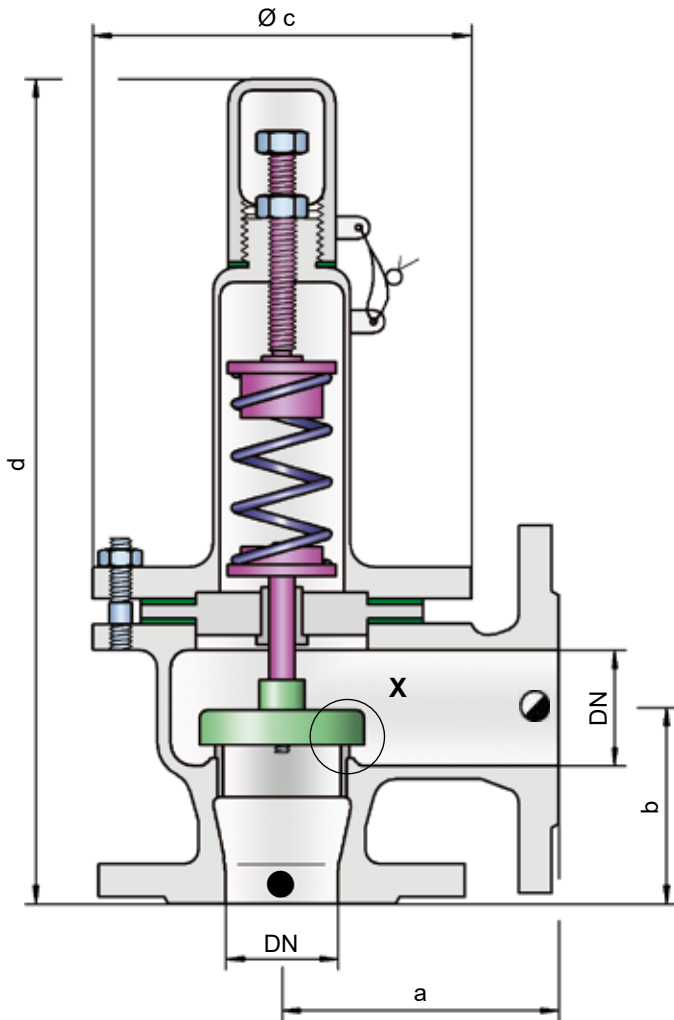


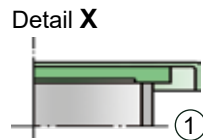
Pressure or Vacuum Relief Valve, In-Line



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 a right angle design for higher system pressures. Typically, the valve is installed in the in-breathing or out-breathing lines of tanks, vessels, and

opening pressure which results in best possible 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. As this device is equipped with a spring, higher set pressures are achieved than with 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 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 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 above the conventional standard. This feature is ensured by valve seats made of high quality stainless steel and with individually lapped valve pallets (1) and a sturdy housing design. 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
- high flow capacity reduces costs through the use of smaller valves
- can be used as pressure or vacuum relief valve
- compact, space-saving right-angle design
- can be used in explosion hazardous areas
- sturdy housing design (PN 10)
- spring-loaded for high set pressures
- maintenance-friendly design



Vents - 10% Technology
(Flyer pdf)



Leak Rate/10% Technology
(Flyer pdf)



Coated Devices
(Flyer pdf)



The optimized 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, **DZ/E-F - [-]**
standard design

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

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. For special design solutions (e.g., partial load operation), the valve can be supplied with standard discs (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 1/4"	40 / 1 1/2"	50 / 2"	65 / 2 1/2" 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	The housings are also available with an ECTFE coating. Special materials upon request.
Housing	Steel	Stainless Steel	
Heating jacket (DZ/E-F-H-...)	Steel	Stainless Steel	
Valve seat	Stainless Steel	Stainless Steel	
Gasket	PTFE	PTFE	
Valve pallet	A	A	

Table 3: Material of valve pallet

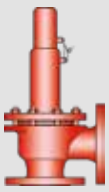
Design	A	Special materials upon request. Devices with higher set pressure or vacuum are available upon request. For lower set pressures or vacuum, refer to type DZ/E.
Pressure range (mbar) (inch W.C.)	±60 up to ±500 ±24 up to ±200	
Valve pallet	Stainless Steel	
Sealing	Metal to Metal	
Spring	Stainless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

Table 4: Flange connection type

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



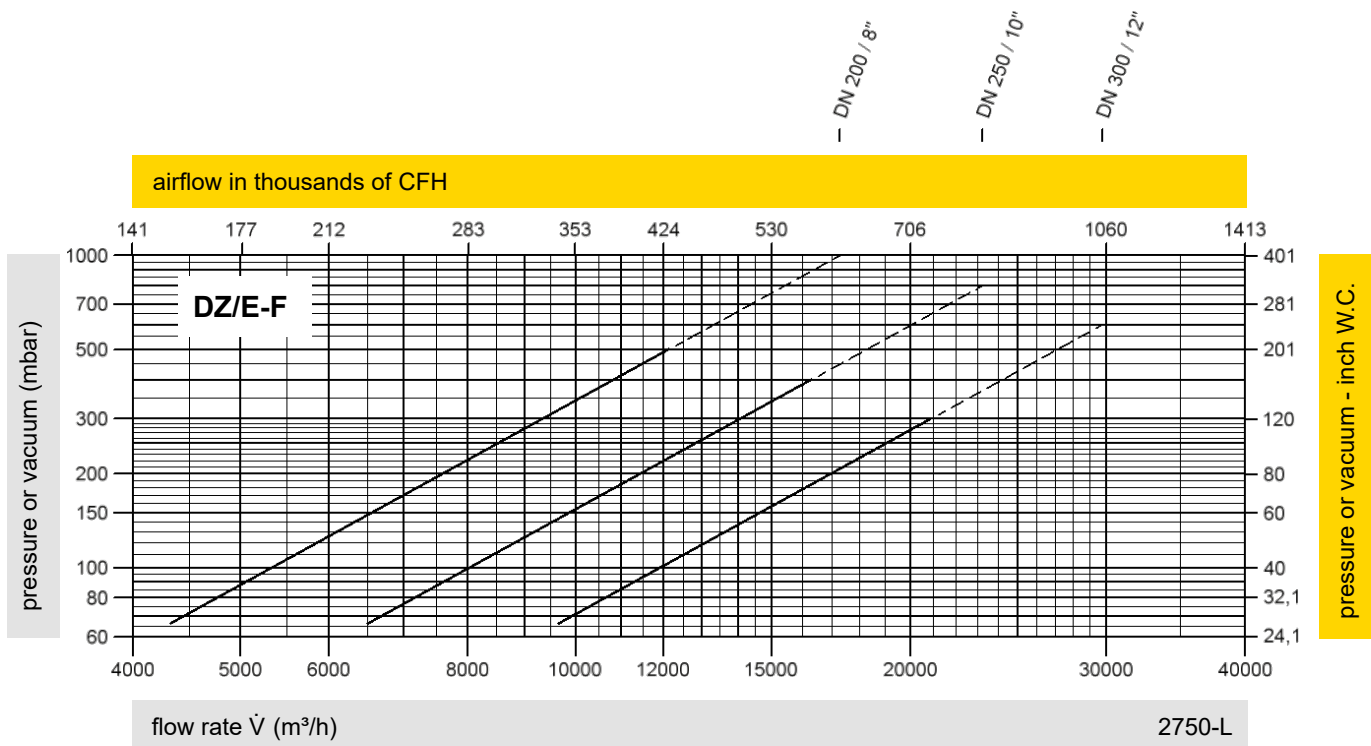
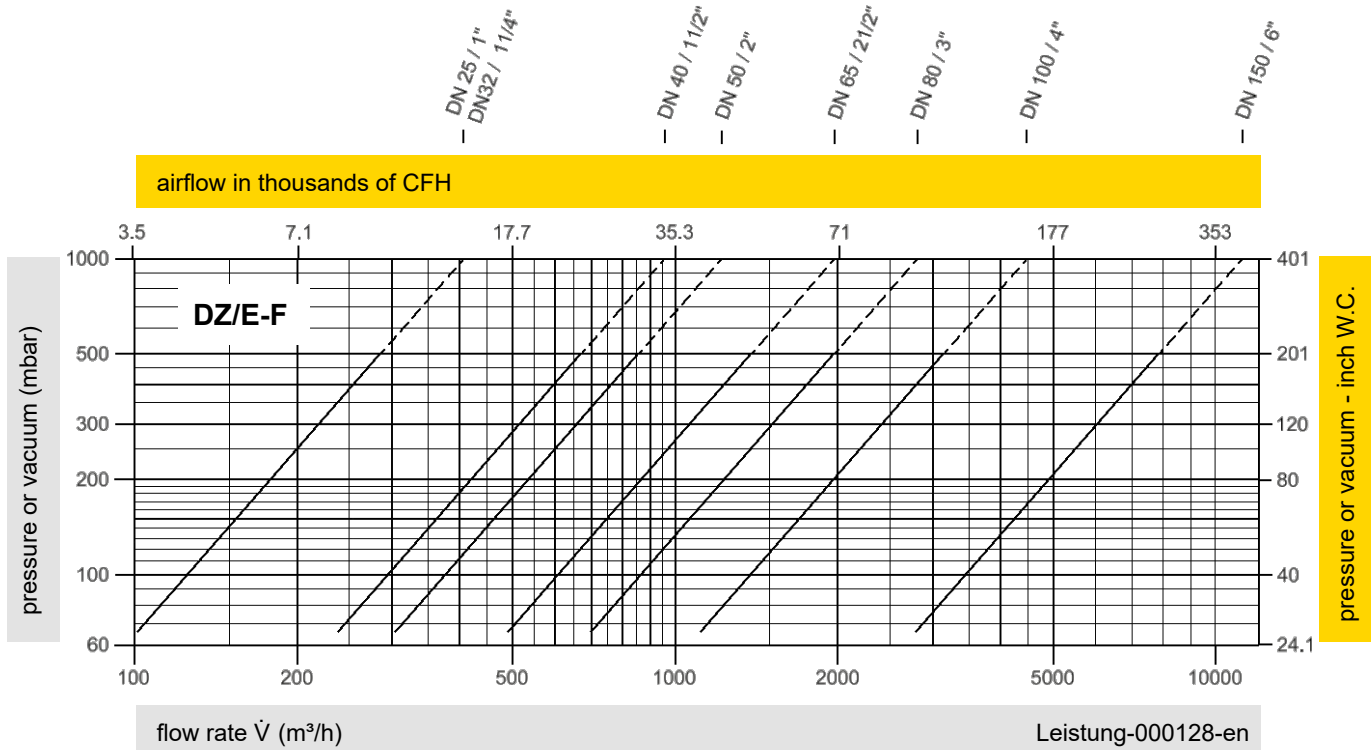
for safety and environment



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 in ISO 6358 (20°C, 1bar). For conversion to other densities and temperatures, refer to Sec. 1: "Technical Fundamentals."