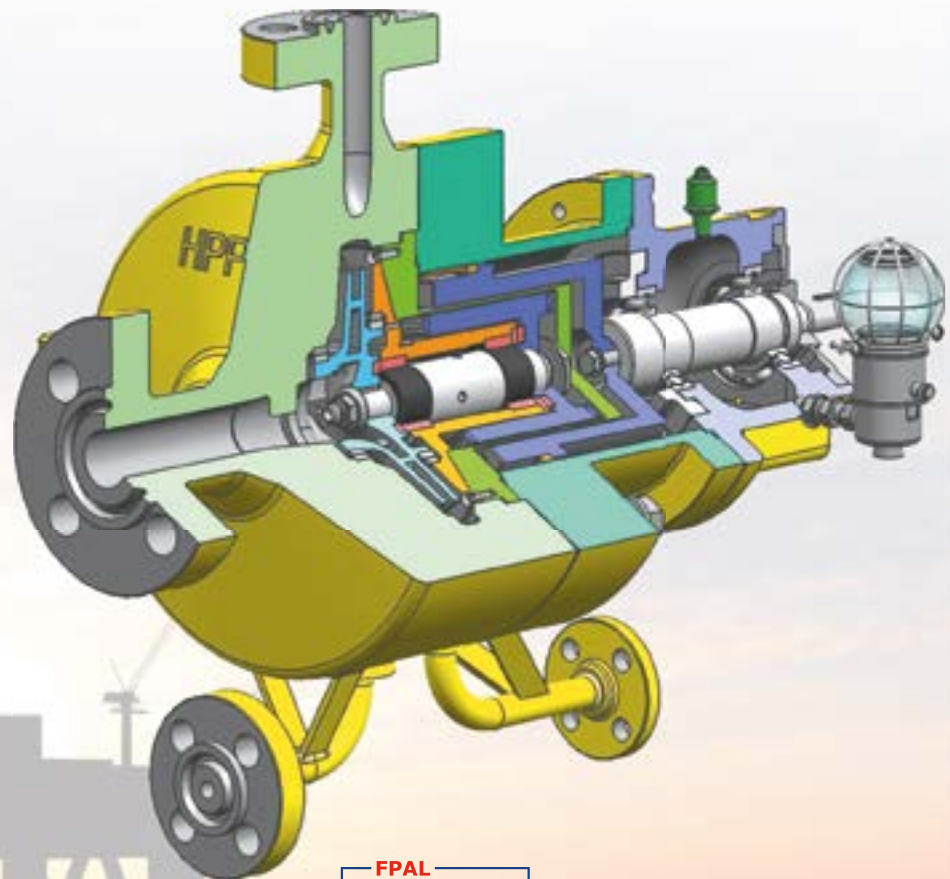


Sealless Solutions For Offshore Oil and Gas Pumps

HMD Kontro



Sundyne HMD Kontro

Providing Pumps for Arduous Offshore Applications

The oil & gas industry is facing significant challenges to provide safe, sustainable and smart supplies along with continuing to explore and develop new sources. Environmental concerns, seal system complexities and their recurring mechanical seal problems are resulting in increasing demand for sealless pumps in this sector. In some cases, more stringent regulations and local agencies are mandating their use.



Having pioneered the magnetic drive pump almost seventy years ago, Sundyne HMD Kontro have continued to develop the technology. We are proud to offer an extensive range of products and services to satisfy the pumping needs and specific requirements found within the oil & gas industry, whilst maintaining our flexible approach and without compromising the quality or reliability of our equipment. The products and services provided by Sundyne HMD Kontro offer the ultimate solution to;

- Environmental concerns
- Recurring mechanical seal problems
- Health & safety concerns
- Seal system complexities
- Maintenance / downtime reduction
- Minimizing spare parts inventory



Sundyne HMD Kontro units are ideal for a range of applications in oil and gas installations throughout the world, with users benefitting from the many advantages of the sealless design. These include;



- Process Pumps: to move and handle oil and water
- High Suction Pressure Pumps: for high system pressure services
- High Capacity, High Pressure Pumps: for crude oil transportation
- Produced Water Start Up Pumps: utilized during separator start up, shut down and when depressurising the pipeline for hydrate management
- Oil Start Up Pumps: where the pumps are installed in the oil outlet line
- Glycol Dehydration Pumps: to assist in the process of water removal from natural gas and natural gas liquids to prevent problems occurring to the downstream processes and equipment
- Sampling Pumps: for mixing and fast loop sampling systems
- Closed Drains Pumps: to collect all drained liquids from production vessels during maintenance stops
- Flare Knockout Pumps: where the liquids are much more corrosive and so, more robust pump materials are required i.e. Alloy C
- Seawater Cooling Pumps: for use on a number of critical topside components such as electricity generators etc. which require cooling via heat exchangers and a closed-loop internal condensing circuit
- Booster Pump Units: to increase suction pressures where there is a low net positive suction head available (NPSHa)
- HTF Pumps: for circulation of heat transfer fluids in a wide variety of applications
- Condensate Pumps: generally associated with the processing of natural gas as part of the separation process of the various hydrocarbons and fluids to produce dry natural gas

Quality, Health, Safety and the Environment

Sundyne HMD Kontro's quality management system has been in accordance with ISO 9001:2000 since 1986. Since 2010, this has been in accordance with the superseded ISO 9001:2008 requirements and we also hold ISO 14001:2004 and OHSAS 18001:2007.



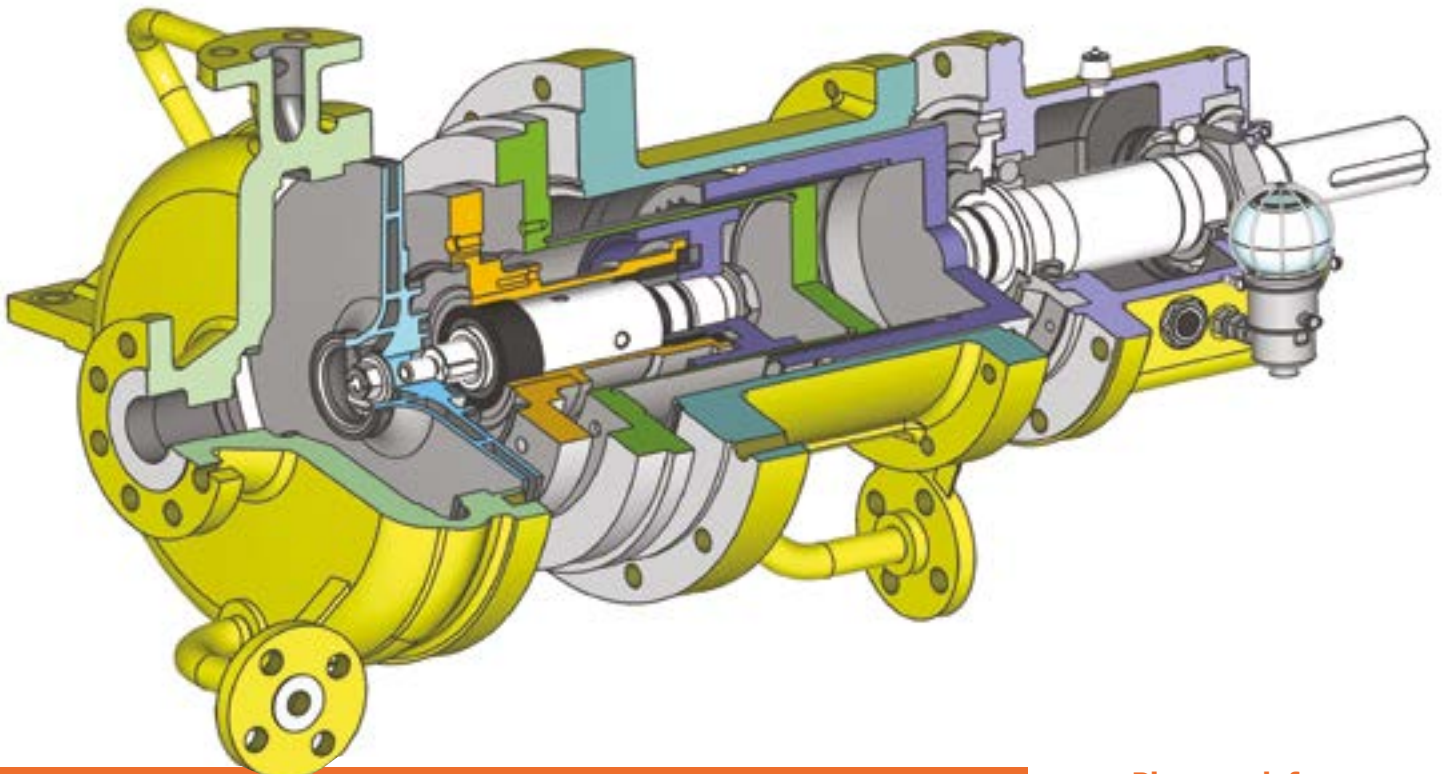
Design Capabilities

Some of the parameters that can be comfortably accommodated by Sundyne HMD Kontro's range of sealless pumps include temperatures between -100 and 450°C, flow rates up to 8800 USgpm / 2000m³/h, differential heads up to 1150ft / 350m and system pressure designs to 2680 psi / 185 bar.

Typical Materials of Construction

Components	S-8	A-8	D-1
Casing	Carbon Steel	316 Stainless Steel	22% Chrome Duplex
Impeller	316 Stainless Steel	316 Stainless Steel	22% Chrome Duplex
Wear Rings	12% Chrome	316 Stainless Steel	22% Chrome Duplex
Sleeve & Bearings	Silicon Carbide	Silicon Carbide	Silicon Carbide
Containment Shell	316L StSt / Alloy C-276	316L StSt / Alloy C-276	Alloy C-276

Other materials available on request e.g. Super Duplex SS / Alloy C-276.
NORSOK compliance available on request.



Sundyne HMD have developed comprehensive ranges of horizontal and vertical pumps to fully meet the requirements of 'API 685' without deviation.

Please ask for our GSP/HPGSP product literature



ZeroLoss™ Containment Shells - Cut Your Losses

Further enhancing the advantages and benefits of Sundyne HMD Kontro's range of magnetic drive pumps, we have developed a revolutionary containment shell that eliminates significant power losses within the pump. Lower power consumption not only results in reduced running costs but also potentially provides lower capital costs, as smaller motors can be specified.

Benefits include:

- Reduced power consumption for significant energy savings
- Potentially lower capital costs from smaller motor and magnetic coupling
- Lower utility costs, both for installation and ongoing consumption
- Reduced heat input to the liquid being pumped
- More robust design for closed discharge or potential dry run circumstances
- Improved handling of liquefied gases and heat sensitive liquids
- May be retrofitted to existing Sundyne HMD Kontro units

The ZeroLoss™ shell has been specifically designed with ruggedness and durability in mind. As part of the development process, shells were pressurized to nearly three times their maximum allowable working pressure (580 psi / 40 bar) before failure occurred. These results correlate very closely with the computer analysis the shells have been subjected to. For further peace of mind, each shell undergoes rigorous production testing including hydrostatic and helium testing to ensure complete integrity.

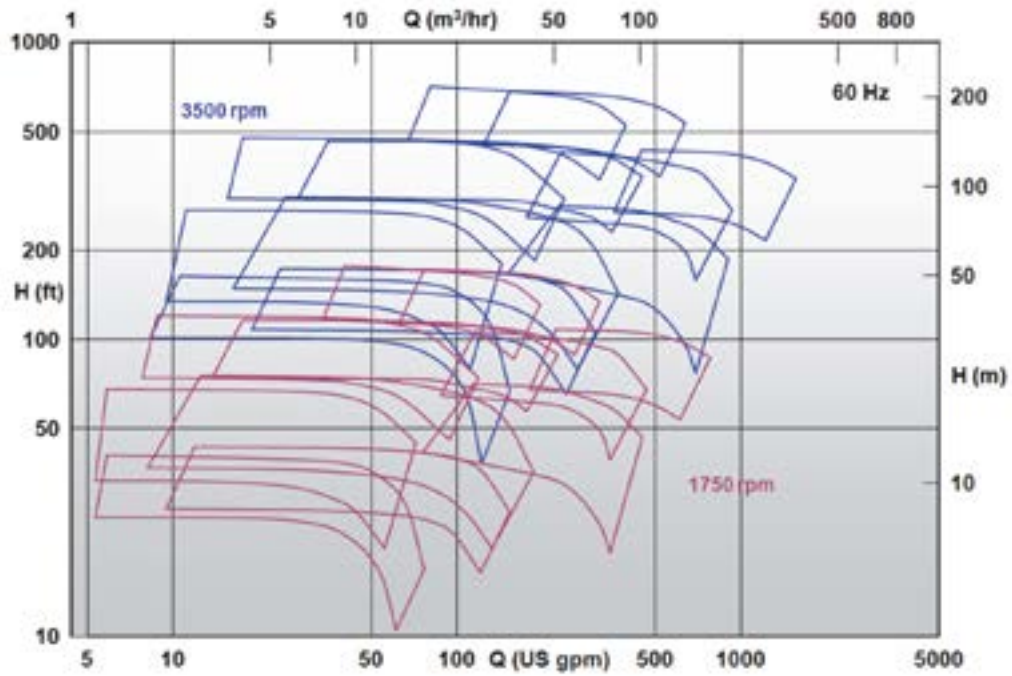
The engineered PEEK composite used in the construction of these containment shells displays excellent characteristics, making it ideal for the purpose. Under extensive test conditions the ZeroLoss™ shell has displayed characteristics that make the overall pump system less prone to damage when subjected to system upset conditions. Its strength, toughness and impact resistance, coupled to its elimination of heat input into the pumped liquid, makes it an ideal choice for arduous conditions.

Please request our dedicated ZeroLoss™ Containment Shell brochure and accompanying technical paper for further details.

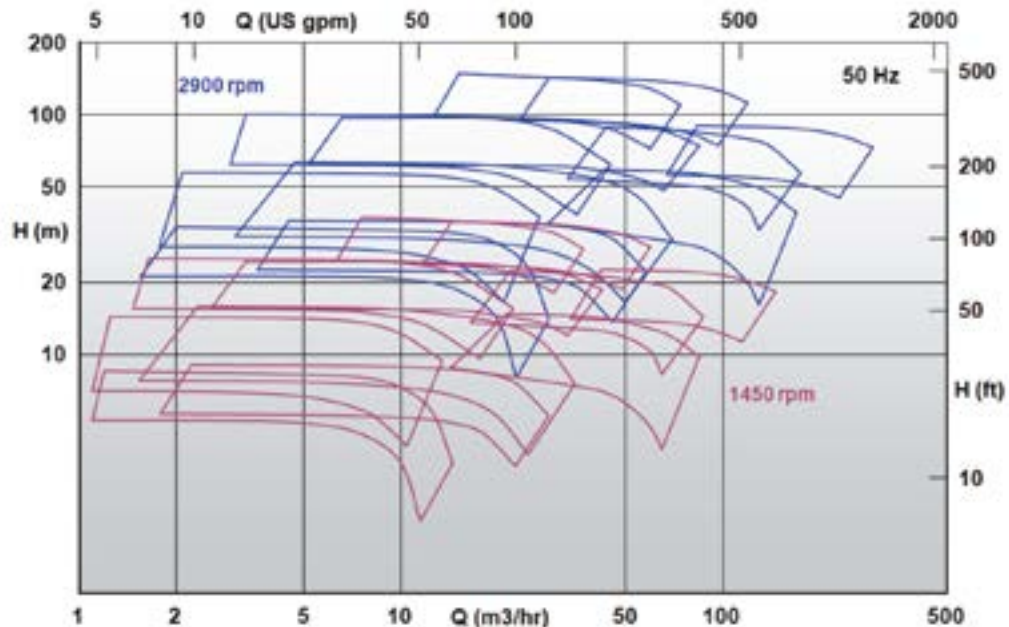
Furthermore Sundyne HMD Kontro now also provide our clients with the inherent benefit of supplying 'plug-and-play' solutions with the inclusion of 'skid-mounted' valves, piping, instrumentation etc., all of which can be fully tested at our manufacturing facility

Range Curves

60Hz



50Hz



Sealless Savings

Specifying sealless, magnetic drive pumps can save significant costs both in respect of time and money. Indeed, a major feature is that savings can be made before, during and after installation, with reduced running costs.

At the time of installation, commissioning is quicker, allowing faster project completion and there are far less lengthy HazOps (Hazard and Operability) and SIL (Safety Integrity Level) studies to undertake, endure and agree, thanks to the much simpler and leakage free design of the sealless pump.

Once up and running, sealless pumps really come into their own. Reduced downtime, because of less maintenance and no need for seal changes, contributes to much improved plant utilization and hence profitability.

The simplicity of design of a sealless pump, together with a proven track record, provides a 'fit and forget' advantage. Not only is maintenance much reduced, but also there is less need to keep spare parts. In particular, there are no seals to stock and the requirement for skilled labour is also reduced.

Sealless Safety

With a magnetic drive pump there is no opportunity for leaks or emissions. Therefore, your EH&S (Environmental Health & Safety) personnel will like the fact that you specified sealless.

Because there are no seals, the primary leak path is eliminated resulting in zero emissions to atmosphere, no need for EPA monitoring and much less risk to the safety of operational personnel on your job site.

No requirement for a complex and costly seal support system and heat exchanger, and fewer instruments required for pump protection, result in greatly reduced installation and ongoing maintenance costs. Due to the reduced possibility of accidents and emissions, it also reduces liabilities and can help lower insurance costs.

Overall, sealless pumps represent better operator safety, a cleaner working environment and reduced potential for legislation and litigation.

Sealless Service

Although our pumps only require minimal maintenance, that does not mean there is no after sales service from Sundyne HMD Kontro. Quite the opposite in fact.

Our own After Sales team, together with our partners around the world, can help to optimize the performance and through life experience of using Sundyne HMD Kontro pumps. From assisting with installation and commissioning, including ensuring smooth contract execution and swift provision of all the appropriate documentation, through to optimizing your spares inventory and operating efficiency using the benefit of our experience.

Extending MTBM (mean time between maintenance), increased reliability and providing you with the appropriate parts to effect fast maintenance and quick replacement where necessary, will significantly assist in reducing downtime and minimizing through life costs, which are already inherently low with a Sundyne HMD Kontro pump.

To learn more about why sealless is so suitable for your application, please contact us either directly (please see back cover for details), or through your country partner, which can be found on www.sundyne.com. We look forward to helping sealless be of service to you.





Technical / Product Support

If there is one industry that places extreme demands on its pumps, then it is the oil & gas sector. Whether it is reliability, durability or safety that is paramount, the centrifugal pumps used in this field are subject to the most stringent requirements.

Sundyne HMD Kontro have the capability to manage and work in partnership with our clients throughout the project process, from front-end services to plant commissioning, to maximize plant profitability by providing a reduction to the lifetime cost of any given pump.

For further details please ask our channel partner or representative local to you, or contact Sundyne HMD Kontro directly.

To locate the global representative, distributor or authorized service center nearest you, or for additional information please visit www.sundyne.com

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Sundyne Headquarters:
Sundyne, LLC
14845 West 64th Avenue
Arvada, Colorado 80007
USA
1-866-Sundyne
Phone: 1 303 425 0800
Fax: 1 303 940 2911
www.sundyne.com

Sundyne United Kingdom:
Sundyne HMD Kontro Sealless Pumps
Marshall Road
Hampden Park Industrial Estate
Eastbourne, East Sussex, BN22 9AN
United Kingdom
Phone: +44 (0)1323 452000
Fax: +44 (0)1323 503369

Sundyne China:
Sundyne Industrial Equipment (Tianjin) Company Limited
Building 1, No. 879 Shen Fu Road
XinZhuang Industrial Zone
Min Hang District
Shanghai, China 201108
Phone: +86 21 5055 5005
Fax: +86 21 5442 5265

Sundyne France:
Sundyne International S.A.
13-15, Bld. Eiffel - B.P. 30
21604 Longvic Cedex
France
Phone: +33 (0)3 80 38 33 00
Fax: +33 (0)3 80 38 33 66

Sundyne Spain:
Sundyne Marelli Bombas, S.R.L.
Ctra. Madrid-Toledo, Km.30.8
45200 Illescas
Toledo, Spain
Phone: +34 925 53 45 00
Fax: +34 925 51 16 00

Worldwide Sales Headquarters
Unit 2 Harvington Business Park
Brampton Road
Hampden Park Industrial Estate
Eastbourne East Sussex, BN22 9BN
United Kingdom
Phone: +44 (0)1323 452125

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Sundyne HMD Kontro O&G
2.1 3/15 Letter.