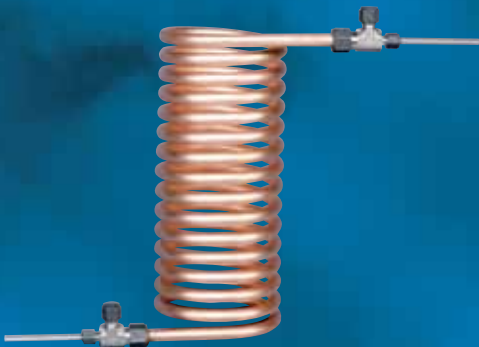


Sample Coolers

WATER • STEAM • PROCESS

*The largest selection of models
offered by any manufacturer*



**More than 85 Years of
Sampling Experience**

www.sentry-equip.com



COOL, HEAT OR CONDENSE ANY SAMPLE

Sentry has more types of sample coolers than any other manufacturer. Flows from 0.25 Gal/Hr (1 L/Hr) to 100 Gal/Min (378 LPM) 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 80 years of heat transfer experience, Sentry 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 97/23/EC, TÜV. Vessels are below or equal to the limits set forth in Article 3, Sections 1.1, 1.2, 1.3, 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 3, Section 3.

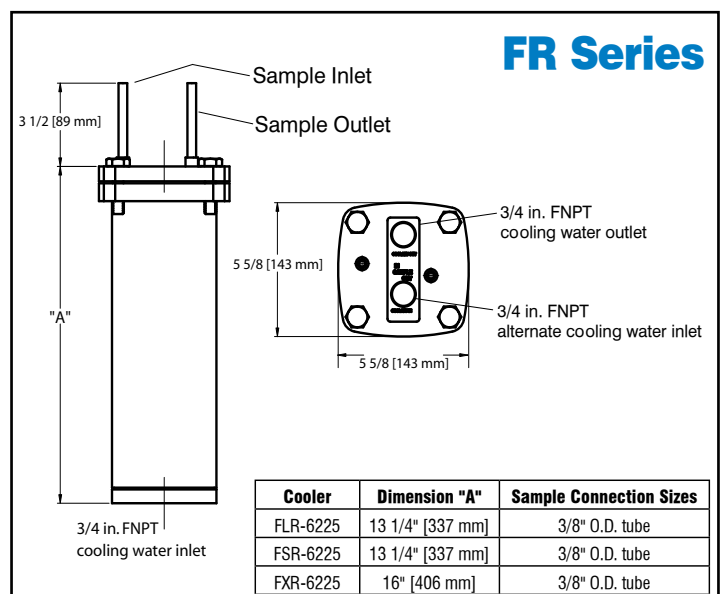
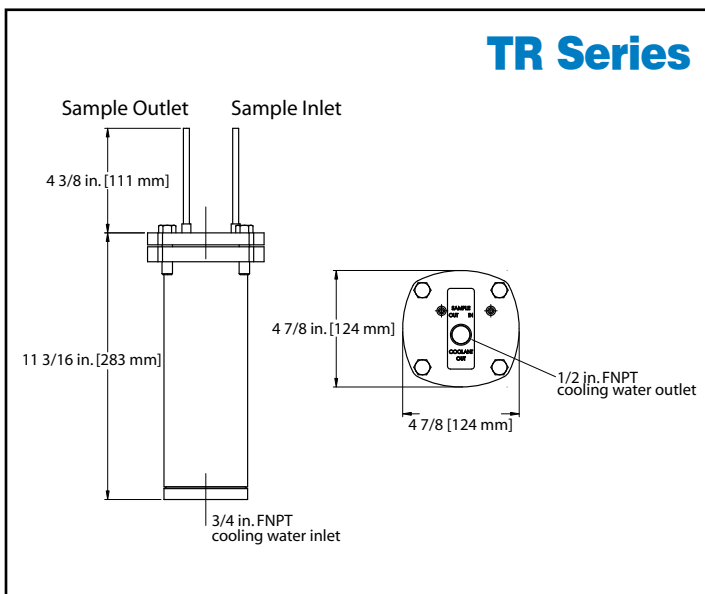
HELICAL COIL



The Helical Coil product line includes the most compact and high efficiency sample coolers. A single continuous tube in varying diameters and lengths is helically coiled and fitted in a shell. A variety of materials are available to suit most fluids and gases.

- Flow rates to 1.5 GPM (5.7 LPM)
- 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

Note: Hastelloy is a registered trademark of Haynes International Inc. Inconel is a registered trademark of Huntington Alloys Corporation.



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 on these coolers are removable and are manufactured from stainless steel as a standard.

HELICAL COIL SAMPLE COOLERS

Specifications – TR Series

| Model No. | Shell Design | Tube Design | Tube Material | Shell Material | Area | Shipping Weight | Part Number |
|--|-----------------------------------|--------------------------------------|------------------------|----------------|--|-----------------|-------------|
| TSR-4225 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1000°F 345 bar @ 537°C | 1/4" O.D. 316 SS | 304 SS | 1.2 ft ² 0.11 m ² | 14 lbs 6 kg | 7-03952A |
| TSR-42B5 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1100°F 345 bar @ 593°C | 1/4" O.D. Alloy 625 | 304 SS | 1.2 ft ² 0.11 m ² | 14 lbs 6 kg | 7-03952C |
| TSR-4BB5 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1100°F 345 bar @ 593°C | 1/4" O.D. Alloy 625 | Alloy 625 | 1.2 ft ² 0.11 m ² | 14 lbs 6 kg | 7-03952E |
| Reference Bulletin 4.2 for complete TSR technical specifications. | | | | | | | |
| TLR-4225 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1000°F 345 bar @ 537°C | 1/4" O.D. 316 SS | 304 SS | 2.4 ft ² 0.22 m ² | 17 lbs 8 kg | 7-03951A |
| TLR-42B5 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1100°F 345 bar @ 593°C | 1/4" O.D. Alloy 625 | 304 SS | 2.4 ft ² 0.22 m ² | 17 lbs 8 kg | 7-03951C |
| TLR-4BB5 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1100°F 345 bar @ 593°C | 1/4" O.D. Alloy 625 | Alloy 625 | 2.4 ft ² 0.22 m ² | 17 lbs 8 kg | 7-03951E |
| Reference Bulletin 4.3 for complete TLR technical specifications. | | | | | | | |

Specifications – FR Series

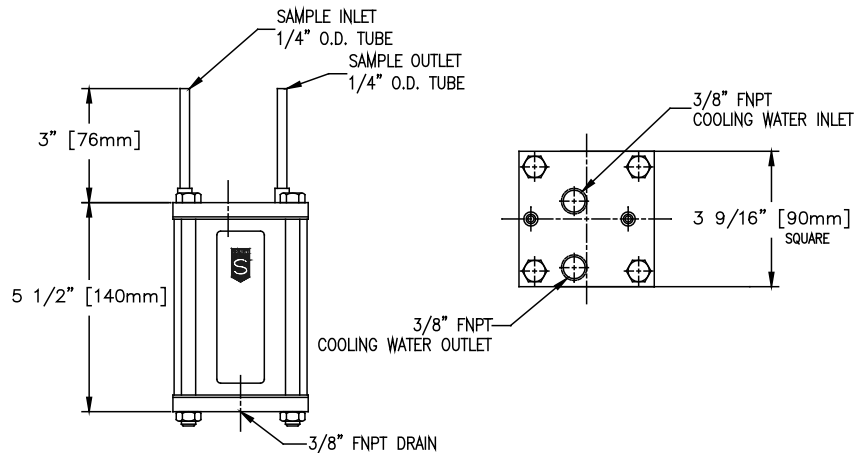
| Model No. | Shell Design | Tube Design | Tube Material | Shell Material | Area | Shipping Weight | Part Number |
|--|-----------------------------------|--------------------------------------|------------------------|----------------|--|-------------------|-------------|
| FSR-6225 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1000°F 345 bar @ 537°C | 3/8" O.D. 316 SS | 304 SS | 1.7 ft ² 0.16 m ² | 24 lbs 11 kg | 7-03954A |
| FSR-62B3 | 450 psi @ 650°F 31 bar @ 343°C | 3400 psi @ 1100°F 234 bar @ 593°C | 3/8" O.D. Alloy 625 | 304 SS | 1.7 ft ² 0.16 m ² | 24 lbs 11 kg | 7-03954E |
| FSR-6BB3 | 450 psi @ 650°F 31 bar @ 343°C | 3400 psi @ 1100°F 234 bar @ 593°C | 3/8" O.D. Alloy 625 | Alloy 625 | 1.7 ft ² 0.16 m ² | 24 lbs 11 kg | 7-03954G |
| Reference Bulletin 4.4 for complete FSR technical specifications. | | | | | | | |
| FLR-6222 | 450 psi @ 650°F 31 bar @ 343°C | 2485 psi @ 680°F 171 bar @ 360°C | 3/8" O.D. 316 SS | 304 SS | 3.5 ft ² 0.33 m ² | 26 lbs 12 kg | 7-03953E |
| FLR-6225 | 450 psi @ 650°F 31 bar @ 343°C | 5000 psi @ 1000°F 345 bar @ 537°C | 3/8" O.D. 316 SS | 304 SS | 3.5 ft ² 0.33 m ² | 29 lbs 13 kg | 7-03953A |
| FLR-62B3 | 450 psi @ 650°F 31 bar @ 343°C | 3400 psi @ 1100°F 234 bar @ 593°C | 3/8" O.D. Alloy 625 | 304 SS | 3.5 ft ² 0.33 m ² | 29 lbs 13 kg | 7-03953G |
| FLR-6BB3 | 450 psi @ 650°F 31 bar @ 343°C | 3400 psi @ 1100°F 234 bar @ 593°C | 3/8" O.D. Alloy 625 | Alloy 625 | 3.5 ft ² 0.33 m ² | 29 lbs 13 kg | 7-03953J |
| Reference Bulletin 4.5 for complete FLR technical specifications. | | | | | | | |
| FXR-6222 | 450 psi @ 650°F 31 bar @ 343°C | 2485 psi @ 680°F 171 bar @ 360°C | 3/8" O.D. 316 SS | 304 SS | 4.7 ft ² 0.44 m ² | 30 lbs 13.5 kg | 7-03971E |
| Reference Bulletin 4.6 for complete FXR technical specifications. | | | | | | | |

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

HELICAL COIL *CONTINUED*

TRB Series

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



Specifications – TRB Series

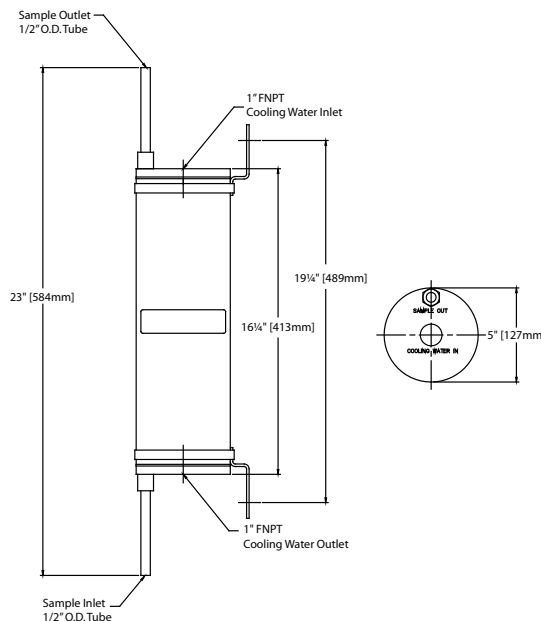
| Model No. | Shell Design | Tube Design | Tube Material | Shell Material | Area | Weight | Part Number |
|-----------|-----------------------------------|-------------------------------------|---------------|----------------|---|---------------|-------------|
| TRB-4222 | 250 psi @ 450°F 17 bar @ 232°C | 2000 psi @ 635°F 140 bar @ 335°C | 1/4" O.D. SS* | 304 SS | 1.2 ft ² 0.11m ² | 9 lbs 4 kg | 7-00016A |

Reference Bulletin 4.1 for complete TRB technical specifications.

* Tubing is 300 series stainless steel with chemical and physical properties equal to or better than T304.

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 No. | Shell Design | Tube Design | Tube Material | Shell Material | Area | Weight | Part Number |
|-----------|-----------------------------------|------------------------------------|---------------------|----------------|--|-------------------|-------------|
| WSW-8222 | 150 psi @ 300°F 10 bar @ 150°C | 1200 psi @ 650°F 85 bar @ 345°C | 1/2" O.D. 316 SS | 304 SS | 2.5 ft ² 0.23 m ² | 25 lbs 11.5 kg | 7-00712A |

Reference Bulletin 4.7 for complete WSW technical specifications.

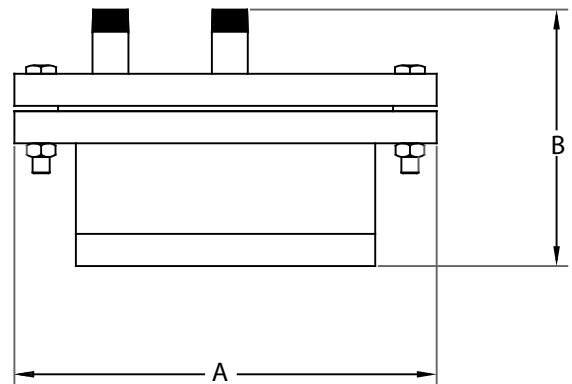
SPIRAL TUBE

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 LPM)
- 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

Standard tube material: 316 SS. Optional materials include: 304 SS, Hastelloy,[®] Inconel,[®] cupronickel and other alloys. Standard shell material: Carbon Steel. Optional materials include 304 SS, 316 SS and Cupronickel. Standard shell side Pressure/Temperature Rating: 150 psi (10 bar) up to 400°F (204°C). Other ratings available.



Specifications – Spiral Tube

| Series* | Tube Configuration | | | | H.T. Area | Dimensions | |
|---------|--------------------|------|------|------|---|---------------|----------------------|
| | 1/4" | 3/8" | 1/2" | 3/4" | | A | B |
| xSxACx | ■ | | | | 3 ft ² 0.3 m ² | 10" 254 mm | 5" 127 mm |
| xSxCCx | ■ | ■ | | | 4–7 ft ² 0.4–0.7 m ² | 14" 355 mm | 7–10" 178–254 mm |
| xSxDCx | ■ | ■ | | | 6–22 ft ² 0.6–2.1 m ² | 17" 432 mm | 7–13" 178–330 mm |
| xSxFCx | | ■ | ■ | | 13–44 ft ² 1.21–4.09 m ² | 20" 508 mm | 11–22" 279–559 mm |
| xSxGCx | | ■ | ■ | ■ | 16–42 ft ² 1.5–3.9 m ² | 23" 584 mm | 14–26" 355–660 mm |
| xSxJCx | | | ■ | ■ | 33–117 ft ² 3.1–10.9 m ² | 27" 686 mm | 15–30" 381–762 mm |
| xSxKCx | | | ■ | ■ | 47–140 ft ² 4.3–13 m ² | 29" 737 mm | 15–30" 381–762 mm |
| xSxLCx | | | ■ | ■ | 50–177 ft ² 4.6–16.4 m ² | 31" 787 mm | 15–30" 381–762 mm |

Reference Bulletin 12.1.1 for complete Spiral Tube technical specifications.

* "x" denotes model-specific information. Consult factory for other configurations. One piece welded shell design available.

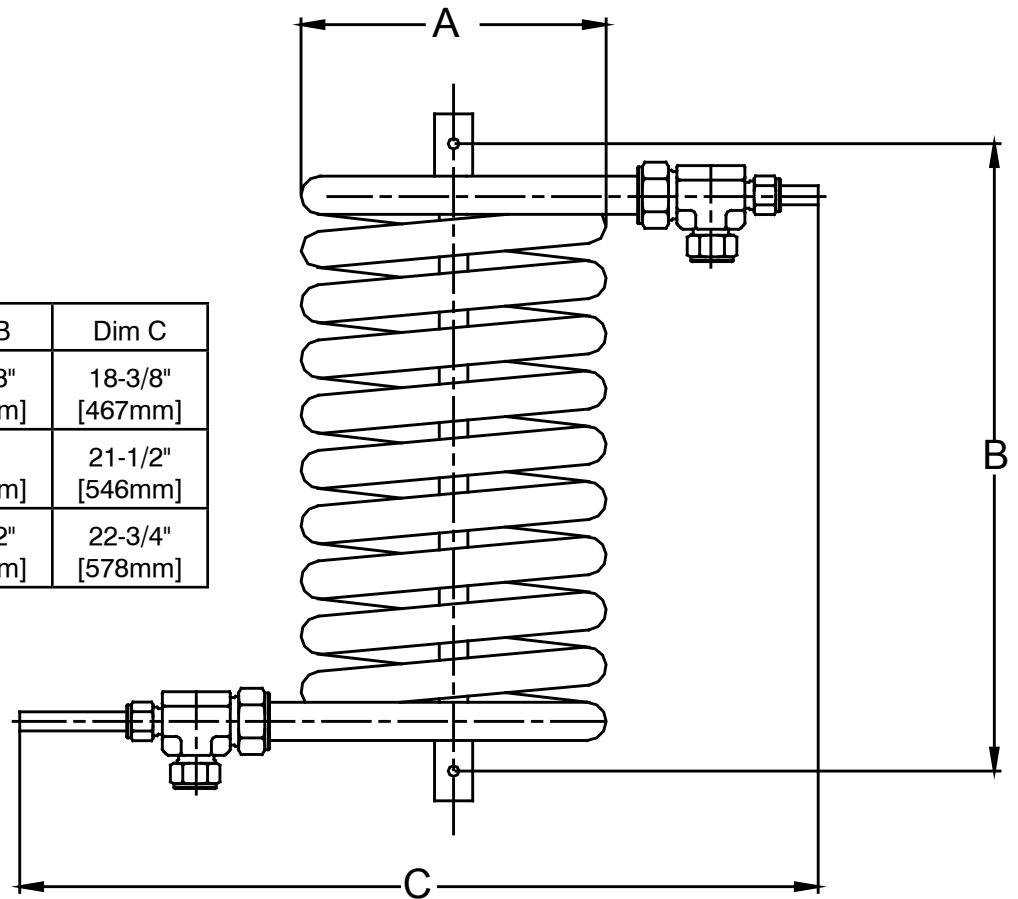
TUBE-IN-TUBE

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 LPM)
- 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" [127mm] | 13-1/8" [334mm] | 18-3/8" [467mm] |
| DTC-6 | 8-1/2" [216mm] | 13" [330mm] | 21-1/2" [546mm] |
| DTC-8 | 8" [203mm] | 16-1/2" [419mm] | 22-3/4" [578mm] |



TUBE-IN-TUBE SPECIFICATIONS

DTC Specifications – 4 Series

| Model No. | Inner Tube Design | Outer Tube Design | Inner Tube Material | Outer Tube Material | H.T. Area | Weight | Part Number |
|-------------------|---------------------------------------|---------------------------------------|------------------------|---------------------|---|-------------------|-------------|
| DTC-CUA/CUA-4-1-1 | 2000 psig @ 300°F 137 bar @ 148°C | 700 psig @ 300°F 48 bar @ 148°C | 1/4" O.D. Copper | 1/2" O.D. Copper | 1.26 ft ² 0.12 m ² | 12 lbs. 5.5 kg | 7-02671A |
| DTC-SSA/CUA-4-1-1 | 4900 psig @ 1000°F 337 bar @ 537°C | 700 psig @ 300°F 48 bar @ 148°C | 1/4" O.D. 316 SS | 1/2" O.D. Copper | 1.26 ft ² 0.12 m ² | 12 lbs. 5.5 kg | 7-02671B |
| DTC-IN1/CUA-4-1-1 | 5450 psig @ 1100°F 375 bar @ 593°C | 700 psig @ 300°F 48 bar @ 148°C | 1/4" O.D. Alloy 625 | 1/2" O.D. Copper | 1.26 ft ² 0.12 m ² | 12 lbs. 5.5 kg | 7-02671C |
| DTC-SSA/SSB-4-1-1 | 4900 psig @ 1000°F 337 bar @ 537°C | 2300 psig @ 1000°F 158 bar @ 537°C | 1/4" O.D. 316 SS | 1/2" O.D. 316 SS | 1.26 ft ² 0.12 m ² | 12 lbs. 5.5 kg | 7-02671D |
| DTC-IN1/SSB-4-1-1 | 5450 psig @ 1100°F 375 bar @ 593°C | 2300 psig @ 1000°F 158 bar @ 537°C | 1/4" O.D. Alloy 625 | 1/2" O.D. 316 SS | 1.26 ft ² 0.12 m ² | 12 lbs. 5.5 kg | 7-02671E |

DTC Specifications – 6 Series

| Model No. | Inner Tube Design | Outer Tube Design | Inner Tube Material | Outer Tube Material | H.T. Area | Weight | Part Number |
|-------------------|---------------------------------------|---------------------------------------|------------------------|---------------------|---|-----------------|-------------|
| DTC-CUA/CUB-6-1-1 | 1250 psig @ 300°F 86 bar @ 148°C | 700 psig @ 300°F 48 bar @ 148°C | 3/8" O.D. Copper | 3/4" O.D. Copper | 1.90 ft ² 0.18 m ² | 20 lbs. 9 kg | 7-02672A |
| DTC-SSC/CUB-6-1-1 | 5100 psig @ 1000°F 351 bar @ 537°C | 700 psig @ 300°F 48 bar @ 148°C | 3/8" O.D. 316 SS | 3/4" O.D. Copper | 1.90 ft ² 0.18 m ² | 20 lbs. 9 kg | 7-02672B |
| DTC-IN1/CUB-6-1-1 | 3800 psig @ 1100°F 262 bar @ 593°C | 700 psig @ 300°F 48 bar @ 148°C | 3/8" O.D. Alloy 625 | 3/4" O.D. Copper | 1.90 ft ² 0.18 m ² | 20 lbs. 9 kg | 7-02672C |
| DTC-SSC/SSC-6-1-1 | 5100 psig @ 1000°F 351 bar @ 537°C | 2300 psig @ 1000°F 158 bar @ 537°C | 3/8" O.D. 316 SS | 3/4" O.D. 316 SS | 1.90 ft ² 0.18 m ² | 20 lbs. 9 kg | 7-02672D |
| DTC-IN1/SSC-6-1-1 | 3800 psig @ 1100°F 262 bar @ 593°C | 2300 psig @ 1000°F 158 bar @ 537°C | 3/8" O.D. Alloy 625 | 3/4" O.D. 316 SS | 1.90 ft ² 0.18 m ² | 20 lbs. 9 kg | 7-02672E |

DTC Specifications – 8 Series

| Model No. | Inner Tube Design | Outer Tube Design | Inner Tube Material | Outer Tube Material | H.T. Area | Weight | Part Number |
|-------------------|---------------------------------------|---------------------------------------|------------------------|---------------------|---|--------------------|-------------|
| DTC-CUB/CUC-8-1-1 | 1250 psig @ 300°F 86 bar @ 148°C | 700 psig @ 300°F 48 bar @ 148°C | 1/2" O.D. Copper | 1" O.D. Copper | 2.52 ft ² 0.23 m ² | 30 lbs. 13.6 kg | 7-02673A |
| DTC-SSB/CUC-8-1-1 | 2400 psig @ 1000°F 165 bar @ 537°C | 700 psig @ 300°F 48 bar @ 148°C | 1/2" O.D. 316 SS | 1" O.D. Copper | 2.52 ft ² 0.23 m ² | 30 lbs. 13.6 kg | 7-02673B |
| DTC-IN7/CUC-8-1-1 | 4000 psig @ 900°F 275 bar @ 482°C | 700 psig @ 300°F 48 bar @ 148°C | 1/2" O.D. Alloy 625 | 1" O.D. Copper | 2.52 ft ² 0.23 m ² | 30 lbs. 13.6 kg | 7-02673X |
| DTC-SSB/SSD-8-1-1 | 2400 psig @ 1000°F 165 bar @ 537°C | 2300 psig @ 1000°F 158 bar @ 537°C | 1/2" O.D. 316 SS | 1" O.D. 316 SS | 2.52 ft ² 0.23 m ² | 30 lbs. 13.6 kg | 7-02673D |
| DTC-IN7/SSD-8-1-1 | 4000 psig @ 900°F 276 bar @ 482°C | 2300 psig @ 1000°F 158 bar @ 537°C | 1/2" O.D. Alloy 625 | 1" O.D. 316 SS | 2.52 ft ² 0.23 m ² | 30 lbs. 13.6 kg | 7-02673Y |

For complete technical specifications reference data sheet 17.10.10 for DTC-4; 17.10.20 for DTC-6; 17.10.30 for DTC-8.

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

A SAMPLING OF SENTRY EQUIPMENT'S PRODUCTS



WATER/STEAM SAMPLING

- **Sample Coolers**
- **VREL[®] Pressure Reducers**
- **Back Pressure Regulator/Relief Valves**
- **Thermal Shut Off Valves**
- **Single Line Sample Panels**
- **Cation Resin Columns**
- **Degassed Conductivity Panels**
- **Corrosion Products Samplers**
- **Temperature Control Units**
- **Sample Sequencers**
- **Custom Sampling Systems**

PROCESS SAMPLING

Sampling Equipment for:

- **High vapor pressure gases/liquids**
- **High pressure gases**
- **Gas concentration measurement**
- **Liquids and slurries**
- **Bulk Solids**
- **For use in industries such as chemical, petroleum refining, cement, nuclear, mining, pharmaceutical, food and more**



WARNING

It is solely the responsibility of the end-user, through its own analysis and testing, to select products and materials suitable for their specific application requirements, ensure they are properly installed, safely applied, properly maintained, and limit their use to their intended purpose. Improper selection, installation, or use may result in personal injury or property damage.



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**QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001:2008**

For further information, contact: