

SC20 Sample Coolers

Description

The Spirax Sarco SC20 sample cooler is used to cool samples of boiler water or steam. The cooler consists of a stainless steel coil, through which the sample flows, and a stainless steel body, through which cooling water flows in the opposite direction. A pre-drilled mounting bracket is incorporated into both end caps. The SC20 is also available with a clamp adaptor for connecting to an industry standard ½" sanitary clamp fitting.

Principal features:

- For boiler water, steam, or condensate sampling.
- Stainless steel body and coil to minimise corrosion.
- Counter current flow for efficient cooling.

Available types:

NPT connections (6 mm O/D tube). A ¼" NPT male x 6 mm O/D stud coupling is supplied loose for connecting the sample inlet tube to an NPT inlet valve or fitting.

A sample cooler NPT with a clamp adaptor suitable for connection to an industry standard ½" sanitary clamp fitting (clamp not supplied).

Special sanitary sample coolers (SSC20) are also available in NPT. They have a stated coil internal finish. See separate literature for further details.

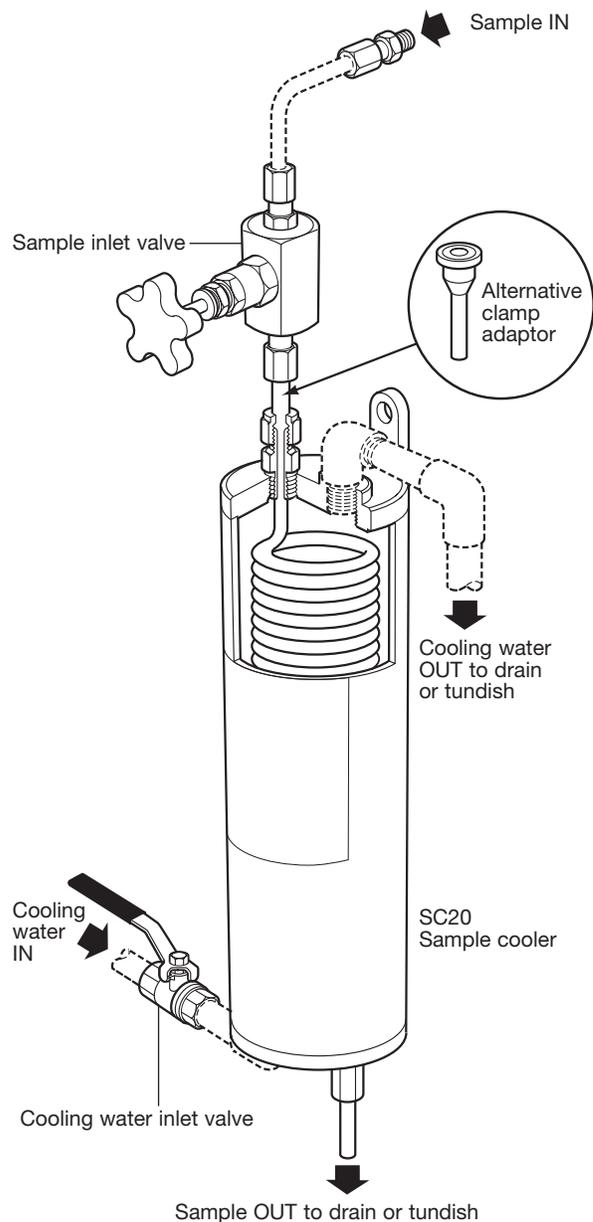
Note: The SC20 sample cooler is not polished or specially treated internally, and the internal finish of the coil is not specified.

Stainless steel couplings are also available separately:-
¼" NPT male x 6 mm O/D tube.

Sizes and pipe connections

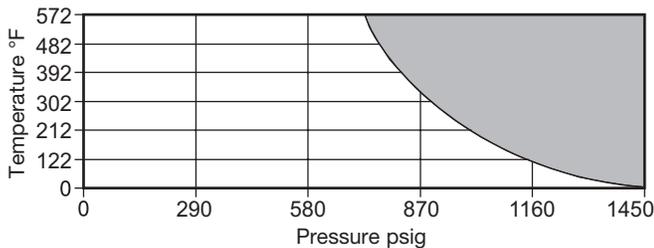
Cooling water inlet and outlet connections	NPT version	½" NPT
	Clamp adaptor versions	½" NPP
Sample tube inlet and outlet connections	NPT version	6 mm O/D*
	Clamp adaptor versions	6 mm O/D with ½" adaptor for clamp fitting

* A ¼" NPT male x 6 mm O/D stud coupling is provided.



Pressure / temperature limits

Coil



The product **must not** be used in this region.

Body

Maximum design pressure	145 psig @ 212°F
Maximum design temperature	212°F @ 145 psig
Designed for a maximum cold hydraulic test pressure of 282 psig	

Note: The pressure/temperature limits for the clamp adaptor are dependant on the manufacturer's recommendations

Materials

Coil	Austenitic stainless steel	Grade 316L
Body	Austenitic stainless steel	

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.
In the interests of development and improvement of the product, we reserve the right to change the specification.

TI-10-3705-US 6.16

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Performance

The tables below show typical sample outlet temperatures above cooling water inlet temperatures for several pressures and cooling water flowrates.

Example

A sample flowrate of 0.13 GPM is required from a boiler operating at 145 psig. For a cooling water flowrate of 4.8 GPM from Table 1 the sample outlet temperature would be 7°F above the cooling water inlet temperature. If the cooling water is at 60°F, the sample temperature would be 67°F.

Table 2 is used in the same way for steam.

Samples may not be taken where marked '-' as the flow is limited by the sample inlet valve capacity.

Table 1 Saturated water (e.g. boiler water)

Sample Flow-rate GPM	Cooling Water Flowrate 1.6 GPM					Cooling Water Flowrate 4.8 GPM					Cooling Water Flowrate 9.5 GPM				
	Boiler Pressure PSIG														
	15	43	101	145	290	15	43	101	145	290	15	43	101	145	200
0.04	2°F	2°F	5.5°F	11°F	11°F	0°F	0°F	2°F	2°F	7°F	0°F	0°F	0°F	0°F	3.5°F
0.09	3.5°F	3.5°F	11°F	14.5°F	14.5°F	2°F	2°F	3.5°F	3.5°F	11°F	0°F	0°F	0°F	2°F	7°F
0.13	9°F	9°F	14.5°F	20°F	20°F	5.5°F	5.5°F	7°F	7°F	14.5°F	0°F	0°F	3.5°F	5.5°F	11°F
0.18	12.5°F	12.5°F	20°F	23.5°F	23.5°F	9°F	9°F	11°F	11°F	18°F	2°F	2°F	3.5°F	5.5°F	14.5°F
0.22	18°F	18°F	23.5°F	27°F	27°F	11°F	11°F	14.5°F	14.5°F	21.5°	5.5°F	5.5°F	7°F	9°F	16°F
0.26	25°F	25°F	29°F	32.5°F	32.5°F	16°F	16°F	18°F	18°F	25°F	7°F	9°F	9°F	11°F	20°F
0.35	29°F	32.5°F	36°F	39.5°F	39.5°F	20°F	21.5°F	23.5°F	25°F	32.5°F	11°F	12.5°F	14.5°F	16°F	27°F
0.44	32.5°F	36°F	43°F	47°F	48.5°F	27°F	29°F	29°F	32.5°F	39.5°F	18°F	20°F	21.5°F	23.5°F	32.5°F
0.53	39.5°F	41.5°F	52°F	54°F	56°F	30.5°F	32.5°F	36°F	41.5°F	47°F	20°F	23.5°F	27°F	30.5°F	39.5°F

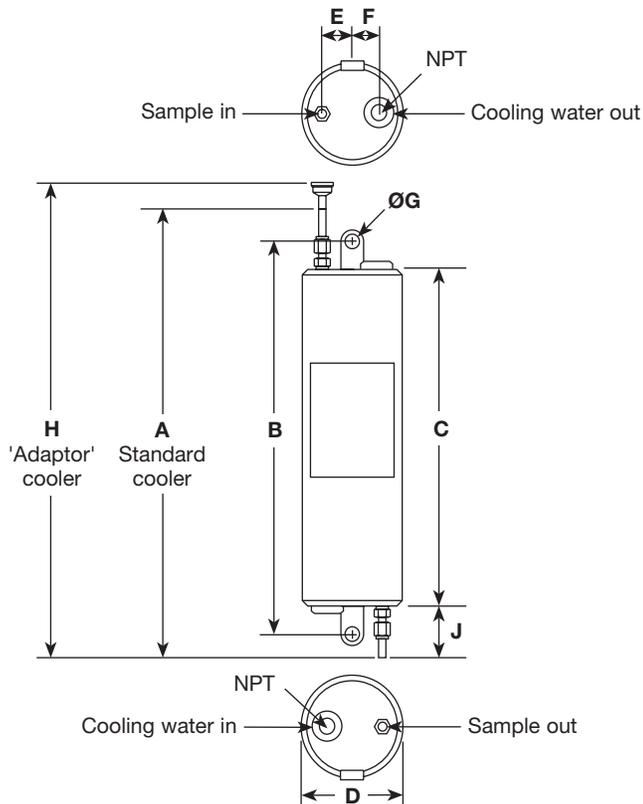
Table 2 Saturated steam

Sample Flow-rate lb/h	Cooling Water Flowrate 1.6 GPM						Cooling Water Flowrate 4.8 GPM						Cooling Water Flowrate 9.5 GPM					
	Boiler Pressure PSIG																	
	7.5	15	43	101	145	290	7.5	15	43	101	145	290	7.5	15	43	101	145	200
11	5.5°F	5.5°F	7°F	9°F	11°F	11°F	3.5°F	3.5°F	5.5°F	5.5°F	7°F	7°F	2°F	2°F	2°F	3.5°F	3.5°F	3.5°F
22	-	12.5°F	14.5°F	14.5°F	14.5°F	16°F	-	7°F	7°F	7°F	7°F	9°F	-	2°F	3.5°F	3.5°F	3.5°F	3.5°F
33	-	-	16°F	18°F	18°F	20°F	-	-	9°F	7°F	11°F	12.5°F	-	-	3.5°F	3.5°F	5.5°F	7°F
44	-	-	-	21.5°F	23.5°F	25°F	-	-	-	11°F	16°F	16°F	-	-	-	7°F	9°F	11°F
66	-	-	-	-	38°F	38°F	-	-	-	14.5°F	25°F	25°	-	-	-	-	16°F	18°F
88	-	-	-	-	-	50.5°F	-	-	-	-	-	36°F	-	-	-	-	-	23.5°F
110	-	-	-	-	-	63°F	-	-	-	-	-	45°F	-	-	-	-	-	30.5°F
132	-	-	-	-	-	75.5°F	-	-	-	-	-	54°F	-	-	-	-	-	38°F
155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SC20 Sample Coolers

Dimensions (approximate) in inches

A	B	C	D	E	F	G	H	J
16.1	13.8	11.8	3.5	1.0	0.9	0.5	17.7	2.2



Weights (approximate) in pounds

Cooler	6.8 lbs
SCS20 system	9.3 lbs

Accessories and Spare Parts

The spare parts available are listed below. No other parts are supplied as spares.

Available spares:

Component	Stock number
Sample inlet valve NPT	4037990
Stud coupling 1/4" NPT male x 6 mm stainless steel (for connecting SC20 to an NPT valve or fitting)	0963209

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

WARNING:

- To avoid the risk of scalding, it is essential that a full flow of cooling water is present before opening the sample inlet valve.
- Always close the sample inlet valve before turning off the cooling water.
- Sample pipework becomes very hot under normal working conditions, and will cause burns if touched.

Installation note:

The sample inlet to the cooler can be taken direct from a boiler or steam line isolating valve, or if a Spirax Sarco TDS control system is fitted, from the take-off point provided on the blowdown valve. We recommend that a tundish piped to drain is located under the outlet, with sufficient space below it for a beaker or similar sample container. Installation & Maintenance Instructions, IM-P403-66.

Maintenance note:

No routine maintenance is required.

How to order

Example: 1 off Spirax Sarco SC20 sample cooler having NPT connections.