



Sample Coolers

Ideal for cooling samples of hot water, process liquid, gas, steam, or vapor to a handling temperature



Refining • Petrochemical • Chemical

Cool Boiler Water, Steam, Process Liquids

WINSTON / ROYAL GUARD CORPORATION



Sample Coolers

For Cooling Boiler Water, Steam, Process Liquids

Winston/Royal Guard Series 500 Sample Coolers provide excellent heat transfer for cooling samples of hot water, process liquid, gas, steam, or vapor. The shell side coolant can be cold water or other cool medium. In addition, these coolers can be used to warm a cold sample using a warm or hot fluid, or steam. For additional heat exchange, two or more coolers can be installed in series.

The standard tubing design pressure for the sample side is 2000 PSIG. The standard external shell design is 285 PSIG (except for the Type 530 cooler). Higher pressure designs are available.

Tubing: The standard tubing material is 316 stainless steel and is available in 304 or 317 stainless steel, Monel[®]400, Nickel 200, Hastelloy[®]B and C276, Inconel[®], and Incoloy[®].

Shell: The standard material for the shell is carbon steel and available in any of the stainless steels and alloys shown above.

- The **Type 520** provides the maximum heat transfer, featuring a much greater sample tubing length. The sample tube, in a double helix configuration, enters through the top of the cooler and coils down and around the interior of the shell before coiling up inside an interior chamber and out the top. The cooling medium enters at the top of the interior chamber and exits at the top side of the cooler exterior shell, providing a counter-flow of the sample and cooling mediums.
- The **Type 511**, similar to the Type 520 also has the double helix coil. The Type 511 features a fully welded top and bottom cap to enable higher shell pressure design and is not limited by flange pressure ratings.
- The **Type 560** features a flanged top for easy cleaning and a single spiral coil design. The sample medium in the tubing and the coolant in the shell side flow in a counter-flow, or opposite direction for maximum heat transfer.
- The **Type 570**, similar to the Type 560 also has the single spiral coil. The Type 570 has a seal welded top for a more cost efficient design.
- The **Type 530** features an open top design for use with low pressure cooling water.

Options include ASME Code stamp for the Types 520, 511, 560, and 570, support legs or mounting bracket, and other customer requirements.

ASME Code Certified: Winston/Royal Guard is an ASME Section VIII, Division 1 Code certified manufacturing facility with National Board certification. Capabilities include all types of non-destructive testing with a rigidly controlled Quality Control system.

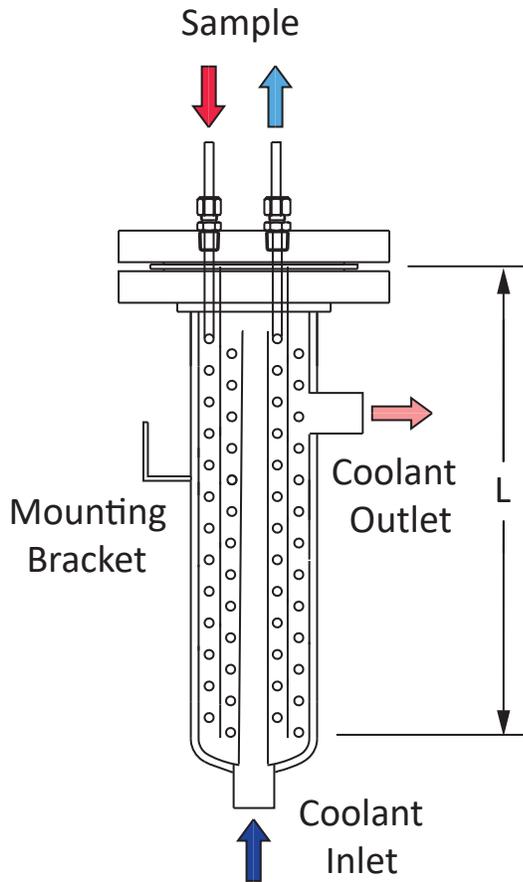


Type 520-FC

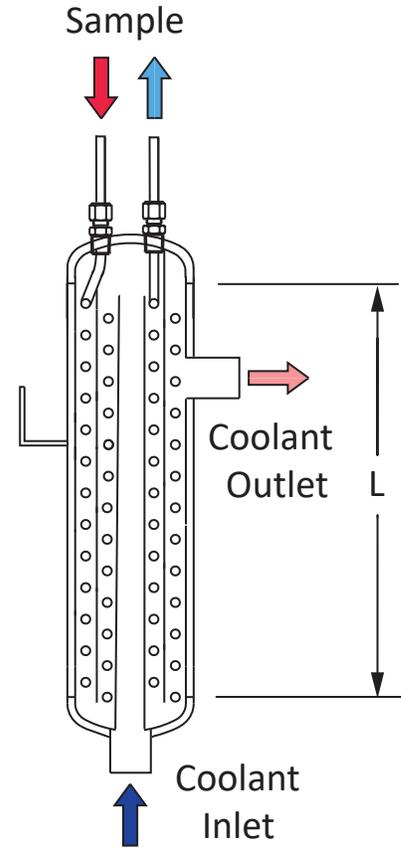


Sample Coolers

Types 520 and 511



Type 520-FC



Type 511-WC

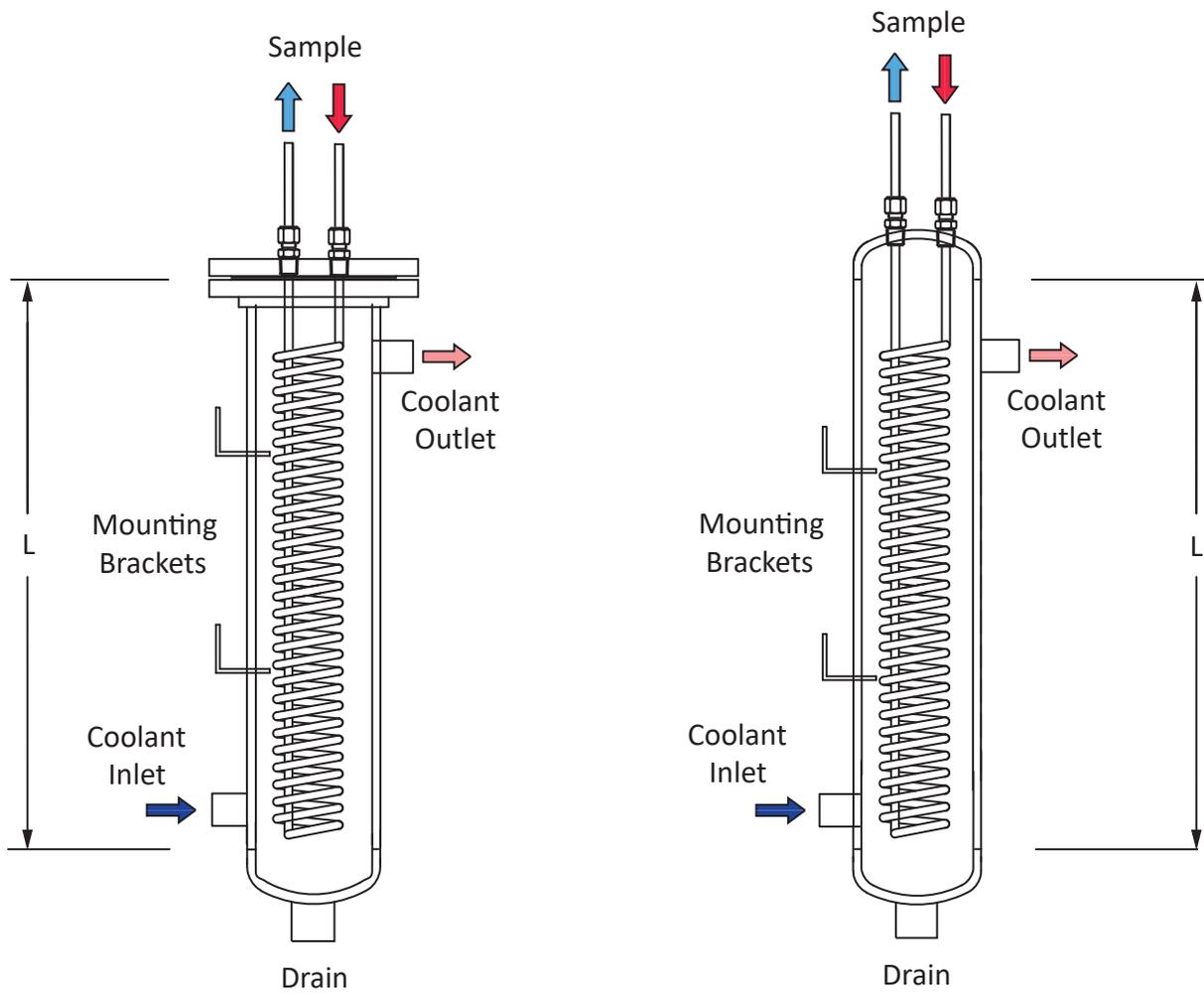
Chart for Type 520-FC and 511-WC

Tube		Shell		Coolant Connection	Tube Flow Rate, GPM	Shell Flow Rate, GPM
O.D.	Wall	O.D.	L			
1/4"	0.035"	3-1/2"	12"	1/2"	0.25	3.5
3/8"	0.049"	8-5/8"	12"	1/2"	0.6	8.5
1/2"	0.065"	10-3/4"	12"	1/2"	1	15
5/8"	0.083"	12-3/4"	12"	1-1/2"	1.5	24
1"	0.083"	18"	12"	2"	5	75



Sample Coolers

Types 560 and 570



Type 560-FC

Type 570-WC

Chart for Type 560-FC and 570-WC

Tube		Shell		Coolant Connection	Tube Flow Rate, GPM	Shell Flow Rate, GPM
O.D.	Wall	O.D.	L			
1/4"	0.035"	3-1/2"	18"	1"	0.2	15
3/8"	0.049"	6-5/8"	18"	1-1/2"	0.5	30
1/2"	0.065"	8-5/8"	18"	2"	1	60
5/8"	0.083"	10-3/4"	18"	2-1/2"	2	120
1"	0.083"	12-3/4"	18"	3"	2.5	150



Sample Coolers

Type 530

The **Type 530** features an open top design for use with low pressure cooling water. A cooling water inlet pipe (provided by field) is directed into the cooler through the open top and extends downward to the bottom. The cooling water then flows upward within the cooler and to the outlet near the top side wall where it can be directed to a drain. A coupling with plug is located in the bottom of the housing to drain and clean the cooler.

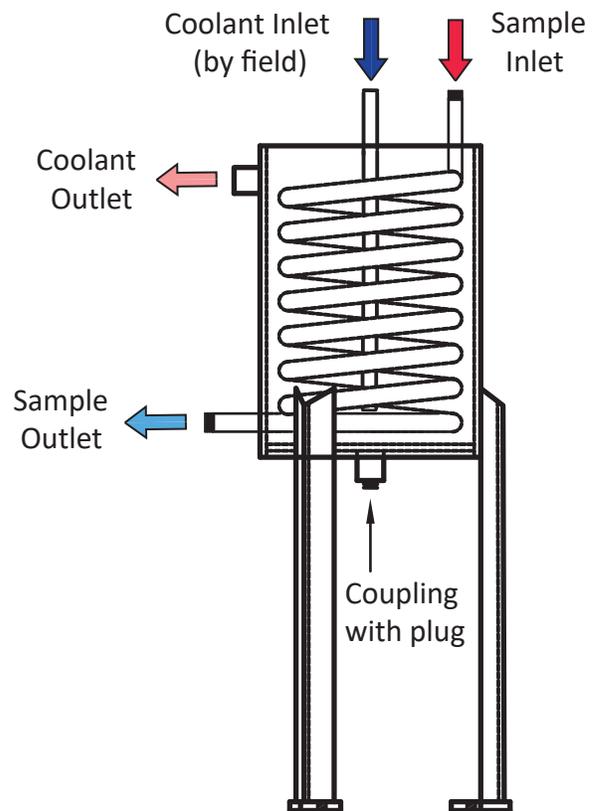
The shell is 12" carbon steel pipe, 18" long, and furnished with three legs or an optional mounting bracket.

The cooling coil is ½" schedule 40 seamless carbon steel pipe with a ½" male NPT on each end. Optional coil materials are:

- ½" schedule 80 seamless carbon steel pipe.
- ½" 304, 316, or 317 stainless steel tubing with connectors.
- 0.035" tubing, 3000 PSI max. working pressure.
- 0.049" tubing, 4000 PSI max. working pressure.



Type 530



Specifications are subject to change without notice. 8-4-2021 (supersedes 8-7-2019)

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