

iMAG075 Inline

MagneDrive® II Series

Minimum Static Torque: 7 inch-lbs. (0.79 N·mm)

Material of Construction: 316 Stainless Steel or Hastelloy® C276

Maximum Pressure: 6,000 psi @ 850°F (414 bar @ 454°C)
5,000 psi @ 950°F (344 bar @ 510°C)



Principle of Operation:

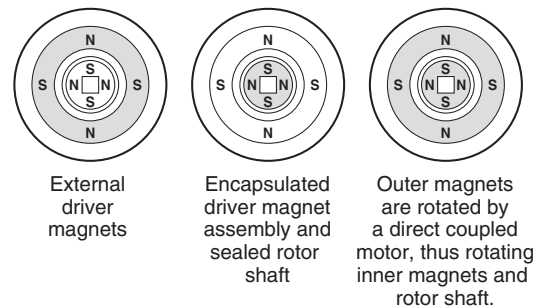
The MagneDrive® agitator uses rare earth magnets, permitting packless mixing at higher speeds and with higher viscosity fluids. Outer drive magnets, rotated by a direct coupled motor exert powerful attraction on the encapsulated inner magnet assembly. As the outer drive magnets are rotated, the inner 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® 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.

Liquid Cooled: Water cooling (user supplied) for over-temperature protection of magnets and bearings. Cooling flow is not always required and can vary depending on vessel operating temperature and drive speed.



The MagneDrive® Principle

Applications:

The MagneDrive® Agitator is recognized worldwide as a highly efficient method of promoting chemical reactions and catalyst testing among gases, liquids and solids in high pressure autoclaves. It can be mated with any number of optional impellers, including our Dispersimax® turbine type gas dispersion impeller or with any spinning catalyst reactor baskets that are housed within a pressurized vessel. Custom engineering of impeller designs can be performed based on developed horsepower, viscosity, critical speed and other key factors associated with specific processes that need contamination-free, packless agitation.



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Features:

- Capable of mixing vessel sizes from 100 ml up to 4000 ml.
- Operating pressures as high as 6,000 psi @ 850°F (414 bar @ 454°C).
- Direct in-line motor eliminates belts, reduces size, and creates nearly silent operation
- Compact design with 7 inch·lbs. (0.79 N·m)³ of static torque.
- Designed for simple disassembly and maintenance. Bearings can be replaced with minimal effort.
- Carbon graphite (Purebon®) and fluoropolymer with carbon fiber (FPCF) bearings available.
- Motor available up to 1/2 hp². Various impellers available separately. Contact factory for details.

Technical Specifications:

Maximum Speed: 3300 rpm¹

Material of Construction: All wetted parts 316 SS or Hastelloy® C-276. For information on other materials, please consult factory.

Bearing Material: Purebon® 658RCH⁴, Purebon® 3310⁴ or fluoropolymer with carbon fiber

Maximum Pressure at Connection: 6,000 psi @ 850°F (414 bar @ 454°C) or 5,000 psi @ 950°F (344 bar @ 510°C)

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

Maximum Temperature at Bearings: 650°F (343°C)⁶ with Purebon® 658RCH⁴ bearings.

Tachometer Pick-up: Hall effect proximity sensor

Shaft and Impeller: Mag075 MagneDrives® are supplied without shafts or impellers, allowing for customizing of shaft length and impeller style. A drive shaft, supplied separately, is screwed into the MagneDrive® encapsulation assembly. Parker Autoclave Engineers offers a wide selection of impellers, including the Dispersimax® gas dispersion system. Please consult factory for more information.

Liquid Cooling: Required for over-temperature protection of magnets and bearings. User supplied, standard water service, 0.3 gpm (1.1 lpm) min. flow rate.

Liquid Cooling Connection: 1/4 copper tube inlet and outlet.

Notes

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:

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

⁴ Purebon is a registered trademark of Morgan AM&T.

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.

⁶ Maximum temperature at bearings is reduced to 500° F (260° C) with the use of fluoropolymer with carbon fiber bearings.

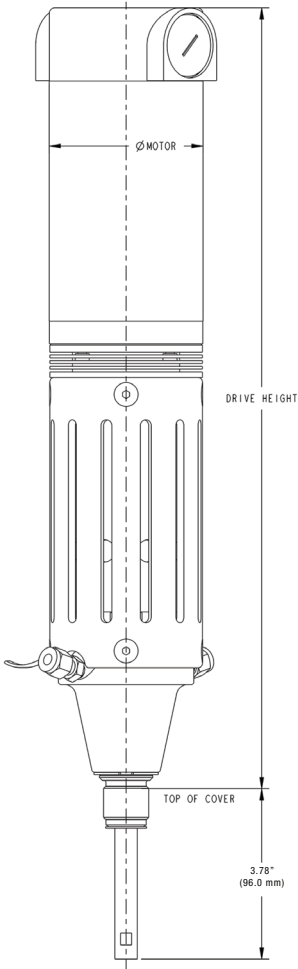
Supporting Information:

Please refer to the following sections of the catalog for complimentary products and additional technical details. See the MAG075 Ordering Guide on the back cover to configure a drive for your specific application.

MAG075 Inline Drawings	
Material	Drawing Number
316 Stainless Steel	40C-0513
Hastelloy C-276	40C-0998
Cover Connection	10C-7227

Dimensions:

Motor Type	Motor Diameter (Ø)		Drive Height	
	inches	mm	inches	mm
1/8 hp DC General Purpose	3.41	86.6	15.09	383.3
1/3 hp DC General Purpose	3.41	86.6	17.32	439.9
1/2 hp Air Motor	4.00	101.6	13.82	351.0



1/8 hp drive with Parker Autoclave Engineers connection shown. Consult drawings (chart above) for additional dimensions.

Ordering Guide:

MagneDrive	Material		Size		Bearing	Inline Motor	Speed Sensor	Approval
iMAG075	S	S	0	1	2	E	1	0
	A	A	B	B	C	D	E	F

Part Number Example: **iMAG075SS012E10** (example selections indicated in yellow below)

AA- Material	
SS	316 Stainless Steel
HC	Hastelloy® C-276 ¹
HG	Hastelloy® C-276 ¹ (Sour Gas)
TI	Titanium
IN	Inconel 600
I6	Inconel 650
ZI	Zirconium

BB - Size	
01	1" Magnet Stack (7 in-lb Static Torque)
01D	1" Magnet Stack (7 in-lb Static Torque) with Dispersimax

C - Bearing	
1	Purebon® 658RCH ²
2	FPGL (Fluoropolymer with Carbon Fiber)
3	Purebon® 3310 ²

D - Drive Type Inline Motor	
D	1/8 HP 0-130 VDC Variable Speed General Purpose (2500 rpm max.)
E	1/3 HP 0-130 VDC Variable Speed General Purpose (2500 rpm max.)
F	Air Motor - Manual Speed Adjust (1/2 HP using 60 psi (4.1 bar) air @ 3000 rpm max.)
G	Air Motor - Electronic Speed Adjust 0-5 vdc Input (1/2 HP using 60 psi (4.1 bar) air @ 3000 rpm max.)

E - Speed Sensor	
0	None
1	General Purpose Hall Effect

F - Approval	
0	None
C	CE Mark

NOTES:

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

- HASTELLOY® is a registered trademark of Haynes International Inc.
- Purebon® is a registered trademark of Morgan AM&T.

WARNING

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06-1165SE November2015



Instrumentation Products Division
 Autoclave Engineers Operation
 8325 Hessinger Drive
 Erie, PA 16509-4679
 Tel: 814 860 5700 • Fax: 814 860 5718
 www.AutoclaveEngineers.com

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Caution! Parker Autoclave Engineers Valves, Fittings, and Tools are not designed to interface with common commercial instrument tubing and are designed to only connect with tubing manufactured to Parker Autoclave Engineers AES specifications. Failure to do so is unsafe and will void warranty.

Bulletin AGT-MAG075 Inline

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