

# Sentry Sample Coolers

The largest selection of models offered by any manufacturer



Water | Steam | Liquid | Slurry



# Cool, Heat or Condense Any Sample

Sentry Equipment has more types of sample coolers than any other manufacturer. Flows from 0.25 gal/hr (1 L/hr) to 100 gal/min (378 L/min) and pressure/temperature ratings up to 5,000 psi (345 bar) and up to 1100° F (593° C) are available using single tube helical coil, multi-tube spiral tube, or tube-in-tube heat exchanger designs.

With over 90 years of heat transfer experience, Sentry Equipment has the manufacturing know-how and engineering expertise to solve even the most complex sample conditioning problem. Special flow configurations, end connections, and exotic materials are our specialties.

A variety of international certifications are available for most of our sample cooler products including ASME and CRN.

Note: Sentry sample coolers are exempt from CE marking per Pressure Equipment Directive 2014/68/EU, TÜV. Vessels are below or equal to the limits set forth in Article 4, Sections 1(a), 1(b), 1(c) and Section 2 as applicable, and are designed and manufactured in accordance with sound engineering practice. Specifically, the vessel meets the general requirements of the ASME Section VIII, Division 1 Boiler And Pressure Vessel Code. The nameplate will bear the name of Sentry Equipment Corp and safety instructions will be included per Article 4, Section 2..

## SENTRY HELICAL COIL

The Sentry® helical coil sample cooler product line includes the most compact and highly efficient sample coolers.

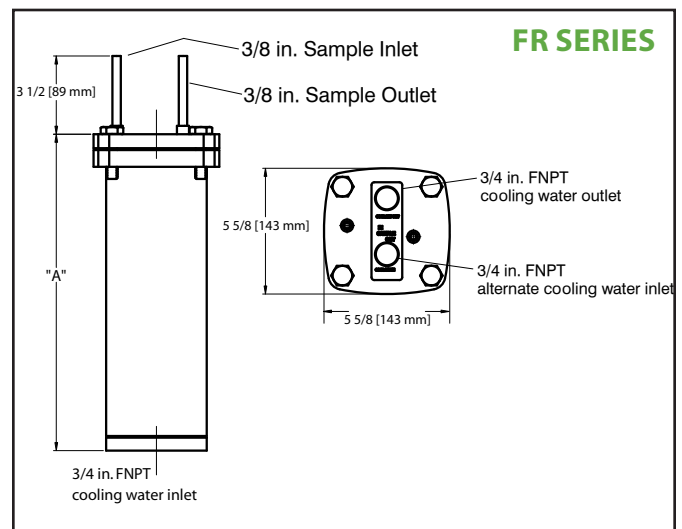
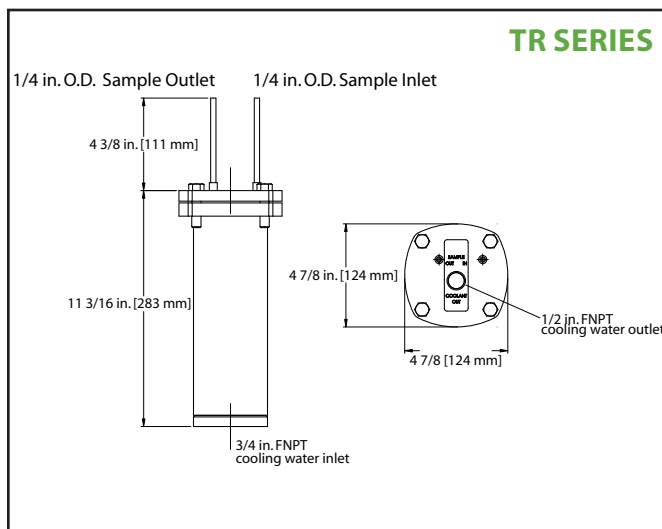
A single continuous tube is helically coiled and fitted in a shell. A variety of materials, diameters and lengths are available to suit most applications.



- Flow rates to 1.5 gpm (5.7 L/min)
- Sample conditions up to 5000 psi (345 bar) and up to 1100° F (593° C)
- Single continuous tube
- High efficiency
- Compact design
- Code stamp
- 316 SS, Alloy 625 (e.g., Inconel®) Hastelloy®, titanium and other exotic materials

## SENTRY TR SERIES AND FR SERIES

The TR and FR series are the most popular sample coolers since they provide maximum surface area in a compact space, lowering both acquisition and installation costs. Shells are removable and are manufactured from stainless steel (standard; other materials available).



# Helical Coil Sample Coolers

| SPECIFICATIONS: TR SERIES  |                                       |  |                          |                |   |                 |             |
|--|---------------------------------------|--|--------------------------|----------------|---|-----------------|-------------|
| models   | shell design                          | tube design                              | tube material            | shell material | area  | shipping weight | part number |
| TSR-4225   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1000°F<br>(345 bar at 538°C) | 316/316L SS<br>1/4 in OD | 304 SS         | 1.2 ft <sup>2</sup><br>(0.11 m <sup>2</sup> ) | 14 lb<br>(6 kg) | 7-03952A    |
| TSR-42B5   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1100°F<br>(345 bar at 593°C) | Alloy 625<br>1/4 in OD   | 304 SS         | 1.2 ft <sup>2</sup><br>(0.11 m <sup>2</sup> ) | 14 lb<br>(6 kg) | 7-03952C    |
| TSR-4BB5   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1100°F<br>(345 bar at 593°C) | Alloy 625<br>1/4 in OD   | Alloy 625      | 1.2 ft <sup>2</sup><br>(0.11 m <sup>2</sup> ) | 14 lb<br>(6 kg) | 7-03952E    |
| Reference bulletin S-SC&HE-SPS-00129 for complete TSR technical specifications |                                       |  |                          |                |   |                 |             |
| TLR-4225   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1000°F<br>(345 bar at 538°C) | 316/316L SS<br>1/4 in OD | 304 SS         | 2.4 ft <sup>2</sup><br>(0.22 m <sup>2</sup> ) | 17 lb<br>(8 kg) | 7-03951A    |
| TLR-42B5   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1100°F<br>(345 bar at 593°C) | Alloy 625<br>1/4 in OD   | 304 SS         | 2.4 ft <sup>2</sup><br>(0.22 m <sup>2</sup> ) | 17 lb<br>(8 kg) | 7-03951C    |
| TLR-4525(S)  | 430 psi at 650°F<br>(30 bar at 343°C) | 5000 psi at 1000°F<br>(345 bar at 538°C) | 316/316L SS<br>1/4 in OD | 316 SS         | 2.4 ft <sup>2</sup><br>(0.22 m <sup>2</sup> ) | 17 lb<br>(8 kg) | 7-04067D    |
| TLR-4BB5   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1100°F<br>(345 bar at 593°C) | Alloy 625<br>1/4 in OD   | Alloy 625      | 2.4 ft <sup>2</sup><br>(0.22 m <sup>2</sup> ) | 17 lb<br>(8 kg) | 7-03951E    |
| Reference bulletin S-SC&HE-SPS-00135 for complete TLR technical specifications |                                       |  |                          |                |   |                 |             |

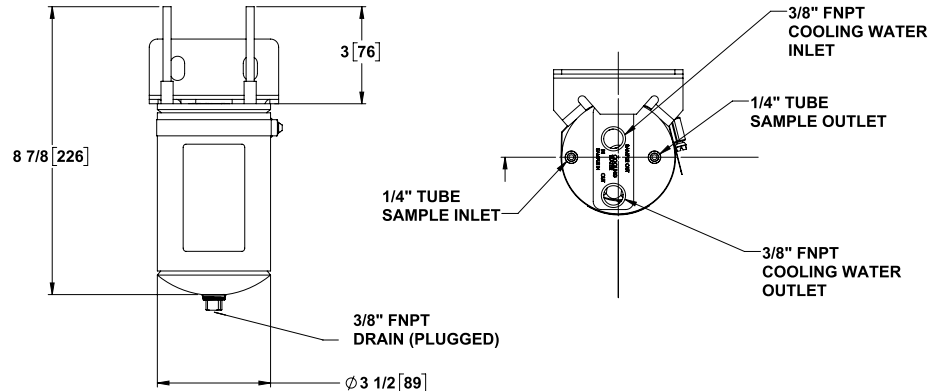
| SPECIFICATIONS: FR SERIES  |                                       |  |                          |                |   |                    |              |
|--|---------------------------------------|--|--------------------------|----------------|---|--------------------|--------------|
| models   | shell design                          | tube design                              | tube material            | shell material | area  | shipping weight    | part numbers |
| FSR-6222   | 450 psi at 650°F<br>(31 bar at 343°C) | 2000 psi at 1000°F<br>(138 bar at 538°C) | 316/316L SS<br>3/8 in OD | 304 SS         | 1.7 ft <sup>2</sup><br>(0.16 m <sup>2</sup> ) | 24 lb<br>(11 kg)   | 7-03954C     |
| FSR-6225   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1000°F<br>(345 bar at 538°C) | 316/316L SS<br>3/8 in OD | 304 SS         | 1.7 ft <sup>2</sup><br>(0.16 m <sup>2</sup> ) | 24 lb<br>(11 kg)   | 7-03954A     |
| FSR-62B3   | 450 psi at 650°F<br>(31 bar at 343°C) | 3400 psi at 1100°F<br>(234 bar at 593°C) | Alloy 625<br>3/8 in OD   | 304 SS         | 1.7 ft <sup>2</sup><br>(0.16 m <sup>2</sup> ) | 24 lb<br>(11 kg)   | 7-03954E     |
| FSR-6BB3   | 450 psi at 650°F<br>(31 bar at 343°C) | 3400 psi at 1100°F<br>(234 bar at 593°C) | Alloy 625<br>3/8 in OD   | Alloy 625      | 1.7 ft <sup>2</sup><br>(0.16 m <sup>2</sup> ) | 24 lb<br>(11 kg)   | 7-03954G     |
| Reference bulletin S-SC&HE-SPS-00132 for complete FSR technical specifications |                                       |  |                          |                |   |                    |              |
| FLR-6222   | 450 psi at 650°F<br>(31 bar at 343°C) | 2000 psi at 1000°F<br>(138 bar at 538°C) | 316/316L SS<br>3/8 in OD | 304 SS         | 3.5 ft <sup>2</sup><br>(0.33 m <sup>2</sup> ) | 26 lb<br>(12 kg)   | 7-03953E     |
| FLR-6225   | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1000°F<br>(345 bar at 538°C) | 316/316L SS<br>3/8 in OD | 304 SS         | 3.5 ft <sup>2</sup><br>(0.33 m <sup>2</sup> ) | 29 lb<br>(13 kg)   | 7-03953A     |
| FLR-6525(S)  | 450 psi at 650°F<br>(31 bar at 343°C) | 5000 psi at 1000°F<br>(345 bar at 538°C) | 316/316L SS<br>1/4 in OD | 316 SS         | 3.5 ft <sup>2</sup><br>(0.33 m <sup>2</sup> ) | 29 lb<br>(13 kg)   | 7-04480J     |
| FLR-62B3   | 450 psi at 650°F<br>(31 bar at 343°C) | 3400 psi at 1100°F<br>(234 bar at 593°C) | Alloy 625<br>3/8 in OD   | 304 SS         | 3.5 ft <sup>2</sup><br>(0.33 m <sup>2</sup> ) | 29 lb<br>(13 kg)   | 7-03953G     |
| FLR-6BB3   | 450 psi at 650°F<br>(31 bar at 343°C) | 3400 psi at 1100°F<br>(234 bar at 593°C) | Alloy 625<br>3/8 in OD   | Alloy 625      | 3.5 ft <sup>2</sup><br>(0.33 m <sup>2</sup> ) | 29 lb<br>(13 kg)   | 7-03953J     |
| Reference bulletin S-SC&HE-SPS-00131 for complete FLR technical specifications |                                       |  |                          |                |   |                    |              |
| FXR-6222   | 450 psi at 650°F<br>(31 bar at 343°C) | 2000 psi at 1000°F<br>(138 bar at 538°C) | 316/316L SS<br>3/8 in OD | 304 SS         | 4.7 ft <sup>2</sup><br>(0.44 m <sup>2</sup> ) | 30 lb<br>(13.5 kg) | 7-03971E     |
| Reference bulletin S-SC&HE-SPS-00134 for complete FXR technical specifications |                                       |  |                          |                |   |                    |              |

Models listed are standard offerings. Consult referenced bulletins or factory for other materials and configurations.

# Helical Coil (continued)

## SENTRY TRW SERIES

The TRW sample cooler is generally used in low pressure boiler application where a small volume of sample is required.



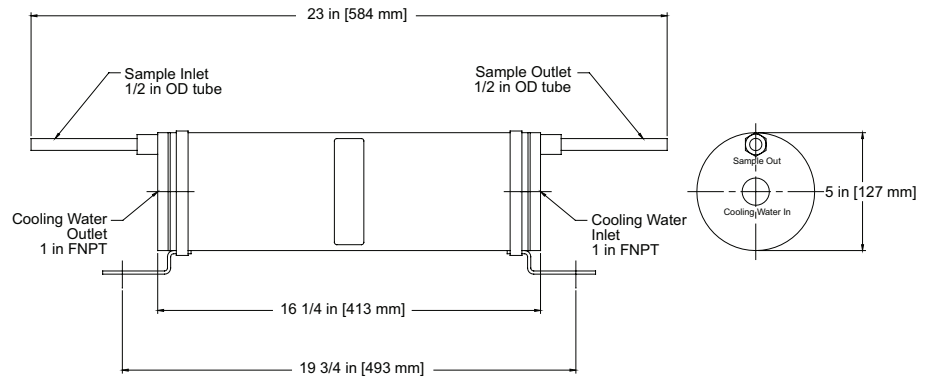
### SPECIFICATIONS: TRW SERIES

| model    | shell design                          | tube design                             | tube material              | shell material | area  | shipping weight | part number |
|----------|---------------------------------------|---|----------------------------|----------------|---|-----------------|-------------|
| TRW-4222 | 250 psi at 450°F<br>(17 bar at 232°C) | 2000 psi at 850°F<br>(138 bar at 454°C) | 300 Series SS<br>1/4 in OD | 304 SS         | 1.2 ft <sup>2</sup><br>(0.11 m <sup>2</sup> ) | 9 lb<br>(4 kg)  | 7-05842B    |

Reference bulletin S-SC&HE-SPS-00136 for complete TRB technical specifications

## SENTRY WSW SERIES

The WSW sample cooler is designed for high viscosity/low pressure drop service and is useful in cooling slurries and very low pressure samples.



### SPECIFICATIONS: WSW SERIES

| model    | shell design                          | tube design                            | tube material            | shell material | area  | shipping weight    | part number |
|----------|---------------------------------------|--|--------------------------|----------------|---|--------------------|-------------|
| WSW-8222 | 400 psi at 350°F<br>(27 bar at 177°C) | 1200 psi at 650°F<br>(82 bar at 343°C) | 316/316L SS<br>1/2 in OD | 304 SS         | 2.5 ft <sup>2</sup><br>(0.23 m <sup>2</sup> ) | 25 lb<br>(11.5 kg) | 7-00712A    |

Reference bulletin S-SC&HE-SPS-00128 for complete WSW technical specifications

# Spiral Tube

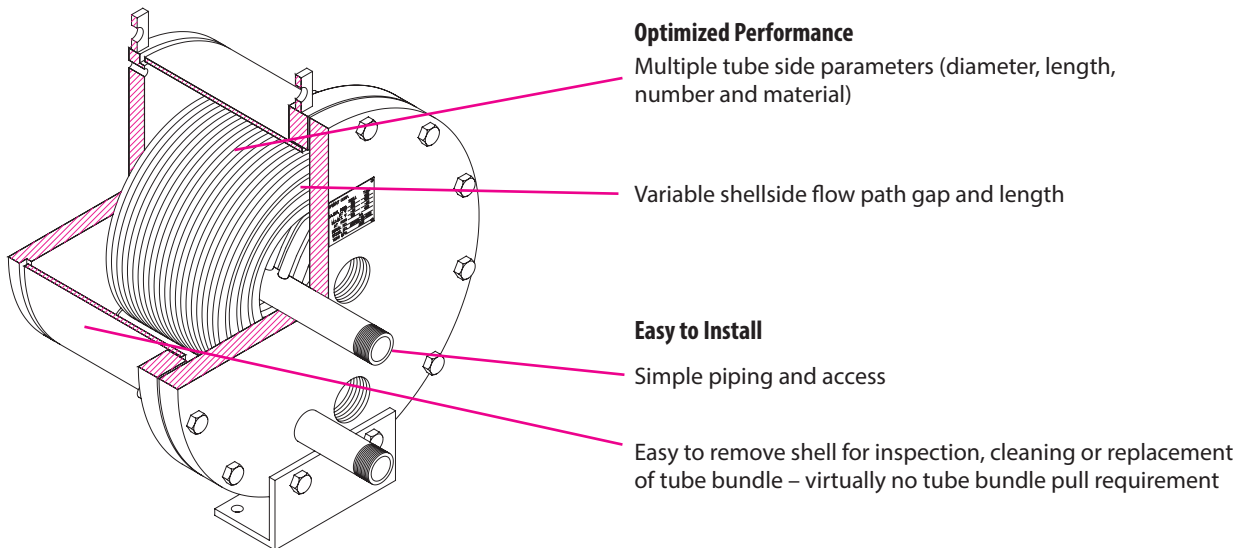
## SENTRY SPIRAL TUBE

A spiral tube heat exchanger is a spirally coiled tube and manifold assembly fitted into a compact shell that optimizes heat transfer efficiency and space. The spiral shape of the coil and shell flow paths creates centrifugal force that enhances heat transfer on both sides in a true counterflow arrangement. By varying the number, diameter and length of the coiled tube, efficiency and footprint can be optimized versus traditional shell and tube designs.

- Flow rates to 100 gpm (378 L/min)
- Sample conditions up to 5000 psi (345 bar) and up to 1000°F (540°C)
- Optimal design for corrosive fluid/gases
- Vapor condensing/gas stripping capabilities
- High flow in a small footprint
- Highly resistant to thermal and hydraulic shock
- Bolted or all welded shell
- Numerous flow path and connection configurations
- Compact and lightweight, easy to install



## CROSS SECTION OF A SPIRAL TUBE HEAT EXCHANGER

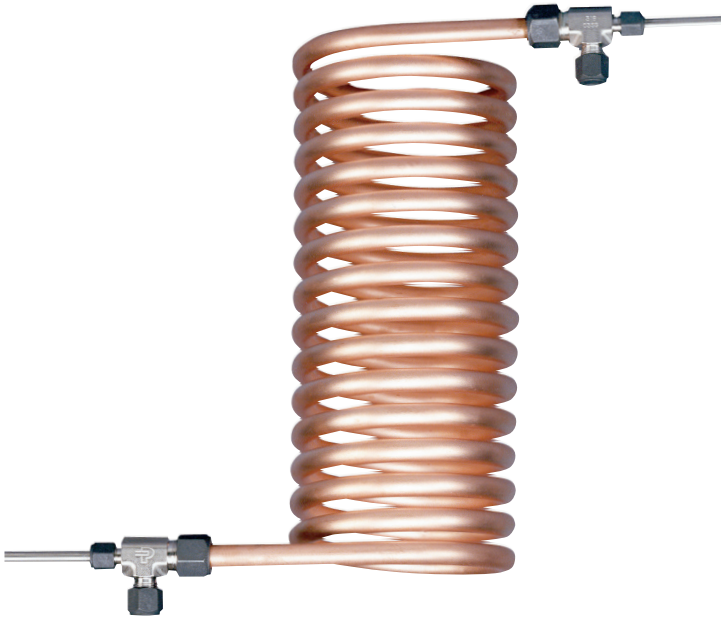


### SPECIFICATIONS: SPIRAL TUBE

| shell design                           | tube design  | tube material  | shell material                | area  |
|--|--|--|-------------------------------|---|
| 150 psi at 4000°F<br>(10 bar at 204°C) | up to 5000 psi at 1000°F<br>(up to 345 bar at 540°C) | 300 Series SS,<br>Hastelloy, Inconel<br>(other alloys available) | carbon steel; stainless steel | 1 to 177 ft <sup>2</sup><br>(0.1 to 16 m <sup>2</sup> ) |

Reference bulletin S-SC&HE-SPS-00127 for complete Spiral Tube technical specifications

# Tube-in-Tube

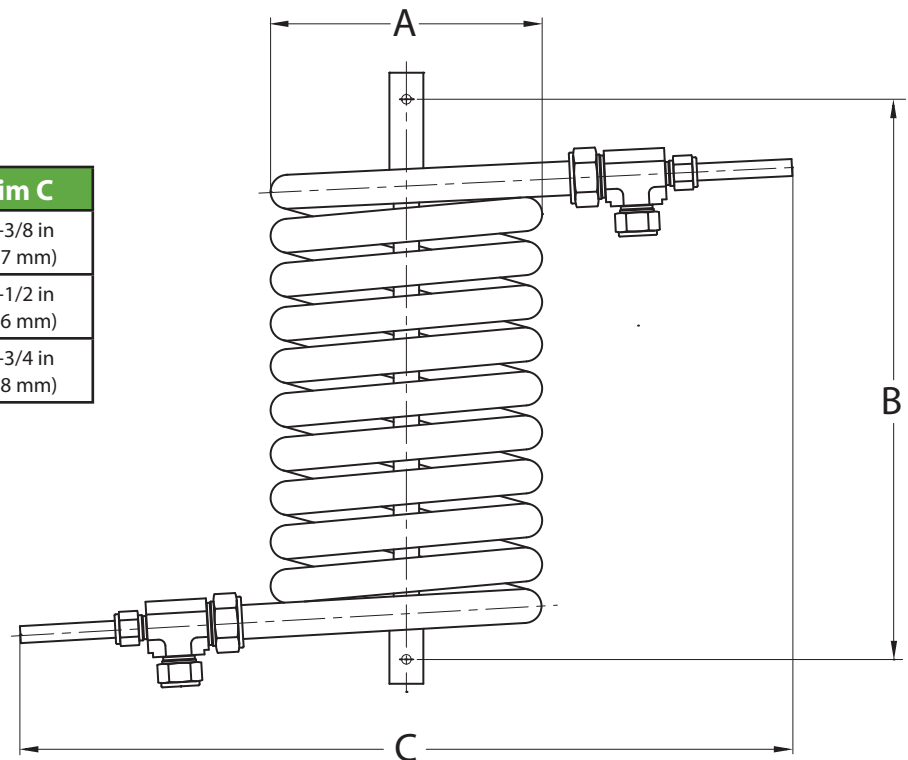


## SENTRY TUBE-IN-TUBE DTC SERIES

Sentry Dual Tube Coil (DTC) products are helically wound, full counter flow heat exchangers—well-suited for a variety of applications where low flow rates of high pressure and/or temperature fluids need heating or cooling. A variety of inner and outer tube sizes are available to meet most application requirements.

- Flow rates to 3 gpm (11.4 L/min)
- Sample conditions up to 6000 psi (414 bar) and up to 1100°F (593°C)
- Single continuous tube
- Fully drainable
- Highly resistant to thermal and hydraulic shock
- Sanitary model available
- Copper, 316 SS, Inconel 625, Hastelloy, titanium, and other exotic materials

| Size  | Dim A                | Dim B                 | Dim C                 |
|-------|----------------------|-----------------------|-----------------------|
| DTC-4 | 5 in<br>(127 mm)     | 13-1/8 in<br>(334 mm) | 18-3/8 in<br>(467 mm) |
| DTC-6 | 8-1/2 in<br>(216 mm) | 13 in<br>(330 mm)     | 21-1/2 in<br>(546 mm) |
| DTC-8 | 8 in<br>(203 mm)     | 16-1/2 in<br>(419 mm) | 22-3/4 in<br>(578 mm) |



# Tube-in-Tube Specifications

## SPECIFICATIONS: DTC-4 SERIES

| models            | inner tube design                     | outer tube design                     | inner tube material | outer tube material | area  | weight         |
|-------------------|---------------------------------------|---------------------------------------|---------------------|---------------------|---|----------------|
| DTC-CUA/CUA-4-1-1 | 2000 psi at 300°F (138 bar at 148°C)  | 700 psi at 300°F (48 bar at 148°C)    | 1/4 in OD copper    | 1/2 in OD copper    | 1.26 ft <sup>2</sup> (0.12 m <sup>2</sup> ) | 12 lb (5.5 kg) |
| DTC-SSA/CUA-4-1-1 | 4900 psi at 1000°F (337 bar at 537°C) | 700 psi at 300°F (48 bar at 148°C)    | 1/4 in OD 316SS     | 1/2 in OD copper    | 1.26 ft <sup>2</sup> (0.12 m <sup>2</sup> ) | 12 lb (5.5 kg) |
| DTC-IN1/CUA-4-1-1 | 5450 psi at 1100°F (375 bar at 593°C) | 700 psi at 300°F (48 bar at 148°C)    | 1/4 in OD Inconel   | 1/2 in OD copper    | 1.26 ft <sup>2</sup> (0.12 m <sup>2</sup> ) | 12 lb (5.5 kg) |
| DTC-SSA/SSB-4-1-1 | 4900 psi at 1000°F (337 bar at 537°C) | 2300 psi at 1000°F (158 bar at 537°C) | 1/4 in OD 316SS     | 1/2 in OD 316SS     | 1.26 ft <sup>2</sup> (0.12 m <sup>2</sup> ) | 12 lb (5.5 kg) |
| DTC-IN1/SSB-4-1-1 | 5450 psi at 1100°F (375 bar at 593°C) | 2300 psi @1000°F (158 bar @537°C)     | 1/4 in OD Inconel   | 1/2 in OD 316SS     | 1.26 ft <sup>2</sup> (0.12 m <sup>2</sup> ) | 12 lb (5.5 kg) |

Reference bulletin S-SC&HE-SPS-00147 for complete DTC-4 technical specifications

## SPECIFICATIONS: DTC-6 SERIES

| models            | inner tube design                     | outer tube design                     | inner tube material | outer tube material | area  | weight         |
|-------------------|---------------------------------------|---------------------------------------|---------------------|---------------------|---|----------------|
| DTC-CUA/CUB-6-1-1 | 1250 psi at 300°F (86 bar at 148°C)   | 700 psi at 300°F (48 bar at 148°C)    | 3/8 in OD copper    | 3/4 in OD copper    | 1.90 ft <sup>2</sup> (0.18 m <sup>2</sup> ) | 16 lb (7.3 kg) |
| DTC-SSC/CUB-6-1-1 | 5100 psi at 1000°F (351 bar at 537°C) | 700 psi at 300°F (48 bar at 148°C)    | 3/8 in OD 316SS     | 3/4 in OD copper    | 1.90 ft <sup>2</sup> (0.18 m <sup>2</sup> ) | 16 lb (7.3 kg) |
| DTC-IN1/CUB-6-1-1 | 3800 psi at 1100°F (262 bar at 593°C) | 700 psi at 300°F (48 bar at 148°C)    | 3/8 in OD Inconel   | 3/4 in OD copper    | 1.90 ft <sup>2</sup> (0.18 m <sup>2</sup> ) | 16 lb (7.3 kg) |
| DTC-SSC/SSC-6-1-1 | 5100 psi at 1000°F (351 bar at 537°C) | 2300 psi at 1000°F (158 bar at 537°C) | 3/8 in OD 316SS     | 3/4 in OD 316SS     | 1.90 ft <sup>2</sup> (0.18 m <sup>2</sup> ) | 16 lb (7.3 kg) |
| DTC-IN1/SSC-6-1-1 | 3800 psi at 1100°F (262 bar at 593°C) | 2300 psi at 1000°F (158 bar at 537°C) | 3/8 in OD Inconel®  | 3/4 in OD 316SS     | 1.90 ft <sup>2</sup> (0.18 m <sup>2</sup> ) | 16 lb (7.3 kg) |

Reference bulletin S-SC&HE-SPS-00146 for complete DTC-6 technical specifications

## SPECIFICATIONS: DTC-8 SERIES

| models            | inner tube design                     | outer tube design                     | inner tube material | outer tube material | area  | weight          |
|-------------------|---------------------------------------|---------------------------------------|---------------------|---------------------|---|-----------------|
| DTC-CUB/CUC-8-1-1 | 1250 psi at 300°F (86 bar at 148°C)   | 700 psi at 300°F (48 bar at 148°C)    | 1/2 in OD copper    | 1 in OD copper      | 2.52 ft <sup>2</sup> (0.23 m <sup>2</sup> ) | 30 lb (13.6 kg) |
| DTC-SSB/CUC-8-1-1 | 2400 psi at 1000°F (165 bar at 537°C) | 700 psi at 300°F (48 bar at 148°C)    | 1/2 in OD 316 SS    | 1 in OD copper      | 2.52 ft <sup>2</sup> (0.23 m <sup>2</sup> ) | 30 lb (13.6 kg) |
| DTC-IN7/CUC-8-1-1 | 4000 psi at 900°F (276 bar at 482°C)  | 700 psi at 300°F (48 bar at 148°C)    | 1/2 in OD Inconel   | 1 in OD copper      | 2.52 ft <sup>2</sup> (0.23 m <sup>2</sup> ) | 30 lb (13.6 kg) |
| DTC-SSB/SSD-8-1-1 | 2400 psi at 1000°F (165 bar at 537°C) | 2300 psi at 1000°F (158 bar at 537°C) | 1/2 in OD 316 SS    | 1 in OD 316 SS      | 2.52 ft <sup>2</sup> (0.23 m <sup>2</sup> ) | 30 lb (13.6 kg) |
| DTC-IN7/SSD-8-1-1 | 4000 psi at 900°F (276 bar at 482°C)  | 2300 psi at 1000°F (158 bar at 537°C) | 1/2 in OD Inconel   | 1 in OD 316 SS      | 2.52 ft <sup>2</sup> (0.23 m <sup>2</sup> ) | 30 lb (13.6 kg) |

Reference bulletin S-SC&HE-SPS-00145 for complete DTC-8 technical specifications

# The Sentry Advantage

**Running an efficient operation** requires careful analysis of controlled, real-time data achieved through reliable, accurate and repeatable process monitoring and measuring. By effectively conditioning, sampling and measuring gas, liquid, slurry, powder, solids, steam, or water within their production environments, our customers obtain the critical insights they need to control and optimize processes.

Driving operational efficiency by obtaining and analyzing critical data is at the heart of what we have been doing since 1924. Our proven representative sampling techniques matched with comprehensive analytical systems take the guesswork out of interpreting results, delivering the intelligence needed to make strategic operational decisions with confidence.

## INDUSTRY-LEADING EXPERIENCE

Our experts are well-respected throughout our industries for their technical competencies and unparalleled engineering capabilities, which allow us to consistently offer the reliable technical solutions and support our customers demand.

## WORLD-CLASS SAMPLING APPLICATION EXPERTISE

Our advanced technical knowledge and experience is employed not only to simply meet standards, but in many cases, sets the industry standards by which all others operate.

ISO 9001:2008 | 3-A | ASME | ATEX | CE | CRN | CSA | DOT | EPRI | NACE | NDE | PED | TPED

## EMPLOYEE-OWNED

As an employee-owned company, our team fully appreciates the value of every customer and the importance of every relationship. With a vested interest, we take pride in everything we do, deliver on our promises and stand behind our commitments.

## COMMITTED TO LONG-TERM PARTNERSHIPS

We continually invest in finding more and better ways to serve our customers. Over the years, we have expanded our Sentry brand by introducing new products, new services and acquiring companies with strong reputations, expertise, technologies or reach, and successfully uniting each company's competencies with our own. With sampling remaining at our core, we will continue to extend our breadth of expertise to deliver more value throughout the process value chain.



## Any Application. Anywhere.

Serving customers  
in over 50 countries across  
six continents worldwide.



[sentry-equip.com](http://sentry-equip.com)

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S-SW-BRO-00158-17 08-21