



## INSTALLATION AND MAINTENANCE INSTRUCTIONS

IM-3-215-US

JULY 2006

# Bronze Safety Relief Valves

## Installation

The safety relief valve should always be installed on a tank or piping run in a vertical position with the outlet pointing in a horizontal direction. When screwing the valve into the inlet piping, always use a wrench on the inlet connection hex, never use a wrench on the relief valve body.

One of the most common causes of early failure of relief valves is dirt trapped on the valve seat. Welding slag and/or piping teflon tape are among the more common items that cause difficulty. It is recommended that all piping and tank systems be cleaned prior to installation of the relief valve.

A relief valve mounted on a tank should be connected with the minimum amount of piping between the tank and the valve. Further, all piping used must be equal or larger than the inlet pipe size of the relief valve, never smaller. Any restriction of the inlet to a relief valve may cause usual valve chatter or relief capacities below the design ratings of the valve which could result in serious catastrophic damage. Outlet piping from the relief valve should be less than four (4) feet in length and never of a pipe size smaller than the outlet pipe size of the relief valve. Long runs of small diameter pipe on the outlet side of a relief valve will create a serious hazard to life and property.

Extreme caution is required in the outlet piping if installed outdoors where the liquids, if present, could form an ice block in the piping of the relief valve body in below freezing weather. Discharge lines must be weather capped and drained to prevent any liquid collection in the relief valve body or outlet piping. If these precautions are not taken, serious damage and injury will result.

Additional, important installation factors are contained in the following excerpt from para. UG-135 Section VIII of the ASME Boiler Code.

## UG-135 Installation

(a) Safety, safety relief and pilot operated pressure relief valves, and nonreclosing pressure relief devices shall be connected to the vapor space above any contained liquid or to piping connected to the vapor space in the vessel which is to be protected.

(b) The opening through all pipe and fittings between a pressure vessel and its pressure-relieving device shall have at least the area of the pressure-relieving device inlet, and the flow characteristics of this upstream system shall be such that the pressure drop will not reduce the relieving capacity below that required or adversely affect the proper operation of the pressure-relieving device. The opening in the vessel wall shall be designed to provide direct and unobstructed flow between the vessel and its pressure-relieving device.

(c) When two or more required pressure-relieving devices are placed on one connection, the inlet internal cross-sectional area of this connection shall be at least equal to the combined inlet areas of the safety devices connected to it, and the flow characteristics of the upstream system shall satisfy the requirements of (b).

(d) Liquid relief valves shall be connected below the normal liquid level.

(e) There shall be no intervening stop valves between the vessel and its protective device or devices, or between the protective device or devices and the point of discharge, except:

(1) when these stop valves are so constructed or positively controlled that the closing of the maximum number of block valves possible at one time will not reduce the pressure relieving capacity provided by the unaffected relieving devices below the required relieving capacity, or

(2) under conditions set forth in Appendix M.

(f) The safety devices on all vessels shall be so installed that their proper functioning will not be hindered by the nature of the vessel's contents.

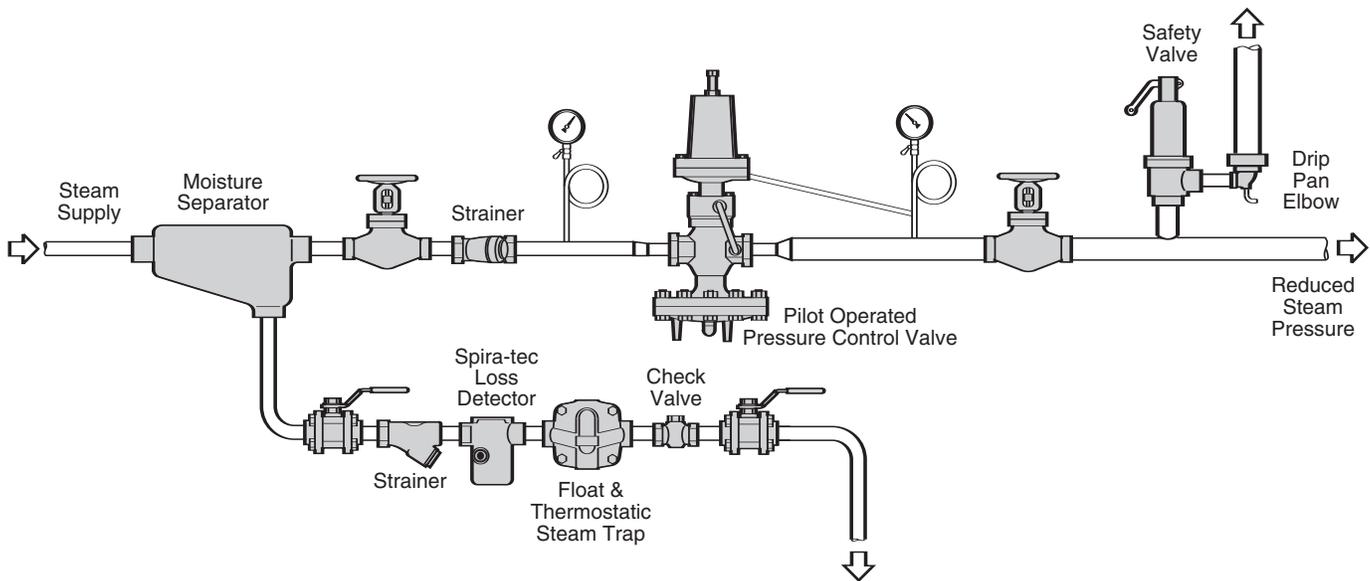
(g) Discharge lines from pressure relieving safety devices shall be designed to facilitate drainage or shall be fitted with drains to prevent liquid from lodging in the discharge side of the safety device, and such lines shall lead to a safe place of discharge. The size of the discharge lines shall be such that any pressure that may exist or develop will not reduce the relieving capacity of the relieving devices below that required to properly protect the vessel. (See UG-136 (a) (8) and Appendix M.)

## Maintenance

An ASME Codel safety relief valve is factory set with precise pressure gauges and tanks to plus or minus 3% of the stamped set pressure. The setting is wired closed and lead sealed. It is recommended that any maintenance work required on the valve be performed by an authorized VR facility.

**If there are further questions concerning repair, please contact Spirax Sarco Sales/Service at 803-714-2000.**

**Typical installation of safety valve, downstream of pressure regulating station.**



For any additional information you may require, contact:  
Spirax Sarco Applications Engineering Department  
**Toll Free 1-800-833-3246**

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**/sarco®**

SPIRAX SARCO, INC. • 1150 NORTHPOINT BLVD. • BLYTHEWOOD, SC 29016  
PHONE 803-714-2000 • FAX 803-714-2222 • WWW.SPIRAXSARCO.COM/US