

BLWRPG11 Series - Brushless DC Planetary Gearmotors



FEATURES

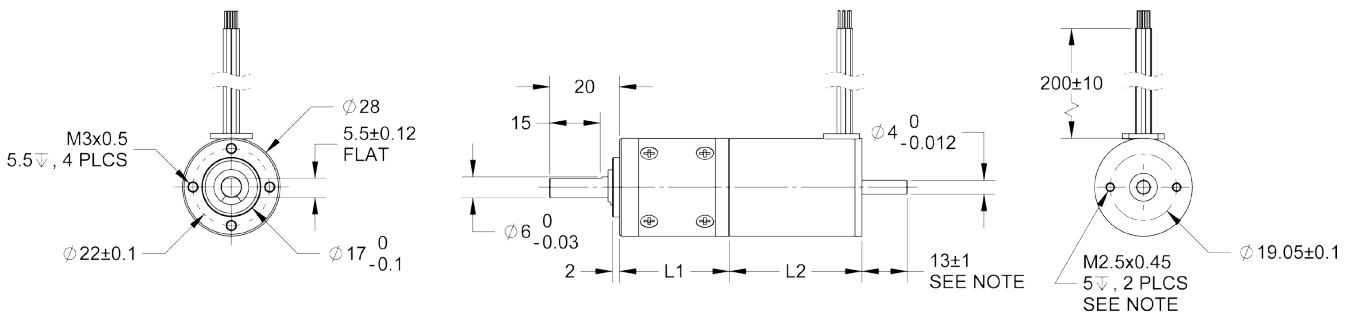
- **NEMA 11 Size**
- **Long Life - 20,000 Hour Operation**
- **Cost-Effective Replacement for Brush DC Motors**
- **Can be Customized for**
 - Operating Voltage
 - Rated Speed
 - Cables and Connectors
- **CE Certified and RoHS Compliant**



DESCRIPTION

The BLWRPG11 Series are cost-effective Brushless DC Planetary Gearmotors. These motors were designed keeping the OEM in mind, using state-of-the-art design parameters and low-cost manufacturing. This allows us to offer these quality motors at exceptional prices. The BLWRPG11 Series include a planetary gearbox and a brushless DC motor in a compact, fully integrated package. The brushless DC gearmotor is a perfect solution for applications requiring high torque or speeds under 500 RPM. These star-wound motors come with integrated hall sensors for closed-loop control for velocity applications. If the off-the-shelf gearmotors do not match your application, a motor can be wound or a gearbox can be selected to meet your specific requirements. We specialize in providing both off the shelf and custom solutions to handle any demanding application.

DIMENSIONS



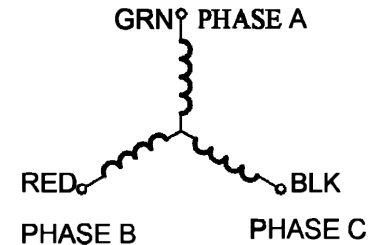
Note: Dual shaft version

L010401

| Wire Color | Description |
|------------|-------------|
| Green | Phase A |
| Red | Phase B |
| Black | Phase C |

| Wire Color | Description |
|------------|-------------|
| Yellow | Hall Vc |
| Blue | Hall A |
| Orange | Hall B |
| Brown | Hall C |
| White | Hall Ground |

| Hall Sensor Specifications |
|---------------------------------------|
| Supply Voltage: 4.5VDC to 28VDC |
| Current, I_{off} : 10mA max |
| Current, I_{on} : 11.3mA max |
| Rated Sinking Current: 20mA |
| Saturation Voltage: 0.4VDC max @ 25°C |
| Output Leakage Current: 10µA |
| Output Switching Time @ 25°C |
| Rise, 10% to 90% 1.5µs |
| Fall, 90% to 10% 1.5µs |
| Output Type: Open Collector |



Create a complete Model Number by selecting a motor from Table 1 and Gear Box from Table 2

BLWRPG110S-24V-2000-R3.7

| Table 1 | | Output on Shaft of Motor Before Gear-Box | | | | | | | | | | | |
|----------------------|------------|--|-----------------|------------------|--------------------------------|------------------------------|---------------------------|--------------|------------------|---------------------------|-------------------|----------------------|---|
| Model # | FRAME Size | Rated Voltage (V) | Rated Power (W) | Peak Current (A) | Line to Line Resistance (ohms) | Line to Line Inductance (mH) | Back EMF Voltage (V/kRPM) | Weight (lbs) | "L2" Length (mm) | Torque Constant (oz-in/A) | Rated Speed (RPM) | Rated Torque (oz-in) | Rotor Inertia (oz-in-sec ²) |
| BLWRPG111S-24V-2000 | Size 11 | 24 | 1.0 | 0.23 | 93.3 | 28 | 8.0 | 0.18 | 38 | 9.32 | 2000 | 0.708 | 3.00x10 ⁻⁵ |
| BLWRPG111S-24V-2700 | Size 11 | 24 | 2 | 0.42 | 55 | 18.3 | 6.0 | 0.38 | 38 | 7.05 | 2700 | 0.991 | 5.22x10 ⁻⁵ |
| BLWRPG112S-36V-10000 | Size 11 | 36 | 42 | 8.45 | 1.56 | 0.75 | 1.5 | 0.62 | 77 | 2.01 | 10000 | 5.664 | 8.47x10 ⁻⁵ |

| Table 2 | | Output on Shaft of Gearbox | | | | | | | | | |
|---------------------------------|-------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Parameters/Gear Box Ratio | 3.7 | 5.2 | 14 | 19 | 27 | 51 | 71 | 100 | 139 | 264 | |
| Peak Torque (oz-in) | 83 | 83 | 166 | 166 | 166 | 417 | 417 | 417 | 417 | 833 | |
| Number of Gear Trains | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | |
| "L1" (Length of Gear Box In mm) | 31.50 | 31.50 | 39.88 | 39.88 | 39.88 | 48.51 | 48.51 | 48.51 | 48.51 | 57.40 | |
| Gearbox Weight (lbs) | 0.13 | 0.13 | 0.18 | 0.18 | 0.18 | 0.20 | 0.20 | 0.20 | 0.20 | 0.24 | |
| Rated Torque (oz-in) | 28 | 28 | 55 | 55 | 55 | 139 | 139 | 139 | 139 | 278 | |
| Efficiency (%) | 90 | 90 | 81 | 81 | 81 | 73 | 73 | 73 | 73 | 66 | |

Notes: Custom leadwires, cables, connectors, and windings are available upon request.

- Rated Speed of the output shaft (after gear-box) = (Rated Motor Speed)/(Gear Ratio)
- Torque of the output shaft (after gear-box) = (Peak Motor Torque) X (Gear Ratio)
- Rotor Inertia of the output (shaft after gear-box) = (Rotor Motor Inertia) X (Gear Ratio)²

| | | | |
|-----------------------------|-----------------|--|--------|
| Winding Type: | Star, 4 Poles | Planetary Gear Radial Play of Shaft: | 0.04mm |
| Planetary Gear Housing: | Metal | Planetary Gear Thrust Play of Shaft: | 0.3mm |
| Planetary Gear at Output: | Sleeve Bearings | Planetary Gear Shaft Press fit force, max: | 5.5lbs |
| Planetary Gear Radial Load: | 10mm @ 7.7lbs | Planetary Gear Shaft Axial Load: | 22lbs |