SLM/SLG SERIES

BRUSHLESS AC OR DC SERVO MOTOR / INTEGRATED SERVO GEARMOtor

Compatible with virtually any manufacturer’s servo drive

Multiple frame size options
SLM Series Motors and SLG Series Integrated Gearmotors

**Description**
Brushless servo motor and gearmotor technology from Exlar provides one of the highest torque-to-size ratio available in motion control today. Small size, outstanding performance specifications, quality and customization capabilities offer you the right solution for your motion control application.

**Unique T-LAM Stator Design Advantage**
This innovative design offers several advantages over traditional motor winding for a more efficient and powerful motor.

Built for durability, T-LAM segmented lamination stator technology consists of individual segments, each containing individual phase wiring for maximum motor performance. The robust insulation, high coercive strength magnets, and complete thermal potting provide a more robust motor design, a design yielding a 35 to 70% torque increase in the same package size! T-LAM motor designs have Class 180H insulation systems and UL recognition.

**Very High Torque Density**
T-LAM technology produces an efficient and powerful motor in a very small package.

- 60 mm SLM060 offers continuous torque up to 15 lbf-in and base speed of 5000 rpm.
- 75 mm SLM075 offers continuous torque up to 36 lbf-in and base speed of 4000 rpm.
- 90 mm SLM090 offers continuous torque up to 56 lbf-in and base speed of 4000 rpm.
- 115 mm SLM115 offers continuous torque up to 176 lbf-in and base speed of 3000 rpm.
- 142 mm SLM142 offers continuous torque up to 237 lbf-in and base speed of 2400 rpm.
- 180 mm SLM180 offers continuous torque up to 612 lbf-in and base speed of 2400 rpm.

**Standard Features**

<table>
<thead>
<tr>
<th>SLM Motor</th>
<th>SLG Gearmotor</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP65S sealing</td>
<td>All features of SLM motor shown above plus…</td>
</tr>
<tr>
<td>Right angle rotatable connectors.</td>
<td>High side load bearing design</td>
</tr>
<tr>
<td>Feedback configurations for nearly all servo amplifiers</td>
<td>Integrated armature and sungear</td>
</tr>
<tr>
<td>Anodized housings</td>
<td>Higher stiffness than bolt-on gearhead and motor</td>
</tr>
<tr>
<td>Class 180H insulation system</td>
<td>10 arc minute standard backlash, single stage; 13 arc minute standard backlash, dual stage</td>
</tr>
<tr>
<td></td>
<td>Single and double reduction ratios: 4:1, 5:1, 10:1, 16:1, 20:1, 25:1, 40:1, 50:1, and 100:1</td>
</tr>
</tbody>
</table>
Product Features

- Connectorization to match amplifier manufacturer’s standard cables or to customer specifications
- Feedback device for customer preferred servo amplifier

T-LAM Brushless Servo Motor

Integrated Planetary Gearbox

1 - Keyed
2 - Rear Brake
3 - Exlar standard M23 style
Industries and Applications

Automotive
- Automotive Assembly

Food Processing
- Conveyor Drives
- Packaging
- Labeling

Machining
- Machine tools
- Fluid Handling
- Winding Machines
- Screw Drives

Entertainment / Simulation
- Simulation robotics
- Animatronics

Medical Equipment
- Volumetric pumps

Material Handling
- Tensioning
- Parts Handling
- Web Feed
- Stage Positioning
- Glass Manufacturing

Exlar brushless motors are the highest performance with very compact size. This makes them perfect for high-speed labeling and demanding conveyor drive applications.

Exlar closed-loop, servo-controlled rotary actuators are ideal for operating quarter-turn, full-turn, or multi-turn valves or shaft driven dampers.

The FT Series combined with SLM/G Series motors provides a complete Exlar actuator solution for applications requiring heavy load capacity and high speeds. The motor can be configured to operate with nearly any manufacturer’s servo amplifier.
### SLM/SLG060 Specifications

<table>
<thead>
<tr>
<th>Motor Stator</th>
<th>118</th>
<th>138</th>
<th>158</th>
<th>168</th>
<th>218</th>
<th>238</th>
<th>258</th>
<th>268</th>
<th>318</th>
<th>338</th>
<th>358</th>
<th>368</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Rating</td>
<td>Vms</td>
<td>115</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>115</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>115</td>
<td>230</td>
<td>400</td>
</tr>
<tr>
<td>Speed @ Bus Voltage</td>
<td>rpm</td>
<td>5000</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

#### RMS Sinusoidal Commutation Data

- **Continuous Motor Torque**: lb-in
- **Peak Motor Torque**: lb-in
- **Torque Constant (Kt)**: lbf-in/A
- **Peak Current Rating**: A
- **Peak Current Rating**: A

#### O-PK Sinusoidal Commutation Data

- **Continuous Motor Torque**: lb-in
- **Peak Motor Torque**: lb-in
- **Torque Constant (Kt)**: lbf-in/A
- **Continuous Current Rating**: A
- **Peak Current Rating**: A

#### Motor Data

- **Voltage Constant (Ke)**: Vrms/Krpm
- **Pole Configuration**: |
- **Resistance (L-L)**: Ohms
- **Inductance (L-L)**: mH
- **SLM Armature Inertia (+/- 5%)**: lb-in-sec²
- **Brake Inertia**: lb-in-sec²
- **Brake Current @ 24 VDC**: A
- **Brake Holding Torque**: lb-in
- **Brake Engage/Disengage Time**: ms
- **Mechanical Time Constant (tm)**: ms
- **Electrical Time Constant (te)**: ms
- **Friction Torque**: lb-in (Nm)
- **Insulation Class**: |
- **Insulation System Volt Rating**: Vrms
- **Environmental Rating**: |

#### Gearmotor Data

<table>
<thead>
<tr>
<th>SLG Armature Inertia (+/- 5%)</th>
<th>1 Stack Motor</th>
<th>2 Stack Motor</th>
<th>3 Stack Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb-in-sec² (Kg-cm²)</td>
<td>0.000228 (0.255)</td>
<td>0.000401 (0.453)</td>
<td>0.000576 (0.651)</td>
</tr>
</tbody>
</table>

#### Gearing Reflecting Inertia

- **Single Reduction**: |
- **Double Reduction**: |

- **Backlash at 1% rated torque**: 10 Arc minutes
- **Efficiency**: Single reduction 91%
- **Efficiency**: Double reduction: 96%

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*Add armature inertia to gearing inertia for total SLG system inertia
Test data derived using NEMA recommended aluminum heatsink 10" x 10" x 1/4" at 25°C ambient temperature.

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*For amplifiers using peak sinusoidal ratings, multiply RMS sinusoidal Kt by 0.707 and current by 1.414.
### SLM/SLG075

<table>
<thead>
<tr>
<th>Motor Stator</th>
<th>118</th>
<th>138</th>
<th>158</th>
<th>168</th>
<th>218</th>
<th>238</th>
<th>258</th>
<th>268</th>
<th>318</th>
<th>338</th>
<th>358</th>
<th>368</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Rating</td>
<td>Vrms</td>
<td>115</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>115</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>115</td>
<td>230</td>
<td>400</td>
</tr>
<tr>
<td>Speed @ Bus Voltage</td>
<td>rpm</td>
<td>4000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### RMS Sinusoidal Commutation

| Continuous Motor Torque | lbf-in | 16.6 | 16.4 | 16.3 | 16.0 | 28.0 | 26.4 | 26.2 | 26.4 | 37.9 | 35.9 | 37.3 | 36.4 |
| Peak Motor Torque | lbf-in | 33.3 | 32.8 | 32.6 | 32.1 | 52.0 | 52.7 | 52.4 | 52.8 | 75.9 | 71.7 | 74.6 | 72.9 |
| Torque Constant (Kf) (+/-10% @ 25°C) | lbf-in/A | 3.4 | 6.6 | 12.5 | 13.1 | 3.7 | 6.8 | 11.6 | 13.5 | 3.4 | 6.8 | 11.6 | 13.9 |
| Continuous Current Rating | A | 5.5 | 2.8 | 1.5 | 1.4 | 7.9 | 4.4 | 2.5 | 2.2 | 12.5 | 5.9 | 3.6 | 2.9 |
| Peak Current Rating | A | 11.0 | 5.6 | 2.9 | 2.7 | 15.9 | 8.7 | 5.1 | 4.4 | 25.1 | 11.8 | 7.2 | 5.8 |

#### O-Peak Sinusoidal Commutation

| Continuous Motor Torque | lbf-in | 16.6 | 16.4 | 16.3 | 16.0 | 28.0 | 26.4 | 26.2 | 26.4 | 37.9 | 35.9 | 37.3 | 36.4 |
| Peak Motor Torque | lbf-in | 33.3 | 32.8 | 32.6 | 32.1 | 52.0 | 52.7 | 52.4 | 52.8 | 75.9 | 71.7 | 74.6 | 72.9 |
| Torque Constant (Kf) (+/-10% @ 25°C) | lbf-in/A | 2.4 | 4.6 | 8.8 | 9.3 | 2.6 | 4.8 | 8.2 | 9.6 | 2.4 | 4.8 | 8.2 | 9.9 |
| Continuous Current Rating | A | 7.8 | 4.0 | 2.1 | 1.9 | 11.2 | 6.2 | 3.6 | 3.1 | 17.7 | 8.4 | 5.1 | 4.1 |
| Peak Current Rating | A | 15.6 | 7.9 | 4.1 | 3.9 | 22.4 | 12.3 | 7.2 | 6.2 | 35.5 | 16.8 | 10.1 | 8.3 |

### Motor Stator Data

| Voltage Constant (Ke) | Vrms/Krpm | 23.1 | 44.7 | 85.2 | 89.5 | 25.0 | 46.2 | 78.9 | 92.4 | 23.1 | 46.2 | 79.4 | 95.3 |
| Poles Configuration | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| Resistance (L-L) (+/- 5% @ 25°C) | Ohms | 1.66 | 6.42 | 23.49 | 26.84 | 0.83 | 2.75 | 8.15 | 11.01 | 0.40 | 1.77 | 4.83 | 7.29 |
| Inductance (L-L) (+/- 15%) | mH | 4.6 | 17.3 | 62.6 | 69.2 | 2.6 | 8.8 | 25.7 | 35.2 | 1.4 | 5.8 | 17.0 | 24.5 |
| Electric Time Constant (te) | lbf-in/A | 0.00054 | 0.00097 | 0.00140 |
| Mechanical Time Constant (tm) | lbf-in | 0.000159 | 0.000159 | 0.000159 |
| Electric Time Constant (tie) | lbf-in | 0.05 | 0.5 | 0.5 |
| Brake Holding Torque | lbf-in | 0.5 | 40 |
| Brake Engage/Disengage Time | ms | 9/35 |
| Friction Torque | lbf-in (Nm) | 0.51 (0.058) | 0.67 (0.075) | 0.90 (0.101) |

### Gearmotor Data

**1 Stack Motor**

| SLG Armature Inertia | lbf-in/sec² (+/- 5%) | 0.000660 (0.7450) |
| SLG Armature Inertia | lbf-in/sec² (+/- 15%) | 0.000973 (1.0996) |

**2 Stack Motor**

| SLG Armature Inertia | lbf-in/sec² (+/- 5%) | 0.001068 (1.2057) |
| SLG Armature Inertia | lbf-in/sec² (+/- 15%) | 0.001494 (1.6868) |

**3 Stack Motor**

| SLG Armature Inertia | lbf-in/sec² (+/- 5%) | 0.000973 (1.0996) |
| SLG Armature Inertia | lbf-in/sec² (+/- 15%) | 0.001494 (1.6868) |

**Gearing Reflected Inertia**

<table>
<thead>
<tr>
<th>Gear Stages</th>
<th>lbf-in/sec² (+/- 5%)</th>
<th>(Kg-cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>0.0000947 (0.1069)</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>0.000617 (0.0696)</td>
<td></td>
</tr>
<tr>
<td>10:1</td>
<td>0.000166 (0.0186)</td>
<td></td>
</tr>
</tbody>
</table>

* Add armature inertia to gearing inertia for total SLG system inertia

For amplifiers using peak sinusoidal ratings, multiply RMS sinusoidal Kt by 0.707 and current by 1.414.
### SLM/SLG Series Motors/SLG Series Gearmotors

#### SLM/SLG090

<table>
<thead>
<tr>
<th>Motor Stator</th>
<th>118</th>
<th>138</th>
<th>158</th>
<th>168</th>
<th>218</th>
<th>238</th>
<th>258</th>
<th>268</th>
<th>338</th>
<th>358</th>
<th>368</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Rating</td>
<td>Vrms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed @ Bus Voltage</td>
<td>rpm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

#### RMS Sinusoidal Commutation Data

<table>
<thead>
<tr>
<th>Continuous Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.8</td>
<td>2.57</td>
<td></td>
</tr>
<tr>
<td>24.0</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>23.7</td>
<td>2.57</td>
<td></td>
</tr>
<tr>
<td>24.7</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>39.6</td>
<td>4.45</td>
<td></td>
</tr>
<tr>
<td>40.0</td>
<td>4.52</td>
<td></td>
</tr>
<tr>
<td>39.5</td>
<td>4.45</td>
<td></td>
</tr>
<tr>
<td>39.9</td>
<td>4.52</td>
<td></td>
</tr>
<tr>
<td>55.7</td>
<td>6.30</td>
<td></td>
</tr>
<tr>
<td>55.4</td>
<td>6.26</td>
<td></td>
</tr>
<tr>
<td>55.7</td>
<td>6.30</td>
<td></td>
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#### O-PK Sinusoidal Commutation Data

<table>
<thead>
<tr>
<th>Continuous Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
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<tbody>
<tr>
<td>23.8</td>
<td>2.57</td>
<td></td>
</tr>
<tr>
<td>24.0</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>23.7</td>
<td>2.57</td>
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<td>39.6</td>
<td>4.45</td>
<td></td>
</tr>
<tr>
<td>40.0</td>
<td>4.52</td>
<td></td>
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<tr>
<td>39.5</td>
<td>4.45</td>
<td></td>
</tr>
<tr>
<td>39.9</td>
<td>4.52</td>
<td></td>
</tr>
<tr>
<td>55.7</td>
<td>6.30</td>
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<tr>
<td>55.4</td>
<td>6.26</td>
<td></td>
</tr>
<tr>
<td>55.7</td>
<td>6.30</td>
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</table>

### Motor Data

<table>
<thead>
<tr>
<th>Voltage Constant (Ke)</th>
<th>Vrms/Krpm</th>
<th>Vpk/Krpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.1</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td>45.2</td>
<td>16.1</td>
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</tr>
<tr>
<td>78.9</td>
<td>25.4</td>
<td></td>
</tr>
<tr>
<td>90.4</td>
<td>30.1</td>
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#### Gearmotor Data

<table>
<thead>
<tr>
<th>SLG Armature Inertia</th>
<th>lbf-in-sec²</th>
<th>Kg-cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00054</td>
<td>0.00097</td>
<td>0.00140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brake Inertia</th>
<th>lbf-in-sec²</th>
<th>Kg-cm²</th>
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</thead>
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<tr>
<td>0.00006</td>
<td>0.00006</td>
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#### Insulation Class

<table>
<thead>
<tr>
<th>Insulation System Volt Rating</th>
<th>Vrms</th>
</tr>
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<tbody>
<tr>
<td>IP65S</td>
<td>460</td>
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</tbody>
</table>

For amplifiers using peak sinusoidal ratings, multiply RMS sinusoidal Kt by 0.707 and current by 1.414.

### Gearmotor Data

<table>
<thead>
<tr>
<th>Gear Stages</th>
<th>lbf-in-sec²</th>
<th>Kg-cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>0.000154</td>
<td>0.00079</td>
</tr>
<tr>
<td>5:1</td>
<td>0.000200</td>
<td>0.00100</td>
</tr>
<tr>
<td>10:1</td>
<td>0.0003265</td>
<td>0.00163</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Backlash at 1% rated torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Arc minutes</td>
</tr>
</tbody>
</table>

- Add armature inertia to gearing inertia for total SLG system inertia

Test data derived using NEMA recommended aluminum heatsink 10" x 10" x 3/8" at 25°C ambient.
### SLM Series Motors/SLG Series Gearmotors

**SLM/SLG115**

<table>
<thead>
<tr>
<th>Motor Stator</th>
<th>118</th>
<th>138</th>
<th>158</th>
<th>168</th>
<th>238</th>
<th>258</th>
<th>268</th>
<th>338</th>
<th>358</th>
<th>368</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Rating</td>
<td>Vrms</td>
<td>115</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>230</td>
<td>400</td>
</tr>
<tr>
<td>Speed @ Bus Voltage</td>
<td>rpm</td>
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<td></td>
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<td></td>
<td>3000</td>
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</table>

**RMS SINUSOIDAL COMMUTATION DATA**

<table>
<thead>
<tr>
<th>Continuous Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>0.000895</td>
<td>0.000986</td>
</tr>
<tr>
<td>5:1</td>
<td>0.001330</td>
<td>0.001459</td>
</tr>
<tr>
<td>10:1</td>
<td>0.002660</td>
<td>0.002918</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Peak Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>0.001788</td>
<td>0.002033</td>
</tr>
<tr>
<td>5:1</td>
<td>0.002660</td>
<td>0.002918</td>
</tr>
<tr>
<td>10:1</td>
<td>0.005320</td>
<td>0.005836</td>
</tr>
</tbody>
</table>

**GEARING REFLECTED INERTIA**

<table>
<thead>
<tr>
<th>Gear Stages</th>
<th>lbf-in-sec$^2$ (Kg-cm$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.000622 (7.47)</td>
</tr>
<tr>
<td>2</td>
<td>0.000945 (10.67)</td>
</tr>
<tr>
<td>3</td>
<td>0.001289 (13.86)</td>
</tr>
</tbody>
</table>

**SLG Armature Inertia** *Add armature inertia to gearing inertia for total SLG system inertia*

<table>
<thead>
<tr>
<th>Gear Stages</th>
<th>lbf-in-sec$^2$ (Kg-cm$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>0.00662 (7.47)</td>
</tr>
<tr>
<td>5:1</td>
<td>0.00945 (10.67)</td>
</tr>
<tr>
<td>10:1</td>
<td>0.01228 (13.86)</td>
</tr>
</tbody>
</table>

**Backlash at 1% rated torque**

<table>
<thead>
<tr>
<th>1 Stack Motor</th>
<th>2 Stack Motor</th>
<th>3 Stack Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Arc minutes</td>
<td>12 Arc minutes</td>
<td>13 Arc minutes</td>
</tr>
</tbody>
</table>

**Efficiency:** Single reduction 91%

**Gearmotor Data**

<table>
<thead>
<tr>
<th>Gearmotor Data</th>
<th>1 Stack Motor</th>
<th>2 Stack Motor</th>
<th>3 Stack Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLG Armature Inertia</td>
<td>0.00662 (7.47)</td>
<td>0.00945 (10.67)</td>
<td>0.01228 (13.86)</td>
</tr>
</tbody>
</table>

**For amplifiers using peak sinusoidal ratings, multiply RMS sinusoidal Kt by 0.707 and current by 1.414.**

*Test data derived using NEMA recommended aluminum heatsink 12\" x 12\" x 1/2\" at 25°C ambient*
### SLM Series Motors/SLG Series Gearmotors

#### SLM142

<table>
<thead>
<tr>
<th>Motor Stator</th>
<th>118</th>
<th>138</th>
<th>158</th>
<th>168</th>
<th>238</th>
<th>258</th>
<th>268</th>
<th>358</th>
<th>368</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Voltage</td>
<td>Vrms</td>
<td>115</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>400</td>
</tr>
<tr>
<td>Speed @ Bus Voltage</td>
<td>RPM</td>
<td>2400</td>
<td></td>
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**RMS SINUSOIDAL COMMUTATION DATA**

<table>
<thead>
<tr>
<th>Continuous Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>108.5</td>
<td>12.25</td>
<td></td>
</tr>
<tr>
<td>107.2</td>
<td>(2.12)</td>
<td></td>
</tr>
<tr>
<td>104.8</td>
<td>11.84</td>
<td></td>
</tr>
<tr>
<td>109.4</td>
<td>12.36</td>
<td></td>
</tr>
<tr>
<td>179.9</td>
<td>20.32</td>
<td></td>
</tr>
<tr>
<td>178.8</td>
<td>20.20</td>
<td></td>
</tr>
<tr>
<td>177.8</td>
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<td></td>
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<td>237.2</td>
<td>26.80</td>
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<tr>
<td>238.3</td>
<td>26.93</td>
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<table>
<thead>
<tr>
<th>Peak Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>216.9</td>
<td>24.51</td>
<td></td>
</tr>
<tr>
<td>214.5</td>
<td>24.23</td>
<td></td>
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<tr>
<td>209.5</td>
<td>23.67</td>
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<td>218.8</td>
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<td>355.7</td>
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<td>474.4</td>
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<td>53.85</td>
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<table>
<thead>
<tr>
<th>Torque Constant (Kt)</th>
<th>lbf-in/A</th>
<th>Nm/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+/- 10% @ 25°C)</td>
<td>5.9</td>
<td>0.67</td>
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<td>11.8</td>
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<tr>
<td>11.8</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>20.2</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>23.6</td>
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<td>24.0</td>
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<table>
<thead>
<tr>
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<th>A</th>
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<tbody>
<tr>
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<td>8.4</td>
<td>13.1</td>
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<td>13.1</td>
<td>11.1</td>
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**O-PK SINUSOIDAL COMMUTATION DATA**

<table>
<thead>
<tr>
<th>Continuous Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
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<tbody>
<tr>
<td>108.5</td>
<td>12.25</td>
<td></td>
</tr>
<tr>
<td>107.2</td>
<td>(2.12)</td>
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<tr>
<td>104.8</td>
<td>11.84</td>
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<td>109.4</td>
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<td>179.9</td>
<td>20.32</td>
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<td>178.8</td>
<td>20.20</td>
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</tr>
<tr>
<td>177.8</td>
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<tr>
<td>237.2</td>
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<td>238.3</td>
<td>26.93</td>
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<table>
<thead>
<tr>
<th>Peak Motor Torque</th>
<th>lbf-in</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>216.9</td>
<td>24.51</td>
<td></td>
</tr>
<tr>
<td>214.5</td>
<td>24.23</td>
<td></td>
</tr>
<tr>
<td>209.5</td>
<td>23.67</td>
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</tr>
<tr>
<td>218.8</td>
<td>23.6</td>
<td></td>
</tr>
<tr>
<td>358.8</td>
<td>40.65</td>
<td></td>
</tr>
<tr>
<td>357.6</td>
<td>40.40</td>
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<tr>
<td>355.7</td>
<td>40.19</td>
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<tr>
<td>474.4</td>
<td>53.60</td>
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<tr>
<td>476.7</td>
<td>53.85</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Torque Constant (Kt)</th>
<th>lbf-in/A</th>
<th>Nm/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(+/- 10% @ 25°C)</td>
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<td>8.3</td>
<td>0.9</td>
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<td>14.3</td>
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<td>16.7</td>
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<td>16.7</td>
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<td>17.0</td>
<td>1.9</td>
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<table>
<thead>
<tr>
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<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.1</td>
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<td>14.4</td>
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<td>8.2</td>
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<td>11.9</td>
<td>18.5</td>
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<tr>
<td>18.5</td>
<td>15.7</td>
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</table>

**MOTOR DATA**

<table>
<thead>
<tr>
<th>Voltage Constant (Ke)</th>
<th>Vrms/Krpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.3</td>
<td>80.6</td>
</tr>
<tr>
<td>138.1</td>
<td>161.1</td>
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<tr>
<td>161.1</td>
<td>138.1</td>
</tr>
<tr>
<td>138.1</td>
<td>164.0</td>
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</table>

<table>
<thead>
<tr>
<th>Pole Configuration</th>
<th>8</th>
<th>8</th>
</tr>
</thead>
<tbody>
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<td>8</td>
<td>8</td>
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</tr>
<tr>
<td>8</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resistance (L-L)(+/– 5%)</th>
<th>Ohms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.21</td>
<td>0.87</td>
</tr>
<tr>
<td>2.68</td>
<td>3.34</td>
</tr>
<tr>
<td>0.339</td>
<td>1.01</td>
</tr>
<tr>
<td>1.39</td>
<td>0.61</td>
</tr>
<tr>
<td>0.858</td>
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</table>

<table>
<thead>
<tr>
<th>Inductance (L-L)(+/– 15%)</th>
<th>mH</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4</td>
<td>21.7</td>
</tr>
<tr>
<td>63.9</td>
<td>78.3</td>
</tr>
<tr>
<td>10.4</td>
<td>27.6</td>
</tr>
<tr>
<td>41.5</td>
<td>20.0</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Armature Inertia (+/- 5%)</th>
<th>lb-in-sec²</th>
<th>Kg-cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00927</td>
<td>0.01537</td>
<td></td>
</tr>
<tr>
<td>0.02146</td>
<td>0.01537</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brake Inertia</th>
<th>lb-in-sec²</th>
<th>Kg-cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.008408</td>
<td>0.008408</td>
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<tr>
<td>0.008408</td>
<td>0.008408</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Brake Current @ 24 VDC</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brake Torque @ 24 VDC</th>
<th>lb-in (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>354 (39.99)</td>
<td>354 (39.99)</td>
</tr>
<tr>
<td>354 (39.99)</td>
<td>354 (39.99)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Friction Torque</th>
<th>lb-in (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.07 (0.234)</td>
<td>2.65 (0.299)</td>
</tr>
</tbody>
</table>

**Insulation Class** | 180 (H) |

**Insulation System Volt Rating** | Vrms |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>460</td>
</tr>
</tbody>
</table>

**Environmental Rating** | IP65S |

---

For amplifiers using peak sinusoidal ratings, multiply RMS sinusoidal Kt by 0.707 and current by 1.414.

Gearmotor not available on 142 frame motor.

Test data derived using NEMA recommended aluminum heatsink 12" x 12" x 1/2" at 25°C ambient.
### SLM180

<table>
<thead>
<tr>
<th>Motor Stator</th>
<th>138</th>
<th>158</th>
<th>168</th>
<th>238</th>
<th>258</th>
<th>268</th>
<th>358</th>
<th>368</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Voltage</td>
<td>Vrms</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>230</td>
<td>400</td>
<td>460</td>
<td>400</td>
</tr>
<tr>
<td>Speed @ Bus Voltage</td>
<td>RPM</td>
<td></td>
<td>2400</td>
<td></td>
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<td></td>
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#### RMS SINEUSOIAL COMMUTATION DATA

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<th>249.9</th>
<th>261.9</th>
<th>424.8</th>
<th>423.0</th>
<th>427.5</th>
<th>595.6</th>
<th>611.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Motor Torque</td>
<td>Nm</td>
<td>28.72</td>
<td>28.23</td>
<td>29.59</td>
<td>47.99</td>
<td>47.79</td>
<td>48.30</td>
<td>67.29</td>
<td>69.10</td>
</tr>
<tr>
<td>Peak Motor Torque</td>
<td>Nm</td>
<td>508.4</td>
<td>499.8</td>
<td>523.8</td>
<td>846.8</td>
<td>846.0</td>
<td>855.1</td>
<td>1,191.2</td>
<td>1,223.2</td>
</tr>
<tr>
<td>Torque Constant (Kt) (+/- 10% @ 25°C)</td>
<td>lbf-in/A</td>
<td>12.6</td>
<td>21.8</td>
<td>25.2</td>
<td>12.6</td>
<td>21.8</td>
<td>25.2</td>
<td>21.4</td>
<td>25.2</td>
</tr>
<tr>
<td>Continuous Current Rating (IG)</td>
<td>A</td>
<td>22.6</td>
<td>12.8</td>
<td>11.6</td>
<td>37.7</td>
<td>21.7</td>
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#### O-PK SINEUSOIAL COMMUTATION DATA

<table>
<thead>
<tr>
<th></th>
<th>lbf-in</th>
<th>254.2</th>
<th>249.9</th>
<th>261.9</th>
<th>424.8</th>
<th>423.0</th>
<th>427.5</th>
<th>595.6</th>
<th>611.6</th>
</tr>
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<tr>
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<td>29.59</td>
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<td>47.79</td>
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<td>69.10</td>
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<td>523.8</td>
<td>846.8</td>
<td>846.0</td>
<td>855.1</td>
<td>1,191.2</td>
<td>1,223.2</td>
</tr>
<tr>
<td>Torque Constant (Kt) (+/- 10% @ 25°C)</td>
<td>lbf-in/A</td>
<td>8.9</td>
<td>15.4</td>
<td>17.8</td>
<td>8.9</td>
<td>15.4</td>
<td>17.8</td>
<td>15.1</td>
<td>17.8</td>
</tr>
<tr>
<td>Continuous Current Rating (IG)</td>
<td>A</td>
<td>31.9</td>
<td>18.1</td>
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<td>30.7</td>
<td>26.8</td>
<td>44.0</td>
<td>38.4</td>
</tr>
<tr>
<td>Peak Current Rating</td>
<td>A</td>
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<td>36.2</td>
<td>32.9</td>
<td>106.7</td>
<td>61.3</td>
<td>53.7</td>
<td>88.0</td>
<td>76.8</td>
</tr>
</tbody>
</table>

#### MOTOR STATOR DATA

| Voltage Constant (Ke) | Vrms/Krpm | 85.9 | 148.9 | 171.8 | 148.9 | 171.8 | 146.1 | 171.8 |
| (+/- 10% @ 25°C) | Vpk/Krpm | 121.5 | 210.6 | 243.0 | 210.6 | 243.0 | 206.6 | 243.0 |
| Pole Configuration | Ohms | 8.8 | 8 | 8 | 3.9 | 4.0 | 3.9 | 4.0 |
| Resistance (L-L) (+/- 5% @ 25°C) | mH | 8 | 24.8 | 29.4 | 3.9 | 11.8 | 15.8 | 7.5 | 10.3 |
| Inductance (L-L) (+/- 15%) | Kg-cm² | 005051 | 0.08599 | 0.12147 | 0.02815 | 0.138 |
| Armature Inertia (+/- 5%) | lb-in-sec² | 0.005051 | 0.08599 | 0.12147 | 0.02815 | 0.138 |
| Brake Inertia | Kg-cm² | 57.071 | 97.159 | 137.246 | 88.0 | 76.8 |
| Brake Current @ 24 VDC | A | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 |
| Brake Holding Torque | lbf (Nm) | 708 (80) | 708 (80) | 708 (80) |
| Brake Engage/Disengage Time | ms | 53/97 | 53/97 | 53/97 | 53/97 | 53/97 |
| Mechanical Time Constant (tm) | ms | 2.25 | 2.33 | 2.12 | 1.58 | 1.59 | 1.56 | 1.34 | 1.27 |
| Electrical Time Constant (te) | ms | 25.44 | 24.58 | 24.03 | 29.38 | 29.14 | 29.76 | 32.07 | 33.81 |
| Friction Torque | lbf (Nm) | 5.07 (0.573) | 7.80 (0.881) | 7.80 (0.881) | 11.52 (1.302) |
| Insulation Class | 180 (H) | 180 (H) | 180 (H) | 180 (H) | 180 (H) | 180 (H) |
| Insulation System Volt Rating | Vrms | 460 | 460 | 460 | 460 | 460 |
| Thermal Switch, Case Temp | deg C | 100 | 100 | 100 | 100 | 100 |
| Environmental Rating | IP65S | IP65S | IP65S | IP65S | IP65S | IP65S |

For amplifiers using peak sinusoidal ratings, multiply RMS sinusoidal Kt by 0.707 and current by 1.414.

Gearmotor not available on 180 frame.

Test data derived using NEMA recommended aluminum heatsink 16" x 16" x 1" at 25°C ambient.
SLG Series Gearmotor General Performance Specifications

Two torque ratings for the SLG Series Gearmotors are given in the table below. The left hand columns give the maximum (peak) allowable output torque for the indicated ratios of each size SLG Series Gearmotor. This is NOT the rated output torque of the motor multiplied by the ratio of the reducer.

It is possible to select a configuration of the motor selection and gear ratio such that the rated motor torque, multiplied by the gear ratio exceeds these ratings. It is the responsibility of the user to ensure that the settings of the system, including the amplifier, do not allow these values to be exceeded.

The right hand columns give the output torque at the indicated speed which will result in 10,000 hour (L10). The setup of the system, including the amplifier, will determine the actual output torque and speed.

### SLM Radial Load

<table>
<thead>
<tr>
<th>RPM</th>
<th>50</th>
<th>100</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLM060 (lbf (N))</td>
<td>250 (1112)</td>
<td>198 (881)</td>
<td>148 (658)</td>
<td>116 (516)</td>
<td>92 (409)</td>
<td>64 (285)</td>
</tr>
<tr>
<td>SLM075 (lbf (N))</td>
<td>278 (1237)</td>
<td>220 (970)</td>
<td>162 (721)</td>
<td>129 (574)</td>
<td>102 (454)</td>
<td>71 (316)</td>
</tr>
<tr>
<td>SLM090 (lbf (N))</td>
<td>427 (1909)</td>
<td>340 (1512)</td>
<td>250 (1112)</td>
<td>198 (881)</td>
<td>158 (703)</td>
<td>109 (485)</td>
</tr>
<tr>
<td>SLM115 (lbf (N))</td>
<td>579 (2576)</td>
<td>460 (2046)</td>
<td>339 (1508)</td>
<td>269 (1197)</td>
<td>214 (952)</td>
<td>148 (658)</td>
</tr>
<tr>
<td>SLM142 (lbf (N))</td>
<td>1367 (6081)</td>
<td>1085 (4826)</td>
<td>800 (3559)</td>
<td>635 (2825)</td>
<td>504 (2242)</td>
<td>349 (1552)</td>
</tr>
<tr>
<td>SLM180 (lbf (N))</td>
<td>2237 (9951)</td>
<td>1776 (7900)</td>
<td>1308 (5818)</td>
<td>1038 (4617)</td>
<td>824 (3665)</td>
<td>605 (2691)</td>
</tr>
</tbody>
</table>

### SLG Radial Load

<table>
<thead>
<tr>
<th>RPM</th>
<th>50</th>
<th>100</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLM060 (lbf (N))</td>
<td>189 (841)</td>
<td>150 (667)</td>
<td>110 (489)</td>
<td>88 (391)</td>
<td>70 (311)</td>
<td>48 (214)</td>
</tr>
<tr>
<td>SLM075 (lbf (N))</td>
<td>343 (1526)</td>
<td>272 (1210)</td>
<td>200 (890)</td>
<td>159 (707)</td>
<td>126 (560)</td>
<td>88 (391)</td>
</tr>
<tr>
<td>SLM090 (lbf (N))</td>
<td>360 (1657)</td>
<td>278 (1237)</td>
<td>205 (892)</td>
<td>163 (725)</td>
<td>129 (574)</td>
<td>89 (396)</td>
</tr>
<tr>
<td>SLM115 (lbf (N))</td>
<td>858 (3817)</td>
<td>681 (3029)</td>
<td>502 (2233)</td>
<td>398 (1770)</td>
<td>316 (1406)</td>
<td>218 (970)</td>
</tr>
</tbody>
</table>

Side load ratings shown above are for 10,000 hour bearing life at 25 mm from motor face at given rpm.

### Output Torque Ratings—Mechanical

<table>
<thead>
<tr>
<th>Model</th>
<th>Maximum Allowable Output Torque Set by User—lbf-es (Nm)</th>
<th>Output Torque @ Speed for 10,000 Hour Life—lbf-es (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:1</td>
<td>500 (22.6)</td>
<td>144 (6.5)</td>
</tr>
<tr>
<td>5:1</td>
<td>522 (24.0)</td>
<td>170 (7.7)</td>
</tr>
<tr>
<td>10:1</td>
<td>327 (14.8)</td>
<td>200 (9.0)</td>
</tr>
<tr>
<td>16:1</td>
<td>603 (27.3)</td>
<td>224 (10.3)</td>
</tr>
<tr>
<td>20:1</td>
<td>603 (27.3)</td>
<td>240 (10.9)</td>
</tr>
<tr>
<td>25:1</td>
<td>522 (24.0)</td>
<td>275 (12.5)</td>
</tr>
<tr>
<td>40:1</td>
<td>603 (27.3)</td>
<td>288 (13.0)</td>
</tr>
<tr>
<td>50:1</td>
<td>522 (24.0)</td>
<td>340 (15.4)</td>
</tr>
<tr>
<td>100:1</td>
<td>327 (14.8)</td>
<td>320 (14.4)</td>
</tr>
</tbody>
</table>

### Motor and Gearmotor Weight

<table>
<thead>
<tr>
<th>Motor</th>
<th>SLM/G060</th>
<th>SLM/G075</th>
<th>SLM/G090</th>
<th>SLM/G115</th>
<th>SLM142</th>
<th>SLM180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor</td>
<td>1 Stage</td>
<td>2 Stage</td>
<td>1 Stage</td>
<td>1 Stage</td>
<td>1 Stage</td>
<td>2 Stage</td>
</tr>
<tr>
<td>1 Stack lbf (kg)</td>
<td>3.0 (1.4)</td>
<td>7.5 (3.4)</td>
<td>9.3 (4.2)</td>
<td>4.2 (1.9)</td>
<td>6.6 (3.0)</td>
<td>5.4 (2.4)</td>
</tr>
<tr>
<td>2 Stack lbf (kg)</td>
<td>4.1 (1.9)</td>
<td>8.6 (3.9)</td>
<td>10.4 (4.7)</td>
<td>6.0 (2.7)</td>
<td>8.4 (3.8)</td>
<td>7.8 (3.5)</td>
</tr>
<tr>
<td>3 Stack lbf (kg)</td>
<td>5.2 (2.4)</td>
<td>9.7 (4.4)</td>
<td>11.5 (5.2)</td>
<td>7.8 (3.5)</td>
<td>10.2 (4.6)</td>
<td>10.2 (4.6)</td>
</tr>
<tr>
<td>Brake</td>
<td>1.8 (0.8)</td>
<td>0.8 (0.4)</td>
<td>2.7 (1.2)</td>
<td>4.1 (1.9)</td>
<td>6.0 (2.7)</td>
<td>12 (5.4)</td>
</tr>
</tbody>
</table>

*Note: Gear stages not available on SLM142 and SLM180*
Speed and Torque Curves

These speed vs. torque curves represent approximate continuous torque ratings at the indicated rpms. Different types of servo amplifiers offer varying motor torque.

Test data derived using NEMA recommended aluminum heatsink 10” x 10” x 1/4” on SLM/SLG060 and 10” x 10” x 3/8” on SLM/SLG075 at 25° C ambient. For gearmotors, divide speed by gear ratio; multiply torque by gear ratio and efficiency. Efficiencies: 1 Stage = 0.91, 2 Stage = 0.86.
SLM Series Motors/SLG Series Gearmotors

Test data derived using NEMA recommended aluminum heatsink 10” x 10” x 3/8” on SLM/SLG-090 and 12” x 12” x 1/2” on SLM/SLG-115 at 25°C ambient. For gearmotors, divide speed by gear ratio; multiply torque by gear ratio and efficiency. Efficiencies: 1 Stage = 0.91, 2 Stage = 0.86

- **Peak Torque**
- **Continuous Torque**
Test data derived using NEMA recommended aluminum heatsink 12" x 12" x 1/2" on SLM142 at 25°C ambient.

Test data derived using NEMA recommended aluminum heatsink 16" x 16" x 1" on SLM180 at 25°C ambient.
Options

Motor Speed
All Exlar T-LAM motors and actuators carry a standard motor speed designator (see chart). This is representative of the standard base speed of the motor for the selected bus voltage.

If the model number is created and the location for the motor speed designator is left blank, this is the base speed to which the motor will be manufactured. The model number can also be created including this standard speed designator.

<table>
<thead>
<tr>
<th>Designator</th>
<th>Base Speed</th>
<th>Motor Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>-50</td>
<td>5000 rpm</td>
<td>SLM/SLG060</td>
</tr>
<tr>
<td>-40</td>
<td>4000 rpm</td>
<td>SLM/SLG075</td>
</tr>
<tr>
<td>-40</td>
<td>4000 rpm</td>
<td>SLM/SLG090</td>
</tr>
<tr>
<td>-30</td>
<td>3000 rpm</td>
<td>SLM/SLG115</td>
</tr>
<tr>
<td>-24</td>
<td>2400 rpm</td>
<td>SLM142, SLM180</td>
</tr>
</tbody>
</table>

Motor Stators
SLM/SLG motor options are described with a 3 digit code. The first digit calls out the stack length, the second digit signifies the rated bus voltage, and the third digit identifies the number of poles of the motor. Refer to the mechanical/electrical specifications for motor torque and actuator rated force.

8 Pole, Class 180 H

<table>
<thead>
<tr>
<th>Stack</th>
<th>1 Stack</th>
<th>2 Stack</th>
<th>3 Stack</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>118 Vrms</td>
<td>218 Vrms</td>
<td>318 Vrms</td>
</tr>
<tr>
<td>118</td>
<td>118 Vrms</td>
<td>238 Vrms</td>
<td>338 Vrms</td>
</tr>
<tr>
<td>158</td>
<td>400 Vrms</td>
<td>400 Vrms</td>
<td>400 Vrms</td>
</tr>
<tr>
<td>168</td>
<td>460 Vrms</td>
<td>460 Vrms</td>
<td>460 Vrms</td>
</tr>
</tbody>
</table>

IP Ratings
Please see page 175 for full description of IP Ratings.
Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.
SLM090

Due to the size of many absolute encoders, the selection of such feedback results in a larger package size than is shown in drawings. Consult Exlar for details, or refer to the drawings provided after receipt of order.

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.65 (118.1)</td>
<td>5.65 (143.5)</td>
<td>6.65 (168.9)</td>
</tr>
<tr>
<td>B</td>
<td>3.81 (96.8)</td>
<td>4.76 (121.0)</td>
<td>5.81 (147.6)</td>
</tr>
</tbody>
</table>

Add 1.31 inches (33.3 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)

SLM115

Due to the size of many absolute encoders, the selection of such feedback results in a larger package size than is shown in drawings. Consult Exlar for details, or refer to the drawings provided after receipt of order.

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.02 (152.9)</td>
<td>8.02 (203.7)</td>
<td>10.02 (254.5)</td>
</tr>
<tr>
<td>B</td>
<td>5.02 (127.5)</td>
<td>7.02 (178.3)</td>
<td>9.02 (229.1)</td>
</tr>
</tbody>
</table>

Add 1.73 inches (43.9 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)
SLM Series Motors/SLG Series Gearmotors

SLM142

Due to the size of many absolute encoders, the selection of such feedback results in a larger package size than is shown in drawings. Consult Exlar for details, or refer to the drawings provided after receipt of order.

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.87 (199.9)</td>
<td>9.62 (244.3)</td>
<td>11.37 (288.8)</td>
</tr>
<tr>
<td>B</td>
<td>6.75 (171.3)</td>
<td>5.50 (139.6)</td>
<td>10.25 (260.2)</td>
</tr>
</tbody>
</table>

Add 1.66 inches (42.2 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)

SLM180

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9.74 (247.4)</td>
<td>12.24 (310.9)</td>
<td>14.74 (374.4)</td>
</tr>
<tr>
<td>B</td>
<td>8.49 (215.6)</td>
<td>10.99 (279.1)</td>
<td>13.49 (342.6)</td>
</tr>
</tbody>
</table>

Add 1.90 inches (48.3 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)
SLG060

1 Stage Gearhead

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor (mm)</th>
<th>2 Stack Motor (mm)</th>
<th>3 Stack Motor (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.92 (175.6)</td>
<td>8.17 (207.4)</td>
<td>9.42 (239.1)</td>
</tr>
<tr>
<td>B</td>
<td>4.71 (119.6)</td>
<td>5.96 (151.4)</td>
<td>7.21 (183.1)</td>
</tr>
</tbody>
</table>

Add 1.02 inches (25.9 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)

SLG075

1 Stage Gearhead

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor (mm)</th>
<th>2 Stack Motor (mm)</th>
<th>3 Stack Motor (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.53 (165.9)</td>
<td>7.53 (191.3)</td>
<td>8.53 (216.7)</td>
</tr>
<tr>
<td>B</td>
<td>5.47 (139.0)</td>
<td>6.47 (164.4)</td>
<td>7.47 (189.8)</td>
</tr>
</tbody>
</table>

Add 1.23 inches (31.2 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)

Due to the size of many absolute encoders, the selection of such feedback results in a larger package size than is shown in drawings. Consult Exlar for details, or refer to the drawings provided after receipt of order.

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.
SLG090

1 Stage Gearhead

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.76 (197.1)</td>
<td>8.76 (222.5)</td>
<td>9.76 (247.9)</td>
</tr>
<tr>
<td>B</td>
<td>6.92 (175.8)</td>
<td>7.92 (201.2)</td>
<td>8.92 (226.6)</td>
</tr>
</tbody>
</table>

Add 1.31 inches (33.3 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)

2 Stage Gearhead

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9.03 (229.2)</td>
<td>10.03 (254.6)</td>
<td>11.03 (280.0)</td>
</tr>
<tr>
<td>B</td>
<td>8.19 (207.9)</td>
<td>9.19 (233.3)</td>
<td>10.19 (258.7)</td>
</tr>
</tbody>
</table>

SLG115

1 Stage Gearhead

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10.03 (254.8)</td>
<td>12.03 (305.6)</td>
<td>14.03 (256.4)</td>
</tr>
<tr>
<td>B</td>
<td>9.03 (255.0)</td>
<td>11.03 (280.2)</td>
<td>13.03 (331.0)</td>
</tr>
</tbody>
</table>

Add 1.73 inches (43.9 mm) to Dimensions A and B if ordering a brake.
Face plate edge is not intended for alignment of shaft (use pilot)

2 Stage Gearhead

<table>
<thead>
<tr>
<th>DIM</th>
<th>1 Stack Motor in (mm)</th>
<th>2 Stack Motor in (mm)</th>
<th>3 Stack Motor in (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11.64 (295.7)</td>
<td>13.64 (346.5)</td>
<td>15.64 (397.3)</td>
</tr>
<tr>
<td>B</td>
<td>10.64 (270.3)</td>
<td>12.64 (321.1)</td>
<td>14.64 (372.1)</td>
</tr>
</tbody>
</table>

Due to the size of many absolute encoders, the selection of such feedback results in a larger package size than is shown in drawings. Consult Exlar for details, or refer to the drawings provided after receipt of order.

Pre-sale drawings and models are representative and are subject to change. Certified drawings and models are available for a fee. Consult your local Exlar representative for details.
SLM/G = Model Series
SLG = SLG Series Servo Gear Motor
SLM = SLM Series Servo Motor
(No Gear Reduction)

AAA = Frame Size
060 = 60 mm
075 = 75 mm
090 = 90 mm
115 = 115 mm
142 = 142 mm, (SLM only)
180 = 180 mm, (SLM only)

BBB = Gear Reduction Ratio
Blank = SLM
Single reduction ratio
004 = 4:1
005 = 5:1
010 = 10:1
Double reduction ratio (N/A on 075 mm)
016 = 16:1
020 = 20:1
025 = 25:1
040 = 40:1
050 = 50:1
100 = 100:1

C = Shaft Type
K = Keyed

D = Connections
I = Exlar standard M23 style
M = Manufacturer’s connector

E = Coating Options
G = Anodized Aluminum (standard)

F = Brake Options
B = Brake
S = Standard no brake

GGG = Feedback Type
See page 164 for detailed information.

HHH = Motor Stator – All 8 Pole

II = Optional Speed and Mechanical Designations
24 = 2400 rpm, SLM142 & 180
30 = 3000 rpm, SLM/G115
40 = 4000 rpm, SLM075, SLM/G090
50 = 5000 rpm, SLM/G060

NOTES:
1. Available as described in Feedback Types.
2. See page 153 for explanation of voltage, speed, stack and optimized stator options.

For options or specials not listed above or for extended temperature operation, please contact Exlar.