

| Model | R Series | 10691 Series* |
|--------------------|---|-----------------------------------|
| Service | Liquids | Liquids |
| Sizes | 1/2" – 3" | 1/2", 3/4", 1" |
| Connections | NPT | NPT |
| Body | Bronze | Bronze |
| Seat Material | Bronze | Bronze |
| Disc Material | Stainless Steel (1/2" – 1 1/2") Bronze (2" – 3") | EPDM* Optional Viton or Teflon |
| Max Inlet Pressure | 300 PSIG | 300 PSIG |

* **10691-Series** Relief Valves use a soft elastomeric disc for tight shut-off. Available in 1/2", 3/4" & 1" sizes only.

Design Pressure/Temperature Rating – PMA/TMA

NPT 300 PSIG @ 180°F



Description

The **R-Series** & the **10691-Series** Back Pressure & Relief Valves relieve upstream pressure in a variety of processes. **R-Series** has a stainless steel disc and the **10691-Series** has a soft elastomeric disc for tight shut-off. These valves automatically maintain desired maximum pressure in a vessel or system by relieving excess pressure into lower pressure return line or to atmosphere. Ideally suited for use as pump bypass control valve by maintaining constant pump discharge pressures. Used as a continuously operating valve or for protection against intermittent overpressure conditions.

NOT TO BE USED ON STEAM.

Typical Applications

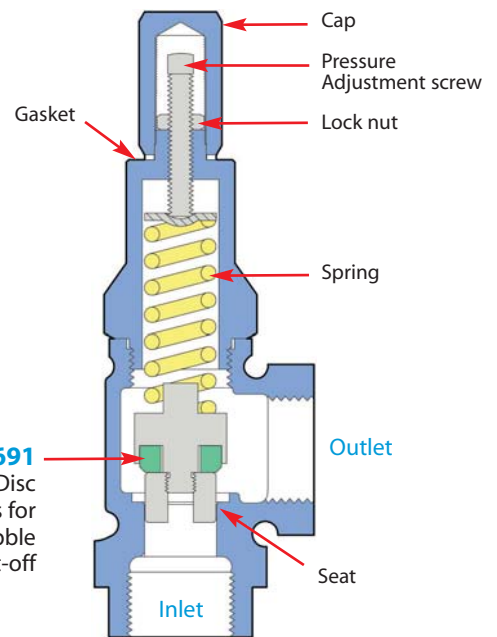
The **R-Series** & **10691 Series** Back Pressure Relief Valves are used in the following applications:

- Water pump bypass for irrigation, sprinkler systems on golf courses, fountains and fire protection systems
- Fuel oil pump bypass on commercial systems or large residential systems

Note: Not to be used as a safety relief valve on steam systems.

Features & Options

- Four Springs – easily interchanged to cover pressures from 1 to 300 PSIG
- Heavy-duty bronze valve body
- 10691 Series has EPDM Seat for tight shut-off (1/2" - 1")

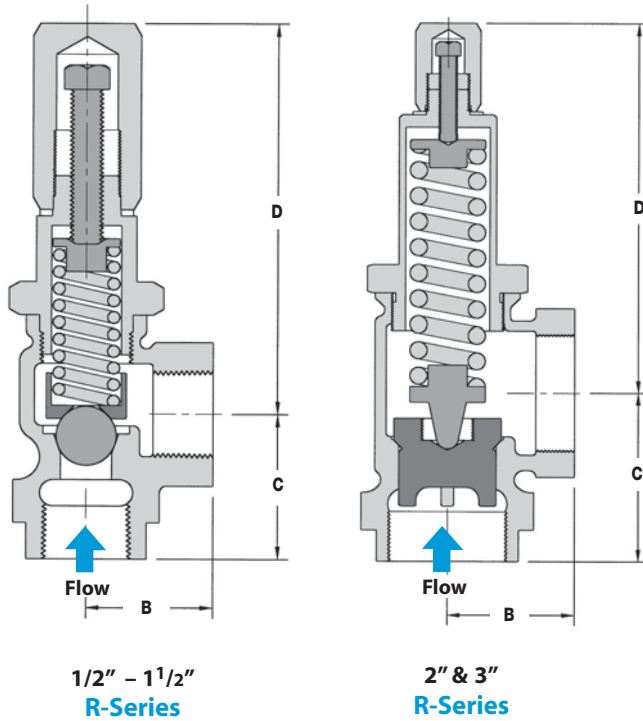


1/2" – 1"
10691-Series

Model 10691 has a Soft Disc which allows for Class VI bubble tight shut-off

Pressure Adjustments

To adjust set pressure of valve, remove top cap, loosen lock nut and adjust pressure by rotating adjustment screw. Rotating the screw clockwise increases the compression on the spring thereby increasing the set pressure. Rotating the screw counter-clockwise lowers the set pressure. Tighten the lock nut and replace top cap and gasket.



| DIMENSIONS & WEIGHTS – inches | | | | |
|-------------------------------|--------|--------|--------|--------------|
| Size | B | C | D | Weight (lbs) |
| 1/2" | 1 1/8 | 1 1/2 | 3 5/8 | 1.5 |
| 3/4" | 1 3/8 | 1 3/4 | 5 1/2 | 2 |
| 1" | 1 5/8 | 2 1/4 | 6 | 3 |
| 1 1/4" | 1 7/8 | 2 1/2 | 5 9/16 | 6 |
| 1 1/2" | 2 3/16 | 2 3/4 | 6 5/8 | 8 |
| 2" | 2 1/2 | 3 5/16 | 7 3/8 | 10 |
| 3" | 3 1/2 | 4 3/4 | 9 7/8 | 25 |

Note: Model 10691 available only in sizes 1/2" thru 1".

Spring Selection Table

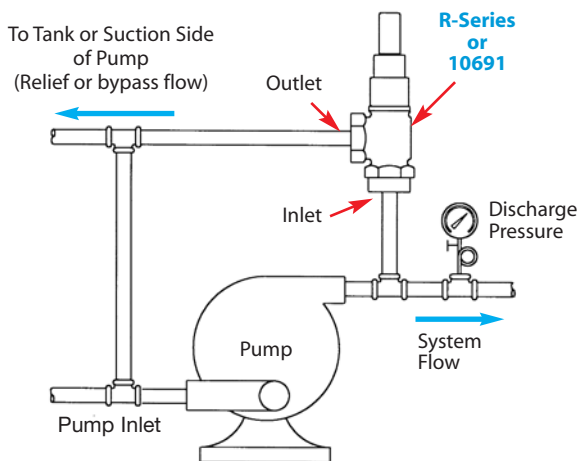
| Relief Pressure (PSI) | Spring # | Spring Color |
|-----------------------|----------|--------------|
| 1 - 6 | #4* | yellow |
| 5 - 35 | #3 | silver |
| 25 - 100 | #2 | blue |
| 75 - 300 | #1 | red |

* 1/2" – 1 1/2" R-Series type only.
Not available on 2" & 3" models.

PRESSURE
Regulators

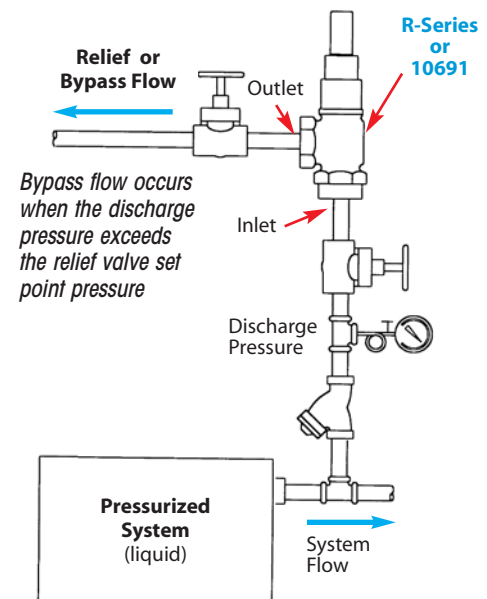
How it Works

The Relief Valve is actuated by the system pressure on the inlet side of the valve. Valve loading is provided by a spring. The adjustment is done by removing the cap and rotating the screw clockwise or counter-clockwise. Spring load balances against the opening force of the upstream (or relief) pressure. Valve will open at the slightest increase in pressure above the spring set point, and will close when the excess pressure has been relieved. The higher the system pressure is above the relief set point pressure, the more flow the valve will pass. It is therefore typical to specify the maximum capacity of a back pressure relief valve at 10% and 20% over set pressure.



A Relief Valve allows water to recirculate through the pump even when the discharge valve on the pump is completely closed. As a rule, a minimum of 20% of the pump capacity must recirculate to prevent overheating of the pumped liquid.

Protection Against Over-pressure Condition



Regulators

Relief & Back Pressure Valves

R & 10691 Series

Water, Oil & Other Liquids

Options & Notes:

Factory Setting of Relief Pressure Option:

Specify Set-Pressure when ordering. Add desired factory set pressure to the end of the model code. See Example below:

R-Series Example Model Code with Set-Pressure Option:

R-12-N-2, Set at 50 PSIG

(R Series, 1/2" NPT, 25-100 PSIG Spring Range, with a Factory Set Relief Pressure of 50 PSIG)

10691 Example Model Code with Set-Pressure Option:

10691-14-N-2-E, Set at 75 PSIG

(10691 Series, 1" NPT, 25-100 PSIG Spring Range, EPDM disc, with a Factory Set Relief Pressure of 75 PSIG)

10691-Series

Disc Material: standard in EPDM (Suffix Code E)

Also available in: Teflon (Suffix Code T)
& Viton (Suffix Code V)

| Size/ Connection NPT | Model Code R-Series | Model Code 10691 Series EPDM Disc | Relief Pressure Range (PSI) | Weight lbs |
|----------------------------|------------------------|---|-----------------------------------|---------------|
| 1/2" | R-12-N-4 | NA | 1-6 | 1.5 |
| | R-12-N-3 | 10691-12-N-3-E | 5-35 | 1.5 |
| | R-12-N-2 | 10691-12-N-2-E | 25-100 | 1.5 |
| | R-12-N-1 | 10691-12-N-1-E | 75-300 | 1.5 |
| 3/4" | R-13-N-4 | NA | 1-6 | 2.5 |
| | R-13-N-3 | 10691-13-N-3-E | 5-35 | 2.5 |
| | R-13-N-2 | 10691-13-N-2-E | 25-100 | 2.5 |
| | R-13-N-1 | 10691-13-N-1-E | 75-300 | 2.5 |
| 1" | R-14-N-4 | NA | 1-6 | 3.3 |
| | R-14-N-3 | 10691-14-N-3-E | 5-35 | 3.3 |
| | R-14-N-2 | 10691-14-N-2-E | 25-100 | 3.3 |
| | R-14-N-1 | 10691-14-N-1-E | 75-300 | 3.3 |
| 1 1/4" | R-15-N-4 | | 1-6 | 4.5 |
| | R-15-N-3 | | 5-35 | 4.5 |
| | R-15-N-2 | | 25-100 | 4.5 |
| | R-15-N-1 | | 75-300 | 4.5 |
| 1 1/2" | R-16-N-4 | | 1-6 | 6.3 |
| | R-16-N-3 | | 5-35 | 6.3 |
| | R-16-N-2 | | 25-100 | 6.3 |
| | R-16-N-1 | | 75-300 | 6.3 |
| 2" | R-17-N-3 | | 5-35 | 10.3 |
| | R-17-N-2 | | 25-100 | 10.3 |
| | R-17-N-1 | | 75-300 | 10.3 |
| 3" | R-19-N-3 | | 5-35 | 25.0 |
| | R-19-N-2 | | 25-100 | 25.0 |
| | R-19-N-1 | | 75-300 | 25.0 |

The Relief Valve remains closed until the **Set-Pressure** is reached. When the Set-Pressure is met or exceeded, the spring will compress, allowing the valve to open and flow to occur. It is standard practice to publish flow values at 10% and 20% over the **Set-Pressure**.

Example: A 1" valve set at 50 PSIG will pass 3.1 GPM if the system pressure exceeds the set point by 20%.

The **R Series & 10691** Relief Valve water capacities at inlet pressures of 10% and 20% over **Set-Pressure**:

| CAPACITIES – Water (GPM) | | | | | | | | |
|--------------------------|---------------------|-------------|------|-----|--------|--------|------|------|
| At 10% Over Set Pressure | | | | | | | | |
| Spring Range | Set Pressure (PSIG) | 1/2" (PSIG) | 3/4" | 1" | 1 1/4" | 1 1/2" | 2" | 3" |
| 1-6 | 3 | 1.2 | 2.2 | 3.2 | 4.3 | 5.4 | - | - |
| 5-35 | 10 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 |
| 5-35 | 20 | 0.6 | 0.7 | 0.8 | 1.0 | 1.1 | 1.3 | 1.6 |
| 25-100 | 50 | 1.0 | 1.3 | 1.6 | 1.8 | 2.2 | 2.6 | 3.2 |
| 25-100 | 75 | 1.4 | 1.9 | 2.3 | 2.8 | 3.4 | 4.0 | 5.0 |
| 75-300 | 100 | 1.9 | 2.5 | 3.2 | 3.8 | 4.6 | 5.4 | 6.9 |
| 75-300 | 200 | 3.4 | 4.4 | 5.8 | 6.9 | 8.2 | 9.7 | 12.3 |
| At 20% Over Set Pressure | | | | | | | | |
| 1-6 | 3 | 2.2 | 3.4 | 4.6 | 5.8 | 7.1 | - | - |
| 5-35 | 10 | 0.6 | 0.8 | 1.1 | 1.3 | 1.4 | 1.8 | 2.2 |
| 5-35 | 20 | 1.4 | 1.9 | 2.4 | 3.0 | 3.4 | 4.1 | 4.8 |
| 25-100 | 50 | 1.8 | 2.0 | 3.1 | 3.8 | 4.4 | 5.4 | 6.4 |
| 25-100 | 75 | 2.3 | 3.2 | 4.0 | 4.8 | 5.6 | 6.9 | 8.1 |
| 75-300 | 100 | 3.6 | 4.2 | 5.0 | 6.3 | 7.0 | 7.3 | 8.9 |
| 75-300 | 200 | 6.5 | 7.6 | 9.0 | 11.2 | 12.4 | 13.1 | 16.0 |