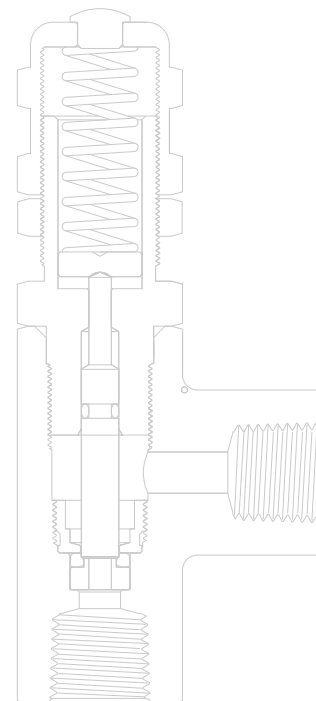
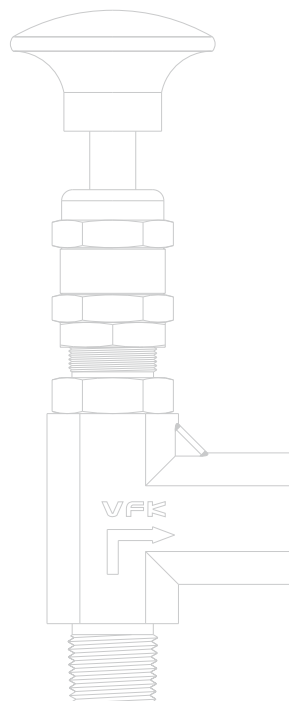


Relief Valves



Climate Control
Electromechanical
Filtration
Fluid & Gas Handling
Hydraulics
Process Control
Sealing & Shielding



VFK
Advanced Fluid Control

Proportional Relief Valves

61 Series

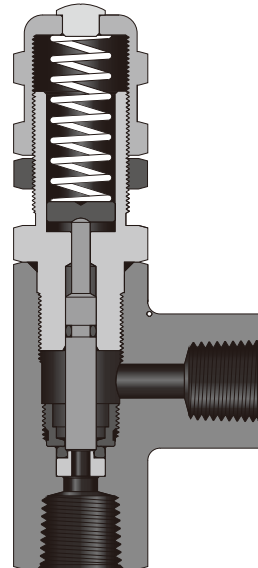
Relief Valve open when system pressure reaches the set pressure, allowing the medium to flow out and relieve the system pressure. The valve closes when the system pressure is down to the resealing pressure.

The opening height and the system pressure are direct proportional. However, there's no limit for relieving capacity, so valves in this series in these series should be selected carefully according to system requirements.



Features

- Set pressure: 50 to 6000 psig at 70°F (3.4 to 414 bar at 21°C)
- Maximum outlet pressure: 1500 psig (103 bar)
- Working temperature: -10°F to 300°F (-23°C to 148°C)
- Variety of end connections
- Liquid or gas service
- Adjustable bonnet cap and adjustable set pressure
- Balance stem design to eliminate the effect of system back pressure
- 7 color-coded springs available for a wide range of set pressure
- Lock wired secure cap to maintain set pressure
- Variety of seal materials
- Label as indicator of the set pressure range
- Manual override handle available to open the valve without changing the set pressure which pressure lower than 1500 psig
- Leak-tight performance testing for every valve at the maximum working pressure



Temperature Range of Seal Materials

Fluorocarbon Rubber

25°F to 250°F (-4°C to 121°C)

Buna N Rubber

0°F to 250°F (-17°C to 121°C)

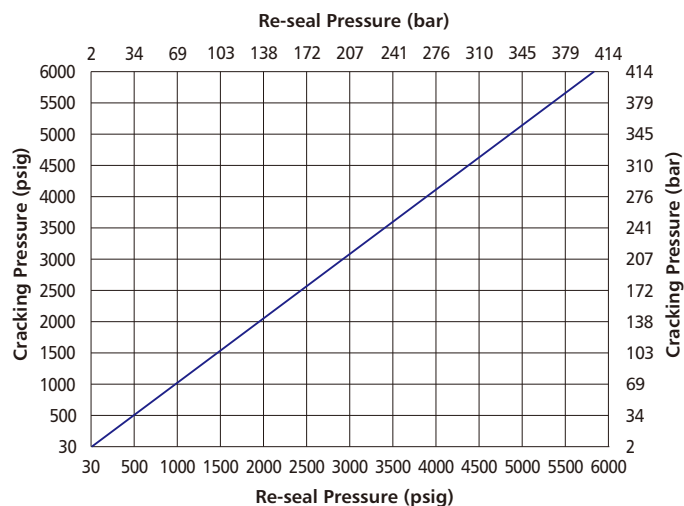
Neoprene Rubber

-10°F to 300°F (-23°C to 148°C)

Ethylene Propylene Rubber

30°F to 250°F (-1°C to 121°C)

Cracking Pressure and Resealing Pressure



Cracking Pressure: The pressure at which the first indication of flow occurs. The repeatability of the cracking pressure of each valve after initial relief is within $\pm 5\%$ at room temperature.

Resealing Pressure: The pressure at which there is no indication of flow. Resealing pressure is always lower than the set pressure.

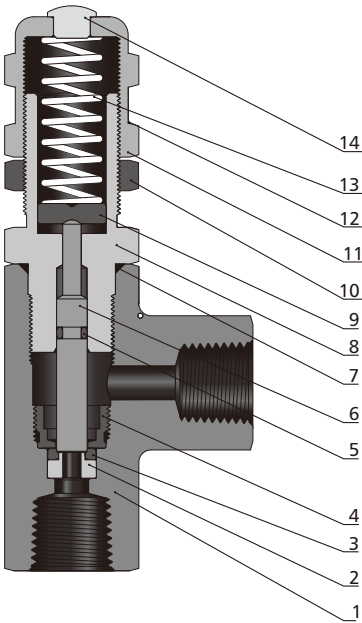
Back Pressure: The pressure of the outlet of the valve. It increases the set pressure.

Flow Coefficients

| Cv Orifice Size Set Pressure (psig) | 0.14" (3.6 mm) | | 0.25" (6.4 mm) | |
|--|----------------|-------|----------------|-------|
| | Air | Water | Air | Water |
| 200 | 0.490 | 0.180 | 0.690 | 0.180 |
| 350 | 0.370 | 0.180 | 0.500 | 0.180 |
| 550 | 0.230 | 0.150 | 0.390 | 0.180 |
| 1000 | 0.160 | 0.016 | 0.180 | 0.020 |
| 2000 | 0.100 | 0.015 | --- | --- |
| 2600 | 0.070 | 0.010 | --- | --- |
| 3500 | 0.058 | 0.010 | --- | --- |
| 4500 | 0.016 | 0.010 | --- | --- |
| 5500 | 0.013 | 0.010 | --- | --- |

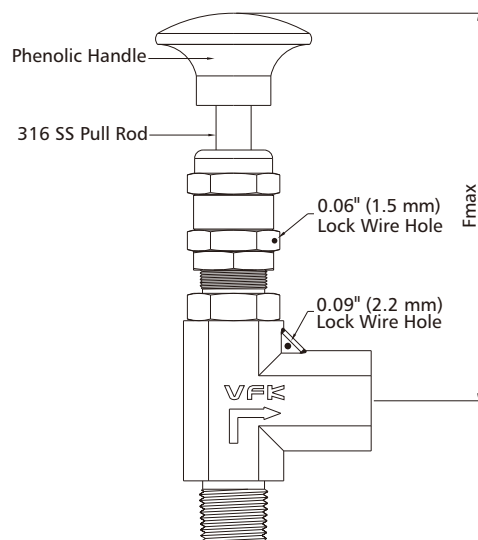
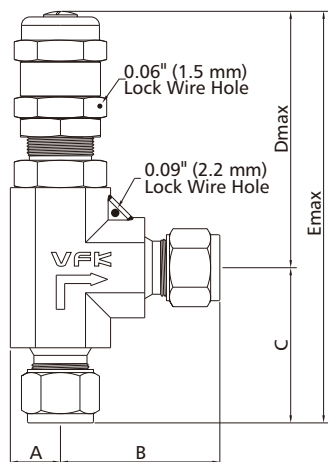
Standard Materials of Construction

| Component | | Material Grade/ASTM Specification |
|-----------|----------------|-----------------------------------|
| 1 | Body | 316 SS/A182 |
| 2 | Insert | 316 SS/A479 |
| 3 | O-ring | Fluorocarbon FKM |
| 4 | Seat Retainer | 316 SS/A479 |
| 5 | O-ring | Fluorocarbon FKM |
| 6 | Stem | 316 SS/A479 |
| 7 | O-ring | Fluorocarbon FKM |
| 8 | Bonnet | 316 SS/A479 |
| 9 | Spring Support | 316 SS/A276 |
| 10 | Lock Nut | 17-4PH powered metal |
| 11 | Bonnet Cap | 316 SS/A479 |
| 12 | Label | Polyester |
| 13 | Spring | S17700 SS/AMS 5678 |
| 14 | Cap | 316 SS/A276 |



- 1. Lubricant: molybdenum disulfide-based dry film and paste, silicone-based.
- 2. Contact the authorized representative or VFK for other materials.

Dimensions



| Basic Ordering Number | Connection Type and Size | | Orifice in. (mm) | | | | | | |
|-----------------------|--------------------------|-----------------|------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| | Inlet | Outlet | | A | B | C | Dmax | Emax | Fmax |
| □□61-FX4-4 | 1/4" VFK | 1/4" VFK | 0.14 (3.6) | 0.43 (10.9) | 1.60 (40.6) | 1.44 (36.6) | 2.70 (68.6) | 4.14 (105.2) | 4.09 (103.9) |
| □□61-FX6-4 | 3/8" VFK | 3/8" VFK | | | | | | | |
| □□61-FX8-4 | 1/2" VFK | 1/2" VFK | | | | | | | |
| □□61-FX8-6 | 1/2" VFK | 1/2" VFK | 0.25 (6.4) | 0.50 (12.7) | 1.72 (43.7) | 1.72 (43.7) | 4.09 (103.9) | 5.81 (147.6) | 5.37 (136.4) |
| □□61-MX6-4 | 6 mm VFK | 6 mm VFK | 0.14 (3.6) | 0.43 (10.9) | 1.60 (40.6) | 1.44 (36.6) | 2.70 (68.6) | 4.14 (105.2) | 4.09 (104.9) |
| □□61-MX8-4 | 8 mm VFK | 8 mm VFK | | | | | | | |
| □□61-MX12-4 | 12 mm VFK | 12 mm VFK | | | | | | | |
| □□61-MX12-6 | 12 mm VFK | 12 mm VFK | 0.25 (6.4) | 0.50 (12.7) | 1.83 (46.5) | 1.83 (46.5) | 4.09 (103.9) | 5.92 (150.4) | 5.37 (136.4) |
| □□61-FN4-4 | 1/4 Female NPT | 1/4 Female NPT | 0.14 (3.6) | 0.43 (10.9) | 1.38 (34.9) | 1.38 (34.9) | 2.70 (68.6) | 4.08 (103.5) | 4.28 (108.7) |
| □□61-FN8-4 | 1/2 Female NPT | 1/2 Female NPT | | | | | | | |
| □□61-FN8-6 | 1/2 Female NPT | 1/2 Female NPT | | | | | | | |
| □□61-N4-4 | 1/4 Male NPT | 1/4 Male NPT | 0.14 (3.6) | 0.43 (10.9) | 1.17 (29.7) | 1.19 (30.2) | 2.70 (68.6) | 3.89 (98.8) | 4.09 (103.9) |
| □□61-N8-4 | 1/2 Male NPT | 1/2 Male NPT | | | | | | | |
| □□61-N8-6 | 1/2 Male NPT | 1/2 Male NPT | | | | | | | |
| □□61-FR4-4 | 1/4 Female BSPT | 1/4 Female BSPT | 0.14 (3.6) | 0.43 (10.9) | 1.17 (29.7) | 1.19 (30.2) | 2.70 (68.6) | 3.89 (98.8) | 4.09 (103.9) |
| □□61-FR8-4 | 1/2 Female BSPT | 1/2 Female BSPT | | | | | | | |
| □□61-FR8-6 | 1/2 Female BSPT | 1/2 Female BSPT | | | | | | | |

Spring Kits

| Spring Designator | Spring Color | Set Pressure Rang psig (bar) | Remark |
|-------------------|--------------|------------------------------|-------------------------------------|
| F | Green | 50 to 300 (3.4 to 20.7) | For 0.14" and 0.25" orifice size |
| O | Orange | 300 to 700 (20.7 to 48.3) | |
| Y | Yellow | 700 to 1500 (48.3 to 103) | |
| P | Purple | 1500 to 2500 (103 to 172) | For 0.14" orifice size only |
| W | White | 2500 to 3500 (172 to 241) | |
| J | Blue | 3500 to 4500 (241 to 310) | |
| C | Red | 4500 to 6000 (310 to 414) | |

ATTENTION PLEASE !

Applications

61 series relief valves are proportional relief valves that open gradually as the pressure increases. Consequently, they do not have a capacity rating at a given pressure rise (accumulation), and they are not certified to ASME or any other codes.

- ⚠ Some system applications require relief valves to meet specific safety codes. The system designer and user must determine when such codes apply and whether these relief valves conform to them.
- ⚠ VFK proportional relief valves should never be used as ASME Boiler and Pressure Vessel Code safety relief devices
- ⚠ VFK proportional relief valves are not "Safety Accessories" as defined in the Pressure Equipment Directive 97/23/EC.

61 Series How to Order

| A | B | C | D | E | F | G |
|---------------|--------------|------------|------------|-------------|-------------|--------------|
| Body Material | Valve Series | Inlet Type | Inlet Size | Outlet Type | Outlet Size | Orifice Size |
| SS | 61 | FN | 8 | MX | 10 | 6 |

| H | I | J |
|---------------|------------------|-------------|
| Seal Material | Spring Kit Color | NACE MR0175 |
| N | C | SG |

| A | Body Material |
|------|---------------|
| SS: | 316 SS |
| 6L: | 316L SS |
| S4: | 304 SS |
| 4L: | 304L SS |
| S1: | 321 SS |
| 91: | F91 |
| 92: | F92 |
| D5: | Duplex 2205 |
| D7: | Duplex 2507 |
| TI: | Titanium |
| A20: | Alloy 20 |
| M: | Alloy 400 |
| INC: | Alloy 600 |
| HC: | Alloy C-276 |

| B | Valve Series |
|-----|-------------------------|
| 61: | 61 Series Relief Valves |

| CE | Inlet/Outlet Type |
|----|---------------------------------|
| FN | Female NPT |
| N | Male NPT |
| FR | Female BSPT |
| RT | Male BSPT |
| FM | Female ISO (for MRP) |
| MS | Male ISO (for MRG) |
| FP | Female BSPP (for RP) |
| BP | Male BSPP (for RG) |
| FX | Fractional Tube Fitting |
| MX | Metric Tube Fitting Nut+Gasket+ |

| DF | Inlet/Outlet Size |
|----|-------------------|
| 2 | 1/8" |
| 4 | 1/4" |
| 6 | 3/8" or 6 mm |
| 8 | 1/2" or 8 mm |
| 10 | 10 mm |
| 12 | 3/4" or 12 mm |

| G | Orifice Size |
|----|----------------|
| 4: | 0.14" (3.6 mm) |
| 6: | 0.25" (6. mm) |

| I | Spring Kit Color |
|---|--------------------------|
| F | Green 50 to 300 psig |
| O | Orange 300 to 700 psig |
| Y | Yellow 700 to 1500 psig |
| P | Purple 1500 to 2500 psig |
| W | White 2500 to 3500 psig |
| J | Blue 3500 to 4500 psig |
| C | Red 4500 to 6000 psig |

| H | Seal Material |
|--------------------------------|--------------------|
| Standard with Fluorocarbon FKM | |
| B | Buna N |
| N | Neoprene |
| E | Ethylene propylene |
| Z | Kalrez |

| J | NACE MR0175 |
|----------------------------------|------------------|
| Standard with no NACE applicable | |
| SG | With NACE MR0175 |

Remark:

- Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M24: 1.5 mm
M27 and above: 2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.



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