

MXQ DISC PUMP

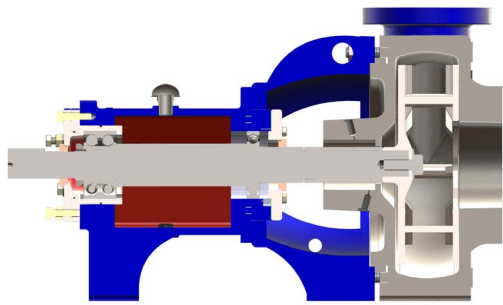


MXQ Disc - Making your difficult pumping applications easy



www.mxq-usa.com

MXQ DISC PUMPS



Disc pumps are used for difficult pumping applications such as liquids with abrasives, solids, high viscosity, entrained gas or air.

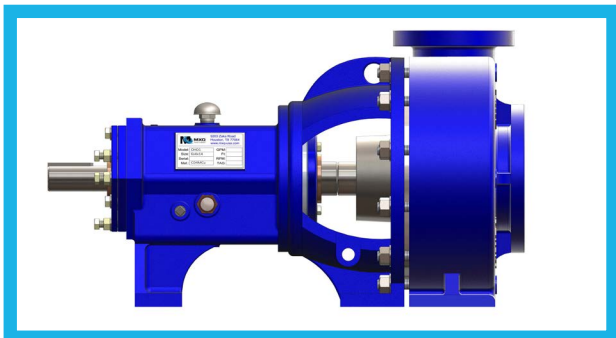
They are also used to move shear sensitive liquids and to prevent emulsification. The mechanisms utilized to propel the fluids are mainly:

1. Centrifugal force
2. Friction in the form of boundary layer and viscous drag.

To pump an extremely shear sensitive liquid such as latex or even blood, we may utilize a two flat-plane DiscSet design sacrificing some efficiency in order to have more efficacy. However, in most industrial applications, both efficacy and efficiency are desired. Therefore, the MXQ Disc Pump is offered with multiple Disc designs to increase both the efficiency and efficacy of the pump.

The SERRATED DISC design allows for more contact surface area than a typical disc perimeter and incorporates winglets holding the DiscSet together while accelerating the fluid through the system. The size, placement, and number of winglets vary according to the fluid being pumped.

We offer many DiscSet designs some of which are PATENTED OR HAVE A PATENT PENDING



Overview

MXQ industrial disc pumps are specially designed to meet your niche requirements. Our disc pumps are abrasion and corrosion resistant. The company's newly-designed disc pumps have a lower net positive suction head required (NPSHR) than most other disc pumps available in the market with an 5%–9% better efficiency. Our cutting edge technology offers close coupled pumps, which help reduce space allocation and save costs. Our disc pumps can withstand highly viscous fluids, trapped air, large solids, and slurries without blockages, obstruction, or cavitation. They are extremely versatile and durable, and require minimal to no repairs or spare parts replacement.

Features

Disc pumps offer various advantages in hard-to-pump applications making them the future of pump technology. Some key features of these pumps are:

- Disc pumps are capable of transferring abrasive, air-entrained fluids, as well as viscous fluids and high solid slurries.
- Fluids with particulate matter, solids, and trapped air can also be transferred through these pumps.
- Unlike the other conventional pumps, these pumps have no close tolerances, offer a pulsation-free flow and operate based on a non-contact pumping action. All the mentioned features contribute to high reliability and uptime by preventing solids from clogging
- As much as these pumps can handle highly viscous fluids and solids, they can also process fragile products without any damage.
- They are sturdy and corrosion resistant; therefore, the wear and tear that occurs due to abrasive fluids is minimal. Therefore, both repairs and spare parts requirements are low.
- They have dry-run capability. They can operate without processing fluid; however, in this case, the mechanical seal needs to be flushed.
- Their discs have low radial and axial loads, which help to extend shaft, bearing, and seal life.
- The net positive suction head (NPSH) required is far lower than most other pumps.

All these features reduce the overall cost and time in the long run.

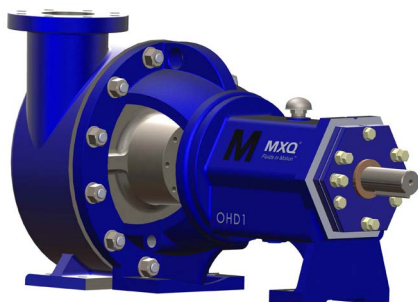
MXQ DISC PUMPS



Operation

Disc pumps are extremely versatile units. They have the appearance of centrifugal units, but can work like gear pumps, impellers, progressive cavity pumps, and chopper pumps. Here are some basic steps of their operation:

- Disc pumps are designed on the basis of fluid engineering principle of boundary layer and viscous drag. This phenomenon facilitates the transfer of energy from the motor to the fluid.
- The pump has a boundary layer inside, which minimizes loss of friction and enables pulsation-free flow of the fluid.
- The molecules of the fluid entering the pump form the boundary layer by adhering to the surface of serial discs.
- This boundary layer and viscous drag together create centrifugal force that sucks in the fluid in a smooth, pulsation-free manner.
- The rotation of the fluid along with the impeller discharges it to the other end of the pump.
- The pace at which this mechanical movement happens decides the discharge pressure. Other factors such as the diameter of the impeller, inlet fluid supply pressure, motor power, and so on affect the pressure and flow within the pump.
- Along with the disc, the fluid also rotates and is pumped out in a spiral manner.
- The boundary layer reduces the contact between the fluid and the pump, thus eliminating corrosion, abrasion, or any other chemical reaction.

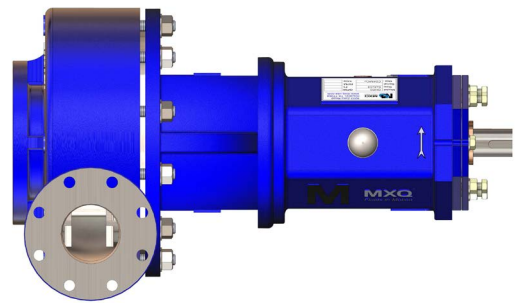


Applications

Disc pumps have applications across industries with varying requirements, especially processing hard-to-pump materials. They are commonly used in wastewater treatment by city-based municipal corporations. Here are a few important application areas:

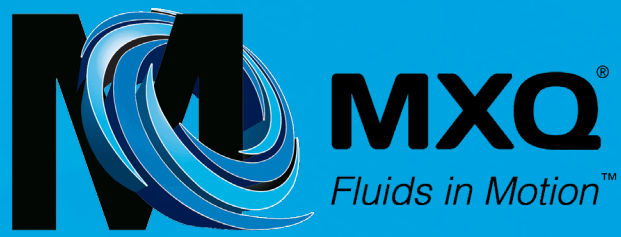
- Metals and mining: Drilling processes and precious metals recovery
- Wastewater management: Filter aids, scum mixing, sludge handling processes and recirculation
- Municipal corporations: Water treatment plants, recycling and purification
- Food & beverage: Food processing industries to process canned sauces, soups, baby foods, fruit juices, breweries, beverages, hydrogenation, milk & milk products, crystallizing
- Pharmaceutical: Salt crystal slurries, filter aid, and tablet coating
- Chemicals: Pumping of inks, chemicals, dyes, adhesives, paints, emulsions, foundries, varnishes, and gelatins
- Oil & gas: Drilling processes for mud and crude oil, subsea cutting recovery, oil refining processes

Other general applications: Heat transfer, latex, cutting fluids, fertilizers, solid suspension, slurry mixtures, pulp & paper



Materials of Construction

- Disc pumps are made of sturdy metals and their alloys. Some commonly used metals are:
- Carbon steel
- Cobalt base alloy
- Hastelloy B
- Hastelloy C
- Stainless steel
- Monel
- Cast iron
- Bronze
- Titanium



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MXQ SUBMERSIBLE PUMPS

Applications

- Optimum use in general applications and miscellaneous waste water

Specifications

- Discharge: 2 inches to 4 inches
- Number of poles: 2
- Motor Output: 1/2 HP to 15 HP
- Rated Head: 20 ft
- Rated Flow: 42 GPM to 475 GPM
- Solid Handling: 0.47 inches to 1.41 inches
- Weight: 36Lb to 331Lb

Features

- Free from clogging by sewage and dust due to its non-clog impeller
- Elbow assembly can also be mounted.
- Auto-level control contained type also available.(3.7kW and smaller)
- Power Supply : Voltage between 200V to 550V, 3-Phase, 50Hz or 60Hz. (SE-400 only: 1-Phase, 100V to 240V, 50Hz or 60Hz.)
- Starting Method : Direct-on-Line Start
- A motor protector (bimetallic auto cut) is installed for motors under 7.5kW.
- Weight indicates the values of free-standing type.
- Power cable : 2PNCT(except 1.25mm²), VCT(1.25mm² only)

*** Available in standard disc and recessed disc configurations**



MXQ VERTICAL PUMPS



Applications

- Chemical Slurries
- Fragile Food Processing Solids
- Paper & Pulpy Solids
- Petroleum
- Oils
- Sewage & Waste Treatment
- Textile

Specifications

- Capacities to 1600 GPM
- Heads to 170 Feet TDH
- Temperature to 350°F
- Pit Depths to 30 feet

Construction

- Cast Iron
- 316 Stainless Steel Fitted
- All 316 Stainless Steel
- Alloy 20
- CD4MCu

** Available in standard disc and recessed disc configurations*

MXQ RECIPROCATING PUMPS

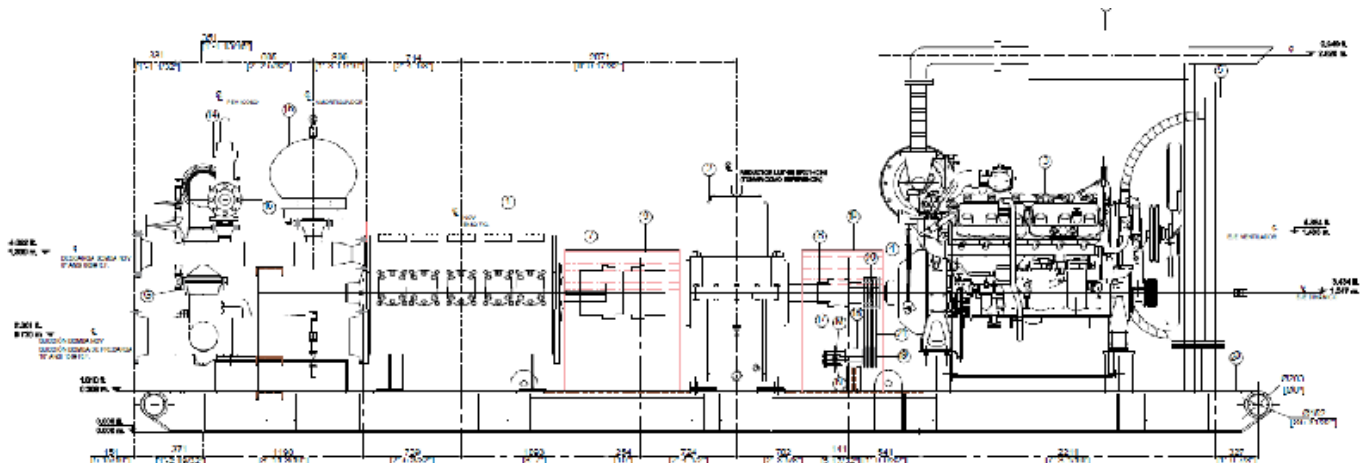
Applications

- General Services Water
- Reverse Osmosis
- Water Jetting & Hydro Blasting
- Formation Water Injection
- Crude Oil Transfer
- Well Service
- Oil & Gas
- Sludges Transfer
- Amine Gas Sweetening
- Glycol Gas Dehydration
- Methanol Injection
- Chemical Injection
- Polymer Flood
- Steam Boiler Feed
- Pulp and Paper
- Municipal Jetting



Specifications

- Single or Double Acting Types
- Simplex, Duplex, Triplex or Quintuplex Design
- Flows Up to 1,200 GPM (41,150 BPD)
- Pressures Up to 20,000 PSI (583 Kg/cm²)
- Power Ranges: 2 - 2,000 HP (1.5 - 1,500)

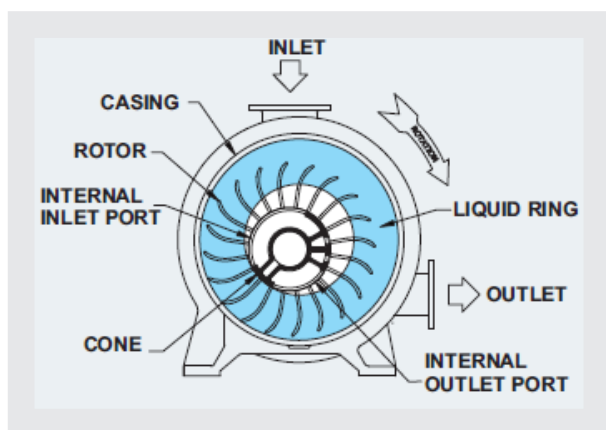


MXQ LIQUID RING VACUUM PUMPS



Principle Of Operation

The Liquid Ring Vacuum Pump is a specific form of rotary positive displacement pump utilizing liquid as the principal element in air compression. The compression is performed by a ring of liquid formed as a result of the relative eccentricity between the pump's casing and a rotating multi vane rotor. The eccentricity results in a near complete filling, and then partial emptying, of each rotor chamber during every revolution. The filling and emptying actions create a piston action within each set of rotor vanes.



The pump's components are positioned in such a manner as to admit air when the rotor chamber is emptying the liquid, and then allowing the air to discharge once compression is completed. Sealing areas between the suction and discharge ports are provided, to close the rotor areas, and to separate the inlet and outlet flows

Constructional Features

Body, Heads & Cones are made of close grained heavy duty Cast Iron, Rotor is made of Spheroidal Graphite (SG) Iron free from cavities and blow holes. The Shaft is made of Carbon Steel and carries the one and only moving part, the Rotor which is dynamically balanced for a vibration free running. The Shaft is carried on both the ends by bearings which maintain the close running clearance between working parts throughout the working life of the Pump.

Bearings are grease lubricated before shipment and require no further lubrication for approximately six months.

The pumps can also be supplied with contact parts in solid or clad SS 304 and SS 316.

Key Characteristics

Energy efficient single stage Vacuum Pumps capable of handling excess process water, finding wide applications in the Pulp and Paper Industry.

CAPACITY : 3300 to 23400 M³/hr (1950 CFM to 12800 CFM)

MAX VACUUM : 700 mm Hg (27.5" Hg) at sea level

- MXQ 501 series can handle excess liquid carryover without any difficulty, even if it arrives as massive slugs
- 20 vane rotors handle air more efficiently
- Ease in maintenance as bearing bracket is externally mounted
- Power efficient
- No pressure throb
- Enhanced capacity can be achieved when handling saturated gas by using inlet spray nozzles provided near the suction flanges of the pump.
- All components are 100% interchangeable with NASH 904 series
- Standard material of construction is Cast Iron, also available in SS 304 and SS 316

