



## V86/186 Pressure Relief Valves

**Specifications**

**Sizes:** 1/2" – 4"  
**Materials:** PVC, PP, PVDF  
**Models:** PVC - Socket, Threaded, Flanged  
 PP, PVDF - Butt, Flanged  
**Seals:** EPDM, PTFE

**Max.Line Pres:** 140 psi

**Setting Range:** 7 - 135psi

### Standard Features (Sizes 1/2" - 4")

- Most extensive size range in the industry
- Process fluid is isolated from mechanical parts
- Adjustment feature provides convenient relief pressure setting in field
- Adjustable under working pressure

### Sample Specification

All pressure relief valves shall be of thermoplastic construction (PVC, PP, or PVDF) and have no metal part that comes in contact with the media. Valves shall be field adjustable under working pressure. Valves shall be rated to 145psi sizes 1/2" - 2", 90psi sizes 2-1/2" - 3", and 60" for 4" at ambient temperature.

### Troubleshooting

#### What if valve does not open?

1. Not enough pressure being applied to valve.  
Check valve relief pressure and line pressure.

#### What if valve does not seat fully?

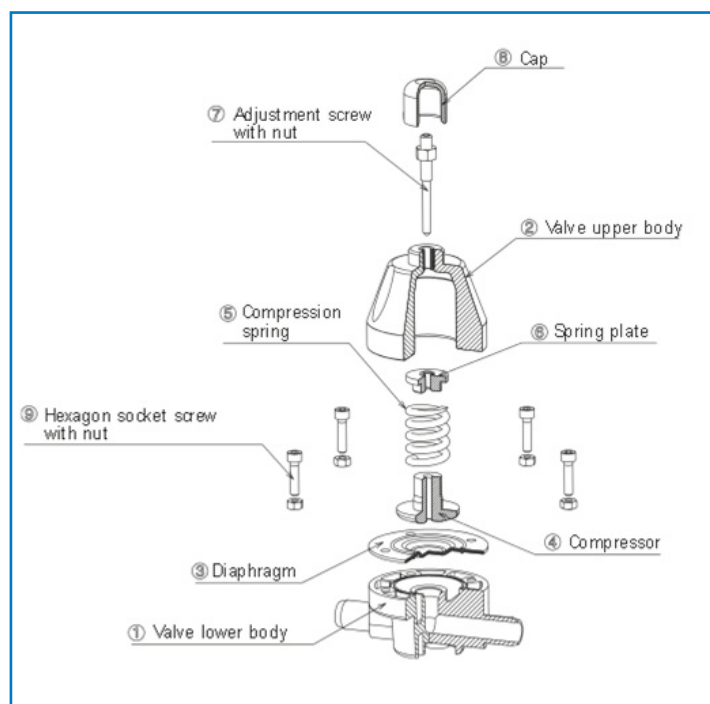
1. Foreign particles may be caught between the diaphragm and body. Clean or backwash diaphragm and body area.
2. Diaphragm may be damaged or worn.  
Replace diaphragm.
3. Line pressure is not below relief pressure.  
Check valve relief pressure and line pressure.

### Caution

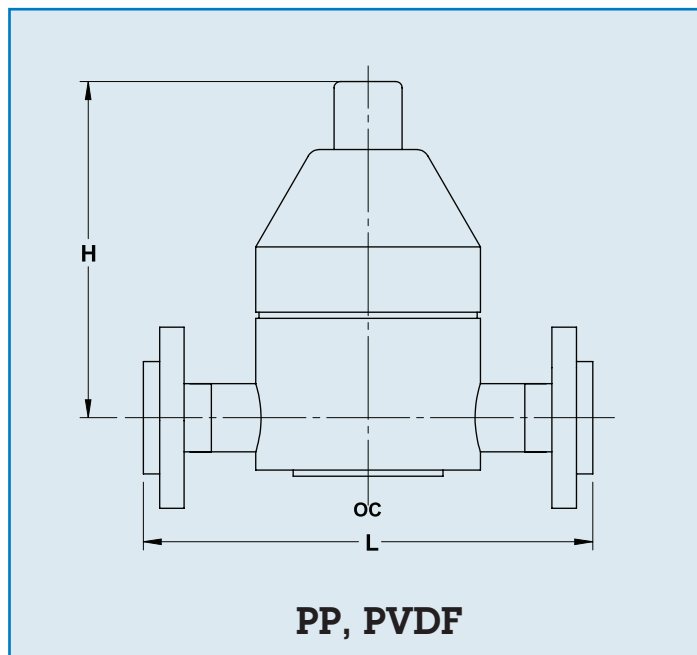
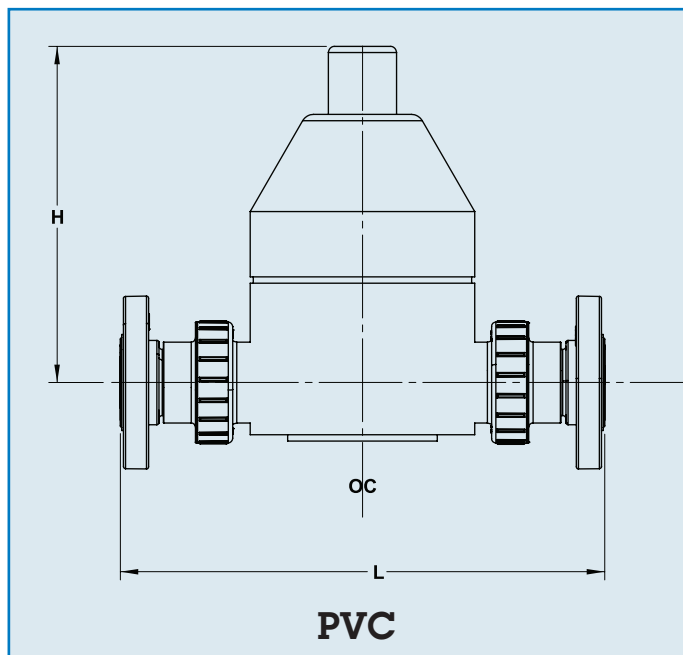
- The valves are not safety devices and must not be substituted for code approved safety relief valves or rupture discs.
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

### Parts List (Sizes 1/2" – 4")

| PARTS |                           |                        |
|-------|---------------------------|------------------------|
| NO.   | DESCRIPTION               | MATERIAL               |
| 1     | Valve Lower Body          | PVC, PP, PVDF          |
| 2     | Valve Upper Body (Bonnet) | PVC, PP, PVDF          |
| 3     | Diaphragm                 | EPDM, EPDM-PTFE COATED |
| 4     | Compressor                | PP                     |
| 5     | Compression Spring        | CARBON STEEL           |
| 6     | Spring Plate              | ALUMINUM               |
| 7     | Adjustment Screw          | SS (1.4305)            |
| 7a    | Nut [A]                   | PA                     |
| 8     | Cap                       | PS                     |
| 9     | Hex Head Socket Screw     | 304 SS                 |
| 9a    | Nut [B]                   | 316 SS                 |



# V86/186 Pressure Relief Valves



## Dimensions (in.) (1/2" – 4")

| NOMINAL SIZE |     | MODEL | H     | SOCKET      | BUTT     | FLANGED        |          |
|--------------|-----|-------|-------|-------------|----------|----------------|----------|
|              |     |       |       | PVC         | PP, PVDF | PVC            | PP, PVDF |
|              |     |       |       | ATSM SCH 80 | SDR 11   | ANSI CLASS 150 |          |
| Inches       | mm  |       |       | L           | L        | L              | L        |
| 1/2          | 15  | V186  | 4-5/8 | 7           | 5-1/4    | 9-1/2          | 7        |
| 3/4          | 20  | V186  | 4-5/8 | 7-1/4       | 5-1/4    | 9-1/2          | 9        |
| 1            | 25  | V186  | 6-3/4 | 9           | 6-7/8    | 11-7/8         | 10       |
| 1-1/4        | 32  | V186  | 6-3/4 | 9-3/8       | 6-7/8    | 12             | 11       |
| 1-1/2        | 40  | V186  | 9-3/4 | 11-1/2      | 8-7/8    | 13-7/8         | 13       |
| 2            | 50  | V186  | 9-3/4 | 12-3/4      | 9-5/8    | 15-1/2         | 13       |
| 2-1/2        | 65  | V86   | 9-3/4 | -           | 11-1/8   | -              | 14-3/4   |
| 3            | 80  | V86   | 13    | 18          | 14-1/8   | 21-7/8         | 19-1/2   |
| 4            | 100 | V86   | 15    | 19-1/2      | 15       | 23-7/8         | 20       |

\*Note: Dimensions are +/- 1/4"

## Pressure vs. Temperature (psi)

| Nominal Size |         | PVC          |               |                | PP           |               |                |                | PVDF         |               |                |                |                |
|--------------|---------|--------------|---------------|----------------|--------------|---------------|----------------|----------------|--------------|---------------|----------------|----------------|----------------|
|              |         | 32°F<br>77°F | 78°F<br>105°F | 106°F<br>140°F | 14°F<br>77°F | 78°F<br>105°F | 106°F<br>140°F | 141°F<br>175°F | -4°F<br>77°F | 78°F<br>105°F | 106°F<br>140°F | 141°F<br>175°F | 176°F<br>250°F |
| 1/2 - 2      | 15-50   | 145          | 85            | 20             | 145          | 100           | 60             | 20             | 145          | 125           | 95             | 70             | 35             |
| 2-1/2 - 3    | 65 - 80 | 90           | 50            | 15             | 90           | 60            | 35             | 15             | 90           | 70            | 60             | 45             | 20             |
| 4            | 100     | 60           | 50            | 15             | 60           | 60            | 35             | 15             | 60           | 60            | 60             | 45             | 20             |