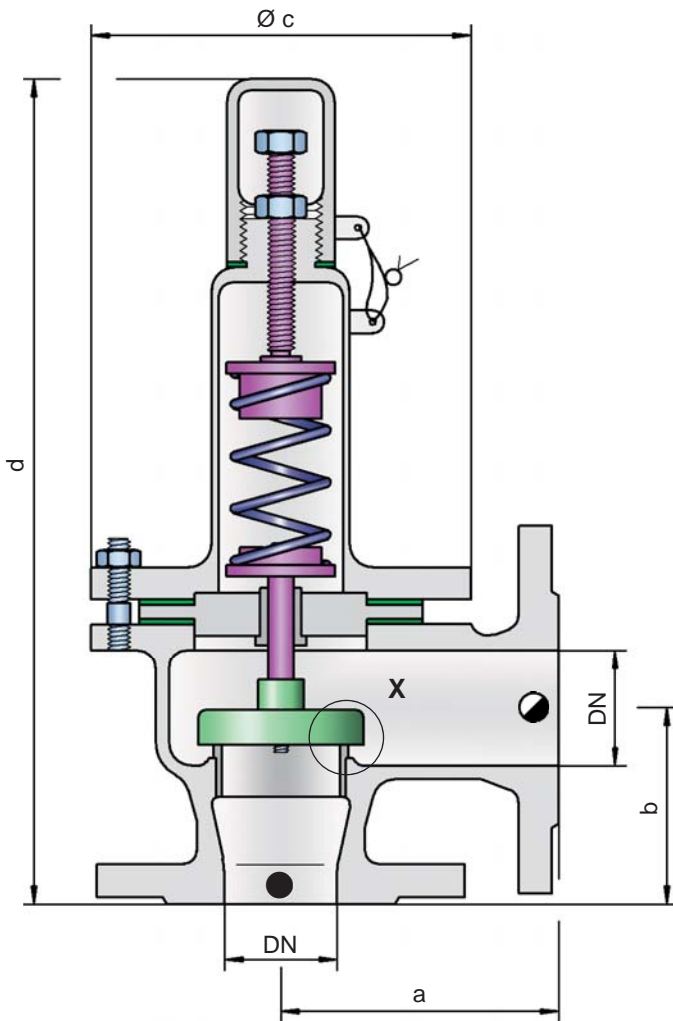


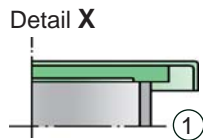
Pressure or Vacuum Relief Valve, In-Line



PROTEGO® DZ/E-F



- = Tank connection for pressure relief function
- ◐ = Tank connection for vacuum relief function



Flow direction marked at the housing by →

Pressure or vacuum settings:

±60 mbar	up to ±500 mbar (DN 25/1" up to 200/8")
±24 inch W.C.	up to ±200 inch W.C.
±60 mbar	up to ±400 mbar (DN 250/10")
±24 inch W.C.	up to ±160 inch W.C.
±60 mbar	up to ±300 mbar (DN 300/12")
±24 inch W.C.	up to ±120 inch W.C.

Devices with higher set pressure or vacuum are available upon request, for lower set pressures or vacuum refer to type DZ/E.

Function and Description

The PROTEGO® in-line valve DZ/E-F is a state-of-the-art pressure or vacuum relief valve in right angle design for higher system pressures. Typically the valve is installed in the in- or outbreathing 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. As this device is equipped with a spring higher set pressures can be reached compared to the DZ/E.

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 is the same for pressure and vacuum relief. 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 facilitated by valve seats made of high quality stainless steel and with individually lapped valve pallets (1) and a rugged valve body. 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
- high performance seal reducing product loss below EPA's 500ppm rule preventing 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
- optimized flow performance, which reduces capital cost to a minimum as smaller sized valves may be used
- can be used as pressure or vacuum relief valve
- compact right angle design saves space
- can be installed in explosion hazardous areas
- housing designed to 150 psi (PN 10)
- spring loaded for elevated set pressures
- maintenance friendly design



Vents - 10% Technology
(Flyer pdf)



Leak Rate/10% Technology
(Flyer pdf)



Coated Devices
(Flyer pdf)



The optimised valve pallet
(Flyer pdf)

Designs and Specifications

The valve pallet is spring loaded. Lower set pressures for pressure and vacuum are achieved by using the weight loaded type DZ/E.

Two different right angle designs are available:

In-line pressure or vacuum relief valve, standard design **DZ/E-F - □**

In-line pressure or vacuum relief valve with heating jacket **DZ/E-F - H**

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. For special design solutions (e.g. partial load operation) the valve can be supplied with standard valve pallets (with proportional opening function).



Spring-loaded PV-Valves
Maintenance-friendly design (Flyer pdf)

Table 1: Dimensions

Dimensions in mm / inches

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

DN	25 / 1"	32 / 1 ¼"	40 / 1 ½"	50 / 2"	65 / 2 ½" / 80 / 3"	100 / 4"	150 / 6"	200 / 8"	250 / 10"	300 / 12"
a	110 / 4.33	110 / 4.33	125 / 4.92	125 / 4.92	170 / 6.69	190 / 7.48	230 / 9.06	275 / 10.83	325 / 12.80	350* / 13.78
b	75 / 2.95	75 / 2.95	90 / 3.54	90 / 3.54	115 / 4.53	120 / 4.72	160 / 6.30	225 / 8.86	275 / 10.83	300 / 11.81
c	150 / 5.91	150 / 5.91	170 / 6.69	170 / 6.69	235 / 9.25	280 / 11.02	335 / 13.19	420 / 16.54	505 / 19.88	565 / 22.24
d	435 / 17.13	435 / 17.13	445 / 17.52	445 / 17.52	620 / 24.41	700 / 27.56	970 / 38.19	1205 / 47.44	1275 / 52.36	1330 / 52.36

Dimensions for pressure or vacuum relief valve with heating jacket upon request

* for ANSI 12" = 400 mm / 15.75 inches

Table 2: Material selection for housing

Design	A	B	
Housing	Steel	Stainless Steel	Option: Housing with ECTFE-lining
Heating jacket (DZ/E-F-H-...)	Steel	Stainless Steel	
Valve seat	Stainless Steel	Stainless Steel	Special materials upon request
Gasket	PTFE	PTFE	
Valve pallet	A	A	

Table 3: Material of valve pallet

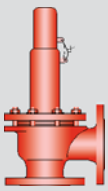
Design	A	
Pressure range (mbar) (inch W.C.)	±60 up to ±500 ±24 up to ±200	Special materials upon request
Valve pallet	Stainless Steel	Devices with higher set pressure or vacuum are available upon request, for lower set pressures or vacuum refer to type DZ/E.
Sealing	Metal to Metal	
Spring	Stainless Steel	

Table 4: Flange connection type

EN 1092-1; Form B1	other types upon request
ASME B16.5; 150 lbs RFSF	



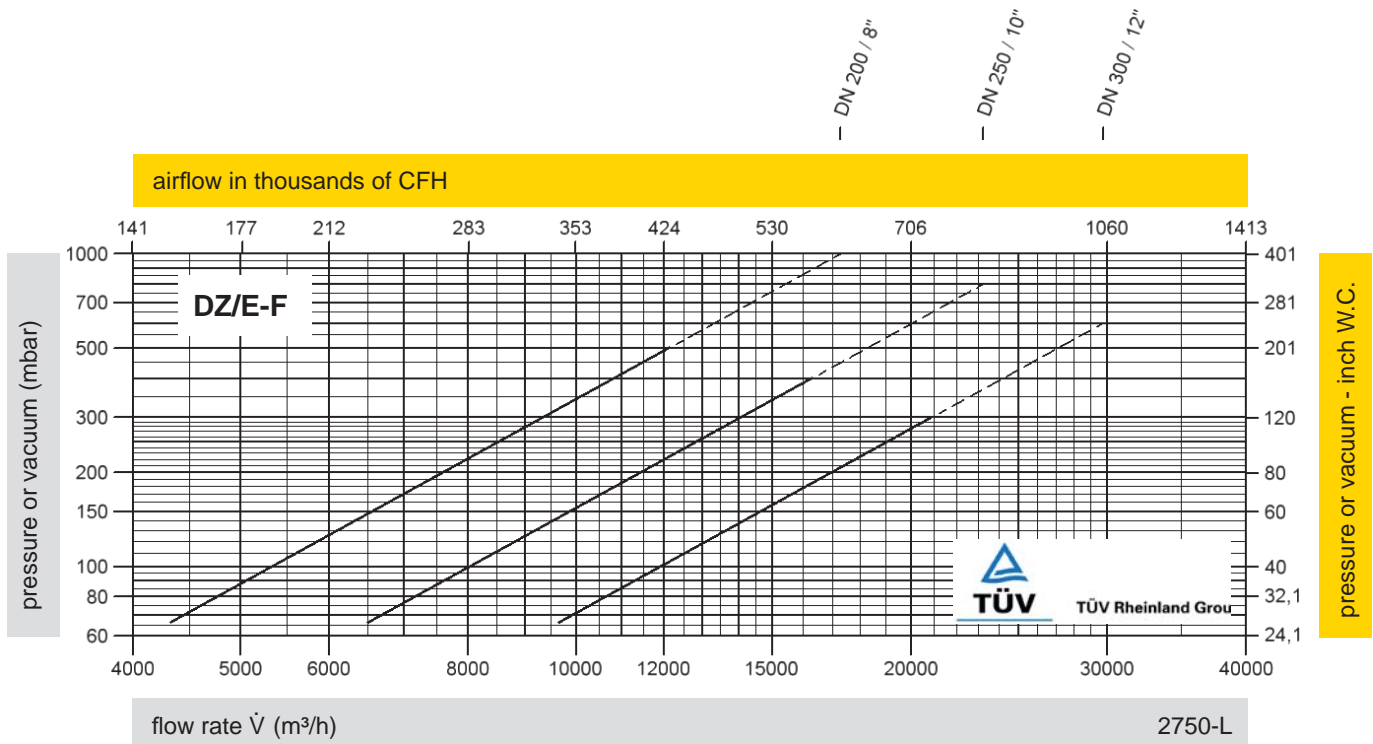
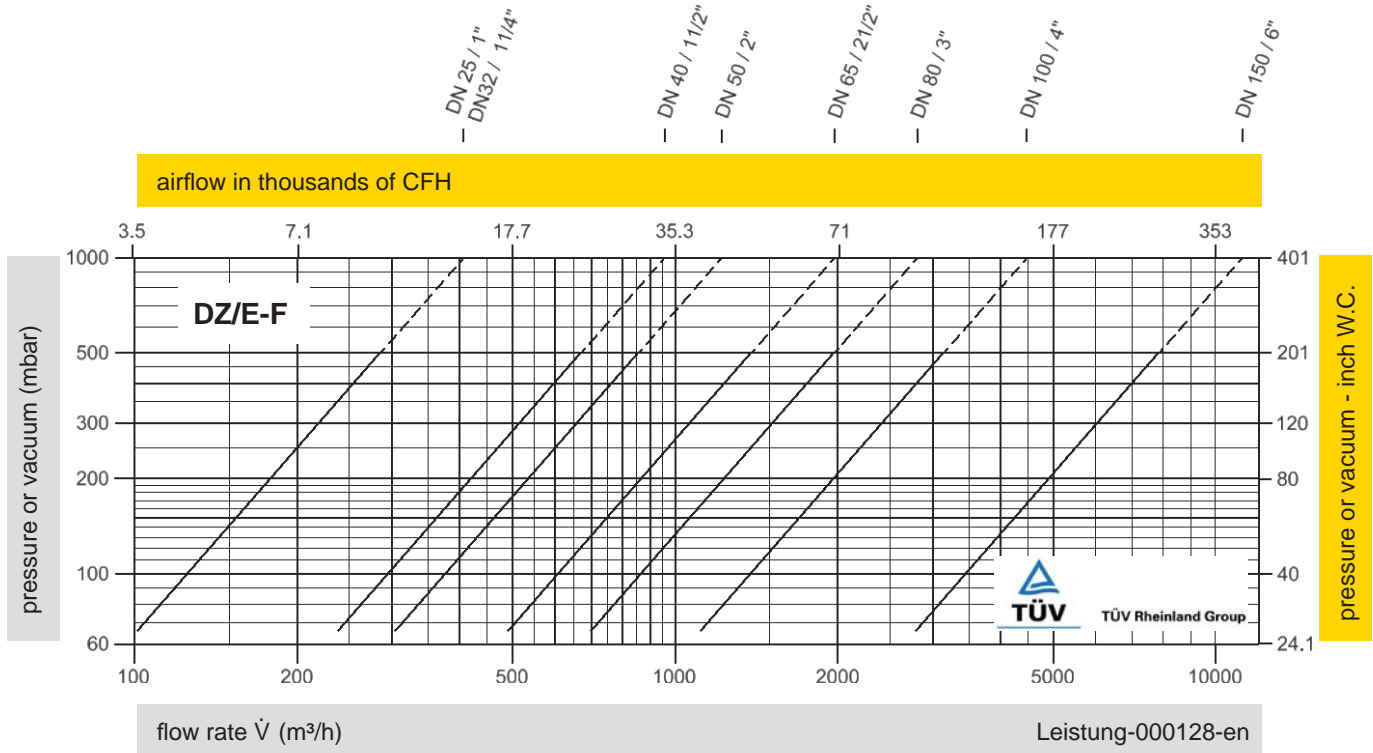
for safety and environment



Pressure or Vacuum Relief Valve, In-Line

Flow Capacity Chart

PROTEGO® DZ/E-F



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 ISO 6358 (20°C, 1bar). Conversion to other densities and temperatures refer to Vol. 1: "Technical Fundamentals".