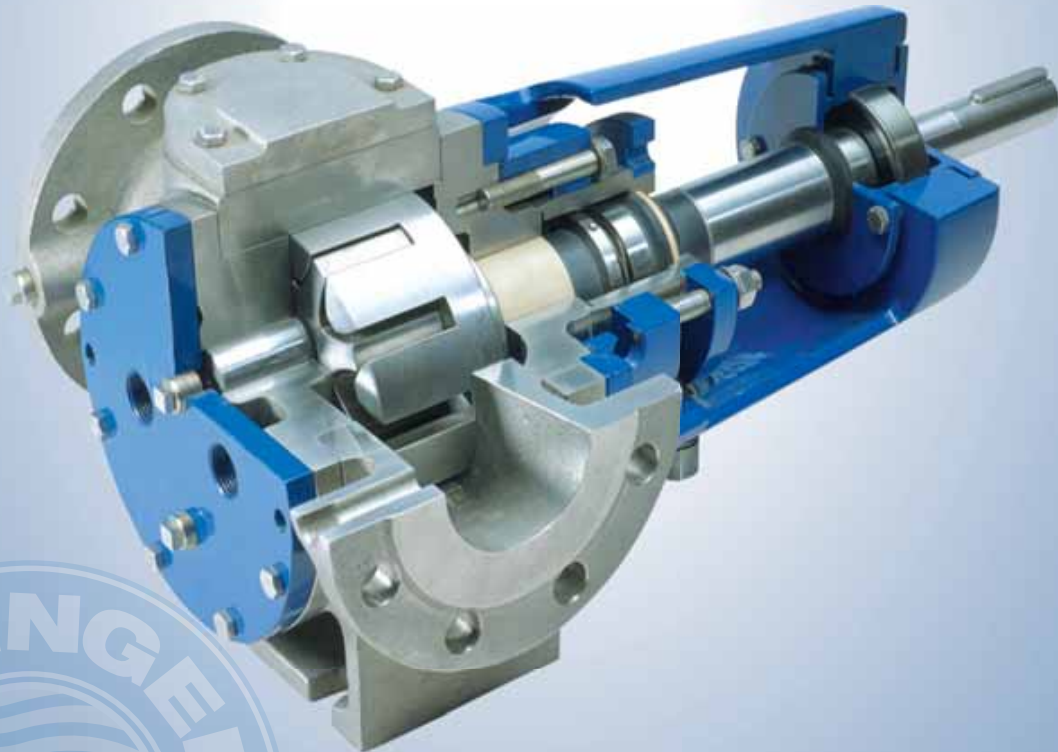




DESMI INC.

ROTAN INTERNAL GEAR PUMPS

Serving industry since 1921
Available in cast iron, carbon steel,
and stainless steel construction





GP/HD/PD/CD/MD SERIES

***DESMI ROTAN, one of the world's
leading manufacturers of internal gear pumps***

DESMI A/S, formerly known as A/S De Smithske, was founded in 1834. Today DESMI A/S develops, manufactures and markets pumps and pumping systems worldwide. The ROTAN pumps are marketed by the DESMI ROTAN division and are distributed by subsidiaries, sales agencies and distributors in more than 40 countries.

The internal gear pump principle was developed in 1915 by a Danish American. In 1921, he licensed a Danish Company to manufacture the pumps, which have been continuously marketed worldwide under the ROTAN name. The unique, modular concept of ROTAN pumps is generally recognized as the most advanced internal gear pump design available today.



Extensive inventory and assembly capability in North America

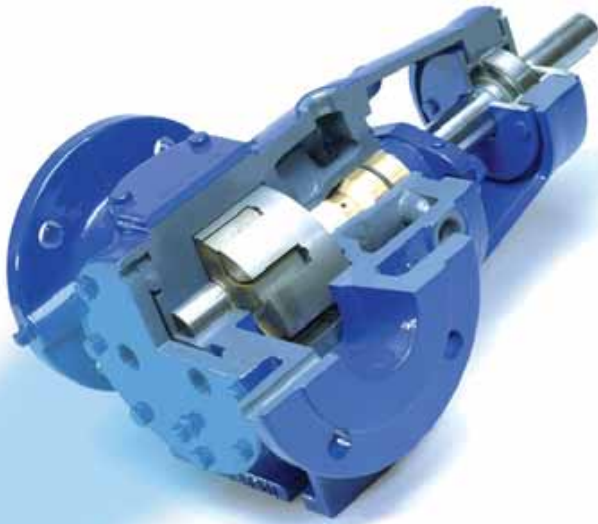


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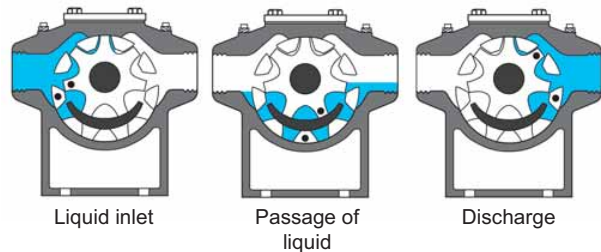
Main office and factory in Aalborg, Denmark



DESMI INC. facility in Norfolk, Virginia



The ROTAN internal gear pump has a standard in-line, opposing connection design. Oversized ports provide **superior self-priming capability** with **gentle liquid handling** as the direction of the liquid flow is changed only slightly. In addition to reduced NPSH requirements, this means high viscosity and shear sensitive materials may be readily pumped. Lubricating and non-lubricating liquids, with appropriate provisions, can be pumped.



Every pump is hydrostatically and performance tested



ISO 9001:2000 certificate

Method of operation

ROTAN pumps offer the following additional advantages and benefits:

- Pumping capability in either direction (all models) allowing installation flexibility
- Modular, back pull-out (except GP) design makes inspection and maintenance easy.
- Construction is simple and rugged with only two rotating parts and a shaft seal, enhancing service life
- External axial adjustment of rotor/shaft for wear and repositioning after maintenance saves time and expense
- Large choice of configurations provide flexibility to handle a wide range of applications
- Substantial inventories are maintained, including stainless steel and mag drive pumps, to meet customer schedules
- Competitively priced, reducing customers' initial and operation costs
- Computerized selection program available for customers needing immediate sizing and related application information
- Standard, integral relief valve mounted on casing saves space and simplifies piping

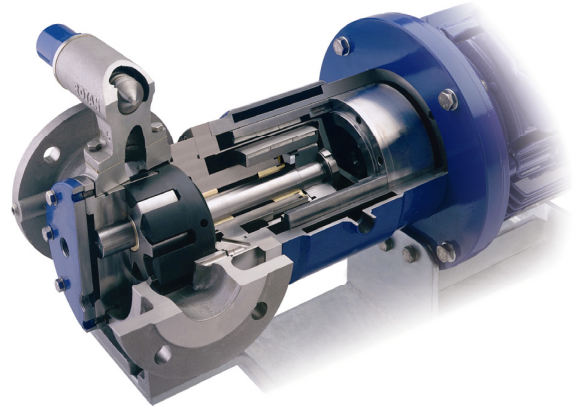


Manufacturing with state-of-the-art CNC equipment

MAGNETICALLY DRIVEN GEAR PUMPS

Seal less centrifugal pumps in the form of canned motor and magnetically coupled pumps have been available for many years. The following article highlights **ROTAN's** advanced magnetic drive technology applied to positive displacement internal gear pumps.

When comparing magnetically driven pumps to mechanically sealed units, ROTAN's **MD Series** eliminates complicated auxiliary seal support systems and the most common cause of maintenance related downtime. Among competitive magnetically driven pumps ROTAN's design is superior.



DESIGN

Proven reliability in extreme application environments positions Rotan as the leading design. Our patented technology is simpler, yet more robust.

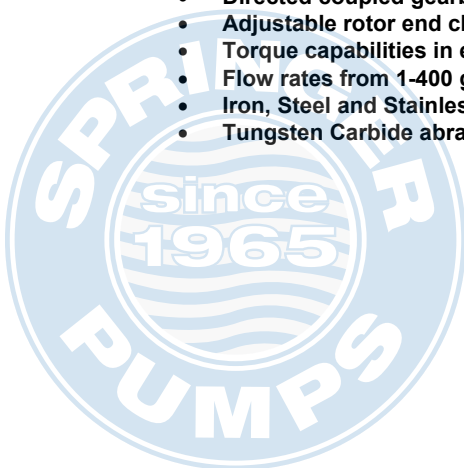
ROTAN MD pumps utilize a patented principle to circulate the pumped product around the magnetic coupling. The rotor includes a series of radial holes that connect to the hollow shaft. During operation, the centrifugal force acting on the liquid within the rotor creates a differential pressure. This force contributes to effective removal of heat generated in magnet area.

ROTAN offers generous magnetic torque capability in excess of 800 ft-lbs. The coupling torque can be significantly upgraded where liquid viscosity and higher discharge pressures are encountered without significant cost penalties.

Internal gear pumps must maintain control of axial clearances. (This is the distance from the face of the rotor to the pump head) Rotan's design includes a pair of opposing thrust bearings to maintain this critical dimension. Because of the special shape of the back of the rotor, the liquid pressure acting on the rotor is dynamically balanced. This hydraulic balancing effectively reduces the loading of the thrust washers ensuring high efficiency and long life while maintaining superior self-priming capabilities.

Rotan's design provides significant benefits. Our customers call out the following reasons to choose ROTAN.

- **Reversible direction of flow with double acting relief valve option available**
- **Coupled direct to NEMA or IEC electric motor for speeds up to 1750 rpm**
- **Directed coupled gearbox with NEMA or IEC electric motor eliminating alignment issues**
- **Adjustable rotor end clearance without opening the system to the atmosphere**
- **Torque capabilities in excessive of 800 ft-lb**
- **Flow rates from 1-400 gpm with differential pressures up to 250 psi**
- **Iron, Steel and Stainless steel construction**
- **Tungsten Carbide abrasive wear materials are available for abrasive duty applications**





MD

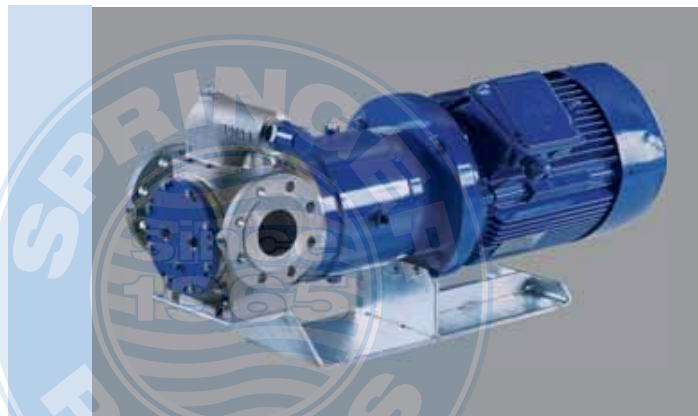
SERIES

Mag Drive sealless pumps, for ultimate protection against leakage



MD pumps are designed for applications demanding zero emissions. Previously, these applications were typically isocyanate, solvents and other hazardous organic liquids. The use of MD pumps is rapidly expanding to include many non-hazardous liquids.

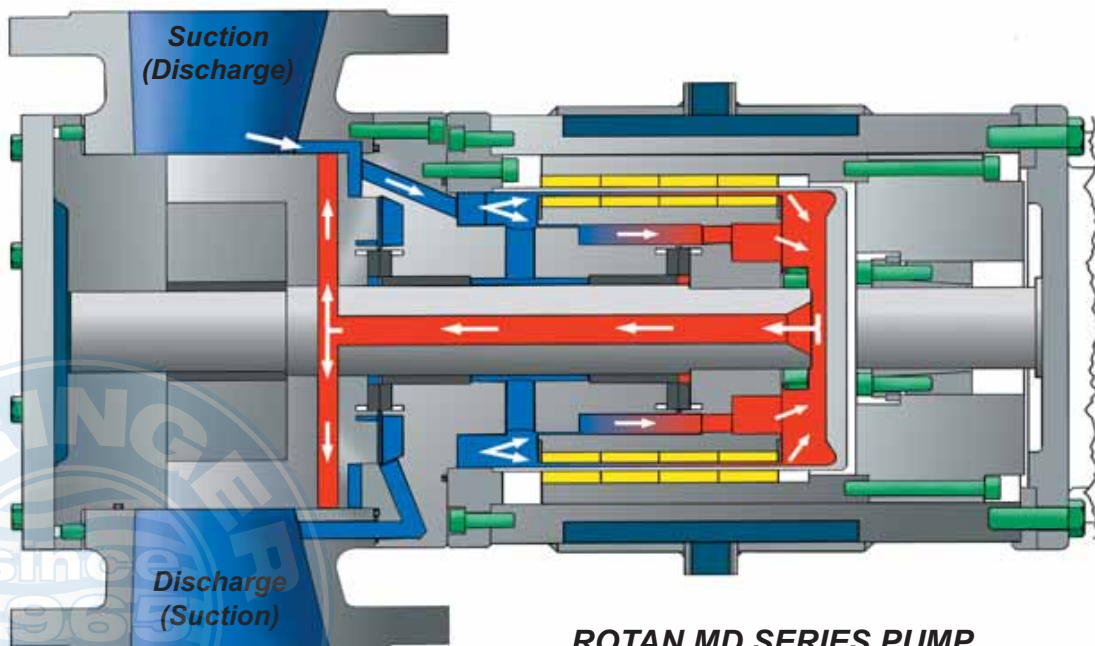
This is due to the increasing need to eliminate leakage and subsequent pollution. Another advantage of installing MD pumps is the extremely low maintenance requirement. They will often provide a cost-effective solution for installations where a conventional pump would need frequent replacement of the shaft seal(s).



Capacity range:	Up to 400 gpm
Speed:	Up to 1750 rpm
Differential pressure:	Up to 250 psi
Suction lift:	Up to 15" Hg vacuum while priming Up to 24" Hg vacuum while pumping
Viscosity range:	Up to 10,000 cST
Temperature:	Up to 500° F

Most important MD model features and benefits:

- Maximum protection against leakage, sealless design provides assurance against environmental contamination
- Advanced, patented cooling system based on an integral pump eliminates the need for external cooling
- Dynamic axial balancing system minimizes axial loads, reduces energy consumption, and increases equipment MTBM
- Inherent secondary containment system, provided by completely enclosed magnetic coupling housing, controls leakage if primary containment fails
- Superior, positive thrust control feature maintains correct running clearances and eliminates failures common to other designs.
- Wide choice of bearing materials available, including cast iron, bronze, carbon and tungsten carbide
- Standard magnet material is neodymium-iron-boron. Optional samarium cobalt permanent magnets allow operating temperatures up to 500°F.
- Reversible pumping capability, available by changing the rotation of the motor, allows installation flexibility
- Optional external heating jackets for both front cover and magnetic coupling housing available when required to assure proper pump operation
- Genuine back-pullout design
- Pump comes standard as close-coupled, optional with bare shaft
- Both internal and external canister protection



ROTAN MD SERIES PUMP

The most advanced, magnetically driven, positive displacement pump available.



MD (Magnetic Drive) Series Feature & Benefits

Positive Thrust Control

Benefits

- Long-Term Performance with Positive Gear Clearance Control / Lower Cost and Less Frequent Maintenance.
- Clearance Control Provides Superior Suction Capability.
- Discharge Pressure Ratings Twice that of the Competition.

O-Ring Head Sealing / Exclusive End Clearance Adjustment

Benefits

- Maximum Protection Against Leakage. Competitors use Less Effective Flat Paper Gaskets.
- Non-Intrusive End Clearance Adjustment. End Clearance is Adjusted Quickly Without Removing the Pump Head. Others Utilizing Gasket Shims Under the Head Require Head Removal Resulting in Extensive Cleanups and Exposure to the Product Pumped.

Reversible Pumping Capability

Benefits

- Simply reversing the motor direction can change flow direction of the pump, allowing for maximum pumping flexibility. Rotation of other pumps must be specified when ordering or reversed through extensive disassembly and rework.

External Jacketing

Benefits

- Jacketing of the pump head and magnet area are standard options when material in the pump and magnet area requires heat transfer.

Abrasive Resistant Features

Benefits

- Abrasion Resistant Shafts, bearings, and thrust washers are available when pump material is abrasive. Rotan is proven in the most difficult applications including Coal Tar Slurries and filled Polyols. Other magnetic driven pumps with balanced rotor designs allow the rotor to make contact with balance plates and are not designed for abrasive service.

Cost Effective

Benefits

- Rotan is increasingly cost effective in the most severe services including high pressures, high viscosities, high temperatures (to 500 F), corrosive, and high flow applications.

Higher Operating Speeds

Benefits

- Higher speeds mean less torque and more cost effective magnetic drives.
- Rotan magnetic driven pumps are well suited to Variable Frequency Drives.

Back Pull-Out Design

Benefits

- All Rotan pumps feature this modern feature resulting in low inspection and maintenance costs.

Advanced, Patented Cooling System

Benefits...Eliminates the need for external cooling



THE DESMI GROUP

DESMI INC.

