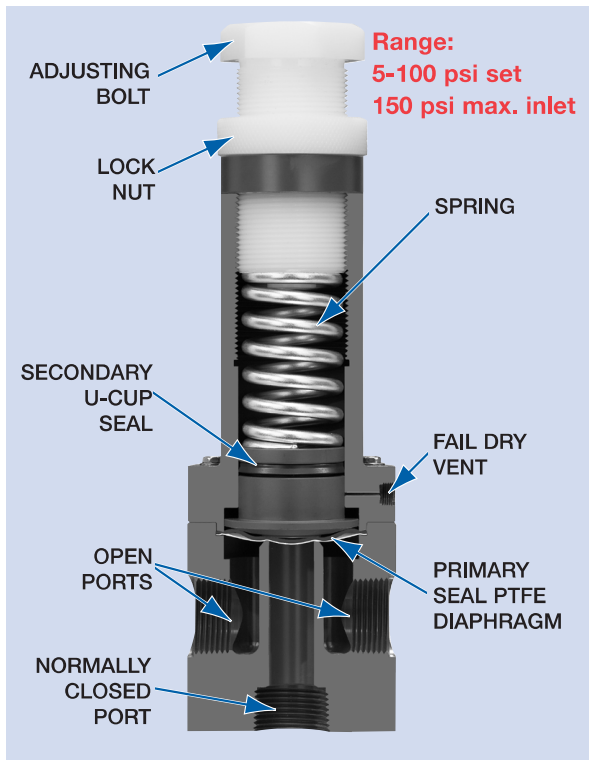


SERIES TRVDT • 3-Port Diaphragm Design

Relief: protects systems and equipment from overpressure/pressure surges.

Bypass: prevents pumps from “dead heading”.



Features:

- Unique PTFE Diaphragm is excellent for use with highly aggressive liquids... and also provides the ultimate in contamination-free sealing.
- Rugged thermoplastic construction is ideal for a broad range of industrial applications.
- Large diaphragm area delivers more sensitivity and less pressure drop under flow conditions.
- Non-wetted U-cup seal provides a second isolation of the control spring; design includes patented Fail-Dry vent, a safety feature that provides visual warning of seal malfunction.
- Non-leaching feature of fluoropolymer diaphragm makes it ideal for use with ultra-pure water and concentrated etchants, as in the semiconductor industry.
- Available in 1/2", 3/4", 1" sizes.

Design:

High flow relief/by-pass valve with 3-port design, ideal for applications where minimal footprint is required or where use of a piping tee is impractical. Valve has a straight-through flow pattern when closed. When set point is exceeded, the diaphragm is lifted off the center port, and excess flows "down" and out through the third port at the bottom of the valve.

For applications where a tee can be accommodated, a 2-port valve such as Series RVDT is usually preferred. If you are unsure which is right for your application, please contact our Technical Services Group at 973-256-3000.

Materials of Construction:

Series TRVDT relief valves are available in Geon® PVC, Natural Polypropylene, Kynar® PVDF and PTFE body materials. The wetted diaphragm is PTFE energized by a non-wetted FKM diaphragm. Spring housing (completely non-wetted) is Geon PVC, but can be constructed of the wetted body material for a slightly higher cost. Springs (not in wetted area) are zinc-plated steel, external fasteners are stainless steel. Lock nut and adjusting screw are HDPE.

Series TRVDT Ordering Information

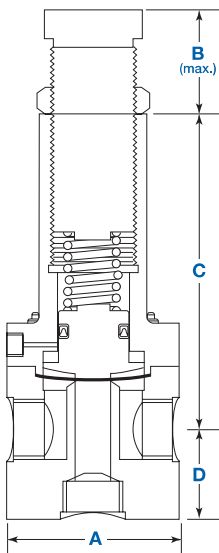
Pipe Size	Model Number				
	PVC	CPVC	Nat. Polypro	PTFE	PVDF
1/2"	TRVDT050T-PV	TRVDT050T-CP	TRVDT050T-PP	TRVDT050T-TF	TRVDT050T-PF
3/4"	TRVDT075T-PV	TRVDT075T-CP	TRVDT075T-PP	TRVDT075T-TF	TRVDT075T-PF
1"	TRVDT100T-PV	TRVDT100T-CP	TRVDT100T-PP	TRVDT100T-TF	TRVDT100T-PF

Primary seal is PTFE; backing seal FKM is non-wetted.

Optional Class 100 Cleanroom CDB procedure available, consult factory

Series TRVDT Dimensions

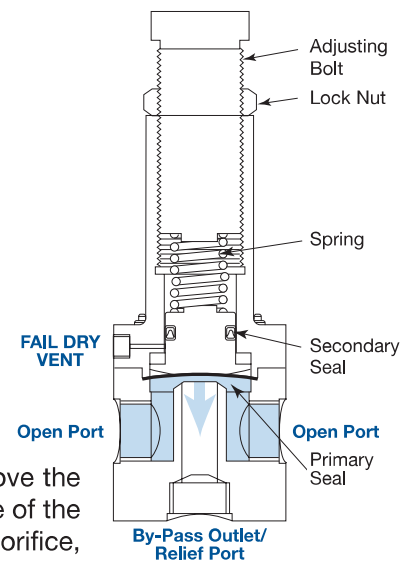
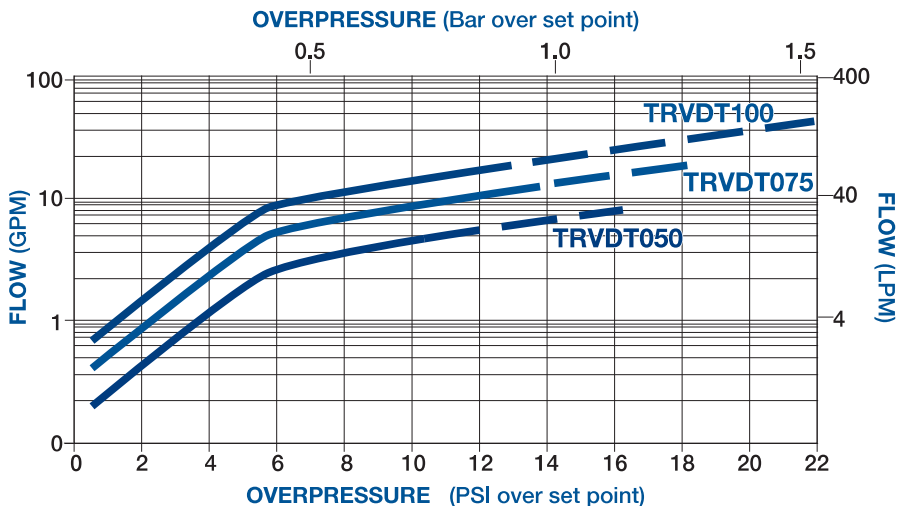
Size NPT	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
1/2"	2.5	63	1.48	37	4.40	112	1.38	35.1
3/4"	3.0	76	2.81	71	5.50	140	1.66	42.3
1"	3.5	87	3.00	76	7.65	195	1.94	49.4





Flow Characteristics at Overpressure:

Curves show flow rate under laboratory conditions at various pressures exceeding the set point; i.e. flow characteristics with third port open. Dashed portion of curve indicates flow rate exceeds universally accepted safe flow velocity (5 ft./sec.) for that pipe size.



Cv of Open Ports

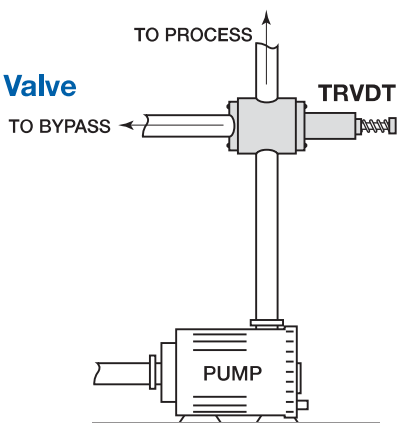
Size	Cv
1/2"	2.5
3/4"	4.0
1"	6.5

Illustration of Flow Path and Operation:

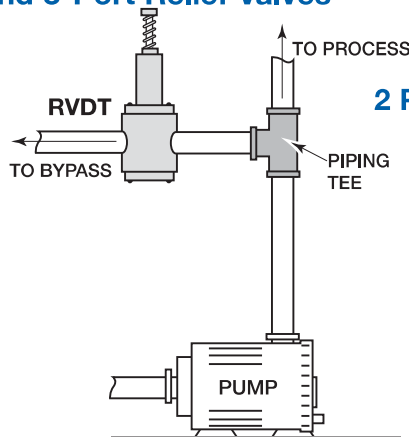
In the illustration to the right, liquid pressure has risen above the set pressure. The force of the liquid now exceeds the force of the spring; the pressure lifts the diaphragm off the relief port orifice, allowing liquid to flow down and through the relief port. In this way it "relieves" the pressure in the line.

Difference Between 2-Port and 3-Port Relief Valves

3 Port Relief Valve



2 Port Relief Valve



Advantages of a 3-Port Design:

- Smaller "footprint" in a system.
- No need for additional piping tee.
- Easy replacement in existing system using a 3-port valve.

Advantages of a 2-Port Design:

- 2-port relief valve can also be used as a backpressure regulator and an anti-siphon valve; 3-port cannot.
- Choice of in-line or angle pattern increases versatility in piping design.
- Flow capacity is better; 2-port valves provide less restriction and less deadleg.

2-Port relief valves require a piping tee for by-pass and relief applications, but not for backpressure or anti-siphon applications. Unlike 3-port style valves which are placed directly in-line and cause a drop in both pressure and flow, a valve "teed" off in the line usually offers the best system design and ease of maintenance.

In most relief and by-pass applications, 3-port valves do not perform as well as 2-port valves installed on a tee. No 3-port relief is suitable for use as a backpressure regulator or anti-siphon valve, and no 3-port relief valve will deliver the flow and performance of a Plast-O-Matic 2-port relief valve.