STERLING SIHI

Compressors

STERLING FLUID SYSTEMS GROUP

Advantages of the liquid ring compressors

The compressors compress gases from a lower pressure (usually atmosheric pressure of surroundings) to a higher pressure. Liquid ring compressors require a fluid (preferably water) as auxiliary or service liquid. Almost all gases and vapours are 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 operating fluid, there is only a very slight rise in the temperature of the gas being conveyed, so that one can almost describe it as an isothermal compression. During operation there is a continuous loss of some operating fluid which leaves the liquid ring compressor with the gas conveyed. The service liquid can be extracted from the gas in a seperator. It is then possible to recirculate the operating fluid into the liquid ring compressor. A heat exchanger in the circulatory system ensures that the heat absorbed from the operating fluid is led off. As the liquid ring compressors do not have any metal parts which move against each other there is a high level of reliability in service with a minimum of maintenance required. Since the compression is achieved with contact-free components there is also no local rise in temperature. The liquid ring compressors therefore provide the greatest possible safety in the compression of inflammable substances being conveyed. Because of the variety of gases and vapours to be conveyed and the various types of operating fluids employed, the liquid ring compressor components are adapted to the operational requirements. Gland packing is used as the simplest form of shaft seals. Shaft seals of the ground joint type in single and double form made by well-known manufacturers are also employed.

The demands made on the quality of sealing for nuclear power stations are very high. The acceptable leakage rate is less than $1x10^{-6}$ mbar l/s. These compressors are therefore propelled using an integrated split pipe motor so that there is no need for shaft seals.

Liquid ring compressors can also operate in situations where there is a non-atmospheric intake pressure. As long as the operating limits are adhered to, intake pressures in the vacuum range are nothing unusual. For intake pressures above atmospheric pressure there are single-stage special solutions which are employed to ensure an economical compression of the gases being conveyed.

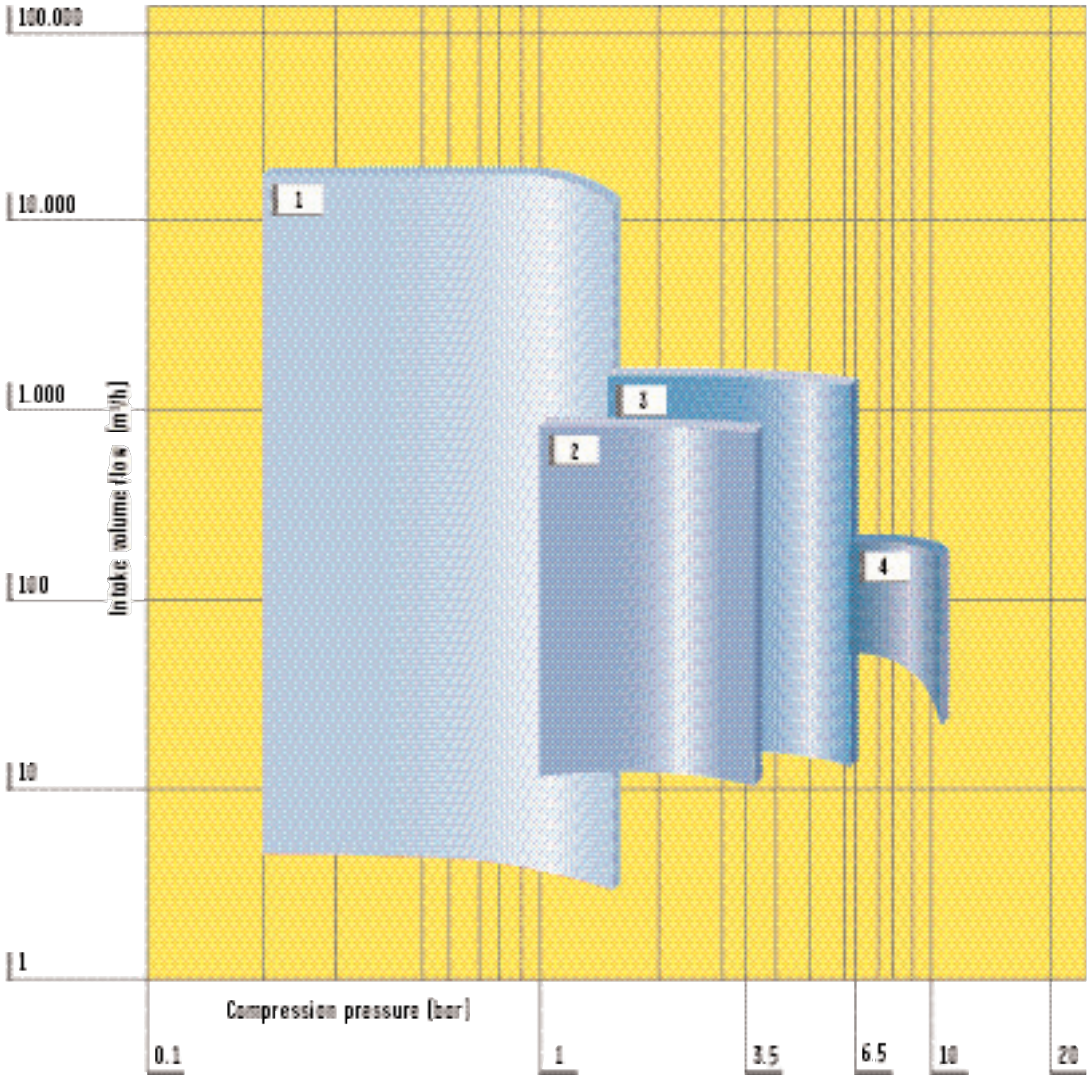
A wide range of extras are available for the liquid ring compressor so that complete aggregates can be put together. These include fluid seperators, drainers and conduits, safety valves for the seperator and non-return valves for the intake side of the hydraulic compressor, valves, baseplates and motors. Our systems plant also constructs and delivers hydraulic compressor systems with heat exchangers, membrane, measurement and automatic control technology.

Liquid ring compressor KPH 85227

max. compression pressure 7 bar

max. intake volume flow 1500 m^3/h

Operational areas for liquid ring compressors



1 **one-stage liquid ring compressors** for compression overloads up to **1.5 bar**

i.e. for: filter-rinsing in the cellulose, pharmaceutical and chemical industries
saturation of sugar juice in sugar factories
electrolysis gases with increased pressure for combustion plants

2 **two-stage liquid ring compressors** for compression overloads up to **3.5 bar**

i.e. for: organic gas reactors and anaerobic processes
gas compression in the production of plastics

3 **two-stage liquid ring compressors** for compression overloads up to **6.5 bar**

with double action second stage (see cover picture)

i.e. for: recovery of vapours in the petrochemical field
liquidifying vinyl chloride vapour in the plastics industry

4 **multi-stage liquid ring compressors** for compression overloads up to **11 bar**

predominatly double acting stages

i.e. for: ozone compression in the bleaching of cellolose
exhaust compression in nuclear power stations

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