.5
C11	60.5	80	107	142.5	169
B1 h9	5	6	10	12	16
H1	18	24.5	35	43	59

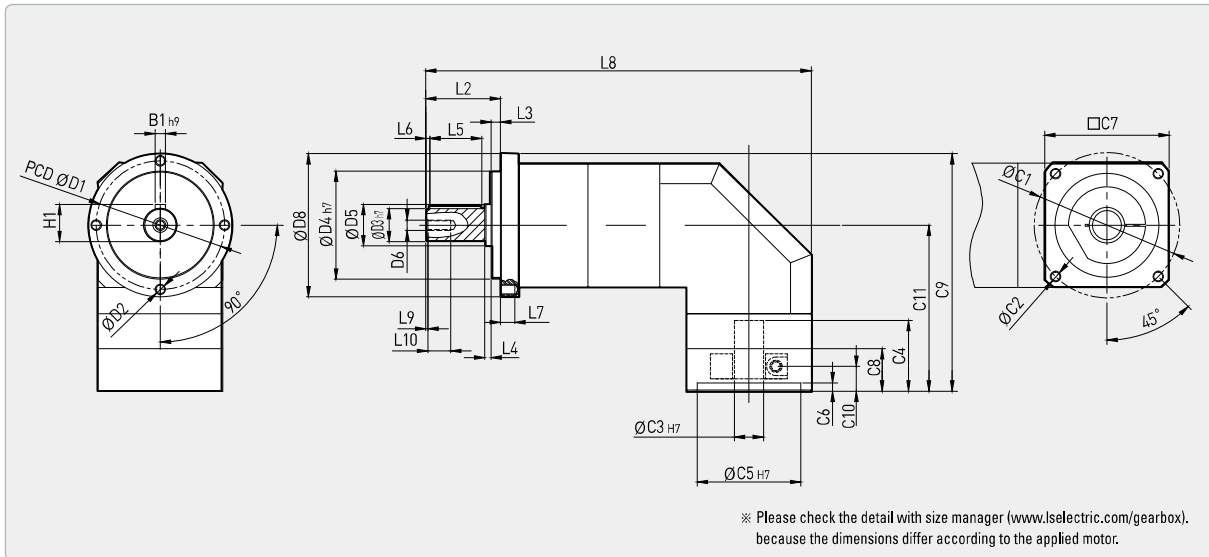
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(2) In XYY, YY means fit tolerance (KS B 0401).

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

Double Stage A Type

Drawing of Planetary Gearbox



Dimension	MAR0502A	MAR0702A	MAR0902A	MAR1202A	MAR1552A	MAR2052A
D1	44	62	80	108	140	184
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
D3 h7	12	16	22	32	40	55
D4 h7	35	52	68	90	120	160
D5	13	20	30	40	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	-	-	-	-	-	-
D8	49	69	94	119	155	205
L1	-	-	-	-	-	-
L2	24.5	36	46	70	97	100
L3	4	4.5	6	7	15	15
L4	2.5	3	3.5	5	3	3
L5	14	25	32	40	65	70
L6	2	2	3	10	5	6
L7	6.5	7.5	10	12	15	20
* L8	143	185.7	247	306.5	392.5	441.5
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	85	114.5	154	186.4	238.5	271.5
* C10	10	12	13.4	28	29.5	28.5
C11	60.5	80	107	126.9	161	169
B1 h9	4	5	6	10	12	16
H1	13.5	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.

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