

# BLWR11 - Brushless DC Motors



## FEATURES

- 28mm Round Body
- Compact Size and Power Density
- Cost-Effective Replacement for Brush DC Motors
- Long Life and Highly Reliable
- Can be Customized for
  - Maximum Speed
  - Winding Current
  - Shaft Options
  - Cables and Connectors
- RoHS Compliant



## DESCRIPTION

The BLWR11 Series Brushless DC Motors come in a compact package with high power density. These motors are cost-effective solutions to many velocity control applications. The star wound motor comes in a standard 8-lead configuration. We can also customize winding to perfectly match your voltage, current, and maximum operating speed. Special shaft modifications, cables and connectors are also available upon request.

## SPECIFICATIONS

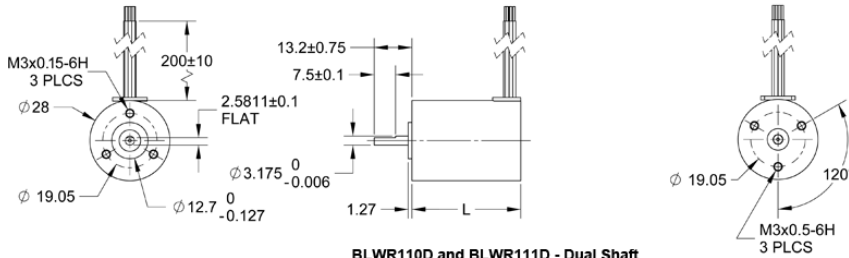
| Model #            | Rated Voltage (V) | Rated Speed (RPM) | Rated Power (W) | Rated Torque (oz-in) | Peak Torque (oz-in) | Rated Current (A) | Line to Line Resistance (ohms) | Line to Line Inductance (mH) | Torque Constant (oz-in/A) | Rotor Inertia (oz-in-sec <sup>2</sup> ) | Weight (lbs) | "L" Length (mm) |
|--------------------|-------------------|-------------------|-----------------|----------------------|---------------------|-------------------|--------------------------------|------------------------------|---------------------------|---|--------------|-----------------|
| BLWR110S-15V-8000  | 15                | 8000              | 6               | 1.0                  | 3.0                 | 0.61              | 8                              | 2.5                          | 1.94                      | 1.7x10 <sup>-5</sup>                    | 0.13         | 28              |
| BLWR110D-15V-8000  | 15                | 8000              | 6               | 1.0                  | 3.0                 | 0.61              | 8                              | 2.5                          | 1.62                      | 1.7x10 <sup>-5</sup>                    | 0.13         | 26              |
| BLWR111S-24V-10000 | 24                | 10000             | 15              | 2.0                  | 6.0                 | 0.88              | 4.63                           | 1.69                         | 2.27                      | 3.0x10 <sup>-5</sup>                    | 0.18         | 40              |
| BLWR111D-24V-10000 | 24                | 10000             | 15              | 2.0                  | 6.0                 | 0.88              | 4.63                           | 1.69                         | 2.27                      | 3.0x10 <sup>-5</sup>                    | 0.18         | 40              |
| BLWR112S-24V-3700  | 24                | 3700              | 19              | 7.1                  | 21                  | 1.37              | 4.2                            | 2.2                          | 5.18                      | 15.5x10 <sup>-5</sup>                   | 0.62         | 77              |
| BLWR112D-24V-3700  | 24                | 3700              | 19              | 7.1                  | 21                  | 1.37              | 4.2                            | 2.2                          | 5.18                      | 15.5x10 <sup>-5</sup>                   | 0.62         | 77              |
| BLWR112D-24V-5000  | 24                | 5000              | 21              | 5.7                  | 21.2                | 1.25              | 3.30                           | 1.70                         | 4.53                      | 15.5x10 <sup>-5</sup>                   | 0.62         | 77              |
| BLWR112S-24V-5000  | 24                | 5000              | 21              | 5.7                  | 21.2                | 1.25              | 3.30                           | 1.70                         | 4.53                      | 15.5x10 <sup>-5</sup>                   | 0.62         | 77              |
| BLWR112D-36V-10000 | 36                | 10000             | 42              | 5.7                  | 21.2                | 2.82              | 1.56                           | 0.75                         | 2.01                      | 15.5x10 <sup>-5</sup>                   | 0.62         | 77              |
| BLWR112S-36V-10000 | 36                | 10000             | 42              | 5.7                  | 21.2                | 2.82              | 1.56                           | 0.75                         | 2.01                      | 15.5x10 <sup>-5</sup>                   | 0.62         | 77              |

Note: Other speed options, custom leadwires, cables, connectors, and windings are available upon request.

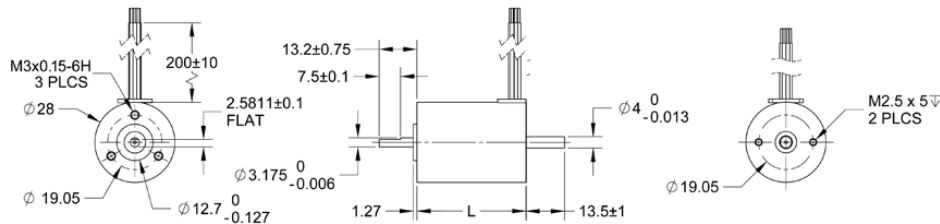
|                    |                             |                        |                            |
|--------------------|-----------------------------|------------------------|----------------------------|
| Winding Type:      | Star, 4 Poles               | Max. Radial Force:     | 15N @ 10mm from the flange |
| Hall Effect Angle: | 120 degree electrical angle | Max. Axial Force:      | 10N                        |
| Shaft Run Out:     | 0.025mm                     | Insulation Class:      | Class B                    |
| Radial Play:       | 0.02mm@450g                 | Dielectric Strength:   | 500VDC for one minute      |
| End Play:          | 0.08mm@450g                 | Insulation Resistance: | 100MOhm, 500VDC            |

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**BLWR110S and BLWR111S - Single Shaft**

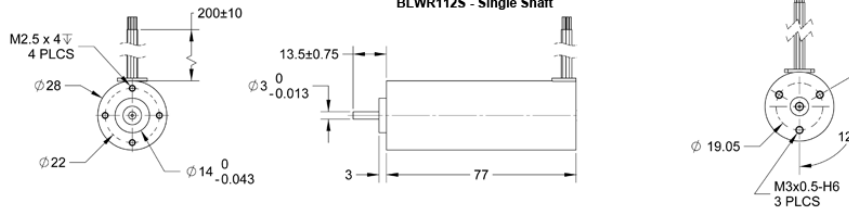


**BLWR110D and BLWR111D - Dual Shaft**

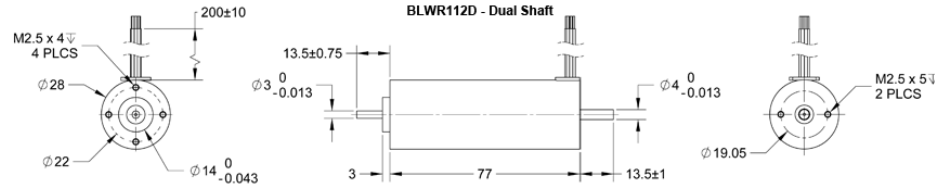


\*All Units in mm

**BLWR112S - Single Shaft**

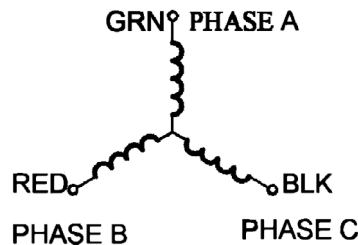


**BLWR112D - Dual Shaft**



\*All Units in mm

| Description | Motor Wire Color | Cable Adder Color |
|-------------|------------------|-------------------|
| Hall Supply | Yellow           | Red/White         |
| Hall A      | Blue             | Orange/White      |
| Hall B      | Orange           | Orange            |
| Hall C      | Brown            | Yellow/White      |
| Hall Ground | White            | Black/White       |
| Phase A     | Green            | Yellow            |
| Phase B     | Red              | Red               |
| Phase C     | Black            | Black             |



**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

