

SteamTeam®

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Steve Almgreen
Assistant Product Line Manager -
Steam Products

Should I insulate my condensate units' receiver?

This issue is not addressed in Xylem Domestic Pump and Hoffman Pump product manuals, factory recommendations or Little Red School House steam system application and sizing guides. Some installations require insulation for safety. Otherwise, it's a matter of choice based on system design and your understanding of the strengths, limitations and use of products in the system.

Before deciding to apply insulation to condensate handling/boiler feed equipment, however, you should address issues that have been raised in site visits and comments from the field.

Adding insulation may not be the money-saver it appears

Insulation is typically applied to retain latent heat from the condensed steam and minimize the energy needed to create new steam in the boiler. But most Domestic Pump / Hoffman Pump condensate units have cast iron receivers sized, per ASHRAE recommendations, for one minute net storage on condensate receivers or 5 minute net storage on boiler feed units. Thus, if the unit is properly sized, condensate is collected and returned to the boiler before too much additional sub-cooling can occur—and the thermal mass of cast iron receivers retains heat. What's more, if a steam trap fails, the receiver walls and vent piping let steam condense as additional heat from the failed trap is dissipated. Insulation could prevent the condensate from cooling, leading to pump performance problems due to NPSHA issues. It's often more economical to properly size units based on an understanding of system dynamics than to grossly over-size units and apply insulation.

Adding Insulation may impede unit service

Applied insulation often restricts access to the product, which means the insulation has to be removed for service or maintenance. It may also hide identification plates, obscuring the serial number required to identify replacement parts for Built-To-Order Domestic Pump products and Hoffman Pump products. If you relocate the nameplate outside the insulation, the plate could be lost, making it harder to identify the unit and the correct replacement parts.



Horizontal Boiler Feed Series 50 Duplex

Insulation can trap moisture

Insulation can trap moisture from the atmosphere or from service issues against the receiver, accelerating corrosion and shortening product life. Cast iron receivers are certainly subject to this, and even fabricated steel receivers can be affected. Corrosion under the insulation may also render data plates unreadable, compounding the parts issue noted above. There's also the possibility of mold, which thrives in a warm, moist environment and can cause serious health issues. While there is not a clearly defined industry-wide solution, the key to mold prevention appears to be leaving the condensate unit uninsulated and installing condensate units in a properly vented and drained equipment space.

Never insulate vacuum units

Some systems use a vacuum to remove air from in front of system steam and to provide lower steaming temperatures. These vacuum units should always be un-insulated, promoting the best heat retention/heat dissipation relationship. Vacuum units are typically designed to operate at 160 degrees F or cooler. Focus on maintaining the steam traps; if they fail and steam passes through to the vacuum heating unit, you've got trouble. But if a steam trap does fail, the uninsulated condensate unit can help cool condensate to acceptable levels, preventing or at least minimizing damage to the heating unit until the trap can be repaired.

Ultimately, the decision to insulate a condensate or boiler feed unit is up to you. Use the information above and your knowledge of your system to make an educated choice for you and your customer.

Jarek Berezowski
Hoffman Specialty, Product Specialist

Hoffman Specialty PRV Troubleshooting

Q. How do I test a spring pilot?

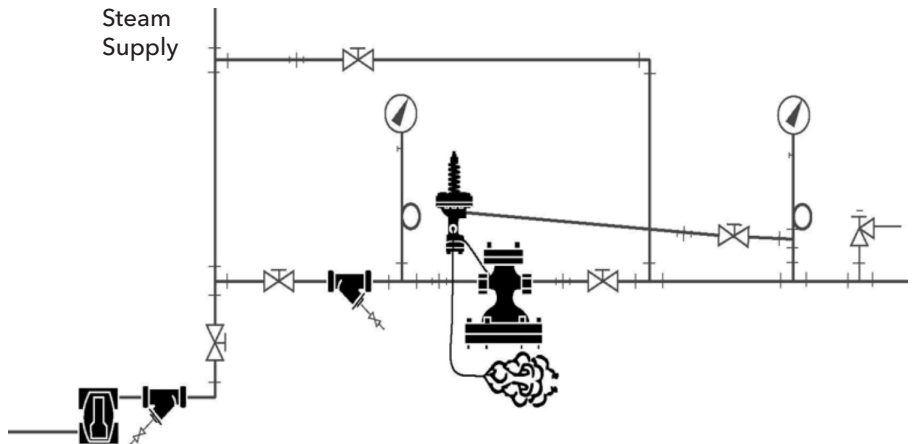
A. The easiest way to test a pilot operated valve is to disconnect the pilot line and observe the pilot's operation.



Hoffman SPS Spring Pilot

Keep in mind you are handling steam. Use proper safety precautions.

When you turn the adjusting nuts in, the pilot valve should open and steam should shoot out the end of the tube. When you back out the adjusting nuts, the pilot should close. Only a small leakage is acceptable.



Q. How do I test the main valve diaphragm?

A. You can test for leaks in the main valve diaphragms in line. First, disconnect the copper tubing to the main valve diaphragm. Slowly open the bypass valve to load downstream steam pressure. If the diaphragms are bad, steam will blow through the diaphragm and out the bottom of the main valve.



Hoffman Series 2000 Main Valve

