



# **BRUSHLESS DC MOTOR FAMILY**

## Series NT DYNAMO<sup>®</sup> Brushless DC Permanent Magnet Motor



The NT DYNAMO<sup>®</sup> is designed to provide:

- Maximum application flexibility
- Increased reliability
- Affordable Servo Control
- Smooth motion quality
- Matched motor and drive performance
- Plug-n-Play

Perfect for applications in office automation, instrumentation and medical equipment:

- High speed copiers and printers
- ATM machines
- Medical analyzers
- Mail processing and sorter
- General purpose equipment

#### NT DYNAMO<sup>®</sup> BLDC Motor Specifications

- Standardized Modules
  - Brings high volume pricing to low volume orders
  - Makes product performance easy to specify
  - Ensures maximum product quality
- Flexible Performance
  - Operates from 12-48Vdc power sources
  - Operates in speed or torque mode
  - 4 quadrant closed loop or 2 quadrant open loop
  - Compact integrated encoder option





### **Electrical**

- Integral Motor Controls Matched to a Motor Winding
- 2 or 4 Quadrant Operation
- 10Vdc-48Vdc Range (depending on motor control)
- Up to 50 oz-in [282 mN-m] Torque (with no gearing)
- Ultra Smooth Precision Motion Quality
- Approved Class B Insulation System
- 100% Final Tested
- Custom Windings Available

#### **Mechanical**

- Long Life Ball Bearing System
- Size 17 and NEMA 23 Mounting
  Flange
- Neodymium Ring Magnets (not arcs)
- Stainless Steel Shaft
- Over 20,000 Hours of Design Life @ Rated Torque
- Standard Molex<sup>®</sup> Connectors
- Small Package Size with Low Rotor Inertia
- Up to 6000 RPM Operation

#### <u>Reliability</u>

- Over 1.5 Million Hours of Combined Life and Reliability Testing
- In Use at Major OEM's in Demanding Applications
- Our Proven Design can Help Reduce the Test Time Needed to Validate Your Design
- Contact Hurst for Detailed Life and Reliability Date

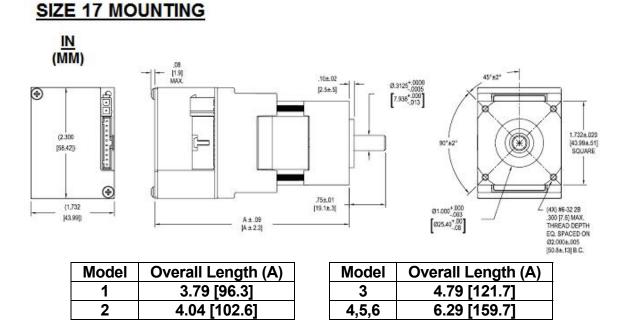
#### Integral Motor Control and Encoders

- External Motor Module
  - For Use with Customer Supplied Motor Control
  - Provides Hall Sensor and/or Encoder Outputs
- Analog Motor Control
  - Economical Control via a Simple Speed Pot or a 0-5Vdc Control Signal
- PWM Motor Control
  - Control via Customer Generated PWM Signal
- Encoders 100, 250, 256 with Index Pulse, 400, or 1000 Line Resolution

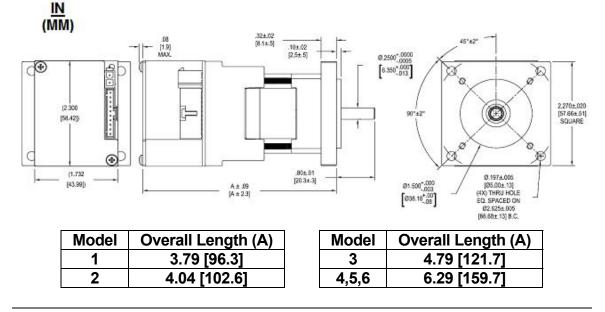




#### INTEGRATED CONTROL DRAWINGS



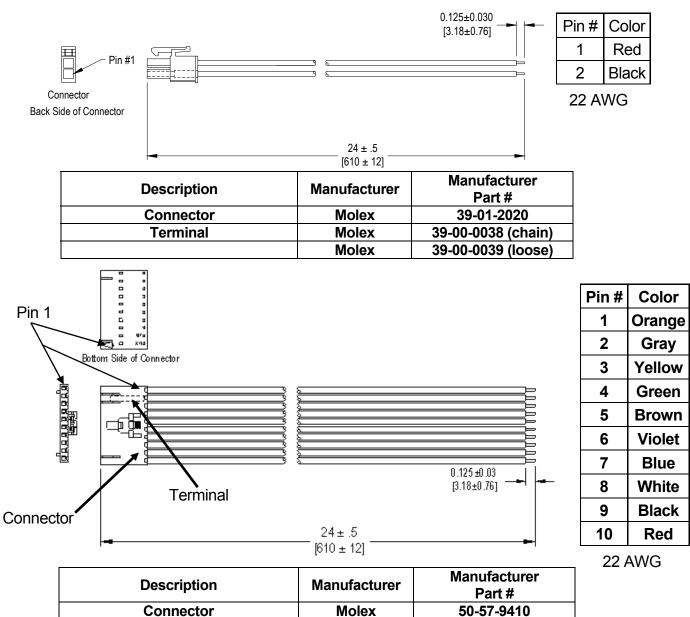
#### NEMA 23 MOUNTING



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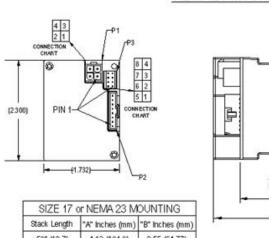
| Description | Manufacturer | Manufacturer<br>Part # |
|-------------|--------------|------------------------|
| Connector   | Molex        | 50-57-9410             |
| Terminal    | Molex        | 16-02-0087 (chain)     |
|             | Molex        | 16-02-0103 (loose)     |

Minimum Gauge Size is recommended to be 22 AWG or greater.





#### EXTERNAL CONTROL DRAWINGS

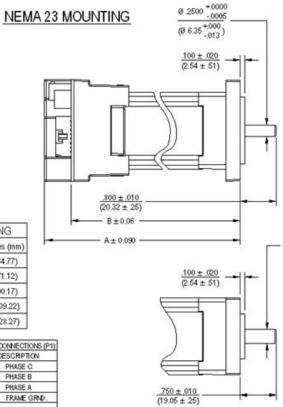


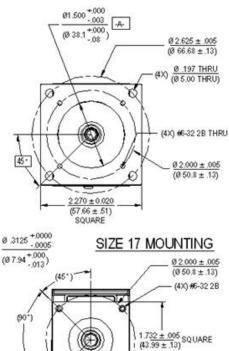
| Stack Length  | "A" Inches (mm) | "B" Inches (mm) |
|---------------|-----------------|-----------------|
| .50" (12.7)   | 4.13 (104.9)    | 2.55 (64.77)    |
| .75" (19.05)  | 4.38 (111.25)   | 2.80 (71.12)    |
| 1.50" (38.1)  | 5.13 (130.3)    | 3.55 (90.17)    |
| 2.25" (57.15) | 5.88 (149.35)   | 4.30 (109.22)   |
| 3.00" (76.2)  | 6.63 (168.4)    | 5.05 (128.27)   |

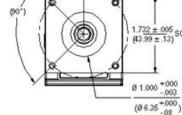
|      | HALL CONN     | ECTIO | NG (P2)      | POWE | R CONNECTIONS (P1) |
|------|---------------|-------|--------------|------|--------------------|
| PIN≢ | DESCRIPTION   | PIN#  | DESCRIPTION  | PIN# | DESCRIPTION        |
| 1    | +5VDC (Input) | 5     | HALL C       | 1    | PHASE C            |
| 2    | -5V (return)  | 6     | BLANK        | 2    | PHASE B            |
| 3    | HALL B        | 7     | BLANK        | 3    | PHASE A            |
| 4    | HALL A        | 8     | BLANK        | 4    | FRAME GRND.        |
|      | ENC           | ODER  | CONNECTIONS  | (P3) |                    |
| 1    | +5¥           | 4     | N/C          | 7    | ß                  |
| 2    |               | 5     | -5V (return) | 8    | N/C                |
| 3    | B             | 6     | A            | 1    |                    |

POWER CONNECTION P1: (Molex #39-29-3046 Mini-Fit Jr. 4 pin)

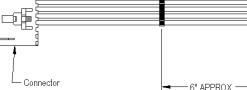
HALL CONNECTIONS P2: (Molex # 70543-0007 C-Grid SL Connector 8 pin) ENCODER CONNECTIONS P3: (FCI Connect #89168-108 Vertical Latching System 8 Pin 4X2)



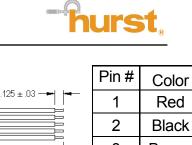




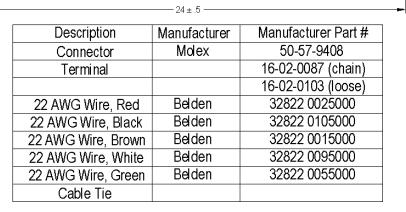
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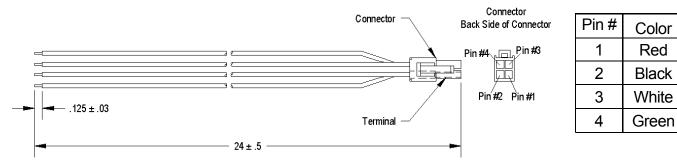


Terminal









| Description        | Manufacturer | Manufacturer P/N   |
|--------------------|--------------|--------------------|
| Connector          | Molex        | 39-01-2040         |
| Terminal           | Molex        | 39-00-0038 (chain) |
|                    |              | 39-00-0039 (loose) |
| 22 AWG Wire, Red   | Belden       | 32822 0025000      |
| 22 AWG Wire, Black | Belden       | 32822 0105000      |
| 22 AWG Wire, White | Belden       | 32822 0095000      |
| 22 AWG Wire, Green | Belden       | 32822 0055000      |

**EMERSON** Motor Technologies

Connector Bottom Side of Connector

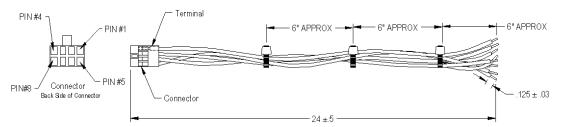
PIN #1



— 6" APPROX — 🛏 🖛 — 6" APPROX —







| Pin # | Color  |
|-------|--------|
| 1     | Red    |
| 2     | White  |
| 3     | Blue   |
| 4     | Gray   |
| 5     | Black  |
| 6     | Orange |
| 7     | Brown  |
| 8     | Green  |

| Description         | Manufacturer | Manufacturer Part # |
|---------------------|--------------|---------------------|
| Connector           | FCI          | 65846-016           |
| Terminal            | FCI          | 48051-000 (chain)   |
|                     |              | 48236-000 (loose)   |
| 22 AWG Wire, Red    | Belden       | 32822 0025000       |
| 22 AWG Wire, White  | Belden       | 32822 0095000       |
| 22 AWG Wire, Blue   | Belden       | 32822 0135000       |
| 22 AWG Wire, Gray   | Belden       | 32822 0085000       |
| 22 AWG Wire, Black  | Belden       | 32822 0105000       |
| 22 AWG Wire, Orange | Belden       | 32822 0035000       |
| 22 AWG Wire, Brown  | Belden       | 32822 0015000       |
| 22 AWG Wire, Green  | Belden       | 32822 0055000       |
| Cable Tie           |              |                     |



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