Technical Articles

July 21, 2016

Introduction to Relief/Bypass/Backpressure Valves

Relief Valves, By-Pass Valves, Backpressure Valves, Anti-Siphon Valves also known as Backpressure Regulators & Pressure Sustaining Valves

2-Way & 3-Way, Angle and In-Line Designs for Corrosive Chemicals, Water and Ultra-Pure Liquids

TRUE BLUE® RELIEF VALVES PROVIDE SMOOTH, SENSITIVE OPERATION TO HELP YOU MANAGE PRESSURE "UPSTREAM" OF THE VALVE.

One valve design serves many functions…

• Preventing overpressure conditions in vessels and piping systems (relief valve).
• Providing by-pass flow relief to avoid pumping problems such as deadheading (pump bypass valve).
• Maintain backpressure in a piping system (backpressure regulator).
• Enhance pump performance by maintaining backpressure on the pump outlet (pump backpressure valve).
• Prevent gravity-induced siphoning through a pump, opening only when the pump is on (anti-siphon valve).

• **NEW!** Series TRVDT 3-port design…the features of our state-approved RVDT now in a 3-way valve!

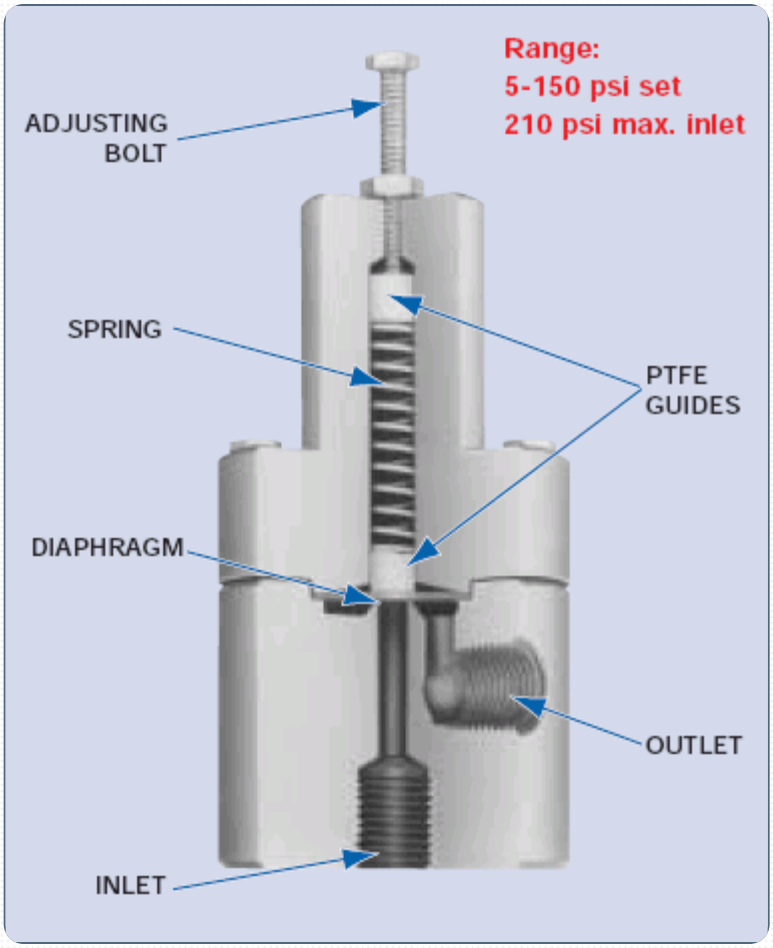
One valve design provides many outstanding features…

• Offer wide range of pressure settings with sensitive operation.
• Provide smooth operation with higher flow.
• Fail-Dry safety feature (not available on RVD or RVTX).
• Each valve is individually tested prior to shipment.
• No wetted metals; all external fasteners are stainless steel.
• Maintenance-free designs.
• Designs for crystallizing liquids.
• Designs with no wetted elastomers for ultra-pure chemicals and water. Non-contaminating PTFE diaphragm designs.
• Factory pre-set if requested.
• Tamper-proof option.

Series RVD:

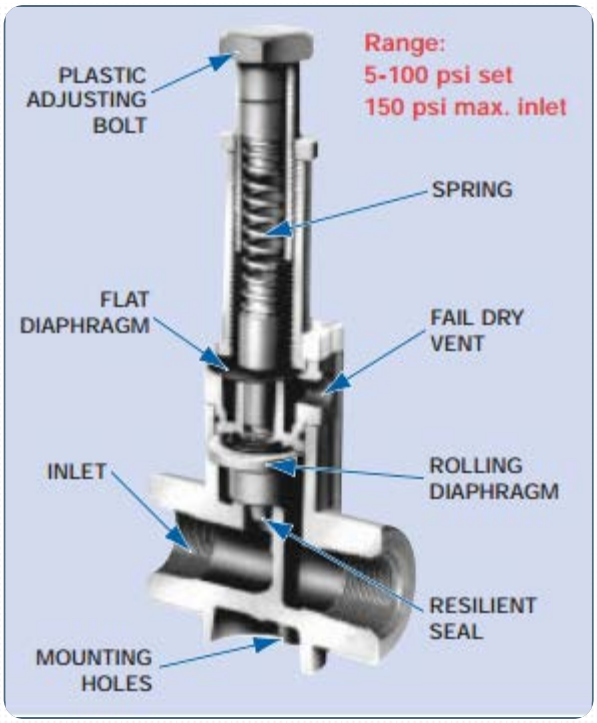
Angle pattern relief valve features a single flat elastomer diaphragm which is an advantage where salt crystallization problems can cause valve sticking. Seal materials are EPDM, Viton, Kalrez.

• Relief setting is infinitely adjustable from 5 psi to 150 psi.
• Maximum inlet pressure is 210 psi.
• Available in PVC, Natural Polypro, PTFE, Kynar® PVDF, Sizes 1/4″ & 1/2″.
• PTFE guides provide smooth, chatter-free operation.
• Designed for low maintenance and easy to adjust.
• Economical, heavy-duty design.



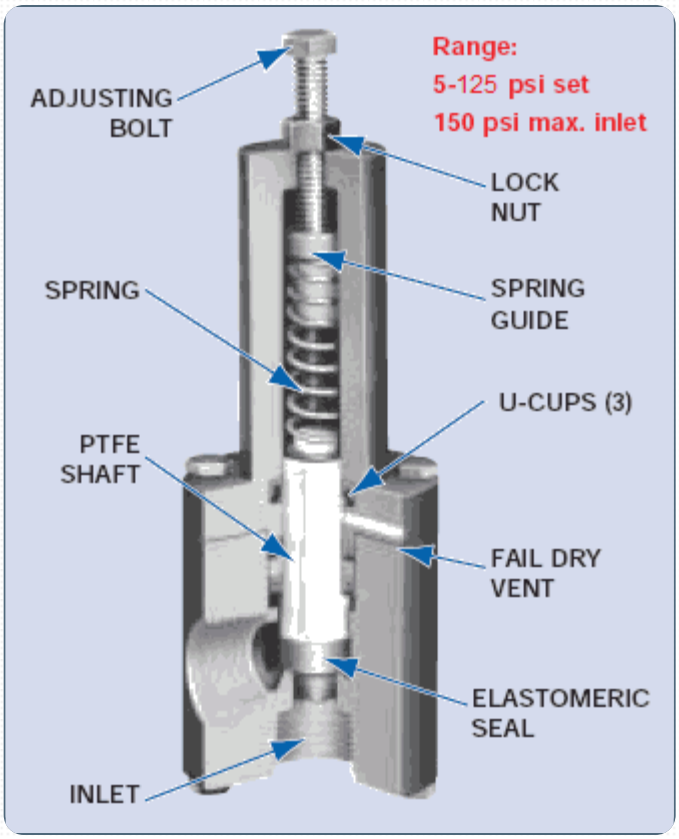
Series RVDM:

In-line design features a primary rolling diaphragm and a secondary flat diaphragm which incorporates the Plast-O-Matic patentedFail-Drydesign for added protection. The rolling diaphragm provides greater sensitivity than non-diaphragm style relief valves, and is ideal for all applications without vacuum on the outlet (downstream side).
• Relief setting is infinitely adjustable from 5 psi to 100 psi; 1/2″ size is adjustable from 5 to 120 psi.
• Maximum inlet pressure is 150 psi.
• Available in PVC, CPVC, Glass-filled polypro, Kynar PVDF;



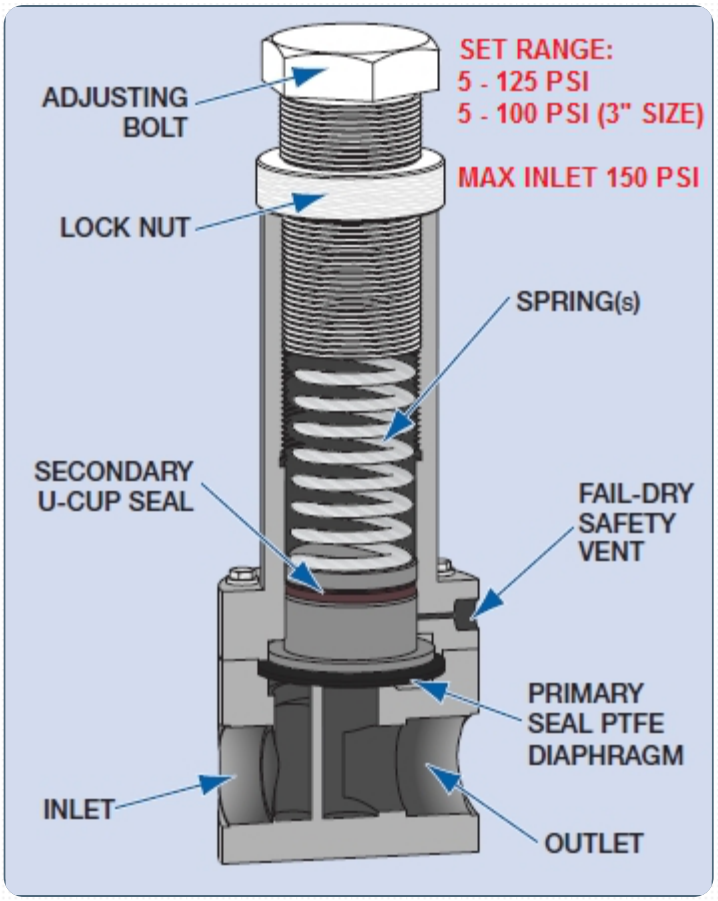
• Sizes 1/2″, 3/4″ & 1″.
• Rolling diaphragm prevents crystallization.
• Flat secondary diaphragm provides a second isolation of the control spring.
• Designed for low maintenance and easy to adjust.
• Economical, heavy-duty design.

Series RVT:



Angle-pattern design features a smooth PTFE shaft to prevent chatter and sticking, and a triple u-cup seal to isolate the spring. RVT offers the Plast-O-Matic patented Fail Dry design for added protection.
• Relief setting is infinitely adjustable from 5 psi to 125 psi.
• Maximum inlet pressure is 150 psi.
• Available in PVC, Corzan CPVC, natural polypro, PTFE, and Kynar PVDF;
• Sizes 1/2″, 3/4″, 1″, 1-1/4″, 1-1/2″, 2″.
• Not recommended for crystallizing liquids.
• 3rd u-cup provides a second isolation of the control spring; design features the patented Fail-Dry safety vent.
• Designed for low maintenance and easy to adjust.

Series RVDT:



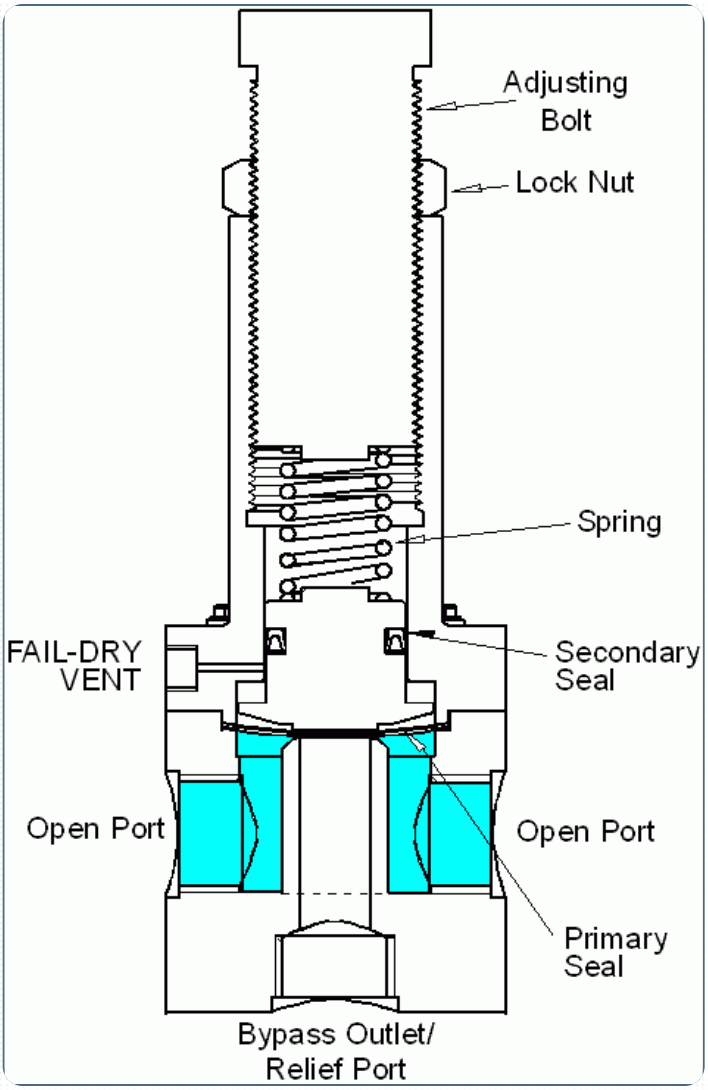
In-line design features a primary PTFE diaphragm and a secondary support diaphragm which incorporates the Plast-O-Matic patented Fail Dry design for added protection.

- Upstream setting is infinitely adjustable from 5 psi to 125 psi on most models.
- Maximum inlet pressure is 150 psi.
- Available in Geon PVC and Corzan CPVC body materials in 1/4″- 3″ sizes; Natural Polypropylene and Kynar PVDF body materials in 1/4″ – 2″ sizes; PTFE body material in 1/4″ – 1″ sizes; Stainless Steel body in 1/2″ – 1″. A complete range of connection types available.
- PTFE diaphragm provides high accuracy, prevents crystallization.
- Non-wetted u-cup seal provides a second isolation of the control spring; design includes patented Fail-Dry vent.
- Designed for low maintenance and easy to adjust.
- Economical, heavy-duty design.

Series TRVDT:

3-Port design features a PTFE diaphragm seal.

- Relief setting is infinitely adjustable from 5 psi to 100 psi.
- Maximum inlet pressure is 150 psi.
- Available in PVC, natural polypro, PTFE, and Kynar PVDF;
- Sizes1/2″, 3/4″, and 1″.
- PTFE diaphragm provides high accuracy, prevents crystallization.
- Non-wetted u-cup seal provides a second isolation of the control spring; design includes patented Fail-Dry vent.
- Designed for low maintenance and easy to adjust.
- Economical, heavy-duty design.

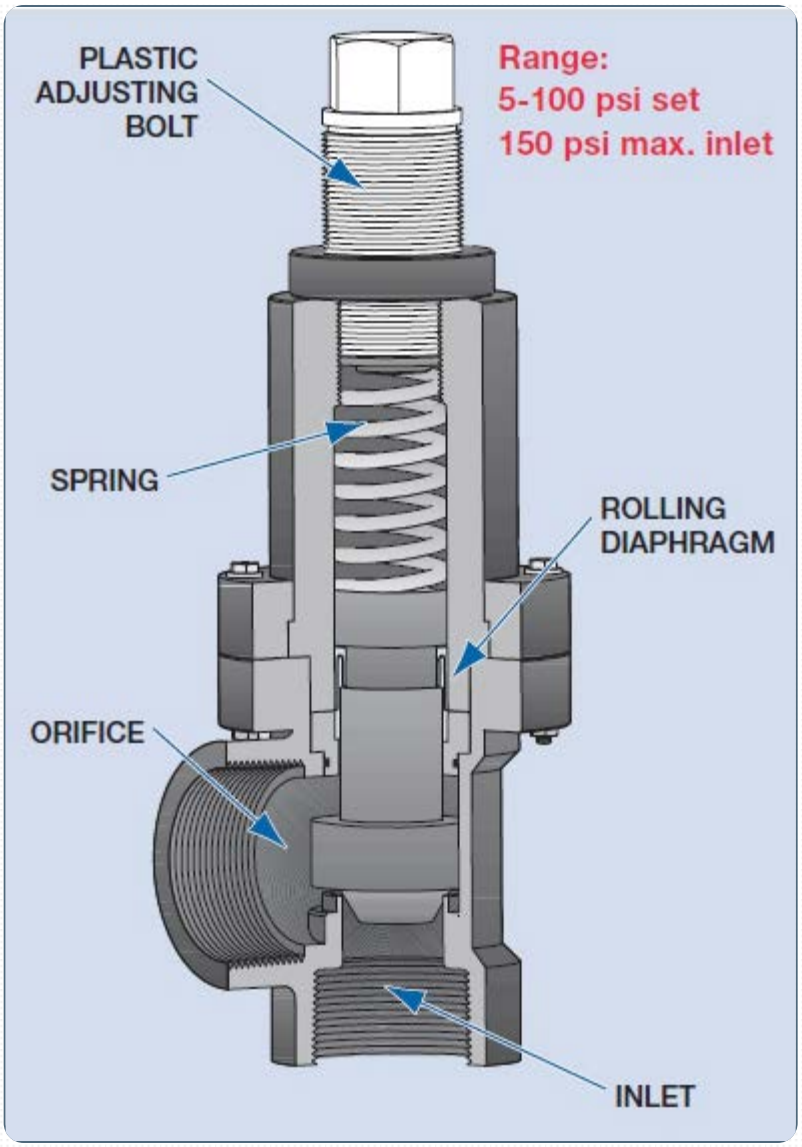


Series RVTX:

Angle-pattern design features a solid Geon shaft and PTFE thrust washer for reduced friction and to prevent chatter and sticking. The shaft works in conjunction with a sensitive rolling diaphragm that enables the valve to react quickly to pressure changes. The diaphragm also enables the valve to open more fully in less time. This high capacity valve provides rugged dependability for acids, salt solutions, and other corrosive liquids. Not recommended for applications with a vacuum on the outlet.

Please note that most RVTX designs features a solid body, which is internally identical to the diagram shown, but a slightly different external appearance.

• Relief setting is infinitely adjustable from 5 psi



to 100 psi.
• Maximum inlet pressure is 150 psi.
• Available in PVC or CPVC; for other materials consult factory.
• Size: 3″ only.
• Rolling diaphragm provides high accuracy, prevents crystallization.
• Designed for low maintenance and easy to adjust.
• Heavy-duty design with stainless steel external fasteners.