
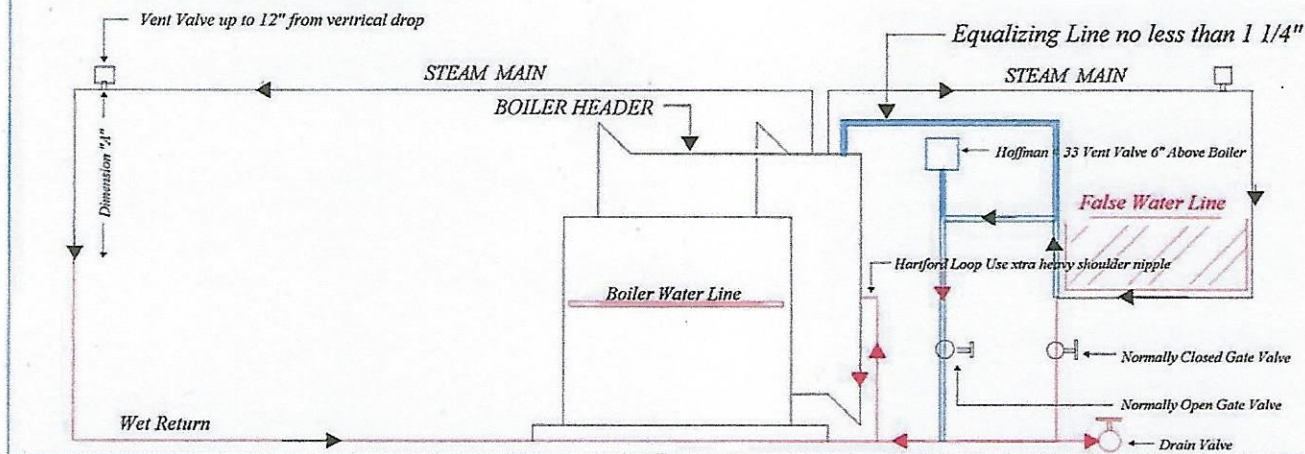


FOR NEW BOILER INSTALLATIONS WHERE WET RETURNS BECOME DRY

1. Piping in blue color is the corrective new installation to make the false water line.
2. Piping in red is the wet return line piping.
3. Piping in black is the steam piping and dry condensate return.
4.  Flow directional arrow for steam and condensate water.
5. Dimension "A" not less than 17" for boilers up to 200,000 BTUH.
6. Dimension "A" not less than 27" for boilers greater than 200,000 BTUH.
7. Steam rated Ball Valves may be used in place of Gate Valves.
8. False Water line: No less than 6" Above Boiler Water Line.

Special Notes:

Dimension "A" is the lowest horizontal steam main. It is located at the vertical drop to the wet return or Boiler water line. Dimension "A" is the Measurement of the Space between the Water Line and Bottom The Steam Main.



Banging in the Dry Return

Banging in a dry return can occur when a blockage happens in the wet return portion of the return line or if the bottom water side of the boiler is blocked. To remove the problem, disassemble the piping, and flush and drain the return pipe and the inside bottom of the boiler's water passages until all the debris is removed.

A dry return may be back pitched or the boiler does not have a proper dimension "A." If the return is back pitched, regrade the pipe. A thumb rule: for boilers less than 100,000 BTUs, dimension "A" should not be less than 18 inches, and with boilers above 100,000 BTUs, no less than 27 inches. If the "A" dimension cannot be met, a temporary fix, such as installing a horizontal swing check valve in the wet return before the Hartford loop, can prevent boiler water from backing out of the boiler. Remember, the condensate was not getting back into the boiler because the boiler's pressure was greater than the static head pressure. A check valve can cause a problem. When the check valve jams closed, no water will return to the boiler. A proper fix is to install steam traps where needed, and a condensate tank and pump to separate the return piping from the steam piping and the boiler from the piping system.

When boilers are replaced, occasionally, the new boiler waterline is lower than the old boiler waterline, and parts of the original wet return become dry. The false waterline can alleviate that problem.