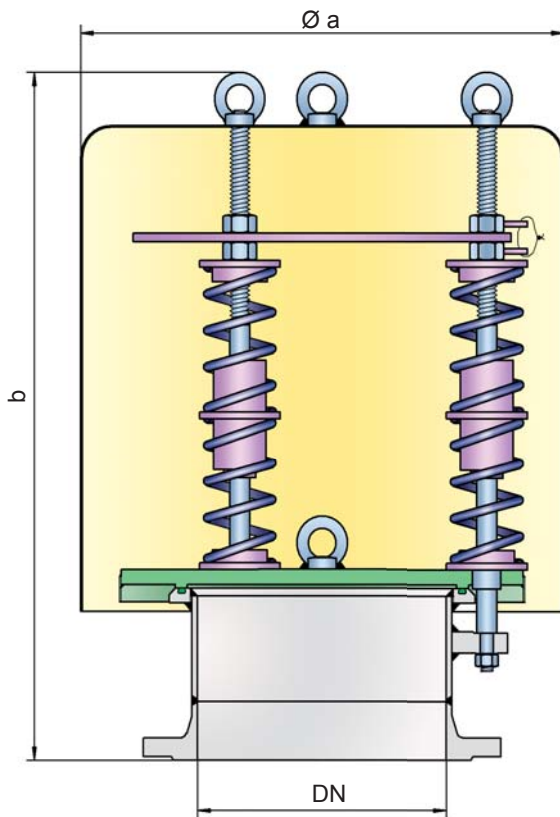




## Pressure Relief Valve

### PROTEGO® ER/V-F



#### Pressure settings:

>+60 mbar up to +500 mbar  
 >+24 inch W.C. up to +200 inch W.C.  
 Higher pressure settings, upon request.  
 Lower pressure settings, see types ER-V-LP, ER/V and ER/VH.

#### Function and Description

The ER/V-F type PROTEGO® valve is a highly developed emergency pressure relief valve with high flow capacity. It is primarily used as a safety device for emergency pressure relief for storage tanks, containers, silos, and process engineering equipment; it offers reliable protection against overpressure and prevents impermissible product vapor loss close to the set pressure. It is designed to discharge particularly large amounts to prevent the vessel from rupturing in an emergency case. The spring-loading allows for higher set pressures than those with the ER-V-LP, ER/V or ER/VH.

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 of the tank and still safely vent the required mass flow.

Due to the 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 achieved by valve seats made of high-grade steel with an inserted O-ring seal, a precisely lapped valve pallet, as well as a reinforced housing design. After the excess pressure is relieved, the valve reseats and provides a tight seal again.

#### Special Features and Advantages

- “full lift type” technology valve utilizes only 10% overpressure to reach full lift
- excellent tightness and hence least possible product losses and reduced environmental pollution
- the set pressure is close to the opening pressure which results in best possible pressure management of the system
- high flow capacity
- the valve pallet is guided within the housing to protect against harsh weather conditions
- can be used in areas subject to explosion hazards
- reinforced housing design
- spring-loading for high set pressures
- best technology for API-tanks

#### Design Types and Specifications

The valve pallet is spring-loaded. Lower pressures are achieved with the ER-V-LP, ER/V and ER/VH designs.

Pressure valve in basic design

**ER/V-F**

Additional special devices available upon request

**Table 1: Dimensions**

Dimensions in mm / inches

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

DN	200 / 8"	250 / 10"	300 / 12"	350 / 14"	400 / 16"	450 / 18"	500 / 20"	600 / 24"	700 / 28"
a	465 / 18.31	550 / 21.65	650 / 25.59	650 / 25.59	800 / 31.50	800 / 31.50	1000 / 39.37	1000 / 39.37	1200 / 47.24
b	860 / 33.86 (≤370 mbar ≤148 inchW.C.)	860 / 33.86 (≤240 mbar ≤96 inchW.C.)	1170 / 46.06 (≤240 mbar ≤96 inchW.C.)	1170 / 46.06 (≤270 mbar ≤108 inchW.C.)	1150 / 45.28 (≤220 mbar ≤88 inchW.C.)	1175 / 46.26 (≤170 mbar ≤68 inchW.C.)	1430 / 56.30 (≤130 mbar ≤52 inchW.C.)	1425 / 56.10 (≤140 mbar ≤56 inchW.C.)	1690 / 66.54 (≤140 mbar ≤56 inchW.C.)
b	980 / 38.58 (>370 mbar >148 inchW.C.)	980 / 38.58 (>240 mbar >96 inchW.C.)	1490 / 58.66 (>240 mbar >96 inchW.C.)	1490 / 58.66 (>270 mbar ≤108 inchW.C.)	1490 / 58.66 (>220 mbar ≤88 inchW.C.)	1515 / 59.65 (>170 mbar >68 inchW.C.)	1660 / 65.35 (>130 mbar >52 inchW.C.)	1655 / 65.16 (>140 mbar >56 inchW.C.)	1910 / 75.20 (>140 mbar >56 inchW.C.)

**Table 2: Material selection**

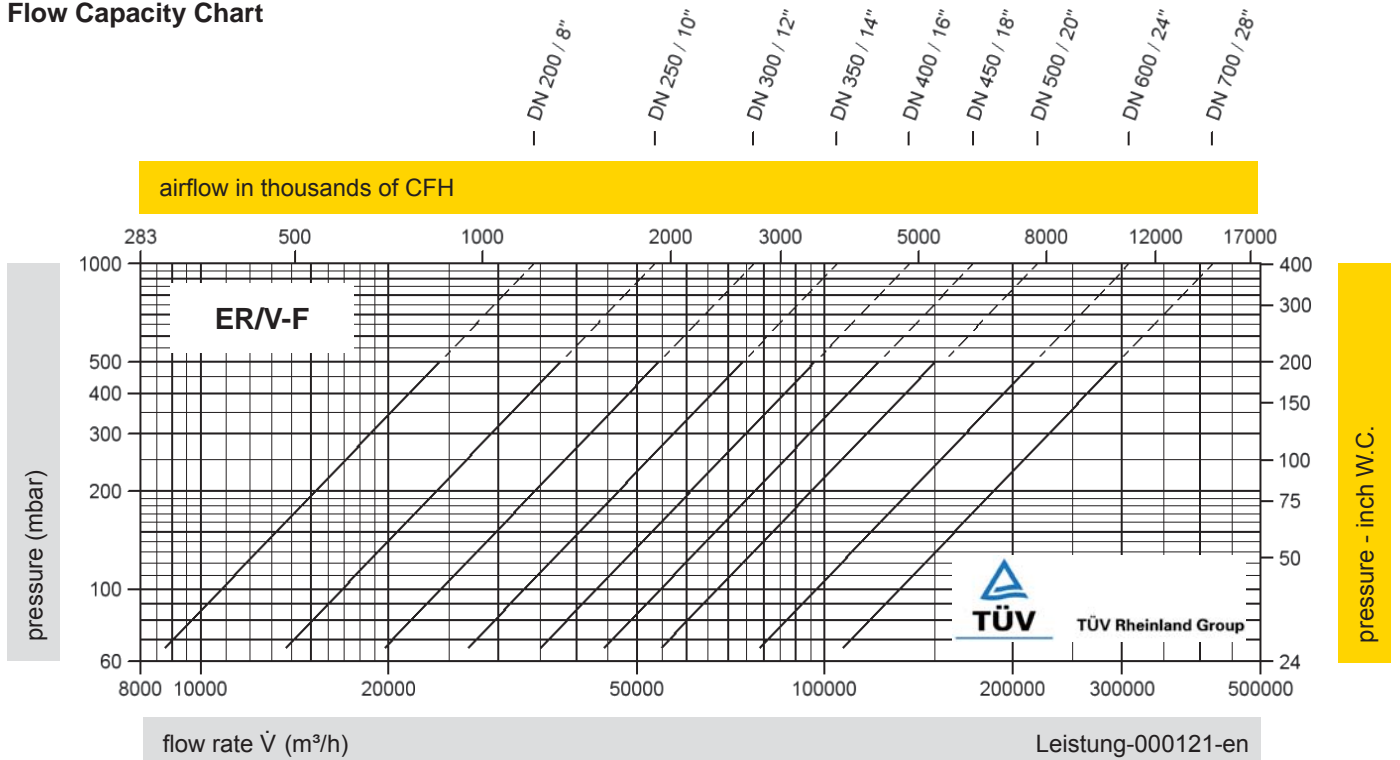
Design	A	B
Housing	Steel	Stainless Steel
Valve seat	Stainless Steel	Stainless Steel
Valve pallet	Stainless Steel or Steel-Stainless Steel	Stainless Steel
Sealing	FPM	FPM
Pressure spring	Stainless Steel	Stainless Steel
Weather hood	Steel	Stainless Steel

**Table 3: Flange connection type**

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

Special materials upon request

**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".

