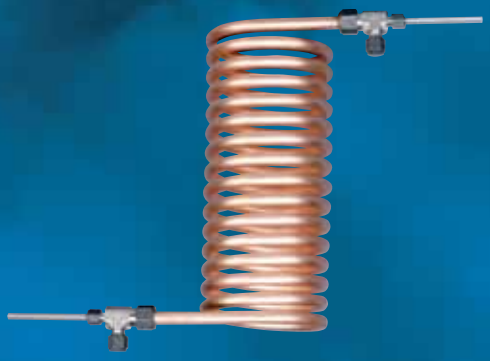


More than 85 Years of
Sampling Experience

Sample Coolers

WATER • STEAM • PROCESS

The largest selection of models offered by any manufacturer

www.sentry-equip.com

SENTRY

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.

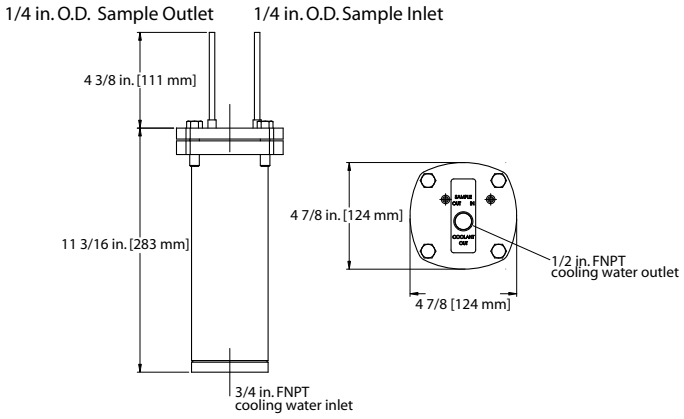
HELICAL COIL

- **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**

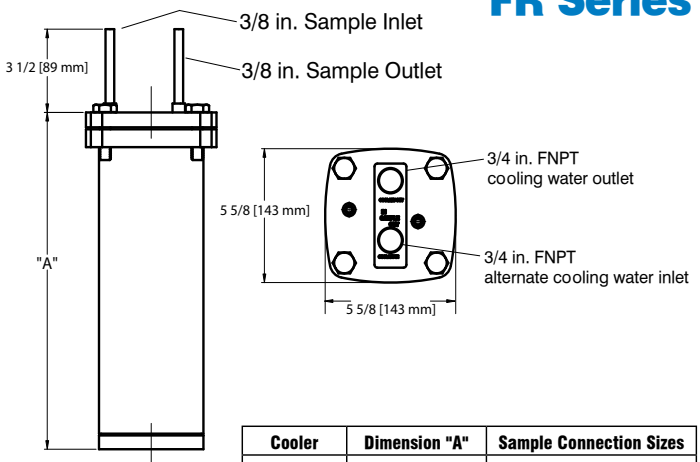
Note: Hastelloy is a registered trademark of Haynes International Inc.
Inconel is a registered trademark of Huntington Alloys Corporation.

The 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.

TR Series



FR Series



Cooler	Dimension "A"	Sample Connection Sizes
FLR-6225	13 1/4" [337 mm]	3/8" O.D. tube
FSR-6225	13 1/4" [337 mm]	3/8" O.D. tube
FXR-6225	16" [406 mm]	3/8" O.D. tube

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

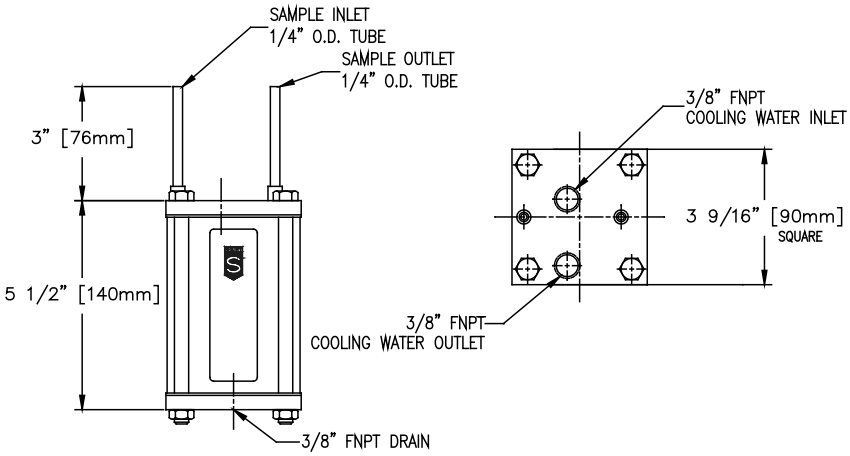
Model No.	Shell Design	Tube Design	Tube Material	Shell Material	Area	Shipping Weight	Part Number
FSR-6225	450 psi @ 650°F 31 bar @ 343°C	5000 psi @ 1000°F 345 bar @ 537°C	3/8" O.D. 316 SS	304 SS	1.7 ft^2 0.16 m^2	24 lbs 11 kg	7-03954A
FSR-62B3	450 psi @ 650°F 31 bar @ 343°C	3400 psi @ 1100°F 234 bar @ 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

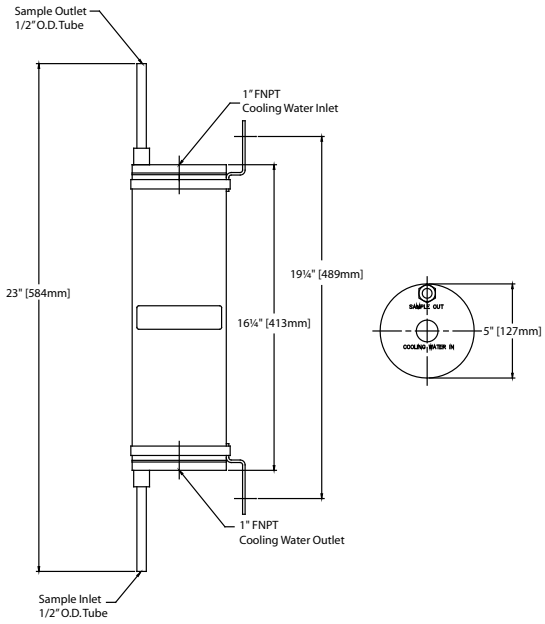
Model No.	Shell Design	Tube Design	Tube Material	Shell Material	Area	Weight	Part Number
TRB-4222	250 psi @ 450°F 17 bar @ 232°C	2000 psi @ 635°F 140 bar @ 335°C	1/4" O.D. SS*	304 SS	1.2 ft^2 0.11m^2	9 lbs 4 kg	7-00016A

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

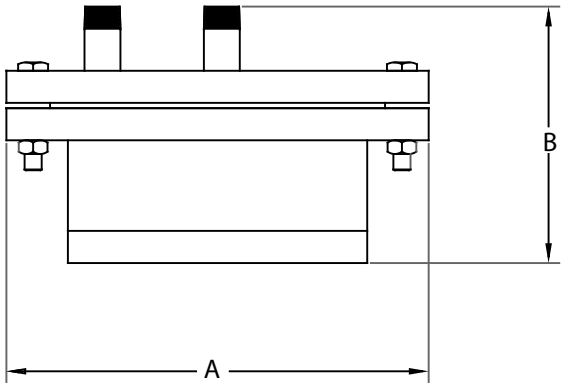
Reference Bulletin 4.7 for complete WSW technical specifications.

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®, 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.



Available Configurations – Spiral Tube

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

Reference Bulletin 12.1.1 for complete Spiral Tube technical specifications.

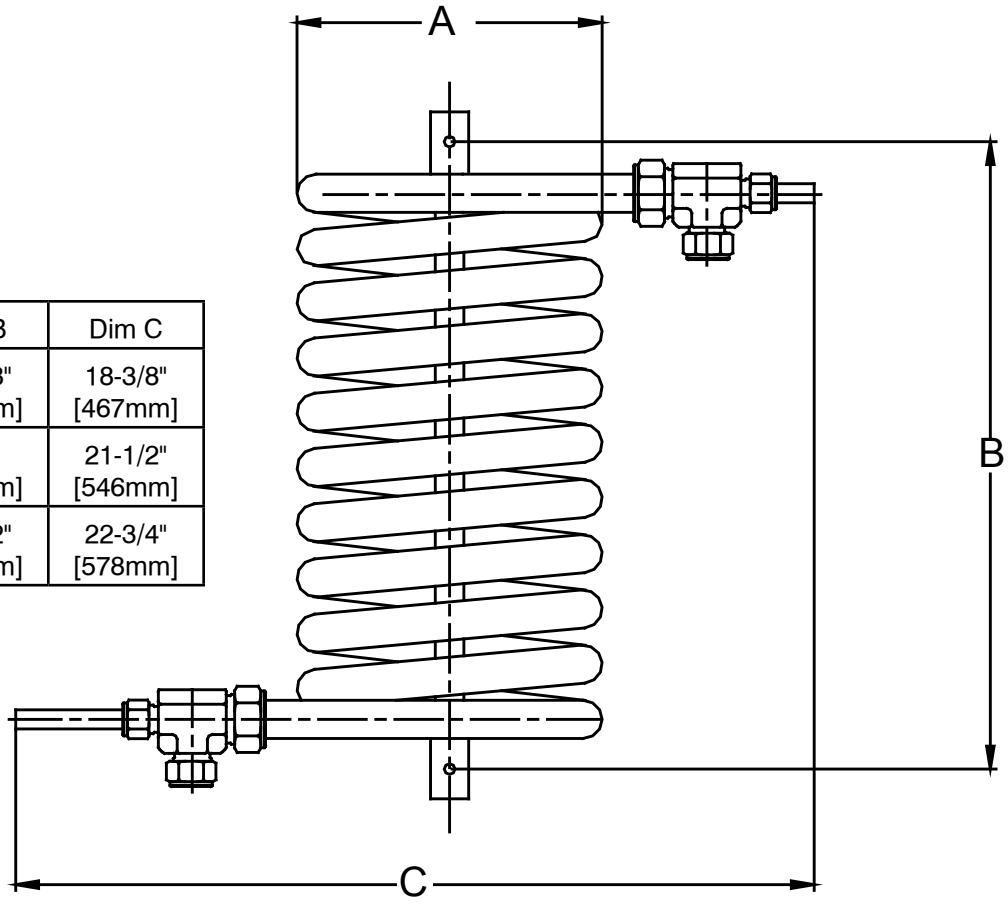
* "x" denotes model-specific information. Consult factory for other configurations. One piece welded shell design available.

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	700 psig @ 300°F	1/4" O.D.	1/2" O.D.	1.26 ft^2	12 lbs.	7-02671A
	137 bar @ 148°C	48 bar @ 148°C	Copper	Copper	0.12 m^2	5.5 kg	
DTC-SSA/CUA-4-1-1	4900 psig @ 1000°F	700 psig @ 300°F	1/4" O.D.	1/2" O.D.	1.26 ft^2	12 lbs.	7-02671B
	337 bar @ 537°C	48 bar @ 148°C	316 SS	Copper	0.12 m^2	5.5 kg	
DTC-IN1/CUA-4-1-1	5450 psig @ 1100°F	700 psig @ 300°F	1/4" O.D.	1/2" O.D.	1.26 ft^2	12 lbs.	7-02671C
	375 bar @ 593°C	48 bar @ 148°C	Alloy 625	Copper	0.12 m^2	5.5 kg	
DTC-SSA/SSB-4-1-1	4900 psig @ 1000°F	2300 psig @ 1000°F	1/4" O.D.	1/2" O.D.	1.26 ft^2	12 lbs.	7-02671D
	337 bar @ 537°C	158 bar @ 537°C	316 SS	316 SS	0.12 m^2	5.5 kg	
DTC-IN1/SSB-4-1-1	5450 psig @ 1100°F	2300 psig @ 1000°F	1/4" O.D.	1/2" O.D.	1.26 ft^2	12 lbs.	7-02671E
	375 bar @ 593°C	158 bar @ 537°C	Alloy 625	316 SS	0.12 m^2	5.5 kg	

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	700 psig @ 300°F	3/8" O.D.	3/4" O.D.	1.90 ft^2	20 lbs.	7-02672A
	86 bar @ 148°C	48 bar @ 148°C	Copper	Copper	0.18 m^2	9 kg	
DTC-SSC/CUB-6-1-1	5100 psig @ 1000°F	700 psig @ 300°F	3/8" O.D.	3/4" O.D.	1.90 ft^2	20 lbs.	7-02672B
	351 bar @ 537°C	48 bar @ 148°C	316 SS	Copper	0.18 m^2	9 kg	
DTC-IN1/CUB-6-1-1	3800 psig @ 1100°F	700 psig @ 300°F	3/8" O.D.	3/4" O.D.	1.90 ft^2	20 lbs.	7-02672C
	262 bar @ 593°C	48 bar @ 148°C	Alloy 625	Copper	0.18 m^2	9 kg	
DTC-SSC/SSC-6-1-1	5100 psig @ 1000°F	2300 psig @ 1000°F	3/8" O.D.	3/4" O.D.	1.90 ft^2	20 lbs.	7-02672D
	351 bar @ 537°C	158 bar @ 537°C	316 SS	316 SS	0.18 m^2	9 kg	
DTC-IN1/SSC-6-1-1	3800 psig @ 1100°F	2300 psig @ 1000°F	3/8" O.D.	3/4" O.D.	1.90 ft^2	20 lbs.	7-02672E
	262 bar @ 593°C	158 bar @ 537°C	Alloy 625	316 SS	0.18 m^2	9 kg	

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	700 psig @ 300°F	1/2" O.D.	1" O.D.	2.52 ft^2	30 lbs.	7-02673A
	86 bar @ 148°C	48 bar @ 148°C	Copper	Copper	0.23 m^2	13.6 kg	
DTC-SSB/CUC-8-1-1	2400 psig @ 1000°F	700 psig @ 300°F	1/2" O.D.	1" O.D.	2.52 ft^2	30 lbs.	7-02673B
	165 bar @ 537°C	48 bar @ 148°C	316 SS	Copper	0.23 m^2	13.6 kg	
DTC-IN7/CUC-8-1-1	4000 psig @ 900°F	700 psig @ 300°F	1/2" O.D.	1" O.D.	2.52 ft^2	30 lbs.	7-02673X
	275 bar @ 482°C	48 bar @ 148°C	Alloy 625	Copper	0.23 m^2	13.6 kg	
DTC-SSB/SSD-8-1-1	2400 psig @ 1000°F	2300 psig @ 1000°F	1/2" O.D.	1" O.D.	2.52 ft^2	30 lbs.	7-02673D
	165 bar @ 537°C	158 bar @ 537°C	316 SS	316 SS	0.23 m^2	13.6 kg	
DTC-IN7/SSD-8-1-1	4000 psig @ 900°F	2300 psig @ 1000°F	1/2" O.D.	1" O.D.	2.52 ft^2	30 lbs.	7-02673Y
	276 bar @ 482°C	158 bar @ 537°C	Alloy 625	316 SS	0.23 m^2	13.6 kg	

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.

SENTRY

SENTRY EQUIPMENT CORP

966 Blue Ribbon Circle North
Oconomowoc, WI 53066 USA
Tel: 262-567-7256 • Fax: 262-567-4523

E-mail:
sales@sentry-equip.com

Website:
www.sentry-equip.com

QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001:2008

For further information, contact: