## Servo Drives

| SServo Motor | | Rated Power | Rated Torque | Peak Torque | Rated Speed | Max Speed | Rotor Inertia | SGD7S-□□□□ | SGD7S-□□□□ |
|---|---|---|---|---|---|---|---|---|---|
| | | | Nm | Nm | rpm | rpm | x10⁻⁴kg·m² | 100 VAC | 200 VAC |
|  SGM7A Low Inertia | SGM7A-01A | 100W | 0.318 | 1.11 | 3000 | 6000 | 0.0337 | R90F | R90A |
| | SGM7A-02□ | 200W | 0.637 | 2.23 | 3000 | 6000 | 0.139 | 2R1F | 1R6A |
| | SGM7A-04□ | 400W | 1.27 | 4.46 | 3000 | 6000 | 0.216 | 2R8F | 2R8A |
| | SGM7A-08□ | 600W | 1.91 | 8.36 | 3000 | 6000 | 0.775 | N/A | 5R5A |
| | SGM7A-10□ | 1.0kW | 3.18 | 11.1 | 3000 | 6000 | 0.971 | | 120A |
|  SGM7A | SGM7A-15□ | 1.5kW | 4.90 | 14.7 | 3000 | 6000 | 2.00 | | 120A |
| | SGM7A-20□ | 2.0kW | 6.36 | 19.1 | 3000 | 6000 | 2.47 | | 180A |
| | SGM7A-30□ | 3.0kW | 9.80 | 29.4 | 3000 | 6000 | 7.00 | | 200A |
| | SGM7A-40□ | 4.0kW | 12.6 | 37.8 | 3000 | 6000 | 9.60 | | 330A |
| | SGM7A-50□ | 5.0kW | 15.8 | 47.6 | 3000 | 6000 | 12.3 | | 330A |
|  SGM7J Medium Inertia | SGM7J-01A | 100W | 0.318 | 1.11 | 3000 | 6000 | 0.0659 | R90F | R90A |
| | SGM7J-02□ | 200W | 0.637 | 2.23 | 3000 | 6000 | 0.263 | 2R1F | 1R6A |
| | SGM7J-04□ | 400W | 1.27 | 4.46 | 3000 | 6000 | 0.486 | 2R8F | 2R8A |
| | SGM7J-08□ | 750W | 2.39 | 8.36 | 3000 | 6000 | 1.59 | N/A | 5R5A |
| | SGM7G-09□ | 850W | 5.39 | 13.8 | 1500 | 3000 | 13.9 | | 7R6A |
|  SGM7G | SGM7G-13□ | 1.3kW | 8.34 | 14.2 | 1500 | 3000 | 19.9 | | 120A |
| | SGM7G-20□ | 1.8kW | 11.5 | 28.7 | 1500 | 3000 | 26.0 | | 180A |
| | SGM7G-30□ | 2.9kW | 18.6 | 54.0 | 1500 | 3000 | 46.0 | | 330A |
| | SGM7G-44□ | 4.4kW | 28.4 | 71.6 | 1500 | 3000 | 67.5 | | 330A |
| | SGM7G-55□ | 5.5kW | 35.0 | 102.0 | 1500 | 3000 | 89.0 | | 470A |

# 5.1 Model Designations

## 5.1.1 Without Gears

SGM7A - 01 A 7 A 2 1

| Σ-7 Series Servomotors: SGM7A | 1st+2nd digits | 3rd digit | 4th digit | 5th digit | 6th digit | 7th digit |
|---|---|---|---|---|---|---|

**1st+2nd digits** 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 |
| 10 | 1.0 kW |
| 15 | 1.5 kW |
| 20 | 2.0 kW |
| 25 | 2.5 kW |
| 30 | 3.0 kW |
| 40 | 4.0 kW |
| 50 | 5.0 kW |
| 70 | 7.0 kW |

**3rd digit** Power Supply Voltage

| Code | Specification |
|---|---|
| A | 200 VAC |

**4th digit** Serial Encoder

| Code | Specification |
|---|---|
| 6 | 24-bit batteryless absolute |
| 7 | 24-bit absolute |
| F | 24-bit incremental |

**5th digit** Design Revision Order

A

**6th digit** Shaft End

| Code | Specification |
|---|---|
| 2 | Straight without key |
| 6 | Straight with key and tap |
| B* | With two flat seats |

* Code B is not supported for models with a rated output of 1.5 kW or higher.

**7th digit** Options

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

Note: SGM7A-70A Servomotors with holding brakes are not available.

## 5.2.2 Ratings of Servomotors without Gears for the SGM7A-A5 to -10

| Voltage | | | 200 V | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model SGM7A- | | | A5A | 01A | C2A | 02A | 04A | 06A | 08A | 10A |
| Rated Output*1 | | W | 50 | 100 | 150 | 200 | 400 | 600 | 750 | 1000 |
| Rated Torque*1, *2 | | N·m | 0.159 | 0.318 | 0.477 | 0.637 | 1.27 | 1.91 | 2.39 | 3.18 |
| Instantaneous Maximum Torque*1 | | N·m | 0.557 | 1.11 | 1.67 | 2.23 | 4.46 | 6.69 | 8.36 | 11.1 |
| Rated Current*1 | | Arms | 0.57 | 0.89 | 1.5 | 1.5 | 2.4 | 4.5 | 4.4 | 6.4 |
| Instantaneous Maximum Current*1 | | Arms | 2.1 | 3.2 | 5.6 | 5.9 | 9.3 | 16.9 | 16.8 | 23.2 |
| Rated Motor Speed*1 | | $min^{-1}$ | 3000 | | | | | | | |
| Maximum Motor Speed*1 | | $min^{-1}$ | 6000 | | | | | | | |
| Torque Constant | | N·m/Arms | 0.304 | 0.384 | 0.332 | 0.458 | 0.576 | 0.456 | 0.584 | 0.541 |
| Motor Moment of Inertia | | $\times10^{-4}$ $kg·m^2$ | 0.0217 | 0.0337 | 0.0458 | 0.139 | 0.216 | 0.315 | 0.775 | 0.971 |
| | With Holding Brake | | 0.0297 | 0.0417 | 0.0538 | 0.209 | 0.286 | 0.385 | 0.955 | 1.15 |
| | With Batteryless Absolute Encoder | | 0.0232 | 0.0352 | 0.0473 | 0.140 | 0.217 | 0.316 | 0.776 | 0.972 |
| Rated Power Rate*1 | | kW/s | 11.7 | 30.0 | 49.7 | 29.2 | 74.7 | 115 | 73.7 | 104 |
| | With Holding Brake | | 8.51 | 24.2 | 42.2 | 19.4 | 56.3 | 94.7 | 59.8 | 87.9 |
| Rated Angular Acceleration Rate*1 | | $rad/s^2$ | 73200 | 94300 | 104000 | 45800 | 58700 | 60600 | 30800 | 32700 |
| | With Holding Brake | | 53500 | 76200 | 88600 | 30400 | 44400 | 49600 | 25000 | 27600 |
| Derating Rate for Servomotor with Oil Seal | | % | 80 | 90 | | | 95 | | | |
| Heat Sink Size (Aluminum)*3 | | mm | 200 × 200 × 6 | | 250 × 250 × 6 | | | 300×300 ×12*9 | 250×250 ×6 | 300×300 ×12 |
| Protective Structure*4 | | | Totally enclosed, self-cooled, IP67 | | | | | | | |
| Holding Brake Specifications*5 | Rated Voltage | V | 24 VDC ±10% | | | | | | | |
| | Capacity | W | 5.5 | | | 6 | | 6.5 | | |
| | Holding Torque | N·m | 0.159 | 0.318 | 0.477 | 0.637 | 1.27 | 1.91 | 2.39 | 3.18 |
| | Coil Resistance | Ω (at 20°C) | 104.8 ±10% | | | 96 ±10% | | 88.6 ±10% | | |
| | 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 | 100 | | | | | | | |

Continued on next page.

## 5.2.4 Ratings of Servomotors without Gears for the SGM7A-15 to -70

| Voltage | | | 200 V | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Model SGM7A- | | | 15A | 20A | 25A | 30A | 40A | 50A | 70A |
| Rated Output*1 | | kW | 1.5 | 2.0 | 2.5 | 3.0 | 4.0 | 5.0 | 7.0 |
| Rated Torque*1, *2 | | N·m | 4.90 | 6.36 | 7.96 | 9.80 | 12.6 | 15.8 | 22.3 |
| Instantaneous Maximum Torque*1 | | N·m | 14.7 | 19.1 | 23.9 | 29.4 | 37.8 | 47.6 | 54.0 |
| Rated Current*1 | | Arms | 9.3 | 12.1 | 15.6 | 17.9 | 25.4 | 27.6 | 38.3 |
| Instantaneous Maximum Current*1 | | Arms | 28 | 42 | 51 | 56 | 77 | 84 | 105 |
| Rated Motor Speed*1 | | $min^{-1}$ | 3000 | | | | | | |
| Maximum Motor Speed*1 | | $min^{-1}$ | 6000*9 | | | | | | |
| Torque Constant | | N·m/Arms | 0.590 | 0.561 | 0.538 | 0.582 | 0.519 | 0.604 | 0.604 |
| Motor Moment of Inertia | | $\times 10^{-4}$ kg·m$^2$ | 2.00 | 2.47 | 3.19 | 7.00 | 9.60 | 12.3 | 12.3 |
| | With Holding Brake | | 2.25 | 2.72 | 3.44 | 9.20 | 11.8 | 14.5 | – |
| | With Batteryless Absolute Encoder | | 2.00 | 2.47 | 3.19 | 7.00 | 9.60 | 12.3 | 12.3 |
| Rated Power Rate | | kW/s | 120 | 164 | 199 | 137 | 165 | 203 | 404 |
| | With Holding Brake | | 106 | 148 | 184 | 104 | 134 | 172 | – |
| Rated Angular Acceleration Rate | | rad/s$^2$ | 24500 | 25700 | 24900 | 14000 | 13100 | 12800 | 18100 |
| | With Holding Brake | | 21700 | 23300 | 23100 | 10600 | 10600 | 10800 | – |
| Heat Sink Size (aluminum)*3 | | mm | 300 × 300 × 12 | | | 400 × 400 × 20 | | | |
| Protective Structure*4 | | | Totally enclosed, self-cooled, IP67 | | | | | | Totally enclosed, separately cooled (with fan), IP22 |
| Holding Brake Specifications*5 | Rated Voltage | V | 24 VDC $^{+10\%}_{0}$ | | | | | | – |
| | Capacity | W | 12 | | | 10 | | | |
| | Holding Torque | N·m | 7.84 | | 10 | 20 | | | |
| | Coil Resistance | Ω (at 20°C) | 48 | | | 59 | | | |
| | Rated Current | A (at 20°C) | 0.5 | | | 0.41 | | | |
| | Time Required to Release Brake | ms | 170 | | | 100 | | | |
| | Time Required to Brake | ms | 80 | | | | | | |
| Allowable Load Moment of Inertia (Motor Moment of Inertia Ratio)*6 | | | 10 times | | | 5 times | | | |
| | With External Regenerative Resistor and External Dynamic Brake Resistor*7 | | 20 times | | | 15 times | | | |
| Allowable Shaft Loads*8 | LF | mm | 45 | | | 63 | | | |
| | Allowable Radial Load | N | 686 | | | 980 | 1176 | | |
| | Allowable Thrust Load | N | 196 | | | 392 | | | |

*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.

| Voltage | | | 200 V | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model SGM7A- | | | A5A | 01A | C2A | 02A | 04A | 06A | 08A | 10A |
| Allowable Load Moment of Inertia (Motor Moment of Inertia Ratio)*6 | | | 40 times | | | 30 times | 20 times | | 20 times | |
| | With External Regenerative Resistor and External Dynamic Brake Resistor*7 | | 40 times | | | 30 times | 20 times | | 30 times | |
| Allowable Shaft Loads*8 | LF | mm | 20 | | | 25 | | | 35 | |
| | Allowable Radial Load | N | 78 | | | 245 | | | 392 | |
| | Allowable Thrust Load | N | 54 | | | 74 | | | 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.
☞ *Servomotor Heat Dissipation Conditions* on page 5-14

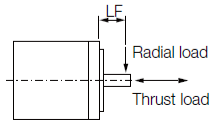
*4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.

*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 following section for details.

*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.
☞ *Servomotor Heat Dissipation Conditions* on page 5-14

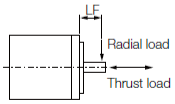
*4. This does not apply to the shaft opening. Protective structure specifications apply only when the special cable is used.

*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.



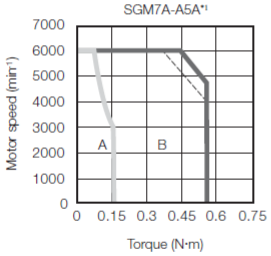

*9. For the SGM7A-25A or SGM7A-50A, the maximum motor speed for the continuous duty zone is 5,000 $min^{-1}$. Use the Servomotor within the continuous duty zone for the average motor speed and effective torque.

## 5.2.3 Torque-Motor Speed Characteristics of the SGM7A-A5 to -10

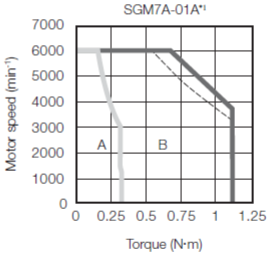
A : Continuous duty zone
B : Intermittent duty zone

——— (solid lines): With three-phase 200-V or single-phase 230-V input
- - - - - - - (dotted lines): With single-phase 200-V input
— – — (dashed-dotted lines): With single-phase 100-V input

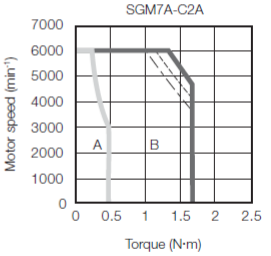
SGM7A-A5A*1



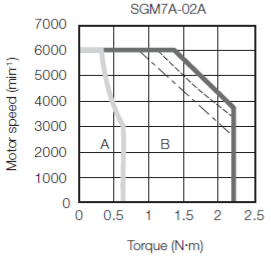

SGM7A-01A*1



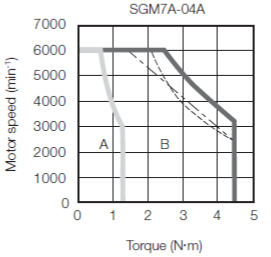

SGM7A-C2A



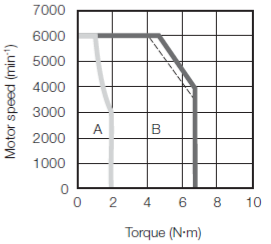

SGM7A-02A



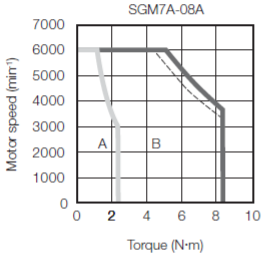

SGM7A-04A



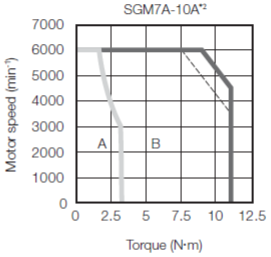

SGM7A-06A




SGM7A-08A




SGM7A-10A*2

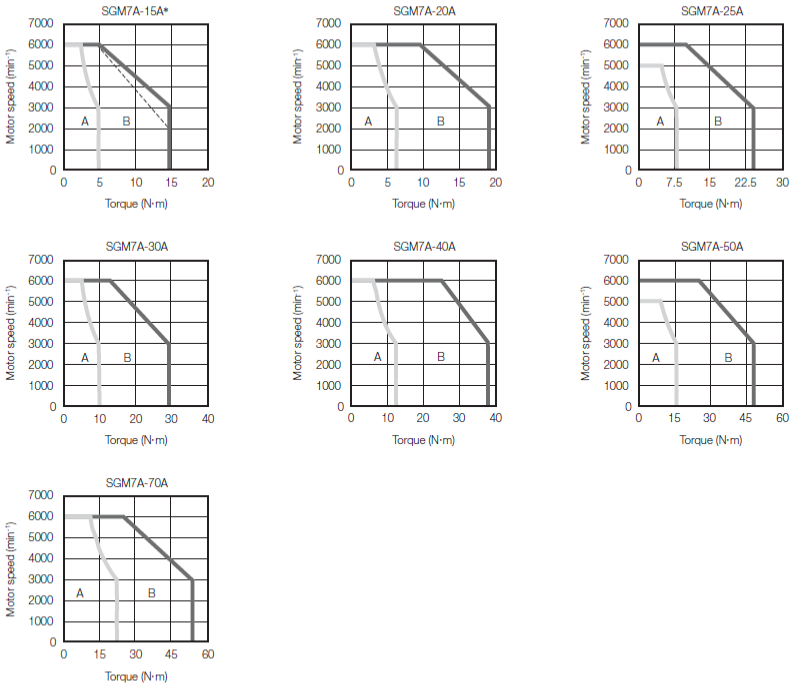



*1. The characteristics are the same for a single-phase 200-V and single-phase 100-V input.
*2. A single-phase power input can be used in combination with the SGD7S-120A□□A008.

Note: 1. These values (typical values) are for operation in combination with a SERVOPACK when the temperature of the armature winding is 100°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.

## 5.2.5 Torque-Motor Speed Characteristics of the SGM7A-15 to -70

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



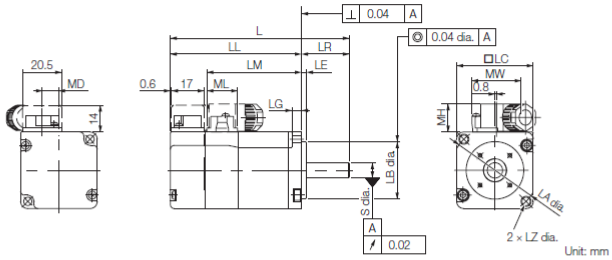

* A single-phase power input can be used in combination with the SGD7S-120A□□A008.

Note: 1. 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.

# 5.3 External Dimensions

## 5.3.1 Servomotors without Gears

### SGM7A-A5, -01, and -C2




Unit: mm

| Model SGM7A- | L* | LL* | LM | Flange Dimensions | | | | | | | S | MD | MW | MH | ML | Approx. Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LR | LE | LG | LC | LA | LB | LZ | | | | | | |
| A5A□A2□ | 81.5 (122) | 56.5 (97) | 37.9 | 25 | 2.5 | 5 | 40 | 46 | 30 $^{0}_{-0.021}$ | 4.3 | 8 $^{0}_{-0.009}$ | 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 $^{0}_{-0.021}$ | 4.3 | 8 $^{0}_{-0.009}$ | 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 $^{0}_{-0.021}$ | 4.3 | 8 $^{0}_{-0.009}$ | 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.

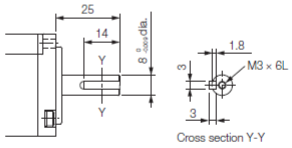
☞ *Dimensions of Servomotors with Batteryless Absolute Encoders* on page 5-31

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

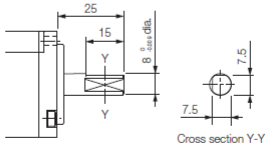
2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

### ◆ Shaft End Specifications

• Straight with Key and Tap

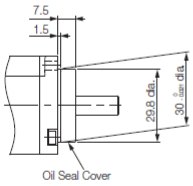



• With Two Flat Seats



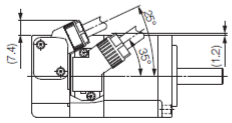

### ◆ Specifications of Options

• Oil Seal

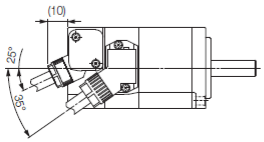



### ◆ Connector Mounting Dimensions

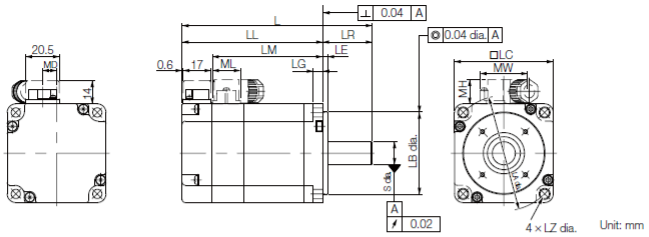
• Cable Installed on Load Side




• Cable Installed on Non-load Side



## SGM7A-02, -04, and -06




Unit: mm

| Model SGM7A- | L* | LL* | LM | Flange Dimensions | | | | | | | S | MD | MW | MH | ML | Approx. Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LR | LE | LG | LC | LA | LB | LZ | | | | | | |
| 02A□A2□ | 99.5 (140) | 69.5 (110) | 51.2 | 30 | 3 | 6 | 60 | 70 | $50^{0}_{-0.025}$ | 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 | $50^{0}_{-0.025}$ | 5.5 | $14^{0}_{-0.011}$ | 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 | $50^{0}_{-0.025}$ | 5.5 | $14^{0}_{-0.011}$ | 8.5 | 28.7 | 14.7 | 17.1 | 1.6 (2.2) |

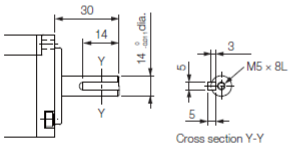
* For models that have a batteryless absolute encoder, L and LL are 8 mm greater than the given value. Refer to the following section for the values for individual models.

☞ *Dimensions of Servomotors with Batteryless Absolute Encoders* on page 5-31

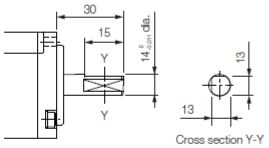
Note: 1. The values in parentheses are for Servomotors with Holding Brakes.
2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

### ◆ Shaft End Specifications

• Straight with Key and Tap

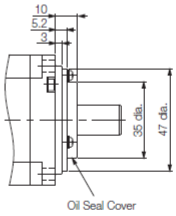



• With Two Flat Seats



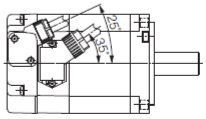

### ◆ Specifications of Options

• Oil Seal

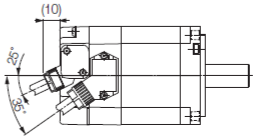



### ◆ Connector Mounting Dimensions

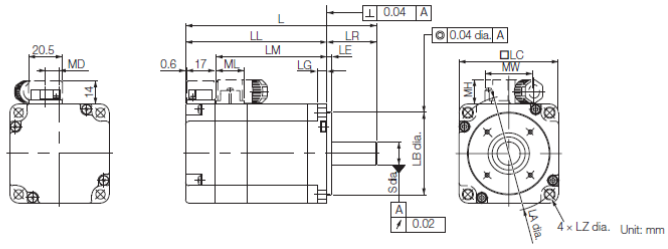
• Cable Installed on Load Side




• Cable Installed on Non-load Side



## SGM7A-08 and -10




| Model SGM7A- | L* | LL* | LM | Flange Dimensions | | | | | | | S | MD | MW | MH | ML | Approx. Mass* [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | LR | LE | LG | LC | LA | LB | LZ | | | | | | |
| 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 | 2.3 (2.9) |
| 10A□A2□ | 162 (209) | 122 (169) | 103.5 | 40 | 3 | 8 | 80 | 90 | 70 $^{0}_{-0.030}$ | 7 | 19 $^{0}_{-0.013}$ | 13.6 | 38 | 14.7 | 19.3 | 3.1 (3.7) |

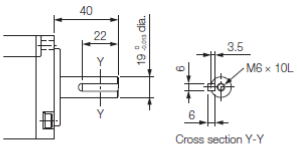
* For models that have a batteryless absolute encoder, L and LL are 8 mm greater and the approximate mass is 0.1 kg greater than the given value. Refer to the following section for the values for individual models.

☞ *Dimensions of Servomotors with Batteryless Absolute Encoders* on page 5-31

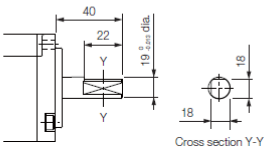
Note: 1. The values in parentheses are for Servomotors with Holding Brakes.
2. The values for a straight, without key specification are given. Refer to the information given below for other shaft end specifications and option specifications.

### ◆ Shaft End Specifications

• Straight with Key and Tap

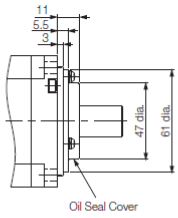



• With Two Flat Seats



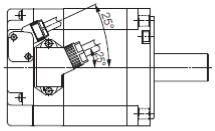

### ◆ Specifications of Options

• Oil Seal

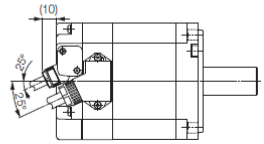



### ◆ Connector Mounting Dimensions

• Cable Installed on Load Side

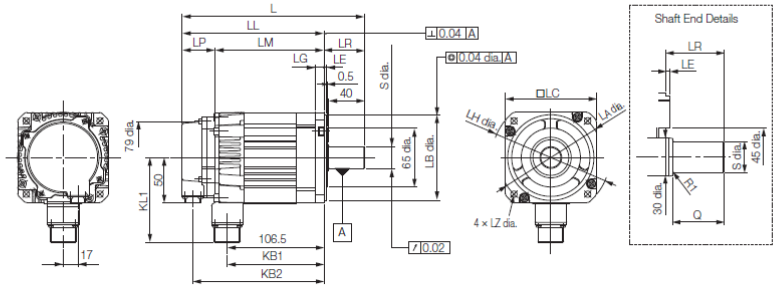



• Cable Installed on Non-load Side



## 5.3.2 Servomotors without Gears and without Holding Brakes

### SGM7A-15, -20, and -25




Unit: mm

| Model SGM7A- | L* | LL* | LM | LP* | LR | KB1 | KB2* | KL1 |
|---|---|---|---|---|---|---|---|---|
| 15A□A21 | 202 | 157 | 121 | 36 | 45 | 107 | 145 | 95 |
| 20A□A21 | 218 | 173 | 137 | 36 | 45 | 123 | 161 | 95 |
| 25A□A21 | 241 | 196 | 160 | 36 | 45 | 146 | 184 | 95 |

| Model SGM7A- | Flange Dimensions | | | | | | | Shaft End Dimensions | | Approx. Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| | LA | LB | LC | LE | LG | LH | LZ | S | Q | |
| 15A□A21 | 115 | $95^{\ 0}_{-0.035}$ | 100 | 3 | 10 | 130 | 7 | $24^{\ 0}_{-0.013}$ | 40 | 4.6 |
| 20A□A21 | 115 | $95^{\ 0}_{-0.035}$ | 100 | 3 | 10 | 130 | 7 | $24^{\ 0}_{-0.013}$ | 40 | 5.4 |
| 25A□A21 | 115 | $95^{\ 0}_{-0.035}$ | 100 | 3 | 10 | 130 | 7 | $24^{\ 0}_{-0.013}$ | 40 | 6.8 |

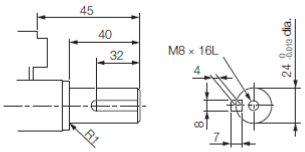
* For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.

☞ *Dimensions of Servomotors with Batteryless Absolute Encoders* on page 5-31

Note: 1. The dimensions are same for models with oil seals.
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) |

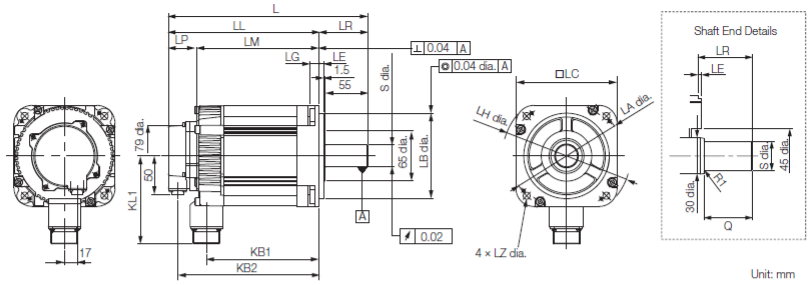
* A battery is required only for an absolute encoder.
Receptacle: CM10-R10P-D
Applicable plug: Not provided by Yaskawa.
Plug: CM10-AP10S-□-D for Right-angle Plug
CM10-SP10S-□-D for Straight Plug
(□ depends on the applicable cable size.)
Manufacturer: DDK Ltd.

• Servomotor Connector


| | | | |
|---|---|---|---|
| A | Phase U | C | Phase W |
| B | Phase V | D | FG (frame ground) |

Manufacturer: DDK Ltd.

## SGM7A-30, -40, and -50




Unit: mm

| Model SGM7A- | L* | LL* | LM | LP* | LR | KB1 | KB2* | KL1 |
|---|---|---|---|---|---|---|---|---|
| 30A□A21 | 257 | 194 | 158 | 36 | 63 | 145 | 182 | 114 |
| 40A□A21 | 296 | 233 | 197 | 36 | 63 | 184 | 221 | 114 |
| 50A□A21 | 336 | 273 | 237 | 36 | 63 | 224 | 261 | 114 |

| Model SGM7A- | Flange Dimensions | | | | | | | Shaft End Dimensions | | Approx. Mass [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| | LA | LB | LC | LE | LG | LH | LZ | S | Q | |
| 30A□A21 | 145 | $110^{\ 0}_{-0.035}$ | 130 | 6 | 12 | 165 | 9 | $28^{\ 0}_{-0.013}$ | 55 | 10.5 |
| 40A□A21 | 145 | $110^{\ 0}_{-0.035}$ | 130 | 6 | 12 | 165 | 9 | $28^{\ 0}_{-0.013}$ | 55 | 13.5 |
| 50A□A21 | 145 | $110^{\ 0}_{-0.035}$ | 130 | 6 | 12 | 165 | 9 | $28^{\ 0}_{-0.013}$ | 55 | 16.5 |

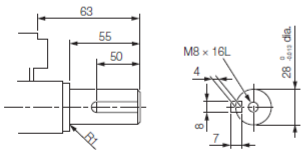
* For models that have a batteryless absolute encoder, L, LL, LP, and KB2 are 8 mm greater than the given value. Refer to the following section for the values for individual models.

☞ *Dimensions of Servomotors with Batteryless Absolute Encoders* on page 5-31

Note: 1. The dimensions are same for models with oil seals.
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


| | | | |
|---|---|---|---|
| A | Phase U | C | Phase W |
| B | Phase V | D | FG (frame ground) |

Manufacturer: DDK Ltd.