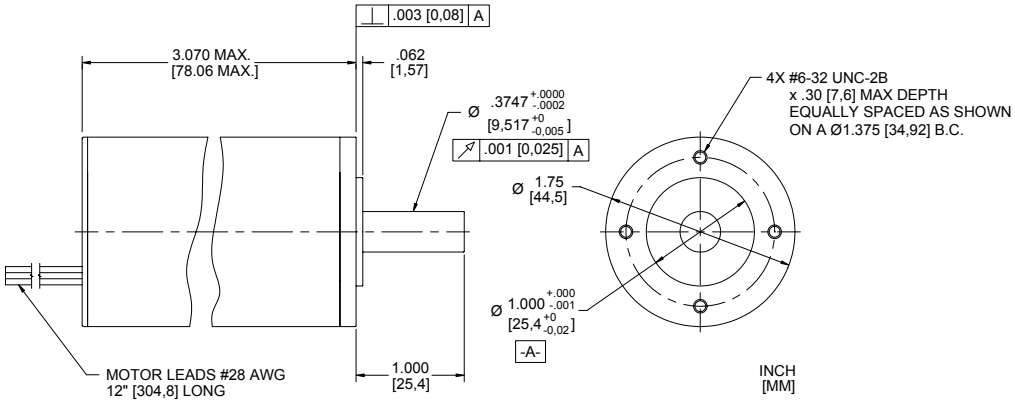
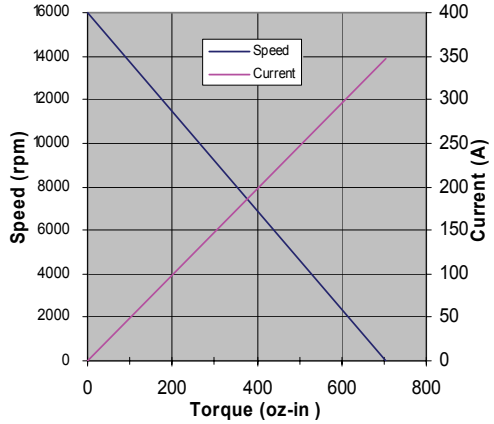
# ϕ1.8” (ϕ44.5mm) SERIES SLOTLESS BLDC MOTOR




| Motor Data | Symbol | Units | Part Number Designation | |
|---|---|---|---|---|
| | | | BI-18-150-1.50 | BI-18-150-3.00 |
| Supply Voltage (Reference) | $V_s$ | V | 24.0 | 24.0 |
| Continuous Torque[3] | $T_c$ | oz-in | 32.0 | 41.0 |
| | | Nm | 0.226 | 0.290 |
| Speed @ Cont. Torque | $S_c$ | rpm | 15280 | 7280 |
| Current @ Cont. Torque | $I_c$ | A | 16.0 | 10.2 |
| Continuous Output Power[3] | $P_{o,c}$ | W | 357 | 218 |
| Motor Constant | $K_M$ | oz-in/√W | 4.58 | 4.21 |
| | | Nm/√W | 0.0323 | 0.0297 |
| Torque Constant | $K_T$ | oz-in/A | 2.03 | 4.06 |
| | | Nm/A | 0.0143 | 0.0287 |
| Voltage Constant | $K_E$ | V/krpm | 1.50 | 3.00 |
| | | V s/rad | 0.0143 | 0.0287 |
| Terminal Resistance | $R_{mt}$ | Ω | 0.20 | 0.93 |
| Inductance | L | mH | 0.03 | 0.11 |
| No-Load Current | $I_{nl}$ | A | 0.04 | 0.20 |
| No-Load Speed | $S_{nl}$ | rpm | 16000 | 8000 |
| Peak Current (Stall)[2] | $I_{pk}$ | A | 347 | 111 |
| Peak Torque (Stall)[2] | $T_{pk}$ | oz-in | 705 | 451 |
| | | Nm | 4.978 | 3.185 |
| Electrical Time Constant | $\tau_e$ | ms | 0.150 | 0.118 |
| Mechanical Time Constant | $\tau_m$ | ms | 1.44 | 1.68 |
| Thermal Resistance[3] | $R_{th}$ | °C/W | 4.0 | 4.0 |
| Max. Winding Temperature | $\theta_{max}$ | °C | 105 | 105 |
| Rotor Inertia | $J_r$ | oz-in-sec$^2$ | $2.1x10^{-4}$ | $2.1x10^{-4}$ |
| | | kg m$^2$ | $1.5x10^{-6}$ | $1.5x10^{-6}$ |
| Motor Weight (Mass) | $w_M$ | oz | 26 | 26 |
| | | g | 737 | 737 |

**Performance (BI-18-150-1.50)**




**Standard Features**

- Shielded Ball Bearings
- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Stator
- Hall Sensors
- Stainless Construction

**Complementary Products**

- Planetary Gearbox
- 48134 Controller
- Optical Encoder
- 48140 Controller

| Connection Chart | |
|---|---|
| Color/Pin | Function |
| Black | Motor ϕC |
| Violet | Vcc |
| Blue | Sensor 3 |
| Green | Sensor 2 |
| Yellow | Sensor 1 |
| Orange | Ground |
| Red | Motor ϕA |
| White | Motor ϕB |
| 120° Electrical Spacing | |

Notes:

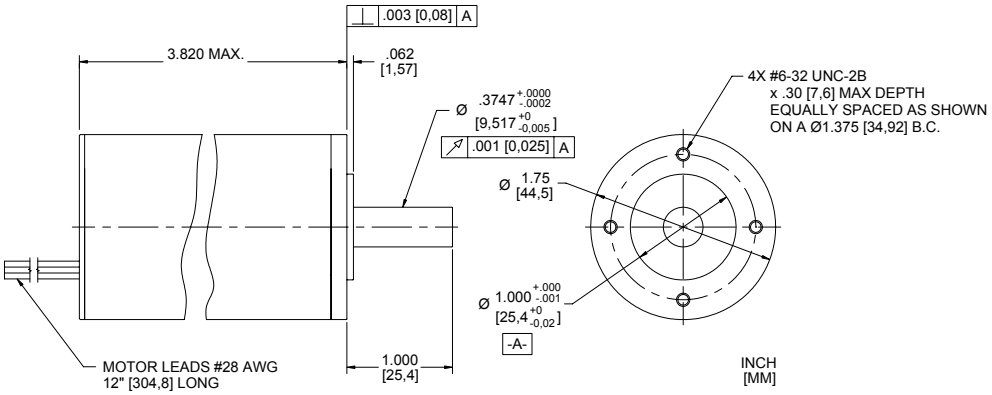
[1] All values specified at 25°C ambient temperature and without heat sink.

[2] Peak values are theoretical and supplied for reference only.

[3] Recorded at max. winding temperature at 25°C ambient, mounted to a 5”x5”x0.25” heatsink.

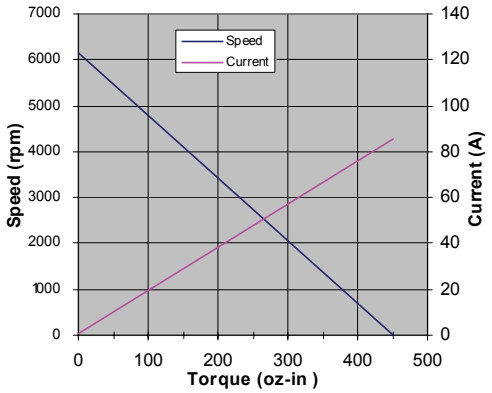

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# ϕ1.8” (ϕ44.5mm) SERIES SLOTLESS BLDC MOTOR




| Motor Data | Symbol | Units | Part Number Designation | |
|---|---|---|---|---|
| | | | BI-18-225-2.00 | BI-18-225-3.90 |
| Supply Voltage (Reference) | $V_s$ | V | 24.0 | 24.0 |
| Continuous Torque[3] | $T_c$ | oz-in | 19.0 | 35.0 |
| | | Nm | 0.134 | 0.247 |
| Speed @ Cont. Torque | $S_c$ | rpm | 11700 | 5650 |
| Current @ Cont. Torque | $I_c$ | A | 7.5 | 7.1 |
| Continuous Output Power[3] | $P_{o,c}$ | W | 165 | 150 |
| Motor Constant | $K_M$ | oz-in/√W | 10.37 | 11.80 |
| | | Nm/√W | 0.0732 | 0.0833 |
| Torque Constant | $K_T$ | oz-in/A | 2.70 | 5.28 |
| | | Nm/A | 0.0191 | 0.0373 |
| Voltage Constant | $K_E$ | V/krpm | 2.00 | 3.90 |
| | | V s/rad | 0.0191 | 0.0373 |
| Terminal Resistance | $R_{mt}$ | Ω | 0.07 | 0.20 |
| Inductance | L | mH | 0.02 | 0.10 |
| No-Load Current | $I_{nl}$ | A | 0.70 | 0.40 |
| No-Load Speed | $S_{nl}$ | rpm | 12000 | 6150 |
| Peak Current (Stall)[2] | $I_{pk}$ | A | 352 | 85 |
| Peak Torque (Stall)[2] | $T_{pk}$ | oz-in | 950 | 450 |
| | | Nm | 6.708 | 3.178 |
| Electrical Time Constant | $\tau_e$ | ms | 0.286 | 0.350 |
| Mechanical Time Constant | $\tau_m$ | ms | 0.57 | 0.43 |
| Thermal Resistance[3] | $R_{th}$ | °C/W | 3.6 | 3.6 |
| Max. Winding Temperature | $\theta_{max}$ | °C | 105 | 105 |
| Rotor Inertia | $J_r$ | oz-in-sec$^2$ | $4.2x10^{-4}$ | $4.2x10^{-4}$ |
| | | kg m$^2$ | $3.0x10^{-6}$ | $3.0x10^{-6}$ |
| Motor Weight (Mass) | $w_M$ | oz | 36 | 36 |
| | | g | 1021 | 1021 |

**Performance (BI-18-225-3.90)**




**Standard Features**

- Shielded Ball Bearings
- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Stator
- Hall Sensors
- Stainless Construction

**Complementary Products**

- Planetary Gearbox
- 48134 Controller
- Optical Encoder
- 48140 Controller

| Connection Chart | |
|---|---|
| Color/Pin | Function |
| Black | Motor ϕC |
| Violet | Vcc |
| Blue | Sensor 3 |
| Green | Sensor 2 |
| Yellow | Sensor 1 |
| Orange | Ground |
| Red | Motor ϕA |
| White | Motor ϕB |
| 120° Electrical Spacing | |

Notes:

[1] All values specified at 25°C ambient temperature and without heat sink.

[2] Peak values are theoretical and supplied for reference only.

[3] Recorded at max. winding temperature at 25°C ambient, mounted to a 5”x5”x0.25” heatsink.


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