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TECHNICAL PUBLICATION

INFORMATION & STRATEGY FOR THE FACILITY MANAGER

The Different Types of Filter Installation

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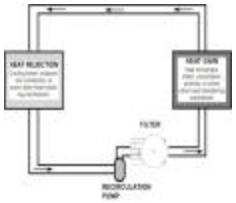
This article will discuss the different types of filter installation, their respective advantages as well as disadvantages. All installations can be for open loops or closed loops, and they are applicable to all kinds of filters

In-Line Installation

Filter is installed in-line of the water pipe. This type of installation filters water in a single pass, and uses the system's recirculation pump.

This type of installation has some limitations, as follows:

- It requires a larger filter to handle the full flow of the system
- As the filter becomes dirty, it reduces the flow throughout the entire loop, increasing head pressure and eventually shutting the system down, unless the filter is cleaned or changed immediately.
- To prevent this interruption, it will require some auto by-pass, or duplex operation

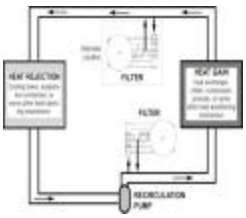


In-Line Installation
Dwg by TowerFlo

By-Pass Installation

Filter draws water from upstream and returns it downstream to the "same" water line, either on the discharge or suction side of the recirculation pump.

This type of installation is NOT recommended if using the system's recirculation pump, unless some modifications are done on the water line. The filter draws and discharges water back to the same water line under the same pressure. The water flow through the filter will be restricted immediately at the slightest pressure drop.

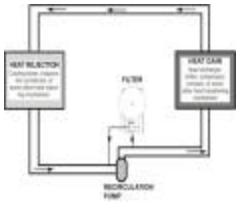


By-Pass Installation
Dwg by TowerFlo

To overcome the above restriction, install a separate recirculation pump to force the water through the filter bed, or install a modulating throttling valve on the water line to force the by-pass of the water through the filter.

Side Stream Installation

Water flow to the filter is taken from the discharge side of the recirculation pump (higher pressure side) and returned to the suction side of that pump (lower pressure side). Water can also be returned to a tower basin or any hot/cold well.



Side Stream Installation
Dwg by TowerFlo

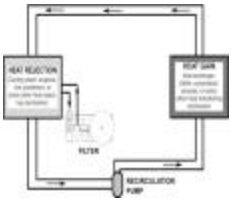
This type of installation can rely on the system's recirculation pump. However, the size of the filter is limited to a fraction of the flow rate, in order not to reduce the supply adversely.

Static Loop Installation

Filter draws water from static source such as a tower basin (or a hot/cold well) and returns this back to the same tower basin (or the hot/cold well).

This type of installation requires an independent recirculation pump to drive the water through the filter bed, and to accomplish the backwash.

By far, this is the best installation because it is not limited by system pressure, flow rate, delta P across the filter bed, etc.



Static Loop Installation
- Dwg by TowerFlo

Other Considerations

- Is filter vessel rated for the line pressure at the point of installation?
- What is the backwash water source? System Water, Fresh Water, Others?
- If using the system's recirculation pump, can it handle the additional head loss created by the filter?
- Consider backwash disposal (environmental constraints as well as flow rate)