MAG3050

MagneDrive® III Series

Average Static Torque: 5 inch·lbs (565 N·mm)
Material of Construction: 316 Stainless Steel, Hastelloy® C276
Maximum Pressure: 5,400 psi @ 650ºF (372 bar @ 343ºC)

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.

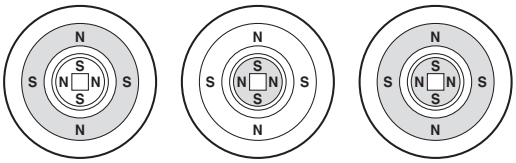
Continuous, high speed operation: No need to shut down in mid-reaction to change failed packing.

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 is available for gas dispersion through the liquid during mixing.

Facilitating requirements in a small proven mixing 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 direct coupled motor, thus rotating inner magnets and rotor shaft.

The MagneDrive® Principle

Features:

- Capable of mixing vessel sizes from 25 ml up to 150 ml.
- Capable of mixing at 3,600 rpm and 20,000 cp.
- Operating pressures as high as 5,400 psi @ 650°F (372 bar @ 343°C).
- In-line motor eliminates belts, reduces sizes, and creates nearly silent operation.
- Compact design with 5 in·lbs (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.
- Motors available up to 1/4 hp.
- Various impellers available, contact factory for details.

Parker Autoclave Engineers®

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Technical Specifications:

Base Model (hp) [2,3]	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: 300° F (149°C)[5]

Maximum Temperature at Bearings: 650° F (343°C)[6]

Cover Connection: Consult factory for details

Purge Connection: SW125 in base side wall

Tachometer Pick-up: Hall effect proximity 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.

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:

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

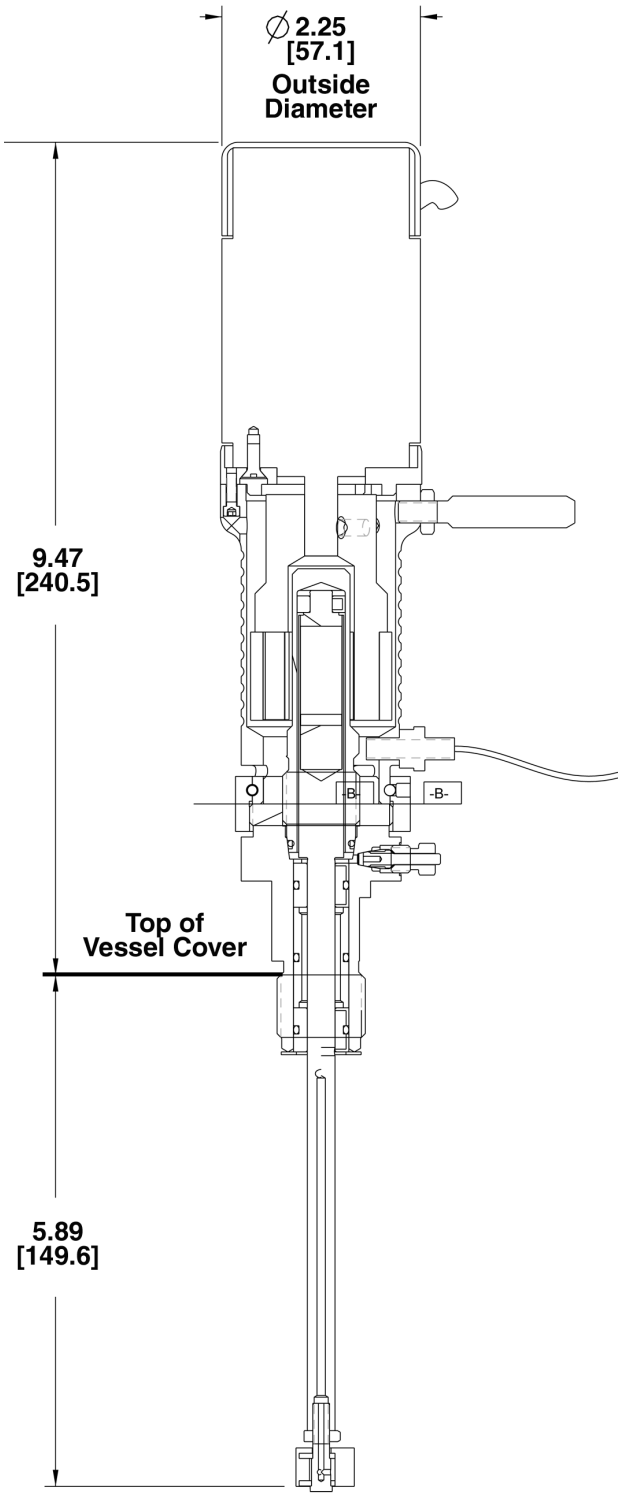
Supporting Information:

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. Consult factory for other connection requirements.

MAG3050 Drawings			
Parker Autoclave Engineers Connection			
316 Stainless Steel		Hastelloy C	
Model Number	Drawing Number	Model Number	Drawing Number
1/25 and 1/10 hp	40A-9829	1/25 and 1/10 hp	40A-9830
1/8 and 1/4 hp	40A-9831	1/8 and 1/4 hp	40A-9832
3/4" NPT Connection			
316 Stainless Steel		Hastelloy C	
1/25 and 1/10 hp	40A-9897	1/25 and 1/10 hp	40A-9898
1/8 and 1/4 hp	40A-9899	1/8 and 1/4 hp	40A-9900

Note: Air motor options are available. Consult factory.

Dimensional:



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

Ordering Guide:

Model	Material		Size		Bearing	Motor	Speed Sensor	Approval	Connection	Bearing Spacing	Impeller/ Rotor
MAG3050	S	S	0	1	1	8	1	0	1	S	000
	A	A	B	B	C	D	E	F	G	H	III

Part Number Example: **MAG3050SS0118101S000** (example selections indicated in yellow below)

AA - Material	
SS	316 Stainless Steel
HC	Hastelloy® C-276 [1]

BB - Size	
01	5 in-lb Static Torque

C - Bearing [2]	
1	Purebon® 658RCH [3]
2	FPGL (Fluoropolymer with Carbon Fiber) [4]

D - Motor	
8	1/25 hp DC
9	1/10 hp DC
A	1/8 hp DC
B	1/4 hp DC
F	Air, Manual Speed Adjust
G	Air, Electronic Speed Adjust

E - Speed Sensor	
0	None
1	General Purpose Hall Effect

F - Approval	
0	None Required
2	CE Mark Compliance
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 mm])
E	Extended 4" Spacing (For Units where cover to impeller bottom dimension >=6.00" [152.4 mm])
(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 mm) diameter solid blank shaft. Shaft Length = 6.00" (152.6 mm). (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
Mini Reactor (M)	25	M002	D01	T01
	50	M005	D02	T02
	100/150	M010/M015	D03	T03

NOTES:

1. HASTELLOY® is a registered trademark of Haynes International Inc.
2. Temperature limits are suggested. Actual performance will vary with chemical compatibility.
3. Purebon® is a registered trademark of Morgan AM&T.
4. Fluoropolymer bearings have a maximum recommended service temperature of 500°F (260°C).

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Caution! Do not mix or interchange component parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Caution! Parker Autoclave Engineers Valves, Fittings, Systems 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.

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Bulletin AGT-MAG3050

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