



Condensate Mixers

MANUFACTURER OF INNOVATIVE CONCEPTS IN STEAM MANAGEMENT



**MAXI
THERM**

maxi-therm.net



Maxi-Therm CM Series Condensate Mixers

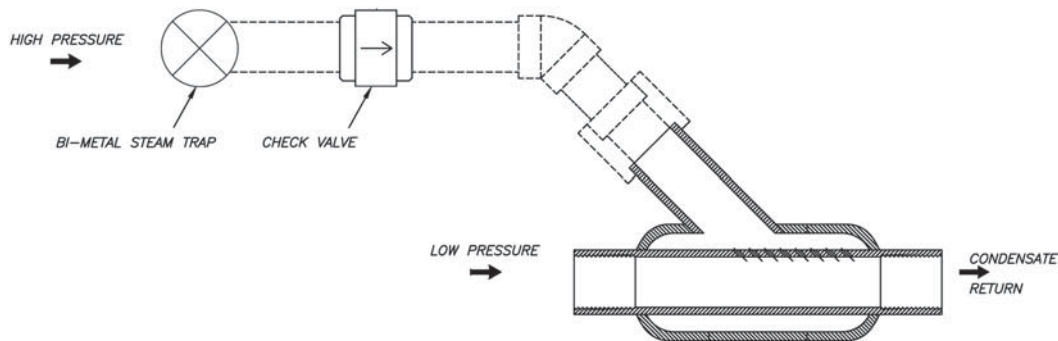
Consolidate Steam System Condensate Return Lines

Now the expense of installing separate piping systems can be economized by using condensate mixers. The Maxi-Therm CM Series efficiently mixes high pressure condensate into a lower pressure return line.

The system is compact and eliminates the need for a separate high pressure return on many applications. Its unique sparging effect blends the water and flash steam to recover BTU's that might otherwise be vented and lost. It reduces complex piping, saves space, installed cost, and energy.

How the Maxi-Therm CM Series works:

Low pressure condensate (and flash) flow through the unit. High pressure flow (using the unique Maxi-Therm steam trap) enters through the CM's check valve. The check valve is a short stroke, spring actuated unit designed specifically for condensate. The angled inlet and custom angled nozzles inject the higher pressure condensate and flash into the lower pressure flow, helping to motivate and heat the lower pressure flow.



The CM is suitable for discharging into constant pressure condensate systems (wet or dry):

- High pressure steam main drip traps
- Pressure reducing valve drip traps
- Medium pressure sterilizer traps
- Unit heaters, door heaters, cabinet heaters

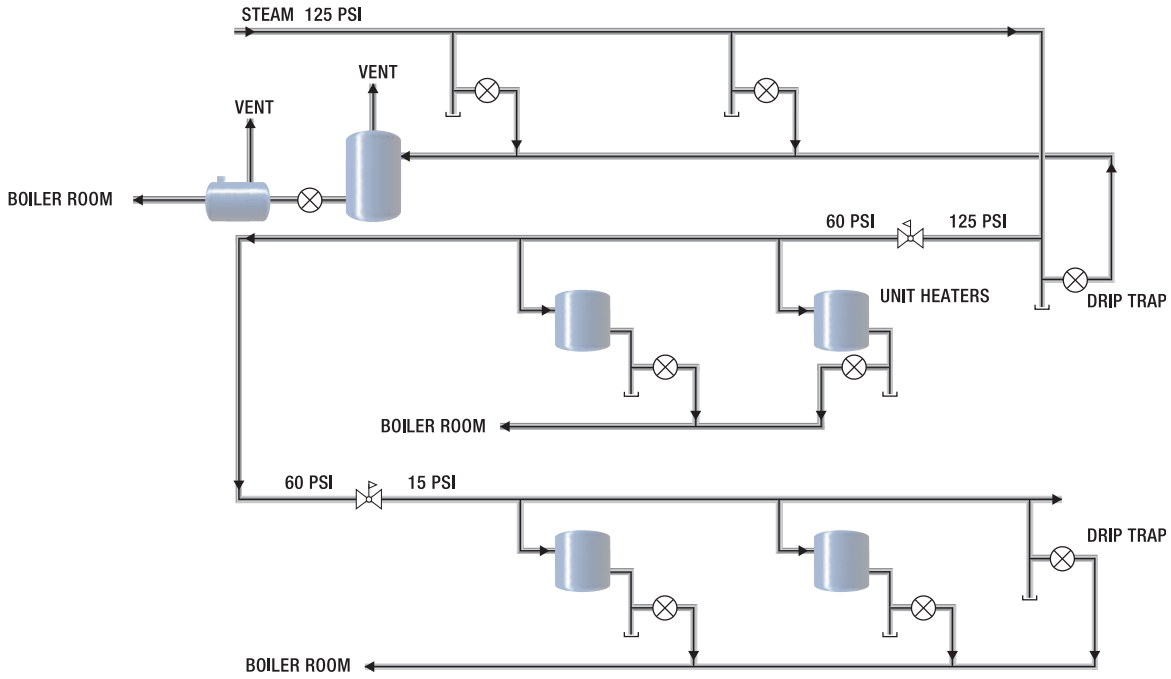
Large and steady high pressure condensate loads, over 2000 #/hr, on 100 psi and higher, should use a flash recovery system (See our Heat and Water Recovery products).

All smaller loads can be consolidated by the CM Series.

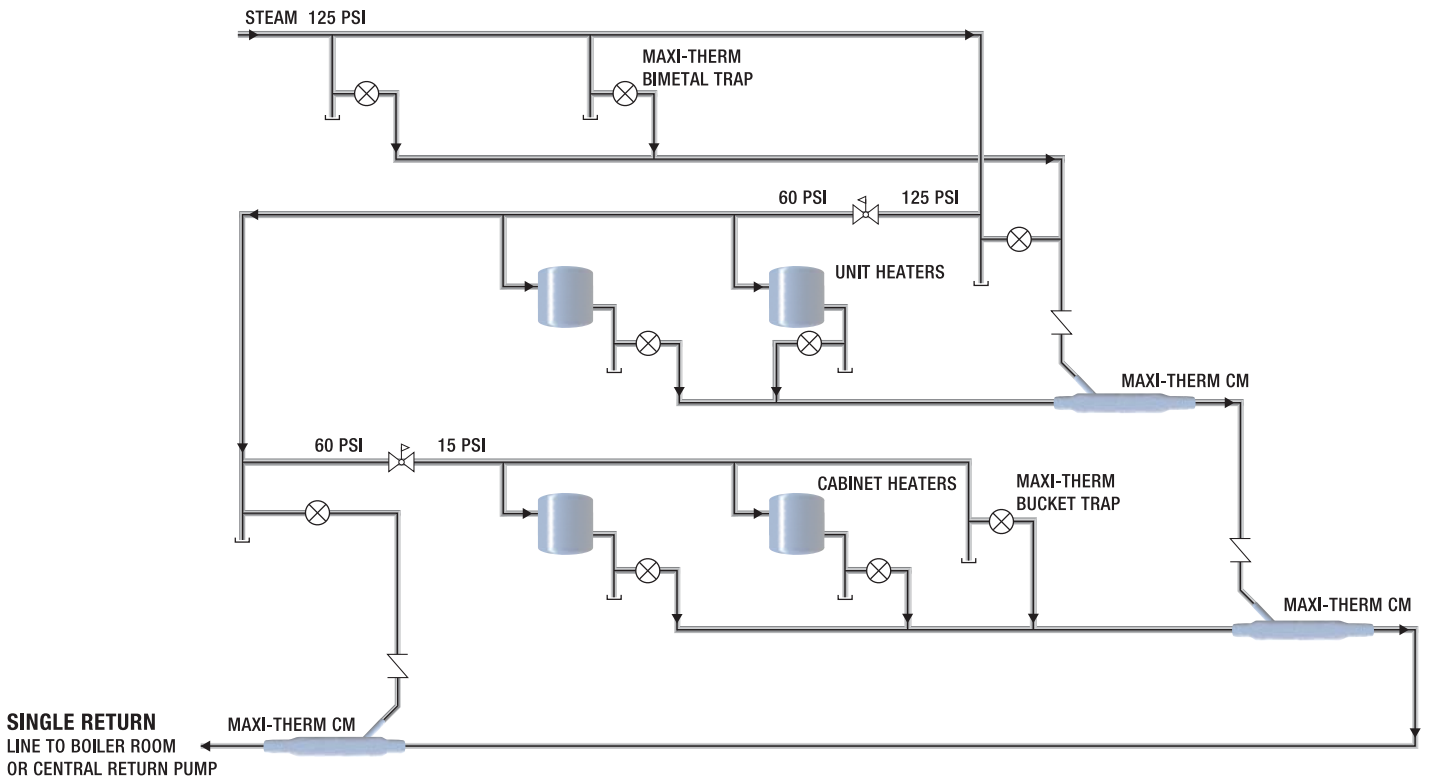


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CONVENTIONAL METHOD Three return lines



SYSTEM WITH MAXI-THERM CM Single return line

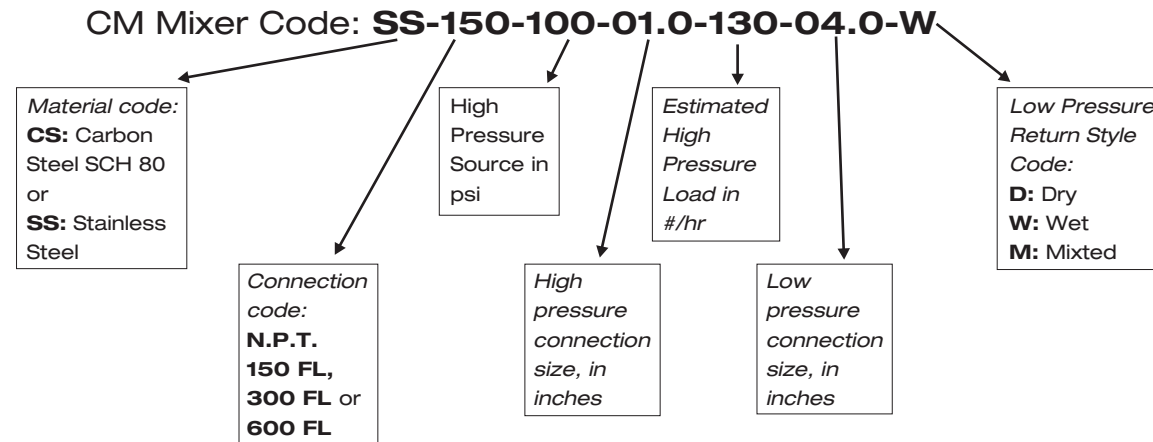




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How to Specify a Maxi-Therm CM Condensate Mixer

Example: A 1 inch 100 psi drip trap line discharges into a 4 inch low pressure pumped condensate line, in 150 Class, stainless steel return line.



Typical questions

1. What is a dry or wet system?

A wet system is usually when the condensate is pumped and there is only water in the return line. A dry system is when flash steam is present with the condensate in the return line. The volume of flash steam is much greater than condensate, so by volume, the line is mostly gas. If a return line has only steam traps discharging into it, it's a dry return.

2. Will the CM prevent water hammer?

Yes, under normal operation. If blow through traps or open bypasses are encountered, the system may hammer. Consider any hammering as a signal to investigate system conditions.

3. What about pressure relief or code considerations?

The CM is injecting potentially high pressure fluid into a lower pressure system. This is done often and reliably by reducing valves, and pressure motive pumps, but proper piping, venting, and relief capacity are design considerations.

4. Why hasn't this been done before?

It has. Spargers have been described in steam engineering handbooks for decades. Most were custom made, not designed for production. Many simple designs failed, since the materials were not heavy enough to withstand the erosive effect of flash steam implosions.

5. How does the CM Design correct these historical flaws?

We design specific flow area ratios and test them in our steam laboratory. We break up the flash into many small angled nozzles that minimize the impact of flash implosions. We use heavy walls, schedule 80 for steel and schedule 40 for stainless steel. We recommend the use of Maxi-Therm bi-metallic steam traps on the high pressure side because the subcooling effect helps minimize the flash steam to be mixed.

6. What about special applications?

If you have exotic alloy needs or unusual flow conditions, call us, we are happy to consult. Accurate flow and pressure data is very important.

