

# Product Catalog

## CONSTRUCTION TYPE

The **SIHI *dry*** vacuum system has been especially developed for the use in industrial applications. It is based on the dry running twin screw principle and requires neither lubricants nor sealants. Widely dimensioned clearances in the pumping chamber allow the pump to handle particle carryover.

The vertical design, inlet above discharge, provides positive draining without any stagnant areas.

The shaft seals are a labyrinth design without internal contact and thus have no wear. By design the pump relies on NO mechanical seals.

In contrast to conventional pumps both screw spindles are electronically rather than mechanically synchronized. This innovative drive concept insures extremely low noise operation. By design there is no gear oil required, thus eliminating the need for expensive oil replacement or monitoring. The **SIHI *dry*** is a totally dry running vacuum system.

## SIHI *dry* V-Version



## DESIGN

The flexibility of the modular system allows it to handle any process condition. The innovative drive concept with the optional functions **DYNAMIC** or **CONTROL** regulate the speed at the exact operating point and allows the possibility to considerably reduce the power absorption. At the same time the pump itself will act as a process control valve. Furthermore the intelligent electronics system offers the possibility to exactly monitor the important process data in order to insure a maximum of process safety, to recognize deviations in real time and to take appropriate control measures.

## FEATURES & BENEFITS

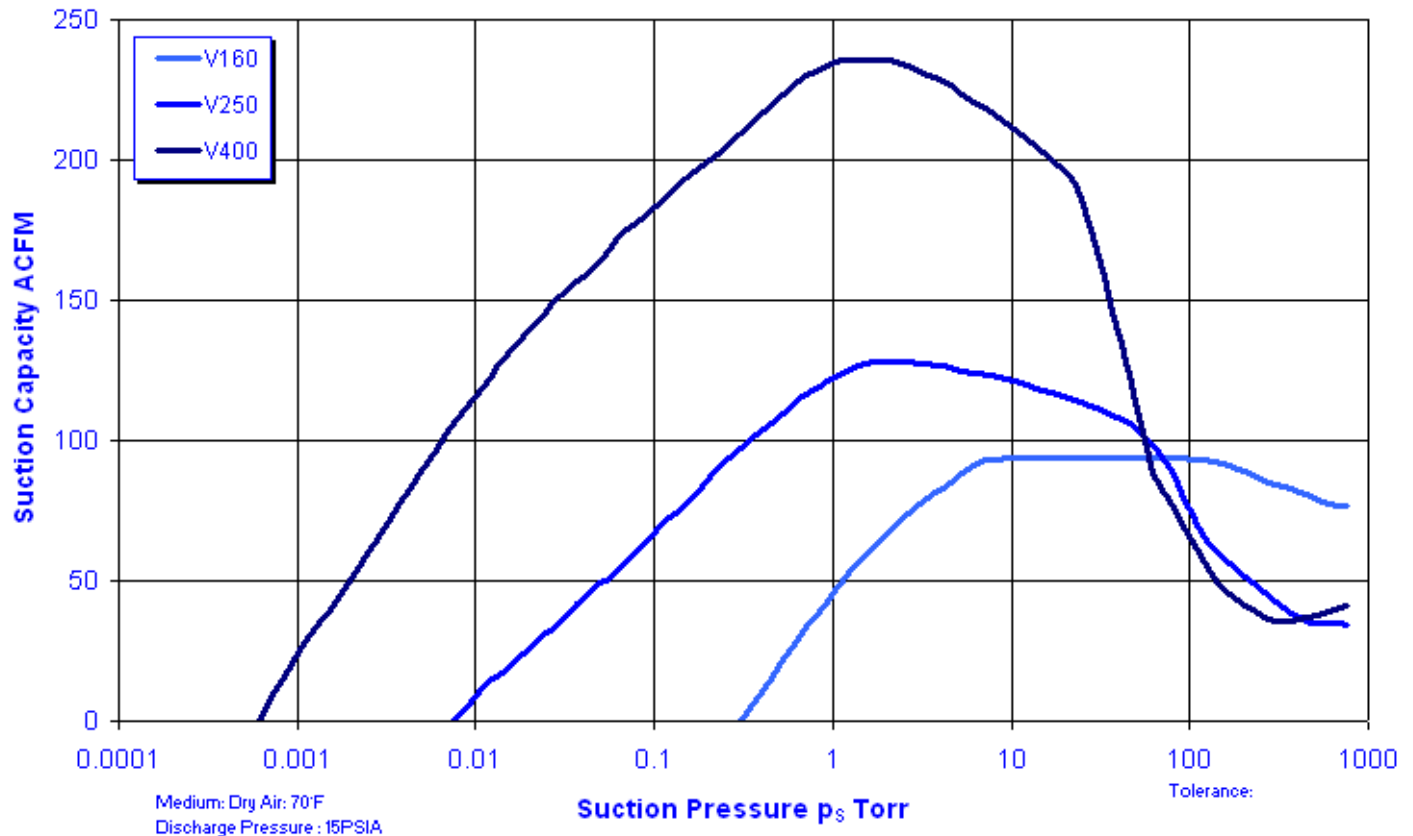
- ✓ No oil lubrication or sealing liquids in the pumping chamber.
- ✓ No drive gear or gear oil.
- ✓ Problem-free handling of particles.
- ✓ Shaft seal not in contact pumping media.
- ✓ The bearings are not in contact with pumping media.
- ✓ Noiseless drive.
- ✓ Compatibility of error detection with remote data transmission.
- ✓ Protection overload.

**GENERAL TECHNICAL DATA for the SIHI<sup>dry</sup> V- Version**

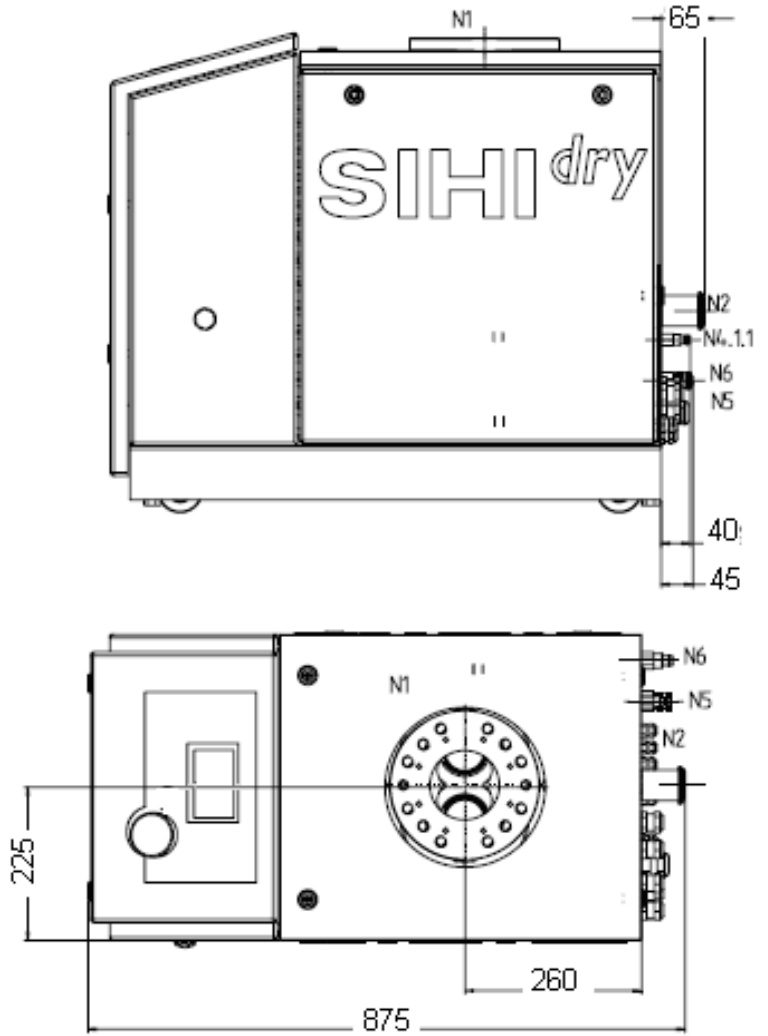
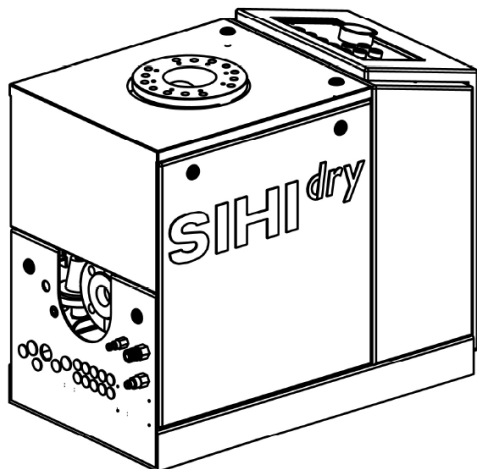
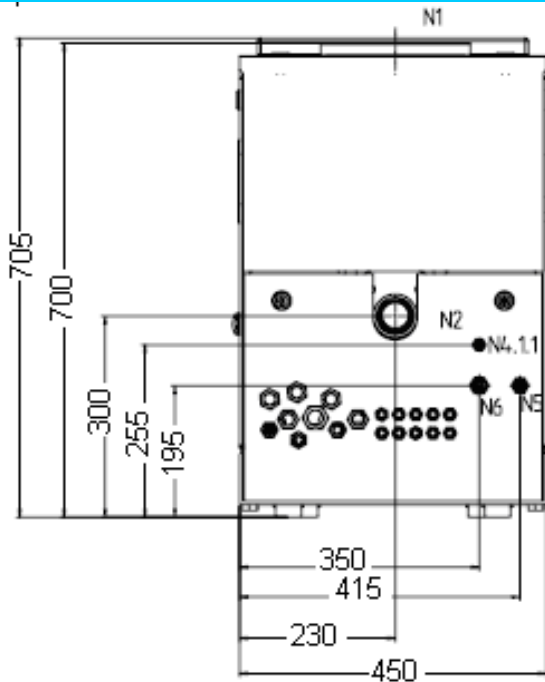
Pump SIHI <sup>dry</sup>		V160	V250	V400
Suction capacity		95 ACFM	145 ACFM	235 ACFM
Final pressure		< 0.5 Torr	< 0.01 Torr	< 0.001 Torr
Speed Range		6,000 to 12,000 rpm		
Discharge Pressure		1.5 PSIG		
Discharge Temperature		< +275°F		
Purge Gas Consumption		approx. 1.0 SCFM		
Power	MIN	4.7 HP	2.7 HP	
Consumption	MAX	10 HP Installed (overload protect)		
Cooling water T <sub>min</sub>		+50°F		
Cooling water T <sub>max</sub>		+95°F		
Sound level		< 54 dB(A)		
Weight		approx. 575 lbs		

**PERFORMANCE RANGE for the SIHI<sup>dry</sup> V- Version**

Every operating point below the maximum characteristic curve displayed below is possible as from the drive variant **DYNAMIC** or **CONTROL** by the set point of speed.



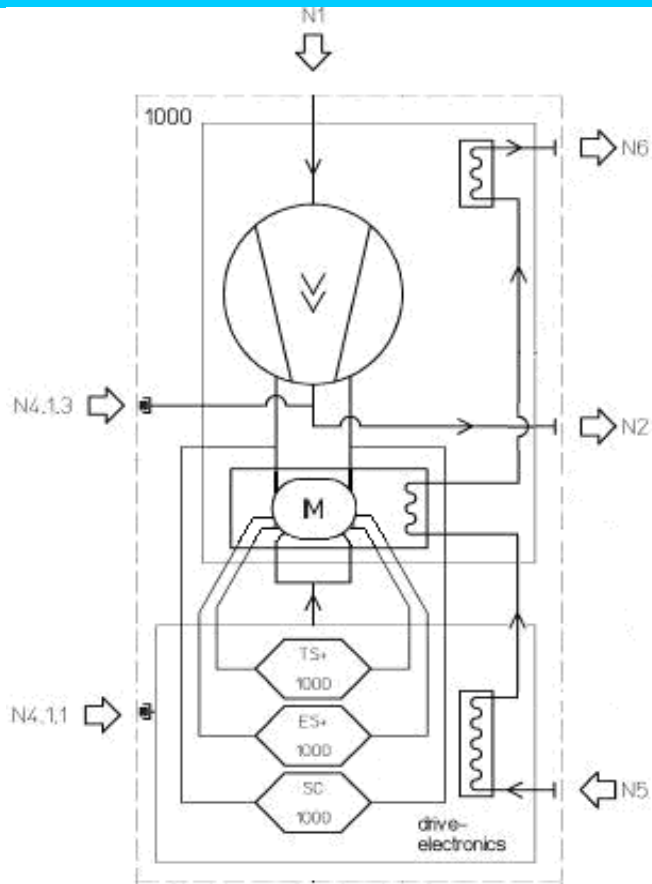
**DIMENSION TABLE for the SIHI<sup>dry</sup> V- Version**



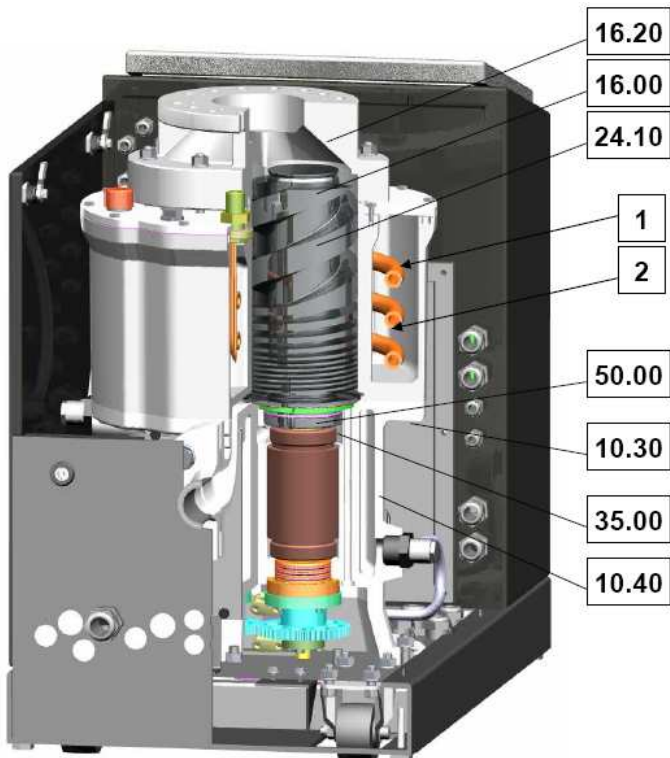
Dimensions are in mm (25.4mm = 1")

Connecting Dimensions / Sealing Surface				
	SIHI <sup>dry</sup>	V160	V250	V400
Inlet	N1	ISO 1609 KF NW100 // DIN28404 8xM8 DIN EN 1092-2 8xM8 // 4xM16		
Outlet)	N2	ISO 1609 KF NW 40		
Purge Gas Inlet	N4.1.1	Ø12 mm		
Cooling liquid inlet	N5	G ½" NPT threaded		
Cooling liquid outlet	N6	G ½" NPT threaded		

P&ID for the **SIHI<sup>dry</sup> V- Version**



Section Drawing **SIHI<sup>dry</sup> V- Version**



Item	Part	Material
10.30	Pump Casing	Ductile Iron
10.40	Motor Casing	Ductile Iron
16.20	Casing Cover	Ductile Iron
24.10	Screw	Stainless Steel
16.00	Cover	Stainless Steel
35.00	Bearing Cartridge	Stainless Steel
50.00	Shielding Gas Throttle Rings	Ductile Iron

## SIHI<sup>dry</sup> Vacuum Accessories

### Module Cooling Circuit

#### Description

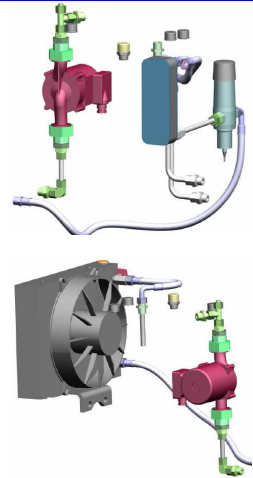
#### Secondary Coolant Circuit

Closed cooling circuit with rotary pump and heat exchanger mounted on the base frame in order to precisely and independently adjust the working temperature, even in case of changing conditions. This module is independent of both customer's coolant media and customer's coolant quality.

#### Coolant Circuit with Air Cooler

Closed cooling circuit with rotary pump and air cooled heat exchanger mounted on the base frame in order to precisely and independently adjust the working temperature, even in case of changing conditions. The cooling is possible up to 5°K over the ambient temperature

#### Image



### Shut Off Module

#### Description

#### Shut Off Valve at the Inlet Side

This module enables the safe shutoff of the SIHI<sup>dry</sup> at the inlet. The ingestion of residual media into the pump as well as the return flow of exhaust gas through the pump is avoided and backflow of residual media into the chamber will be avoided.

#### Shut Off Valve at the Outlet Side

This module enables safe shutoff of the SIHI<sup>dry</sup> at the outlet side from the exhaust network by means of a pneumatically driven valve. The carryover of residual media into the pump as well as the return flow of exhaust gas or liquid through the pump is avoided.



### Module Temperature Or/And Pressure Measurement

#### Description

This module enables the recording / collecting of temperatures or/and pressure by the integration of defined temperature or/and pressure transmitters into the vacuum system.

#### Image

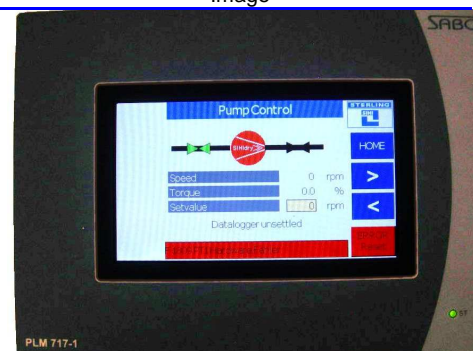


### SABO Touch Screen Control Panel

#### Description

Provides for both local (stand alone) and customer DCS control while eliminating the need for expensive PLC programmers. The touch screen control panel is fully interactive and contains onboard data logging for easy review of the pumps operation. The display enables the principle process engineer to modify specific pump parameters. Such parameters are at the discretion of the customer and may include max/min temperature boundaries, speed and pressure settings, warm up cycles, etc.

#### Image



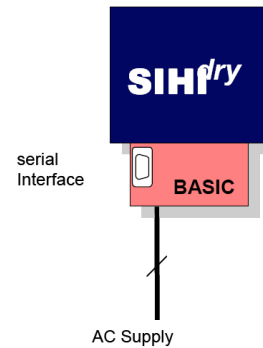
## SIHI<sup>dry</sup> Control Accessories

### BASIC (standard)

Basic drive, power ON, fixed speed

**Includes:**

- **Fixed speed**
- AC supply
- Serial interface

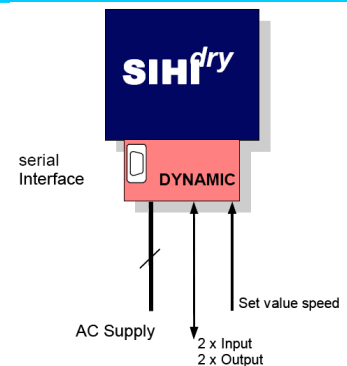


### DYNAMIC (Option 1)

For the control of the suction capacity to the actual process requirement

**Includes:**

- **Variable speed**
- AC supply
- Input: start/stop
- Input: reset of failure
- Output: operation/failure
- Serial interface
- Set up value



### CONTROL (Option 2)

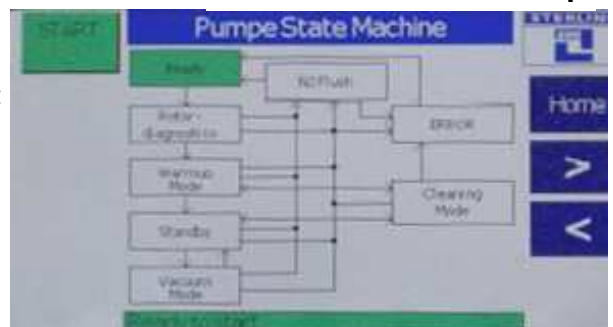
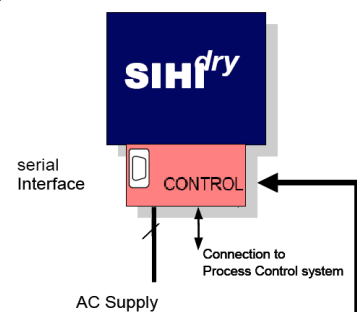
Fully integrated into the system, this control provides some essential process and operating features. These include;

- Warm up
- vacuum switching on/off
- flushing for cleaning in place
- N<sub>2</sub> purging

Other external trips can be hard wired into the system such as level and/or temperature gauges, etc. The control does not require any further programming or logic by the customer. Additionally a vacuum regulation in a range from 0-100% can be realized.

Following signals are available

- |                                                                                                                                                                                                    |                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <u>Digital status signals</u></li> <li>- vacuum operation</li> <li>- warning</li> <li>- stand-by</li> <li>- emergency stop</li> <li>- cleaning</li> </ul> | <ul style="list-style-type: none"> <li>• <u>Digital set points</u></li> <li>- Start</li> <li>- Stop</li> <li>- vacuum request</li> <li>- cleaning</li> </ul> |
| <ul style="list-style-type: none"> <li>• <u>Analog signals</u></li> <li>- torque</li> <li>- speed</li> <li>- suction pressure</li> <li>- different temperature</li> </ul>                          | <ul style="list-style-type: none"> <li>• <u>Analog set points</u></li> <li>- pressure</li> <li>- speed</li> </ul>                                            |



# **SIHI<sup>dry</sup> - V Version Product Catalog**



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