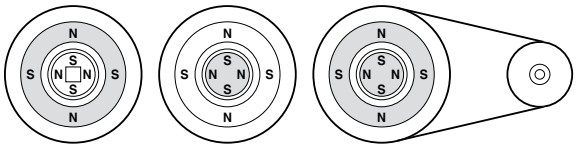
Autoclave Engineers
Division of Snap-tite, Inc.

Autoclave Engineers
Providing Tools for Research and Industry

1.5001 MagneDrive II® Series

At A Glance

Average Static Torque:	27 inch-lbs (3.0 N-m)	
Standard Materials: Steel	A-286 and 316 Stainless	
MAWP:	316SS:	4400 psi @ 650 °F (304 bar @ 343 °C)
	A-286:	6000 psi @ 650°F (415 bar @ 343°C)



External Driver Magnets

Encapsulated Driver Magnet Assembly and Sealed Rotor Shaft

Outer magnets are rotated by motor-driven belts thus rotating inner magnets and rotor shaft.

Figure 1- MagneDrive Principle

The MagneDrive II® Principle

MagneDrive II agitators use rare earth magnets, permitting packless mixing at higher speeds in larger vessels and with higher viscosity fluids. Outer drive magnets, rotated by a motor-driven belt, exert powerful attraction on the encapsulated inner magnet assembly. As the outer drive magnets are rotated, the inner magnets are actuated, resulting in rotation of the agitator shaft.

Contamination-free mixing- Packless design eliminates shaft packing and need for lubrication.

Zero leakage to atmosphere- The MagneDrive II is a sealed system, closed to the atmosphere, so even sensitive fluids can be processed safely.

Continuous, high speed operation- No need to shut down in mid-reaction to change failed packing.

1.5001 Series MagneDrive II® Specification

Maximum RPM, torque, and horsepower

Model	*Maximum Speed (RPM)[1]*	*Average Static Torque in-lbs (N-m)*	*HP @ Maximum Speed (RPM)[2,3]*
1.5001AS06A	2500	27 (3.0)	1.07 @ 2500
1.5001AS06C	2500	27 (3.0)	1.07 @ 2500
1.5001AS06CBD	2500	27 (3.0)	1.07 @ 2500
1.5001SS04FBD	2500	27 (3.0)	1.07 @ 2500

Materials of Construction: A-286 Stainless Steel or 316 Stainless Steel. Optional materials, including titanium and Hastelloy C276, are available upon request. For information on additional materials, please consult the factory.

Bearing Material of Construction: Standard bearing material is Purebon 658RCH[4].

Maximum Allowable Working Pressure (MAWP) at Connection:
1.5001AS MagneDrive: 6000 psi at 650 °F (415 bar @ 343 °C)
1.5001SS MagneDrive: 4400 psi at 650 °F (304 bar @ 343 °C)

Minimum Metal Design Temperature:
1.5001AS MagneDrive: 40°F @ 6000 psi (4°C @ 415 bar)
1.5001SS MagneDrive: 40°F @ 4400 psi (4°C @ 304 bar)

Maximum Temperature at Connection: 650 °F (343 °C)

Maximum Temperature at Magnet Zone: 300 °F (149 °C)[5]

Cover Connection: Threaded, collar and gland, or flanged.

Tachometer Pick-up: Solid state pick-up, which senses the internal shaft rpm, is standard. Optional tachometer pick-up styles, including explosion-proof, are available on special order.

Purge Connection: 1.5001 series MagneDrives are provided with a 0.125" (3 mm) gas purge connection.

Shaft and Impeller: 1.5001 series MagneDrives are supplied without shafts or impellers, allowing for customization of the shaft length and impeller style. The shaft is pinned to the MagneDrive encapsulation. Autoclave Engineers offers a wide selection of impellers in a variety of materials, including the Dispersimax™ gas dispersion system. Please consult the factory for more information.

[1] Maximum speeds may be limited by mixing requirements and shaft vibration, including critical speed.

[2] Motor horsepower should be sized at least 25% higher than the intended application requirement.

[3] To determine horsepower at a certain speed, use the formula:

$$hp = \frac{T \times n}{63{,}025}$$

where: T=torque in inch-lbs
n=speed in rpm

[4] Purebon is a registered Trademark of Pure Carbon Company, Inc.

[5] The magnets are stabilized at 300 °F (149 °C). When the temperature of the magnets exceeds the stabilizing temperature for an extended period, loss of magnetic torque will occur. Some of this loss is reversible and torque will regenerate; however, the problem is avoided by using adequate cooling to limit the magnet temperature to 300 °F (149 °C). A cooling jacket with two NPT connections is provided for water cooling, if necessary. Additional information on cooling requirements can be obtained in the Operation and Maintenance manual.

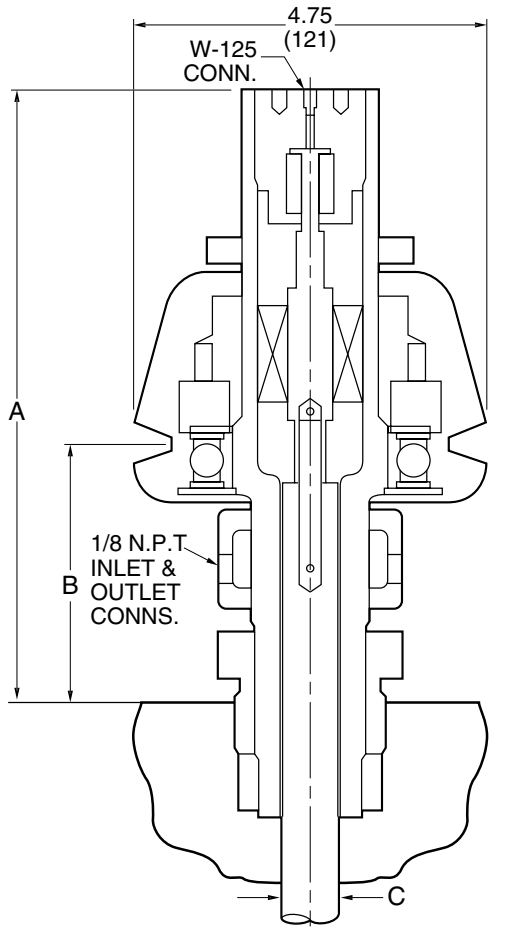
Model Code Chart

Example: 1.5001AS06A. 1.5001 MagneDrive constructed of A-286 Stainless Steel, rated for 6000 psi (415 bar) with a threaded cover connection.

Model	Material of Construction	Pressure Rating	Cover Connection
1.5001	AS- A-286 Stainless Steel SS-316 Stainless Steel	04= 4400 psi (304 bar) 06= 6000psi (415 bar)	A= Threaded C= Collar/gland F= Flanged

Dimensions – inch (mm)

Model	A	B	C
1.5001AS06A	8.00 (204)	3.50 (88)	0.38 (10)
1.5001AS06C	7.56 (192)	3.00 (76)	0.38 (10)
1.5001AS06CBD	8.00 (204)	3.38 (86)	0.63 (16)
1.5001SS04FBD	9.25 (235)	4.62 (117)	0.63 (16)



"C" CONNECTION SHOWN AS REFERENCE ONLY

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