Sundyne

HMD Kontro Sealless Pumps

CSI PUMP RANGE

Sealless Magnetic Drive Centrifugal Pumps to ISO 2858 & ISO 15783

HMD Kontro Sealless Magnetic Drive Pumps

Since pioneering the sealless magnetic drive pump in the 1940's, HMD Kontro have been at the forefront of the liquid handling industry providing pump products with high performance, superior reliability, increased safety and full industry compliance.

An HMD Kontro sealless pump is a conventional centrifugal pump without mechanical seals. Using modern engineering and technologies developed over decades of experience in the handling of harsh and hazardous fluid applications, HMD Kontro pumps offer numerous benefits:

- **Total fluid containment** providing better environmental protection & operator safety
- **No seals or seal support systems** simplifying procurement, installation, operation and maintenance, reducing lifecycle costs
- World class sealless pump technology that offers the highest levels of robustness in the field, **increasing Mean Time Between Failure (MTBF) and plant uptime**
- **Compliance to industry standards** and global availability

Introducing the CSI Range

Designed to meet the needs of the chemical industry, the HMD Kontro CSI is a range of sealless centrifugal pumps providing full compliance to ISO 2858 and ISO 15783 standards. Incorporating the latest magnetic drive technology, the range features a simple, modular design with maximised interchangeability, high efficiency hydraulics and a number of upgrade options to ensure suitability with a wide range of applications.

The CSI range features a number of hydraulic sizes that conform to the ISO dimensional, performance and construction requirements. Close-coupled and separately mounted variants are available along with a wide range of options including secondary control or containment, instrumentation and various bearing isolation and lubrication options. The range is specifically designed for maximum part interchangeability, ease of on-site service and has a wide number of site upgradeable features.

Parameters

CSI Frame 1 Parameters

Temp: -40 to 260°C
Flow: 120 m^3/h
Head: 62 m
Viscosity: 0.1 to 200 cSt
Power: 37 kW
Design Pressure: 16 Bar @ 38C
Solids: Up to 5% wt/wt <150 microns

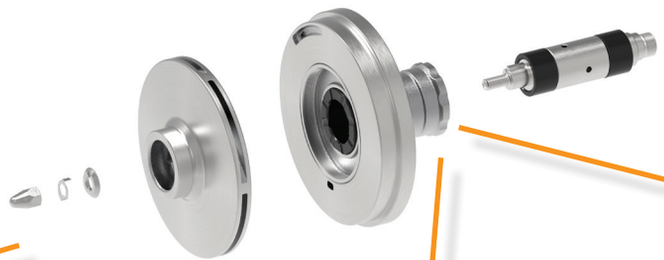
CSI Frame 2 Parameters

Temp: -40 to 260°C
Flow: 320 m^3/h
Head: 100 m
Viscosity: 0.1 to 200 cSt
Power: 75 kW
Design Pressure: 16 Bar @ 38C
Solids: Up to 5% wt/wt <150 microns

Key Design Features:

- **Sealless Design:** For total product containment, essential for hazardous, aggressive or valuable liquids
- **No Seals:** Minimises maintenance and all of the associated costs, and eliminates potential leak paths
- **Modular Construction:** With interchangeable components for maximum design coverage, reduced inventory needs and minimised lead times
- **High Efficiency Design:** Providing reduced power consumption through optimised hydraulics and the Zeroloss Containment Shell option.
- **Site Serviceable Design:** Facilitating ease of on-site maintenance activities with removable wear rings, simplified internal bearing replacement with no hot working required, bearing housing oil overfill protection and no requirements for special tools.
- **Robust Design:** Featuring a single fully confined casing gasket, internal and external bump rings, and the Zeroloss containment shell option for increased tolerance to system upsets.
- **Secondary Control and Containment available** as upgrade options across entire CSA / CSI and can be installed in both Close-Coupled and Separately Mounted configurations

HMD Kontro CSI Pump
Features & Benefits



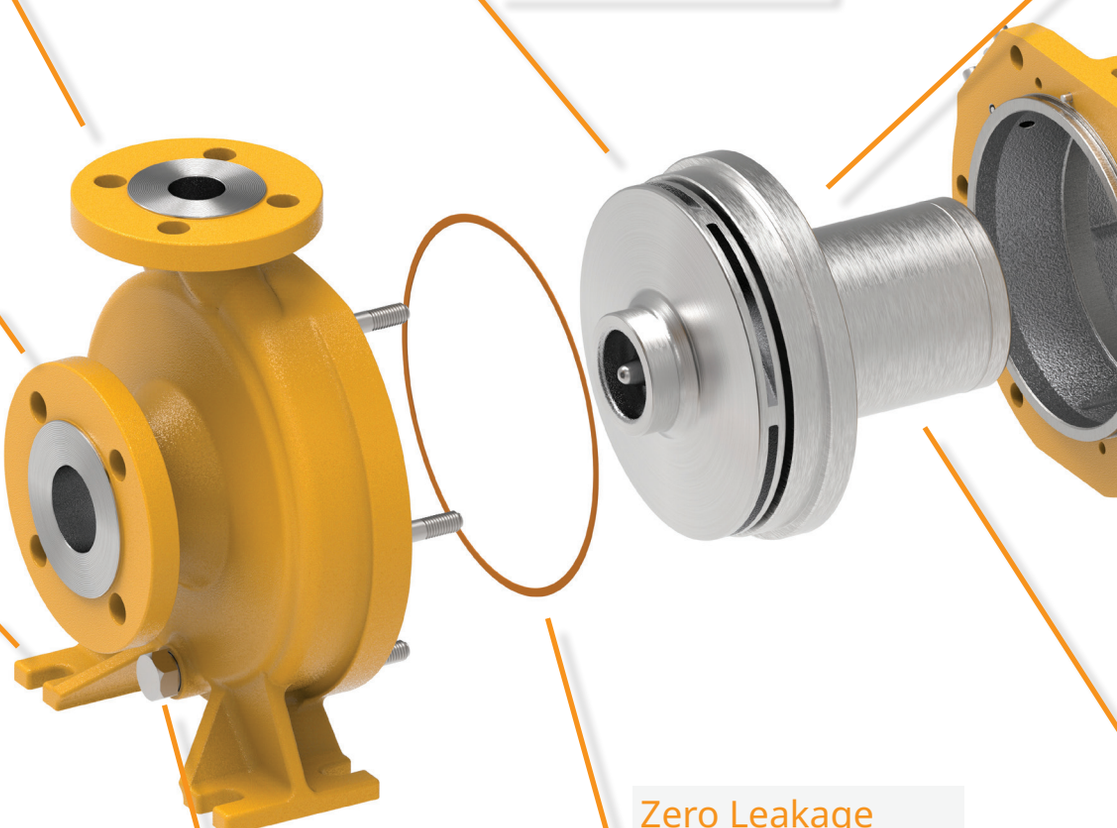
Cartridge Design
Wet-end cartridge assembly for quick and easy on-site replacement

Single Piece Bush Holder & Site Serviceable Internal Bearings
For optimized internal bearing alignment & simplified bearing replacement with no hot working

Simple Start-Up
Fully self-venting design

Optimum Performance
Wide range of hydraulics available

ISO Compliance
Dimensionally compliant to ISO 2858 standard



Zero Leakage
Single, fully-confined gasket to contain fluid

Choice of Casing Drain Options
To meet site requirements

Simple Maintenance
Back pull-out design for easy maintenance

Fully Encapsulated Magnets

Magnets in inner & outer magnet rings are fully protected

Bump Rings

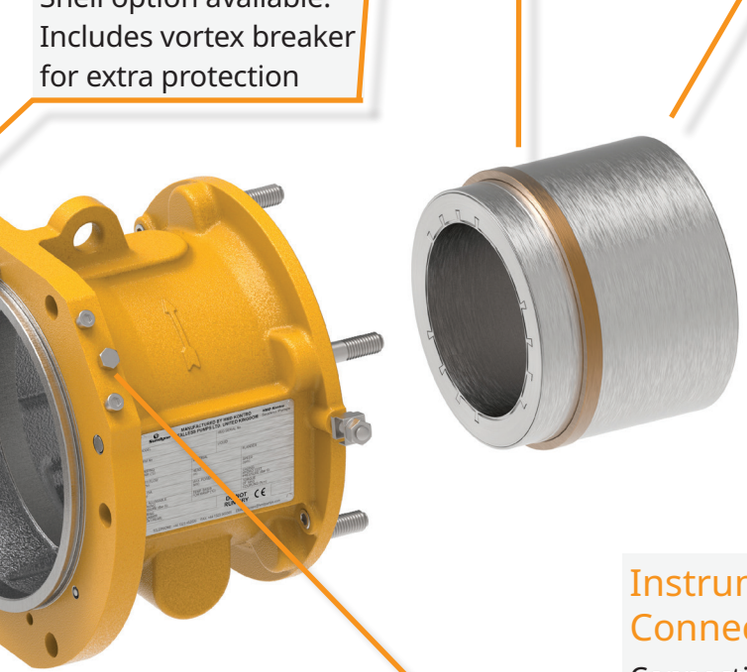
Internal & external bump rings for containment shell protection

Robust Containment Shell

Alloy C276/316L metallic design with high efficiency non-metallic ZeroLoss Shell option available. Includes vortex breaker for extra protection

Configuration Options

Space-saving close-coupled or separately mounted/long-coupled configurations



Oil Overfill Protection

Angled fill port on bearing housing to prevent oil overfilling

Instrumentation Connections

Connection ports for protective instrumentation such as RTD temperature monitor or liquid level sensor

Secondary Control & Containment Options

Optional secondary control and containment systems available on close-coupled & separately mounted configurations for enhanced safety

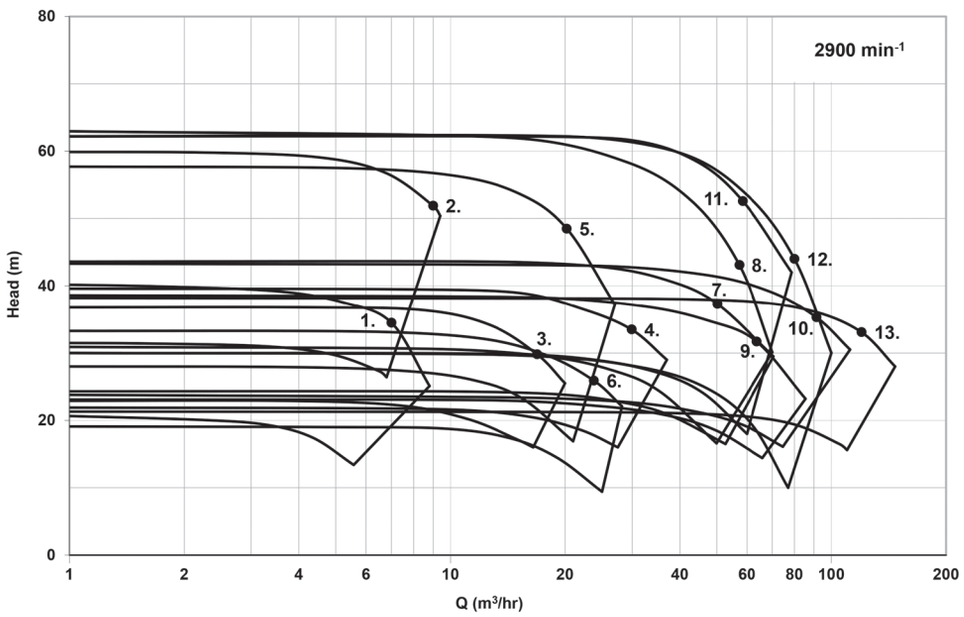
Magnetic Drive

Optimized magnetic couplings sized for specific application requirements

Corrosion Resistant Metallic Material Design

Liquid-contact material of construction is 316 St St. Alternative material options available on other HMD Kontro pump ranges

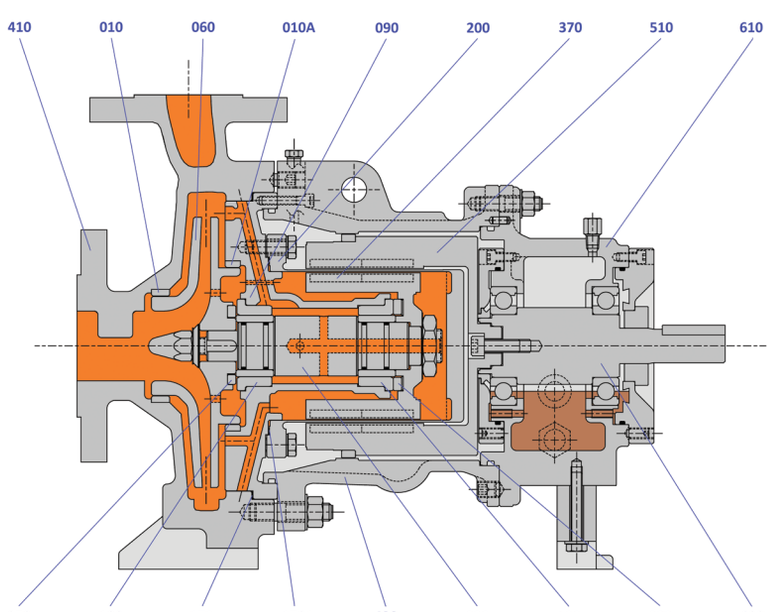
Performance of the CSI Frame 1 Pump Range



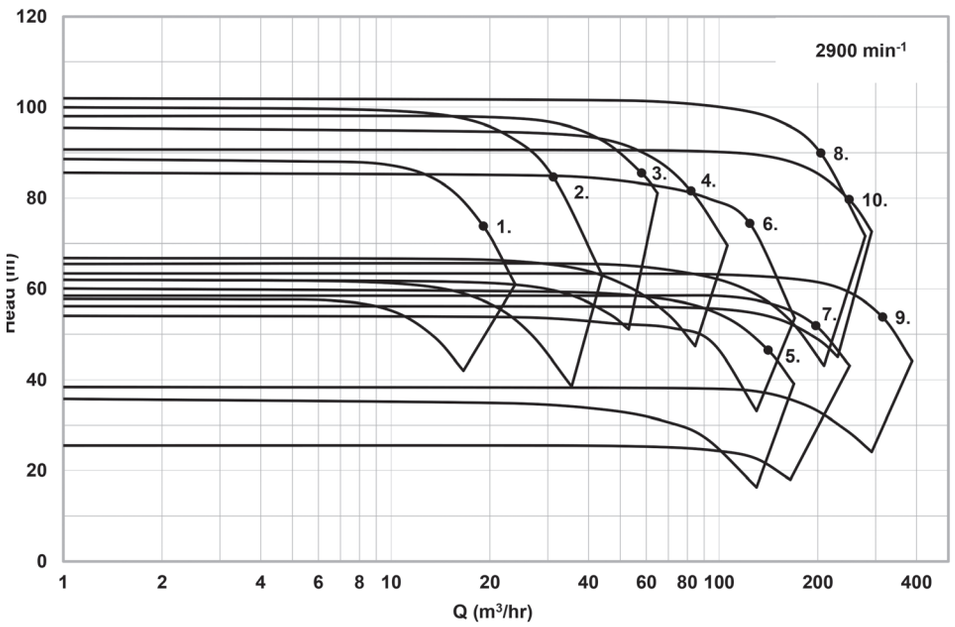
Reference	CSI
1	40-25-160
2	40-25-200
3	50-32-160
4	50-32-160E
5	50-32-200
6	65-50-160
7	65-50-160E
8	65-40-200H
9	80-65-160H
10	80-65-160E
11	80-50-200
12	80-50-200E
13	100-80-160E

Construction of CSI Frame 1 Pump

010	Neck Ring (Front)	316LStSt
010A	Neck Ring (Back)	316LStSt
020	Pump Shaft	316LStSt
060	Impeller	316LStSt
070	Front Thrust Washer	Silicon Carbide
080	Back Thrust Washer	Silicon Carbide
090	Bush Holder	316LStSt
100	Bush	Silicon Carbide
170	Casing Gasket	CSF
170A	Shell Gasket	CSF
200	Containment Shell	Alloy C / 316L
370	Inner Magnet Ring	316L St St Clad
410	Casing	316LStSt
430	Coupling Housing	SG Iron
510	Outer Magnet Ring	C. Steel (Sheathed)
610	Bearing Housing	SG Iron
620	Drive Shaft	Carbon Steel



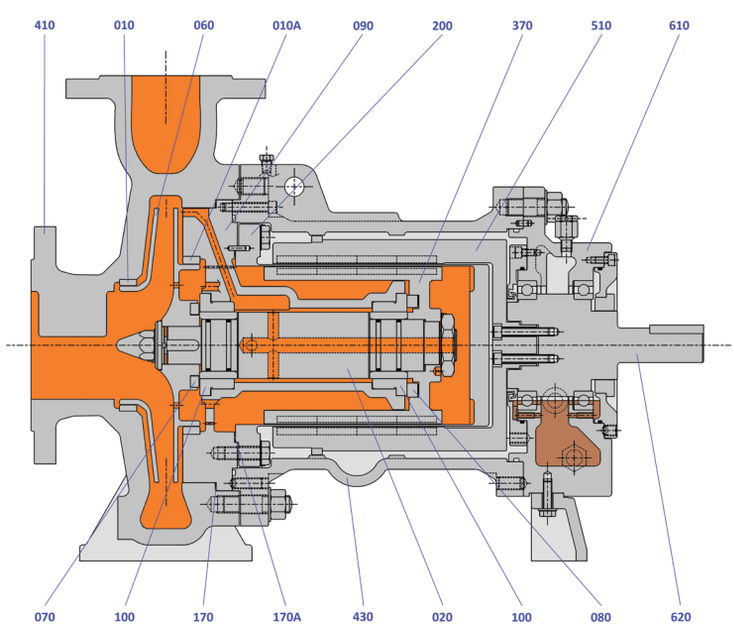
Performance of the CSI Frame 2 Pump Range



Reference	CSI
1	50-32-250L
2	50-32-250
3	65-40-250
4	80-50-250H
5	100-65-200H
6	100-65-250H
7	125-80-200H
8	125-80-250
9	125-100-200
10	125-100-250

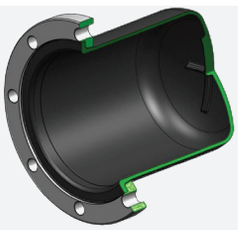
Construction of CSI Frame 2 Pump

010	Neck Ring (Front)	316LStSt
010A	Neck Ring (Back)	316LStSt
020	Pump Shaft	316LStSt
060	Impeller	316LStSt
070	Front Thrust Washer	Silicon Carbide
080	Back Thrust Washer	Silicon Carbide
090	Bush Holder	316LStSt
100	Bush	Silicon Carbide
170	Casing Gasket	CSF
170A	Shell Gasket	CSF
200	Containment Shell	Alloy C / 316L
370	Inner Magnet Ring	316L St St Clad
410	Casing	316LStSt
430	Coupling Housing	SG Iron
510	Outer Magnet Ring	C. Steel (Sheathed)
610	Bearing Housing	SG Iron
620	Drive Shaft	Carbon Steel



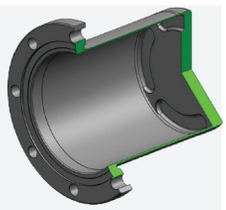
Metallic and Zeroloss® Shell Options

Zeroloss® Shell



- 16 bar Design pressure
- PEEK Composite design
- Suitable for process temperatures up to 120°C
- High Power NdFeB Magnetic Coupling
- High efficiency – no induction losses, no heat into process liquid
- Provides highest process upset tolerance
- In-built vortex breaker

Metallic Shell



- 16 bar Design pressure
- Proven welded construction
- High strength alloy C276 tube
- Suitable for process temperatures up to 260°C
- Range of SmCo Magnetic Couplings to suit specific duty requirements
- In-built vortex breaker

Site Serviceable Design

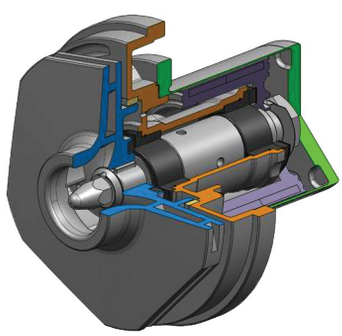
Site replaceable Cartridge design ensures maximum up time and minimum disruption in the unlikely event of a breakdown.

Comprising of wetted parts (not casing):

- Impeller
- Shaft
- Internal Bush Holder and Bearings Containment Shell
- Inner Rotor

Designed to be serviced / overhauled on site:

- No special tools
- No hot working
- Simple to decontaminate
- No special motor decontamination needed



Site Serviceable Internal Product Lubricated Bearing assembly:

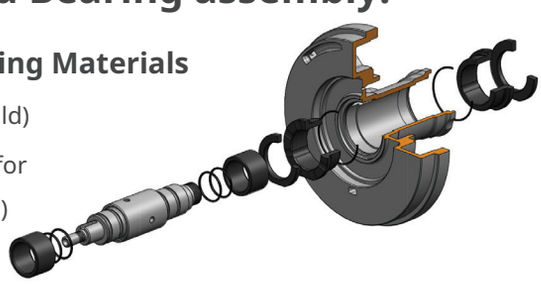
Single piece Bush Holder – easily serviced on site:

- No hot working
- No special tools
- In built bush retention features

Radial and thrust bearings interchangeable across entire frame 1 and frame 2 range.

Optional Internal Bearing Materials

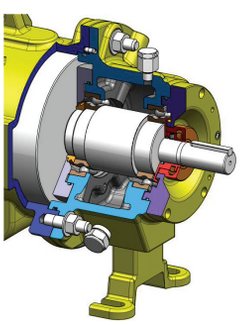
- SiC vs Sic (Standard Build)
- SiC vs Carbon (Variant for low lubricity conditions)
- SiC vs Ceramic Matrix Composite (CMC) thrust bearing (Variant for marginal applications)



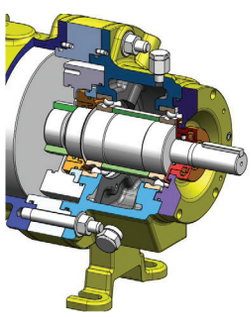
Extended Spacer and Shaft design for increased process temperatures from 205°C to 260°C

Enhanced External Bearing Assembly Design

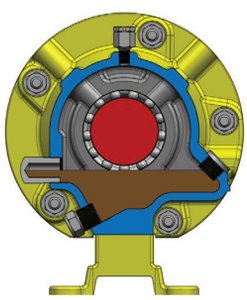
… designed for maximum service life and ease of maintenance



Standard design



Extended Fe design



Non-overfilling design

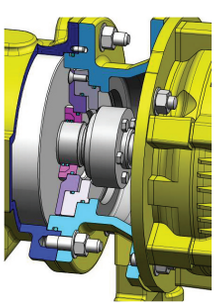
External bearing assembly:

- Non-overfilling design
- Large sump capacity
- Magnetic sump plug
- Bulls eye style sight glass
- External bearing isolator options available

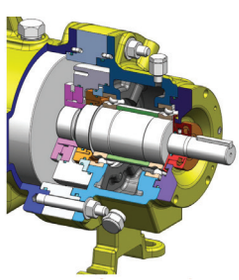
Available lubrication systems:

- Oil bath (standard)
- Oil bath and constant level oiler
- Purge Oil mist
- Pure Oil mist

Secondary Systems for Additional Security



Close Coupled Secondary Control



Separately Mounted Secondary Containment

Secondary Control and Containment Options:

- Choice of Secondary Control or Secondary Containment systems
- Secondary Housing designed for 16 bar pressure conditions
- O-rings to completely seal Secondary Housing
- Provision for Liquid Sensing probe or Pressure Sensing device to be fitted in Secondary Housing
- Fully compliant to ISO requirements
- Available on both Close Coupled and Separately Mounted design configurations
- Extended Spacer and Shaft design utilised on Separately Mounted designs

… when product integrity cannot be compromised

Options

Casing Flanges

Suction and discharge flanges are designed in accordance with DIN 2543 PN16 with option for DIN 2544 PN25 for select models

Materials of Construction:

316L Stainless Steel (standard)

Containment Shells:

Metallic Construction
(-40°C to 260°C)
High Efficiency Zeroloss® PEEK
(-40°C to 120°C)

Internal Bearings:

Silicon Carbide vs Silicon Carbide (standard)
Carbon vs Silicon Carbide (optional)
Silicon Carbide vs CMC (optional)

Casings Drain:

No Drain or 3/8" BSP Plugged

Gaskets:

Compressed Synthetic Fibre, PTFE or Graphite

Mounting Configuration:

Close Coupled:
IEC B5 Flange or B35 Foot / Flange Mounted Motor

Separately Mounted:
IEC B3 Foot Mounted Motor & Flexible Coupling

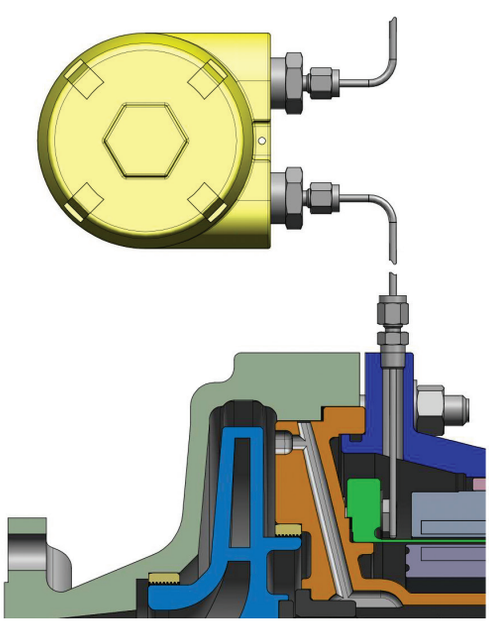
Constructional Variants:

Secondary Containment
Secondary Control
Oil Bath/ Oil Mist Lubrication of external bearing assembly
205°C - 260°C Thermal Break

Instrumentation:

Power Monitoring, Temperature Monitoring & Leakage Detection for Secondary Control or Containment

Instrumentation and Protection



It is recommended that magnetic drive pumps are installed with one or more of the following instrumentation options.

- Power Control Monitor
- Temperature measurement of the containment shell

For pumps supplied with Secondary Sealing systems, the following instruments should be considered to detect leakage in the secondary pressure housing:

- Liquid sensing probe
- Pressure sensing device

It should be noted that both should be set to stop the pump immediately if the presence of process liquid is detected.

Sealless Safety

Health & Safety is everybody's responsibility. From the production and maintenance staff on site to executive teams and members of the board, safety should be the priority.

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

HMD Kontro pumps are self contained. The pumped product is completely confined to the body of the pump. The containment shell provides a mechanical barrier, preventing leaks, escapes and emissions without any reliance on an external method of leak prevention or sealing system.

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.

HMD Kontro 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.

HMD Kontro 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.

Sealless Standards

HMD Kontro sealless pumps can be supplied to the relevant international design and dimensional standards including API, ASME / ANSI and ISO, with products / processes certified to:

- ISO 9001:2015,
- ISO 14001:2015
- ISO 45001:2018
- Machinery Directive 2006/42/EC
- ATEX 2014/34/EU (Group II Cat. 2&3)
- IECEx

Being industry certified means that global standards for design, quality, environment, health and safety are complied with.

HMD Kontro pumps provide safe, efficient and reliable handling of harsh and hazardous chemical and industrial applications:

- Isocyanates / Polyurethane
- Chlor-Alkali
- Sulphuric Acid
- Specialty / Inorganic Chemicals
- Agricultural Chemicals
- Ammonia
- Pharmaceutical
- Food & Beverage
- Pulp & Paper
- Power Generation
- Metals & Mining
- Water Treatment
- Semi-conductors
- Battery Production
- Hydrogen Alkaline Electrolyzers
- Petrochemical

HMD KONTRO Sealless Pumps

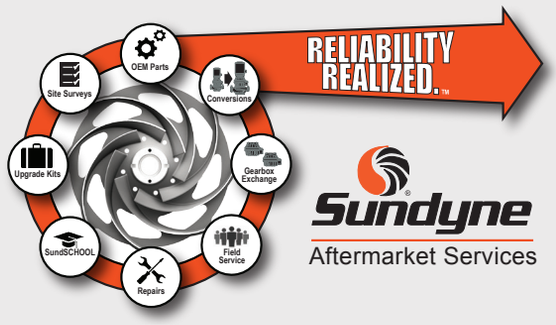
Backed By Global Support

Sundyne is more than just a manufacturer of high quality pumps, compressors and genuine aftermarket parts. Sundyne's highly-engineered solutions are backed with a full range of global aftermarket services that extend the value of Sundyne equipment far beyond the point of sale. The Sundyne service team is here to provide a trouble-free customer experience at every turn. That's **RELIABILITY REALIZED**.

Sundyne's Aftermarket Programs Include:

- 24 X 7 Global Support
- Gearbox Exchanges & Upgrades
- Maintenance Kits
- Conversion Programs
- On-Site SundSCHOOL
- Field Service Support
- Overhaul and Repair Services
- Site Surveys
- Emergency Expedite Services

Benefits of Using Genuine HMD Kontro Parts	HMD Kontro Genuine Parts	3rd Party Parts
Latest Engineered Parts & Upgrades for Maximum Reliability	✓	✗
Advanced Manufacturing Processes, Tolerances with Certified Materials	✓	✗
Parts Made to OEM Specs which Equal or Exceed Industry Standards	✓	✗
Direct Manufacturer's Service Support	✓	✗
Retain Existing Sundyne Warranty	✓	✗



For more information please visit www.sundyne.com and fill out the Contact Me form. A Sundyne representative will contact you.

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