

# AC SERVO DRIVES DIRECT DRIVE $\Sigma$ -V SERIES

SERVOMOTOR MODEL SGMCV  
SERVOPACK MODEL SGD V

Outer Diameter  
Reduced  
Approx. **25%**  
with the same torque



Model SGMCS  $\rightarrow$  SGMCV



Max. Speed  
Increased **20%**

Certified for  
ISO9001 and ISO14001



# Save Space and Reduce Tact Time

## Features

## Advantages

**Compact design using iron core (Slot-winding structure)**

**Compact to save space**

Compared with an existing direct motor with the same torque

- Installation area reduced by 42%
- Outer diameter reduced by 25%

**Low inertia achieved using rotor with smaller diameter**

**High-speed & high-frequency positioning**

- Max. speed increased by 20%
- High efficiency controls heat generation

**With 22-bit, high-resolution serial encoder**

**High-precision positioning**

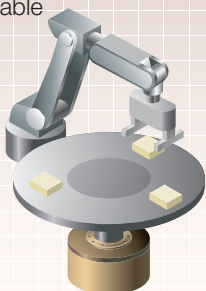
Optional high-precision specifications available for reduced axial and radial run-out



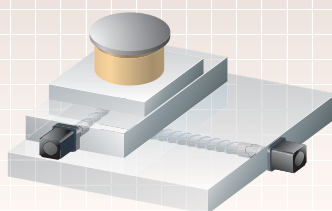
The demand for better productivity and precision is high for equipment used in semiconductor and electronic parts manufacturing. Servo drives used with this equipment are now required to be more compact and to deliver higher performance to meet market demand. With a wide range of new, compact direct drive motors, limited space can be used efficiently and performance can be greatly improved, leading to shortened tact times.

## Applications

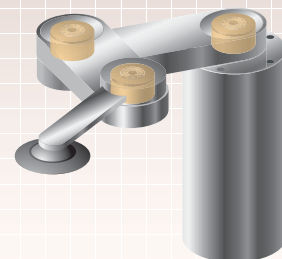
Rotary table



XYθ table



Handling robot for semiconductors



Model Designations

SGMCV - 02 A E A 1 1

**Σ-V Series**  
Direct Drive Servomotor

**Rated Torque**  
04 : 4 N·m  
10 : 10 N·m  
14 : 14 N·m  
08 : 8 N·m  
17 : 17 N·m  
25 : 25 N·m

**Motor Outer Diameter**  
A : 100 mm\*  
B : 135 mm  
C : 175 mm  
D : 230 mm\*

**Encoder Specifications**  
E : 22-bit absolute (without multiturn data)  
I : 22-bit absolute (with multiturn data)

**Design Revision Order**

**Flange Specifications**  
1: C face on the opposite drive end  
4: C face on the opposite drive end (with cable on side)

**Option**  
1: Without option  
5: High-precision specification for reduced axial and radial run-out

\* : Estimate orders

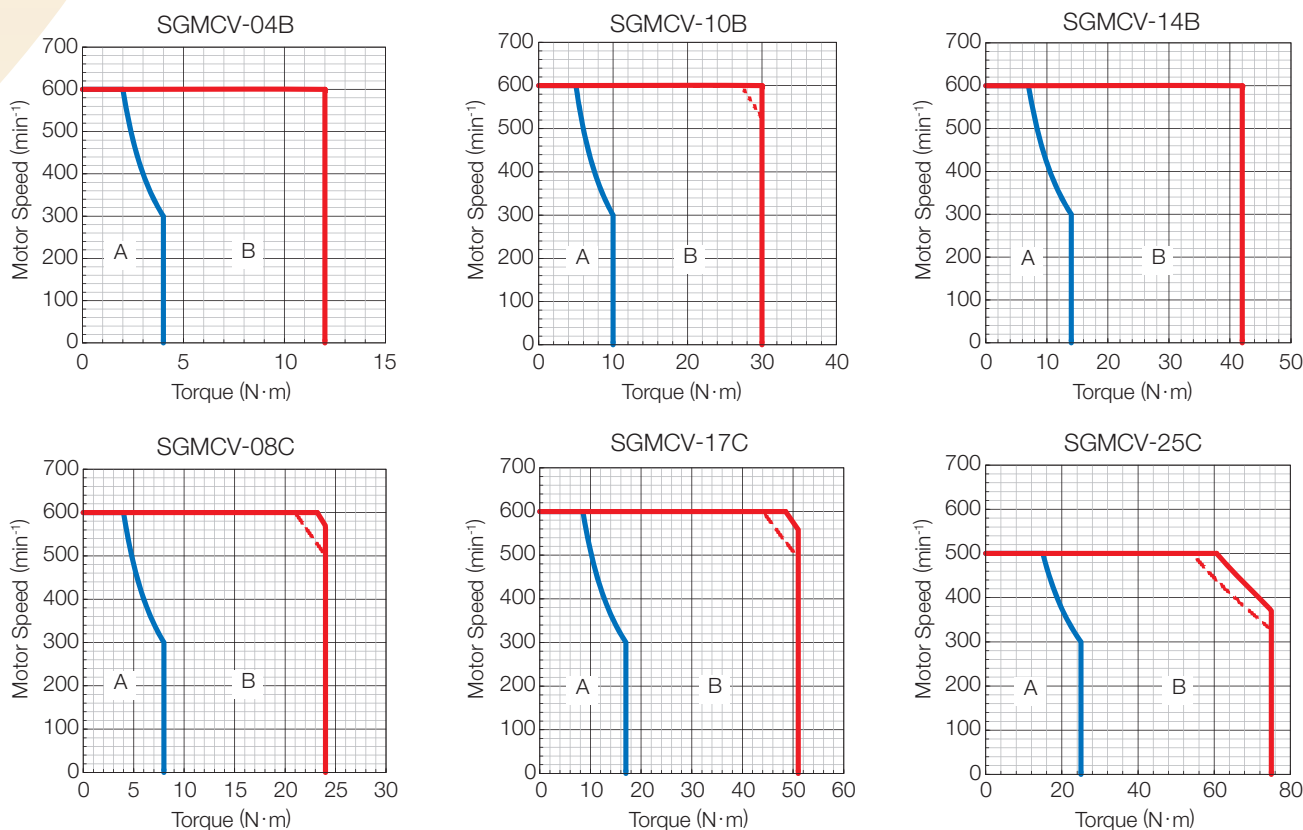
Specifications

Items	Units	Servomotor Model SGMCV-□□□					
		04B	10B	14B	08C	17C	25C
Applicable SERVOPACK Model SGD□-□□□		2R8		5R5	2R8	5R5	120
Rated Output*1	W	126	314	440	251	534	785
Rated Torque*1,*2	N·m	4.0	10.0	14.0	8.0	17.0	25.0
Instantaneous Peak Torque*1	N·m	12.0	30.0	42.0	24.0	51.0	75.0
Rated Current*1	Arms	1.8	2.8	4.6	2.3	4.5	4.5
Instantaneous Max. Current*1	Arms	5.6	8.9	14.1	7.3	14.7	13.9
Rated Speed*1	min <sup>-1</sup>	300			300		
Max. Speed*1	min <sup>-1</sup>	600			600		500
Torque Constant	N·m/Arms	2.39	3.81	3.27	3.81	4.04	6.04
Rotor Moment of Inertia	×10 <sup>-4</sup> kg·m <sup>2</sup>	16.2	25.2	36.9	56.5	78.5	111
Rated Power Rate*1	kW/s	9.88	39.7	53.1	11.3	36.8	56.3
Rated Angular Acceleration*1	rad/s <sup>2</sup>	2470	3970	3790	1420	2170	2250

\*1 : These items and torque-motor speed characteristics quoted in combination with a SERVOPACK are at an armature winding temperature of 100°C. Other values quoted at 20°C.  
 \*2 : Rated torques are continuous allowable torque values at 40°C with a steel heat sink of the following dimensions attached.  
 SGMCV-04B, 10B, 14B : 350×350×12 (mm) SGMCV-08C, 17C, 25C : 450×450×12 (mm)

Torque-Motor Speed Characteristics (Applicable SERVOPACK Model SGD□-□□□)

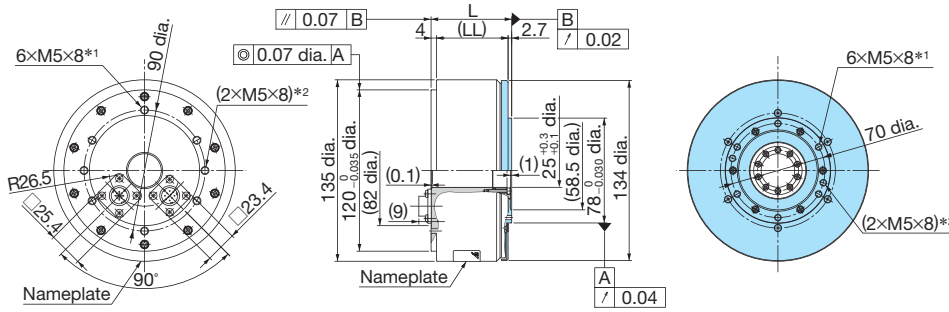
A : Continuous Duty Zone  
B : Intermittent Duty Zone\*



\* : Differs depending on the supply voltage. The solid and dotted lines indicate the characteristics when a servomotor runs with the following combinations:  
 · The solid line: With a three-phase 200 V or a single-phase 230 V SERVOPACK  
 · The dotted line: With a single-phase 200 V SERVOPACK  
 The SGMCV-04B and -14B servomotors combined with a single-phase 200 V SERVOPACK has the same characteristics as one combined with a three-phase 200 V SERVOPACK.

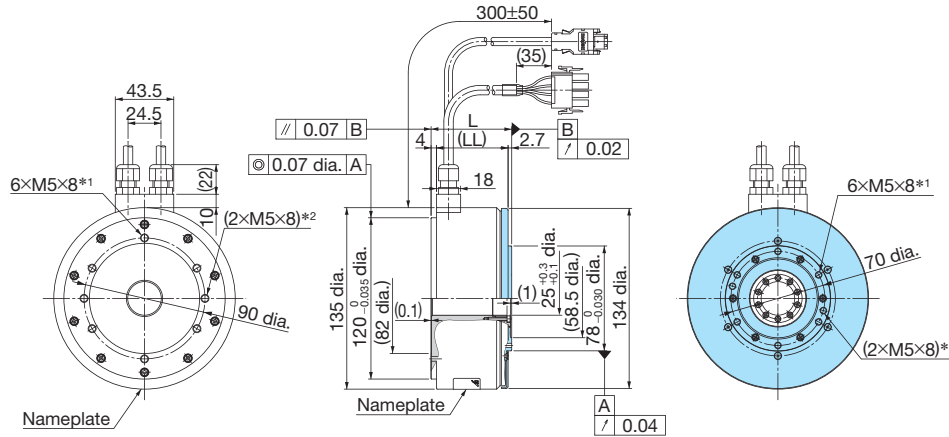
External Dimensions Units: mm Rotating part:  Non-rotating part:

■ Motor Outer Diameter: 135 mm  
C face on the opposite drive end



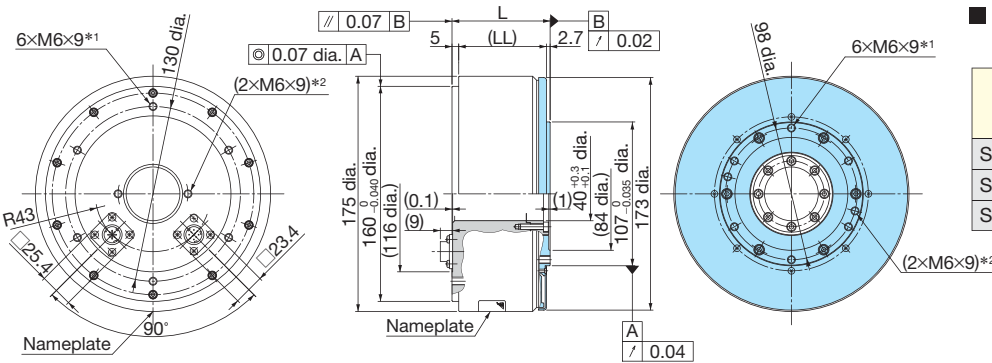
Model	L	LL	Approx. Mass kg
SGMCMV-04B□A11	60	53.3	5.0
SGMCMV-10B□A11	85	78.3	6.5
SGMCMV-14B□A11	115	108.3	9.0

■ Motor Outer Diameter: 135 mm  
C face on the opposite drive end  
(with cable on side)



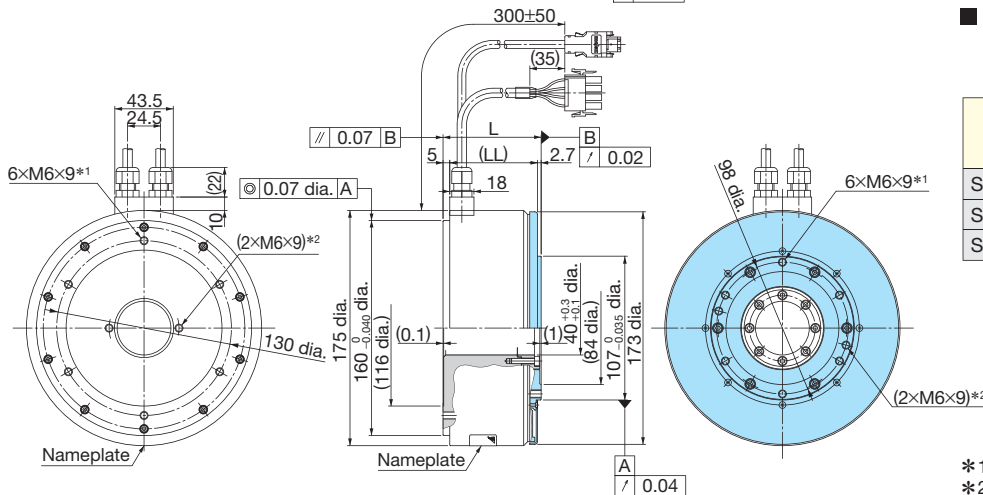
Model	L	LL	Approx. Mass kg
SGMCMV-04B□A41	60	53.3	5.0
SGMCMV-10B□A41	85	78.3	6.5
SGMCMV-14B□A41	115	108.3	9.0

■ Motor Outer Diameter: 175 mm  
C face on the opposite drive end



Model	L	LL	Approx. Mass kg
SGMCMV-08C□A11	73	65.3	9.0
SGMCMV-17C□A11	87	79.3	11.0
SGMCMV-25C□A11	117	109.3	15.0

■ Motor Outer Diameter: 175 mm  
C face on the opposite drive end  
(with cable on side)



Model	L	LL	Approx. Mass kg
SGMCMV-08C□A41	73	65.3	9.0
SGMCMV-17C□A41	87	79.3	11.0
SGMCMV-25C□A41	117	109.3	15.0

\*1 : Divided into six equal sections or sixty degrees  
\*2 : Only for use by Yaskawa



YASKAWA ELECTRIC CORPORATION

<http://www.yaskawa.co.jp/en/>

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LITERATURE NO. CHEP S800001 15A  
Published in Japan August 2013 13-8