



SIHI^{dry} – Dry running vacuum pumps
for general industries



SIHI Pumps
www.sihi-pumps.com

SIHI^{dry} – Your Application

Dry running vacuum pumps for general industrial applications

Dry running vacuum pumps are used increasingly for a range of applications within the general industries sector. These vacuum pumps are an integral part of the process and must satisfy a range of demanding requirements.

These include:

- minimising the disposal costs of any service liquid
- providing uncontaminated vacuum, that is free from lubricant and service liquid
- offering the flexibility required for batch process operations
- low life-cycle costs.

SIHI^{dry} meets the need for a simple, robust and reliable vacuum pump that can handle liquid and solid carry-over as well as rapidly changing operating conditions.

Applications

- sterilisation
- freeze-drying
- gas removal
- vacuum coating
- crystal pulling
- metallurgy furnaces
- product transfer
- central vacuum
- and many more ...

Capabilities

- liquid carry-over
- particle carry-over
- corrosive gases
- toxic and odorous gases
- and many more ...



...Our Solution



The **SIHI^{dry}** is a completely dry running twin-screw pump without any lubrication or sealing fluids. Stand alone capacity ranges from 100 up to 1,000 m³/h. Combining with Roots blowers provides much higher capacities.

The pump is ideally designed for industrial applications.

With the "top-down" delivery (inlet on top, outlet at the lowest point of the pump casing) liquid and particle carry-over from the process is possible.

The drive is integrated within the pump. Because of its electronically synchronised vertical screw-type spindles noise levels are extremely low and operation is virtually maintenance free. Moreover, the permanent torque-monitoring diagnostics prevent the pump from damage due to process upsets.

The Benefits of **SIHI^{dry}** at a Glance

Low Life Cycle Costs

- no disposal costs
 - totally dry principle of operation
 - no gears for rotor synchronisation
- low energy costs
 - reduced power consumption
- wear free
 - non contacting rotors
 - no mechanical shaft seals
 - electronic rotor synchronisation
 - no rotor coatings

Robust and Reliable

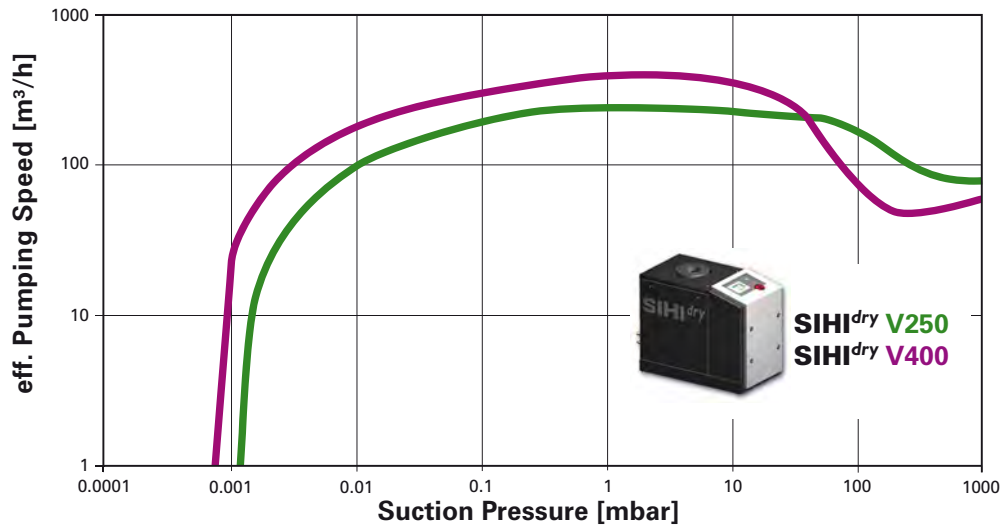
- for wet processes
 - no stagnant areas in pump casing
 - liquid carry-over / flushing capability
- for tough operating conditions
 - torque monitoring
 - liquid flushing during operation
 - cleaning without dismantling pump
- for particle handling
 - top-down flow
 - wide clearances
 - open screw geometry

Quiet

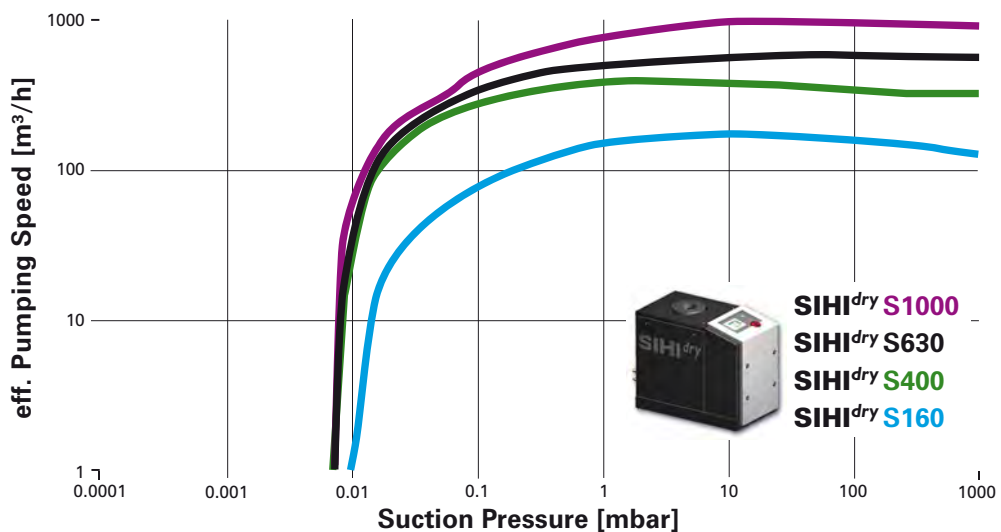
- no gear box

SIHI^{dry} Range

Performance range SIHI^{dry} V-Version



Performance range SIHI^{dry} S-Version



Technical Data

Type	SIHI ^{dry}					
	V250	V400	S160	S400	S630	S1000
Size						
Suction capacity [ACFM]	145	235	95	235	370	580
Ultimate pressure [Torr]	< 0.005	< 0.001	< 0.01	< 0.01	< 0.01	< 0.01
Power consumption at ultimate pressure [HP]	3.0	3.2	4.7	9.5	13	24
Noise level [dB(A)]	54	54	54	64	70	74

SIHI^{dry} simple, dry and reliable

Reliable Operation...



For dust laden processes:

Generous clearances between the spindles and casing permit the ability to handle particles.

For corrosive processes:

Optimised internal temperatures allow the machine to accommodate corrosive gases.

For wet processes:

Vertical self-draining ensures that fluid flow through the pump does not accumulate. Examples include: condensate, flooded water or cleaning agents.

Extremely Versatile...

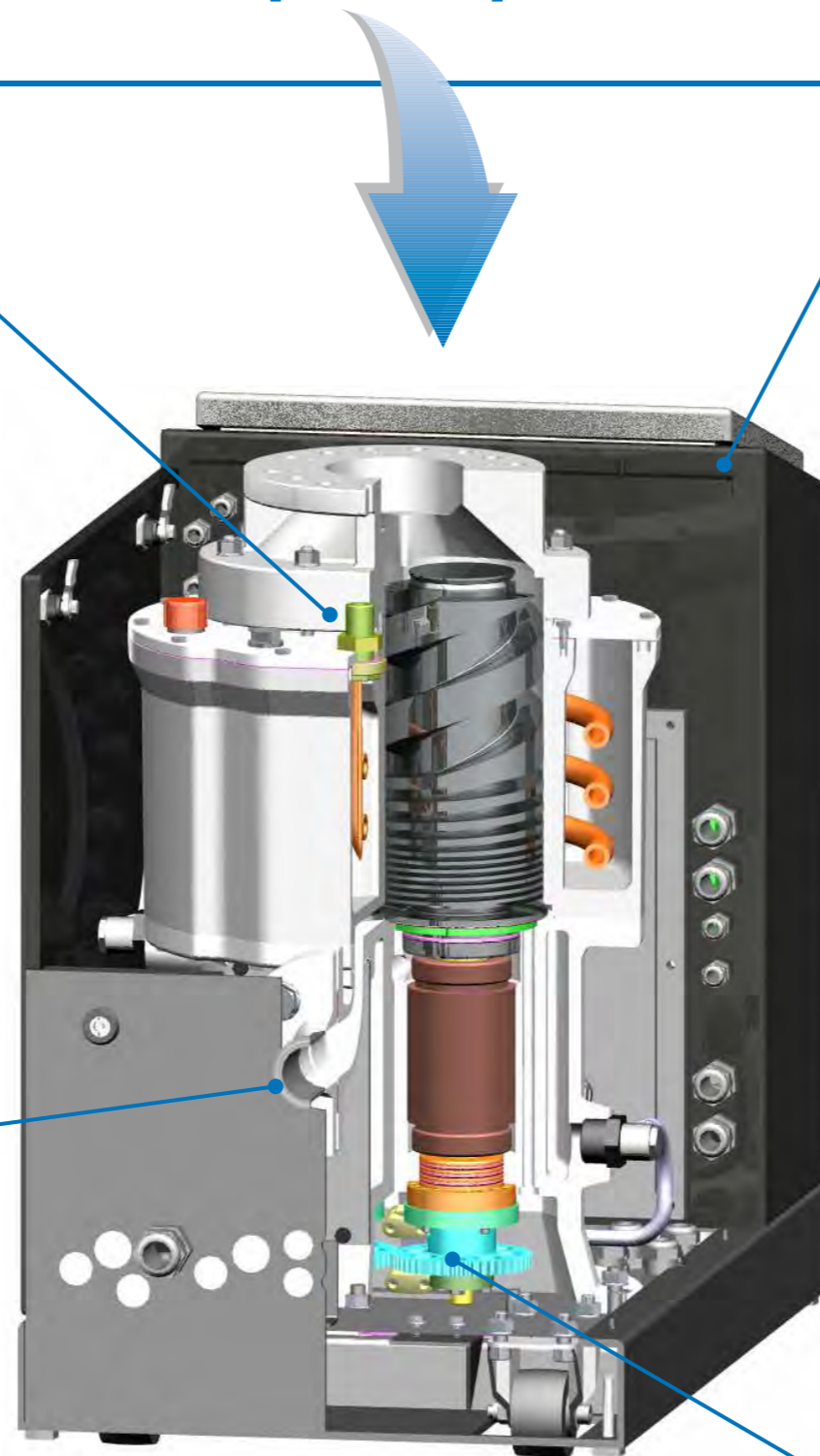


For installation:

- Position the pump on an even base
- Connect cooling water, process piping and power supply
- Switch on
- and it is fully operational

In operation:

The **SIHI^{dry}** is completely dry and therefore does not generate any waste disposal costs. Energy requirements are minimised by simply adjusting the rotational speed in order to match the required volumetric flow-rate.



Maintenance Free...

The **SIHI^{dry}** operates absolutely oil-free in contrast to traditional dry running vacuum pumps. This means no more oil checks and oil changes.

Simple Service...

The simplicity of the **SIHI^{dry}** permits easy removal of the casing in order to give access to the pump internals, e.g. for cleaning. Modular construction permits simple removal and exchange of bearings in order to ensure fast and efficient re-installation and operation.

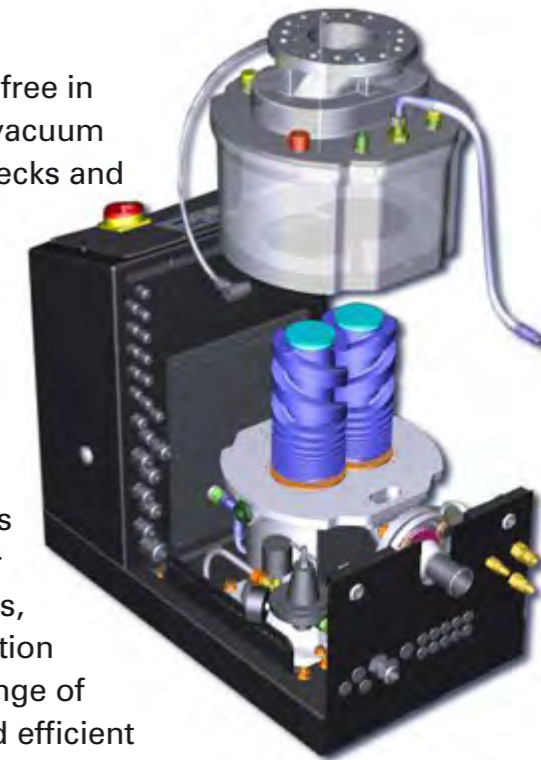
Intelligent Monitoring...

The critical process parameters are recorded automatically by the integrated electronic unit. Consequently, the operator is always aware of the current running status.

Very Quiet...



The **SIHI^{dry}** is quieter than the internal noise of an average quality car.



SIHI^{dry} Intelligent System Management

Modern communication



All components within the vacuum system have the option to be controlled and assessed using modern field-bus technology.

Should problems arise, the integrated data storage unit permits rapid fault diagnosis.

Additionally, all operating parameters can be viewed and monitored from a personal computer via a local area network (LAN) or Internet. Moreover, this information is available

through standard Internet web browser software.

Optional drive capabilities

The innovative drive concept of **SIHI^{dry}** and its modularity enables it to be supplied as a basic unit for stand-alone operation or as an "intelligent" unit in order to integrate with the customer's system.

Depending upon the level of automation required, ranges of modules are available.

BASIC

The BASIC version already contains „intelligent“ electronic-overload protection. Rapid fault diagnosis and analysis is available via a simple serial interface.

DYNAMIC

Along with the equipment supplied with the BASIC variant, the DYNAMIC execution permits variable speed in order to match the process requirements, in other words, the suction capacity can be adjusted. Speed is controlled by the process PLC output signal of 4-20 mA.

CONTROL

In addition to the DYNAMIC, the CONTROL drive variant offers the ability to independently vary the speed by setting the desired pressure within the integrated vacuum system. This permits optimum rotational speed and therefore energy consumption. Moreover, the CONTROL drive variant offers sequence control of the processes specific add-on functions such as cleaning in situ, standby operation, valve logistics etc.. The usual integration programming costs are therefore reduced.

SIHI^{dry} - Dry running vacuum pumps for general industries



- **Highest level of customer service**
- **Skilled engineers and designers**
- **Quality standards operate to ISO 9001**
- **On time delivery**
- **Working in partnership with our customers**
- **Local support structure**



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