

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

## 2.75 MagneDrive® II Series

### At a Glance

**Average Static Torque:** 284-710 inch-lbs. (32-80 N-mm)

#### Material of

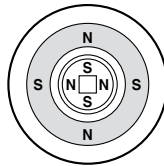
**Construction:** 316 Stainless Steel, Hastelloy C-276, Hastelloy B2, and Monel 400

**Maximum Pressure:** 3000 psi @ 650° F  
(207 bar @ 343°C)

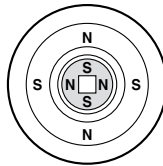
**Applications:** Agitator recognized worldwide as a highly efficient method of promoting chemical reactions and catalyst testing among gases, liquids and solids in high pressure autoclaves.

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

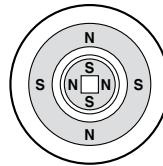
Facilitating tomorrows requirements in a proven mixing package for **production** facilities the world over.



External driver magnets



Encapsulated driver magnet assembly and sealed rotor shaft



Outer magnets are rotated by a direct coupled motor, 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.

**Autoclave Engineers**

Division of Snap-tite, Inc.

## Features

- Capable of mixing gas as high as 1700 rpm.
- Operating pressures as high as 3,600 psi @ 650° F (455 bar @ 343°C).
- Carbon graphite and Rulon LR<sup>7</sup> bearings available.

## General Specifications

<i>Base Model</i>	<i>Maximum Speed (RPM)<sup>1</sup></i>	<i>Static Torque inch-lbs (N-m)</i>	<i>HP @ Maximum Speed (RPM)<sup>2,3</sup></i>
2.7504__03F	1700	284 (32)	7.66 @ 1700 rpm
2.7506__03F	1500	426 (47)	10.14 @ 1500 rpm
2.7508__03F	1400	568 (63)	12.62 @ 1400 rpm
2.7510__03F	1300	710 (80)	14.64 @ 1300 rpm

**Material of Construction:** 316 Stainless Steel. Optional materials: Hastelloy C276, Hastelloy B-2 or Monel 400 are available upon request. For information on additional materials, please consult the factory.

**Bearing Material:** Standard bearing material is Purebon 658RCH<sup>4</sup> (Optional - Rulon LR<sup>7</sup>).

**Maximum Pressure at Connection:** 3,000 psi at 650 °F (207 bar @ 343 °C)<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:** Four bolt flange.

**Purge Connection:** 2.75 series MagneDrives are provided with a SW375 (0.375" (9.5 mm) O.D. tube gas purge connection)

**Tachometer Pick-up:** Solid state Reed switch pick-up, which senses the internal agitator shaft rpm, is standard. Optional hall effect tachometer pick-up (intrinsically safe).

**Shaft and Impeller:** 2.75 series MagneDrives are supplied without lower shafts or impellers, allowing for customizing of the shaft length and impeller style. One piece encapsulation and in-tank coupling provided. Autoclave Engineers offers a wide selection of impellers in a variety of materials, including the Dispersimax<sup>TM</sup> 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 air cooling, if necessary. Additional information on cooling requirements can be obtained in the Operation and Maintenance manual.

<sup>6</sup> Pressures may vary by material.

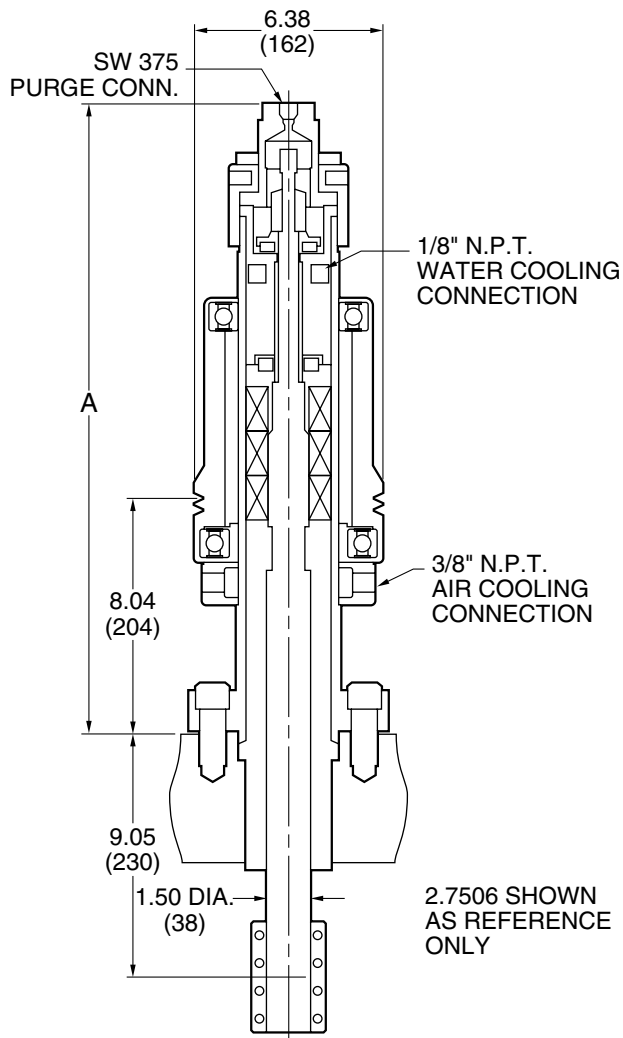
<sup>7</sup> Rulon is a registered Trademark of Saint-Gobain Performance Plastics Corporation.

## Supporting Information

Please refer to the following sections of the catalog for complimentary products and additional technical details. See the 2.75 Ordering Guide on the back cover to configure a drive for your specific application.

### MAG2.75 Drawings

316 Stainless Steel .....	Drawing 40-6555
Hastelloy B-2 .....	Drawing 40A-4285
Hastelloy C-276 .....	Drawing 40-9740
Monel 400 .....	Drawing 40A-7571



## Dimensional

Model	"A" Dimension inches (mm)
2.7504__03F	21.69 (551)
2.7506__03F	23.69 (602)
2.7508__03F	25.69 (652)
2.75010__03F	27.69 (703)

# Ordering Guide

2.75             03F-                  

A A B B            C C D D E E

AA - Size	
04	284 in-lb Static Torque
06	426 in-lb Static Torque
08	568 in-lb Static Torque
10	710 in-lb Static Torque
BB - Material	
SS	316 Stainless Steel
HC	Hastelloy C-276
HB	Hastelloy B-2
MO	Monel 400
CC - Miscellaneous Options	
PB	Purebon® 658RCH
RB	Rulon® LR
DD - Sensor	
HS	Hall Effect Proximity Sensor
RS	Reed Switch
EE - Top Seal	
TO	Teflon O-ring
KO	Kalrez® O-ring
VO	Viton® O-ring

**Example:** 2.7504HC03F-RBHSVO is a 2.75 series MagneDrive® in Hastelloy® A-286, rated 3000 psi with Purebon® bearings, Hall effect 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

Viton® is a registered trademark of DuPont Performance Elastomers



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Bulletin AGT-MAG2.75

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