

The World Leading Provider of High Pressure Equipment for Research and Industry since 1945!

# 1.5001

## MagneDrive® II Series



### At a Glance

**Average Static Torque:** 27 inch-lbs. (3.0 N-m)

**Material of**

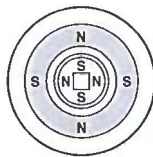
**Construction:** A-286, 316 Stainless Steel, Hastelloy C-276

**Maximum Pressure:** Up to 6000 psi @ 650° F  
(415 bar @ 343°C)

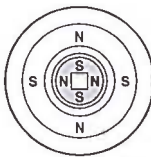
**Applications:** Agitator recognized worldwide as a highly efficient method of promoting chemical reactions and catalyst testing among gases, liquids and solids in high pressure autoclaves.

Dispersimax® agitation available for gas dispersion through liquid during mixing.

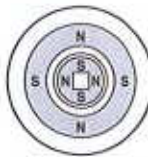
Facilitating tomorrows requirements in a small proven stirred reactor package for **University** and **Research** facilities the world over.



External driver magnets



Encapsulated driver magnet assembly and sealed rotor shaft



Outer magnets are rotated by motor driven belt, thus rotating inner magnets and rotor shaft.

### The MagneDrive® Principle

## Principle of Operation

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.

## Features

- Operating pressures as high as 6,000 psi @ 650° F (415 bar @ 343°C).
- Compact design with up to 27 in-lb (3 N-m) of static torque.
- Designed for simple disassembly and maintenance. Bearings can be replaced with minimal effort.
- Carbon graphite and Rulon LR<sup>6</sup> bearings available.
- Various impellers available, contact factory for details.

## General Specifications

BASE MODEL	Maximum Pressure at Connection psi (bar) @ 650°F (343°C)
1.5001AS06A-	6000 (414)
1.5001AS06C-	6000 (414)
1.5001HC05C-	5400 (3720)
1.5001AS06CBD-	6000 (414)
1.5001HC05CBD-	5800 (400)
1.5001HC04FBD-	4800 (331)
1.5001SS04FBD-	4400 (303)

**Maximum Speed:** 2500 rpm<sup>1</sup>

**Static Torque:** 27 inch-lbs. (3.0 N-m)

**Power at maximum speed (2500 rpm):** 1.07 HP (0.8 kw)<sup>2,3</sup>

**Material of Construction:** A-286 Stainless Steel, 316 Stainless Steel, and Hastelloy® C276. Optional material: Titanium, available upon request. For information on additional materials, please consult the factory.

**Bearing Material:** Purebon® 658RCH<sup>4</sup> or Rulon® LR<sup>6</sup>

**Maximum Temperature at Magnet Zone:** 300°F (149°C)<sup>5</sup>

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

**Cover Connection:** Threaded, collar and gland, or flanged. (see dimensional table)

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

**Tachometer Pick-up:** Hall effect proximity sensor or Reed switch which sense the internal shaft rpm.

**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.

<sup>1</sup> Maximum speeds may be limited by mixing requirements and shaft vibration, including critical speed.

<sup>2</sup> Motor horsepower should be sized at least 25% higher than the intended application requirement.

<sup>3</sup> To determine horsepower at a certain speed, use the formula:

$$hp = \frac{T \times n}{63,025} \quad \text{where: } T = \text{torque in inch-lbs} \\ n = \text{speed in rpm}$$

<sup>4</sup> Purebon is a registered Trademark of Pure Carbon Company, Inc.

<sup>5</sup> 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.

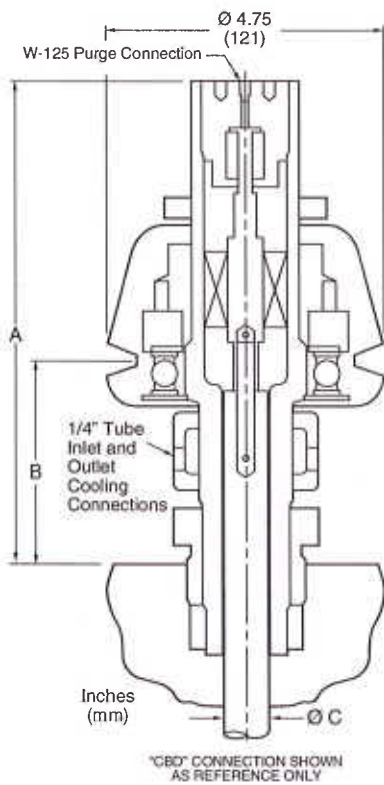
<sup>6</sup> Rulon is a registered Trademark of Saint-Gobain

Please refer to the following sections of the catalog for complimentary products and additional technical details. See the MAG1.5001 Ordering Guide on the back cover to configure a drive for your specific application.

### 1.5001 Drawings

Model	Drawing Number
1.5001AS06A	30-7303
1.5001AS06C	30-6245
1.5001HC05C	30-7854
1.5001AS06CBD	30-9767
1.5001HC05CBD	30A-5715
1.5001HC04FBD	30A-1431
1.5001SS04FBD	30-9738

Consult factory for other connection requirements



## Supporting Information

## Dimensional

Model	A	B	C	Cover Connection
1.5001__A	8.02 (203)	3.00 (76)	0.38 (10)	10-8086-B
1.5001__C	7.53 (191)	3.00 (76)	0.38 (10)	10A-0772-A
1.5001__CBD	8.02 (203)	3.38 (86)	0.63 (16)	10B-4933
1.5001__FBD	9.25 (235)	4.62 (117)	0.63 (16)	10B-2584



## Ordering Guide

### 1.5001

A A B B C C C D D E F

AA - Material	
SS	316 Stainless Steel
AS	A-286
HC	Hastelloy®1 C-276
BB - Pressure	
04	4400 psi (304 bar)
05	5400 psi (872 bar)
06	6000 psi (415 bar)
CCC - Connection	
A	Threaded Housing
C	Collar Gland
CBD	Collar Gland - Large Diameter Shaft
FBD	Flanged - Large Diameter Shaft
DD - Bearing	
PB	Purebon® 658RCH
RB	Rulon® LR
E - Sensor	
0	None
HS	Hall Effect Proximity Sensor
RS	Reed Switch
F - Top Seal	
TO	Teflon O-ring
KO	Kalrez O-ring
VO	Viton O-ring

**Example:** 1.5001AS06A-PBHSVO is a 1.5001 series MagneDrive® in Hastelloy A-286, rated 6000 psi, a threaded housing, Purebon® bearings, speed sensor, and Viton O-ring.

Note: Drive shafts and Impellers are not included with MagneDrive®, consult factory for availability.

Purebon® is a registered trademark of Pure Carbon.  
Rulon® is a registered trademark of Saint-Gobain.  
Hastelloy® is a registered trademark of Haynes International

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ISO-9001 Certified

Bulletin AGT-MAG1.5001

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