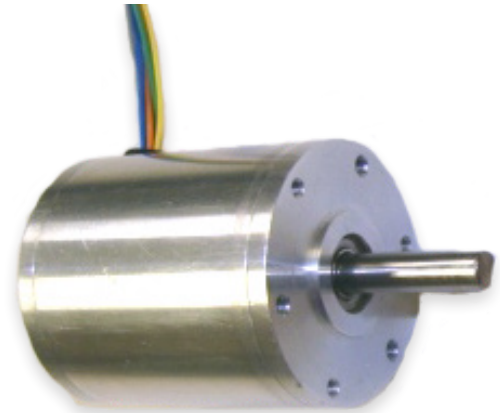


Silencer® Series Brushless DC Motor

BS17 High Energy



TYPICAL APPLICATIONS

- Portable oxygen concentrators
- Mobility and patient assist
- Medical pumps and compressors
- Laboratory centrifuges
- Commercial / military actuators
- Robotics
- Packaging equipment

FEATURES

- High energy sintered neodymium magnets
- High efficiency
- 8 pole inside rotor construction – high acceleration
- Compact size – excellent torque to volume ratio
- Precision bearings
- Balanced rotors (depending upon rotor configuration)
- Safe, arcless operation
- Precision machined aluminum housings and end caps
- High quality stainless steel shaft

BENEFITS

- Precise, variable speed - adjustable via drive electronics
- Linear speed / torque characteristics
- Long life, no brushes to replace and no commutator to wear out
- Low noise / low vibration, smooth and quiet operation
- High torque per dollar ratio

OPTIONS

- Custom shafts
- IP65 design
- Motor winding
- Encoders
- Gearheads
- Resolvers
- Sensored or sensorless
- Drives

High Energy Brushless Motors

Silencer® Series BS17 high energy brushless DC motors utilize high energy sintered rare earth magnets, yielding a compact motor with high power density, high efficiency and a high torque / volume ratio. In addition, high power and high efficiency, quality bearing systems and precision rotor balancing makes for smooth and quiet operation. These characteristics make the motor ideal for battery powered medical applications, high power density actuators, pumps, blowers and compressors. Machine wound stators provide economy yet allow this high energy motor to replace more expensive brushless DC servo motors.

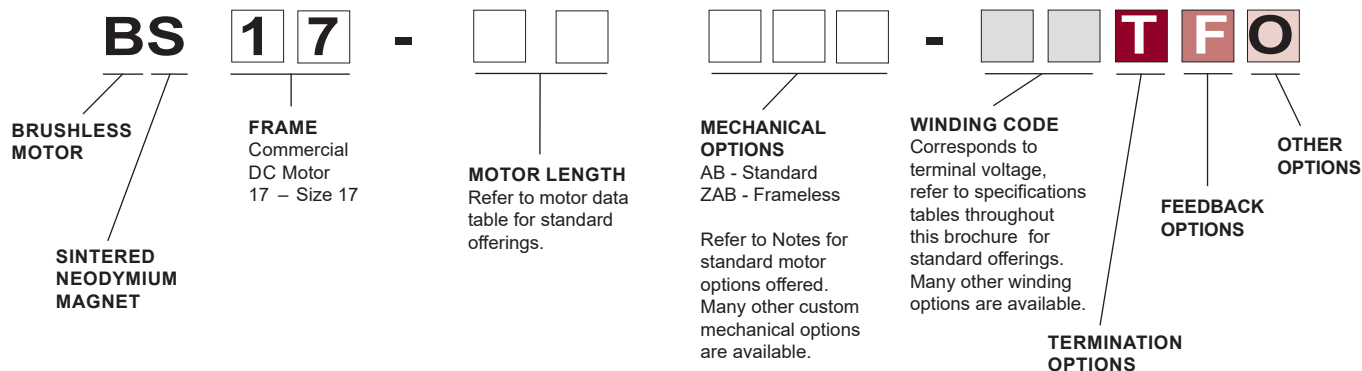
For more information about how this product can be tailored to fit your specific application, contact our applications engineers.

MOOG

BS17 High Energy Brushless Motors

SPECIFICATION AND NUMBERING SYSTEM

Part Numbering System Guide



BS17 SPECIFICATIONS - *Continuous Stall Torque 12 - 14 oz-in (0.085 - 0.099 Nm) Peak Torque 35 oz-in (0.25 Nm)*

Part Number*		BS17-15AA- <input type="checkbox"/> <input type="checkbox"/> TFO			BS17-20AA- <input type="checkbox"/> <input type="checkbox"/> TFO		
Winding Code**		01	02	03	01	02	03
L = Length	inches	1.5	1.5	1.5	2	2	2
	millimeters	38.2	38.2	38.2	50.9	50.9	50.9
Terminal Voltage	volts DC	12	24	48	12	24	48
Peak Torque	oz-in	97	106	108	156	256	332
	Nm	0.685	0.749	0.763	1.102	1.808	2.344
Continuous Stall Torque	oz-in	15.8	16.6	16.7	32	32	32
	Nm	0.112	0.117	0.118	0.226	0.226	0.226
Rated Speed	rpm	3605	3609	3550	2014	3876	5737
	rad/sec	377.5	377.9	371.8	210.9	405.9	600.9
Rated Torque	oz-in	14	14.7	14.8	29.5	29.5	27
	Nm	0.099	0.104	0.105	0.208	0.208	0.191
Rated Current	Amps	4.06	2.13	1.07	6.69	4.97	3.24
Rated Power	watts	37	39	39	43	84	115
Torque Sensitivity	oz-in/amp	3.39	6.90	13.79	4.72	6.32	9.34
	Nm/amp	0.024	0.049	0.097	0.033	0.045	0.066
Back EMF	volts/KRPM	2.51	5.10	10.20	3.49	4.67	6.91
	volts/rad/sec	0.024	0.049	0.097	0.033	0.045	0.066
Terminal Resistance	ohms	0.439	1.563	6.120	0.429	0.664	1.527
Terminal Inductance	mH	0.241	1.036	4.144	0.245	0.436	1.01
Motor Constant	oz-in/sq.rt.watts	5.12	5.52	5.57	7.20	7.75	7.56
	Nm/sq.rt.watts	0.036	0.039	0.039	0.051	0.055	0.053
Rotor Inertia	oz-in-sec ² x10 ⁻³	0.26	0.26	0.26	0.42	0.42	0.42
	g-cm ²	18.4	18.4	18.4	29.7	29.7	29.7
Weight	oz	7.4	7.3	7.3	11	11	11
	g	210	207	207	312	312	312
# of Poles		8	8	8	8	8	8
Timing		120°	120°	120°	120°	120°	120°
Mech. Time Constant	ms	1.31	1.20	1.17	1.15	0.99	1.04
Electrical Time Constant	ms	0.61	0.66	0.68	0.57	0.66	0.66
Thermal Resistivity	deg. C/watt	4.10	4.65	4.56	3.58	3.58	3.58
Speed/Torque Gradient	rpm/oz-in	75	75	75	44	38	47

Notes:

- Motor mounted to a 4 x 4 x 1/4 inches aluminum plate, still air.
- Maximum winding temperature of 155°C.
- Typical electrical specifications at 25°C.
- Motor Terminal Voltages are representative only; motors may be operated at voltages other than those listed in the table. For assistance please contact our applications engineer.
- Calculated (theoretical) speed/torque gradient.

*Many other custom mechanical options are available – consult factory.

**Many other winding options are available – consult factory.

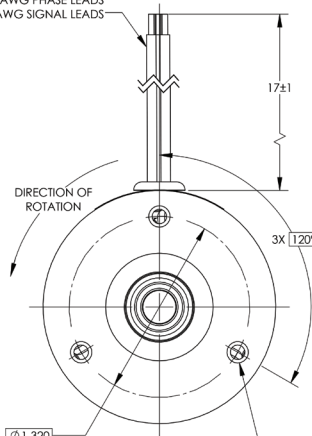
Select your options below and place their code in its corresponding block as shown above.

- | | | |
|----------------------|---------------------------|------------------------|
| T TERMINATION | F FEEDBACK OPTIONS | O OTHER OPTIONS |
| L – Leads (std) | H – Hall Effect (std) | D – Drive |
| C – Connector | R – Resolver | G – Gearhead |
| M – MS connector | S – Sensorless | E – Encoder |

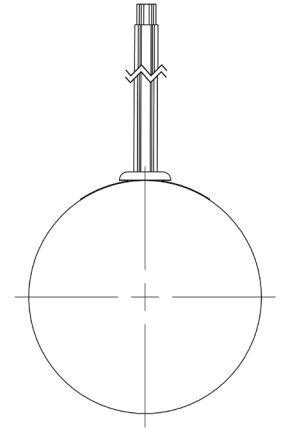
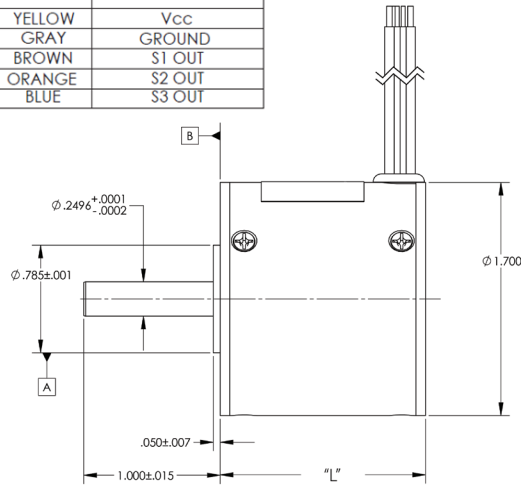
BS17 High Energy Brushless Motors

BS17 Typical Outline - Housed

3X #22 AWG PHASE LEADS
5X #24 AWG SIGNAL LEADS



MOTOR	COLOR	CONNECTION
	RED	A COIL
	GREEN	B COIL
	BLACK	C COIL
	YELLOW	Vcc
	GRAY	GROUND
	BROWN	S1 OUT
	ORANGE	S2 OUT
	BLUE	S3 OUT

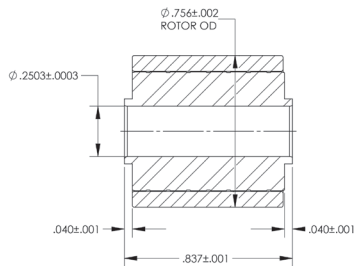


3X #6-32 UNC-2B
MAX. SCREW PENETRATION .230
LOCATED AS SHOWN

⊕ Ø .010 Ⓜ B A Ⓜ

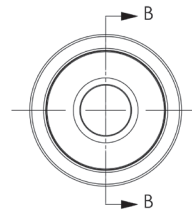
Dimensions are in inches

BS17 Typical Outline - Frameless

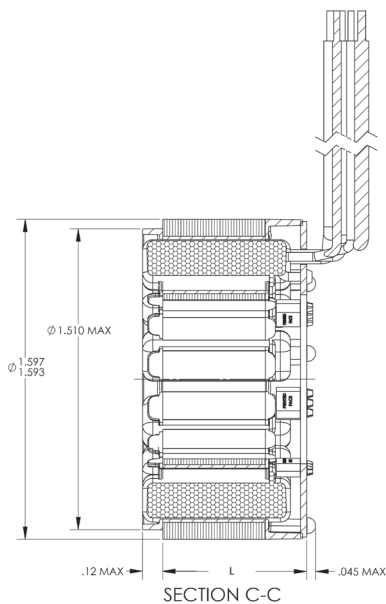


SECTION B-B

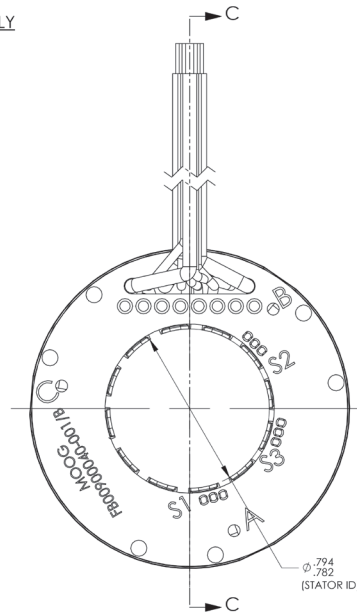
ROTOR ASSEMBLY



STATOR ASSEMBLY



SECTION C-C

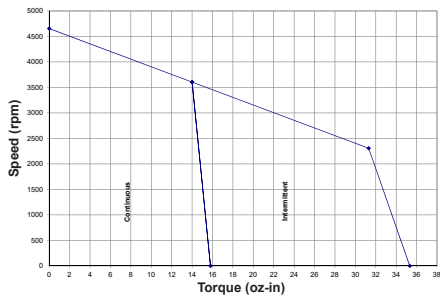


Dimensions are in inches

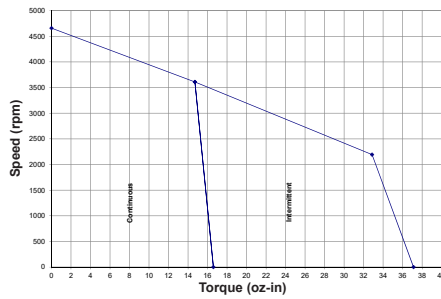
BS17 High Energy Brushless Motors

BS17 Performance Curves

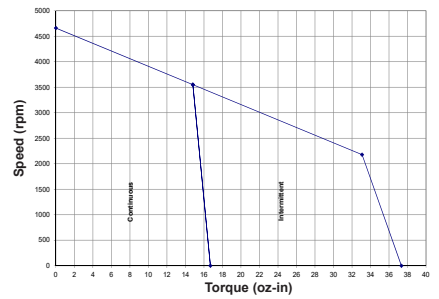
BS17-15AA-01LH: Continuous and Intermittent Operation at 12VDC



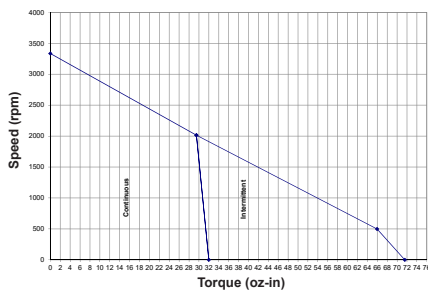
BS17-15AA-02LH: Continuous and Intermittent Operation at 24VDC



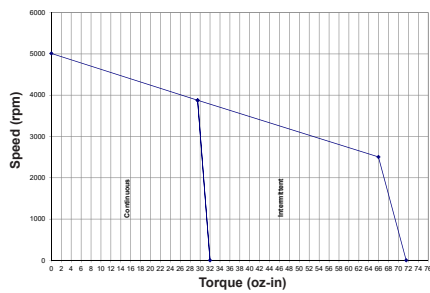
BS17-15AA-03LH: Continuous and Intermittent Operation at 48VDC



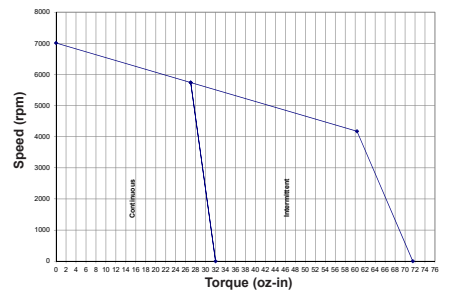
BS17-20AA-01LH: Continuous and Intermittent Operation at 12VDC



BS17-20AA-02LH: Continuous and Intermittent Operation at 24VDC



BS17-20AA-03LH: Continuous and Intermittent Operation at 48VDC



Note: Intermittent operation is based on a 20% duty cycle of 1 minute on, 4 minutes off.
Please contact the factory regarding the duty cycle of your application.

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