

## Ratings and Specifications

### Specifications

| Linear Servomotor Model<br>SGLC-           | D16A                        |  |      | D20A    |      |      | D25A    |      |      | D32A    |      |      |      |
|--|-----------------------------|--|------|---------|------|------|---------|------|------|---------|------|------|------|
|  | 085A                        | 115A   | 145A | 100A    | 135A | 170A | 125A    | 170A | 215A | 165A    | 225A | 285A |      |
| Time Rating                                | Continuous                  |  |      |         |      |      |         |      |      |         |      |      |      |
| Thermal Class                              | B                           |  |      |         |      |      |         |      |      |         |      |      |      |
| Insulation Resistance                      | 500 VDC, 10 MΩ min.         |  |      |         |      |      |         |      |      |         |      |      |      |
| Withstand Voltage                          | 1,500 VAC for 1 minute      |  |      |         |      |      |         |      |      |         |      |      |      |
| Excitation                                 | Permanent magnet            |  |      |         |      |      |         |      |      |         |      |      |      |
| Cooling Method                             | Self-cooled                 |  |      |         |      |      |         |      |      |         |      |      |      |
| Protective Structure                       | IP00                        |  |      |         |      |      |         |      |      |         |      |      |      |
| Environmental Conditions                   | Surrounding Air Temperature | 0°C to 40°C (with no freezing)   |      |         |      |      |         |      |      |         |      |      |      |
|  | Surrounding Air Humidity    | 20% to 80% relative humidity (with no condensation)  |      |         |      |      |         |      |      |         |      |      |      |
|  | Installation Site           | <ul style="list-style-type: none"> <li>• Must be indoors and free of corrosive and explosive gases.</li> <li>• Must be well-ventilated and free of dust and moisture.</li> <li>• Must facilitate inspection and cleaning.</li> <li>• Must have an altitude of 1,000 m or less.</li> <li>• Must be free of strong magnetic fields.</li> </ul> |      |         |      |      |         |      |      |         |      |      |      |
| Shock Resistance                           | Impact Acceleration Rate    | 98 m/s <sup>2</sup>  |      |         |      |      |         |      |      |         |      |      |      |
|  | Number of Impacts           | 2 times  |      |         |      |      |         |      |      |         |      |      |      |
| Vibration Resistance                       | Vibration Acceleration Rate | Moving Coil: 24.5 m/s <sup>2</sup> (the vibration resistance in three directions, vertical, side-to-side, and front-to-back)<br>Magnetic Way: 24.5 m/s <sup>2</sup> (the vibration resistance in the direction of the shaft)<br>4.9 m/s <sup>2</sup> (the vertical and horizontal vibration resistance)                                      |      |         |      |      |         |      |      |         |      |      |      |
| Combined Magnetic Way, SGLCM-              | D16□□□A                     |  |      | D20□□□A |      |      | D25□□□A |      |      | D32□□□A |      |      |      |
| Combined Serial Converter Unit, JZDP-□□□□- | 354                         | 373  | 356  | 357     | 358  | 359  | 360     | 374  | 362  | 363     | 364  | 365  |      |
| Applicable SER-VOPACKs                     | SGD7S-                      | R70A   | R70A | R90A    | 1R6A | 1R6A | 2R8A    | 1R6A | 2R8A | 5R5A    | 2R8A | 5R5A | 5R5A |
|  | SGD7W-                      | 1R6A   | 1R6A | 1R6A    | 1R6A | 1R6A | 2R8A    | 1R6A | 2R8A | 5R5A    | 2R8A | 5R5A | 5R5A |

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|--|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
|  |                          | 085A | 115A | 145A | 100A | 135A | 170A | 125A | 170A | 215A | 165A | 225A | 285A |
| Rated Motor Speed (Reference Speed during Speed Control)* <sup>1</sup> | m/s                      | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  | 1.5  |
| Maximum Speed* <sup>1, *3</sup>  | m/s                      | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  |
| Rated Force* <sup>1, *2</sup>  | N                        | 17   | 25   | 34   | 30   | 45   | 60   | 70   | 105  | 140  | 90   | 135  | 180  |
| Maximum Force* <sup>1</sup>  | N                        | 60   | 90   | 120  | 150  | 225  | 300  | 280  | 420  | 560  | 420  | 630  | 840  |
| Rated Current* <sup>1</sup>  | Arms                     | 0.59 | 0.53 | 0.66 | 0.98 | 0.98 | 1.2  | 1.4  | 1.8  | 3.5  | 1.6  | 2.8  | 2.8  |
| Maximum Current* <sup>1</sup>  | Arms                     | 2.1  | 2.1  | 2.5  | 4.9  | 4.9  | 6.0  | 5.7  | 7.0  | 13.0 | 7.3  | 13.0 | 13.0 |
| Moving Coil Mass   | kg                       | 0.30 | 0.40 | 0.50 | 0.60 | 0.80 | 1.0  | 1.0  | 1.4  | 1.8  | 1.8  | 2.5  | 3.2  |
| Force Constant   | N/<br>Arms               | 31.2 | 46.8 | 51.3 | 33.0 | 49.5 | 54.3 | 53.1 | 64.8 | 43.2 | 61.8 | 52.2 | 69.6 |
| BEMF Constant  | Vrms/<br>(m/s)/<br>phase | 10.4 | 15.6 | 17.1 | 11.0 | 16.5 | 18.1 | 17.7 | 21.6 | 14.4 | 20.6 | 17.4 | 23.2 |
| Motor Constant   | N/ $\sqrt{W}$            | 4.78 | 5.85 | 6.67 | 7.47 | 9.18 | 10.4 | 10.0 | 12.4 | 15.4 | 16.2 | 20.0 | 23.0 |
| Electrical Time Constant   | ms                       | 0.18 | 0.18 | 0.17 | 0.38 | 0.32 | 0.41 | 0.18 | 0.59 | 0.65 | 0.98 | 1.0  | 1.1  |
| Mechanical Time Constant   | ms                       | 13   | 12   | 11   | 11   | 9.5  | 9.2  | 10   | 9.1  | 7.6  | 6.9  | 6.3  | 6.0  |
| Thermal Resistance (with Heat Sink)                                    | K/W                      | 3.35 | 2.90 | 1.64 | 1.66 | 1.45 | 1.29 | 1.00 | 0.68 | 0.61 | 0.77 | 0.53 | 0.49 |
| Thermal Resistance (without Heat Sink)                                 | K/W                      | 6.79 | 5.24 | 4.26 | 4.35 | 3.38 | 2.76 | 2.99 | 2.29 | 1.81 | 1.87 | 1.43 | 1.16 |
| Magnetic Attraction* <sup>4</sup>                                      | N                        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |

\*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 forces are the continuous allowable force values at 40°C with an aluminum heat sink of the dimensions given below.

- Heat Sink Dimensions

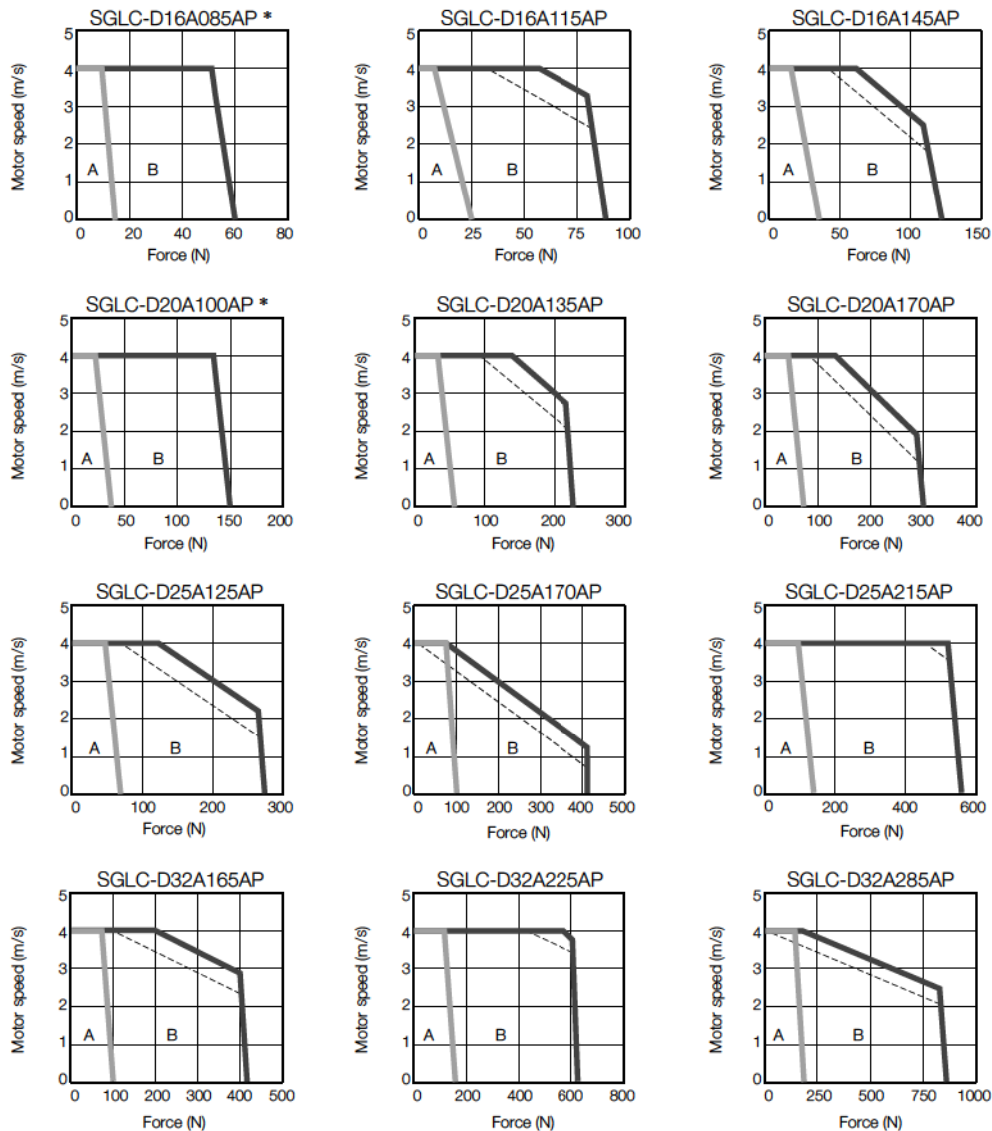
- 100 mm × 200 mm × 12 mm: SGLC-D16A085A and -D16A115A
- 200 mm × 300 mm × 12 mm: SGLC-D16A145A, -D20A100A, -D20A135A, and -D20A170A
- 300 mm × 400 mm × 12 mm: SGLC-D25A125A and -D32A165A
- 400 mm × 500 mm × 12 mm: SGLC-D25A170A, -D25A215A, -D32A225A, and -D32A285A

\*3. For speed control operation with an analog voltage reference, set 1.5 m/s as the rated motor speed.

\*4. This is the theoretical magnetic attraction between the Moving Coil and Magnetic Way. The unbalanced magnetic gap after installation causes a magnetic attraction.

## Force-Motor Speed Characteristics

- A** : Continuous duty zone ——— (solid lines): With three-phase 200-V input  
**B** : Intermittent duty zone - - - - - (dotted lines): With single-phase 200-V input



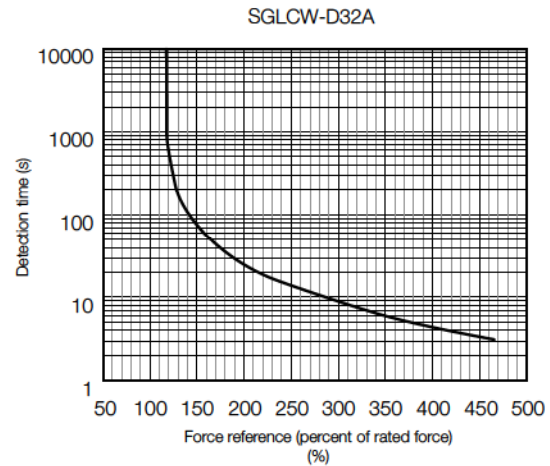
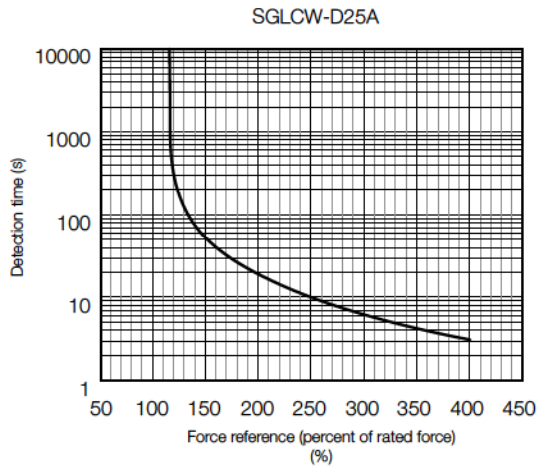
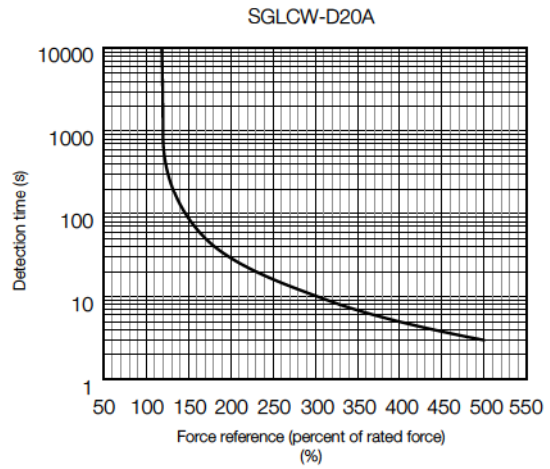
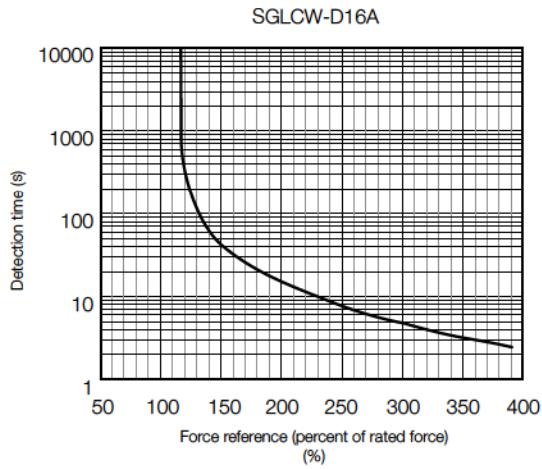
\* The characteristics are the same for three-phase 200 V and single-phase 200 V.

Note: 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 force is within the allowable range for the rated force, the Servomotor can be used within the intermittent duty zone.
4. If the length of the Servomotor Main Circuit Cable exceeds 20 m, the intermittent duty zone in the force-motor speed characteristics will become smaller as the voltage drop increases.

## Servomotor Overload Protection Characteristics

The overload detection level is set for hot start conditions with a Servomotor ambient 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 force remains within the continuous duty zone given in *Force-Motor Speed Characteristics* on page 181.