

Series 145 Vacuum Sentry®

PROTECTS YOUR VACUUM SYSTEM

MKS Series 145 Vacuum Sentry® is a safety valve that protects a vacuum system upon power failure by isolating the system and venting the mechanical pump. This eliminates time consuming and costly cleanup of your vacuum lines caused by oil back streaming from the pump. The small orifice in the Vacuum Sentry also vents the mechanical pump to atmospheric pressure for easy restart when the power returns. Vacuum Sentry is offered with the ISO-KF flange sizes and solenoid voltages and frequencies most commonly found on mechanical pumps. Since it operates with atmospheric pressure and activates upon loss of electrical power, the design requires no external pressurized gas source.

Vacuum Sentry is constructed of vacuum compatible materials and maximizes pumping conductance. Lifetimes in excess of 100,000 cycles are typical, which translates into years of trouble free use in suitable environments. The opening burst is less than the critical backing pressure for turbomolecular and diffusion pumps when appropriately sized mechanical pumps are used. The closing burst is minimized by the buffer volume design. Vacuum Sentry consumes little power. Installation is simple, because the standard ISO-KF dimensions are used for the NW 40 and NW 50 sizes. This allows the valve to replace elbows, tees, and crosses of the same size. Even when the mechanical pump is equipped with an anti-suckback valve, Vacuum Sentry should be used, because the pump's integral valve will not vent it.

Features & Benefits

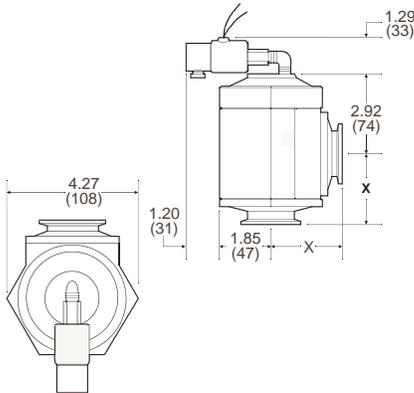
- Protects vacuum system from oil back-streaming in the event of power failure
- Allows for quick system restarts
- Operates up to 100,000 cycles
- Fast-acting
- Light weight
- No external pressurized gas source required
- Available in several sizes for use with the most common pumps



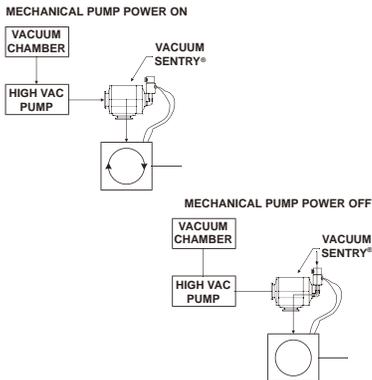
Specifications and Ordering Information

Dimensions in. (mm)

KF Size	X
KF 25	2.76 (70)
KF 40	2.56 (65)
KF 50	2.76 (70)



Operating Example



Vacuum Sentry's solenoid valve is connected in parallel with the mechanical pump's electrical supply either at its source or at the pump's switch. When the electrical power is on, the solenoid valve is held closed, allowing the pump to keep Vacuum Sentry's body and the vacuum system evacuated. Interruption of electrical power to the mechanical pump causes the solenoid valve to open, admitting air into the Vacuum Sentry, causing it to close. This isolates the vacuum system. The pressure differential between the outside atmosphere and the vacuum system provides the force to maintain the valve in its closed position without electrical or pneumatic power. With the vacuum system isolated, a series of small orifices admits air into the inlet port of the mechanical pump until it has risen to atmospheric pressure. When the power comes back on, the solenoid closes the pump. The mechanical pump is then restarted, and evacuates the area above the piston until the pressure is lowered to approximately that of the vacuum system. Vacuum Sentry opens again allowing the vacuum system to be pumped at the full speed of the mechanical pump.

Specifications

Nominal ID	NW 50
Leak Rate	
Body	<1 X 10 ⁻⁹ std cc/sec He
Seal	<1 X 10 ⁻⁹ std cc/sec He
Closing Time	30 ms
Closing Burst	1 X 10 ⁻³ T-1
Power	7 W @115 Vac
Materials	
Body	AL 6061-T6
Piston	AL 2024
Seals	Viton®
Guide Pin	Viton®
Temperature Range	
Valve	0° to 100° C
Solenoid	0° to 55° C
Venting Time	10 s/l of vented volume
Weight (KF 40 Size)	4 lbs. (1.8 kg)

Ordering Information

Size	Part Number
NW 25	145-0025K-xxxV/xx
NW 40	145-0040K-xxxV/xx
NW 50	145-0050K-xxxV/xx
NW 25 Full Service Kit	100008080
NW 40 & NW 50 Full Service Kit	100008082
Universal "O" Ring Kit	100008084

Available solenoid voltages include:

24 VDC	24 VAC/50-60 Hz	100 VAC/50 Hz
120 VAC/60 Hz	208 VAC/60 Hz	220 VAC/50-60 Hz

To order, add the solenoid voltage/frequency to the part number, for example 145-0040K-220V/50-60.



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