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Sealless Liquid Pumps



STERLING FLUID SYSTEMS GROUP

Economic, enviromentally friendly and safe

A large number of pumping processes, especially in the chemical industry, require pump sealing systems adapted to the particular application. In most applications these requirements are satisfied by pumps with magnetic couplings that by means of a motor can be statically sealing the pump shaft from the atmosphere. This solution can replace various conventional sealing methods thereby reducing costs and increasing reliability.

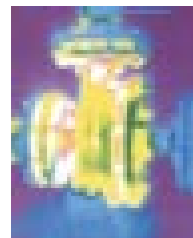
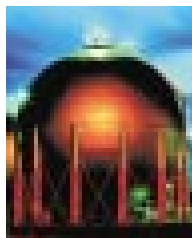
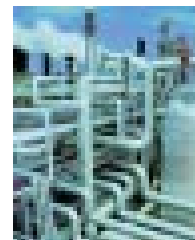
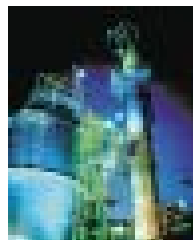
Process pumps are used for many different applications including the handling of corrosive, abrasive, toxic and foul smelling liquids.

Leak free with magnetic couplings

For more than 25 years Sterling SIHI has been supplying pumps with magnetic couplings for applications in process engineering. The experience gained and the continuous development of the modular system have enabled Sterling SIHI to successfully use hermetically sealed drivers for the complete program of liquid pumps.

Applications

- Chemical industry
- Pharmaceutical industry
- LPG industry
- High temperature
- and many more ...



Sealless Liquid Pumps



The magnetic coupling modular system



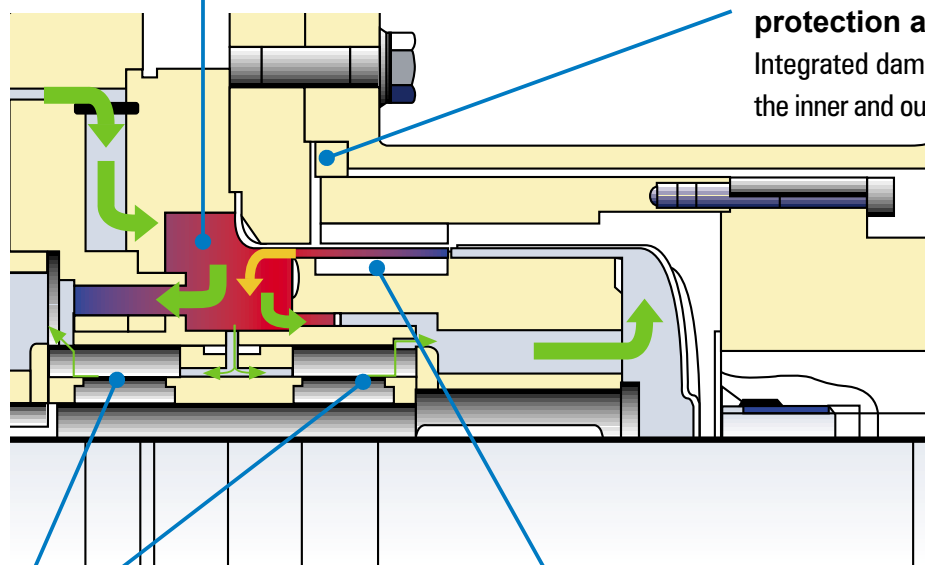
The modular system consists of three main components:
The **robust bearing unit** of silicon carbide permits high temperature fluids up to 752 °F (400 °C) to be pumped without the need for additional cooling.

The **standard deep drawn** shell manufactured in Hastelloy C4 improves its corrosion properties and reduces the effect of eddy currents.

Samarium cobalt is utilized for the **standard magnetic material** which is fully encapsulated and provides the permanent magnetic torque.

constant partial flow

The partial flow of fluid through the drive mechanism is unique to the Sterling SIHI magnetic coupling. By exploiting the pumping effect created by the inner magnet and bearings cooling and lubrication rates are maintained at an almost constant rate.



protection against damage

Integrated damage protection for the inner and outer magnetic rotor.

robust bearing

The robust bearing unit of silicon carbide permits high temperature fluids up to 752 °F (400 °C) to be pumped without the need for additional cooling.

magnet material

Samarium cobalt is utilized for the standard magnetic material which is fully encapsulated and provides the permanent magnetic torque.

The range of sealless liquid pumps

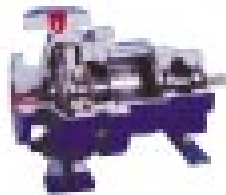


For more than 25 years Sterling SIHI have been supplying pumps with magnetic couplings for demanding applications in the process industry. It's experience in the field of magnetic couplings enables Sterling SIHI to use hermetically sealed drivers for the complete program of liquid pumps.

Performance data for leak free magnetic couplings:

- Power rating from 154 HP (115 kw)
- Temperature range from -40 °F to 752 °F (-40 °C to 400 °C)
- Manufactured to ISO 5199 and VDMA 24279

Process pumps with magnetic couplings



Performance data

Capacity:	max. 2862 gpm (650 m ³ /h)
Delivery head:	max. 452 ft. (150 m)
Temperature:	max. 572 °F (300 °C) uncooled

Side channel pumps with magnetic couplings



Performance data

Capacity:	max. 154 gpm (35 m ³ /h)
Delivery head:	max. 1161 ft. (354 m)
Temperature:	max. 356 °F (180 °C) uncooled

Pumps for hot liquids with magnetic couplings



Performance data

Capacity:	max. 2642 gpm (600 m ³ /h)
Delivery head:	max. 295 ft. (90 m)
Temperature:	max. 752 °F (400 °C) uncooled

Special pump designs with magnetic couplings



Sterling SIHI has 25 years experience in the design of pumps with magnetic couplings for special applications.

Process pumps with magnetic couplings

SIHI^{ISOchem} - modular process pumps

Chemical process pumps of the **SIHI^{ISOchem}** range are horizontal single-stage volute casing pumps with dimensions to ISO 2858 / EN 22858 and designs that comply fully with the technical requirements of ISO 5199 / EN 25199.

This modular process pump consists of 30 hydraulic sizes which can be designed either with a closed impeller or semi-open impeller. Due to the modular configuration of **SIHI^{ISOchem}** it can be used in a bare shaft or closed-coupled assembly with magnetic couplings.

Options:

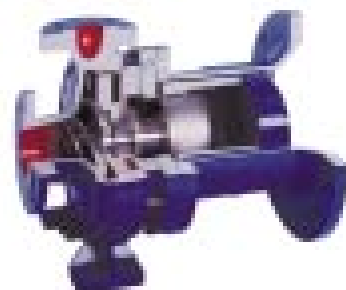
- external partial flow
- heating of casing and cover
- monitoring systems
- special materials

Performance data

Capacity:	max. 2862 gpm (650 m ³ /h)
Delivery head:	max. 492 ft. (150 m)
Temperature:	max. 572 °F (300 °C)
Speed:	max. 3600 RPM @ 60 cycle

Applications

- pumping of solvent
- pumping of heat transfer oil
- pumping of olive oil
- pumping of plastic melts
- pumping of contaminated waste water
- pumping of acids and alkalis
- and many more ...



SIHI^{ISOchem} with magnetic couplings for pumping contaminated waste water.

Side channel pumps with magnetic couplings

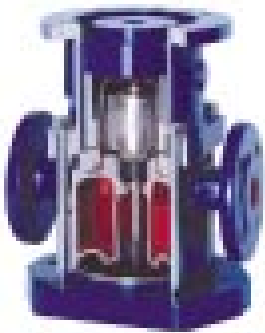


Series CEH/AEH

Pumps with magnetic couplings from the series CEH/AEH are horizontal, self-priming and gas handling side channel pumps. These pumps are suitable for handling liquids which do not contain solid matter. The NPSH inducer stage of the series CEH allows the pump to operate on the suction side under unfavourable conditions and at positive suction heads lower than 1.6 ft. (0.5 m.)

Performance data

Capacity:	max. 154 gpm (35 m ³ /h)
Delivery head:	max. 1161 ft. (354 m)
Temperature:	max. 356 °F (180 °C)
Speed:	max. 1800 RPM @ 60 cycle



Series AKL/AKV

Pumps with magnetic couplings from the series AKL/AKV are horizontal or vertical, self-priming and gas handling side channel pumps.

Due to the inline design these pumps have been constructed as space-saving, easy to install, close-coupled units which are fitted with standard motors.

Performance data

Capacity:	max. 53 gpm (12 m ³ /h)
Delivery head:	max. 262 ft. (80 m)
Temperature:	max. 248 °F (120 °C)
Speed:	max. 1800 RPM @ 60 cycle, 3000 RPM @ 50 cycle

Applications

- pumping liquids at boiling point
- pumping liquids under unfavourable suction conditions
- pumping acids and alkaline
- pumping liquified gases
- and many more ...



CEH pumps with magnetic couplings
for evacuation of rail tankers.

Pumps with magnetic couplings for hot liquids

Series ZTK

Pumps with magnetic couplings of the series ZTK are horizontal, compact, single-stage volute casing pumps in back-pull out construction.

These pumps have been developed for all applications at high and medium temperatures and are suitable for all industrial liquids which do not contain solid matter.

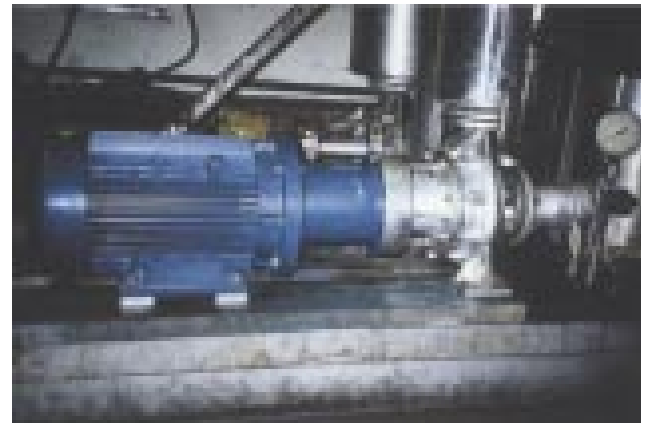
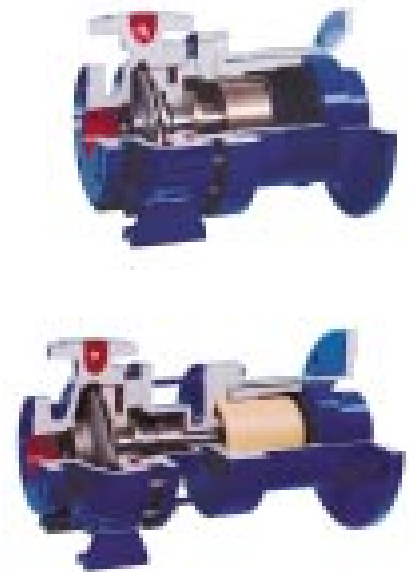
The temperature range for the ZTK pumps is up to 572°F (300 °C) and they are equipped with a thermal insulation shroud made from metal and an open stool. For increased temperature ranges up to 752 °F (400 °C) they are equipped with a heat barrier, ceramic thermal insulation shroud and closed stool. Both designs do not require any external cooling.

Performance data

Capacity:	max. 2642 gpm (650 m ³ /h)
Delivery head:	max. 295 ft. (150 m)
Temperature:	max. 752 °F (400 °C)
Speed:	max. 3600 RPM @ 60 cycle

Applications

- pumping of heat transfer oil for heating calenders, fusion kettles, moulding presses, spraying apparatus, manufacture of adhesive PVC tapes
- pumping of hot process liquids
- and many more ...



ZTK pumps with magnetic couplings for pumping heat transfer oil.

Special pump designs with magnetic couplings



This special pump design is based on the CEH side channel hydraulics designed for hot water applications when operating under extreme pumping conditions.

Liquid: hot water
Temperature: 356 °F (347 °C)
Casing pressure: 3190 PSI (220 BAR)

The magnetic coupling is cooled by an external heat exchanger. The additional impeller is mounted on the pump shaft providing the pump with liquids for cooling and lubrication.

Reliable Solutions for Special Applications

This special design is based on a volute casing pump designed to handle phosgene thereby guaranteeing maximum reliability.

Liquid: phosgene
Temperature: 68 °F (20 °C)
Casing pressure: 290 PSI (25 BAR)



The magnetic coupling on the pump side is designed with a double insulation shroud (internal=Hastelloy, external=Ceramic). The magnetic coupling on the motor side is designed with a CFK insulating shroud and works without any liquid. The double wall construction of the magnetic coupling guarantees maximum reliability.

Advantages of pumps with magnetic couplings

- ***Comprehensive program***

Sterling SIHI use modular magnetic couplings in their complete program of liquid pumps providing power ratings to 154 HP (115 kw) and temperatures from - 40 °F to 725 °F (- 40 °C to 400 °C.)

- ***Reliability***

- constant partial flow
- robust silicon carbide bearing
- integral protection against damage

- ***Reduced maintenance***

- no wear parts
- no special assembly tools
- easy maintenance

- ***Special pump designs***

The experience gained enables Sterling SIHI to design pumps with magnetic couplings for special applications.

- ***Competence***

For more than 25 years Sterling SIHI have been supplying pumps with magnetic couplings ensuring safer applications in the process industry.

Sterling SIHI - *your partner for
Sealless Liquid Pumps*