

Y Strainer Design

Description of Y strainers and their Applications

By: Chris Pasquali, CEO Factory Direct Pipeline Products, Inc.

Applications involving physically hard materials benefit most from the blow-down design inherent of Y strainers.

Y strainers are most efficient when removing coarse debris and not as efficient for fine levels of filtration. While there are some Y strainer designs having a gasket sealed element, the most common design is a metal-to-metal sealing of both ends of the cylindrical element. Sometimes the ends of the element are re-enforced and other times they aren't. The design of a Y strainer is such that the interface of the element and strainer body is not significantly precise. Exceptions would include molded custom and fabricated designs, but generally once you get finer than 80 or 100 mesh you would have better results with a basket style strainer.

Cast, Molded and Fabricated Designs

Custom fabricated Y strainers are only used when there are special requirements necessitating the corresponding expense and additional lead times associated with custom fabrication. As an example, if you require an ASME code stamp or have a vertical downwards application in need of a higher than usual OAR, a fabricated Y strainer may be your only choice. PTFE, PVDF, FRP and exotic alloys used for aggressive fluids would also result in a fabricated Y strainer design. #

Particle Sizes for Strainers & Filters				
U.S. Mesh	Perf.	Inches	Microns	MM
-	1	1.0000	25400	25.400
-	3/4	.7500	19050	19.050
-	5/8	.6250	15875	15.875
-	1/2	.5000	12700	12.700
-	3/8	.3750	9525	9.525
-	1/4	.2500	6350	6.350
-	3/16	.1875	4763	4.763
-	5/32	.1500	3810	3.810
-	9/64	.1406	3571	3.571
-	1/8	.1250	3175	3.175
-	3/32	.9375	2381	2.381
-	1/16	.0700	1778	1.778
20	1/32	.0331	841	.840
30	-	.0232	595	.590
40	-	.0165	420	.420
50	-	.0117	297	.297
60	-	.0098	250	.250
80	-	.0070	177	.177
100	-	.0059	149	.149
150	-	.0041	104	.104
200	-	.0029	74	.074
325	-	.0020	50	.050
400	-	.0015	38	.038
-	-	.0009	25	.025
-	-	.0003	10	.010
-	-	.0001	5	.005
-	-	.00004	1	.001

Filter Bag & Cartridge Range

Pipeline Strainer Range

Filter vs. Strainer

Where pressure and temperature permits, molded Y strainers offer some advantages not found in alloy designs such as gasket sealed elements, true-union pipe connections and quick-opening element covers. PVC and CPVC Y strainers cost more than cast iron designs, but significantly less than cast steel and stainless steel Y strainers. Molded Y strainers have limitations; they are incompatible with compressed gasses, materials such as PVC and CPVC become brittle at temperatures <40°F, and its generally not recommended to install plastic strainers or valves within alloy piping. The non-alloy designs are limited in size, usually they are for pipelines sizes up to 4".

Cast Y strainers are typically stocked in iron, steel, bronze and stainless steel in sizes up to 12", available in threaded/flanged/butt-weld/ring-joint and socket connections as well in pressure classes from 125# to over 2500#. Cast Y strainers have the most options, relegating molded Y strainers and fabricated Y strainers to applications having "special circumstances".

Mr. Pendleton nailed it 112 years ago with the invention of the Y strainer, it is pretty-much the same after all those years. A Y strainer is a great choice for providing economical protection of equipment from occasional debris.

Remember we are here to assist you! Please contact us by phone, email or web-based inquiry form so we can put our experience to work for you!

Visit us at <https://fdpp.com> and let us know how we can assist you with your filtration application!

Chris Pasquali has provided sales and engineering support for Eaton/Hayward filtration products since 2001



#

#