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February 2nd, 2013 ~ Monday Morning Minutes: ***By Norm Hall***

Steam Vent Operating Pressure

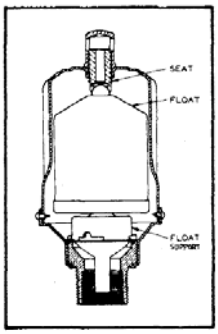
During the past week, after 3 weeks of condensate articles, we received a couple of calls regarding steam vents. I thought the questions were universal enough that they warranted a R. L. Deppmann Monday Morning Minute.

Question 1: I have a 15 psig steam system which operates at about 7 PSIG most of the time. Is the Hoffman Main Steam Vent Model 75 appropriate for this application with its listed 15 psig maximum?

This is a great heads-up question by the engineer who asked it. Paul Prentice, sales engineer at R L Deppmann, responded correctly with a caution and another choice of Hoffman vent by Xylem.

We normally concern ourselves with maximum pressures when applying a product to a HVAC system. In the case of steam vents, that could get you in trouble. Although the Hoffman model 75 can "stand the pressure" of a low pressure steam system, with its maximum pressure of 15 PSIG, it only has an operating pressure of 3 PSIG. What does this mean?

When thinking of vents, most people think of hydronic system vents. Hydronic system air vents have a float and pin inside them. When the vent is full of water, buoyancy raises the float and the pin seats to stop water from leaking out the vent. When air arrives in the vent, the float drops and the air bleeds out. When the water re-enters the vent, the cycle continues. Steam vents use a different principle.



Main Vent

Figure 18.

Vent Cut-away from Hoffman TES-375 manual

Hoffman Air Vents

The vent has a thermostatic element and a float. While air is in the vent, it rises around the float and is vented. When steam enters, the hot steam expands the fluid in the vent which forces the pin to close off the vent. The steam pressure on the lower surface of the vent will keep the vent closed. It remains closed until the pressure drops enough so the weight of the float is greater than the pounds per square inch pressure holding the vent open. This steam pressure is referred to as the "drop away" or "operating pressure" of the vent.

The Xylem Hoffman 75 has a "drop away or operating pressure of 3 PSIG. That means the vent will not open until the pressure in the system drops below 3 PSIG. This is a great vent for cycling on-off loads but may be a challenge in a steam piping main. The Hoffman 75H has a drop away pressure of 10 PSIG. This could be a better choice in this application.

Hoffman makes a variety of vents for steam and hydronic applications. In Michigan and Northern Ohio, give your Deppmann sales engineer a call. In other parts of the world contact your local representative.

The Xylem TES-375 manual is available online at the Xylem Hoffman websites or through your local representative.

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