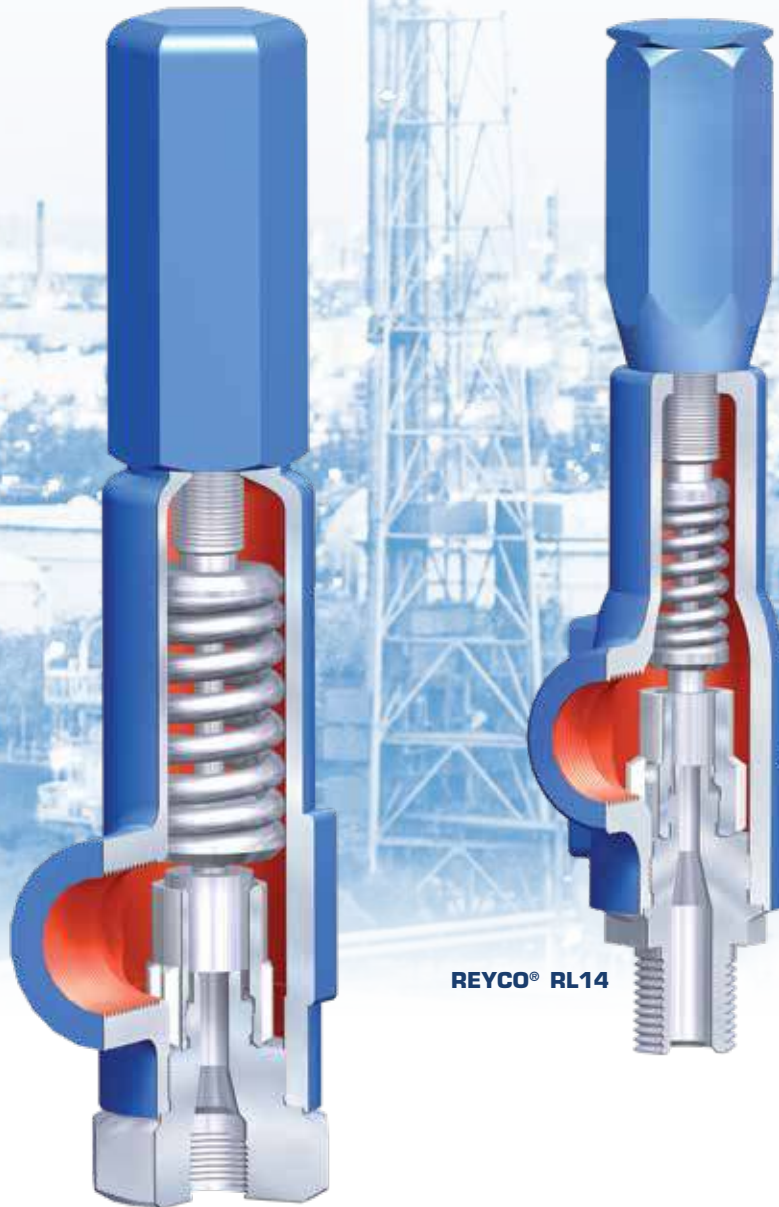


ASME SECTION VIII

ARI-REYCO®

Full-Nozzle Safety Relief Valves



REYCO® RL40/RL41

REYCO® RL14

Design Reliability, Flexibility, and E



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.

Efficiency



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!

RL Series Operating Principals

When considering the total cost of continued operation and maintenance, the RL Series is an economical choice for thermal relief or small capacity applications. It delivers proven performance and provides value to its users. Backed by an extensive repair and service organization network, customers receive high quality safety products that continue the unequaled reputation of ARI-REYCO®.

ARI-Armaturen USA's RL14 Series is a conventional, top guided, single ring, unbalanced, safety relief valve with the smallest orifice. Standard connection type is Male National Pipe Threading (Male NPT) × Female National Pipe Threading (Female NPT). The RL14 Series is used primarily for thermal relief applications. When an O-ring is added, the model changes to RLO14.

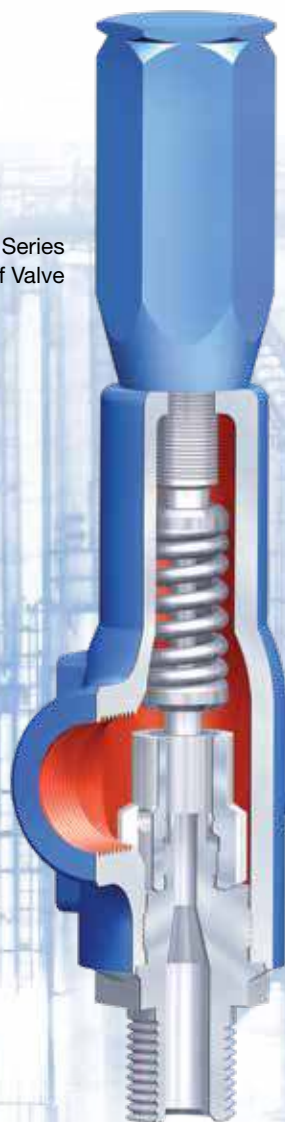
Series RL40 is a conventional, top guided, single ring, unbalanced safety relief valve with larger orifices. Standard connection type is Female National Pipe Threading (Female NPT) × Female National Pipe Threading (Female NPT). When an O-ring is added, the model changes to RLO40.

Model RL41 is a conventional, top guided, single ring, unbalanced safety relief valve with larger orifices. Standard connection type is Female National Pipe Threading (Female NPT) × Female National Pipe Threading (Female NPT). The RL41 Series is designed for pressures above 3,000 psig. When an O-ring is added, the model changes to RLO41.

Under normal system operation, the valve remains in the closed position because the spring force is greater than the system pressure acting on the internal base seating area. If system pressure increases to a point where the forces are equal, 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 will leak system fluid into the valve body. Suddenly, the safety relief valve opens at a rapid rate.

RL14 Series
Safety Relief Valve



RL40 & RL41 Series
Safety Relief Valve



Although the opening is rapid and dramatic, the valve does not open fully at set point. The system pressure must increase above the 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 overpressure can vary from 10% to 21% on unfired vessels and systems, depending on the sizing basis and whether a fire condition is encountered.

Once the valve has controlled the pressure excursion, system pressure will start to reduce. System pressure must reduce below the set point before the spring force is able to close the valve again. The difference between the set pressure and the closing pressure is called the blowdown and is usually expressed as a percentage of set pressure. The typical blowdown of the RL Series is fixed. Simmer will usually begin at about 93% to 95% of set pressure, depending on seat condition, and spring range. This performance is typical and widely accepted in most industries.

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 the 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 phenomenon called chatter, especially at low fluid flow rates. Chatter is the rapid opening and closing of the safety relief valve and is always destructive.

The liquid trim guide for the RL Series must be adjusted in order to meet the ASME Code Section VIII performance criteria of full rated liquid flow at 10% overpressure. Since no visible or audible pop is heard at set point, the RL Series liquid set pressure is defined as the pressure at which the first heavy flow occurs (a pencil sized steady stream of water that remains unbroken for approximately one inch).

About ARI-REYCO®

The ARI-REYCO® line of safety relief valves utilize sound engineering principles, and undergo thorough testing and continuous quality control in manufacturing. These measures ensure that ARI-REYCO® valves deliver the precision, durability, and value our customers expect & demand.

For more information about the complete line of products and services by ARI-REYCO®, visit our web site or contact the sales representative nearest you.

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UV



ISO 9001:2015 Certified



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

Information and prices subject to change without notice.

Full-Nozzle Safety Relief Valve

RL14, RLO14, RL40, RLO40, RL41, and RLO41 Series

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RL Series Model Number Guide

Valve Type

- RL14** Conventional Valve
- RLO14** Conventional Valve, O-ring Seat (see note 1)
- RL40** Conventional Valve
- RLO40** Conventional Valve, O-ring Seat (see note 1)
- RL41** Conventional Valve
- RLO41** Conventional Valve, O-ring Seat (see note 1)

Inlet x Outlet Connections

- | | |
|---|---|
| A Female NPT x Female NPT | P ANSI Class 600 RF x 300 RF (see note 6) |
| B Male NPT x Female NPT | Q ANSI Class 600 RF x 600 RF (see note 6) |
| D Socket Weld x Socket Weld | R ANSI Class 900 RF x 300 RF (see note 6) |
| E Butt Weld x Socket Weld (see note 2) | S ANSI Class 900 RF x 600 RF (see note 6) |
| J ANSI Class 150 RF x 150 RF | T ANSI Class 1500 RF x 300 RF (see note 6) |
| L ANSI Class 300 RF x 150 RF | U ANSI Class 1500 RF x 600 RF (see note 6) |
| M ANSI Class 300 RF x 300 RF | V ANSI Class 2500 RF x 300 RF (see note 6) |
| N ANSI Class 600 RF x 150 RF | |

Orifice Sizing

- A** RL14 Small / 0.077 in² Orifice
- D** RL14 Large / 0.122 in² Orifice
- B** RL40 & RL41 Small / 0.152 in² Orifice
- C** RL40 & RL41 Medium / 0.235 in² Orifice
- G** RL40 Large / 0.563 in² Orifice

Inlet x Outlet Sizing

- | | | |
|----------------------------|--------------------------|--------------------------|
| C 1/2 in x 1 in | F 3/4 in x 2 in | I 1 in x 2 in |
| D 3/4 in x 1 in | G 1 in x 1 in | J 1 1/2 in x 2 in |
| E 3/4 in x 1 1/2 in | H 1 in x 1 1/2 in | K 2 in x 2 in |

Materials (see note 3) + Trim (see note 3)

S 316 SS	1 Base & Disc; Carbon Steel Bonnet
M Monel®	3 Complete Valve except Spring & Steps
H Hastelloy® C	4 Entire Valve
D Duplex	
A Alloy 20	
S NACE MR0175	G Carbon Steel
NACE MR0103	S Stainless Steel

RL14 B A D S 1 (Model number continued on next page)



RL Series Model Number Guide

Configurations

- 2** Standard
- E** RTJ Inlet
- G** RTJ Inlet & Outlet
- H** Special Inlet and/or Outlet Configuration
- ...
- Z** Other Special/Nonstandard Options

Cap/Lever Options (see note 4)

- 0** Screwed Cap without Gag
- 1** Screwed Cap with Gag
- 2** Open Lift Lever without Gag
- 3** Open Lift Lever with Gag
- 4** Packed Lift Lever without Gag
- 5** Packed Lift Lever with Gag

Design Revision

- Old Design
- A** Current Design

Service

- J** ASME Section VIII Liquid
- K** ASME Section VIII Gas and Vapors
- L** ASME Section VIII Steam (Limited to 2900 psig [200 barg])
- M** Non Code Liquid
- N** Non Code Gas, Vapor
- P** Non Code Steam

Spring Material (see note 5)

- | | | |
|--------------------------|------------------------------|--------------------------|
| A Alloy 20 | D Duplex | M Monel® |
| B Inconel® X-750 | G 316 Stainless Steel | S Coated Steel |
| C Chrome Vanadium | H Hastelloy® C | Z Other Materials |

Set Pressure, i.e.

- 0008** = 8 psig
- 0015** = 15 psig
- 0125** = 125 psig
- 6000** = 6000 psig

Notes

1. The standard soft seat material in RLO Models is Fluorocarbon.
2. Custom inlet/outlet welding nipple lengths upon request. 6-inch standard.
3. Duplex and other materials available upon request.
4. Codes 20-25 apply to Standard Materials only.
5. May be determined by material & trim code.
6. Reference the Valve Selector specification tables to confirm maximum back pressure.
7. Not all combinations of model numbers are possible. Please reference the REYCO® RL Valve Selector specification tables to confirm valve availability.

2 0 A K C 0200

Features and Benefits

Features and Benefits

- Single trim for all services provides full capacity at 10% overpressure for liquid, steam, or vapor applications.
- Precision lapped metal or soft seats provide premium seat tightness meeting or exceeding API 527 leakage standards.
- Materials of construction provide flexibility. CS, SS, Monel®, Hastelloy® C, and other can be used in liquids, gases, corrosive media, H₂S and cryogenic services.
- ASME VIII compliance. Quality manufacturing and design meet certified relieving capacities by the National Board of Boilers and the Pressure Vessel Inspectors.
- Fourteen parts in RL14 Series provide simple reliable construction and ease of maintenance.
- RL40 and RL41 Series share common parts with the ARI-REYCO® R and RB Series, reducing spare parts inventories.

General Specifications

- ASME VIII UV Certified
- Pressure Equipment Directive 2014/68/ EU Certified
- ISO 9001:2015 Certified
- 1/2-inch × 1-inch to 2-inch × 2-inch Inlet/Outlets
- 5 to 5,000 psig pressure range
- -320°F to +1000°F temperature range
- Threaded, flanged, socket weld, and butt weld connections
- Metal or soft seats
- Standard accessories: lift levers and test gags
- Exotic materials (Monel® & Hastelloy® C) available
- Compliance to NACE MR0175 & MR0103

Technical Data

RL14 Series

Vapor and Liquid Service

- Inlet: 1/2-inch to 1-inch
- Orifice: 0.077-inch² and 0.122-inch²
- Fixed blowdown

RL40 Series

Vapor and Liquid Service

- Inlet: 3/4-inch to 2-inch
- Orifices: 0.152-inch², 0.235-inch², and 0.563-inch²
- Fixed blowdown

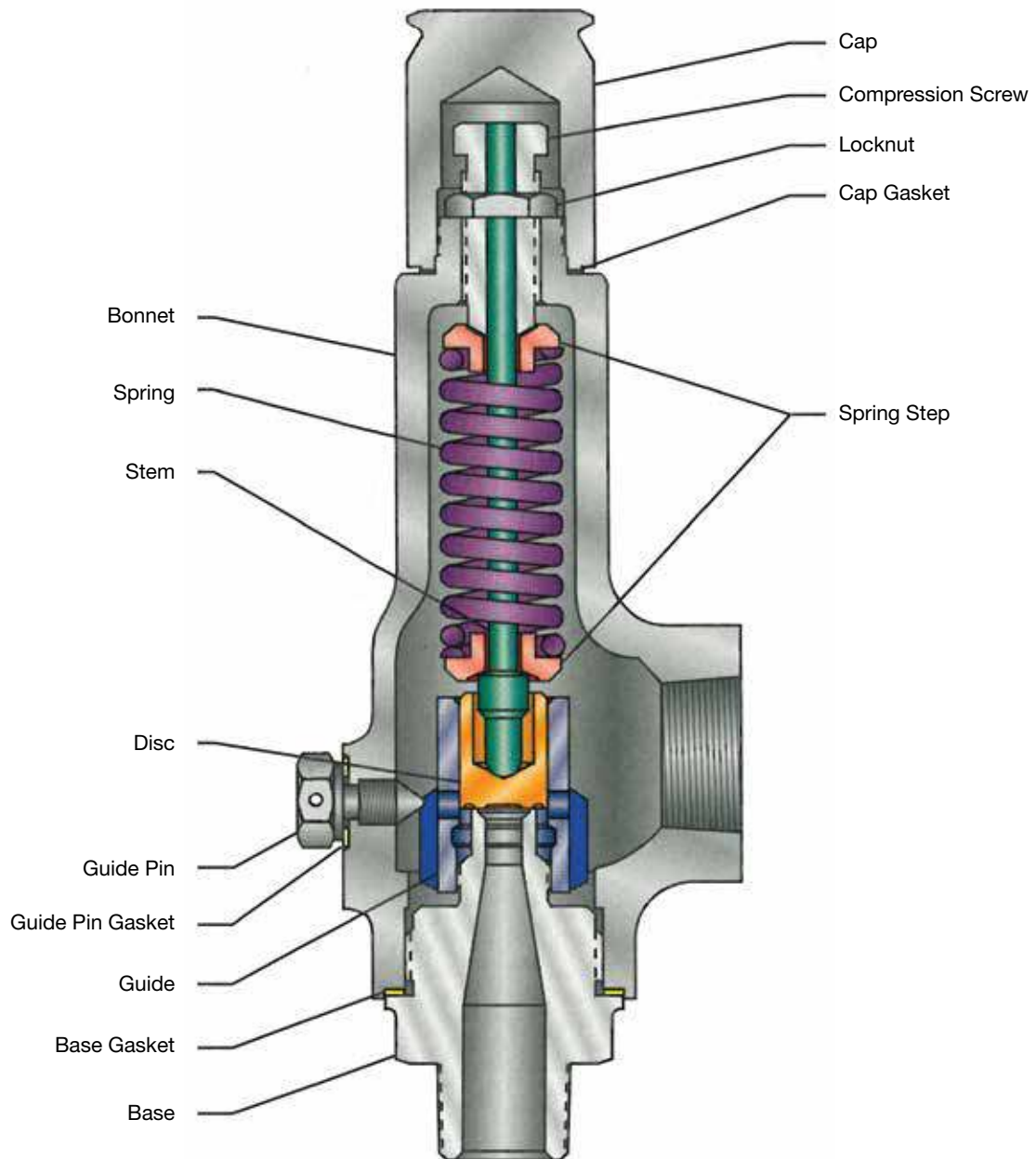
RL41 Series

Vapor and Liquid Service

- Inlet: 3/4-inch and 1-inch
- Orifices: 0.152-inch² and 0.235-inch²
- Fixed blowdown

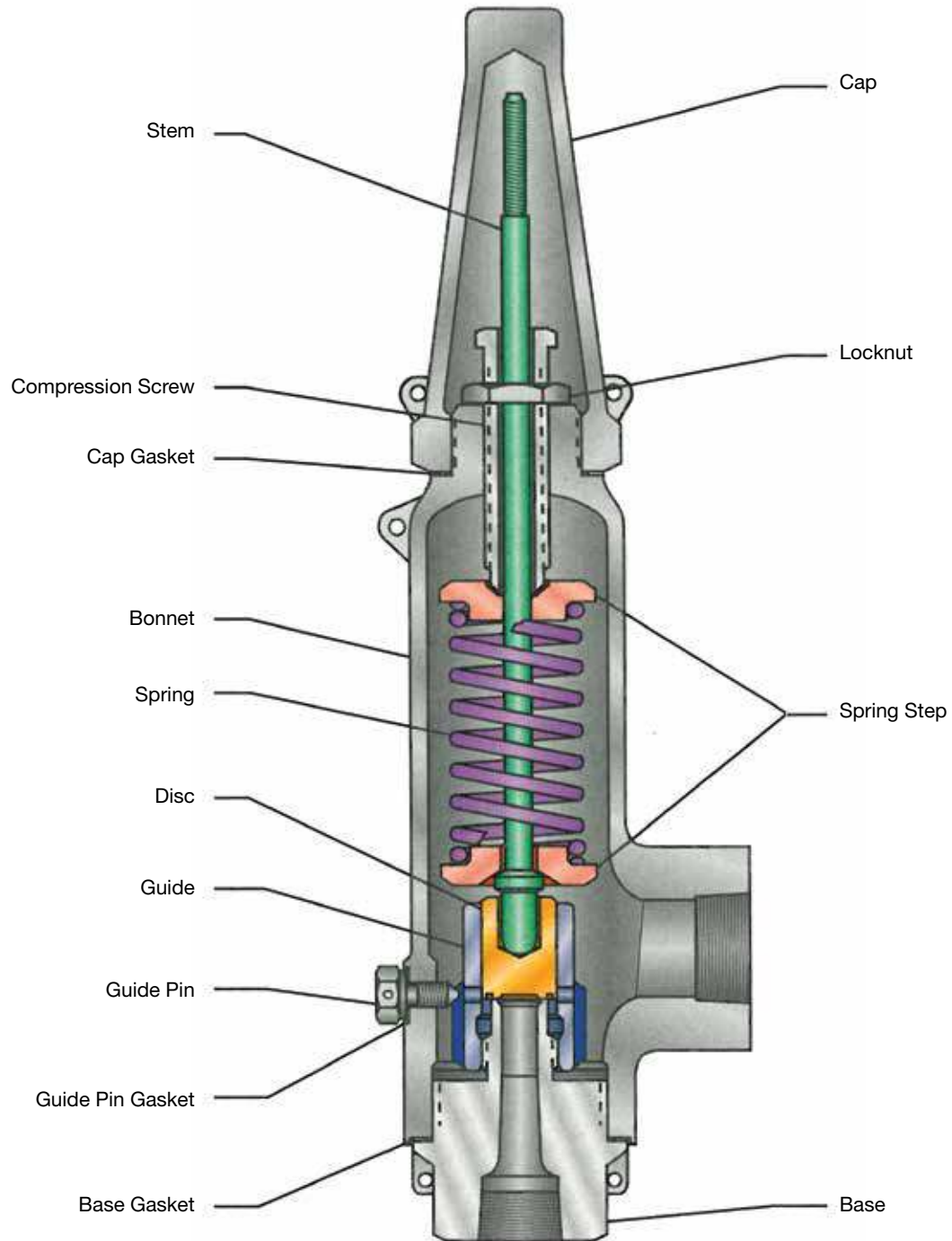
Valve Diagrams

RL14 Series



Valve Diagrams

RL40 and RL41 Series



Valve Selector

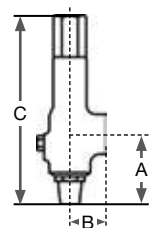
RL14 Small / 0.077-inch² Orifice

Specifications

Valve Size (inches)	Valve Model		Connections (RF or RTJ)		Max. Set Pressure ¹ (psig)			Max. Back Pressure (psig @ 100°F)	Valve Dimensions (inches)			Weight ² (lb)
	Conv.	O-Ring	Inlet	Outlet	100°F	400°F	750°F		A	B	Max. C	
1/2 × 1	RL14AAC	RLO14AAC	Female NPT	Female NPT	2900	2900	2900	400	2.85	1.75	10.22	4.3
3/4 × 1	RL14AAD	RLO14AAD	Female NPT	Female NPT	2900	2900	2900	400	2.85	1.75	10.22	4.3
1 × 1	RL14AAG	RLO14AAG	Female NPT	Female NPT	2900	2900	2900	400	2.85	1.75	10.22	4.3
1/2 × 1	RL14BAC	RLO14BAC	Male NPT	Female NPT	2900	2900	2900	400	3.41	1.75	10.78	4.3
3/4 × 1	RL14BAD	RLO14BAD	Male NPT	Female NPT	2900	2900	2900	400	3.41	1.75	10.78	4.3
1 × 1	RL14BAG	RLO14BAG	Male NPT	Female NPT	2900	2900	2900	400	3.41	1.75	10.78	4.3
1/2 × 1	RL14DAC	RLO14DAC	Socket Weld	Socket Weld	2500	2500	2500	400	2.85	1.75	10.22	4.3
3/4 × 1	RL14DAD	RLO14DAD	Socket Weld	Socket Weld	2500	2500	2500	400	2.85	1.75	10.22	4.3
1 × 1	RL14DAG	RLO14DAG	Socket Weld	Socket Weld	2500	2500	2500	400	2.85	1.75	10.22	4.3
1/2 × 1	RL14EAC	RLO14EAC	Butt Weld	Socket Weld	2500	2500	2500	400	welding extension lengths are customer specified			
3/4 × 1	RL14EAD	RLO14EAD	Butt Weld	Socket Weld	2500	2500	2500	400				
1 × 1	RL14EAG	RLO14EAG	Butt Weld	Socket Weld	2500	2500	2500	400				
1/2 × 1	RL14JAC	RLO14JAC	150 RF	150 RF	285	200	95	285	4.65	3.97	12.02	9.0
3/4 × 1	RL14JAD	RLO14JAD	150 RF	150 RF	285	200	95	285	4.72	3.97	12.10	9.0
1 × 1	RL14JAG	RLO14JAG	150 RF	150 RF	285	200	95	285	4.72	3.97	12.10	9.0
1/2 × 1	RL14LAC	RLO14LAC	300 RF	150 RF	744	635	505	285	4.65	3.97	12.02	10.0
3/4 × 1	RL14LAD	RLO14LAD	300 RF	150 RF	744	635	505	285	4.72	3.97	12.10	10.0
1 × 1	RL14LAG	RLO14LAG	300 RF	150 RF	744	635	505	285	4.72	3.97	12.10	10.0
1/2 × 1	RL14MAC	RLO14MAC	300 RF	300 RF	744	635	505	400	4.65	3.97	12.02	11.0
3/4 × 1	RL14MAD	RLO14MAD	300 RF	300 RF	744	635	505	400	4.72	3.97	12.10	11.0
1 × 1	RL14MAG	RLO14MAG	300 RF	300 RF	744	635	505	400	4.72	3.97	12.10	11.0
1/2 × 1	RL14NAC	RLO14NAC	600 RF	150 RF	1480	1270	1010	285	4.65	3.97	12.02	11.0
3/4 × 1	RL14NAD	RLO14NAD	600 RF	150 RF	1480	1270	1010	285	4.72	3.97	12.10	11.0
1 × 1	RL14NAG	RLO14NAG	600 RF	150 RF	1480	1270	1010	285	4.72	3.97	12.10	11.0
1/2 × 1	RL14PAC	RLO14PAC	600 RF	300 RF	1480	1270	1010	400	4.65	3.97	12.02	12.0
3/4 × 1	RL14PAD	RLO14PAD	600 RF	300 RF	1480	1270	1010	400	4.72	3.97	12.10	12.0
1 × 1	RL14PAG	RLO14PAG	600 RF	300 RF	1480	1270	1010	400	4.72	3.97	12.10	12.0
1/2 × 1	RL14RAC	RLO14RAC	900 RF	300 RF	2220	1847	1510	285	5.09	3.97	12.40	15.0
3/4 × 1	RL14RAD	RLO14RAD	900 RF	300 RF	2220	1847	1510	285	5.59	3.97	12.96	15.0
1 × 1	RL14RAG	RLO14RAG	900 RF	300 RF	2220	1847	1510	285	5.72	3.97	13.10	15.0
1/2 × 1	RL14TAC	RLO14TAC	1500 RF	300 RF	2500	2500	2500	400	5.09	3.97	12.40	15.0
3/4 × 1	RL14TAD	RLO14TAD	1500 RF	300 RF	2500	2500	2500	400	5.59	3.97	12.96	15.0
1 × 1	RL14TAG	RLO14TAG	1500 RF	300 RF	2500	2500	2500	400	5.72	3.97	13.10	15.0

Notes

1. Minimum operating temperature is -320°F.
2. Add one pound to listed weight for packed lift lever.
3. Valves set under 15 psig are not ASME code stamped. Minimum set pressure is 5 psig.
4. Maximum A and B dimensions ± 1/16-inch.



Valve Selector

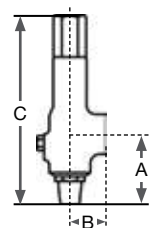
RL14 Large / 0.122-inch² Orifice

Specifications

Valve Size (inches)	Valve Model		Connections (RF or RTJ)		Max. Set Pressure ¹ (psig)			Max. Back Pressure (psig @ 100°F)	Valve Dimensions (inches)			Weight ² (lb)
	Conv.	O-Ring	Inlet	Outlet	100°F	400°F	750°F		A	B	Max. C	
1/2 × 1	RL14ADC	RLO14ADC	Female NPT	Female NPT	2900	2900	2900	400	2.85	1.75	10.22	4.3
3/4 × 1	RL14ADD	RLO14ADD	Female NPT	Female NPT	2900	2900	2900	400	2.85	1.75	10.22	4.3
1 × 1	RL14ADG	RLO14ADG	Female NPT	Female NPT	2900	2900	2900	400	2.85	1.75	10.22	4.3
1/2 × 1	RL14BDC	RLO14BDC	Male NPT	Female NPT	2900	2900	2900	400	3.41	1.75	10.78	4.3
3/4 × 1	RL14BDD	RLO14BDD	Male NPT	Female NPT	2900	2900	2900	400	3.41	1.75	10.78	4.3
1 × 1	RL14BDG	RLO14BDG	Male NPT	Female NPT	2900	2900	2900	400	3.41	1.75	10.78	4.3
1/2 × 1	RL14DDC	RLO14DDC	Socket Weld	Socket Weld	2500	2500	2500	400	2.85	1.75	10.22	4.3
3/4 × 1	RL14DDD	RLO14DDD	Socket Weld	Socket Weld	2500	2500	2500	400	2.85	1.75	10.22	4.3
1 × 1	RL14DDG	RLO14DDG	Socket Weld	Socket Weld	2500	2500	2500	400	2.85	1.75	10.22	4.3
1/2 × 1	RL14EDC	RLO14EDC	Butt Weld	Socket Weld	2500	2500	2500	400	welding extension lengths are customer specified			
3/4 × 1	RL14EDD	RLO14EDD	Butt Weld	Socket Weld	2500	2500	2500	400				
1 × 1	RL14EDG	RLO14EDG	Butt Weld	Socket Weld	2500	2500	2500	400				
1/2 × 1	RL14JDC	RLO14JDC	150 RF	150 RF	285	200	95	285	4.65	3.97	12.02	9.0
3/4 × 1	RL14JDD	RLO14JDD	150 RF	150 RF	285	200	95	285	4.72	3.97	12.10	9.0
1 × 1	RL14JDG	RLO14JDG	150 RF	150 RF	285	200	95	285	4.72	3.97	12.10	9.0
1/2 × 1	RL14LDC	RLO14LDC	300 RF	150 RF	744	635	505	285	4.65	3.97	12.02	10.0
3/4 × 1	RL14LDD	RLO14LDD	300 RF	150 RF	744	635	505	285	4.72	3.97	12.10	10.0
1 × 1	RL14LDG	RLO14LDG	300 RF	150 RF	744	635	505	285	4.72	3.97	12.10	10.0
1/2 × 1	RL14MDC	RLO14MDC	300 RF	300 RF	744	635	505	285	4.65	3.97	12.02	11.0
3/4 × 1	RL14MDD	RLO14MDD	300 RF	300 RF	744	635	505	285	4.72	3.97	12.10	11.0
1 × 1	RL14MDG	RLO14MDG	300 RF	300 RF	744	635	505	285	4.72	3.97	12.10	11.0
1/2 × 1	RL14NDC	RLO14NDC	600 RF	150 RF	1480	1270	1010	285	4.65	3.97	12.02	11.0
3/4 × 1	RL14NDD	RLO14NDD	600 RF	150 RF	1480	1270	1010	285	4.72	3.97	12.10	11.0
1 × 1	RL14NDG	RLO14NDG	600 RF	150 RF	1480	1270	1010	285	4.72	3.97	12.10	11.0
1/2 × 1	RL14PDC	RLO14PDC	600 RF	300 RF	1480	1270	1010	285	4.65	3.97	12.02	12.0
3/4 × 1	RL14PDD	RLO14PDD	600 RF	300 RF	1480	1270	1010	285	4.72	3.97	12.10	12.0
1 × 1	RL14PDG	RLO14PDG	600 RF	300 RF	1480	1270	1010	285	4.72	3.97	12.10	12.0
1/2 × 1	RL14RDC	RLO14RDC	900 RF	300 RF	2220	1847	1510	285	5.09	3.97	12.40	15.0
3/4 × 1	RL14RDD	RLO14RDD	900 RF	300 RF	2220	1847	1510	285	5.59	3.97	12.96	15.0
1 × 1	RL14RDG	RLO14RDG	900 RF	300 RF	2220	1847	1510	285	5.72	3.97	13.10	15.0
1/2 × 1	RL14TDC	RLO14TDC	1500 RF	300 RF	2500	2500	2500	400	5.09	3.97	12.40	15.0
3/4 × 1	RL14TDD	RLO14TDD	1500 RF	300 RF	2500	2500	2500	400	5.59	3.97	12.96	15.0
1 × 1	RL14TDG	RLO14TDG	1500 RF	300 RF	2500	2500	2500	400	5.72	3.97	13.10	15.0

Notes

1. Minimum operating temperature is -320°F.
2. Add one pound to listed weight for packed lift lever.
3. Valves set under 15 psig are not ASME code stamped. Minimum set pressure is 5 psig.
4. Maximum A and B dimensions ± 1/16-inch.



Valve Selector

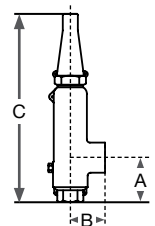
RL40 & RL41 Small / 0.152-inch² Orifice

Specifications

Valve Size (inches)	Valve Model		Connections (RF or RTJ)		Max. Set Pressure ¹ (psig)			Max. Back Pressure (psig @ 100°F)	Valve Dimensions (inches)			Weight ² (lb)
	Conv.	O-Ring	Inlet	Outlet	100°F	400°F	750°F		A	B	Max. C	
3/4 × 1	RL40ABD	RLO40ABD	Female NPT	Female NPT	3000	3000	3000	400	3.67	2.88	15.91	15.0
3/4 × 2	RL41ABF	RLO41ABF	Female NPT	Female NPT	5000	5000	5000	400	3.75	2.88	17.49	15.0
1 × 2	RL41ABI	RLO40ABI	Female NPT	Female NPT	5000	5000	5000	400	3.75	2.88	17.49	15.0
3/4 × 1	RL40BBD	RLO40BBD	Male NPT	Female NPT	3000	3000	3000	400	4.29	2.88	16.53	16.0
3/4 × 2	RL41BBF	RLO41BBF	Male NPT	Female NPT	5000	5000	5000	400	4.06	2.88	17.80	16.0
1 × 2	RL41BBI	RLO40BBI	Male NPT	Female NPT	5000	5000	5000	400	4.06	2.88	17.80	16.0
3/4 × 1	RL40DBD	RLO40DBD	Socket Weld	Socket Weld	3000	3000	3000	400	3.67	2.88	15.91	15.0
3/4 × 1	RL40EBD	RLO40EBD	Butt Weld	Socket Weld	3000	3000	3000	400	welding extension lengths are customer specified			
3/4 × 1	RL40JBD	RLO40JBD	150 RF	150 RF	285	185	95	285	5.75	5.00	17.63	21.0
3/4 × 1	RL40LBD	RLO40LBD	300 RF	150 RF	740	617	505	285	5.75	5.00	17.63	21.0
3/4 × 1	RL40NBD	RLO40NBD	600 RF	150 RF	1480	1235	1010	285	5.75	5.00	17.63	21.0
3/4 × 1	RL40RBD	RLO40RBD	900 RF	300 RF	2220	1847	1510	285	6.62	5.00	18.50	27.0
3/4 × 1	RL40TBD	RLO40TBD	1500 RF	300 RF	3000	3000	2520	400	6.62	5.00	18.50	27.0
3/4 × 2	RL41TBF	RLO41TBF	1500 RF	300 RF	3705	3170	2520	400	6.71	5.62	20.08	27.0
1 × 2	RL41TBI	RLO40TBI	1500 RF	300 RF	3705	3170	2520	400	6.71	5.62	20.08	27.0
3/4 × 2	RL41VBF	RLO41VBF	2500 RF	300 RF	5000	5000	4200	400	7.12	5.62	20.50	31.0
1 × 2	RL41VBI	RLO40VBI	2500 RF	300 RF	5000	5000	4200	400	7.12	5.62	20.50	31.0

Notes

1. Minimum operating temperature is -320°F.
2. Add one pound to listed weight for packed lift lever.
3. Valves set under 15 psig are not ASME code stamped. Minimum set pressure is 5 psig.
4. Maximum A and B dimensions ± 1/16-inch.
5. Custom dimensions available upon request.



Valve Selector

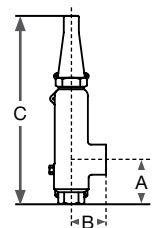
RL40 & RL41 Medium / 0.235-inch² Orifice

Specifications

Valve Size (inches)	Valve Model		Connections (RF or RTJ)		Max. Set Pressure ¹ (psig)			Max. Back Pressure (psig @ 100°F)	Valve Dimensions (inches)			Weight ² (lb)
	Conv.	O-Ring	Inlet	Outlet	100°F	400°F	750°F		A	B	Max. C	
1 × 1	RL40ACG	RLO40ACG	Female NPT	Female NPT	2000	2000	2000	400	3.67	2.88	15.91	15.0
1 × 1 1/2	RL40ACH	RLO40ACH	Female NPT	Female NPT	2000	2000	2000	400	3.67	2.88	15.91	15.0
1 × 2	RL41ACI	RLO41ACI	Female NPT	Female NPT	3000	3000	3000	400	3.75	2.88	17.49	15.0
1 1/2 × 2	RL41ACJ	RLO40ACJ	Female NPT	Female NPT	3000	3000	3000	400	3.75	2.88	17.49	15.0
1 × 1	RL40BCG	RLO40BCG	Male NPT	Female NPT	2000	2000	2000	400	4.29	2.88	16.53	16.0
1 × 1 1/2	RL40BCH	RLO40BCH	Male NPT	Female NPT	2000	2000	2000	400	4.29	2.88	16.53	16.0
1 × 2	RL41BCI	RLO41BCI	Male NPT	Female NPT	3000	3000	3000	400	4.06	2.88	17.80	16.0
1 1/2 × 2	RL41BCJ	RLO40BCJ	Male NPT	Female NPT	3000	3000	3000	400	4.06	2.88	17.80	16.0
1 × 1	RL40DCG	RLO40DCG	Socket Weld	Socket Weld	2000	2000	2000	400	3.67	2.88	15.91	15.0
1 × 1 1/2	RL40DCH	RLO40DCH	Socket Weld	Socket Weld	2000	2000	2000	400	3.67	2.88	15.91	15.0
1 × 1	RL40ECG	RLO40ECG	Butt Weld	Socket Weld	2000	2000	2000	400	welding extension lengths are customer specified			
1 × 1 1/2	RL40ECH	RLO40ECH	Butt Weld	Socket Weld	2000	2000	2000	400	welding extension lengths are customer specified			
1 × 1	RL40JCG	RLO40JCG	150 RF	150 RF	285	185	95	285	5.75	5.00	17.63	21.0
1 × 1 1/2	RL40JCH	RLO40JCH	150 RF	150 RF	285	185	95	285	5.75	5.39	17.63	23.0
1 × 1	RL40LCG	RLO40LCG	300 RF	150 RF	740	617	505	285	5.75	5.00	17.63	21.0
1 × 1 1/2	RL40LCH	RLO40LCH	300 RF	150 RF	740	617	505	285	5.75	5.39	17.63	23.0
1 × 1	RL40MCG	RLO40MCG	300 RF	300 RF	740	617	505	285	5.75	5.39	17.63	21.0
1 × 1 1/2	RL40MCH	RLO40MCH	300 RF	300 RF	740	617	505	285	5.75	5.39	17.63	23.0
1 × 1	RL40NCG	RLO40NCG	600 RF	150 RF	1480	1235	1010	285	5.75	5.39	17.63	21.0
1 × 1 1/2	RL40NCH	RLO40NCH	600 RF	150 RF	1480	1235	1010	285	5.75	5.39	17.63	23.0
1 × 1	RL40RCG	RLO40RCG	900 RF	300 RF	2000	1500	1500	285	6.62	5.00	18.50	27.0
1 × 2	RL41RCI	RLO41RCI	900 RF	300 RF	2220	1847	1510	400	6.71	5.62	20.08	27.0
1 1/2 × 2	RL41RCJ	RLO40RCJ	900 RF	300 RF	2220	1847	1510	400	6.71	5.62	20.08	27.0
1 × 1	RL40TCG	RLO40TCG	1500 RF	300 RF	2000	2000	2000	400	6.62	5.00	18.50	27.0
1 × 1 1/2	RL40TCH	RLO40TCH	1500 RF	300 RF	1500	1500	1500	400	6.62	5.39	18.50	29.0
1 × 2	RL41TCI	RLO41TCI	1500 RF	300 RF	3000	3000	2520	400	6.71	5.62	20.08	31.0
1 1/2 × 2	RL41TCJ	RLO40TCJ	1500 RF	300 RF	3000	3000	2520	400	6.71	5.62	20.08	31.0
1 × 2	RL41VCI	RLO41VCI	2500 RF	300 RF	3000	3000	2520	400	7.12	5.62	20.50	31.0
1 1/2 × 2	RL41VCJ	RLO40VCJ	2500 RF	300 RF	3000	3000	2520	400	7.12	5.62	20.50	31.0

Notes

1. Minimum operating temperature is -320°F.
2. Add one pound to listed weight for packed lift lever.
3. Valves set under 15 psig are not ASME code stamped. Minimum set pressure is 5 psig.
4. Maximum A and B dimensions ± 1/16-inch.
5. Custom dimensions available upon request.



Valve Selector

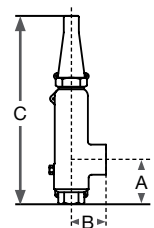
RL40 Large / 0.563-inch² Orifice

Specifications

Valve Size (inches)	Valve Model		Connections (RF or RTJ)		Max. Set Pressure ¹ (psig)			Max. Back Pressure (psig @ 100°F)	Valve Dimensions (inches)			Weight ² (lb)
	Conv.	O-Ring	Inlet	Outlet	100°F	400°F	750°F		A	B	Max. C	
1 1/2 × 2	RL40AGJ	RLO40AGJ	Female NPT	Female NPT	1500	1500	1500	400	3.94	2.88	17.71	24.0
2 × 2	RL40AGK	RLO40AGK	Female NPT	Female NPT	1500	1500	1500	400	3.94	2.88	17.71	24.0
1 1/2 × 2	RL40BGJ	RLO40BGJ	Male NPT	Female NPT	1500	1500	1500	400	4.56	2.88	18.33	25.0
2 × 2	RL40BGK	RLO40BGK	Male NPT	Female NPT	1500	1500	1500	400	4.56	2.88	18.33	25.0
1 1/2 × 2	RL40JGJ	RLO40JGJ	150 RF	150 RF	285	185	95	285	6.50	5.62	19.88	35.0
2 × 2	RL40JGK	RLO40JGK	150 RF	150 RF	285	185	95	285	6.75	5.62	20.13	37.0
1 1/2 × 2	RL40LGJ	RLO40LGJ	300 RF	150 RF	740	617	505	285	6.50	5.62	19.88	35.0
2 × 2	RL40LGK	RLO40LGK	300 RF	150 RF	740	617	505	285	6.75	5.62	20.13	43.0
1 1/2 × 2	RL40MGJ	RLO40MGJ	300 RF	300 RF	740	617	505	285	6.50	5.62	19.88	41.0
2 × 2	RL40MGK	RLO40MGK	300 RF	300 RF	740	617	505	285	6.50	5.62	19.88	47.0
1 1/2 × 2	RL40NGJ	RLO40NGJ	600 RF	150 RF	1480	1235	1010	285	6.50	5.62	19.88	41.0
2 × 2	RL40NGK	RLO40NGK	600 RF	150 RF	1480	1235	1010	285	6.75	5.62	20.13	43.0
1 1/2 × 2	RL40PGJ	RLO40PGJ	600 RF	300 RF	1480	1235	1010	285	6.50	5.62	19.88	47.0
2 × 2	RL40PGK	RLO40PGK	600 RF	300 RF	1480	1235	1010	285	6.50	5.62	19.88	47.0
1 1/2 × 2	RL40TGJ	RLO40TGJ	1500 RF	300 RF	1500	1500	1500	400	7.38	5.62	20.76	47.0
2 × 2	RL40TGK	RLO40TGK	1500 RF	300 RF	1500	1500	1500	400	7.62	5.62	21.00	49.0

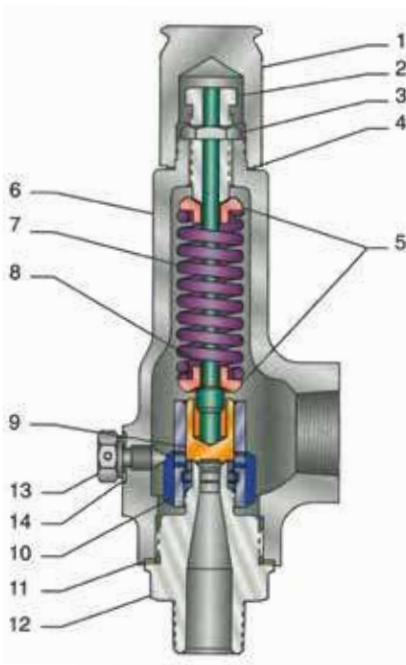
Notes

1. Minimum operating temperature is -320°F.
2. Add one pound to listed weight for packed lift lever.
3. Valves set under 15 psig are not ASME code stamped. Minimum set pressure is 5 psig.
4. Maximum A and B dimensions ± 1/16-inch.
5. Custom dimensions available upon request.



Bill of Materials

RL14 Series Standard Trim



S1 Trim for RL14 Conventional Safety Relief Valve

Part No.	Part Name	Materials
1	Cap	A108 CS or A216 GR WCC CS
2	Compression Screw	A479 316 SS
3	Locknut	A479 316 SS
4	Cap Gasket	Soft Iron
5	Spring Steps	A479 316 SS
6	Bonnet	SA216 GR WCC CS
7	Spring	Chrome Alloy (see note 2)
8	Stem	A479 316 SS
9	Disc	SA479 316 SS
10	Guide	A351 CF8M SS (see note 3)
11	Base Gasket	Soft Iron
12	Base	SA351 CF8M SS
13	Guide Pin Screw	A479 316 SS
14	Guide Pin Gasket	Soft Iron

Notes

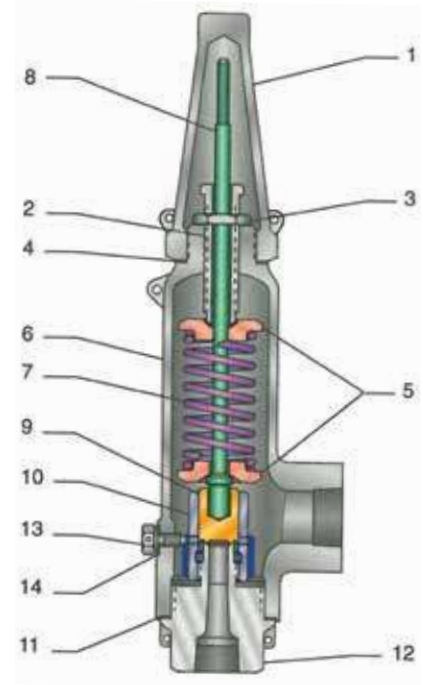
1. Valves set under 15 psig are not ASME code stamped.
2. Inconel® X-750 or alloy spring material may be required for some pressures, sizes, or temperatures.
3. Minimum set pressure is 5 psig.
4. Steam service requires Monel® A494 material.

Bill of Materials

RL40 and RL41 Series Standard Trim

S1 Trim for RL40 and RL41 Conventional Safety Relief Valve

Part No.	Part Name	Materials
1	Cap	A216 GR WCC CS
2	Compression Screw	A479 316 SS
3	Locknut	A479 316 SS
4	Cap Gasket	Soft Iron
5	Spring Steps	A108 CS
6	Bonnet	SA216 GR WCC CS
7	Spring	Chrome Alloy (see note 2)
8	Stem	A479 316 SS
9	Disc	SA479 316 SS
10	Guide	A351 CF8M SS (see note 3)
11	Base Gasket	Soft Iron
12	Base	SA351 CF8M SS
13	Guide Pin Screw	A479 316 SS
14	Guide Pin Gasket	Soft Iron



Notes

1. Valves set under 15 psig are not ASME code stamped.
2. Inconel® X-750 or alloy spring material may be required for some pressures, sizes, or temperatures.
3. Minimum set pressure is 5 psig.
4. Steam service requires Monel® A494 material.

Bill of Materials

RL14, RL40, & RL41 Series Trim Options

Standard and Monel® Trim

Part Name	S1	S3	S4	M1	M4
	Standard Trim	Entire Valve Except Spring & Steps	Entire Valve	Base and Disc	Entire Valve
	-20°F to +750°F	-20°F to +1000°F	-320°F to +1000°F	-20°F to +750°F	-320°F to +750°F
Cap	A216 WCC	A351 CF8M	A351 CF8M	A216 WCC	A494 M-35-2
Compression Screw	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164
Locknut	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164
Cap Gasket	Soft Iron	Monel®	Monel®	Soft Iron	Monel®
Spring Steps: RL14	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164
Spring Steps: RL40/41	A108 CS	A108 CS	A479 316 SS	A479 316 SS	Monel® B164
Bonnet	SA 216 GR. WCC	SA351 CF8M 316 SS	SA351 CF8M 316 SS	SA 216 GR. WCC	Monel® SA494
Spring	Chrome Alloy	Chrome Alloy	A313 316 SS	Chrome Alloy	Inconel® X750
Stem	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164
Disc	SA479 316 SS	SA479 316 SS	SA479 316 SS	Monel® SB164	Monel® SB164
Guide	A351 CF8M 316 SS	A351 CF8M 316 SS	A351 CF8M 316 SS	A351 CF8M 316 SS	Monel® A494
Base Gasket	Soft Iron	Monel®	Monel®	Soft Iron	Monel®
Base	SA351 CF8M 316 SS	SA351 CF8M 316 SS	SA351 CF8M 316 SS	Monel® SA494	Monel® SA494
Guide Pin Screw	A479 316 SS	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164
Guide Pin Gasket	Soft Iron	Monel®	Monel®	Soft Iron	Monel®

Hastelloy® C and Sour Gas Trim

Part Name	H1	H4	SG	SS
	Disc and Base	Entire Valve	Sour Gas NACE MR0175	Sour Gas NACE MR0175
	-20°F to +750°F	-20°F to +750°F	-20°F to +750°F	-320°F to +1000°F
Cap	A216 WCC	A494 CW-12MW	A216 WCC	A351 CF8M
Compression Screw	A479 316 SS	Hastelloy® C B574	A479 316 SS	A479 316 SS
Locknut	A479 316 SS	Hastelloy® C B574	A479 316 SS	A479 316 SS
Cap Gasket	Soft Iron	Hastelloy® C	316 SS	316 SS
Spring Steps	A479 316 SS	Hastelloy® C B574	A479 316 SS	A479 316 SS
Bonnet	SA 216 GR. WCC	Hastelloy® C SA494	SA 216 GR. WCC	SA351 CF8M 316 SS
Spring	Chrome Alloy	Inconel® X750	Inconel® X750	Inconel® X750
Stem	A479 316 SS	Hastelloy® C B574	A479 316 SS	A479 316 SS
Disc	Hastelloy® C SB574	Hastelloy® C SB574	SA479 316 SS	SA479 316 SS
Guide	A351 CF8M 316 SS	Hastelloy® C A494	A351 CF8M 316 SS	A351 CF8M 316 SS
Base Gasket	Soft Iron	Hastelloy® C	316 SS	316 SS
Base	Hastelloy® C SA494	Hastelloy® C SA494	SA351 CF8M 316 SS	SA351 CF8M 316 SS
Guide Pin Screw	A479 316 SS	Hastelloy® C B574	A479 316 SS	A479 316 SS
Guide Pin Gasket	Soft Iron	Hastelloy® C	316 SS	316 SS

Options

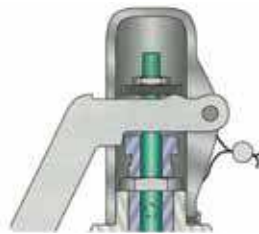
Lifting Levers and Cap Options

Standard construction of safety relief valves include a screwed cap. However, a wide variety of cap styles are available, at extra charge, to meet the most rigid requirements. 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. Foreign particles will often lodge under the seats of the valve when it discharges. The ability to lift the valve immediately and flush the obstruction may prevent damage and eliminate the possible shutdown of the unit. Safety relief valves for Section VIII require a lift lever on all air, steam, and hot water valves (over 140°F, 60°C).

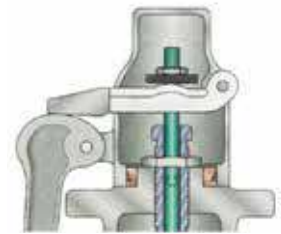
Open Lift Lever

This design type is suitable where periodic testing of the valve in location is desired to assure its operation. When the valve discharges, the 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.

Open Lift Lever: RL14

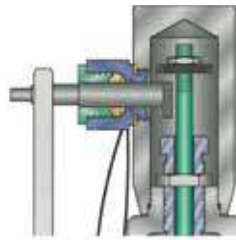


Open Lift Lever: RL40 & RL41



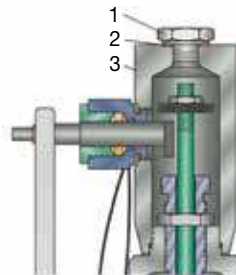
Packed Lift Lever

This design type should be selected when the valve is discharging to a header system or subject to back pressure. The cap unit is completely sealed to prevent leakage. This design should also be selected when media leaking to the atmosphere would be a hazard to personnel in the area.



Screwed Test Gag

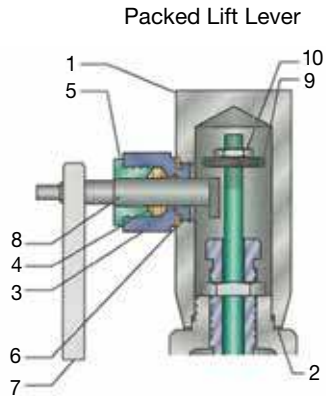
A Test Gag forces the valve into the closed position. This can be necessary for start-up configurations. Test Gags must be removed prior to placing the safety relief valve into service.



Part No.	Part Name	Standard Trim Materials
1	Gag Screw Plug	A479 316 SS
2	Gag Screw Gasket	Soft Iron
3	Cap (Packed or Threaded)	A216 WCC CS

Options

Lift Lever Materials – RL14, RL40, & RL41 Series



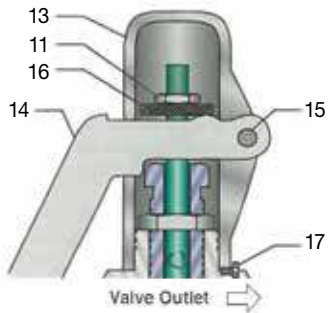
Trim Specifications

Packed Lift Lever	S1 Trims	S3 Trims	S4 Trims	M4 Trim	H4 Trim
1. Cap	A216 WCC	A351 CF8M	A351 CF8M	A494 M-35-2	A494 CW-12MW
2. Cap Gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
3. Gland Housing	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164	Hastelloy® C B574
4. Packing	Graphite	Graphite	Graphite	Graphite	Graphite
5. Packing Gland	A479 416 SS	A479 416 SS	A479 316 SS	Monel® B164	Hastelloy® C B574
6. Housing Gasket	Soft Iron	Monel®	Monel®	Monel®	Monel®
7. Lever	A108 CS	A108 CS	A108 CS	A108 CS	A108 CS
8. Shaft	A479 303 SS	A479 303 SS	A479 316 SS	Monel® B164	Hastelloy® C B574
9. Lifting Disc	A479 316 SS	A479 316 SS	A479 316 SS	Monel® B164	Hastelloy® C B574
10. Jam Nut	Stainless Steel	Stainless Steel	Stainless Steel	Monel® B164	Hastelloy® C B574

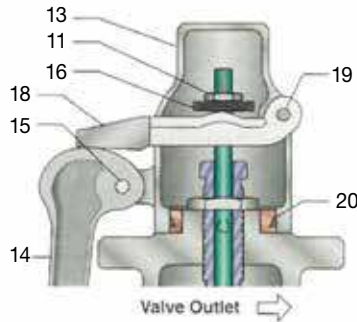
Options

Lift Lever Materials – RL14, RL40, & RL41 Series

Open Lift Lever: RL14



Open Lift Lever: RL40 & RL41



Trim Specifications

Open Lift Lever	All Trims
11. Jam Nut	Stainless Steel
12. Cotter Pin	Carbon Steel
13. Cap	A108 CS
14. Lever	A108 CS
15. Lever Pin	A108 CS
16. Lifting Disc	A479 316 SS
17. Set Screw	A108 CS
18. Yoke	Carbon Steel
19. Yoke Pin	A108 CS
20. Adapter	A108 CS

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.

ARI-REYCO® O-ring seat seals are available in all RL Series Valves. These seals can be used up to the set pressure limit of the individual valve. A material selection chart for temperature ratings of the various O-ring materials can be found on the following pages.

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 ARI-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

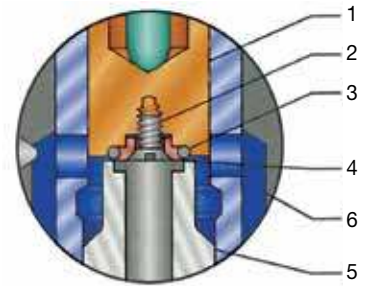
Occasionally, minute particles of foreign matter are carried in the flow medium, damaging the metal-to-metal seat during valve closure. The O-ring seat seal absorbs the full impact of such particles and minimizes seat damage and deformation of mating metal surfaces.

Options

O-ring Seat Seal Materials – RLO Series

O-ring Seat Seal Standard Trim

Part No.	Part Name	Standard Trim Materials
1	Disc	SA479 316 SS
2	Retainer Screw	316 SS
3	O-ring	Fluorocarbon (see note 1)
4	Disc Retainer	SA479 316 SS
5	Base	SA351 CF8M 316SS
6	Guide	A351 CF8M 316SS

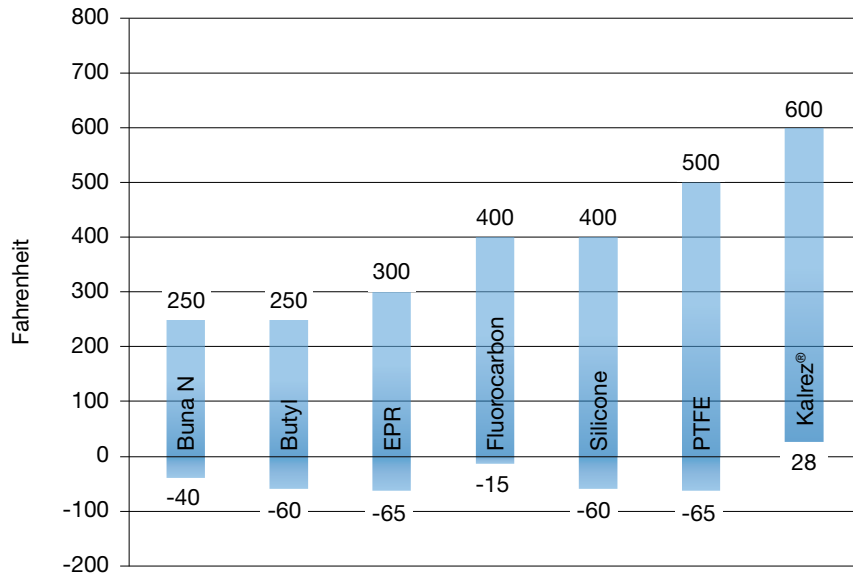


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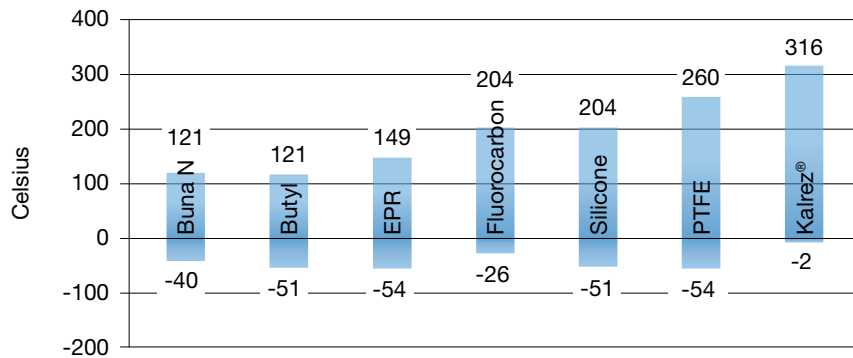
1. Other materials available upon request.

Options

O-ring Selector Chart – RLO Series



O-Ring Materials



Notes

1. Kalrez® is a registered trademark of DuPont Performance Elastomers.
2. Other O-ring materials available upon request.
3. Customer is responsible for material compatibility to service media, temperature, and pressure.

Technical Information

Air/Gas Capacities

RL Series: Air/Gas Capacities ASME Section VIII

Set Pressure (psig)	RL14 Capacities (SCFM)		RL40 Capacities (SCFM)					
	0.077 in ²	0.122 in ²	¾ × 1	¾ × 2	1 × 1½	1 × 2	1½ × 2	2 × 2
Orifice Sizing:	0.077 in ²	0.122 in ²	0.152 in ²	0.152 in ²	0.235 in ²	0.235 in ²	0.563 in ²	0.563 in ²
5	28	37	42	42	85	85	201	201
10	34	45	52	52	104	104	245	245
20	46	62	70	70	142	142	334	334
30	59	78	89	89	179	179	423	423
40	72	96	109	109	221	221	520	520
50	86	114	130	130	262	262	617	617
60	99	132	150	150	303	303	715	715
70	113	150	171	171	345	345	812	812
80	126	168	191	191	386	386	910	910
90	140	186	212	212	428	428	1007	1007
100	153	204	232	232	469	469	1105	1105
110	167	222	253	253	510	510	1202	1202
120	180	240	273	273	552	552	1300	1300
130	194	258	294	294	593	593	1397	1397
140	207	276	314	314	634	634	1495	1495
150	221	294	335	335	676	676	1592	1592
160	234	312	355	355	717	717	1689	1689
170	248	330	376	376	758	758	1787	1787
180	261	348	396	396	800	800	1884	1884
190	275	366	417	417	841	841	1982	1982
200	288	384	437	437	882	882	2079	2079
210	302	402	458	458	924	924	2177	2177
220	315	420	478	478	965	965	2274	2274
230	329	438	499	499	1007	1007	2372	2372
240	343	456	519	519	1048	1048	2469	2469
250	356	474	540	540	1089	1089	2566	2566
260	370	492	560	560	1131	1131	2664	2664
270	383	510	581	581	1172	1172	2761	2761
280	397	528	601	601	1213	1213	2859	2859
290	410	546	622	622	1255	1255	2956	2956
300	424	564	642	642	1296	1296	3054	3054
400	559	744	847	847	1710	1710	4028	4028
500	694	924	1052	1052	2123	2123	5003	5003
750	1032	1375	1564	1564	3157	3157	7439	7439
1000	1370	1825	2077	2077	4191	4191	9875	9875
1500	2046	2725	3101	3101	6259	6259	14748	14748
2000	2722	3625	4126	4126	8327	8327		
2500	3398	4526	5151	5151	10395	10395		
3000			6175	6175		12463		
4000					8225			
5000					10274			

Capacity ratings based on standard cubic feet per minute (SCFM) of Air at 10% over pressure. NB certified at 90% of average capacities, in accordance with the latest ASME Code Requirements.

Calculating Capacities:

For Air, Gas, or Vapor:

$$W = S \times P$$

W = rated capacity, in SCFM

S = slope of given orifice size, in SCFM/psia

P = 14.7 + stamped set pressure + 10% of set pressure

RL Series Slope (S) for Air/Gas:

0.077 in ² (RL14)	=	1.23
0.122 in ² (RL14)	=	1.637
0.152 in ² (RL40)	=	1.86
0.235 in ² (RL40)	=	3.76
0.563 in ² (RL40)	=	8.86

Note

Valves set under 15 psig are not ASME or NB code stamped.

Technical Information

Steam Capacities

Capacity ratings based on pounds per hour (lb/hr) of saturated steam at 10% over pressure. NB certified at 90% of average capacities, in accordance with the latest ASME Code Requirements.

RL Series: Steam Capacities ASME Section VIII

Set Pressure (psig)	RL14 Capacities (lb/hr)		RL40 Capacities (lb/hr)					
	0.077 in ²	0.122 in ²	¾ x 1	¾ x 2	1 x 1 ½	1 x 2	1 ½ x 2	2 x 2
Orifice Sizing:	0.077 in ²	0.122 in ²	0.152 in ²	0.152 in ²	0.235 in ²	0.235 in ²	0.563 in ²	0.563 in ²
5	78	104	119	119	240	240	565	565
10	96	127	145	145	293	293	689	689
20	130	173	197	197	398	398	938	938
30	165	219	249	249	504	504	1187	1187
40	203	270	307	307	620	620	1461	1461
50	240	321	365	365	736	736	1735	1735
60	278	371	422	422	852	852	2009	2009
70	316	422	480	480	968	968	2282	2282
80	354	472	537	537	1085	1085	2556	2556
90	392	523	595	595	1201	1201	2830	2830
100	430	574	652	652	1317	1317	3104	3104
120	506	675	767	767	1549	1549	3651	3651
140	582	776	882	882	1781	1781	4199	4199
160	658	877	997	997	2014	2014	4747	4747
180	734	978	1112	1112	2246	2246	5294	5294
200	810	1080	1227	1227	2478	2478	5842	5842
220	886	1181	1343	1343	2711	2711	6389	6389
240	962	1282	1458	1458	2943	2943	6937	6937
260	1037	1383	1573	1573	3175	3175	7484	7484
280	1113	1484	1688	1688	3408	3408	8032	8032
300	1189	1586	1803	1803	3640	3640	8580	8580
320	1265	1687	1918	1918	3872	3872	9127	9127
340	1341	1788	2033	2033	4105	4105	9675	9675
360	1417	1889	2148	2148	4337	4337	10222	10222
380	1493	1990	2263	2263	4569	4569	10770	10770
400	1569	2092	2378	2378	4802	4802	11317	11317
420	1645	2193	2493	2493	5034	5034	11865	11865
440	1721	2294	2608	2608	5266	5266	12413	12413
460	1796	2395	2723	2723	5499	5499	12960	12960
480	1872	2496	2838	2838	5731	5731	13508	13508
500	1948	2598	2953	2953	5963	5963	14055	14055
600	2328	3104	3529	3529	7125	7125	16793	16793
700	2707	3610	4104	4104	8286	8286	19531	19531
800	3087	4116	4679	4679	9448	9448	22269	22269
900	3466	4622	5255	5255	10610	10610	25007	25007
1000	3846	5128	5830	5830	11771	11771	27745	27745
2000	7641	10188	11583	11583	23387	23387		
2900	11056	14742	16761	16761	33842	33842		

Calculating Capacities:

For Steam:

$$W = S \times P$$

W = rated capacity, in lb/hr

S = slope of given orifice size, in lb/(hr x psia)

P = 14.7 + stamped set pressure + 10% of set pressure

RL Series Slope (S) for Steam:

0.077 in ² (RL14)	=	3.46
0.122 in ² (RL14)	=	4.60
0.152 in ² (RL40)	=	5.23
0.235 in ² (RL40)	=	10.53
0.563 in ² (RL40)	=	24.89

Note

Valves set under 15 psig are not ASME or NB code stamped.



Technical Information

Liquid Capacities

RL Series: Liquid Capacities ASME Section VIII

Set Pressure (psig)	RL14 Capacities (GPM)		RL40 Capacities (GPM)					
			$\frac{3}{4} \times 1$	$\frac{3}{4} \times 2$	$1 \times 1 \frac{1}{2}$	1×2	$1 \frac{1}{2} \times 2$	2×2
Orifice Sizing:	0.077 in ²	0.122 in ²	0.152 in ²	0.152 in ²	0.235 in ²	0.235 in ²	0.563 in ²	0.563 in ²
5	5	9	8	8	16	16	37	37
10	7	11	10	10	20	20	47	47
20	9	14	13	13	27	27	63	63
30	11	17	15	15	32	32	75	75
40	12	20	18	18	37	37	87	87
50	14	22	20	20	42	42	97	97
60	15	25	22	22	46	46	106	106
70	16	27	24	24	49	49	115	115
80	18	28	25	25	53	53	122	122
90	19	30	27	27	56	56	130	130
100	20	32	28	28	59	59	137	137
110	21	33	30	30	62	62	144	144
120	22	35	31	31	65	65	150	150
130	22	36	32	32	67	67	156	156
140	23	37	33	33	70	70	162	162
150	24	39	34	34	72	72	168	168
160	25	40	36	36	75	75	173	173
170	26	41	37	37	77	77	178	178
180	26	43	38	38	79	79	184	184
190	27	44	39	39	81	81	189	189
200	28	45	40	40	84	84	194	194
210	29	46	41	41	86	86	198	198
220	29	47	42	42	88	88	203	203
230	30	48	43	43	90	90	208	208
240	31	49	44	44	92	92	212	212
250	31	50	45	45	93	93	216	216
260	32	51	45	45	95	95	221	221
270	32	52	46	46	97	97	225	225
280	33	53	47	47	99	99	229	229
290	34	54	48	48	101	101	233	233
300	34	55	49	49	102	102	237	237
400	39	63	56	56	118	118	274	274
500	44	71	63	63	132	132	306	306
750	54	87	77	77	162	162	375	375
1000	62	100	89	89	187	187	433	433
1500	76	123	109	109	229	229	530	530
2000	88	142	126	126	264	264		
2500	99	158	141	141	296	296		
3000			154	154		324		
4000				178				
5000				199				

Capacity ratings based on gallons per minute (GPM) at 10% over pressure. NB certified at 90% of average capacities, in accordance with the latest ASME Code Requirements.

Calculating Capacities:

For Liquid or Water:

$$W = F \sqrt{P - P_d}$$

W = rated capacity, in GPM

F = flow factor of a given orifice size, in GPM / $\sqrt{\text{psi}}$

P = 14.7 + stamped set pressure +
 (10% of set pressure OR 3 psi)
 (choose whichever is greater)

P_d = pressure at discharge from valve, in psia

RL Series Flow Factor (F)

0.077 in ² (RL14)	=	1.880
0.122 in ² (RL14)	=	3.021
0.152 in ² (RL40)	=	2.684
0.235 in ² (RL40)	=	5.635
0.563 in ² (RL40)	=	13.050

Note

Valves set under 15 psig are not ASME or NB code stamped.

Notes
