



SIHI[®] Pre-Engineered Liquid Ring Vacuum Systems

Modular D | Modular X



Experience In Motion

Pre-engineered to add value

Flowserve's Modular D & X are pre-engineered, modular liquid ring vacuum systems that can be easily customized to your specific needs. The optimized solution ensures fast turn around on quotes and deliveries. The system options range from fresh liquid/combine to closed loop operations for new or expanding installations, these optimized solutions enable you to get your process running quickly and economically.

Why choose our liquid ring vacuum systems?

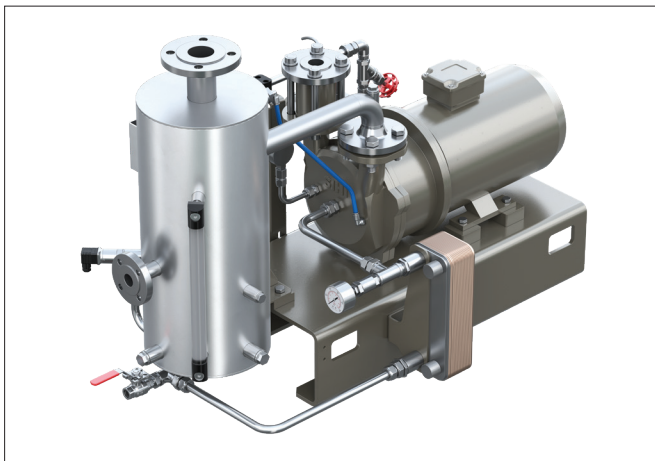
- **Modular & Pre-Engineered**-Reduce lead times with proven, pre-designed modules
- **Customizable to your needs**-Select from various configurations, materials and performance options
- **Reliable & efficient performance**-Engineered for optimal vacuum performance
- **Wide Industry Applications**-Ideal for chemical/power/Food & beverage, pharma and more
- **Decades of Engineering Expertise**-Backed by industry-leading innovation
- **Global Support Network**-Dedicated customer service and technical assistance
- **Quality control** — All SIHI vacuum pump models and pre-engineered systems undergo rigorous factory testing to ensure reliable, high-quality performance.
- **Local support from a knowledgeable partner** — Whether you're installing all-new equipment or upgrading existing systems, Flowserve SIHI offers you industry-leading experience and support.



Choose the SIHI vacuum system that's right for you

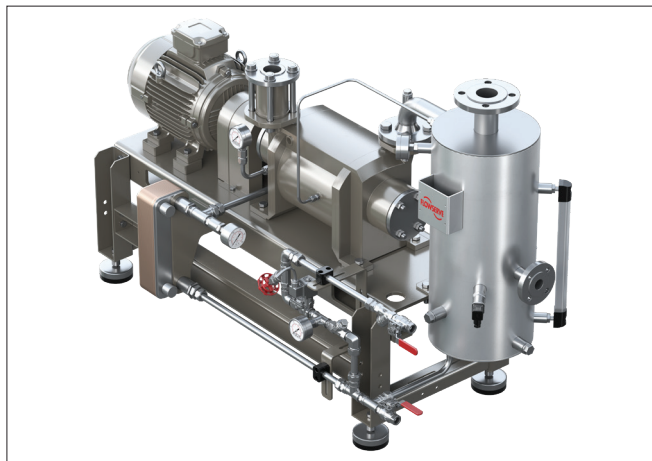
Modular D systems

The Modular D systems are built based on FLOWSERVE LEMD pumps. The LEMD pumps are close-coupled single stage design and is ideal for many industrial vacuum applications. Engineered to eliminate complexities thereby ensuring easy maintenance. The performances are with flow upto 450m³/hr and suction pressure ranging between 33 to 1,103 mbar with inlet gas temperature capability till 200°C.



Modular X Systems

The Modular X systems are built based on FLOWSERVE long coupled liquid ring vacuum pump LPHX. These pumps ranging between single & 2 stages is an ideal choice for the most demanding vacuum applications. The performances are with flow upto 700 m³/hr and suction pressures ranging between 33 to 1,103 mbar.



Near isothermal compression presents an opportunity to handle thermally sensitive, and explosive, media in a secure manner. ATEX Category 1, without flame-arrestors underpins the wide-reaching flexibility of the liquid-ring principal together with low noise.

Configuration Options

Base System	Options
• Pump with motor (LEMD or LPHX) • Coupling & coupling Guard (Modular X) • Separator • Baseplate (Bent Form) • Heat Exchanger • Instrumentation & Valves • Cavitation Protection Line • SS Pipes & Fittings • Non Return Valve & Separator Drain Valves	• ATEX Certified systems • Fusion welded, brazed or bolted Plate Type Heat Exchanger • Mixing tube to add fresh service liquid • Make up module tube to add fresh service liquid • Pump drain valve • Vacuum Relief Valve • Instrument options (transmitters/types) • Tube bundle heat exchanger • Control valve • Gas ejector

Not limited to the above, Motor/material of construction/Gas Ejectors/Control Valve etc., and other options are available upon request.

Ideal for demanding industrial processes

SIHI pre-engineered vacuum systems are designed to handle the most demanding gas-handling applications. A broad selection of alloys is available for corrosive applications.

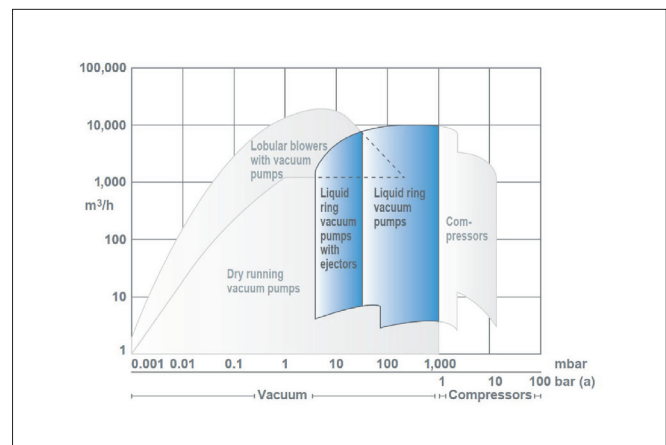
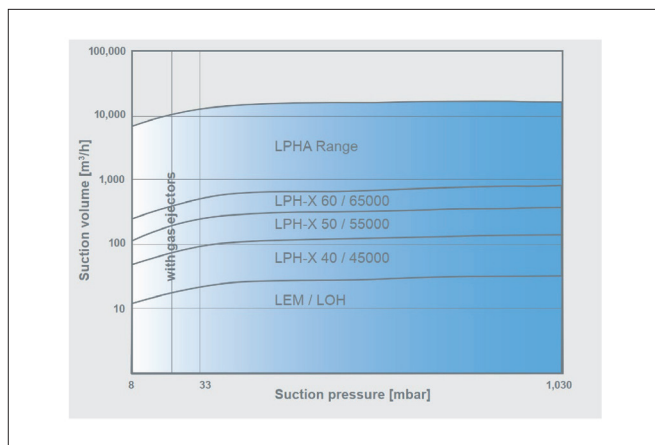
Principle industries

- Chemical
- Petroleum
- Pharmaceutical
- Power
- Electronics
- Machinery manufacturing (OEM)
- Food and beverage
- Rubber and plastics

Key vacuum applications

- Drying
- Distillation
- Filtration
- Sterilization
- Deaeration and gasification
- Forming and extrusion
- Vacuum chucking
- Scrubbing and vapor recovery
- Packaging and bottling
- Poultry processing
- Batch reactors

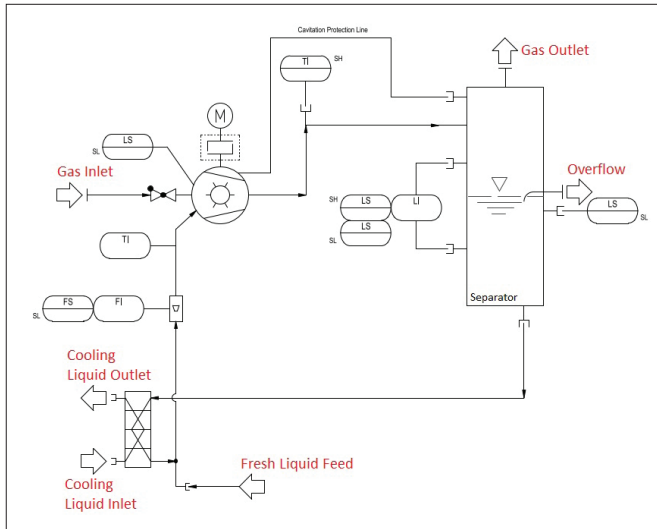
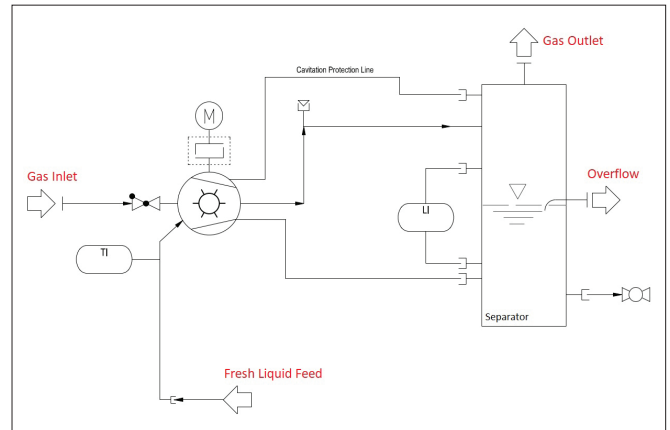
Performance data



Service liquid arrangements

Fresh Service Liquid

The simplest arrangement with the lowest initial cost, once-through service liquid arrangements discharge 100% of the liquid from the pump system. They are used in processes where service liquid is plentiful and may be disposed of either through municipal drain or secondary remediation. Preferred solution for applications with high amount of dirt / particles entering the pump – these can be flushed out by the service liquid.



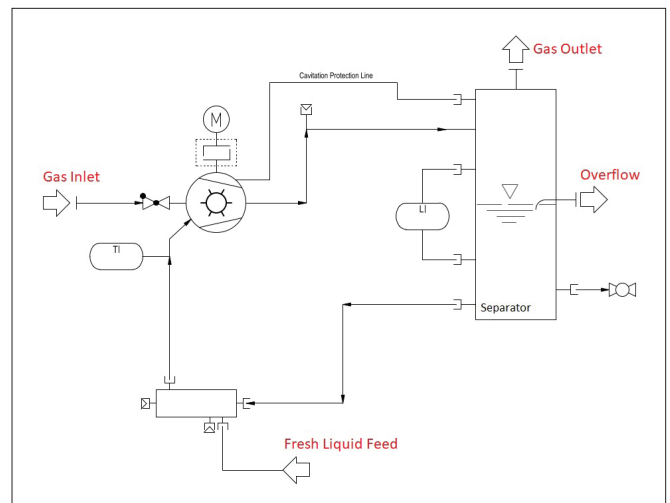
Combined Flow

For applications with minimal contamination, the ability to control service liquid flow rates allows you to accommodate changing service liquid temperatures and optimize the required operating vacuum level. Any degree of partial recirculation reduces service liquid consumption.

With this arrangement, a minimum of 50% of the required service liquid is discharged. The balance of flow is recirculated to the pump's service liquid intake. Fresh liquid is continually added to compensate for the volume discharged and provides cooling for the recirculated liquid. The reduction in water consumption results in significant water and sewer resources costs savings.

Closed Loop Operation

Systems with limited service water supply or that contain toxic process contaminants will benefit from a total recirculation arrangement. In this arrangement, up to 100% of the service liquid is routed back to the pump's service liquid intake. Little to no liquid is discharged. Service liquid may need to be periodically changed or purged with clean liquid to maintain performance. Contaminated service liquid should undergo remediation or be responsibly disposed.





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