

Sample Cooler

Type – 80.05

PROCESS – WATER – STEAM

Mechatest sample coolers are suitable for instrumentation, sample conditioning and analyser system applications, the compact design, small diameter tube with low volume are ideally for keeping your lag time as low as possible.

Applications in area of low pressure steam, water from boilers, process fluids or gas samples at high temperature and pressure.

This helical type heat exchanger is a spirally coiled tube fitted in a stainless steel shell. The counter-current flow through the shell and coil condenses the sample and cools hot fluids or gasses efficiently to enable safe sampling.

When hot pressurised liquids are being cooled the sample cooler prevents 'flashing-off' which can be dangerous and will result in an inaccurate sample.

For use in industries such as power plants, nuclear power plants, chemical, petroleum refining, cement, mining, pharmaceutical, food and more.

APPLICATIONS

In any power plant running on steam, the purity of boiler feed water and steam is absolutely crucial; especially to steam turbine, steam boiler, super heater, condenser and other steam equipment. To prevent damage of steam turbine, steam boiler & other apparatus due to scaling and corrosion, on line steam and water analysis of critical parameters such as pH, conductivity, dissolved oxygen, silica, sodium, phosphate etc. is a must.

However, because all lab chemistry and most online analysers cannot tolerate high temperatures and pressures, it is necessary to pre-condition many samples, which typically means first passing them through a heat exchanger, in this case, a sample cooler. The sample cooler reduces sample temperature to around 25°C ready for immediate analysis.



KEY FEATURES

- SS316L shell and sample tube for long life and contamination-free samples.
- Counter-current flow for efficient cooling.
- Sample tube in 6 mm and ¼" O.D.
- **Exotic materials such as S.Duplex, Inconel, Monel and Hastelloy for the sample tube available.**
- Compact design.
- Removable shell easy for maintenance.

SPECIFICATIONS

Operating Standards	PED 97/23/EC – SEP Category (*)
Max. Temperature	250°C (482°F) @ 200 bar (2900 PSI)
Max. Pressure	300 bar (4350 PSI) @ 20°C (68°F)
Sample Tube	(std.) SS316 tube 6x1 mm or 1/4" O.D. Length 6.0 m On request in 6MO, S.Duplex, Monel, Inconel (Alloy) 625 or 825, Hastelloy C276, Titanium
Pressure Drop	Approx. 0.8 bar @ Sample flow 50 L/h
Sample Flow	50 L/h (nominal)
Cooling Water Flow	600 L/h (nominal)
Heat Transfer Area	0.11 m ²
Shell	SS316L
Connections	Process Sample 6 mm or 1/4" O.D. Cooling Water In-, and Outlet 3/8" FNPT
Dimensions	Height 390 mm, diameter 80 mm
Weight	Approx. 3 kg

(*) The SEP classification applies to pressure equipment that is not subject to Category I, II, III, or IV conformity assessment, but must be designed and manufactured with "Sound Engineering Practice" as defined by the PED. The specific or generic classification of the material(s) involved on the materials are exempt from CE marking per PED 97/23/EC. Components are below or equal to the limits set forth in Article 3, Sections 1.1, 1.2, 1.3 and Section 2 as applicable, and are designed and manufactured in accordance with Sound Engineering Practice (SEP).

SAMPLE APPLICATION COMPONENTS

- Sample stop and needle valves suitable for samples up to 250°C and 300 bar.
- Cooling water valves.
- Cationic columns.
- Secondary sample temperature shut-off (TSV) valves for protection of instrumentation and analyser systems.

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