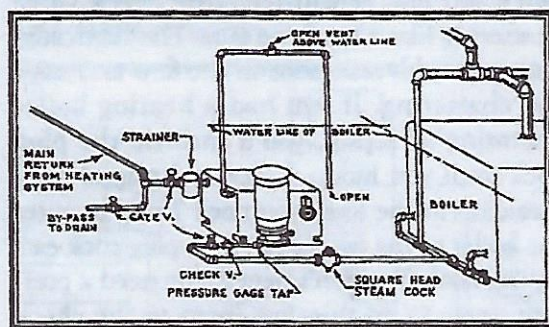


Now, if you have two boilers running at the same time you'd probably use a duplex boiler-feed pump, not a duplex condensate pump. That's because the float switch in the condensate pump's receiver wouldn't be able to tell which boiler needed water. A boiler-feed pump can tell because its "brain" is a pump controller mounted on the boiler itself.

The main advantage of a duplex condensate pump is having that stand-by capability—as a replacement pump and as a "helper" pump during peak loads.



How To Pipe A Condensate Pump



Let's start with the discharge piping. The first thing we have at the pump's outlet is a swing check valve. It's there to keep the boiler water in the boiler. Without a check valve, water would flow out of the boiler and into the pump's receiver. That's because high pressure goes to low pressure...always.

If the check valve doesn't hold, boiler water will bleed back through the line and fill the receiver. The pump will come on and pump it back into the boiler.

Back and forth goes the condensate. You'll know this is going on because the pump will be short-cycling. You can prove your suspicions by closing the inlet valve to the receiver. If the receiver fills, you'll know the check valve isn't holding. Fix it.

Put a gate or ball valve after the check valve so you'll be able to service the pump or the check valve without having to drain the boiler. Then, install a lubricated plug cock or other suitable balancing valve after the service valve. The plug cock pulls in the reins on the pump and keeps the check valve from chat-

tering. You need it because manufacturers size most condensate pumps to move water at 20-psig. That's because a low-pressure boiler can operate up to 15 psig. Remember what I told you earlier? If the boiler operates at a pressure less than 50 psig, you have to pump into it with a pressure equal to operating pressure, plus 5 psig. So if your boiler is running at 2 psig, your pump should discharge at 7 psig. But if the boiler operates at its maximum 15-psig pressure, you'll need a 20-psig pump to get in. That's why they make them that way.

The problem, however, is if we let the pump do what's it's capable of doing, the pumped flow of return condensate will be much too fast. It will have the check valve chattering like a machine gun. The lubricated plug cock adds resistance to the flow and stops the chattering. If you had a heating boiler operating at 2 psig, you'd throttle the plug cock until you induced about 13 psig of pressure drop in the line (you need 7 psig to enter the boiler at the proper rate; the plug cock eats up the rest). You don't necessarily need a pressure gauge to do this; just listen to the check valve. When it stops chattering, you're probably at the right point.

You can't throttle with a gate valve because when closed part way, the gate hangs perpendicular to the flow of water. It will rattle back and forth and eventually shake itself off its stem. Besides, you shouldn't use your service valve to throttle because someone will invariably close it to service the pump and then reopen it to its full-open position. That sets your check valve to chattering again.

Most pump manufacturers want you to discharge into the bottom of the header drip and not into a Hartford Loop when you use a condensate pump. They avoid Hartford Loops with pumped returns because they don't want the condensate shooting up into the header. That, as I'm sure you can imagine, can cause some memorable water hammer!

This is also another good reason to throttle the flow as it leaves the pump. You want the water to enter the boiler gently so it doesn't go slamming up into the steam in the header. The lower the entering pressure, the less likely this is to happen.