

Liquid Safety Relief Valve

Product Bulletin 74-00

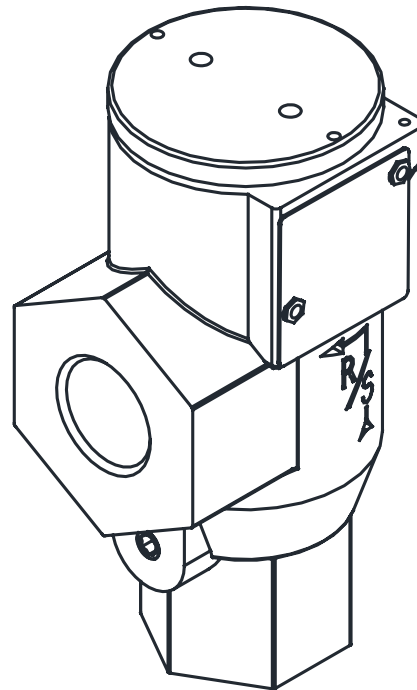
Type: SRLQ

Pressure Rating: 28 bar (400 psig)



Purpose:

Liquid relief valves (SRLQ) are conventional, direct spring loaded safety relief valves designed to protect the liquid containing portions of vessels built to the ASME Boiler and Pressure Vessel Code.



Contact Information: Product Features:

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- Suitable for ammonia and halocarbon refrigerants
- ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 compliant
- ANSI/ASHRAE Standard 15 safety standard for refrigeration systems

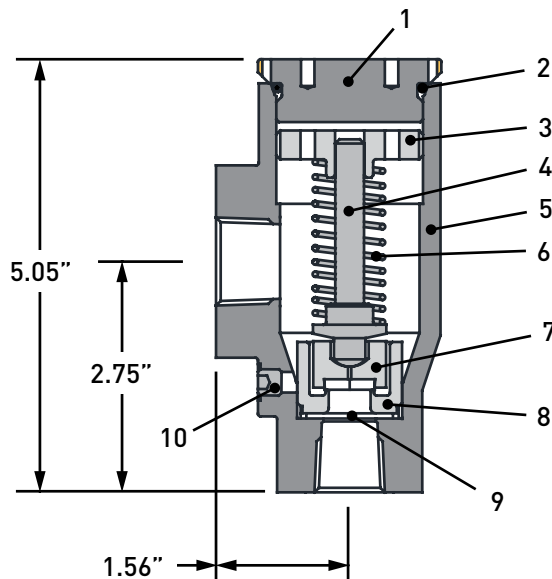
- All stainless steel internal parts
- Non-stick PTFE seat
- Set pressure tolerance of $\pm 3\%$
- Unaffected by vibration
- Excellent repeatability



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Technical Data

- Ambient Temperature:
-29°C to 94°C (-20°F to 200°F)
- Maximum Rated Pressure:
28 bar (400 psig)
- Pressure Settings Range:
3.4 to 6.9 bar (50 to 100 psig)
±3% set pressure tolerance
- 20% below set point re-seat pressure after release
- Not suitable for water based applications



Cross-Section: Dimensions and Parts List

SRL Parts List		
No.	Part Description	Material
1	Cap	Steel
2	O-ring, Cap	Neoprene
3	Plate, Spring	Stainless Steel
4	Stem	Stainless Steel
5	Valve Body	Steel
6	Spring	Steel
7	Disc/Holder	PTFE/Stainless Steel
8	Seat, Valve	Stainless Steel
9	Gasket, Seat	Non-Asbestos Gylon
10	Liquid Drain Leg Port	Steel, Pipe Plug, 1/16" NPT

Important: The SRLQ safety relief valves are dependent to back pressure. When subjected to certain levels of increased outlet pressure, higher than the atmospheric pressure, or “back pressure” during discharge the performance of the liquid safety relief valve is subject to change.

Description

Safety relief valves are designed to relieve pressure in a vessel when the set pressure is exceeded, preventing potential damage to equipment and injury to personnel. After opening, these valves re-seat when the pressure in the vessel is below the valve’s closing pressure.

The liquid safety relief valves (SRLQ) are designed and constructed to meet the requirements of Section VIII ASME Boiler and Pressure Vessel Code and ANSI/ASHRAE 15 code requirements and bear the ASME code symbol. Employing proven principles of design, these safety relief valves are highly reliable and dependable. Precision machined moving parts of stainless steel, and a PTFE disc prevent sticking due to corrosion or cold welding and assure valve opening at the set pressure long after installation.

Connection sizes are 13mm (1/2”) FPT inlet with 20mm (3/4”) FPT outlet. A 20mm (3/4”) inlet with 25mm (1”) FPT outlet is also available.

Application

The type SRLQ valves are for use with ammonia and halocarbon refrigerants

in non-corrosive environments. Typical applications are liquid lines, ASME rated liquid transfer vessels and other critical system components such as heat exchangers, condensers and coolers from the effects of system blockages and continued heat input. Other suitable applications are vessels containing lubricating oil such as an oil cooler. Not suitable for water or other corrosive fluids.

Pressure setting and capacities apply only when the valve is discharging to atmospheric pressure.

Pressure Settings

Codes require valve settings equal to or less than design working pressure of the vessel protected. The SRLQ safety relief valves are available in five standard settings, between 3.4 to 6.9 bar (50 to 100 psig). To retain the

validity of the code symbols, pressure settings and capacity, these valves must be set and sealed at the factory.

Installed valves should be selected with a set point 25% higher than the maximum system operating pressure, but less than the design working pressure of the vessel.

No leakage can occur from valves at inlet pressures below 90% of the set pressure. The valve must “pop” and relieve at its full capacity at no more than 110% of the valve set pressure. After popping the valve must reclose, also known as blowdown, and allow no further discharge.

Selection Data

The type SRLQ safety relief valve is intended to prevent the pressure of the vessel from rising more than 10%

General Information										
Valve Type	Inlet Connection (FPT)		Outlet Connection (FPT)		Orifice Diameter		Pressure Setting		Flow Rate (Water)	
	mm	inch	mm	inch	mm	inch	bar	psig	LPM	GPM
SR1LQ	13	1/2	20	3/4	5.81	0.229	3.5	50	33.3	8.8
							4.5	65	37.9	10.0
							5.2	75	40.5	10.7
							5.8	85	43.2	11.4
							6.9	100	47.0	12.4
SR2LQ	20	3/4	25	1	5.81	0.229	3.5	50	55.3	14.6
							4.5	65	62.8	16.6
							5.2	75	67.4	17.8
							5.8	85	71.9	19.0
							6.9	100	78.0	20.6

above the design working pressure (DWP) of the vessel or the pressure setting of the relief device, whichever is the lower pressure.

Whenever conditions permit, it is advisable to have the relief valve pressure setting (which must not exceed the design working pressure of the vessel) at least 25% higher than the normal operating pressure for the refrigerant used.

Pressure limiting devices, such as high pressure cutouts on positive displacement compressor systems, must stop the action of the pressure imposing element at no higher than 90% of the pressure setting for the pressure relief device.

For non-positive displacement compressors, the pressure limiting device, such as a high pressure cut-out, may be set at the DWP of the high side; providing, the low side is protected by a properly sized pressure relief device set to relieve pressure at low side DWP and there are no stop valves in the system that isolate the high side from the low side.

Discharge piping from relief devices must not exceed specified lengths indicated in ANSI/ASHRAE 15 with discharge to atmosphere.

The capacity ratings determined by the National Board are based on water as the test fluid. Capacity for other fluids will vary and must be corrected based on specific gravity and viscosity of the fluid at the actual or worst case service conditions.

Recommended sizing guidelines should follow local codes ANSI/ASHRAE 15, IIAR, ASME Section VIII Division 1 and API-520.

Installation

Safety relief valves should not be discharged prior to installation. Do not install safety relief valves prior to pressure testing a system. If safety relief valves have been installed prior to a system pressure test, remove them. In the event there is a discharge prior or during installation the valve will need to be replaced or recertified.

Do not attempt to change the pressure setting of the safety relief valves in the field.

When installing a safety relief valve it must be in the vertical upright position and must follow the ANSI/ASHRAE 15 installation requirements for refrigeration systems.

Service

Per IIAR, Bulletin 110, safety relief valves are to be replaced or tested

and recertified every 5 years. After a discharge safety relief valves must then be replaced or recertified.

Valves are required to be marked with the date of original manufacture and are tagged with the date of manufacture and projected service/replacement date. Service can be performed at certified valve repair shops (VR). Refrigerating Specialties does not service or recertify valves in-house, but will provide repair kits to certified VR shops.

A preventative maintenance schedule should be established for visual inspections and leaks. Vent lines shall be inspected to ensure they are clear and properly protected against ingress of moisture, which could freeze.

SRLQ Kits		
Part Description	Qty	Kit Number
Tag Kit, Safety Relief Valves	12	209299

Safe Operation (See Bulletin RSBCV)

People doing any work on a refrigeration system must be qualified and completely familiar with the system and the Refrigerating Specialties Division valves involved, or all other precautions will be meaningless. This includes reading and understanding pertinent Refrigerating Specialties Division Product Bulletins and Safety Bulletin RSB prior to installation or servicing work.

Where cold refrigerant liquid lines are used, it is necessary that certain precautions be taken to avoid damage which could result from liquid expansion. Temperature increase in a piping section full of solid liquid will cause high pressure due to the expanding liquid which can possibly rupture a gasket, pipe or valve. All hand valves isolating such sections should be marked, warning against accidental closing, and must not be closed until the liquid is removed. Check valves must never be installed upstream of solenoid valves, or regulators with electric shut-off, nor should hand valves upstream of solenoid valves or downstream of check valves be closed until the liquid has been removed.

It is advisable to properly install relief devices in any section where liquid expansion could take place. Avoid all piping or control arrangements which might produce thermal or pressure shock.

For the protection of people and products, all refrigerant must be removed from the section to be worked on before a valve, strainer, or other device is opened or removed. Flanges with ODS connections are not suitable for ammonia service.

Warranty

All Refrigerating Specialties products are under warranty against defects in workmanship and materials for a period of one year from date of shipment from factory. This warranty is in force only when products are properly installed, field assembled, maintained, and operated in use and service as specifically stated in Refrigerating Specialties Catalogs or Bulletins for normal refrigeration applications, unless otherwise approved in writing by the Refrigerating Specialties Division. Defective products, or parts thereof returned to the

factory with transportation charges prepaid and found to be defective by factory inspection, will be replaced or repaired at Refrigerating Specialties option, free of charge, F.O.B. factory. Warranty does not cover products which have been altered, or repaired in the field, damaged in transit, or have suffered accidents, misuse, or abuse. Products disabled by dirt or other foreign substances will not be considered defective.

The express warranty set forth above constitutes the only warranty applicable to Refrigerating Specialties products, and is in lieu of all other warranties, expressed or implied, written including any warranty of merchantability, or fitness for a particular purpose. In no event is Refrigerating Specialties responsible for any consequential damages of any nature whatsoever. No employee, agent, dealer or other person is authorized to give any warranties on behalf of Refrigerating Specialties, nor to assume, for Refrigerating Specialties, any other liability in connection with any of its products.

