

# Brushless DC Motors

Size 5 - Size 8 - Size 10 - Size 14

Transicoil's slotted brushless DC motors provide maximum torque in the smallest package. The four-pole rotor construction minimizes cogging, while the neodymium iron boron magnets deliver high rotational power. High-speed designs to 100,000 RPM with smooth operation are obtained through precision balancing. Double-shielded stainless-steel ball bearings ensure long life. Hall sensor feedback is standard for smooth commutation and efficient variable speed control. Standard windings and designs are available for quick shipment of prototype and production motors. Contact the factory about custom designs, feedback devices, gearheads, and other options.

## Design Features

- Sizes 5, 8, 10, and 14
- 3 phase slotted stator
- 4-pole rotor featuring neodymium iron boron magnets
- High temperature Hall-effect sensors
- Precision double-shielded stainless-steel ball bearings
- Precision balanced rotors with speeds to 100,000 RPM

## Options

- Multiple standard windings; custom windings upon request
- Custom shafts
- Customer specified connectors
- Optical encoders
- Electromechanical brakes
- Autoclaveable versions available in production quantities
- Gearheads options available in production quantities



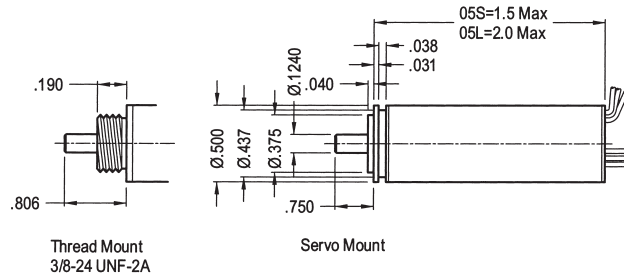
*Integrating the advanced  
technologies and expertise of  
Aerospace Display Systems  
and Transicoil Corp*

[www.transicoilmotors.com](http://www.transicoilmotors.com)

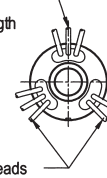
## Size 05 BLDC Motor



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Motor Leads  
Random  
Orientation  
12" Min length



Hall Sensor Leads  
Random Orientation  
12" Min Length

Connections

Hall Sensors:

Red VCC  
Black GND  
Yellow S1  
Green S2  
Orange S3

Motor:

Blue Phase A  
White Phase B  
Brown Phase C

Notes:

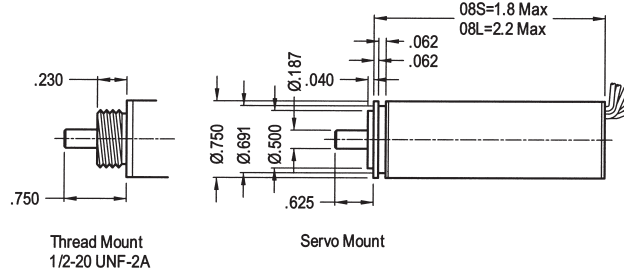
1. Axial shaft end play shall be .000 to .003 under 8 oz. reversing load.
2. Radial play of shaft measured at a point not more than 1/8 inch from bearing face shall not exceed .002 T.I.R.
3. Gearhead mount versions of motor available for use with Transicoil gearheads, See gearhead data sheet.

Dimensions in Inches

## Size 08 BLDC Motor



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Motor/ Hall Sensor Leads  
Single Exit  
Random Orientation  
12" Min Length

Connections

Hall Sensors:

Red VCC  
Black GND  
Yellow S1  
Green S2  
Orange S3

Motor:

Blue Phase A  
White Phase B  
Brown Phase C

Notes:

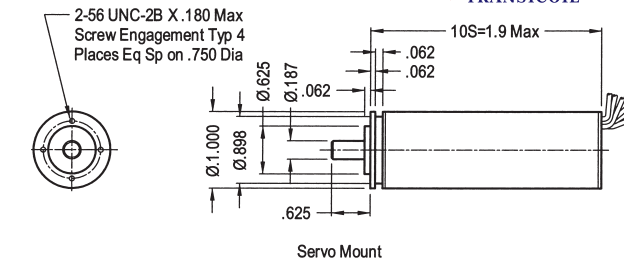
1. Axial shaft end play shall be .000 to .003 under 8 oz. reversing load.
2. Radial play of shaft measured at a point not more than 1/8 inch from bearing face shall not exceed .002 T.I.R.
3. Gearhead mount versions of motor available for use with Transicoil gearheads, See gearhead data sheet.

Dimensions in Inches

## Size 10 BLDC Motor



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Motor/ Hall Sensor Leads  
Single Exit  
Random Orientation  
12" Min Length

Connections

Hall Sensors:

Red VCC  
Black GND  
Yellow S1  
Green S2  
Orange S3

Motor:

Blue Phase A  
White Phase B  
Brown Phase C

Notes:

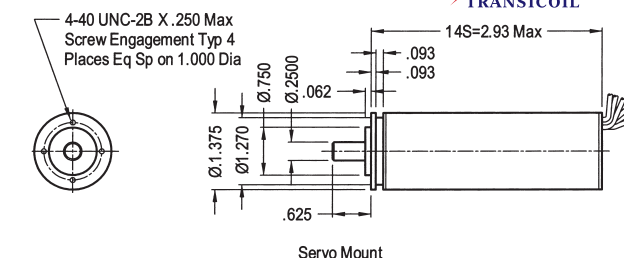
1. Axial shaft end play shall be .000 to .003 under 8 oz. reversing load.
2. Radial play of shaft measured at a point not more than 1/8 inch from bearing face shall not exceed .002 T.I.R.
3. Gearhead mount versions of motor available for use with Transicoil gearheads, See gearhead data sheet.

Dimensions in Inches

## Size 14 BLDC Motor



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Motor/ Hall Sensor Leads  
Single Exit  
Random Orientation  
12" Min Length

Connections

Hall Sensors:

Red VCC  
Black GND  
Yellow S1  
Green S2  
Orange S3

Motor:

Blue Phase A  
White Phase B  
Brown Phase C

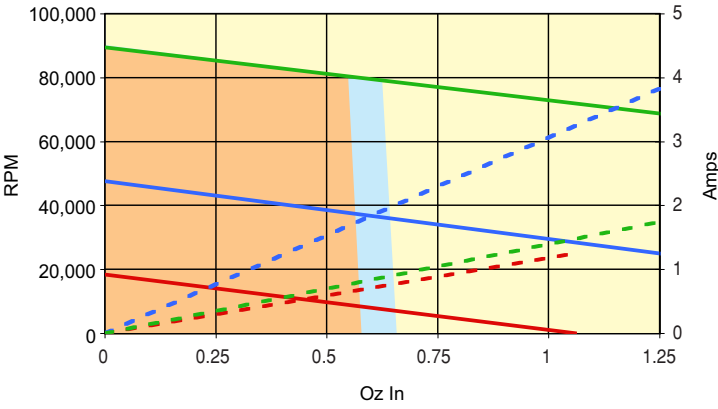
Notes:

1. Axial shaft end play shall be .000 to .003 under 8 oz. reversing load.
2. Radial play of shaft measured at a point not more than 1/8 inch from bearing face shall not exceed .002 T.I.R.
3. Custom applications / configurations welcome, consult factory.

Dimensions in Inches

### Size 05S

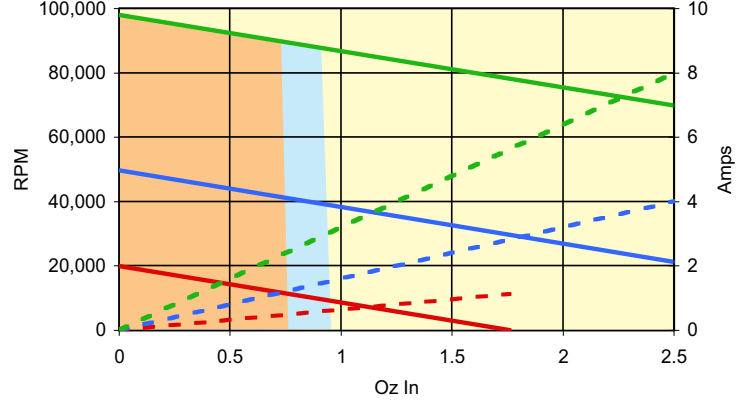
Speed & Current vs.Torque



- RPM-1
- RPM-2
- RPM-3
- - - Amps-1
- - - Amps-2
- - - Amps-3

### Size 05L

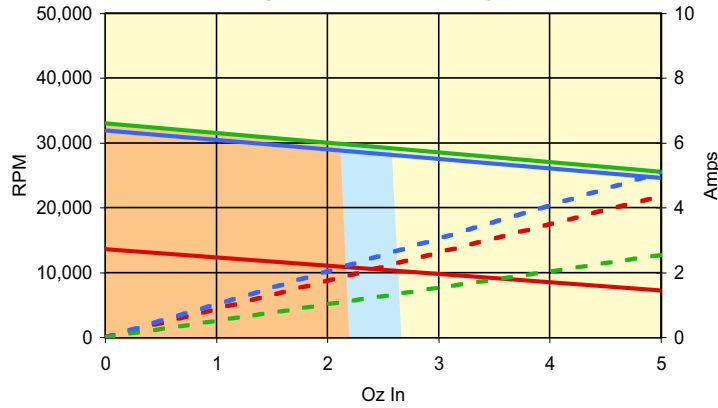
Speed & Current vs.Torque



- RPM-4
- RPM-5
- RPM-6
- - - Amps-4
- - - Amps-5
- - - Amps-6

### Size 08S

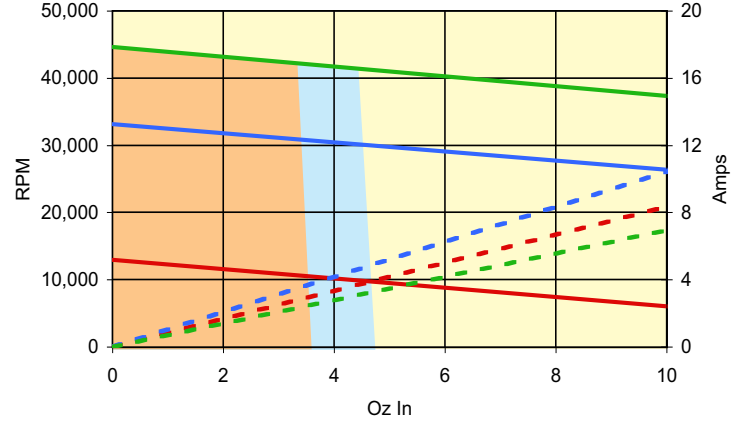
Speed & Current vs.Torque



- RPM-7
- RPM-8
- RPM-9
- - - Amps-7
- - - Amps-8
- - - Amps-9

### Size 08L

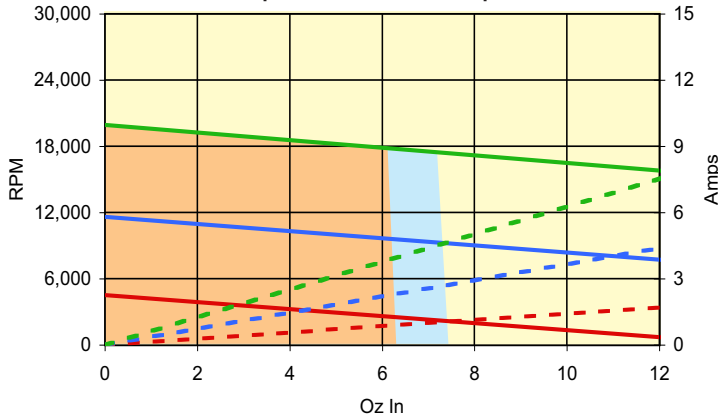
Speed & Current vs.Torque



- RPM-10
- RPM-11
- RPM-12
- - - Amps-10
- - - Amps-11
- - - Amps-12

### Size 10S

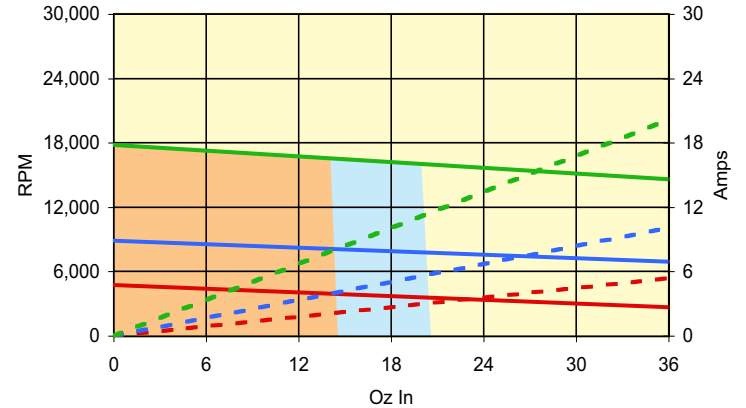
Speed & Current vs.Torque



- RPM-13
- RPM-14
- RPM-15
- - - Amps-13
- - - Amps-14
- - - Amps-15

### Size 14S

Speed & Current vs.Torque



- RPM-16
- RPM-17
- RPM-18
- - - Amps-16
- - - Amps-17
- - - Amps-18



Continuous Torque Range	Motor Only	Motor with Heat Sink
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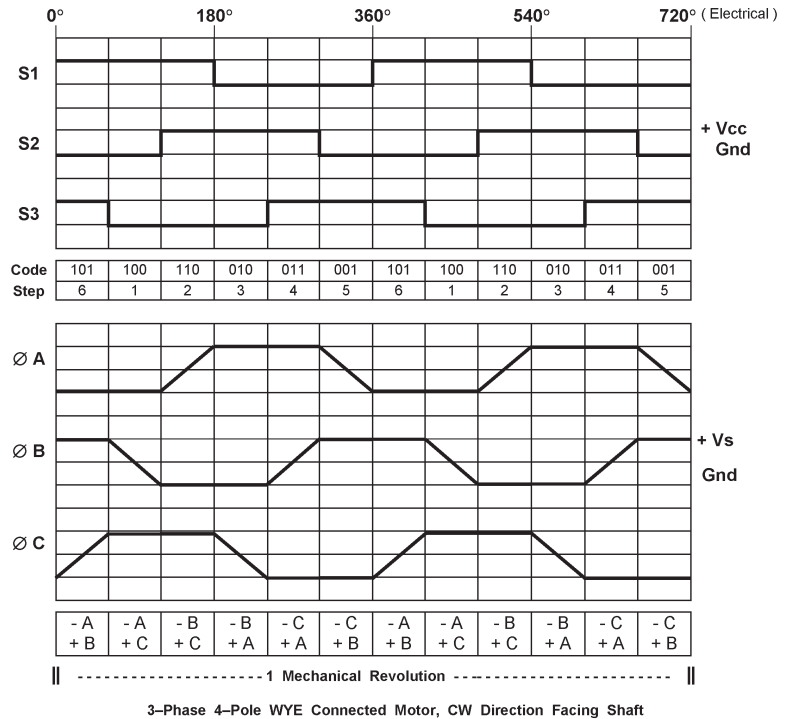
## A Superior Resource for Brushless DC Motors

For nearly 60 years, Transicoil has been a leading manufacturer of rotating electromechanical components, precision motion controllers, instrumentation, and transducers. Over this time, Transicoil has established an exceptional reputation for developing and manufacturing products involving micro-mechanics, high precision machining, and sophisticated electronics. Transicoil brushless DC motors are found around the world in demanding applications where high quality, reliability, precise control, and value are needed. Transicoil motors are used in a wide range of commercial, aerospace, military, medical, and automation applications.

## State-of-the-Art Design, Prototyping, and Production Facilities.

Transicoil has plants in the United States and Malaysia. U.S. operations are located in modern facilities outside of Philadelphia, with state-of-the-art design, prototyping, analysis and simulation, manufacturing and system integration capabilities.

## Brushless DC Motor Timing Diagram



S 1	=	Yellow
S 2	=	Green
S 3	=	Orange
Ø A	=	Blue
Ø B	=	White
Ø C	=	Brown
Vcc	=	Red
Gnd	=	Black

Due to Transicoil's commitment to constant product improvement, all specifications and construction details are subject to change without notice. Please contact the factory to verify the latest specifications and information.



## Transicoil Offers a Full Range of Solutions.

In addition to the motors detailed here, Transicoil can economically provide modified standard or full-custom motor designs, with prototypes available for quick delivery. Other available items include:

- Feedback devices, including resolvers, synchros, RVDTs and LVDTs, and custom devices
- Autoclaveable motors
- Customized integral electronics
- Custom assemblies and motion control packages

...and ask about our integral gearheads.

**Contact our Motor Design Team to discuss your specific needs.**



*Integrating the advanced technologies and expertise of Aerospace Display Systems and Transicoil Corp*

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