MJ / MJ-B SERIES
Standard Non Metallic Magnetic Drive Pumps

PFA | PVDF | CFRPVDF

ISO 2858 | ISO 5199 | EN 22858

Lined Type
Sealless Corrosion Resistant Chemical Pumps
MJ / MJ-B SERIES
Standard Non Metallic Magnetic Drive Pumps

PFA | PVDF | CFRPVDF

Lined Type
Sealless Corrosion Resistant Chemical Pumps

ISO 2858 | ISO 5199 | EN 22858
MJ / MJ-B SERIES
Sealless, Fluoropolymer Lined, Standard Chemical Resistant Magnetic Drive Pumps

PRODUCT OVERVIEW
MJ Series pumps are fluoropolymer lined, magnetic drive, horizontal, single stage, volute casing, center line discharge, end suction, sealless centrifugal pumps with rotary shaft design to surpass performance expectations in the most demanding chemical applications and environments. Dimensional and design criteria of MJ pumps conform to ISO 2858 / ISO 5199 / EN 22858.

TECHNICAL DATA

<table>
<thead>
<tr>
<th></th>
<th>50 Hz</th>
<th>60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity [Q]</td>
<td>up to 90 m³/hr (396 US gpm)</td>
<td>up to 440 US gpm (100 m³/hr)</td>
</tr>
<tr>
<td>Head [H]</td>
<td>up to 62 m (203 ft)</td>
<td>up to 282 ft (86 m)</td>
</tr>
<tr>
<td>Motor Power [P]</td>
<td>up to 18.5 kW (25 hp)</td>
<td>up to 30 hp (22 kW)</td>
</tr>
<tr>
<td>Solids Handling</td>
<td>up to 10% w/w with 150 microns (6 mil) particle size</td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>up to 150 mPas (cP)</td>
<td></td>
</tr>
<tr>
<td>Suction Lift</td>
<td>up to 4 m (13 ft) with priming chamber*</td>
<td></td>
</tr>
<tr>
<td>Maximum Working Pressure</td>
<td></td>
<td>16 bar (232 psi)</td>
</tr>
<tr>
<td>Maximum Specific Gravity [SG]</td>
<td>1.8 - 3</td>
<td></td>
</tr>
<tr>
<td>Minimum Continuous Flow [MCF]</td>
<td>up to 2.5 m³/hr (11 US gpm)</td>
<td></td>
</tr>
<tr>
<td>Maximum Temperature</td>
<td>PFA: 180°C (356°F), PVDF: 104°C (220°F), CFRPVDF: 110°C (230°F), GFRPP: 90°C (194°F)</td>
<td></td>
</tr>
<tr>
<td>Dry Running Capability</td>
<td></td>
<td>limited</td>
</tr>
<tr>
<td>Suction &amp; Delivery Connection</td>
<td>ANSI B16.5 - Class 150, DIN 2501, BS4504 - PN16</td>
<td></td>
</tr>
<tr>
<td>Motor Compatibility</td>
<td>IS 1231, IEC 72-1, NEMA*</td>
<td></td>
</tr>
</tbody>
</table>

*available on request

MATERIALS

- Ductile Cast Iron* lined with PFA / PVDF / CFRPVDF
- Metal Insert lined with PFA / PVDF / CFRPVDF
- Ductile Cast Iron lined with PFA / PVDF / CFRPVDF
- Metal Insert lined with PFA / PVDF / CFRPVDF
- Rare Earth Magnets (NdFeB / SmCo)
- PFA - Inner Shell covered with CFRP Shell
- Ductile Cast Iron*
- Stainless Steel
- Carbon Chromium Steel
- Cast Iron*
- Silicon Carbide (SiC)
- Stainless Steel
- Ductile Cast Iron*
- FKM / FFKM / EPDM / TFE-P


* - with high grade 2C corrosion protection paint. Special coatings available on request

SPECIAL FEATURES

Impeller Locking Mechanism
Prevents catastrophic failure in case of reverse rotation

Closed Impeller
Monolithic closed impeller with curved blade passage for effective pumping of process media

Drain Plug
Drain plug allows swift drainage of hazardous liquids
**Component Features**

In a magnetically coupled pump, the **OUTER MAGNETIC RING (OMR)** is mounted on the drive shaft (long coupled) / motor shaft (close coupled), which transfers the motor torque to the **IMPELLER** through an **INNER MAGNETIC RING (IMR)**. The impeller and IMR are contained in an **ISOLATION SHELL**, which forms hermetic sealing of process media. Silicon Carbide **BEARINGS & BUSHINGS** are used to give frictionless drive to the impeller and IMR assembly.

- **Optimised elliptical shape, dual shell to withstand high pressures & to form hermetic sealing of process media.**
- **Outer shell is made of CFRP** and **inner shell is made of PFA.**
- **Non metallic isolation shell ensures zero eddy current losses** as a result, no heat generation of process media thus achieving maximum power transmission.

**Isolation Shell**

- Lined ductile cast iron bush holder with hexagonal slots for locking of bushings against rotary motion and to withstand hydraulic forces.

**Bearings & Bushings**

- Hexagonal flanged silicon carbide bushings for snug fit on the bush holder. Slots on bearings ensure positive locking on impeller and IMR thus preventing relative motion.
- Grooves in the bushings and bearings provide for smooth transfer of contaminants of size up to 150 microns.

**OMR**

- Dynamically balanced ductile cast iron outer magnetic ring for maximum torque transmission with minimum vibration & noise.

**IMR**

- Inner magnetic ring positively locked on the shaft for effective torque transmission and lined with suitable fluoropolymer provides excellent corrosion resistance.

**Heavy, center line discharge with unique volute casing design in fluoropolymer lined construction provides high pressure handling capability and smooth transfer of pumping media from exit of the impeller to delivery.**

**Volute Casing**

- High fluoropolymer liner thickness (min 6 mm) maximizes pump life for corrosive & erosive applications

**Impeller**

- Hydrodynamically optimized, closed radial impeller with heavy metal insert designed for:
  - Optimum suction behaviour with low NPSH requirement
  - Low noise and vibration
  - Minimum axial loading on bearings
  - Positively locked on the shaft to prevent catastrophic failure due to reverse rotation

**Hydrodynamically optimized, closed radial impeller with heavy metal insert designed for**

- Grooves on bushings provide effective lubrication and ensure stable flow path
- Bearing located on the rear side of the impeller has grooves which aid pumping of process media in to flow path for lubrication

**Bush Holder**

- Heavy duty bearing pedestal provides rigid support to shaft and bearing assembly
- Telescopic arrangement for easy de-coupling / coupling of IMR & OMR
- Bearings Capable of carrying high dynamic loads to run beyond standard lifetime (17500 hrs)
- Robust shaft with low stiffness ratio to ensures less deflection at radial face of OMR

**Design Features**

- Fluoropolymer lined bush holder with metallic insert provides accurate alignment of bearings and absorbs hydraulic forces
- Accommodates o-ring on both sides and prevents leakages from casing and isolation shell
- Ideal construction of housing for simplified assembly and disassembly on both wet and dry ends
- Optimum size and shape of non metallic dual (CFRP & PFA) containment shell to obtain high pressure capability and zero eddy current losses
- Heavy duty drive to shaft for effective torque transmission
- Dynamically balanced OMR & IMR with high performance rare earth magnets for effective transmission

**Keys & Fasteners**

- Option for drain plug for easy & safe maintenance
In a magnetically coupled pump, the OUTER MAGNETIC RING (OMR) is mounted on the drive shaft (long coupled) / motor shaft (close coupled), which transfers the motor torque to the IMPELLER through an INNER MAGNETIC RING (IMR). The impeller and IMR are contained in an ISOLATION SHELL, which forms hermetic sealing of process media. Silicon Carbide BEARINGS & BUSHINGS are used to give frictionless drive to the impeller and IMR assembly.

**Component Features**

**Isolation Shell**
Optimised elliptical shape, dual shell to withstand high pressures & to form hermetic sealing of process media. Outer shell is made of CFRP and inner shell is made of PFA. Non metallic isolation shell ensures zero eddy current losses as a result, no heat generation of process media thus achieving maximum power transmission.

**Bush Holder**
Lined ductile cast iron bush holder with hexagonal slots for locking of bushings against rotary motion and to withstand hydraulic forces.

**Bearings & Bushings**
Hexagonal flanged silicon carbide bushings for snug fit on the bush holder. Slots on bearings ensure positive locking on impeller and IMR thus preventing relative motion. Grooves in the bushings and bearings provide for smooth transfer of contaminants of size up to 150 microns.

**Casing with Liner**
Heavy fluoropolymer lined ductile cast iron volute casing with suction and discharge flanges absorbs all the hydraulic and flange loads.

**OMR**
Dynamically balanced ductile cast iron outer magnetic ring for maximum torque transmission with minimum vibration & noise.

**IMR**
Inner magnetic ring positively locked on the shaft for effective torque transmission and lined with suitable fluoropolymer provides excellent corrosion resistance.
# MJ / MJ-B SERIES

Sealless, Fluoropolymer Lined, Standard Chemical Resistant Magnetic Drive Pumps

## PUMP IDENTIFICATION

### Pump Series
- **MJ** - Long Coupled
- **MJB** - Close Coupled

### Wetted Parts
- **LP** - PFA
- **LK** - PVDF
- **LRK** - CFRPVDF
- **LRP** - GFRPP

### Pump Size
- **32125** : 50-32-125
- **32160** : 50-32-160
- **32200** : 50-32-200
- **50200** : 80-50-200

### Bearings & Bush
- **S** - S-SiC Vs S-SiC
- **R** - SiC Vs SiC

### O-rings
- **V** - FKM
- **A** - FFKM
- **E** - EPDM
- **F** - TFE-P

### Drive Power
- **1** - Up to 7.5 hp (5.5 kW)
- **2** - 10 hp (7.5 kW) up to 15 hp (11 kW)
- **3** - 20 hp (15 kW) and above

### Impeller Type
- **L** - Closed

## DIMENSIONS

### PUMP DIMENSIONS

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<tr>
<th>MODELS</th>
<th>DNs</th>
<th>DNd</th>
<th>a</th>
<th>f</th>
<th>h₀</th>
<th>h₁</th>
<th>b</th>
<th>m₂</th>
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<th>n₁</th>
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<th>n₃</th>
<th>w</th>
<th>S₀</th>
<th>d</th>
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<td>32</td>
<td>80</td>
<td>385</td>
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<td>110</td>
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All Dimensions in mm