

Specified Tolerances				
Dimension	ΦLB		ΦS	
Unit	Diameter	Tolerance	Diameter	Tolerance
mm	110	+0.000 -0.035	19	+0.000 -0.013
			22	
	114.3	+0.000 -0.025	35	+0.01 -0.00
			42	+0.000 -0.016

### 8.1.4 SGMSH Servomotors

#### Rating and Specifications for Standard Servomotors

- Time Rating: Continuous
- Vibration Class: 15μm or below
- Insulation Resistance: 500V<sub>DC</sub>, 10MΩ minimum
- Ambient Temperature: 0 to 40°C
- Excitation: Permanent magnet
- Mounting: Flange method
- Insulation Class: Class F
- Withstand Voltage: 1500V<sub>ac</sub> for one minute (200V specification)  
1800V<sub>ac</sub> for one minute (400V specification)
- Enclosure: Totally enclosed, self-cooled, IP67 (except for through-sections of the shaft)
- Ambient Humidity: 20% to 80% (with no condensation)
- Drive Method: Direct drive

#### SGMSH Standard Servomotor Ratings and Specifications

Voltage		200V					
Servomotor Model SGMSH-		10A□A	15A□A	20A□A	30A□A	40A□A	50A□A
Rated Output <sup>*1</sup>	kW	1.0	1.5	2.0	3.0	4.0	5.0
Rated Torque <sup>*1</sup>	lb-in	28.2	43	56.4	87	112	140
	N-m	3.18	4.9	6.36	9.8	12.6	15.8
Instantaneous Peak Torque <sup>*1</sup>	lb-in	84.4	130	169	260	336	422
	N-m	9.54	14.7	19.1	29.4	37.8	47.6
Rated Current <sup>*1</sup>	A <sub>rms</sub>	5.7	9.7	12.7	18.8	25.4	28.6
Instantaneous Maximum Current <sup>*1</sup>	A <sub>rms</sub>	17	28	42	56	77	84
Rated Speed <sup>*1</sup>	rpm	3000					
Maximum Speed <sup>*1</sup>	rpm	5000					
Torque Constant	(lb-in)/A <sub>rms</sub>	5.63	4.97	4.81	5.07	4.69	5.31
	(N-m)/A <sub>rms</sub>	0.636	0.561	0.544	0.573	0.53	0.60
Moment of Inertia	lb-in-s <sup>2</sup> x 10 <sup>-3</sup>	1.54	2.19	2.82	6.20	8.50	10.90
	kg-m <sup>2</sup> x 10 <sup>-4</sup>	1.74	2.47	3.19	7.00	9.60	12.3
Rated Power Rating <sup>*1</sup>	kW/s	57.9	97.2	127	137	166	202
Rated Angular Acceleration <sup>*1</sup>	rad/s <sup>2</sup>	18250	19840	19970	14000	13160	12780
Inertia Time Constant	ms	0.87	0.74	0.62	0.74	0.65	0.59
Inductive Time Constant	ms	7.1	7.7	8.3	13.0	14.1	14.7

<sup>\*1</sup> These specifications and torque-motor speed characteristics are quoted in combination with an SGD servo amplifier operating at an armature winding temperature of 20°C.

**Note:** These characteristics have been calculated with the following aluminum heat sinks attached for cooling:  
 Heat sink dimensions  
 $12 \times 12 \times 0.5\text{in.}$  ( $300 \times 300 \times 12\text{mm}$ ): 10A□A to 20A□A servomotors  
 $18 \times 18 \times 0.8\text{in.}$  ( $400 \times 400 \times 20\text{mm}$ ): 30A□A to 50A□A servomotors

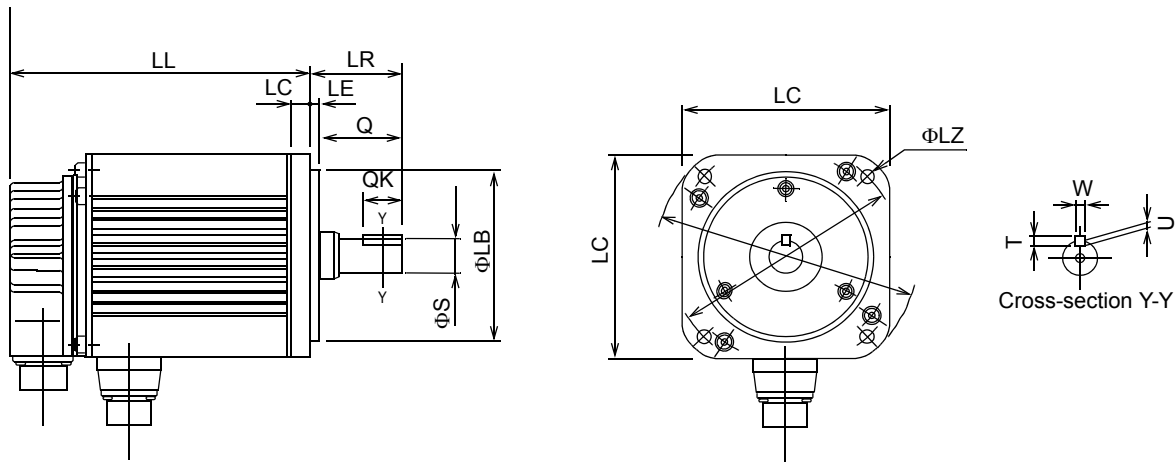
Voltage		400V					
Servomotor Model SGMSH-		10D□A	15D□A	20D□A	30D□A	40D□A	50D□A
Rated Output <sup>*1</sup>	kW	1.0	1.5	2.0	3.0	4.0	5.0
Rated Torque <sup>*1</sup>	lb-in	28.2	43	56.4	87	112	140
	N-m	3.18	4.9	6.36	9.8	12.6	15.8
Instantaneous Peak Torque <sup>*1</sup>	lb-in	84.4	130	169	260	336	422
	N-m	9.54	14.7	19.1	29.4	37.8	47.6
Rated Current <sup>*1</sup>	A <sub>rms</sub>	2.8	4.7	6.2	8.9	12.5	13.8
Instantaneous Maximum Current <sup>*1</sup>	A <sub>rms</sub>	8.5	14	19.5	28	38	42
Rated Speed <sup>*1</sup>	rpm	3000					
Maximum Speed <sup>*1</sup>	rpm	5000					
Torque Constant	(lb-in)/A <sub>rms</sub>	11.2	10.2	9.9	10.5	9.49	11.0
	(N-m)/A <sub>rms</sub>	1.74	2.47	1.12	1.19	1.07	1.24
Moment of Inertia	lb-in-s <sup>2</sup> $\times 10^{-3}$	1.54	2.19	2.82	6.20	8.50	10.90
	kg-m <sup>2</sup> $\times 10^{-4}$	1.74	2.47	3.19	7.0	9.60	12.3
Rated Power Rating <sup>*1</sup>	kW/s	57.9	97.2	127	137	166	202
Rated Angular Acceleration <sup>*1</sup>	rad/s <sup>2</sup>	18250	19840	19970	14000	13160	12780
Inertia Time Constant	ms	0.97	0.8	0.66	0.76	0.62	0.55
Inductive Time Constant	ms	6.3	6.8	7.3	16.3	14.4	15.2

<sup>\*1</sup> These specifications and torque-motor speed characteristics are quoted in combination with an SGD servo amplifier operating at an armature winding temperature of 20°C.

**Note:** These characteristics have been calculated with the following aluminum heat sinks attached for cooling:  
 Heat sink dimensions  
 $12 \times 12 \times 0.5\text{in.}$  ( $300 \times 300 \times 12\text{mm}$ ): 10D□A to 20D□A servomotors  
 $18 \times 18 \times 0.8\text{in.}$  ( $400 \times 400 \times 20\text{mm}$ ): 30D□A servomotors

### SGMSH Dimensions in inches (mm)

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



Model SGMSH-	LL	LR	LG	LC	LE	$\Phi LA$	$\Phi LZ$	$\Phi S$	$\Phi LB$	Q	QK	U	W	T	Mass lb (kg)
10A□A 10D□A	5.87 (149)														10.14 (4.6)
15A□A 15D□A	6.89 (175)	1.77 (45)	0.39 (10)	3.94 (100)	0.12 (3)	4.53 (115)	0.28 (7)	0.94 (24)	3.74 (95)	1.57 (40)	1.26 (32)	0.16 (4)	0.31 (8)	0.28 (7)	12.79 (5.8)
20A□A 20D□A	7.80 (198)														15.43 (7.0)
30A□A 30D□A	7.83 (199)														24.25 (11)
40A□A 40D□A	9.29 (236)	2.48 (63)	0.47 (12)	5.12 (130)	0.24 (6)	5.71 (145)	0.35 (9)	1.10 (28)	4.33 (110)	2.17 (55)	1.96 (50)				30.86 (14)
50A□A 50D□A	10.9 (276)														37.48 (17)

Specified Tolerances				
Dimension	$\Phi LB$		$\Phi S$	
Unit	Diameter	Tolerance	Diameter	Tolerance
in	3.74	+0.0000-0.0014	0.94	+0.0000-0.0005
	4.33		1.10	
mm	95	+0.000 -0.035	24	+0.000 -0.013
	110		28	