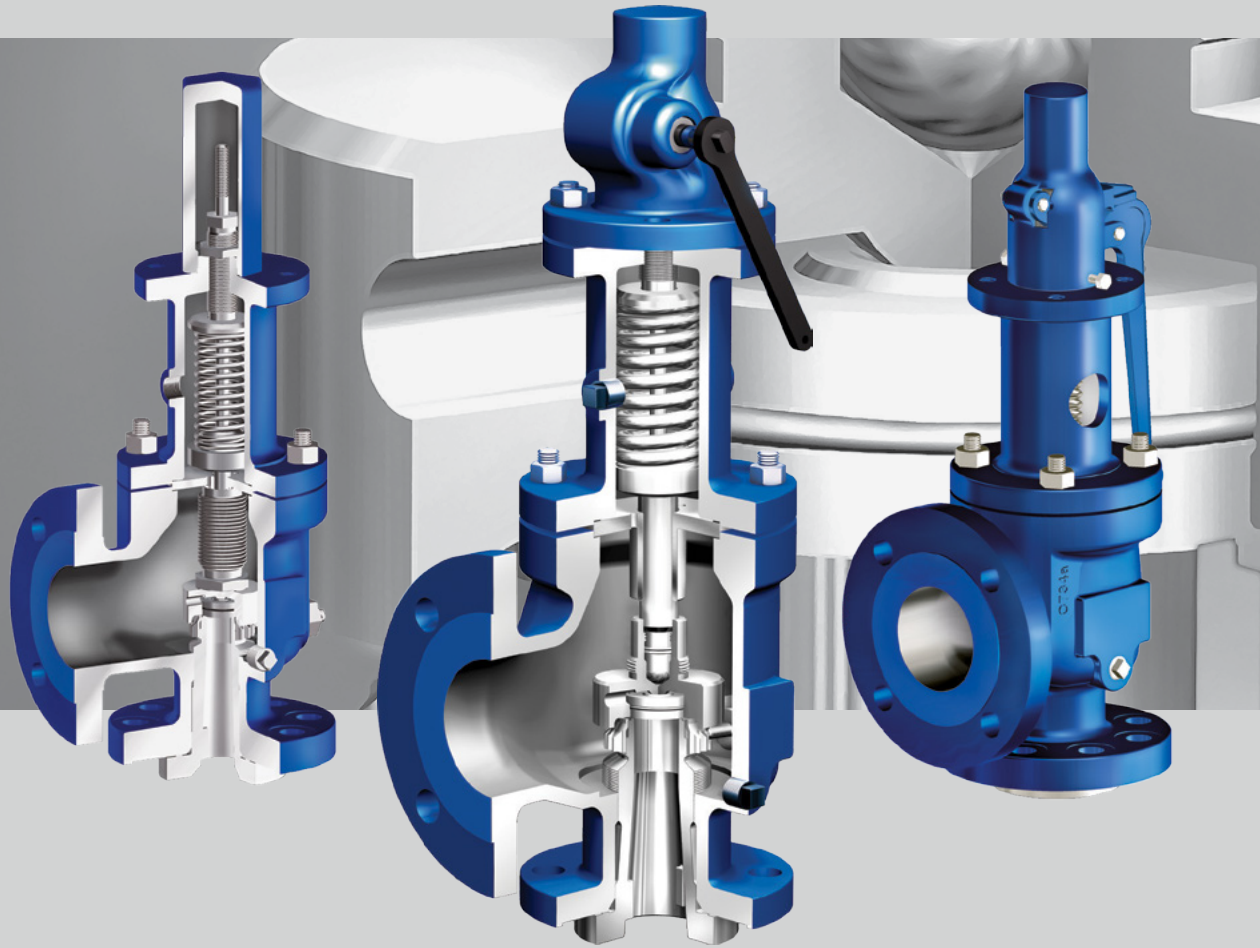


# REYCO® R

## Full-Nozzle Safety Relief Valves

API 526 / ASME SECTION XIII  
(FORMERLY SECTION VIII)



Screwed Cap



Bolted Cap  
with Test Gag



Open Lift Lever



Packed Lift Lever



Valve Position Indicator  
with Proximity Switch



Your valve made by ARI®  
[ari-armaturen.com](http://ari-armaturen.com)

# Design Reliability, Flexibility, and Efficiency



Our highly qualified ARI engineers develop products for tomorrow's world using the very latest techniques. State-of-the-art production technologies leave no room for mistakes, and our continuous quality monitoring throughout all phases of the production process is documented in some twenty system approvals, including ISO 9001:2015.



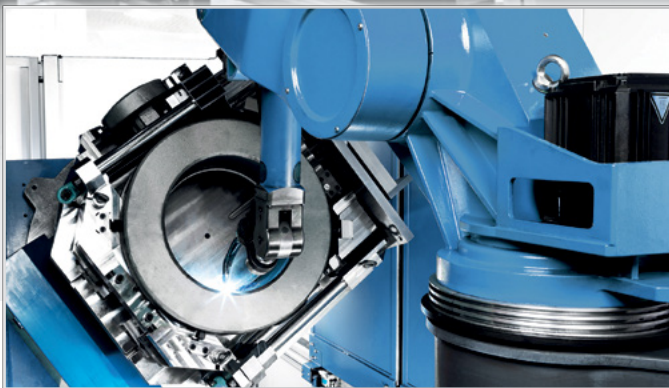
Our products are manufactured promptly and according to rigorous quality criteria. We keep a large stock of valves at our 35,000 square foot manufacturing facility in Houston and we select our suppliers according to the strictest possible criteria to ensure that only premium quality materials are used.





ARI-Armaturen began business over 65 years ago and has been in the North American market for nearly 20 years. We develop products & solutions to enhance the steam, water, oil, air, and gas distribution systems of companies in a variety of industries throughout the United States, Canada, & Mexico.

Our one-stop-shop philosophy allows our customers over 20,000 products available in more than 200,000 variations. This means we can offer almost unlimited possibilities depending on your application, with solutions specifically tailored to your system requirements.



Modern manufacturing technologies are the key to optimal safety and reliability. High performance machining centers, automated assembly cells, programmable assembly robots, and a highly qualified staff are vital prerequisites of top-quality product solutions specifically tailored to your individual requirements.



Thanks to our extensive sales network, expert advice is available from a sales partner close to you in more than 60 countries worldwide. Our professional staff includes highly qualified technicians and engineers that offer design solutions for better performance and use of your energy resources. Contact us today for your tailor-made solution!



ARI-REYCO® valves are built to established industry standards and codes.

Information and prices subject to change without notice.



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## REYCO® R Series Overview

### Technical Data

- Approvals:
- ASME XIII UV Certified (formerly known as ASME VIII)
  - API 526 Compliant
  - Pressure Equipment Directive 2014/68/EU Certified
  - ISO 9001:2015 Certified
  - Canadian Registration Numbers (CRN) available.

- Models:
- REYCO® R  
Conventional design
  - REYCO® RO (see note 1)  
Conventional design, soft seat
  - REYCO® RB (see note 2)  
Balanced bellows design
  - REYCO® RBO (see notes 1 & 2)  
Balanced bellows design, soft seat
  - REYCO® RS  
Open bonnet for steam service

- Materials:
- CS, Chrome Alloy, and 316 SS are standard materials
  - Monel®, Hastelloy® C, Duplex SS, and Alloy 20 materials for corrosive applications
  - NACE MR0175/ISO 15156 and NACE MR0103/ISO 17945 compliant trim available
  - Cryogenic materials available

Sizes: D Orifice 1 × 2-inch through T Orifice 8 × 10-inch

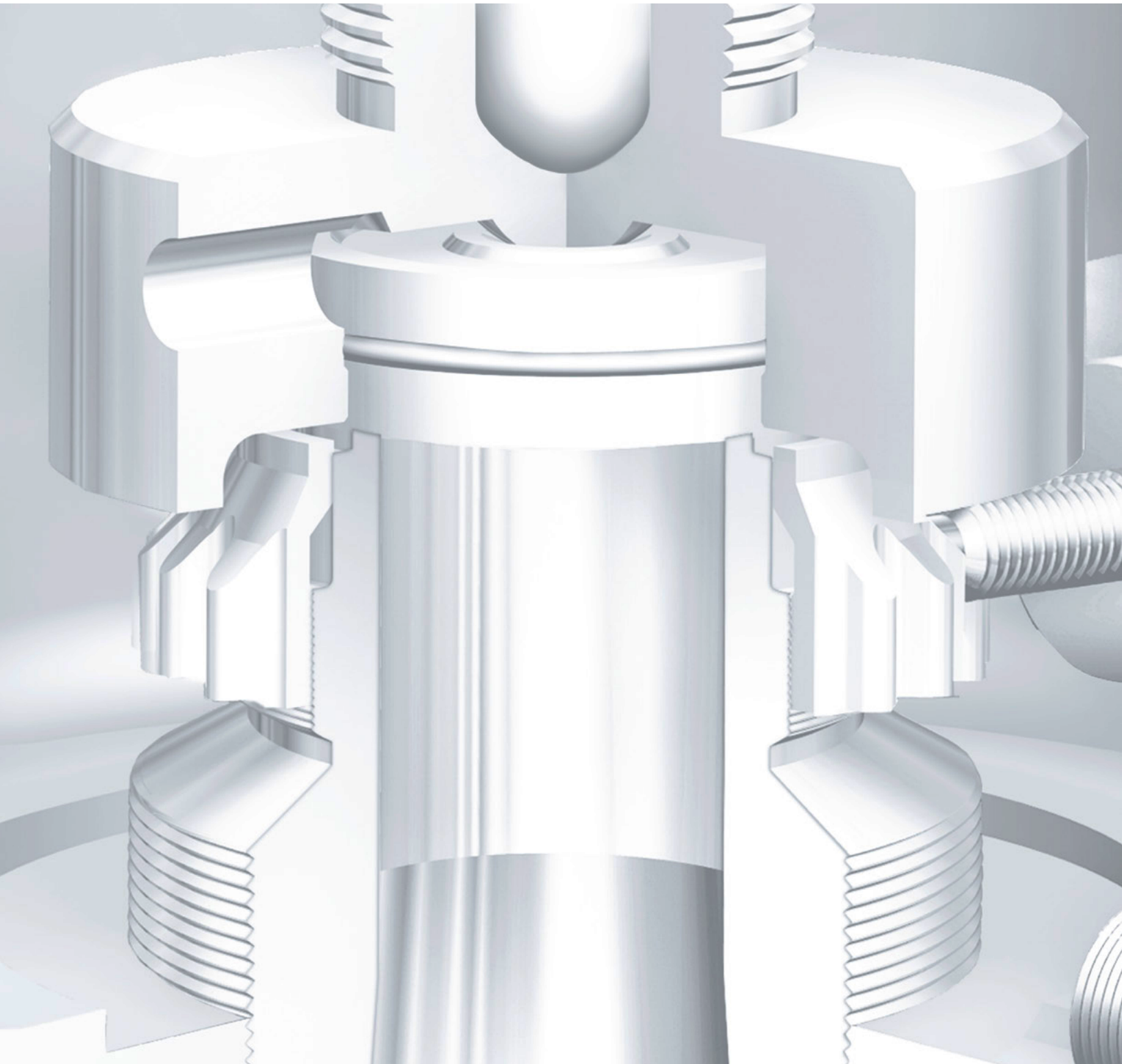
- Options
- Optional soft seats
  - Lifting levers, test gags, steam jackets, and other accessories available

### Notes

- See pages 15 and 43 for additional O-ring information.
- CAUTION: For the balanced bellows design, the bonnet vent must never be blocked or plugged. Always vent models RB & RBO to atmosphere.
- Inconel® and Monel® are registered trademarks of Special Metals Corporation. Hastelloy® is a registered trademark of Haynes International.
- Pressure ratings on pages 18-31 are based on A216-WCC & WC6 materials. Consult ANSI B16.34 for pressure ratings of other materials, (316, Monel®, Hastelloy® C, WC6, etc.).
- Lonergeran was formerly a trademark of Pentair Valves & Controls, and ARI-Armaturen is not licensed to use the Lonergan trademark.

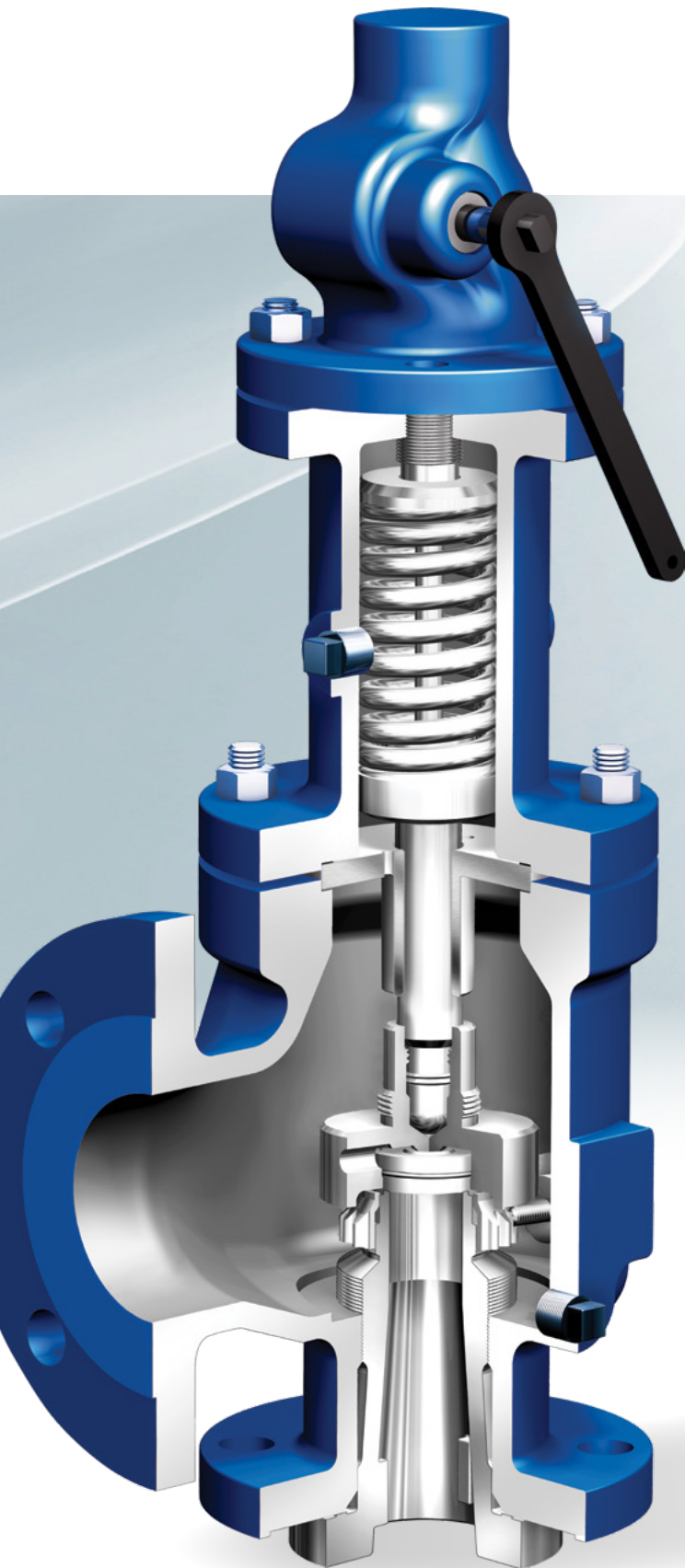
### Features & Benefits

- ARI owns the intellectual property rights and original drawings for the Lonergan D, DB, LCT 14, and LCT 40 series safety relief valves. REYCO® branded valves (and/or valve parts) are fully interchangeable with, and replaceable for, Lonergan valves (and/or valve parts). (see note 5)
- Single trim for all services, so there is no need to change parts for different mediums. (Monel guide required for steam service.)
- The disc is reversible, providing a spare part in itself.
- An identical nozzle ring for each orifice size, regardless of pressure range or seat design, reduces parts variation.
- Standard bellows trim is Inconel® 625 LCF, so there's no parts change to make the bellows style valves NACE MR0175 or MR0103 compliant.
- Standard Inconel® 625 LCF bellows offers better corrosion resistance than 316L SS at no extra cost.
- Reversible disc has 140° notched bearing points to keep the REYCO® pressure relief valve exceptionally concentric!
- In the soft seat option, the spring load is applied directly to the metal seat to increase the service life of the O-ring.
- Disc retention by ring eliminates potential for thread corrosion and the need for special maintenance tools.
- The top threaded nozzle design allows for improved nozzle/body alignment, improves seat tightness to exceed API 527 standards, and eliminates a body cavity where fluid would seep into!
- The REYCO® split-spindle design keeps the valve tight and concentric with 140° notched bearing points. This is a significant improvement over other manufacturer's outdated "one-long stem" design, which is more prone to misalignment.
- The REYCO® Valve Position Indicator cap sends a signal to your control panel when the valve experiences an overpressure event.





## Principles of Operation



### Valve Mechanics

The REYCO® R safety relief valve consists of a nozzle threaded into a cast body housing which is flanged to a pressurized system. A disc is held against the nozzle by a spring, which is contained in a cast bonnet. The spring is adjusted by a compression screw to permit the calibration of opening or set pressure. An adjustable nozzle ring, threaded onto the nozzle, controls the geometry of the fluid exit control chamber (huddling chamber). The huddling chamber geometry is very important in controlling valve opening and closing pressures and stability of operation. The nozzle ring is locked into position by a ring pin assembly. A cap attached to the top of the bonnet seals the internal calibration adjustments.

Under normal system operation the valve remains in the closed position because the spring force ( $FS$ ) is greater than the system pressure acting on the internal nozzle seating area ( $PA$ ). If system pressure increases to a point when these forces are equal, then the set pressure is reached. The disc lifts and fluid flows through the valve. When pressure in the system returns to a safe level, the valve closes.

Just prior to reaching set point, the safety relief valve leaks system fluid into the huddling chamber. The fluid now acts on a larger area of the disc inside the huddling chamber ( $PA_h$ ), causing the valve to experience an instantaneous increase in the opening force. System pressure acting on the larger area will suddenly open the safety relief valve at a rapid rate.

Although the opening is rapid and dramatic, the valve does not open fully at set point. The system pressure must increase above set point to open the valve to its full lift and capacity position. Maximum lift and certified flow rates will be achieved within the allowable limits (overpressure) established by various codes and standards. All safety relief valves are allowed an overpressure allowance to reach full rated flow. The allowable over pressure can vary from 10% to 21% on unfired vessels and systems, depending on the sizing basis, number of valves, and whether a fire condition is encountered.



Once the valve has controlled the pressure excursion, system pressure will start to reduce. Since the huddling chamber area is now controlling the exit fluid flow, system pressure must reduce below the set point before the spring force is able to close the valve. The difference between the set pressure and the closing pressure is called blowdown, and is usually expressed as a percentage of set pressure.

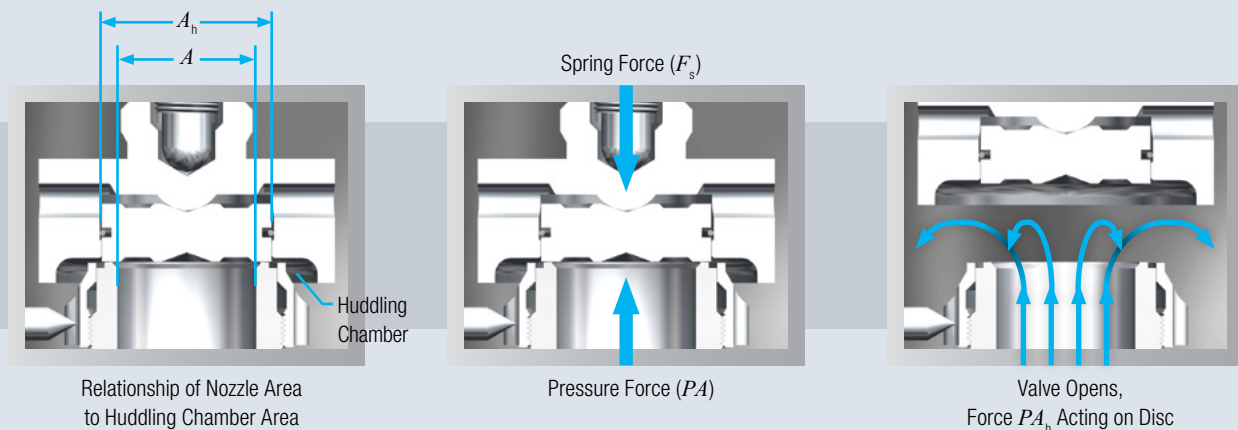
In the R/RB Series, the nozzle ring adjustment changes the shape and volume of the huddling chamber, and its position will affect both the opening and the closing characteristics of the valve. When the nozzle ring is adjusted to its top position, the huddling chamber is restricted to its maximum. The R/RB Series will usually pop very distinctly with a minimum simmer (leakage before opening), but the blowdown will increase. When the nozzle ring is lowered to its lowest position, minimal restriction to the huddling chamber occurs. At this position, simmer increases and the blowdown decreases. The final ring position is somewhere between these two extremes to provide optimal performance.

**Liquid Service Operation**

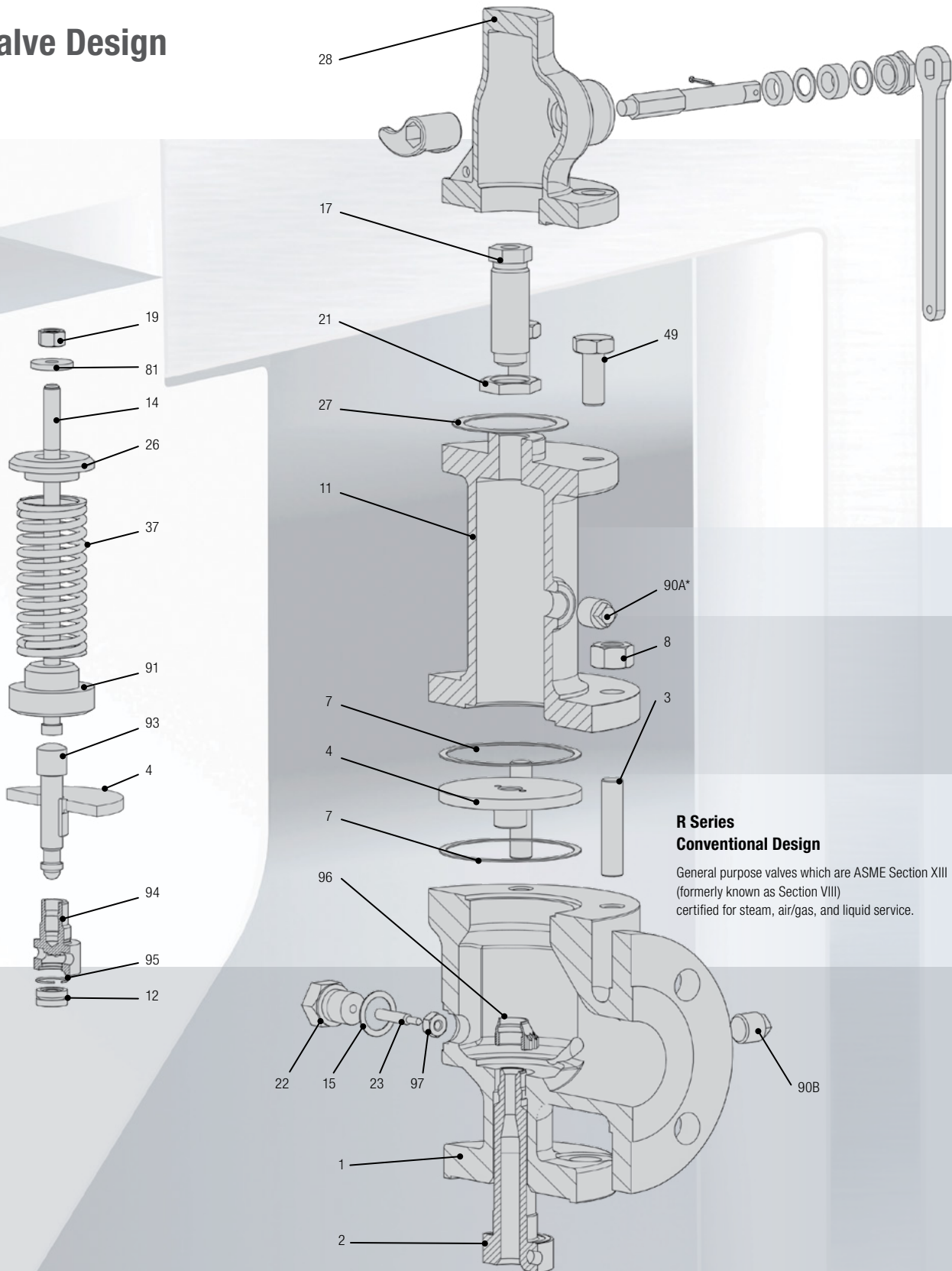
On liquid service, a different dynamic situation exists. Liquids do not expand when flowing across orifices, and a small amount of fluid flow across the nozzle will produce a large local pressure drop at the nozzle orifice. This local pressure drop causes the spring to reclose the valve if fluid flow is minimal. Liquids leaking into the huddling chamber can quickly drain out by gravity and prevent fluid pressure from building up in the secondary area of the huddling chamber. Liquid relief valves are thus susceptible to a destructive phenomenon called chatter, especially at low fluid flow rates.

The unique R/RB Series valve design doesn't require a trim conversion for liquid service, unlike almost all other major manufacturers. The standard trim meets ASME Code Section XIII performance criteria of full rated liquid flow at 10% overpressure.

Since no visible or audible pop is heard at set point, the R/RB Series liquid set pressure is defined as the pressure when the first heavy flow occurs (a pencil sized steady stream of water that remains unbroken for approximately one inch).

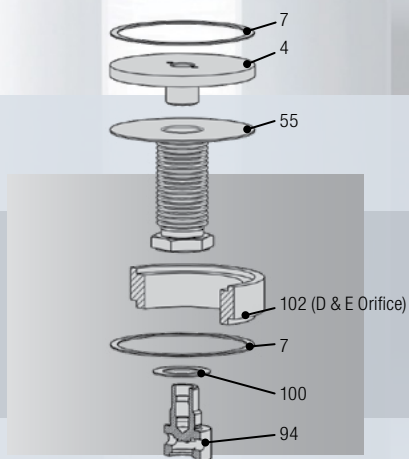


# Valve Design



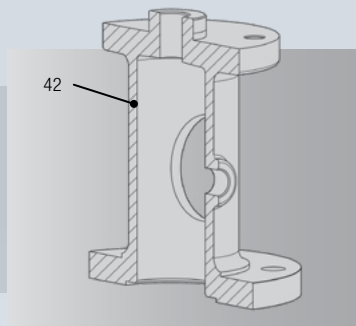
**R Series  
Conventional Design**

General purpose valves which are ASME Section XIII (formerly known as Section VIII) certified for steam, air/gas, and liquid service.



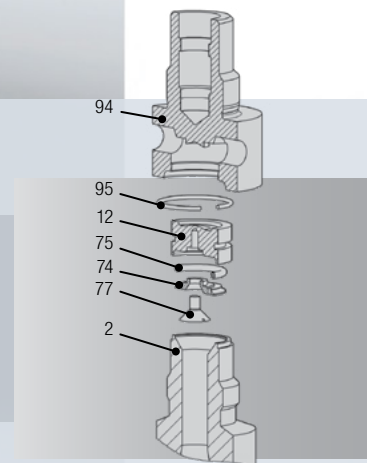
**RB Series**  
**Balanced Bellows Design**

Balanced bellows version of the R Series. For use where back pressures (constant or variable) exist, and/or to isolate valve parts from damage.



**RS Series**  
**Open Bonnet Design**

Exposed springs typically used in ASME Section VIII certified steam service.



**RO Series**  
**O-Ring Soft Seat Design**

Soft seat relief valve design for non-chattering, stable performance. Available in the bellows design for tight seat seals with back pressure conditions.

1	Body	15	Ring pin gasket	37	Spring	90B	Body plug
2	Nozzle	17	Compression screw	42	Open bonnet	91	Spring step, bottom
3	Stud	19	Jam nut	49	Cap bolt	93	Point
4	Guide	21	Compression nut	55	Bellows	94	Disc holder
7	Gasket	22	Ring pin screw	74	Retaining plate	95	Disc retaining ring
8	Stud nut	23	Ring pin	75	O-Ring	96	Adjusting ring
11	Bonnet*	26	Spring step, top	77	Retaining screw	97	Nut
12	Disc	27	Cap gasket	81	Lifting washer	100	Bellows nut gasket
14	Stem	28	Packed cap	90A	Bonnet plug*	102	Bellows spacer

\*CAUTION: For the balanced bellows design, the bonnet vent must never be blocked or plugged. Always vent models RB & RBO to atmosphere.

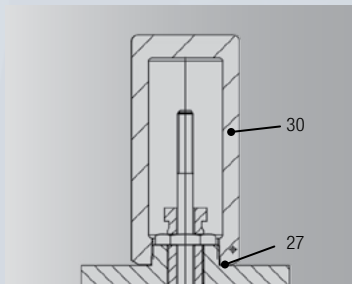


## Cap & Lifting Lever Options

ARI-Armaturen is able to offer a wide variety of cap and lever styles to meet the most rigid requirements.

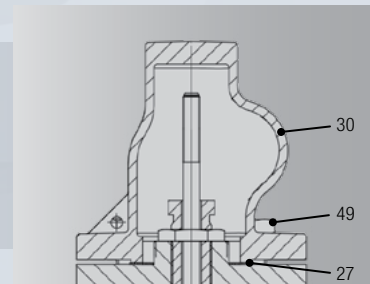
The REYCO® R Series caps are used to restrict access and/or protect the adjustment screw in a reclosing pressure relief device.

REYCO® R Series lifting levers are designed to apply external force to the stem of a pressure relief valve for the manual operation of the valve at some pressure below the set pressure.



**Screwed Gastight Cap**

Standard construction of REYCO® safety relief valves includes a screwed cap. A lifting mechanism is recommended to test for correct valve operation at all times where corrosion, caking, or any deposit could prevent the opening operation of the safety relief valve.



**Bolted Gastight Cap**

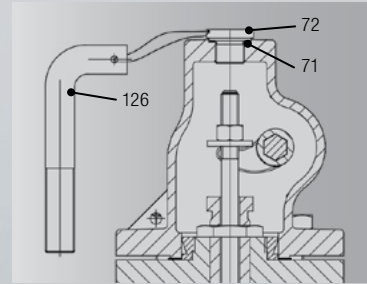
Preferred by those who consider the bolted and gasketed design superior to the standard screwed cap for applications with back pressure and/or vibration.

27	Cap gasket	36	Packed lever	80	Proximity switch	110	Adapter cap
28	Packed cap	39	Yoke pin	81	Lifting washer	111	Bushing
29	Open cap	40	Cotter pin	82	Cap adapter	112	Gasket
30	Gastight cap	41	Open lever	84	Stem extension	113	Gasket
31	Packing	49	Cap bolt	98	Set screw	126	Test gag
33	Shaft	52	Collar	99	Cotter pin		
34	Packing gland	71	Gag screw gasket	103	Yoke		
35	Yoke	72	Gag screw	104	Lever pin		



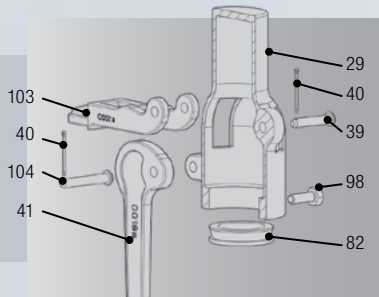
# Fundamentals

## Valve Options: Caps & Lifting Levers



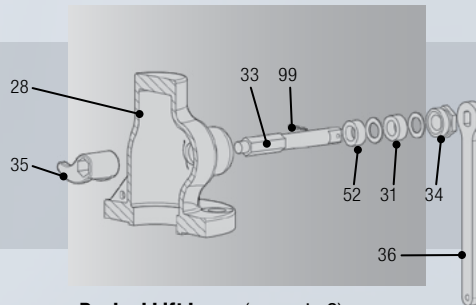
### Test Gag (see note 1)

A Test Gag forces the valve into the closed position. This can be necessary for start-up configurations.



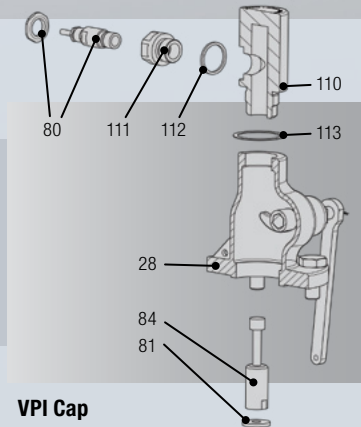
### Open Lift Lever (see note 2)

This design type is for periodic testing of the valve in location. When the valve discharges, fluid media will escape to atmosphere around the open lift lever assembly. This cap is not recommended where back pressure is present, or the escape of vapors to atmosphere is undesirable.



### Packed Lift Lever (see note 2)

The packed lever design is a completely sealed assembly to prevent any leakage. This design type should be selected where leakage of the media to the atmosphere during valve discharge or when subject to a back pressure would present a hazardous condition.



### VPI Cap

The VPI assembly uses a modified bolted cap, an inductive sensor, and additional ARI-Armaturen manufactured parts to indicate when a valve has lifted. This design has many potential uses including the ability to monitor valves in hard to access or remote locations and identify which valves in a system have relieved. This is a completely sealed assembly to prevent any leakage.

#### Notes

1. CAUTION: Test Gags must be removed prior to placing the safety relief valve into service.
2. ASME Section XIII (formerly known as Section VIII) requires a lift lever on hot water applications over 140°F (60°C), and for all air or steam applications.



## Balanced Bellows

A bellows prevents backpressure from acting upon the upper side of the disc within the area of the bellows. The disc area extending beyond the bellows and the opposing disc area are equal, so the forces acting on the disc are balanced, and the backpressure has little effect on the valve opening pressure.

In addition to reducing the effects of backpressure, the bellows isolates the guide and the spring from process fluid. This is important when the fluid is corrosive.

The REYCO® bellows has a standard trim of Inconel® 625 LCF. This means there's no parts change to make the bellows style valves NACE MR0175/ISO 15156 or NACE MR0103/ISO 17945 compliant.

**A bellows is used to address the following situations:**

**1. Excessive or variable backpressures**

A bellows is required if back pressure entering the valve through the valve outlet is excessive and/or fluctuates +/-10% of nominal pressure.

**2. Disproportionate built-up backpressure**

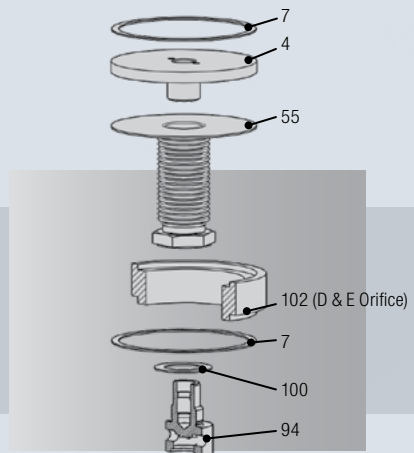
A bellows must be used if a built-up backpressure exceeds 10% of the set pressure or cold differential set pressure.

**3. Media could obstruct critical spaces**

If the media is a slurry, highly viscous, or of a nature that it can enter the critical clearance between the guide/disc holder, a bellows should be used to protect the area.

**4. Corrosive media**

A bellows should be used to isolate the parts in the bonnet cavity if the media is corrosive to the wetted trim components.



**REYCO® RB & RBO  
Balanced Bellows Design**

**Notes**

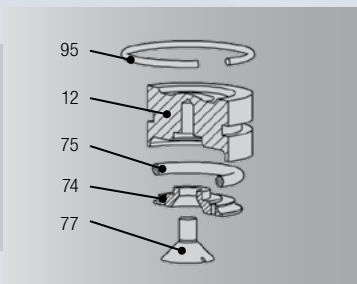
- CAUTION: For the balanced bellows design, the bonnet vent must never be blocked or plugged. Always vent models RB & RBO to atmosphere.

4	Guide	94	Disc holder
7	Gasket	100	Bellows nut gasket
55	Bellows	102	Bellows spacer



## O-Ring Soft Seat Seals

The unique REYCO® O-ring seat seal design features spring loading on the disc seat, not on either the O-ring itself or on the O-ring retaining plate. This feature limits seal distortion—chiefly under heavy spring load or reclosure impact—that occurs in a valve using the O-ring retainer as a seat. This unique design locates the O-ring seal on the inside of the seat diameter, thus barring the fluid media from the metal-to-metal seat surfaces and minimizing corrosion. The design permits O-ring seat seals to be used up to the maximum pressure limit of each valve series. In the event of O-ring damage, the optically smooth, lapped seats provide the required commercial tightness standard of metal-to-metal seats until replacement is possible.



**REYCO® RO & RBO  
O-Ring Soft Seat Design**

12	Disc	77	Retaining screw
74	Retaining plate	95	Disc retaining ring
75	O-Ring		

O-ring seat seals are effective seat-leak stoppers, even in the severest application, saving valuable product and maintenance costs. The O-ring seat seal assures maximum tightness at pressures closer to the critical set pressure than is possible in a standard metal-to-metal seat valve.

### An O-ring seat seal can solve the following problems:

#### 1. Leakage caused by corrosion

Corrosive fluids may erode sealing surfaces and cause damaging leakage. O-ring seat seal safety relief valves resist such corrosive action through the proper use of O-ring materials to seal against leakage, as well as shield and protect the valve's optically flat, metal-to-metal surfaces.

#### 2. Simmer from pressure buildup

Almost all safety relief valves go through a characteristic “simmering stage” before sufficient pressure in the huddling chamber “pops” it open. During momentary surges and pressure buildups, the valve frequently simmers without popping. During this period, the valve disc is floating. When pressure recedes, the seating surfaces often become misaligned, causing leakage. The O-ring seat seal overcomes this problem and permits tight closure after the pressure drops below simmer. Should the valve pop, the valve recloses completely and tightly, pop after pop, without damaging the O-ring.

#### 3. High operating pressures

In process applications, operating pressures are often close to valve set pressures. As the system pressure nears valve set pressure, the net spring force affecting seat tightness is greatly reduced. The REYCO® O-ring seat seal design permits higher operating pressures while maintaining absolute tightness.

#### 4. Leakage from light fluids

Fluids such as hydrogen, helium, light hydrocarbons and anhydrous ammonia are light and difficult to contain. They easily infiltrate the metal-to-metal type seat, resulting in costly leaks. This O-ring seat seal eliminates such leakage.

#### 5. Metal-to-metal seat damage

Occasionally, minute particles of foreign matter are carried in the flow medium, damaging the metal-to-metal seat during valve closure. The O-ring seat seal absorbs the full impact of such particles and minimizes seat damage and deformation of mating metal surfaces.



**Valve Model**

<b>R-</b>	Conventional Valve, Enclosed Spring
<b>RO</b>	Conventional Valve, Enclosed Spring, O-ring Seat (see note 1)
<b>RB</b>	Balanced Bellows, Enclosed Spring
<b>RBO</b>	Balanced Bellows, Enclosed Spring, O-ring Seat (see note 1)
<b>RS</b>	Open Bonnet, Exposed Spring (see note 6)

**Connection Type**

<b>1</b>	ANSI Class 150 × 150
<b>2</b>	ANSI Class 300LW (285 psig max) × 150
<b>3</b>	ANSI Class 300 × 150
<b>5</b>	ANSI Class 600 × 150 (see note 2)
<b>7</b>	ANSI Class 900 × 150 or ANSI Class 900 × 300 (see note 3)
<b>8</b>	ANSI Class 1500 × 300 or ANSI Class 1500 × 150 (see note 4)
<b>9</b>	ANSI Class 2500 × 300

**Design Temperature Range**

	Imperial Units (USC)	Metric Units (SI)
<b>0</b>	-20°F to +649°F	-29°C to +342°C
<b>2</b>	+650°F to +799°F	+343°C to +426°C
<b>3</b>	+800°F to +1000°F	+427°C to +538°C
<b>4</b>	-400°F to -21°F	-240°C to -29°C

**Orifice Area**

	Imperial Units (USC)		Metric Units (SI)	
	API 526	(Actual)	API 526	(Actual)
<b>D</b>	0.110 in <sup>2</sup>	(0.122 in <sup>2</sup> )	71 mm <sup>2</sup>	(79 mm <sup>2</sup> )
<b>E</b>	0.196 in <sup>2</sup>	(0.217 in <sup>2</sup> )	126 mm <sup>2</sup>	(140 mm <sup>2</sup> )
<b>F</b>	0.307 in <sup>2</sup>	(0.340 in <sup>2</sup> )	198 mm <sup>2</sup>	(219 mm <sup>2</sup> )
<b>G</b>	0.503 in <sup>2</sup>	(0.558 in <sup>2</sup> )	325 mm <sup>2</sup>	(360 mm <sup>2</sup> )
<b>H</b>	0.785 in <sup>2</sup>	(0.869 in <sup>2</sup> )	506 mm <sup>2</sup>	(561 mm <sup>2</sup> )
<b>J</b>	1.287 in <sup>2</sup>	(1.427 in <sup>2</sup> )	830 mm <sup>2</sup>	(921 mm <sup>2</sup> )
<b>K</b>	1.838 in <sup>2</sup>	(2.036 in <sup>2</sup> )	1186 mm <sup>2</sup>	(1314 mm <sup>2</sup> )
<b>L</b>	2.853 in <sup>2</sup>	(3.160 in <sup>2</sup> )	1841 mm <sup>2</sup>	(2039 mm <sup>2</sup> )
<b>M</b>	3.60 in <sup>2</sup>	(3.987 in <sup>2</sup> )	2323 mm <sup>2</sup>	(2572 mm <sup>2</sup> )
<b>N</b>	4.34 in <sup>2</sup>	(4.807 in <sup>2</sup> )	2800 mm <sup>2</sup>	(3101 mm <sup>2</sup> )
<b>P</b>	6.38 in <sup>2</sup>	(7.07 in <sup>2</sup> )	4116 mm <sup>2</sup>	(4561 mm <sup>2</sup> )
<b>Q</b>	11.05 in <sup>2</sup>	(12.24 in <sup>2</sup> )	7129 mm <sup>2</sup>	(7897 mm <sup>2</sup> )
<b>R</b>	16.00 in <sup>2</sup>	(17.72 in <sup>2</sup> )	10323 mm <sup>2</sup>	(11432 mm <sup>2</sup> )
<b>T</b>	26.00 in <sup>2</sup>	(29.75 in <sup>2</sup> )	16774 mm <sup>2</sup>	(19194 mm <sup>2</sup> )

**Materials (see note 5) + Description (see note 5)**

<b>S</b>	316 SS	<b>1</b>	Disc and Nozzle
<b>M</b>	Monel®	<b>2</b>	Internal Parts except Spring & Steps
<b>H</b>	Hastelloy® C	<b>3</b>	Complete Valve except Spring & Steps
<b>D</b>	Duplex	<b>4</b>	Entire Valve
<b>A</b>	Alloy 20	<b>5</b>	All Parts below Bellows
<hr/>			
<b>L</b>	Low Temperature	<b>1</b>	316 SS body, WCC Bonnet & Cap
		<b>2</b>	All 316 SS, except Inconel® Bellows
		<b>3</b>	Entire Valve Stainless Steel, including Bellows
		<b>C</b>	LCC Body, Bonnet, & Cap
<hr/>			
<b>W</b>	High Temperature	<b>1</b>	WC6 Body, WCC Bonnet & Cap, 316 SS Internals
		<b>2</b>	WC6 Body & Bonnet, WCC Cap, 316 SS Internals
		<b>3</b>	C12 Body & Bonnet, WCC Cap, 316 SS Internals
<hr/>			
<b>S</b>	NACE	<b>G</b>	Carbon Steel Body & Bonnet
		<b>S</b>	Stainless Steel Body & Bonnet

<b>R-</b>	<b>1</b>	<b>0</b>	<b>D</b>	<b>S</b>	<b>1</b>
<b>Valve Model</b>	<b>Connection Type</b>	<b>Design Temp. Range</b>	<b>Orifice Area</b>	<b>Materials</b>	<b>Description</b>





**Configuration**

<b>2</b>	Standard
<b>B</b>	2.5" Inlet (see note 7)
<b>C</b>	2.5" Outlet (see note 7)
<b>E</b>	RTJ Inlet
<b>H</b>	Special Inlet and/or Outlet Configuration
<b>J</b>	Jacketed Valve
...	
<b>Z</b>	Other Special/Nonstandard Options

**Cap/Lever Options**

<b>0</b>	Screwed Cap without Gag
<b>1</b>	Screwed Cap with Gag
<b>2</b>	Open Lift Lever without Gag
<b>3</b>	Open Lift Lever with Gag
<b>4</b>	Packed Lift Lever without Gag
<b>5</b>	Packed Lift Lever with Gag
<b>6</b>	VPI without Gag
<b>7</b>	VPI with Gag

**Design Revision**

-	One-piece Stem
<b>A</b>	REYCO® Valve, two-piece stem
<b>C</b>	REYCO® Design
<b>D</b>	REYCO® Design, D/E Bellows with one-piece stem

**Service**

<b>J</b>	ASME Section XIII: Liquid
<b>K</b>	ASME Section XIII: Gas, Vapor
<b>L</b>	ASME Section XIII: Steam Max 2900 psig (200 barg)
<b>M</b>	Non-Code: Liquid
<b>N</b>	Non-Code: Gas, Vapor
<b>P</b>	Non-Code: Steam

**Spring Material**

<b>A</b>	Alloy 20
<b>B</b>	Inconel® X-750
<b>C</b>	Chrome Alloy
<b>G</b>	316 Stainless Steel
<b>H</b>	Hastelloy® C
<b>S</b>	Coated Steel
<b>Z</b>	Other Materials

**Set Pressure**

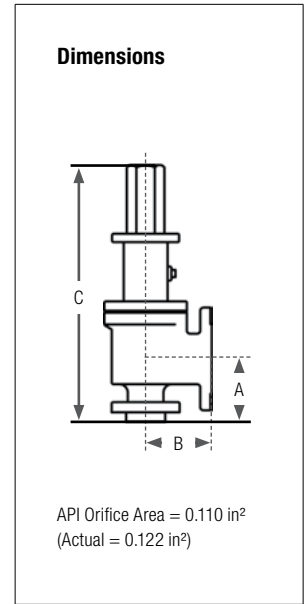
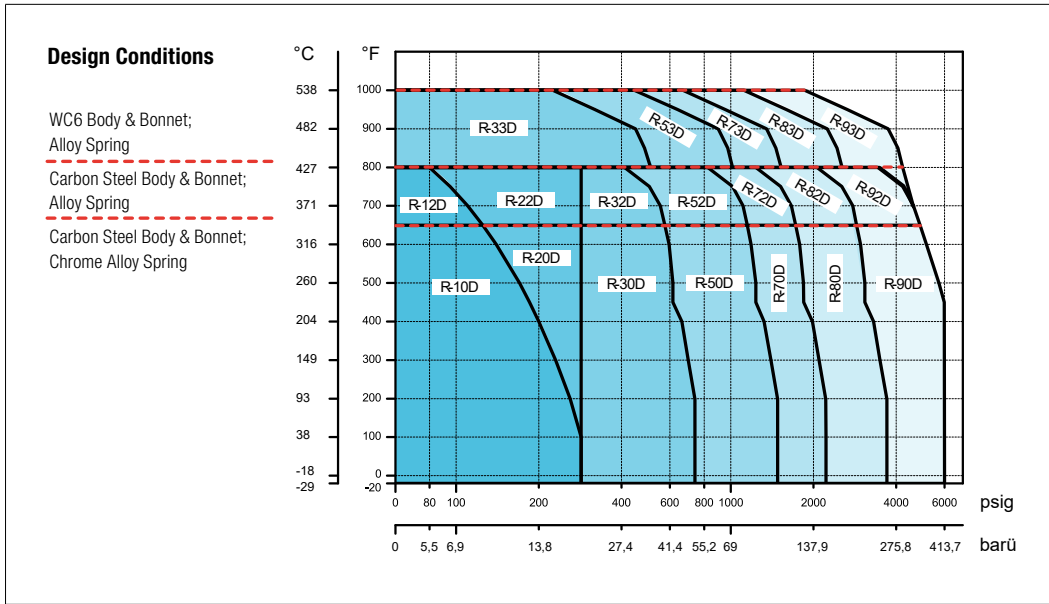
<b>0008</b>	=	8 psig
<b>0015</b>	=	15 psig
<b>0125</b>	=	125 psig
<b>6000</b>	=	6000 psig

**Notes**

1. The standard soft seat material for REYCO® Models R0 and RBO is fluorocarbon.
2. For T-Orifice valves, the Inlet/Outlet rating code '5' is ANSI Class 300 × 150, not ANSI Class 600 × 150.
3. Orifices D through G have ANSI Class 300 Outlets. Orifices H through P have ANSI Class 150 Outlets.
4. Orifices D through K have ANSI Class 300 Outlets. Orifice L has an ANSI Class 150 Outlet.
5. Other materials available upon request. Additional information can be found in the REYCO® R Bill of Materials.
6. REYCO® RS limit is 750°F with Chrome Alloy spring.
7. Available for replacement of valves where inlet or outlet has been updated from 2.5" to 3" per API 526.

Not all combinations of model numbers are possible. Please reference the REYCO® R Series Specification tables to confirm valve availability.

<b>2</b>	<b>0</b>	<b>C</b>	<b>K</b>	<b>C</b>	<b>0200</b>
<b>Configuration</b>	<b>Cap/Lever Options</b>	<b>Design Revision</b>	<b>Service</b>	<b>Spring Material</b>	<b>Set Pressure</b>



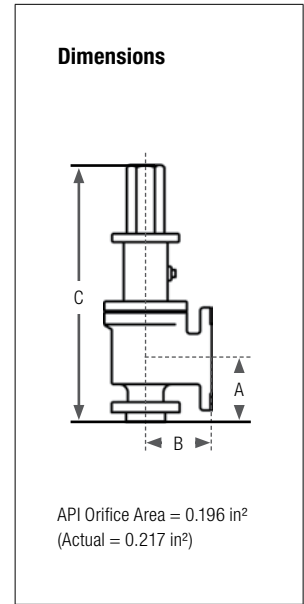
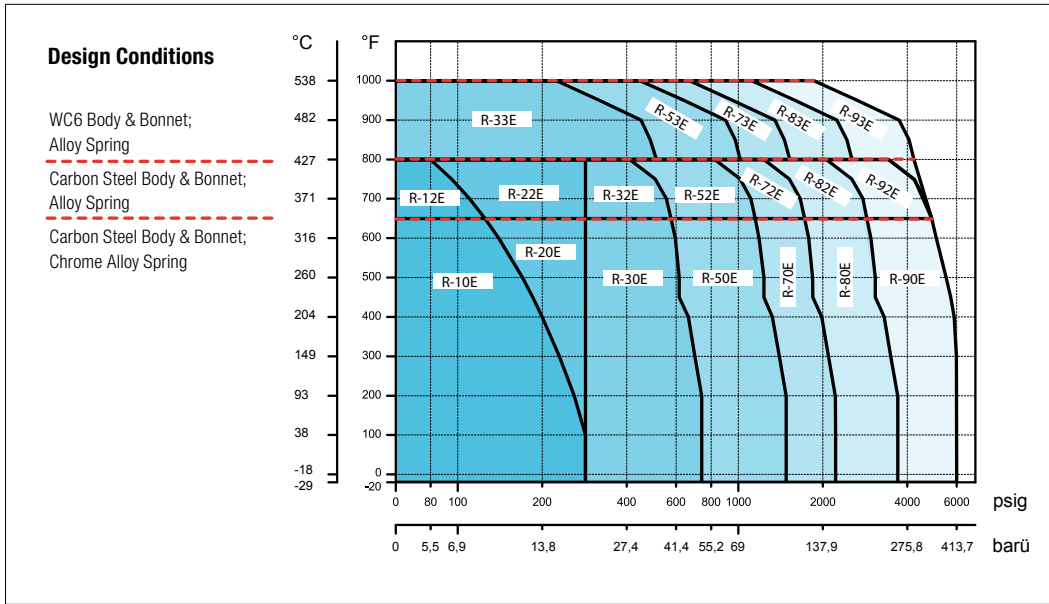
Specifications												
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight
							Conv.	Bellows				
			100°F	650°F	800°F	1000°F	100°F	100°F	A	B	Max C	
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs
R-10D / RB10D	1 × 2	150 × 150	285	125			285	230	4 1/8	4 1/2	20	40
R-12D / RB12D				125	80							
R-20D / RB20D			300LW × 150	285	285							
R-22D / RB22D				285	285							
R-30D / RB30D		300 × 150	740	590								
R-32D / RB32D				590	410							
R-33D / RB33D					510	215						
R-50D / RB50D		600 × 150	1480	1175								
R-52D / RB52D				1175	825							
R-53D / RB53D					1015	430						
R-70D / RB70D	1.5 × 2	900 × 300	2220	1765			600	500	4 1/8	5 1/2	20	58
R-72D / RB72D				1765	1235							
R-73D / RB73D					1525	650						
R-80D / RB80D		1500 × 300	3705	2940								
R-82D / RB82D				2940	2055							
R-83D / RB83D				2540	1080							
R-90D / RB90D	1.5 × 3	2500 × 300	6000	4905			740	500	5 1/2	7	22 1/2	80
R-92D / RB92D				4905	3430							
R-93D / RB93D					4230	1800						

**Notes**

1. Valves set under 15 psig are not ASME code stamped.
2. Maximum A and B dimensions ± 1/16-inch.
3. Valve dimension C for RB bellows valves add 3/4-inch.

# Specifications

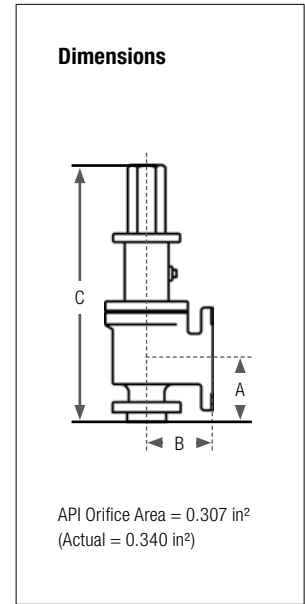
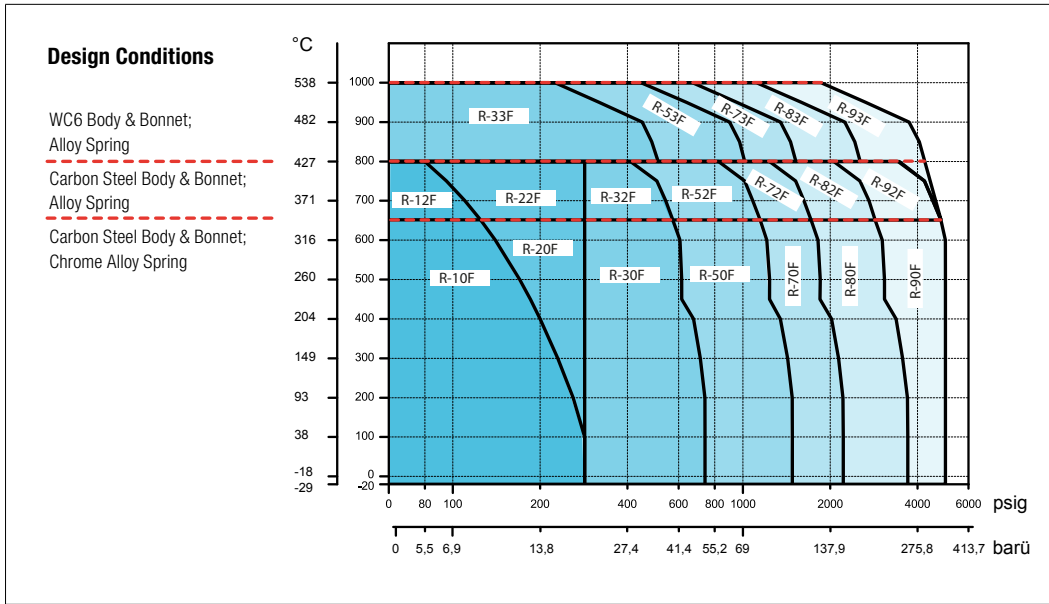
## E Orifice



Specifications														
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight		
			100°F	650°F	800°F	1000°F	Conv.	Bellows	A	B	Max C			
			psig	psig	psig	psig	psig	psig	psig	inches	inches		inches	lbs
R-10E / RB10E	1 × 2	150 × 150	285	125			285	230	4 1/8	4 1/2	20	40		
R-12E / RB12E				125	80									
R-20E / RB20E			285	285										
R-22E / RB22E		300LW × 150		285	285						4 1/8	4 1/2	20	43
R-30E / RB30E			740	590										
R-32E / RB32E				590	410									
R-33E / RB33E		300 × 150			510	215					4 1/8	4 1/2	20	45
R-50E / RB50E			600 × 150	1480	1175						4 1/8	4 1/2	20	45
R-52E / RB52E					1175	825								
R-53E / RB53E				1015	430									
R-70E / RB70E	1.5 × 2	900 × 300	2220	1765			600	500	4 1/8	5 1/2	20	58		
R-72E / RB72E				1765	1235									
R-73E / RB73E					1525	650								
R-80E / RB80E		1500 × 300	3705	2940							4 1/8	5 1/2	20	58
R-82E / RB82E				2940	2055									
R-83E / RB83E					2540	1080								
R-90E / RB90E	1.5 × 3	2500 × 300	6000	4905			740	500	5 1/2	7	22 1/2	80		
R-92E / RB92E				4905	3430									
R-93E / RB93E					4230	1800								

**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.
- Valve dimension C for RB bellows valves add 3/4-inch.

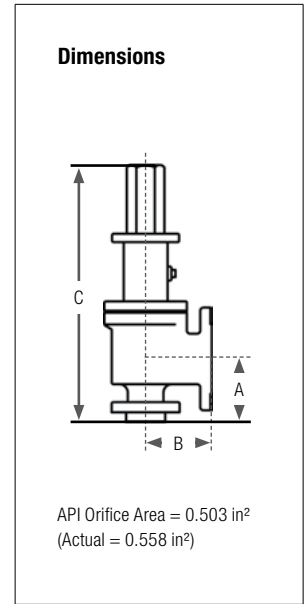
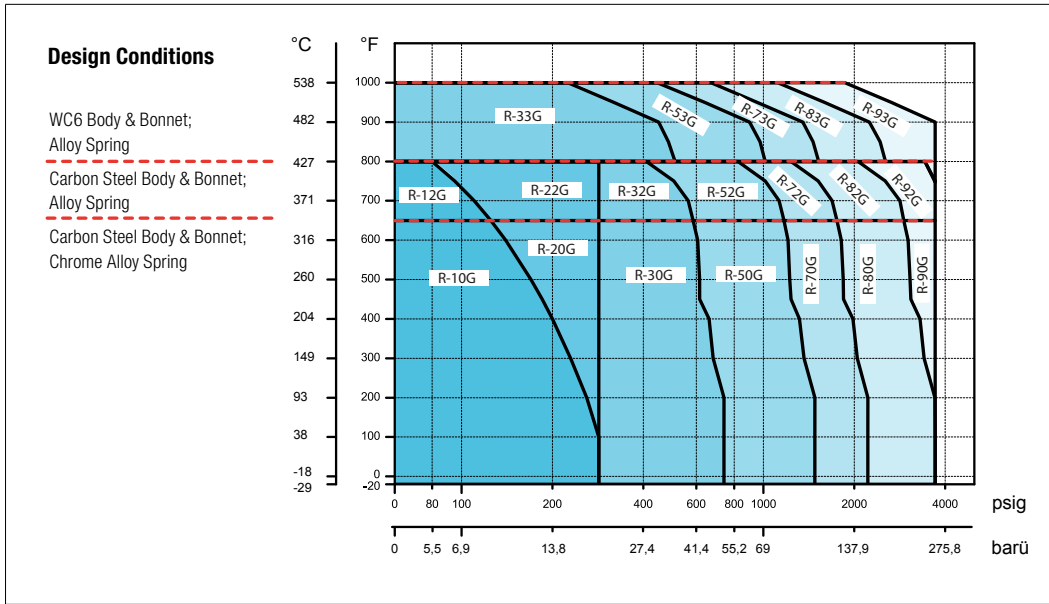


Specifications														
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight		
			100°F	650°F	800°F	1000°F	Conv.	Bellows	A	B	Max C			
			psig	psig	psig	psig	psig	psig	inches	inches	inches		lbs	
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs		
R-10F / RB10F	1.5 × 2	150 × 150	285	125			285	230	4 7/8	4 3/4	20 3/4	43		
R-12F / RB12F				125	80									
R-20F / RB20F			285	285										
R-22F / RB22F		300LW × 150		285	285									
R-30F / RB30F			740	590										
R-32F / RB32F				590	410									
R-33F / RB33F		300 × 150			510	215								
R-50F / RB50F			1480	1175										
R-52F / RB52F				1175	825									
R-53F / RB53F	600 × 150			1015	430									
R-70F / RB70F		2220	1765											
R-72F / RB72F			1765	1235										
R-73F / RB73F	900 × 300			1525	650									
R-80F / RB80F		3705	2940											
R-82F / RB82F			2940	2055										
R-83F / RB83F	1500 × 300			2540	1080									
R-90F / RB90F		5000	4905											
R-92F / RB92F			4905	3430										
R-93F / RB93F	2500 × 300			4230	1800									

**Notes**

1. Valves set under 15 psig are not ASME code stamped.
2. Maximum A and B dimensions ± 1/16-inch.
3. API 526 eliminated 2 1/2-inch flange sizes, however ARI-Armaturen can supply 2 1/2-inch flange sizes.

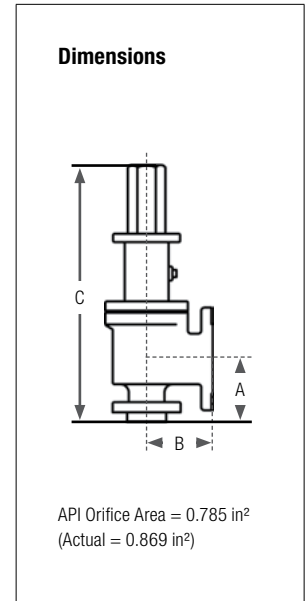
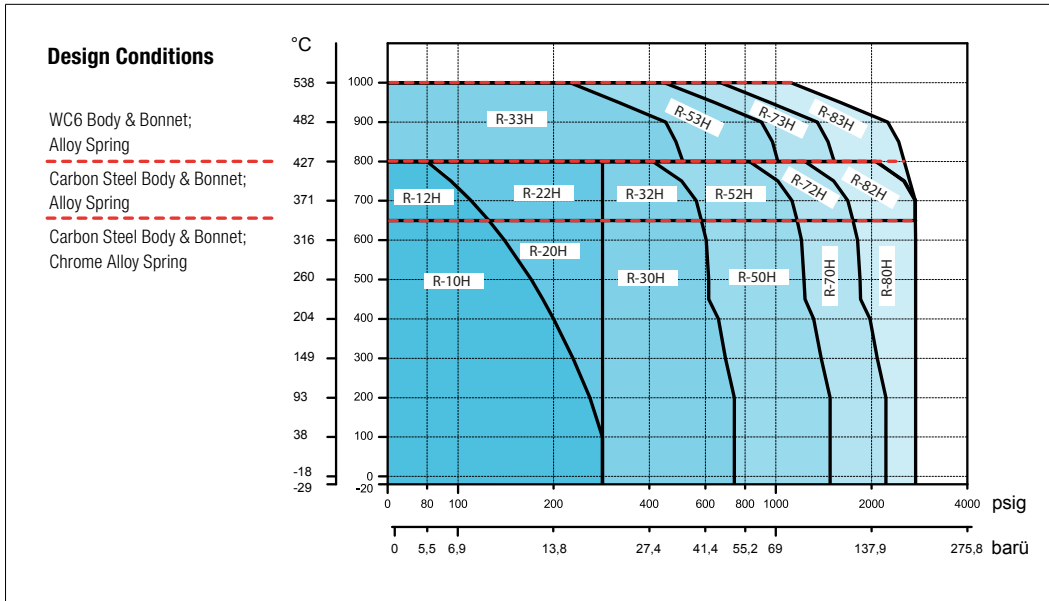




Specifications														
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight		
			100°F	650°F	800°F	1000°F	Conv.	Bellows	A	B	Max C			
			psig	psig	psig	psig	psig	psig	psig	inches	inches		inches	lbs
R-10G / RB10G	1.5 × 3	150 × 150	285	125			285	230	4 7/8	4 3/4	20 3/4	46		
R-12G / RB12G				125	80									
R-20G / RB20G			300LW × 150	285	285									
R-22G / RB22G					285	285								
R-30G / RB30G		300 × 150	740	590										
R-32G / RB32G				590	410									
R-33G / RB33G					510	215								
R-50G / RB50G		600 × 150	1480	1175										
R-52G / RB52G				1175	825									
R-53G / RB53G					1015	430								
R-70G / RB70G		900 × 300	2220	1765					740	470	4 7/8	6 1/2	21 3/4	67
R-72G / RB72G				1765	1235									
R-73G / RB73G					1525	650								
R-80G / RB80G		2 × 3	1500 × 300	3705	2940									
R-82G / RB82G				2940	2055									
R-83G / RB83G					2540	1080								
R-90G / RB90G	2500 × 300			3705	3705									
R-92G / RB92G			3705	3430										
R-93G / RB93G				3705	1800									

**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.
- API 526 eliminated 2 1/2-inch flange sizes, however ARI-Armaturen can supply 2 1/2-inch flange sizes.



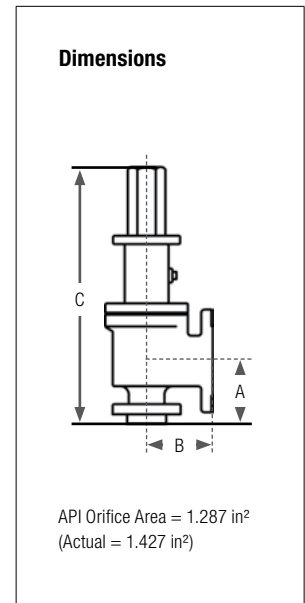
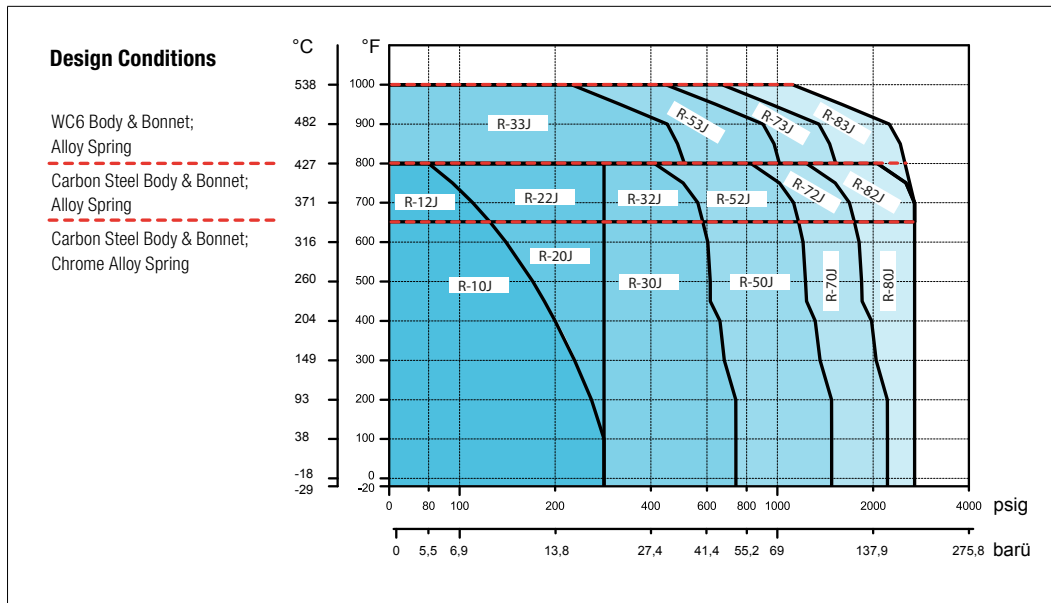
Specifications														
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight		
							Conv.	Bellows	A	B	Max C			
			100°F	650°F	800°F	1000°F	100°F	100°F	inches	inches	inches		lbs	
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs		
R-10H / RB10H	1.5 × 3	150 × 150	285	125			285	230	5 1/8	4 7/8	21	50		
R-12H / RB12H				125	80									
R-20H / RB20H		300LW × 150	285	285					5 1/8	4 7/8	21	54		
R-22H / RB22H				285	285									
R-30H / RB30H	2 × 3	300 × 150	740	590					285	230	5 1/8	4 7/8	21	58
R-32H / RB32H				590	410									
R-33H / RB33H					510	215								
R-50H / RB50H		600 × 150	1480	1175							6 1/16	6 3/8	25 1/2	120
R-52H / RB52H				1175	825									
R-53H / RB53H					1015	430								
R-70H / RB70H	900 × 150	2220	1765			6 1/16			6 3/8	25 1/2	135			
R-72H / RB72H			1765	1235										
R-73H / RB73H				1525	650									
R-80H / RB80H	1500 × 300	2750	2750			740	415	6 1/16	6 3/8	25 1/2	140			
R-82H / RB82H			2750	2055										
R-83H / RB83H				2540	1080									

Notes

1. Valves set under 15 psig are not ASME code stamped.
2. Maximum A and B dimensions ± 1/16-inch.

# Specifications

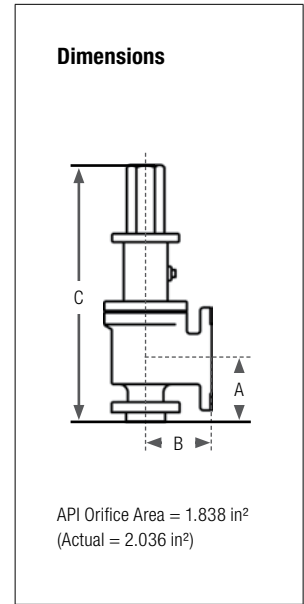
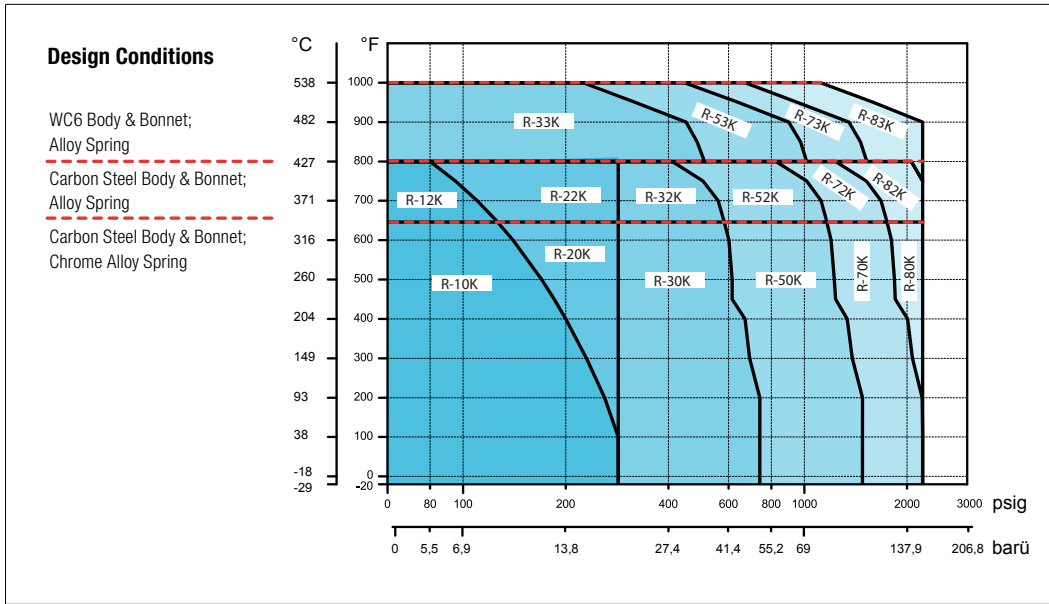
## J Orifice



Specifications												
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight
							Conv.	Bellows				
			100°F	650°F	800°F	1000°F	100°F	100°F	A	B	Max C	
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs
R-10J / RB10J	2 × 3	150 × 150	285	125			285	230	5 3/8	4 7/8	21 3/4	58
R-12J / RB12J				125	80							
R-20J / RB20J		300LW × 150	285	285								
R-22J / RB22J				285	285							
R-30J / RB30J	3 × 4	300 × 150	740	590								
R-32J / RB32J				590	410							
R-33J / RB33J					510	215						
R-50J / RB50J		600 × 150	1480	1175								
R-52J / RB52J				1175	825							
R-53J / RB53J					1015	430						
R-70J / RB70J		900 × 150	2220	1765								
R-72J / RB72J				1765	1235							
R-73J / RB73J					1525	650						
R-80J / RB80J		1500 × 300	2700	2700			600					
R-82J / RB82J				2700	2055							
R-83J / RB83J					2540	1080						

### Notes

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.
- API 526 eliminated 2 1/2-inch flange sizes, however ARI-Armaturen can supply 2 1/2-inch flange sizes.



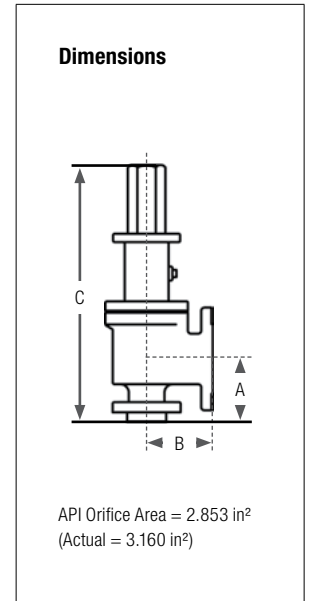
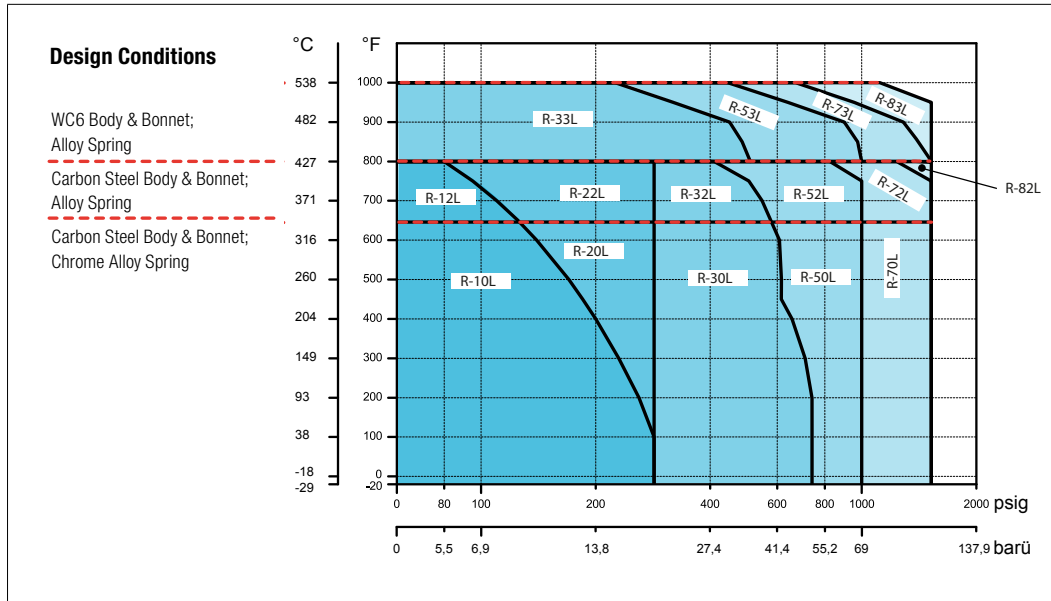
Specifications														
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight		
							Conv.	Bellows						
			100°F	650°F	800°F	1000°F	100°F	100°F	A	B	Max C			
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs		
R-10K / RB10K	3 × 4	150 × 150	285	125			285	150	6 1/8	6 3/8	26 1/2	120		
R-12K / RB12K				125	80									
R-20K / RB20K				285	285									
R-22K / RB22K		300LW × 150		285	285									
R-30K / RB30K				740	590									
R-32K / RB32K		300 × 150		590	410									
R-33K / RB33K					510	215								
R-50K / RB50K			600 × 150		1480	1175								
R-52K / RB52K					1175	825								
R-53K / RB53K						1015			430					
R-70K / RB70K	3 × 6	900 × 150	2220	1765			600	200	7 1/4	7 1/8	30 1/2	185		
R-72K / RB72K					1765	1235								
R-73K / RB73K						1525							650	
R-80K / RB80K		1500 × 300		2220	2220									
R-82K / RB82K					2220	2055								
R-83K / RB83K				2220	1080									

Notes

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.

# Specifications

## L Orifice



Specifications													
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight	
							Conv.	Bellows	A	B	Max C		
			100°F	650°F	800°F	1000°F	100°F	100°F	inches	inches	inches		lbs
R-10L / RB10L	3 × 4	150 × 150	285	125			100	6 1/8	6 1/2	26 1/2	130		
R-12L / RB12L				125	80								
R-20L / RB20L		300LW × 150	285	285				6 1/8	6 1/2	26 1/2			
R-22L / RB22L				285	285								
R-30L / RB30L	4 × 6	300 × 150	740	590			285	7 1/16	7 1/8	30 1/4	200		
R-32L / RB32L				590	410								
R-33L / RB33L					510	215							
R-50L / RB50L		600 × 150	1000	1000				7 1/16	8	30 1/4			
R-52L / RB52L				1000	825								
R-53L / RB53L		900 × 150			1000	430		170	7 3/4	8 3/4		34 1/4	
R-70L / RB70L				1500	1500								
R-72L / RB72L					1500	1235							
R-73L / RB73L						1500							650
R-80L / RB80L		1500 × 150		1500	1500				7 3/4	8 3/4		34 1/4	
R-82L / RB82L				1500	1500								
R-83L / RB83L					1500	1080							

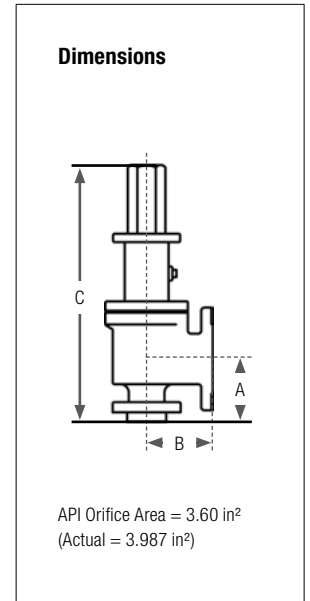
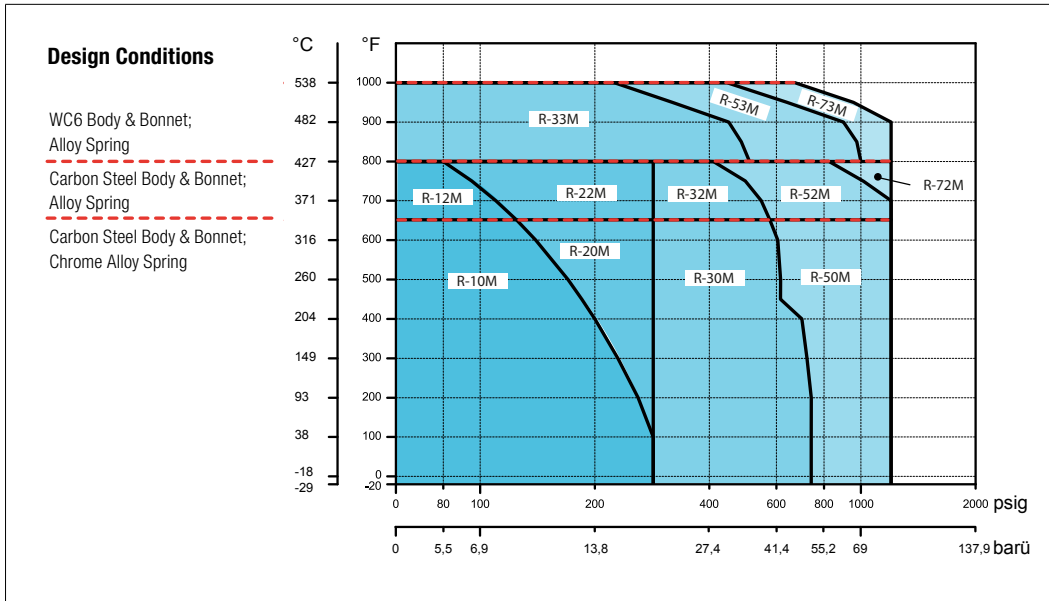
**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.



# Specifications

## M Orifice



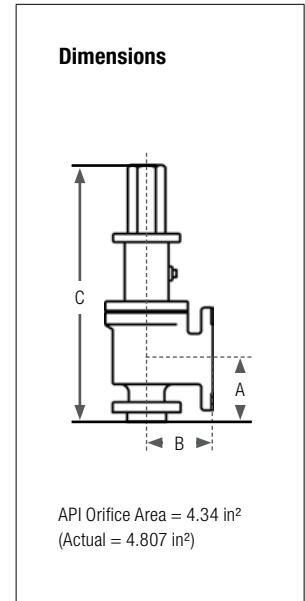
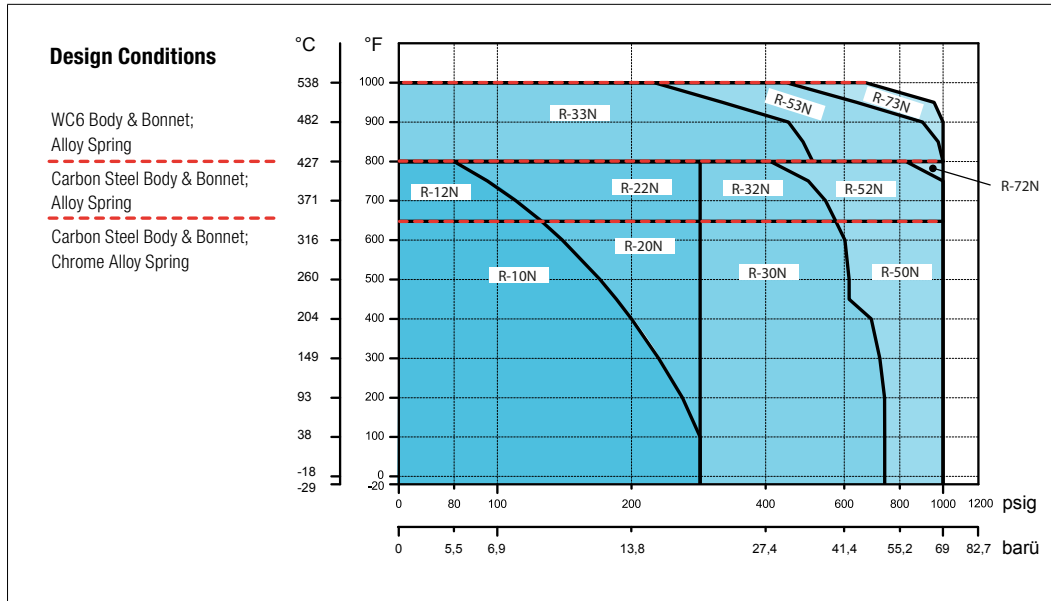
Specifications													
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight	
							Conv.	Bellows					
			100°F	650°F	800°F	1000°F	100°F	100°F	A	B	Max C		
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs	
R-10M / RB10M	4 × 6	150 × 150	285	125			285	80	7	7 1/4	30 1/4	190	
R-12M / RB12M				125	80								
R-20M / RB20M			300LW × 150	285	285								
R-22M / RB22M					285	285							
R-30M / RB30M		300 × 150	740	590									
R-32M / RB32M				590	410								
R-33M / RB33M					510	215							
R-50M / RB50M		600 × 150	1100	1100									
R-52M / RB52M				1100	825								
R-53M / RB53M					1000	430							
R-70M / RB70M		900 × 150	1100	1100									
R-72M / RB72M				1100	1100								
R-73M / RB73M					1100	650							
										160	7	8	33 3/4
									7 3/4	8 3/4	34 1/4	260	

**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.

# Specifications

## N Orifice



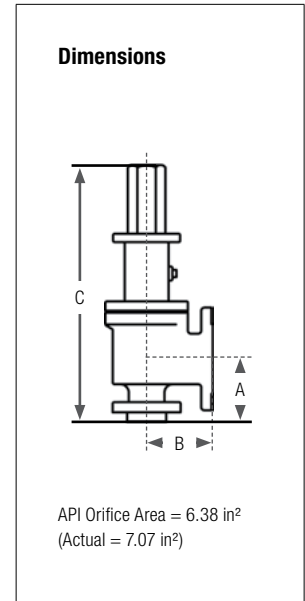
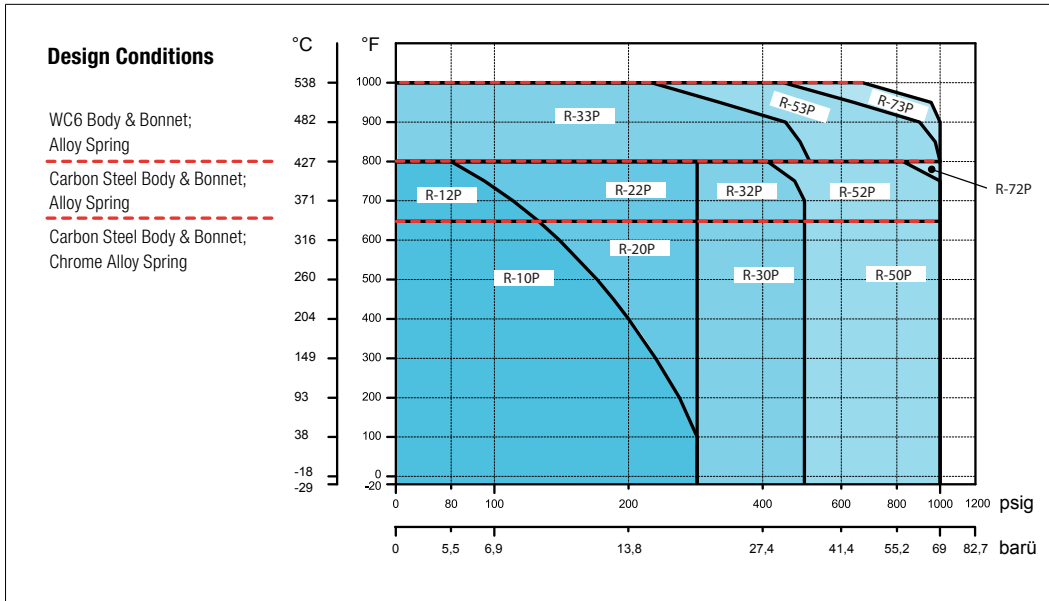
Specifications													
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight	
							Conv.	Bellows					
			100°F	650°F	800°F	1000°F	100°F	100°F	A	B	Max C		
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs	
R-10N / RB10N	4 × 6	150 × 150	285	125			285	80	7 3/4	8 1/4	31 1/2	200	
R-12N / RB12N				125	80								
R-20N / RB20N			300LW × 150	285	285								
R-22N / RB22N					285	285							
R-30N / RB30N		300 × 150	740	590									
R-32N / RB32N				590	410								
R-33N / RB33N					510	215							
R-50N / RB50N		600 × 150	1000	1000									
R-52N / RB52N				1000	825								
R-53N / RB53N					1000	430							
R-70N / RB70N		900 × 150	1000	1000									
R-72N / RB72N				1000	1000								
R-73N / RB73N					1000	650							

**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/16-inch.

# Specifications

## P Orifice



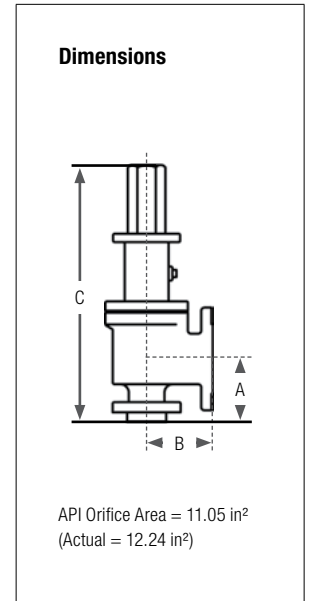
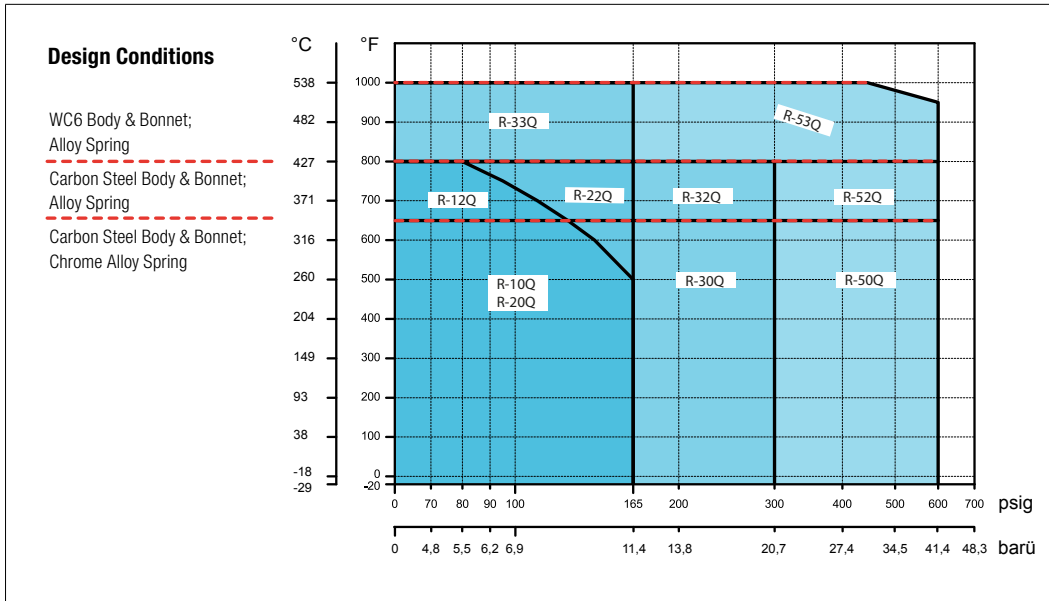
Specifications												
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight
							Conv.	Bellows	A	B	Max C	
			100°F	650°F	800°F	1000°F	100°F	100°F	inches	inches	inches	
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs
R-10P / RB10P	4 × 6	150 × 150	285	125			285	80	7 1/8	9	30 7/8	210
R-12P / RB12P				125	80							
R-20P / RB20P		300LW × 150	285	285					7 1/8	9	30 7/8	220
R-22P / RB22P				285	285							
R-30P / RB30P		300 × 150	525	525					8 7/8	10	42 1/2	330
R-32P / RB32P				525	410							
R-33P / RB33P					510	215						
R-50P / RB50P		600 × 150	1000	1000					8 7/8	10	42 1/2	360
R-52P / RB52P				1000	825							
R-53P / RB53P					1000	430						
R-70P / RB70P		900 × 150	1000	1000					8 7/8	10	42 1/2	380
R-72P / RB72P				1000	1000							
R-73P / RB73P					1000	650						

**Notes**

1. Valves set under 15 psig are not ASME code stamped.
2. Maximum A and B dimensions ± 1/16-inch.

# Specifications

## Q Orifice



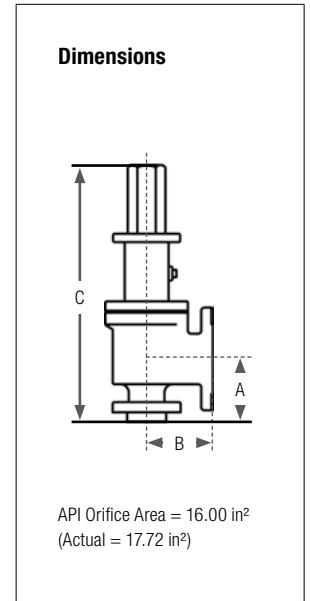
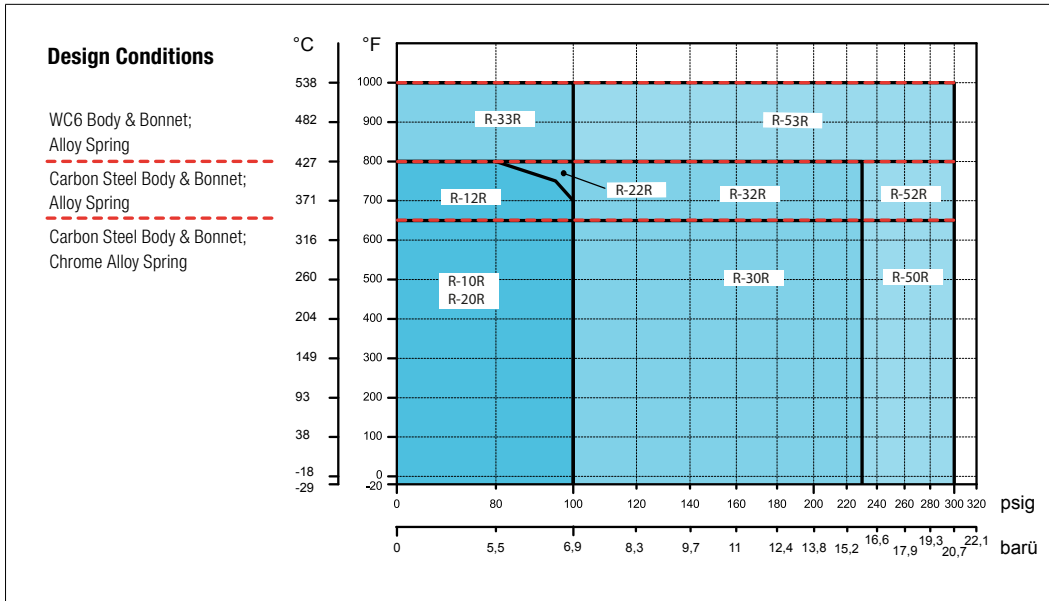
Specifications														
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight		
							Conv.	Bellows	A	B	Max C			
			100°F	650°F	800°F	1000°F	100°F	100°F	inches	inches	inches		lbs	
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs		
R-10Q / RB10Q	6 × 8	150 × 150	165	125			115	70	9 7/16	9 1/2	45 1/2	480		
R-12Q / RB12Q				125	80									
R-20Q / RB20Q		300LW × 150	165	165					115	70	9 7/16	9 1/2	45 1/2	500
R-22Q / RB22Q				165	165									
R-30Q / RB30Q		300 × 150	300	300			115	70	9 7/16	9 1/2	45 1/2	520		
R-32Q / RB32Q				300	300									
R-33Q / RB33Q					165	165								
R-50Q / RB50Q		600 × 150	600	600			115	70	9 7/16	9 1/2	49 1/2	630		
R-52Q / RB52Q				600	600									
R-53Q / RB53Q					600	430								

**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/8-inch.

# Specifications

## R Orifice



Specifications													
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight	
							Conv.	Bellows	A	B	Max C		
			100°F	650°F	800°F	1000°F	100°F	100°F	inches	inches	inches		lbs
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs	
R-10R / RB10R	6 × 8	150 × 150	100	100			60	60	9 7/16	9 1/2	45 1/2	500	
R-12R / RB12R				100	80								
R-20R / RB20R		300LW × 150	100	100					9 7/16	9 1/2	45 1/2		
R-22R / RB22R				100	100								
R-30R / RB30R	6 × 10	300 × 150	230	230			100	100	9 7/16	10 1/2	45 1/2	620	
R-32R / RB32R				230	230								
R-33R / RB33R					100	100							
R-50R / RB50R		600 × 150	300	300					9 7/16	10 1/2	49 1/2		660
R-52R / RB52R				300	300								
R-53R / RB53R					300	300							

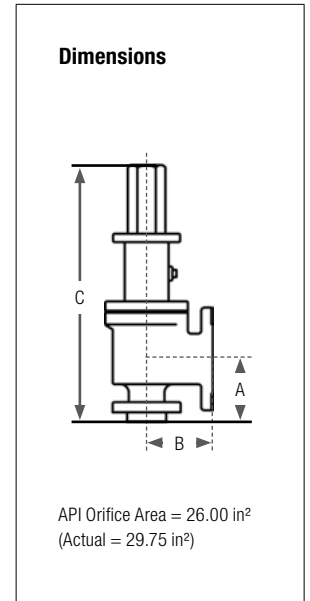
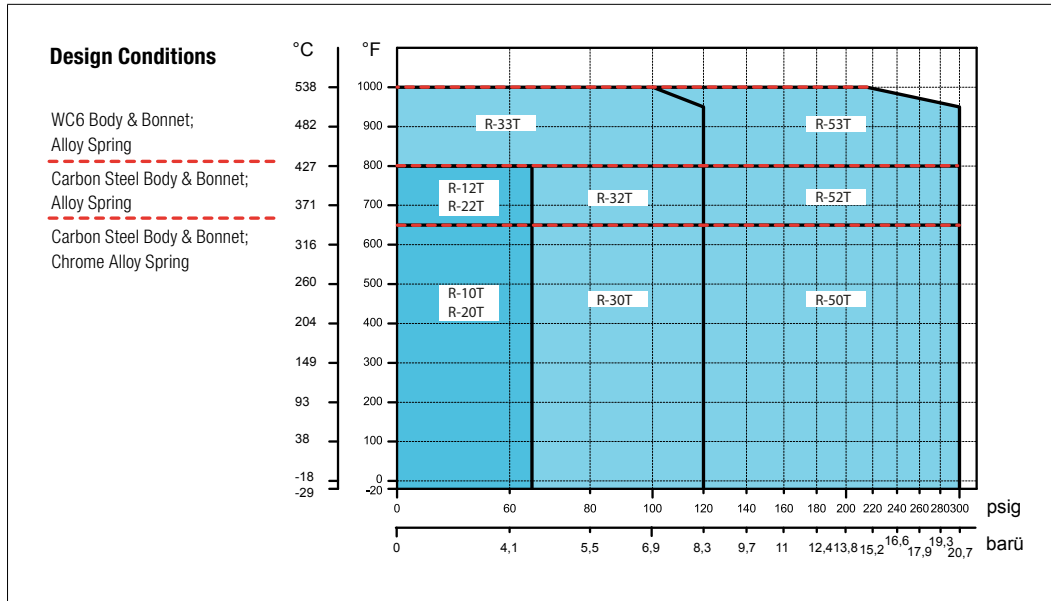
**Notes**

- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/8-inch.



# Specifications

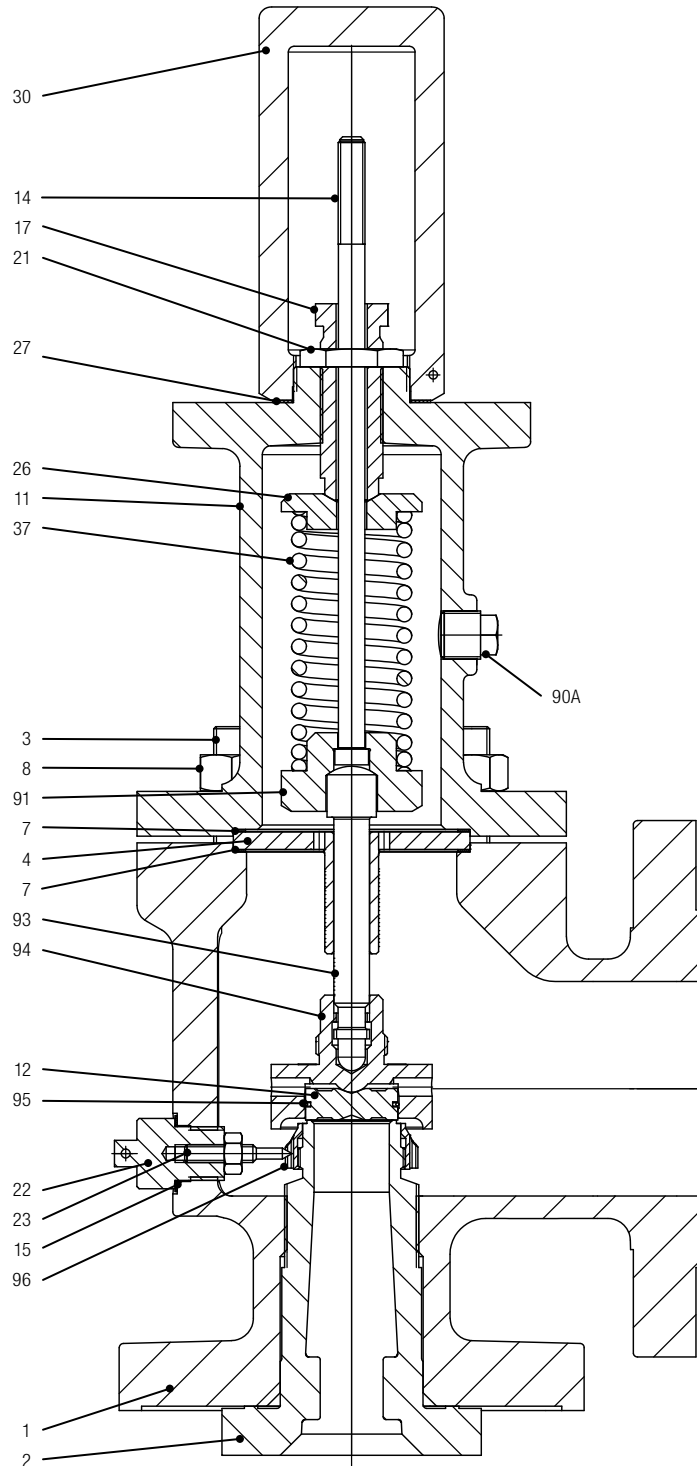
## T Orifice



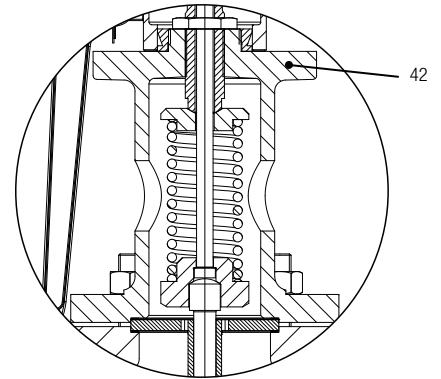
Specifications																	
Model	Valve Size	(RF or RTJ) Flanged Connections	Maximum Set Pressure				Max. Backpressure		Dimensions			Weight					
							Conv.	Bellows	A	B	Max C						
			100°F	650°F	800°F	1000°F	100°F	100°F	inches	inches	inches		lbs				
	inches	ANSI Class	psig	psig	psig	psig	psig	psig	inches	inches	inches	lbs					
R-10T / RB10T	8 × 10	150 × 150	65	65			30	30	10 7/8	11	47 3/4	670					
R-12T / RB12T				65	65												
R-20T / RB20T		300LW × 150	65	65					10 7/8	11	47 3/4	700					
R-22T / RB22T				65	65												
R-30T / RB30T		300 × 150	120	120			60	60	10 7/8	11	51 1/2	790					
R-32T / RB32T				120	120												
R-33T / RB33T						120							100				
R-50T / RB50T		600 × 150	300	300			100	100	10 7/8	11	54 3/4	830					
R-52T / RB52T				300	300												
R-53T / RB53T						300							215				

**Notes**

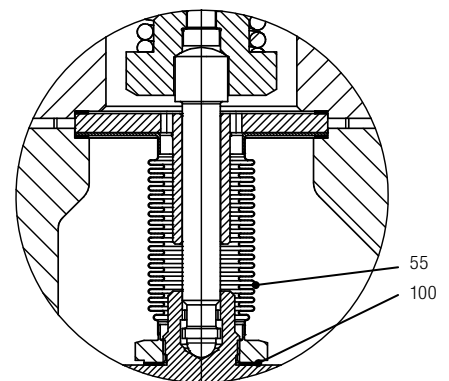
- Valves set under 15 psig are not ASME code stamped.
- Maximum A and B dimensions ± 1/8-inch.



**REYCO® R**  
Standard Trim



**REYCO® RS**  
Open Bonnet



**REYCO® RB**  
Balanced Bellows

# Bill of Materials

## Standard Trim



S1 Standard Trim					
Part No.	Part Name	Spare Parts	Materials		
			REYCO® R	REYCO® RB	REYCO® RS
1	Body			SA216 WCC	
2	Nozzle	x		SA351 CF8M SS	
3	Stud			SA193 GR. B7	
4	Guide	x		A351 CF8M SS	
7	Gasket	x		Soft Iron	
8	Stud nut			SA194 GR. 2H	
11	Bonnet		SA216 WCC	SA216 WCC	—
12	Disc	x		SA479 316 SS	
14	Stem			A479 316 SS	
15	Ring pin gasket	x		Soft Iron	
17	Compression screw			A479 316 SS	
21	Compression nut			A479 316 SS	
22-23	Ring pin assembly			A479 316 SS	
26	Spring step, top			A108 CS	
27	Cap gasket	x		Soft Iron	
30	Screwed cap (see note 2)			A216 WCC	
37	Spring (see note 3)			Chrome Alloy	
42	Bonnet, open		—	—	SA216 WCC
55	Bellows	x	—	Inconel® 625 LCF	—
	Bellows Flange		—	316/316L SS	—
	Bellows Nut		—	316/316L SS	—
90A	Bonnet plug		Carbon Steel	—	—
90B	Body plug			Carbon Steel	
91	Spring step, bottom			A108 CS	
93	Point			A479 316 SS	
94	Disc holder			A351 CF8M SS	
95	Disc retaining ring	x		A313 302 SS	
96	Adjusting ring			A351 CF8M SS	
100	Bellows nut gasket		—	Soft Iron	—
102	Bellows spacer (see note 4)		—	A479 316 SS	—

### Notes

1. Valves set under 15 psig [1.03 barg] are not ASME code stamped.
2. Four Cap and Lift Lever styles are available: open lift lever, packed lift lever, screwed cap, and bolted cap.
3. Inconel® X-750 or alloy spring material may be required for some applications.
4. "Bellows spacer" is not shown, and is only present for D & E Orifices.

# Bill of Materials

## Carbon Steel and Stainless Steel Trim



Carbon Steel and Stainless Steel Trim for All Models						
Part No.	Part Name	Materials				
		S1 Standard Materials	S2 Internal Parts Except Spring & Steps	S3 Complete Valve Except Spring & Steps	S4 Entire Valve	S5 All Parts Below Bellows
		+20°F to +800°F	+20°F to +800°F	-20°F to +1000°F	-20°F to +1000°F	-20°F to +800°F
1	Body	SA216 WCC	SA216 WCC	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS
2	Nozzle	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS
3	Stud	SA193 B7	SA193 B7	SA320 B8M	SA320 B8M	SA193 B7
4	Guide (see note 5)	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
7	Gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
8	Stud nut	SA194 2H	SA194 2H	SA194 8M	SA194 8M	SA194 2H
11, 42	Bonnet	SA216 WCC	SA216 WCC	SA351 CF8M SS	SA351 CF8M SS	SA216 WCC
12	Disc	SA479 316 SS	SA479 316 SS	SA479 316 SS	SA479 316 SS	SA479 316 SS
14	Stem	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
15	Ring pin gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
17	Compression screw	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
21	Compression nut	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
26, 91	Spring steps	A108 CS	A108 CS	A108 CS	A479 316 SS	A108 CS
27	Cap gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
30	Screwed cap	A216 WCC	A216 WCC	A351 CF8M SS	A351 CF8M SS	A216 WCC
37	Spring (see note 3)	Chrome Alloy	Chrome Alloy	Chrome Alloy	A313 316 SS	Chrome Alloy
55	Bellows	Inconel® 625 LCF	Inconel® 625 LCF	Inconel® 625 LCF	Inconel® 625 LCF	Inconel® 625 LCF
	Bellows Flange	A240 316 SS	A240 316 SS	A240 316 SS	A240 316 SS	A240 316 SS
	Bellows Nut	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
90A	Bonnet plug (see note 1)	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	N/A
90B	Body plug	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Stainless Steel
93	Point (see note 2)	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
94	Disc holder	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
95	Disc retaining ring	A313 302 SS	A313 302 SS	A313 302 SS	A313 302 SS	A313 302 SS
96	Adjusting ring	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
100	Bellows nut gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
102	Bellows spacer (see note 4)	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS

### Notes

- Not for use with balanced bellows design.
- Not applicable to orifice sizes D & E for models RB/RBO.
- Inconel® X-750 material may be required for some applications.
- "Bellows spacer" is not shown, and is only present for D & E Orifices.
- Guide material for steam service is Monel® A494 M-35-2 for temperature ranges S1, S2, & S3.



Monel® Trim for All Models						
Part No.	Part Name	Materials				
		M1 Nozzle and Disc	M2 Internal Parts Except Spring & Steps	M3 Complete Valve Except Spring & Steps	M4 Entire Valve	M5 All Parts Below Bellows
		+20°F to +800°F	+20°F to +800°F	-20°F to +900°F	-20°F to +900°F	-20°F to +800°F
1	Body (see note 6)	SA216 WCC	SA216 WCC	SA494 M-35-2	SA494 M-35-2	SA494 M-35-2
2	Nozzle	SA494 M-35-2	SA494 M-35-2	SA494 M-35-2	SA494 M-35-2	SA494 M-35-2
3	Stud	SA193 B7	SA193 B7	SF468 UNS N04400	SF468 UNS N04400	SA193 B7
4	Guide (see note 5)	A351 CF8M SS	A494 M-35-2	A494 M-35-2	A494 M-35-2	A351 CF8M SS
7	Gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
8	Stud nut	SA194 2H	SA194 2H	SF467 UNS N04400	SF467 UNS N04400	SA194 2H
11, 42	Bonnet (see note 6)	SA216 WCC	SA216 WCC	SA494 M-35-2	SA494 M-35-2	SA216 WCC
12	Disc	SB164 UNS N04400	SB164 UNS N04400	SB164 UNS N04400	SB164 UNS N04400	SB164 UNS N04400
14	Stem	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	A479 316 SS
15	Ring pin gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
17	Compression screw	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	A479 316 SS
21	Compression nut	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400
26, 91	Spring steps	A108 CS	A108 CS	A108 CS	B164 UNS N04400	A108 CS
27	Cap gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
30	Screwed cap	A216 WCC	A216 WCC	A494 M-35-2	A494 M-35-2	A216 WCC
37	Spring (see note 3)	Chrome Alloy	Chrome Alloy	Chrome Alloy	Inconel® X-750	Chrome Alloy
55	Bellows	Inconel® 625 LCF	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400
	Bellows Flange	A240 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400
	Bellows Nut	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400
90A	Bonnet plug (see note 1)	Carbon Steel	Carbon Steel	B164 UNS N04400	B164 UNS N04400	N/A
90B	Body plug	Carbon Steel	Carbon Steel	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400
93	Point (see note 2)	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400	A479 316 SS
94	Disc holder	A351 CF8M SS	A494 M-35-2	A494 M-35-2	A494 M-35-2	A494 M-35-2
95	Disc retaining ring	A313 302 SS	Monel®	Monel®	Monel®	Monel®
96	Adjusting ring	A351 CF8M SS	A494 M-35-2	A494 M-35-2	A494 M-35-2	A494 M-35-2
100	Bellows nut gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
102	Bellows spacer (see note 4)	A479 316 SS	A479 316 SS	B164 UNS N04400	B164 UNS N04400	B164 UNS N04400

Notes

- Not for use with balanced bellows design.
- Not applicable to orifice sizes D & E for models RB/RBO.
- Inconel® X-750 material may be required for some applications.
- "Bellows spacer" is not shown, and is only present for D & E Orifices.
- Guide material for steam service is Monel® A494 M-35-2 for temperature ranges M1, M2, & M3.
- High temperature (above 800°F) material is SA217 WC6 or SA351 CF8M for material options M1 and M2.





Hastelloy® C Trim for All Models						
Part No.	Part Name	Materials				
		H1 Nozzle and Disc	H2 Internal Parts Except Spring & Steps	H3 Complete Valve Except Spring & Steps	H4 Entire Valve	H5 All Parts Below Bellows
		-20°F to +800°F	-20°F to +800°F	-20°F to +1000°F	-20°F to +1000°F	-20°F to +800°F
1	Body (see note 6)	SA216 WCC	SA216 WCC	SA494 CW-12MW	SA494 CW-12MW	SA494 CW-12MW
2	Nozzle	SA494 CW-12MW	SA494 CW-12MW	SA494 CW-12MW	SA494 CW-12MW	SA494 CW-12MW
3	Stud	SA193 B7	SA193 B7	SF468 UNS N04400	SF468 UNS N04400	SA193 B7
4	Guide (see note 5)	A351 CF8M SS	A494 CW-12MW	A494 CW-12MW	A494 CW-12MW	A351 CF8M SS
7	Gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
8	Stud nut	SA194 2H	SA194 2H	SF467 UNS N04400	SF467 UNS N04400	SA194 2H
11, 42	Bonnet (see note 6)	SA216 WCC	SA216 WCC	SA494 CW-12MW	SA494 CW-12MW	SA216 WCC
12	Disc	SB574 UNS N10276	SB574 UNS N10276	SB574 UNS N10276	SB574 UNS N10276	SB574 UNS N10276
14	Stem	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	A479 316 SS
15	Ring pin gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
17	Compression screw	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	A479 316 SS
21	Compression nut	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276
26, 91	Spring steps	A108 CS	A108 CS	A108 CS	B574 UNS N10276	A108 CS
27	Cap gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
30	Screwed cap	A216 WCC	A216 WCC	A494 CW-12MW	A494 CW-12MW	A216 WCC
37	Spring (see note 3)	Chrome Alloy	Chrome Alloy	Chrome Alloy	B574 UNS N10276	Chrome Alloy
55	Bellows	Inconel® 625 LCF	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276
	Bellows Flange	A240 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276
	Bellows Nut	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276
90A	Bonnet plug (see note 1)	Carbon Steel	Carbon Steel	B574 UNS N10276	B574 UNS N10276	N/A
90B	Body plug	Carbon Steel	Carbon Steel	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276
93	Point (see note 2)	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276	A479 316 SS
94	Disc holder	A351 CF8M SS	A494 CW-12MW	A494 CW-12MW	A494 CW-12MW	A494 CW-12MW
95	Disc retaining ring	A313 302 SS	Hastelloy® C	Hastelloy® C	Hastelloy® C	Hastelloy® C
96	Adjusting ring	A351 CF8M SS	A494 CW-12MW	A494 CW-12MW	A494 CW-12MW	A494 CW-12MW
100	Bellows nut gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
102	Bellows spacer (see note 4)	A479 316 SS	A479 316 SS	B574 UNS N10276	B574 UNS N10276	B574 UNS N10276

Notes

- Not for use with balanced bellows design.
- Not applicable to orifice sizes D & E for models RB/RBO.
- Inconel® X-750 material may be required for some applications.
- "Bellows spacer" is not shown, and is only present for D & E Orifices.
- Guide material for steam service is Monel® A494 M-35-2 for temperature ranges H1, H2, & H3.
- High temperature (above 800°F) material is SA217 WC6 or SA351 CF8M for material options H1 and H2.



Duplex Trim for All Models						
Part No.	Part Name	Materials				
		D1 Nozzle and Disc	D2 Internal Parts Except Spring & Steps	D3 Complete Valve Except Spring & Steps	D4 Entire Valve	D5 All Parts Below Bellows
		-20°F to +800°F	-20°F to +800°F	-20°F to +1000°F	-20°F to +1000°F	-20°F to +800°F
1	Body	SA216 WCC	SA216 WCC	SA995 CD3MN	SA995 CD3MN	SA995 CD3MN
2	Nozzle	SA995 CD3MN	SA995 CD3MN	SA995 CD3MN	SA995 CD3MN	SA995 CD3MN
3	Stud	SA193 B7	SA193 B7	SA320 B8M	SA320 B8M	SA193 B7
4	Guide	A351 CF8M SS	A995 CD3MN	A995 CD3MN	A995 CD3MN	A351 CF8M SS
7	Gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
8	Stud nut	SA194 2H	SA194 2H	SA194 8M	SA194 8M	SA194 2H
11, 42	Bonnet	SA216 WCC	SA216 WCC	SA995 CD3MN	SA995 CD3MN	SA216 WCC
12	Disc	SA479 UNS S32205	SA479 UNS S32205	SA479 UNS S32205	SA479 UNS S32205	SA479 UNS S32205
14	Stem	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 316 SS
15	Ring pin gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
17	Compression screw	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 316 SS
21	Compression nut	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205
26, 91	Spring steps	A108 CS	A108 CS	A108 CS	A479 UNS S32205	A108 CS
27	Cap gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
30	Screwed cap	A216 WCC	A216 WCC	A995 CD3MN	A995 CD3MN	A216 WCC
37	Spring (see note 3)	Chrome Alloy	Chrome Alloy	Chrome Alloy	Inconel® X-750	Chrome Alloy
55	Bellows	Inconel® 625 LCF	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205
	Bellows Flange	A240 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205
	Bellows Nut	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205
90A	Bonnet plug (see note 1)	Carbon Steel	Carbon Steel	Duplex 2205	Duplex 2205	N/A
90B	Body plug	Carbon Steel	Carbon Steel	Duplex 2205	Duplex 2205	Duplex 2205
93	Point (see note 2)	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205	A479 316 SS
94	Disc holder	A351 CF8M SS	A995 CD3MN	A995 CD3MN	A995 CD3MN	A995 CD3MN
95	Disc retaining ring	A313 302 SS	Duplex 2205	Duplex 2205	Duplex 2205	Duplex 2205
96	Adjusting ring	A351 CF8M SS	A995 CD3MN	A995 CD3MN	A995 CD3MN	A995 CD3MN
100	Bellows nut gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
102	Bellows spacer (see note 4)	A479 316 SS	A479 316 SS	A479 UNS S32205	A479 UNS S32205	A479 UNS S32205

Notes

1. Not for use with balanced bellows design.
2. Not applicable to orifice sizes D & E for models RB/RBO.
3. Inconel® X-750 material may be required for some applications.
4. "Bellows spacer" is not shown, and is only present for D & E Orifices.

# Bill of Materials

## Alloy 20 Trim



Alloy 20 Trim for All Models						
Part No.	Part Name	Materials				
		A1 Nozzle and Disc	A2 Internal Parts Except Spring & Steps	A3 Complete Valve Except Spring & Steps	A4 Entire Valve	A5 All Parts Below Bellows
		-20°F to +300°F	-20°F to +300°F	-20°F to +300°F	-20°F to +300°F	-20°F to +300°F
1	Body	SA216 WCC	SA216 WCC	SA351 CN7M	SA351 CN7M	SA351 CN7M
2	Nozzle	SA351 CN7M	SA351 CN7M	SA351 CN7M	SA351 CN7M	SA351 CN7M
3	Stud	SA193 B7	SA193 B7	Alloy 20	Alloy 20	SA193 B7
4	Guide	A351 CF8M SS	A351 CN7M	A351 CN7M	A351 CN7M	A351 CF8M SS
7	Gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
8	Stud nut	SA194 2H	SA194 2H	Alloy 20	Alloy 20	SA194 2H
11, 42	Bonnet	SA216 WCC	SA216 WCC	SA351 CN7M	SA351 CN7M	SA216 WCC
12	Disc	SB473 UNS N08020	SB473 UNS N08020	SB473 UNS N08020	SB473 UNS N08020	SB473 UNS N08020
14	Stem	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	A479 316 SS
15	Ring pin gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
17	Compression screw	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	A479 316 SS
21	Compression nut	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020
26, 91	Spring steps	A108 CS	A108 CS	A108 CS	B473 UNS N08020	A108 CS
27	Cap gasket	Soft Iron	Monel®	Monel®	Monel®	Soft Iron
30	Screwed cap	A216 WCC	A216 WCC	A351 CN7M	A351 CN7M	A216 WCC
37	Spring (see note 3)	Chrome Alloy	Alloy 20	Chrome Alloy	Alloy 20	Chrome Alloy
55	Bellows	Inconel® 625 LCF	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020
	Bellows Flange	A240 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020
	Bellows Nut	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020
90A	Bonnet plug (see note 1)	Carbon Steel	Carbon Steel	B473 UNS N08020	B473 UNS N08020	N/A
90B	Body plug	Carbon Steel	Carbon Steel	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020
93	Point (see note 2)	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020	A479 316 SS
94	Disc holder	A351 CF8M SS	A351 CN7M	A351 CN7M	A351 CN7M	A351 CN7M
95	Disc retaining ring	A313 302 SS	Alloy 20	Alloy 20	Alloy 20	Alloy 20
96	Adjusting ring	A351 CF8M SS	A351 CN7M	A351 CN7M	A351 CN7M	A351 CN7M
100	Bellows nut gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
102	Bellows spacer (see note 4)	A479 316 SS	A479 316 SS	B473 UNS N08020	B473 UNS N08020	B473 UNS N08020

### Notes

1. Not for use with balanced bellows design.
2. Not applicable to orifice sizes D & E for models RB/RBO.
3. Inconel® X-750 material may be required for some applications.
4. "Bellows spacer" is not shown, and is only present for D & E Orifices.

# Bill of Materials

## Low Temperature Trim



Low Temperature Trim for All Models					
Part No.	Part Name	Materials			
		L1 Low Temperature	L2 Low Temperature	L3 Low Temperature	LC Low Temperature
		-75°F to -21°F	-150°F to -21°F	-321°F to -151°F	-50°F to -21°F
1	Body	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS	SA352 LCC
2	Nozzle	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS
3	Stud	SA320 B8M	SA320 B8M	SA320 B8M	SA320 B8M
4	Guide	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
7	Gasket	Monel®	Monel®	Monel®	Monel®
8	Stud nut	SA194 8M	SA194 8M	SA194 8M	SA194 8M
11, 42	Bonnet	SA216 WCC	SA351 CF8M SS	SA351 CF8M SS	SA352 LCC
12	Disc	SA479 316 SS	SA479 316 SS	SA479 316 SS	SA479 316 SS
14	Stem	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
15	Ring pin gasket	Monel®	Monel®	Monel®	Monel®
17	Compression screw	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
21	Compression nut	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
26, 91	Spring steps	A108 CS	A479 316 SS	A479 316 SS	A108 CS
27	Cap gasket	Monel®	Monel®	Monel®	Monel®
30	Screwed cap	A216 WCC	A351 CF8M SS	A351 CF8M SS	SA352 LCC
37	Spring	Chrome Alloy	A313 316 SS	A313 316 SS	Chrome Alloy
55	Bellows	Inconel® 625 LCF	Inconel® 625 LCF	316L SS	Inconel® 625 LCF
	Bellows Flange	A240 316 SS	A240 316 SS	316L SS	A240 316 SS
	Bellows Nut	A479 316 SS	A479 316 SS	316L SS	A479 316 SS
90A	Bonnet plug (see note 1)	Carbon Steel	A479 316 SS	A479 316 SS	Carbon Steel
90B	Body plug	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
93	Point (see note 2)	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
94	Disc holder	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
95	Disc retaining ring	A313 302 SS	A313 302 SS	A313 302 SS	A313 302 SS
96	Adjusting ring	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
100	Bellows nut gasket	Monel®	Monel®	Monel®	Monel®
102	Bellows spacer (see note 3)	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS

### Notes

1. Not for use with balanced bellows design.
2. Not applicable to orifice sizes D & E for models RB/RBO.
3. "Bellows spacer" is not shown, and is only present for D & E Orifices.

# Bill of Materials

## High Temperature and NACE Trim

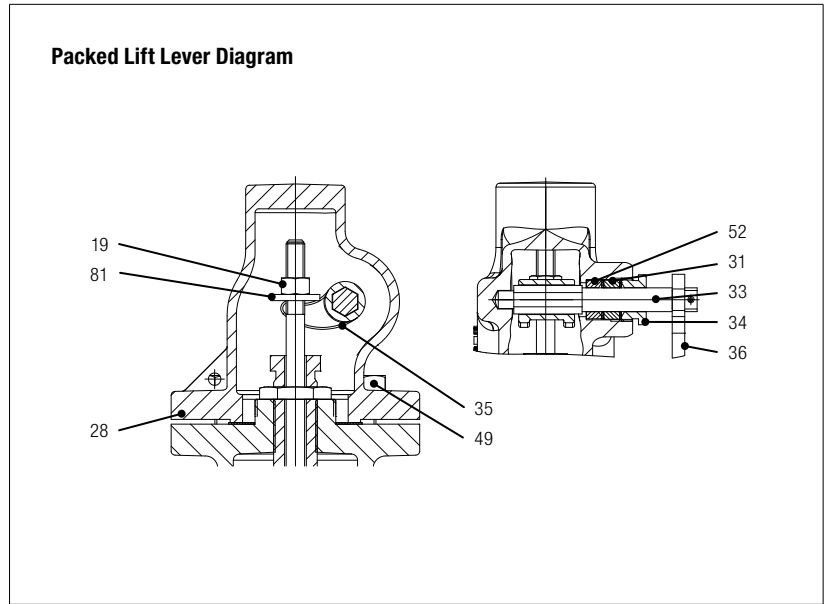
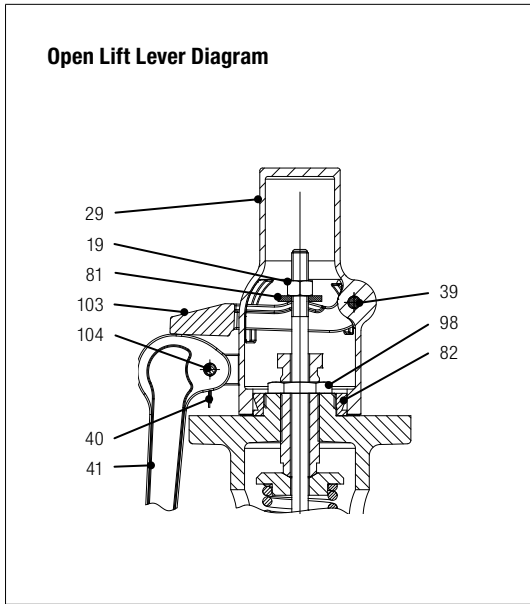


High Temperature and NACE Trim for All Models						
Part No.	Part Name	Materials				
		W1 High Temperature	W2 High Temperature	W3 High Temperature	SG Sour Gas NACE MR0175 & MR0103	SS Sour Gas NACE MR0175 & MR0103
		-20°F to +1000°F	-20°F to +1000°F	-20°F to +1200°F	-20°F to +800°F	-320°F to +800°F
1	Body	SA217 WC6	SA217 WC6	SA217 C12	SA216 WCC	SA351 CF8M SS
2	Nozzle	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS	SA351 CF8M SS
3	Stud	SA193 B7	SA193 B7	SA193 B7	SA193 B7	SA320 B8M
4	Guide	A494 M-35-2	A494 M-35-2	A494 M-35-2	A351 CF8M SS	A351 CF8M SS
7	Gasket	Monel®	Monel®	Monel®	Soft Iron	316 SS
8	Stud nut	SA194 2H	SA194 2H	SA194 2H	SA194 2H	SA194 8M
11, 42	Bonnet	SA216 WCC	SA217 WC6	SA217 C12	SA216 WCC	SA351 CF8M SS
12	Disc	SA479 316 SS	SA479 316 SS	SA479 316 SS	SA479 316 SS	SA479 316 SS
14	Stem	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
15	Ring pin gasket	Monel®	Monel®	Monel®	Soft Iron	316 SS
17	Compression screw	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
21	Compression nut	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
22-23	Ring pin assembly	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
26, 91	Spring steps	A108 CS	A108 CS	A108 CS	(see note 4)	A479 316 SS
27	Cap gasket	Monel®	Monel®	Monel®	Soft Iron	316 SS
30	Screwed cap	A216 WCC	A216 WCC	A216 WCC	A216 WCC	A351 CF8M SS
37	Spring	Inconel® X-750	Inconel® X-750	Inconel® X-750	(see note 5)	(see note 6)
55	Bellows	Inconel® 625 LCF	Inconel® 625 LCF	Inconel® 625 LCF	Inconel® 625 LCF	Inconel® 625 LCF
	Bellows Flange	A240 316 SS	A240 316 SS	A240 316 SS	A240 316 SS	A240 316 SS
	Bellows Nut	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
90A	Bonnet plug (see note 1)	Carbon Steel	316 SS	316 SS	Carbon Steel	A479 316 SS
90B	Body plug	316 SS	316 SS	316 SS	Carbon Steel	A479 316 SS
93	Point (see note 2)	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS
94	Disc holder	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
95	Disc retaining ring	A313 302 SS	A313 302 SS	A313 302 SS	A313 302 SS	A313 302 SS
96	Adjusting ring	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS	A351 CF8M SS
100	Bellows nut gasket	Soft Iron	Monel®	Monel®	Soft Iron	316 SS
102	Bellows spacer (see note 3)	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS

### Notes

- Not for use with balanced bellows design.
- Not applicable to orifice sizes D & E for models RB/RBO.
- "Bellows spacer" is not shown, and is only present for D & E Orifices.
- Material for R Series is A479 316 SS.  
Material for RB Series is A108 CS.
- Material for R Series is Inconel® X-750.  
Material for RB Series is Chrome Alloy.
- Material for R Series is Inconel® X-750.  
Material for RB Series is A313 316 SS.





Open Lift Lever Trim Specifications		
Part No.	Part Name	Materials
		All Trims
19	Jam nut	A582 303 SS
29	Open cap	Carbon Steel
39	Yoke pin	A108 CS
40	Cotter pin	Carbon Steel
41	Open lever	Carbon Steel
81	Lifting washer	A479 316 SS
82	Cap adapter	A108 CS
98	Set screw	A108 CS
103	Yoke	Carbon Steel
104	Lever pin	A108 CS

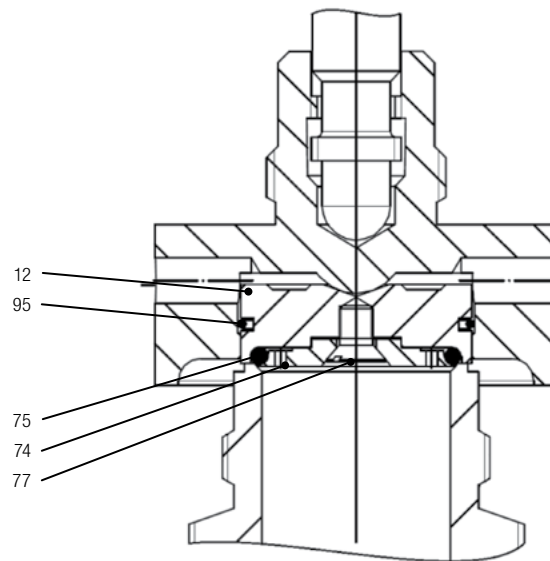
**Bill of Materials**  
Lifting Lever Materials



Packed Lift Lever Trim Specifications						
Part No.	Part Name	Materials				
		S1, S2, S5, M1, M5, H1, H5, D1, D5, A1, A5, L1, W1, W2, W3 & SG	S3, S4, L2, L3, & SS	LC	Monel®	
					M2	M3 & M4
19	Jam nut	A582 303 SS	A582 303 SS		Monel® B164	
27	Cap gasket	Soft Iron	Monel®		Monel®	
28	Packed cap	A216 WCC	A351 CF8M	A352 LCC	A216 WCC	Monel® A494
31	Packing	Graphite	Graphite		Graphite	
33	Shaft	A479 316 SS	A479 316 SS		Monel® B164	
34	Packing gland	A479 316 SS	A479 316 SS		A479 316 SS	Monel® B164
35	Yoke	A216 WCC	A351 CF8M		Monel® A494	
36	Packed lever	Carbon Steel	Carbon Steel		Carbon Steel	
49	Cap bolt	A193 B7 CS	SA320 B8M		A193 B7 CS	Monel® F468
52	Collar	A479 316 SS	A479 316 SS		Monel® B164	
81	Lifting washer	A479 316 SS	A479 316 SS		Monel® B164	
99	Cotter pin	Carbon Steel	Carbon Steel		Carbon Steel	

Packed Lift Lever Trim Specifications							
Part No.	Part Name	Materials					
		Hastelloy® C		Duplex		Alloy 20	
		H2	H3 & H4	D2	D3 & D4	A2	A3 & A4
19	Jam nut	Hastelloy® C B574		A479 UNS S32205		B473 UNS N08020	
27	Cap gasket	Monel®		Monel®		Monel®	
28	Packed cap	A216 WCC	Hastelloy® C A494	A216 WCC	A995 CD3MN	A216 WCC	A351 CN7M
31	Packing	Graphite		Graphite		Graphite	
33	Shaft	Hastelloy® C B574		A479 UNS S32205		B473 UNS N08020	
34	Packing gland	A479 316 SS	Hastelloy® C B574	A479 316 SS	A479 UNS S32205	A479 316 SS	B473 UNS N08020
35	Yoke	Hastelloy® C A494		A995 CD3MN		A351 CN7M	
36	Packed lever	Carbon Steel		Carbon Steel		Carbon Steel	
49	Cap bolt	A193 B7 CS	Hastelloy® C F468	SA193 B7	SA320 B8M	SA193 B7	Alloy 20
52	Collar	Hastelloy® C B574		A479 UNS S32205		B473 UNS N08020	
81	Lifting washer	Hastelloy® C B574		A479 UNS S32205		B473 UNS N08020	
99	Cotter pin	Carbon Steel		Carbon Steel		Carbon Steel	

**O-Ring Diagram**



**O-Ring Seat Seal Standard Trim**

Part No.	Part Name	Materials	Temperature Range	
			°F	°C
12	Disc	SA479 316 SS		
74	Retaining plate	SA479 316 SS		
75	O-Ring (see note 1)	Buna-N (nitrile rubber)	-30°F to 250°F	-34°C to 121°C
		Ethylene-propylene rubber (EPR)	-40°F to 260°F	-40°C to 127°C
		Fluorocarbon	-15°F to 400°F	-26°C to 204°C
		Silicone	-65°F to 400°F	-54°C to 204°C
		PTFE (see note 2)	-300°F to 500°F	-184°C to 260°C
		FFKM	(see note 3)	(see note 3)
77	Retaining screw	A479 316 SS		
95	Disc retaining ring	A313 302 SS		

**Notes**

- Customer is responsible for material compatibility to service media, temperature, and pressure. Different grade materials may be required depending on service. Other O-ring materials available upon request.
- Not available for all pressures over given temperature range. Please contact manufacturer for more information.
- Different grades may be used depending on media service. Temperature limit varies with grade and should be verified by factory when these materials are used.



## Procedures for Sizing Safety Relief Valves

In all problems of sizing safety relief valves, the relieving pressure and the required rate of flow (relieving capacity) under specified conditions must be known. Then, refer to the capacity tables or use the proper formula to solve for the required effective orifice area.

Contact your local representative for more information. If all the necessary information is provided, ARI-Armaturen will gladly perform the calculations and provide a detailed sizing sheet for each valve.

## Sizing by Formula

It is frequently more convenient to assemble all the data relating to a given safety relief valve sizing problem and determine the required orifice or discharge area by formula. It is then quite simple to match the required area against the listed areas available in the type of valve selected.

### Solving by formula requires:

- Relieving pressure
- Constant back pressure
- Temperature of the medium
- Specific gravity of the medium
- Volume to be handled

## Sizing from Capacity Tables

### Air/Gas

REYCO® air capacity tables are based on free air under standard conditions (atmospheric pressure and 68°F).

### Steam

The standard steam capacity tables are expressed in terms of pounds of saturated steam per hour, at set pressure, plus 10% overpressure. Valve capacity, as defined by Section XIII of the ASME Boiler and Pressure Vessel Code (BPVC), is expressed as 90% of the total capacity rating.

For superheated steam, capacities must be corrected by the applicable superheat correction factor.

### Liquids

The capacities of R Series valves for liquid services are expressed in terms of water, in gallons per minute at set gauge pressure plus 10% accumulation or over pressure.

For liquids other than water, capacities may be determined from the water capacity tables by correcting for specific gravity.

Caution must be exercised where liquids of high viscosity are being handled. The calculations necessary to determine relief valve capacity for such fluids are complex, and beyond the scope of this outline. However all such problems may be referred to ARI-Armaturen with information on viscosity, relieving pressure, permissible accumulation, temperature of the medium, specific gravity, and the volume to be handled.



Equations in Imperial Units (USC)	
<b>Air/Gas: Volumetric Flow</b>	$A = \frac{V \sqrt{M \times T \times Z}}{6.32 \times C \times K \times P_1 \times K_b \times K_c}$
<b>Air/Gas: Mass Flow</b>	$A = \frac{W}{C \times K \times P_1 \times K_b \times K_c} \sqrt{\frac{T \times Z}{M}}$
<b>Steam:</b>	$A = \frac{W}{51.5 \times P_1 \times K \times K_b \times K_c \times K_N \times K_{SH}}$
<b>Liquid:</b>	$A = \frac{Q}{38 \times K \times K_w \times K_c \times K_v} \sqrt{\frac{G}{P_1 - P_2}}$

Equations in Metric Units (SI)	
<b>Air/Gas: Volumetric Flow</b>	$A = \frac{2.676 \times V \sqrt{M \times T \times Z}}{C \times K \times P_1 \times K_b \times K_c}$
<b>Air/Gas: Mass Flow</b>	$A = \frac{W}{C \times K \times P_1 \times K_b \times K_c} \sqrt{\frac{T \times Z}{M}}$
<b>Steam:</b>	$A = \frac{190.5 \times W}{P_1 \times K \times K_b \times K_c \times K_N \times K_{SH}}$
<b>Liquid:</b>	$A = \frac{11.78 \times Q}{K \times K_w \times K_c \times K_v} \sqrt{\frac{G}{P_1 - P_2}}$

Symbol Legend					
Symbol	Description	Imperial Units (USC)		Metric Units (SI)	
		Notes	Units	Notes	Units
$A$	Valve's required effective discharge area		in <sup>2</sup>		cm <sup>2</sup>
$C$	Gas constant based on $k$	$C = 520 \sqrt{k \left( \frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$ If unknown, use $C = 315$		$C = 0.03948 \sqrt{k \left( \frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$ If unknown, use $C = 315$	
$G$	Specific gravity of referenced liquid	Water = 1.00 at 70°F		Water = 1.00 at 20°C	
$k$	Ratio of specific heats for an ideal gas				
$K$	Coefficient of discharge	Air/Gas & Steam: For the ASME actual orifice area, use $K = 0.860$ For the API effective orifice area, use $K = 0.952$ Liquid: For the ASME actual orifice area, use $K = 0.724$ For the API effective orifice area, use $K = 0.801$		Air/Gas & Steam: For the ASME actual orifice area, use $K = 0.860$ For the API effective orifice area, use $K = 0.952$ Liquid: For the ASME actual orifice area, use $K = 0.724$ For the API effective orifice area, use $K = 0.801$	
$K_b$	Backpressure correction factor				
$K_c$	Rupture disc correction factor				
$K_N$	Napier correction factor	For steam flowing pressures in excess of 1500 psig		For steam flowing pressures in excess of 105 barg	
$K_{SH}$	Superheat steam correction factor				
$K_v$	Viscosity correction factor				
$K_w$	Back pressure correction factor	For liquids and balanced bellows valves		For liquids and balanced bellows valves	
$M$	Molecular weight of gas or vapor				
$P_1$	Relieving pressure	Air/Gas & Steam = [Set Pressure] + [Allowable Overpressure] + [Atmospheric Pressure] Liquid = [Set Pressure] + [Allowable Overpressure]	psia psig	Air/Gas & Steam = [Set Pressure] + [Allowable Overpressure] + [Atmospheric Pressure] Liquid = [Set Pressure] + [Allowable Overpressure]	bara barg
$P_2$	Back pressure		psig		barg
$Q$	Flow rate (liquids)		gpm		M <sup>3</sup> /hr
$T$	Relieving temperature	°R = °F + 460	°R	°K = °C + 273	°K
$V$	Flow rate (air/gas)	In SCFM at 14.7 psia and 60°F	SCFM	In Nm <sup>3</sup> /hr at 1.03 bara and 0°C	Nm <sup>3</sup> /hr
$W$	Flow rate (air/gas or steam)		lbs/hr		kg/hr
$Z$	Compressibility factor				

# Technical Information

## Sizing Correction Table for Superheated Steam



**Superheated Steam Sizing Correction Table**

Steam Temperature		280°F	300°F	320°F	340°F	360°F	380°F	400°F	420°F	440°F	460°F	480°F	500°F	520°F	540°F	560°F	580°F	600°F	620°F
Set Pressure	Sat. Steam Temp	Correction Factors																	
	°F																		
15	250	1	1	1	0.99	0.99	0.98	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88	0.87
20	259	1	1	1	0.99	0.99	0.98	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88	0.87
40	287		1	1	1	0.99	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88	0.87
60	308			1	1	0.99	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88	0.87
80	324				1	1	0.99	0.99	0.98	0.97	0.96	0.94	0.93	0.92	0.91	0.9	0.89	0.89	0.88
100	338					1	1	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88
120	350					1	1	0.99	0.98	0.97	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88
140	361						1	1	0.99	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88
160	371							1	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.91	0.9	0.89	0.88
180	380							1	0.99	0.98	0.97	0.96	0.95	0.93	0.92	0.91	0.9	0.89	0.88
200	388							1	0.99	0.99	0.97	0.96	0.95	0.93	0.92	0.91	0.9	0.89	0.88
220	395							1	1	0.99	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.9	0.89
240	403								1	0.99	0.98	0.97	0.95	0.94	0.93	0.92	0.91	0.9	0.89
260	409								1	0.99	0.98	0.97	0.96	0.94	0.93	0.92	0.91	0.9	0.89
280	416								1	1	0.99	0.97	0.96	0.95	0.93	0.92	0.91	0.9	0.89
300	422									1	0.99	0.98	0.96	0.95	0.93	0.92	0.91	0.9	0.89
350	436									1	1	0.99	0.97	0.96	0.94	0.93	0.92	0.91	0.9
400	448										1	0.99	0.98	0.96	0.95	0.93	0.92	0.91	0.9
450	460											1	0.99	0.97	0.96	0.94	0.93	0.92	0.91
500	470											1	0.99	0.98	0.96	0.94	0.93	0.92	0.91
550	480												1	0.99	0.97	0.95	0.94	0.92	0.91
600	489													1	0.99	0.98	0.96	0.94	0.93
650	497														1	0.99	0.97	0.95	0.94
700	506															1	0.99	0.97	0.96
750	513															1	1	0.98	0.96
800	520																1	0.99	0.97
850	527																1	0.99	0.98
900	533																1	1	0.99
950	540																	1	0.99
1000	546																		1

Notes

[Superheated Steam Capacity] = [Saturated Steam Capacity] × [Correction Factor ( $K_{sp}$ )]

# Technical Information

## Sizing Correction Table for Superheated Steam



**Superheated Steam Sizing Correction Table**

Steam Temperature		640°F	660°F	680°F	700°F	720°F	740°F	760°F	780°F	800°F	820°F	840°F	860°F	880°F	900°F	920°F	940°F	960°F	980°F
Set Pressure	Sat. Steam Temp	Correction Factors																	
	°F																		
psig	°F																		
15	250	0.86	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.76	0.76	0.75
20	259	0.86	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.77	0.76	0.75
40	287	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.82	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.77	0.76	0.75
60	308	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76	0.76
80	324	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76	0.76
100	338	0.87	0.86	0.85	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76	0.76
120	350	0.87	0.86	0.85	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76	0.76
140	361	0.87	0.86	0.85	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76	0.76
160	371	0.87	0.86	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.79	0.78	0.77	0.77	0.76	0.76
180	380	0.87	0.86	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.79	0.78	0.77	0.77	0.76	0.76
200	388	0.87	0.86	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.77	0.77	0.76	0.76
220	395	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.76	0.76
240	403	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.76	0.76
260	409	0.88	0.87	0.86	0.85	0.85	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.76	0.76
280	416	0.88	0.87	0.86	0.85	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76
300	422	0.88	0.87	0.86	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.77	0.76
350	436	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.81	0.8	0.79	0.78	0.78	0.77	0.77	0.76
400	448	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.77	0.77	0.76
450	460	0.89	0.88	0.87	0.86	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.76
500	470	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.79	0.79	0.78	0.78	0.77	0.76
550	480	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.76
600	489	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77	0.76
650	497	0.91	0.9	0.89	0.87	0.86	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.78	0.78	0.77	0.77
700	506	0.91	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.77	0.77
750	513	0.92	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.8	0.79	0.79	0.78	0.77	0.77
800	520	0.92	0.91	0.9	0.88	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.8	0.8	0.79	0.78	0.78	0.77
850	527	0.93	0.92	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.78	0.78	0.77
900	533	0.93	0.92	0.9	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.81	0.8	0.79	0.79	0.78	0.77
950	540	0.94	0.92	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.8	0.79	0.79	0.78	0.77
1000	546	0.94	0.93	0.91	0.9	0.89	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.81	0.8	0.79	0.79	0.78	0.77

Notes

[Superheated Steam Capacity] = [Saturated Steam Capacity] × [Correction Factor ( $K_{sp}$ )]





**Air/Gas Capacities Table**

<b>Model:</b>	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
<b>Actual Orifice:</b>	0.122 in <sup>2</sup>	0.217 in <sup>2</sup>	0.340 in <sup>2</sup>	0.558 in <sup>2</sup>	0.869 in <sup>2</sup>	1.427 in <sup>2</sup>	2.036 in <sup>2</sup>	3.160 in <sup>2</sup>	3.987 in <sup>2</sup>	4.807 in <sup>2</sup>	7.07 in <sup>2</sup>	12.24 in <sup>2</sup>	17.72 in <sup>2</sup>	29.75 in <sup>2</sup>

Set Pressure psig	Capacity Ratings: Air/Gas Flow at 10% Over-Pressure													
	SCFM													
5	44	78	122	200	311	511	729	1131	1427	1720	2530	4380	6341	10646
10	53	95	148	244	379	623	889	1380	1741	2099	3087	5345	7738	12991
20	72	129	202	332	516	848	1210	1878	2370	2857	4202	7275	10531	17681
30	92	163	256	420	653	1073	1531	2376	2998	3615	5316	9204	13325	22371
40	113	201	315	516	804	1321	1884	2924	3690	4448	6542	11327	16398	27530
50	134	239	374	613	955	1568	2237	3472	4381	5282	7768	13449	19471	32689
60	155	276	433	710	1106	1815	2590	4020	5072	6116	8995	15572	22544	37848
70	176	314	492	807	1256	2063	2943	4568	5764	6949	10221	17694	25616	43007
80	197	352	550	903	1407	2310	3296	5116	6455	7783	11447	19817	28689	48166
90	218	389	609	1000	1558	2558	3649	5664	7146	8616	12673	21939	31762	53325
100	240	427	668	1097	1708	2805	4002	6212	7838	9450	13899	24062	34835	58484
120	282	503	786	1290	2010	3300	4709	7308	9221	11117	16351	28307	40981	68802
140	324	578	904	1484	2311	3795	5415	8404	10603	12784	18803	32552	47126	79120
160	366	653	1022	1678	2612	4290	6121	9500	11986	14451	21255	36797	53272	89438
180	409	729	1140	1871	2914	4785	6827	10596	13369	16119	23707	41042	59418	99756
200	451	804	1258	2065	3215	5280	7533	11692	14752	17786	26159	45288	65563	110074
220	493	879	1376	2258	3517	5775	8239	12788	16135	19453	28611	49533	71709	120392
240	536	955	1494	2452	3818	6270	8945	13884	17517	21120	31063	53778	77855	130710
260	578	1030	1612	2645	4119	6765	9652	14980	18900	22787	33515	58023	84000	141028
280	620	1105	1730	2839	4421	7260	10358	16076	20283	24454	35967	62268	90146	151346
300	662	1181	1848	3032	4722	7754	11064	17172	21666	26122	38419	66513	96292	161664
320	705	1256	1966	3226	5024	8249	11770	18268	23048	27789	40871	70758		
340	747	1332	2083	3419	5325	8744	12476	19364	24431	29456	43323	75003		
360	789	1407	2201	3613	5626	9239	13182	20460	25814	31123	45775	79248		
380	832	1482	2319	3806	5928	9734	13888	21556	27197	32790	48227	83494		
400	874	1558	2437	4000	6229	10229	14594	22651	28580	34457	50679	87739		
420	916	1633	2555	4193	6531	10724	15301	23747	29962	36125	53131	91984		
440	958	1708	2673	4387	6832	11219	16007	24843	31345	37792	55583	96229		
460	1001	1784	2791	4580	7133	11714	16713	25939	32728	39459	58035	100474		
480	1043	1859	2909	4774	7435	12209	17419	27035	34111	41126	60487	104719		
500	1085	1934	3027	4967	7736	12704	18125	28131	35493	42793	62939	108964		
600	1297	2311	3616	5935	9243	15178	21656	33611	42407	51129	75199	130190		
700	1508	2688	4206	6903	10750	17653	25186	39091	49321	59465	87460			
800	1719	3065	4796	7870	12257	20127	28717	44571	56235	67801	99720			
900	1931	3442	5385	8838	13764	22602	32248	50050	63149	76137	111980			
1000	2142	3819	5975	9806	15271	25076	35778	55530	70063	84473	124240			
2000	4256	7587	11871	19482	30340	49822	71085							
3000	6370	11355	17767	29158										
4000	8484	15123	23663											
5000	10598	18891	29559											
6000	12712	22660												

- Notes:
- NB certified at 90% of average capacities, in accordance with the latest ASME Code Requirements.
  - Valves set under 15 psig are not ASME or NB code stamped.



Steam Capacities Table														
Model:	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
Actual Orifice:	0.122 in <sup>2</sup>	0.217 in <sup>2</sup>	0.340 in <sup>2</sup>	0.558 in <sup>2</sup>	0.869 in <sup>2</sup>	1.427 in <sup>2</sup>	2.036 in <sup>2</sup>	3.160 in <sup>2</sup>	3.987 in <sup>2</sup>	4.807 in <sup>2</sup>	7.07 in <sup>2</sup>	12.24 in <sup>2</sup>	17.72 in <sup>2</sup>	29.75 in <sup>2</sup>
Set Pressure	Capacity Ratings: Saturated Steam at 10% Over-Pressure													
psig	lb/hr													
5	123	218	342	561	874	1435	2047	3177	4008	4833	7108	12306	17815	29910
10	150	266	417	685	1066	1751	2498	3877	4891	5897	8674	15016	21739	36498
20	204	362	568	932	1451	2383	3400	5276	6657	8026	11805	20438	29588	49675
30	258	458	718	1179	1836	3015	4301	6676	8423	10155	14936	25859	37436	62851
40	317	564	884	1451	2259	3710	5293	8215	10365	12497	18381	31822	46069	77345
50	377	670	1050	1723	2683	4405	6285	9755	12308	14839	21825	37785	54702	91839
60	436	776	1215	1994	3106	5100	7277	11294	14250	17181	25270	43748	63335	106333
70	495	881	1381	2266	3529	5796	8269	12834	16193	19523	28714	49711	71968	120826
80	555	987	1547	2538	3953	6491	9261	14374	18135	21865	32158	55675	80601	135320
90	614	1093	1712	2810	4376	7186	10253	15913	20078	24207	35603	61638	89234	149814
100	674	1198	1878	3082	4799	7881	11245	17453	22020	26549	39047	67601	97867	164308
120	793	1410	2209	3626	5646	9272	13229	20532	25905	31233	45936	79527	115133	193296
140	912	1621	2540	4169	6493	10662	15212	23611	29790	35917	52825	91454	132399	222284
160	1030	1833	2872	4713	7340	12053	17196	26690	33675	40600	59714	103380	149665	251272
180	1149	2044	3203	5257	8186	13443	19180	29769	37559	45284	66603	115307	166931	280259
200	1268	2256	3534	5800	9033	14833	21164	32848	41444	49968	73492	127233	184197	309247
220	1387	2467	3866	6344	9880	16224	23148	35927	45329	54652	80381	139160	201463	338235
240	1506	2679	4197	6888	10727	17614	25132	39006	49214	59336	87269	151086	218729	367223
260	1625	2890	4528	7431	11573	19005	27115	42085	53099	64020	94158	163012	235995	396211
280	1744	3101	4859	7975	12420	20395	29099	45164	56984	68703	101047	174939	253261	425198
300	1863	3313	5191	8519	13267	21786	31083	48243	60869	73387	107936	186865	270527	454186
320	1981	3524	5522	9063	14114	23176	33067	51322	64753	78071	114825	198792		
340	2100	3736	5853	9606	14960	24567	35051	54401	68638	82755	121714	210718		
360	2219	3947	6185	10150	15807	25957	37035	57480	72523	87439	128603	222644		
380	2338	4159	6516	10694	16654	27347	39018	60559	76408	92123	135491	234571		
400	2457	4370	6847	11237	17500	28738	41002	63638	80293	96807	142380	246497		
420	2576	4582	7178	11781	18347	30128	42986	66717	84178	101490	149269	258424		
440	2695	4793	7510	12325	19194	31519	44970	69796	88063	106174	156158	270350		
460	2814	5004	7841	12868	20041	32909	46954	72875	91947	110858	163047	282276		
480	2932	5216	8172	13412	20887	34300	48938	75954	95832	115542	169936	294203		
500	3051	5427	8504	13956	21734	35690	50922	79033	99717	120226	176825	306129		
600	3646	6484	10160	16674	25968	42642	60841	94429	119141	143645	211269	365761		
700	4240	7542	11816	19393	30202	49594	70760	109824	138566	167064	245713			
800	4834	8599	13473	22111	34435	56547	80679	125219	157990	190483	280158			
900	5429	9656	15129	24830	38669	63499	90598	140614	177414	213903	314602			
1000	6023	10713	16786	27548	42903	70451	100517	156009	196838	237322	349046			
2000	12496	22227	34826	57156	89011	146167	208546							
2900	20642	36715	57526	94411	147031	241442	344481							

Notes:

- NB certified at 90% of average capacities, in accordance with the latest ASME Code Requirements.
- Valves set under 15 psig are not ASME or NB code stamped.



**Liquid Capacities Table**

<b>Model:</b>	D	E	F	G	H	J	K	L	M	N	P	Q	R	T
<b>Actual Orifice:</b>	0.122 in <sup>2</sup>	0.217 in <sup>2</sup>	0.340 in <sup>2</sup>	0.558 in <sup>2</sup>	0.869 in <sup>2</sup>	1.427 in <sup>2</sup>	2.036 in <sup>2</sup>	3.160 in <sup>2</sup>	3.987 in <sup>2</sup>	4.807 in <sup>2</sup>	7.07 in <sup>2</sup>	12.24 in <sup>2</sup>	17.72 in <sup>2</sup>	29.75 in <sup>2</sup>

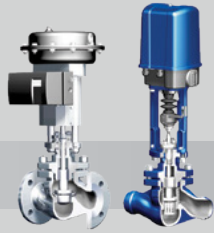
Set Pressure psig	Capacity Ratings: Liquid Flow at 10% Over-Pressure													
	GPM													
5	9	17	26	43	68	111	158	246	310	374	550	952	1379	2315
10	12	22	34	55	86	142	202	313	395	477	701	1214	1758	2951
20	16	29	45	74	115	188	269	417	526	634	933	1615	2338	3925
30	19	34	54	88	137	226	322	499	630	760	1117	1934	2800	4702
40	22	40	62	102	159	260	372	577	728	877	1290	2234	3234	5429
50	25	44	69	114	177	291	415	645	813	981	1442	2497	3615	6070
60	27	49	76	125	194	319	455	706	891	1074	1580	2736	3960	6649
70	29	52	82	135	210	344	492	763	962	1160	1707	2955	4278	7182
80	31	56	88	144	224	368	525	816	1029	1241	1825	3159	4573	7678
90	33	59	93	153	238	391	557	865	1091	1316	1935	3350	4851	8144
100	35	63	98	161	251	412	587	912	1150	1387	2040	3532	5113	8584
120	39	69	107	176	275	451	644	999	1260	1519	2235	3869	5601	9403
140	42	74	116	191	297	487	695	1079	1361	1641	2414	4179	6050	10157
160	44	79	124	204	317	521	743	1153	1455	1754	2580	4467	6467	10858
180	47	84	132	216	336	552	788	1223	1543	1861	2737	4738	6860	11517
200	50	89	139	228	355	582	831	1289	1627	1962	2885	4995	7231	12140
220	52	93	146	239	372	611	871	1352	1706	2057	3026	5238	7584	12732
240	54	97	152	249	388	638	910	1413	1782	2149	3160	5471	7921	13298
260	57	101	158	260	404	664	947	1470	1855	2236	3289	5695	8244	13841
280	59	105	164	269	420	689	983	1526	1925	2321	3414	5910	8556	14364
300	61	109	170	279	434	713	1018	1579	1993	2402	3533	6117	8856	14868
320	63	112	175	288	449	737	1051	1631	2058	2481	3649	6318		
340	65	116	181	297	462	759	1083	1681	2121	2558	3762	6512		
360	67	119	186	305	476	781	1115	1730	2183	2632	3871	6701		
380	69	122	191	314	489	803	1145	1777	2243	2704	3977	6885		
400	70	125	196	322	501	823	1175	1824	2301	2774	4080	7063		
420	72	128	201	330	514	844	1204	1869	2358	2843	4181	7238		
440	74	132	206	338	526	864	1232	1913	2413	2909	4279	7408		
460	75	134	210	345	538	883	1260	1956	2467	2975	4375	7575		
480	77	137	215	353	549	902	1287	1998	2520	3039	4469	7738		
500	79	140	219	360	561	921	1314	2039	2572	3101	4562	7897		
600	86	154	240	394	614	1009	1439	2233	2818	3397	4997	8651		
700	93	166	260	426	663	1089	1554	2412	3044	3670	5397			
800	99	177	277	455	709	1165	1662	2579	3254	3923	5770			
900	106	188	294	483	752	1235	1762	2735	3451	4161	6120			
1000	111	198	310	509	793	1302	1858	2883	3638	4386	6451			
2000	157	280	439	720	1121	1841	2627							
3000	193	343	537	882										
4000	222	397	620											
5000	249	443	694											
6000	272	486												

- Notes:
- NB certified at 90% of average capacities, in accordance with the latest ASME Code Requirements.
  - Valves set under 15 psig are not ASME or NB code stamped.



# ARI Product Diversity

## Control

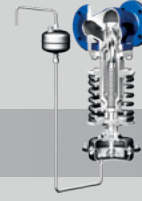


**Control Valves**  
STEVI®

**Pneumatic & Electric Actuators**  
DP & PREMIO®



**Mixing & Diverting Valves**  
STEVI® Smart



**Pressure Control**  
PREDU®, PREDEX®, & PRESO®



**Temperature Control**  
TEMPROL®

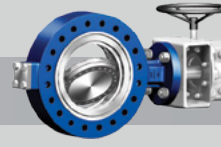
## Isolation



**Bellows Seal Globe Valves**  
FABU®



**Gland Seal Globe Valves**  
STOBU®



**Triple Offset Butterfly Valves**  
ZETRIX®

**Double Offset Butterfly Valves**  
ZEDOX®



**Soft Seal Butterfly Valves**  
ZESA® / GESA® & ZIVA®

## Safety



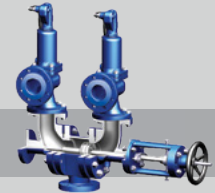
**Semi-Nozzle Safety Relief Valves**  
SAFE SN (ANSI & DIN)



**Full-Nozzle Safety Relief Valves**  
REYCO® R (API 526)



**Safety Relief Valves**  
REYCO® RL (ANSI)



**Changeover Valves**  
COMBI C (ANSI & DIN)

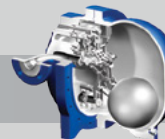
## Steam



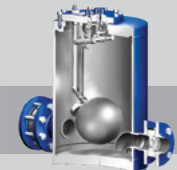
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CONA® All-in-One



**Mechanical Pump Trap**  
CONA® P



**Mechanical Condensate Pump**  
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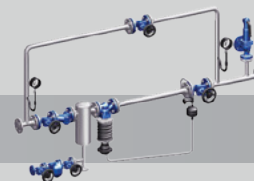
## Systems



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**Condensate Return Systems**  
CORsys®



**Pressure Reducing Stations**  
PREsys®



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