

PCHE Installation & Operation Guidance Notes

Straining for Compact Exchangers

Straining is used for the protection of components in a system from oversized particles. Pumps and control valves need protection from loose items left during construction to avoid damage, compact heat exchangers also need protecting from particles that may cause blockage of channels.

The hydrocarbon process side of PCHEs generally only require strainers to be cleaned during commissioning or after modification work. This is because the hydrocarbon streams normally include separators and scrubbers which will remove solids as well as liquids. Heatric recommends strainers are left in place with pressure drop monitoring as insurance for upset conditions.

Additional information about straining is included in Heatric Guidance Note GN 502 'Closed Loop

Filtration is used for removing virtually all the solid contaminants in a stream.

Straining Guidance for PCHEs

- At the design stage always allow for pressure drop monitoring with alarm output across strainers.
- Ensure that the strainer element has openings of the required aperture (as noted on the PCHE Data Sheet - typically about 300 microns, or 0.3 of a millimetre).
- Ensure that the strainer element sits snugly in the strainer body. Poorly fitting elements allow bypass of fluid and particles around the elements - 100% straining is required, so a 1,000 micron bypass around a 300 micron element is unsatisfactory.
- Install the strainer close to the exchanger it is intended to protect.
- Use a proprietary, readily serviceable strainer when regular cleaning is required - examples are 'Y type', 'wedge wire' or 'duplex' strainers.
- Do not 'design in' difficulties for strainer servicing - the result will be inadequate servicing. Give consideration to serviceable-on-line types of strainer that can save many times their initial cost during commissioning.
- Pay close, frequent attention to strainer pressure drop at plant commissioning and after modifications, when the particulate load is likely to be highest. Strainer elements can take only limited pressure differential, and if they burst they will deposit all of the collected debris in the exchanger.
- DO NOT allow a strainer element to be removed because it persistently requires cleaning. This is a good indication that the strainer is essential or the system needs proper cleaning.