**spirax/sarco**

# SSC20
# Sanitary Sample Cooler

## Description

The Spirax Sarco SSC20 sanitary sample cooler has been specifically designed for taking high quality chemical, conductivity and microbiological samples quickly and safely from clean/pure steam, water for injection (WFI) and other high purity media systems.

The unit consists of high quality 316L stainless steel components and utilises a counter current flow to maximise cooler efficiency, resulting in a compact, space saving design.

The unit is provided with an integral pre drilled mounting bracket to allow simple installation.

### Surface finish

Sample contact surfaces are compliant to current ASME BPE requirements.

Ra Maximum 0.5 µ-m Ra (20 µ-in Ra).

Polished shell available as an optional extra.

### Principal features:

- Internal surface finish of coil better than 0.5 µ-m Ra (20 µ-in Ra) to ensure high sterility.

- Coil manufactured from fully traceable 316L stainless steel.

- Self-draining design to eliminate sample retention.

- Fully sterilisable/autoclavable - to ensure integrity of unit between samples.

### WARNING
**The SSC20 is not sterile as supplied.**

### Packaging

All packaging of the SSC20 sanitary sample cooler is conducted in an environment segregated from other non stainless steel manufacture and is in accordance with ASME BPE:

- Sample inlet and outlet connections are capped.

- Sample coolers are sealed in 100-micron thick plastic bags.

### Standards

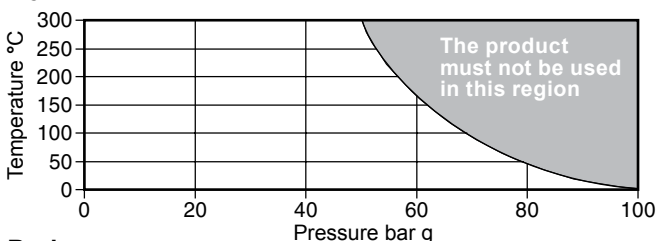The SSC20 has been designed and built in general accordance with ASME BPE.

### Certification

The SSC20 can be supplied with the following certification if requested at the time of ordering:

- Materials certificates to EN 10204 3.1 (inclusive of the internal coil surface finish data which is provided on a 3.1 certificate).

## Pressure / temperature limits

### Coil



### Body

| | |
|---|---|
| Maximum design pressure | 10 bar g @ 100°C |
| Maximum design temperature | 100°C @ 10 bar g |
| Designed for a maximum cold hydraulic test pressure of 16 bar g | |

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

## Materials

| | |
|---|---|
| Body and coil | Austenitic stainless steel grade 316L |

## Sizes and pipe connections

| Cooling water inlet and outlet connections | BSP version | ½" BSP |
|---|---|---|
| | NPT version | ½" NPT |

| Sample tube inlet and outlet connections | ½" adaptor for clamp fitting (clamp not supplied) on sample inlet. 6 mm O/D on sample outlet. |
|---|---|
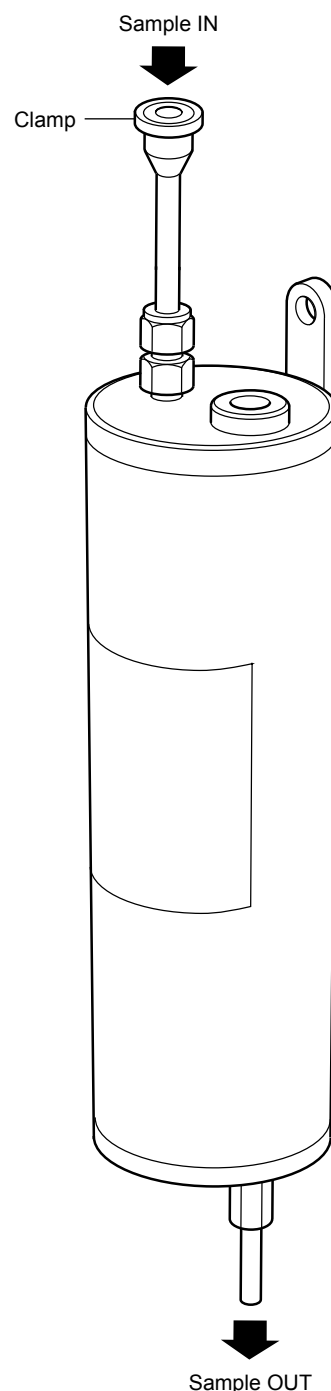
## Performance

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

**Example**

A sample flowrate of 30 l/h is required from a boiler operating at 10 bar g. For a cooling water flowrate of 0.3 l/s from Table 1 the sample outlet temperature would be 4°C above the cooling water inlet temperature. If the cooling water is at 15°C, the sample temperature would be 19°C.

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.

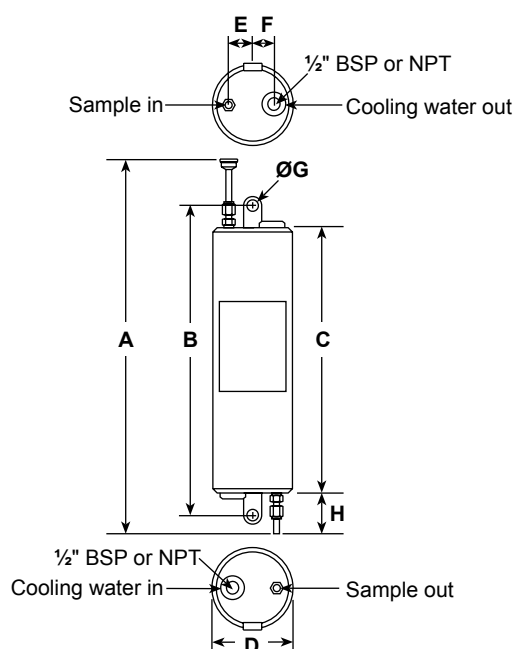### Table 1  Water (e.g. WFI - water for injection)

| Sample flowrate l/h | Cooling water flowrate 0.1 l/sec | | | | | Cooling water flowrate 0.3 l/sec | | | | | Cooling water flow 0.6 l/sec | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boiler pressure bar g | | | | | | | | | | | | | | |
| | 1 | 3 | 7 | 10 | 20 | 1 | 3 | 7 | 10 | 20 | 1 | 3 | 7 | 10 | 20 |
| 10 | 1°C | 1°C | 3°C | 6°C | 6°C | 0°C | 0°C | 1°C | 1°C | 4°C | 0°C | 0°C | 0°C | 0°C | 2°C |
| 20 | 2°C | 2°C | 6°C | 8°C | 8°C | 1°C | 1°C | 2°C | 2°C | 6°C | 0°C | 0°C | 0°C | 1°C | 4°C |
| 30 | 5°C | 5°C | 8°C | 11°C | 11°C | 3°C | 3°C | 4°C | 4°C | 8°C | 0°C | 0°C | 2°C | 3°C | 6°C |
| 40 | 7°C | 7°C | 11°C | 13°C | 13°C | 5°C | 5°C | 6°C | 6°C | 10°C | 1°C | 1°C | 2°C | 3°C | 8°C |
| 50 | 10°C | 10°C | 13°C | 15°C | 15°C | 6°C | 6°C | 8°C | 8°C | 12°C | 3°C | 3°C | 4°C | 5°C | 9°C |
| 60 | 14°C | 14°C | 16°C | 18°C | 18°C | 9°C | 9°C | 10°C | 10°C | 14°C | 4°C | 5°C | 5°C | 6°C | 11°C |
| 80 | 16°C | 18°C | 20°C | 22°C | 22°C | 11°C | 12°C | 13°C | 14°C | 18°C | 6°C | 7°C | 8°C | 9°C | 15°C |
| 100 | 18°C | 20°C | 24°C | 26°C | 27°C | 15°C | 16°C | 16°C | 18°C | 22°C | 10°C | 11°C | 12°C | 13°C | 18°C |
| 120 | 22°C | 23°C | 29°C | 30°C | 31°C | 17°C | 18°C | 20°C | 23°C | 26°C | 11°C | 13°C | 15°C | 17°C | 22°C |

### Table 2  Saturated steam

| Sample flowrate kg/h | Cooling water flowrate 0.1 l/sec | | | | | | Cooling water flowrate 0.3 l/sec | | | | | | Cooling water flowrate 0.6 l/sec | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boiler pressure bar g | | | | | | | | | | | | | | | | | |
| | 0.5 | 2 | 5 | 7 | 10 | 20 | 0.5 | 2 | 5 | 7 | 10 | 20 | 0.5 | 2 | 5 | 7 | 10 | 20 |
| 5 | 3°C | 3°C | 4°C | 5°C | 6°C | 6°C | 2°C | 2°C | 3°C | 3°C | 4°C | 4°C | 1°C | 1°C | 1°C | 2°C | 2°C | 2°C |
| 10 | - | 7°C | 8°C | 8°C | 8°C | 9°C | - | 4°C | 4°C | 4°C | 4°C | 5°C | - | 1°C | 2°C | 2°C | 2°C | 2°C |
| 15 | - | - | 9°C | 10°C | 10°C | 11°C | - | - | 5°C | 6°C | 6°C | 7°C | - | - | 2°C | 2°C | 3°C | 4°C |
| 20 | - | - | - | 12°C | 13°C | 14°C | - | - | - | 8°C | 9°C | 9°C | - | - | - | 4°C | 5°C | 6°C |
| 30 | - | - | - | - | 21°C | 21°C | - | - | - | - | 14°C | 14°C | - | - | - | - | 9°C | 10°C |
| 40 | - | - | - | - | - | 28°C | - | - | - | - | - | 20°C | - | - | - | - | - | 13°C |
| 50 | - | - | - | - | - | 35°C | - | - | - | - | - | 25°C | - | - | - | - | - | 17°C |
| 60 | - | - | - | - | - | 42°C | - | - | - | - | - | 30°C | - | - | - | - | - | 21°C |
| 70 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

### Dimensions (approximate) in millimetres

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| 450 | 350 | 300 | 90 | 27 | 23.5 | 13 | 55 |



½" BSP or NPT
Sample in — — Cooling water out

ØG

A  B  C

H

½" BSP or NPT
Cooling water in — — Sample out

D

### Weights (approximate)

| Cooler | 3.1 kg |
|---|---|

## Safety information, installation and maintenance

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

**WARNING:**
- **The SSC20 is not sterile as supplied.**
- **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:**

We recommend the use of corrosion resistant pipework suitable for the fluid being sampled.

Keep the length of all pipe runs to the minimum.

Cooling water must be clean and free from scale forming salts.

The sample cooler must be mounted vertically.

The cooling water inlet is connected in ½" nominal bore pipe via an inlet valve.

The cooling water outlet should be piped to an open drain or tundish.

The sample inlet pipe should be in 6 mm O/D tube.

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.

**Maintenance note:**

No routine maintenance is required.

## How to order

**Example:** 1 off Spirax Sarco type SSC20 sanitary sample cooler with ½" sanitary clamp sample inlet connection and maximum coil internal surface finish of 0.5 µ-m Ra. The cooling water connections are to be BSP.