Rotary Servomotors



Note: Readily available up to 1.5 kW. Others available on request.

Rotary Servomotors

SGMMV	34
SGM7A	44
SGM7J	68
SGM7G	82

SGMMV

Model Designations

A 200 VAC



Sigma-7 series Servomotors: SGMMV



	13t + 211d	ora	401
1st + 2	2nd digit - Ra	ted outp	ut
Code	Specification	ı	
A1	10 W		
A2	20 W		
АЗ	30 W		
3rd di	git - Power s	upply vol	tage
Codo	Specification		



Code	Specification
2	17-bit absolute
5th dig	it - Design revision order
5th dig	it - Design revision order Specification
	· ·

6th dig	it - Shaft end
Code	Specification
2	Straight
А	Straight with flat seats

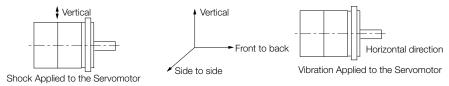
7th dig	git - Options
Code	Specification
1	Without options
С	With holding brake (24 VDC)

Specifications and Ratings

Specifications

	Voltage	200 V			
Model SGMMV-		A1A A2A A3A			
Time Rating		Continuous			
Thermal Class		В			
Insulation Resistance		500 VDC, 10 MOhm min.			
Withstand Voltage		1,500 VAC for 1 minute			
Excitation		Permanent magnet			
Mounting		Flange-mounted			
Drive Method		Direct drive			
Rotation Direction		Counterclockwise (CCW) for forward reference when viewed from the load side			
Vibration Class *1		V15			
	Surrounding Air Temperature	0 °C to 40 °C			
	Surrounding Air Humidity	20% to 80% relative humidity (non-condensing)			
Environmental Conditions	Installation Site	 Must be indoors and free of corrosive and explosive gases. Must be well-ventilated and free of dust and moisture. Must facilitate inspection and cleaning. Must have an altitude of 1,000 m or less. Must be free of strong magnetic fields. 			
	Storage Environment	Store the Servomotor in the following environment if you store it with the power cable disconnected. • Storage Temperature: -20 °C to 60 °C (with no freezing) • Storage Humidity: 20% to 80% relative humidity (non-condensing)			
Shock	Impact Acceleration Rate at Flange	490 m/s²			
Resistance *2	Number of Impacts	2 times			
Vibration Resistance *2	Vibration Acceleration Rate at Flange	49 m/s²			
Applicable	SGD7S-	R9	0A, R90F	1R6A, 2R1F	
SERVOPACKS	SGD7W- SGD7C-	1R6A *3, 2R8A *3 1R6A, 2R8A *3			

- *1 A Vibration class of V15 indicates a vibration amplitude of 15 µm maximum on the Servomotor without a load at the rated motor speed.
 *2 The given values are for when the Servomotor shaft is mounted horizontally and shock or vibration is applied in the directions shown in the following figures. The strength of the vibration that the Servomotor can withstand depends on the application. Always check the vibration acceleration rate that is applied to the Servomotor with the actual equipment.



^{*3} If you use a Servomotor together with a Sigma-7W or Sigma-7C SERVOPACK, the control gain may not increase as much as with a Sigma-7S SERVOPACK and other performances may be lower than those achieved with a Sigma-7S SERVOPACK.

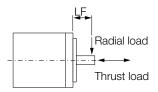
Ratings

		200 V				
	Model SGMMV-	A1A	A2A	АЗА		
Rated Output *1		W	10	20	30	
Rated Torque *1, *2		Nm	0.0318	0.0637	0.0955	
Instantaneous Maximum Torque *1		Nm	0.0955	0.191	0.286	
Rated Current **	1	Α	0.70	0.66	0.98	
Instantaneous M	laximum Current *1	Α	2.0	1.9	2.9	
Rated Motor Sp	eed *1	min ⁻¹	3000			
Maximum Motor	Speed *1	min ⁻¹	6000			
Torque Constant	t	Nm/A	0.0516	0.107	0.107	
Motor Moment of	of Inertia	$\times 10^{-4} \text{ kg} \cdot \text{m}^2$	2.72 4.66 6.68 (4.07) (6.02) (8.04)		6.68 (8.04)	
Rated Power Ra	Rated Power Rate *1		3.72	8.71	13.7	
Rated Angular Acceleration Rate *1		rad/s	117,000	137,000	143,000	
Heat Sink Size (Aluminium) *3		mm	150 × 1	150 × 3 250 × 250 ×		
Protective Structure *4			,	nclosed, self- ept for shaft o		
	Rated Voltage	V		%		
	Capacity	W	2.0		2.6	
	Holding Torque	Nm	0.0318	0.0637	0.0955	
Holding Brake Specifications	Coil Resistance	Ω (at 20 °C)	320	2	21.5	
*5	Rated Current	A (at 20 °C)	0.075	C	.108	
	Time Required to Release Brake	ms	40			
	Time Required to ms		100			
Allowable Load Moment of Inertia (Motor Moment of Inertia Ratio) *6		30 times				
	With External Regenerative Resistor					
	LF	mm		16		
Allowable Shaft Load *7	Allowable Radial Load	N	34		44	
	Allowable Thrust Load	Ν	14.5			

Notes: The values in parentheses are for Servomotors with Holding Brakes.

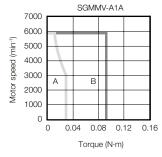
- *1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100°C. These are typical values.
 *2. The rated torques are the continuous allowable torque values with an aluminum or steel heat sink of the dimensions

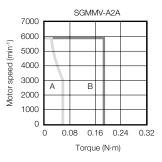
- *2. The rated torques are the continuous allowable torque values with an aluminum or steel heat sink of the dimensions given in the table.
 *3. Refer to the "Servomotor Heat Dissipation Conditions" section for the relation between the heat sinks and derating rate.
 *4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.
 *5. Observe the following precautions if you use a Servomotor with a Holding Brake.
 The holding brake cannot be used to stop the Servomotor.
 The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay time is appropriate for the actual equipment.
 The 24-VDC power supply is not provided by YASKAWA.
 *6. The motor moment of inertia scaling factor is the value for a standard Servomotor without a Holding Brake.
 *7. Design the mechanical system so that the thrust and radial loads applied to the Servomotor shaft end during operation do not exceed the values given in the table.

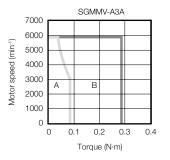


Torque-motor Speed Characteristics

A: Continuous duty zone B: Intermittent duty zone*







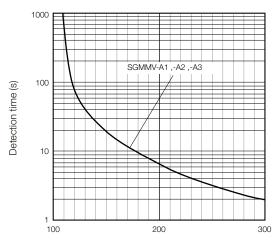
^{*} The characteristics are the same for three-phase 200 V, single-phase 200 V and single-phase 100 V input.

- 1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100 °C. These are typical values.
- 2. The characteristics in the intermittent duty zone depend on the power supply voltage.

 3. If the effective torque is within the allowable range for the rated torque, the Servomotor can be used within the intermittent duty zone.
- 4. If you use a Servomotor Main Circuit Cable that exceeds 20 m, the intermittent duty zone in the torque motor speed characteristics will become smaller because the voltage drop increases.

Servomotor Overload Protection Characteristics

The overload detection level is set for hot start conditions with a Servomotor surrounding air temperature of 40 °C.



Torque reference (percent of rated torque)

The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher. Use the Servomotor so that the effective torque remains within the continuous duty zone given in Torque-Motor Speed Characteristics.

Allowable Load Moment of Inertia

The allowable load moments of inertia (motor moment of inertia ratios) for the Servomotors are given in the Servomotor Ratings section. The values are determined by the regenerative energy processing capacity of the SERVO-PACK and are also affected by the drive conditions of the Servomotor. Perform the required steps for each of the following cases. Use the SigmaSize+ AC Servo Drive Capacity Selection Program to check the driving conditions. Contact your YASKAWA representative for information on this program.

Exceeding the allowable Load Moment of Inertia

Use one of the following measures to adjust the load moment of inertia to within the allowable value.

- Reduce the torque limit.
- Reduce the deceleration rate.
- Reduce the maximum motor speed.

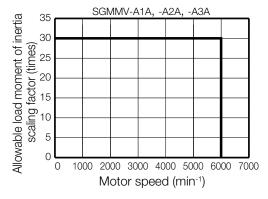
If the above steps are not possible, install an external regenerative resistor.

Information

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). Refer to Built-In Regenerative Resistor section for the regenerative power (W) that can be processed by the SERVOPACKs. Install an External Regenerative Resistor when the built-in regenerative resistor cannot process all of the regenerative power.

SERVOPACKs without built-in Regenerative Resistors

The following graph shows the allowable load moment of inertia scaling factor of the motor speed (reference values for deceleration operation at or above the rated torque). Application is possible without an external regenerative resistor within the allowable value. However, an External Regenerative Resistor is required in the shaded areas of the graphs.



Note: Applicable SERVOPACK models: SGD7S-R90A, -1R6A, -R90F, and -2R1F

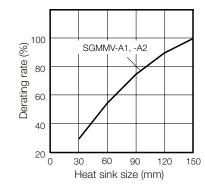
When an external Regenerative Resistor is required

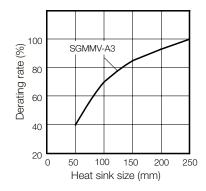
Install the External Regenerative Resistor. Refer to the "External Regenerative Resistors" section for the recommended products.

Derating Rates

Servomotor Heat Dissipation Conditions

The Servomotor ratings are the continuous allowable values when a heat sink is installed on the Servomotor. If the Servomotor is mounted on a small device component, the Servomotor temperature may rise considerably because the surface for heat dissipation becomes smaller. Refer to the following graphs for the relation between the heat sink size and derating rate.







The actual temperature rise depends on how the heat sink (i.e., the Servomotor mounting section) is attached to the installation surface, what material is used for the Servomotor mounting section, and the motor speed. Always check the Servomotor temperature with the actual equipment.

Information

When using Servomotors with derating, change the detection timing of overload warning and overload alarm based on the overload detection level of the motor given in "Servomotor Overload Protection Characteristics".

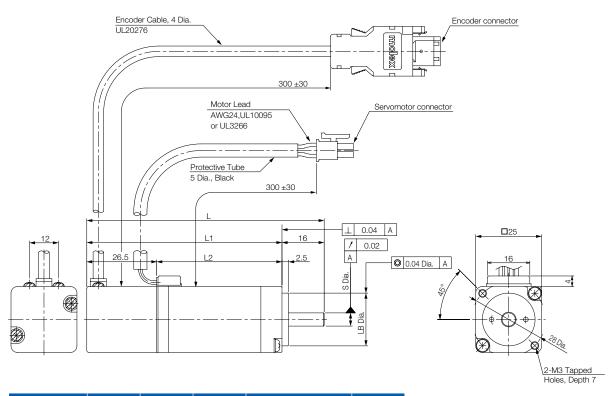
Note

The derating rates are applicable only when the average motor speed is less than or equal to the rated motor speed. If the average motor speed exceeds the rated motor speed, consult with your YASKAWA representative.

External Dimensions

Servomotors without Holding Brakes

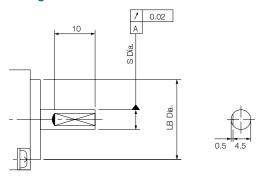
SGMMV-A1, -A2 and -A3



Model SGMMV	L L1		11 12	L2	Flange	Dimensions	Approx.
Woder Salvilviv	_			S	LB	Mass [kg]	
A1A2A□1	70	54	27.5	5	20	0.13	
71712712				-0.0	-0.021		
A2A2A□1	80	64	37.5	5	20	0.17	
/\Z/\Z/\L	00	04	01.0	-0.0		0.17	
A3A2A□1	90	74	47.5	5	200	0.21	
ASAZALI	30	7 4	47.0	-0.0		0.21	

Shaft End Specifications

Straight with Flat Seats



Connector Specifications

Encoder Connector



1	PG5V	Red
2	PG0V	Black
3*	BAT	Orange
4*	BAT0	Orange/ White
5	PS	Light blue
6	/PS	Light blue/ white
Connector Case	FG (frame ground)	Shield
*) A hatton	ie required	only for an

*) A battery is required only for an absolute encoder.

Model: 55102-0600

Manufacturer: Molex Japan LLC Mating Connector: 54280-0609

Servomotor Connector

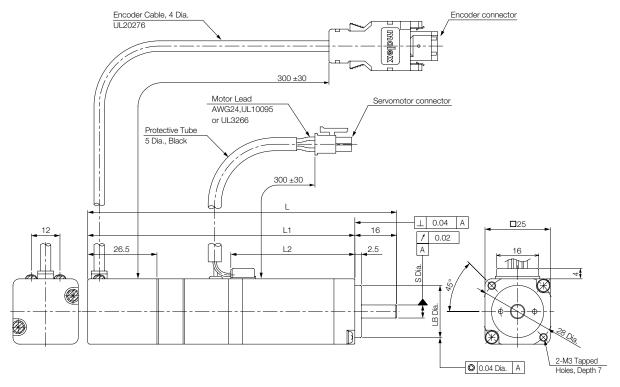


2 Phase V	1	Phase U
O DI \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2	Phase V
3 Phase W	3	Phase W
4 FG (frame ground)	4	FG (frame ground)

Receptacle: 43025-0400 Manufacturer: Molex Japan LLC

Servomotors with Holding Brakes

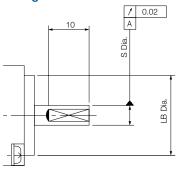
SGMMV-A1, -A2 and -A3



Model SGMMV	L	L1 L2	Flange Dir		mensions	Approx.	
Wodel Scivility		LI	LZ		S	LB	Mass [kg]
A1A2A□C	94.5	78.5	27.5	5	0	200	0.215
7117127120	0 1.0	70.0	21.0	0	-0.008	-0.021	0.210
A2A2A□C	108.5	92.5	37.5	5	0	20	0.27
7127127120	100.0	02.0	01.0	0	-0.008	-0.021	0.21
A3A2A□C	118.5	102.5	47.5	5	0	200	0.31
AUAZALIO	110.0	102.0	47.0	J	-0.008	-0.021	0.01

Shaft End Specifications

Straight with Flat Seats





Connector Specifications

Encoder Connector



1	PG5V	Red
2	PG0V	Black
3*	BAT	Orange
4*	BAT0	Orange/ White
5	PS	Light blue
6	/PS	Light blue/ white
Connector Case	FG (frame ground)	Shield
*\	io roguirod	anly for an

*) A battery is required only for an absolute encoder.

Model: 55102-0600

Manufacturer: Molex Japan LLC Mating Connector: 54280-0609

Servomotor Connector



1	Phase U
2	Phase V
3	Phase W
4	FG (frame ground)
5	Brake
6	Brake

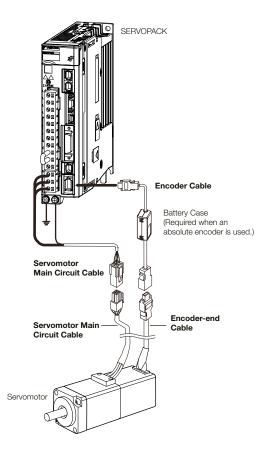
Receptacle: 43025-0600 Manufacturer: Molex Japan LLC

Selecting Cables SGMMV

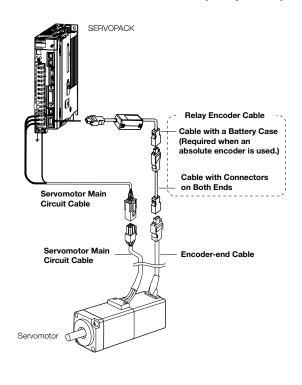
Cable Configurations

The cables shown below are required to connect a Servomotor to a SERVOPACK.

Encoder Cable of 20 m or less



Encoder Cable of 30 m to 50 m (Relay Cable)



- If the Encoder Cable length exceeds 20 m, be sure to use a Relay Encoder Cable.

 If you use a Servomotor Main Circuit Cable that exceeds 20 m, the intermittent duty zone in the torquemotor speed characteristics will become smaller because the voltage drop increases.
- Refer to the following manual for the following information.
 Cable dimensional drawings and cable connection specifications

 - Order numbers and specifications of individual connectors for cables
 Order numbers and specifications for wiring materials: Sigma-7-Series AC Servo Drive Peripheral Device Selection Manual (Manual No.: SIEP S800001 32)

Servomotor Main Circuit Cables

Description	Length	Order I	Number	- Appearance
Description	Lengin	Standard Cable	Flexible Cable*	Арреагансе
	3 m	JZSP-CF1M00-03-E	JZSP-CF1M20-03-E	
	5 m	JZSP-CF1M00-05-E	JZSP-CF1M20-05-E	
	10 m JZSP-CF1M00-10-E JZSP-CF1M20-10-E SERVC	SERVOPACK end Motor end		
For Servomotors without Holding	15 m	JZSP-CF1M00-15-E	JZSP-CF1M20-15-E	
Brakes	20 m	JZSP-CF1M00-20-E	JZSP-CF1M20-20-E	
	30 m	JZSP-CF1M00-30-E	JZSP-CF1M20-30-E	
	40 m	JZSP-CF1M00-40-E	JZSP-CF1M20-40-E	
	50 m	JZSP-CF1M00-50-E	JZSP-CF1M20-50-E	
	3 m	JZSP-CF1M03-03-E	JZSP-CF1M23-03-E	
	5 m	JZSP-CF1M03-05-E	JZSP-CF1M23-05-E	
	10 m	JZSP-CF1M03-10-E	JZSP-CF1M23-10-E	SERVOPACK end Motor end
For Servomotors with Holding	15 m	JZSP-CF1M03-15-E	JZSP-CF1M23-15-E	
Brakes	20 m	JZSP-CF1M03-20-E	JZSP-CF1M23-20-E	
	30 m	JZSP-CF1M03-30-E	JZSP-CF1M23-30-E	Sea. It
	40 m	JZSP-CF1M03-40-E	JZSP-CF1M23-40-E	
	50 m	JZSP-CF1M03-50-E	JZSP-CF1M23-50-E	

^{*} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.

Encoder Cables of 20 m or less

Description	Length	Order N	Number	- Appearance					
Description	Lengui	Standard Cable	Flexible Cable*	Appearance					
	3 m	JZSP-CMP00-03-E	JZSP-CMP10-03-E	OFFIVORACIÓ IL ESTADA					
Cables with Connectors	5 m	JZSP-CMP00-05-E	JZSP-CMP10-05-E	SERVOPACK end Encoder end					
on Both Ends (for incremental encoder)	10 m	JZSP-CMP00-10-E	JZSP-CMP10-10-E						
	15 m	JZSP-CMP00-15-E	JZSP-CMP10-15-E						
	20 m	JZSP-CMP00-20-E	JZSP-CMP10-20-E						
	3 m	JZSP-CSP19-03-E	JZSP-CSP29-03-E	SERVOPACK end Encoder end					
Cables with Connectors	5 m	JZSP-CSP19-05-E	JZSP-CSP29-05-E						
on Both Ends (for absolute encoder: With Battery Case)	10 m	JZSP-CSP19-10-E	JZSP-CSP29-10-E						
	15 m	JZSP-CSP19-15-E	JZSP-CSP29-15-E	Battery Case (battery included)					
	20 m	JZSP-CSP19-20-E	JZSP-CSP29-20-E	(battery irrolluded)					

 $^{^{\}star}$ Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.

Encoder Extension Cables of 30 m to 50 m

Description	Length	Order Number	Appearance
Cables with Connectors	30 m	JZSP-UCMP00-30-E	SERVOPACK Encoder end end
on Both Ends (for	40 m	JZSP-UCMP00-40-E	
incremental or absolute encoder)	50 m	JZSP-UCMP00-50-E	
Cable with a Battery Case (Required when an absolute encoder is used.)*	0.3 m	JZSP-CSP12-E	SERVOPACK Encoder end end Battery Case (battery included)

Note: Encoder Extension cables can only be used together with suitable Encoder Cables. * This Cable is not required if a battery is connected to the host controller.

SGM7A

Model Designations

SGM7A

Sigma-7 series Servomotors: SGM7A

-	01	Α	7	Α	
			_		
	1st + 2nd	3rd	4th	5th	

	Tot I Elia Sia III	
1st + 2	nd digit - Rated output	
Code	Specification	
A5	50 W	
01	100 W	
C2	150 W	
02	200 W	
04	400 W	
06	600 W	
08	750 kW	
10	1.0 kW	
15	1.5 kW	
20	2.0 kW	
30	3.0 kW	
40	4.0 kW	
50	5.0 kW	
70	7.0 kW	

	our run digit
3rd di	git - Power supply voltage
Code	Specification
Α	200 VAC
4th die	git - Serial encoder
Code	Specification
6	24-bit batteryless absolute
7	24-bit absolute
F	24-bit incremental
5th dig	git - Design revision order
Code	Specification
Α	Standard model

1

6th dig	jit - Shaft end
Code	Specification
2	Straight without key
6	Straight with key and tap
B*	With two flat seats
	is not supported for models with a rate of 1.5 kW or higher.
7th dig	jit - Options
Code	Specification
1	Without options
C*	With holding brake (24 VDC)

With oil seal and holding brake (24 VDC)

S With oil seal

Note: Readily available up to 1.5 kW. Others available on request.

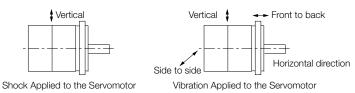
Specifications and Ratings

Specifications

	Vol	tage	200 V											
Model SGM7A-			A5A	01A	C2A, 02A	04A	06A. 08A	10A, 15A	20A	25A, 30A	40A, 50A	70A		
Time Rating			Continuo	Continuous										
Thermal Class			Models A5A to 10A: B; Models 15A to 70A: F											
Insulation Resis	stance		500 VDC, 10 MOhm min.											
Withstand Volta	age		1,500 VA	1,500 VAC for 1 minute										
Excitation			Permane	Permanent magnet										
Mounting			Flange m	nounted										
Drive Method Direct drive														
Rotation Directi	ion Direction Counterclockwise (CCW) for forward reference when viewed from the load side								ide					
Vibration Class	/ibration Class*1 V15													
	Surroun	ding Air Temperature	0 °C to 40 °C (With derating, usage is possible between 40 °C and 60 °C)*3											
	Surroun	ding Air Humidity	20% to 80% relative humidity (non-condensing)											
Environmental Conditions	Installati	on Site	Must faMust h1,000	 Must be well-ventilated and free of dust and moisture. Must facilitate inspection and cleaning. Must have an altitude of 1,000 m or less. (With derating, usage is possible between 1,000 m and 2,000 m.)*3 Must be free of strong magnetic fields. 										
	Storage	Environment	 Store the Servomotor in the following environment if you store it with the power cable disconnected. Storage Temperature: -20 °C to 60 °C (with no freezing) Storage Humidity: 20% to 80% relative humidity (non-condensing) 											
Shock	Impact A Flange	Acceleration Rate at	490 m/s	490 m/s ²										
Resistance*2	Number	of Impacts	2 times											
Vibration Resistance*2	Vibration Flange	Acceleration Rate at	49 m/s²	49 m/s² (Models 15A to 50A: 24.5 m/s² front to back) 14.7 m/s²										
Applicable		SGD7S-	R70A, R70F	R90A, R90F	1R6A, 2R1F	2R8A, 2R8F	5R5A	120A	180A	200A	330A	550A		
SERVOPACKS	SGD7W- SGD7C-		1R6A*4	2R8A*4	1R6A, 2R8A*4	2R8A, 5R5A*4, 7R6A*4	5R5A, 7R6A			-				

Note: Readily available up to 1.5 kW. Others available on request.

- *1 A Vibration class of V15 indicates a vibration amplitude of 15 µm maximum on the Servomotor without a load at the rated motor speed.
- *2 The given values are for when the Servomotor shaft is mounted horizontally and shock or vibration is applied in the directions shown in the following figures. The strength of the vibration that the Servomotor can withstand depends on the application. Always check the vibration acceleration rate that is applied to the Servomotor with the actual equipment.



- *3 Refer to the Derating Rates section.
- *4 If you use a Servomotor together with a Sigma-7W or Sigma-7C SERVOPACK, the control gain may not increase as much as with a Sigma-7S SERVOPACK and other performances may be lower than those achieved with a Sigma-7S SERVOPACK.

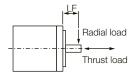
Ratings

	Voltage		200 V										
	Model SGM7A-		A5A	01A	C2A	02A	04A	06A	08A	10A			
Rated Output *		W	50	100	150	200	400	600	750	1,000			
Rated Torque *-	, *2	Nm	0.159	0.318	0.477	0.637	1.27	1.91	2.39	3.18			
Instantaneous Maximum Torque *1 Nm		Nm	0.557	1.11	1.67	2.23	4.46	6.69	8.36	11.1			
Rated Current *	1	А	0.57	0.89	1.5	1.5	2.4	4.5	4.4	6.4			
Instantaneous Maximum Current *1 A			2.1	3.2	5.6	5.9	9.3	16.9	16.8	23.2			
Rated Motor Speed *1 min ⁻¹						30	00						
Maximum Moto	r Speed	min ⁻¹	6000										
Torque Constan	t	Nm/A	0.307	0.387	0.335	0.461	0.582	0.461	0.590	0.547			
Motor Moment	of Inertia	×10 ⁻⁴ kg⋅m ²	0.0217 (0.0297)	0.0337 (0.0417)	0.0458 (0.0538)	0.139 (0.209)	0.216 (0.286)	0.315 (0.385)	0.775 (0.955)	0.971 (1.15)			
Rated Power Ra	ate *1	kW/s	11.7 (8.51)	30.0 (24.2)	49.7 (42.2)	29.2 (19.4)	74.7 (56.3)	115 (94.7)	73.7 (59.8)	104 (87.9)			
Rated Angular Acceleration Rate *1		rad/s	73,200 (53,500)	94,300 (76,200)	104,000 (88,600)	45,800 (30,400)	58,700 (44,400)	60,600 (49,600)	30,800 (25,000)	32,700 (27,600)			
Derating Rate for Servomotor with Oil %			80	80 90				95					
Heat Sink Size	Heat Sink Size (Aluminium) mm		200 × 200 × 6			$250 \times 250 \times 6$ $300 \times 300 \times 12^{*7}$			250 × 250 × 6	300 × 300 × 12			
Protective Struc	ture *3		Totally enclosed, self-cooled, IP67										
	Rated Voltage	V				24 VD0	C±10%						
	Capacity	W		5.5		(6		6.5				
	Holding Torque	Nm	0.159	0.318	0.477	0.637	1.27	1.91	2.39	3.18			
Holding Brake Specifications	Coil Resistance	Ω (at 20 °C)		104.8±10%		96±	10%		88.6±10%				
*4	Rated Current	A (at 20 °C)		0.23		0	25		0.27				
	Time Required to Release Brake	ms			60				80				
	Time Required to Brake	ms				10	00						
Allowable Load (Motor Moment	,			40 times		30 times	20 t	imes	20 t	imes			
With External Regenerative Resistor and Dynamic Brake Resistor			40 times			oo times	20 (63	30 times				
	LF mm		20				25		3	35			
Allowable Shaft Load *5	Allowable Radial Load	Ν		78			245		39	92			
	Allowable Thrust Load	Ν		54			74		147				

Note: Readily available up to 1.5 kW. Others available on request.

Notes:

- *1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100°C.
 - The values for other items are at 20°C. These are typical values
- *2. The rated torques are the continuous allowable torque values at a surrounding air temperature of 40°C with an aluminum heat sink of the dimensions given in the table.
- *3. Refer to the Servomotor Heat Dissipation Conditions section for the relation between the heat sinks and derating rate.
- *4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.
- *5. Observe the following precautions if you use a Servomotor with a Holding Brake.
 - The holding brake cannot be used to stop the Servomotor.
 - The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay time is appropriate for the actual equipment.
 - The 24-VDC power supply is not provided by YASKAWA.
- *6. The motor moment of inertia scaling factor is the value for a standard Servomotor without a Holding Brake.
- *7. To externally connect a dynamic brake resistor, select hardware option specification 020 for the SERVOPACK. However, you cannot externally connect a dynamic brake resistor if you use the following SERVOPACKs (maximum applicable motor capacity: 400 W).
 - SGD7S-R70□□□A020 to -2R8□□□A020
 - SGD7W-1R6A20A020 to -2R8A20A020
 - SGD7C-1R6AMAA020 to -2R8AMAA020
- *8. Design the mechanical system so that the thrust and radial loads applied to the Servomotor shaft end during operation do not exceed the values given in the table.



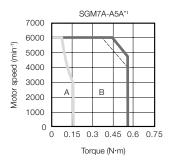
^{*9.} If the heat sink is 250 mm × 250 mm × 6 mm, the rated output is 550 W and the rated torque is 1.75 N·m. Refer to the Servomotor Heat Dissipation Conditions section for details.

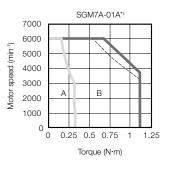
Torque-Motor Speed Characteristics

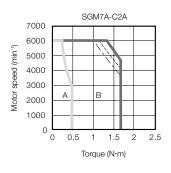
A: Continuous duty zone (solid lines): With three-phase 200-V or single-phase 230-V input

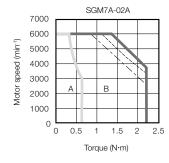
(dotted lines): With single-phase 200-V input B: Intermittent duty zone

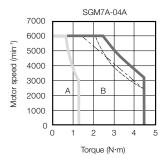
(dashed-dotted lines): With single-phase 100-V input

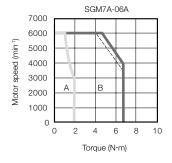


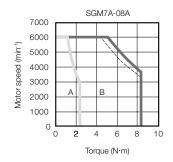


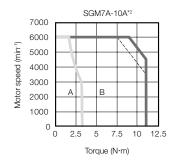












^{*} The characteristics are the same for three-phase 200 V and single-phase 200 V. A single-phase power input can be used in combination with the SGD7S-120A□□A008.

Notes:

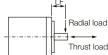
- These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100 °C. These are typical values.
- The characteristics in the intermittent duty zone depend on the power supply voltage.
- If the effective torque is within the allowable range for the rated torque, the Servomotor can be used within the intermittent duty zone.
- If you use a Servomotor Motor Power Cable that exceeds 20 m, the intermittent duty zone in the torquemotor speed characteristics will become smaller because the voltage drop increases.

Ratings continued

	Model SGM7A-		15A	20A	25A	30A	70A						
Rated Output *1		kW	1.5	2.0	2.5	3.0	4.0	5.0	7.0				
Rated Torque *1,	*2	Nm	4.90	6.36	7.96	9.80	12.6	15.8	22.3				
Instantaneous M	aximum Torque *1	Nm	14.7	19.1	23.9	29.4	37.8	47.6	54.0				
Rated Current *1		А	9.3 12.1 15.6		15.6	17.9	25.4	27.6	38.3				
Instantaneous M	aximum Current *1	А	28	42	51	56	77	84	105				
Rated Motor Spe	eed *1	min ⁻¹		3,000									
Maximum Motor	Speed *1	min ⁻¹		6,000 ^{*9}									
Torque Constant		Nm/A	0.590	0.561	0.538	0.582	0.519	0.604	0.604				
Motor Moment o	f Inertia		2.00	2.47	3.19	7.00	9.60	12.3	12.3				
	olding brake	×10 ⁻⁴ kg⋅m ²	2.25	2.72	3.44	9.20	11.8	14.5	-				
with ba	atteryless absolute er		2.00 2.47 3. 120 164 18 106 148 18 24,500 25,700 24,		3.19	7.00	7.00 9.60 1		12.3				
Rated Power Ra	te *1	kW/s	120	164	199	137	165	203	404				
with ho	olding brake	KVV/S	106	148	184	104	134	172	-				
Rated Angular A	cceleration Rate *1	40 d /o2	24,500	25,700	24,900	14,000	13,100	12,800	18,100				
with ho	olding brake	rad/s ²	21,700	23,300	23,100	10,600	10,600	10,800	-				
Heat Sink Size*3		mm		300 × 300 × 12	2								
Protective Struct	ture* ⁴				Totally enclosed, separately cooled (with fan), IP22								
	Rated Voltage	V			24 VDC	+10%							
	Capacity	W		12									
	Holding Torque	Nm	7.	84	10								
Holding Brake	Coil Resistance	Ω (at 20 °C)		48			59						
Specifications *5	Rated Current	A (at 20 °C)		0.5			0.41		_				
	Time Required to Release Brake	ms		170			100						
	Time Required to Brake	ms			8	0							
(Motor Moment of				10 times			5 tii	mes					
With External Regenerative Resistor and Dynamic Brake Resistor* ⁷				20 times		15 times							
	LF mm			45			6	3					
Allowable Shaft Load *8	Allowable Radial Load	Ν		686		980							
	Allowable Thrust Load	Ν		196			39	92					

Note: Readily available up to 1.5 kW. Others available on request.

- *1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100 °C. The values for other items are at 20 °C. These are typical values.
- *2. The rated torques are the continuous allowable torque values at a surrounding air temperature of 40 °C with an aluminum heat sink of the dimensions given in the table.
- *3. Refer to the Servomotor Heat Dissipation Conditions section for the relation between the heat sinks and derating rate.
- *4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.
- *5. Observe the following precautions if you use a Servomotor with a Holding Brake.
 - The holding brake cannot be used to stop the Servomotor.
 - The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay time is appropriate for the actual equipment.
 - The 24-VDC power supply is not provided by YASKAWA.
- *6. The motor moment of inertia scaling factor is the value for a standard Servomotor without a Holding Brake.
- *7. To externally connect a dynamic brake resistor, select hardware option specification 020 for the SERVOPACK. However, you cannot externally connect a dynamic brake resistor if you use the following SERVOPACKs (maximum applicable motor capacity: 400 W).
 - SGD7S-R70□□□A020 to -2R8□□□A020
 - SGD7W-1R6A20A020 to -2R8A20A020
 - SGD7C-1R6AMAA020 to -2R8AMAA020
- *8. Design the mechanical system so that the thrust and radial loads applied to the Servomotor shaft end during operation do not exceed the values given in the table. LF.



*9. For the SGM7A-25A or SGM7A-50A, the maximum motor speed for the continuous duty zone is 5,000 min⁻¹. Use the Servomotor within the continuous duty zone for the average motor speed and effective torque.

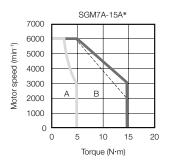
Torque-Motor Speed Characteristics

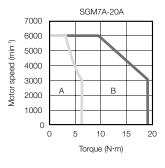
A : Continuous duty zone

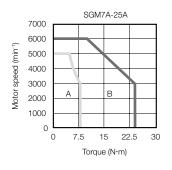
(solid lines): With three-phase 200-V or single-phase 230-V input

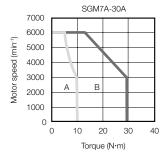
B: Intermittent duty zone ----- (dotte

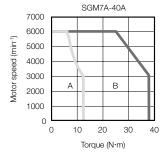
(dotted lines): With single-phase 200-V input

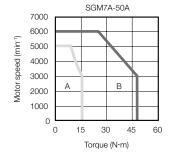


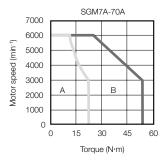








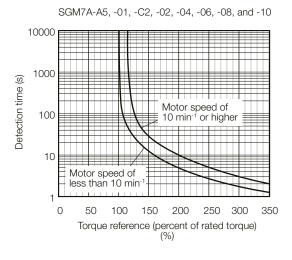


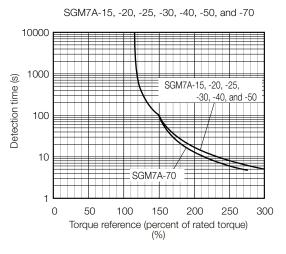


- * A single-phase power input can be used in combination with the SGD7S-120A□□A008.
- 1 These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 20 °C. These are typical values.
- 2 The characteristics in the intermittent duty zone depend on the power supply voltage.
- 3 If the effective torque is within the allowable range for the rated torque, the Servomotor can be used within the intermittent duty zone.
- 4 If you use a Servomotor Motor Power Cable that exceeds 20 m, the intermittent duty zone in the torquemotor speed characteristics will become smaller because the voltage drop increases.

Servomotor Overload Protection Characteristics

The overload detection level is set for hot start conditions with a Servomotor surrounding air temperature of 40 °C.





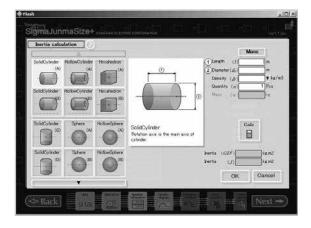
Note:

The above overload characteristics does not give permission to perform continuous duty operation with an output of 100% or higher. Use the Servomotor so that the effective torque remains within the continuous duty zone given in Torque-Motor Speed Characteristics.

Allowable Load Moment of Inertia

The load moment of inertia indicates the inertia of the load. The larger the load moment of inertia, the worse the response. If the moment of inertia is too large, operation will become unstable.

Refer to Servomotor Ratings. This value is provided strictly as a guideline and results depend on Servomotor driving conditions. Use the SigmaJunmaSize+ AC Servo Drive Capacity Selection Program to check the driving conditions. Contact your YASKAWA representative for information on this program.



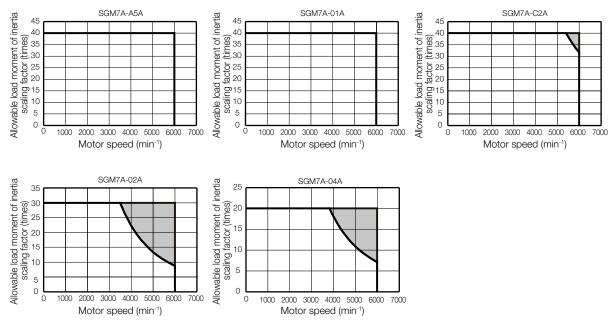
An Overvoltage Alarm (A.400) is likely to occur during deceleration if the load moment of inertia exceeds the allowable load moment of inertia. SERVOPACKs with a built-in regenerative resistor may generate a Regenerative Overload Alarm (A.320). Perform one of the following steps if this occurs.

- Reduce the torque limit.
- Reduce the deceleration rate.
- Reduce the maximum motor speed.
- Install an External Regenerative Resistor if the alarm cannot be cleared using the above steps.

Regenerative resistors are not built into SERVOPACKs for 400-W Servomotors or smaller Servomotors. Even for SERVO-PACKs with built-in regenerative resistors, an External Regenerative Resistor is required if the energy that results from the regenerative driving conditions exceeds the allowable loss capacity (W) of the built-in regenerative resistor.

SERVOPACKs without built-in Regenative Resistors

The following graph shows the allowable load moment of inertia scaling factor of the motor speed (reference values for deceleration operation at or above the rated torque). Application is possible without an external regenerative resistor within the allowable value. However, an External Regenerative Resistor is required in the shaded areas of the graphs.



 $Note: Applicable \ SERVOPACK \ models: \ SGD7S-R70A, \ -R90A, \ -1R6A, \ -2R8A, \ -R70F, \ -R90F, \ -2R1F, \ and \ -2R8F, \ -R90F, \ -R9$

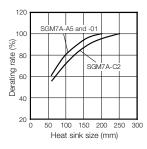
When an External Regenerative Resistor Is Required

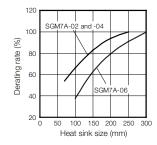
Install the External Regenerative Resistor. Refer to the External Regenerative Resistors section for the recommended products.

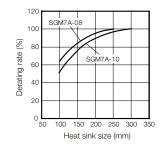
Derating Rates

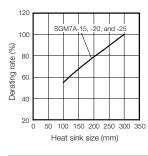
Servomotor Heat Dissipation Conditions

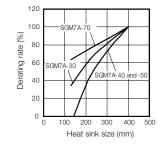
The Servomotor ratings are the continuous allowable values at a surrounding air temperature of 40°C when a heat sink is installed on the Servomotor. If the Servomotor is mounted on a small device component, the Servomotor temperature may rise considerably because the surface for heat dissipation becomes smaller. Refer to the following graphs for the relation between the heat sink size and derating rate.









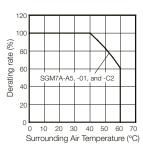


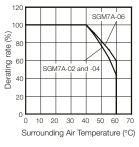


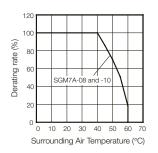
The actual temperature rise depends on how the heat sink (i.e., the Servomotor mounting section) is attached to the installation surface, what material is used for the Servomotor mounting section, and the motor speed. Always check the Servomotor temperature with the actual equipment.

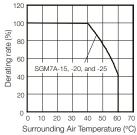
Applications Where the Surrounding Air Temperature Exceeds 40°C

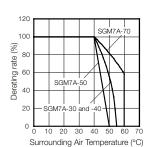
The Servomotor ratings are the continuous allowable values at a surrounding air temperature of 40°C. If you use a Servomotor at a surrounding air temperature that exceeds 40°C (60°C max.), apply a suitable derating rate from the following graphs.







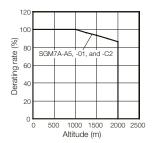


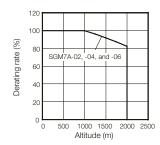


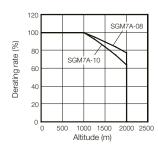
Rotary Servomotors SGM7A

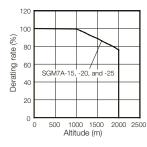
Applications Where the Altitude Exceeds 1,000 m

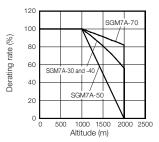
The Servomotor ratings are the continuous allowable values at an altitude of 1,000 m or less. If you use a Servomotor at an altitude that exceeds 1,000 m (2,000 m max.), the heat dissipation effect of the air is reduced. Apply the appropriate derating rate from the following graphs.











Information

When using Servomotors with derating, change the detection timing of overload warning and overload alarm based on the overload detection level of the motor given in "Servomotor Overload Protection Characteristics".

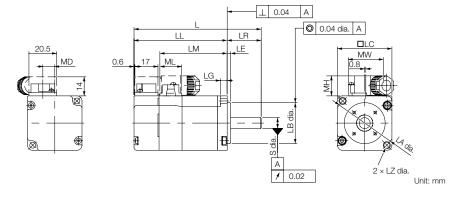
Note

- Use the combination of the SERVOPACK and Servomotor so that the derating conditions are satisfied for both the SERVOPACK and Servomotor.
- 2. The derating rates are applicable only when the average motor speed is less than or equal to the rated motor speed. If the average motor speed exceeds the rated motor speed, consult with your Yaskawa representative.

External Dimensions

Servomotors

SGM7A-A5, -01, -C2



Model SMG7A	L*	LL*	LM			Flang	e Dime	nsions			s	MD	NAVA/	МП	ML	Approx.
Wodel SWG/A			LIVI	LR	LE	LG	LC	LA	LB	LZ		IVID	IVIVV	IVIII		Mass [kg]
A5A□A2□	81.5 (122)	56.5 (97)	37.9	25	2.5	5	40	46	30 ⁰ -0.021	4.3	8-0.009	8.8	25.8	14.7	16.1	0.3 (0.6)
01A□A2□	93.5 (134)	68.5 (109)	49.9	25	2.5	5	40	46	30 -0.021	4.3	8-0.009	8.8	25.8	14.7	16.1	0.4 (0.7)
C2A□A2□	105.5 (153.5)	80.5 (128.5)	61.9	25	2.5	5	40	46	30 -0.021	4.3	8-0.009	8.8	25.8	14.7	16.1	0.5 (0.8)

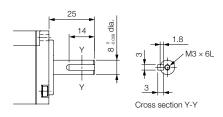
^{*} For models that have a batteryless absolute encoder, L and LL are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

Notes:

- 1 The values in parentheses are for Servomotors with Holding Brakes.
- 2The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap

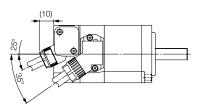


Specification of Options

Oil Seal

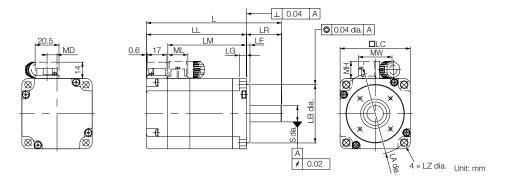


With Two Flat Seats



Rotary Servomotors SGM7A

SGM7A-02, -04 and -06



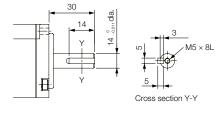
Model SMG7A	L*	LL*	LM	Flange Dimensions							s	MD	MW	МП	MI	Approx.
Wodel SWG/A	_	LL.	LIVI	LR	LE	LG	LC	LA	LB	LZ	3	IVID	IVIVV	IVITI	IVIL	Mass [kg]
02A□A2□	99.5 (140)	69.5 (110)	51.2	30	3	6	60	70	50 ⁰ -0.025	5.5	14 -0.011	8.5	28.7	14.7	17.1	0.8 (1.4)
04A□A2□	115.5 (156)	85.5 (126)	67.2	30	3	6	60	70	50 ⁰ -0.025	5.5	14 -0.011	8.5	28.7	14.7	17.1	1.2 (1.8)
06A□A2□	137.5 (191.5)	107.5 (161.5)	89.2	30	3	6	60	70	50 -0.025	5.5	14 -0.011	8.5	28.7	14.7	17.1	1.6 (2.2)

^{*} For models that have a batteryless absolute encoder, L and LL are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

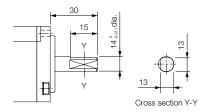
- 1 The values in parentheses are for Servomotors with Holding Brakes.
 2 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap

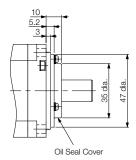


With Two Flat Seats

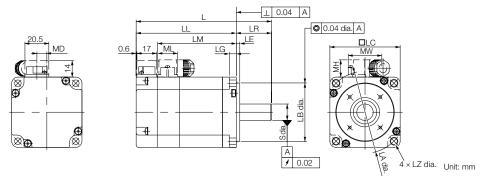


Specification of Options

Oil Seal



SGM7A-08 and -10



Model SMG7A	1*	LL*	LM	Flange Dimensions							s	MD	NAVA/	мн	MI	Approx. Mass [kg]
Wodel SWG/A	_		LIVI	LR	LE	LG	LC	LA	LB	LZ	3		IVIVV	14111	IVIL	Mass [kg]
08A□A2□	137 (184)	97 (144)	78.5	40	3	8	80	90	70 0 -0.030	7	19 -0.013	13.6	38	14.7	19.3	2.3 (2.9)
10A□A2□	162 (209)	122 (169)	103.5	40	3	8	80	90	70 -0.030	7	19 -0.013	13.6	38	14.7	19.3	3.1 (3.7)

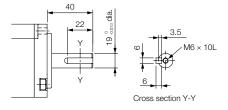
^{*} For models that have a batteryless absolute encoder, L and LL are 8 mm greater and the approximate mass is 0.1 kg greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

Notes:

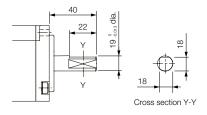
- 1. The values in parentheses are for Servomotors with Holding Brakes.
- 2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap

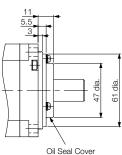


With Two Flat Seats



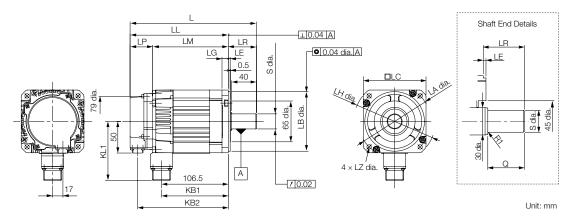
Specification of Options

Oil Seal



Servomotors without Holding Brakes

SGM7A-15, -20, and -25



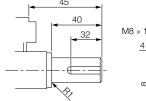
Model SGM7A-	L*	LL*	LM	LP	LR	KB1	KB2*	KL1 Flange Dimensions						Shaft E Dimensi	Approx. Mass[kg]			
SGIVITA-									LA	LB	LC	LE	LG	LH	LZ	S	Q	Massikgi
15A□ A21	202	157	121	36	45	107	145	94	115	95 ⁰ -0.035	100	3	10	130	7	24 ⁰ -0.013	40	4.6
20A□A21	218	173	137	36	45	123	161	94	115	95 _{-0.035}	100	3	10	130	7	24 ⁰ -0.013	40	5.4
25A□ A21	241	196	160	36	45	146	184	94	115	95 ⁰ -0.035	100	3	10	130	7	24 ⁰ -0.013	40	6.8

^{*} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

- 1 The values in parentheses are for Servomotors with Holding Brakes.
 2 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

 * A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D Applicable plug: Not provided by Yaskawa.
Plug: CM10-AP10S-□-D for Right-angle Plug
CM10-SP10S-□-D for Straight Plug (☐ depends on the applicable cable size.)

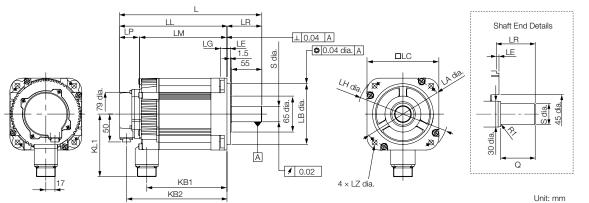
Manufacturer: DDK Ltd.

Servomotor Connector



Α	Phase U	С	Phase W
В	Phase V	D	FG (frame ground)
Manufacture	r: DDK Ltd.		

SGM7A-30, -40, and -50



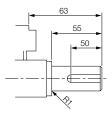
Model SGM7A-	L*	LL*	LM	LP	LR	KB1	KB2*	KL1	KL1 Flange Dimensions						Shaft E Dimensi		Approx. Mass[kg]	
SGWI/A-									LA	LB	LC	LE	LG	LH	LZ	S	Q	Massikgi
30A□ A21	257	194	158	36	63					110 0 -0.035				165		28 ⁰ -0.013	55	10.5
40A□A21	296	233	197							110 0 -0.035						28 ⁰ -0.013	55	13.5
50A□ A21	336	273	237	36	63	224	261	114	145	110 0 -0.035	130	6	12	165	9	82 ⁰ -0.013	55	16.5

^{*} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models

- 1 The values in parentheses are for Servomotors with Holding Brakes.
 2 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame
O	D/ (1 ()	10	ground)

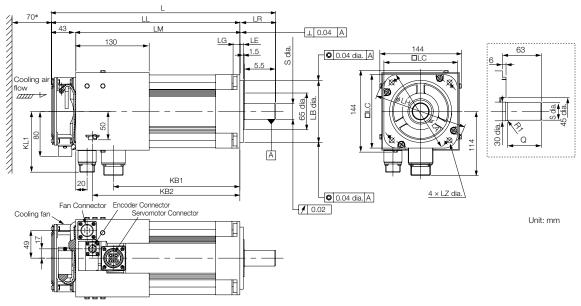
* A battery is required only for an absolute encoder. A battery is required only for an absolute enco Receptacle: CM10-R10P-D Applicable plug: Not provided by Yaskawa. Plug: CM10-AP10S-D-D for Right-angle Plug CM10-SP10S-D-D for Straight Plug (depends on the applicable cable size.) Manufacturer: DDK Ltd.

Servomotor Connector



А	Phase U	С	Phase W
В	Phase V	D	FG (frame ground)
Manufacture	er: DDK Ltd.		

SGM7A-70



^{*} Leave a minimum space of 70 mm around the Servomotor from walls and other equipment to allow for a sufficient amount of cooling air.

Model SGM7A-	L	LL	LM	LR	KB1	KB2*	KL1	KL1 Flange Dimensions						Shaft I Dimens		Approx. Mass[kg]	
								LA	LB	LC	LE	LG	LH	LZ	S	Q	Massing
70A□ A21	397	334	291	63	224	261	108	145	110 ⁰ -0.035	130	6	12	165	9	28 ⁰ -0.013	55	18.5

^{*} For models that have a batteryless absolute encoder, KB2 are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

- 1 The values in parentheses are for Servomotors with Holding Brakes
- 2 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Cooling Fan Specifications

Single-phase, 200 V 50/60 Hz 17/15 W 0.11/0.09 A

Specifications of Fan Operation **Error Detector**

Contact Capacity

Maximum allowable voltage: 350 V (AC/DC) Maximum allowable current: 120 mA (AC/DC)

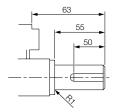
Maximum controllable power: 360 mW

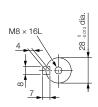
Alarm Contacts

ON for normal fan rotation. OFF at 1.680 ± 100 min-1 max. OFF for 3 seconds at startup.

Shaft End Specifications

Straight with Key and Tap





Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame around)
			arouna

 * A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D

Applicable plug: Not provided by Yaskawa.

Plug: CM10-AP10S-U-D for Right-angle Plug
CM10-SP10S-U-D for Straight Plug
(depends on the applicable cable size.)

Servomotor Connector



А	Phase U	С	Phase W
В	Phase V	D	FG (frame ground)
Manufacture	or: DDK Ltd		

Fan Connector



Α	Fan motor	D	Alarm pin
В	Fan motor	Е	Alarm pin
С	-	F	FG (frame ground)

Receptacle: MS3102A14S-6P

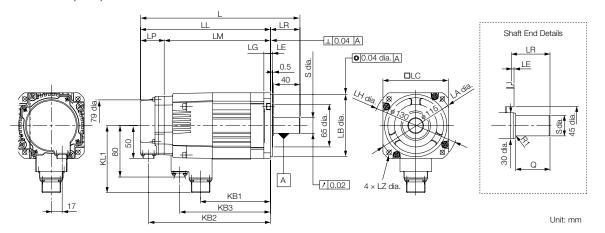
Applicable Plug (Available from Yaskawa Controls Co., Ltd.) Plug: MS3108B14S-6S

Cable Clamp: MS3057-6A

Note: The Servomotor Connector (receptacle) is RoHS compliant.Contact the connector manufacturer for RoHS-compliant cable-side connectors (not provided by Yaskawa).

Servomotors with Holding Brakes

SGM7A-15, -20, and -25



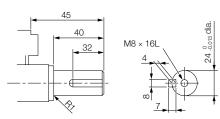
Model SGM7A-	L*	LL*	LM	LP	LR	KB1	KB2*	KB3	KL1		Fla	ınge [Dimen	sions			Shaft E Dimensi		Approx. Mass[kg]
3GWIA-										LA	LB	LC	LE	LG	LH	LZ	S	Q	iviass[kg]
15A□ A2C	243	198	162	36	45	107	186	139	102	115	95 ⁰ -0.035	100	3	10	130	7	24 ⁰ -0.013	40	6.0
20A□A2C	259	214	178	36	45	123	202	155	102	115	95 _{-0.035}	100	3	10	130	7	24 ⁰ _{-0.013}	40	6.8
25A 🗆 A2C	292	247	211	36	45	156	235	188	102	115	95 ⁰ _{-0.035}	100	3	10	130	7	24 ⁰ _{-0.013}	40	8.7

^{*} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

- The values in parentheses are for Servomotors with Holding Brakes.
- 2 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap



Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

* A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D Applicable plug: Not provided by Yaskawa. Plug: CM10-AP10S-II-D for Right-angle Plug CM10-SP10S-II-D for Straight Plug (☐ depends on the applicable cable size.)

Manufacturer: DDK Ltd.

Servomotor Connector



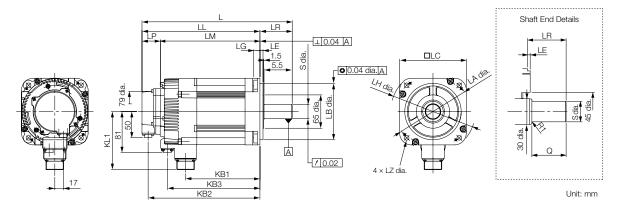
Brake Connector



1	Brake terminal
2	Brake terminal

Note: There is no voltage polarity for the brake terminals. Receptacle: CM10-R10P-D Applicable plug: Not provided by Yaskawa. Plug: CM10-AP2S-□-D for Right-angle Plug CM10-SP2S-□-D for Straight Plug (□ depends on the applicable cable size.) Manufacturer: DDK Ltd.

SGM7A-30, -40, and -50



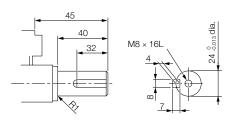
Model SGM7A-	L*	LL*	LM	LP	LR	KB1	KB2*	KB3	KL1		Fla	ınge [Dimen	sions			Shaft E Dimensi		Approx. Mass[kg]
Julii A-										LA	LB	LC	LE	LG	LH	LZ	S	Q	Massingi
30A□ A2C	293	232	196			145	220				110 0 -0.035						28 ⁰ _{-0.013}	55	13
40A□A2C	332	269	233	36	63	184	257	220	119	145	110 0 -0.035	130	6	12	165	9	28 ⁰ _{-0.013}	55	16
50A□A2C	372	309	273	36	63	224	297	260	119	145	110 0 -0.035	130	6	12	165	9	28 ⁰ -0.013	55	19

^{*} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the Dimensions of Servomotors with Batteryless Absolute Encoders section for the values for individual models.

1 The values in parentheses are for Servomotors with Holding Brakes.
2 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap



Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

 * A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D Applicable plug: Not provided by Yaskawa.
Plug: CM10-AP10S-D-D for Right-angle Plug
CM10-SP10S-D-D for Straight Plug
(D depends on the applicable cable size.)

Manufacturer: DDK Ltd.

Servomotor Connector



А	Phase U	С	Phase W
В	Phase V	D	FG (frame ground)
Manufacture	r: DDK Ltd.		

Brake Connector



1	Brake terminal
2	Brake terminal

Note: There is no voltage polarity for the brake terminals. Receptacle: CM10-R10P-D

Applicable plug: Not provided by Yaskawa.
Plug: CM10-AP2S-□-D for Right-angle Plug
CM10-SP2S-□-D for Straight Plug

(☐ depends on the applicable cable size.) Manufacturer: DDK Ltd.

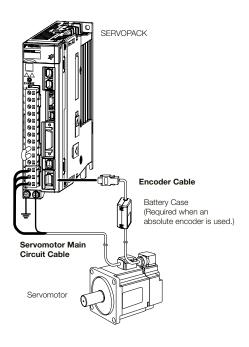
Selecting Cables SGM7A

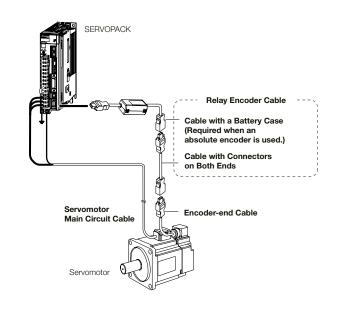
Cable Configurations

The cables shown below are required to connect a Servomotor to a SERVOPACK.

Encoder Cable of 20 m or less

Encoder Cable of 30 m to 50 m (Relay Cable)





Note:

- Cables with connectors on both ends that are compliant with an IP67 protective structure and European Safety Standards are not available from YASKAWA for the SGM7A-15A to SGM7A-70A Servomotors. You must make such a cable yourself. Use the Connectors specified by YASKAWA for these Servomotors. (These Connectors are compliant with the
- standards.) YASKAWA does not specify what wiring materials to use.

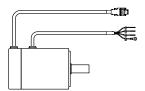
 If the Encoder Cable length exceeds 20 m, be sure to use a Relay Encoder Cable.

 If you use a Servomotor Motor Power Cable that exceeds 20 m, the intermittent duty zone in the torquemotor speed characteristics will become smaller because the voltage drop increases.
- Refer to the following manual for the following information.
- Cable dimensional drawings and cable connection specifications
 Order numbers and specifications of individual connectors for cables
- Order numbers and specifications for wiring materials Sigma-7-Series AC Servo Drive Peripheral Device Selection Manual (Manual No.: SIEP S800001 32)



For the SGM7A-A5 to -10, there are different order numbers for the Servomotor Motor Power Cables and Encoder Cables depending on the cable installation direction. Confirm the order numbers before you order.

Cable installed towards Load



Cable installed away from Load

Rotary Servomotors SGM7A

Servomotor Motor Power Cables

Components a Mariab	Description	I am outle	Order Number	Annanyana
Servomotor Model	Description	Length	Flexible Cable*	Appearance
		3m	JZSP-CSM21-03-E-G#	
		5m	JZSP-CSM21-05-E-G#	
SGM7A-A5 to -C2 50 W to 150 W		10 m	JZSP-CSM21-10-E-G#	
00 11 100 11		15 m	JZSP-CSM21-15-E-G#	
		20 m	JZSP-CSM21-20-E-G#	
		3 m	JZSP-CSM22-03-E-G#	Servomotor end SERVOPACK end
	For Servomotors	5m	JZSP-CSM22-05-E-G#	Servomotor end 'L'
SGM7A-02 to -06 200 W to 600 W	without Holding Brakes	10 m	JZSP-CSM22-10-E-G#	
200 11 10 000 11	Cable installed	15 m	JZSP-CSM22-15-E-G#	
	toward load	20 m	JZSP-CSM22-20-E-G#	
		3 m	JZSP-CSM23-03-E-G#	
		5m	JZSP-CSM23-05-E-G#	
SGM7A-08 and -10		10 m	JZSP-CSM23-10-E-G#	
750 W, 1.0 kW		15 m	JZSP-CSM23-15-E-G#	
		20 m	JZSP-CSM23-20-E-G#	
		30 m	JZSP-CSM23-30-E-G#	
	For Servomotors with Holding	3 m	JZSP-CSM31-03-E-G#	
		5m	JZSP-CSM31-05-E-G#	
SGM7A-A5 to -C2 50 W to 150 W		10 m	JZSP-CSM31-10-E-G#	
		15 m	JZSP-CSM31-15-E-G#	
		20 m	JZSP-CSM31-20-E-G#	Servomotor end SERVOPACK end
		3 m	JZSP-CSM32-03-E-G#	
001474 004 00		5m	JZSP-CSM32-05-E-G#	
SGM7A-02 to -06 200 W to 600 W	Brakes	10 m	JZSP-CSM32-10-E-G#	
	Cable installed	15 m	JZSP-CSM32-15-E-G#	
	towards load	20 m	JZSP-CSM32-20-E-G#	
		3m	JZSP-CSM33-03-G#	
00171 00 1 10		5m	JZSP-CSM33-05-G#	
SGM7A-08 and -10 750 W, 1.0 kW		10 m	JZSP-CSM33-10-G#	
		15 m	JZSP-CSM33-15-G#	
		20 m	JZSP-CSM33-20-G#	

^{*} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger. Note: The digit # of the order number represents the design revision.

Servomotor Motor Power Cables

Servomotor	Description	Connector	Longth	Order Number	Appearance
Model	Description	Specifications	Length	Flexible Cable*1	Appearance
			3 m	JZSP-CVMCA12-03-E-G#	SERVOPACK Motor end
	For Servo- motors		5m	JZSP-CVMCA12-05-E-G#	end L
	without Holding	Right-angle	10 m	JZSP-CVMCA12-10-E-G#	
	Brakes		15 m	JZSP-CVMCA12-15-E-G#	
			20 m	JZSP-CVMCA12-20-E-G#	
SGM7A-15 1.5 kW			3m	JZSP-CVMCA12-03-E-G# JZSP-CVB12Y-03-E-G#	SERVOPACK end Motor end
1.0 KVV	For Servo-		5m	JZSP-CVMCA12-05-E-G# JZSP-CVB12Y-05-E-G#	
	motors with Holding	Right-angle	10 m	JZSP-CVMCA12-10-E-G#	
	Brakes (Set of Two	r iigi ii carigio		JZSP-CVB12Y-10-E-G# JZSP-CVMCA12-15-E-G#	Brake end Motor end L
	Cables*2)		15 m	JZSP-CVB12Y-15-E-G#	8
			20 m	JZSP-CVMCA12-20-E-G#	=
			0	JZSP-CVB12Y-20-E-G#	
			3m	JZSP-CVMCA12-03-E-G#	SERVOPACK Motor end
	For Servo- motors		5m	JZSP-CVMCA12-05-E-G#	end L
	without Holding	Right-angle	10 m	JZSP-CVMCA12-10-E-G#	
	Brakes		15 m	JZSP-CVMCA12-15-E-G#	
	Brakes		20 m	JZSP-CVMCA12-20-E-G#	
SGM7A-20 2.0 kW			3m	JZSP-CVMCA12-03-E-G# JZSP-CVB12Y-03-E-G#	SERVOPACK end Motor end
2.0 1.0	For Servo-		5 m	JZSP-CVMCA12-05-E-G# JZSP-CVB12Y-05-E-G#	
	motors with Holding			JZSP-CVMCA12-10-E-G#	
	Brakes	Right-angle	10 m	JZSP-CVB12Y-10-E-G#	Brake end Motor end
	(Set of Two Cables*2)		15 m	JZSP-CVMCA12-15-E-G#	<u> </u>
	, , , ,		10111	JZSP-CVB12Y-15-E-G#	
			20 m	JZSP-CVMCA12-20-E-G#	=
				JZSP-CVB12Y-20-E-G#	

^{*1.} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.
*2. This order number is for a set of two cables (Main Power Supply Cable and Holding Brake Cable). When you purchase them separately, the order numbers for Main Power Supply Cables are the same as for a Servomotor without a Holding Brake.
The following order numbers are for a Holding Brake Cable. These Standard Cables are Flexible Cables.

• Cable with Straight Plug: JZSP-U7B23-□-E

• Cable with Right-angle Plug: JZSP-U7B24-□□-E

Servomotor Main Circuit Cables

For Servomotors with Holding Brakes (Set of Two Cables*2) For Servo-motors without Holding Brakes (Set of Two Cables*2) For Servo-motors (Set of	Model		Connector	Length	Order Number	Appearance		
For Servomotors without Holding Brakes SGM7A-25 2.5 kW For Servomotors with Holding Brakes SGM7A-25 2.5 kW For Servomotors with Holding Brakes Servopack end SERVOPACK end Motor end JZSP-CVMCA12-0E-G# JZSP-CVMCA12-0E-G# JZSP-CVMCA12-0E-G# JZSP-CVMCA12-0E-G# JZSP-CVMCA12-0E-G# JZSP-CVMCA12-0E-G# JZSP-CVMCA12-0E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA13-0E-G# JZSP-CVMCA13-03-E-G# SERVOPACK end Motor end Motor end SERVOPACK end Motor end SERVOPACK end Motor end JZSP-CVMCA13-10-E-G#		Description	Specifications	Longin				
SGM7A-25 2.5 kW SGM7A-25 2.5 kW For Servomotors with Holding Brakes SGM7A-25 2.5 kW For Servomotors with Holding Brakes Set of Two Cables 2 For Servomotors with Holding Brakes Set of Two Cables 2 Tom JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA13-05-E-G# SERVOPACK end Motor end E		Eor Son/o		3m	JZSP-CVMCA12-03-E-G#			
Holding Brakes 15m JZSP-CVMCA12-15-E-G# 20m JZSP-CVMCA12-20-E-G# JZSP-CVMCA12-03-E-G# JZSP-CVB12Y-03-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-0-E-G# JZSP-CVMCA13-03-E-G# For Servomotors without Holding Brakes Right-angle 10m JZSP-CVMCA13-03-E-G# SERVOPACK end Motor end Motor end JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-05-E-G# SERVOPACK Motor end end JZSP-CVMCA13-05-E-G# SERVOPACK JZSP-CVMCA13-05-E-G# SERVOPACK JZSP-CVMCA13-05-E-G# SERVOPACK JZSP-CVMCA13-05-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G#				5m	JZSP-CVMCA12-05-E-G#	end L		
SGM7A-25 20m JZSP-CVMCA12-20-E-G# JZSP-CVMCA12-03-E-G# JZSP-CVMCA12-03-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-05-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-20-E-G# JZSP-CVMCA13-03-E-G# SERVOPACK end Motor end			Right-angle	10 m	JZSP-CVMCA12-10-E-G#			
SGM7A-25 2.5 kW For Servomotors with Holding Brakes For Servo-motors With Holding Brakes For Servo-motors With Holding Brakes For Servo-motors With Holding Brakes Right-angle 10m JZSP-CVMCA12-05-E-G# JZSP-CVB12Y-05-E-G# JZSP-CVB12Y-10-E-G# JZSP-CVB12Y-10-E-G# JZSP-CVB12Y-10-E-G# JZSP-CVB12Y-15-E-G# JZSP-CVB12Y-20-E-G# JZSP-CVB12Y-20-E-G# JZSP-CVMCA13-03-E-G# SERVOPACK and Motor end Motor end Motor end SERVOPACK Motor end end L JZSP-CVMCA13-05-E-G# JZSP-CVMCA13-05-E-G# JZSP-CVMCA13-10-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-15-E-G#		0		15 m	JZSP-CVMCA12-15-E-G#			
SGM7A-25 2.5 kW For Servomotors with Holding Brakes (Set of Two Cables'2) For Servomotors without Holding Brakes Amount of the company of the c		Dianes		20 m	JZSP-CVMCA12-20-E-G#	<u>ummu</u>		
SGM7A-25 2.5 kW For Servomotors with Holding Brakes (Set of Two Cables 2) For Servomotors without Holding Brakes (Set of Two Cables 2) For Servomotors without Holding Brakes (Set of Two Cables 2) For Servomotors without Holding Brakes (Set of Two Cables 2) For Servomotors without Holding Brakes (Set of Two Cables 2) For Servomotors without Holding Brakes				2 m	JZSP-CVMCA12-03-E-G#			
For Servomotors with Holding Brakes (Set of Two Cables 2) For Servomotors without Holding Brakes For Servomotors Without Holding Brakes	COM7A 05			3111	JZSP-CVB12Y-03-E-G#			
For Servomotors with Holding Brakes (Set of Two Cables'2) For Servomotors with Holding Brakes (Set of Two Cables'2) For Servomotors without Holding Brakes With Holding Brakes For Servomotors without Holding Brakes		- O		E m	JZSP-CVMCA12-05-E-G#	©=:\		
with Holding Brakes (Set of Two Cables*2) Right-angle 10m JZSP-CVMCA12-10-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-20-E-G# JZSP-CVMCA13-03-E-G# 5m JZSP-CVMCA13-03-E-G# 5m JZSP-CVMCA13-05-E-G# 10m JZSP-CVMCA13-10-E-G# 10m JZSP-CVMCA13-10-E-G# 10m JZSP-CVMCA13-10-E-G# 10m JZSP-CVMCA13-10-E-G# 10m JZSP-CVMCA13-10-E-G# 10m JZSP-CVMCA13-10-E-G#				3111	JZSP-CVB12Y-05-E-G#			
For Servomotors without Holding Brakes Servomotors without Holding Brakes 15m			Right-angle	10 m	JZSP-CVMCA12-10-E-G#			
Cables*2) 15m JZSP-CVMCA12-15-E-G# JZSP-CVMCA12-20-E-G# JZSP-CVMCA13-03-E-G# 5m JZSP-CVMCA13-05-E-G# 5m JZSP-CVMCA13-05-E-G# end 15m JZSP-CVMCA13-15-E-G# 20m JZSP-CVMCA13-15-E-G# 20m JZSP-CVMCA13-15-E-G# 20m JZSP-CVMCA13-15-E-G#			night-aligie	10111	JZSP-CVB12Y-10-E-G#			
For Servomotors without Holding Brakes JZSP-CVMCA13-15-E-G# JZSP-CVMCA13-03-E-G# SERVOPACK Motor end end L SERVOPACK MOTOR		,		15 m	JZSP-CVMCA12-15-E-G#	<u> </u>		
JZSP-CVB12Y-20-E-G# 3m JZSP-CVMCA13-03-E-G# 5m JZSP-CVMCA13-05-E-G# 5m JZSP-CVMCA13-05-E-G# end end end JZSP-CVMCA13-15-E-G# 20m JZSP-CVMCA13-10-E-G#		,		13111	JZSP-CVB12Y-15-E-G#			
For Servomotors without Holding Brakes For Servo-Motors Without Holding Brakes JZSP-CVMCA13-03-E-G# SERVOPACK Motor end end L SERVOPACK MOTOR END L SER				20 m	JZSP-CVMCA12-20-E-G#	=		
For Servomotors without Holding Brakes For Servomotors without Holding Brakes For Servomotors JZSP-CVMCA13-05-E-G# 10 m JZSP-CVMCA13-10-E-G# 15 m JZSP-CVMCA13-10-E-G#				20111	JZSP-CVB12Y-20-E-G#			
For Servomotors without Holding Brakes Fight-angle 10m JZSP-CVMCA13-05-E-G# 10m JZSP-CVMCA13-10-E-G# 15m JZSP-CVMCA13-10-E-G# 20m JZSP-CVMCA13-20-E-G#				3m	JZSP-CVMCA13-03-E-G#			
For Servomotors without Holding Brakes Fight-angle 10m JZSP-CVMCA13-05-E-G# 10m JZSP-CVMCA13-10-E-G# 15m JZSP-CVMCA13-10-E-G# 20m JZSP-CVMCA13-20-E-G#						SERVOPACK Motor end		
without Holding Brakes 15m JZSP-CVMCA13-10-E-G# 20m JZSP-CVMCA13-20-E-G#				5m	JZSP-CVMCA13-05-E-G#			
Holding Brakes 15 m JZSP-CVMCA13-15-E-G# 20 m JZSP-CVMCA13-20-E-G#			Right-angle	10m	JZSP-CVMCA13-10-E-G#			
20 m JZSP-CVMCA13-20-E-G#			0 0					
		Brakes		15 m	JZSP-CVMCA13-15-E-G#	(managed)		
				20 m	JZSP-CVMCA13-20-E-G#			
JZSP-CVMCA13-03-E-G#					.IZSP-CVMCA13-03-E-G#			
SGM//A-30 3m SERVOPACK end Motor end				3m				
JZSP-CVMCA13-05-E-G#	5.0 KVV					L L		
For Servo-				5m				
motors with Holding Diabt and 10 services JZSP-CVMCA13-10-E-G#								
Brakes Right-angle 10 m JZSP-CVB12Y-10-E-G# Brake end Motor end			Right-angle	10 m		Brake end Motor end		
(Set of Two LZSP_CVMCA13.15.E.G#		,						
Cables*2) 15m JZSP-CVB12Y-15-E-G#		Cables ²)			15 m			
JZSP-CVMCA13-20-E-G#								
20 m JZSP-CVB12Y-20-E-G#				20 m				
JZSP-CVMCA35-03-E-G# SERVOPACK end Motor end						SERVOPACK and Motor and		
3m				3m				
JZSP-CVMCA35-05-E-G#					JZSP-CVMCA35-05-E-G#			
For Servo- SGM7A- motors 5 m JZSP-CVB12Y-05-E-G#	001474			5m	JZSP-CVB12Y-05-E-G#			
10 to FO with Holding			D: 11	40	JZSP-CVMCA35-10-E-G#	·		
4.0 kW & Brakes Brakes JZSP-CVB12Y-10-E-G# Brake and Metar and	4.0 kW &	Brakes	Right-angle	10 m		Brake end Motor end		
5.0 kW (Set of Two JZSP-CVMCA35-15-E-G#	5.0 kW			1 E 100	JZSP-CVMCA35-15-E-G#	1110101 0110		
JZSP-CVB12Y-15-E-G#		Caples)		mei	JZSP-CVB12Y-15-E-G#			
JZSP-CVMCA35-20-E-G#				20.m	JZSP-CVMCA35-20-E-G#			
JZSP-CVB12Y-20-E-G#				20M	JZSP-CVB12Y-20-E-G#			
		Eor Conia		3m	JZSP-CVMCA35-03-E-G#	SERVOPACK end Motor end		
3 m JZSP-CVMCA35-03-E-G# SERVOPACK end Motor end		motors		5m	JZSP-CVMCA35-05-E-G#			
For Servo-		without	Right-angle	10 m	JZSP-CVMCA35-10-E-G#			
For Servomotors Sm JZSP-CVMCA35-05-E-G# without Right-angle 10 m JZSP-CVMCA35-10-E-G#				15 m	JZSP-CVMCA35-15-E-G#			
For Servomotors without Right-angle 10 m JZSP-CVMCA35-15-E-G# Holding 15 m JZSP-CVMCA35-15-E-G#	001474 70	Dianes		20 m	JZSP-CVMCA35-20-E-G#			
For Servomotors without Holding Brakes For Servo- Motors 5 m				3m	BFEV-03(A)-E			
For Servo- motors without Holding Brakes SGM7A-70 7.0 kW For Servo- motors 5 m				5m	BFEV-05(A)-E	[2002] [2002] [2002] [2002] [2002]		
For Servo- motors without Holding Brakes SGM7A-70 7.0 kW For Servo- motors 5 m		Fan Cable	Right-angle	10 m	BFEV-10(A)-E			
For Servo- motors without Holding Brakes SGM7A-70 7.0 kW For Servo- motors 5 m		T all Cable	r arr Cable	I all Cable	. Saulo Fright anglo			
For Servo- motors without Holding Brakes SGM7A-70 7.0 kW For Servo- motors 5 m				15 m	BFEV-15(A)-E			

^{*1.} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.
*2. This order number is for a set of two cables (Main Power Supply Cable and Holding Brake Cable). When you purchase them separately, the order numbers for Main Power Supply Cables are the same as for a Servomotor without a Holding Brake. The following order numbers are for a Holding Brake Cable. These Standard Cables are Flexible Cables.

• Cable with Straight Plug: JZSP-U7B23-□-E

• Cable with Right-angle Plug: JZSP-U7B24-□□-E

Encoder Cables of 20 m or less

Servomotor Model	Description	Length	Order Number	Appearance
		3 m	JZSP-C7PI2D-03-E-G#	
		5 m	JZSP-C7PI2D-05-E-G#	
	Cable direction to load side	10 m	JZSP-C7PI2D-10-E-G#	
		15 m	JZSP-C7PI2D-15-E-G#	Encoder end SERVOPACK end
		20 m	JZSP-C7PI2D-20-E-G#	
		3 m	JZSP-C7PI2E-03-E-G#	
		5 m	JZSP-C7PI2E-05-E-G#	
	Cable direction away from load	10 m	JZSP-C7Pl2E-10-E-G#	
	array monnioad	15 m	JZSP-C7Pl2E-15-E-G#	
SGM7A-A5 to -10		20 m	JZSP-C7PI2E-20-E-G#	
50W - 1kW		3 m	JZSP-C7PA2D-03-E-G#	
	Cable with battery	5 m	JZSP-C7PA2D-05-E-G#	
	case, direction to	10 m	JZSP-C7PA2D-10-E-G#	
	load side	15 m	JZSP-C7PA2D-15-E-G#	
		20 m	JZSP-C7PA2D-20-E-G#	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
		3 m	JZSP-C7PA2E-03-E-G#	
	Cable with battery case, direction away from load side	5 m	JZSP-C7PA2E-05-E-G#	
		10 m	JZSP-C7PA2E-10-E-G#	
		15 m	JZSP-C7PA2E-15-E-G#	
		20 m	JZSP-C7PA2E-20-E-G#	
		3 m	JZSP-CVP12-03-E-G#	SERVOPACK End Encoder End
		5 m	JZSP-CVP12-05-E-G#	L L L
	For incremental encoder	10 m	JZSP-CVP12-10-E-G#	
		15 m	JZSP-CVP12-15-E-G#	_
SGM7A-15 to -30		20 m	JZSP-CVP12-20-E-G#	
1.5 W - 3 kW		3 m	JZSP-CVP27-03-E-G#	
	For absolute ne-	5 m	JZSP-CVP27-05-E-G#	
	coder with battery	10 m	JZSP-CVP27-10-E-G#	Battery Case
	case *1	15 m	JZSP-CVP27-15-E-G#	(Battery Attached)
		20 m	JZSP-CVP27-20-E-G#	

^{*1.} If a battery is connected to the host controller, the Battery Case is not required. If so, use a cable for incremental encoders.

Encoder Extension Cables of 30 m or above

Servomotor Model	Description	Length	Order Number	Appearance
		30 m	JZSP-UCMP00-30-E	SERVOPACK End Encoder End
All SGM7A models	Cable with Connectors (For incremental and	40 m	JZSP-UCMP00-40-E	
All Galvill A Triodels	absolute encoder)	50 m	JZSP-UCMP00-50-E	Plug Connector (Crimped) Socket Connector (Soldered) (Molex Japan Co., Ltd.) (Molex Japan Co., Ltd.)

Note: Encoder Extension cables can only be used together with suitable Encoder Cables.

SGM7J

Model Designations

SGM7J

Sigma-7 series Servomotors: SGM7J



1st + 2	nd digit - Rated output
Code	Specification
A5	50 W
01	100 W
C2	150 W
02	200 W
04	400 W
06	600 W
08	750 W

Α	2	1	
	_	_	
5th	6th	7th	digit

Code	Specification									
А	200 VAC									
4th digit - Serial encoder										
Code	Specification									
6	24-bit batteryless absolute									
7	24-bit absolute									
F	24-bit incremental									

Code Specification

A Standard model

	_
	6
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lute	
ute	
lute	7th di
ute	7th di
uie	

6th dig	6th digit - Shaft end									
Code	Specification									
2	Straight without key									
6	Straight with key and tap									
В	With two flat seats									

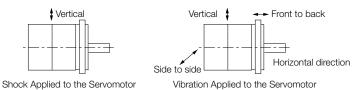
7th digit - Options									
Code	Specification								
1	Without options								
С	With holding brake (24 VDC)								
E	With oil seal and holding brake (24 VDC)								
S	With oil seal								

Specifications and Ratings

Specifications

	Voltage	200 V											
	Model SGM7J-	05A	01A	C2A	02A	04A	06A	A80					
Time Rating		Continuous											
Thermal Class		В	В										
Insulation Resis	tance	500 VDC, 10	MOhm min.										
Withstand Volta	ge	1,500 VAC for 1 minute											
Excitation		Permanent magnet											
Mounting		Flange-moun	ited										
Drive Method		Direct drive											
Rotation Direction	on	Counterclock	wise (CCW) fo	r forward refer	ence when vie	ewed from the I	oad side						
Vibration Class*	1												
	Surrounding Air Temperature	0 °C to 40 °C (With derating, usage is possible between 40 °C and 60 °C)*3											
	Surrounding Air Humidity	20% to 80% relative humidity (with no condensation) • Must be indoors and free of corrosive and explosive gases.											
Environmental Conditions	Installation Site	 Must be well-ventilated and free of dust and moisture. Must facilitate inspection and cleaning. Must have an altitude of 1,000 m or less. (With derating, usage is possible between 1,000 m and 2,000 m.)*3 Must be free of strong magnetic fields. 											
	Storage Environment	disconnected Storage Tem	d. perature: -20 °	C to 60 °C (wi	th no freezing)	u store it with the condensation		lle					
Shock Resistance*2	Impact Acceleration Rate at Flange	490 m/s²											
Resistance	Number of Impacts	2 times											
Vibration Resistance*2	Vibration Acceleration Rate at Flange	49 m/s ²											
Applicable	SGD7S-	R70A, R70F	R70A, R90F	1R6A,	2R1F	2R8A, 2R8F	5F	R5A					
SERVOPACKS	SGD7W- SGD7C	1R6A*4	, 2R8A* ⁴	1R6A* ⁴ ,	2R8A, 5A*4, 2R8A*4 5R5A*4, 7R6A*4		5R5A, 7R6A						

- *1. A vibration class of V15 indicates a vibration amplitude of 15 mm maximum on the Servomotor without a load at the rated motor speed.
 *2. The given values are for when the Servomotor shaft is mounted horizontally and shock or vibration is applied in the directions shown in the following figures.
 The strength of the vibration that the Servomotor can withstand depends on the application. Always check the vibration acceleration rate that is applied to the Servomotor with the actual equipment.



- *3. Refer to the following section for the derating rates.

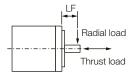
 *4. If you use a Servomotor together with a S-7W or S-7C SERVOPACK, the control gain may not increase as much as with a S-7S SERVOPACK and other performances may be lower than those achieved with a S-7S SERVOPACK.

Rotary Servomotors SGM7J

Ratings

	Voltage		200 V												
	Model SGM7J-		A5A	01A	C2A	02A	04A	06A	08A						
Rated Output *1		W	50	100	150	200	400	600	750						
Rated Torque *1,	*2	Nm	0.159	0.318	0.477	0.637	1.27	1.91	2.39						
Instantaneous M	aximum Torque *1	Nm	0.557	1.11	1.67	2.23	4.46	6.69	8.36						
Rated Current *1		Α	0.55	0.85	1.6	1.6	2.5	4.2	4.4						
Instantaneous M	aximum Current *1	Α	2.0	3.1	5.7	5.8	9.3	15.3	16.9						
Rated Motor Spe	eed *1	min ⁻¹				3,000									
Maximum Motor	Speed *1	min ⁻¹	6,000												
Torque Constant		Nm/A	0.316	0.413	0.321	0.444	0.544	0.493	0.584						
Motor Moment of	f Inertia		0.0395	0.0659	0.0915	0.263	0.486	0.800	1.59						
	with holding brake	×10 ⁻⁴ ka·m ²	0.0475	0.0739	0.0995	0.333	0.556	0.870	1.77						
	with batteryless absolute encoder	g	0.0410	0.0674	0.0930	0.264	0.487	0.801	1.59						
Rated Power Ra	te *1	kW/s	6.40	15.3	24.8	15.4	33.1	45.6	35.9						
	with holding brake	KVV/S	5.32	13.6	22.8	12.1	29.0	41.9	32.2						
Rated Angular Acceleration Rate *1 with holding brake		rad/s	40,200	48,200	52,100	24,200	26,100	23,800	15,000						
		Tau/S	33,400	43,000	47,900	19,100	22,800	21,900	13,500						
Derating Rate fo Oil Seal	r Servomotor with	%	80		90	95									
Heat Sink Size (A	Aluminium) *3	mm	200 × 200 × 6 250 × 250 × 6												
Protective Struct	ture *4		Totally enclosed, self-cooled, IP67												
	Rated Voltage	V			2	24 VDC ±109									
	Capacity	W		5.5			5		.5						
	Holding Torque	Nm	0.159	0.318	0.477	0.637	1.27	1.91	2.39						
Holding Brake	Coil Resistance	Ω (at 20 °C)		104.8±10%			10%		±10%						
Specifications*5	Rated Current	A (at 20 °C)		0.23		0.	25	0.	27						
	Time Required to Release Brake	ms			60			8	0						
	Time Required to Brake	ms				100									
	Moment of Inertia of Inertia Ratio) *6			35 times		15 times	10 times	20 times	12 times						
	With External Reger and Dynamic Brake			35 times		25 t	imes	20 times	15 times						
	LF	mm		20			25		35						
Allowable Shaft Load *3	Allowable Radial Load	N		78		245			392						
Load	Allowable Thrust Load	N		54				147							

- *1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100°C. The values for other items are at 20°C. These are typical values.
- *2. The rated torques are the continuous allowable torque values at a surrounding air temperature of 40°C with an aluminum heat sink of the dimensions given in the table.
- * 3. Refer to the following section for the relation between the heat sinks and derating rate.
- *4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.
- *5. Observe the following precautions if you use a Servomotor with a Holding Brake.
 - The holding brake cannot be used to stop the Servomotor.
 - The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay time is appropriate for the actual equipment.
 - The 24-VDC power supply is not provided by YASKAWA.
- *6. The motor moment of inertia scaling factor is the value for a standard Servomotor without a Holding Brake.
- *7. To externally connect a dynamic brake resistor, select hardware option specification 020 for the SERVOPACK. However, you cannot externally connect a dynamic brake resistor if you use the following SERVOPACKs (maximum applicable motor capacity: 400 W).
 - SGD7S-R70 \ \Box \ \Box \ \A020 \ \text{to -2R8} \ \Box \ \Box
 - SGD7W-1R6A20A020 to -2R8A20A020
 - SGD7C-1R6AMAA020 to -2R8AMAA020
- *8. Design the mechanical system so that the thrust and radial loads applied to the Servomotor shaft end during operation do not exceed the values given in the table.



Torque-motor Speed Characteristics

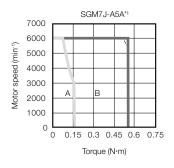
A: Continuous duty zone

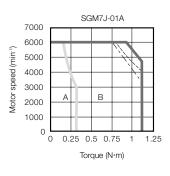
(solid lines): With three-phase 200-V or single-phase 230-V input

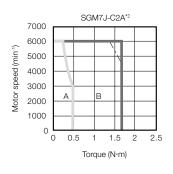
B: Intermittent duty zone

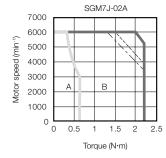
(dotted lines): With single-phase 200-V input

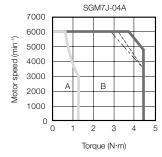
. Intermittent duty zone (dotted lines). With single-phase 200-V input — — (dashed-dotted lines): With single-phase 100-V input

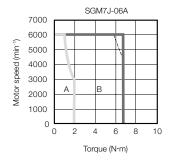


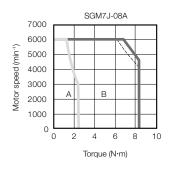












- *1. The characteristics are the same for single-phase 200 V and single-phase 100 V input.
- *2. The characteristics are the same for three-phase 200 V and single-phase 200 V input.

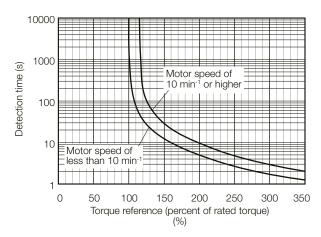
Notes:

- These values (typical values) are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100°C.
- The characteristics in the intermittent duty zone depend on the power supply voltage.
- If the effective torque is within the allowable range for the rated torque, the Servomotor can be used within the intermittent duty zone.
- If you use a Servomotor Motor Power Cable that exceeds 20 m, the intermittent duty zone in the torque-motor speed characteristics will become smaller because the voltage drop increases.

Rotary Servomotors SGM7J

Servomotor Overload Protection Characteristics

The overload detection level is set for hot start conditions with a Servomotor surrounding air temperature of 40 °C.



Note:

The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher. Use the Servomotor so that the effective torque remains within the continuous duty zone given in Torque-Motor Speed Characteristics.

Allowable Load Moment of Inertia

The allowable load moments of inertia (motor moment of inertia ratios) for the Servomotors are given in the Ratings of Servomotors. The values are determined by the regenerative energy processing capacity of the SERVOPACK and are also affected by the drive conditions of the Servomotor. Perform the required Steps for each of the following cases.

Use the SigmaSize+ AC Servo Drive Capacity Selection Program to check the driving conditions. Contact your YASKAWA representative for information on this program.

Exceeding the allowable Load Moment of Inertia

Use one of the following measures to adjust the load moment of inertia to within the allowable value.

- Reduce the torque limit.
- Reduce the deceleration rate.
- Reduce the maximum motor speed.

If the above steps is not possible, install an external regenerative resistor.

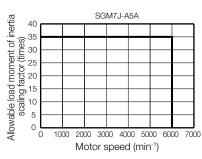
Information

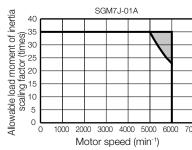
An Overvoltage Alarm (A.400) is likely to occur during deceleration if the load moment of inertia exceeds the allowable load moment of inertia. SERVOPACKs with a built-in regenerative resistor may generate a Regenerative Overload Alarm (A.320). Refer to Built-In Regenerative Resistor for the regenerative power (W) that can be processed by the SERVOPACKs.

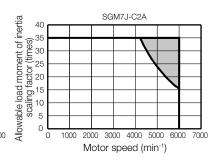
Install an External Regenerative Resistor when the built-in regenerative resistor cannot process all of the regenerative power.

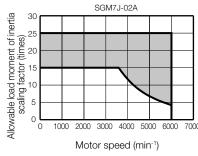
SERVOPACKs without built-in Regenerative Resistors

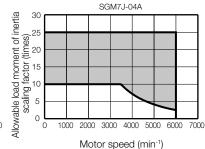
The following graph shows the allowable load moment of inertia scaling factor of the motor speed (reference values for deceleration operation at or above the rated torque). Application is possible without an external regenerative resistor within the allowable value. However, an External Regenerative Resistor is required in the shaded areas of the graphs.











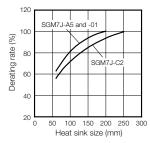
 $Note: Applicable \ SERVOPACK \ models: \ SGD7S-R70A, \ -R90A, \ -1R6A, \ -2R8A, \ -R70F, \ -R90F, \ -2R1F, \ and \ -2R8F, \ -R90F, \ -R9$

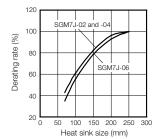
When an External Regenerative Resistor is required

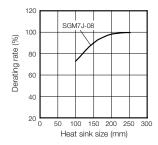
Install the External Regenerative Resistor. Refer to the following section for the recommended products.

Servomotor Heat Dissipation Conditions

The Servomotor ratings are the continuous allowable values at a surrounding air temperature of 40°C when a heat sink is installed on the Servomotor. If the Servomotor is mounted on a small device component, the Servomotor temperature may rise considerably because the surface for heat dissipation becomes smaller. Refer to the following graphs for the relation between the heat sink size and derating rate.





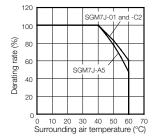


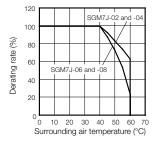


The actual temperature rise depends on how the heat sink (i.e., the Servomotor mounting section) is attached to the installation surface, what material is used for the Servomotor mounting section, and the motor speed. Always check the Servomotor temperature with the actual equipment.

Applications where the surrounding Air Temperature of the Servomotor exceeds 40 °C

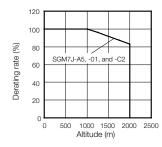
The Servomotor ratings are the continuous allowable values at a surrounding air temperature of 40°C. If you use a Servomotor at a surrounding air temperature that exceeds 40°C (60°C max.), apply a suitable derating rate from the following graphs.

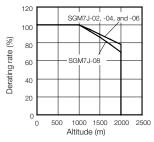




Applications where the Altitude exceeds 1,000 m

The Servomotor ratings are the continuous allowable values at an altitude of 1,000 m or less. If you use a Servomotor at an altitude that exceeds 1,000 m (2,000 m max.), the heat dissipation effect of the air is reduced. Apply the appropriate derating rate from the following graphs.





Information

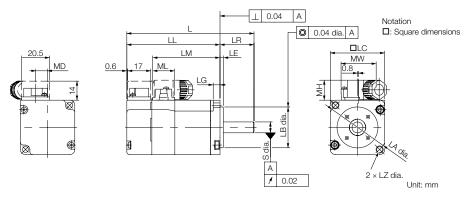
When using Servomotors with derating, change the detection timing of overload warning and overload alarm based on the overload detection level of the motor given in Servomotor Overload Protection Characteristics.

Notes:

- 1. Use the combination of the SERVOPACK and Servomotor so that the derating conditions are satisfied for both the SERVOPACK and Servomotor.
- The derating rates are applicable only when the average motor speed is less than or equal to the rated motor speed. If the average motor speed exceeds the rated motor speed, consult with your YASKAWA representative.

Dimensions

SGM7J-A5, -01, and -C2



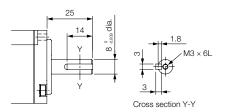
Model	L*	LL*	LM			Flan	ge Dir	mensi	ons		s	MD	MW	мн	ML	Approx.
SGM7J-		_ <u>-</u> _	LIVI	LR	LE	LG	LC	LA	LB	LZ	٠	IVID	IVIVV	IVIII	IVIL	Mass [kg]
A5A□A2□	81.5 (122)	56.5 (97)	37.9	25	2.5	5	40	46	30 ⁰ -0.021	4.3	8 -0.009	8.8	25.8	14.7	16.1	0.3 (0.6)
01A □ A2 □	93.5 (134)	68.5 (109)	49.9	25	2.5	5	40	46	30 -0.021	4.3	8 -0.009	8.8	25.8	14.7	16.1	0.4 (0.7)
C2ADA2D	105.5 (153.5)	80.5 (128.5)	61.9	25	2.5	5	40	46	30 -0.021	4.3	8 -0.009	8.8	25.8	14.7	16.1	0.5 (0.8)

- * For models that have a batteryless absolute encoder, L and LL are 8 mm greater than the given value. Refer to the following section for the values for individual models.
- The values in parentheses are for Servomotors with Holding Brakes.

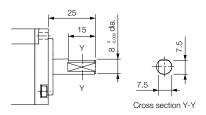
 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap

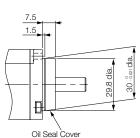


with Two Flat Seats



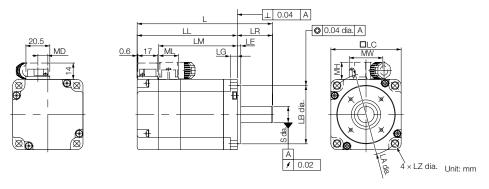
Specifications of Options

Oil Seal



Rotary Servomotors SGM7J

SGM7J-02, -04 and -06



Model SGM7J-	L*	LL*	LM	LR	LE	Flan	ge Dii LC	mensi LA	ons LB	LZ	S	MD	MW	МН	ML	Approx. Mass [kg]
02A□A2□	99.5 (140)	69.5 (110)	51.2		3	6	60	70	50 -0.025	5.5	14 ⁰ -0.011	8.5	28.7	14.7	17.1	0.8 (1.4)
04A□A2□	115.5 (156)	85.5 (126)	67.2	30	3	6	60	70	50 -0.025	5.5	14 -0.011	8.5	28.7	14.7	17.1	1.1 (1.7)
06A□A2□	137.5 (191.5)	107.5 (161.5)	89.2	30	3	6	60	70	50 -0.025	5.5	14 0-0.011	8.5	28.7	14.7	17.1	1.6 (2.2)

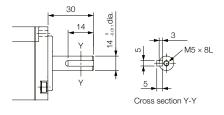
^{*} For models that have a batteryless absolute encoder, L and LL are 8 mm greater than the given value. Refer to the following section for the values for individual models. Notes:

1. The values in parentheses are for Servomotors with Holding Brakes.

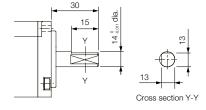
2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap

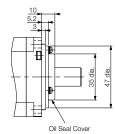


with Two Flat Seats

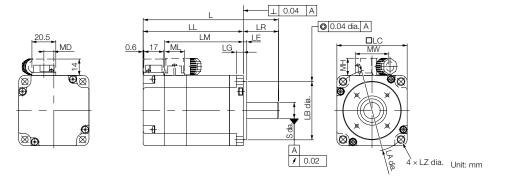


Specifications of Options

Oil Seal



SGM7J-08



Model SGM7J-	1 *	LL*	LM			Flan	ge Dir	nensi	ons LB		e	MD	MW	МН	MI	Approx.
SGM7J-	_		LIVI	LR	LE	LG	LC	LA	LB	LZ	٥	IVID	IVIVV	17111	IVIL	Approx. Mass [kg]
08A□A2□	137 (184)	97 (144)	78.5	40	3	8	80	90	70 ⁰ -0.030	7	19 0-0.013	13.6	38	14.7	19.3	2.2 (2.8)

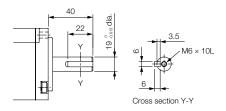
- * For models that have a batteryless absolute encoder, L and LL are 8 mm greater and the approximate mass is 0.1 kg greater than the given value. Refer to the following section for the values for individual models.Notes:

 1. The values in parentheses are for Servomotors with Holding Brakes.

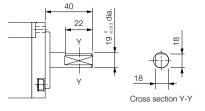
 2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap

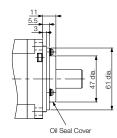


with Two Flat Seats



Specifications of Options

Oil Seal



Rotary Servomotors SGM7J

Dimensions of Servomotors with batteryless Absolute Encoders

Model SGM7J-	L	LL	Approx. Mass [kg]
A5A6A2□	89.5	64.5	0.3
AUAUAZI	(130)	(105)	(0.6)
01A6A2□	101.5	76.5	0.4
UTAGAZL	(142)	(117)	(0.7)
C2A6A2□	113.5	88.5	0.5
CZAGAZL	(161.5)	(136.5)	(0.8)
02A6A2□	107.5	77.5	0.8
UZAUAZL	(148)	(118)	(1.4)
04A6A2□	123.5	93.5	1.1
04A0A2 L	(164)	(134)	(1.7)
06A6A2□	145.5	115.5	1.6
UOAOAZLI	(198.5)	(169.5)	(2.2)
08A6A2□	145	105	2.3
UOAUAZLI	(192)	(152)	(2.9)

Note: The values in parentheses are for Servomotors with Holding Brakes.

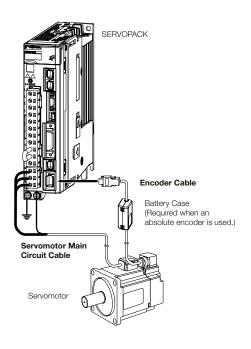
Selecting Cables SGM7J

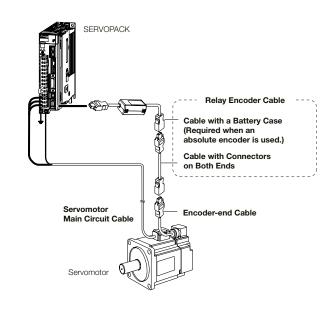
Cable Configurations

The cables shown below are required to connect a Servomotor to a SERVOPACK.

Encoder Cable of 20 m or less

Encoder Cable of 30 m to 50 m (Relay Cable)



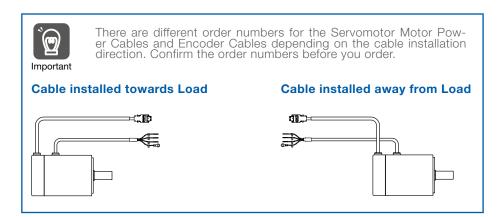


- If the Encoder Cable length exceeds 20 m, be sure to use a Relay Encoder Cable.

 If you use a Servomotor Motor Power Cable that exceeds 20 m, the intermittent duty zone in the torquemotor speed characteristics will become smaller because the voltage drop increases.
- Refer to the following manual for the following information.

 Cable dimensional drawings and cable connection specifications

 - Order numbers and specifications of individual connectors for cables
 Order numbers and specifications of individual connectors for cables
 Order numbers and specifications for wiring materials: Sigma-7-Series AC Servo Drive Peripheral Device Selection Manual (Manual No.: SIEP S800001 32)



Rotary Servomotors SGM7J

Servomotor Motor Power Cables

Servomotor Model	Description	Length	Order Number	Appearance
	· ·		Flexible Cable*	
		3m	JZSP-CSM21-03-E-G#	
SGM7J-A5 to -C2		5m	JZSP-CSM21-05-E-G#	
50 W to 150 W		10 m	JZSP-CSM21-10-E-G#	
		15 m	JZSP-CSM21-15-E-G#	
		20 m	JZSP-CSM21-20-E-G#	
		3 m	JZSP-CSM22-03-E-G#	
	For Servomotors	5 m	JZSP-CSM22-05-E-G#	Servomotor end SERVOPACK end
SGM7J-02 to -06 200 W to 600 W	without Holding Brakes	10 m	JZSP-CSM22-10-E-G#	
200 VV to 000 VV		15 m	JZSP-CSM22-15-E-G#	
	Cable installed towards load	20 m	JZSP-CSM22-20-E-G#	
		30 m	JZSP-CSM22-30-E-G#	
		3 m	JZSP-CSM23-03-E-G#	
		5 m	JZSP-CSM23-05-E-G#	
SGM7J-08 750 W, 1.0 kW		10 m	JZSP-CSM23-10-E-G#	
750 VV, 1.0 KVV		15 m	JZSP-CSM23-15-E-G#	
		20 m	JZSP-CSM23-20-E-G#	
		30 m	JZSP-CSM23-30-E-G# JZSP-CSM31-03-E-G#	
		3 m		
001471451 00		5m	JZSP-CSM31-05-E-G#	
SGM7J-A5 to -C2 50 W to 150 W		10 m	JZSP-CSM31-10-E-G#	
		15 m	JZSP-CSM31-15-E-G#	
		20 m	JZSP-CSM31-20-E-G#	
		3 m	JZSP-CSM32-03-E-G#	Servomotor end SERVOPACK end
	For Servomotors with Holding	5 m	JZSP-CSM32-05-E-G#	
SGM7J-02 to -06 200 W to 600 W	Brakes	10 m	JZSP-CSM32-10-E-G#	
	Cable installed towards load	15 m	JZSP-CSM32-15-E-G#	
		20 m	JZSP-CSM32-20-E-G#	
		3 m	JZSP-CSM33-03-E-G#	
		5 m	JZSP-CSM33-05-E-G#	
SGM7J-08 750 W, 1.0 kW		10 m	JZSP-CSM33-10-E-G#	
		15 m	JZSP-CSM33-15-E-G#	
		20 m	JZSP-CSM33-20-E-G#	

^{*} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger. Note: The digit # of the order number represents the design revision number.

Encoder Cables

Servomotor Model	Description	Length	Order Number	Appearance
		3 m	JZSP-C7PI2D-03-E-G#	
		5 m	JZSP-C7PI2D-05-E-G#	
		10 m	JZSP-C7PI2D-10-E-G#	
		15 m	JZSP-C7PI2D-15-E-G#	
	Cable direction to load side	20 m	JZSP-C7PI2D-20-E-G#	
		25 m	JZSP-C7PI2D-25-E-G#	
		30 m	JZSP-C7PI2D-30-E-G#	
		35 m	JZSP-C7PI2D-35-E-G#	Encoder end SERVOPACK end
		40 m	JZSP-C7PI2D-40-E-G#	
		3 m	JZSP-C7PI2E-03-E-G#	-2
		5 m	JZSP-C7PI2E-05-E-G#	
		10 m	JZSP-C7PI2E-10-E-G#	
		15 m	JZSP-C7PI2E-15-E-G#	
	Cable direction away from load	20 m	JZSP-C7PI2E-20-E-G#	
	·	25 m	JZSP-C7PI2E-25-E-G#	
		30 m	JZSP-C7PI2E-30-E-G#	
		35 m	JZSP-C7PI2E-35-E-G#	
SGM7J-A5 to 08		40 m	JZSP-C7PI2E-40-E-G#	
50 W - 750 W		3 m	JZSP-C7PA2D-03-E-G#	
		5 m	JZSP-C7PA2D-05-E-G#	
		10 m	JZSP-C7PA2D-10-E-G#	
	Cable with battery	15 m	JZSP-C7PA2D-15-E-G#	
	case, direction to load side	20 m	JZSP-C7PA2D-20-E-G#	
	load side	25 m	JZSP-C7PA2D-25-E-G#	
		30 m	JZSP-C7PA2D-30-E-G#	
		35 m	JZSP-C7PA2D-35-E-G#	
		40 m	JZSP-C7PA2D-40-E-G#	
		3 m	JZSP-C7PA2E-03-E-G#	
		5 m	JZSP-C7PA2E-05-E-G#	
		10 m	JZSP-C7PA2E-10-E-G#	
	Cable with battery	15 m	JZSP-C7PA2E-15-E-G#	
	case, direction	20 m	JZSP-C7PA2E-20-E-G#	
	away from load side	25 m	JZSP-C7PA2E-25-E-G#	
		30 m	JZSP-C7PA2E-30-E-G#	
		35 m	JZSP-C7PA2E-35-E-G#	
		40 m	JZSP-C7PA2E-40-E-G#	

SGM7G

Model Designations

SGM7G

Sigma-7 series Servomotors: SGM7G

-	03	Α	7	Α	2	1	
			_		_	_	
	1st + 2nd	3rd	4th	5th	6th	7th	digit

st +	2nd digit - Rated out	put
Code	Specification	
03	300 W	
05	450 W	
09	850 W	
13	1.3 kW	
20	1.8 kW	
30	2.9 kW*	
44	4.4 kW	
55	5.5 kW	
75	7.5 kW	
1A	11.0 kW	
1E	15.0 kW	

3rd di	git - Power supply voltage
Code	Specification
А	200 VAC
4th di	git - Serial encoder
Code	Specification
6	24-bit batteryless absolute
7	24-bit absolute
F	24-bit incremental
5th dig	git - Design revision order
Code	Specification
Д	Standard model

6th digit - Shaft end								
Code	Specification							
2	Straight without key							
6	Straight shaft with key and tap							

7th dig	7th digit - Options									
Code	Specification									
1	Without options									
С	With holding brake (24 VDC)									
Е	With oil seal and holding brake (24 VDC)									
S	With oil seal									

Note: Readily available up to 1.5 kW. Others available on request.

 $^{^{\}star}$ The rated output is 2.4 kW if you combine the SGM7G-30A with the SGD7S-200A.

Specifications and Ratings

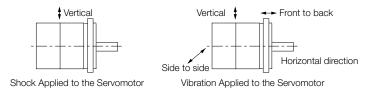
Specifications

Vo	oltage	200 V										
Mode	el SGM7G-	03A	05A	09A	13A	20A	30A	44A	55A	75A	1AA	1EA
Time Rating		Continuous	3									
Thermal Class		UL:F, CE:F	UL:F, CE:F									
Insulation Resis	stance	500 VDC,	10 MΩ m	in.								
Withstand Volta												
Excitation		Permanent magnet										
Mounting	Mounting Flange-mounted											
Drive Method Direct drive												
Rotation Direct	ion	Counterclo	ckwise (0	CCW) for f	orward ref	erence whe	n viewed fi	rom the loa	ad side			
Vibration Class		V15										
	Surrounding Air Temperature	0 °C to 40	0 °C to 40 °C (With derating, usage is possible between 40 °C and 60 °C)*3									
	Surrounding Air Humidity	20% to 80% relative humidity (with no condensation) • Must be indoors and free of corrosive and explosive gases.										
Environmental Conditions	Installation Site	Must beMust faci	well-vent ilitate insp e an altit	ilated and pection an ude of 1,0	free of du d cleaning 00 m or le	st and mois I. ess. (With de	ture.	age is poss	sible betwe	een 1,000 r	m and 2,00	00 m.)* ³
	Storage Environment	Storage Te	mperatur	re: -20 °C	to 60 °C (nvironment i with no free: humidity (wi	zing)		power ca	ble disconr	nected.	
Shock Resistance*2	Impact Acceleration Rate at Flange	490 m/s²										
riosistarios	Number of Impacts	2 times										
Vibration Resistance*2	Vibration Acceleration Rate at Flange		49 m/s ² (24.5 m/s ² front to back) 24.5 m/s ²									
Applicable	SGD7S-	3R8	A	7R6A	120A	180A	33	OA	470A	550A	590A	780A
SERVOPACKs	SGD7W- SGD7C-	5R5A*4, 7	7R6A*4	7A6A				-	-			

Note: Readily available up to 1.5 kW. Others available on request.

- *1. A vibration class of V15 indicates a vibration amplitude of 15 mm maximum on the Servomotor without a load at the rated motor speed.
 *2. The given values are for when the Servomotor shaft is mounted horizontally and shock or vibration is applied in the directions shown in the following figures.

 The strength of the vibration that the Servomotor can withstand depends on the application. Always check the vibration acceleration rate that is applied to the Servomotor with the actual equipment.



- *3. Refer to the following section for the derating rates.

 *4. If you use a Servomotor together with a S-7W or S-7C SERVOPACK, the control gain may not increase as much as with a S-7S SERVOPACK and other performances may be lower than those achieved with a S-7S SERVOPACK.

Rotary Servomotors SGM7G

Servomotor Ratings

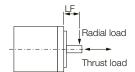
	Voltage		200 V						
	Model SGM7G-		03A	05A	09A	13A	20A		
Rated Output *1		kW	0.3	0.45	0.85	1.3	1.8		
Rated Torque *1	, *2	Nm	1.96	2.86	5.39	8.34	11.5		
Instantaneous M	1aximum Torque *1	Nm	5.88	8.92	14.2	23.3	28.7		
Rated Current *	I	А	2.8	3.8	6.9	10.7	16.7		
Instantaneous M	1aximum Current *1	А	8.0	11	17	28	42		
Rated Motor Sp	eed *1	min ⁻¹			1,500				
Maximum Motor	Speed *1	min ⁻¹			3,000				
Torque Constant	t	Nm/A	0.776	0.854	0.859	0.891	0.748		
Motor Moment of	of Inertia	×10 ⁻⁴ kg⋅m ²	2.48 (2.73)	3.33 (3.58)	13.9 (16.0)	19.9 (22.0)	26.0 (28.1)		
Rated Power Ra	ate *1	kW/s	15.5 (14.1)	24.6 (22.8)	20.9 (18.2)	35.0 (31.6)	50.9 (47.1)		
Rated Angular A	acceleration Rate *1	rad/s ²	7,900 (7,180)	8,590 (7,990)	3,880 (3,370)	4,190 (3,790)	4,420 (4,090)		
Heat Sink Size*3		mm		250 × 250 × 6 (aluminium)		400 × 4 (ste			
Protective Struc	ture *4			Totally end	closed, self-cod	oled, IP67			
	Rated Voltage	V	24 VDC +10% 0						
	Capacity	W	10						
	Holding Torque	Nm	4.	5	12.7 19.6				
Holding Brake Specifications	Coil Resistance	Ω (at 20 °C)	5	6	59				
*5	Rated Current	A (at 20 °C)	0.4	43		0.41			
	Time Required to Release Brake	ms			100				
	Time Required to Brake	ms			80				
Allowable Load (Motor Moment			15 times	15 times		5 times			
	With External Regenerative Resaund Dynamic Brake Resistor					10 times			
	LF	mm	4	0		58			
Allowable Shaft Load *7	Allowable Radial Load	N		490		686	980		
/	Allowable Thrust Load	N		98		343	392		

Note: Readily available up to 1.5 kW. Others available on request.

Note: The values in parentheses are for Servomotors with Holding Brakes.

- *1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 20°C. These are typical values.
 *2. The rated torques are the continuous allowable torque values with an aluminum or steel heat sink of the dimensions given in the table.
 *3. Refer to the following section for the relation between the heat sinks and derating rate.

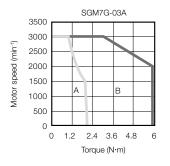
- 5. Refer to the following section for the relation between the relation between the relationship and derating rate.
 4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.
 5. Observe the following precautions if you use a Servomotor with a Holding Brake.
 The holding brake cannot be used to stop the Servomotor.
 The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay
- The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay time is appropriate for the actual equipment.
 The 24-VDC power supply is not provided by YASKAWA.
 *6. The motor moment of inertia scaling factor is the value for a standard Servomotor without a Holding Brake.
 *7. Design the mechanical system so that the thrust and radial loads applied to the Servomotor shaft end during operation do not exceed the values given in the table.

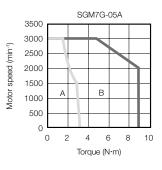


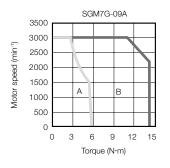
Torque-motor Speed Characteristics

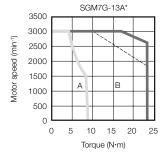
A : Continuous duty zone (solid lines): With three-phase 200-V or single-phase 230-V input

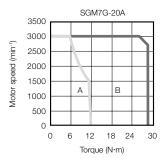
B: Intermittent duty zone ----- (dotted lines): With single-phase 200-V input











Notes:

- These values (typical values) are for operation in combination with a SERVOPACK when the temperature of the armature winding is 20°C.
- 2. The characteristics in the intermittent duty zone depend on the power supply voltage.
- 3. If the effective torque is within the allowable range for the rated torque, the Servomotor can be used within the intermittent duty zone.
- 4. If you use a Servomotor Main Circuit Cable that exceeds 20 m, the intermittent duty zone in the torque-motor speed characteristics will become smaller because the voltage drop increases.

^{*} A single-phase power input can be used in combination with the SGD7S-120ADDA008.

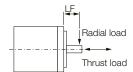
Servomotor Ratings

	Model SGM7G-		30A	30A*6	44A	55A	75A	1AA	1EA	
Rated Output *1		kW	2.9	2.4	4.4	5.5	7.5	11	15	
Rated Torque *1,	*2	Nm	18.6	15.1	28.4	35.0	48.0	70.0	95.4	
Instantaneous Ma	aximum Torque *1	Nm	54.0	45.1	71.6	102	119	175	224	
Rated Current *1		А	23.8	19.6	32.8	37.2	54.7	58.6	78.0	
Instantaneous Ma	aximum Current *1	А	70	56	84	110	130	140	170	
Rated Motor Spe	eed *1	min ⁻¹				1,500				
Maximum Motor	Speed *1	min ⁻¹			3,000			2,0	000	
Torque Constant		Nm/A	0.848	0.848	0.934	1.00	0.957	1.38	1.44	
Motor Moment o	f Inertia	×10 ⁻⁴ kg⋅m ²	46.0 (53.9)	46.0 (53.9)	67.5 (75.4)	89.0 (96.9)	125 (133)	242 (261)	303 (341)	
Rated Power Rat	te *1	kW/s	75.2 (64.2)	49.5 (42.2)	119 (107)	138 (126)	184 (173)	(188)	300 (267)	
Rated Angular Ad	cceleration Rate *1	rad/s ²	4,040 (3,450)	3,280 (2,800)	4,210 (3,370)	3,930 (3,610)	3,840 (3,610)	2,890 (2,680)	3,150 (2,800)	
Heat Sink Size*3 mm			500 :	× 500 × 30 (steel)			650 × 650	× 35 (steel)	
Protective Structure *4					,	osed, self-co	poled, IP67			
Rated Voltage		V	24 VDC +10%							
	Capacity	W		18.5		2	5	32	35	
	Holding Torque	Nm		43.1		72	2.6	84.3	114.6	
Holding Brake	Coil Resistance	Ω (at 20 °C)		31		2	3	18	17	
Specifications *5	Rated Current	A (at 20 °C)		0.77		1.	05	1.33	1.46	
	Time Required to Release Brake	ms			17	70			250	
	Time Required to Brake	ms		100		80				
(Motor Moment o	,		5 times	3 times			5 times			
	With External Regen Resistor and Dynam Resistor		10 times 7 times			10 times				
LF		mm		79		11	11	16		
Allowable Shaft A	Allowable Radial Load	Ν		1,470	1,764				4,998	
	Allowable Thrust Load	Ν		490		588			2,156	

Note: Readily available up to 1.5 kW. Others available on request.

Notes: The values in parentheses are for Servomotors with Holding Brakes.

- *1. These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 20°C. These are typical values.
- *2. The rated torques are the continuous allowable torque values with an aluminum or steel heat sink of the dimensions given in the table.
- *3. Refer to the following section for the relation between the heat sinks and derating rate.
- *4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.
- *5. Observe the following precautions if you use a Servomotor with a Holding Brake.
 - The holding brake cannot be used to stop the Servomotor.
 - The time required to release the brake and the time required to brake depend on which discharge circuit is used. Confirm that the operation delay time is appropriate for the actual equipment.
 - The 24-VDC power supply is not provided by YASKAWA.
- *6. The motor moment of inertia scaling factor is the value for a standard Servomotor without a Holding Brake.
- *7. Design the mechanical system so that the thrust and radial loads applied to the Servomotor shaft end during operation do not exceed the values given in the table.



*8. This is the value if you combine the SGM7G-30A with the SGD7S-200A.

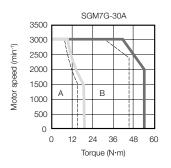
Torque-motor Speed Characteristics

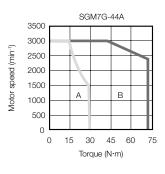
A : Continuous duty zone

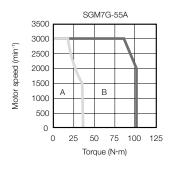
(solid lines): With three-phase 200-V input

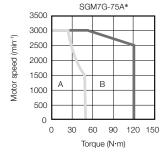
B: Intermittent duty zone

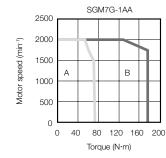
(dotted lines): When combined with the SGD7S-200A

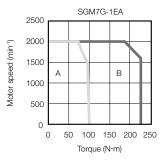












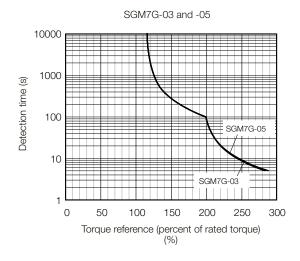
^{*} Use an SGM7G-75A Servomotor with a Holding Brake with an output torque of 14.4 Nm (30% of the rated torque) or lower when using the Servomotor in continuous operation at the maximum motor speed of 3,000 min⁻¹.

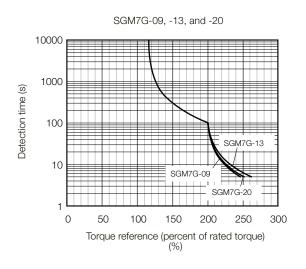
Note:

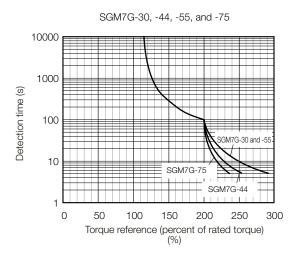
- . These values are for operation in combination with a SERVOPACK when the temperature of the armature winding is 20°C. These are typical values.
- 2. The characteristics in the intermittent duty zone depend on the power supply voltage.
- 3. If the effective torque is within the allowable range for the rated torque, the Servomotor can be used within the intermittent duty zone.
- 4. If you use a Servomotor Main Circuit Cable that exceeds 20 m, the intermittent duty zone in the torque-motor speed characteristics will become smaller because the voltage drop increases.

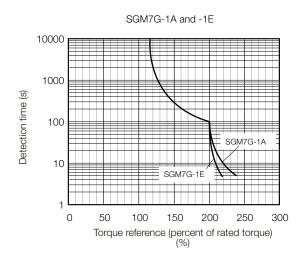
Servomotor Overload Protection Characteristics

The overload detection level is set for hot start conditions with a Servomotor surrounding air temperature of 40 °C.









Note

The above overload protection characteristics do not mean that you can perform continuous duty operation with an output of 100% or higher. Use the Servomotor so that the effective torque remains within the continuous duty zone given in Torque-Motor Speed Characteristics.

Allowable Load Moment of Inertia

The allowable load moments of inertia (motor moment of inertia ratios) for the Servomotors are given in the Servomotor Ratings. The values are determined by the regenerative energy processing capacity of the SERVOPACK and are also affected by the drive conditions of the Servomotor. Perform the required Steps for each of the following cases.

Use the SigmaSize+ AC Servo Drive Capacity Selection Program to check the driving conditions. Contact your YASKAWA representative for information on this program.

Exceeding the allowable Load Moment of Inertia

Use one of the following measures to adjust the load moment of inertia to within the allowable value.

- Reduce the torque limit.
- Reduce the deceleration rate.
- Reduce the maximum motor speed.

If the above steps are not possible, install an external regenerative resistor.

Information

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). Refer to Built-In Regenerative Resistor for the regenerative power (W) that can be processed by the SERVOPACKs.

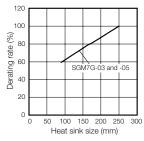
Install an External Regenerative Resistor when the built-in regenerative resistor cannot process all of the regenerative power.

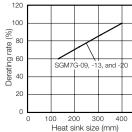
When an External Regenerative Resistor is required

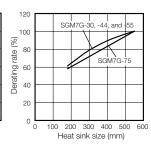
Install the External Regenerative Resistor. Refer to the following section for the recommended products.

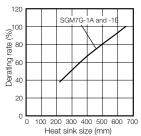
Servomotor Heat Dissipation Conditions

The Servomotor ratings are the continuous allowable values when a heat sink is installed on the Servomotor. If the Servomotor is mounted on a small device component, the Servomotor temperature may rise considerably because the surface for heat dissipation becomes smaller. Refer to the following graphs for the relation between the heat sink size and derating rate.







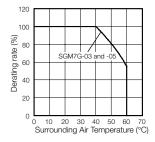


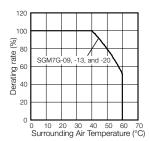


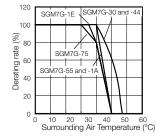
The actual temperature rise depends on how the heat sink (i.e., the Servomotor mounting section) is attached to the installation surface, what material is used for the Servomotor mounting section, and the motor speed. Always check the Servomotor temperature with the actual equipment.

Servomotor Derating Rates for surrounding Air Temperatures

Apply a suitable derating rate from the following graphs according to the surrounding air temperature of the Servomotor (60°C max.).

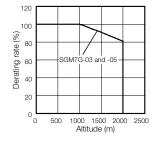


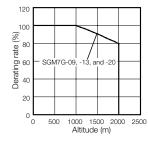


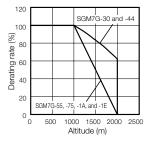


Applications where the Altitude exceeds 1,000 m

The Servomotor ratings are the continuous allowable values at an altitude of 1,000 m or less. If you use a Servomotor at an altitude that exceeds 1,000 m (2,000 m max.), the heat dissipation effect of the air is reduced. Apply the appropriate derating rate from the following graphs.







Information

When using Servomotors with derating, change the detection timing of overload warning and overload alarm based on the overload detection level of the motor given in Servomotor Overload Protection Characteristics.

Notes:

- 1. Use the combination of the SERVOPACK and Servomotor so that the derating conditions are satisfied for both the SERVOPACK and Servomotor.
- The derating rates are applicable only when the average motor speed is less than or equal to the rated motor speed. If the average motor speed exceeds the rated motor speed, consult with your YASKAWA representative.

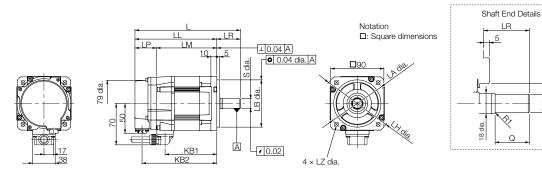
S dia.

Unit: mm

External Dimensions

Servomotors without Holding Brakes

SGM7G-03 and -05



Model SGM7G-	L*1	LL*1	LM	LP*1	LR	KB1	KB2 ^{*1}	KL1	Flange Dimensions						Shaft E Dimensi		Approx. Mass	
									LA			LE			LZ	S	Q	[kg]
03A 🗆 A21	166*2	126	90	36	40*2	75	114	70	100	80 _{-0.030}	90	5	10	120	6.6	16 ⁰ -0.011 *2	30 ^{*2}	2.6
05A□A21	179	139	103	36	40	88	127	70	100	80 _{-0.030}	90	5	10	120	6.6	16 ⁰ _{-0.013}	30	3.2

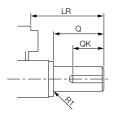
- *1. For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models. *2. The L, LR, S, and Q dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.
- Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

- The values in parentheses are for Servomotors with Holding Brakes.

 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Model SGM7G-	LR	Q	QK	S	W	Т	U	Р
03A□ A61	40*	30*	20 [*]	16 ⁰ -0.011 *	5	5	3	M5 x 2L
05A□A61	40	30	20	16 ⁰ -0.013	5	5	3	IVIO X ZL

* The shaft end dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.

Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	_
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame

* A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D

Applicable plug: Not provided by Yaskawa.

Plug: CM10-AP10S-□-D for Right-angle Plug

CM10-SP10S-□-D for Straight Plug

(□ depends on the applicable cable size.)

Manufacturer: DDK Ltd.

Servomotor Connector

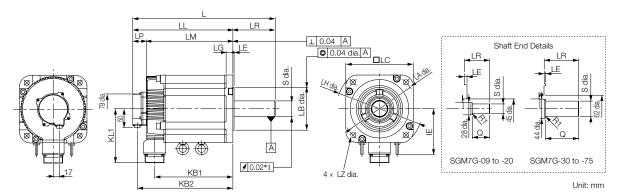


PE	FG (frame ground)	3	Phase U
5	_	2	Phase V
4	-	1	Phase W

Manufacturer: Japan Aviation Electronics Industry, Ltd.

Rotary Servomotors SGM7G

SGM7G-09 to -75



Model SGM7G-	L*2	LL*2	LM	LP*2	LR	KB1	KB2*2	ΙE	KL1	KL1 Flange Dimensions Shaft Elements		Flange Dimensions							Approx. Mass
										LA	LB	LC	LE	LG	LH	LZ	S	Q	[kg]
09A□ A21	195	137	101	36	58	83	125	-	104	145	110 ⁰ -0.035	130	6	12	165	9	24 ⁰ -0.013 *3	40	5.5
13A□A21	211	153	117	36	58	99	141	-	104	145	110 ⁰ -0.035	130	6	12	165	9	24 ⁰ -0.013 *3	40	7.1
20A□A21	229	171	135	36	58	117	159	-	104	145	110 ⁰ -0.035	130	6	12	165	9	24 ⁰ -0.013 *3	40	8.6
30A□A21	239	160	124	36	79	108	148	-	134	200	114.3 0 -0.025	180	3.2	18	230	13.5	35 ₀ ^{+0.01}	76	13.5
44A□A21	263	184	148	36	79	132	172	-	134	200	114.3 0 -0.025	180	3.2	18	230	13.5	35 ₀ ^{+0.01}	76	17.5
55A□A21	334	221	185	36	113	163	209	123	144	200	114.3 0 -0.025	180	3.2	18	230	13.5	42 ⁰ -0.016	110	21.5
75A□A21	380	267	231	36	113	209	255	123	144	200	114.3 0 -0.025	180	3.2	18	230	13.5	42 ⁰ _{-0.016}	110	29.5

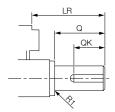
- *1. This is 0.04 for the SGM7G-55 or SGM7G-75.
- *2. For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.

 *3. The S dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.
- Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

- The values in parentheses are for Servomotors with Holding Brakes.
- 2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Model SGM7G-	LR	Q	QK	S	W	Т	U	Р
09A□A61	58	40	25	24 0 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	8*	7*	4*	
13A□A61	58	40	25	24 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8*	7*	4*	M5x12L
20A□A61	58	40	25	24 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8	7	4	
30A□A61	79	76	60	35 ₀ ^{+0.01}	10	8	5	M12×25L
44A□A61	79	76	60	35 ₀ ^{+0.01}	10	8	5	IVITZXZJL
55A□A61	113	110	90	42 ⁰ _{-0.016}	12	8	5	M16×32L
75A□A61	113	110	90	42 ⁰ -0.016	12	8	5	WITOXOZL

 $^{^{\}star}$ The shaft end dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.

Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

* A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D

Applicable plug: Not provided by Yaskawa.

Plug: CM10-AP10S-□-D for Right-angle Plug

CM10-SP10S-□-D for Straight Plug

(□ depends on the applicable cable size.)

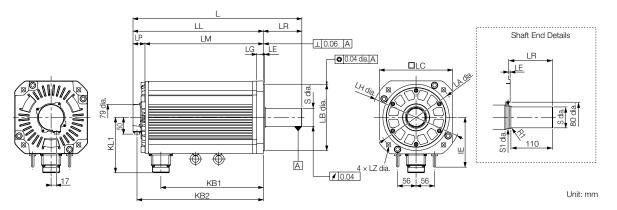
Manufacturer: DDK Ltd.

Servomotor Connector



Α	Phase U	С	Phase W
В	Phase V	D	FG (frame ground)
Manufacture	er: DDK Ltd.		

SGM7G-1A and -1E



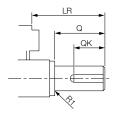
Model SGM7G-	Ľ	LL*	LM	LP⁺	LR	KB1	KB2*	KL1		Flange Dimensions							nd ons	Approx. Mass
									LA	LB	LC	LE	LG	LH	LZ	S	S1	[kg]
1AA□ A21	447	331	295	36	116	247	319	150	235	200 0 -0.046	220	4	20	270	13.5	42 ⁰ -0.016	50	57
1EA□A21	509	393	357	36	116	309	381	150	235	200 0 -0.046	220	4	20	270	13.5	55 ^{+0.030} _{+0.011}	60	67

^{*} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.

- The values in parentheses are for Servomotors with Holding Brakes.
- The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Model SGM7G-	LR	Q	QK	S	W	Т	U	Р
1AA□ A61	116	110	90	42 ⁰ -0.016	12	8	5	M16x32L
1EA□A61	116	110	90	55 ^{+0.030} _{+0.011}	16	10	6	M20x40L

Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

* A battery is required only for an absolute encoder.
Receptacle: CM10-R10P-D
Applicable plug: Not provided by YASKAWA.
Plug: CM10-AP10S-□-D for Right-angle Plug
CM10-SP10S-□-D for Straight Plug (\Box depends on the applicable cable size.) Manufacturer: DDK Ltd.

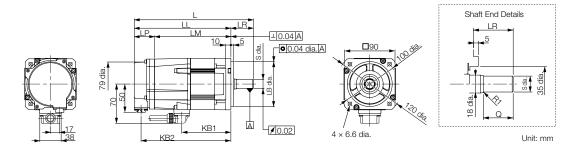
Servomotor Connector



Α	Phase U	С	Phase W
В	Phase V	D	FG (frame ground)
Manufacture	er: DDK Ltd.		

Servomotors with Holding Brakes

SGM7G-03 and -05



Model SGM7G-	Ln	LL"	LM	LP*1	LR	KB1	KB2*1	KL1	Flange Dimensions						Shaft E		Approx. Mass	
									LA	LB	LC	LE	LG	LH	LZ	S	Q	[kg]
03A 🗆 A2C	199*²	159	123	36	40*2	75	147	70	100	80 ⁰ _{-0.030}	90	5	10	120	6.6	16 ⁰ -0.011 *2	30 ^{*2}	3.6
05A□A2C	212	172	136	36	40	88	160	70	100	80 -0.030	90	5	10	120	6.6	16 ⁰ _{-0.013}	30	4.2

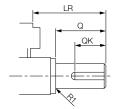
^{*1.} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.
*2. The L, LR, S, and Q dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.

Notes:

- The values in parentheses are for Servomotors with Holding Brakes.
 The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Model SGM7G-	LR	Q	QK	S	W	Т	U	Р
03A 🗆 A6C	40 [*]	30*	20 [*]	16 -0.011 *	5	5	3	M5x12L
05A□A6C	40	30	20	16 ⁰ -0.013	5	5	3	IVIOXIZE

 $^{^{\}ast}$ The shaft end dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.

Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

 * A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D

Applicable plug: Not provided by Yaskawa.
Plug: CM10-AP10S-□-D for Right-angle Plug
CM10-SP10S-□-D for Straight Plug
(□ depends on the applicable cable size.)

Manufacturer: DDK Ltd.

Servomotor Connector

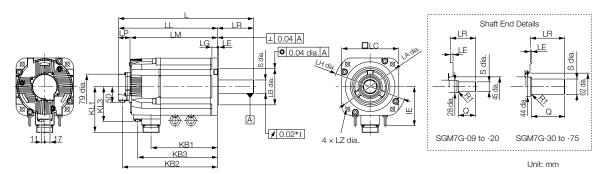


PE	FG (frame ground)	3	Phase U
5	_	2	Phase V
4	_	1	Phase W

Manufacturer: Japan Aviation Electronics Industry, Ltd.

Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

SGM7G-09 to -75



Model SGM7G-	L*2	LL*2	LM	LP*2	LR	KB1	KB2*2	KB3	ΙE	KL1	KL3	Flange Dimensions				Shaft Er Dimensio		Approx. Mass			
SGIVI7G-												LA	LB	LC	LE	LG	LH	LZ	S	Q	[kg]
09A□A2C	231	173	137	36	58	83	161	115	-	104	80	145	110 ⁰ -0.035	130	6	12	165	9	24 ⁰ -0.013 *3	40	7.5
13A□A2C	247	189	153	36	58	99	177	131	-	104	80	145	110 ⁰ -0.035	130	6	12	165	9	24 ⁰ -0.013 *3	40	9.0
20A□A2C	265	207	171	36	58	117	195	149	-	104	80	145	110 ⁰ -0.035	130	6	12	165	9	24 ⁰ -0.013 *3	40	11.0
30A□A2C	287	208	172	36	79	108	196	148	-	134	110	200	114.3 0 -0.025	180	3.2	18	230	13.5	35 ₀ ^{+0.01}	76	19.5
44A□A2C	311	232	196	36	79	132	220	172	-	134	110	200	114.3 0 -0.025	180	3.2	18	230	13.5	35 ₀ ^{+0.01}	76	23.5
55A□A2C	378	265	229	36	113	163	253	205	123	144	110	200	114.3 0 -0.025	180	3.2	18	230	13.5	42 ⁰ -0.016	110	27.5
75A□A2C	424	311	275	36	113	209	299	251	123	144	110	200	114.3 0 -0.025	180	3.2	18	230	13.5	42 ⁰ _{-0.016}	110	35.0

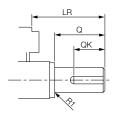
- *1. This is 0.04 for the SGM7G-55 or SGM7G-75.
- *2. For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.

 *3. The S dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.
- Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

- The values in parentheses are for Servomotors with Holding Brakes.
- 2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Model SGM7G-	LR	Q	QK	S	w	Т	U	Р
09A□ A6C	58	40	25	24 -0.013 *	8*	7*	4*	
13A□A6C	58	40	25	24 -0.013 *	8*	7*	4*	M5x12L
20A□A6C	58	40	25	24 -0.013 *	8	7	4	
30A□A6C	79	76	60	35 ₀ ^{+0.01}	10	8	5	M12×25L
44A□A6C	79	76	60	35 ₀ ^{+0.01}	10	8	5	IVI I Z X Z U L
55A□A6C	113	110	90	42 ⁰ _{-0.016}	12	8	5	M16×32L
75A□A6C	113	110	90	42 ⁰ -0.016	12	8	5	WITUXOZL

^{*} The shaft end dimensions of these Servomotors are different from those of the S-V-series SGMGV Servomotors.

Models that have the same installation dimensions as the SGMGV Servomotors are also available. Contact your YASKAWA representative for details.

Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

* A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D

Applicable plug: Not provided by Yaskawa.

Plug: CM10-AP10S-□-D for Right-angle Plug

CM10-SP10S-□-D for Straight Plug

(□ depends on the applicable cable size.)

Manufacturer: DDK Ltd.

Servomotor Connector



	А	Phase U	С	Phase W
	В	Phase V	D	FG (frame ground)
Ma	anufacture	r: DDK Ltd.		

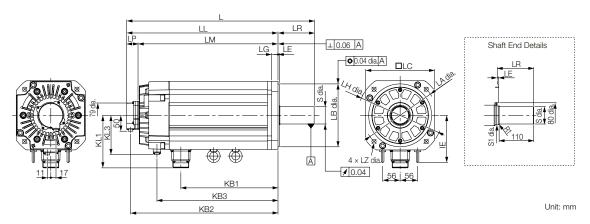
Brake Connector



1	Brake terminal
2	Brake terminal

Note: There is no voltage polarity for the brake terminals. Receptacle: CM10-R10P-D Applicable plug: Not provided by Yaskawa.
Plug: CM10-AP2S-□-D for Right-angle Plug
CM10-SP2S-□-D for Straight Plug (\square depends on the applicable cable size.) Manufacturer: DDK Ltd.

SGM7G-1A and -1E



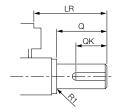
Model SGM7G-	L*	LL*	LM	LP*	LR	KB1	KB2*	КВЗ	ΙE	KL1	KL3					Shaft Er Dimensio		Approx. Mass			
SGW/G-												LA	LB	LC	LE	LG	LH	LZ	S	S1	[kg]
1AA□A2C	498	382	346	36	116	247	370	315	150	168	125	235	200 0 -0.046	220	4	20	270	13.5	42 ⁰ _{-0.016}	50	65
1EA□A2C	598	482	446	36	116	309	470	385	150	168	125	235	200 0 -0.046	220	4	20	270	13.5	55 ^{+0.030} _{+0.011}	60	85

^{*} For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.

- The values in parentheses are for Servomotors with Holding Brakes.
- 2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

Shaft End Specifications

Straight with Key and Tap





Model SGM7G-	LR	Q	QK	S	W	Т	U	Р
1AA□A6C	116	110	90	42 ⁰ -0.016	12	8	5	M16x32L
1EA□A6C	116	110	90	55 ^{+0.030} _{+0.011}	16	10	6	M20x40L

Connector Specifications

Encoder Connector (24-bit Encoder)



1	PS	6*	BAT(+)
2	/PS	7	-
3	-	8	-
4	PG5V	9	PG0V
5*	BAT(-)	10	FG (frame ground)

* A battery is required only for an absolute encoder. Receptacle: CM10-R10P-D

Applicable plug: Not provided by YASKAWA.
Plug: CM10-AP10S-□-D for Right-angle Plug
CM10-SP10S-□-D for Straight Plug (\Box depends on the applicable cable size.) Manufacturer: DDK Ltd.

Servomotor Connector



Δ	Phase U	C	Phase W
	i ilase o	O	
В	Phase V	D	FG (frame ground)
Manufacture	er: DDK Ltd.		

Brake Connector



1	Brake terminal
2	Brake terminal
Note: There	is no voltage polarity for the brake terminals.

Receptacle: CM10-R10P-D Applicable plug: Not provided by YASKAWA.
Plug: CM10-AP2S-□-D for Right-angle Plug
CM10-SP2S-□-D for Straight Plug (☐ depends on the applicable cable size.)

Manufacturer: DDK Ltd.

Dimensions of Servomotors with batteryless Absolute Encoders

Servomotors without Holding Brakes

Model SGM7G-	L	LL	LP	KB2	Approx. Mass [kg]
03A6A21	174	134	44	122	2.6
05A6A21	187	147	44	135	3.2
09A6A21	203	145	44	133	5.5
13A6A21	219	161	44	149	7.1
20A6A21	237	179	44	167	8.6
30A6A21	247	168	44	156	13.5
44A6A21	271	192	44	180	17.5
55A6A21	342	229	44	217	21.5
75A6A21	388	275	44	263	29.5
1AA6A21	455	339	44	327	57
1EA6A21	514	401	44	389	67

Servomotors with Holding Brakes

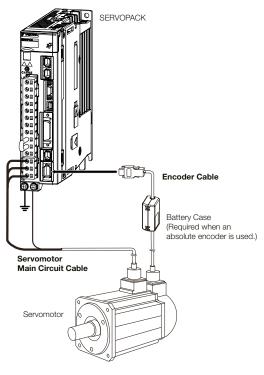
Model SGM7G-	L	LL	LP	KB2	Approx. Mass [kg]
03A6A2C	207	167	44	155	3.6
05A6A2C	220	180	44	168	4.2
09A6A2C	239	181	44	169	7.5
13A6A2C	255	197	44	185	9.0
20A6A2C	273	215	44	203	11
30A6A2C	295	216	44	204	19.5
44A6A2C	319	240	44	228	23.5
55A6A2C	386	273	44	261	27.5
75A6A2C	432	319	44	307	35.0
1AA6A2C	506	390	44	378	65
1EA6A2C	606	490	44	478	85

Selecting Cables SGM7G

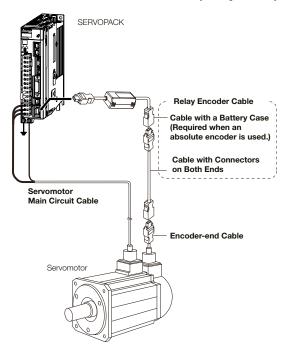
Cable Configurations

The cables shown below are required to connect a Servomotor to a SERVOPACK.

Encoder Cable of 20 m or less



Encoder Cable of 30 m to 50 m (Relay Cable)



- Cables with connectors on both ends that are compliant with an IP67 protective structure and European Safety Standards are not available from YASKAWA for the SGM7G Servomotors. You must make such a cable yourself. Use the Connectors specified by YASKAWA for these Servomotors. (These Connectors are compliant with the standards.) YASKAWA
- does not specify what wiring materials to use.

 If the Encoder Cable length exceeds 20 m, be sure to use a Relay Encoder Cable.

 If you use a Servomotor Main Circuit Cable that exceeds 20 m, the intermittent duty zone in the torquemotor speed characteristics will become smaller because the voltage drop increases.
- Refer to the following manual for the following information.
- Cable dimensional drawings and cable connection specifications Order numbers and specifications of individual connectors for cables
- Order numbers and specifications for wiring materials Sigma-7-Series AC Servo Drive Peripheral Device Selection Manual (Manual No.: SIEP S800001 32)

Servomotor Main Circuit Cables

Servomotor Model	Description	Length	Order Number*	Appearance
		3 m	JZSP-CVM21-03-E-G#	SERVOPACK end Motor end
		5 m	JZSP-CVM21-05-E-G#	SETVOLAGICA MICIOLAGIA
	For Servomotors without Holding Brakes	10 m	JZSP-CVM21-10-E-G#	•
		15 m	JZSP-CVM21-15-E-G#	
		20 m	JZSP-CVM21-20-E-G#	
SGM7G-03 and -05 300 W, 450 W		30 m	JZSP-CVM21-30-E-G#	
		3 m	JZSP-CVM41-03-E-G#	SERVOPACK end Motor end
	For Servomotors with Holding Brakes	5 m	JZSP-CVM41-05-E-G#	,
		10 m	JZSP-CVM41-10-E-G#	
		15 m	JZSP-CVM41-15-E-G#	
		20 m	JZSP-CVM41-20-E-G#	>− □

^{*} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.

Servomotor Model	Description	Connector	Length	Order Number	Appearance		
Servomotor Moder	Description	Specifications	Lengin	Flexible Cable*1	Арреагансе		
					3 m	JZSP-CVMCA12-03-E-G#	SERVOPACK Motor end
	For Servo- motors		5m	JZSP-CVMCA12-05-E-G#	end L		
	without	Right-angle	10 m	JZSP-CVMCA12-10-E-G#			
	Holding Brakes		15 m	JZSP-CVMCA12-15-E-G#			
	Dianoo	20 m		JZSP-CVMCA12-20-E-G#			
		3m			0.00	JZSP-CVMCA12-03-E-G#	
SGM7G-09 to -20			JZSP-CVB12Y-03-E-G#	SERVOPACK Motor end end I			
850 W, 1.8 kW			5m	JZSP-CVMCA12-05-E-G#			
	For Servo- motors		3111	JZSP-CVB12Y-05-E-G#			
	with Holding Brakes (Set of Two	Right-angle	10 m	JZSP-CVMCA12-10-E-G#			
			10111	JZSP-CVB12Y-10-E-G#	Brake end Motor end		
		(Set of Two Cables*2)		45	JZSP-CVMCA12-15-E-G#	<u> </u>	
	- Cab.co)		15 m	JZSP-CVB12Y-15-E-G#			
			20 m	JZSP-CVMCA12-20-E-G#			
			20111	JZSP-CVB12Y-20-E-G#			

^{*1.} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.
*2. This order number is for a set of two cables (Main Power Supply Cable and Holding Brake Cable).
When you purchase them separately, the order numbers for Main Power Supply Cables are the same as for a Servomotor without a Holding Brake.
The following order numbers are for a Holding Brake Cable. These Standard Cables are Flexible Cables.

Cable with Straight Plug: JZSP-U7B23-□□-E
Cable with Right-angle Plug: JZSP-U7B24-□□-E

Rotary Servomotors SGM7G

Servomotor	Description	Connector	Longth	Order Number	Annogrange					
Model	Description	Specifications	Length	Flexible Cable*1	Appearance					
				3m	JZSP-CVMCA13-03-E-G#	SERVOPACK Motor end				
	For Servo- motors		5 m	JZSP-CVMCA13-05-E-G#	end L					
	without	Right-angle	10 m	JZSP-CVMCA13-10-E-G#						
	Holding Brakes		15 m	JZSP-CVMCA13-15-E-G#						
	Dianes		20 m	JZSP-CVMCA13-20-E-G#	innumi.					
SGM7G-30				JZSP-CVMCA13-03-E-G#						
and -44			3m	JZSP-CVB12Y-03-E-G#	SERVOPACK Motor end					
2.9 kW.	For Servo-		5 m	JZSP-CVMCA13-05-E-G#	\$2-10 WH					
4.4 kW	motors		3111	JZSP-CVB12Y-05-E-G#						
	with Holding Brakes	Right-angle	10m	JZSP-CVMCA13-10-E-G#						
		r iigi ic ai igio		JZSP-CVB12Y-10-E-G#	Brake end Motor end					
	(Set of Two Cables*2)				15m	JZSP-CVMCA13-15-E-G#				
	Cables)			JZSP-CVB12Y-15-E-G#						
			20 m	JZSP-CVMCA13-20-E-G# JZSP-CVB12Y-20-E-G#						
			3 m	JZSP-CVMCA14-03-E-G#	OFFIVORACIÓ NA L					
	For Servo-		5m	JZSP-CVMCA14-05-E-G#	SERVOPACK Motor end end I					
	motors	Dight angle		JZSP-CVMCA14-10-E-G#	©=====================================					
	without Holding	Right-angle	10m							
	Brakes		15m	JZSP-CVMCA14-15-E-G#						
			20 m	JZSP-CVMCA14-20-E-G#						
SGM7G-55			3 m	JZSP-CVMCA14-03-E-G# JZSP-CVB12Y-03-E-G#	SERVOPACK Motor end					
Galvii a-55						JZSP-CVMCA14-05-E-G#	end L			
5.5 kW	For Servo- motors		5m	JZSP-CVB12Y-05-E-G#						
	with Holding					olding			JZSP-CVMCA14-10-E-G#	
	Brakes	Right-angle	10m	JZSP-CVB12Y-10-E-G#	Brake end Motor end					
	(Set of Two		15 m	JZSP-CVMCA14-15-E-G#	<u> </u>					
	Cables*2)		15 m	JZSP-CVB12Y-15-E-G#						
			20 m	JZSP-CVMCA14-20-E-G#						
			20111	JZSP-CVB12Y-20-E-G#						

^{*1.} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.

*2. This order number is for a set of two cables (Main Power Supply Cable and Holding Brake Cable). When you purchase them separately, the order numbers for Main Power Supply Cables are the same as for a Servomotor without a Holding Brake.

The following order numbers are for a Holding Brake Cable. These Standard Cables are Flexible Cables.

• Cable with Straight Plug: JZSP-U7B23-□-E

• Cable with Right-angle Plug: JZSP-U7B24-□-E

Note: If you need a Cable with a length of 20 m to 50 m, consider the operating conditions and specify a suitable length.

Servomotor Model	Description	Connector Specifications	Length	Flexible Cable*1	Appearance		
		3m	JZSP-CVMCA15-03-E-G#				
	For Servo-		5m	JZSP-CVMCA15-05-E-G#	SERVOPACK Motor end end		
	motors without	Right-angle	10 m	JZSP-CVMCA15-10-E-G#			
	Holding Brakes		15 m	JZSP-CVMCA15-15-E-G#			
SGM7G- 75			20 m	JZSP-CVMCA15-20-E-G#			
ind -1A			3m	JZSP-CVMCA15-03-E-G# JZSP-CVB12Y-03-E-G#	SERVOPACK Motor end		
7.5 kW, I 1 kW	For Servo- motors		5m	JZSP-CVMCA15-05-E-G# JZSP-CVB12Y-05-E-G#	end		
	with Holding Brakes	Right-angle	10 m	JZSP-CVMCA15-10-E-G# JZSP-CVB12Y-10-E-G#	Brake end Motor end		
	(Set of Two Cables*2)		15 m	JZSP-CVMCA15-15-E-G# JZSP-CVB12Y-15-E-G#			
				20 m	JZSP-CVMCA15-20-E-G# JZSP-CVB12Y-20-E-G#		
			3m	JZSP-CVMCA16-03-E-G#			
	For Servo-	notors vithout Right-angle 10m JZSP-	5m	JZSP-CVMCA16-05-E-G#	SERVOPACK Motor end end L		
	motors without		JZSP-CVMCA16-10-E-G#				
	Holding Brakes		15 m	JZSP-CVMCA16-15-E-G#			
			20 m	JZSP-CVMCA16-20-E-G#			
SGM7G- 1E			3m	JZSP-CVMCA16-03-E-G# JZSP-CVB12Y-03-E-G#	SERVOPACK Motor end		
5kW	For Servo- motors		5m	JZSP-CVMCA16-05-E-G# JZSP-CVB12Y-05-E-G#	end		
	with Holding Brakes	Right-angle	0	O .	10 m	JZSP-CVMCA16-10-E-G# JZSP-CVB12Y-10-E-G#	Brake end Motor end
	(Set of Two Cables*2)		15 m	JZSP-CVMCA16-15-E-G# JZSP-CVB12Y-15-E-G#	State on a second state of the second state of		
			20 m	JZSP-CVMCA16-20-E-G# JZSP-CVB12Y-20-E-G#			

^{*1.} Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.
*2. This order number is for a set of two cables (Main Power Supply Cable and Holding Brake Cable). When you purchase them separately, the order numbers for Main Power Supply Cables are the same as for a Servomotor without a Holding Brake.
The following order numbers are for a Holding Brake Cable. These Standard Cables are Flexible Cables.

• Cable with Straight Plug: JZSP-U7B23-□□-E

**Note: If you need a Cable with a length of 20 m to 50 m, consider the operating conditions and specify a suitable length.

Rotary Servomotors SGM7G

Encoder Cables of 20 m or less

Servomotor	Description	Length		Appearance
Model	Description	Lengin	Flexible Cable*1	Appearance
	For incre-	3 m	JZSP-CVP12-03-E-G#	OFFINORACIA F
	mental encoder,	5m	JZSP-CVP12-05-E-G#	SERVOPACK Encoder end end L
	or battery-	10 m	JZSP-CVP12-10-E-G#	
	less absolute encoder	15 m	JZSP-CVP12-15-E-G#	
All SGM7G		20 m	JZSP-CVP12-20-E-G#	
Models		3 m	JZSP-CVP27-03-E-G#	SERVOPACK Encoder end
	For absolute encoder: With	5m	JZSP-CVP27-05-E-G#	end L
		10 m	JZSP-CVP27-10-E-G#	
	Battery Case*2	15 m	ting.	Battery Case
	0400	20 m	JZSP-CVP27-20-E-G#	(battery included)

- *1. Use Flexible Cables for moving parts of machines, such as robots. The recommended bending radius (R) is 90 mm or larger.
 *2. If a battery is connected to the host controller, the Battery Case is not required. If so, use a cable for incremental encoders.

Encoder Extension Cables of 30 m or above

Servomotor Model	Description	Length	Order Number	Appearance
	Cable with Connectors (For incremental and	30 m	JZSP-UCMP00-30-E	SERVOPACK End L Encoder End
All SGM7G models		40 m	JZSP-UCMP00-40-E	
	absolute encoder)	50 m	JZSP-UCMP00-50-E	Connector (Crimped) Socket Connector (Soldered) (Molex Japan Co., Ltd.) (Molex Japan Co., Ltd.)

Note: Encoder Extension cables can only be used together with suitable Encoder Cables.