

DB-Series Pumps



Global Pumping Solutions





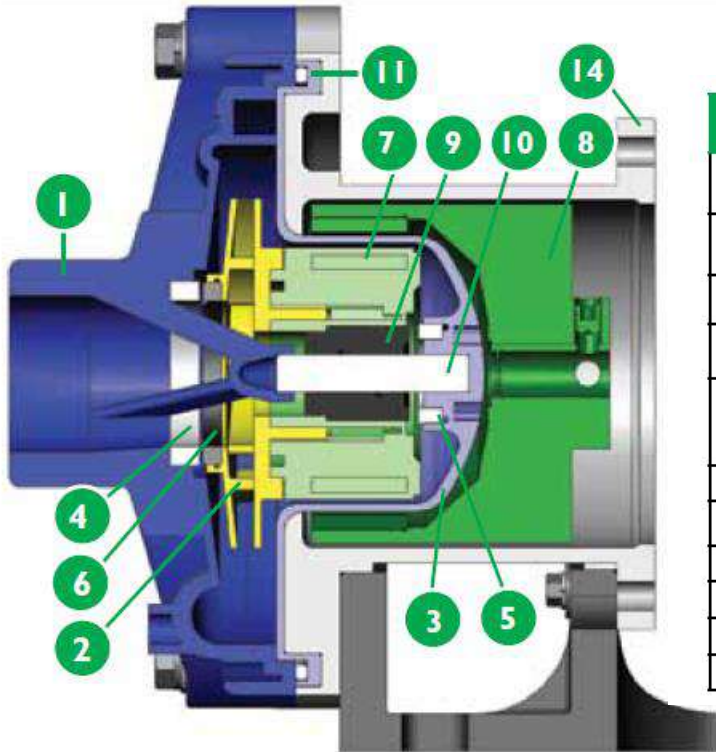
FTI Mag Drive Summary

- **Eliminates seal failures** – prevents liquid leaking from the pump
- **Improved reliability** – reduces downtime due to seal maintenance
- **More economical** – eliminates expense of replacement seals and labor to replace failed seals
- **Easier to apply** – no need to determine correct seal combination or use expensive specialized seals
- **Run dry ability** – FTI mag drive pumps can run dry making them less prone to operator error or system upset
- **Engineered for aggressive liquids** – FTI mag drive pumps are engineered to pump the most aggressive liquids



DB-Series B.O.M.

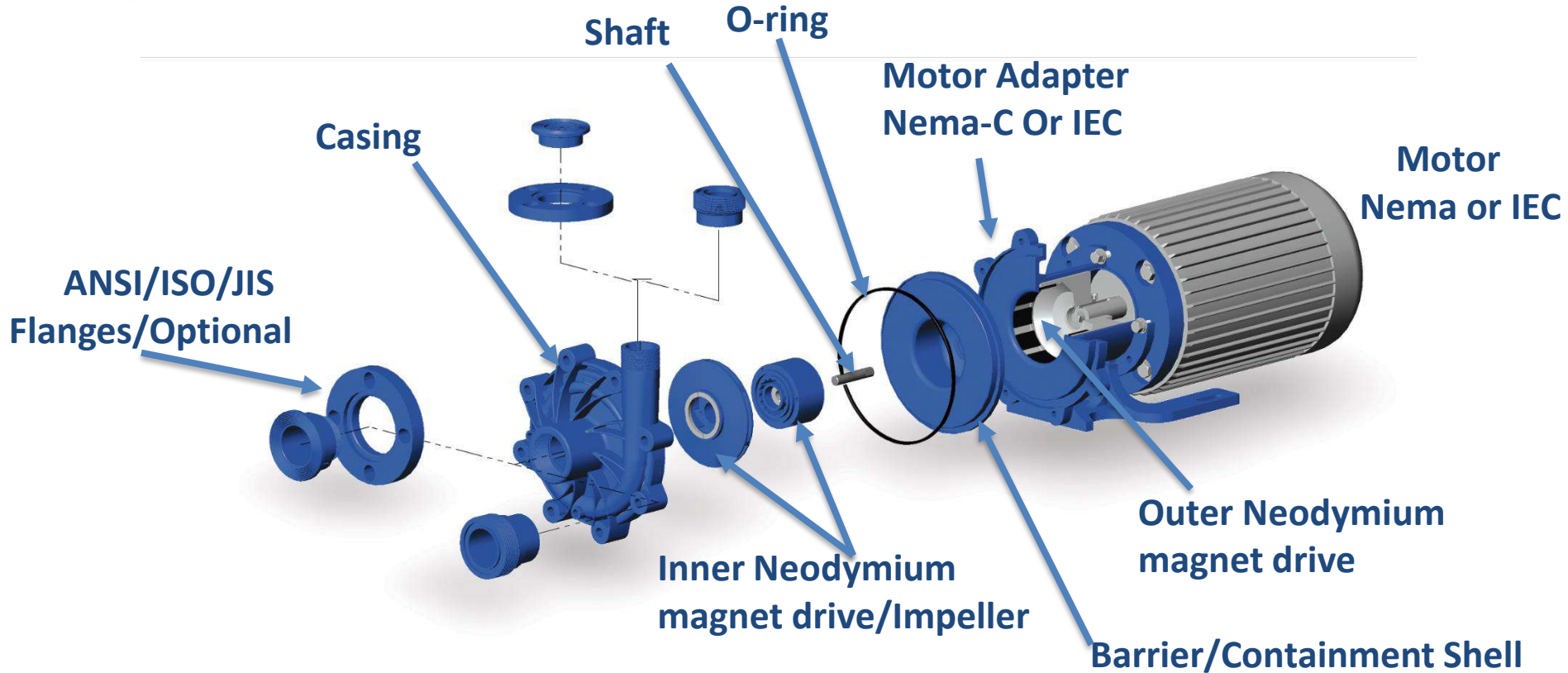
Legende
#1 - 4.18" (106.2 mm)



DB Series

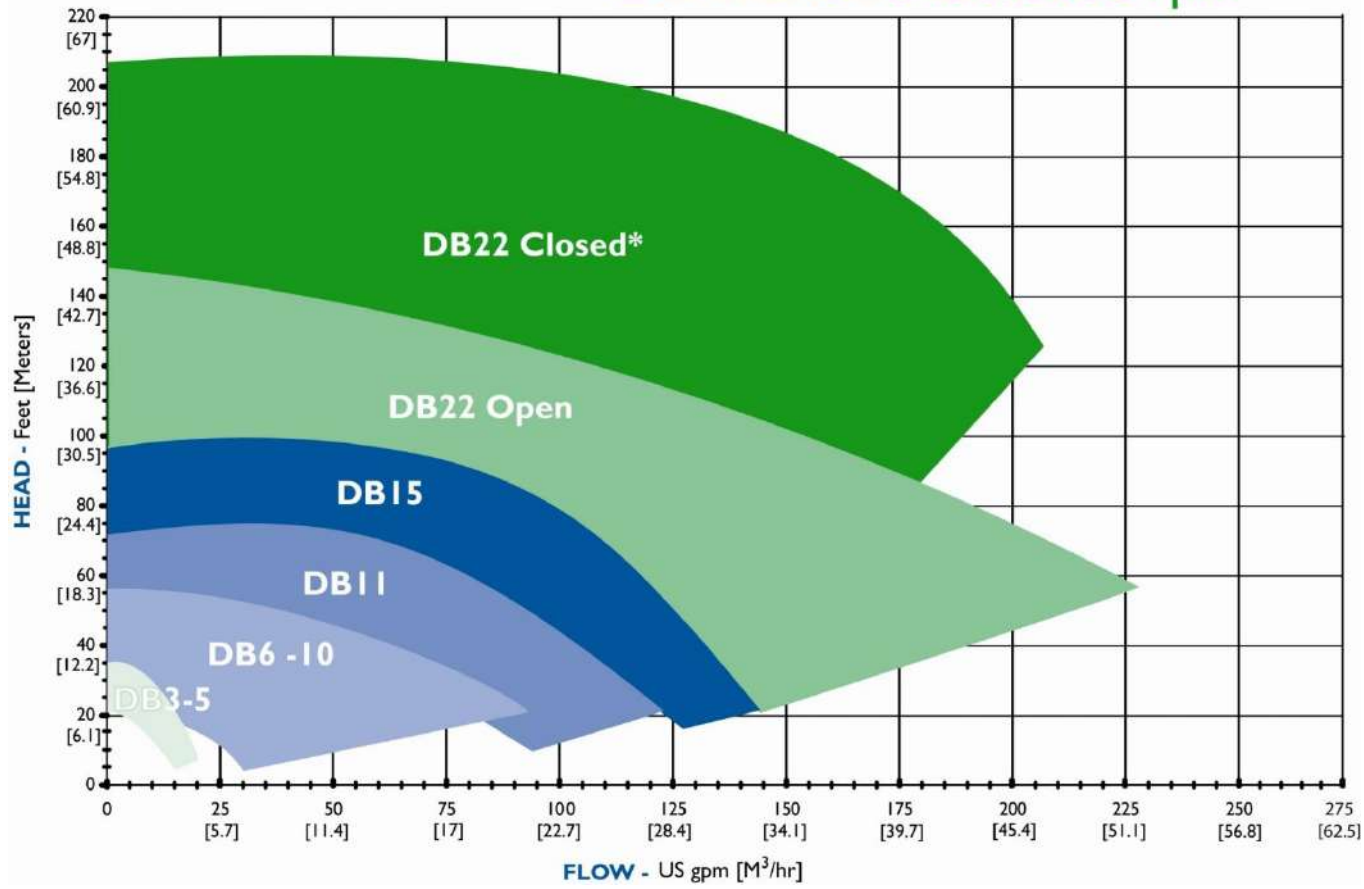
| Item | Description | Polypropylene Models | PVDF Models |
|-----------------|---|---|--|
| 1, 2, 3, 15, 16 | Housing, impeller, barrier, separator plate, inner volute | Glass-fiber reinforced polypropylene | Carbon-fiber reinforced PVDF |
| 4 | Housing thrust ring, inner volute thrust ring | High-purity alumina ceramic, silicon carbide | |
| 5 | Barrier thrust ring | High-purity alumina ceramic | |
| 6 | Impeller thrust ring | Molybdenum disulfide filled PTFE, silicon carbide | |
| 7 | Inner drive magnet | Neodymium iron boron magnets encapsulated in unfilled polypropylene | Neodymium iron boron magnets encapsulated in unfilled PVDF |
| 8 | Outer drive magnet | Nickel-plated neodymium iron boron magnets / steel | |
| 9 | Bushing | Carbon, PTFE, high purity alumina ceramic, silicon carbide | |
| 10 | Shaft | High purity alumina ceramic, Hastelloy C, silicon carbide | |
| 11, 12, 13 | O-ring | FKM, EPDM (Simriz®, Kalrez® - DB only) | |
| 14 | Motor adapter | Glass-fiber reinforced polypropylene and/or ductile iron | |
| 17 | Fill/drain plugs (SP only)* | Polypropylene | PVDF |

DB Series Exploded View



DB Series Coverage

DB Series 3450/2900 rpm





DB-Series Features & Benefits





DB-Series-Magnet Drive

- 6-pole drive to 2 horsepower
- 8-pole drive to 3 horsepower
- 10-pole drive to 5 horsepower
- ✓ Eliminates any impeller trim on high density fluids up to 1.9sg.

6-pole



10-pole



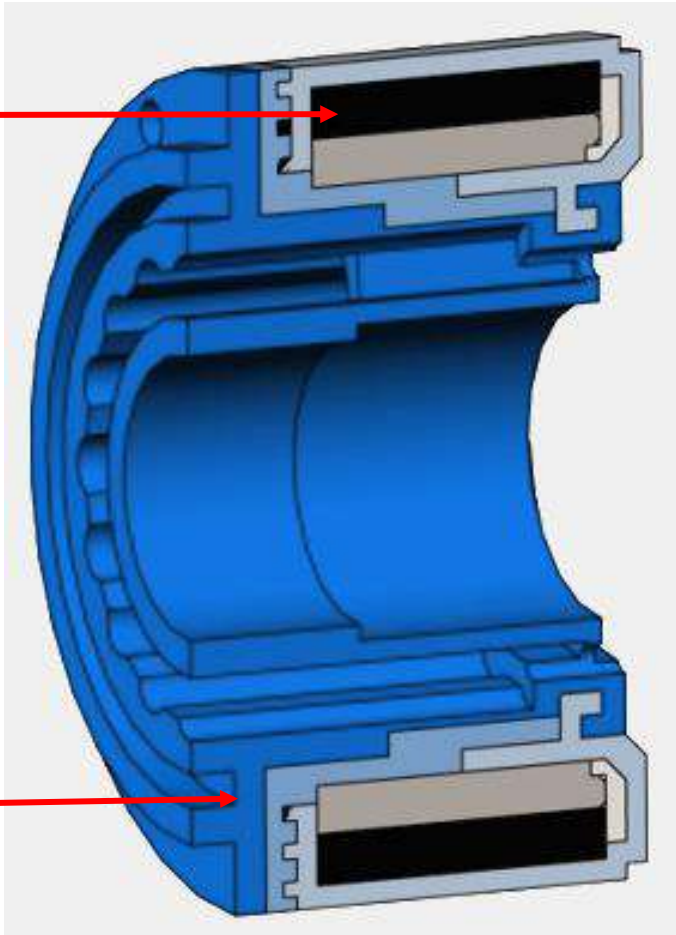
**Inner and Outer Drive Magnet
Drive Pole Should Always Match**

Internal Drive Magnet Molding

Powerful neodymium magnets are the most powerful and efficient magnets found in industrial pumps.

Reducing rotating mass.

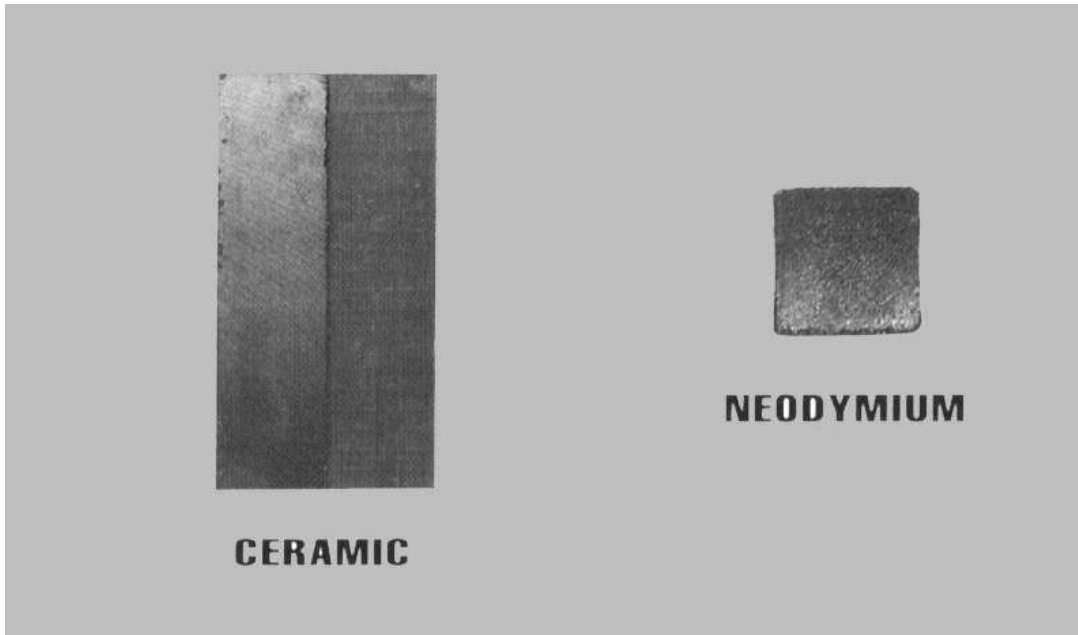
Inner magnets are completely encapsulated in unfilled polypropylene or PVDF to prevent corrosion





Competitors

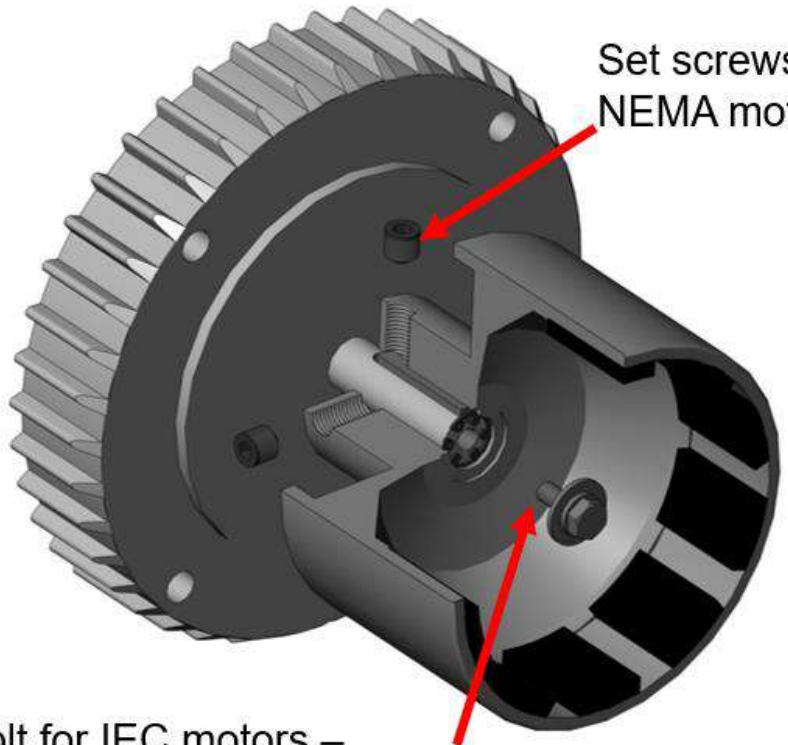
FTI only uses Neodymium magnets



- ✓ Nickel Pated Magnets are corrosion resistant

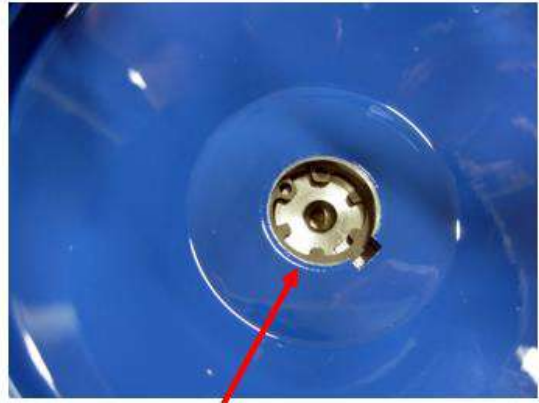
DB-Series-Easy Set Drive

Makes field installation of motors quick and easy



Set screws for NEMA motors

Bolt for IEC motors – allows vertical operation

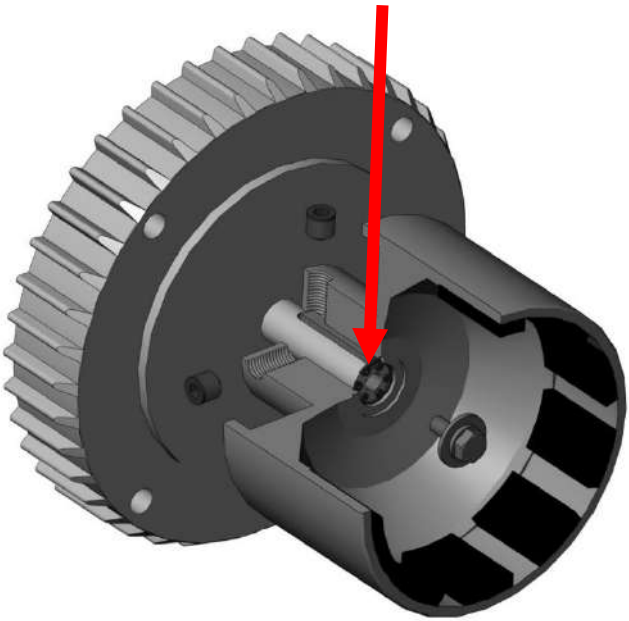


Slide the drive over the motor shaft until it reaches the built in stop and tighten the set screws.



Easy Set Drive

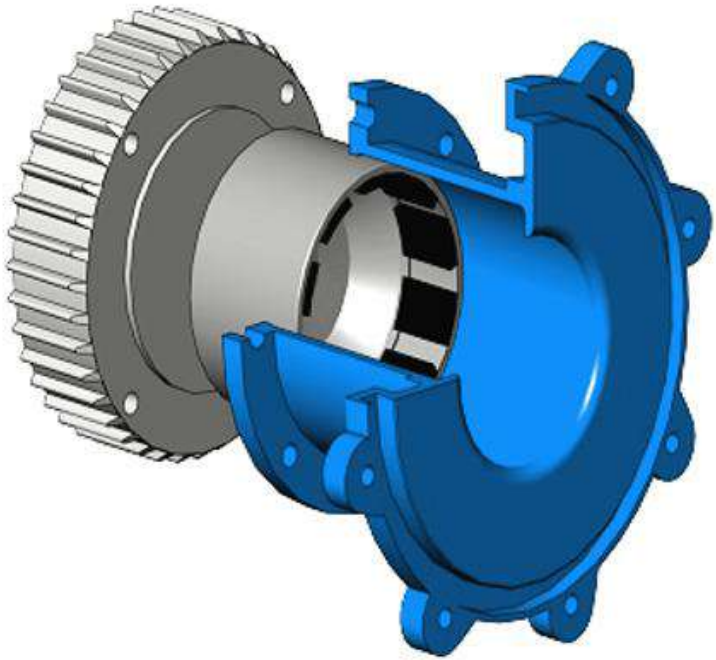
- Vertical Mount with IEC Motor Only
IEC motors comes bolted to shaft



Note: Pump must stay as flooded suction mode



DB-Series-Motor Adapter

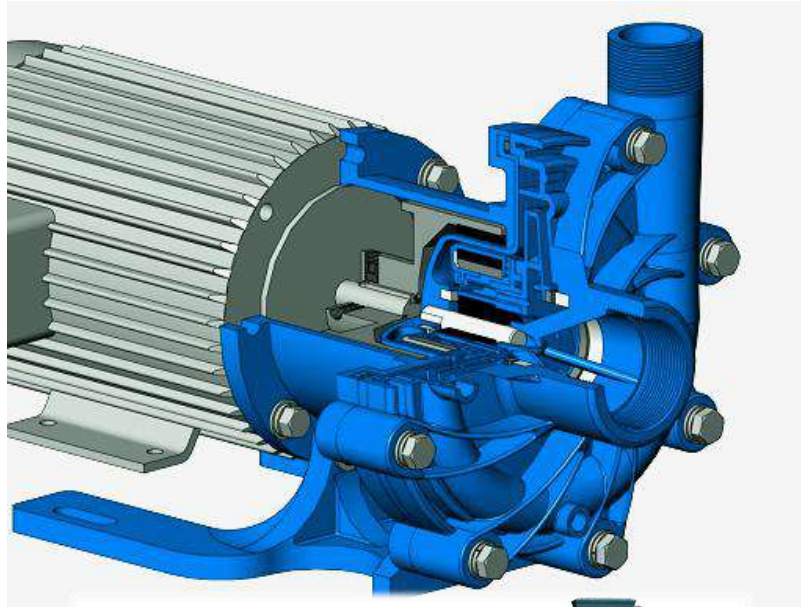


Motor Adapter is removable over the outer drive magnet Nema-C and IEC



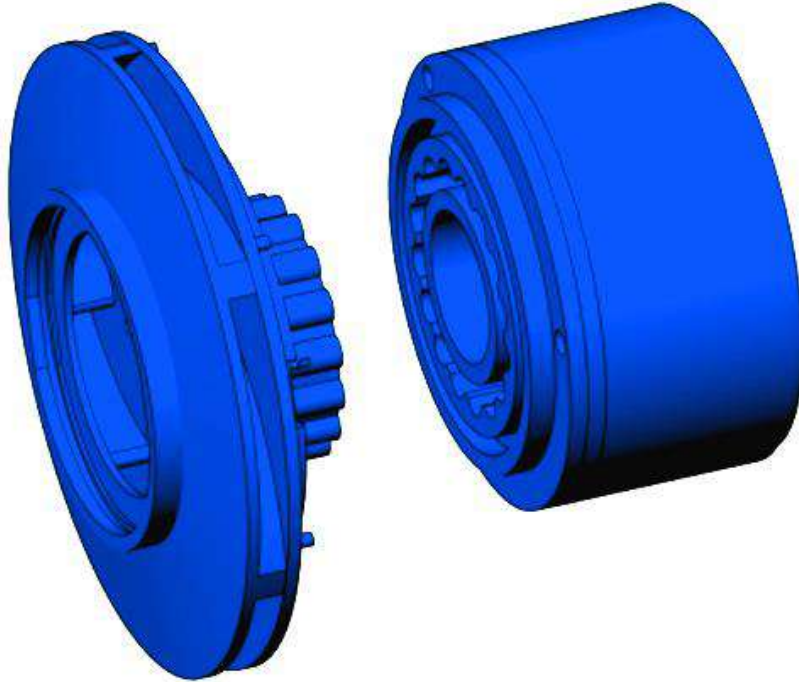
DB-Series Motors

- TEFC
- ✓ Chemical duty
- ✓ Wash-down
- ✓ Explosion proof (ATEX)
- Nema-C Motors can comply with any plant specification.
- IEC Motors





DB-Series-Impeller Assembly



Two Piece Impeller-Allows replacement of impeller without the cost of the drive magnet



DB Series-Multiple Connections



NPT or BSP threaded connections



Flanges ANSI/ISO



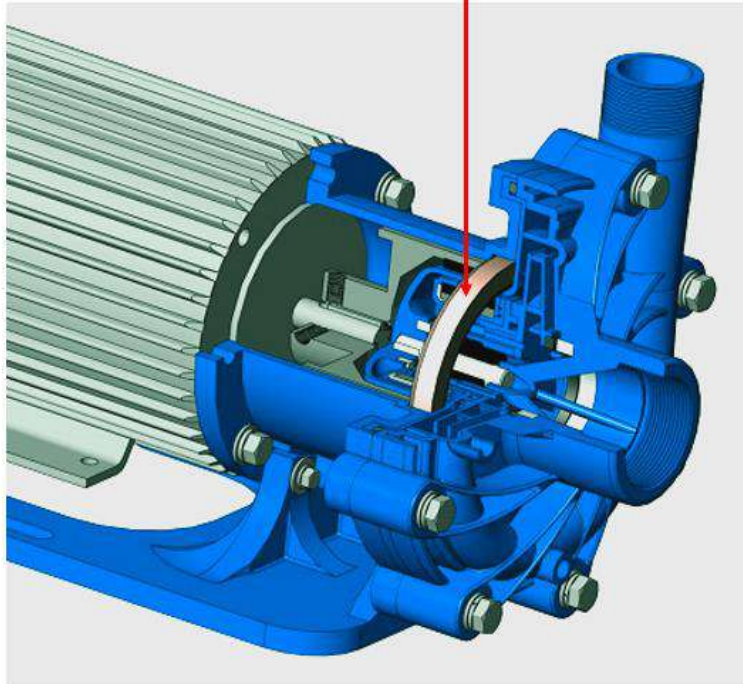
Unions

150 lb. ANSI/ISO PN20/PN40/
JIS 10K or 63mm x 63mm



DB-Series-Bronze Bumper Ring

Non-Sparking Bronze Bump Ring

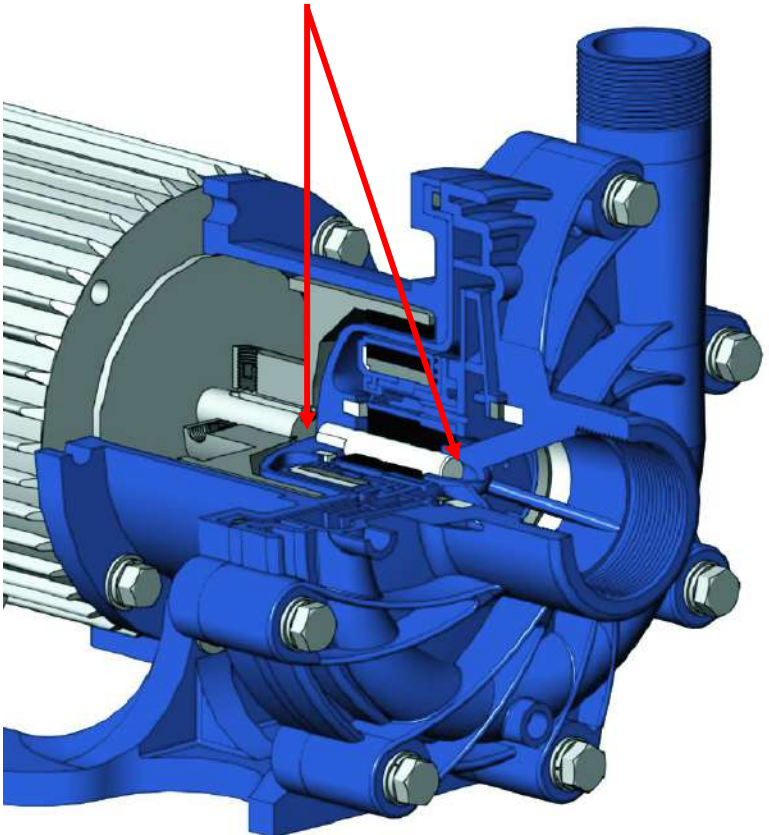


Prevents contact between steel outer drive & steel clamp ring / motor adapter in the event of a motor bearing failure

Optional Bronze Bump Ring for Hazardous Areas and ATEX Compliant

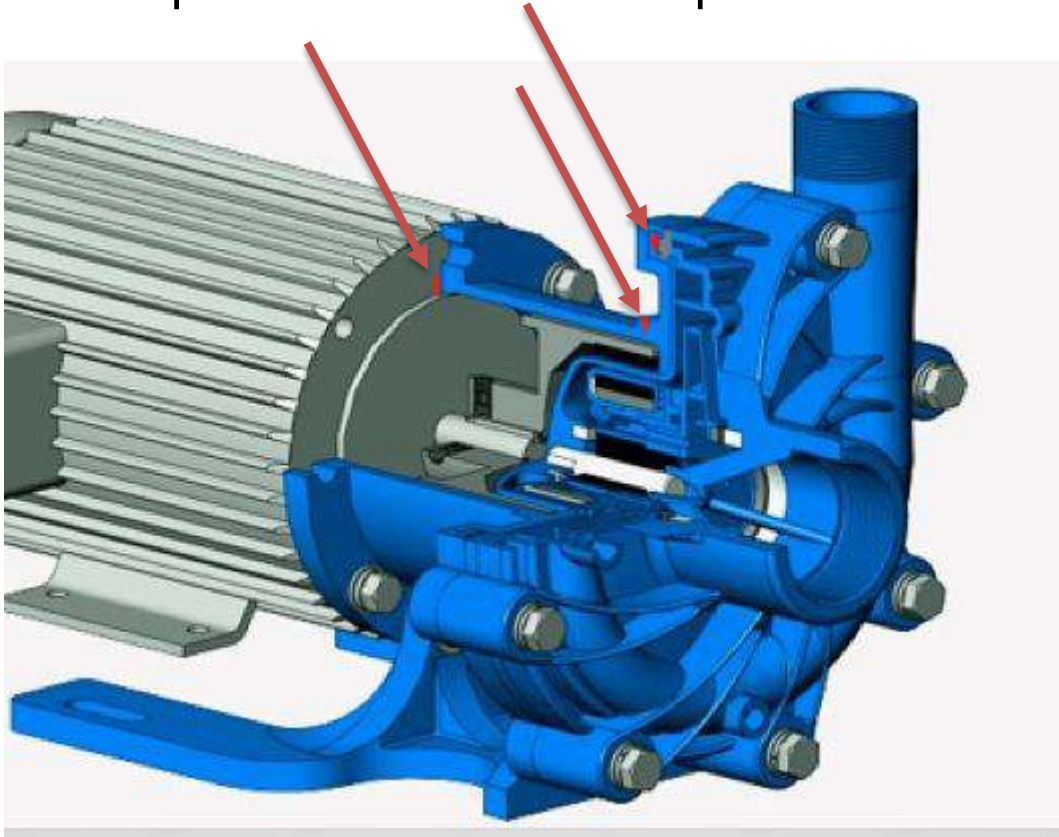
DB Series-Shaft

Supported in the front & back of the pump for maximum strength

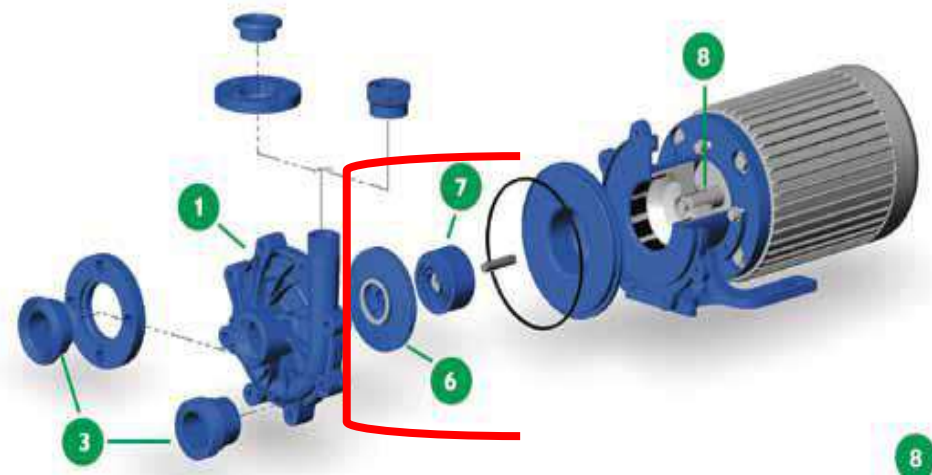


Vapor Protection System

Additional o-rings protect the outer drive magnet and motor face from exposure to corrosive vapors and fumes



DB&SP Series common parts





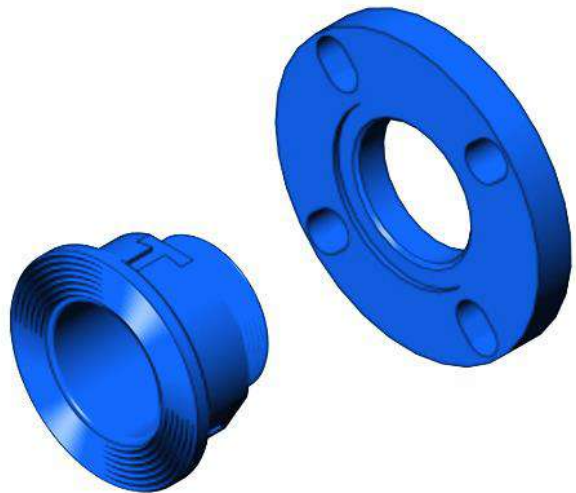
DB-Series Options





Coated Steel or Composite Flanges

- Provides stiff bolting surface
- Aligns with any pipe flange
- Wetted portion is same material as housing (polypropylene or PVDF)





DB Series-Flange

DB 3x2 (76x50 mm)

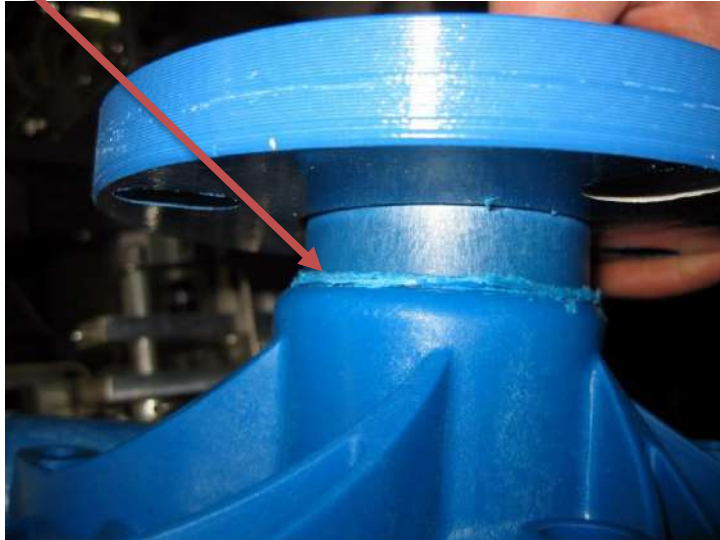


Note: DB3x2 Pump gives same flow rate as our DB22 Pump
3" (76mm) Suction flange only



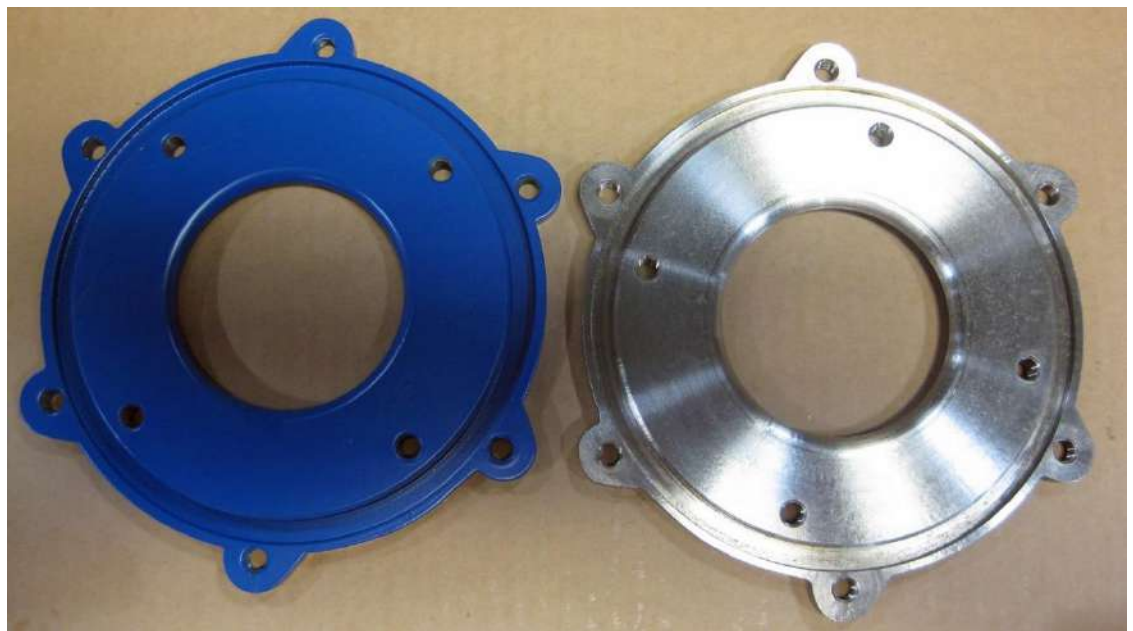
DB-Series Flanges

- Flanges are socket fusion welded for increased strength.
- From DB6 to DB32





Stainless Steel Clamp Ring



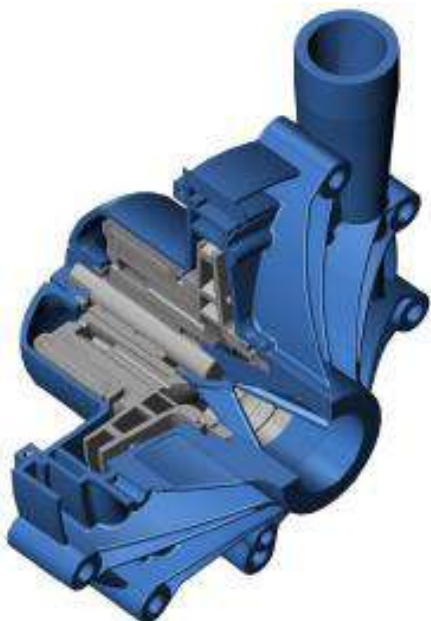
Standard Clamp Ring

316 Stainless Steel Clamp Ring

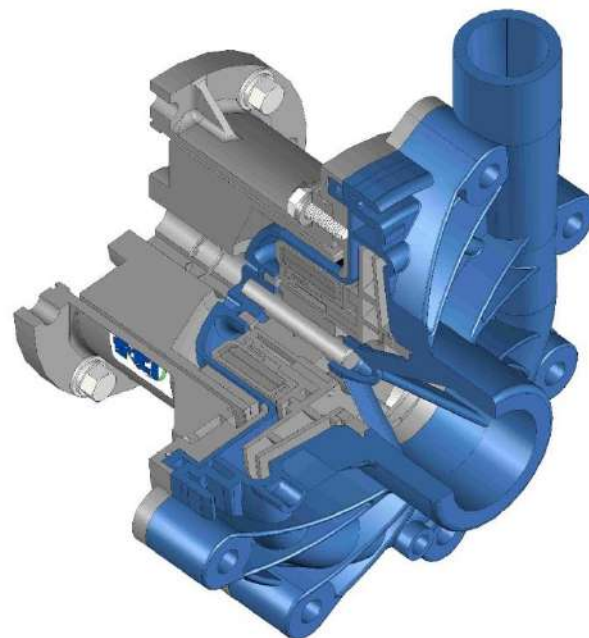
316 stainless steel clamp ring is ideal for applications where the atmosphere contains corrosive vapors or where the pipe work has minor leakage



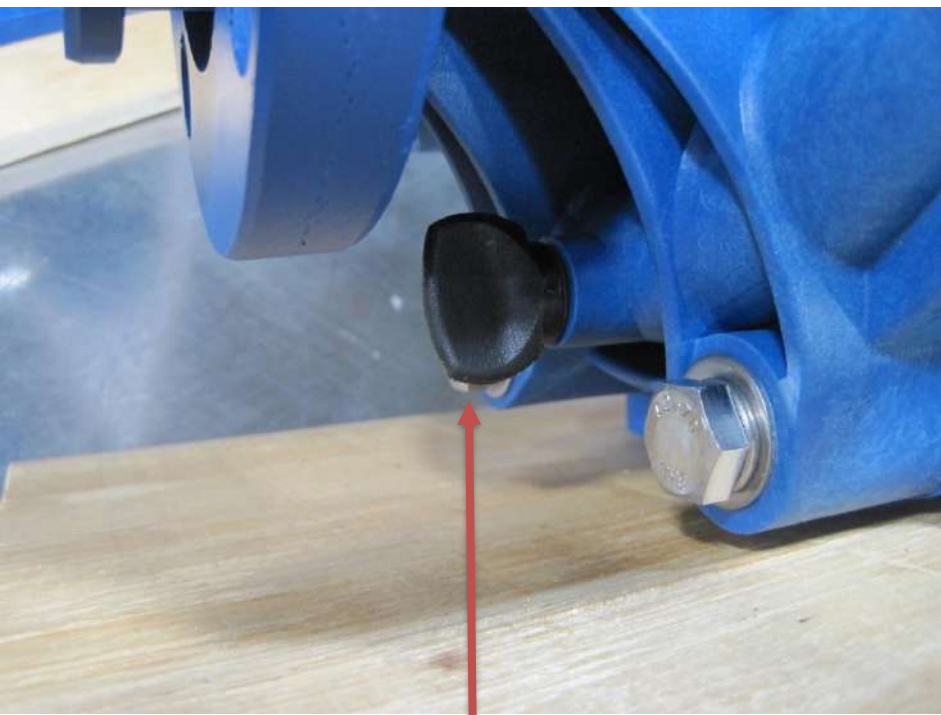
DB Series Wet End-Kit



Wet End Repair Kit Comes Without Motor Adapter



Pump less Motor Kit



Price adder for drain plug





DB-Series Pedestal Mount



DB-Series Gas Motor Mount





DB-Series Air Motor



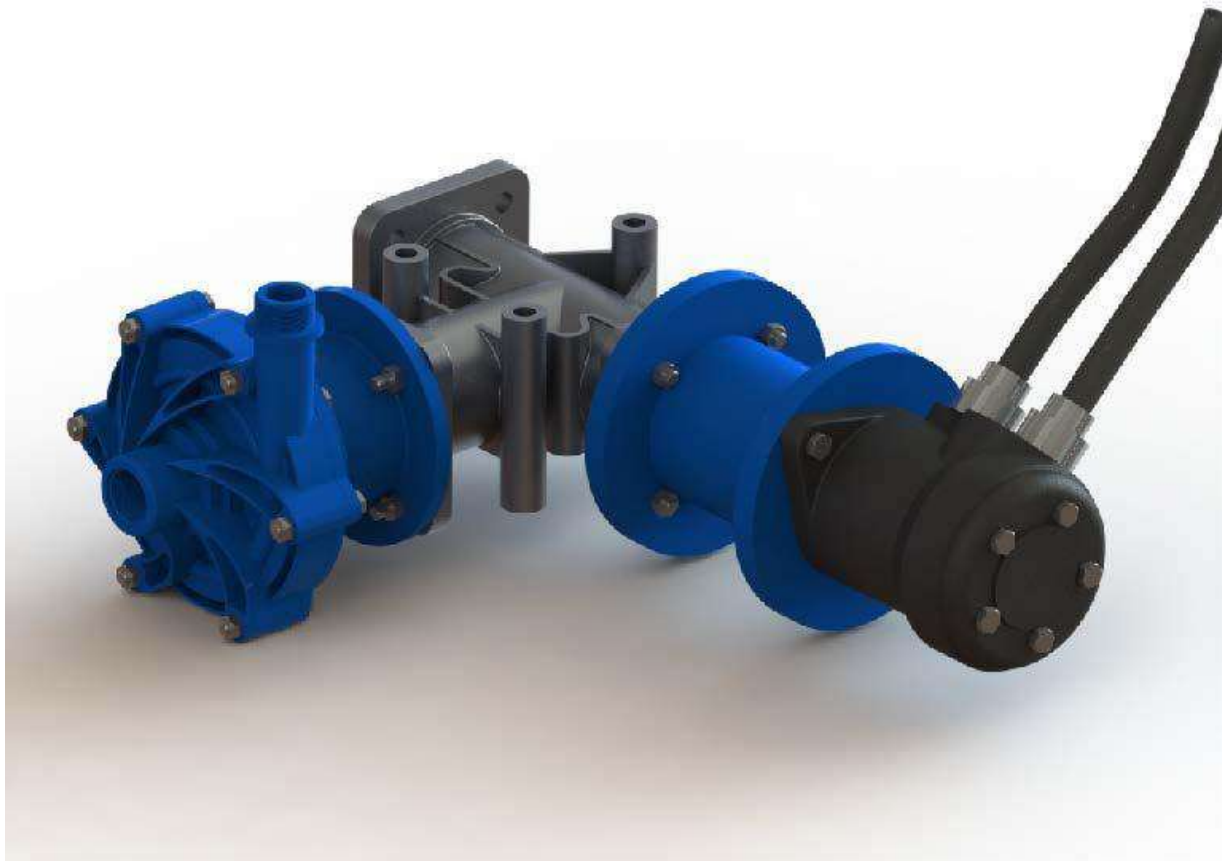
FTI-DB6P



FTI-DB11V



DB-Series Hydraulic Motor





DB-Series Base Plates



316 SS, Coated steel & FRP Base Plates



DB-Series Power Monitor



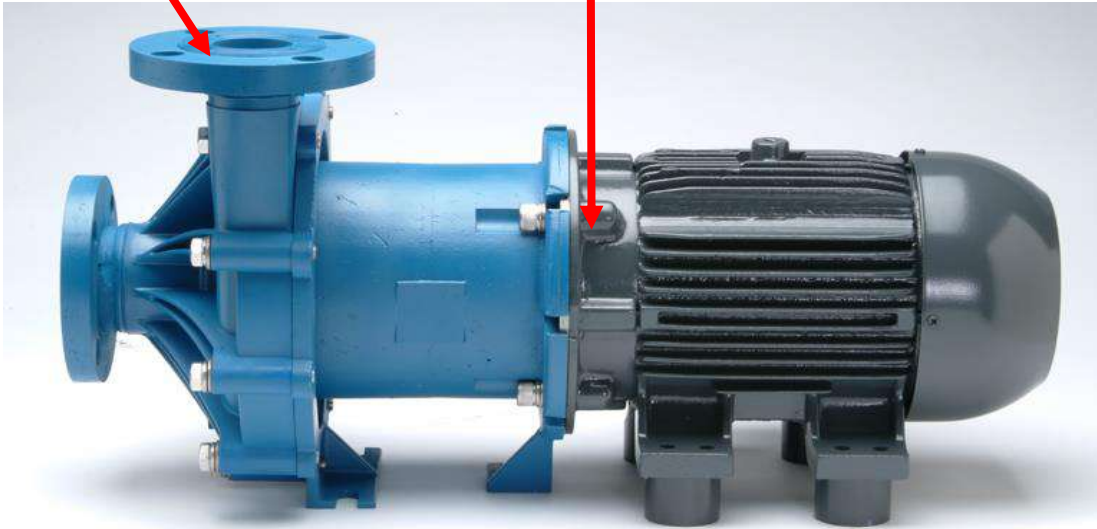
Emotron M20 Power Monitor
FTI recommends on DB10 to DB22 Pumps

M20 is:

“An electronic system that monitors the shaft power of a motor and provides protection against abnormal process conditions - using the motor as a sensor”

To detect abnormal situations here

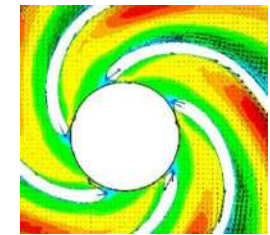
We measure “shaft power” here





The M20 instantly senses when a pump is in trouble and shuts it down preventing damage.

- **Dry running** – Protects pumps with Teflon, ceramic or silicon carbide bushings if no liquid is present
- **Dead heading** – Operating the pump with a closed discharge valve or plugged filter
- **Excess power** – Can be caused by foreign objects being sucked into the pump, changes in system piping or changes in fluid characteristics





How to Stock Pumps

- Don't overlook small pump applications
- 60+% of DB Series pumps are DB10 size and smaller
- Often smaller pump success leads to additional orders of larger pumps
- 25-30% of sales are PVDF construction
- 80% of DB pumps are sold with carbon bushings





DB Series-High Energy Efficiency

Minimize energy costs over the life of the pump!

- FTI's DB6 = 50% BEP
- FTI's DB6H = 55% BEP
- FTI's DB7 = 70% BEP
- FTI's DB8 = 65% BEP
- FTI's DB9 = 55% BEP
- FTI's DB10 = 70% BEP
- FTI's DB11 = 68% BEP
- FTI's DB15 = 70% BEP
- FTI's DB22 = 63% BEP



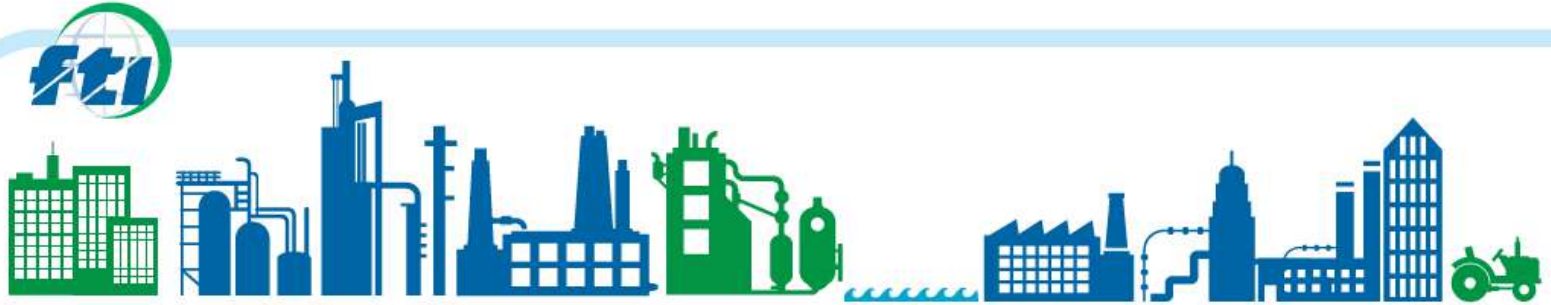


Summary of DB Series Advantages

- Highest efficiency – up to 70%
- Five year warranty – industries best
- Best run dry ability
- High working pressure to 95psig (6.5 Bar)
- Hydraulic coverage up to 225 usgpm (852 l/m or 51m³/h)
- Multiple replacement impellers
- Variety of connections – threaded, flanged, union
- East Set outer drive – perfectly aligns magnets without measuring
- Space saving vertical operation with IEC motor
- Vapor Protection System



FTI-DB Series Applications



DB & SP SERIES INDUSTRIES

- Chemical processes
- Metal plating/working
- Wastewater treatment
- Electronics manufacturing
- OEM equipment supply
- DI & High purity water
- Fume scrubbing
- Mining
- Paper mills
- Printing
- Pharmaceutical
- Chillers





Wastewater

Truck Unload





Wastewater Treatment

- Neutralization
- ✓ Hydrochloric Acid
- ✓ Sodium Hydroxide
- ✓ Sulfuric Acid
- ✓ Sodium Hypochlorite

FTI model DB15P-Polypro



Transfer from bulk storage to day tanks
– *most common application, customers run two pumps at each position*

Sampling pumps (SP Series)

Pumping from totes to day tanks

Used for emergency pump for containment pits

Pumping regeneration chemicals (sodium hydroxide & hydrochloric acid) through ion exchange resin tanks.





Electroplating and Anodizing

Provides flow through eductors.
Eductors allow efficient mixing in plating tanks without adding air.

Provides flow through filters to keep the plating solutions clean.

Pump must be adequately sized to overcome restriction in the filter as it becomes used.

Transfer wastewater and water treatment chemicals in on-site treatment plants.





Chemical Processes

- Bulk transfer to blending stations
- ✓ Sulfuric Acid
- ✓ Nitric Acid
- ✓ Phosphoric Acid
- ✓ HCL

FTI Model DB22V-PVDF





Chemical Manufacturing and Distribution

Transfer chemicals from bulk storage into blending tanks.

Circulate mixtures of chemicals in blending tanks so the chemicals become completely mixed

- **Blending & Distribution**
- ✓ **Caustic**
- ✓ **Ferric Chloride**
- ✓ **Magnesium Chloride**
- ✓ **Citric acid**

FTI model DB11V-PVDF

FTI model DB15P-Polypro





Oil and Gas Applications

- Tanker truck delivery of oil field chemicals including hydrochloric acid. Use Hastelloy shaft for off road durability
- Pumping 98% sulfuric acid in refinery acid washing tower
- Chemical plant recycles acid gas containing hydrogen sulfide and spent sulfuric acid from oil refineries – turns them into fresh sulfuric acid





Metal Finishing

- **Spraying cleaning**
- ✓ **Sodium Hydroxide**
- ✓ **Rust inhibitors**
- ✓ **Hot water rinse**

FTI model DB22P-Polypro





Surface Finishing

- **Electroplating**
- ✓ **Brite Nickel**
- ✓ **Nickel**
- ✓ **Acid Copper**

FTI model DB15P-Polypro

FTI model DB22P-Polypro





Applications

Fume scrubbing – provides pressure & flow to spray nozzles

DI water – used in electronics, contact lens manufacturing, laboratories, cosmetics

Kidney dialysis – provides flow of sodium bicarbonate

Biodiesel – pumps sodium methoxide, hydrochloric acid and acid wash water

Wire products manufacturing – wire cleaning chemicals

Battery manufacturing – transfer of sulfuric acid

Power plants – transfer of boiler treatment & heat exchanger cleaning chemicals

Aquariums – display tanks, filtration



Fume scrubber with FTI mag drive pump



Pursue OEM's

- Original Equipment Manufacturers (OEM's) bring volume
- FTI distributors sell to a number of OEM's
- Promote FTI advantages like high efficiency, run dry and space saving vertical operation





Competitors



Iwaki MDH Or MX-Series



Panworld



Assoma AMX/ T-Mag USA

Iwaki/ Panworld/ Assoma/ World Chempump

- All 3 pumps manufactures are copies of the Iwaki MDH Pumps
- 3 owners worked for Iwaki in Japan



World Chempump

Competitors



March TE-Series



Sethco



Gemmecotti



RENNER



Sondermann

Competitors



Mechanical Seal Pumps

Replacing Mech. Seal Pump “Easy Sell”

- Gland Leaks-Over pressuring gland area
- Wrong seal materials
- Environmental spill/ clean up very costly.





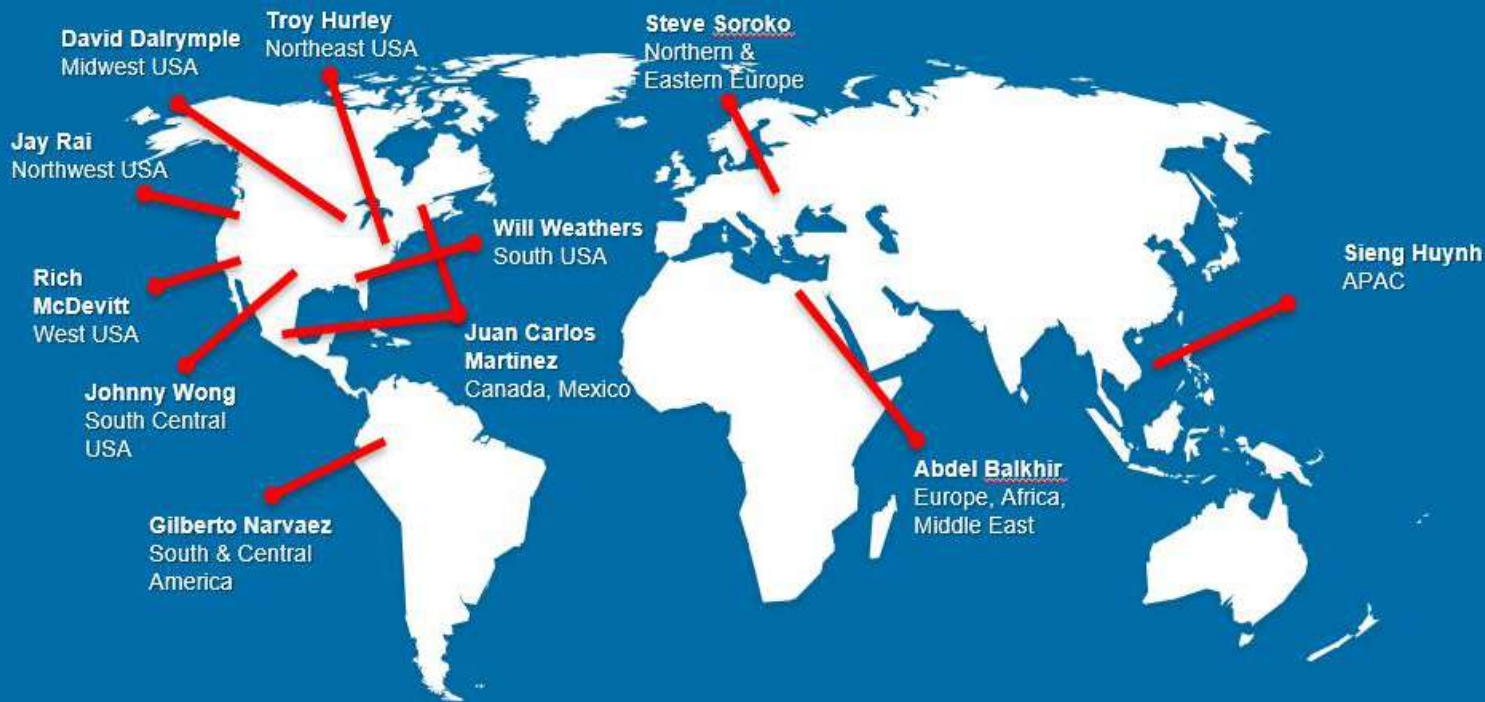
Legende
#1 - 4.18" (106.2 mm)

FTI USA Headquarters Erie, PA

Euro Center In Maintal, Germany

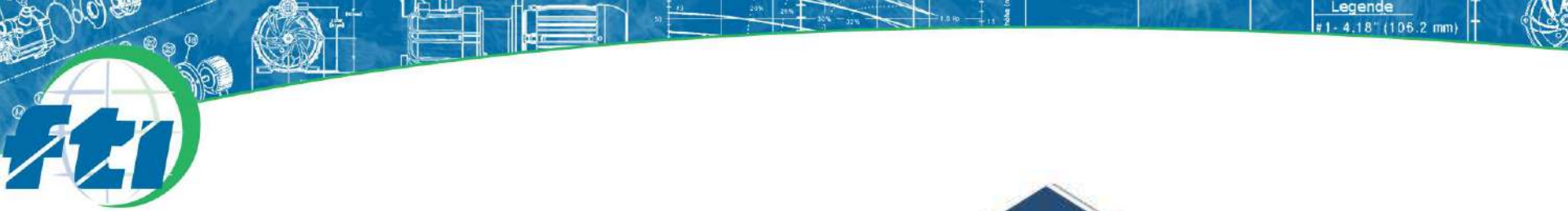


Global Regional Sales Coverage



Joel Klippel – V.P. U.S. Sales

Frank Palucci – V.P. Intern'l Sales



THANK
YOU

