

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: F

Withstand Voltage: 1500 VAC for one minute (200-V Class)
1800 VAC for one minute (400-V Class)

Enclosure: Totally enclosed, self-cooled, IP67
(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

200 V Class

Servomotor Model: SGMGV-□□□□		03A	05A	09A	13A	20A	30A	44A	55A	75A	1AA	1EA
Rated Output ^{*1}	kW	0.3	0.45	0.85	1.3	1.8	2.9	4.4	5.5	7.5	11	15
Rated Torque ^{*1}	N·m	1.96	2.86	5.39	8.34	11.5	18.6	28.4	35.0	48.0	70.0	95.4
Instantaneous Peak Torque ^{*1}	N·m	5.88	8.92	13.8	23.3	28.7	45.1	71.1	87.6	119	175	224
Rated Current ^{*1}	A _{rms}	2.8	3.8	6.9	10.7	16.7	23.8	32.8	42.1	54.7	58.6	78
Instantaneous Max. Current ^{*1}	A _{rms}	8	11	17	28	42	56	84	110	130	140	170
Rated Speed ^{*1}	min ⁻¹	1500										
Max. Speed ^{*1}	min ⁻¹	3000									2000	
Torque Constant	N·m/A _{rms}	0.776	0.854	0.859	0.891	0.748	0.848	0.934	0.871	0.957	1.32	1.37
Rotor Moment of Inertia	×10 ⁻⁴ kg·m ²	2.48 (2.73)	3.33 (3.58)	13.9 (16)	19.9 (22)	26 (28.1)	46 (54.5)	67.5 (76.0)	89.0 (97.5)	125 (134)	242 (261)	303 (322)
Rated Power Rate ^{*1}	kW/s	15.5 (14.1)	24.6 (22.8)	20.9 (18.2)	35.0 (31.6)	50.9 (47.1)	75.2 (63.5)	119 (106)	138 (126)	184 (172)	202 (188)	300 (283)
Rated Angular Acceleration ^{*1}	rad/s ²	7900 (7180)	8590 (7990)	3880 (3370)	4190 (3790)	4420 (4090)	4040 (3410)	4210 (3740)	3930 (3590)	3840 (3580)	2890 (2680)	3150 (2960)
Applicable SERVOPACK	SGDV-□□□□	3R8A	3R8A	7R6A	120A	180A	330A 220A*2	330A	470A	550A	590A	780A

*1: These items and torque-motor speed characteristics quoted in combination with a SERVOPACK are at an armature winding temperature of 20°C.

*2: Some restrictions apply when using an SGDV-200A SERVOPACK in combination with an SGMGV-30A servomotor.

Notes: 1 The values in parentheses are for servomotors with holding brakes.

2 The above specifications show the values under the cooling condition when the following heat sinks are mounted on the servomotors.

SGMGV-03A/-05A: 250 mm × 250 mm × 6 mm (aluminum)
SGMGV-09A/-13A/-20A: 400 mm × 400 mm × 20 mm (iron)
SGMGV-30A/-44A/-55A/-75A: 550 mm × 550 mm × 30 mm (iron)
SGMGV-1AA/-1EA: 650 mm × 650 mm × 35 mm (iron)

400 V Class

Servomotor Model: SGMGV-□□□□		03D	05D	09D	13D	20D	30D	44D	55D	75D	1AD	1ED
Rated Output*	kW	0.3	0.45	0.85	1.3	1.8	2.9	4.4	5.5	7.5	11	15
Rated Torque*	N·m	1.96	2.86	5.39	8.34	11.5	18.6	28.4	35.0	48.0	70.0	95.4
Instantaneous Peak Torque*	N·m	5.88	8.92	13.8	23.3	28.7	45.1	71.1	87.6	119	175	224
Rated Current*	A _{rms}	1.4	1.9	3.5	5.4	8.4	11.9	16.5	20.8	25.7	28.1	37.2
Instantaneous Max. Current*	A _{rms}	4	5.5	8.5	14	20	28	40.5	52	65	70	85
Rated Speed*	min ⁻¹	1500										
Max. Speed*	min ⁻¹	3000									2000	
Torque Constant	N·m/A _{rms}	1.55	1.71	1.72	1.78	1.50	1.70	1.93	1.80	1.92	2.64	2.74
Rotor Moment of Inertia	×10 ⁻⁴ kg·m ²	2.48 (2.73)	3.33 (3.58)	13.9 (16)	19.9 (22)	26 (28.1)	46 (54.5)	67.5 (76.0)	89.0 (97.5)	125 (134)	242 (261)	303 (322)
Rated Power Rate*	kW/s	15.5 (14.1)	24.6 (22.8)	20.9 (18.2)	35.0 (31.6)	50.9 (47.1)	75.2 (63.5)	119 (106)	138 (126)	184 (172)	202 (188)	300 (283)
Rated Angular Acceleration*	rad/s ²	7900 (7180)	8590 (7990)	3880 (3370)	4190 (3790)	4420 (4090)	4040 (3410)	4210 (3740)	3930 (3590)	3840 (3580)	2890 (2680)	3150 (2960)
Applicable SERVOPACK	SGDV-□□□□	1R9D	1R9D	3R5D	5R4D	8R4D	120D	170D	210D	260D	280D	370D

*: These items and torque-motor speed characteristics quoted in combination with a SERVOPACK are at an armature winding temperature of 20°C.

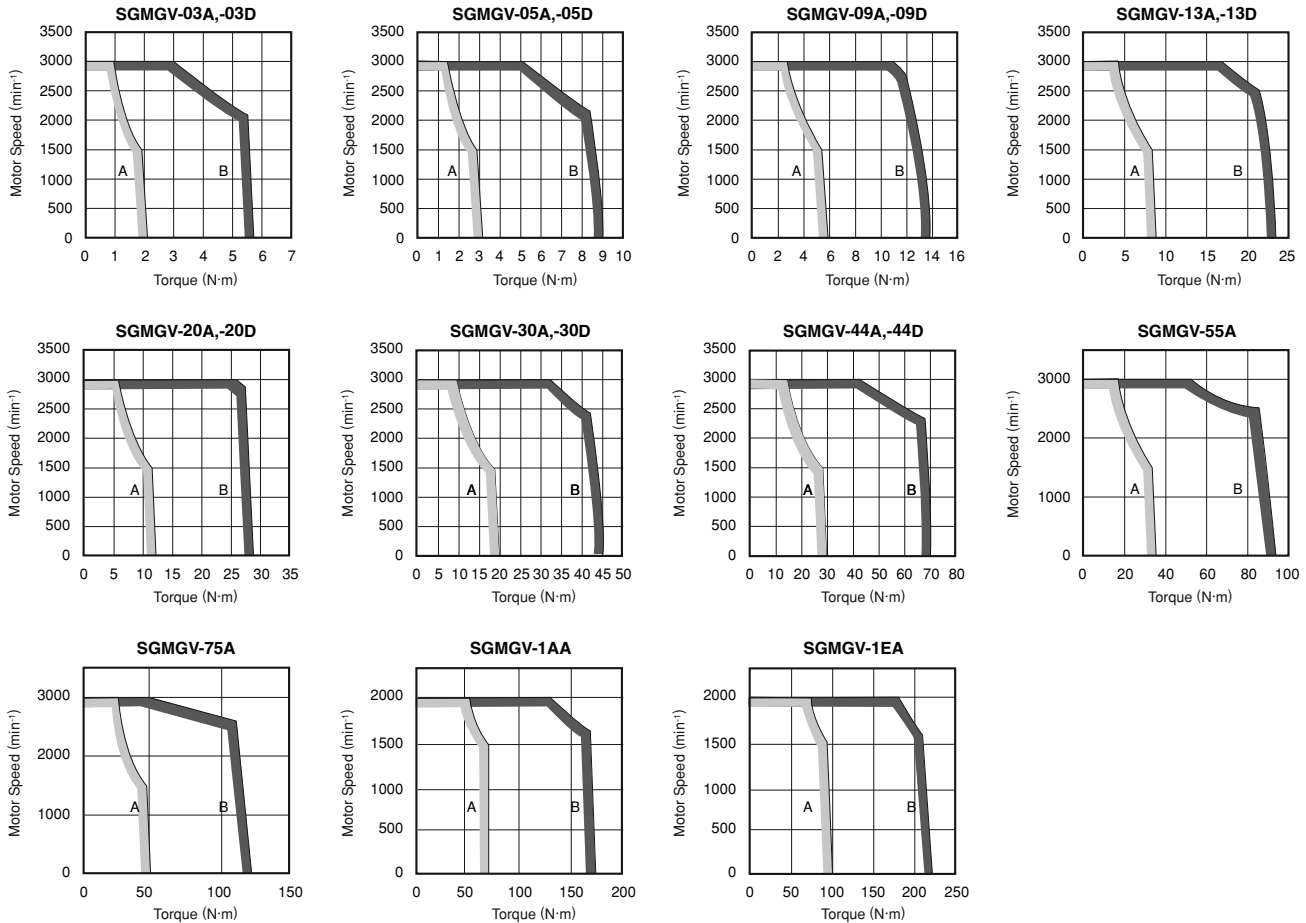
Notes: 1 The values in parentheses are for servomotors with holding brakes.

2 The above specifications show the values under the cooling condition when the following heat sinks are mounted on the servomotors.

SGMGV-03D/-05D: 250 mm × 250 mm × 6 mm (aluminum)
SGMGV-09D/-13D/-20D: 400 mm × 400 mm × 20 mm (iron)
SGMGV-30D/-44D/-55D/-75D: 550 mm × 550 mm × 30 mm (iron)
SGMGV-1AD/-1ED: 650 mm × 650 mm × 35 mm (iron)

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● Torque-Motor Speed Characteristics (200 V/400 V) [A]: Continuous Duty Zone [B]: Intermittent Duty Zone ^{Note1}



Notes: 1 When the effective torque during intermittent duty is within the rated torque, the servomotor can be used within the intermittent duty zone.
 2 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.

● Holding Brake Electrical Specifications

Servomotor Model	Servomotor Rated Output kW	Holding Brake Specifications				
		Holding Torque N·m	Rated Voltage 24 VDC		Rated Voltage 90 VDC	
			Capacity W	Rated Current A (at 20°C)	Capacity W	Rated Current A (at 20°C)
SGMGV-03	0.3	4.5	10	0.42	10	0.11
SGMGV-05	0.45	4.5	10	0.42	10	0.11
SGMGV-09	0.85	12.7	10	0.41	10	0.11
SGMGV-13	1.3	19.6	10	0.41	10	0.11
SGMGV-20	1.8	19.6	10	0.41	10	0.11
SGMGV-30	2.9	43.1	18.5	0.77	18.5	0.21
SGMGV-44	4.4	43.1	18.5	0.77	18.5	0.21
SGMGV-55	5.5	72.6	25	1.05	25	0.28
SGMGV-75	7.5	72.6	25	1.05	25	0.28
SGMGV-1A	11	84.3	32	1.33	32	0.36
SGMGV-1EA	15	114.6	35	1.46	35	0.39

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.
 4 Refer to page 292 for information on the 90-VDC power supply.

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 holding brake.

Servomotor Model	Servomotor Rated Output	Allowable Load Moment of Inertia (Rotor Moment of Inertia Ratio)
SGMGV-03 to -1E	0.3 to 1.5 kW	5 times

● Load Moment of Inertia

- The larger the load moment of inertia, the worse the movement response of the load.
- The allowable load moment of inertia (J_L) depends on motor capacity and is limited to within 5 to 30 times the rotor moment of inertia of each servomotor (J_M). 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 293.

● 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
03□□A21	490	98	37	
05□□A21	490	98	40	
09□□A21	490	98	58	
13□□A21	686	343	58	
20□□A21	980	392	58	
30□□A21	1470	490	79	
44□□A21	1470	490	79	
55□□A21	1764	588	113	
75□□A21	1764	588	113	
1A□□A21	1764	588	116	
1E□□A21	4998	2156	116	