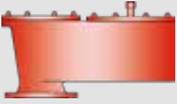
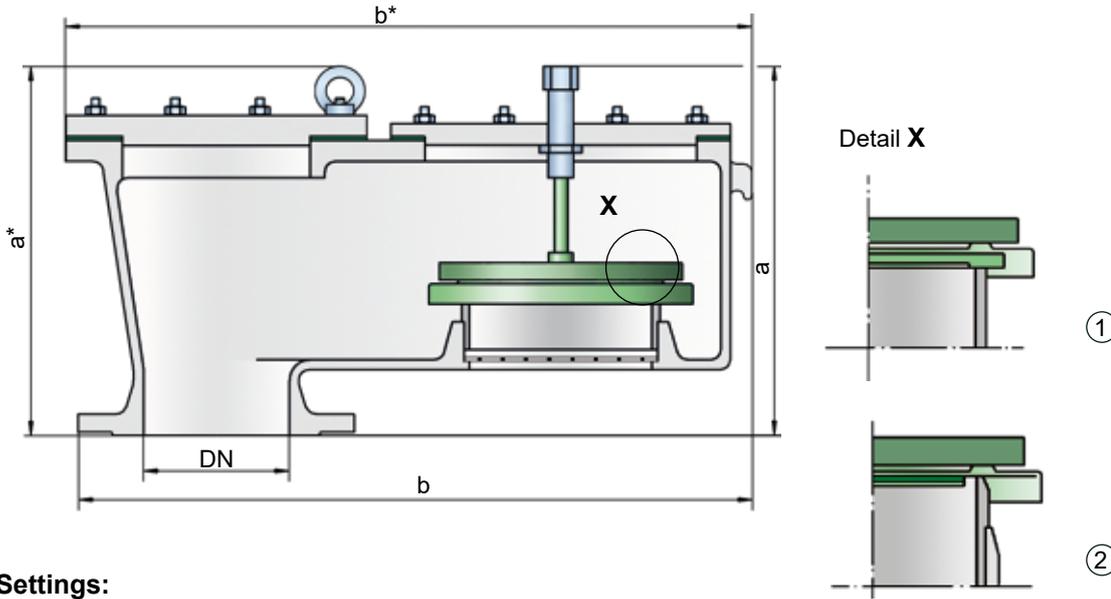


Vacuum Relief Valve



PROTEGO® V/SV



Settings:

Vacuum: -2.0 mbar up to -60 mbar
 -0.8 inch W.C. up to -24 inch W.C.

Higher vacuum settings upon request.

Function and Description

The V/SV type PROTEGO® valve is a highly developed vacuum relief valve with excellent flow performance. It is primarily used as a safety device for relieving vacuum in tanks, containers and process engineering equipment. The valve offers reliable protection against vacuum, and prevents inbreathing of air close to the set pressure.

The device will start to open as soon as the set pressure is reached and only requires 10% overpressure to full lift. Continuous investments into research and development have allowed PROTEGO® to develop a low pressure valve which has the same opening characteristic as a high pressure safety relief valve. This "full lift type" technology allows the valve to be set just 10% below the maximum allowable working pressure of the tank and still safely vent the required mass flow.

Due to our highly developed manufacturing technology the tank pressure is maintained up to set pressure, with a tightness that is far superior to the conventional standard. This feature is achieved by valve seats made of high quality stainless steel and with precisely lapped valve pallets (1) or with an air cushion seal (2) in conjunction with high quality FEP diaphragm. The valve pallets are also available with a PTFE seal to prevent the valve pallets from sticking when sticky products are used, and they enable the use of corrosive media. After the vacuum is relieved, the valve reseats and provides a tight seal again.

The optimized fluid dynamic design of the valve body and valve pallet is a result of many years of research work, which allow a stable operation of the valve pallet and optimized performance resulting in reduction of product losses.

Special Features and Advantages

- "Full lift type" technology valve, full lift at less than 10% overpressure
- extremely tight seal, minimal product loss, low environmental impact, reduced explosion risk
- set pressure close to the opening pressure resulting in best possible pressure management of the system
- high flow capacity
- can be used in explosion hazardous areas
- self draining
- maintenance friendly design
- best technology for storage tanks

Design Types and Specifications

The valve pallets are weight-loaded. Higher vacuum can be achieved upon request with a special spring-loaded design.

There are two different designs:

- Pressure/vacuum valve in basic design **V/SV-**
- Pressure/vacuum relief valve with heating jacket **V/SV-**

Additional special devices available upon request.

Table 1: Dimensions

Dimensions in mm / inches

To select the nominal size (DN), please use the flow capacity charts on the following pages.

DN	40 / 1 1/2"	50 / 2"	80 / 3"	100 / 4"	150 / 6"	200 / 8"	250 / 10"	300 / 12"
a	249* / 9.8*	249* / 9.8*	312 / 12.3	358 / 14.09	443 / 17.44	520 / 20.47	588 / 23.15	588 / 23.15
b	325* / 12.79*	337 / 13.27	400 / 15.75	514 / 20.24	713* / 28.07*	808* / 31.81*	925* / 36.42*	925 / 36.42

Dimensions of pressure and vacuum relief valves with heating jacket upon request.

Table 2: Material selection for housing

Design	A	B	C	
Housing	Aluminum	Steel	Stainless Steel	Option: Housing ECTFE-coated.
Heating jacket (V/SV-H-...)	-	Steel	Stainless Steel	
Valve seat	Stainless Steel	Stainless Steel	Stainless Steel	Special materials upon request.
Sealing	PTFE	PTFE	PTFE	
Cover	Aluminum	Steel	Stainless Steel	

Table 3: Material selection for vacuum valve pallet

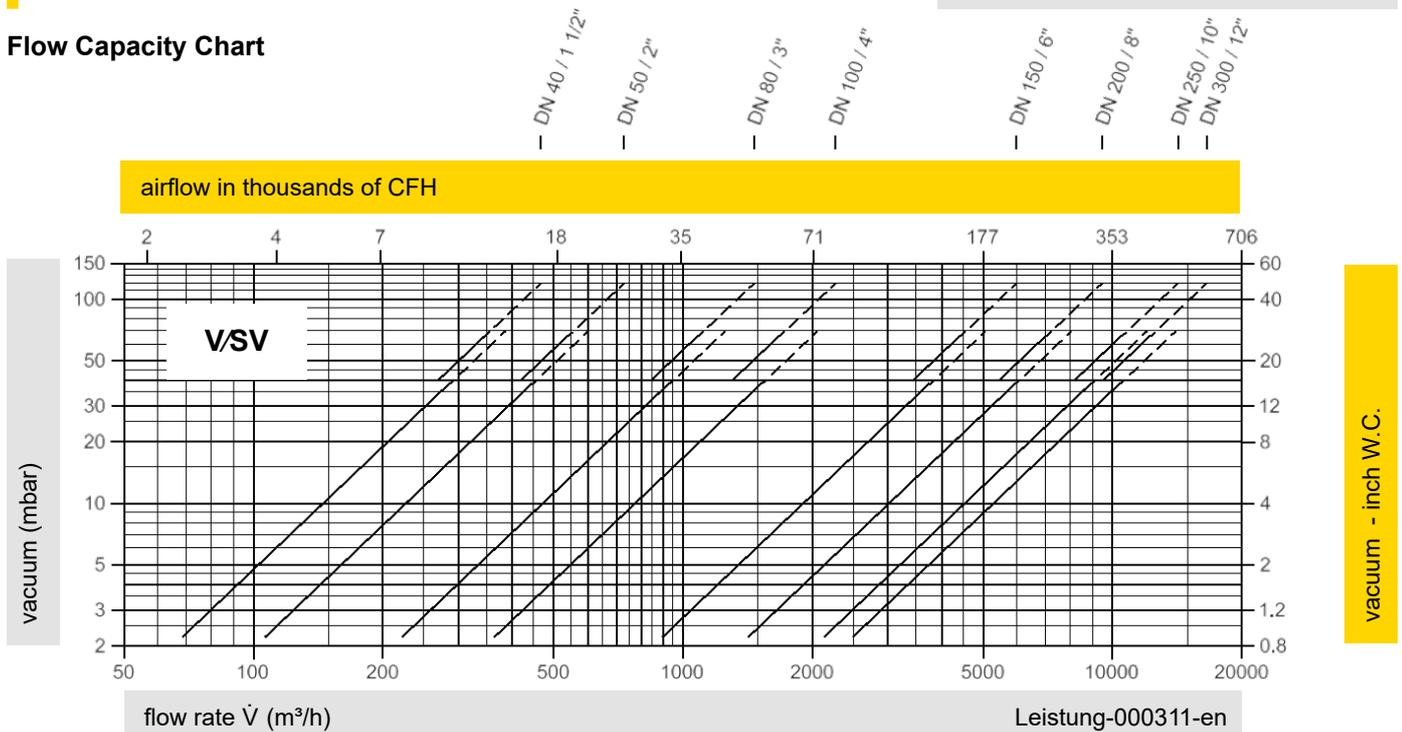
Design	A	B	C	D	E	F
Vacuum range (mbar)	-2.0 up to -3.5	<-3.5 up to -14	<-14 up to -35	<-14 up to -35	<-35 up to -60	<-35 up to -60
(inch W.C.)	-0.8 up to -1.4	<-1.4 up to -5.6	<-5.6 up to -14	<-5.6 up to -14	<-14 up to -24	<-14 up to -24
Valve pallet	Aluminum	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Sealing	FEP	FEP	Metal to Metal	PTFE	Metal to Metal	PTFE

Special material as well as higher vacuum upon request.

Table 4 Flange connection type

EN 1092-1; Form B1	Other types upon request.
ASME B16.5 150 CL R.F.	

Flow Capacity Chart



The flow capacity charts have been determined with a calibrated and TÜV certified flow capacity test rig. Volume flow \dot{V} in (m³/h) and CFH refer to the standard reference conditions of air in ISO 6358 (20°C, 1bar). For conversion to other densities and temperatures, refer to Sec. 1: "Technical Fundamentals."



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