

# Relief Valve

*Pressures to 75,000 psi ( 5171 bar)*

## **RVP Metal Seat Relief Valves**

**Series RVP** relief valves provide reliable venting of gases or liquids for set pressures from 1,500 psi (103 bar) minimum to 75,000 psi (5171 bar). The standard temperature range for all models is -423° to 400° (-252° to 204°C). A high temperature option to 750°F (399°C) is also available.

These precision valves are designed for pressure gas systems, cryogenic systems, petrochemical applications and other special systems. Capable of handling air, gases, steam, vapor and liquids, they are however, **not recommended for steam boiler applications nor are they ASME code stampable.**

## **RVS Soft Seat Relief Valves**

**Series RVS** relief valves utilize a soft seat design for reliable venting of gases at set pressures from 1,500 psi (103 bar) to 20,000 psi (1378 bar). The operating temperature range is 32°F (0°C) to 400°F (204°C).

The soft seat design provides bubble tight sealing, repeatable pop-off, and reseal. Additionally, soft seat valves provide a higher cycle life than metal seat relief valves.

These precision valves are designed for pressure gas systems, where zero leakage is critical. They are not recommended for liquid nitrogen or liquid carbon dioxide, which produce gas at cryogenic temperatures upon relief.

Relief valves are designed to open proportionally to increasing back pressure. Therefore, they are not recommended for applications requiring immediate full valve flow at set pressure (such as decompositions, polymerizations, etc.). Full flow of relief valve is defined at 10% over set pressure.



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**Materials:** Standard models of Relief Valves are constructed of 316 stainless steel with selected components made of anti-galling stainless steel material for optimum economy and ruggedness.

**Connections:** All models except 30, 60, & 75 RVP series are designed with 9/16" Autoclave Medium Pressure inlet connections. The 30 & 60 RVP have 3/8" high pressure connection, while the 75 RVP has a 5/16" high pressure connections. The outlet connection on all models is a female 3/4" NPT. While adapters to other sizes and connection types are available, they must be sized for specific flow requirements. See Adapter section.

**Orifice Sizes:** Orifice diameters range from .062 (1.57mm) to .312" (7.92mm).

**Full Lift for Full Flow:** These relief valves are designed to open as a function of increasing back pressure. Proper spring selection assures repeatability of opening, full lift and flow, and reseal pressures.

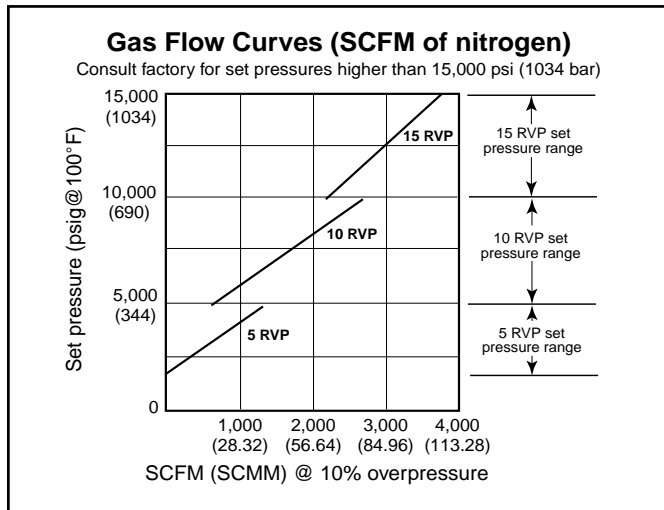
**Reliability and Long Service Life:** Materials engineering and stringent quality control procedures combine to assure the highest quality, reliability and service life. Each valve is preset and factory sealed to ensure proper valve operation.

**High Set Pressure Capability:** Unique seat construction plus over-the-nozzle guiding and proper selection of materials permits standard set pressures to 75,000 psi. (5171 bar)

**Dependable Shut-off:** Series RVP relief valves are designed to provide shut-off of liquids and gases under pressure to commercial tightness standards. Series RVS relief valves are designed to provide bubble tight shut off of gases.

**Fewer Parts, Ease of Maintenance:** Engineered to perform with fewer basic components, both RVP and RVS valves facilitate minimum stocking of spare parts and ease of maintenance. The combined angle seat in the RVP series eliminates the need for lapping in rework.

# Relief Valves - RVP Metal Seat Relief Valves



All RVP models are designed primarily for thermal expansion or low volume relief applications at high pressures where flow is not critical. Thus, liquid curves for these models are not shown.

Note: Curves on this page are based on capacities of valves only and do not take tubing into account.

Caution should be exercised in proper selection of medium pressure tubing based on actual operating conditions. Two series available: 10,000 (690 bar) and 20,000 (1380 bar).

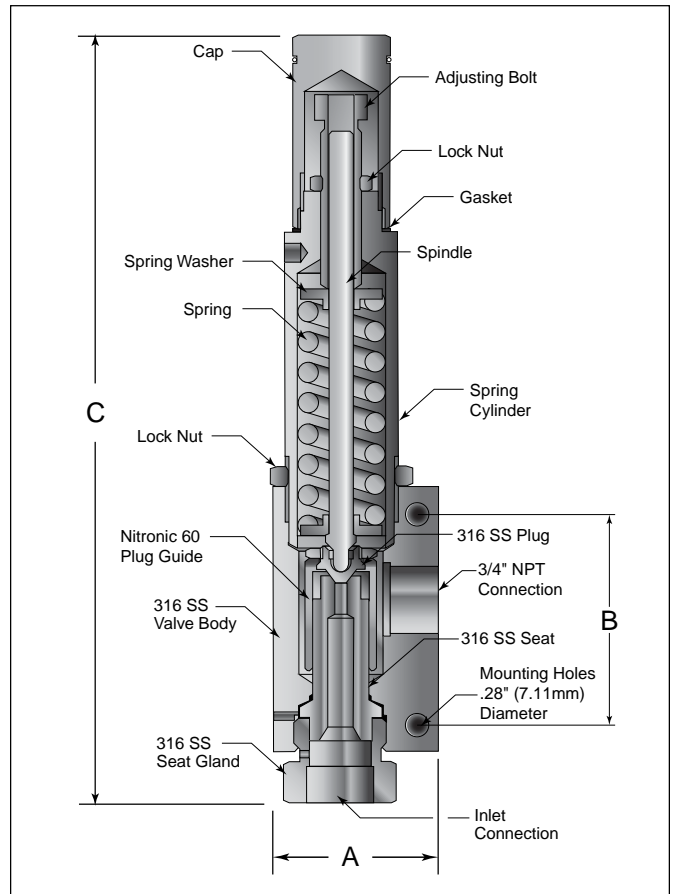


Figure 1 - RVP Series

Note: See back cover for options and ordering information.

## Ordering Table and Specifications

RVP Series - See Figure 1

Catalog* Number	Connection Size and Type		Orifice Diameter inches (mm)	Pressure Rating psi (bar) @100°F (38°C)*			Dimension Inches (mm)		
	Inlet Connection	Outlet Connection NPT		Minimum Setting	Maximum Setting	Maximum Back Pressure	A	B	C
5RVP9072	SF562CX	3/4	0.312 (7.92)	1,500 (103.42)	5,000 (344.73)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.40 (238.76)
10RVP9072	SF562CX	3/4	0.250 (6.35)	5,000 (344.73)	10,000 (689.46)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.40 (238.76)
15RVP9072	SF562CX	3/4	0.188 (4.78)	10,000 (689.46)	15,000 (1034.20)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.40 (238.76)
20RVP9072	SF562CX	3/4	0.156 (3.96)	15,000 (1034.20)	20,000 (1378.93)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.40 (238.76)
30RVP6072	F375C	3/4	0.125 (3.18)	20,000 (1378.93)	30,000 (2068.39)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.52 (241.81)
45RVP9072	F562C	3/4	0.093 (2.36)	25,000 (1723.66)	45,000 (3102.59)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.52 (241.81)
60RVP9072	F375C	3/4	0.078 (1.98)	30,000 (2068.39)	60,000 (4136.79)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.52 (241.81)
75RVP5072	F312C150	3/4	0.062 (1.57)	37,000 (2551.02)	75,000 (5170.99)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.83 (249.68)

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

For prompt service, Autoclave stocks select products. Consult factory.

Note: For pressure rating see selection chart.

## Ordering Table and Specifications

**Options:** Autoclave Engineers can supply various inlet and outlet connections on special order. A high temperature option is also available for temperatures to 750°F (399°C) for RVP models.

To specify high temperature option:  
Add suffix "HT" for 750°F (399°C) high temperature option (RVP series only)

### Caution:

1. AE relief valves are preset and factory sealed. Warranty is voided if seal is broken by customer.
2. Maximum system operating pressure should not exceed 90% of relief valve set pressure. Operating pressures in excess of this may cause weepage resulting in damage to the plug and seat.

**Ordering Instructions:** To permit prompt and correct responses to your order, we will require the following information: quantity, valve catalog number, service requirements (liquid, gas & vapor), set pressure (PSIG - bar), and service temperature range.

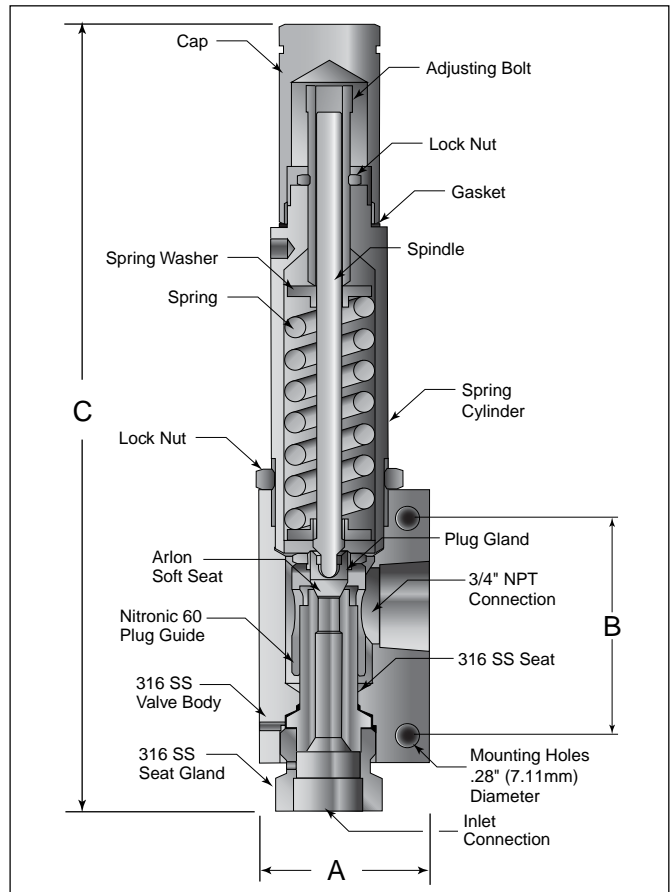


Figure 2 - RSV Series

**RVS Series** - See Figure 2

Catalog* Number	Connection Size and Type		Orifice Diameter inches (mm)	Pressure Rating psi (bar) @100°F (38°C)			Dimension Inches (mm)		
	Inlet Connection	Outlet Connection NPT		Minimum Setting	Maximum Setting	Maximum Back Pressure	A	B	C
10RVS9072	SF562CX	3/4	0.25 (6.35)	5,000 (344.73)	10,000 (689.46)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.40 (238.76)
20RVS9072	SF562CX	3/4	0.156 (3.96)	10,000 (689.46)	20,000 (1378.93)	500 (34.47)	2.00 (50.80)	2.50 (63.50)	9.40 (238.76)

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.

For prompt service, Autoclave stocks select products. Consult factory.

Note: For pressure rating see selection chart.

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EUROPE, B.V.

Industrial Estate  
Whitemill-Wexford  
Republic of Ireland  
PH: 353-53-41566 FAX: 353-53-41582  
e-mail: [snaptite@snap-tite.iol.ie](mailto:snaptite@snap-tite.iol.ie)  
[www.snap-tite.com](http://www.snap-tite.com)



Fluid Components  
Division of Snap-tite, Inc.

8325 Hessinger Drive  
Erie, Pennsylvania 16509-4679 USA  
PH: 814-838-5700 FAX: 814-838-5811  
e-mail: [ae\\_sales@snap-tite.com](mailto:ae_sales@snap-tite.com)  
[www.autoclaveengineers.com](http://www.autoclaveengineers.com)

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