Rotary Servomotors

SGMEV



Model Designations

● Without Gears

SGMEV - 02 D A A 2 1

Σ-V Series Servomotor SGMEV	1st+2nd digits	3rd digit	4th digit	5th digit	6th digit	7th digit

1st+2nd digits Rated Output

Code		Specifications
Cubic form	01	100 W *
	02	200 W
	04	400 W
	08	750 W
	15	1.5 kW
Small flange	03	300 W **
	07	650 W **

* : Power Supply Voltage 200 VAC only
** : Power Supply Voltage 400 VAC only

3rd digit Power Supply Voltage

Code	Specifications
A	200 VAC
D	400 VAC

4th digit Serial Encoder

Code	Specifications
3	20-bit absolute (standard)
D	20-bit incremental (standard)

5th digit Design Revision Order

Code	Specifications
A	IP-55 Standard
E	IP-67 water-proof specifications (SGMEV-01, 02, 04, 08, 15)
F	Prepared for oil seal mounting (SGMEV-03, 07)

6th digit Shaft End

Code	Specifications
2	Straight without key (standard)
4	Straight with key (option)
6	Straight with key and tap (option)
8	Straight with tap (option)

7th digit Options

Code	Specifications
1	Without options
C	With holding brake (24 VDC)
E	With oil seal and holding brake (24 VDC)
S	With oil seal

Features

- Low and medium inertia
- Wide selection: 100 W to 1.5 kW capacity, holding brake option
- Mounted serial encoder: 20 bits, high resolution
- Protective structure: Standard protection IP55, expandable to IP67

Application Examples

- Transfer machines
- Material handling machines
- Food processing equipment
- Packaging



SGMEV-03DDA61

(Small flange)

SGMEV-08DDA61

(Cubic form)



Ratings and Specifications

Time Rating: Continuous
Vibration Class: V15
Insulation Resistance: 500 VDC, 10 MΩ min.
Ambient Temperature: 0 to 40°C
Excitation: Permanent magnet
Mounting: Flange-mounted
Thermal Class: B (130°C)
Withstand Voltage: 1500 VAC for one minute
Enclosure: Totally enclosed, self-cooled, IP55 (except for shaft opening)
Ambient Humidity: 20% to 80% (no condensation)
Drive Method: Direct drive
Rotation Direction: Counterclockwise (CCW) with forward run reference when viewed from the load side

200-V Class

Servomotor Model: SGMEV-□□□		01A	02A	04A	08A	15A
Rated Output*1	kW	0.1	0.2	0.4	0.75	1.5
Rated Torque*1, *2	Nm	0.318	0.637	1.27	2.39	4.77
Instantaneous Peak Torque*1	Nm	0.955	1.91	3.82	7.16	14.3
Rated Current*1	Arms	0.89	2.0	2.6	4.1	7.5
Instantaneous Max. Current*1	Arms	2.8	6.5	8.5	13.9	23.0
Rated Speed*1	min^{-1}	3000				
Max. Speed*1	min^{-1}	5000				
Torque Constant	Nm/Arms	0.392	0.349	0.535	0.641	0.687
Rotor Moment of Inertia	$\times10^{-4}$ kgm^2	0.0491 (0.0781)	0.193 (0.302)	0.331 (0.440)	2.10 (2.975)	4.02 (4.895)
Rated Power Rate*1	kW/s	20.6	21.0	49.0	27.1	56.7
Rated Angular Acceleration*1	rad/s^2	64800	33000	38500	11400	11900
Applicable SERVOPACK	SGDV-□□□□	R90A	1R6A	2R8A	5R5A	120A*3

*1: These items and torque-speed characteristics quoted in combination with an SGDV SERVOPACK are at an armature winding temperature of 100°C. Other values quoted are at 20°C.
*2: Rated torques are continuous allowable torque values at 40°C with an aluminum heat sink of the following dimensions attached.
SGMEV-01A, -02A, -04A: 250 mm × 250 mm × 6 mm
SGMEV-08A, -15A: 300 mm × 300 mm × 12 mm
*3: Single-phase 200 VAC SERVOPACKs are also available (base-mounted SERVOPACK model: SGDV-120A□□A008000, rack-mounted SERVOPACK model: SGDV-120A□□A009000).
Notes: The values in parentheses are for servomotors with holding brakes.

400-V Class

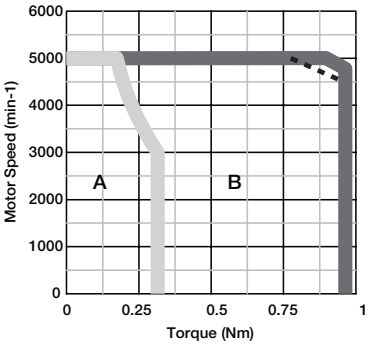
Servomotor Model: SGMEV-□□□		02D	03D	04D	07D	08D	15D
Rated Output*1	kW	0.2	0.3	0.4	0.65	0.75	1.5
Rated Torque*1, *2	Nm	0.637	0.955	1.27	2.07	2.39	4.77
Instantaneous Peak Torque*1	Nm	1.91	3.82	3.82	7.16	7.16	14.3
Rated Current*1	Arms	1.4	1.3	1.4	2.2	2.6	4.5
Instantaneous Max. Current*1	Arms	4.5	5.1	4.4	7.7	7.8	13.7
Rated Speed*1	min^{-1}	3000					
Max. Speed*1	min^{-1}	5000					
Torque Constant	Nm/Arms	0.481	0.837	0.963	1.02	0.994	1.135
Rotor Moment of Inertia	$\times10^{-4}$ kgm^2	0.193 (0.302)	0.173 (0.231)	0.331 (0.440)	0.672 (0.812)	2.1 (2.975)	4.02 (4.895)
Rated Power Rate*1	kW/s	21.0	52.9	49.0	63.8	27.1	56.7
Rated Angular Acceleration*1	rad/s^2	33000	55300	38500	30800	11400	11900
Applicable SERVOPACK	SGDV-□□□□	1R9D	1R9D	1R9D	3R5D	3R5D	5R4D

*1: These items and torque-speed characteristics quoted in combination with an SGDV SERVOPACK are at an armature winding temperature of 100°C. Other values quoted are at 20°C.
*2: Rated torques are continuous allowable torque values at 40°C with an aluminum heat sink of the following dimensions attached.
SGMEV-02D, -03D, -04D, -07D: 250 mm × 250 mm × 6 mm
SGMEV-08D, -15D: 300 mm × 300 mm × 12 mm
Notes: The values in parentheses are for servomotors with holding brakes.

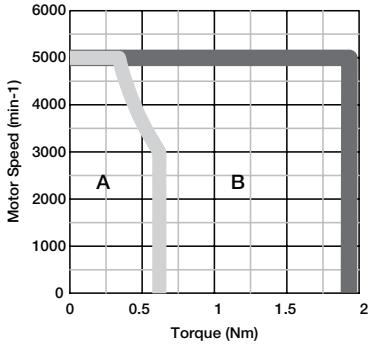
Ratings and Specifications

● Torque-Speed Characteristics (200 V/400 V) A: Continuous Duty Zone B: Intermittent Duty Zone

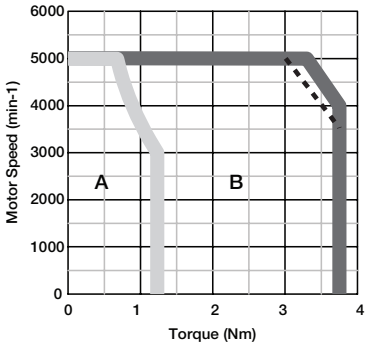
SGMEV-01A



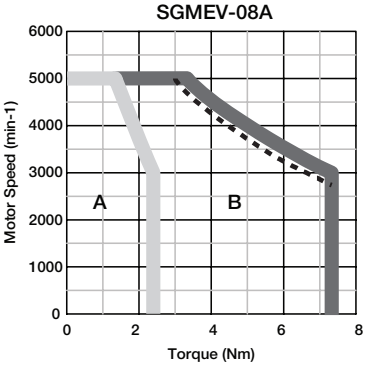
SGMEV-02A



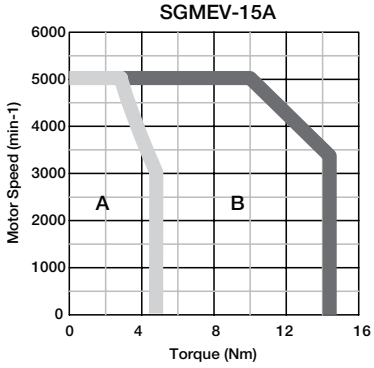
SGMEV-04A



SGMEV-08A



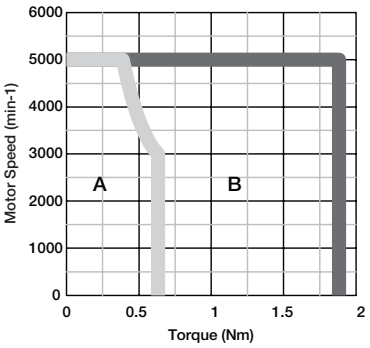
SGMEV-15A



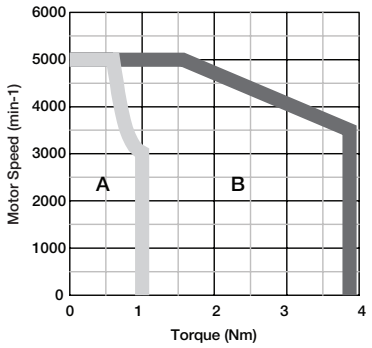
*1. The solid line of the intermittent duty zone shows the characteristics on three-phase 200 V AC and single-phase 230 V AC, the dotted line on single phase 200 V AC. Regarding to SGMEV-02A, the characteristics on single phase 200 V AC is the same as three-phase 200 V AC and single-phase 230 V AC. Regarding to SGMEV-15A, the input power supply of the servopack "SGDV" is only three-phase 200 V AC.

*2. The torque-speed characteristics vary on the values of input power supply voltage.

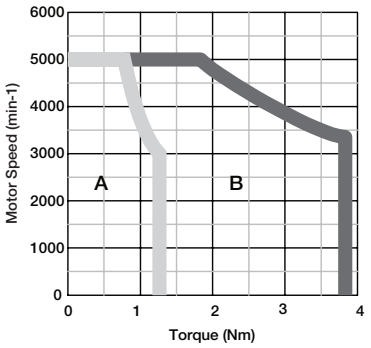
SGMEV-02D



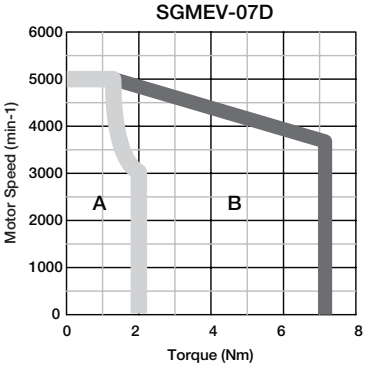
SGMEV-03D



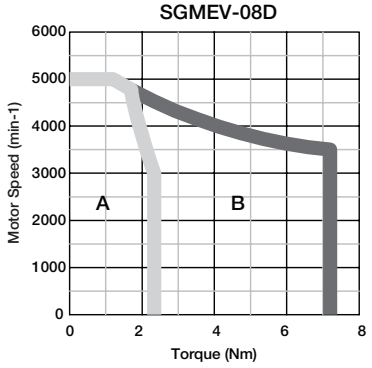
SGMEV-04D



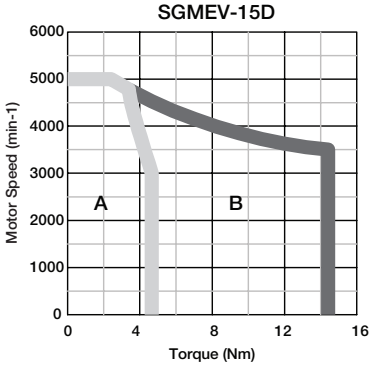
SGMEV-07D



SGMEV-08D



SGMEV-15D



Notes: 1 When the effective torque during intermittent duty is within the rated torque, the servomotor can be used within the intermittent duty zone.
2 When the power cable length exceeds 20 m, note that the intermittent duty zone of the *Torque-Speed Characteristics* will shrink as the line-to-line voltage drops.

Ratings and Specifications

● Derating values for Servomotor fitted with an Oil Seal

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

Servomotor Model SGMEV-	01A	02A, 02D	03D	04A, 04D	07D	08A, 08D	15A, 15D
Derating Rate %	90		95				

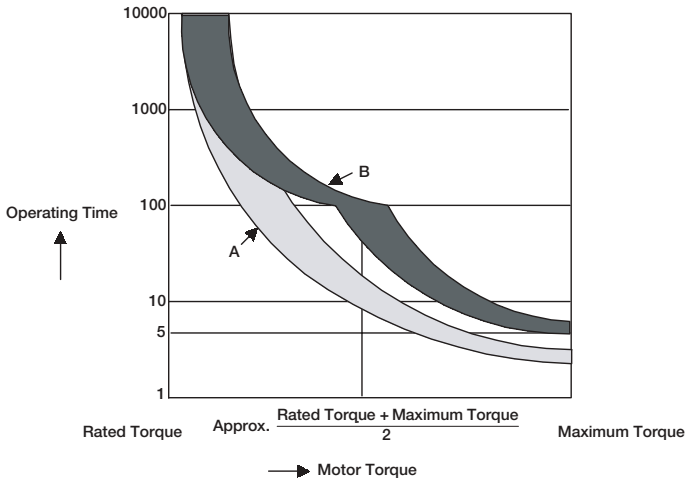
● Holding Brake Electrical Specifications

Servomotor Model	Servomotor Rated Output kW	Holding Brake Specifications					
		Holding Torque Nm	Rated Voltage 24 VDC				
			Capacity W	Coil Resistance Ohm (at 20℃)	Rated Current A (at 20℃)	Brake Release Time ms	Brake Operation Time ms
SGMEV-01	0.1	0.318	6	114	0.25	60	100
SGMEV-02	0.2	0.637	5	115	0.21		
SGMEV-03	0.3	0.955	6.9	83.5	0.29		
SGMEV-04	0.4	1.27	7.6	76	0.32		
SGMEV-07	0.65	2.07	7.7	75.2	0.32		
SGMEV-08	0.75	2.39	7.5	76.8	0.31		
SGMEV-15	1.5	4.77	10	57.6	0.42		

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

● Overload Characteristics

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



Note: Curve A applies to SGMEV motors up to 400 W
Curve B applies to motors with a capacity from 650 W up to 1.5 kW

● Allowable Load Moment of Inertia at the Motor Shaft

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

Servomotor Model		Servomotor Rated Output	Allowable Load Moment of Inertia (Rotor Moment of Inertia Ratio)
SGMEV-	01A	0.1 kW	25 times
	02A, 02D	0.2 kW	15 times
	03D	0.3 kW	20 times
	04A, 04D	0.4 kW	7 times
	07D	0.65 kW	20 times
	08A, 08D	0.75 kW	5 times
	15A, 15D	1.5 kW	5 times

Ratings and Specifications

● Load Moment of Inertia

The larger the load moment of inertia, the worse the movement response.

The allowable load moment of inertia (J_L) depends on the motor capacity, as shown above. This value is provided strictly as a guideline and results may vary depending on servomotor drive conditions.

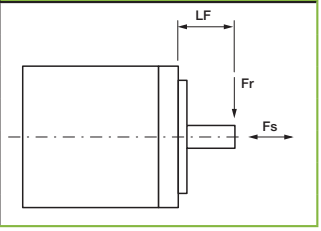
Use the AC servo drive capacity selection program SigmaJunmaSize+ to check the operation conditions. The program can be downloaded for free from our web site (http://www.yaskawa.eu.com).

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

- Reduce the torque limit.
- Reduce the deceleration rate.
- Reduce the maximum speed.
- Install an external regenerative resistor if the alarm cannot be cleared using the steps above. Regenerative Resistors are not built into 400 W SGDV-2R8 SERVOPACKs.

● Allowable Radial and Thrust Loads

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

Servomotor Model		Allowable Radial Load (Fr) N	Allowable Thrust Load (Fs) N	LF mm	Reference Diagram
SGMEV-	01A	78	49	20	
	02A, 02D	245	68	25	
	03D		74	30	
	04A, 04D		68	25	
	07D	392	147	35	
	08A, 08D				
	15A, 15D	490		40	

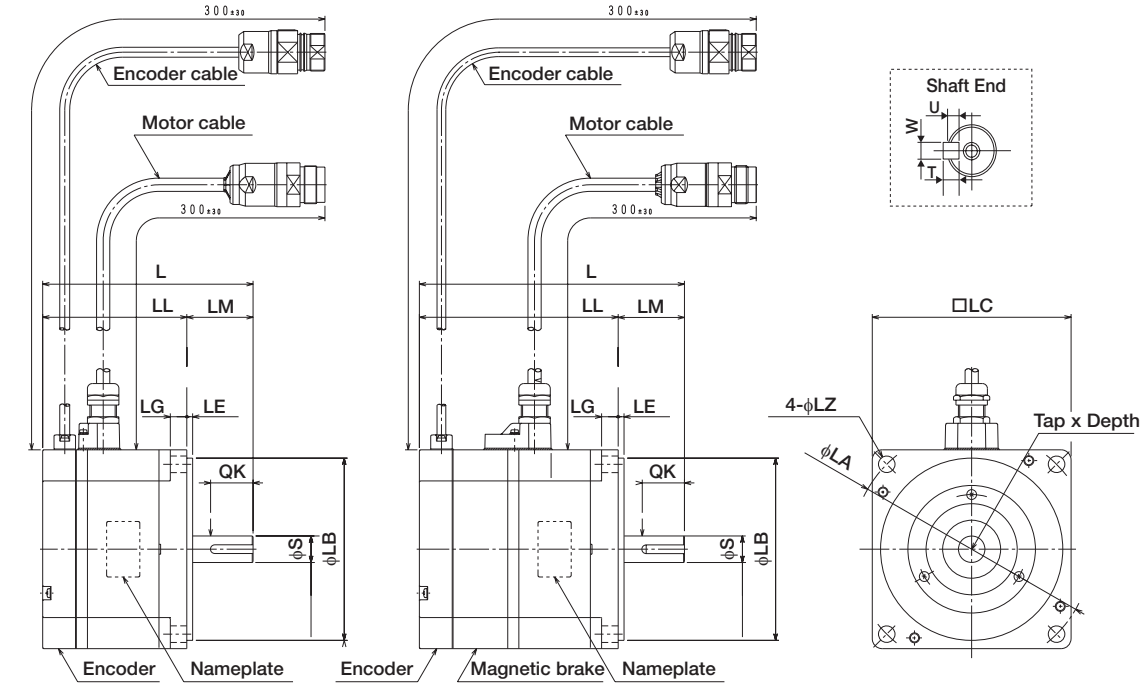
● Connector Specifications 200-V Class

Servomotor Model SGMEV-	01A	02A, 04A, 08A	15A
Encoder-end connector	SRUC17GMRWN087		
Pin	021.402.1020		
Manufacturer	Interconnectron		
Servomotor-end connector	SRUC06JMSCN027	SRUC06JMSCN109	SRUC06JMSCN276
Pin	021.423.1020		
Manufacturer	Interconnectron		

● Connector Specifications 400-V Class

Servomotor Model SGMEV-	02D, 03D, 04D, 07D, 08D, 15D
Encoder-end connector	SRUC17GMRWN087
Pin	021.402.1020
Manufacturer	Interconnectron
Servomotor-end connector	LRRA06AMRPN182
Pin	021.279.1020
Manufacturer	Interconnectron

External Dimensions SGMEV-02D, -04D, -08D, -15D Units: mm



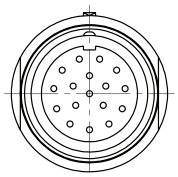
Models without Brake

Models with Brake

Model SGMEV-	L	LL	LM	Flange Face Dimensions						Shaft End Dimensions						Approx. Mass kg
				LA	LB	LC	LE	LG	LZ	S	QK	W	T	U	Tap x Depth	
02D□A61 (02D□A6C)	97 (128.5)	67 (98.5)	30	90	$70^{0}_{-0.030}$	80	3	8	7	$14^{0}_{-0.011}$	16	5	5	3	M5 x 8L	1.4 (1.9)
04D□A61 (04D□A6C)	117 (148.5)	87 (118.5)														2.1 (2.6)
08D□A61 (08D□A6C)	126.5 (160)	86.5 (120)	40	145	$110^{0}_{-0.035}$	120	3.5	10	10	$16^{0}_{-0.011}$	22					4.2 (4.7)
15D□A61 (15D□A6C)	154.5 (188)	114.5 (148)								$19^{0}_{-0.013}$		6	6	3.5	M6 x 10L	6.6 (8.1)

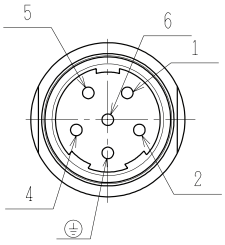
Note: The models with oil seals are of the same configuration.
The models and values in parentheses are for servomotors with holding brakes.

• Cable Specifications for Encoder-end Connector



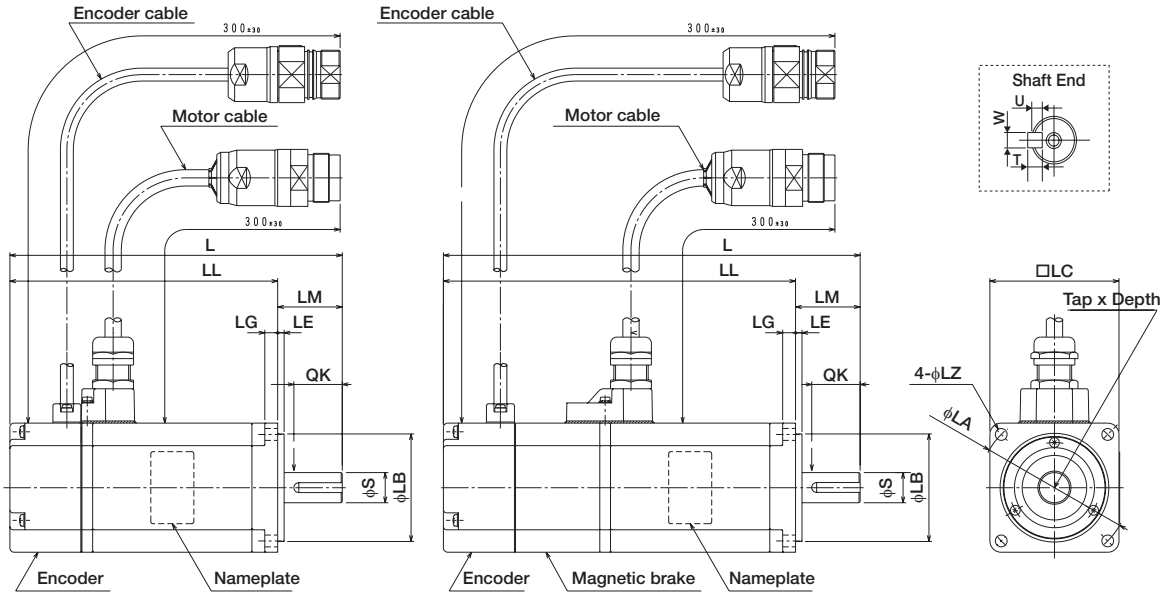
Pin No.	Description	Colour
1	0 V (Battery)	Orange/White
2	3.6 V (Battery)	Orange
3	Data +	Blue
4	Data -	Blue/White
5 - 7	Free	-
8	+ 5 V (Power Supply)	Red
9	0 V (Power Supply)	Black
10 - 17	Free	-
Connector Case	Frame ground	Shield wire

• Cable Specifications for Servomotor-end Connector



Pin No.	Description	Colour
1	Phase U	Red
2	Phase V	White
4	Phase W	Blue
5, 6	Brake and/or Free	Black
⏚	Frame ground	Green/Yellow

External Dimensions SGMEV-03D, -07D Units: mm



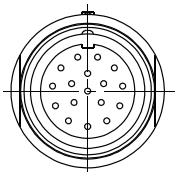
Models without Brake

Models with Brake

Model SGMEV-	L	LL	LM	Flange Face Dimensions						Shaft End Dimensions						Approx. Mass kg
				LA	LB	LC	LE	LG	LZ	S	QK	W	T	U	Tap x Depth	
03D□A61 (03D□A6C)	154.5 (194)	124.5 (164)	30	70	$50^{0}_{-0.025}$	60	3	6	5.5	$14^{0}_{-0.011}$	20	5	5	3	M5 x 8L	1.7 (2.2)
07D□A61 (07D□A6C)	185 (229.5)	145 (189.5)	40	90	$70^{0}_{-0.025}$	80	3	8	70	$16^{0}_{-0.011}$	30					3.4 (4.3)

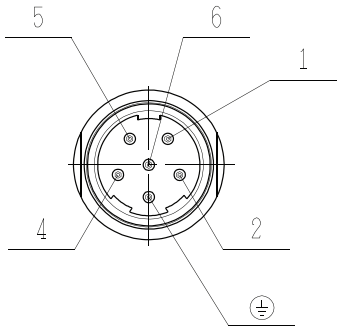
Note: The models with oil seals are of the same configuration.
The models and values in parentheses are for servomotors with holding brakes.

• Cable Specifications for Encoder-end Connector



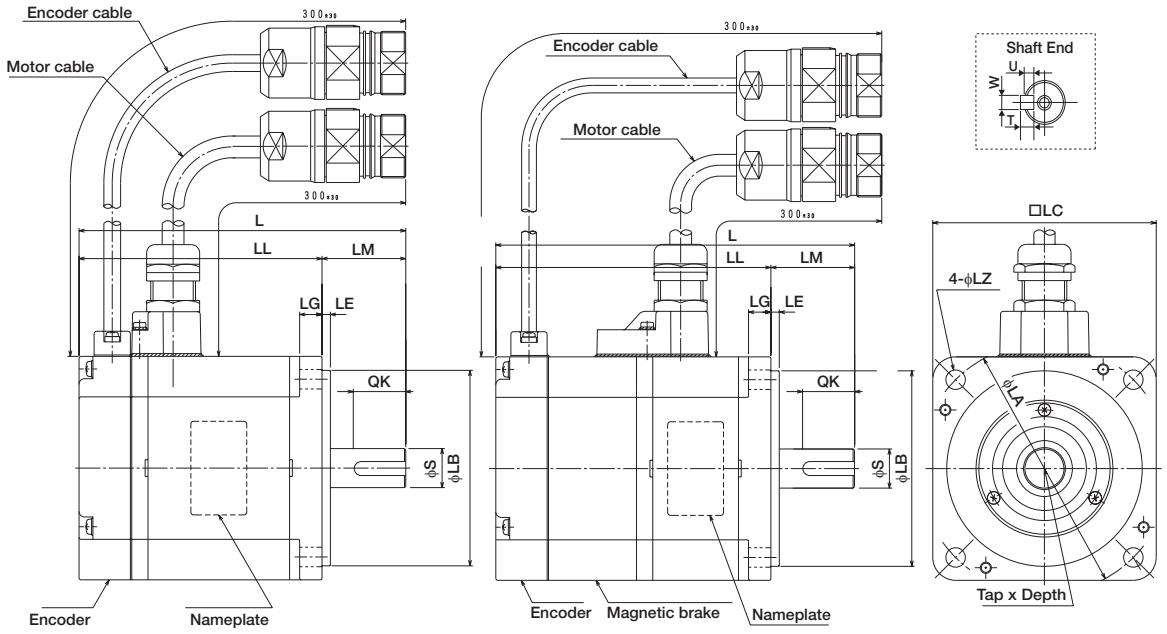
Pin No.	Description	Colour
1	0 V (Battery)	Orange/White
2	3.6 V (Battery)	Orange
3	Data +	Blue
4	Data -	Blue/White
5 - 7	Free	-
8	+ 5 V (Power Supply)	Red
9	0 V (Power Supply)	Black
10 - 17	Free	-
Connector Case	Frame ground	Shield wire

• Cable Specifications for Servomotor-end Connector



Pin No.	Description	Colour
1	Phase U	Red
2	Phase V	White
4	Phase W	Blue
5, 6	Brake and/or Free	Black
⏚	Frame ground	Green/Yellow

External Dimensions SGMEV-01A, -02A, -04A, -08A, -15A Units: mm



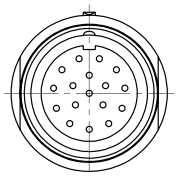
Models without Brake

Models with Brake

Model SGMEV-	L	LL	LM	Flange Face Dimensions						Shaft End Dimensions						Approx. Mass kg
				LA	LB	LC	LE	LG	LZ	S	QK	W	T	U	Tap x Depth	
01A□A61 (01A□A6C)	87 (116)	62 (91)	25	70	$50^{0}_{-0.030}$	60	3	6		$8^{0}_{-0.011}$	14	3	3	1.8	M3 x 6L	0.7 (0.9)
02A□A61 (02A□A6C)	97 (128.5)	67 (98.5)	30	90	$70^{0}_{-0.030}$	80	6	8	7	$14^{0}_{-0.011}$	16	5	5	3	M5 x 8L	1.4 (1.9)
04A□A61 (04A□A6C)	117 (148.5)	87 (118.5)														2.1 (2.6)
08A□A61 (08A□A6C)	126.5 (160)	86.5 (120)	40	145	$110^{0}_{-0.035}$	120	3.5	10	10	$16^{0}_{-0.011}$	22					4.2 (4.7)
15A□A61 (15A□A6C)	154.5 (188)	114.5 (148)								$19^{0}_{-0.013}$		6	6	3.5	M6 x 10L	6.6 (8.1)

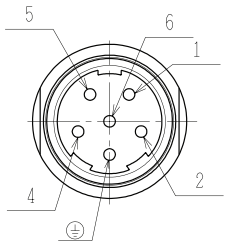
Note: The models with oil seals are of the same configuration.
The models and values in parentheses are for servomotors with holding brakes.

• Cable Specifications for Encoder-end Connector



Pin No.	Description	Colour
1	0 V (Battery)	Orange/White
2	3.6 V (Battery)	Orange
3	Data +	Blue
4	Data -	Blue/White
5 - 7	Free	-
8	+ 5 V (Power Supply)	Red
9	0 V (Power Supply)	Black
10 - 17	Free	-
Connector Case	Frame ground	Shield wire

• Cable Specifications for Servomotor-end Connector

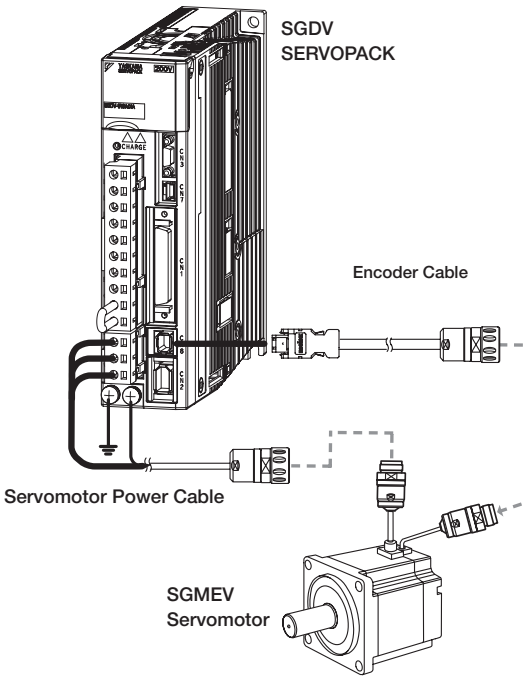


Pin No.	Description	Colour
1	Phase U	Red
2	Phase V	White
4	Phase W	Blue
5, 6	Brake and/or Free	Black
⏚	Frame ground	Green/Yellow

Selecting Cables (SGMEV 200-V Class)

● Cables Connections

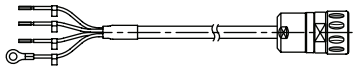
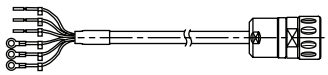
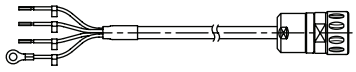
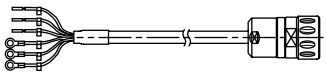
● Standard Wiring (Max. encoder cable length: 20 m)



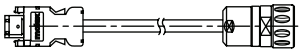
⚠CAUTION

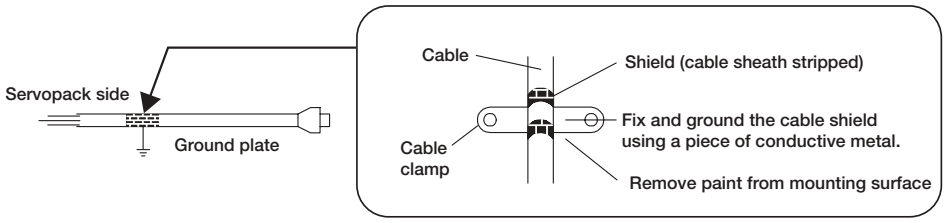
- Separate the servomotor power cable wiring from the I/O signal cable and encoder cable at least 30 cm, and do not bundle or run them in the same duct.
- When the power cable length exceeds 20 m, note that the intermittent duty zone of the Torque-Speed Characteristics will shrink as the line-to-line voltage drops.

● Servomotor Power Cable

Servomotor Rated Output	Name	Length	Order No. Flexible Type*	Specifications
0.1 kW 0.75 kW	For Servomotor without Holding Brakes	3 m	DP9325252-3G	
		5 m	DP9325252-5G	
		10 m	DP9325252-10G	
		15 m	DP9325252-15G	
		20 m	DP9325252-20G	
	For Servomotor with Holding Brakes	3 m	DP9325253-3G	
		5 m	DP9325253-5G	
		10 m	DP9325253-10G	
		15 m	DP9325253-15G	
		20 m	DP9325253-20G	
1.5 kW	For Servomotor without Holding Brakes	3 m	DP9325254-3G	
		5 m	DP9325254-5G	
		10 m	DP9325254-10G	
		15 m	DP9325254-15G	
		20 m	DP9325254-20G	
	For Servomotor with Holding Brakes	3 m	DP9325255-3G	
		5 m	DP9325255-5G	
		10 m	DP9325255-10G	
		15 m	DP9325255-15G	
		20 m	DP9325255-20G	

● Encoder Cables (Max. length: 20 m)

Name	Length	Order No. Flexible Type	Specifications
Cables with Connectors on both sides	3 m	DP9325256-3G	
	5 m	DP9325256-5G	
	10 m	DP9325256-10G	
	15 m	DP9325256-15G	
	20 m	DP9325256-20G	



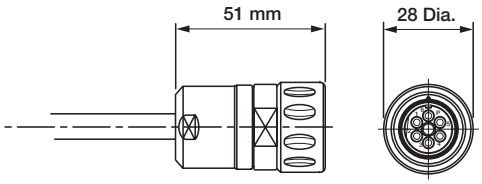
● Connectors

Specification	Model
Hypertac power connector IP67 for 200 VAC SGMEV motors	SPOC-06K-FSDN169
Hypertac encoder connector IP67 for SGMEV motors	SPOC-17H-FRON169
Spare part, Hypertac power connector male for 200 V motors (included with SGMEV motors)	SRUC-06J-MSCN236
Spare part, Hypertac encoder connector male (included with SGMEV motors)	SRUC-17G-MRWN087

● Specification of Motor Connector

● Motor Connector (cable side) with Ground connection

Part-No.	Plug with Cable Clamp
S PU C 06J MS CN 236	Cable diam. 7 mm
S PU C 06J MS CN 020	Cable diam. 9,5 mm
Reference: Original Yaskawa lead	



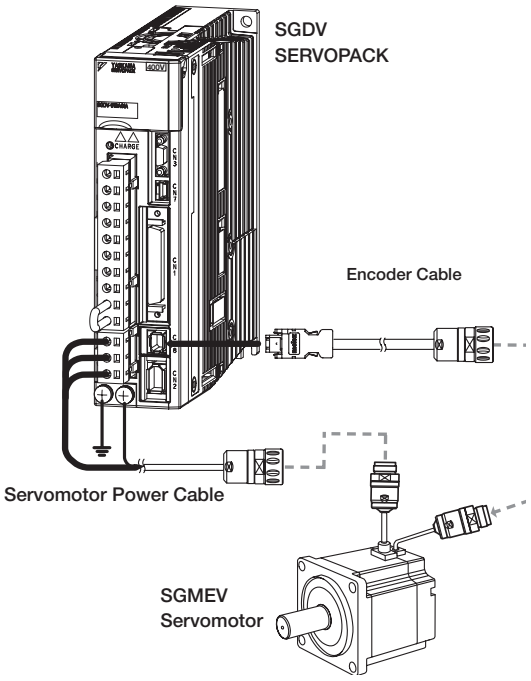
Specifications	
Poles	6
Temperature Range	-25°C up to 125°C
Cable Clamp	shown in table
Type of protection	IP67 connected IP00 not connected
Electrical Performance	
Current Rating	15A, environmental temperature 60°C
Max. Current	23 A cyclic (5 sec on, 10 sec out)
Voltage Rating	250 V
Test Voltage	4000 V
Contact Resistance	< 5 mOhm
Mating Cycles	> 500
Materials	
Body	PA 6.6, glass-fiber reinforced
Insulator	Peek
Contacts	Brass / Gold plated
Seals	FPM
Contacts	
Type	Pin diam. 2
Part-No.	021.421.1020
Termination	solder cup
Latch Retention	> 35 N

Note: Specification in accordance with VDE 0110/0627 - Contamination Level: 3
Excess voltage category: 3 - Installation altitude < or = 4000 m

Selecting Cables (SGMEV 400-V Class)

● Cables Connections

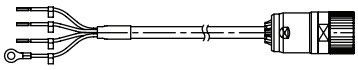
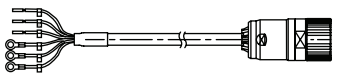
● Standard Wiring (Max. encoder cable length: 20 m)



⚠CAUTION

- Separate the servomotor power cable wiring from the I/O signal cable and encoder cable at least 30 cm, and do not bundle or run them in the same duct.
- When the power cable length exceeds 20 m, note that the intermittent duty zone of the Torque-Speed Characteristics will shrink as the line-to-line voltage drops.

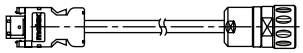
● Servomotor Power Cable

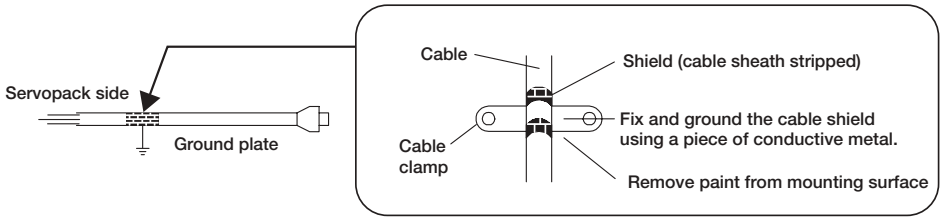
Servomotor Rated Output	Name	Length	Order No. Flexible Type*	Specifications
0.2 kW 1.5 kW	For Servomotor without Holding Brakes	3 m	JZSP-CMM20D15-03G	
		5 m	JZSP-CMM20D15-05G	
		10 m	JZSP-CMM20D15-10G	
		15 m	JZSP-CMM20D15-15G	
		20 m	JZSP-CMM20D15-20G	
	For Servomotor with Holding Brakes	3 m	JZSP-CMM30D15-03G	
		5 m	JZSP-CMM30D15-05G	
		10 m	JZSP-CMM30D15-10G	
		15 m	JZSP-CMM30D15-15G	
		20 m	JZSP-CMM30D15-20G	

*: These flexible cables are provided as standard equipment.
Note: Cables without connectors can be ordered on request.

Selecting Cables (SGMEV 400-V Class)

● Encoder Cables (Max. length: 20 m)

Name	Length	Order No. Flexible Type	Specifications
Cables with Connectors on both sides	3 m	DP9325256-3G	
	5 m	DP9325256-5G	
	10 m	DP9325256-10G	
	15 m	DP9325256-15G	
	20 m	DP9325256-20G	



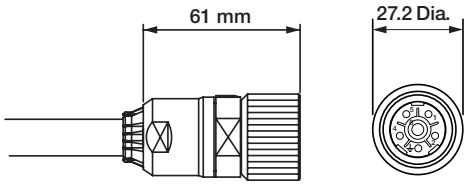
● Connectors

Specification	Model
Hypertac power connector IP67 for SGMEV motors	LPRA-06B-FRBN170
Hypertac encoder connector IP67 for SGMEV motors	SPOC-17H-FRON169
Spare part, Hypertac power connector male for 400 V motors (included with SGMEV motors)	LRRA-06A-MRPN182
Spare part, Hypertac encoder connector male (included with SGMEV motors)	SRUC-17G-MRWN087

● Specification of Motor Connector

● Motor Connector (cable side) with Ground connection

Part-No.
L RR A 06A ...



Specifications	
Poles	6 (5 + PE)
Temperature Range	-40°C up to 125°C
Cable Clamp	not applicable
Type of protection	IP67 connected IP00 not connected
Electrical Performance	
Current Rating	20 A
Voltage Rating	250 V
Test Voltage	4000 V
Contact Resistance	< 3 mOhm
Mating Cycles	> 500
Materials	
Body	Brass / Nickel plated
Insulator	PA 6.6
Contacts	Brass / Nickel plated
Seals	FPM
Contacts	
Type	Pin diam. 2 mm
Part-No.	021.279.1020
Termination	crimp; 0.4 to 2.5 mm^2
Latch Retention	> 40 N
Tools	
Crimping Tool	B 151; B 179
Positioner	B 165
Contact Insertion	B 117
Contact Removal	B 037 A

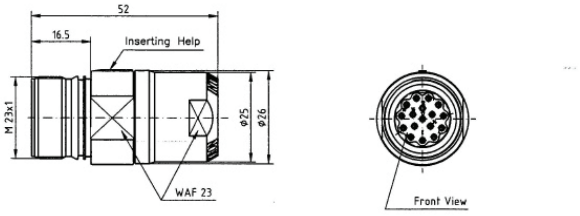
Note: Specification in accordance with VDE 0110/0627 - Contamination Level: 3
Excess voltage category: 3 - Installation altitude < or = 4000 m

Selecting Cables (SGMEV 200-V and 400-V Class)

● Specification of Encoder Connector

● Encoder Connector (Encoder side)

Part-No.
S RU C 17 MR WN 087



Specifications		
Poles	17	
Temperature Range	-25°C up to 125°C	
Cable Clamp	diam. 5.5 mm	
Type of protection	IP67 connected IP00 not connected	
Electrical Performance		
Current Rating	9 A	
Voltage Rating	20 V	
Test Voltage	800 V	
Contact Resistance	< 5 mOhm	
Mating Cycles	> 500	
Materials		
Body	PA 6.6 glass-fiber reinforced	
Insulator	PBT, glass-fiber reinforced	
Contacts	Brass / Gold plated	
Seals	FPM	
Contacts		
Type	Pin diam. 1 mm	Pin diam. 1 mm
Part-No.	021.311.1020	021.402.1020
Termination	crimp; 0.24 to 1.0 mm^2	crimp; 0.05 to 0.34 mm^2
Latch Retention	> 30 N	> 30 N

Note: Specification in accordance with VDE 0110/0627 - Contamination Level: 3
Excess voltage category: 3 - Installation altitude < or = 4000 m