

Introducing the new e-TORQ
brushless DC servo motors.

This new motor design was developed using the Lorentz-force principles to improve efficiency, minimize size and maximize torque. Imagine a gearless motor capable of developing very high torque in the most efficient manner. For more information visit www.e-TORQ.com.

e-TORQTM



What is e-TORQ™?

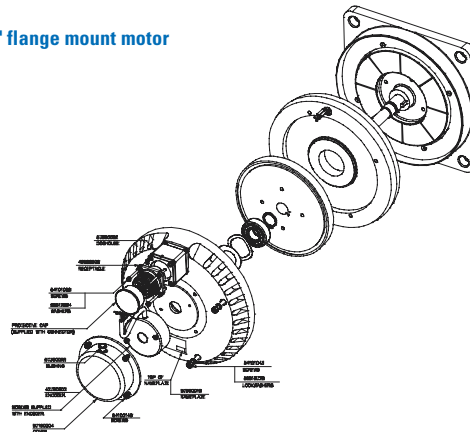
Unlike virtually all motors today, which are based on electromagnetic principles first described by Faraday, the e-TORQ™ motor is based on the principles developed by H. A. Lorentz. While motors based on Faraday's principles are the most common today, they may not be the most efficient due to the interaction of the magnetic and mechanical forces inherent in the design.

Both, Lorentz and Faraday's motors use the electromagnetic properties to create mechanical work, but the way the forces are applied in a Faraday motor means the motor is always trying to "reshape" itself. By contrast, the e-TORQ™ motor's design allows the maximum application of electromagnetic forces with almost no mechanical energy losses.

Why you should be using an e-TORQ™ brushless DC Servo system

When combined with a high performance digital amplifier, the Bodine e-TORQ™ system becomes an easy-to-set-up, high performance motion control solution. e-TORQ™ motors can eliminate the need for a planetary gearhead, or other mechanical gear reduction methods.

Exploded view of 7" flange mount motor



eTORQ™ motors provide:

- Zero cogging at slow speeds
- No maintenance
- No lubricants to leak
- High accuracy
- High torque
- High reliability
- Quiet operation
- Alternative to planetary gearmotors
- Wide variety of feedback options
- Custom solutions available
- Expert engineering support for motor and controls

Available features:

- Two frame sizes 7" and 14"
- Up to 25 lb-in for 7" dia., up to 250 lb-in for 14" dia. motor
- Smooth operation without cogging & vibration
- Ironless stator design
- High torque linearity
- Multiple windings are possible at any voltages between 12v–300 Volts
- Patented technology

To specify e-TORQ, answer these typical application questions:

- 1 What type of process is the motion being applied to?
- 2 What type of load is associated with the application?
- 3 Are heavy inertial loads involved?
- 4 Motion parameters, i.e. positioning accuracy, min/max speed, accel/decel rates, duty cycle?
- 5 Motion requirements: simple position or velocity? Multi-axis synchronized?
- 6 What type of feedback? Encoder? Resolver? Incremental or Absolute?
- 7 Mechanical Features? Shaft? Mounting? Connector? IP Rating?
- 8 Special Mods: Paint, surface finish, flanges, brackets, brakes, oversized bearings,...

e-TORQ™ Amplifier Options

Bodine can offer a wide range of solutions for your motion control needs. Using our own proprietary designs or products that we have tested and selected from established suppliers of electronic drives, we can provide the right solution for your BLDC servo system. Our engineers can recommend an electronic solution for your application, or provide a turnkey drive system including a tuned amplifier, feedback device and cables for your specialized application

Amplifier Type

Trapezoidal PWM	Analog regenerative amplifier with universal AC input voltage (115 to 230VAC) for general velocity control applications where low speed operation is not the primary concern and the system is more cost sensitive.
Sinusoidal PWM	Digital regenerative amplifier with universal AC input voltage for systems where low speed performance and motion quality is crucial. Programmable for motor parameters, commutation functions, input and output functions, gain parameters and feedback parameters. Provides the ultimate in consistency from system to system because digital application parameters can be optimized, stored and re-used on multiple systems. Communications capabilities can include RS-485/RS-232 or the CAN Open network protocol.



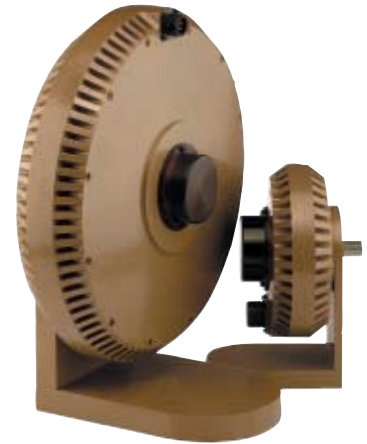


What makes the e-TORQ™ motor so unique:

The ironless stator of the e-TORQ™ motor eliminates the iron saturation common to most other types of motors, and allows the motor to run smoothly at extremely low speeds, even when powered by a standard drive.

In addition, the high peak torque capability can allow—in certain applications—the elimination of costly gearboxes and the reduce the risk of lubricant leaks. For example, a 14-inch e-TORQ™ motor can deliver more than 100 lb-in. at speeds of up to 6,000 rpm. For more information, please visit our e-TORQ™ website at www.e-torq.com.

- Iron free stator eliminates motor cogging (Detent Torque) which improves low speed control
- No iron saturation for maximum torque linearity
- No lamination core losses that yields very high efficiency
- Ten times peak torque is available



14" and 7" face mount motors

INTEGRAMOTOR™

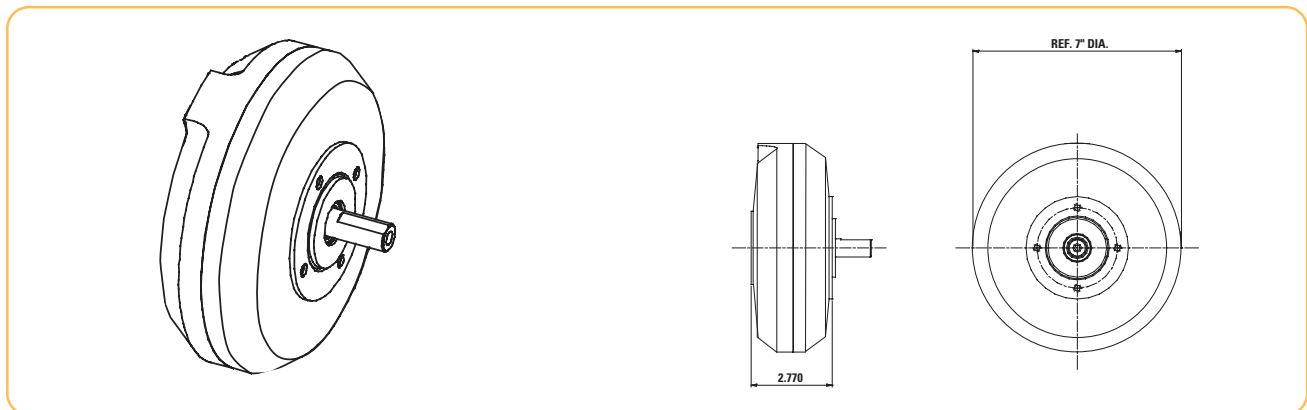


DC Bus Voltage (VDC)	Continuous Ratings				Peak Ratings			Motor Constants			
	Speed (rpm)	Torque (lb-in.)	Current (A-rms)	Pwr. Out (Watts)	Speed (rpm)	Torque (lb-in.)	Current (A-rms)	Ke V/Krpm	Kt lb-in/A	Resistance Ohms	Inductance mH
7 Inch e-TORQ Motor											
170	2500	20 ¹	5.7	590	3500	200	50	50	4.3	2.2	1.4
300	1500	21 ¹	2.5	410	2200	121	10.5	137	11.5	14.3	10.5
14 Inch e-TORQ Motor											
170	300	275 ²	13	977	700	1346	64	249	21.1	1.8	3.6
300	70	300 ²	5	248	400	747	12.5	713	60.3	43	29.4

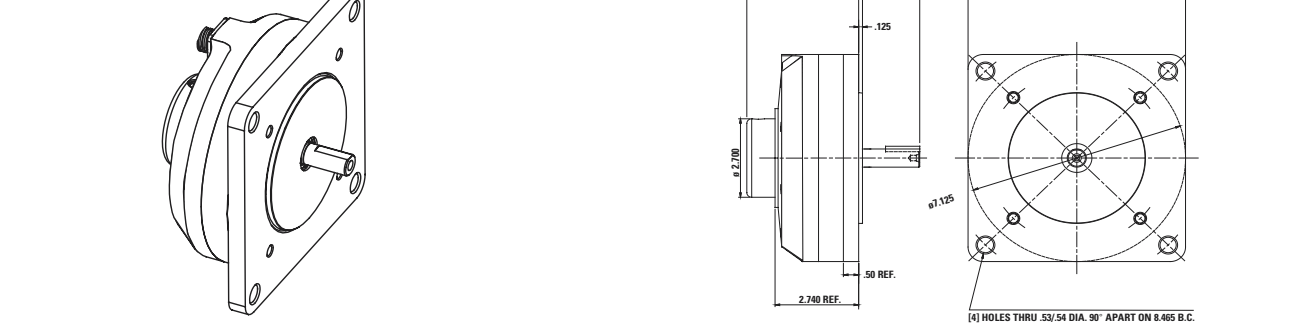
¹ Flange style motor mounted to a 12" x 12" x 0.25" Aluminum Plate

² Flange style motor mounted to a 16" x 18" x 1" Aluminum Plate

Face Mount



Flange Mount



MADE IN U.S.A.

Custom

Pacesetter™ Inverter Duty

AC Induction

Permanent Magnet DC

Brushless DC

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