SUPERFREEZE

CE CERTIFIED

AMMONIA PRESSURE -RELIEF VALVES

AMMONIA PRESSURE-RELIEF VALVES

Type : SRV

INTRODUCTION

SUPERFREEZE pressure relief valves are designed to provide emergency relief from excessive pressure in refrigerant containing vessels. These temper -resistant valves are accurately set and sealed by qualified technicians at the factory.

Our safety valves design features the most reliable Method of safety relieving pressure. The virgin Teflon Seal mated with the stainless steel multiple crown ring, Provide an outstanding sealing action. The combination assures a non-stick and accurate pop-off pressure release. The design incorporates a special extra lift, pop-open feature for high relieving capacity.

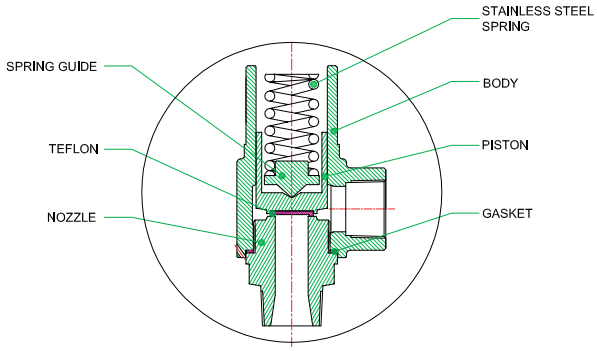


FIG:- 'A'

APPLICATION

Pressure relief valves helps meet the requirements of ANSI/ASHRAE 15 -1994 SAFETY CODE FOR Mechanical Refrigeration as well as other world wide codes. This code requires pressure vessels of all refrigeration systems to be protected by a pressure relief device or other approved means to safety r elief pressure in the event of fire or other abnormal conditions. Once installed, is ready to vent to atmosphere any temporary excessive overpressure inside of a vessel. After discharge, these valves will attempt to reseat to minimize loss of refrigerant. However, once any relief valve has discharged, it must be replaced as soon possible because debris may have settled on the seat during discharge.

MATERIAL SPECIFICATION

Body	: ASTM A-217 Grade CA-15
Piston	: Stainless steel AISI-304
Spring	: Stainless steel
Seat insert	: Stainless steel
Seat Discs	: Premium grade virgin (PTFE)
Cap	: Steel, Nickel chrome Plated
Cap O-Ring	: Neoprene
Maximum Temperature Rating	: 115°C (240F)
Safe Working Pressure	: 365 psig (25 bar)
Setting Range	: 150 to 350 psig (10.4 to 24 bar)

INSTALLATION

Safety relief valves should not be discharged prior to installation, other than at time of factory setting. If the system is to be pressure tested to pressure at or higher than the relied valve setting, the relief valve should be removed while the system is being tested. Discharging the valve during system pre-test could cause foreign material and contamination to lodge on the valve seat disc. This would cause permanent leak or lower the initial leak pressure. In either event, the valve would have to be replaced.

Do not attempt to change the pressure setting of safety relief valves in the field. Relief valve springs have a limited range of pressure settings and a field adjustment may exceed this range reducing stem lift and discharge capacity. The valve should be returned to manufacturer for re-setting and re-sealing.

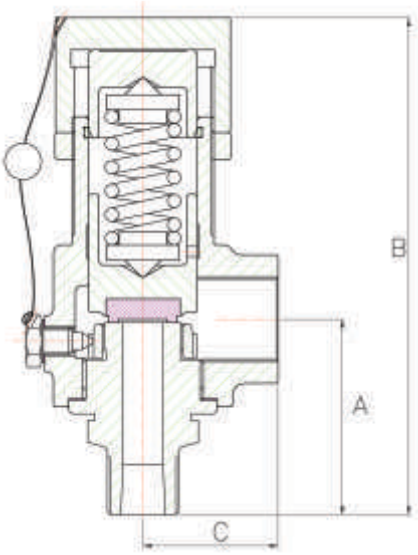


FIG:- 'B'

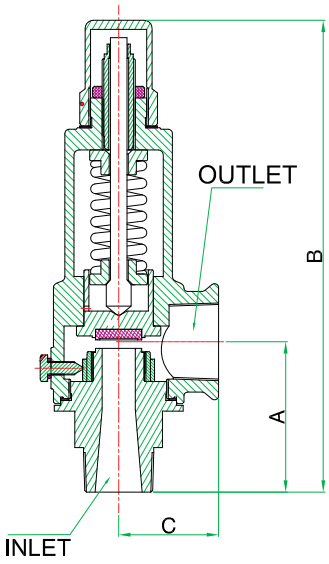


FIG:- 'C'

INSTALLATION DIMENSIONS THREADED CONNECTION

Cat NO.	SIZE	FIG.	A	B	C	INLET	OUTLET
SRV 1520	15mm X 20mm	B	57	150	40	1/2" NPT M	3/4" NPT F
SRV 2020	20mm X 20mm	B	57	150	40	3/4" NPT M	1" NPT F
SRV 1525	15mm X 20mm	B	57	150	40	1/2" NPT M	1" NPTF
SRV 2025	20mm X 25mm	B	57	150	40	3/4" NPT M	1" NPT F
SRV 2532	25mm X 32mm	C	91	285	60.5	1" NPTM	1-1/4" NPT F
SRV 3240	32mm X 40mm	C	91	285	60.5	1-1/4" NPT M	1-1/2" NPTF

CONNECTIONS

Relief valves are connected as nearly as practicable directly to the pressure vessel above the liquid refrigerant level. The opening to which the relief valve is connected shall have at least the area of the relief valve inlet. There should not be a stop valve between the vessel and the relief or between the relief valve and the point of discharge.

For relief valves used on pressure vessel having 10 cubic feet of internal gross volume or more. A relief device system consisting of a three-way valve and two relief valves in parallel is required. This arrangement for any size system containing a substantial charge of refrigerant provides a convenient method for relief valve maintenance.

LOCATION

Valves relieving to atmosphere may be installed on systems operating as low as -100°C provided location is in ambient temperatures that are normally above 0°C.

REQUIRED VALVE CAPACITYFOR PRESSURE VESSELS

The ANSI/ASHRE 15-1994 safety code gives the following formula for determining the necessary relief valve capacity for a given pressure vessel. The minimum required discharge capacity of the safety relief valve shall be:

$$C = 13.1\ (f)\ (D)\ (L)$$

Where

C = Minimum required discharge capacity of the relief valve in SCFM of air
13.1 = Constant to convert air, lb/min to scfm
f = Factor dependent upon kind of refrigerant
Ammonia (Refrigerant 717) f = 0.5
Refrigerant F-12, F-22 f =1.6
D = Outside diameter of vessel in ft.
L = Length of vessel in ft.

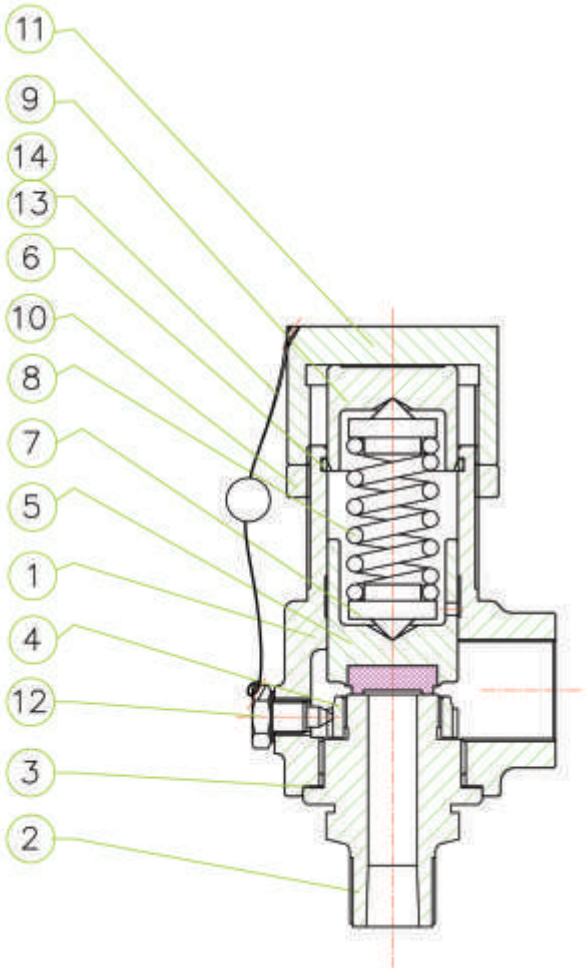
AMMONIA PRESSURE-RELIEF VALVES

PRESSURE-RELIEF VALVE CAPACITY RATINGS

Cat. No.	Air Capacity	Standard Pressure Settings (psig)								
		150	175	200	225	250	275	300	325	350
SRV1520 SRV1525 SRV2025	lb/min	35.2	41.8	46	52	57.2	62.2	69	74.8	79.6
	scfm	475	549	624	690	765	841	915	985	1057
SRV2532	lb/min	53.0	61.8	69.6	77.3	85	92.5	100	109	117
	scfm	702	815	920	1027	1136	1245	1351	1460	1567

Important note : these are atmospheric relief valves. Setting equal pressure above atmosphere when outlet is connected via proper schedule 40 piping to the atmosphere (out side). (scfm = Standard Cubic Feet per Minute)

PART LIST



ITEM NO.	PART NAME
14	WIRE
13	SEAL
12	ADJUSTING SCREW
11	CAP
10	GUIDE NUT
9	DISC GUIDE
8	SPRING
7	SPRING GUIDE
6	O-RING
5	PISTON
4	B.D RING
3	GASKET
2	NOZZLE
1	BODY

PART LIST

ITEM	DESCRIPTION	QTY	PART NO
1	BODY	1	75020100
2	SPINDLE	1	75020215
3	NOZZLE	1	75020200
4	PISTON	1	75020205
5	GASKET	1	75020210
6	B.D.RING	1	75020203
7	TEFLON	1	75020207
8	SPRING	1	75020204
9	SPRING GUIDE	2	75020208
10	GASKET	1	75020209
11	HEX. NUT	1	75020211
12	ADJUSTING SCREW	1	75020212
13	CAP	1	75020206
14	WASHER	1	75020213
15	LOCKING SCREW	1	75020214

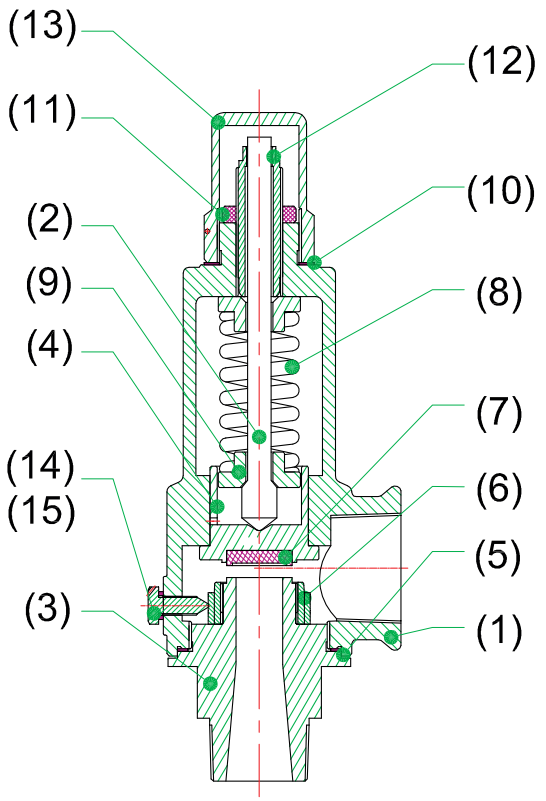


FIG:- 'F'

25 - 32 THREADED

GENERAL PRECAUTIONS

- Never expose face or body to a connected relief valve exit or piping connected thereto.
- Make sure valve setting and capacity (see Nameplate information Section) meet requirements per system design in accordance with local and national regulations.
- Install pressure-relief valve connected directly to the pressure vessel with no shut-off valves and at a location above the liquid refrigerant level.
- Never attempt to reset or change valve setting.
- Do not discharge valves prior to installation or when pressure testing.
- Do not install shut-off valves in line with pressure relief valves.
- Install valves in locations where they will not be damaged by moving equipments such as lift trucks etc.
- Install valves in a manner that enables them to be replaced.
- Avoid trapped ice build-up between valves and other equipment.
- Do not install valves in a refrigerated space unless precautions are taken to prevent moisture migration into the valve body or the relief vent line.
- Be sure to isolate the valve and related piping from the refrigeration system and pump out pressure to zero before attempting to install or replace any pressure- relief valve and be sure to avoid residual refrigerant when doing so.
- Apply a modest amount of thread sealing compound to external pipe threads only in order to avoid getting compound inside valve.
- Vent relief valve exit to a safe outdoor location in an approved manner away from people and building openings.
- Pressure test all valves and related piping for leaks. When testing a dual pressure relief system, the three-way valve stem should be in the mid-positions, ensuring that all valves are properly leak tested.
- When a dual pressure relief system is being put into service, the three way valve stem should be positioned so that only one valve is activated. While the valve can be either front-seated (front port is closed) or back seated (back port is closed), the back-seated positions is recommended because it takes pressure off the packing and reduces the possibility of packing leaks.
- Use brackets or hangers to support pipe and prevent valve from being overly stressed.
- Do not put undue stress on valve by using it to stretch or align pipe

ALWAYS REPLACE PRESSURE RELIEF VALVES ONCE THEY HAVE DISCHARGED.

AMMONIA PRESSURE-RELIEF VALVES

PIPING RELIEF VALVES BACK INTO THE SYSTEM

Refrigeration systems containing large ammonia charges (> 10,000 pounds) can benefit by piping relief valves back into the system. Safety pressure relief valves are subject to "inspection and testing" periodically under the EPA Risk Management Programs. Relief valves that are piped back into the system can be expected to perform over much longer periods between inspections than relief valves exposed to contaminants and corrosion from exposure to the atmosphere. Another benefit of discharging back into the system is the avoidance of liquid spills from oil pots, liquid coolers and other liquid filled components.

When piping relief valves back into the system, the total of the set points of relief valves in series should not exceed the allowed working pressure of upstream components. Here are a few examples of suitable application of piping relief valves back into the system.

- 400 psi Oil Coolers on screw compressor :

  Use 75 psi or 100 psi set point liquid relief valves discharging into 300 psi oil separator.

- 250 psi Surge drums on evaporators :

  Use 75 psi or 100 psi set point valves discharging to suction line downstream of the suction stop valve, using 150 psi set point relief valves on the main house accumulator.

- 250 psi Evaporative condensers :

  A relief valve is not required on evaporative condenser coil however, when desired, use 75 psi or 100 psi set point valve discharging to the condenser drain downstream of the condenser outlet stop valve.

- 250 psi Oil Drain drum :

  Use 75 psi or 100 psi set point valve discharging to 150 psi suction accumulator.

- 250 psi Shell and tube or baudelot plate evaporator :-

  Use 75 psi or 100 psi set point valve discharging to 150 psi suction downstream of evaporator outlet stop valve.

- 300 psi Screw compressor :

  Use 250 psi set point valve discharging to suction line upstream of suction stop valve. This valve is primarily to protect motor from overload in case screw is started with a closed discharge valve.

The effect of the potential from discharges of upstream relief valves should be considered in sizing downstream atmospheric safety relief valves.

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