tyco / Fire & Building Products

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Pressure Relief Trim For Alarm Check Valves, 175 and 185 psi (12,1 and 12,8 bar)

General Description

The Pressure Relief Trim For Alarm Check Valves (Ref. Figure 1) is designed for installation in the system pressure gauge connection of alarm valves. It automatically relieves the over pressure that could otherwise be created in wet pipe systems that are exposed to significant increases in ambient temperature. In particular, a gridded wet pipe system with relatively small air pocket and no relief valve can be subjected to an increase in pressure of more than 100 psi (6,9 bar), due to an increase in ambient temperature of approximately 50°F/10°C.

The Pressure Relief Trim is provided in two relief pressure ratings — 175 and 185 psi (12,1 and 12,8 bar). The 175 psi (12,1 bar) Pressure Relief Trim is suitable for use with any size alarm valve and in applications where the maximum normal system pressure at the alarm valve will not exceed 165 psi (11,4 bar). The 185 psi (12,8 bar) Pressure Relief Trim is intended for use in applications where the normal system pressure at the alarm valve will not exceed 175 psi (12,1 bar) and the sprinkler piping is located at least 20 feet (6,1 m) above the alarm valve. In the case of the 185 psi (12,8 bar) Pressure Relief Trim, the 20 foot (6,1 m) minimum elevation criteria is necessary to assure that the sprinkler service pressure will not exceed 175 psi (12,1 bar).

WARNING

The Pressure Relief Trim described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of this device.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

The Pressure Relief Trim is not intended for use in relieving system over pressure caused by either water hammer or system supply pressures in excess of 165 psi (11,4 bar) for the 175 psi (12,1 bar) Pressure Relief Trim and 175 psi (12,1 bar) for the 185 psi (12,8 bar) Pressure Relief Trim.

NO.	DESCRIPTION	QTY.	P/N
1	Pressure Relief Valve, 175 psi	1	92-343-1-025
1	Pressure Relief Valve, 185 psi	1	92-343-1-026
2	1/4" Globe Valve	1	46-047-1-002
3	1/4" Tube Connector	1	CH
4	1/4" Tube, 36" Long	1	CH
5	1/4" Tee	1	CH
6	1/4" x 2" Nipple	2	CH

NOTES:
1. All Fittings and Nipples are galvanized (Standard Order).
2. CH: Common Hardware.

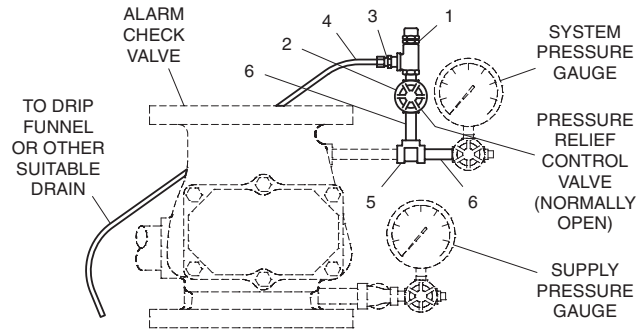

FIGURE 1
INSTALLATION OF PRESSURE RELIEF TRIM FOR ALARM CHECK VALVES

Technical Data

Specifications

The specifications for the 175 and 185 psi Pressure Relief Trim are in accordance with the applicable requirements of the National Fire Protection Association "Standard for the Installation of Sprinkler Systems" NFPA 13.

Opening and Closing Pressures

The 175 psi Pressure Relief Trim opens at a maximum of 175 psi (12,1 bar) on increasing pressure and recloses at a minimum of 165 psi (11,4 bar) on decreasing pressure.

The 185 psi Pressure Relief Trim opens at a maximum of 185 psi (12,8 bar) on increasing pressure and recloses at a minimum of 175 psi (12,1 bar) on decreasing pressure.

Construction

The body of the relief valve is brass, and it utilizes a stainless steel spring and ball. The ball and body create a metal to metal seat. The relief valve adjusting screw is bonded into position in order to reduce the possibility of tampering.

Operation

Figure 2 illustrates the approximate increase in system pressure for an increase in sprinkler piping temperature from 70°F/21°C to 120°F/49°C. The data is given for steel piping and as a function of the percentage volume of air at 70°F/21°C. For initial air volumes of 10% or more, the increase in pressure is predominately caused by the expansion of the heated air; and, for initial volumes of 5% or less, the increase in pressure is predominately caused by the expansion of the heated water.

NFPA 13 requires that all gridded wet pipe systems be provided with a relief valve not less than 1/4 inch (DN10) in size, except when an auxiliary air reservoir is installed to absorb the pressure increase (caused by increases in temperature of the sprinkler piping). In addition, a relief valve should also be considered for any wet pipe system that has only a relatively small volume of trapped air. As illustrated by Figure 2, the smaller the percentage of air, the greater the potential for thermal expansion.

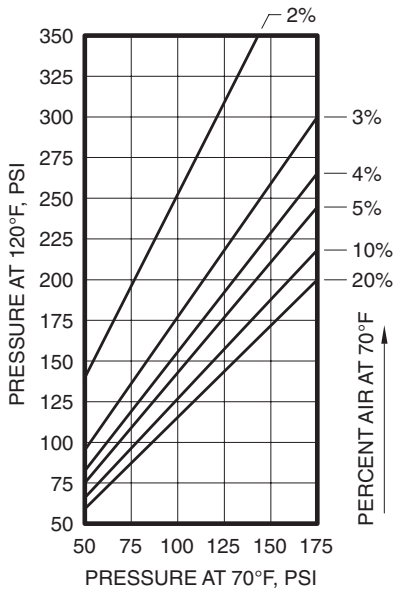

FIGURE 2
APPROXIMATE INCREASE IN SPRINKLER PIPING PRESSURE AS A FUNCTION OF INITIAL AIR VOLUME (Shown For Steel Pipe)

Installation

The Pressure Relief Trim must be installed in accordance with the following instructions:

NOTE

If the Pressure Relief Trim is to be installed in a fire protection system that is already in service, the system must be shut down and drained. Wait until the sound of draining water has stopped and/or the supply and system pressure gauges read zero.

Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system that it controls, permission to shut down the effected fire protection system must first be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

Step 1. Inspect the inside of each trim component and remove any debris.

Step 2. Assemble the components as shown in Figure 1. Apply pipe thread sealant sparingly to male threads only.

Step 3. If the alarm valve does not have a drip cup, suitable provision must be made to direct the water discharge so that it will not cause accidental damage to property or danger to persons.

Step 4. Close the Pressure Relief Control Valve while the system is being hydrostatically tested.

Step 5. Open the Pressure Relief Control Valve after the alarm valve is set and the fire protection system is ready for service.

Care and Maintenance

The following inspection procedure must be performed as indicated, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service.

NOTES

Since the Relief Valve outlet is alternately wet and dry during normal service, it is susceptible to the build-up of mineral deposits that can affect the proper operation of the valve. Consequently, it is particularly important to periodically check for proper operation in the case of water supplies that have a tendency to deposit calcium carbonate.

It is recommended that a spare Relief Valve be kept on hand. No attempt is to be made to disassemble the Relief Valve for repair or cleaning.

Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must first be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

INSPECTION PROCEDURE

It is recommended that the following procedure be performed at least quarterly:

Step 1. Verify that the Pressure Relief Control Valve is open.

Step 2. Verify that the system pressure gauge does not read greater than 5 psi (0,3 bar) more than the opening pressure setting of the relief valve.

Step 3. Inspect the relief valve for abnormal continued leakage. If the system is at a pressure less than the opening pressure setting of the relief valve and their is evidence of continued leakage from the relief valve (as may be indicative of a leaking metal to metal seat due to mineral deposit build-up), replace the relief valve.

Limited Warranty

Products manufactured by Tyco Fire Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' LIABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Ordering Information

Orders for Pressure Relief Trim or replacement parts must include the description and Part Number (P/N).

Pressure Relief Trim:
Specify: 175 psi (12,1 bar) Pressure Relief Trim with galvanized tee and nipples, P/N 52-201-2-047.

Specify: 185 psi (12,8 bar) Pressure Relief Trim with galvanized tee and nipples, P/N 52-201-2-048.

Replacement Parts:
Specify (description) for use with Pressure Relief Trim, P/N (See Figure 1).