Reliable®

Dry Sprinkler Installation

1.0 Requirements for Dry Sprinkler Installation

This document provides guidance regarding correct installation requirements for Reliable Dry Sprinklers and demonstrates potential issues when such requirements are not followed.

Dry sprinklers feature an inlet fitting with a projection that extends beyond the threads into the fire system fitting. The inlet fitting houses the sealing washer. Figures 1 and 2 below show this extended section above the thread. The cut-away view (Figure 3) shows the internal components of the sprinkler. Item 13 is the PTFE coated washer that creates the watertight seal. Any impact, deformation or damage to the inlet will cause the sprinkler to leak or operate prematurely.

The fittings described in this document, Caution Sheet 310, and on dry sprinkler bulletins are the only fittings with sufficient room to accommodate the extended portion of the inlet and prevent the inlet from impacting a part of the fitting or pipe. Dry pendent, horizontal sidewall, and upright sprinklers must always be installed into a fitting described in this document, Caution Sheet 310, and the technical bulletin regardless of whether the installation is on a branch line, at the end of a branch line, or on a drop nipple.

Figure 1

Figure 2

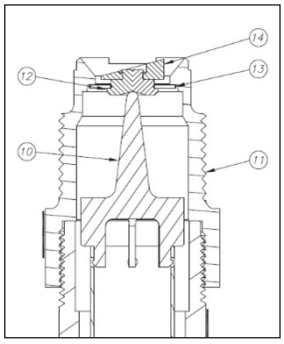

Figure 3

1.1 Installation Along a Branch Line

Figures 4 and 5 below show a Reliable dry sprinkler installed correctly into a threaded tee. The cut away picture of the threaded tee demonstrates that the inlet fitting will not contact the wall of the fitting or the pipe coming in from either side of the tee.

Important: Installation into welded threaded outlets is not permitted.

Figure 4

Figure 5

1.2 Installation at end of branch line

Figures 6 and 7 show a Reliable dry sprinkler incorrectly installed into a 90-degree elbow. The cut away picture shows the extended brass section of the inlet fitting coming into contact with the internal wall of the fitting. This contact will lead to deformation and damage to the inlet fitting and water seal resulting in a leak or pre-operation of the sprinkler.

Figure 6

Figure 7

Figures 8 and 9 below below show the correct installation of a dry sprinkler at the end of a branch line. The dry sprinkler is installed in a threaded tee, and the inlet projection avoids contact with either the internal wall of the fitting and the branch line piping. The open outlet of the threaded tee has been plugged.

Figure 8

Figure 9

1.3 Installation Into a Drop

Proper fitting selection is also required when installing dry sprinklers on drops. When incorrectly installed into a coupling, the extended section of the inlet fitting will come into contact with the pipe coming in from the other direction (see Figures 10 and 11). The cut away shows that the pipe has made contact with the extended section of the inlet fitting. This contact will cause deformation or damage to the inlet fitting and water seal and cause the sprinkler to leak or pre-operate.

Figure 10

Figure 11

Figures 12 and 13 show the correct way to install a dry sprinkler onto a drop nipple. The dry sprinkler is installed in a threaded tee. Note that the inlet projection avoids contact with the internal wall of the fitting and the branch line piping. The open outlet of the threaded tee has been plugged. The plug in the threaded tee also allows for the water-filled section of pipe to be drained for maintenance or replacement of the sprinkler.

Figure 12

Figure 13

1.4 Installation Notes and Warnings

The preceding information is also provided in the following locations :

- On the technical bulletin(s) available at www.reliablesprinkler.com
- On the installation instructions that arrive with the dry sprinkler(s).
- On the warning label on the product (Figure 14).

Figure 14

DRY SPRINKLER MUST BE INSTALLED IN TEES EVEN AT BRANCH END LINES. DO NOT INSTALL INTO ELBOWS, WELD OLETS OR DROP NIPPLES.

1.5 Wrenching

Use of the proper wrenching method is also required when installing the dry sprinkler.

The appropriate Reliable sprinkler wrench is indicated on the sprinkler technical bulletin and fits on the sprinkler end of the product. Wrenching at the sprinkler is recommended to avoid any potential issues.

It is also permitted to grip the galvanized steel section of the dry sprinkler with a pipe wrench, however, it is important to avoid overtightening of dry sprinklers into fittings. A leak free joint can normally be obtained by installing the sprinkler to a minimum torque of 22 ft-lb (30 N.m) after applying an appropriate thread sealant to the inlet fitting.

Under no circumstances is it permitted to wrench on the brass inlet end of the sprinkler. This fitting contains the sealing washer and any deformation or damage to the inlet fitting will cause the sprinkler to leak or pre-operate. A warning label to this effect is provided on the inlet fitting (Figure15).

Figure 15

DO NOT WRENCH HERE

1.5 Alleged Faulty Dry Sprinklers

Figure 16 below shows two dry sprinklers found to be leaking. Both sprinklers show deformation at the end of the inlet fitting consistent with the sprinkler being installed into a fitting other than that described in this document, the product bulletin, and Reliable Caution Sheet 310. Marks on the upper brass section of the inlet fitting also indicate that a wrench was used on the brass inlet which is not permitted. A new sprinkler has been placed alongside for comparison.

Figure 16

Figures 17 below shows a dry sprinkler returned from a different installation which shows deformation of the brass inlet end. This is evidence of installation into a fitting other than a fitting described in this document, dry sprinkler technical bulletins, and Caution Sheet 310. A new sprinkler has been placed alongside for comparison (Figure 18).

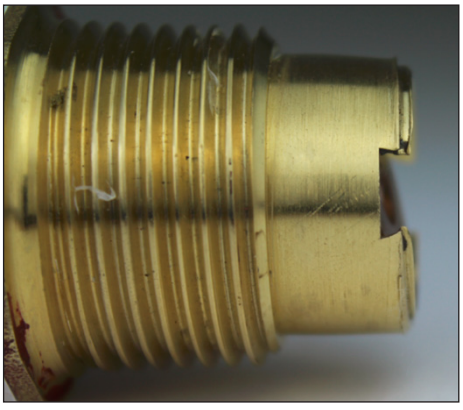

Figure 17

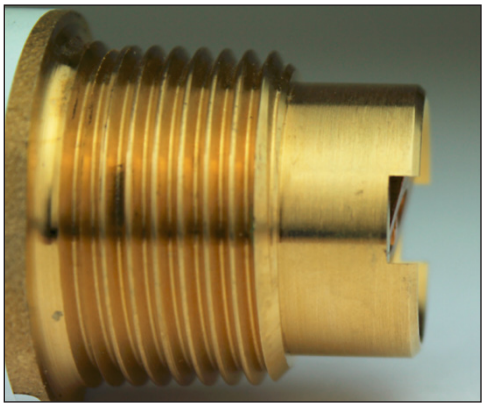

Figure 18

Damage or deformation of the inlet fitting will result in failure of the water seal. Failure of the seal will allow water to pass and travel down the inside of the barrel toward the sprinkler. At the base of the sprinkler there is a small hole to one side of the operating element. Any water leaking past the water seal will emerge from this hole and will be subject to freezing. Dry sprinkler found to be leaking and/or installed improperly shall be replaced. Failure to follow proper installation procedures, as described in this document, Caution Sheet 310, and technical bulletins will void any warranty, guarantee, and listing.

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