

# Ratings and Specifications

Time Rating: Continuous  
 Vibration Class: V15  
 Insulation Resistance: 500 VDC, 10 MΩ min.  
 Ambient Temperature: 0 to 40°C  
 Excitation: Permanent magnet  
 Mounting: Flange-mounted  
 Thermal Class: B

Withstand Voltage: 1500 VAC for one minute  
 Enclosure: Totally enclosed, self-cooled, IP65  
 (except for shaft opening)  
 Ambient Humidity: 20% to 80% (no condensation)  
 Drive Method: Direct drive  
 Rotation Direction: Counterclockwise (CCW) with forward run  
 reference when viewed from the load side

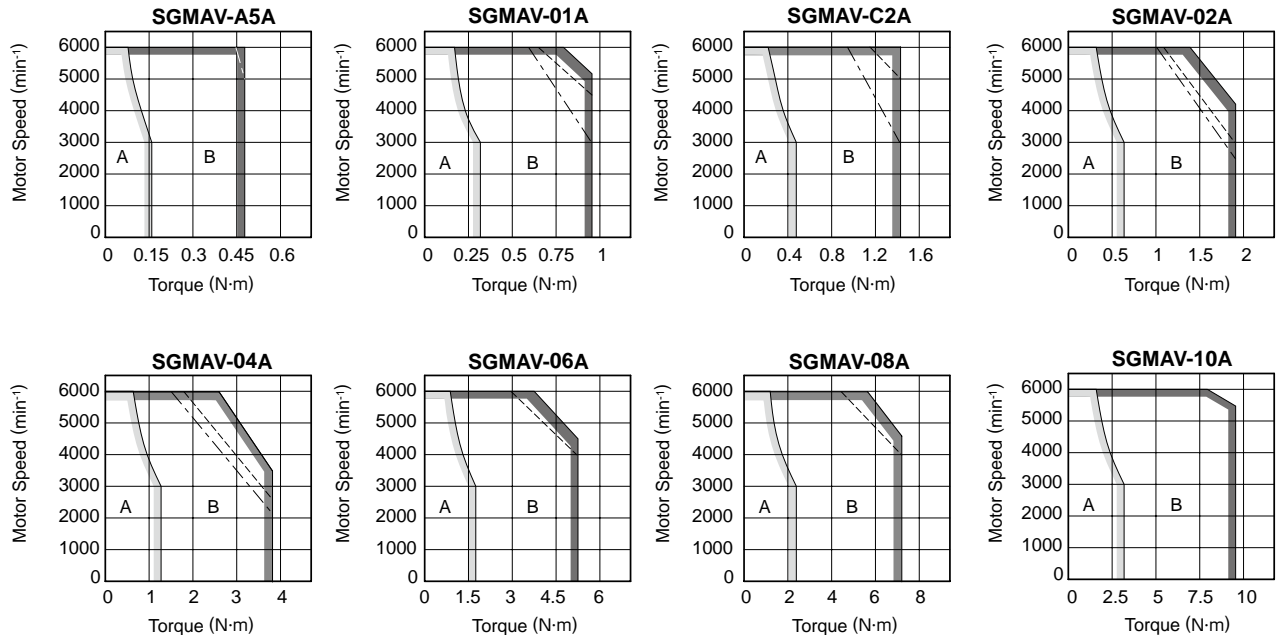
Voltage		200 V							
Servomotor Model: SGM <sub>AV</sub> -□□□□		A5A	01A	C2A	02A	04A	06A	08A	10A
Rated Output <sup>*1</sup>	W	50	100	150	200	400	550	750	1000
Rated Torque <sup>*1, *2</sup>	N·m	0.159	0.318	0.477	0.637	1.27	1.75	2.39	3.18
Instantaneous Peak Torque <sup>*1</sup>	N·m	0.477	0.955	1.43	1.91	3.82	5.25	7.16	9.55
Rated Current <sup>*1</sup>	A <sub>rms</sub>	0.66	0.91	1.3	1.5	2.6	3.8	5.3	7.4
Instantaneous Max. Current <sup>*1</sup>	A <sub>rms</sub>	2.1	2.8	4.2	5.3	8.5	12.2	16.6	23.9
Rated Speed <sup>*1</sup>	min <sup>-1</sup>	3000							
Max. Speed <sup>*1</sup>	min <sup>-1</sup>	6000							
Torque Constant	N·m/A <sub>rms</sub>	0.265	0.375	0.381	0.450	0.539	0.496	0.487	0.467
Rotor Moment of Inertia	×10 <sup>-4</sup> kg·m <sup>2</sup>	0.0242 (0.0389)	0.0380 (0.0527)	0.0531 (0.0678)	0.116 (0.180)	0.190 (0.254)	0.326 (0.403)	0.769 (0.940)	1.20 (1.41)
Rated Power Rate <sup>*1</sup>	kW/s	10.4	26.6	42.8	35.0	84.9	93.9	74.1	84.3
Rated Angular Acceleration <sup>*1</sup>	rad/s <sup>2</sup>	65800	83800	89900	54900	67000	53700	31000	26500
Applicable SERVOPACK	SGDV-□□□□□	R70□	R90□	1R6A,2R1F		2R8□	5R5A	5R5A	120A

\*1: These items and torque-motor speed characteristics quoted in combination with an SGD<sub>V</sub> SERVOPACK are at an armature winding temperature of 100°C. Other values quoted are at 20°C.

\*2: Rated torques are continuous allowable torque values at 40°C with an aluminum heat sink of the following dimensions attached.  
 SGM<sub>AV</sub>-A5A, -01A: 200 mm×200 mm×6 mm  
 SGM<sub>AV</sub>-C2A, -02A, -04A, -06A, -08A: 250 mm×250 mm×6 mm  
 SGM<sub>AV</sub>-10A: 300 mm×300 mm×12 mm

Note: The values in parentheses are for servomotors with holding brakes.

## ● Torque-Motor Speed Characteristics A: Continuous Duty Zone B: Intermittent Duty Zone<sup>(See Note3)</sup>



Notes: 1 The solid, dotted, and dashed-dotted lines of the intermittent duty zone indicate the characteristics when a servomotor runs with the following combinations:

- The solid line: With a three-phase 200 V or a single-phase 230 V SERVOPACK
- The dotted line: With a single-phase 200 V SERVOPACK
- The dashed-dotted line: With a single-phase 100 V SERVOPACK

An SGM<sub>AV</sub>-A5A servomotor has the same characteristics in combination with three-phase 200 V and single-phase 200 V SERVOPACKS.

- 2 The characteristics of the intermittent duty zone differ depending on the supply voltages.
- 3 When the effective torque during intermittent duty is within the rated torque, the servomotor can be used within the intermittent duty zone.
- 4 When the main circuit cable length exceeds 20 m, note that the intermittent duty zone of the Torque-Motor Speed Characteristics will shrink as the line-to-line voltage drops.

## Ratings and Specifications

### ● Derating Rate for Servomotor Fitted with an Oil Seal

When a motor is fitted with an oil seal, use the following derating rate because of the higher friction torque.

Servomotor Model SGMVA-	A5A	01A	C2A	02A	04A	06A	08A	10A
Derating Rate %	80	90			95			

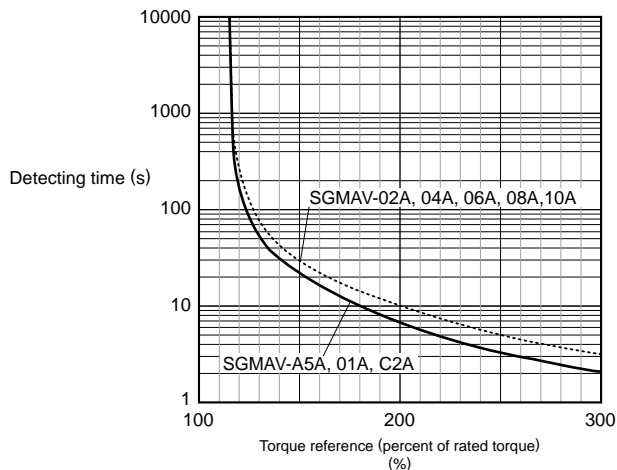
### ● Holding Brake Electrical Specifications

Holding Brake Rated Voltage	Servomotor Model	Servomotor Rated Output W	Holding Brake Specifications					
			Capacity W	Holding Torque N·m	Coil Resistance Ω(at 20°C)	Rated Current A(at 20°C)	Brake Release Time ms	Brake Operation Time ms
24 VDC <sup>+10%</sup> <sub>0</sub>	SGMAV-A5A	50	5.5	0.159	103	0.23	60	100
	SGMAV-01A	100		0.318				
	SGMAV-C2A	150	5.1	0.477	114	0.21	60	100
	SGMAV-02A	200	6	0.637	97.4	0.25	60	100
	SGMAV-04A	400		1.27				
	SGMAV-06A	550	8	1.75	74.3	0.32	80	100
	SGMAV-08A	750	6.5	2.39	87.7	0.27	80	100
	SGMAV-10A	1000	7	3.18	82.8	0.29	80	100

- Notes: 1 The holding brake is only used to hold the load and cannot be used to stop the servomotor.  
 2 The holding brake open time and holding brake operation time vary depending on which discharge circuit is used. Make sure holding brake open time and holding brake operation time are correct for your servomotor.  
 3 A 24-VDC power supply is provided by customers.

### ● Overload Characteristics

The overload detection level is set under hot start conditions at a servomotor ambient temperature of 40°C.



Note: Overload characteristics shown above do not guarantee continuous duty of 100% or more output. Use a servomotor with effective torque within the continuous duty zone of Torque-Motor Speed Characteristics.

## Ratings and Specifications

### ● Allowable Load Moment of Inertia at the Motor Shaft

The rotor moment of inertia ratio is the value for a servomotor without a gear and a brake.

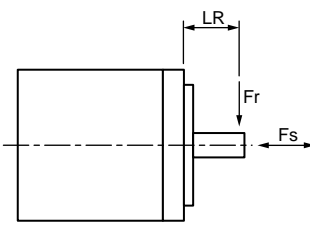
Servomotor Model		Servomotor Rated Output	Allowable Load Moment of Inertia (Rotor Moment of Inertia Ratio)
SGMAV-	A5A, 01A, C2A, 02A	50 to 200 W	30 times
	04A, 06A, 08A	400 to 750 W	20 times
	10A	1000 W	10 times

### ● Load Moment of Inertia

- The larger the load moment of inertia, the worse the movement response.
- The allowable load moment of inertia ( $J_L$ ) depends on motor capacity, as shown above. This value is provided strictly as a guideline and results may vary depending on servomotor drive conditions.
- Use the AC servo drive capacity selection program SigmaJunmaSize+ to check the operation conditions. The program can be downloaded for free from our web site (<http://www.e-mechatronics.com/>).
- An overvoltage alarm (A.400) is likely to occur during deceleration if the load moment of inertia exceeds the allowable load moment of inertia. SERVOPACKs with a built-in regenerative resistor may generate a regenerative overload alarm (A.320). Take one of the following steps if this occurs.
  - Reduce the torque limit.
  - Reduce the deceleration rate.
  - Reduce the maximum speed.
  - Install an external regenerative resistor if the alarm cannot be cleared using the steps above. Refer to Regenerative Resistors on page 386.
- Regenerative resistors are not built into SERVOPACKs for 400 W motors or less.
- External regenerative resistors are required when this condition is exceeded or if the allowable loss capacity (W) of the built-in regenerative resistor is exceeded due to regenerative drive conditions when a regenerative resistor is already built in.

### ● Allowable Radial and Thrust Loads

Design the mechanical system so thrust and radial loads applied to the servomotor shaft end during operation fall within the ranges shown in the table.

Servomotor Model		Allowable Radial Load ( $F_r$ ) N	Allowable Thrust Load ( $F_s$ ) N	LR mm	Reference Diagram
SGMAV-	A5A	78	54	20	
	01A				
	C2A				
	02A	245	74	25	
	04A				
	06A				
	08A	392	147	35	
	10A				