How to Choose Between a Wye and Tee Strainer

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Wye ('Y') and Tee ('T') strainers have many similarities, so how do you decide which style is the best *fit* for your application?

Similarities

Y and T strainers are both simplex style pipeline strainers designed for batch applications with a light particle load; to clean the internal screen requires interrupting the process flow.

Likewise both may be installed horizontally or vertically when the flow is downwards.

Y Strainers

Although commonly used for liquid applications, Y strainers were initially designed for steam, air and other inert gases to protect downstream equipment from a "particulate upset condition" such as protecting steam condensers from rogue pipe scale. Y strainers have a blow down port for steam applications and this flushing capability is a characteristic that T strainers do not have. While blow-down may work for aqueous applications, the efficiency of flushing depends upon the particles retained not becoming embedded within the element.

Although it is possible to fabricate Y strainers to satisfy specific applications, the majority of Y strainers are cast items, thus *non-customizable*. It is common for Y strainers to be available in ¼" through 10" sizes and because they are a cast item manufactured in foundry-pour based quantities, shipment is often made within just a day or two after receipt of an order. The available pressure class ranges and breadth of materials of construction (iron, steel, bronze and 316SS) are also advantages of Y strainers.

The open area ratio (OAR) for Y strainers is typically a little better than T strainers; most of our Y strainers have a 3:1 OAR whereas the larger size T strainers have an OAR of ≤ 2.

Y strainers have a screwed or bolted chamber cover for screen access and are installed such that when opened the process fluid will fall/drain out.

T Strainers

T strainers are mostly a custom fabricated product, often manufactured from pipe. The advantage of a fabricated product is the ability to provide customized features, such as a quick-opening style cover, addition of a vent port or adding differential pressure taps. It is also possible to off-set the inlet and outlet by 90 degrees, forming an "elbow" shaped strainer which might be desirable when the installation area is constrained.

T strainers usually begin at larger sizes (2") and can be fabricated for 24" or larger pipelines. As a fabricated product, the lead times range from 8-12+ weeks. (inclusive of generating approval drawings and manufacturing)

While the OAR for a T strainer is typically less than a comparable size Y strainer, its' flow capacity is *higher*. This is attributable to the flow path within a T strainer having a "straight-through" design as well as the convoluted element shape.

When installed horizontally, the chamber cover of a T strainer can be opened without the process fluid draining from the chamber; this might be a desirable feature with valuable or hazardous process fluids.

Summary

Y strainers typically offer the best value in terms of initial cost, lead time and overall flexibility which includes materials of construction, pressure class and inherent built-in blow-down port/drain.

T strainers are used when transferring fluids at higher velocities (equates to higher flow rates), for larger pipelines, applications that require special features and for quicker access to the straining element.

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