



## Application

Angle line strainers are typically installed to isolate a low volume of product particulates or contaminant debris from process streams without incurring substantial pressure drop. The component allows the use of many straining options all within the same housing, eliminating mechanical modifications in the field when process requirements change.

## Maximum Operating Pressure Ratings (system pressure)

As assembled with 13MHHM clamp with wing nut tightened to 25 in. lb. of torque:

120 psi @ 250 °F (300 psi @ 70 °F) for 4" body

75 psi @ 250 °F (150 psi @ 70 °F) for 6" body

## Maximum Recommended Flow

Table 1

Fitting Size	Body OD	Max. flow (gpm)		Approx. Clean Pressure Drop (psi) <sup>1</sup>	Max. Allowable Pressure Drop When Soiled Perforated/Wedgewire (psi) <sup>2</sup>
		Angle-Line Std. Flow	Angle-Line Std. Flow		
1.5"	4"	10"	70	3.2	20/50

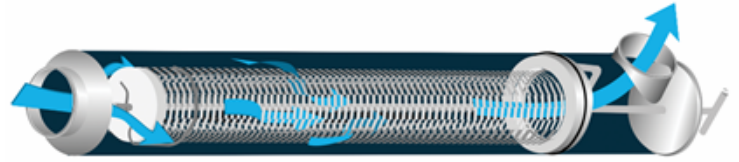

<sup>1</sup> Using 70 °F water and 0.015" wedgewire insert

<sup>2</sup> Differential pressure at which strainer components may sustain damage

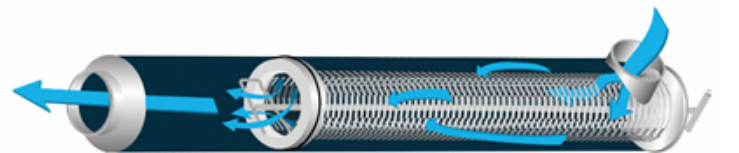
## Safety Precautions

- 1) Do not exceed pressure rating of strainer assembly.
- 2) Do not loosen or remove any clamps while the strainer is under pressure.
- 3) Lockout supply pump(s) during cleaning to prevent accidental operation when strainer is open.
- 4) Use protective gloves when removing strainer element and clearing debris from element.
- 5) Use only Sani-Matic supplied replacement parts.

Angle line standard low end inlet



Angle line reverse low side inlet



## Installation and Operation

Angle line strainers are designed for standard flow into the unclamped end of the strainer. Angle line strainers can also be designed for reverse flow into the side inlet and out the unclamped end. Strainer assemblies are designed to allow soils to be collected on the outside of the strainer element for ease of cleaning. Correct flow direction is indicated by the arrow on the side of the housing.

Install strainer for ease of access and element removal. Use adequate piping supports to avoid overstressing strainer fittings. Add isolation valves downstream and/or upstream of the strainer to allow opening and manual cleaning of the element without draining the entire line. Automatic valves installed with multiple strainers allow for the use of back flushing to clear soiled strainers without disassembly. Back flushing should not be performed with mesh overlays in place. Please contact Sani-Matic for recommended methods to clear strainers during operation.

As the Angle-strainer becomes plugged with debris, differential pressure across the strainer increases. Monitor pressure drop during system operation using pressure gauges or sensors installed on both sides of the strainer. Maximum allowable soiled strainer pressure drops, and approximate clean pressure drops for each strainer size are listed in Table 1. A soiled strainer may completely block flow resulting in a strainer differential pressure equal to the dead-head pressure of the system pump, which could lead to damaged strainer components.

To clear a plugged strainer, refer to cleaning instructions listed on page .

# Assembly

## Assembly of an Angle-Line Standard Strainer (End Inlet)

- 1) Install a gasket onto frame
- 2) Place element over frame.
- 3) Place cap over frame and element, centering the cap in the element.
- 4) Place clip connection into hole in frame, positioning clip perpendicular to the frame.
- 5) Feed clip through the hole, keeping it perpendicular to the frame until the clip center position is in the frame hole.
- 6) Compress cap to the element by moving clip down over element. Element should no longer move freely in the cap and frame. If there is free movement clip may need to be replaced, as it will wear over time with use.
- 7) Disassemble by reversing the above listed steps. Note that clip should always be installed and/or removed in a perpendicular position to the frame. Failure to maintain a perpendicular position could result in damaging/bending the clip, preventing proper compression of the cap to the element.

## Assembly of an Angle-Line Reverse Flow Strainer (Side Inlet)

- 1) Install a gasket onto frame
- 2) Place element over frame.
- 3) Place retainer over frame and element, centering the element in the retainer and frame.
- 4) Place bent side of clip into hole in frame, positioning clip perpendicular to the frame.
- 5) Feed clip through the hole, keeping it perpendicular to the frame and aligning with the grooves on the retainer, until the clip center position is in the frame hole.
- 6) Compress the retainer to the element by moving clip over the bar of the frame. Element should no longer move freely in the retainer and frame. If there is free movement clip may need to be replaced, as it will wear over time with use.
- 7) Disassemble by reversing the above listed steps. Note that clip should always be installed and/or removed in a perpendicular position to the frame. Failure to maintain a perpendicular position could result in damaging/bending the clip, preventing proper compression of the cap to the element.



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## Cleaning\*

- 1) Turn off and lock out the system supply pump.
- 2) Ensure that all pressure has been relieved from the strainer.
- 3) Close any available blocking valves.
- 4) If Straight-Line Strainer, remove strainer body from process piping and disassemble the strainer per previous standard flow instructions. If Angle-Line Strainer, disassemble per applicable instruction (standard flow or reverse flow) leaving body in place.
- 5) Use a hose to spray the insert off with water to remove loose debris.
- 6) Clean the element out of place (e.g., COP tank, manual cleaning) at adequate temperature and chemical concentration for the required time to remove all soil residues.
- 7) Rinse with appropriate water supply and inspect all parts for cleanliness and damage.
- 8) Reassemble the strainer as described above.

\*Clean strainer insert per your plant standard operating procedure.

## Maintenance

During normal disassembly, cleaning, and reassembly, inspect the strainer for the following:

- 1) **Soil.** Inspect for soil particulates or foreign matter caught in the insert. Remove as necessary.
- 2) **Gasket.** Inspect for cuts, abrasions, tears, holes, deformity, or other visible damage. Replace as necessary.
- 3) **Element.** Check for bent components, holes or other damage. Replace as necessary.
- 4) **Mesh Overlay (if applicable).** Inspect for tears or other damage. Replace as necessary.
  - Remove and clean strainer element at least once per shift.
  - More frequent removal and cleaning may be required with heavier soils.
  - Periodically inspect and clean downstream spray balls and nozzles to remove any debris not captured by the strainer.

## Troubleshooting

Table 2

Problem	Possible Causes
Element won't fit into housing	<ul style="list-style-type: none"> <li>• Damaged element</li> </ul>
Particulate getting through strainer	<ul style="list-style-type: none"> <li>• Incorrect element selected for particulate size</li> <li>• Incorrect strainer material (perforated/wedgewire) selected for process</li> <li>• Damaged overlay</li> <li>• Damaged element</li> <li>• Loose assembly</li> </ul>
Strainer plugging frequently	<ul style="list-style-type: none"> <li>• Insert mesh/perforation size too small for particulate size/quantity typically present in process</li> <li>• Insufficient CIP pre-rinses</li> <li>• Inadequate Preventive Maintenance cleaning of strainer element</li> </ul>
Metal particulates in strainer	<ul style="list-style-type: none"> <li>• Damaged pump impeller</li> <li>• Damage to upstream process equipment</li> <li>• Inadequate flushing of new installation</li> </ul>



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