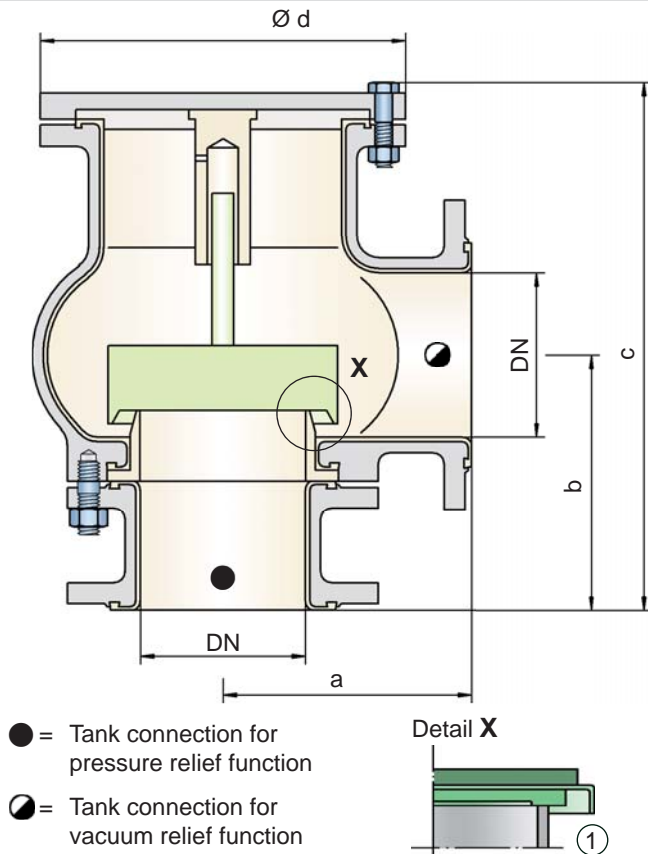


Pressure or Vacuum Relief Valve, In-Line

With ETFE Lining

PROTEGO® DZ/EA



● = Tank connection for pressure relief function

◐ = Tank connection for vacuum relief function

Flow direction marked at the housing by →

Pressure or vacuum settings:

±5.0 mbar up to ±50 mbar

±2.0 inch W.C. up to ±20 inch W.C.

For higher set pressure or vacuum refer to type DZ/EA-F

Function and Description

The lined PROTEGO® in-line valve DZ/EA is a state-of-the-art pressure or vacuum relief valve in right angle design. The lining makes this model a perfect solution for corrosive, polymerizing or sticky media. All internal parts are manufactured from PTFE or other highly corrosion resistant materials. 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 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 specially finished PTFE valve seats or by use of hastelloy valve seats and with individually lapped valve pallets (1). After the excess pressure is discharged or the 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
- internal lining and correct material selection makes this type the perfect solution for corrosive, polymerizing and sticky media
- 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
- housing designed to 150 psi (PN 10)
- maintenance friendly design

Design and Specification

The valve pallet is weight loaded. Higher set pressures for pressure and vacuum are achieved by using spring loaded type DZ/EA-F.

In-line pressure or vacuum relief valve,
standard design

DZ/EA

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).

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"
a	168 / 6.61	180 / 7.09	200 / 7.87	228 / 8.98
b	167 / 6.57	177 / 6.97	200 / 7.87	232 / 9.13
c	330 / 12.99	390 / 15.35	445 / 17.52	485 / 19.09
d	200 / 7.87	240 / 9.45	280 / 11.02	335 / 13.19

Table 2: Material selection for housing

Design	C	D	
Housing	Steel	Steel	Semi-conductive material and special material (e.g. PFA) upon request Special materials upon request
Lining	ETFE	ETFE	
Cover	Steel	Steel	
Valve seat	PTFE	Hastelloy	
Valve pallet	A	A, B	

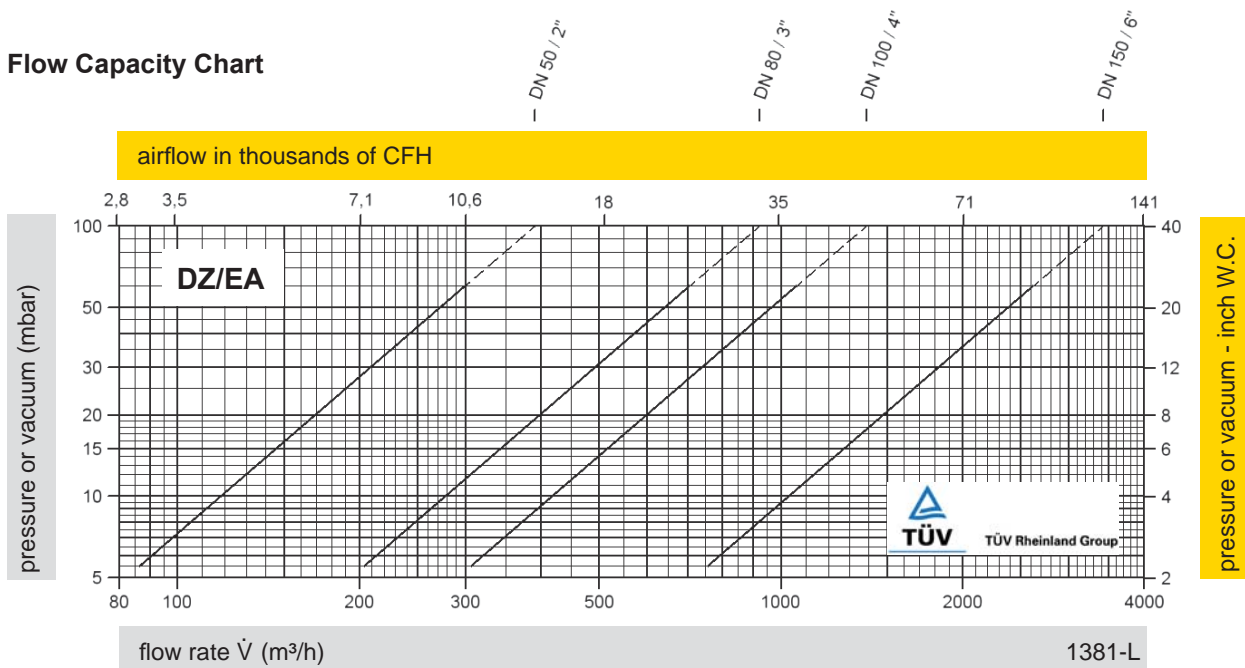
Table 3: Material selection for valve pallet

Design	A	B	
Pressure range (mbar) (inch W.C.)	±5 up to ±50 ±2 up to ±20	±5 up to ±50 ±2 up to ±20	Special materials upon request For higher set pressure or vacuum refer to type DZ/EA-F
Valve pallet	PTFE	Hastelloy	
Sealing	PTFE	Metal to Metal	

Table 4: Flange connection type

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

Flow Capacity Chart



The flow capacity chart has 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".

