

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

MAG3050 MagneDrive® III Series

At a Glance

Average Static Torque: 5 inch-lbs. (565 N-mm)

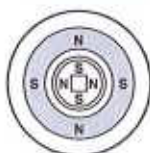
Material of Construction: 316 Stainless Steel, Hastelloy C276

Maximum Pressure: 5400 psi @ 650° F
(372 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.

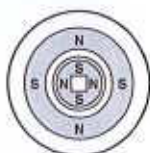
Facilitating tomorrows requirements in a small proven stirred reactor package for **University and Research** facilities the world over.



External driver magnets



Encapsulated driver magnet assembly and sealed rotor shaft



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

The MagneDrive® Principle

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.

Parker

Autoclave Engineers 



Features

- Capable of mixing vessel sizes from 25 ml up to 150 ml.
- Capable of mixing at 3,600 rpm and 20,000 cps.
- Operating pressures as high as 5,400 psi @ 650° F (372 bar @ 343°C).
- In-line motor eliminates belts, reduces size, and creates nearly silent operation.
- Compact design with up to 5 in-lb (565 N-mm) of static torque.
- Designed for simple disassembly and maintenance. Bearings can be replaced with minimal effort.
- Carbon graphite and fluoropolymer with carbon fiber bearings available.
- Various connections available for existing AE and other pressure vessels as well as for glassware.
- Motors available up to 1/4 Hp.
- Various impellers available, contact factory for details.

General Specifications

Base Model HD	Maximum Speed (RPM)¹	Static Torque inch-lbs (N-mm)	Dynamic Motor Torque inch-oz (N-mm)
MAG3050-1/25	3000	5 (565)	12.2 (86) @ 3000 rpm
MAG3050-1/10	2500	5 (565)	47 (332) @ 2900 rpm
MAG3050-1/8	3000	5 (565)	41.6 (294) @ 3000 rpm
MAG3050-1/4	3000	5 (565)	84.8 (1028) @ 3000 rpm

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

Bearing Material: Purebon® 658RCH,⁴ or fluoropolymer with carbon fiber.

Maximum Pressure at Connection: 5,400 psi @ 650° F (372 bar @ 343° C)

Maximum Temperature at Magnet Zone: 400° F (204°C)⁵

Maximum Temperature at Connection: 650° F (343°C)⁶

Cover Connection: Consult factory for details.

Purge Connection: SW125 in base side wall.

Tachometer Pick-up: Magnetic hall effect sensor.

Shaft and Impeller: Supplied with standard length shafts and/or impellers. Customization is available. Parker Autoclave Engineers offers a wide selection of impellers, including the Dispersimax® gas dispersion system. Please consult 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:

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

⁴ Purebon is a registered Trademark of Pure Carbon.

⁵ The magnets are stabilized at 400° F (204° 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 connection is reduced to 500° F (260° C) with the use of fluoropolymer with carbon fiber.

Please refer to the following sections of the catalog for complimentary products and additional technical details. See the *MAG3050 Ordering Guide on the back cover* to configure a drive for your specific application.

MAG3050 Drawings

316 Stainless Steel

Hastelloy C

Parker Autoclave Engineers Connections

1/25 and 1/10 HP Dwg. 40A-9829

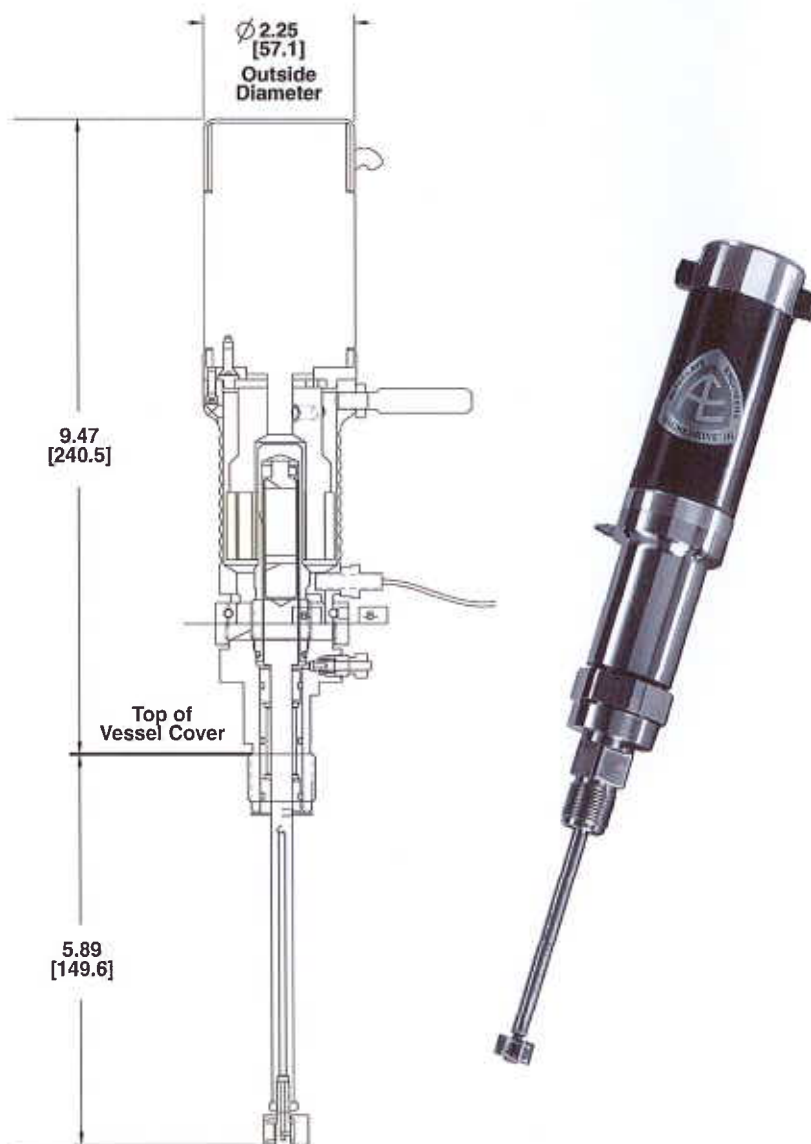
1/25 and 1/10 HP Dwg. 40A-9830

3/4" NPT Connection

1/25 and 1/10 HP Dwg. 40A-9897

1/8 and 1/4 HP Dwg. 40A-9899

Consult factory for other connection requirements



1/25 HP drive with Parker Autoclave Engineers connection and typical shaft impeller shown. Consult drawings for dimensions for other sizes.

Supporting Information

Dimensional

Ordering Guide

MAG3050

A A B B C D E F G H I I I

Part Number Example: **MAG3050SS0118201SD02** (See chart below)

AA - Material				
SS	316 Stainless Steel			
HC	Hastelloy®1 C-276			
BB - Size				
01	5 In-lb Static Torque			
C - Bearing				
1	Purebon 658RCH			
2	FPGF (Fluoropolymer with Carbon Fiber)			
D - Motor				
B	1/25 HP DC			
9	1/10 HP DC			
A	1/8 HP DC			
B	1/4 HP DC			
E - Sensor				
0	None			
2	Intrinsically Safe Speed Sensor (No Barrier)			
F - Approval				
0	None			
2	CE Mark			
3	CRN			
G - Connection				
1	Standard AE Connection			
2	3/4" NPT			
H - Bearing Spacing				
S	Standard 2" Spacing (For Units where cover to impeller bottom dimension <=6.00 [152.4])			
E	Extended 4" Spacing (For Units where cover to impeller bottom dimension >=6.00 [152.4])			
(Regardless of Rotor Diameter) See MagneDrive assembly drawing for cover to impeller bottom dimension.				
III - Impeller/Rotor				
000	No rotor or impeller supplied. Consult factory to purchase rotor and impeller separately.			
S01	0.3144 (8.0) diameter solid blank shaft. Shaft Length = 6.00 (152.6). (See MagneDrive assembly drawing.) Machine as required for the application			
D01 Thru T03	For standard existing reactors refer to the chart below. Match the specific vessel style and volume. Then select the catalog designation.			
Impeller/Rotor Option Selection Chart (See example below)				
Vessel Style	Volume (ml)	Stirred Reactor Style and Volume Option Designations (see example Below)	Select One	
			Disperimax Impeller/Rotor Option Designation	Turbine Impeller/Solid Rotor Option Designation
Micro Reactor (M)	25	M002	D01	T01
	50	M005	D02	T02
	100/150	M010/M015	D03	T03

! WARNING !
FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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NOTES:

- HASTELLOY® is a registered trademark of Haynes International Inc.
- Temperature limits are suggested. Actual performance will vary with chemical compatibility.
- Viton® and Kalrez® are registered trademarks of DuPont Dow Elastomers.
- Chemraz® is a registered trademark of Greene, Tweed.
- Purebon® is a registered trademark of Morgan AM & T Inc.
- Fluoropolymer bearings have a maximum recommended service temperature of 500°F (260°C).

Bulletin AGT-MAG3050

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