INNOVATIVE MAG-DRIVE provide by KTH Sales, Inc

INNOMAG
Advanced Sealless Pumps

TB-MAG PUMP SERIES

INNOVATIVE MAG-DRIVE, L.L.C.

Truly Innovative...

The people and the technology behind INNOVATIVE MAG-DRIVE have a rich and diverse history. This makes it possible to create what is truly the most innovative sealless non-metallic centrifugal pump on the market today.

INNOVATIVE MAG-DRIVE is the offspring of two companies, one 10 years in age and the other having just celebrated its 100th year of operation. The goal of these two companies was to form a new, fully independent entity that would be capable of designing and manufacturing what is now known as the TB-*mag* series of pumps. For this vision to be successful, only the best qualities were taken from each of the sponsoring companies. This newly combined composition proved to be very rich and quite impressive, adding up to many years of experience. This experience includes over ***20 years of Sealless Non-Metallic Centrifugal Pump Design, over 10 years of Plastics Engineering, over 10 years of Manufacturing Automation****, over 12 years of Rapid Proto-Typing, over 20 years of Mechanical Engineering and over 100 years of Metallurgical Casting Technology.* As such, INNOVATIVE MAG-DRIVE is a new, state-of-art company having years of experience, support and technology behind it.

The TB-mag...

So what makes the TB-*mag* series so much better than the competition? ***Thrust Balancing*** and ***Engineering Design***. The TB-*mag* (short for Thrust Balanced mag-drive) is the most revolutionary engineering concept to enter the mag-drive market since the invention of the mag-drive pump itself. The patent pending thrust balance technology behind the ***TB-mag series completely eliminates axial thrust bearings*** and provides the basis for a controlled internal environment. ***Superior engineering design minimizes the issue of secondary containment by providing secondary bearings.*** No other product on the market today offers these features at such a ***cost-effective*** and ***cost-competitive*** price. In short, ***the TB-mag sets new standards for non-metallic sealless pumps in application of use, product durability and customer driven value.***

The Value of Thrust Balancing & Engineering...

Thrust Balancing technology provides a controlled environment for the process-lubricated bearings. Internal pressures of the pump are regulated in such a manner that the pressures in the bearing area always remain high, virtually eliminating the possibility of flashing. This is a major advantage for bearing health and pump life. Engineering design of the wear ring area provides particulate control resulting in a "clean stream" to the bearings, further enhancing bearing life. Downstream of the bearings, the still cool liquid is directed into the suction where it mixes with the main flow. Such process control ***allows the TB-mag to handle Volatile liquids safely*** and ***produce B.E.P.'s equivalent to sealed pumps.*** No other non-metallic sealless pump offers these features.

APPLICATIONS

CHROMIC ACID
HYDROCHLORIC ACID
HYDROFLUORIC ACID
NITRIC ACID

SULFURIC ACID
SODIUM HYPOCHLORITE
SODIUM HYDROXIDE
CHLORINE DIOXIDE

AMMONIA
FREON
METHYL CHLORIDE
SULFUR DIOXIDE

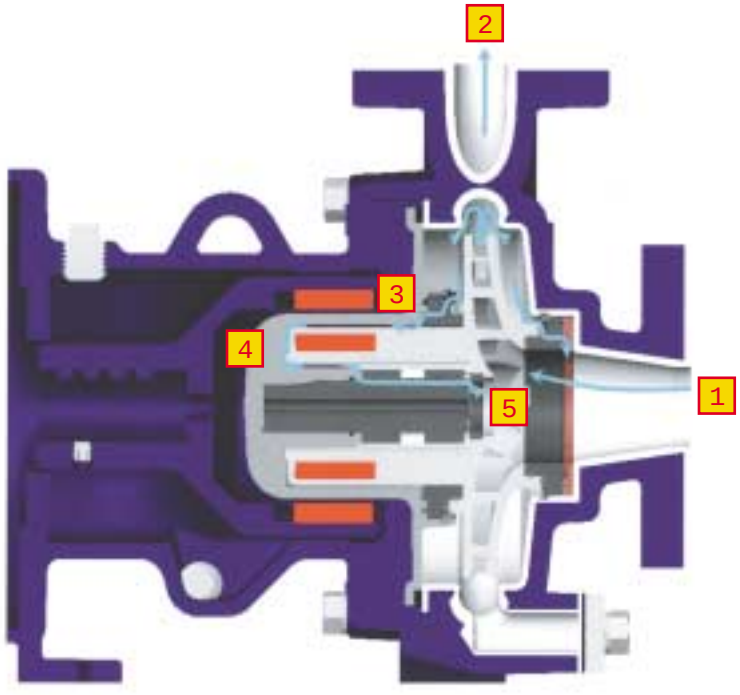
Features & Benefits

The TB-mag series of pumps provides the user with the most advanced non-metallic mag-drive technology available today.

- ***Pump volatile liquids using a non-metallic mag-drive pump.*** TB-mag pumps use pressurized radial bearings for increased flash resistance.
- ***Thrust balanced impeller*** eliminates axial bearing problems during low suction pressure operation. The thrust balancing system remains effective even if the pump is severely cavitating or if there is entrained air in the fluid. An auxiliary bearing is standard on all models, to protect the impeller.
- ***Increased pump life and reliability*** are possible because the pre sure-balanced impeller greatly reduces stresses on the impeller.
- ***Silicon carbide replaceable wear parts, including all wear rings,*** is a standard feature usually found only on expensive pumps such as API pumps.
- ***Particulates are excluded from the containment shell/inner magnet gap.*** The wear ring behind the impeller stops large particles from entering and damaging this area. This prevents environmental leaks and protects your investment.
- ***The NPSHr is equivalent to standard ANSI installations*** because the pump has a fully-open impeller eye.
- ***Efficiency is equal to sealled ANSI pumps.*** Low losses and a non-conductive containment shell contribute to high efficiency pumping.
- ***One bolt size*** eliminates assembly mistakes and simplifies maintenance.
- ***Wear rings work as secondary bearings to protect impeller/inner magnet assembly*** in the unlikely event of a bearing failure.

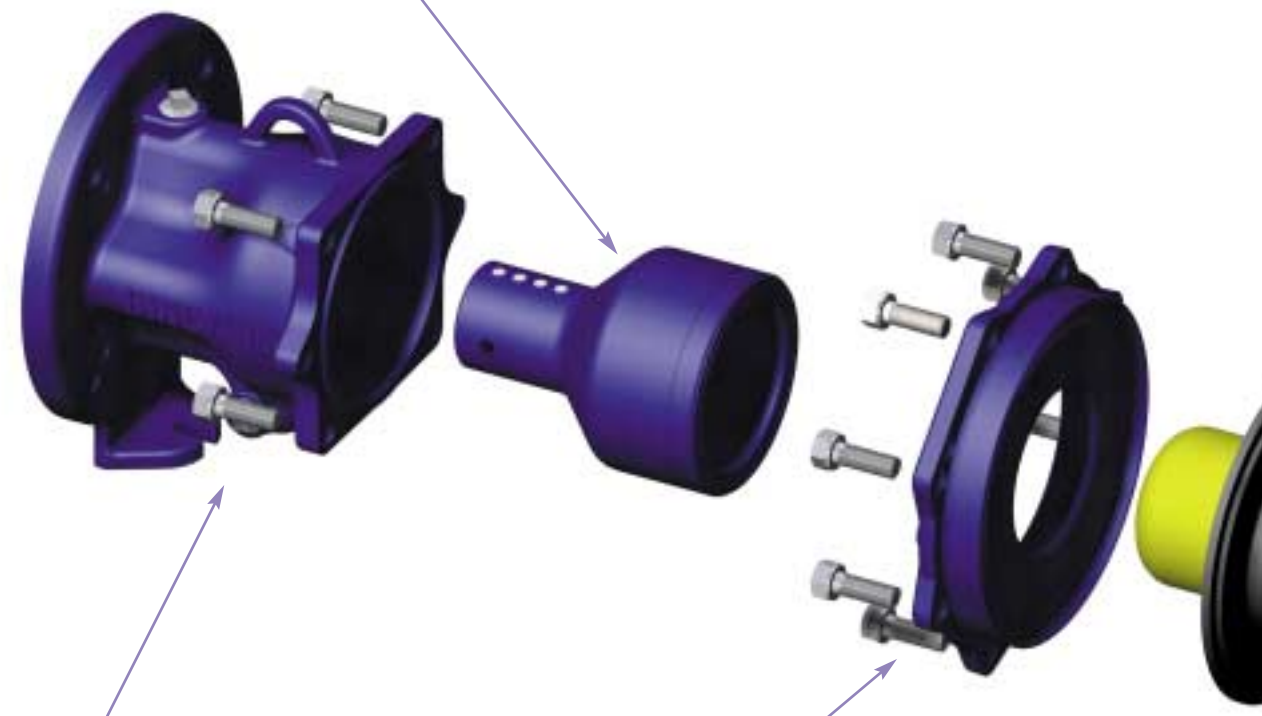
Internal Circulation and Thrust Balancing

The single, enclosed impeller/magnet assembly is free to rotate and slide on the central cantilevered shaft. The main flow of liquid enters the impeller 1 and is pressurized and then expelled into the volute 2 and out the discharge. A small portion of the flow passes behind the impeller and through the back wear ring clearance 3 , and then into the balance chamber. This liquid then flows through and past the bushings 4 to exit at the valve 5 . If the impeller moves forward, the valve is opened to a greater degree and the balance chamber pressure is reduced. This causes the impeller to react with a net force towards the motor. However, the valve is now closing and the balance chamber pressure increasing. This moves the impeller towards the suction. The net result is a very stable axial position for the impeller. There are no axial bearings and the radial bearings always operate in a pressurized fluid environment.



OUTER MAGNET ASSEMBLY

One drive size per motor frame minimizes inventory requirements. Simple keyless design means assembly with motor shaft is quick and easy. Remove outer magnet assembly by threading a bolt into the central tapped hole.



ADAPTER

Mates NEMA C-face motors to the pump. Can mount 56, 143/5TC, 182/4TC and 213/5TC motors directly without spacer plates. Integral foot mates to existing ANSI base plates. All mounting bolts conveniently accessed from outside the adapter to simplify motor/pump mating. Coated with premium water-based epoxy primer and top coat.

CONTAINMENT RING

Extra-heavy duty, one-piece cast ductile iron casting. Precisely aligns and supports the containment shell in the casing. Is separate from the adapter to allow servicing of the motor without opening the liquid end of the pump. Coated with premium water-based epoxy primer and top coat.

SHAFT

Replaceable, straight, sintered silicon carbide shaft cantilevered from the containment shell. Oversized to safely handle all load combinations. Cantilever design leaves impeller suction open for best possible performance.

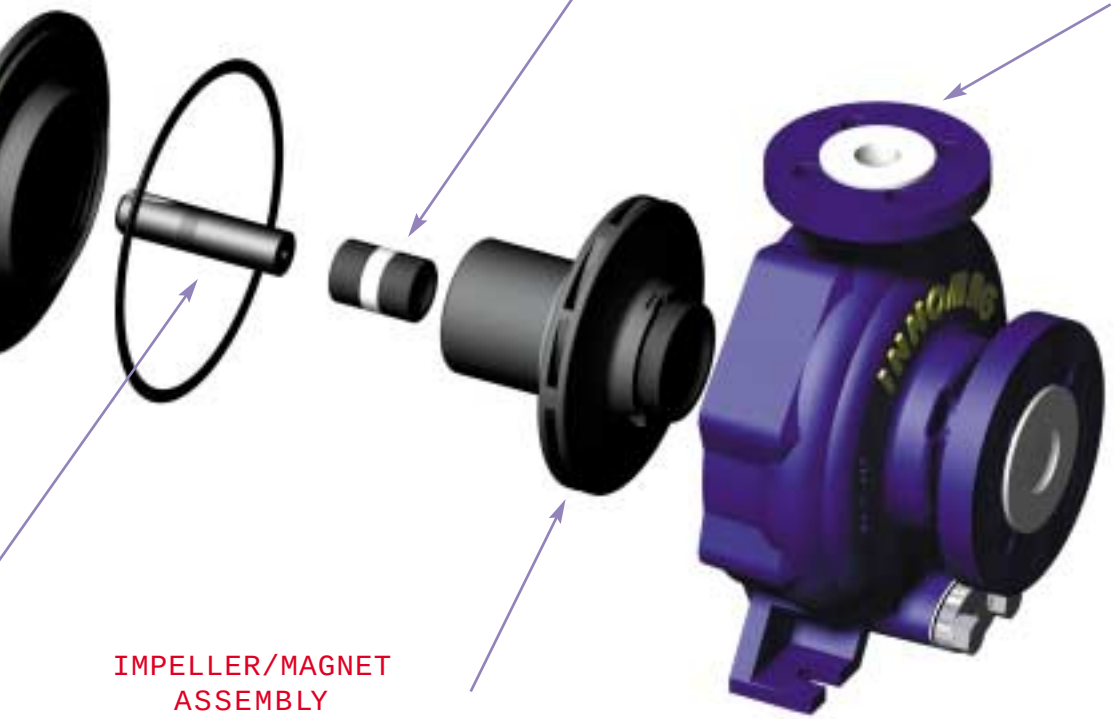
STRUCTION

CONTAINMENT SHELL

One-piece carbon fiber TEFZEL® molding for a combination of strength and chemical resistance. Reinforced socket for shaft mounting. Outer pressure housing made from a Kevlar® composite. Kevlar® provides the best combination of pressure and shock resistance.

RADIAL BEARINGS

Dual carbon graphite or sintered silicon carbide (SiC). Individually replaceable and flexibly mounted for full alignment with shaft. Carbon graphite provides best dry running performance while the SiC bearings provide the longest life and smallest temperature rise. Pure PTFE spacer used to separate the bearings.



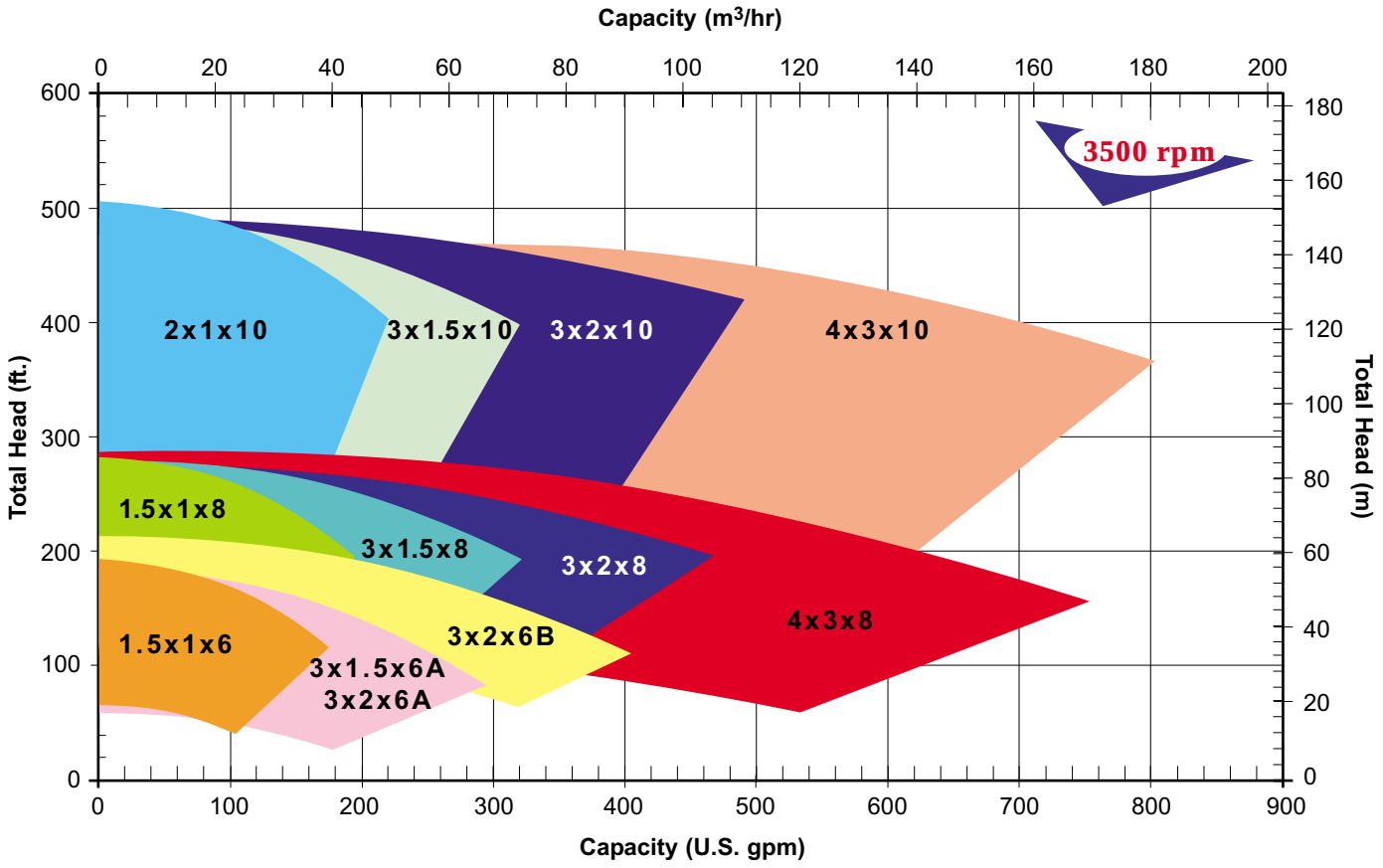
CASING

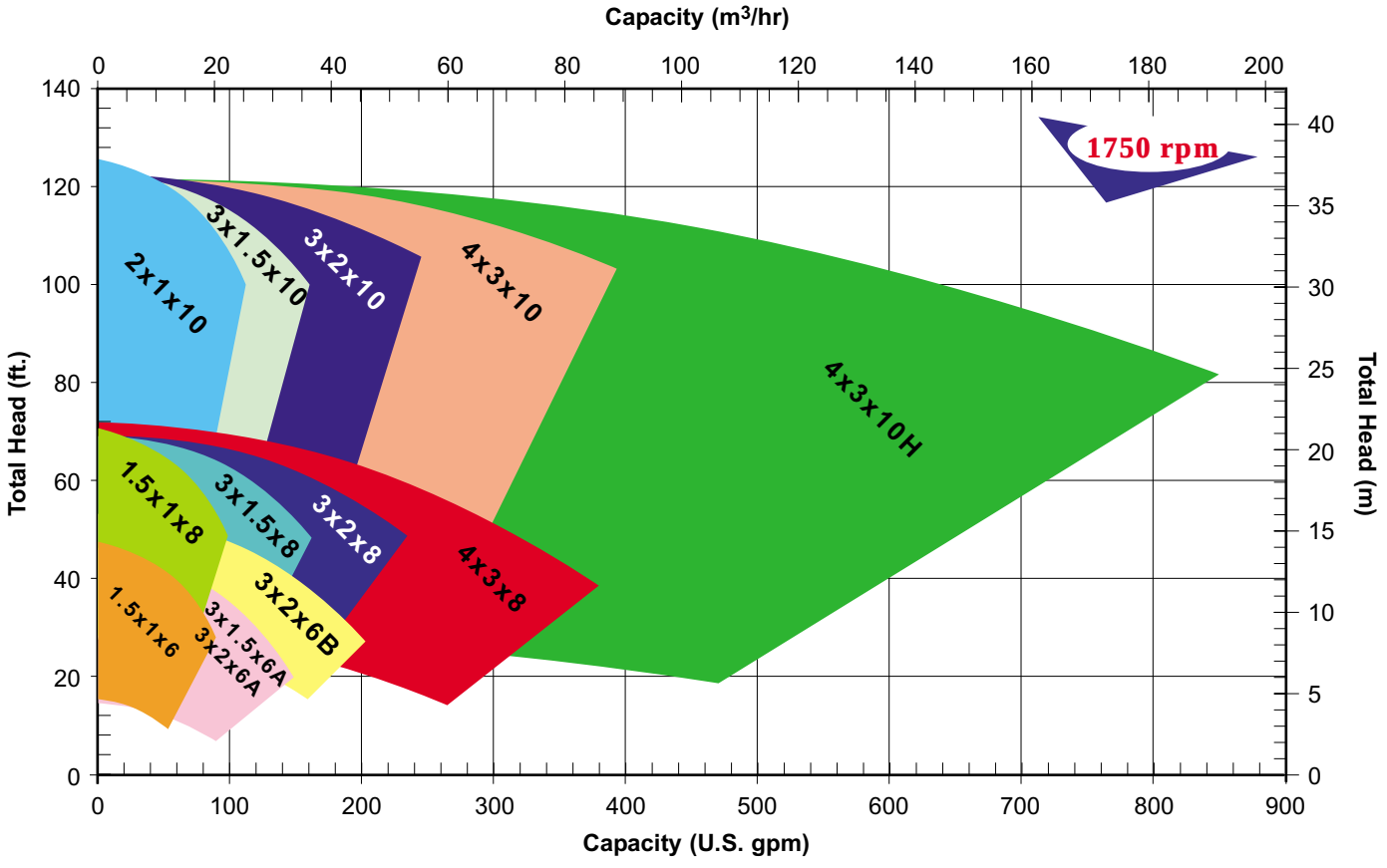
Top centerline discharge, one-piece cast ductile iron with bonded TEFZEL® lining. Lining minimum of 1/8" (3 mm). Provides nearly universal corrosion resistance and extremely low maintenance. Coated with premium water-based epoxy primer and top coat. Casing drain is standard.

IMPELLER/MAGNET ASSEMBLY

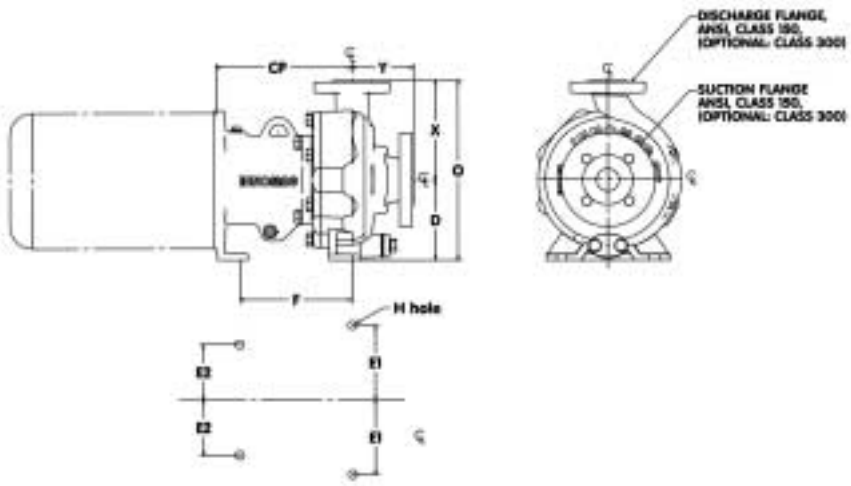
Molded one-piece enclosed impeller with replaceable sintered silicon carbide wear rings. Molded from carbon fiber-reinforced TEFZEL® for optimum strength and chemical resistance. High efficiency, low NPSH design with fully open impeller eye. Corresponds to sealed ANSI pump performance characteristics. Replaceable SiC thrust control valve.

Performance Curves





Pump Dimensions



Model	Size, Suction x Discharge x Nominal Impeller	STD. NO.	CP	D	2E1	2E2	F	H	O	X	Y
			Diameter								
TB-mag A	1½ x 1 x 6 (38 x 25 x 152)	AA	8.7 (221)	5.25 (133)	6 (152)	0 (0)	7.25 (184)	0.625 (16)	11.75 (298)	6.5 (165)	4 (102)
TB-mag A	3 x 1½ x 6 (76 x 38 x 203)	AB	8.7 (221)	5.25 (133)	6 (152)	0 (0)	7.25 (184)	0.625 (16)	11.75 (298)	6.5 (165)	4 (102)
TB-mag A	3 x 2 x 6 (76 x 51 x 152)		8.7 (221)	5.25 (133)	6 (152)	0 (0)	7.25 (184)	0.625 (16)	11.75 (298)	6.5 (165)	4 (102)
TB-mag B	1½ x 1 x 8 (38 x 251 x 203)	AA	11.3 (287)	5.25 (133)	6 (152)	0 (0)	7.25 (184)	0.625 (16)	11.75 (298)	6.5 (165)	4 (102)
TB-mag B	3 x 2 x 6 (76 x 51 x 152)		11.3 (287)	5.25 (133)	6 (152)	0 (0)	7.25 (184)	0.625 (16)	11.75 (298)	6.5 (165)	4 (102)
TB-mag B	3 x 1½ x 8 (76 x 38 x 203)	A50	11.3 (287)	5.25 (133)	6 (152)	0 (0)	7.25 (184)	0.625 (16)	16.75 (426)	8.5 (216)	4 (102)
TB-mag C	3 x 2 x 8 (76 x 51 x 203)	A60	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	17.75 (451)	9.5 (241)	4 (102)
TB-mag C	4 x 3 x 8 (102 x 51 x 203)	A70	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	19.25 (489)	11 (280)	4 (102)
TB-mag C	2 x 1 x 10 (51 x 25 x 254)	A05	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	16.75 (426)	8.5 (216)	4 (102)
TB-mag C	3 x 1½ x 10 (76 x 38 x 254)	A50	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	16.75 (426)	8.5 (216)	4 (102)
TB-mag C	3 x 2 x 10 (76 x 51 x 254)	A60	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	17.75 (451)	9.5 (241)	4 (102)
TB-mag C	4 x 3 x 10 (102 x 51 x 254)	A70	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	19.25 (489)	11 (280)	4 (102)
TB-mag C	4 x 3 x 10 H (102 x 51 x 254)	A70	11.3 (287)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	19.25 (489)	11 (280)	4 (102)

Not to be used for construction. Dimensions are: inches (mm)

Specifications

Temperature Range	-20º to +250ºF (-29º to 121ºC)
Maximum Power	TB-mag "A" to 10hp @ 3500 rpm TB-mag "B" to 30hp @ 3500 rpm TB-mag "C" to 65hp @ 3500 rpm
Maximum Discharge Pressure	300 psi (20.6 bar)
Flange Connections	ANSI Class 150 raised face. Class 300
optional.Mounting	ASME/ANSI B73.1M 1991 footprint.

QUICK RESPONSE FORM

If you are interested in the TB-mag Series and would like our sales department to review and contact you on a current application, simply copy this page and fax the completed application to : **KTH Sales, Inc. Fax 219-769-0263**

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Signature _____ Date _____

New Application?	Yes No	If yes, make & model of current pump:
Describe Service/Duty:		
Fluid/Concentration:		
Flow (gpm):		Vapor Pressure (psia):
TDH (ft):		Discharge Pressure (psig):
Temp (°F):		Suction Pressure (psig):
Specific Gravity:		NPSHa (ft):
Viscosity (cps):		Particulates? Size (micron)/%:

Additional Comments/Sketches:

INNOMAG Advanced Sealless Pumps

KTH Sales, Inc.
8574 Louisiana Pl.
Merrillville, IN 46410
Phone: 219-736-0060
Fax: 219-769-0263

www.KTHSales.com sales@KTHSales.com

Note: Information contained herein is subject to change without notice.
Pump curves illustrated for print reproduction; actual curves may vary.

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