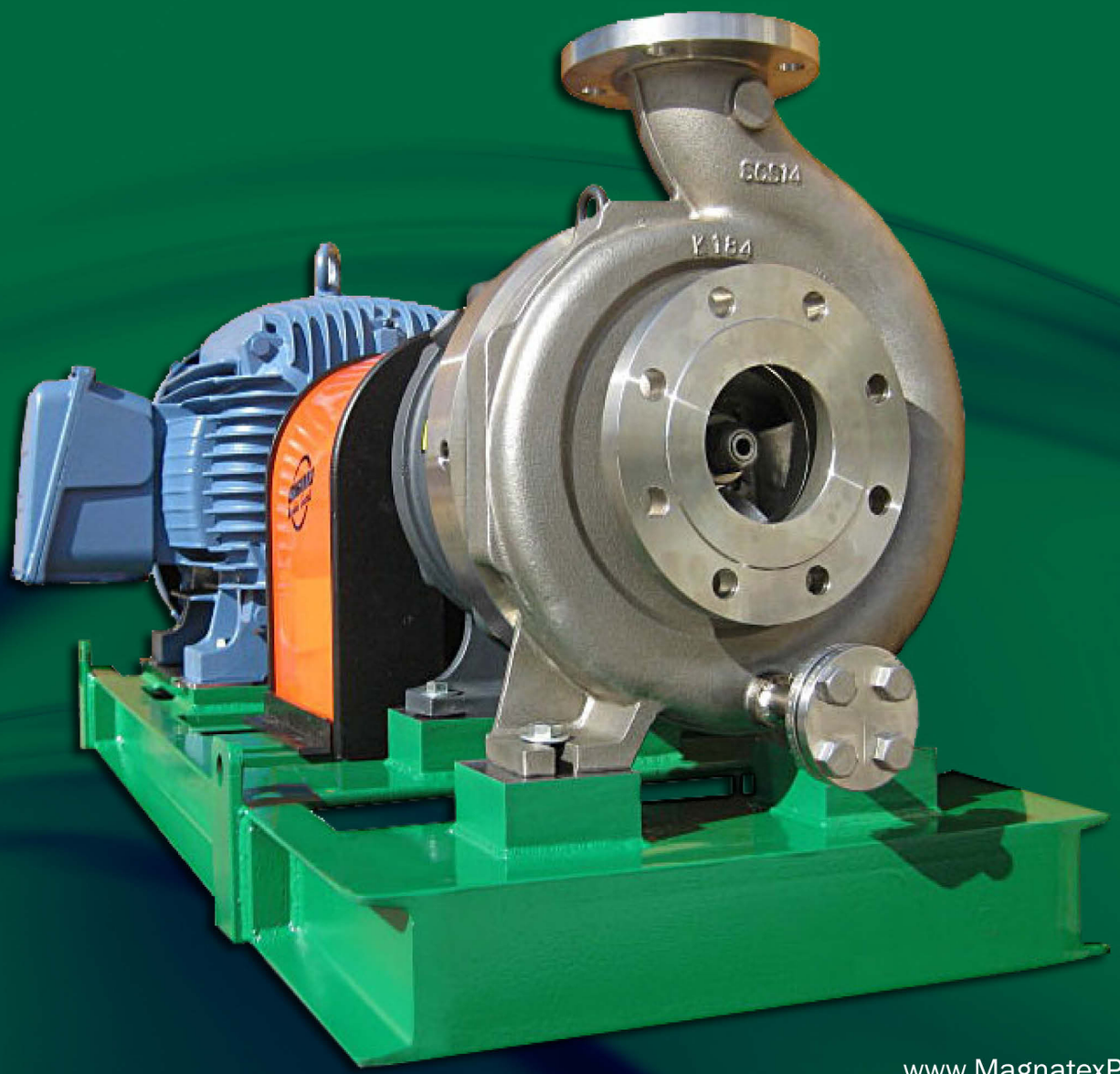
MAGNATEX®

Pumps, Inc.



www.MagnatexPumps.com

Index

SERVING GLOBAL MARKETS FOR OVER A QUARTER CENTURY

- Chemical Process
- Petrochemical
- Refining
- Water Treatment
- Food and Beverage
- Pulp and Paper
- Plating
- Pharmaceutical
- Semiconductor
- Power Generation
- Textiles
- General Industrial and OEM

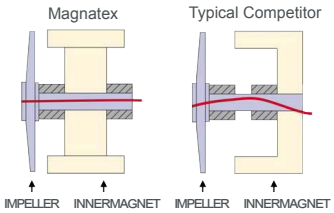
Pumps for most process applications in a wide range of designs and materials

- Sealed and Sealless, Mag-drive,
- ANSI, sub-ANSI & ISO centrifugal pumps, as well as small gear-pumps
- Long and close-coupled pumps for NEMA or IEC motors

- Metallic – Ductile Iron, Steel, Stainless Steels, Alloy 20, Alloy B&C, Monel and Titanium
- Non-Metallic lined pumps – Polypropylene,PVDF, ETFE and PFA

Superior Straddled-mounted Design

Magnatex metal, mag-drive pumps feature a straddle-mounted inner magnet design that reduces radial shaft load when compared to our competitors' cantilevered models. This feature allows operation across the entire performance curve without compromising service life.

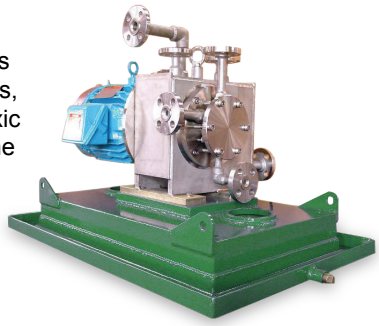


Smaller, sub-ANSI Pumps

For low flow applications, robust metal and non-metallic sub-ANSI models allow operation closer to the best efficiency point when compared to ANSI pumps, which reduces initial cost and total cost of ownership.

Innovative Solutions to Challenging Applications

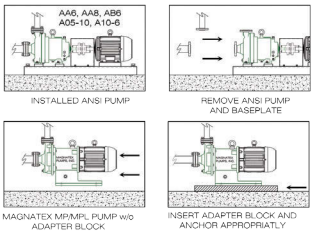
High-pressure and high-temperature liquids, solids laden liquids, acids, bases, pyrophoric liquids and toxic liquids are just a few of the challenging liquids being successfully handled by Magnatex Pumps.



Enhanced Dry-running bearing system

Magnatex metal pumps now feature SiC-X bearing material as a standard on our smaller pumps or as an option on larger units. With a coefficient of friction 1/4 that of SiC, SiC-X provides extended dry-running capability during upset conditions. Non-metallic pumps also have optional bearing materials for challenging services.

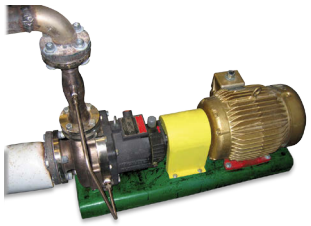
Extremely cost-effective ANSI sealed pump alternatives



In addition to sealless, long-coupled ANSI units, close coupled models are available with flange locations identical to sealed ANSI pumps. This feature enables easy replacement of problem sealed pumps with Magnatex sealless mag-drive, metallic or non-metallic pumps.

Solids Handling

With multiple provisions for handling up to 8% or more solids, Magnatex can take on difficult process applications that other mag-drive pumps are unable to handle.



Quick Support and easy Field Maintenance

Slip-fit construction allows easy, onsite maintenance, if required. Additionally, Magnatex can inspect and repair any pump at our facility in Houston, TX. A worldwide network of distributors and representatives provide technical assistance and parts support 24/7.

Large Inventory

A multimillion dollar inventory enables same day shipment of pumps and parts in emergency situations, anywhere in the world.

MAGNATEX® Pumps, Inc.

3575 West 12th Street, Houston, TX 77008
tel: 713.972.8666 toll free: 866.MAGPUMP fax: 713.972.8665
www.magnatexpumps.com

MAGNATEX®
Pumps, Inc.

Since 1985 your process reliability has been our #1 priority.

MAXP Series ANSI (Magnetic Drive)

Max. Flow: 2000 gpm
Max. Head: 470 feet
Temperature: -150°F to 800°F
Max. Power: 200 hp
Materials of Construction: Carbon Steel, 304SS,316SS, Alloy 20, Alloy B&C, Monel, Titanium
Bearings: SiC, SiC-X

3575 Series ANSI (Mechanical Seal)

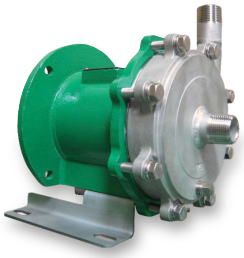
Max. Flow: 5000 gpm
Max. Head: 720 feet
Temperature: up to 700°F
Max. Power: 300 hp
Materials of Construction: Ductile Iron, Steel, 316SS, CD4M-Cu, Alloy 20, Alloy B&C, Ni-Hard, Titanium

MP/MPL/MPH Series Sub-ANSI / ANSI (Magnetic Drive)

Max. Flow: 340 gpm
Max. Head: 400 feet
Temperature: -100° to 536°F
Max. Power: 20 hp
Materials of Construction: 316SS, Alloy 20, Alloy B&C
Bearings: SiC, SiC-X

MPT Series (Magnetic Drive)

Max. Flow: 40 gpm
Max. Head: 440 feet
Temperature: -40° to 445°F
Max. Power: 20 hp
Materials of Construction: 316SS
Bearings: SiC-X

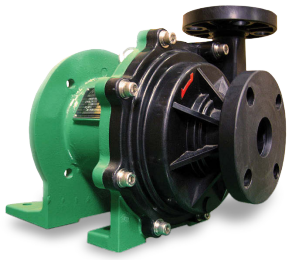


MMP Series (Magnetic Drive)

Max. Flow: 20 gpm
Max. Head: 95 feet
Temperature: -100° to 536° F
Max. Power: 3/4 hp
Materials of Construction: 316SS
Bearings: SiC-X
Shaft: 316SS, SiC

MEP Series (Magnetic Drive)

Max. Flow: 106 gpm
Max. Head: 103 feet
Max Temperature: 175° F
Max. Power: 3 hp
Materials of Construction: GF Polypropylene
Bearings: C-PTFE, Carbon
Shaft: Ceramic



MTA Series ANSI (Magnetic Drive)

Max. Flow: 320 gpm
Max. Head: 285 feet
Temperature: 5° to 275°F
Max. Power: 25 hp
Materials of Construction: PFA Lined
Bearings: C-PTFE, SiC
Shaft: SiC

ME Series (Magnetic Drive)

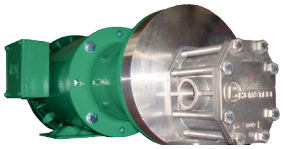
Max. Flow: 90 gpm
Max. Head: 140 feet
Temperature: 32° to 195° F
Max. Power: 3 hp
Materials of Construction: ETFE Lined, PVDF Lined
Bearings: C-PTFE, SiC;
Shaft: Ceramic, SiC

S Series-Gear Pumps (Mechanical Seal)

Max. Flow: 30 gpm`
Max. Head: 150 psi
Max Temperature: 450° F
Max. Power: 5 hp
Casing Materials: 316SS, Hastelloy® equiv., Ryton®
Shaft: 316SS, Hastelloy® equiv.
Bearing Materials: Carbon, Teflon®, Rulon®

SM Series-Gear Pumps (Magnetic Drive)

Max. Flow: 30 gpm
Max. Head: 110 psi
Max Temperature: 450° F
Max. Power: 5 hp
Casing Materials: 316SS, Hastelloy® equiv., Ryton®
Shaft: 316SS,Hastelloy® equiv.
Bearing Materials: Carbon, Teflon®, Rulon®



Custom engineered pumps are available for conditions that exceed the operating parameters outlined above.

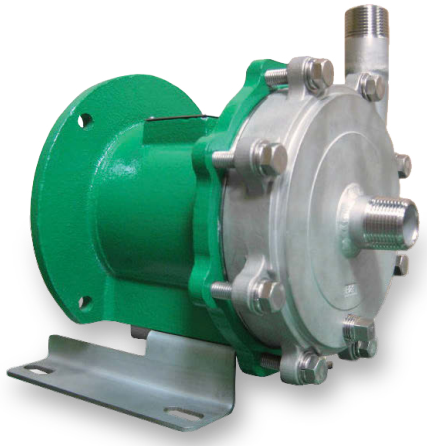
tel: 713-972-8666 fax: 713-972-8665 **www.magnatexpumps.com** inquiries@magnatexpumps.com

MMP

MAGNATEX® Pumps, Inc.

Magnetic Drive Sealless Pumps

MAGNATEX® MMP Series



The MMP Series magnetically driven, sealless, centrifugal pumps are heavy-duty mag-drive pumps with superior SiC-X bearing materials for low flow applications. 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 flanges available.

The MMP Series pumps are high-quality, dependable, long-lasting, pumps utilizing our exclusive straddle bearing design and furnished with the shaft, thrust ring and bushing made of beta sintered silicon carbide material. Sealless pumps help eliminate “Reportable Release” issues.

All Magnatex® pumps and spare parts come with a 1-year unconditional warranty on materials and workmanship.

Materials of Construction:

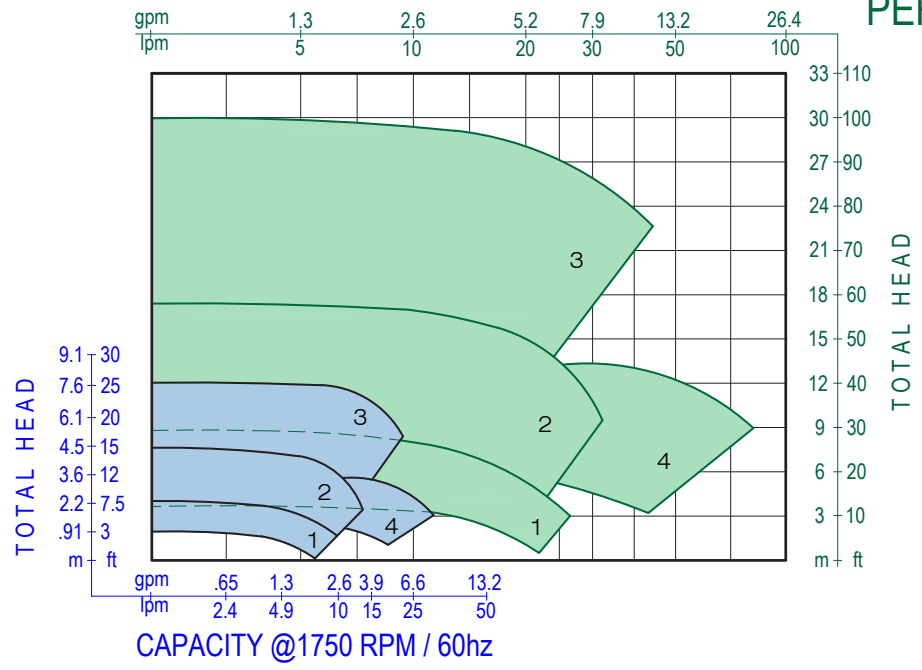
- 316SS
- Ceramic or Stainless Steel Shaft Option

MAGNATEX® MMP Series Specifications

Maximum Flow	20 GPM
Maximum Head	95 FT
Liquid Temperature	-100° F to 536° F
Maximum Power	¾ HP
Connections	NPT or Optional Flanges
Bearings	SiC/SiC-X Standard
Working Pressure	85 psig
Impeller	Enclosed
Speeds	Up to 3550 rpm
Magnets	Neodymium
Motor	NEMA or IEC Frame Mounted

Optional high-pressure models for suction conditions to 5,000 psi and more.

MMP SERIES COMPOSITE PERFORMANCE CURVES



@ 3550 RPM 60hz

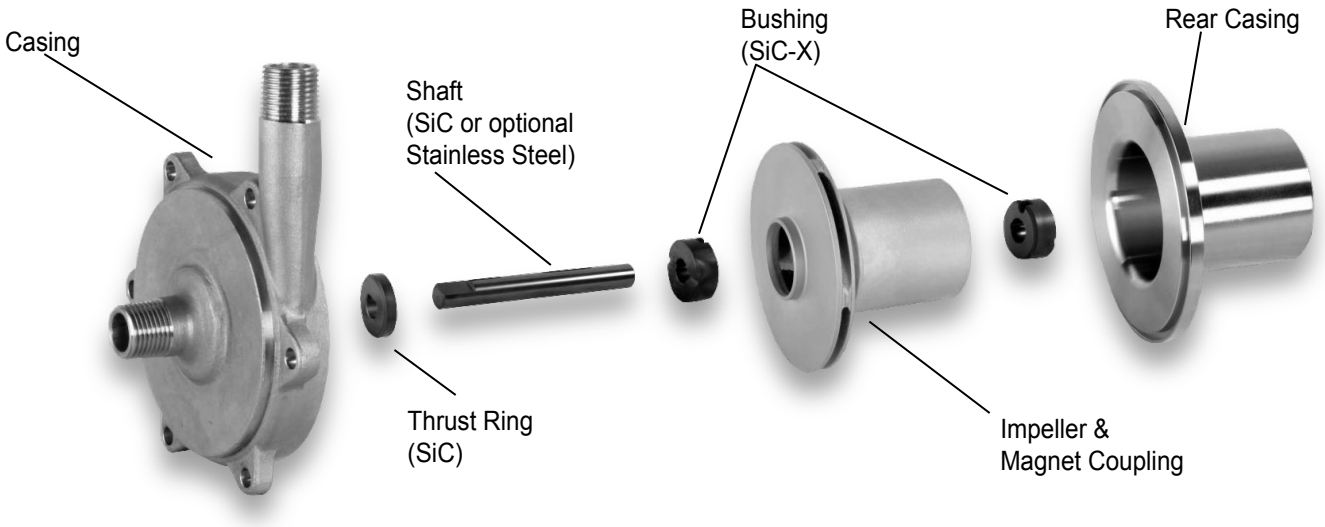
1 MMP10 .5 X .5 - 4
2 MMP11 .5 X .75 - 4
3 MMP21 .75 X .75 - 4
4 MMP22 1 X .75 - 4

@ 1750 RPM 60hz

1 MMP10 .5 x .5 - 4
2 MMP11 .5 x .75 - 4
3 MMP21 .75 x .75 - 4
4 MMP22 1 x .75 - 4

tel: 713-972-8666 fax: 713-972-8665 **www.magnatexpumps.com** inquiries@magnatexpumps.com

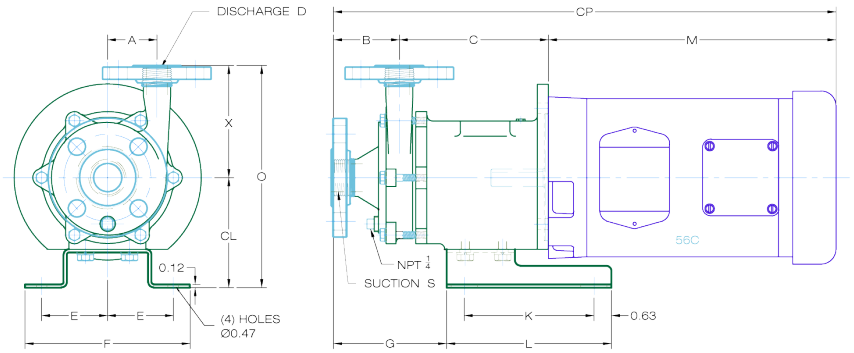
MAGNATEX® MMP Series Component View



(Magnatex standard model shown)

Optional high-pressure models for suction conditions to 5,000 psi and more

SHOWN WITH OPTIONAL FLANGES



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CONDUIT BOX SHOWN FOR ILLUSTRATION ONLY
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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MMP SERIES CLOSE-COUPLED PUMP

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	08/13/09	NTS	1 OF 1

DD-MMP SERIES

ALL DIMENSIONS IN INCHES ± 0.12"

MODEL	MOTOR FRAME	DIMENSIONS										STANDARD NPT					* OPTIONAL 150# ANSI RF					APROX. WEIGHT lbs.	
		M	CP	B	C	E	F	G	K	L	CL	S	D	A	X	O	S	D	A	X'	O'	PUMP	MOTOR
MMP11	56 C	13.85 MAX	20.95	1.80	5.30	2.35	5.90	3.40	4.60	5.90	4.00	½		1.80	4.00	8.00	½		1.80	4.06	8.06	40	40
MMP21			21.15	2.00	5.30			3.00				¾		2.00	4.70	8.70	¾		2.00	4.76	8.76	44	46
MMP22			21.65	2.40	5.40			4.10				½	¾	1.80	4.00	8.00	½	¾	1.80	4.06	8.06	44	40

*DOES NOT CHANGE THE PRESSURE RATING OF THE PUMP

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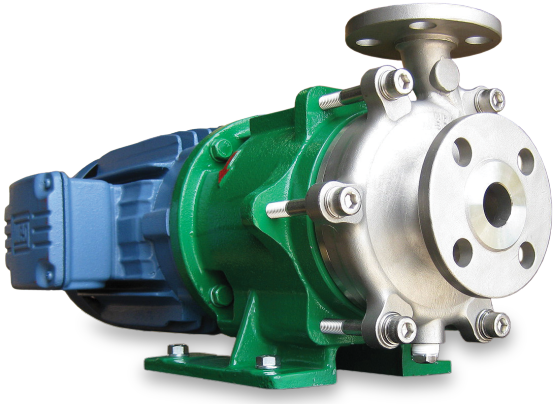
MP

MAGNATEX® Pumps, Inc.

Magnetic Drive sub-ANSI Pumps

MAGNATEX® MP Series

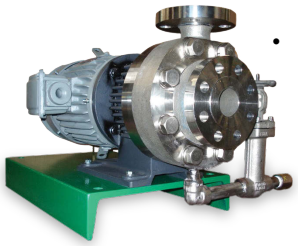
Close-coupled, compact, MP Series pumps are the efficient and dependable choice for medium-flow, medium-head applications. The MP Series pump features sub-ANSI sizes for efficient lower flow applications. Affordable, high-performance Magnatex® pumps give you higher efficiency with lower horsepower and a lower total cost of ownership.



- Standard SiC-X bearing system for enhanced dry running capability
- Straddle-mounted, double bearing design reduces shaft load and bearing wear when compared to our competitors' typical cantilevered, overhung designs
- Slip-fit construction allows easy maintenance and on-site repairs with no special tools required
- Large internal flow path handles solids: 1% at 500µ; 8% at 100µ.
- Close-coupled configuration eliminates coupling and motor alignment issues
- No expensive mechanical seals; eliminates costly shutdowns and pump repair, which helps eliminate "Reportable Release" issues
- Handles toxic, noxious and corrosive liquids for leak-free pumping with increased safety to plant personnel and the environment
- Optional high-temperature construction to handle up to 660°F
- Optional baffled rear casing design for enhanced solids handling

MAGNATEX® MP Series Specifications

Maximum Flow	150 GPM
Maximum Head	190 FT
Liquid Temperature	-112° F to +660° F
Maximum Power	10 HP
Maximum Working Pressure	150 psig
Connections	150# RF Flanges
Bearings	SiC/SiC-X Standard
Impeller	Enclosed
Speeds	Up to 3550 rpm
Magnets	Neodymium or Samarium Cobalt
Motor	NEMA or IEC Frame Mounted

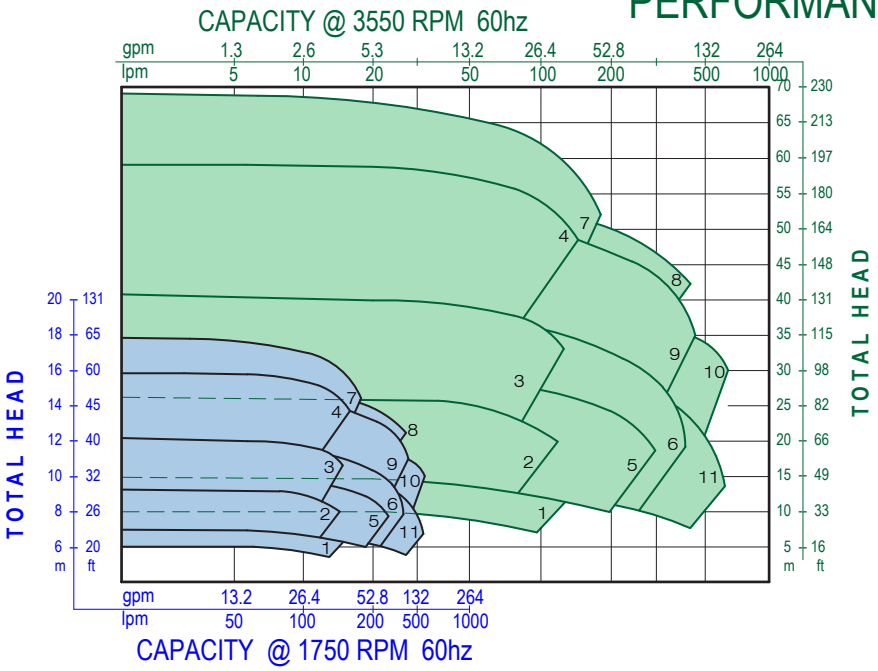


- **Optional, high-pressure models for suction conditions to 5000 psi and more**

Materials of Construction:

- 316SS
- Alloy 20
- Alloy B&C

MP SERIES COMPOSITE PERFORMANCE CURVES

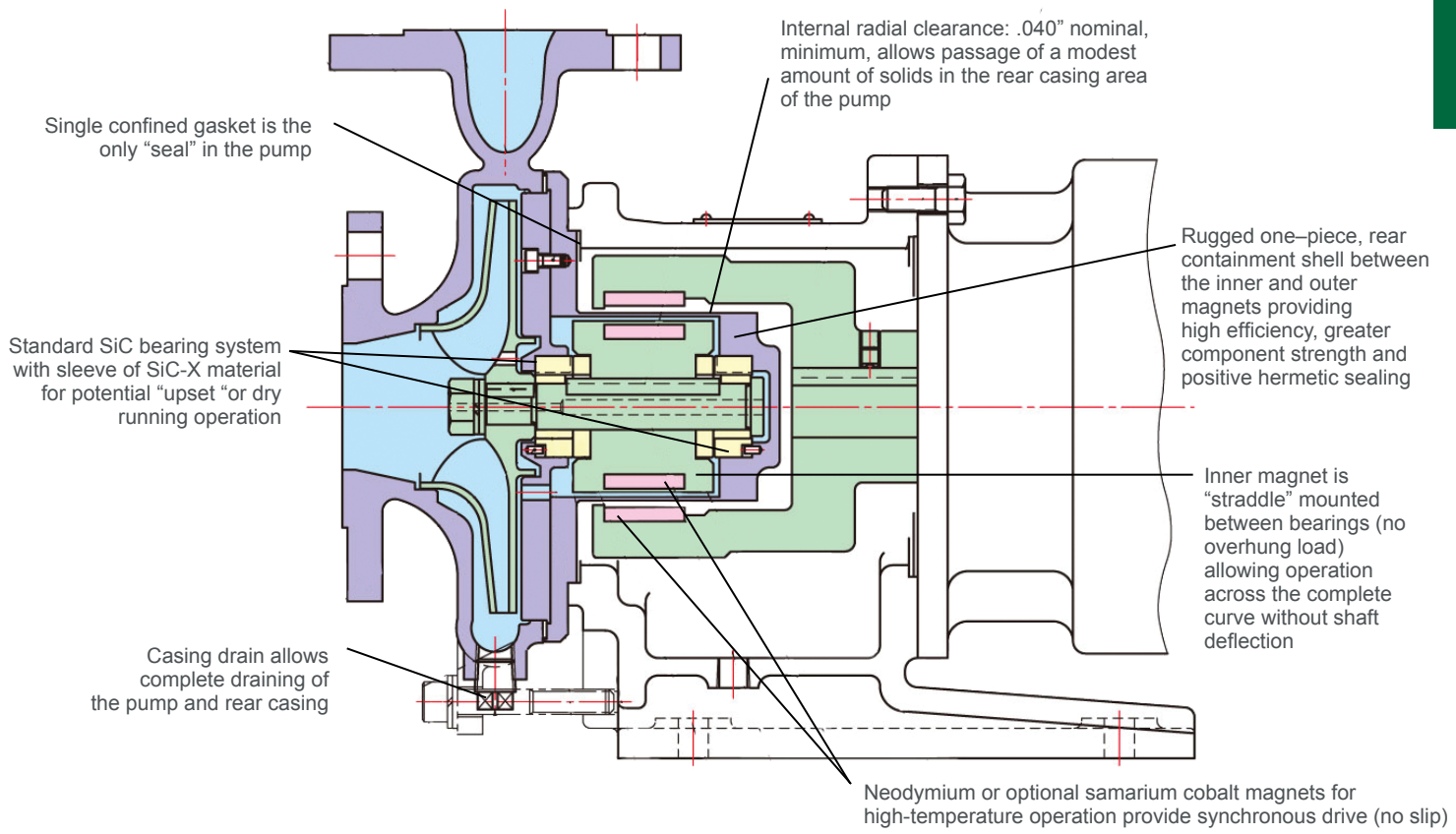


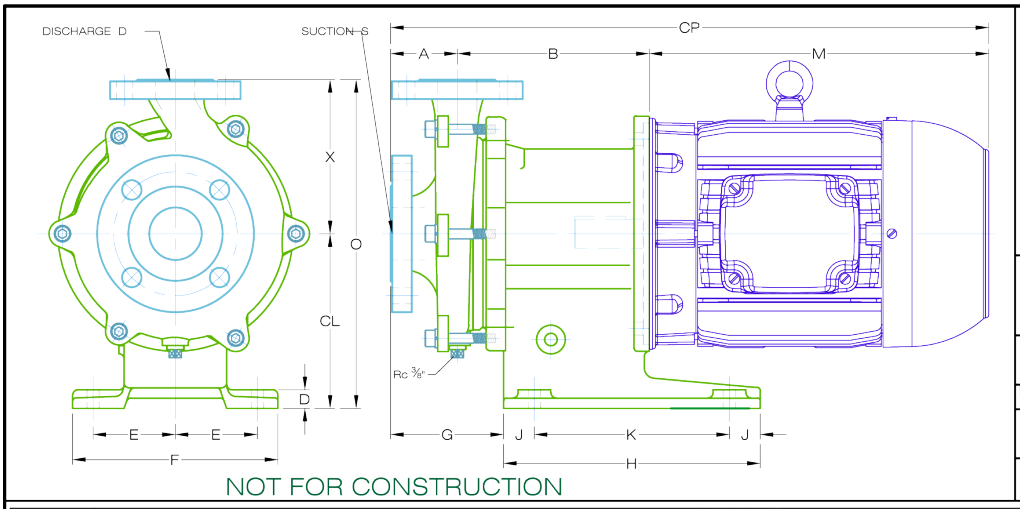
@ 1750 RPM 60hz

1	MP210	1x.75-4
2	MP220	1x.75-5
3	MP221	1x.75-6
4	MP222	1x.75-6
5	MP420	1.5x1-6
6	MP421	1.5x1-6
7	MP423	1.5x1-8
8	MP541	2x1.5-5
9	MP542	2x1.5-6
10	MP543	2x1.5-7
11	MP842	3x2-6

@ 3550 RPM 60hz

1	MP210	1x.75-4
2	MP220	1x.75-5
3	MP221	1x.75-6
4	MP222	1x.75-6
5	MP420	1.5x1-6
6	MP421	1.5x1-6
7	MP423	1.5x1-8
8	MP541	2x1.5-5
9	MP542	2x1.5-6
10	MP543	2x1.5-7
11	MP842	3x2-6





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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MP SERIES CLOSE–COUPLED PUMP

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	07/02/10	NTS	1 OF 1

DD–MP SERIES

ALL DIMENSIONS IN INCHES ± 0.12"

MODEL	DIMENSIONS																					
	S	D	A	B	D	E	F	G	H	J	K	X	CL	O	PUMP LBS	MOTOR FRAME	M	CP	MTR LBS	MOTOR FRAME	M	CP	MTR LBS
MP220	1.00	0.75	2.36	6.85	0.47	2.56	5.12	4.33	7.09	1.18	4.72	4.72	4.33	9.06	55	56C	10.29	19.50	31				
																143TC	10.23	19.44	54	145TC	11.21	20.42	56
																182TC	12.02	21.23	99	184TC	12.96	22.17	108
MP221	1.00	0.75	2.56	6.65	0.47	3.15	7.87	4.33	9.84	1.18	7.48	5.12	6.69	11.81	60	143TC	10.23	19.44	54	145TC	11.21	20.42	56
				7.36	0.71										68	182TC	12.02	21.94	99	184TC	12.96	22.88	108
MP222	1.00	0.75	2.56	6.65	0.71	3.15	7.87	4.33	9.84	1.18	7.48	5.51	6.69	12.20	60	143TC	10.23	19.44	54	145TC	11.21	20.42	56
				7.36											68	182TC	12.02	21.94	99	184TC	12.96	22.88	108
MP420 / 421	1.50	1.00	2.95	6.85	0.71	3.15	7.87	4.92	9.84	1.18	7.48	5.31	6.69	12.01	62	143TC	10.23	20.03	54	145TC	11.21	21.01	56
				7.56											70	182TC	12.02	22.53	99	184TC	12.96	23.47	108
MP423	1.50	1.00	4.02	9.41	0.71	4.92	11.42	4.92	13.78	0.98	11.81	6.50	7.09	13.58	139	213TC	14.59	28.02	139	215TC	16.09	29.52	173
MP541	2.00	1.50	3.15	6.85	0.71	3.15	7.87	5.12	9.84	1.18	7.48	5.51	6.69	12.20	73	143TC	10.23	20.23	54	145TC	11.21	21.21	56
				7.56												182TC	12.02	22.73	99	184TC	12.96	23.67	108
MP542	2.00	1.50	2.56	7.36	0.71	3.15	7.87	4.33	9.84	1.18	7.48	5.91	6.69	12.60	79	182TC	12.02	21.94	99	184TC	12.96	22.88	108
MP543	2.00	1.50	4.02	9.41	0.71	4.92	11.42	4.92	13.78	0.98	11.81	6.50	7.09	13.58	143	213TC	14.59	28.02	139	215TC	16.09	29.52	173
MP842	3.00	1.50	4.20	9.41	0.71	4.92	11.42	0.98	13.78	0.98	11.81	6.50	7.09	13.58	147	213TC	14.59	28.20	139	215TC	16.09	29.70	173

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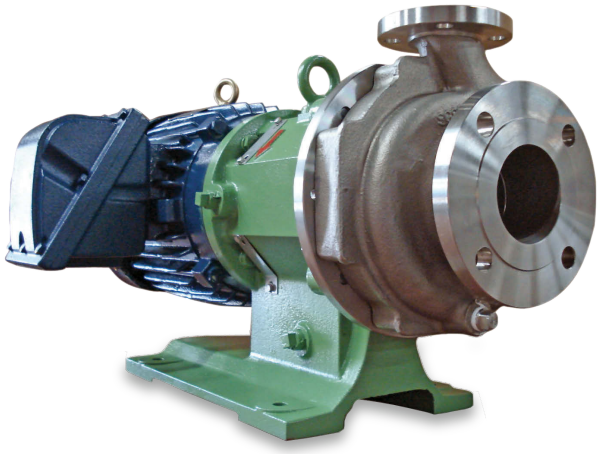
MPL

MAGNATEX® Pumps, Inc.

Magnetic Drive Pumps

MAGNATEX® MPL Series

Close coupled, compact, MPL Series pumps are the efficient and dependable choice for medium to high head applications. The process side of the MPL pump conforms to ANSI B73.3 dimensions. Affordable, high performance Magnatex® pumps give you higher efficiency with lower first cost, lower horsepower and a lower total cost of ownership.



- Optional SiC-X bearing system for enhanced dry running capability
- Straddle-mounted, double bearing design reduces shaft load and bearing wear when compared to our competitors' typical cantilevered, overhung designs
- Slip-fit construction allows easy maintenance and on-site repairs with no special tools required
- Close-coupled configuration eliminates coupling and motor alignment issues
- No expensive mechanical seals; eliminates costly shutdowns and pump repair, which helps eliminate "Reportable Release" issues
- Handles toxic, noxious and corrosive liquids for leak-free pumping with increased safety to plant personnel and the environment
- Optional high temperature construction to handle up to 660°F
- Optional baffled rear casing design for enhanced solids handling
- Large internal flow path handles solids: 1% at 500µ; 8% at 100µ

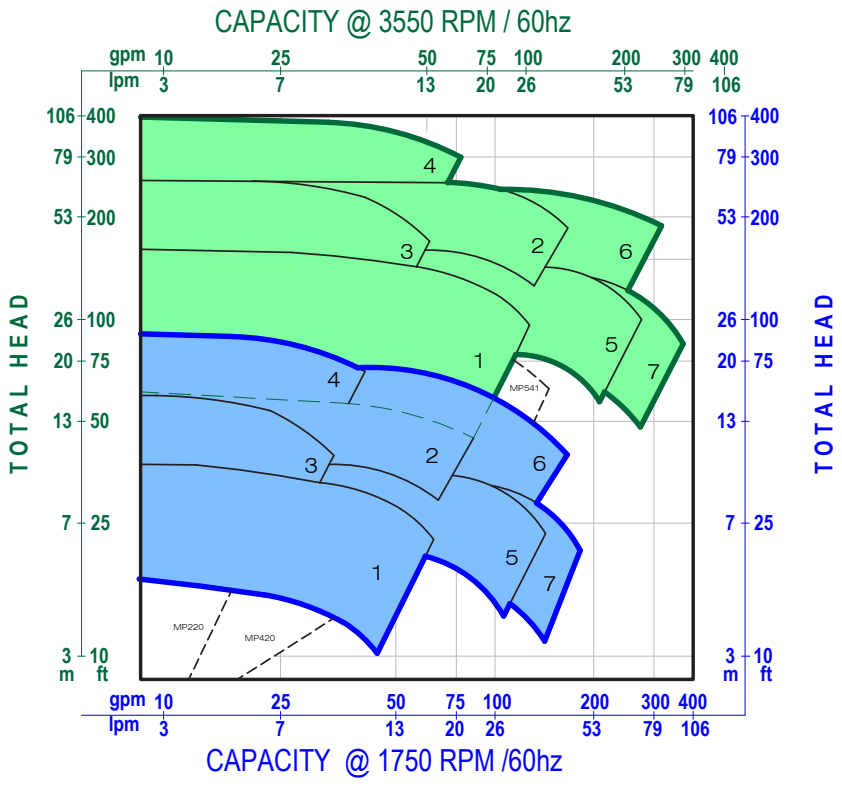
MAGNATEX® MPL Series Specifications

Maximum Flow	340 GPM
Maximum Head	400 FT
Liquid Temperature	-100° F to +660° F
Maximum Power	30 HP
Maximum Working Pressure	170 or 225 psig
Connections	150# RF Flanges
Bearings	SiC/SiC-X Optional
Impeller	Enclosed
Speeds	Up to 3550 rpm
Magnets	Samarium Cobalt or Neodymium
Motor	NEMA or IEC Frame Mounted

Materials of Construction:

- 316SS
- 304SS
- Alloy 20
- Alloy B&C

MPL SERIES COMPOSITE PERFORMANCE CURVES

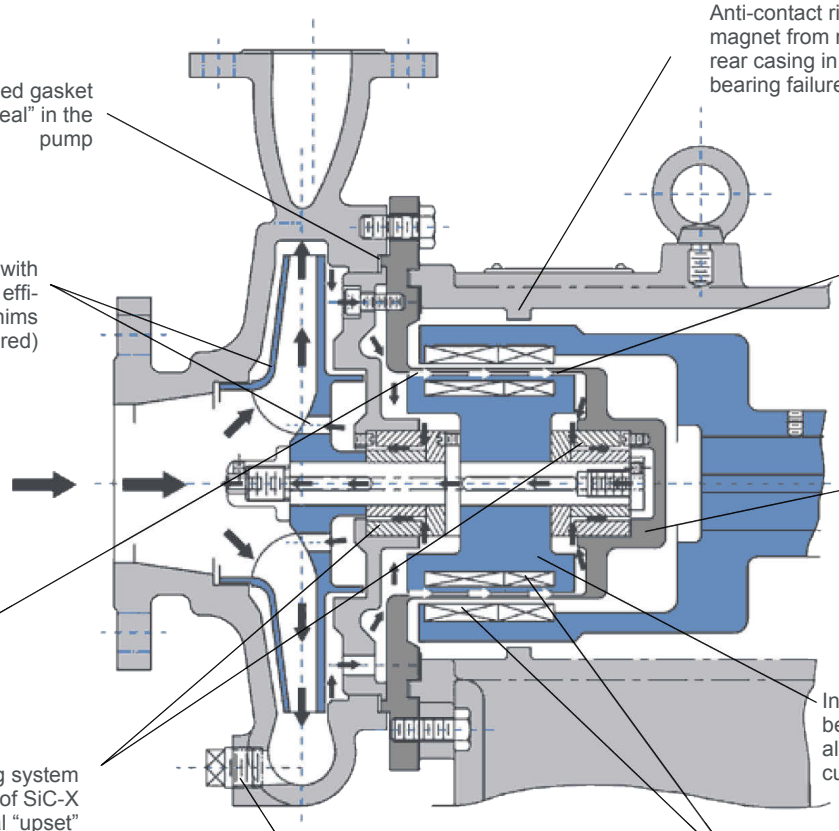


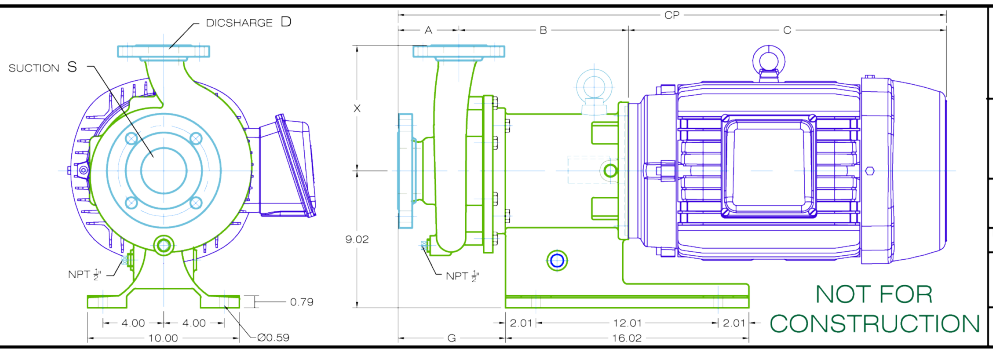
@ 3550RPM 60hz

1 MPL40 1.5x1-6
2 MPL42 1.5x1-8
3 MPL42-LF 1.5x1-8
4 MPL52-LF 2x1-10
5 MPL84 3x1.5-6
6 MPL84-8 3x1.5-8
7 MPL85 3x2-6

@ 1750 RPM 60hz

1 MPL40 1.5x1-6
2 MPL42 1.5x1-8
3 MPL42-LF 1.5x1-8
4 MPL52-LF 2x1-10
5 MPL84 3x1.5-6
6 MPL84-8 3x1.5-8
7 MPL85 3x2-6





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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MPL SERIES ANSI PUMP

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	06/29/10	NTS	1 OF 1

DD–MPL SERIES

ALL DIMENSIONS IN INCHES ± 0.12”

MODEL	DIMENSIONS															
	S	D	A	B	X	G	PUMP LBS	MOTOR FRAME	C	CP	MTR LBS	Total lbs	MOTOR FRAME	C	CP	MTR LBS	Total lbs
MPL40	1.5	1.0	4.0	11.0	6.5	6.9	187	182TC	12.02	22.98	99	286	184TC	13.01	27.99	108	295
								213TC	14.59	25.55	165	352	215TC	16.09	31.07	153	340
								254TC	19.21	30.17	238	425	256TC	20.96	35.94	259	446
MPL42	1.5	1.0	4.0	11.0	6.5	6.9	187	182TC	12.02	22.98	99	286	184TC	13.01	27.99	108	295
								213TC	14.59	25.55	165	352	215TC	16.09	31.07	153	340
								254TC	19.21	30.17	238	425	256TC	20.96	35.94	259	446
MPL42LF	1.5	1.0	4.0	11.0	6.5	6.9	187	182TC	12.02	22.98	99	286	184TC	13.01	27.99	108	295
								213TC	14.59	25.55	165	352	215TC	16.09	31.07	153	340
								254TC	19.21	30.17	238	425	256TC	20.96	35.94	259	446
MPL52LF	2.0	1.0	4.0	11.2	8.5	7.1	187	182TC	12.02	23.18	99	286	184TC	13.01	28.19	108	295
								213TC	14.59	25.75	165	352	215TC	16.09	31.27	153	340
								254TC	19.21	30.37	238	425	256TC	20.96	36.14	259	446
MPL84	3.0	1.5	4.0	11.0	6.5	6.9	187	182TC	12.02	22.98	99	286	184TC	13.01	27.99	108	295
								213TC	14.59	25.55	165	352	215TC	16.09	31.07	153	340
								254TC	19.21	30.17	238	425	256TC	20.96	35.94	259	446
MPL84-8	3.0	1.5	4.0	11.2	8.5	7.1	187	182TC	12.02	23.18	99	286	184TC	13.01	28.19	108	295
								213TC	14.59	25.75	165	352	215TC	16.09	31.27	153	340
								254TC	19.21	30.37	238	425	256TC	20.96	36.14	259	446
MPL85	3.0	2.0	4.0	11.2	8.3	7.1	187	182TC	12.02	23.18	99	286	184TC	13.01	28.19	108	295
								213TC	14.59	25.75	165	352	215TC	16.09	31.27	153	340
								254TC	19.21	30.37	238	425	256TC	20.96	36.14	259	446

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MPT

MAGNATEX® Pumps, Inc.

Magnetic Drive Regenerative Turbine Pumps

MAGNATEX® MPT Series

MPT Series magnetically driven, sealless, regenerative turbine vane pumps are designed specifically for small 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 and low NPSHa conditions.

- Standard SiC-X bearing system for enhanced dry running capability
- Straddle-mounted, inner magnet system, with bearings on both sides of the magnet, which reduces shaft and bearing loads when compared to our competitors' overhung, cantilevered inner magnet designs
- Slip-fit construction that allows easy on-site maintenance, with no special tools or fixtures required
- Close-coupled configuration eliminates coupling and motor alignment issues
- No expensive mechanical seals; eliminates costly shutdowns and pump repair, which helps eliminate "Reportable Release" issues
- Handles toxic, noxious and corrosive liquids for leak-free pumping with increased safety to plant personnel and the environment.
- Excellent for pumping entrained gases
- Excellent for low NPSHa applications

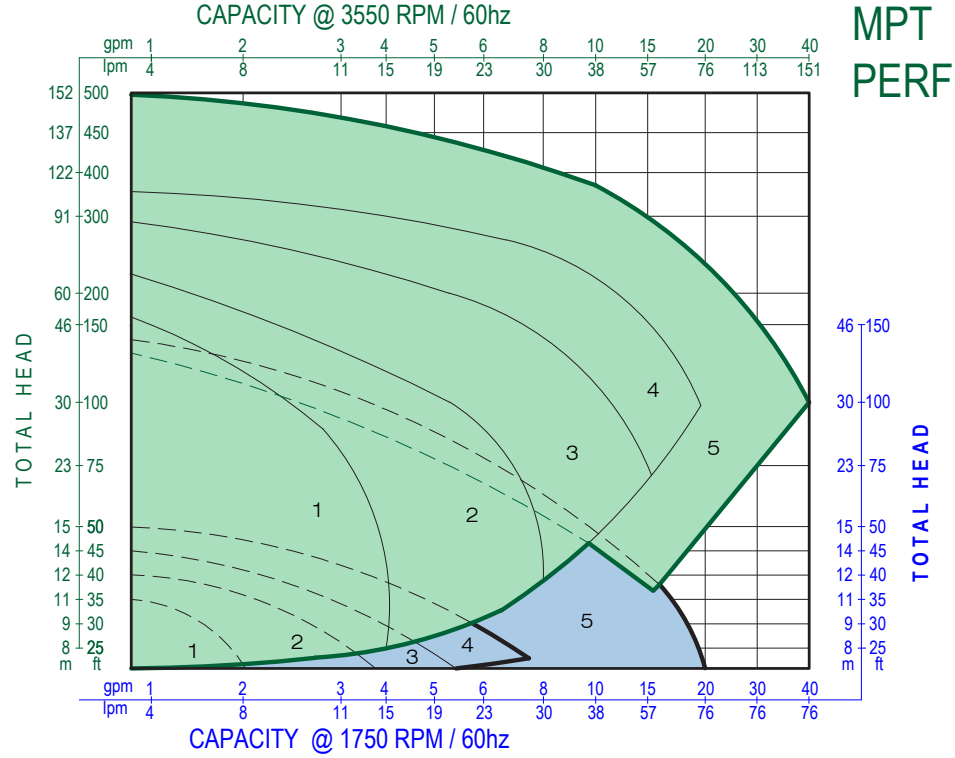
Materials of Construction:

- 316SS
- Alloy 20
- Alloy B & C
- Titanium

MAGNATEX® MPT Series Specifications

Maximum Flow	40 GPM
Maximum Head	440 FT
Liquid Temperature	-20° F to +446° F
Maximum Power	5 HP
Maximum Working Pressure	232 psig
Connections	NPT with Optional Flanges
Bearings	SiC/SiC-X
Impeller	Turbine Vane
Speeds	Up to 3550 rpm
Magnets	Samarium Cobalt + Neodymium
Motor	NEMA or IEC Frame Mounted

MPT SERIES COMPOSITE PERFORMANCE CURVES



@ 3550 RPM 60hz

1	MPT151	.5 x .5 - 3
2	MPT201	.75x.75 -3
3	MPT251	1 x 1 - 4
4	MPT252	1 x 1 - 4
5	MPT254	1 x 1 - 4

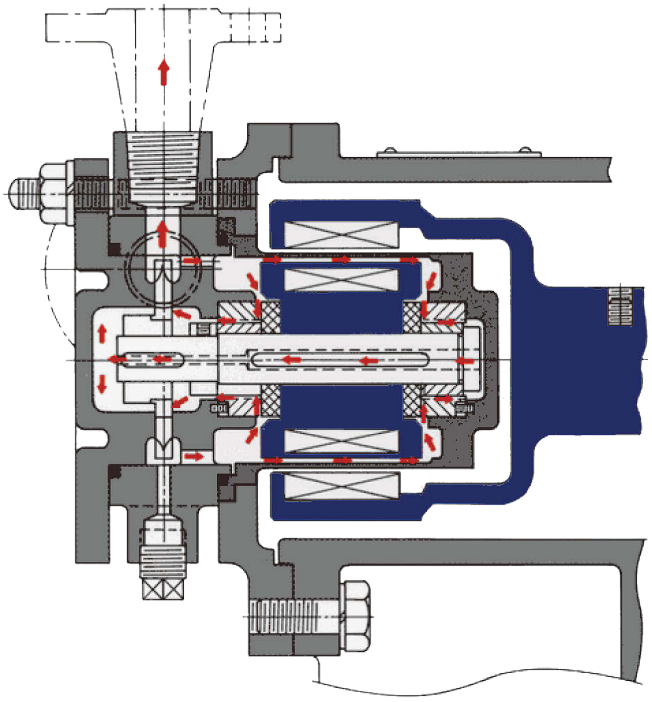
@ 1750 RPM 60hz

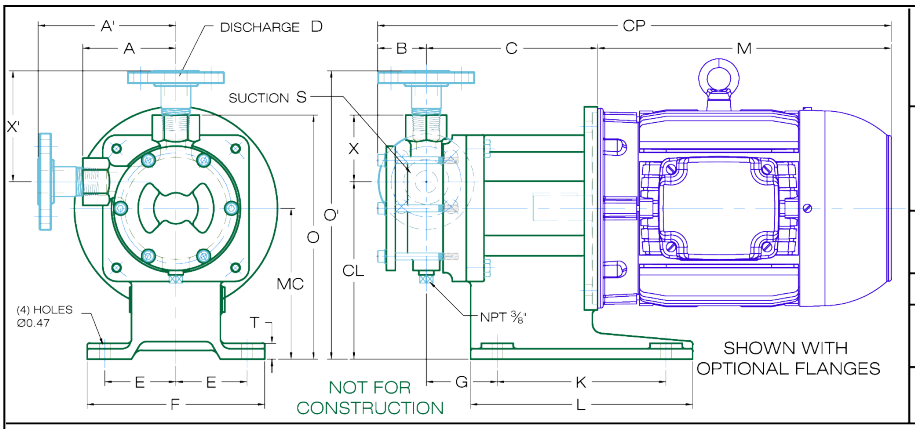
1	MPT151	.5 x .5 - 3
2	MPT201	.75x.75 -3
3	MPT251	1 x 1 - 4
4	MPT252	1 x 1 - 4
5	MPT254	1 x 1 - 4

MAGNATEX®

HOW A REGENERATIVE TURBINE PUMP WORKS

- The unusual regenerative turbine impeller design involves a large number of blades machined into the periphery of the impeller.
- Blades are on both sides of the centerline to limit axial thrust, which hydraulically centers the impeller during operation.
- Instead of the liquid entering the impeller at the shaft centerline and exiting at the impeller periphery, liquid enters a regenerative turbine pump in the vicinity of the impeller OD. After acceleration around the pump casing it discharges through a port in the same plane as the suction.
- There is considerable debate about the fluid dynamics involved in regenerative turbine pumps, but the consensus of expert opinion is that liquid entering the impeller blade is accelerated radially and tangentially in the direction of rotation. Liquid moving outward toward the casing is reflected back onto the next impeller blade where it is further accelerated. This process is repeated many times until the liquid exits the discharge port.
- The clearances between the impeller and casing and between the inlet and outlet are smaller to minimize backflow in the discharge segment of the casing.
- Regenerative turbine pumps develop much more head for the impeller diameter and speed of rotation when compared to a typical centrifugal pump.
- Because of the special impeller design, regenerative turbine pumps are excellent for low NPSH applications.





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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MPT SERIES CLOSE-COUPLED PUMP

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	10/20/10	NTS	1 OF 1

DD-MPT-SERIES R1

ALL DIMENSIONS ± 0.12" [3mm]

MODEL	MOTOR FRAME		DIMENSIONS in INCHES [MILLIMETERS]													STANDARD NPT				*OPTIONAL 150# ANSI RF				APROX. WEIGHT	
	NEMA	IEC	M	CP	MC	CL	B	C	E	F	G	K	L	T		S & D	A	X	O	S & D	A'	X'	O'	PUMP lbs.(kgs.)	MOTOR lbs.(kgs.)
MPT 151	56C	63,71, 80	10.29 [261]	18.30 [465]	4.33 [110]	5.31 [135]	1.36 [34.5]	6.65 [169]	2.56 [65]	6.30 [160]	2.99 [76]	4.72 [120]	7.09 [180]	0.47 [12]		½" [13]	3.15 [80]	2.17 [55]	7.48 [190]	½ [13]	5.12 [130]	4.13 [105]	9.45 [240]	35 (16)	31 (14)
MPT 201	56C	63,71,80	10.29 [261]	18.56 [471]	4.33 [110]	5.31 [135]	1.42 [42]	6.85 [174]	2.56 [65]	6.30 [160]	3.15 [80]	4.72 [120]	7.09 [180]	0.47 [12]		¾" [20]	3.15 [80]	2.17 [55]	7.48 [190]	¾" [20]	5.12 [130]	4.13 [105]	9.45 [240]	44 (20)	31 (31)
	143TC	90S	10.23 [260]	18.50 [470]																					54 (25)
	145TC	90L	11.50 [292]	19.77 [502]																					58 (26)
MPT 251	143TC	90S	10.23 [260]	18.69 [475]	4.33 [110]	5.51 [140]	1.61 [41]	6.85 [174]	2.56 [65]	6.30 [160]	3.15 [80]	4.72 [120]	7.09 [180]	0.47 [12]		1" [25]	4.13 [105]	2.95 [75]	8.46 [215]	1" [25]	6.10 [155]	4.92 [125]	10.43 [265]	44 (20)	54 (25)
	145TC	90L	11.50 [292]	19.96 [507]																					58 (26)
	182TC	112S	12.02 [305]	21.23 [539]	6.69 [170]	7.87 [200]		7.60 [193]	3.15 [80]	7.87 [200]		7.48 [190]	9.87 [251]	0.71 [18]					10.83 [275]				12.80 [325]	55 (25)	99 (45)
	184TC	112L	13.01 [330]	22.22 [564]																					108 (49)
MPT252	143TC	90S	10.23 [260]	18.85 [479]	4.33 [110]	5.51 [140]	1.77 [45]	6.85 [174]	2.56 [65]	6.30 [160]	3.15 [80]	4.72 [120]	7.09 [180]	0.47 [12]		1" [25]	4.13 [105]	2.95 [75]	8.46 [215]	1" [25]	6.10 [155]	4.92 [125]	10.43 [265]	44 (20)	54 (25)
	145TC	90L	11.50 [292]	20.12 [511]																					58 (26)
	182TC	112S	12.02 [305]	21.39 [543]	6.69 [170]	7.87 [200]		7.60 [193]	3.15 [80]	7.87 [200]		7.48 [190]	9.87 [251]	0.71 [18]					10.83 [275]				12.80 [325]	55 (25)	99 (45)
	184TC	112L	13.01 [330]	22.38 [568]																					108 (49)

*DOES NOT CHANGE THE PRESSURE RATING OF THE PUMP

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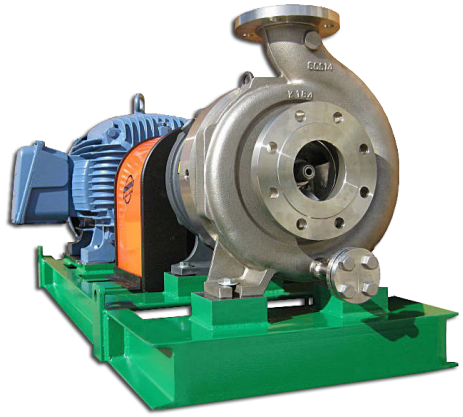
MAXP

MAGNATEX® Pumps, Inc.

Magnetic Drive Sealless ANSI Process Pumps

MAGNATEX® MAXP Series

The MAXP Series of pumps has been designed to conform to ANSI B73.3 dimensional standards. The pumps are extremely rugged, which makes them ideal for rigorous duty in the chemical and petrochemical industries.



MAGNATEX® MAXP Series Specifications

Maximum Flow	2000 GPM
Maximum Head	470 FT
Liquid Temperature	-150°F – 800°F
Maximum Power	up to 200 HP
Connections	150lb RF std. or optional 300lb RF ANSI Flanges
Bearing	SiC, SiC-X optional for upset or Dry-run Conditions
Maximum Working Pressure (standard)	285 psig
Impeller	Enclosed
Speeds	up to 3550 rpm
Magnets	Neodymium or Samarium Cobalt for High Temperature
Motor	NEMA or IEC Frame
Secondary Containment	Optional
Steam Jackets	Optional
External Flush	Optional
Re-circulated Flush & Vent	Optional
Vortex Breakers	Optional for Improved Solids Handling
Centerline mounted	Optional

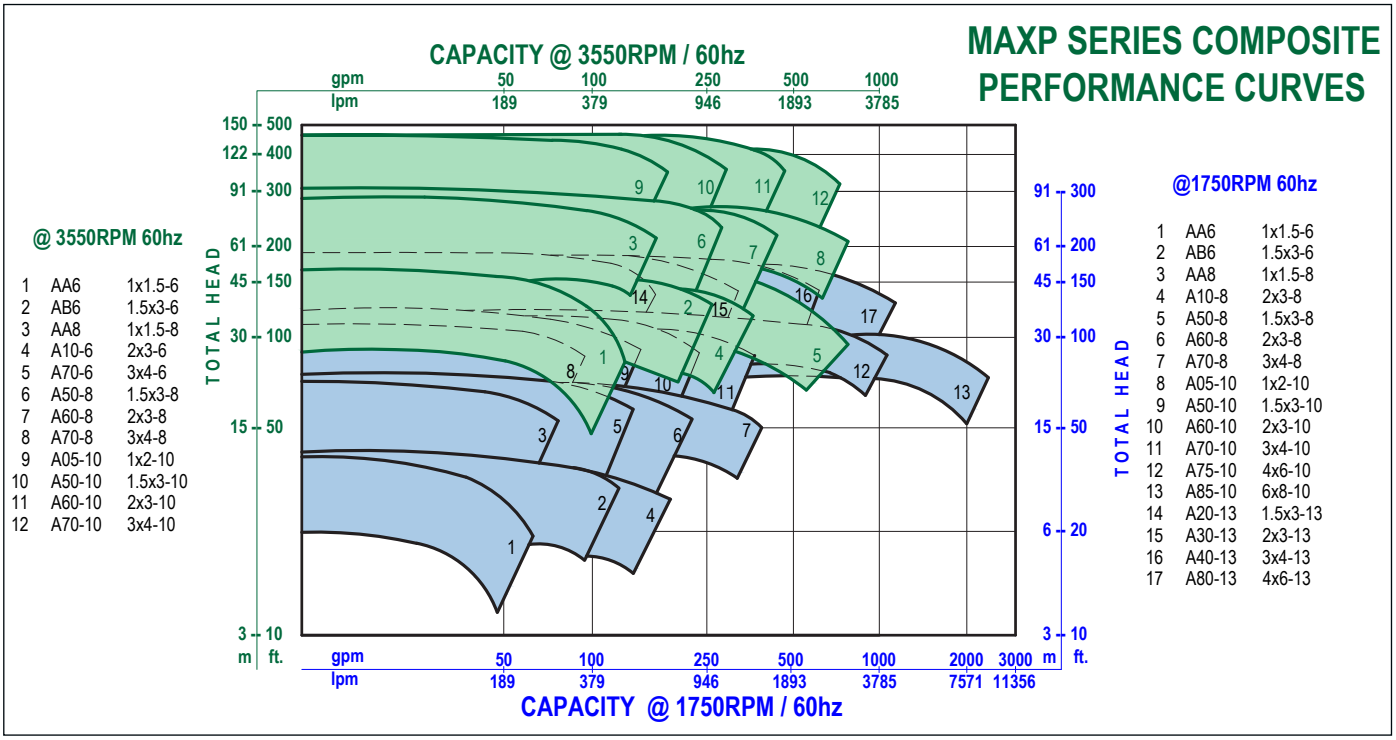
Magnatex MAXP pumps have the following design features:

- Straddle-mounted inner magnet system with bearings on both sides of the magnet—this design reduces shaft and bearing loads when compared to our competitors' overhung, cantilevered, inner magnet designs
- Slip-fit construction, which allows easy on-site maintenance with no special tools or fixtures required
- Large internal flow paths, which means the pumps can easily handle 1% solids @ 500µ and up to 8% solids @ 100µ. Optional baffle-plated rear casing enables enhanced solids handling capability. Optional proprietary self-cleaning strainer technology enables us to handle even higher solids percentages if necessary
- No expensive mechanical seals; eliminates costly shutdowns and repairs, which helps eliminate "Reportable Release" issues
- Safely handles toxic, noxious, corrosive or high-temperature liquids with increased safety to personnel and the environment
- Special high-temperature construction is available to handle up to 800°F
- Several dual containment systems are available that virtually eliminate any leakage to the environment when handling extremely hazardous chemicals

Materials of Construction:

- 316SS
- 304SS
- Alloy 20
- Alloy B & C
- Monel
- Titanium

MAXP SERIES COMPOSITE PERFORMANCE CURVES



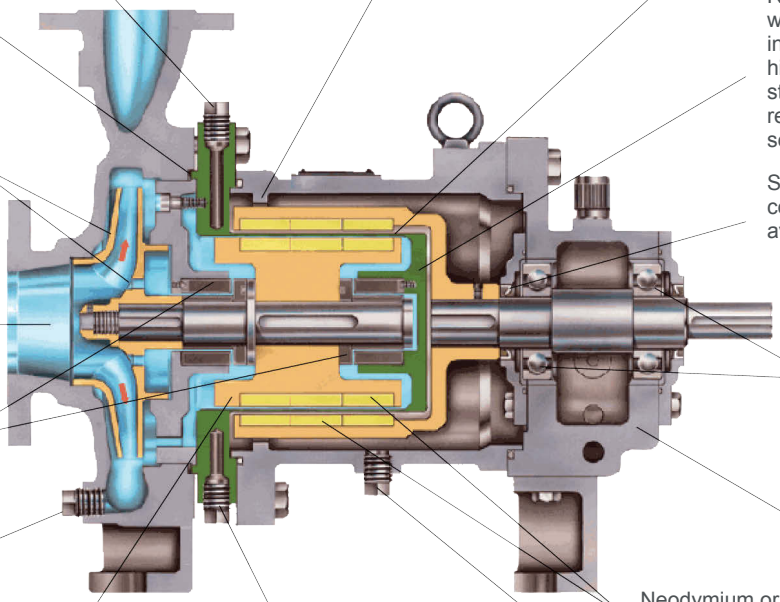
@ 3550RPM 60hz

1	AA6	1x1.5-6
2	AB6	1.5x3-6
3	AA8	1x1.5-8
4	A10-6	2x3-6
5	A70-6	3x4-6
6	A50-8	1.5x3-8
7	A60-8	2x3-8
8	A70-8	3x4-8
9	A05-10	1x2-10
10	A50-10	1.5x3-10
11	A60-10	2x3-10
12	A70-10	3x4-10

@1750RPM 60hz

1	AA6	1x1.5-6
2	AB6	1.5x3-6
3	AA8	1x1.5-8
4	A10-8	2x3-8
5	A50-8	1.5x3-8
6	A60-8	2x3-8
7	A70-8	3x4-8
8	A05-10	1x2-10
9	A50-10	1.5x3-10
10	A60-10	2x3-10
11	A70-10	3x4-10
12	A75-10	4x6-10
13	A85-10	6x8-10
14	A20-13	1.5x3-13
15	A30-13	2x3-13
16	A40-13	3x4-13
17	A80-13	4x6-13

ANATOMY OF THE ULTIMATE MAGNETIC DRIVE PUMP



Standard RTD well tap and vibration monitoring mounting point for predictive maintenance programs

Anti-contact ribs prevent outer magnet from rubbing on the rear casing in the event of external ball bearing failure, to prevent breaching the primary containment barrier

Large internal radial clearance: 0.060" minimum, allows passage of a modest amount of solids in the rear casing area of the pump

Single confined gasket is the only "seal" in the pump

Rugged rear containment shell with Alloy C material between the inner and outer magnets provides high efficiency, greater component strength, enhanced corrosion resistance and positive hermetic sealing

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

Several optional secondary containment designs are available, if necessary

Oil-lubricated bearings (easily adaptable to oil mist) or optional greased-for-life bearings provide extra long life because of the minimal load of the outer magnet - no axial loading

Inducers available for low NPSH applications

Standard SiC bearing system or optional SiC-X material for potential "upset" or dry running operation

Cooling fins and ports on bearing frame allow non-cooled operation to 350°F. For higher temperatures optional cooling systems are available

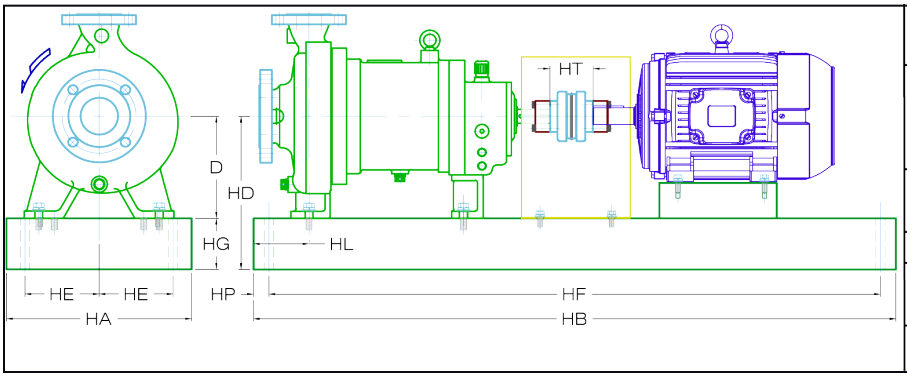
Casing drain allows complete draining of the pump and rear casing

Neodymium or optional Samarium Cobalt magnets for high-temperature operation provide synchronous drive (no slip)

Inner magnet is "straddle" mounted between bearings (no overhung load), allowing operation across the complete curve without shaft deflection

External flush to rear casing of the pump from a self-cleaning strainer or compatible external source allows handling liquids with entrained solids

Standard Instrumentation port for detection of primary containment leakage



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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MAXP SERIES ANSI PUMP

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DD–MAXP SERIES

NOT FOR CONSTRUCTION

MAGNATEX MAXP SERIES ANSI BASEPLATE DIMENSIONS

NEMA Frame	Baseplate No.	HA MAX.	HB	HT	HD MAX. D=5.25 [133]	HD MAX. D=8.25 [210]	HD MAX. D=10 [254]	HD MAX. D=14.5 [368]	HE	HF	HG MAX.	HH	HL	HP
184T	139	15 [381]	39 [991]	3.5 [89]	9 [229]	....	....	....	4.5 [114]	36.5 [927]	3.75 [95]	0.75 [19]	4.5 [114]	1.25 [32]
256T	148	18 [457]	48 [1219]	3.5 [89]	10.5 [267]	....	....	....	6 [152]	45.5 [1156]	4.13 [105]	0.75 [19]	4.5 [114]	1.25 [32]
326TS	153	21 [533]	53 [1346]	3.5 [89]	12.88 [327]	....	....	....	7.5 [191]	50.5 [1283]	4.75 [121]	0.75 [19]	4.5 [114]	1.25 [32]
184T	245	15 [381]	45 [1143]	3.5 [89]	....	12 [305]	13.75 [349]	....	4.5 [114]	42.5 [1080]	3.75 [95]	0.75 [19]	4.5 [114]	1.25 [32]
215T	252	18 [457]	52 [1321]	3.5 [89]	....	12.38 [314]	14.13 [359]	....	6 [152]	49.5 [1257]	4.13 [105]	0.75 [19]	4.5 [114]	1.25 [32]
286T	258	21 [533]	58 [1473]	3.5 [89]	....	13 [330]	14.75 [375]	....	7.5 [191]	55.5 [1410]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
365T	264	21 [533]	64 [1626]	3.5 [89]	....	13.88 [353]	14.75 [375]	....	7.5 [191]	61.5 [1562]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
405TS	268	26 [660]	68 [1727]	3.5 [89]	....	14.88 [378]	14.88 [378]	....	9.5 [241]	65.5 [1664]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
449TS	280	26 [660]	80 [2032]	3.5 [89]	....	15.88 [403]	15.88 [403]	....	9.5 [241]	77.5 [1969]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
286T	368	26 [660]	68 [1727]	5 [127]	....	....	....	19.25 [489]	9.5 [241]	65.5 [1664]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
405T	380	26 [660]	80 [2032]	5 [127]	....	....	....	19.25 [489]	9.5 [241]	77.5 [1096]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
449T	398	26 [660]	98 [2489]	5 [127]	....	....	....	19.25 [489]	9.5 [241]	95.5 [2426]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]

In inches [millimeters]

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MAGNATEX® Pumps, Inc.

Mechanical Seal ANSI Pumps

MAGNATEX® 3575 Series

Heavy-duty, rugged, world-class quality, ANSI process pumps manufactured to meet the latest ASME B73.1-2001 standard (revision of ASME B73.1M-1991). Pumps are manufactured in 29 sizes and a wide variety of materials, seal options and seal flush systems to handle almost all applications in the process industries.

Magnatex® 3575 Series pumps and spare parts come with a 5-year unconditional warranty on materials and workmanship.

Spare Parts for Magnatex®, Goulds®, Durco® and Peerless® ANSI Pumps

Magnatex is a premier alternative, generic parts supplier for all of your Goulds 3196, Durco Mark II and III, or Peerless 8196 pumps.

Magnatex 3575 spare parts are guaranteed 100% interchangeable with Goulds 3196 parts.

We guarantee that our parts will meet the original manufacturers' performance standards. Our parts department is ready to help you with your requirements 24/7.

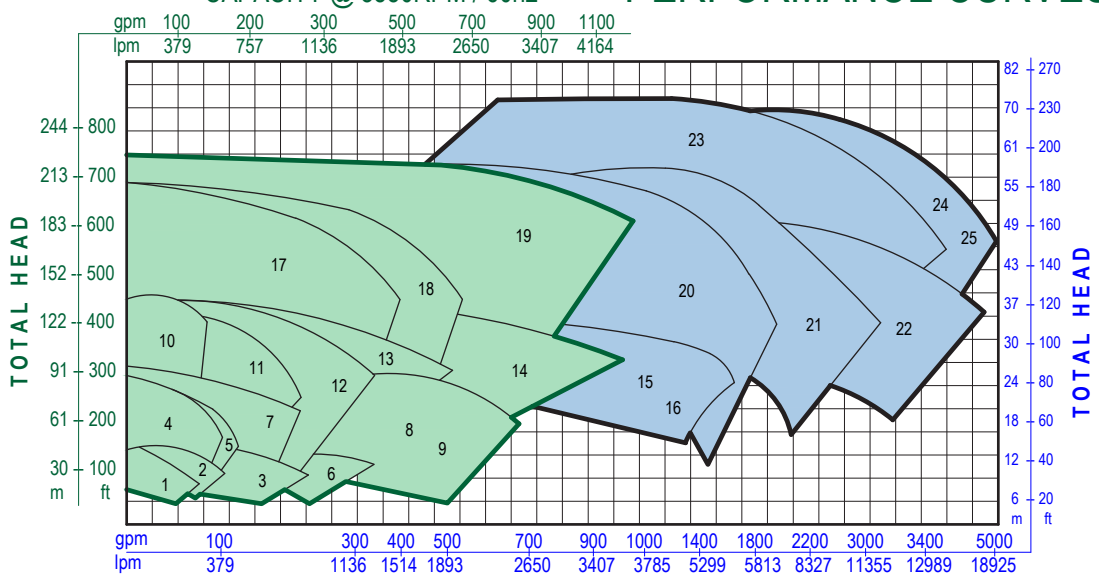
MAGNATEX® 3575 Series Specifications

Liquid Temperature	-100°F to +700°F (-73° to 371°C)
Maximum Shaft Deflection	0.002 Inch (0.0508mm)
Connections	150# FF std. or 300# RF Optional
B10 Bearing Life	50,000 Hours
Maximum Working Pressure	275 psig (18.96 bar)
Speed	Up to 3550 rpm (2959 @50hz)
Motor	NEMA or IEC Foot Mounted

Materials of Construction:

- Ductile Iron
- Steel
- 316SS
- CD4MCu
- Alloy 20
- Alloy B & C
- Ni-Hard
- Titanium

3575 SERIES COMPOSITE PERFORMANCE CURVES



3575S

1	AA6	1x1.5-6
2	AB6	1.5x3-6
3	A10	2x3-6
4	AA8	1x1.5-8
5	AB8	1.5x3-8

3575M / 3575L

6	A70-7	3x4-7
7	A60-8	2x3-8
8	A70-8	3x4-8
9	A70-8G	3x4-8G
10	A05-10	1x2-10
11	A50-10	1.5x3-10
12	A60-10	2x3-10
13	A70-10	3x4-10
14	A40-10H	3x4-10H
15	A80-10	4x6-10
16	A80-10H	4x6-10H
17	A20-13	1.5x3-13
18	A30-13	2x3-13
19	A40-13	3x4-13
20	A80-13	4x6-13

3575XL

21	A90-13	6x8-13
22	A100-13	8x10-13
23	A110-15	6x8-15
24	A120-15	8x10-15
25	A120-15	8x10-15G

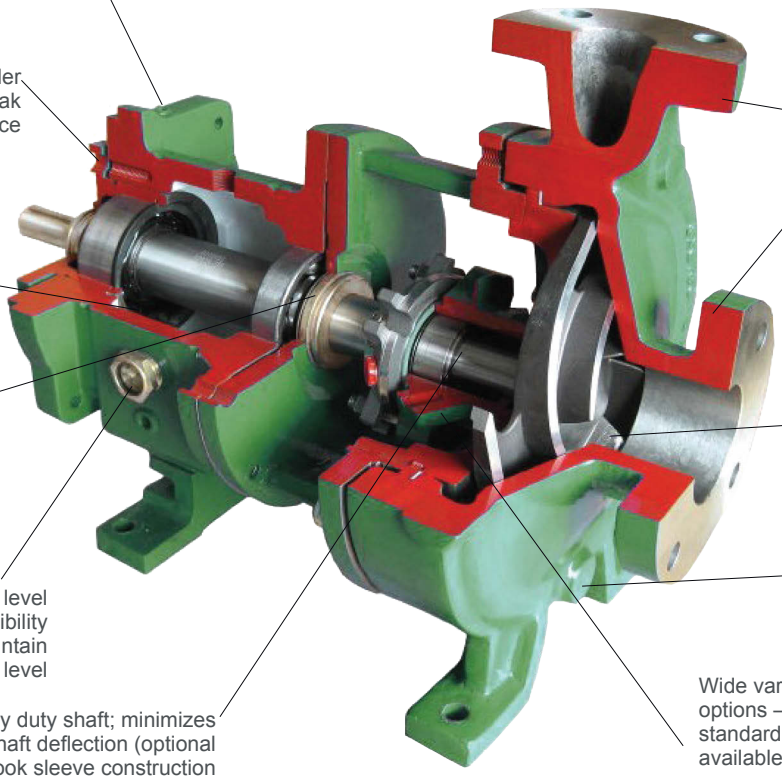
Wetted parts available in Cast Steel, Ductile Iron, 316SS, CD4MCu, Alloy 20, Alloy B & C, Ni-Hard, or Titanium; materials to suit almost any application

Oil mist lubrication option; ideal for severe environment services

Externally adjustable impeller clearance; maintains peak pump performance

150# ANSI FF flanges Std., 300# RF optional.

Note: confirm pressure and temperature limits for specific services



Large capacity oil sump; assures positive lubrication and better cooling

Open impeller with back pump-out vanes; facilitates solids handling, minimizes axial loads and reduces seal chamber pressure

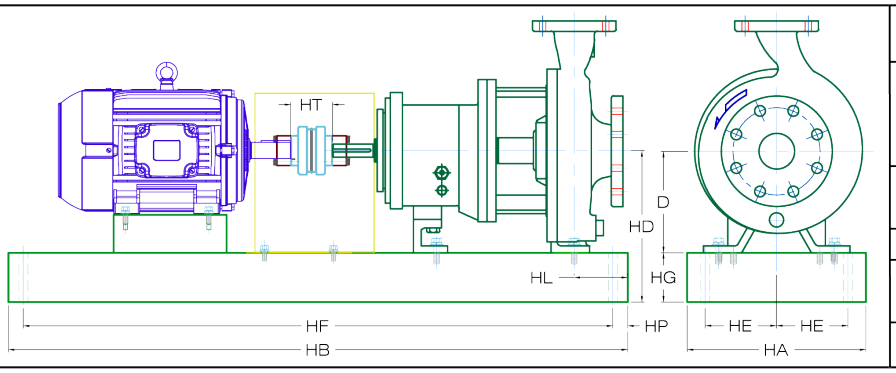
Inboard & Outboard INPRO VBX-SD bearing isolators; minimizes external environmental contaminants entering bearing housing

Large metal / glass oil level sight gauge; insures visibility of lubricant to help maintain proper oil level

Optional 1/2" drain connection; facilitates maintenance when required

Heavy duty shaft; minimizes shaft deflection (optional hook sleeve construction available)

Wide variety of sealing chamber options – large bore, tapered bore, standard bore and packed box available to suit any application



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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
3575 SERIES ANSI PUMP

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	08/06/10	NTS	1 OF 1

DD–3575 SERIES

NOT FOR CONSTRUCTION

MAGNATEX 3575 SERIES ANSI BASEPLATE DIMENSIONS

NEMA Frame	Baseplate No.	HA MAX.	HB	HT	HD MAX. D=5.25 [133]	HD MAX. D=8.25 [210]	HD MAX. D=10 [254]	HD MAX. D=14.5 [368]	HE	HF	HG MAX.	HH	HL	HP
184T	139	15 [381]	39 [991]	3.5 [89]	9 [229]	....	....	....	4.5 [114]	36.5 [927]	3.75 [95]	0.75 [19]	4.5 [114]	1.25 [32]
256T	148	18 [457]	48 [1219]	3.5 [89]	10.5 [267]	....	....	....	6 [152]	45.5 [1156]	4.13 [105]	0.75 [19]	4.5 [114]	1.25 [32]
326TS	153	21 [533]	53 [1346]	3.5 [89]	12.88 [327]	....	....	....	7.5 [191]	50.5 [1283]	4.75 [121]	0.75 [19]	4.5 [114]	1.25 [32]
184T	245	15 [381]	45 [1143]	3.5 [89]	....	12 [305]	13.75 [349]	....	4.5 [114]	42.5 [1080]	3.75 [95]	0.75 [19]	4.5 [114]	1.25 [32]
215T	252	18 [457]	52 [1321]	3.5 [89]	....	12.38 [314]	14.13 [359]	....	6 [152]	49.5 [1257]	4.13 [105]	0.75 [19]	4.5 [114]	1.25 [32]
286T	258	21 [533]	58 [1473]	3.5 [89]	....	13 [330]	14.75 [375]	....	7.5 [191]	55.5 [1410]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
365T	264	21 [533]	64 [1626]	3.5 [89]	....	13.88 [353]	14.75 [375]	....	7.5 [191]	61.5 [1562]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
405TS	268	26 [660]	68 [1727]	3.5 [89]	....	14.88 [378]	14.88 [378]	....	9.5 [241]	65.5 [1664]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
449TS	280	26 [660]	80 [2032]	3.5 [89]	....	15.88 [403]	15.88 [403]	....	9.5 [241]	77.5 [1969]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
286T	368	26 [660]	68 [1727]	5 [127]	....	....	....	19.25 [489]	9.5 [241]	65.5 [1664]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
405T	380	26 [660]	80 [2032]	5 [127]	....	....	....	19.25 [489]	9.5 [241]	77.5 [1096]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]
449T	398	26 [660]	98 [2489]	5 [127]	....	....	....	19.25 [489]	9.5 [241]	95.5 [2426]	4.75 [121]	1 [25]	4.5 [114]	1.25 [32]

In inches [millimeters]

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MEP

MAGNATEX® Pumps, Inc.

Magnetic Drive Sealless Polypropylene Pumps

MAGNATEX® MEP Series

Magnetic drive, sealless, medium-duty, polypropylene thermoplastic pumps, designed for chemical transfer applications. Simple construction allows for economical first cost and ease of maintenance. Sealless design helps eliminate “Reportable Release” issues.

Call us today at 713-972-8666 or 1-866-624-7867

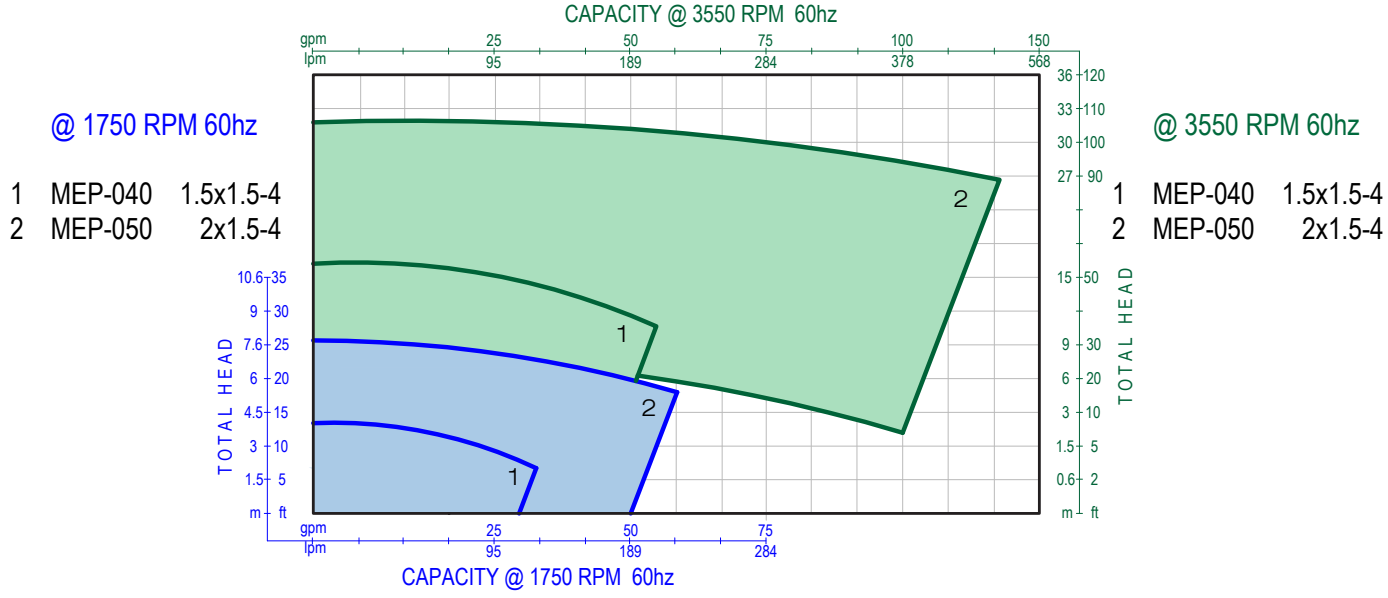
MAGNATEX® MEP Series Specifications

Maximum Flow	106 GPM
Maximum Head	103 FT
Liquid Temperature	Max 175° F
Maximum Power	5 HP
Connections	Drilled for DIN and ANSI Flanges
Bearings	Carbon, C-PTFE
Shaft	Ceramic
Maximum Working Pressure	55 psig
Impeller	Enclosed
Speeds	Up to 3550 rpm
Magnets	Rare Earth
Motor	NEMA or IEC Frame Mounted

Materials of Construction:

- Polypropylene

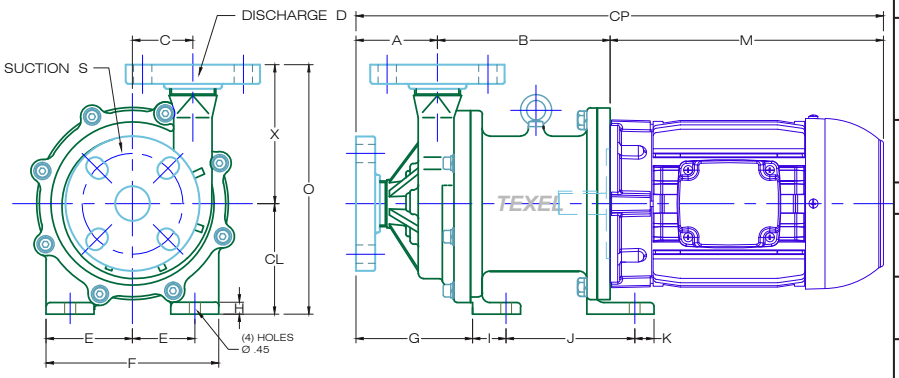
MEP SERIES COMPOSITE PERFORMANCE CURVES



MAGNATEX®

MEP SERIES PUMPS													
PARTS	**SHAFT**			**BEARING**				**REAR CASING**			**O-RING**		
Materials / Model	Alumina	SiC	Titanium	Carbon	C-PTFE	G-PTFE	SiC	G-PP	C-PVDF	C-ETFE	FMP	EPDM	AFLAS®
MEP-402	●			●	●			●			●	●	*
MEP-404	●			●	●			●			●	●	*
MEP-502	●			●	●			●			●	●	*
MEP-504	●			●	●			●			●	●	*
MEP-506	●			●	●			●			●	●	*

Standard ●
Optional *



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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MEP SERIES ANSI PUMP

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	07/01/10	NTS	1 OF 1

DD–MEP SERIES

ALL DIMENSIONS IN INCHES ± 0.12"

NOTES:
1. FLANGES ARE 150# DRILLED FOR DIN & ANSI DIMENSIONS
2. MAXIMUM WORKING PRESSURE IS 55 psig
3. MAXIMUM WORKING TEMPERATURE IS 175°F / 79.4°C
4. VERIFY WORKING PRESSURE AT PUMPING TEMPERATURE

MODEL	MOTOR FRAME	DIMENSIONS																APROX. WEIGHT lbs.	
		S	D	A	B	C	CL	X	E	F	G	H	I	J	K	M	CP	PUMP	MOTOR
MEP-402	56C	1.50	1.50	3.26	7.08	2.48	4.53	5.71	2.56	7.09	6.00	0.47	1.38	5.28	0.79	10.29	20.63	24	67
MEP-404		1.50	1.50													10.23	20.57		58
MEP-502	145TC	2.00	1.50	3.66	7.20	3.39	5.51	6.61	2.95	7.87	6.85	0.59	1.57	5.37	0.79	10.23	21.09	42	
MEP-503	182TC	2.00	1.50		7.95									7.36	1.06	12.02	23.63		99
MEP-506	184TC	2.00	1.50													13.01	16.67		108

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MAGNATEX® Pumps, Inc.

Magnetic Drive Fluoropolymer Lined Pumps

MAGNATEX® ME Series

Magnatex®/ Texel® ME Series sub-ANSI pumps are dependable, durable, replaceable liner, 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 initial cost and low total cost of ownership. Replaceable liners make repairs easy and inexpensive without special tooling required. Sealless design helps eliminate “Reportable Release” issues.

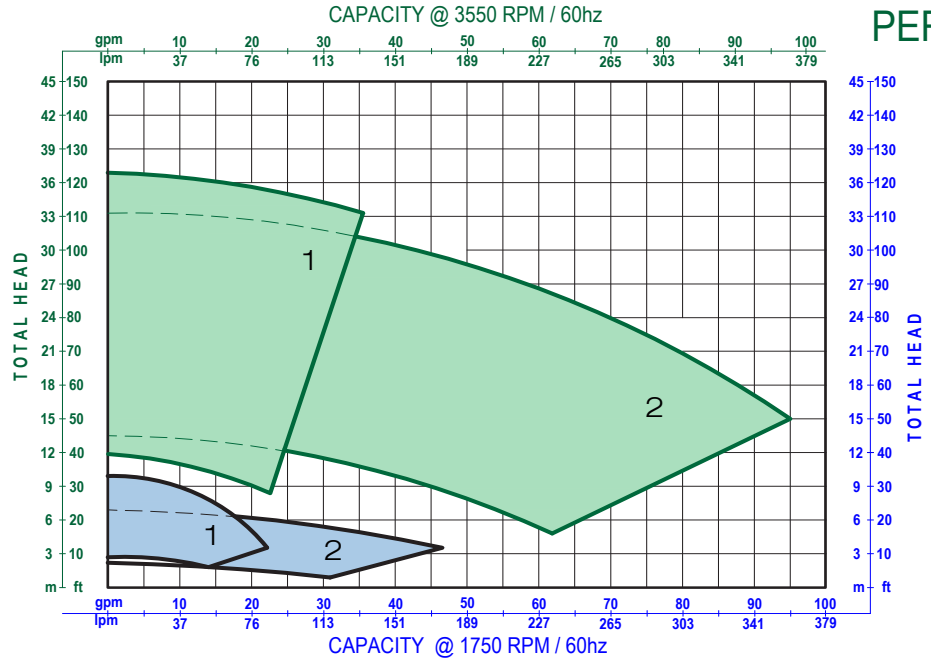
Materials of Construction:

- ETFE Lined
- Kynar® (PVDF) Lined. Registered trademark of Arkema, Inc

MAGNATEX® ME Series Specifications

Maximum Flow	90 GPM
Maximum Head	140 FT
Liquid Temp	32°F to 250°F
Maximum Power	3 HP
Connections	125 lb RF Flanges
Bearing	C-PTFE, G-PTFE, SiC, Carbon
Shaft	Ceramic SiC
Maximum Working Pressure	70 psig
Impeller	Enclosed
Speeds	Up to 3550 rpm
Magnets	Rare Earth
Motor	NEMA or IEC Frame Mounted

ME SERIES COMPOSITE PERFORMANCE CURVES

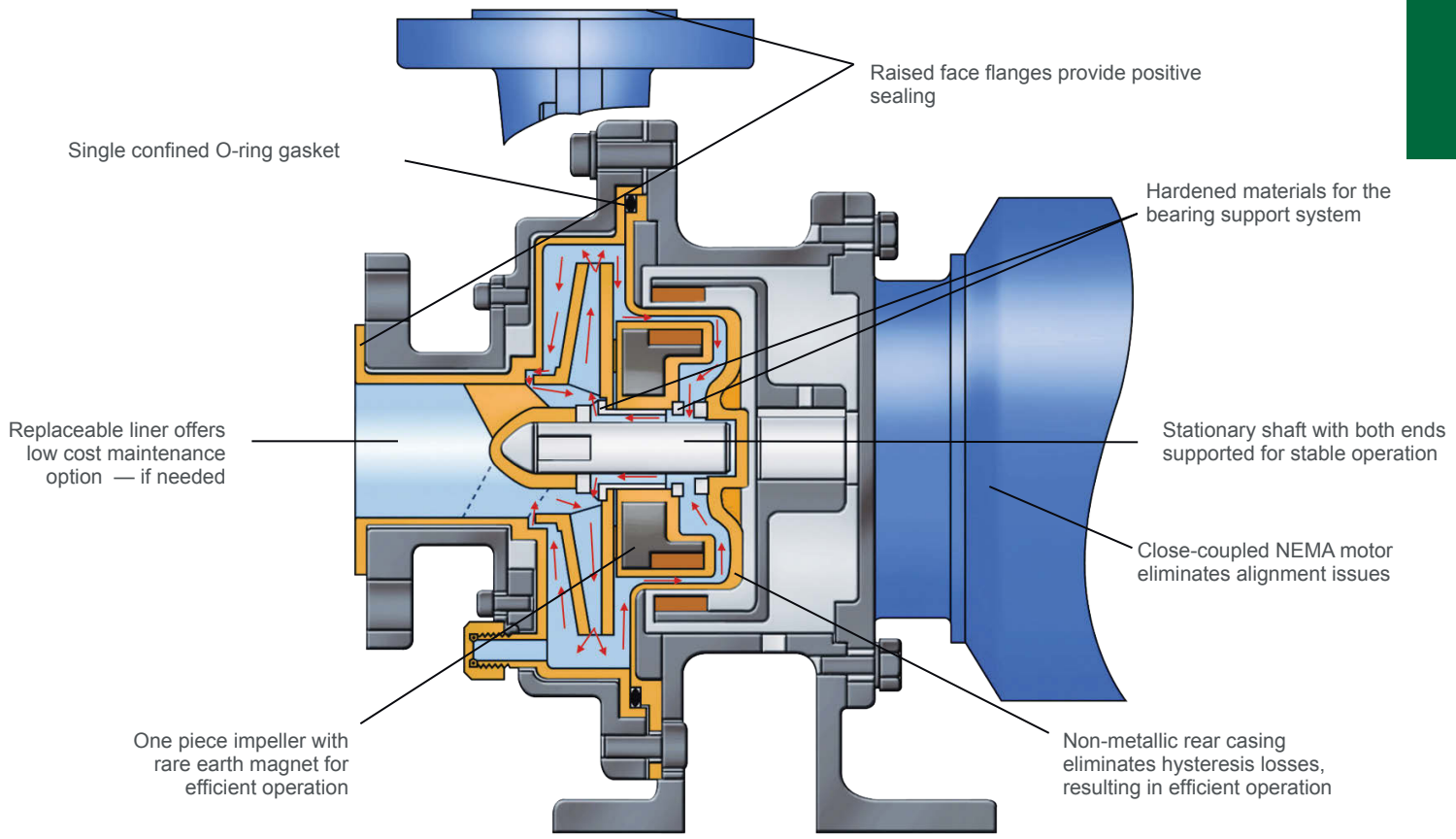


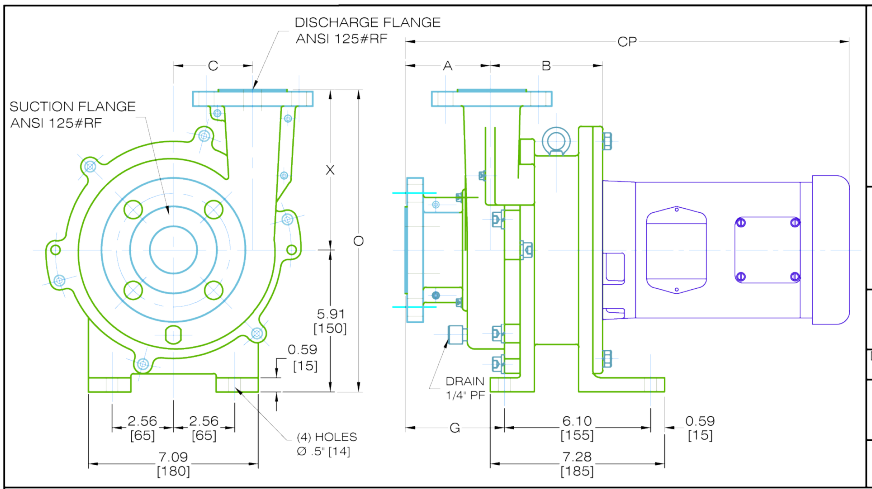
@ 3550 RPM 60hz

1 MEH40 1.5 x .75 - 6
2 MER50 2 x 1.5 - 6

@ 1750 RPM 60hz

1 MEH40 1.5 x .75 - 6
2 MER50 2 x 1.5 - 6





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MAGNATEX® Pumps, Inc.

PUMP DIMENSIONS
MEH/MER SERIES CLOSE-COUPLED PUMPS

DRAWN BY:	DATE:	SCALE:	PAGE:
B VALENTIN	10/21/10	NTS	1 OF 1

DD-MEH/MER SERIES R1

ALL DIMENSIONS ± 0.12" [3mm]

MODEL	MOTOR FRAME		DIMENSIONS in INCHES [MILLIMETERS]									APROX. WEIGHT	
	NEMA	IEC	S	D	CP	O	A	C	X	B	G	PUMP lbs. (kgs.)	MOTOR lbs. (kgs.)
MEH-40 1.5 x .75 x 6	56C	63 - 80	1.5" [38]	0.75" [19]	18.45 [465]	12.64 [321]	3.54 [90]	3.31 [84]	6.70 [170]	4.62 [117.5]	3.85 [98]	58 (26)	31 (14)
	143TC	90S			18.73 [476]					4.68 [119]			54 (24)
	145TC	90L			19.24 [489]								58 (26)
	182TC	112S			20.68 [525]					5.03 [128]			99 (44)
MER-50 2 x 1.5 x 6	56C	63 - 80	2.0" [50]	1.5" [38]	18.61 [473]	12.60 [320]	3.46 [88]	2.79 [71]	6.74 [171]	4.86 [123.5]	3.97 [101]	55 (25)	31 (14)
	143TC	90S			18.89 [480]					4.92 [125]			54 (24)
	145TC	90L			19.40 [493]								58 (26)
	182TC	112S			21.23 [539]					5.66 [144]			99 (44)

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MTA

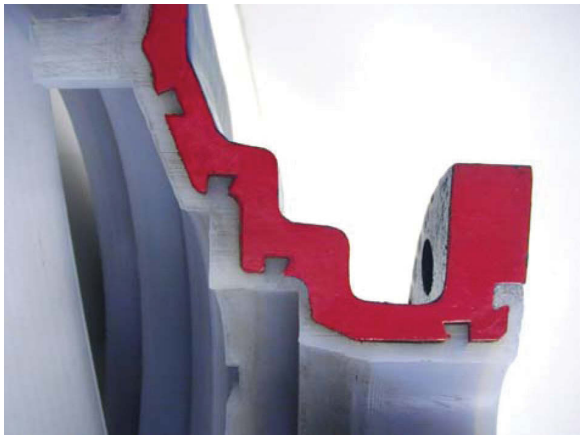
MAGNATEX® Pumps, Inc.

Magnetic Drive PFA lined Pumps

MAGNATEX® MTA Series

Magnatex®/Texel® MTA Series sealless, mag-drive pumps feature a transfer molded, mechanically attached PFA lining that is thicker and more uniform than our competitors' roto-molded linings. Ideal for almost all industrial chemical applications including high purity and elevated temperature applications, our pumps offer many enhanced characteristics over the competition. MTA Series pumps conform to ANSI B73.3 Standards. Sealless design helps eliminate "Reportable Release" issues.

All Magnatex® pumps and spare parts come with a **1-year unconditional** warranty on materials and workmanship.



Transfer-compression molding allows positive, inter-locking casing linings 5-6 mm thick that stay in place; ideal for vacuum and higher temperature applications.

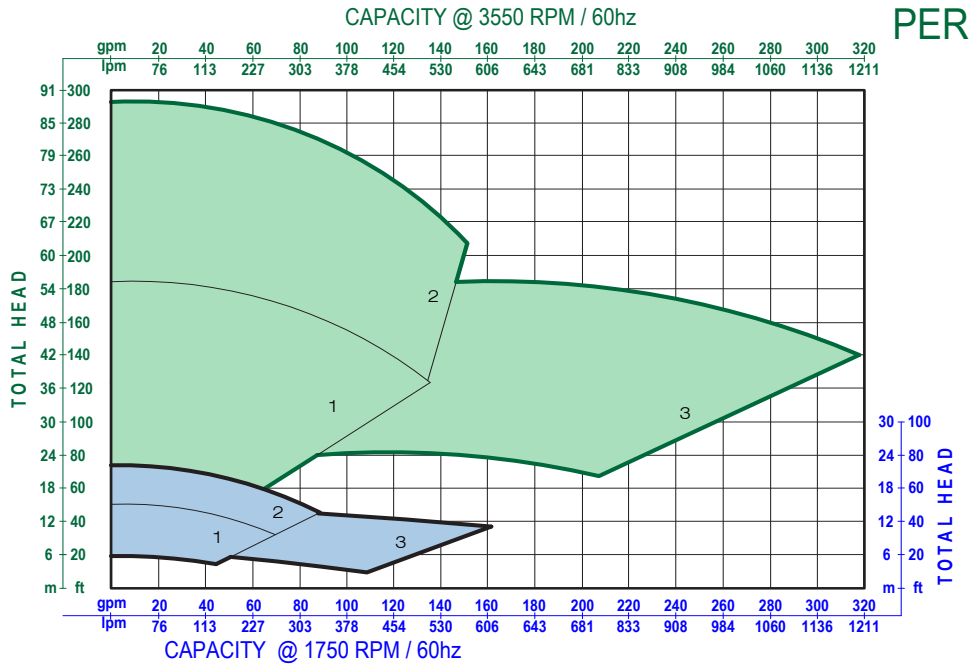
MAGNATEX® MTA Series Specifications

Maximum Flow	320 GPM
Maximum Head	285 FT
Liquid Temperature	32°F to 275°F
Maximum Power	25 HP
Connections	150lb RF Flanges
Bearing	C-PTFE, G-PTFE, SiC, Carbon
Shaft	SiC
Working Pressure	150 psig
Impeller	Enclosed
Speeds	up to 3550 rpm
Magnets	Neodymium or Samarium Cobalt
Motor	NEMA or IEC Frame Mounted

Materials of Construction:

- PFA Lined

MTA SERIES COMPOSITE PERFORMANCE CURVES

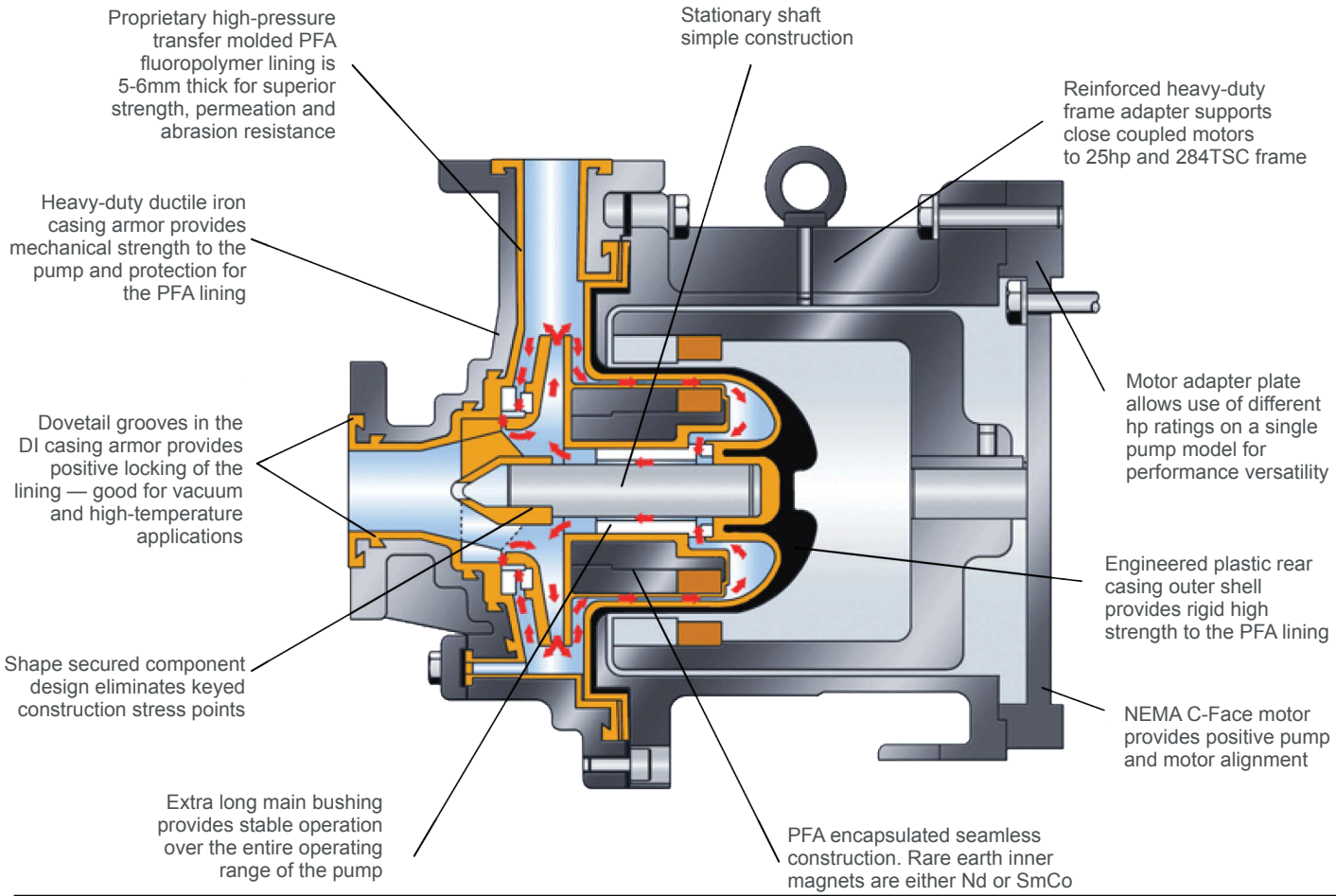


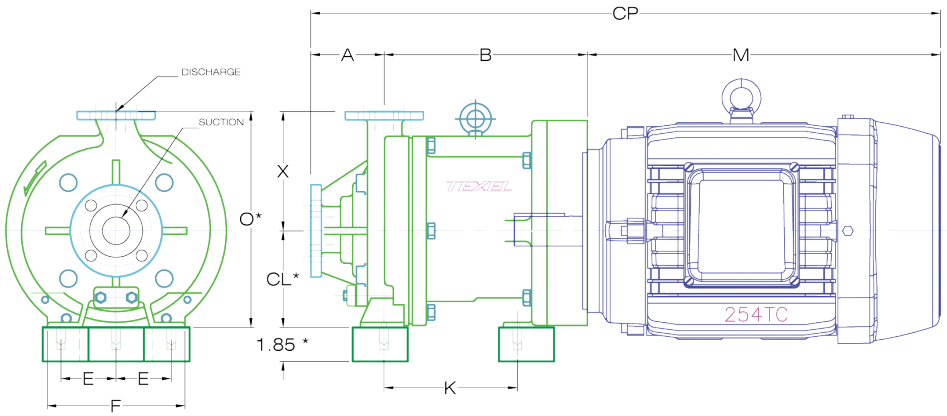
@ 3550 RPM 60hz

1	MTA-AA6	1.5x1-6
2	MTA-AA8	1.5x1-8
3	MTA-A10	3x2-6

@ 1750 RPM 60hz

1	MTA-AA6	1.5x1-6
2	MTA-AA8	1.5x1-8
3	MTA-A10	3x2-6





* ADD 1.85" FOR PUMP RISERS TO 'CL' AND 'O' DIM FOR MOTOR FRAME 254TC OR GREATER

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MAGNATEX® Pumps, Inc.

DIMENSIONAL DRAWING
MTA SERIES CLOSE-COUPLED PUMP

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B VALENTIN	07/02/10	NTS	1 OF 1

DD-MTA SERIES

ALL DIMENSIONS IN INCHES ± 0.12"

MODEL	DIMENSIONS																	
	S	D	A	B	E	F	K	X	CL	O	PUMP LBS	MOTOR FRAME	M	CP	MTR LBS	MOTOR FRAME	M	CP	MTR LBS
MTA-AA6	1.50	1.00	4.00	9.96	3.00	7.55	7.25	6.50	5.25	11.75	231	143TC	10.23	24.19	54	145TC	11.21	25.17	56
												182TC	12.02	25.98	99	184TC	12.96	26.92	108
												213TC	14.59	28.55	150	215TC	16.09	30.05	165
MTA-AA8				11.06							238	254TC	19.21	34.27	266	256TC	20.96	36.02	313
												284TSC	21.81	36.87	437				
MTA-A10	3.00	2.00	4.00	10.24	4.88	11.33	12.50	8.25	8.25	16.50	253	143TC	10.23	24.47	54	145TC	11.21	25.45	56
												182TC	12.02	26.26	99	184TC	12.96	27.20	108
												213TC	14.59	28.83	150	215TC	16.09	30.33	165
												254TC	19.21	33.45	266	256TC	20.96	35.20	313
												284TSC	21.81	36.05	437				

In inches

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MAGNATEX® Pumps, Inc.

Patented SiC-X℠ Dry Run Resistant Bearings

Significantly increased dry-running capability!

- Our 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.

SiC-X Availability
MMP/MMH/MML—Standard
MP/ML/MPH/MPT—Standard
MPL/MLL/MHL—Optional
MAXP—Optional

Preliminary Test Results

- 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 bearing material operated over 1 hour and 45 minutes with no unusual noise. On disassembly, there was no visible damage.
- The next test involved running the same pump with the SiC-X bearing material dry for one hour with the suction valve closed. The rear casing temperature reached 260°F. With the pump still operating, the suction valve was then opened, allowing room temperature water to enter the pump; continued to operate. On inspection, no damage or cracks were observed – all parts were in excellent condition.
- A test at a customer facility was inadvertently run when the suction cap used during shipping was not removed before installation. After running dry for 10 minutes, the pump was inspected and no damage was observed. The pump was reinstalled without the cap and operated as expected.

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

Liquid	Temerature degrees °F	Time	Degrees of Corrosion (g/m2/hr)
65% HNO3	Boiling	24 Hours	0.003
100% H2SO4	Boiling	24 Hours	0.002
35% HCl	Boiling	24 Hours	0.002
30% NaOH	Boiling	24 Hours	0.002
100% CH3COOH	158°F	24 Hours	0.000
35% H2O2	Boiling	24 Hours	0.002

In the case of the test application involving air with liquid, an inherently difficult situation for product lubricated bearings, the SiC-X bearing operated continuously for 10 minutes with no cracks or wear. Even with completely dry operation -- no liquid whatsoever, the SiC-X bearings operated for considerably longer time than SiC bearings. Inspection revealed the bearings to still be in good condition after 1 hour 45 minutes.

Conclusions

- 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.
- As indicated in the corrosion testing chart above, SiC-X had comparable performance to that of SiC as shown in various literature sources for the listed chemicals

Summary

- From our 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.
- The values in the above charts are from actual test results and are considered reliable, though we cannot guarantee similar results. For added protection from dry run conditions we recommend the use of a power monitor for optimal equipment protection.

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MAGNATEX®
Pumps, Inc.

LISTED
IND.CONT.EQ.
6D77

PMP-25 Pump Load Control Installation, Set-up & Adjustment

The Model PMP-25 monitors the true power going to a motor. By sensing power (volts x amps x power factor) rather than just amps, there is much greater sensitivity. For loss of load detection, this means a 10X improvement in performance.

Mounting:

Wiring is done to un-pluggable terminal strips on the rear of the unit. Three ways to mount:

- On door or raceway – use cutout template
- Panel Mount – use template + optional Bezel Kit (No Charge)
- On wall – on standard outdoor junction box + optional
- Outlet Box Adapter (No Charge)

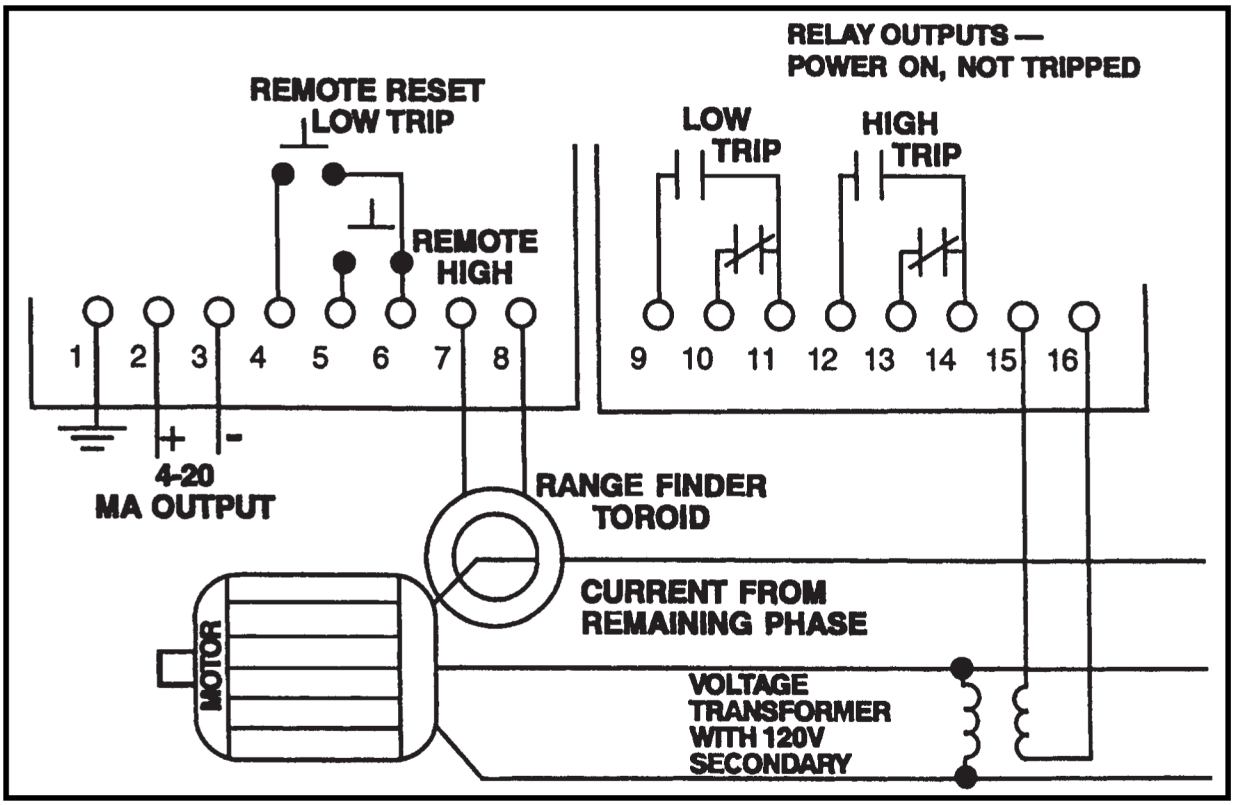
Voltage:

120 volts AC is taken from two of the phases. If the motor starter already has a 120-volt control transformer with 10VA of free capacity, it can be used. Otherwise, install a separate transformer. It is okay if the secondary is grounded.
BE SURE TO NOTE WHICH TWO PHASES SUPPLY THE TRANSFORMER.
In 120/208V three-phase system, the 120V MUST come from a transformer connected to two of the phases. The 120V phase to ground voltage cannot be used.

Current:

The current signal is taken from the REMAINING phase. This current sample passes through the Range Finder Toroid.
It is VERY IMPORTANT that the current signal comes from the phase that IS NOT supplying the 120V control transformer. Be extra careful when the machine has reversing starters or multi-speed windings. If a wrong phase is used the control will either:

- **Work backwards**
- **Have reduced sensitivity**



Full Scale Capacity at 460 Volts:

The Range Finder Toroid has six motor size choices. Select one that is equal or larger than your motor. This will leave some headroom.

- **For motors less than 5 HP (460 volt), take extra turns.**
- **For motors greater than 50 HP, use Range Finder Toroid**

+ Current Transformer.

MOTOR SIZE	FULL SCALE CAPACITY	%FULL LOAD	RANGE FINDER SWITCH	TURNS	CURRENT TRANS-FORMER
1/2 HP	.6 HP	123	2 ON	8	
1	1.25	123	2 ON	4	
1-1/2	1.65	109	2 ON	3	
2	2.70	134	2 ON	2	
3	3.80	128	3 ON	2	
5	5.50	110	2 ON	1	
7-1/2	8.25	110	3 ON	1	
10	11.0	110	4 ON	1	
15	27.5	183	5 ON	1	
20	27.5	137	5 ON	1	
25	27.5	110	5 ON	1	
30	55.0	183	6 ON	1	
40	55.0	138	6 ON	1	
50	55.0	110	6 ON	1	
60	84.0	140	1 ON	1	100:5
75	84.0	112	1 ON	1	100:5
100	130	130	1 ON	1	150:5
125	130	104	1 ON	1	150:5
150	173	115	1 ON	1	200:5
200	216	108	1 ON	1	250:5
250	260	104	1 ON	1	300:5
300	346	115	1 ON	1	400:5

Multipliers:

For nominal voltages
other than 460 volts,
multiply 460V full scale by:
208V = .45
230V = .5
380V = .83
415V = .9
575V = 1.25
For Kilowatts
multiply Full Scale HP x .746

For motor sizes or capacities not in table:

$$\%\text{Full Load} = \frac{\text{Full Scale Capacity} \times 100}{\text{Your Motor Size}}$$

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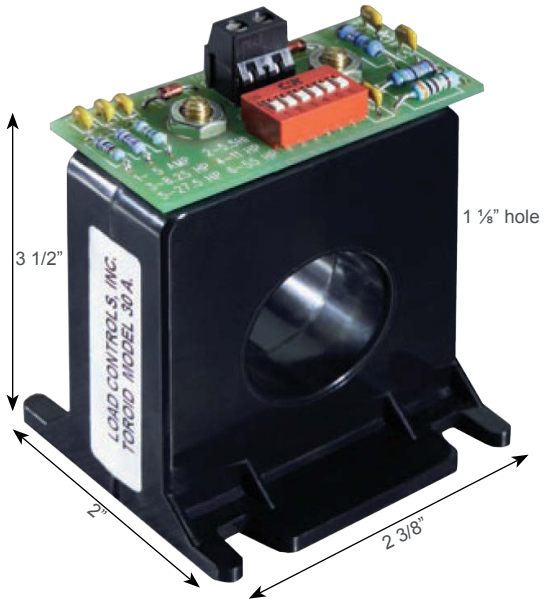
PMP-25 Pump Protector

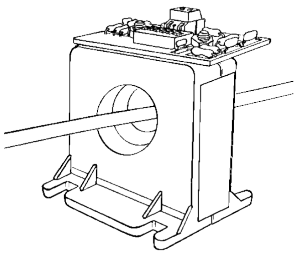
MAGNATEX®
Pumps, Inc.

Range Finder Toroid

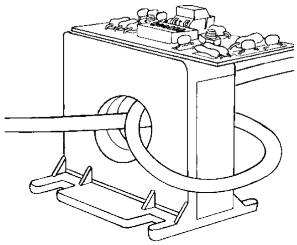


For Motors Less than 5HP

Take more "turns" of the leg through the Toroid. Each time the wire passes through the Toroid is a "turn".



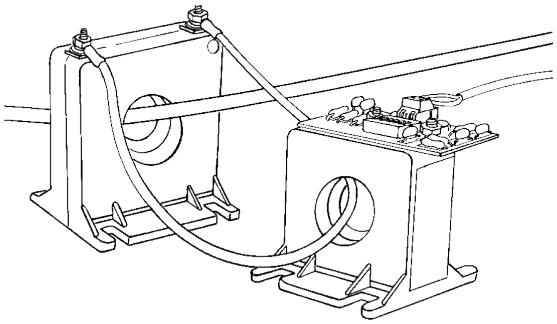
This is one turn



This is two turns

For Motors Greater than 50HP

A Current Transformer is used to reduce the primary current. The 5-amp secondary passes through the Toroid.



Pass secondary of CT through toroid

CAUTION
When current is flowing through the primary of the external current transformer, always have a wire between the two brass Terminals on the CT.

If they are left open, dangerous and destructive voltages can develop.

Hooking up the Rest

Control can be reset three ways:

- Manually with the Reset button on the control.
- Remotely with a remotely located reset button or relay.
- Automatic with a jumper

Remote Reset-
Momentarily connect Terminal 4 to Terminal 6 for low
Momentarily connect Terminal 5 to Terminal 6 for high

Automatic Reset-
Jumper Terminal 4 or 5 to Terminal 6

The terminals for Reset generate a small amount of current (8-12 milliamps). To reset, you just need to connect the terminal to the circuit common (Terminal 6).

The switches or relays that you use must be suitable for low current (Gold flashed contacts, Reed Relays, Mercury Switches).

4-20 Milliamp Analog Output

The switches or relays that you use must be suitable for low current (Gold flashed contacts, Reed Relays, Mercury Switches).

Terminal 2	4-20mA	Positive
Terminal 3	4-20mA	Negative

Use twisted pair or in noisy environments, use shielded cable. Ground shield at other end.

Use the Full Scale capacity from the chart to scale external meter, chart recorders or computers.

THE PMP-25 Powers the 4-20MA Signal
Do NoT Use an External DC Powe Supply

SPECIFICATIONS PMP-25

ENCLOSURE
Glass-filled Polycarbonate
NEMA 4, 4X - STYLE
(3 1/4" x 6 1/4" x 2")
(83 mm x 160 mm x 54 mm)

CAPACITY
To 50 horsepower directly through Toroid
To 500 horsepower with external Current Transformer & Toroid

DIGITAL LOAD DISPLAY
.4" LED 3 Digit

RELAY OUTPUTS
(2) Form C 3 AMP @ 300 VAC or 1/8 HP @ 240 VAC
Latch when tripped

ANALOG OUTPUT
4-20mA; powered by the PMP-25 500 OHM maximum connected impedance

RESPONSE TIME
500 Milliseconds

TEMPERATURE
0˚C - 55˚C

TIMERS
Start-up – 0-999 seconds (16.7 minutes) adjustable
Low Trip Delay – 0-999 seconds (16.7 minutes) adjustable
High Trip Delay – 0-999 seconds (16.7 minutes) adjustable

TO SET FULL SCALE

• After hook-up, find your HP, KW or % from the chart.
• Decide if you want to display HP, % or KW.
• The [FULL SCALE] cycles through the choices shown below and blinks slowly for each choice. Each press [FULL SCALE] of moves you to the next choice.

FRONT PANEL SET-UP TIPS

1) None of the settings will be changed until you hold down [ENTER] and the fast blinking stops.

2) Five seconds after you have pressed a button, the control will return to normal operation.

3) If you hold down the [▲] [▼] digits will continue to change.

4) You only need to do [FULL SCALE] when you install the PMP-25 (or if you change the hook-up).

DIGITS →	DECIMAL XXX. →	DECIMAL XX.X →	DECIMAL X.XX →	HP →	% →	KW
[▲] [▼] *to change*	*if this is your choice, press*	*if this is your choice, press*	*if this is your choice, press*	*if this is your choice, press*	*if this is your choice, press*	*if this is your choice, press*
[ENTER]	[ENTER]	[ENTER]	[ENTER]	[ENTER]	[ENTER]	[ENTER]
until fast blink stops	*until fast blink stops*	*until fast blink stops*	*until fast blink stops*	*until fast blink stops*	*until fast blink stops*	*until fast blink stops*

ADJUSTMENTS

SET POINT - HIGH: The HIGH relay will switch when the load is above the HIGH.
SET POINT - LOW: The LOW relay will switch when the load is below the LOW.

Start-up Timer

The Start-up Timer bypasses the Control during motor startup to avoid false trips because of current inrush. For convenience, the TIMING BEGINS WHEN THE MOTOR STARTS.
The Start-up LED stays lit until the start-up period is over.

The start-up time should be:

- Long enough so that the load has stabilized.

Delay Timers

To avoid nuisance trips from short overloads, Delay Timers bypass the Control for the selected time. The relays won't trip until the time is exceeded. If the trip condition goes away before the time is up, the timer resets to zero.

- Start with minimum Delay. If you are getting trips where you don't want them, increase the Delay Time.

TO VIEW AND CHANGE THE SET POINTS AND DELAY TIMES

[▭] cycles through the choices. The LED for each choice will turn ON.

To change a setting, use [▲] [▼]

Press ENTER until quick blinking stops to store your new choice.

After 5 seconds if you haven't pressed any buttons, control will return to normal operation.

ADJUSTMENT TIPS FOR CENTRIFUGAL PUMPS

From Pump Curves
Use the recommended minimum and maximum flows and horsepower for your initial set points.

–OR–

Actual Operation

Low Trip - Run the pump with the OUTLET valves closed.
This is the minimum flow. Set the low trip about here.
High Trip - Run the pump with all valves wide open.
This is the maximum flow. Set the high trip about here.
• Make adjustments if you get nuisance trips

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V-Series Pump Protector

MAGNATEX® Pumps, Inc.

V-Series Control System

The UPC and V-Series Load Controls protect equipment driven by Variable Speed Motor Drives

V-Series Control

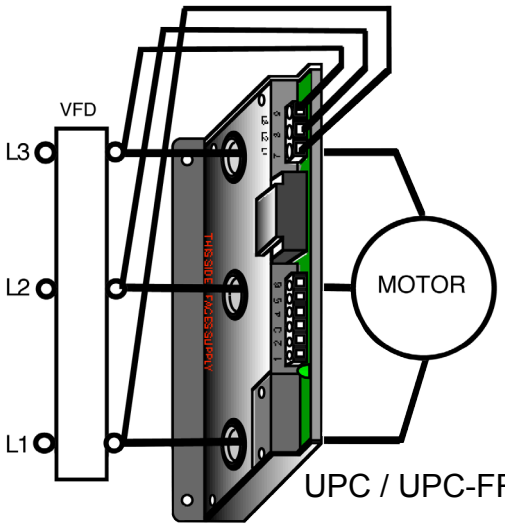
UPC/UPC-FR Power Cell

V-Series Load Controls and UPC Power Cells are used together to protect equipment in Variable Speed motor drive applications. The UPC monitors motor power and sends a 0-10V signal to the V-Series Load Control. Each Load Control has adjustable set points and relay outputs. The set point configuration differs depending on the application and is called out by a specific model number.

The UPC measures True Power (Watts) on the output side of AC or DC motor drives and is field scaleable from small motors to 150 HP. Response time is field adjustable from 500 ms to 12 Sec. The UPC-FR has a fast Response time field adjustable from 50 ms to 1.2 Sec.

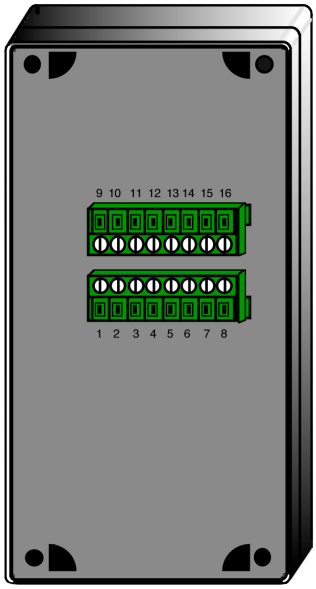
The V-Series Load Controls read the measured load on a digital display in either HP, KW or % Load. The meter also reads the set point and delay settings during setup. A HIGH trip set point will trip an output form C relay on an increase in load and a LOW trip set point will trip an output form C relay on a loss of load. Reset can be done manually, remotely with a switch or automatically using jumpers on the resets. A 4-20ma analog output is also provided.

- PFR-1550V - Has one adjustable set point that can be programed for either HIGH trip or LOW trip.
- PFR-1750V - Has two adjustable set points that are configured for HIGH trip.
- ROC-50V - Has two adjustable set points. One is configured for HIGH trip (Max. Limit) and the other is a RATE OF CHANGE set point that reacts to fast acting loads like jam conditions on conveyors, indexing equipment etc. Use with UPC-FR for Fast Response.
- PMP-25V - Has two adjustable set points configured for HIGH trip and LOW trip.



UPC / UPC-FR

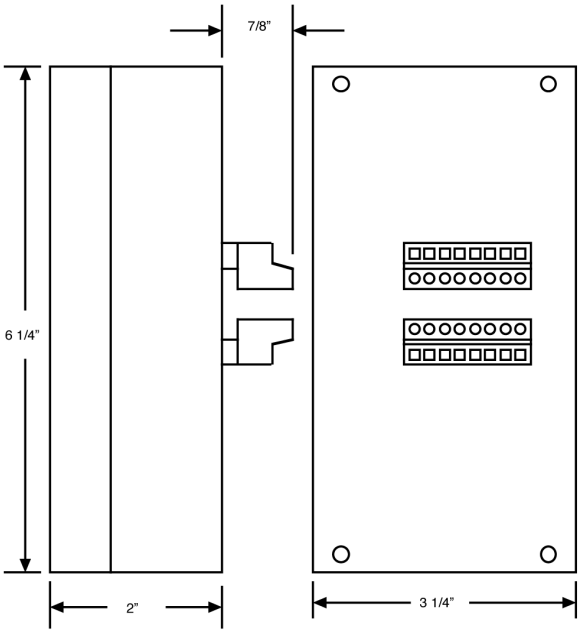
1.4-20MA Analog Output
2.Analog Ground
3.10V Analog Output
4.Chassis Ground
5.120VAC
6.120VAC
7.L1
8.L2
9.L3



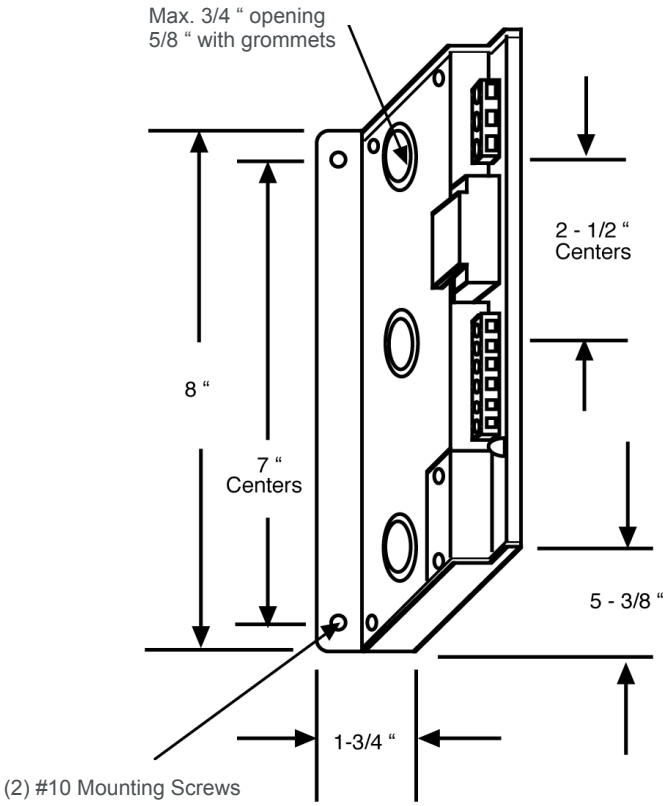
V-Series Back View

1.Chassis / Static Ground
2.4-20MA Positive
3.4-20MA Negative
4.Reset
5.Reset
6.Reset Common
7.10V Input Positive
8.10V Input Negative
9.Relay 1 N.O.
10.Relay 1 N.C.
11.Relay 1 Com.
12.Relay 2 N.O.
13.Relay 2 N.C.
14.Relay 2 Com.
15.120 VAC
16.16) 120 VAC

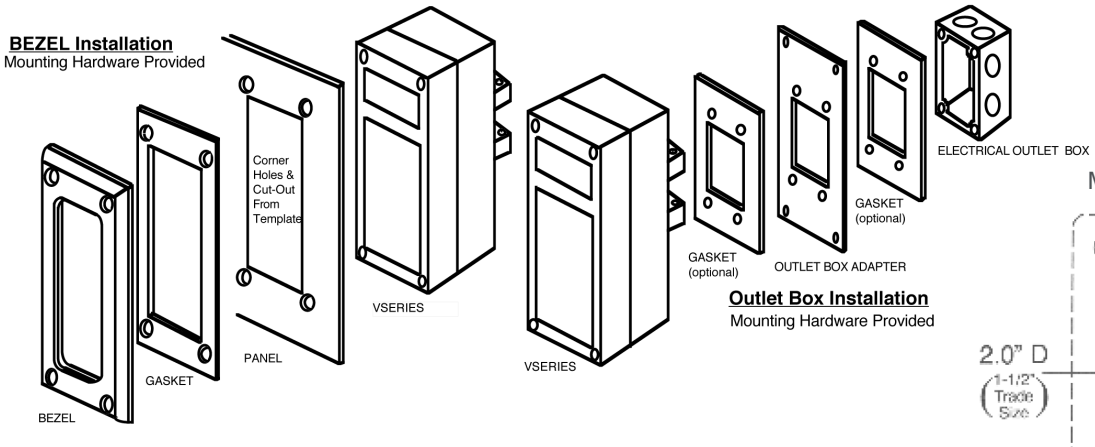
Notes:
*The 0-10V signal (terminals 2 and 3) from the UPC power cell wires to the V-Series Load Control (terminals 8 and 7). A shielded signal wire should be used and the shield connected to GROUND at one end.
*Relay outputs on the V-Series Load Control are shown with POWER ON and NOT TRIPPED. The trip condition is the shelf state.



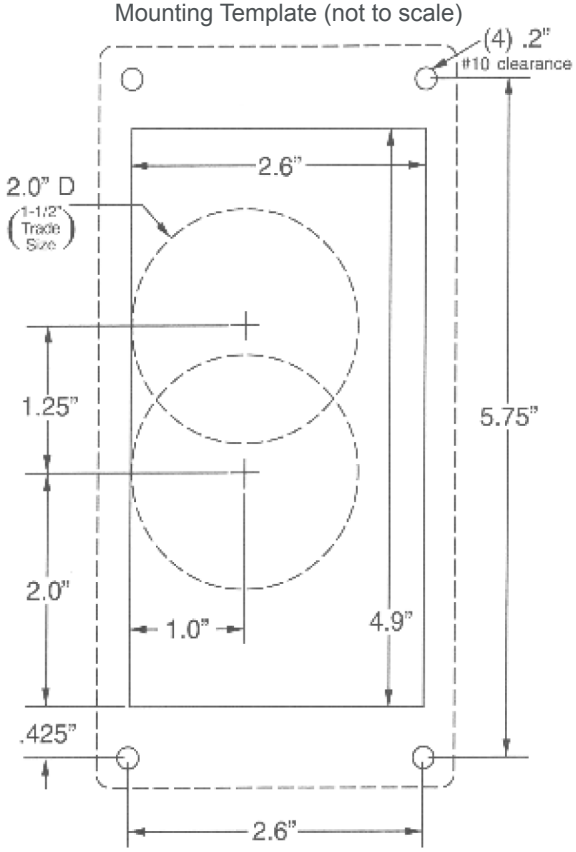
V-Series Control



UPC / UPC-FR



Mounting Template (not to scale)



The Mounting Template ships with the V-series control and is used to mark hole punches for mounting on the outside of a panel door or raceway. To mount behind panel door or raceway use template to make a rectangular cut out and the BEZEL is used. Ask for the BEZEL kit when ordering (no charge). Gaskets are provided for both mounting options to maintain NEMA 4 integrity.

The OUTLET BOX ADAPTER is used for a surface or backplane mount. This adapter will adapt to an OUTLET BOX so the V-Series connectors are spaced off the backplane of the panel. Ask for OUTLET BOX ADAPTER when ordering (no charge). Gaskets are provided.

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MAGNATEX® Pumps, Inc.

PA/PB Assemblies

PA/PB Assemblies cost a fraction of the sum of their component parts, so that they are the most cost effective way to spare your critical Magnatex pump(s).

(Fig. 1) Wet End Assembly (PB)

(Fig. 2) Outer Magnet Assembly

A PB Assembly is a completely assembled wet end rotating element (Fig. 1) consisting of the rear casting, inner magnet, Sic(X) bearing system and impeller. A PA Assembly consists of the PB Assembly **PLUS** the outer magnet assembly (Fig. 2).

PA/PB assemblies are the quickest and easiest way to get your process back up and running with minimal downtime and lost production. As an added benefit, once the old assembly has been removed from the pump you can purchase whatever spare components you need to repair it and put it back into your spares inventory for future use.

MAGNATEX® Pumps, Inc.

Magnachem™ Baseplates

Elminiate the need to replace corroded metal baseplates under your process pumps!

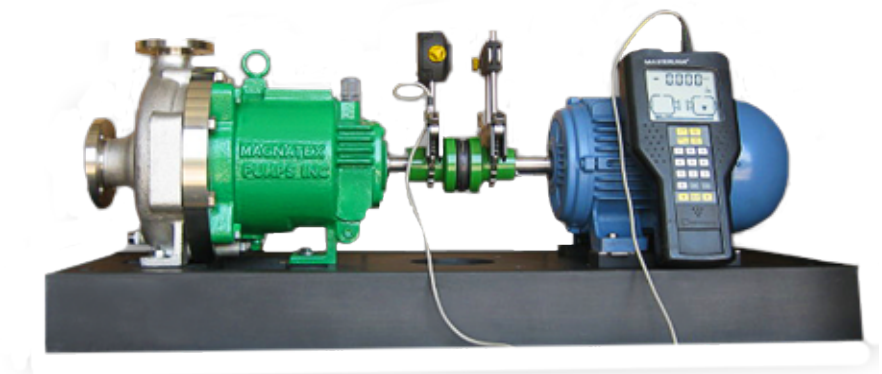
Magnatex® Pumps, Inc. offers a new line of cast, Quartz Ceramic Baseplates for long service life and perfect alignment every time. Every long coupled Magnatex® Pump is laser aligned before it leaves the factory to ensure ease of realignment at the job site.

Compared to fabricated steel baseplates, Magnachem Baseplates:

- Are flat to within .002”/ft which ensures perfect pump and motor alignment, every time
- Feature completely rigid quartz ceramic cast construction which eliminates flexing, twisting and misalignment issues common to fabricated steel baseplates
- Provides a broad range of chemical resistance which eliminates corrosion issues common to steel baseplates
- Lower lifetime cost of ownership than steel baseplates

Magnachem Baseplates include:

- Center grout hole for easy installation
- Catch basin with a threaded drain connection located under the pump stuffing box/seal chamber area, to safely transfer any leakage
- Tapped thru holes in each corner of the baseplate to facilitate baseplate leveling
- Heavy duty, 316SS, tapped inserts for mounting pump, motor and coupling guard



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VARIABLE FREQUENCY DRIVES

MAGNATEX® Pumps, Inc.

Magnetic Drive Sealless ANSI Process Pumps

Pump Control with Variable Speed Drives

You wouldn't drive your car with the gas pedal floored, using the brake to control your speed, however many pump users use the exact same approach to control their pumps. The solution? Variable Frequency Control of AC induction motors provides an economical and operationally effective solution for speed control and reduced power consumption. VFDs can be made responsive to signals from many sources such as flow sensors, pressure sensors, programmable controllers, etc. AC motor controls will enhance your process efficiency and profitability.

D700 Series

Low Cost Sub-Micro VFD

- Digital setting dial with integrated display making configuration fast and easy
- Control remotely or with built-in digital control
- Low cost and Mitsubishi Electric quality ensure solid solutions
- Magnetic Flux Vector Control with auto-tuning
- Safety stop function

E700 Series

'Big Drive' Vector Control Capability in a micro drive - delivering outstanding performance for a wide range of demanding loads

- Advanced Magnetic Flux Vector Control gives 120:1 speed range
- All capacities have built-in brake chopper
- USB communications for fast commissioning
- Standard RS 485 serial communications supporting Modbus RTU
- Supports Remote I/O function via network
- 200 % Overload for 3 seconds

E560 Series

The cost-effective variable speed control solution for general purpose applications

- Magnetic Flux Vector Control
- Auto-tuning
- Selectable cooling fan operation mode
- Adjustable carrier frequency (0.7kHz to 14.5kHz)
- Compatible with FR-PU04 user interface
- UL & cUL listed / CE marked

F700 Series

Built to optimize 3-phase motor control, saving energy for virtually all general purpose applications.

- UL Type 1, plenum rated, enclosure designs (NEMA 1)
- Built-in EMC filter
- FR-DU07 programming dial and FR-Configurator programming software
- Bi-directional coasting motor restart
- RS-485 communications as standard (Modbus RTU or Mitsubishi Electric)
- Upgrade of energy optimization control
- Control terminals can be used over a network as remote I/O
- FR-PU07BB-L keypad - programs the drive without powering-up
- UL listed for single phase input

A700 Series

Advanced performance makes it possible to support a wide range of variable speed applications from conveyance and chemical machines to line control applications such as winding and printing machines. Improved flexibility allows users to tailor their VFD to meet their application requirements.

- Real Sensorless Vector (RSV) Control achieves 200% torque at speeds as low as 0.3Hz
- Built-in PLC function allows users to create customized applications
- Positioning Control as standard allows simple moves from position to position
- Sensorless Torque Control can be utilized for wind/unwind applications
- Two RS-485 serial ports and one USB port make connectivity flexible
- FR-PU07BB-L keypad - program the drive without main power
- UL listed for single phase input

Model Series		D700				E560	E700				F700		A700		
Voltage Range (VAC)		115 1Ø	240 1Ø	240	480	600	115 1Ø	240 1Ø	240	480	240	480	240	480	600
HP Range	Constant Torque	1/8~1	1/8~3	1/8~10	1/2~10	1~10	1/8~1	1/8~3	1/8~20	1/2~20	1~200	1~1000	1/2~125	1/2~800	1~650
	Variable Torque												1~200	1~1000	2~850
Control Algorithm	Open-Loop Flux Vector Speed	Yes				Yes	Yes				No		Yes		
	Open-Loop Torque	No				No	No				No		Yes		
	Closed-Loop Speed	No				No	No				No		Yes		
	Closed-Loop Torque	No				No	No				No		Yes		
	Closed-Loop Position	No				No	No				No		Yes		
Inputs	Digital Inputs	5 (2 additional for Safety)				7	7 (expandable)				12 (expandable)		12 (expandable)		
	0~5 / 10VDC	Yes				Yes	Yes				No		No		
	0~±5 / ±10VDC	No				No	No				Yes		Yes		
	4~20mA	No				Yes	No				No		No		
	4~20mA or 0~5/10VDC	Yes				No	Yes				Yes (2 ports)		Yes (2 ports)		
	Pulse (Speed)	No				No	No				No		Yes		
Outputs	Digital Outputs	1				2	2 (expandable)				5 (expandable)		5 (expandable)		
	Relay Outputs	1				1	1 (expandable)				2 (expandable)		2 (expandable)		
	0~10VDC	Yes				Yes	Yes				Yes		Yes (expandable)		
	0~20mA	No				No	No				Yes		(optional)		
	Pulse	No				No	No				No		Yes		
Communications	Modbus RTU	Standard				No	Standard				Standard		Standard		
	CC-Link	No				Option	Option				Option		Option		
	DeviceNet	No				Option	Option				Option		Option		
	Profibus-DP	No				Option	Option				Option		Option		
	LonWorks	No				Option	Option				Option		Option		
	SSCNETIII	No				No	No				No		Option		
	ControlNET	No				No	No				No		Option		
	Metasys N2	Option				Option	Option				Option		Option		
	Siemens FLN	Option				Option	Option				Option		Option		
	BACnet/MSTP	Option				Option	Option				Option		Option		
	EtherNet/IP	Option				Option	Option				Option		Option (2 types)		
	Modbus TCP/IP	Option				Option	Option				Option		Option		
	BACnet/IP	No				No	Option				Option		Option		
Brake Transistor		Yes (1/2HP and above)				Yes	Yes (1/2HP and above)				No		Up to 30HP		
Brake Resistor		Option				Option	Option				No		Up to 10HP	Up to 5HP	
EMC Filter		Option				No	Option				Standard		Standard	No	
DC Reactor		Option				No	Option				Option (standard 100HP and above)				
Safety Stop Function		Standard				No	Option				No		No		
Communications Ports		1 (RS-485)				1 (RS485)	2 (RS-485 & USB)				2 (RS-485)		3 (2x RS-485 & USB)		
Plug-in Option Ports		0				1	1				1		3		
Operator Interface		Standard				Option	Standard				Standard		Standard		
Alpha/Numeric Keypad Option		FR-PU07				FR-PU04	FR-PU07				FR-PU07 FR-PU07-01		FR-PU07		
Alarm History		Last 8				Last 8	Last 8				Last 8		Last 8		

Variable Frequency Drives Family

Standard Features:

- RS-485 serial communications (Mitsubishi VFD protocol)
- PID control
- Adjustable carrier frequency (Low Noise) up to 14.5kHz
- Soft PWM
- Packaged solutions available
- Setup Software available
- User selectable Sink (default) / Source I/O

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