

SERIES UMC FAQ'S

QUESTION 1:

Isn't it a requirement to provide a test orifice that is equal to the smallest orifice sprinkler on the system? The test orifice in the Test & Drain Valve comes with standardized K-Factors. What about all of the other K-Factors? Other manufacturers provide multiple options for test orifice K-Factors.

ANSWER:

A test orifice that is the size of the smallest sprinkler on the system is an option to meet the requirements of NFPA 13. However, NFPA 13 also permits the use of orifices that are smaller than the most remote test connection. Victaulic® standardizes on a K2.8 test orifice on 1" UTDs, a K4.2 test orifice on 1-¼" UTDs, and a K5.6 test orifice on 2" UTDs. Standardizing on test orifices streamlines and simplifies ordering and system installation.

NFPA 13 2022 Edition

16.14 System Connections.

16.14.1 Wet Pipe Systems.*

16.14.1.1 An alarm test connection not less than 1 in. (25mm) in diameter, terminating in a smooth bore corrosion-resistant orifice, giving a flow equal to or less than one sprinkler of a type having the smallest K-factor installed on the particular system, shall be provided to test each waterflow alarm device for each system.

QUESTION 2:

Would the flow switch respond more quickly to a test orifice with a larger K-Factor?

ANSWER:

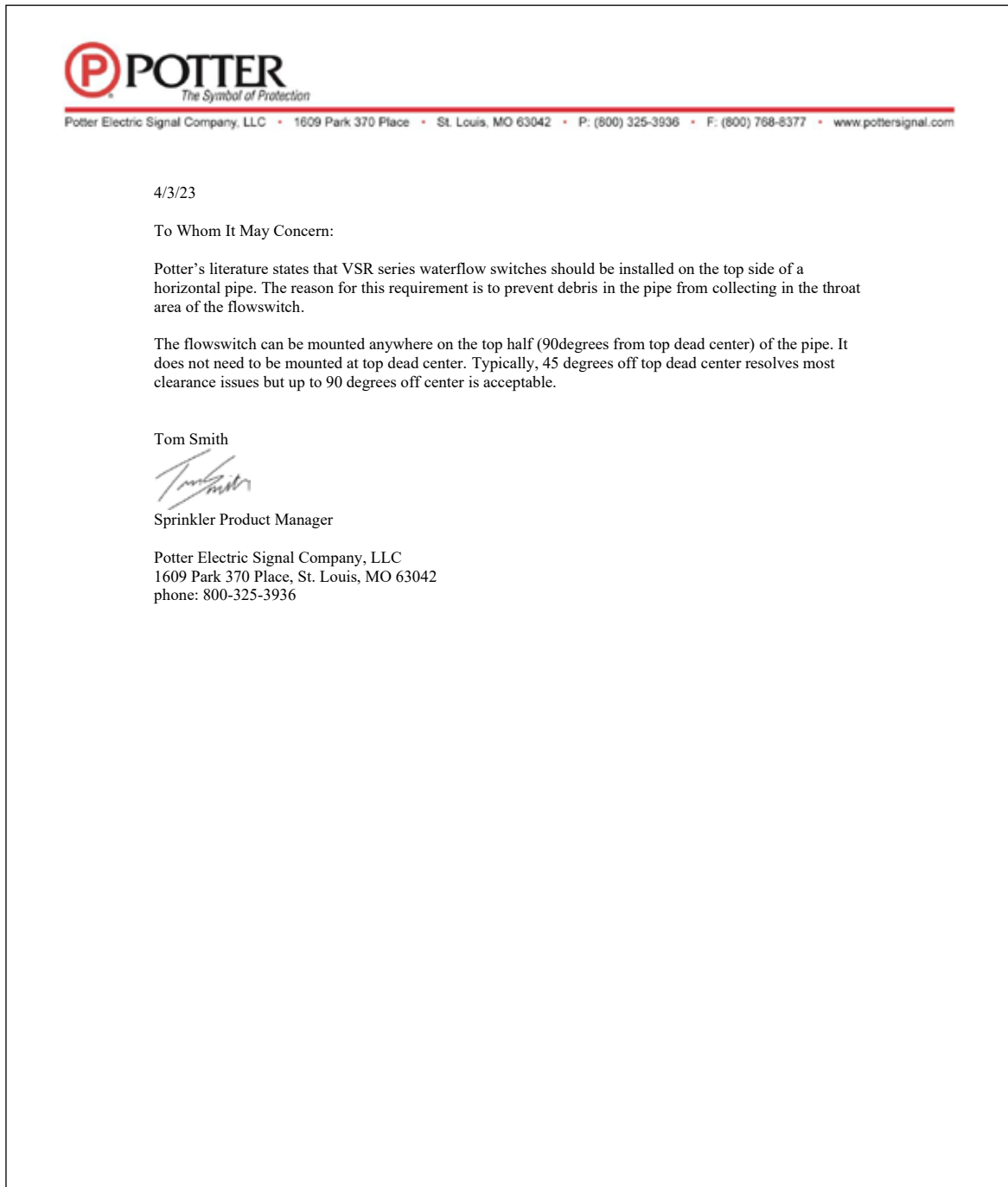
According to UL Listing requirements, the response time will likely be no different with a K2.8 test orifice and a larger K-Factor test orifice. Flow switch sensitivity is required to provide an alarm at greater than 4 gpm flowing but less than 10 gpm. They are not to activate on flows less than 4 gpm. The switch contacts change state when this 4 to 10 gpm threshold is met. While a larger K-factor test orifice will result in a higher flow rate at the available pressure, a K2.8, K4.2, or K5.6 orifice will likewise experience greater than 4 to 10 gpm flow at the available pressure at the floor control assembly. Therefore, there would be no difference in time of flow switch contacts switching state. The set delay within the flow switch would then dictate when the alarm is sounded.

QUESTION 3:

The Potter and System Sensor Flow Switch Data Sheets state that a flow switch must be mounted on the top of horizontal piping. The flow switch for the smaller sized UMC's results in the flow switch being mounted on the side of the horizontal manifold. How can this be?

ANSWER:

As this unit is tested as an assembly to the UL and FM requirements, and has passed those tests for the flow switch sensitivity, the assembly is allowed to be designed in this configuration. See letter from Potter below:



QUESTION 4:

The UMC includes an integral check valve. Is it a requirement to install a check valve in a flow control assembly?

ANSWER:

Beginning in the 2003 edition of NFPA 14 (Standard for the Installation of Standpipe and Hose Systems), check valves for floor control assemblies became mandated. It was further clarified in the 2007 edition (See below). The instance where a check valve is not required is when a Listed Pressure Reducing Control Valve is installed which has been dual Listed as a check valve. For these situations, Victaulic® offers a “UM” manifold which does not include the integrated check valve.

NFPA 14 – 2022 Edition

6.3.5 Control Valves and Check Valves on Combined (Standpipe/Sprinkler) Systems.*

6.3.5.1 Each connection from a standpipe that is part of a combined system to a sprinkler system shall have an individual control valve and check valve of the same size as the connection.

6.3.5.2 A listed pressure-regulating device that prevents backflow shall be considered a check valve, and an additional check valve shall not be required.

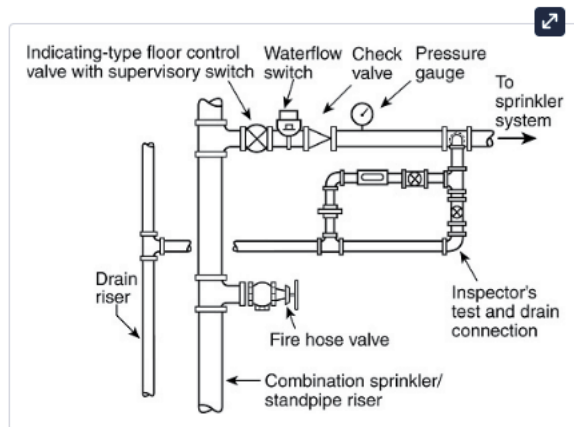


Figure A.16.15.2.2® Acceptable Piping Arrangement for Combined Sprinkler/Standpipe System.

The 2007 edition of NFPA 13 contained wording of a required check valve in section 8.16.1.1.3 as well as section 8.17.5.2.2(1). There were different interpretations of these sections however. The intent was clarified in Section 8.16.1.5 of the 2013 edition (now Section 16.9.10 of the 2022 Edition, see below)

16.9.10 Floor Control Valve Assemblies.

16.8.10.1 Multistory buildings exceeding two stories in height shall be provided with a floor control valve, check valve, pressure gauge, main drain valve, and flow switch for isolation, control, and annunciation of water flow for each individual floor level.*

16.8.10.2 The floor control valve, check valve, pressure gauge, main drain valve, and flow switch required by 16.9.10.1 shall not be required where sprinklers on the top level of a multistory building are supplied by piping on the floor below.

16.8.10.3 The floor control valve, check valve, pressure gauge, main drain valve, and flow switch required by 16.9.10.1 shall not be required where the total area of all floors combined does not exceed the system protection area limitations of 4.4.1.

16.8.10.4 The requirements of 16.9.10 shall not apply to dry systems in parking garages.

QUESTION 5:

NFPA 13 requires a pressure gauge above and below check valves. Why does the UMC only have both gauges provided on the 4", 6" and 8" sizes only and just one gauge (after the check valve clapper) on the smaller sizes?

ANSWER:

The NFPA requirement for gauges both before and after a check valve contains an exception to this rule. This exception essentially states that floor control assemblies of combined systems do not require the gauge below (before) the check valve. For this reason, Victaulic® has not included a second gauge on the 1-¼", 1-½", 2", 2-½", and 3" UMC's as these sizes are most likely to be used in multi-level building floor control assemblies whereas the 4", 6" and 8" sizes are most likely to be used in individual system risers which are not subject to this exception (See below). A plugged gauge port has nevertheless been provided below the check valve should a gauge be desired to be installed.

8.1.1.2 Pressure gauges shall be installed above and below each alarm check valve or system riser check valve where such devices are present.

8.1.1.2.1 A single pressure gauge shall be permitted to be installed on a manifold below multiple riser check valves or alarm check valves.

16.15.2.2 The following restrictions shall apply:*

(1) Each connection from a standpipe that is part of a combined system to a sprinkler system shall have an individual control valve and check valve of the same size as the connection.

QUESTION 6:

The UMC comes with a pressure relief valve, but isn't it true that pressure relief valves are only required on wet gridded systems?

ANSWER:

Up until the 2007 edition of NFPA 13, pressure relief valves were only required on wet systems that were gridded. In the 2010 edition of NFPA 13, this requirement was changed to require a minimum ½" Listed pressure relief valve on all wet systems (Section 7.1.2.1).

7.1.2 Relief Valves.

7.1.2.1 Unless the requirements of 7.1.2.2 are met, a wet pipe system shall be provided with a listed relief valve not less than ½" (12 mm) in size and set to operate at 175 psi (12.1 bar) or 10 psi (0.7 bar) in excess of the maximum system pressure, whichever is greater.

7.1.2.2 Where auxiliary air reservoirs are installed to absorb pressure increases, a relief valve shall not be required.

QUESTION 7:

Why is a Left-Handed or Right-Handed version offered?

ANSWER:

When a floor control assembly is installed off of a standpipe, the standpipe may be located at the intersection of two adjacent walls (in the corner) in many cases. This results in the standpipe possibly being in the left corner or right corner of the space. When coming off horizontally from the standpipe, with water flow from left-to-right or from right-to-left, it is critical to allow for the Test & Drain to be located below the UMC, as well as for the cover of the UMC Check Valve to be facing forward and not against the wall.



QUESTION 8:

If a Right-Handed configuration is ordered, but it needs to be modified to a Left-Handed configuration in the field (or vice versa), is this acceptable?

ANSWER:

Yes, while Victaulic® offers separate part numbers to order a preassembled “Right-Handed” or “Left-Handed” configuration, we also offer “mirrored ports” so the Test & Drain may be relocated in the field to the opposite handed port. The UMC remains certified in either configuration.

QUESTION 9:

Can a UMC be ordered without the preassembled Victaulic® Butterfly Valve?

ANSWER:

Yes, Victaulic® offers separate part numbers to order the UMC with or without a preassembled butterfly valve. The use of any certified butterfly valve is acceptable, since the UMC remains certified individually in either configuration.

QUESTION 10:

Can a UMC without the adjustable relief valve be ordered?

ANSWER:

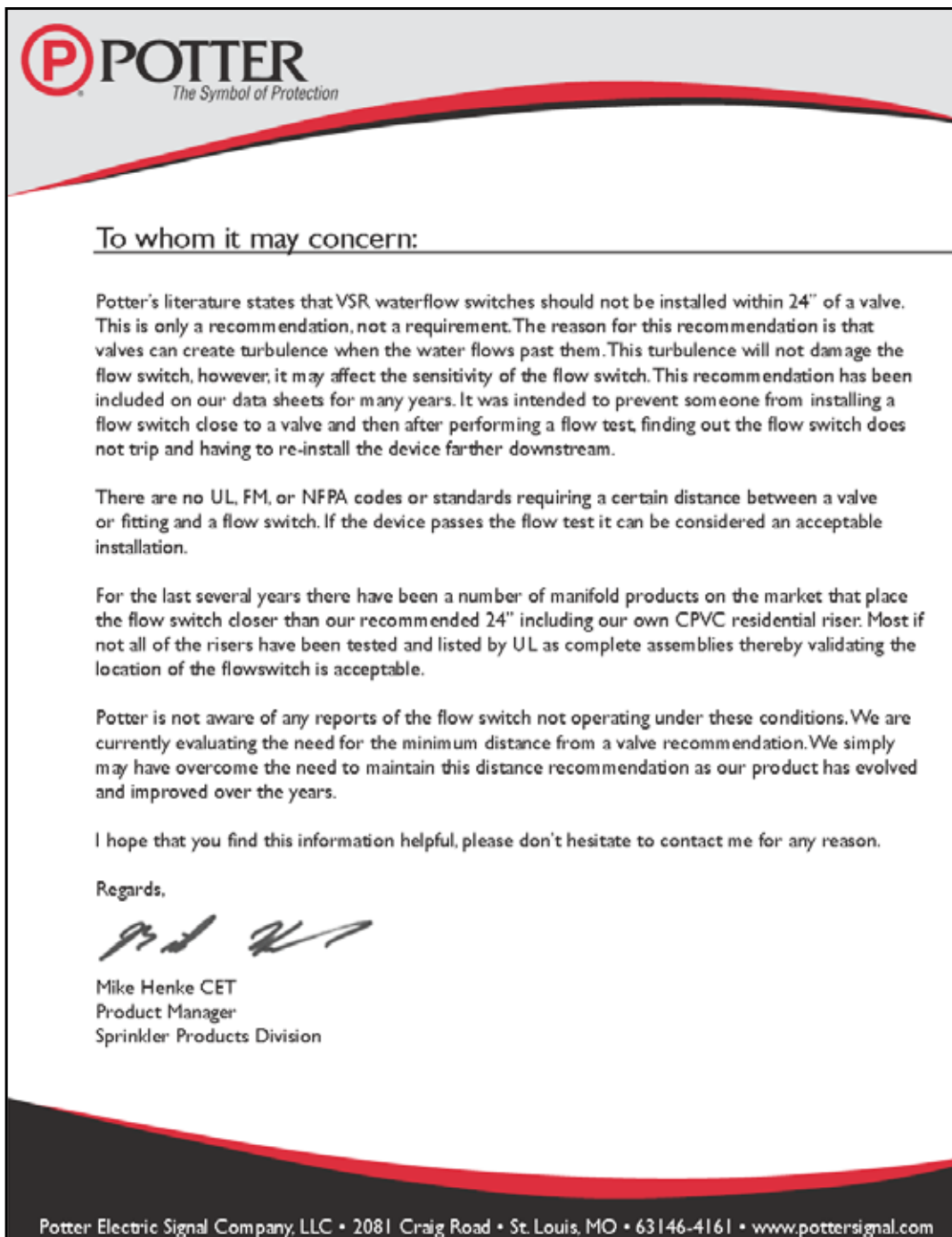
The UMC has been engineered and Listed to meet the most recent NFPA 13 requirements for floor control assemblies. The requirement for a Listed pressure relief valve was implemented in the 2010 edition of NFPA 13. While a relief valve can be installed anywhere on the system after a check valve, Victaulic® has provided this on the UMC for convenience and has prepped to drain. The UMC cannot be ordered without this relief valve.

QUESTION 11:

The Potter and System Sensor Flow Switch Data Sheets state that a flow switch must not be installed within 24” of a valve. However, the UMC includes a flow switch much closer than this recommendation. Is this acceptable?

ANSWER:

As this unit is tested as an assembly to the UL and FM requirements, and has passed those tests for the flow switch sensitivity, the assembly is allowed to be designed in this configuration. See letter below from Potter:



QUESTION 12:

The UMC includes a flow switch in a different location than has been typically seen in the past. Is this permitted?

ANSWER:

There are no restrictions or limitations with regard to the location of a flow switch being on the upstream side of a check valve by either NFPA or the main certifying fire protection agencies. This configuration has been successfully tested and certified by UL, LLC and FM Approvals, LLC.

Annex figure A.16.15.2.2 has also been added to the 2022 Edition of NFPA 13 to further clarify that installing a flow switch prior to the check valve is an acceptable configuration.

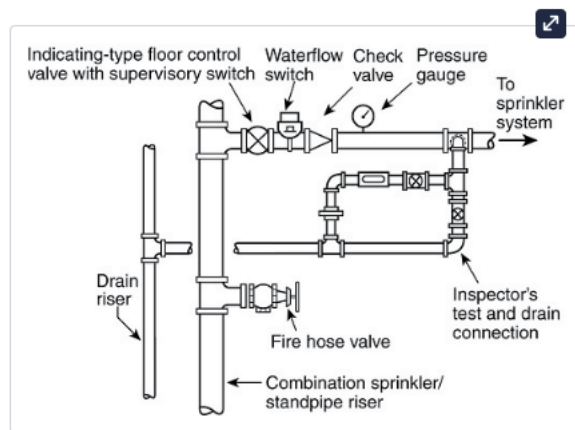


Figure A.16.15.2.2® Acceptable Piping for Combined Sprinkler/Standpipe System.

With today’s abundance of available “Riser Manifolds” offered by numerous companies, the flow switches attached to these “Riser Manifolds” typically result in them being located downstream of the separate check valve since the drain valve is also a component of the “Riser Manifold”. The presence of the drain valve on these manifolds, results in the manifold (and therefore the flow switch) having to be installed downstream (after) the separate check valve. This allows the system piping to be drained from the drain valve. The UMC complete floor control assembly is configured in such a manner that the Test & Drain Valve is downstream (after) the integral check valve clapper while the flow switch is upstream (before) the check valve clapper. This allows for flow switch testing as well as system drainage.

QUESTION 13:

Wouldn't the flow switch being below the check valve result in false flow signals upon water surges that would not be seen if the flow switch were on the system side of the check valve?

ANSWER:

There is no greater likelihood of a false flow signal with the UMC flow switch location upstream of the check than there would be with the typical current downstream location of flow switches installed on risers with or without a riser check valve and/or a Backflow Preventer upstream of the riser.

Pressure changes in the water supply (pressure surges) do not affect the flow switch differently when it is located upstream of the check valve. The flow switch requires a constant steady flow rate to operate. As the check valve stores any higher pressure increases or fluctuations, it eliminates any further flow or movement of water downstream of the check valve. In order for the flow switch to operate, a constant flow or movement of water at a rate of 4 to 10 gpm is required. The "slug" or section of water around the flow switch paddle physically cannot flow anywhere as the check valve clapper is "locked" in place by the higher pressure. The only water movement that the flow switch may see would be drainage back to the source. The flow switch does not operate on flow towards the source, only flow towards the sprinklers.