Liquid ring compressors

Liquid ring compressors

Liquid ring compressors are designed to compress all different kind of gases and vapours.

They are most commonly used in applications where safety, reliability and special process conditions are required. This well proved technology of our liquid ring compressors allows you to operate under the most severe process conditions with gases of Zone “0”.

The innovative SIHI liquid ring compressors are available in single-stage, double-stage or multi-stage versions with a suction of up to 11,000 m^3/h and compression pressures from 1.5 to 11 bar.

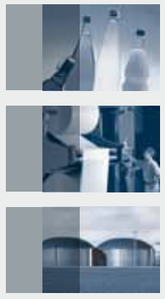
The metal components in SIHI liquid ring compressors do not touch one another, which ensures a high level of operational safety, as well as low maintenance.

As compression is undertaken via components that do not touch each other, there are no local rises in temperature.

This means that liquid ring compressors offer the highest possible safety levels when compressing flammable substances.

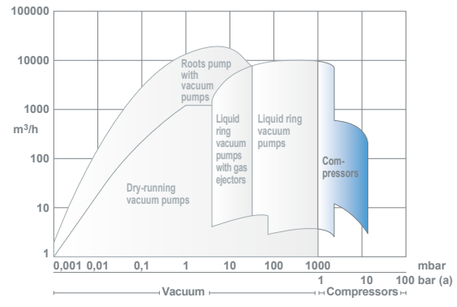
Industries/markets

Chemistry
Pharmacy
Petrochemicals
Plastics
Foodstuffs
Paper
Biogas



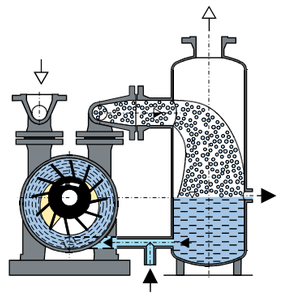
Typical applications

Compression
Filter drying
Saturation
Recovery
Flue gas cleaning with membranes
…



Advantages

- ✓ Extremely robust
- ✓ Cold operation
- ✓ Excellent gas- and vapour-handling capability
- ✓ High volumetric flow rate
- ✓ Easy maintenance
- ✓ Effective heat exchange

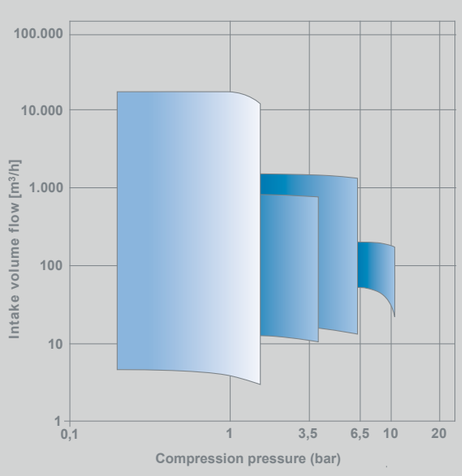


… simple, robust and innovative

Liquid ring compressors are commonly used in processes because of their ability to use any kind of service liquids. This feature makes the liquid ring compressors unique for special applications where process contamination is prohibit.

Liquid ring compressors require a fluid (preferably water) as an auxiliary or service liquid. Almost all gases and vapours can be compressed, even those containing dust and liquids.

The service liquid has the task of compressing the gas to be conveyed, sealing off the various discharge chambers from each other, lubricating the shaft seals and absorbing the compression energy as heat. Due to the intensive contact between the gas being conveyed and the service fluid, there is only a very slight rise in the temperature of the gas being conveyed, so that it can almost be described as an isothermal compression.



Liquid ring compressors for compression pressures of up to 1.5 bar

Liquid ring compressors for compression pressures of up to 11 bar

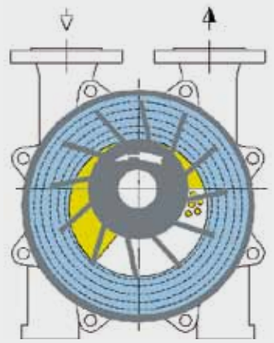
LPHX

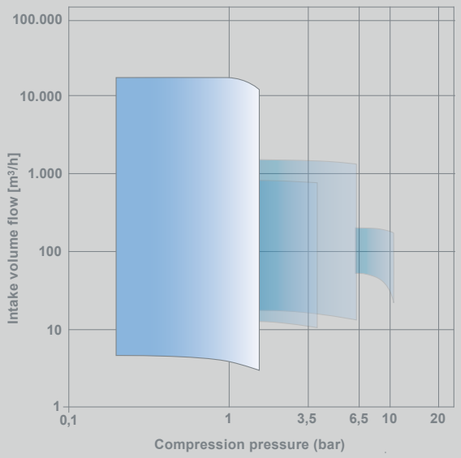
KPH

Pumping Technology For A Better Future

Liquid ring compressors up to 1.5 bar

Medium and large liquid ring compressors with a compression pressure of up to 1.5 bar generally have a simple construction.





Technical data

Intake volume flow:	11,000 m³/h
Compression pressure:	max. 1.5 bar
Shaft seal:	mechanical seal, magnetic coupling

Simple construction

A multi-bladed impeller is mounted eccentrically in a circular casing. When the casing is partially filled with liquid and the impeller is set into rotary motion, this causes the liquid ring to be formed concentrically to the casing axis as a result of centrifugal force.

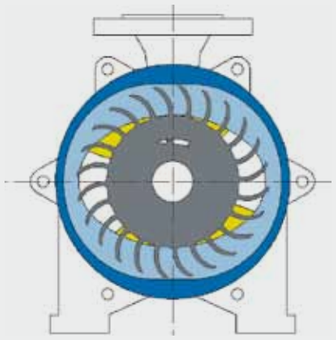
This results in a volumetric expansion in the section of the outflowing liquid ring, thus causing the medium to be drawn in via the inlet port in the guide plate. In the area of the inflowing liquid ring, the volume is reduced, thus causing the medium to be compressed. On completion of compression, the medium is discharged via the outlet port in the guide plate.

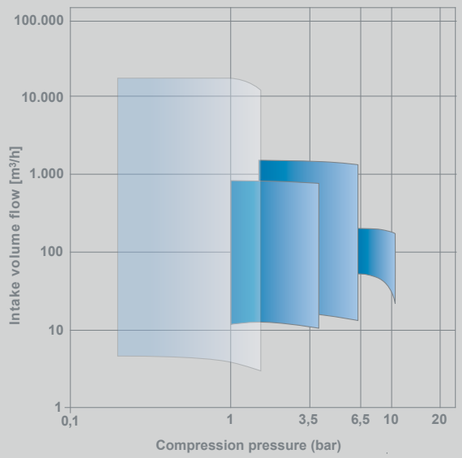
LPHX

LEH

Liquid ring compressors up to 11 bar

Designed for use in special applications, these liquid ring compressors have a double-acting design and compression pressure of up to 11 bar.





Technical data

Intake volume flow:	1,250 m³/h
Compression pressure:	max. 11 bar
Shaft seal:	mechanical seal, magnetic coupling

Double-acting design

To achieve a discharge pressure up to 11 bar, we implemented a double acting liquid ring design. Instead of having only one working port, these compressors make use of two inlets and two outlets. This means that gases will go twice through the compressor to achieve the end pressure up to 11 bar.

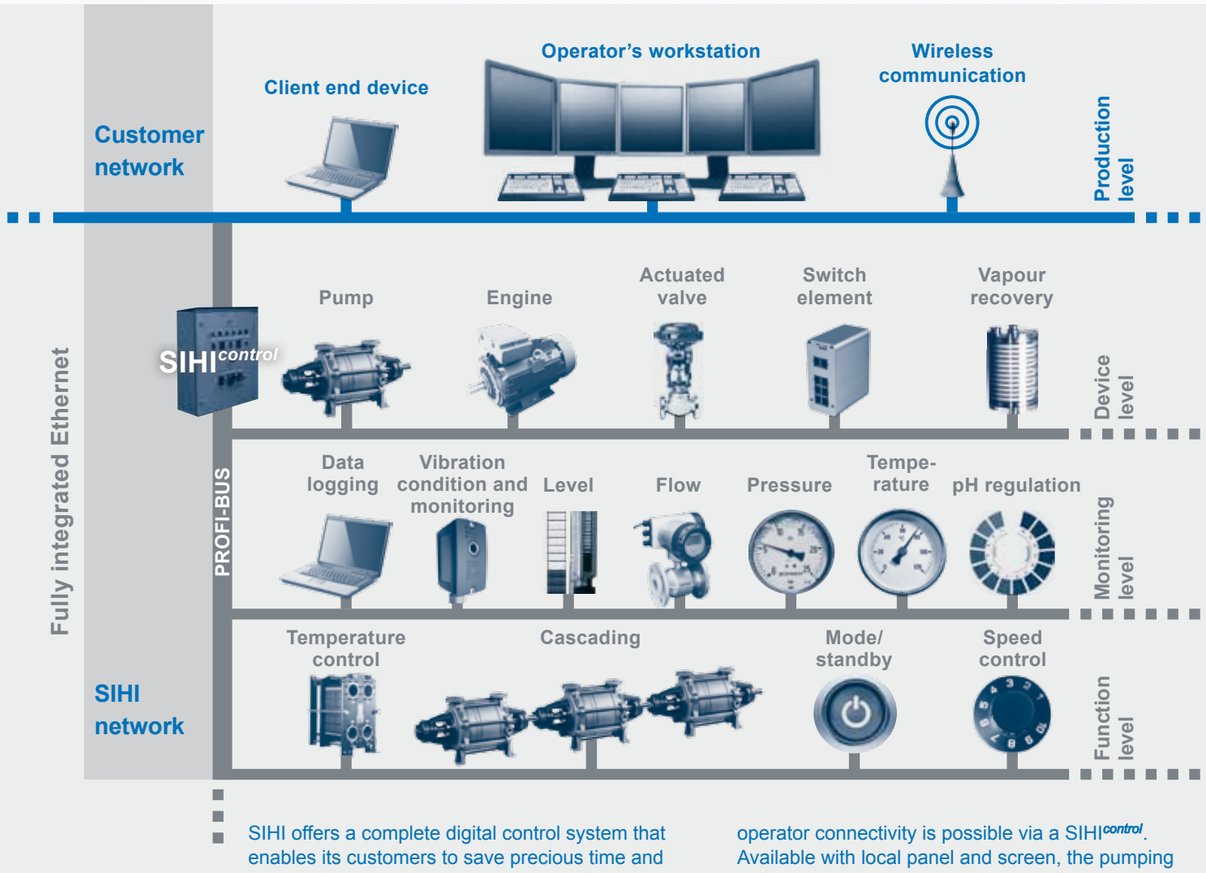
The effect of the eccentric impeller used by compressors up to 1.5 bar is replaced by a centric running impeller combined with special housing machined with the required eccentricity.

KPH

Advantages

- ✓ Can handle almost all gases and vapours
- ✓ Environmentally friendly because of nearly isothermal compression
- ✓ Oil-free, as no lubrication in the working chamber
- ✓ Additional liquid can be handled with the gas flow
- ✓ Easy maintenance and reliable operation
- ✓ Low noise and nearly free from vibration
- ✓ Incorporated central drain
- ✓ No metallic contact between the rotating parts
- ✓ Can be customized in accordance with customer specifications

From concept to integration



SIHI offers a complete digital control system that enables its customers to save precious time and money. By using the process field bus standard communication platform, the PROFI-BUS, simple operator connectivity is possible via a SIHI*control*. Available with local panel and screen, the pumping system has preprogrammed logic control, monitoring and data-logging facilities.

Reduce life cycle costs ... …with SIHI

- ↘ Capital costs
- ↘ Energy (power)
- ↘ Installation and alignment
- ↘ Maintenance and operation
- ↘ Downtime
- ↘ Environmental costs

Your process partner

Understanding the process

+ 100 years of experience
+ Staff trained to communicate at all levels
+ Deep application knowledge

… Solutions with minimal customer effort

Optimum product range

+ Unique process can be treated with simplicity
+ Reduced cost of design, manufacture, and documentation
+ Predictable site testing and commissioning

… Customised solutions for standard capital costs

Design

+ Advanced design tools
+ Highest level of machine efficiency
+ Long lasting reliability

… Reduced energy, maintenance, and environmental costs

Manufacturing

+ Centre of excellence structure
+ High level of skill and competence
+ Ongoing people and process development

… Reduced integration costs

Testing & documentation

+ Factory and Site Acceptance Tests
+ Certified documentation
+ Witnessed customised testing

… Reduced validation and commissioning costs

Quality assurance

+ Total Quality Management
+ ISO9000
+ Rigorous health and safety culture

… Long term security

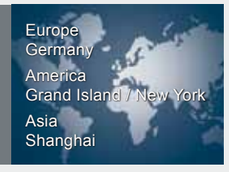
Aftermarket – a local approach

+ Dedication to process uptime
+ Locally positioned service & technical centres
+ Easy access to support, on a worldwide level

… Highest level of customer care

Competence Centre

+ Centralised design, purchasing, production, compliance, and local support
+ De-centralised (local) quotation and project management teams



SIHI*detect* – Condition based monitoring

Detect wear before damage occurs

+ Cavitation and process turbulence
+ Simple to connect
+ LED display
+ Available Ex
+ All rotating machinery
+ DCS integration and continual monitoring

Noise *and* Vibration analysis allows this compact device to diagnose the (often hidden) symptoms of longer term damage *even* before vibration occurs.

For further address details please visit:
www.sterlingSIHI.com

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