

Filter and Strainer Selection: A Basic Overview

Often overlooked, strainers and filters keep harmful debris out of your system, protect sensitive equipment like pumps, valves, instruments, lines, and even improve the performance of your heat transfer fluid. Here's a brief overview of the different types you might consider for your system.

Strainers

Strainers typically use wire mesh elements to remove harmful debris from your fluid and protect vital system components like pumps, lines, and valves, to name a few. They're typically more economical than filters and are the minimum protection you'd want for your system. Most manufacturers of heat transfer systems incorporate strainers into their equipment with "Y" and "basket" types being the most common.

Named for their odd shape ["Y" strainers](#) are very common in hot oil systems and are used to remove larger debris from the fluid. As fluid flows through the strainer, any debris or particulates should drop into the bottom of the strainer as the fluid passes through the element. They're compact and also have the flexibility to be installed vertically or horizontally making them ideal for smaller systems with limited space.

[Basket strainers](#) are typically larger, hold more debris, and usually have less of a pressure drop than "Y" strainers. They can also handle a higher flow volume than "Y" strainers.

Depending on your specific needs, either type of strainer is useful for removing large debris from the system. If you're looking at removing finer particulates, however, consider using a filter.

Filters

Filters remove fine particulates from the system and basically condition the fluid, enhancing it's performance and improving heat transfer. Filter elements are available in a wide variety of materials including metal, cotton, polyester, wound fiberglass and pleated metal mesh.

There are many configurations available depending on application, temperature, flow rate and pressures. In general, filter elements can remove particles ranging down to three [microns](#) if necessary.

Depending on your needs, there are two basic configurations of filters available: "side-stream" and "in-line."

Side-stream filters are stand alone filtration units that operate full-time though typically only filter about 10-20% of the flow at a given time. Side-stream filters will remove fine particulates over time and condition the fluid but won't protect system components.

If you're looking for an option that protects system components while also conditioning the fluid, consider an in-line filter (also known as "full-flow"). They filter 100% of the flow, but tend to be larger in size to accommodate for higher [fluid flow rates](#). A blow molding application is a good example that would benefit from the extra protection due to its small lines and orifices that would make even small particulates problematic.

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