



SIHI[®] Dry M, Mi and H Series

Dry-running vacuum pumps for the process industries

Simple, dry and reliable

The SIHI Dry pump from Flowserve is a vertically oriented and self-draining vacuum pump with no mechanical contact shaft seals. Available in three models specifically designed for chemically related processes, it is ideal for applications where there is a high possibility of liquids or solids carryover. This award-winning solution can accommodate corrosive gases and vapors and has superior resistance to heat-accelerated deposition. An extensive range of intelligent modules which can be incorporated to match dynamic process requirements, simple DCS integration and remote monitoring.

Integrated within the pump is the intelligent drive system that performs ongoing rotor diagnostics, while giving an energy-efficient platform for variable-speed/pressure control. Moreover, this method of rotor synchronization permits gearbox-free operation which runs extremely quietly and without any lubrication.

Eleven SIHI Dry pump sizes were developed for operation with explosive media, both internally and externally, and offer volumetric flow rates up to 1,000 m³/h (589 cfm).



SIHI Dry
model Mi450

Benefits

- High-performance vacuum
- High efficiency and reliability
- Simple to clean and maintain
- Quiet operation
- Small footprint
- Self-draining
- No waste or effluent
- Easy integration and monitoring

Key vacuum applications

- Distillation
- Drying
- Batch reactors
- Chemical deposition
- Reactor charging
- Inert gas blanketing



Operational benefits

Built for harsh processes

Tolerates particle and liquid carryover without any suction side filter

- Top-down flow avoids particle deposits inside of the pump
- No wear caused by particle carryover due to contact-free principle
- Optional integrated liquid cleaning by flushing module
- Particle carryover and pump drying by optional integrated gas flushing module

Handling of condensable and corrosive media

- Prevention of condensation inside of the pump by optional integrated gas dilution module
- Optional integrated liquid cleaning by flushing module
- Reduction of condensation by temperature-controlled operation

Safe handling of toxic media

- Hermetical, tight execution
- Pump internal secondary cooling loop, decoupled from customer cooling water

Easy to clean and service

Only cleaning on demand

- Condition monitoring by independent data record of both shafts
- Pre-failure detection

Designed for in situ cleaning and on-site service

- Easy dismantling of the pump casing without bearing removal
- No high-tech workshop required
- Can be done on-site by own staff
- Independency on third party service

Lower operating costs

Lower power consumption

- High-tech screws' design optimized for highest efficiency
- Frequency control improves operational energy efficiency

Engineered for easy system integration

Certified explosion protection

- ATEX-certified, even without flame arrestor in Category 2 systems
- No source of ignition due to consequential contact-free operation

Customized vacuum system solutions

- Pre-engineered modules match all individual process needs

No pressure control valve necessary

- Adjustable suction capacity due to variable rotational speed

An integrated solution

- Pre-engineered modules are completely mounted and tested
- Small-footprint design saves useful space

Improved product quality

High pumping performance

- Remarkably high pump speed at low pressure allows higher flow rate of process gases
- Lower final pressure

Zero process contamination

- Truly dry and contact-free principle free of any service liquids
- Absolutely free of gear oil due to electronically synchronized shafts

No PLC control

- Self-controlled, pre-engineered modules
- Local control via human machine interface (HMI) panel
- Data access via Ethernet

Easy communication

- Availability of bus standards as well as I/O interface
- Equipped with HMI

Pre-configured systems

- Three different fully tested and documented pre-engineered systems available

Fast installation and startup

Self-controlled vacuum system

- Completely assembled, wired, tested and self-controlled vacuum system allows easiest commissioning

Lower maintenance costs and downtime

No oil checks, exchanges and disposals required

- Free of oil as service liquid
- No gear oil

No wearing

- Consequent contact-free principle
- Long-life bearings
- Contact-free sealings

Continuous condition analysis

- Data logging
- Online monitoring of pump status
- Simple failure codes



Standard

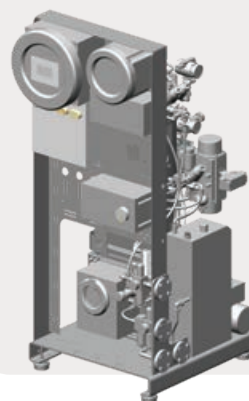
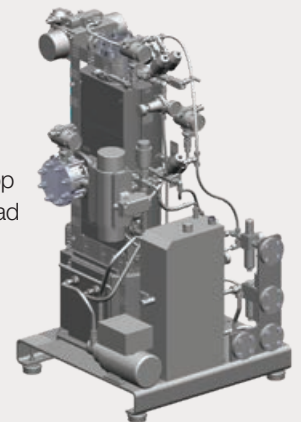
Dry screw vacuum pump:

- Variable-speed drive onboard
- Purge gas system with ex-certificate
- Temperature switch
- Pressure switch discharge
- Strainer with insert

Configured

Standard plus:

- Valves
- Pressure transmitter
- Gas dilution
- Coolant loop with overload protection
- Frame



Premium

Configured plus:

- Advanced sensoric
- Fully controlled
- HMI display



General technical data

Parameter	Unit	Model					
		M100	M160	M250	M400	Mi450	Mi650
Max. suction capacity	m ³ /h (cfm)	100 (59)	160 (95)	250 (147)	400 (235)	450 (265)	680 (383)
Ultimate pressure	mbar (Torr)	< 0.7 (0.52)	< 0.1 (0.07)	< 0.02 (0.015)	< 0.02 (0.015)	< 0.01 (0.007)	< 0.01 (0.007)
Temperature class	-	T4	T4	T4	T4 (T5/T6)	T3	T2
Sound pressure level	dB(A)	≤ 54	≤ 54	≤ 54	≤ 54	≤ 70	≤ 75
Power consumption at ultimate pressure	kW (hp)	2.5 (3.3)	3.5 (4.7)	2 (2.7)	2.5 (3.3)	4 (5.4)	6 (8)

Parameter	Unit	Model				
		H250	H400	H630	H750	H1000
Max. suction capacity	m ³ /h (cfm)	270 (159)	400 (235)	600 (353)	750 (441)	1,000 (585)
Ultimate pressure	mbar (Torr)	< 0.1 (0.07)	< 0.1 (0.07)	< 0.1 (0.07)	< 0.1 (0.07)	< 0.1 (0.07)
Temperature class	-	T4	T4	T3	T3	T3
Sound pressure level	dB(A)	≤ 63	≤ 64	≤ 70	≤ 74	≤ 74
Power consumption at ultimate pressure	kW (hp)	5 (6.7)	7 (9.4)	10 (13.4)	18 (24.1)	18 (24.1)

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