

8.1 Servomotors: Ratings, Specifications, and Dimensional Drawings

This section describes ratings, specifications, and dimensional drawings of the servomotors. Refer to this section for selecting an appropriate servo drive.

8.1.1 SGMAH Servomotors

The following sections provide the ratings specifications, and dimensional drawings of the servomotors by model.

Ratings and Specifications for Standard Servomotors

- Time Rating: Continuous
- Vibration Class: 15 μ m or below
- Insulation Resistance: 500V_{DC}, 10M Ω minimum
- Ambient Temperature: 0 to 40°C
- Excitation: Permanent magnet
- Mounting: Flange method
- Insulation Class: Class B
- Withstand Voltage: 1500V_{ac} for one minute
- Enclosure: Totally enclosed, self-cooled, IP55 (except for through-sections of the shaft)
- Ambient Humidity: 20% to 80% (with no condensation)
- Drive Method: Direct drive

SGMAH Standard Servomotor Ratings and Specifications

Voltage		200V						100V			
Servomotor Model SGMAH		A3A	A5A	01A	02A	04A	08A	A3B	A5B	01B	02B
Rated Output ^{*1}	kW	0.03	0.05	0.1	0.2	0.4	0.75	0.03	0.05	0.1	0.2
Rated Torque ^{*1, *2}	oz-in	13.52	22.5	45.1	90.2	180	338	13.52	22.5	45.1	90.2
	N-m	0.0955	0.159	0.318	0.637	1.27	2.39	0.0955	0.159	0.318	0.637
Instantaneous Peak Torque ^{*1}	oz-in	40.6	67.6	135.2	270	541	1010	40.6	67.6	135.2	270
	N-m	0.286	0.477	0.955	1.91	3.82	7.16	0.286	0.477	0.955	1.91
Rated Current ^{*1}	A _{rms}	0.44	0.64	0.91	2.1	2.8	4.4	0.66	0.95	2.4	3.0
Instantaneous Maximum Current ^{*1}	A _{rms}	1.3	2.0	2.8	6.5	8.5	13.4	2.0	2.9	7.2	9.0
Rated Speed ^{*1}	rpm	3000									
Maximum Speed ^{*1}	rpm	5000									
Torque Constant	(oz-in)/A _{rms}	33.7	38.0	53.6	46.2	70.6	83.6	22.2	25.8	20.7	33.2
	(N-m)/A _{rms}	0.238	0.268	0.378	0.327	0.498	0.590	0.157	0.182	0.146	0.234

^{*1} These specifications and torque-motor speed characteristics are quoted in combination with an SGD servo amplifier operating at an armature winding temperature of 100°C. Other values are quoted at 20°C. All values are typical.

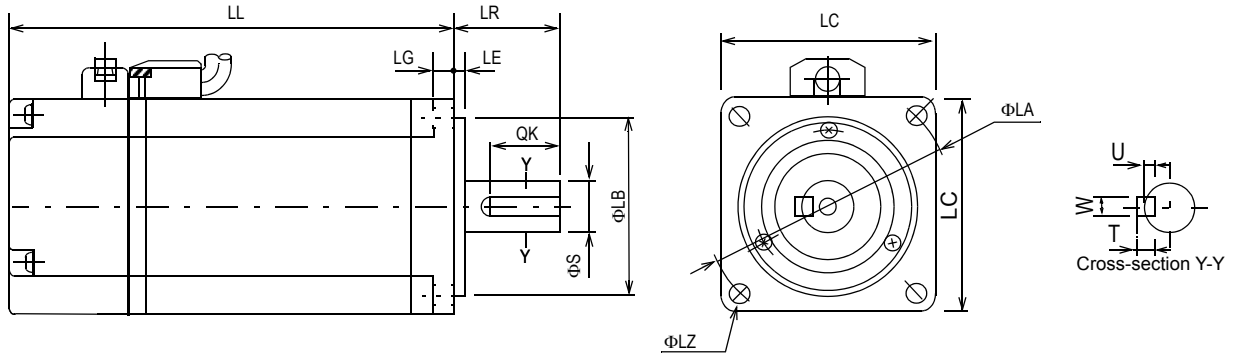
^{*2} Rated torques are continuous allowable torque values at 40°C with a 10 × 10 × 0.25in (250 × 250 × 6mm) heat sink attached.

Voltage		200V						100V			
Servomotor Model SGMAH		A3A	A5A	01A	02A	04A	08A	A3B	A5B	01B	02B
Moment of Inertia	oz-in- s ² x 10 ⁻³	0.235	0.312	0.515	1.501	2.45	9.52	0.235	0.312	0.515	1.501
	kg-m ² x 10 ⁻⁴	0.0166	0.0220	0.0364	0.106	0.173	0.672	0.0166	0.0220	0.0364	0.106
Rated Power Rating* ¹	kW/s	5.49	11.5	27.8	38.2	93.7	84.8	5.49	11.5	27.8	38.2
Rated Angular Acceleration* ¹	rad/s ²	57500	72300	87400	60100	73600	35500	57500	72300	87400	60100
Inertia Time Constant	ms	1.4	0.88	0.53	0.39	0.25	0.26	1.4	0.85	0.61	0.41
Inductive Time Constant	ms	1.0	1.1	1.2	4.6	5.4	8.7	1.0	1.1	1.1	4.4

*¹ These specifications and torque-motor speed characteristics are quoted in combination with an SGDh servo amplifier operating at an armature winding temperature of 100°C. Other values are quoted at 20°C. All values are typical.

SGMAH Dimensions in inches (mm)

Drawings that provide SGMAH servomotor (without brake) dimensions are shown below.



Model SGMAH-	LL	LR	LG	LC	LE	ΦLA	ΦLZ	ΦS	ΦLB	QK	U	W	T	Mass lb (kg)
A3A (B)	2.74 (69.5)	0.98 (25)	0.20 (5)	1.57 (40)	0.098 (2.5)	1.81 (46)	0.17 (4.3)	0.24 (6)	1.19 (30)	0.55 (14)	0.047 (0.12)	0.79 (2)	0.79 (2)	0.3 (0.661)
A5A (B)	3.03 (77.0)										0.7 (1.8)	0.7 (1.8)	0.5 (1.10)	
01A (B)	3.72 (94.5)										0.7 (1.8)	0.7 (1.8)	0.5 (1.10)	
02A (B)	3.80 (96.5)	1.18 (30)	0.24 (6)	2.36 (60)	0.12 (3)	2.76 (70)	0.22 (5.5)	0.56 (14)	1.98 (50)	0.79 (20)	0.12 (3)	0.2 (5)	0.2 (5)	1.1 (2.43)
04A	4.90 (124.5)													1.7 (3.75)
08A	5.71 (145)													3.4 (7.50)

Specified Tolerances				
Dimension	ΦS		ΦLB	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	0.24	+0.0000-0.0004	1.19	+0.0000 -0.0008
	0.31		1.98	+0.0000 -0.0010
	0.56		2.78	+0.0000 -0.0012
	0.64			
mm	6	+0.000 -0.009	30	+0.000 -0.021
	8		50	+0.000 -0.025
	14	+0.000 -0.011	70	+0.000 -0.030
	16			