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

Sealless, Fluoropolymer Lined, Standard Chemical Resistant Magnetic Drive Pumps

PRODUCT OVERVIEW

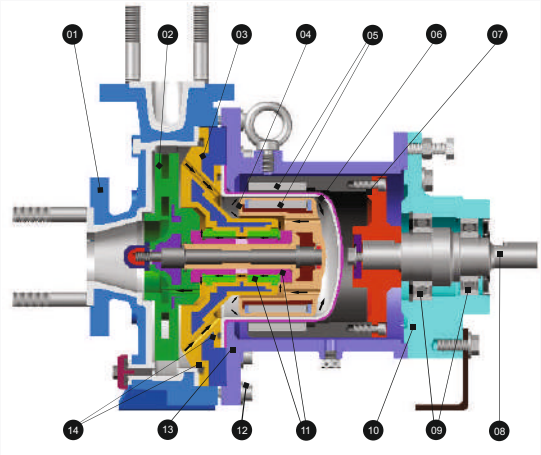
MJ Series pumps are fluoropolymer lined, magnetic drive, horizontal, single stage, volute casing, center line discharge, end suction, sealless centrifugal pumps with rotary shaft design to surpass performance expectations in the most demanding chemical applications and environments. Dimensional and design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

TECHNICAL DATA

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

*available on request

MATERIALS

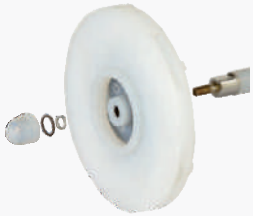


Casing 01	Ductile Cast Iron* lined with PFA[1] / PVDF[2] / CFRPVDF[3]
Impeller 02	Metal Insert lined with PFA / PVDF / CFRPVDF
Bush Holder 03	Ductile Cast Iron lined with PFA / PVDF / CFRPVDF
Inner Magnetic Ring (IMR) 04	Metal Insert lined with PFA / PVDF / CFRPVDF
Magnets 05	Rare Earth Magnets (NdFeB[4] / SmCo[5])
Isolation Shell 06	PFA - Inner Shell covered with CFRP[6] Shell
Outer Magnetic Ring (OMR) 07	Ductile Cast Iron*
Drive Shaft - long coupled 08	Stainless Steel
Rolling Element Bearing 09	Carbon Chromium Steel
Bearing Pedestal 10	Cast Iron*
Bearings & Bushings 11	Silicon Carbide (SiC)
Fasteners 12	Stainless Steel
Housing 13	Ductile Cast Iron*
O-rings 14	FKM / FFKM / EPDM / TFE-P

1 - Perfluoroalkoxy Alkane, 2 - Polyvinylidene Fluoride, 3 - Carbon Fibre-Reinforced Polyvinylidene Fluoride, 4 - High Performance Neodymium Iron Boron Magnets, 5 - High Performance Samarium Cobalt Magnets, 6 - Carbon Fibre-Reinforced Plastic.

* - 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

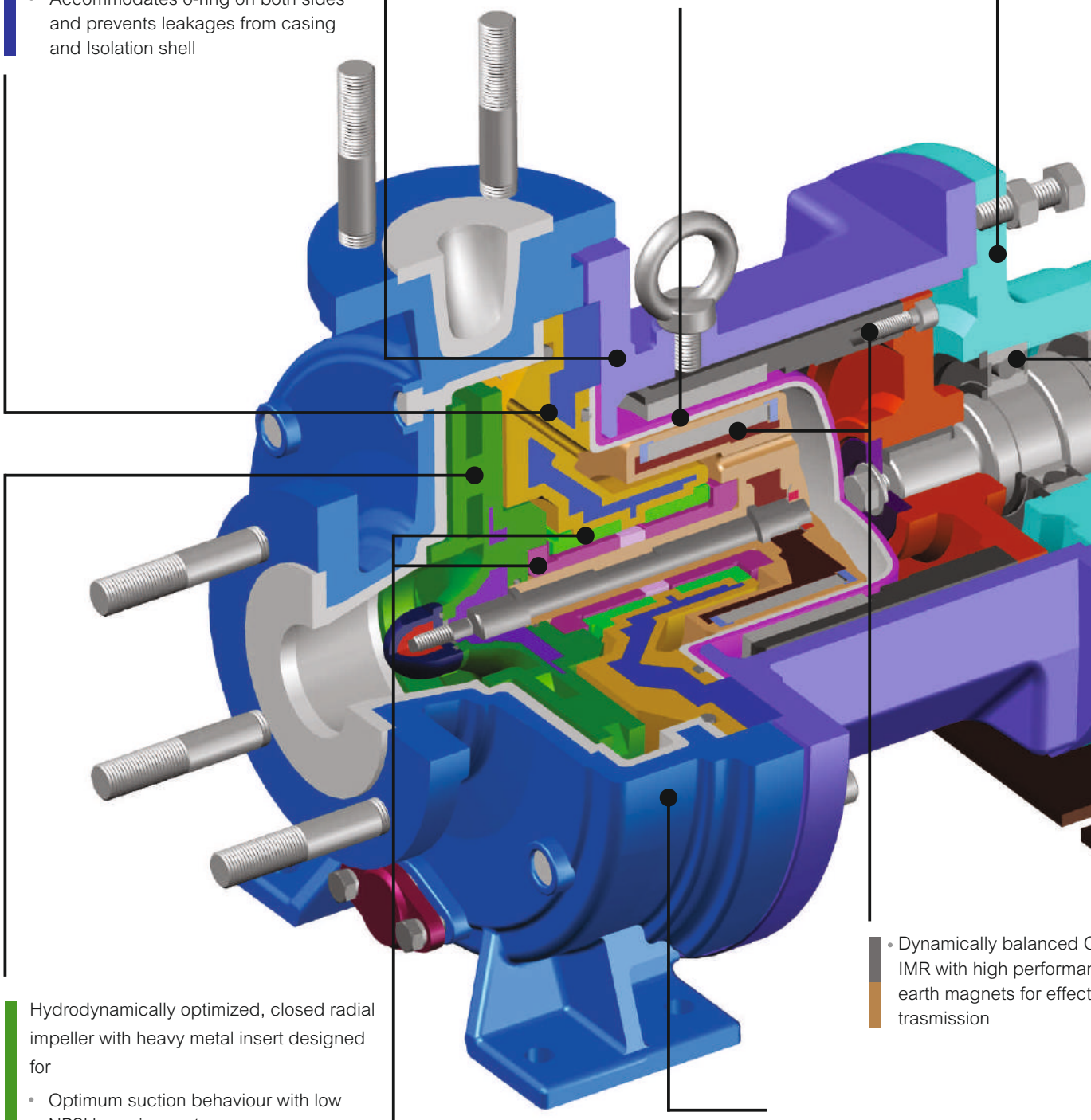
Design Features

- 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 c to shaft
- Telesco coupling



- Dynamically balanced C IMR with high performan earth magnets for effect trasmission

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

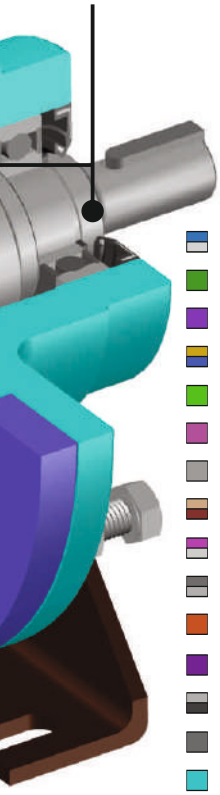
- Grooves on bushings provide effective lubrication and ensure stable flow path
- Bearing located on the rear side of the impeller has grooves which aid pumping of process media in to flow path for lubrication

- Heavy, center line discharge with un lined construction provides high pre transfer of pumping media from exit
- High fluoropolymer liner thickness (r corrosive & erosive applications
- Option for drain plug for easy & safe

duty bearing pedestal provides rigid support and bearing assembly

pic arrangement for easy de-coupling / g 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



- Volute Casing
- Impeller
- Impeller Insert
- Bush Holder
- Bearing Bush
- Sleeve Bearing
- Drive Shaft
- IMR
- Isolation Shell
- OMR
- Hollow Drive Shaft
- Lock Washer
- Roller Bearing
- Oil Seal
- Bearing Pedestal
- Support Foot
- Housing
- Eye Bolt
- Drain plug
- O-Rings
- Impeller Lock Nut
- Keys & Fasteners

OMR and nce rare ive torque

nique volute casing design in fluoropolymer ssure handling capability and smooth of the impeller to delivery

min 6 mm) maximizes pump life for

e maintenance

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.

Casing with Liner

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

Bush Holder

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

Isolation Shell

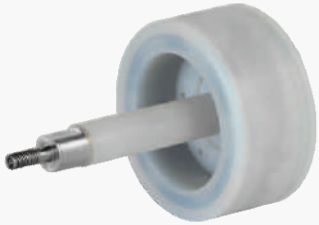
Optimised elliptical shape, dual shell to withstand high pressures & to form hermetic sealing of process media. Outer shell is made of CFRP and inner shell is made of PFA. Non metallic isolation shell ensures zero eddy current losses as a result, no heat generation of process media thus achieving maximum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

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

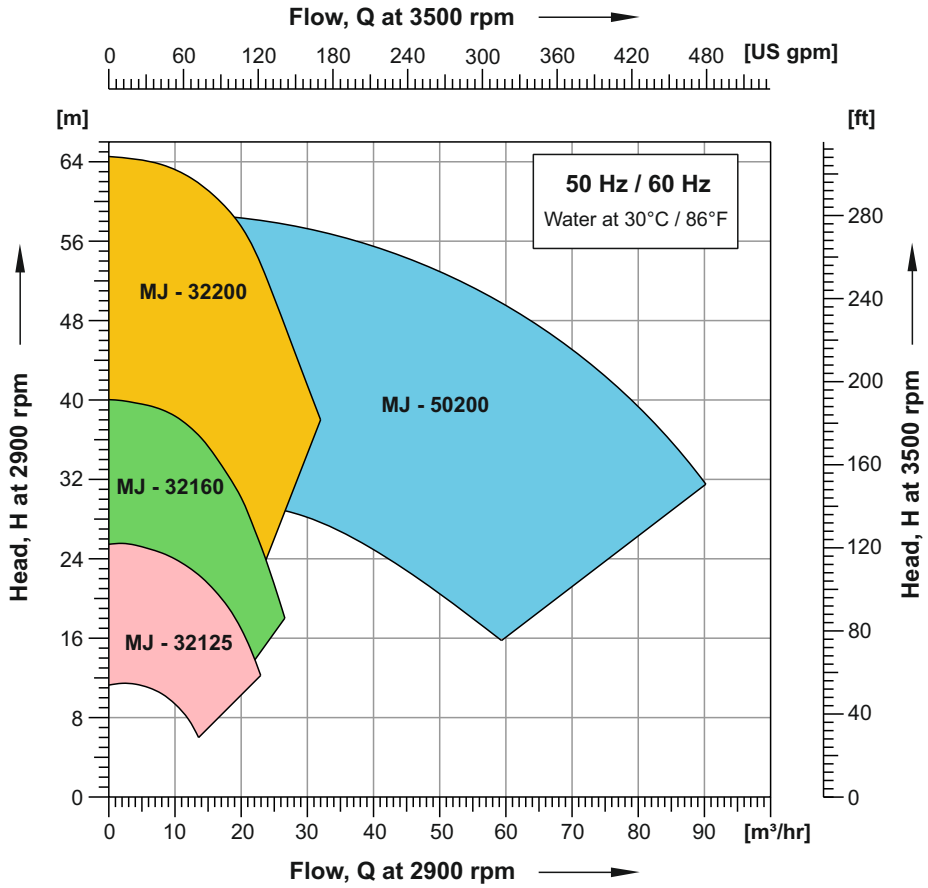
Dynamically balanced ductile cast iron outer magnetic ring for maximum torque transmission with minimum vibration & noise.

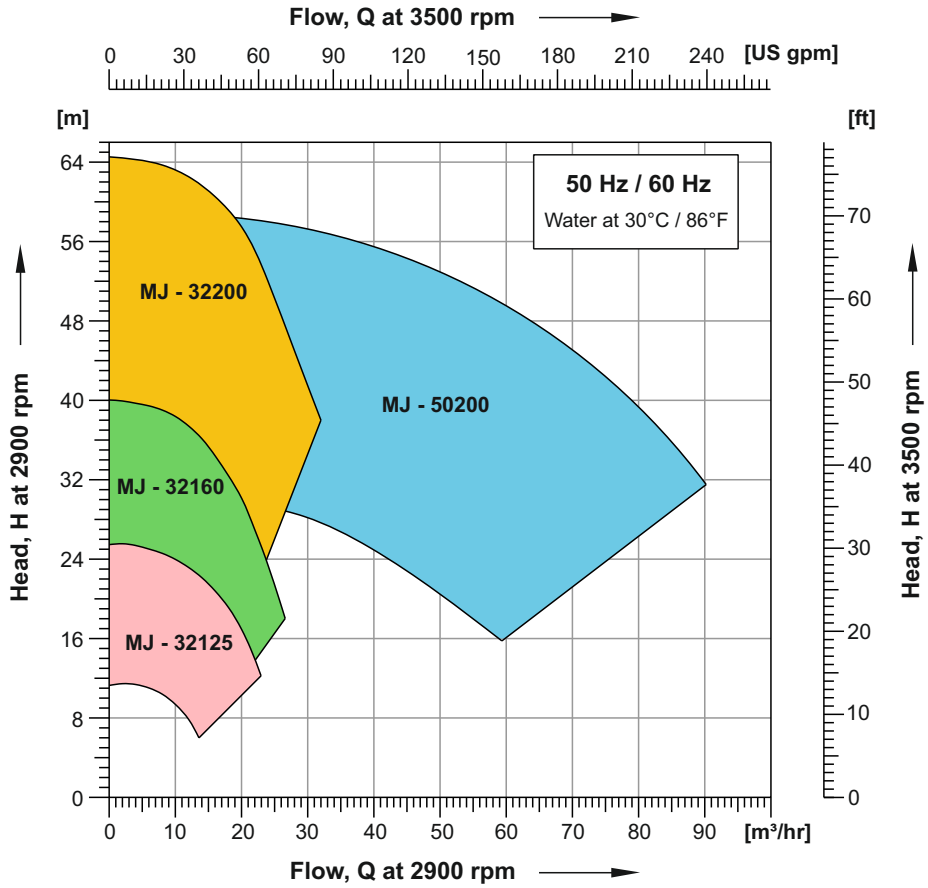


IMR

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

HYDRAULIC COVERAGE





MJ / MJ-B SERIES

Sealless, Fluoropolymer Lined, Standard Chemical Resistant Magnetic Drive Pumps

PUMP IDENTIFICATION

MJ - LP 32160 - S V 2 L

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

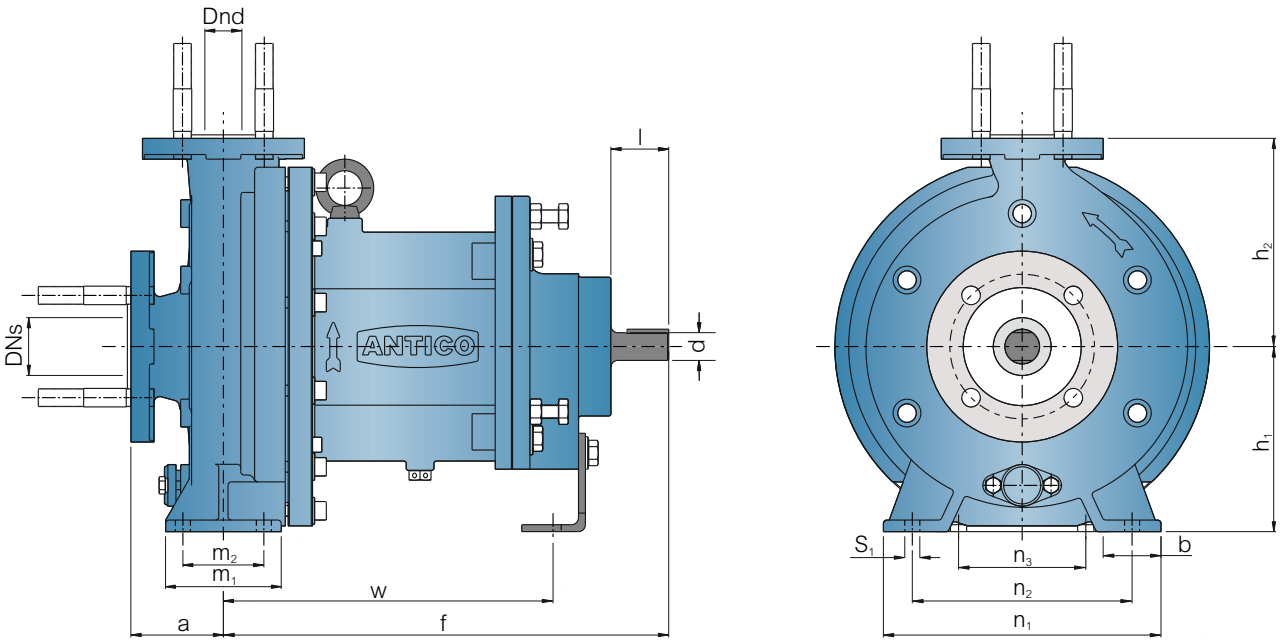
Drive Power

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



MODELS	PUMP DIMENSIONS															
	DNs	DNd	a	f	h_1	h_2	b	m_1	m_2	n_1	n_2	n_3	w	S_1	d	l
50- 32-125	50	32	80	385	112	140	50	100	70	190	140	110	285	M12	24	50
50- 32-160	50	32	80	385	132	160	50	100	70	240	190	110	285	M12	24	50
50- 32-200	50	32	80	385	160	180	50	100	70	240	190	110	285	M12	24	50
80- 50-200	80	50	100	385	160	200	50	100	70	265	212	110	285	M12	24	50

All Dimensions in mm