HMD KONTRO
Sealless Pumps

ASME & ISO SEALLESS METALLIC MAGNETIC DRIVE PUMP

RANGE FOR CHEMICAL & INDUSTRIAL MARKETS

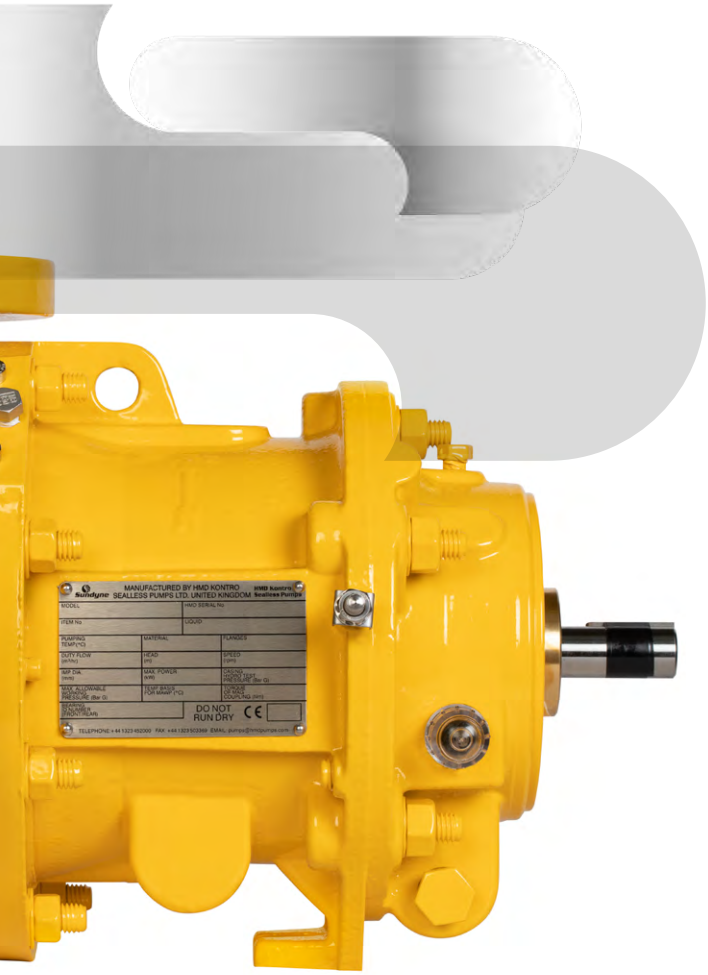
HMD Kontro General/Chemical Service Sealless Pumps

The Magnetic Drive Solution for Chemical & Industrial Applications

The ASME B73.3 standard was first introduced in 1997 for sealless pumps as an equivalent standard to that of ASME B73.1 (Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process) – the current iteration being in 2015. The older ISO 2858 standard was first introduced in 1975 and focussed on external dimensions and mounting details. This standard being last reviewed and confirmed in 2017.

Whilst HMD Kontro have been building sealless magnetic drive pump units for the Chemical industry plus associated industries since 1947, the supply of such units to the applicable codes did not commence until 1997. With increasing demands for the safety and welfare of personnel plus significant environmental concerns, sealless pumps are playing an ever greater part in meeting these challenges. Indeed, in some cases more stringent regulations and local agencies are mandating their use.

Improved magnet drive technology has enabled more efficient and powerful pumps to be built, along with advanced instrumentation, power saving features and containment options, thus increasing the application scope for this technology.



A History with ASME / ISO

Starting first with ANSI B73.1M and then modifying and enhancing our designs to combine cutting edge technology with our expertise and experience solely with Magnetic Drive technology, we ensured that our sealless pumps met and exceeded the original requirements for such units. Now the HMD Kontro ranges of magnetic drive sealless pumps are designed to adhere to the latest ASME and ISO standards.

With our seventy plus year heritage in magnetic drive technology, HMD Kontro is in an ideal position to satisfy the pumping needs and specific requirements for chemical, pharmaceutical and general process industries, whilst maintaining our flexible approach and without compromising the quality or reliability of our equipment. Our range is being continuously developed and extended and currently consists of standard horizontal and vertical centrifugal units, as well as low flow and high system pressure derivatives of both designs.

Why a
Magnetic Drive Pump

Mechanical seals are widely regarded as the weakest point in any pumping system that utilises them. Over 85% of pump failures involve mechanical seal failure and/or leakage through static seals, such as gaskets and/or O-rings, and bearing failure.

When planning a new pump installation or an upgrade to an existing installation, often the financial impact of the mechanical seal support system is considerable. Once such a system is installed, further cost implications are caused by the need to comply with local, regional or national environmental requirements, which often involve monitoring the effectiveness of such
a system.

Magnetic drive sealless pumps offer significant advantages over sealed designs:

No **Seals**

No **Seal Support Systems**

Complete **fluid containment**

Zero **emissions**

Zero **contamination of liquid**

Reduced **installation costs**

Cost effective **installation**

Longer **MTBF**

No EPA **monitoring**

Improved **operator safety**

Protection **of the environment**

HMD Kontro
GSA/I (CSA/I) Range

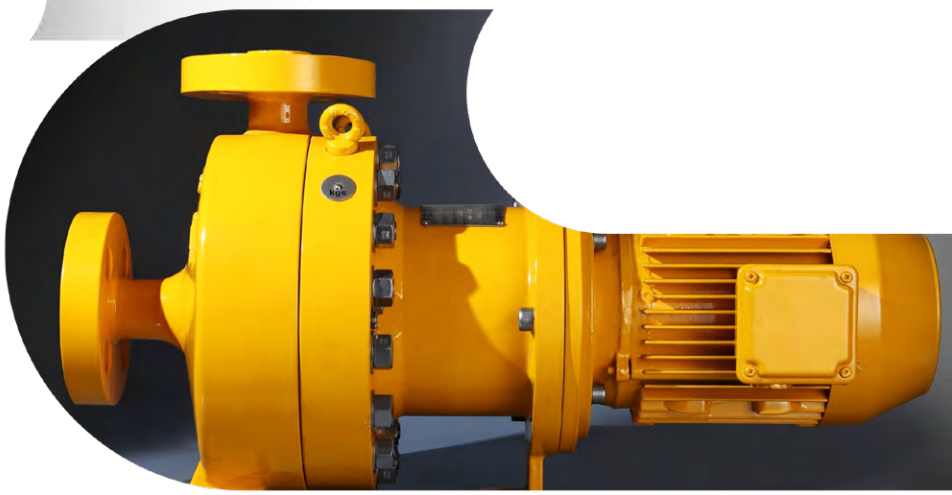
Our ASME and ISO sealless ranges have been specifically developed to eliminate leaks and reduce maintenance and downtime, with substantial cost saving over sealed alternatives.

The core range consists of horizontally mounted pumps covering a hydraulic range split between two frame sizes. The pumps are offered with a range of synchronous magnet drives rated to match prime mover performance.

GSA/I (CSA/I) Pump Range Benefits:

- Close Coupled design available in multiple hydraulic sizes
- Various frame sizes to suit power requirements
- Horizontal and vertical pumps available
- Large degree of interchangeability within frame sizes
- Commonality minimises spare parts inventory and associated costs
- Mounted on a sub-base (Close Coupled design) or fabricated steel baseplate (Long Coupled design)
- Self-venting and completely self-draining
- Design ensures safe, leak free operation
- Increased efficiency via low operating costs
- Minimal spares holding and maintenance
- No costly seal support systems to specify, install or maintain
- Standard 316 Stainless Steel materials of construction. Other variations are available on request
- Silicon carbide internal bearings and Compressed Synthetic Fibre gaskets
- Standard ANSI/ISO flange options are available

By completely eliminating the seal and associated seal support system, our pumps are ideal for handling any toxic or hazardous liquid. Applications include process, utility services, elevated suction pressures, sampling, fiscal metering/custody transfer, elevated temperatures, caustic, solvents, cooling, booster and heat transfer pumps.



High Pressure - HPGS

Capable of easily handling system pressures up to 150 bar and higher, dependent upon temperature extremes, these high-pressure pumps are exceptionally versatile yet safe and secure. These units are available in both a close coupled and separate mounted design and are available in seven hydraulic sizes and two basic frame sizes to suit power requirements.

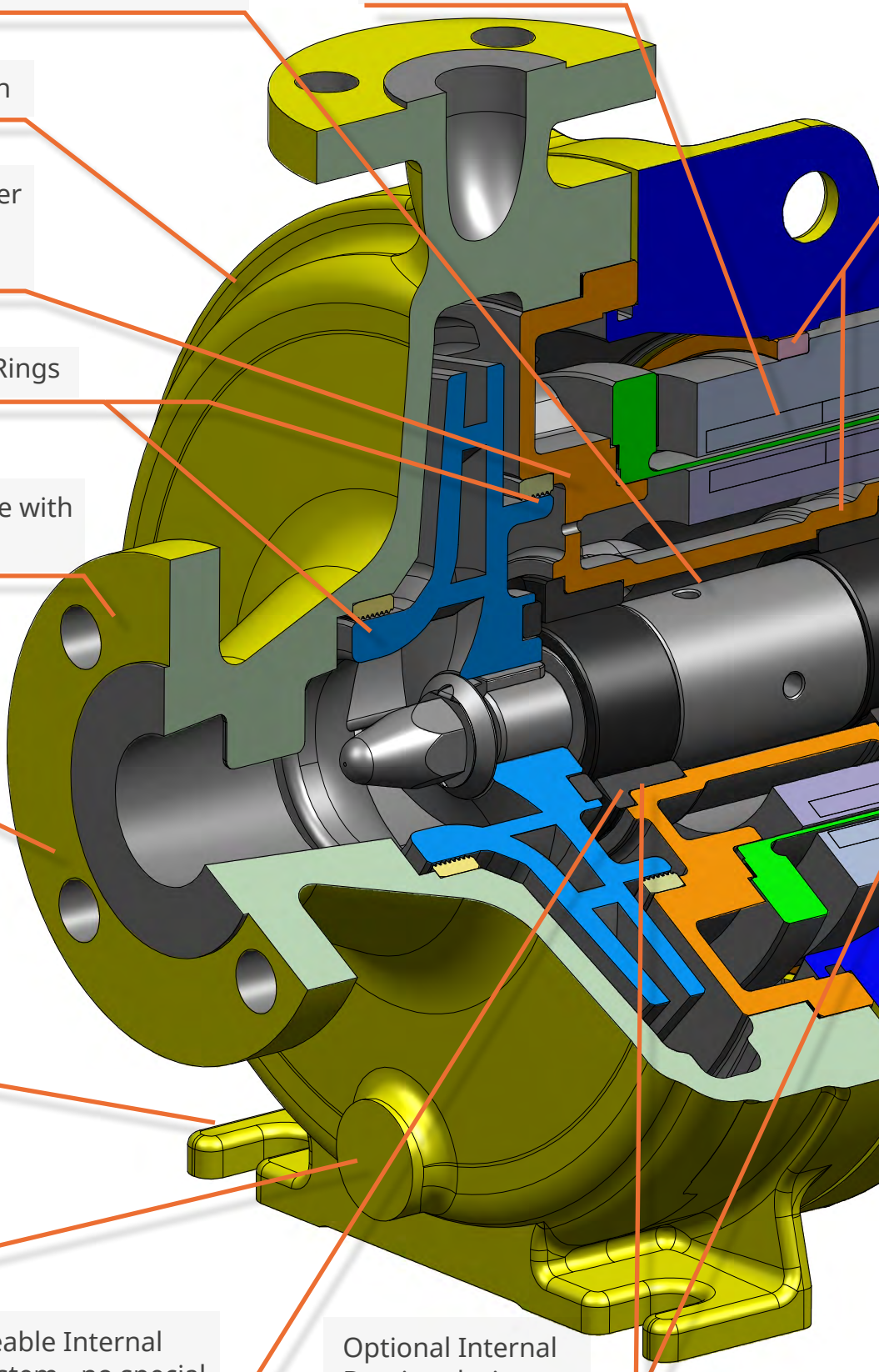
Vertical - GS

Our vertically mounted pumps provide all the benefits of a magnetic drive sealless pump in a compact package. Requiring minimal floor space, this range is ideal for applications where space is at a premium.

SPGS

A self-priming sealless magnetic drive pump designed for reliable fluid transfer of liquids ranging from water to hazardous and toxic substances. The SPGS product covers a hydraulic range that is split between two frame sizes, Frame 0 and Frame 1. Standard construction is stainless steel with silicon carbide internal bearings with options of Alloy 20 or Alloy C with PTFE gaskets available.

HMD Kontro **ASME Pump**



Proven Internal Bearing Feed System

Fully enclosed and protected Magnets

Fully self venting design

Single piece Bush Holder for optimized Internal Bearing aligment

Site replaceable Neck Rings

Casings interchangeable with existing GSA designs

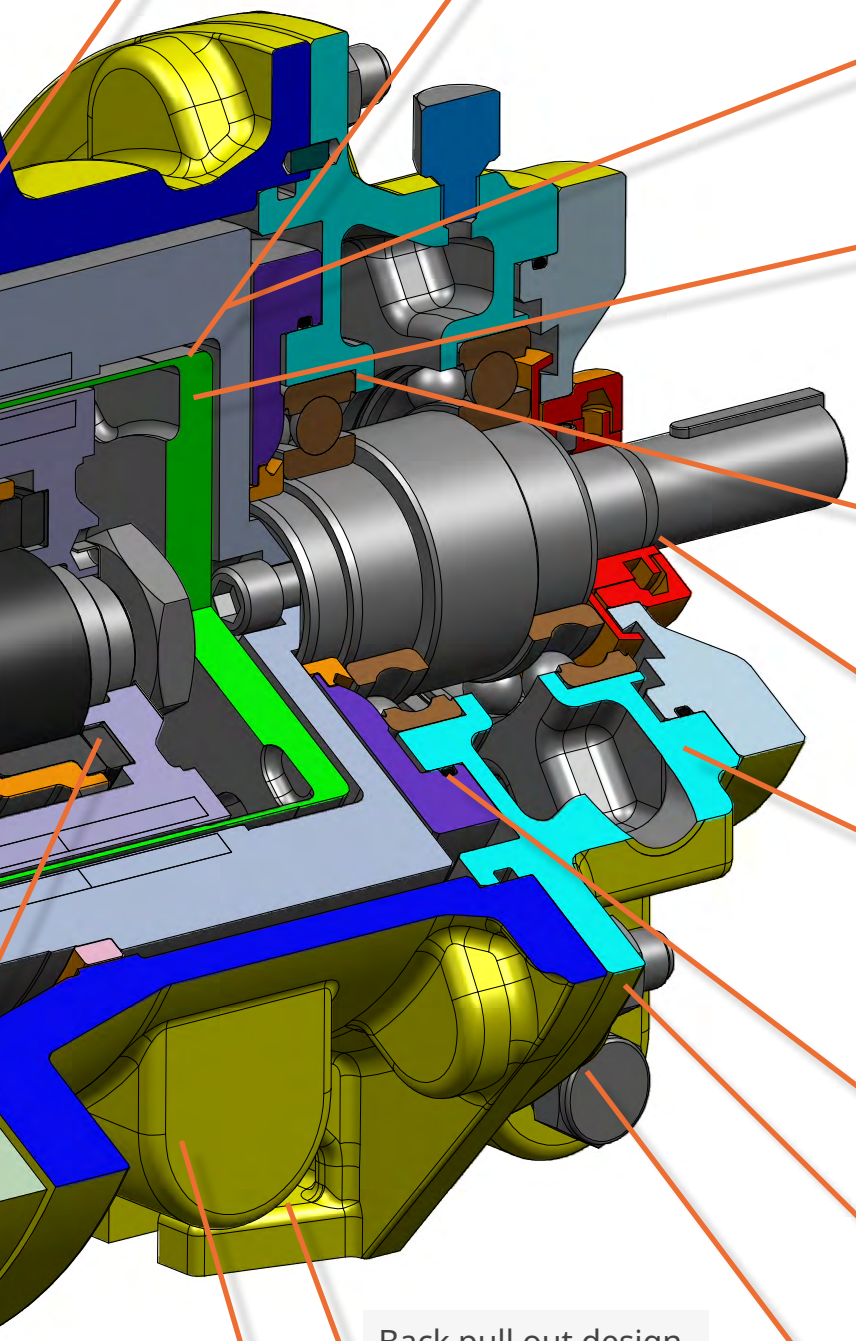
Wide range of hydraulics including High Flow (H) and Low Flow (L) variants

Fully dimensionally compliant to ASME standards

Choice of Casing Drain options

Site serviceable Internal Bearing System - no special tools or hot work needed

Optional Internal Bearing designs:
SiC/ SiC
Sic / Carbon
SiC / CMC



Internal and External Bump Ring design

Alloy C or High Efficiency ZeroLoss® Containment Shells

Optimised Magnetic Couplings sized for specific application requirements

Integrated Vortex breaker to further improve robustness

Optional External Lubrication Systems - Constant Level Oiler, Purge Oil Mist ot Oil Mist

External Drive Shaft Seal options - Labyrinth, Inpro or Labtecta

External Bearing Assembly - Non - overfilling design

Optional Secondary Control of Containment variants available on Separately Mounted and Close Coupled designs

Increased Oil Sump Capacity

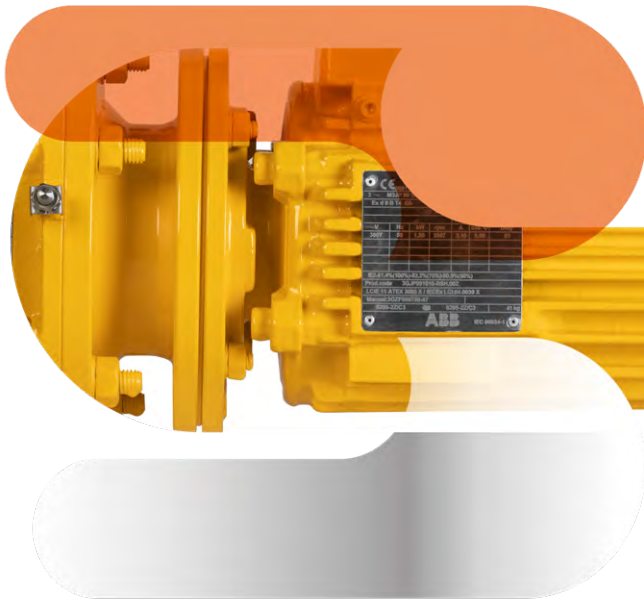
Back pull out design

Magnetic Drain Plug and Bullseye sight glass

Magnetic Coupling Housing with Pre-drilled and plugged RTD port and optional Liquid Sensing port

Liquid Contact Materials: 316 St St - Options for Alloy C, B, 20, Duplex and Titanium

Sealless
Pumps Perfected



The sealless pump offers the ultimate solution to fugitive emission regulation. All pumps, however, can become operationally sensitive owing to unstable process conditions. Additional protection is recommended on all applications to alert the operator to system failure conditions, such as cavitation, low flow, dead heading, no flow, empty suction vessel and similar.

Our sealless pumps are accompanied by a comprehensive range of protection devices including secondary control / containment systems and instrumentation packages that ensure their operational reliability and efficiency is maintained.

VapourView® Non-Intrusive ‘Gas-in-Liquid’ Detector

To avoid risk of damage and dry running, this innovative, non-intrusive instrument uses an ultrasonic signal to detect the presence of gas in a liquid stream from outside the confines of the pump pressure boundary.

The VapourView instrument provides vital information to the end-user on the presence of gases in the pumps internal flow regime and forewarns of adverse conditions. Early intervention by system engineers, who can undertake remedial action, maximises the operating life of plant equipment.

ZeroLoss™ Composite Containment Shell

The ZeroLoss containment shell works by eliminating eddy current heating -- a common issue with rotating equipment. This allows higher efficiency ratings, the benefits of which are most obvious on larger pumps, where reductions in the size of the magnetic coupling and motor can lead to major operational power cost savings. Additionally, smaller base plates can be specified, allowing for a reduced footprint and consequent space savings.

Secondary Control /Containment

On some hazardous processes, the added benefit of secondary control is regarded as essential. HMD Kontro is able to provide pumps with secondary control devices to severely restrict any leakage into the immediate locality. Mechanical devices are fitted to the drive shaft assembly that are activated in the unlikely event of containment shroud / shell failure, together with this the pump coupling housing is fitted with gaskets to eliminate any leakage across the joining faces.

Product
Parameter Matrix

Product	Overview Figures							
FREQUENCY	50Hz				60Hz			
UNITS	SI		US		SI		US	
FLOW RATE [1.]	305	m³/hr	1346	gpm	360	m³/hr	1600	gpm
HEAD [2.]	140	m	459	ft	210	m	700	ft
MINIMUM TEMPERATURE	-40	°C	-40	°F	-40	°C	-40	°F
MAXIMUM TEMPERATURE	315	°C	600	°F	315	°C	600	°F
PRESSURE	150+	bar	2175+	psi	150+	bar	2175+	psi
VISCOSITY	200 cSt							
SOLIDS CAPABILITY	Maximum of 5% w/w less than 150 microns							
SPEED RANGE	1450 - 3500 RPM							
INDUSTRY STANDARDS	ASME / ISO							
MAX MOTOR SIZE [3.]	90	kW	120	hp	110	kW	150	hp
STANDARD MATERIALS	316 St, Alloy 20, Alloy C							
NUMBER OF AVAILABLE HYDRAULICS	43							

Notes:
1. Maximum flowrates are based on BEP (max imp) plus 10%, rounded to next whole unit.
2. Heads are based on 50% of BEP flow (max imp), rounded up to next whole unit.
3. Based on current DOL coupling output.
4. Overview figures: Maximum overall power is based on EA17 SS at 60Hz - 110kW (150 hp)

Sealless Savings

Time is money. Whether it is the time management of your people, the time taken to bring a new product to market or to progress a new project to completion, all have significant financial implications.

Sealless pumps bring savings in time, resources, skill sets, ongoing maintenance and lost production. They also reduce health and safety risk and potential damage to the environment.

Sealless pumps can achieve the step change savings that are needed from concept to completion of a project and beyond, throughout the life of the pump.

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- Installation Costs
- Commissioning Costs
- Scheduled Maintenance Costs
- Unscheduled Maintenance Costs
- Lost Production
- Decommissioning and Disposal Cost
- Environmental Clean Up & Fluid Disposal

Sealless Safety

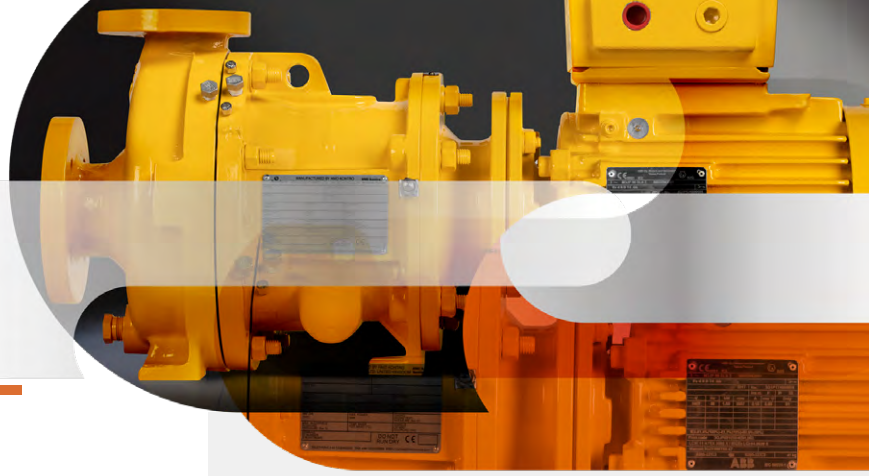
Health & safety is everybody's responsibility. From the production and maintenance staff on the shop floor right up to the members of the board, the Chairman and Chief Executive who could take the punishment of any prosecution.

Minimising the impact of manufacturing and other operations also on both the local and wider environment is an essential, legal and a moral obligation.

Sealless pumps are self-contained. The pumped product or liquid is completely enclosed within the body of the pumps exactly where it should be. The containment shell provides a complete mechanical barrier, preventing leaks, escapes and emissions. There is no reliance on any external system or method of prevention.

Magnetic drive pumps are hermetically sealed. There is absolutely no potential for leaks or emissions.

Sealless Services
Through-life Technical Support



Sealless Services – Through-life Technical Support
HMD Kontro sealless magnetic drive pumps are now more reliable, safe and efficient than ever before. Supported by a full range of through-life technical engineering services, you can be confident that your sealless pump will continue to provide years of dependable process operation, significantly reducing downtime and delivering a trouble-free sealless experience.

- Best Practise Sharing
- Competence Training
- System Diagnostics
- Repairs & Parts
- Upgrades & Retrofits
- Instrumentation

From assisting with design, installation and commissioning, through to optimising your spares inventory and ensuring ongoing operating efficiency, our team of experienced technical engineers is capable of executing virtually any support service you require, in house or in the field. Wherever you are located around the world, you will always have access to our support and maintenance service, either directly with HMD Kontro's technical team or through our global network of competence trained country partners.

To locate the global representative, distributor or authorised service centre nearest you, or for additional information please visit

www.HMDKontro.com

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