



## 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  $\mu$ -m Ra (20  $\mu$ -in Ra).

### Principal features:

- Internal surface finish of coil better than 0.5  $\mu$ -m Ra (20  $\mu$ -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:

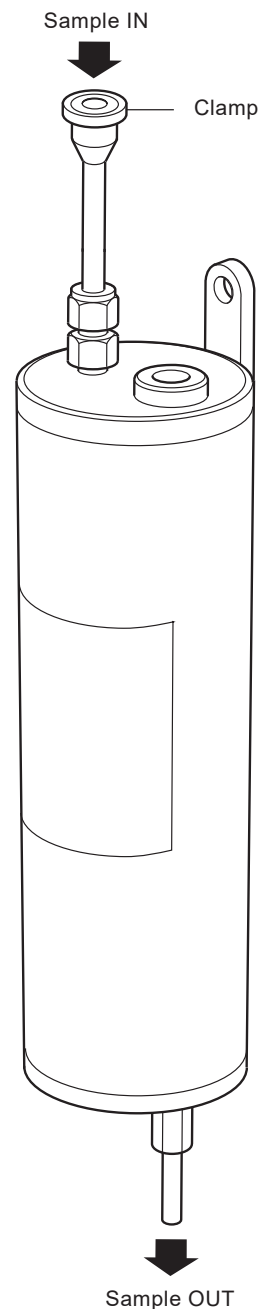
- Materials certificates to EN 10204 3.1 (inclusive of the internal coil surface finish data which is provided on a 3.1 certificate) - Chargeable.
- EC1935:2004 Declaration of Compliance - F.O.C.

### Sizes and pipe connections

|                                            |                                                                                                    |          |
|--------------------------------------------|----------------------------------------------------------------------------------------------------|----------|
| Cooling water inlet and outlet connections | BSP version                                                                                        | 1/2" BSP |
|                                            | NPT version                                                                                        | 1/2" NPT |
| Sample tube inlet and outlet connections   | 1/2" adaptor for clamp fitting (clamp not supplied) on sample inlet.<br>6 mm O/D on sample outlet. |          |

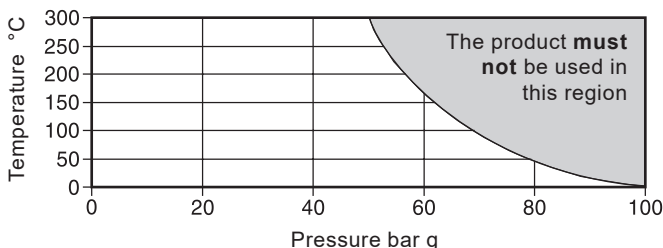
### Materials

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



## 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

## 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**

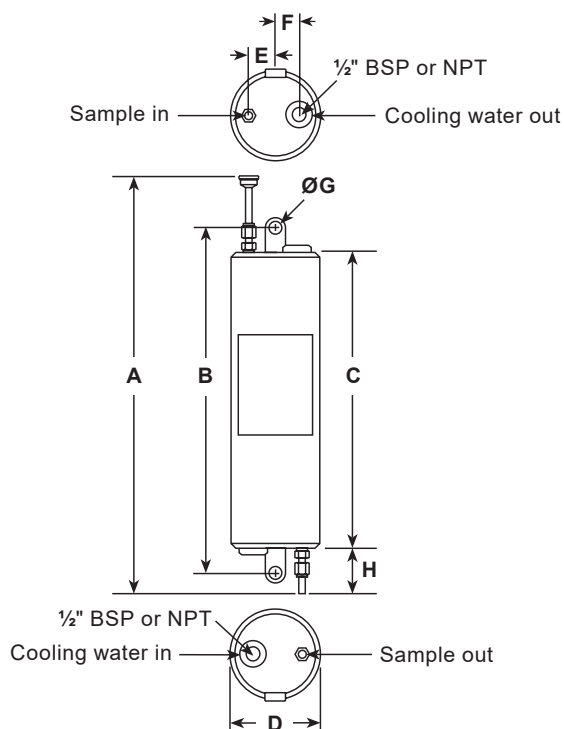
| Sample flowrate kg/h | Cooling water flowrate 0.1 l/sec |      |      |       |       |       | Cooling water flowrate 0.3 l/sec |      |      |      |       |       | Cooling water flowrate 0.6 l/sec |      |      |      |      |       |
|----------------------|----------------------------------|------|------|-------|-------|-------|----------------------------------|------|------|------|-------|-------|----------------------------------|------|------|------|------|-------|
|                      | 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 |

**Weight (approximate) in kg**

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

**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 1/2" 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 1/2" 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.