

Operating Range:

- Max viscosity 200cSt
- Max system pressure 50 BAR (std)
- Flow up to 22 m³/h
- Head up to 250m
- Temperature Range from -120 to +350°C (std)
- Electric motors from 1.5 to 90KW
- ATEX II - /2G cbk II C T5



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CPE MAG-M

Heavy duty horizontal, sealless Magnet Drive
partial emission pump, for low flow application

Now with energy saving technology



Pump Details

OH2 Heavy duty mounting feet accept ISO 13709/API-610 nozzle loads and maintain pump alignment under hard conditions.

CF8M Pump Casing & Impeller High quality casting components.

Other materials:
 - Hastelloy®C276,
 - Incoloy®825,
 - Duplex,
 - Titanium,
 - Other materials available on request.



Field assembling of the product lubricated bearing arrangement does not require special tools.

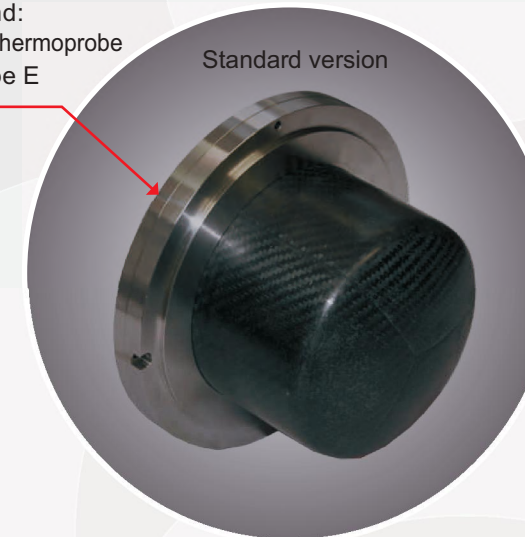
The Bearing materials available are of three different types to provide the best solution for each application: Silicon Carbide (SSIC), Tungsten Carbide (TC).

The use of elastic rings reduces the sleeve and stationary bearing loads, to guarantee many years of maintenance-free operation.

RWP QUICK CHANGE CARTRIDGE KIT to guarantee an easy and fast maintenance.



On demand:
 integrated thermoprobe
 sensor type E



Standard version

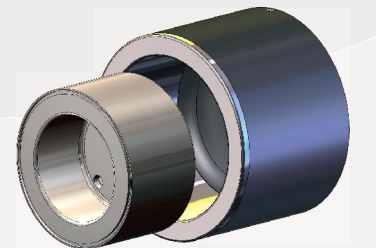
Rear shell is made of one single piece, no welding, ellipsoidal profile that has been studied to withstand higher pressures than the traditional one. Hybrid Containment Shell is the standard configuration - providing a safe and efficient solution - system pressure max 25bar. Hastelloy®C 276 is also available. Double rear shell on request. Higher system pressure design available on request.



Epoxy primer and polyacrylic enamel water-based painting for the best quality resistance linked to the environmental respect.

Acc. to API 685 2Nd. Ed. CPE MAG-M range can be provided of secondary control / containments, with double containment shell or external mechanical seal

High power synchronous magnetic coupling designed by our Technical Office and with rare earth magnetic elements mechanically locked. The high performance magnets can operate at liquid temperature of up to 662 °F (350 °C) without external cooling. Transmittable horsepower exceeds 520 kW / 700 HP.



Sealing system with flat gaskets prevents from leaking in the atmosphere - different materials available:

- Spiral wound - metallic
- Asbestos free
- PTFE, Graphoil, Gylon®

Pump Details

General

M PUMPS CPE MAG-M Magnetic drive pumps are sealless pumps. The static rear containment shell forms a closed system with hermetically sealed liquid end.

Applications

M PUMPS CPE MAG-M are designed to improve people and plant safety. Especially when toxic, explosive or other dangerous liquids which react on contact with the atmosphere are handled. For all these services rear containment shell replaces double mechanical seals with external fluid reservoirs and all the required control devices. CPE MAG-M pumps offer therefore exceptional benefits to the chemical, petrochemical and allied industries. Standard construction is PN 50, special configuration can be supplied for high system pressure (over 50 bar) or high temperature (over 350°C).

Leakproof

CPE MAG-M pumps have no glands, no seals no valves. Opposite to sealed centrifugal pumps, the hermetic construction of the CN MAG-M mag drive pump ensures a safe and leak free operation. Even under heavy-duty applications the pumps are extremely reliable.

Mag drive pumps have an extended choice of materials as well as a wide variety in models. With its 100% zero leakage mag drive coupling the MPUMPS mag drives are your problem solvers in fluids and chemicals transfer.

Outer ball bearings

The outer magnet shaft is fitted in generously dimensioned antifriction bearings. The bearings are L10 rated for an average life in excess of 5 years. The oil bath is protected against atmosphere by a lip seal (labyrinth oil seal on request). The oil level is controlled by a constant level oiler and additionally by a bull's eye sight glass.

Construction

MPUMPS CPE MAG-M are a single stage volute casing pumps with partial emission «Barske» impellers, back-pull-out design, with end suction and top discharge flange. Sturdy centerline casings withstands to API loadings.

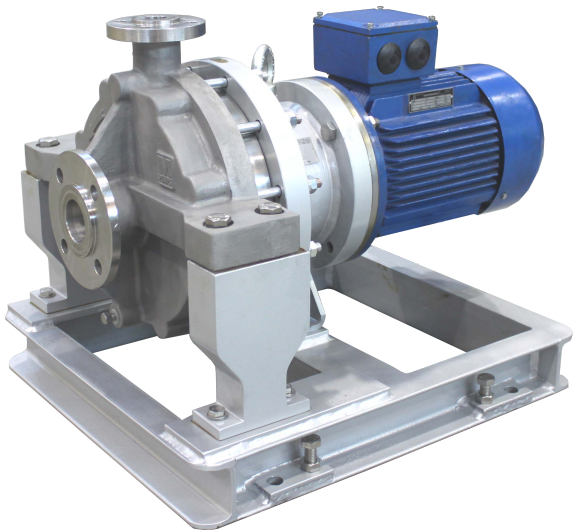
Advantages MPUMPS CN MAG-M mag drive centrifugal pumps

- Zero leakage (100% leak free)
- No mechanical seals or packed glands
- No external flushing systems
- Ensure a clean and safe operating environment, highly efficient
- Close couple and bare frame design
- No alignment required for closed couple version
- Increased Mean Time Between Maintenance

ATEX



MPUMPS CPE MAG-M mag drive pumps can be supplied to meet the requirements of Directive 94/9/EC, with ATEX certification II -/2 G cbk II C Tx for installation in potentially explosive atmospheres.



*close coupled available

TEMPERATURES

Double slide bearings

The shaft is supported by two strong sleeve bearings. The stationary bearings are located centrally in the common bearing housing, which ensure the proper alignment for a true running. Standard material is pure alfa grade - Syntherized Silicon Carbide, highly resistant against corrosion and wear. The Silicon Carbide parts are elastically mounted by tolerance rings, beared and designed for temperatures up to +662 °F (+350 °C) without heat exchanger. Higher temperature on request.

NPSH-Conditions

As the internal circulation from discharge to suction, doesn't rise temperature in the pumped liquid the handling of boiling liquids is possible without an increase of NPSH-required.

Balanced thrust loads

Radial thrust loads of the impellers is extremely low, thanks to ring volute design. Axial thrust is negligible thanks to Barske designed impellers. Strong silicon carbide, thrust bearings ensure high reliability in every condition.

Temperature control

Connections for resistant temperature detection elements, liquid and shell surface control are available as standard. Are also available on request monitoring devices for outer ball bearing.

Rear containment shell protection

The clearances between the outer rotating magnets and the stationary shell and between the rotating magnet holder and bearing bracket prevent magnets from rubbing on the rear containment shell in case of ball bearing failure.

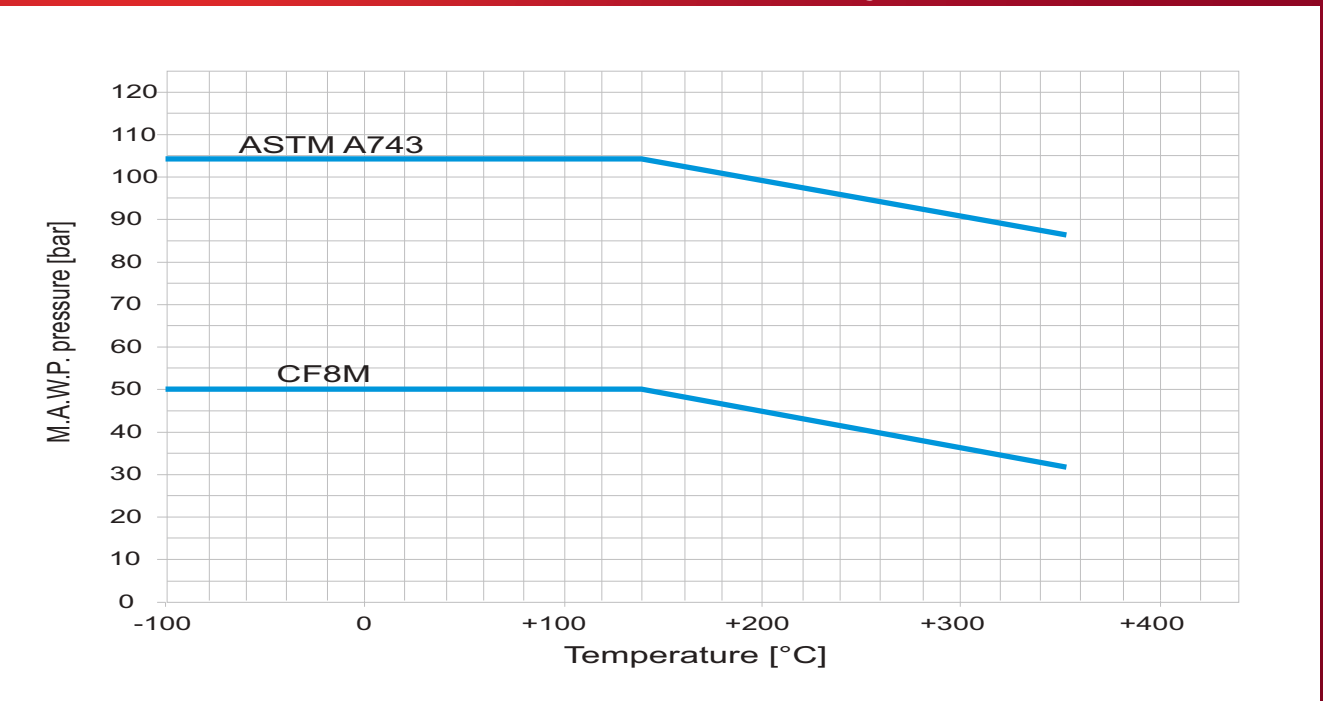
Internal circulation, pressurized containment shell area

When the pump is operating the heat generated in the containment shell and inner magnet area by eddy currents, is dissipated by an internal flow circulation from the discharge directly behind the impeller.

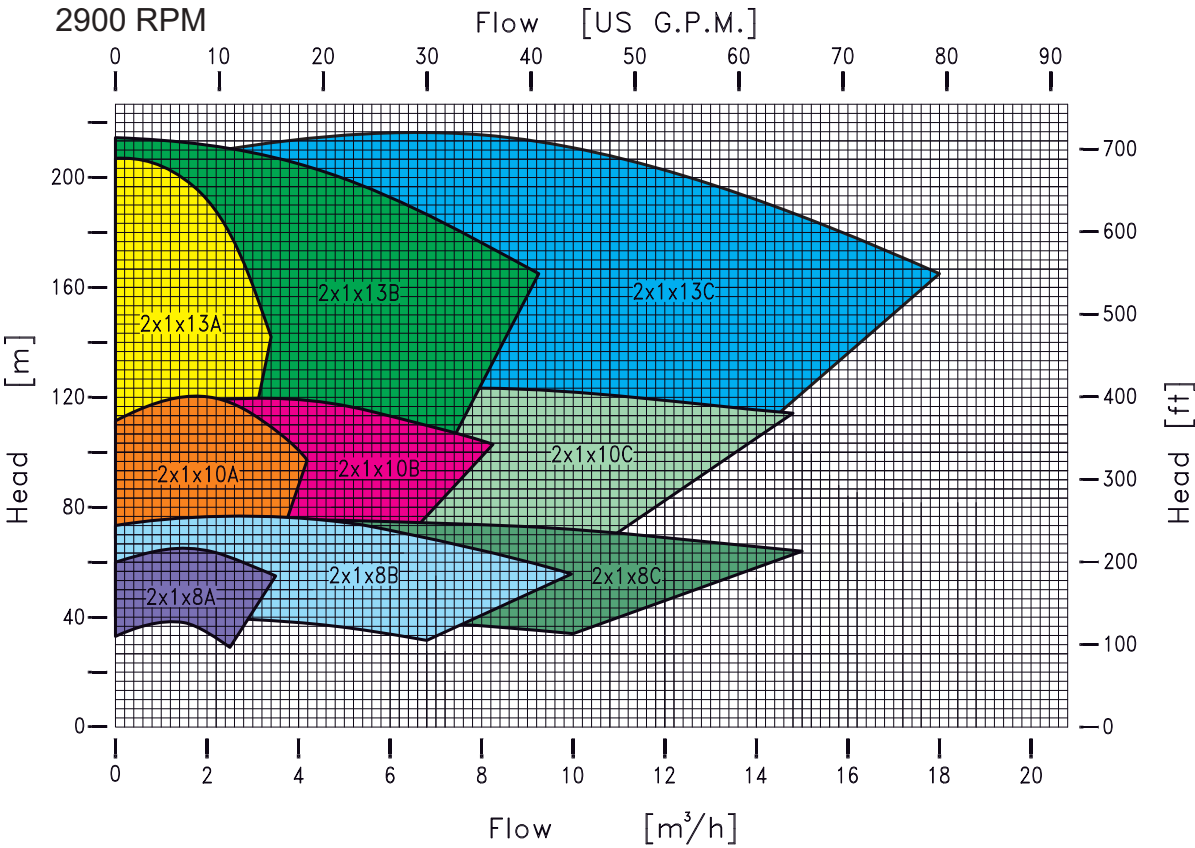
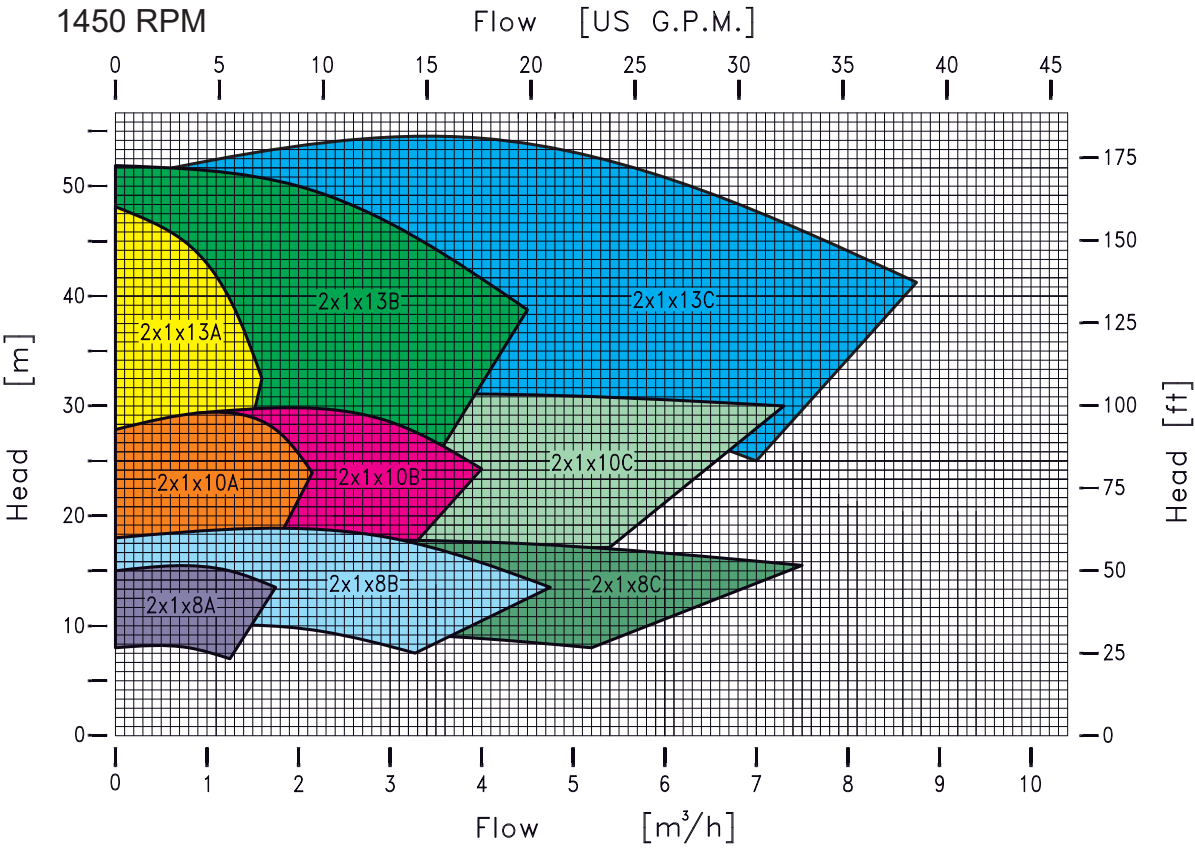
The Pressure is increased by the rear impeller back vanes circulation, and come back to discharge.



Temperature influences on pump casing pressure resistance



Pump Performances



Mag Losses and Heat Reduction

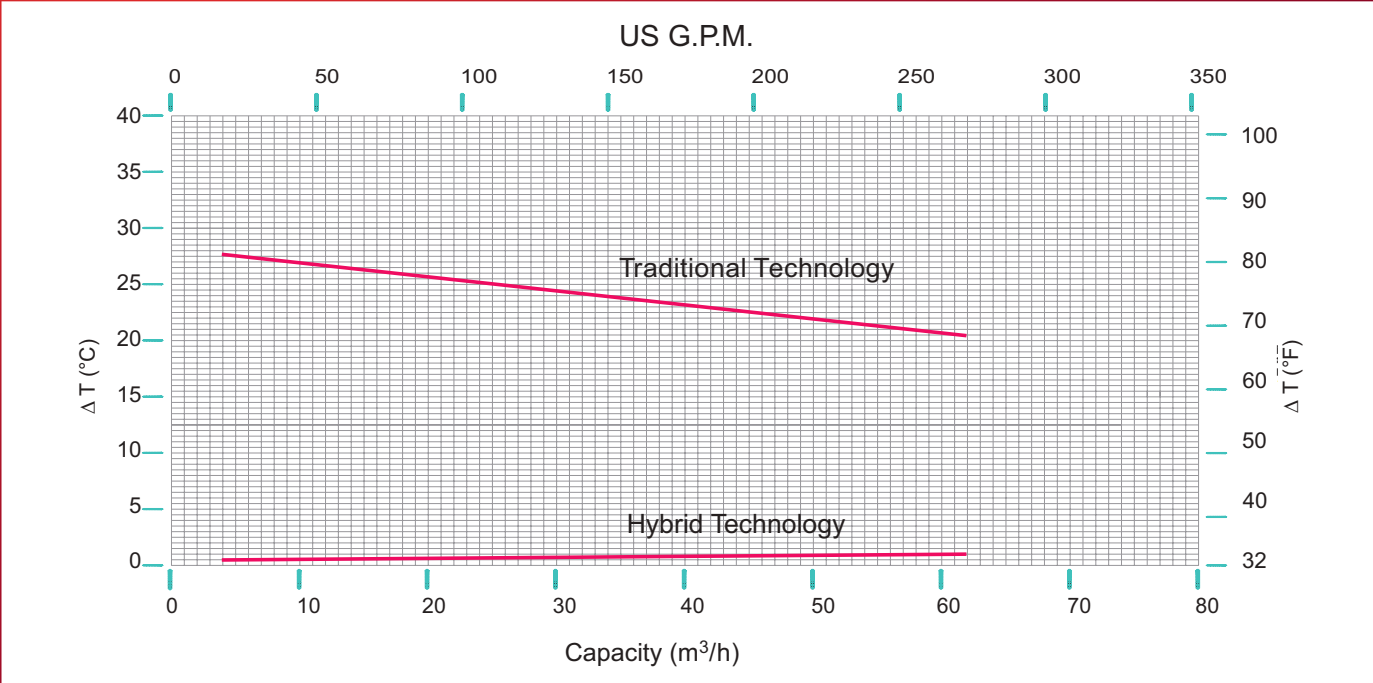
Table shown below is a comparison between M PUMPS and other rear shell solutions available currently on the market.

Hybrid shell containment comparison (*)						
MATERIAL		DES PRESS (bar)	DESIGN TEMP °C	MAG-LOSSES (kW)	NOTES	
HYBRID M PUMPS	HASTELLOY C / CARBON FIBER		50	-90/+200°C	0,78	EXTREMELY RELIABLE /SUITABLE FOR TEMP. PROBE/GREAT PRICE ADVANTAGE
	ZIRCONIUM OXYDE		16	-190/+350°C	/	HIGH COST AND MUCH LOWER PRESSURE
COMPETITORS	METAL ZIRCONIUM OXYDE		16	-190/+350°C	1,5	HIGH COST, MUCH LOWER PRESSURE AND HIGHER MAG LOSS COMPARED TO MPUMPS
	COMPOSITE PEEK		16(≤ 20 °C)	-40/+ 120°C	/	HIGH COST AND PRESSURE AND TEMPERATURE LIMITATION
	PTFE - CARBON FIBER		16	-20/+ 200°C	/	PRESSURE LIMITS AND OVERSIZING OF MAGNET (DE-COUPLING RISK)
	BOROSILICATE GLASS		10	-40/+ 180°C	/	PRESSURE LIMITS, VERY FRAGILE AND HIGH COST (OVERSIZED MAGNET)

(*) Comparison with installed motor 18,5 kW, 2 poles, 50 Hz.



Minimized Temperature rising on rear casing region



Hybrid technology reduces greatly heat generation in the rear casing region. This benefit is particularly important when pumping low boiling liquids.

How to protect your pump

- Exclusive solid machined PP or PVDF casings and impeller components (min. 12mm)
- Heavy casing wall thicknesses
- Withstands external corrosion
- Integral raised face flanges (no threaded adapters) to ensure zero leakage
- Oversized, high purity ceramic shaft
- Chemically resistant carbon sleeve bearings
- Self-balancing impeller eliminates thrust bearing wear
- Handles up to 20% entrained gas, resists

Exclusive design of external magnets, fully encapsulated (on the right), to protect magnet sectors and ensure high reliability



Emotron M20

- It detects process inefficiency. Early warnings allow you to take preventive action.
- It protects pumps and other equipment against damage
- It measures shaft power output and uses the motor as a sensor.
- The result is reduced maintenance and installation costs, extended equipment lifetime and increased reliability.

Technical data

- Supply voltage 100-240 VAC / 380-500 VAC / 525-690 VAC
- Frequency 50 Hz / 60 Hz
- Rated current Up to 999 A via current transformer
- Protection class IP20
- Approvals CE, UL, cUL

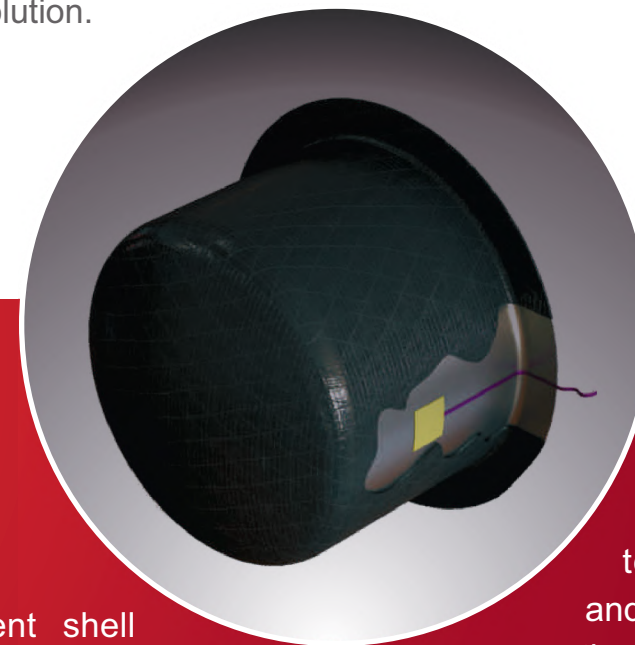
Most Advanced Rear Containment Shell on the Market



Thanks to our 40 years of experience in magnetic drive technology, M Pumps is able to supply innovative and unique rear containment shell on magnetic drive pumps to enhance the competitiveness and operational efficiency in today's process industry.

As technology advances, the need for high pressure, high temperature and energy efficiency become the top priorities among pump users. Staying ahead of these priorities required M Pumps to adopt a forward thinking and proactive approach to pump design. Based on this Philosophy, M Pumps has created an advanced High pressure, High Temperature and Energy efficient Rear Containment Shell to eliminate the various concerns on the use of magnetic driven pumps in the process industry.

The patented hybrid technology containment shell combines the reliability of a standard inner metal shell (High Pressure and High Temperature) with the strength of Carbon Fibre outer shell to achieve an energy efficient (Reduction in magnetic loss and cost of ownership) and environmental friendly (Hermetically sealed) solution.



Hybrid Containment Shell with thermocouple

Our Hybrid containment shell consists of a dual shell system.

The external shell is made of carbon fiber, and the internal shell is made of Hastelloy ® C or Titanium. Using carbon fiber on the External shell guarantees the highest mechanical strength and the internal metallic shell ensures optimal chemical compatibility. We offer optional temperature monitoring.

The Temperature sensor installed between

In addition to generating much lower temperatures compared to other metallic versions, the thin shell of Hastelloy ® C, guarantees immediate and accurate reading of temperature changes. Traditional solid metallic Shell Containments with thermocouple PT100 see delays in reading temperature, possibly resulting in pump failure.

the inner and outer shell is located at the source of the magnetic field to provide accurate temperature reading and timely response to avoid costly pump failure.

