

ROTATING RIGHT

SEAL-LESS MAGNETIC DRIVE PUMPS



MAGNATEX[®]
Pumps, Inc.

MAXP

Magnetic Drive ANSI Process Pumps



Magnatex® MAXP Series ANSI process pumps are available in a wide variety of materials to meet demanding applications in the process industries worldwide.

Magnatex® pumps are installed in thousands of plants handling a wide variety of tough pumping challenges for both low and high temperature fluids. Everything from recovery solvents to heat transfer fluids, viscous liquids, acids, bases, toxic or noxious liquids and high purity fluids.

- **Max. Flow Rate:** 2000 gpm (7570 l/m)
- **Max. Head:** 470 ft (143m)
- **Max. Working Pressure:** 285 PSI (1965 kpa)
- **Max. Power:** 200 HP (149 Kw)
- **Temperature:** -150 F to 800 F (-101 to 427 C)
- **Materials of Construction:**
Carbon Steel, 304 & 316 Stainless Steel, Alloy 20, Hastelloy® equivalent, Monel, Titanium
- **Connections:** 150 LB or 300 LB RF Flanges
- **Bearings:** Silicon Carbide (SiC-X Optional)
- **Impeller:** Enclosed
- **Speeds:** 1800 - 3600 RPM
- **Magnets:** Neodymium or Samarium Cobalt
- **Motor:** "T" Frame
- **Secondary Containment:** Optional
- **Steam Jackets:** Optional
- **External Flush & Vent:** Optional

MP / MPL / MPH

ANSI & Sub ANSI Magnetic Drive Pumps



Magnatex® MP/MPL/MPH Series pumps are close coupled compact MP/MPL series pumps are the efficient and dependable choice for medium-flow, medium to high head applications. The MPL Series pumps' process side conforms to ANSI B73.3 dimensions.

The MP Series pumps feature sub-ANSI sizes for efficient lower flow applications. Affordable, high performance Magnatex® pumps give you higher efficiency with lower horsepower and a lower total cost of ownership.

- **Max. Flow Rate:** 340 gpm (1287 l/m)
- **Max. Head:** 400 ft (122m)
- **Max. Working Pressure:** 225 PSI (1551 kpa)
- **Max. Power:** 30 HP (22.4 Kw)
- **Temperature:** -100 F to 536 F (-73 to 280 C)
- **Materials of Construction:**
316 Stainless Steel, Alloy 20, Hastelloy® equivalent
- **Connections:** 150 LB RF Flanges
- **Bearings:** SiC, SiC-X
- **Impeller:** Enclosed
- **Speeds:** 1800 - 3600 RPM
- **Magnets:** Neodymium
- **Motor:** C Face
- **Secondary Containment:** N/A
- **Steam Jackets:** N/A
- **External Flush & Vent:** N/A

MPT

Magnetic Drive Regenerative Turbine Pumps



Magnatex® MPT Series pumps are magnetically driven, sealless regenerative turbine vane pumps designed specifically for low flows at high heads.

The MPT Series features close-coupled construction similar to the MP Series, but uses a regenerative turbine vane impeller. This design provides better pump hydraulics at low flow rates.

- Max. Flow Rate: 18 gpm (68 l/m)
- Max. Head: 340 ft TDH (104m)
- Max. Working Pressure: 225 PSI (1551 kpa)
- Max. Power: 5 HP (3.7 Kw)
- Temperature: -40 F to 300 F (-40 to 149 C)
- Materials of Construction: 316 Stainless Steel,
- Connections: NPT or 150 LB Flanges
- Bearings: SiC-X
- Impeller: Turbine Vane
- Speeds: 1800 - 3600 RPM
- Magnets: Samarium Cobalt
- Motor: C Face
- Secondary Containment: N/A
- Steam Jackets: N/A
- External Flush & Vent: N/A

MMP

Low Flow Magnetic Drive Pumps



Magnatex® MMP Series pumps are heavy-duty magnetically driven, sealless, centrifugal pumps with superior bearing materials for low flows.

These close-coupled pumps are similar in construction to the MPL/MP Series, except the shaft is stationary and the suction/discharge ports are male NPT with optional 150 LB RF flanges.

- Max. Flow Rate: 20 gpm (76 l/m)
- Max. Head: 95 ft (29m)
- Max. Working Pressure: 85 PSI (586 kpa)
- Max. Power: 3/4 HP (0.56 Kw)
- Temperature: -100 F to 300 F (-73 to 149 C)
- Materials of Construction: 316 Stainless Steel
- Connections: NPT or 150 LB RF Flanges
- Bearings: SiC-X
- Impeller: Enclosed
- Speeds: 1800 - 3600 RPM
- Magnets: Neodymium
- Motor: C Face
- Secondary Containment: N/A
- Steam Jackets: N/A
- External Flush & Vent: N/A

MTA

PFA Lined Magnetic Drive Pumps



Magnatex® Texel® MTA Series sealless, mag-drive pumps feature a transfer molded, mechanically attached PFA lining that is thicker and more uniform than common rotomolded linings. Ideal for high purity and elevated temperature applications, this PFA lining offers enhanced characteristics over conventional roto-lined pumps.

MTA Series pumps conform to ANSI B73.3 standards.

- Max. Flow Rate: 320 gpm (1211 l/m)
- Max. Head: 285 ft (87m)
- Max. Working Pressure: 150 PSI (1034 kpa)
- Max. Power: 25 HP (18.6 Kw)
- Temperature: 5 F to 275 F (-15 to 135 C)
- Materials of Construction:
PFA Lined
- Connections: 150 LB RF Flanges
- Bearings: C-PTFE, G-PTFE, SiC, Carbon
- Shaft: SiC
- Impeller: Closed
- Speeds: 1800 - 3600 RPM
- Magnets: Neodymium
- Motor: C Face
- Secondary Containment: Optional
- Steam Jackets: Optional
- External Flush & Vent: Optional

ME

ETFE & Kynar® (PVDF) Magnetic Drive Pumps



Magnatex® Texel® ME Series sub ANSI pumps are dependable, durable lined magnetic drive pumps. They are the solution for low to medium flow corrosive fluid applications.

These pumps provide a lifetime of maintenance free operation with low total cost of ownership.

- Max. Flow Rate: 90 gpm (341 l/m)
- Max. Head: 140 ft (43m)
- Max. Working Pressure: 70 PSI (483 kpa)
- Max. Power: 3 HP (2.2 Kw)
- Temperature: -32 F to 195 F (-36 to 91 C)
- Materials of Construction:
ETFE Lined, Kynar® (PVDF) Lined
- Connections: 150 LB RF Flanges
- Bearings: C-PTFE, G-PTFE, SiC, Carbon
- Shaft: Ceramic, SiC
- Impeller: Closed
- Speeds: 1800 - 3600 RPM
- Magnets: Neodymium
- Motor: C Face
- Secondary Containment: N/A
- Steam Jackets: N/A
- External Flush & Vent: N/A

MEP

Polypropylene Magnetic Drive Pumps



Magnatex® Texel® MEP Series pumps are magnetic drive, sealless, medium duty, polypropylene thermoplastic pumps designed for chemical transfer applications.

Simple construction allows for economical first cost and ease of maintenance.

- Max. Flow Rate: 106 gpm (401 l/m)
- Max. Head: 103 ft (31m)
- Max. Working Pressure: 55 PSI (379 kpa)
- Max. Power: 3 HP (2.2 Kw)
- Temperature: To 175 F (79 C)
- Materials of Construction: Polypropylene,
- Connections: Threaded & Flanged
- Bearings: C-PTFE
- Impeller: Closed
- Speeds: 1800 - 3600 RPM
- Magnets: Neodymium
- Motor: C Face
- Secondary Containment: N/A
- Steam Jackets: N/A
- External Flush & Vent: N/A

MST

PFA Lined Magnetic Drive Pumps



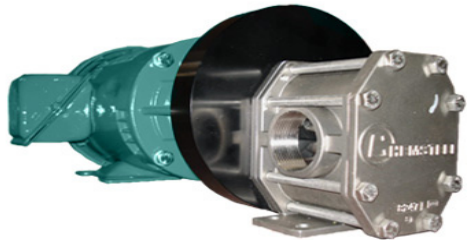
Magnatex® Texel® MST Series pumps have an extremely rugged design, virgin PFA injection molded casing, magnetic drive, sealless, SiC rear casing, designed to ANSI dimensions.

Rear casing can be flushed for solids.

- Max. Flow Rate: 140 gpm (530 l/m)
- Max. Head: 260 ft (79m)
- Max. Working Pressure: 150 PSI (1034 kpa)
- Max. Power: 30 HP (22.4 Kw)
- Temperature: To 250 F (121 C)
- Materials of Construction: PFA Lined,
- Connections: 150 LB RF Flanges
- Bearings: C-PTFE
- Impeller: Closed
- Speeds: 1800 - 3600 RPM
- Magnets: Neodymium
- Motor: C Face
- Secondary Containment: N/A
- Steam Jackets: N/A
- External Flush & Vent: Optional

R / S

Mechanically Sealed Gear Pumps



Chemsteel R&S Series gear pumps are designed to handle viscous, corrosive liquids that need to be pumped at pressures up to 150 psi.

These pumps are manufactured to extremely precise tolerances and are available in stainless, Hastelloy® equivalent or Ryton® casing construction.

Gears are available in 316SS, Hastelloy C® equivalent, Teflon®, or Peek®. A full range of sealing options is available for maximum application flexibility.

- **Max. Flow Rate:** 30 gpm (114 l/m)
- **Max. Head:** 150 PSI (1034 kpa)
- **Max. Working Pressure:** 225 PSI (1551 kpa)
- **Max. Power:** 5 HP (3.7 Kw)
- **Temperature:** To 450 F (To 232 C)
- **Materials of Construction:**
316 Stainless Steel, Hastelloy® equivalent, Ryton®
- **Connections:** Threaded
- **Bearings:** Carbon, Teflon®, Rulon®
- **Gears:** 316 Stainless Steel, Hastelloy® equivalent, Teflon® or Peek®
- **Shaft Material:** 316 Stainless Steel, Hastelloy® equivalent
- **Magnets:** N/A
- **Motor:** "T" Frame
- **Secondary Containment:** N/A
- **Steam Jackets:** N/A
- **External Flush & Vent:** N/A

SM

Magnetic Drive Gear Pumps



Chemsteel SM Series magnetic drive, sealless gear pumps are designed to handle viscous, corrosive liquids that need to be pumped at pressures up to 110 psi.

SM Series pumps are manufactured to extremely precise tolerances and are available in stainless or Hastelloy® equivalent casing construction.

Gears are available in 316SS, Hastelloy C® equivalent, Teflon® or Peek®.

- **Max. Flow Rate:** 30 gpm (114 l/m)
- **Max. Head:** 110 PSI (758 kpa)
- **Max. Working Pressure:** 225 PSI (1551 kpa)
- **Max. Power:** 5 HP (3.7 Kw)
- **Temperature:** To 450 F (To 232 C)
- **Materials of Construction:**
316 Stainless Steel, Hastelloy® equivalent, Ryton®
- **Connections:** Threaded
- **Bearings:** Carbon, Teflon®, Rulon®
- **Gears:** 316 Stainless Steel, Hastelloy® equivalent, Teflon® or Peek®
- **Shaft Material:** 316 Stainless Steel, Hastelloy® equivalent
- **Magnets:** Neodymium
- **Motor:** "T" Frame
- **Secondary Containment:** N/A
- **Steam Jackets:** N/A
- **External Flush & Vent:** N/A

SiC-X

Patent Pending Dry Run Resistant Bearings

Significantly increased dry-running capability!

- The Magnatex SiC-X bearings can run dry for extended periods — even hours!
- Unique materials and manufacturing techniques of our specially treated SiC-X bearings provide a coefficient of friction 1/4 that of SiC.
- The very low coefficient of friction of our SiC-X bearings results in much less heat being generated in upset or dry-running conditions. SiC-X bearings are more forgiving of dry-running conditions frequently encountered at start-up, during upset conditions or in batch services.
- Extremely hard surfaces minimize wear and prolong service life; resistance to chemicals is maintained for extended bearing life.
- Online pump selector
- System head calculator



SiC-X Availability

MMP/MMH/MML—Standard
 MP/ML/MPH/MPT—Standard
 MPL/MLL/MHL—Optional
 MAXP—Optional

In multiple dry-running tests using an MP220, 1 HP unit with standard SiC bearings, noise developed after a brief period of operation. On disassembly, internal damage was identified.

The same pump with the special SiC-X bearing material operated over 1 hour and 45 minutes with no unusual noise. On disassembly, there was no visible damage.

Test Progression	Standard SiC	SiC-X
	Coefficient of Friction = 0.39	Coefficient of Friction = 0.099
Operation with a combination of air and liquid; rotation speed of 19.7ft/sec and weight on bearing of 8.2 lbs.	The bearing surface was abraded with noticeable wear after operating for 10 minutes	Bearing was in excellent condition after 10 minutes of operation
Dry-running—no liquid; 19.7 ft/sec, 8.2lbs	Bearing damage after 2 seconds of operation	Bearing was in excellent condition after 80 seconds
Dry-running—no liquid; 15.4 ft/sec, 2.2lbs	Bearing damage after 45 seconds of operation	Bearing was still in excellent condition after 1 hour and 45 minutes of operation
Heat shock after dry-running 1 hour; poured water at room temperature on bearing which was assumed over 330°F	N/A—will not run dry this long	Bearing was still in excellent condition; no thermal cracking or heat checking evident

Test Results

One of the weak points of ceramic materials is poor response to thermal shock. In our tests, the SiC-X bearing material was unaffected. On inspection, the bearing showed no evidence of damage. The results of a similar, though inadvertent, field test where a technician discovered the pump was being operated in a dry-running condition were equally impressive. He stopped the pump and poured liquid on the bearing to cool it off quickly. Even in that situation with the bearing close to the point of being damaged, the SiC-X gave the customer good results. The technician “expected damage” and was surprised to see the SiC-X in good condition.

After testing and analysis, it is clear that the SiC-X provides good results when used in magnetically-driven pumps, especially for troublesome, startup dry-running conditions. The benefits don't stop there! We can expect better performance in the case of upset conditions and other temporary dry-running situations, eliminating or greatly delaying bearing damage where it likely would have immediately occurred with standard SiC.

Magnatex® Proven Technology

Single confined seal gasket in wet end provides for ease of ball bearing maintenance without removal of wet end from piping.



Fully enclosed impeller with balance holes - provides high efficiency and low thrust loads (no shim or adjustments required)



Inducers available for low NPSH applications

Inner magnet is "Straddle Mounted" between bearings. (no overhung load)



Pump & rear casing are completely drainable through casing drain plug.



Silicon Carbide bearings, thrust rings and shaft sleeves provide extremely long life. (Interchangeable front & rear.)



Port for thermacouple or RTD to monitor inlet temperature.

Anti-coated ribs prevent outer magnet from rubbing on rear casing, in the event of ball bearings fail.



Large internal magnet radial clearance: 0.060" minimum



Rugged Hastelloy C rear containment shell provides high efficiency and safe, positive hermetic sealing.

Optional high pressure secondary containment available.

Oil lubricated bearings (easily adapted to oil mist). Greased-for-life bearings optional.



Frame adaptor port for mounting leak detection monitor.

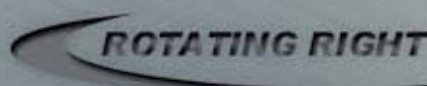
1/2" tap on frame adapter for mounting vibration monitoring unit.

External flush ports for high solids applications.

Neodymium or Samarium Cobalt magnets provide synchronous drive (no slip)



Cooling fins and ports on bearing frame.



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