

## **2.75 MagneDrive® II Series**



### **At a Glance**

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

#### **Material of**

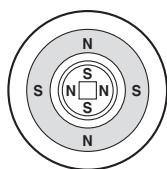
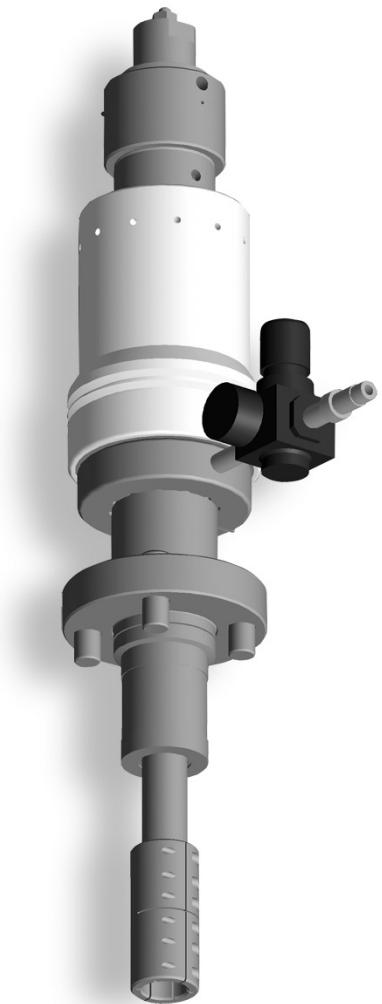
**Construction:** 316 Stainless Steel, Hastelloy C-276, Hastelloy B2, and Monel 400

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

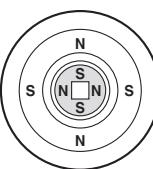
**Applications:** Agitator recognized worldwide as a highly efficient method of promoting chemical reactions and catalyst testing among gases, liquids and solids in high pressure autoclaves.

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

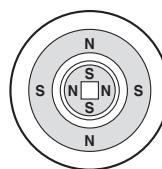
Facilitating tomorrow's requirements in a proven mixing package for **production** facilities the world over.



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.

## 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

Base Model	Maximum Speed (RPM) <sup>1</sup>	Static Torque inch-lbs (N-m)	HP @ Maximum Speed (RPM) <sup>2,3</sup>
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>5</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. Parker 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:

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

<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.

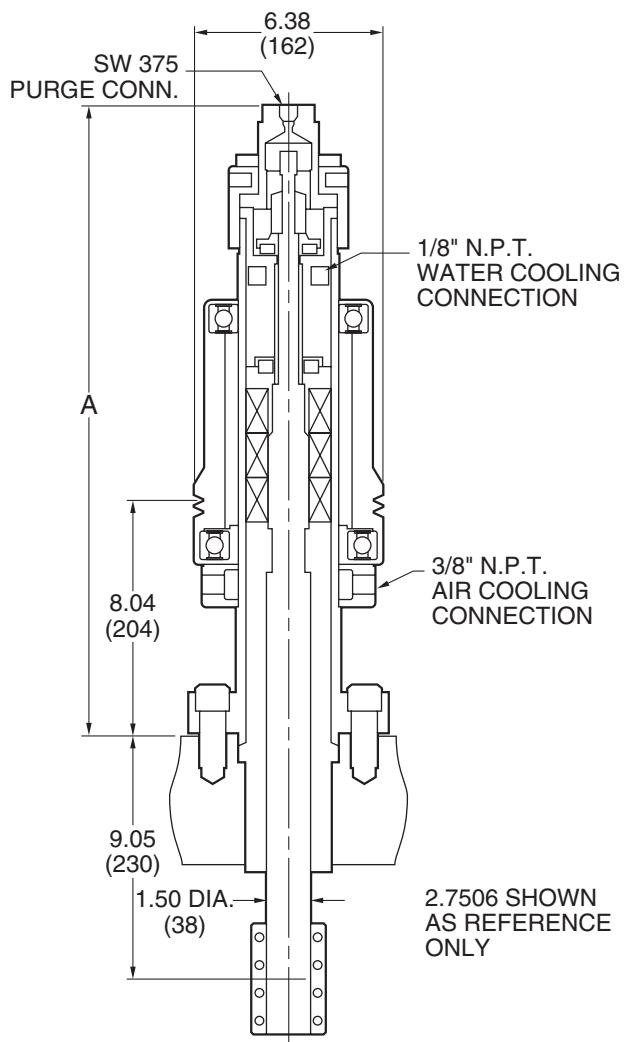
## Supporting Information

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	PTFE 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.

## Offer of Sale

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries and authorized distributors. Any sale contract entered by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).

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06-0021SE      October2012



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ISO-9001 Certified

Bulletin AGT-MAG2.75  
The World Leading Provider of High Pressure Equipment for Research and Industry since 1945!