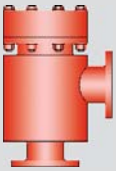
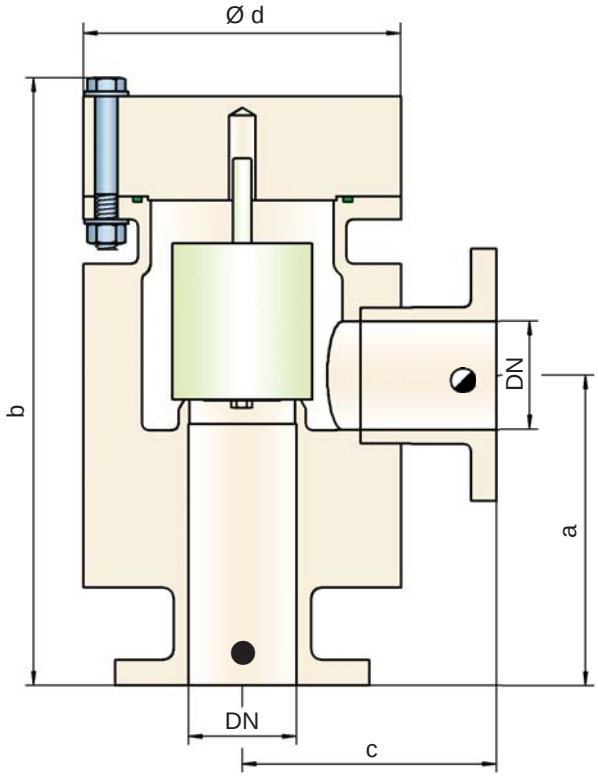


Pressure or Vacuum Relief Valve, In-Line

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 right angle design made out of highgrade synthetic material. Typically the valve is installed in the in- or out-breathing lines of tanks, vessels and process apparatus to protect against unallowable high or low pressure. The valve prevents emission losses almost up to the set pressure or provides protection from product entry into the system. The valve is a perfect solution for corrosive, polymerizing or sticky media.

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 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 superior to the conventional standard. This feature is facilitated by special valve seats made of high quality synthetic material or PTFE. After the excess pressure is discharged or vacuum is compensated, the valve reseats 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 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 utilizes only 10% overpressure to reach full lift
- extreme tightness and hence least possible product losses and reduced environmental pollution
- based on 10% technology the set pressure is close to the opening pressure which results in best possible pressure management of the system compared to conventional 40%- or 100%- technology valves
- can be used as pressure or vacuum relief valve
- compact right angle design saves space
- optimized flow performance, which reduces capital cost to a minimum as smaller sized valves may be used
- corrosion resistant valve
- weight reduction in comparison to steel/stainless steel
- smooth surface
- different plastics can be combined
- maintenance friendly design

Design and Specification

The valve pallet is weight loaded. Highest set pressure range can be reached with metal valve pallets.

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

Additional special devices available upon request

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

All rights and alterations reserved acc. ISO 16016 - Active data sheet at **www.protego.com**

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 brackets 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

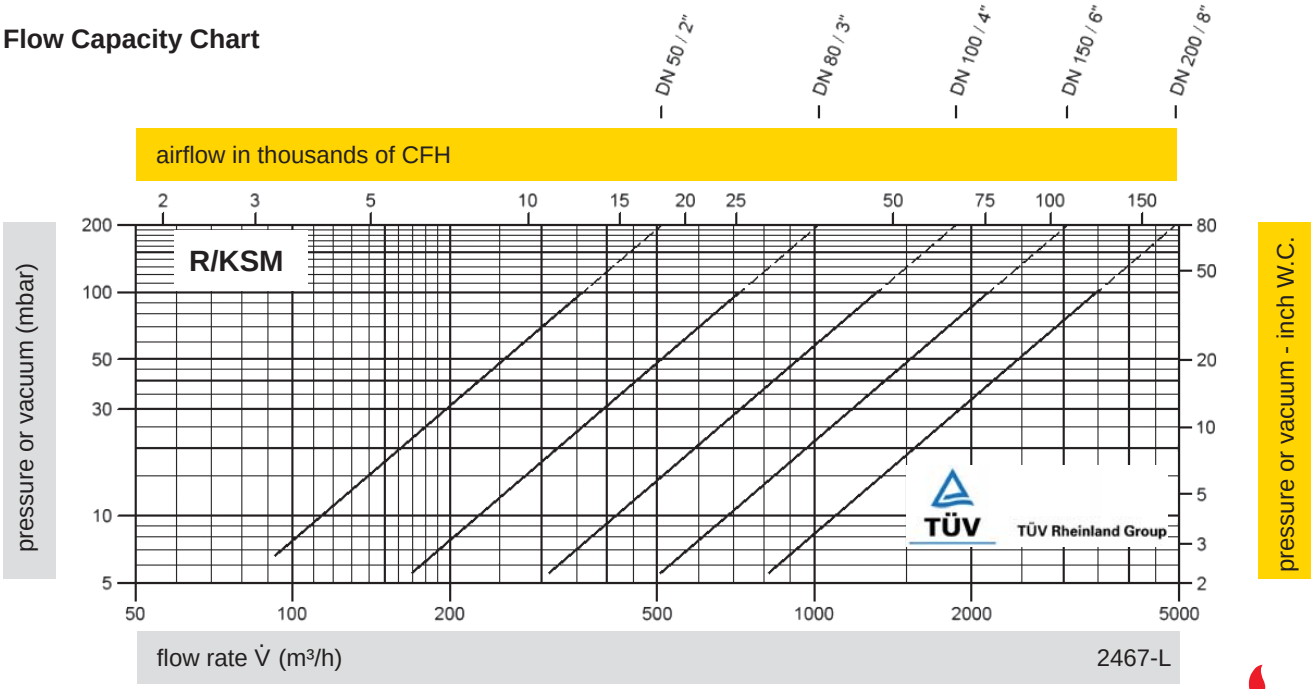
Design	A	B	C	D
Pressure range (mbar) (inch W.C.)	±6.0 up to ±16 ±2.4 up to ±6.4	±5.5 up to ±16 ±2.2 up to ±6.4	±9.5 up to ±30 ±3.8 up to ±12	±30 up to ±100 ±12 up to ± 40
Valve pallet	PE	PP	PVDF	Hastelloy
Sealing	PTFE	PTFE	PTFE	PTFE
Spindle guide	PE	PP	PVDF	Hastelloy

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

Table 4: Flange connection type

EN 1092-1; Form A	other types upon request
ASME B16.5; 150 lbs FFSF	

Flow Capacity Chart



The flow capacity chart has been determined with a calibrated and TÜV certified flow capacity test rig.

Volume flow V̇ in (m³/h) and CFH refer to the standard reference conditions of air ISO 6358 (20°C, 1bar). Conversion to other densities and temperatures refer to Vol. 1: “Technical Fundamentals”.

PROTEGO
for safety and environment