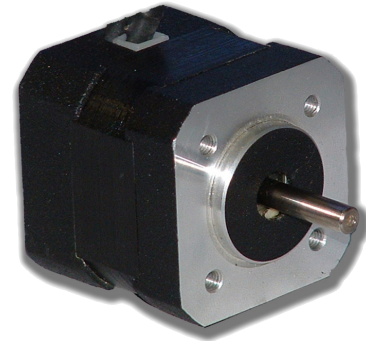


BLY17 Series - Brushless DC Motors



FEATURES

- **42mm Square 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**
- **CE Certified and RoHS Compliant**



DESCRIPTION

The BLY17 Series Brushless DC Motors come in a compact package with high power density. These motors are cost-effective solutions to many velocity control applications. They come in four different stack lengths to provide you with just the right torque for your application. A number of windings are available off-the-shelf and all the motors can be customized to fit your machine requirements. The motors come in a standard 8-lead configuration with three wires for the phases and five wires for the hall sensors. We can also customize the windings to perfectly match your voltage, current, and maximum operating speed. Special shaft modifications, cables and connectors are also available upon request.

SPECIFICATIONS

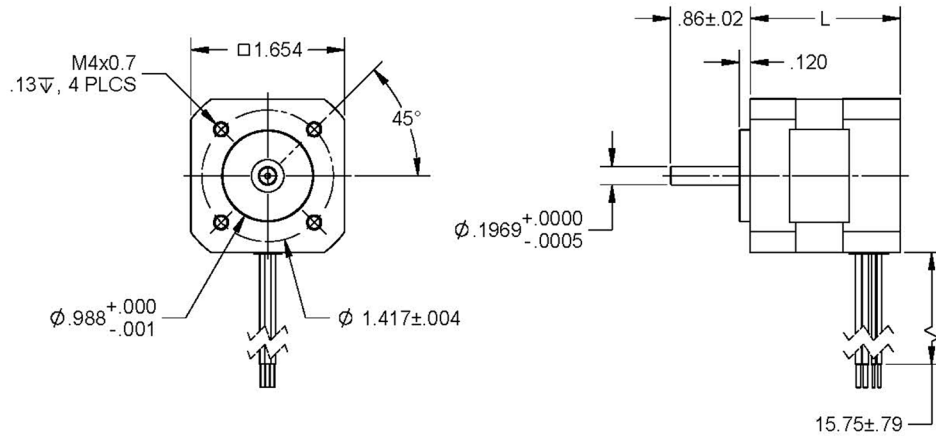
| Model # | Rated Voltage (V) | Rated Speed (RPM) | Rated Power (W) | Peak Torque (oz-in) | Rated Current (A) | Line to Line Resistance (ohms) | Line to Line Inductance (mH) | Torque Constant (oz-in/A) | Back EMF Voltage (V/kRPM) | Rotor Inertia (oz-in-sec ²) | Weight (lbs) | "L" Length (in) |
|-------------------|-------------------|-------------------|-----------------|---------------------|-------------------|--------------------------------|------------------------------|---------------------------|---------------------------|---|--------------|-----------------|
| BLY171S-15V-8000 | 15 | 8000 | 26 | 14 | 2.2 | 0.35 | 0.35 | 1.98 | 1.14 | 0.00034 | 0.66 | 1.59 |
| BLY171S-17V-8000 | 17 | 8000 | 42 | 21 | 3.6 | 0.20 | 0.26 | 1.98 | 1.14 | 0.00034 | 0.66 | 1.59 |
| BLY171S-24V-4000 | 24 | 4000 | 26 | 27 | 1.8 | 1.50 | 2.10 | 4.96 | 2.45 | 0.00034 | 0.66 | 1.59 |
| BLY172S-17V-9500 | 17 | 9500 | 70 | 30 | 6.4 | 0.09 | 0.09 | 1.56 | 0.90 | 0.00068 | 0.99 | 2.37 |
| BLY172S-24V-2000 | 24 | 2000 | 41 | 63.72 | 3.6 | 1.60 | 2.70 | 8.78 | 5.00 | 0.00068 | 0.99 | 2.37 |
| BLY172S-24V-4000 | 24 | 4000 | 53 | 54 | 3.5 | 0.80 | 1.20 | 5.81 | 3.35 | 0.00068 | 0.99 | 2.37 |
| BLY173S-24V-4000 | 24 | 4000 | 77 | 79 | 4.9 | 0.46 | 0.70 | 5.38 | 3.10 | 0.00102 | 1.43 | 3.19 |
| BLY174S-24V-4000 | 24 | 4000 | 104 | 106 | 7.0 | 0.30 | 0.50 | 5.32 | 3.10 | 0.001359 | 1.76 | 3.95 |
| BLY174S-24V-12000 | 24 | 2000 | 41 | 38.2 | 3.6 | 0.07 | 0.08 | 1.97 | 1.02 | 0.00068 | 0.99 | 2.37 |
| BLY171D-17V-8000 | 17 | 8000 | 42 | 21 | 3.6 | 0.20 | 0.26 | 1.98 | 1.14 | 0.00034 | 0.66 | 1.59 |
| BLY171D-24V-1400 | 24 | 1400 | 9.8 | 27 | 0.9 | 8.00 | 10.50 | 10.62 | 8.42 | 0.00034 | 0.66 | 1.59 |
| BLY171D-24V-2800 | 24 | 2800 | 25 | 31 | 2.0 | 2.78 | 3.36 | 6.09 | 4.57 | 0.00034 | 0.66 | 1.59 |
| BLY171D-24V-4000 | 24 | 4000 | 26 | 27 | 1.8 | 1.50 | 2.10 | 4.81 | 2.7 | 0.00034 | 0.66 | 1.59 |
| BLY171D-24V-6000 | 24 | 6000 | 25 | 27 | 1.4 | 1.15 | 1.47 | 3.97 | 4.00 | 0.00034 | 0.66 | 1.59 |
| BLY172D-24V-2000 | 24 | 2000 | 41 | 54 | 3.6 | 1.40 | 2.25 | 7.79 | 5.66 | 0.00068 | 0.99 | 2.37 |
| BLY172D-24V-4000 | 24 | 4000 | 53 | 54 | 3.5 | 0.80 | 1.20 | 5.03 | 3.1 | 0.00068 | 0.99 | 2.37 |
| BLY173D-24V-4000 | 24 | 4000 | 77 | 79 | 4.9 | 0.46 | 0.70 | 5.38 | 4.14 | 0.00102 | 1.43 | 3.19 |
| BLY173D-160V-4000 | 160 | 4000 | 77 | 79 | 0.7 | 26.67 | 20.00 | 36.96 | 18.83 | 0.00102 | 1.43 | 3.19 |
| BLY174D-24V-4000 | 24 | 4000 | 104 | 106 | 7.0 | 0.30 | 0.50 | 5.32 | 3.1 | 0.001359 | 1.76 | 3.95 |
| BLY174D-24V-12000 | 24 | 12000 | 113 | 38 | 5.4 | 0.07 | 0.76 | 1.97 | 1.02 | 0.001359 | 1.76 | 3.95 |
| BLY174S-24V-12000 | 24 | 12000 | 113 | 38 | 5.4 | 0.07 | 0.09 | 2.35 | 1.55 | 0.001359 | 1.76 | 3.95 |

Notes:

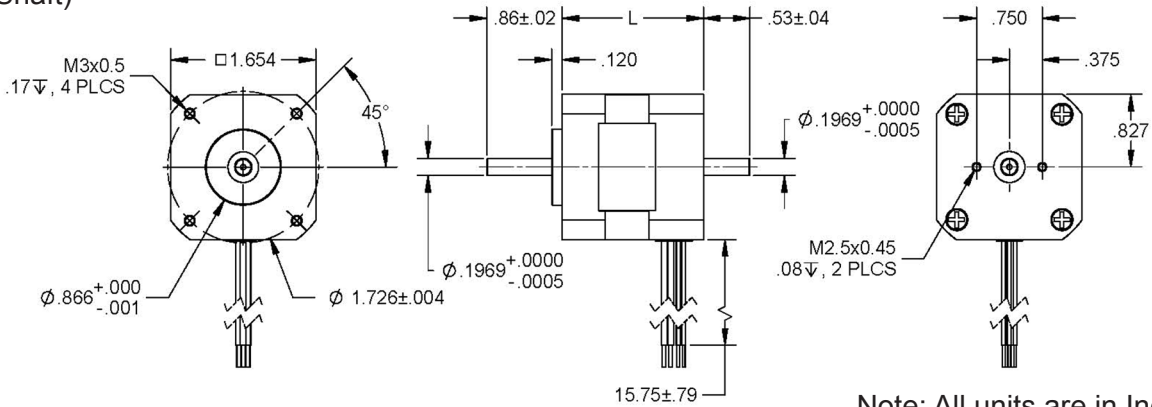
- Custom leadwires, cables, connectors, and windings are available upon request.
- The 7th character "S" denotes a single shaft, use "D" for double shaft.
- Dual Shaft motors have different mounting dimensions; please see drawings on next page.

L010228

(Single Shaft)



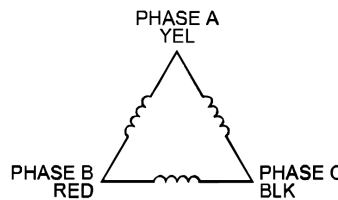
(Double Shaft)



Note: All units are in Inches

Notes: Dual Shaft motors have different mounting dimensions.

| Wire Color | Description |
|------------|-------------|
| Red | Hall Supply |
| Blue | Hall A |
| Green | Hall B |
| White | Hall C |
| Black | Hall Ground |
| Yellow | Phase A |
| Red | Phase B |
| Black | Phase C |



| 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 |

| | | | |
|--------------------|-----------------------------|------------------------|----------------------------|
| Winding Type: | Delta, 8 Poles | Max. Radial Force: | 28N @ 20mm 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 |

