Sample Coolers

Series SACO-1W - Shell & tube type sample cooler, welded design
Series SACO-2F - Shell & tube type sample cooler, flanged design

Heavy Duty

Cools down hot water, steam or process samples for either continuous analysis or grab sampling.Single continuous coil of seamless, cold drawn tube for sample line.

High Efficiency

Sample outlet temperature approaches closely to the coolent inlet temperature by counter-flow coolimg.

Low Cost

High heat transfer surface area per unit of cost.

Stainless Steel Coil as Standard

Tube coil material is 316 SS / 316L SS. Shell material is 304 SS.

Model no.	Shell Material	Shell Design	Tube Size & Material	Tube Design	Area
SACO-1W-1/4"	304 SS	31 bar / 345 °C 450 psi / 650 °F	1/4" OD 316L SS	345 bar / 538 °C 5000 psi / 1000 °F	0.11 m^2 1.2 ft^2
SACO-2F-1/4"	304 SS	31 bar / 345 °C 450 psi / 650 °F	1/4" OD 316L SS	345 bar / 538 °C 5000 psi / 1000 °F	0.11 m^2 1.2 ft^2
SACO-2F-3/8"	304 SS	31 bar / 345 °C 450 psi / 650 °F	3/8" OD 316L SS	345 bar / 538 °C 5000 psi / 1000 °F	0.16 m^2 1.7 ft^2

Calculations :

Heat transferred to sample (Hs) = Heat removed from water (Hw)

Hs = (ESI - ESO) x Qs
Hs : Heat transferred to sample (Kcal/hr)
ESI : Enthalpy of sample inlet (Kcal/kg)
ESO : Enthalpy of sample outlet (Kcal/kg)
Qs : Sample flow rate (lt/hr)

Hw = Qw x (Two - Twi) / k (*)
Hw : Heat removed from water (Kcal/hr)
Two : Cooling water outlet temperature (deg C)
Twi : Cooling water inlet temperature (deg C)
k : Safety factor (1.1)
Qw : Required cooling water flow rate (lt/hr)

(*) This formula is used to calculate the required cooling water flow rate.

Performance Curve of Sample Cooler Model SACO-2F-3/8"

Sample Approach Temperature (°F/ °C) vs Sample Flowrate (ccm)

for Sample Temperatures between 200 °F (93 °C) and 700 °F (371 °C), Cooling water: 12 gpm (45 l/min)