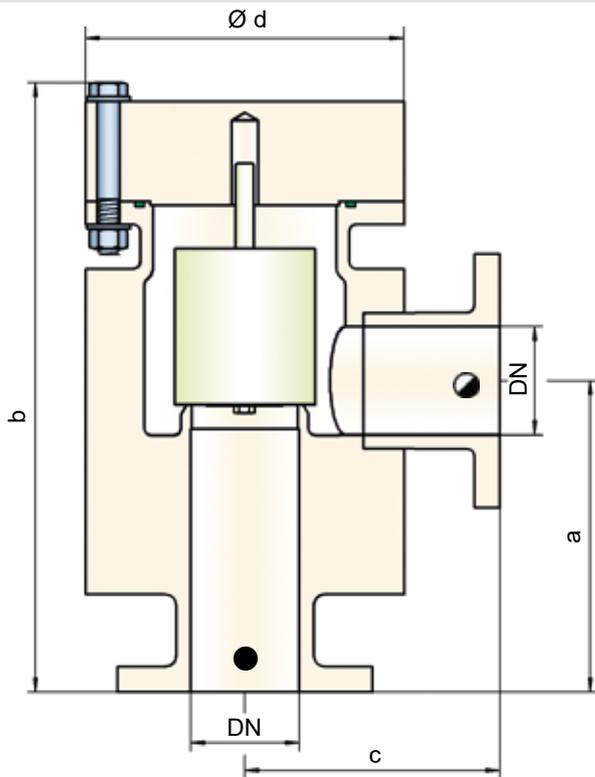


Pressure or Vacuum Relief Valve, In-Line

made of plastic

PROTEGO® R/KSM



● = Tank connection for pressure relief function

◐ = Tank connection for vacuum relief function

Flow direction marked at the housing by →

Pressure or vacuum settings:

±6.0 mbar up to ±100 mbar (DN 50/2")

±2.4 inch W.C. up to ±40 inch W.C.

±4.0 mbar up to ±100 mbar (DN 80/3")

±1.6 inch W.C. up to ±40 inch W.C.

±4.5 mbar up to ±100 mbar (DN 100/4" - DN 200/8")

±1.8 inch W.C. up to ±40 inch W.C.

Function and Description

The PROTEGO® in-line valve R/KSM is a state-of-the-art pressure or vacuum relief valve in a right angle design made out of high-grade synthetic material. Typically, the valve is installed in the in-breathing or out-breathing lines of tanks, vessels, and process equipment to protect against unallowable overpressure or underpressure. The valve prevents emission losses almost up to the set pressure and prevents unacceptable product entry. The valve is a perfect solution for corrosive, polymerizing, or sticky substances.

The device will start to open as soon as the set pressure is reached and only requires 10% overpressure to full lift. Continuous investments in and a commitment to 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 at just 10% below the maximum allowable working pressure or vacuum (MAWP or MAWV) of the tank and still safely vent the required mass flow.

The opening characteristic for pressure and vacuum side is the same. Due to our highly developed manufacturing technology, the tank pressure is maintained up to the set pressure with a tightness that is far above to the conventional standard. This feature is ensured by special valve seats made of high quality synthetic material or PTFE. After the overpressure is released or the vacuum is balanced, the valve re-seats and provides a tight seal.

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

Special Features and Advantages

- 10% technology for minimum pressure increase up to full lift
- extreme tightness, resulting in lowest possible product losses and reduced environmental pollution
- based on 10% technology, set pressure is close to opening pressure for optimum pressure maintenance in the system as compared to conventional 40% or 100% technology
- can be used as pressure or vacuum relief valve
- compact, space-saving right-angle design
- high flow capacity reduces costs through the use of smaller valves
- non-corrosive
- weight reduction in comparison to steel/stainless steel
- high surface quality
- different plastics can easily be combined
- maintenance-friendly design

Design and Specification

The valve pallet is weight-loaded. Higher set pressures are achieved with metal valve pallets.

In-line pressure or vacuum relief valve, **R/KSM** - standard design

Additional special devices available upon request.

Within piping systems, the influence of backpressure has to be considered when deciding the set pressure and opening characteristics.



Vents - 10% Technology
(Flyer pdf)



Leak Rate/10% Technology
(Flyer pdf)



Vents for corrosive vapor service
(Flyer pdf)

Table 1: Dimensions

Dimensions in mm / inches

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

DN	50 / 2"	80 / 3"	100 / 4"	150 / 6"	200 / 8"
a	200 / 7.87	245 / 9.65	300 / 11.81	370 / 14.57	625 / 24.61 (650 / 25.59)*
b	376 / 14.80	521 / 20.51	563 / 22.17 (523 / 20.59)*	687 / 27.05 (651 / 25.63)*	914 / 35.98 (912 / 35.91)*
c	150 / 5.91	200 / 7.87	225 / 8.86	280 / 11.02	350 / 13.78
d	180 / 7.09	250 / 9.84	300 / 11.81	350 / 13.78 (405 / 15.94)*	560 / 22.05 (500 / 19.68)*

* Dimensions in parentheses only for PVDF

Table 2: Material selection for housing

Design	A	B	C
Housing	PE	PP	PVDF
Valve seat	PE	PP	PVDF
Gasket	FPM	FPM	FPM
Valve pallet	A, C, D	B, C, D	C, D

Special materials upon request.

Table 3: Material selection for valve pallet

Design	A	B	C	D
Pressure range (mbar) (inch W.C.)	±6.0 up to ±16 ±2.4 up to ±6.4	±5.5 up to ±16 ±2.2 up to ±6.4	±9.5 up to ±30 ±3.8 up to ±12	±30 up to ±100 ±12 up to ± 40
Valve pallet	PE	PP	PVDF	Hastelloy
Sealing	PTFE	PTFE	PTFE	PTFE
Spindle guide	PE	PP	PVDF	Hastelloy

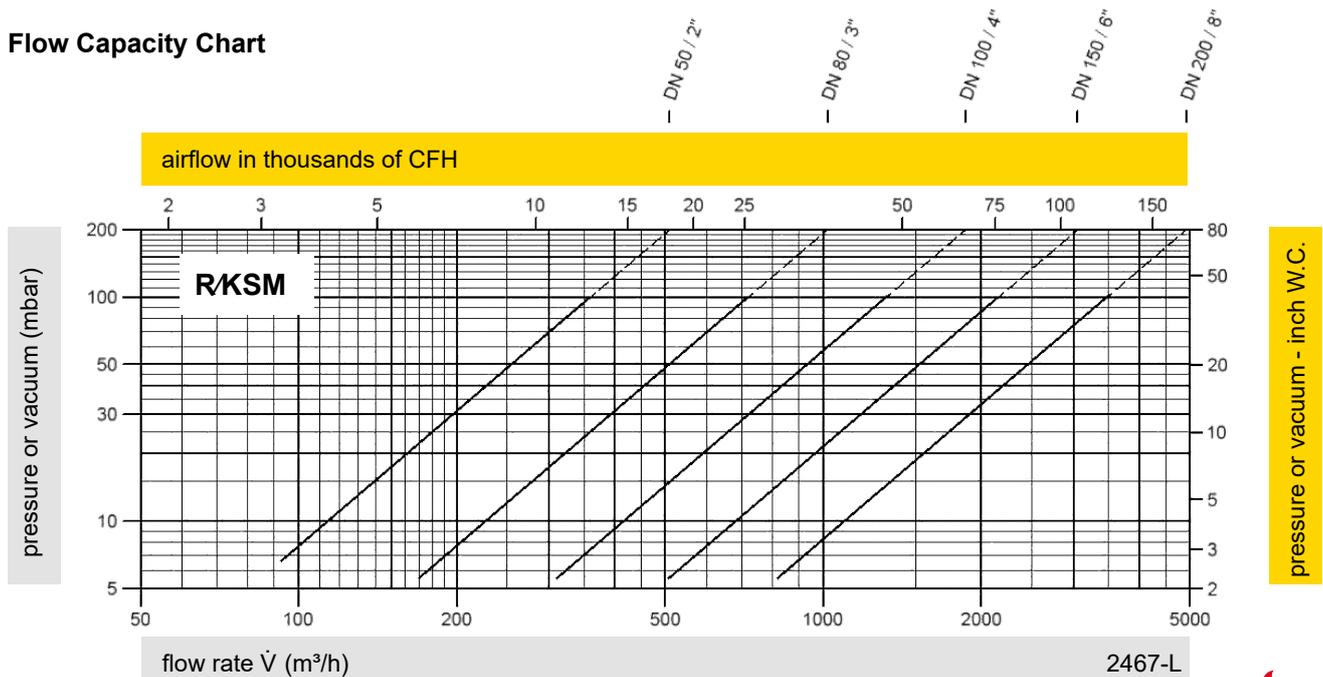
Special materials and devices with higher set pressure or vacuum are available upon request.

Table 4: Flange connection type

EN 1092-1; Form A
ASME B16.5 CL 150 F.F.

Other types upon request.

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."

