

More on Fire Pump Sensing Lines and Using the NFSA Subject Index

In the last issue of e-TechNotes, we answered a question regarding the installation of check valves or ground face unions in fire pump sensing lines. Specifically, the question was, "Do the check valves or ground face unions need to be installed horizontally?"

Our answer was: *The installer of a sensing line for a fire pump or jockey pump can choose between two options for pressure dampening in a system: check valves or ground face unions. The choice to use ground face unions should only be made when the water is clean enough that you do not need to worry about sediment in the water clogging up a 3/32 inch wide hole, which means that the water needs to be pretty clean to make this selection.*

The check valves also have 3/32 inch holes drilled in them. But if the holes in the check valves clog up with sediment, the check valves will still swing open when the water pressure in the fire protection system drops and the lower pressure will still be sensed back at the pressure switch in the controller.

If the holes in ground face unions get clogged, there is no way for them to swing open, so you don't want to select the use of ground face unions unless the water is very clean.

There is no rule in NFPA 20 to put either check valves or ground face unions in the horizontal position. The annex figures in NFPA 13 show them in the horizontal position, but these are not legally enforceable. The annex figures are merely informational.

Many installers like the idea of installing the check valves horizontally to prevent sediment from building up on the check valve and preventing the check valve from opening. This would be a preference for installation, not a requirement.

But if you have decided to chose ground face unions as your method of dampening pressure surges, then it should not matter whether they are horizontal or vertical because it is only legitimate to make this selection when the water is free of sediment, so you should not have to worry about where the sediment will fall. There should not be any sediment in the water.

We received some e-mail regarding our answer. Specifically, we were asked about the manufacturer's instructions. Since many manufacturers of swing check valves require that their products be installed in the horizontal position, our reader found our answer lacking in this regard.

We certainly agree with our reader that a person needs to install every product in accordance with the instructions from the manufacturer. We also agree that many manufacturers of swing check valves publish in their materials that their check valves need to be installed horizontally. If you plan on using a check valve that the manufacturer says needs to be installed in the horizontal position, then you need to install it in the horizontal position.

There are two reasons that we did not specifically come right out and say that every check valve in a fire pump sensing line needs to be installed in a horizontal position:

1. As we pointed out in our original response, NFPA 20 does not require that the check valves be installed horizontally.
2. There are manufacturers of check valves that do permit their devices to be installed vertically.

For more than 100 years, swing check valves have successfully been installed in the vertical position, including those that have been installed in system risers. For check valves in the smaller sizes, like the ½ inch ones used in fire pump sensing lines, it is less likely to find one that is permitted to be installed in the vertical position. But if you do find a swing check valve that is permitted to be installed in the vertical position, you are allowed to install it that way.

In summary, before deciding whether to install the check valves in the fire pump sensing lines in the horizontal or vertical position, check with the manufacturer of the valves that you intend to install. If they are required to be installed in the horizontal position, then install them that way. If they are allowed to be installed in the vertical position, then you are allowed to install them that way by NFPA 20.

For more information on fire pump sensing lines, see the many articles that have been written by the NFSA on the subject including the Sprinkler Quarterly article "Fire Pump Sensing Lines" from the Winter 1994 edition. The article can be accessed by NFSA members from the Members Only portion of the NFSA website. To get to the articles on the website, follow these instructions:

1. Go to the NFSA website at www.nfsa.org.
2. Sign in using your member username and password.
3. On the far right of the website, near the top is the "Members Only" dropdown box.
4. Hover over the Members Only dropdown box and click on "Newsletters and Features".
5. Click on "Search the Subject Index Database"
6. In the search box, type in "sensing lines"
7. Click "Submit Query"
8. The response will be a list of articles. Click on whichever you are interested in to open it up.

The Subject Index can be used to access any of the articles written by the NFSA in any of our publications: Sprinkler Quarterly, SQ, TechNotes, CodeWatch, e-TechNotes and e-Tech Alerts. In the near future, we'll add on-line seminars and Video EOD's to the subject index so that you can find information on whatever subject you're looking for.

Upcoming Technical Tuesdays

Oct 8
Foam Water Sprinkler Systems

Oct 22
Common Mistakes

[Register Here](#)



Take your NICET Level II or Level III Certification to the Next Level!!

Advanced Technician Training Distance Learning

Instructed by Ken Isman, P.E.

[CLICK HERE FOR INFO](#)



View older issues in the "Members Only" section.

Upcoming In-Class Seminars

Oct 8-10 Kansas City, MO
Inspection & Testing for the Sprinkler Industry

Nov 5-7 Raleigh, NC
Inspection & Testing for the Sprinkler Industry

[Register Here](#)

Did You Know??

The NFSA keeps a member of the Engineering Department staff on duty every business day to answer your technical questions live. We call this the Expert of the Day (EOD) program and it is available to our members by phone, fax, or e-mail. Call us at (845) 878-4200 and press 5, or you can send a fax to (845) 878-4215, or you can e-mail us at eod@nfsa.org. Last year we answered more than 2600 requests for assistance.

NFSA Tuesday eTechNotes is c. 2013 National Fire Sprinkler Association, and is distributed to NFSA members on Tuesdays for which no NFSA Technical Tuesday Online Seminar is scheduled. Statements and conclusions are based on the best judgment of the NFSA Engineering staff, and are not the official position of the NFPA or its technical committees or those of other organizations except as noted. Opinions expressed herein are not intended, and should not be relied upon, to provide professional consultation or services. Please send comments to Kenneth E. Isman, P.E. ksman@nfsa.org.

