

Cooling Tower Pumps and Piping – Part 7

Pump Suction Piping Rules

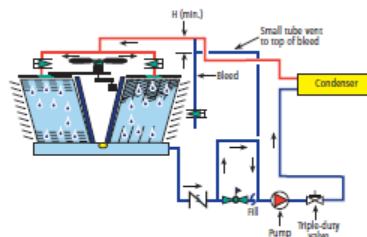
By Norman Hall

This week we continue our suggestions for tower pump suction piping. In order to minimize problems with air, noise, and NPSH at the tower pump, Bell and Gossett recommends you try to keep high pressure drop devices out of the suction piping and also keep the velocity low. Let's examine high pressure drop device this week.

RECOMMENDATION #4: Avoid higher pressure drop items in the pump suction line. (check valves)

Engineers try to avoid raising a pipe on the tower pump suction above the tower basin. Occasionally, there is no way to avoid this and a check valve has to be installed. It is critical that the check valve has a low pressure drop at design flow.

See the B&G TEH-1209 manual for more detailed instructions.



Improved Suction Line Air Trap Installation
Figure 26

RECOMMENDATION #4A: Avoid higher pressure drop items in the pump suction line. (strainers)

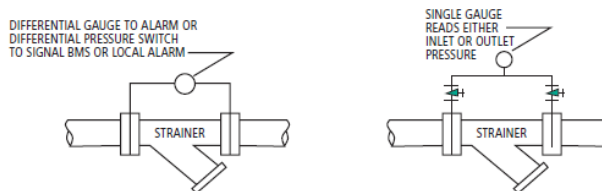
Strainers are a necessary evil. B&G says to avoid fine mesh strainers in the pump suction. I've argued that even large mesh strainers will become small mesh strainers if they have no maintenance.

I recommend you put a screen in the tower to catch the large items or you put a large mesh (.125 perf) strainer in the suction line and add a DP switch across it to indicate when the strainer needs cleaning.

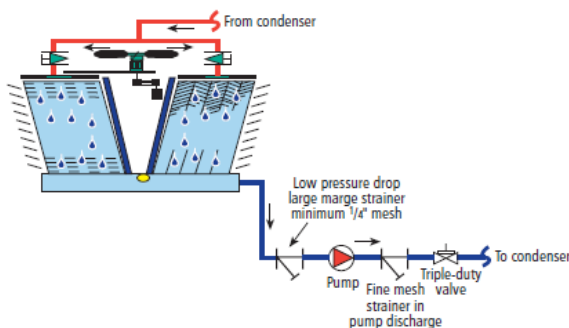
With the frequent use of Bell and Gossett plate heat exchangers, the need for fine mesh straining becomes even more important.

Some of the smaller plate heat exchangers require .045" perf. strainers to avoid the possibility of plugging.

Condensers would also benefit from fine mesh strainers. When you must use a fine mesh strainer, locate it on discharge of the pump.



Reading Strainer Pressure Differential
Figure 30



Right – Large Mesh Strainer Protects Pump; Fine Mesh Protects Condenser, etc.
Figure 29

Next week we look continue to look at cooling tower pump suction velocity.

[Click here to request a copy of the Xylem Bell and Gossett Cooling Tower Piping technical bulletin TEH-1209](#)

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