

TYPE 1



TYPE 2



Madden sample coolers are miniature shell and coil heat exchangers designed to reduce high-temperature liquid samples to safe, usable temperatures for analysis or continuous process monitoring. Available in copper and 316 stainless steel coil materials, with carbon steel or 304SS outer shells. All models disassemble with standard tools for easy cleaning or coil replacement.

Copper & 316SS Coil Options

Carbon Steel & 304SS Shell Options

Disassembles with Standard Tools

No ASME Stamp Required

Counterflow Efficiency

Wide Range of Pressure Ratings

SPECIFICATIONS

Model	Shell Material	Coil O.D. & Material	Coil Wall Thickness	Surface Area (HX Capacity)	Max Coil PSI @ Temperature	Height	Weight (lbs.)
TYPE 1 Madden Sample Coolers (Compact) – All connections ¼" FNPT, 2-1/2" Diameter Sch 40 Shell							
SC0001	Carbon Steel	¼" Copper	0.030"	1.3 ft ²	300 @ 400°F	17.25"	15
SC0002	Carbon Steel	¼" Copper	0.030"	2.6 ft ²	300 @ 400°F	31.50"	25
SC0003	Carbon Steel	¼" 316SS	0.035"	1.3 ft ²	3,000 @ 1,000°F	17.25"	15
SC0003A	304SS	¼" 316SS	0.035"	1.3 ft ²	3,000 @ 1,000°F	17.25"	15
SC0004	Carbon Steel	¼" 316SS	0.035"	2.6 ft ²	3,000 @ 1,000°F	31.50"	25
SC0004A	304SS	¼" 316SS	0.035"	2.6 ft ²	3,000 @ 1,000°F	31.50"	25
TYPE 2 Madden Sample Coolers (Cost Effective & Larger Capacities) – ¼" or 3/8" FNPT Sample, *3/8" C.W. Connections, 4" Dia Sch 40 Shell							
SC101	Carbon Steel	¼" Copper	0.030"	1.3 ft ²	300 @ 400°F	12.125"	25
SC102	Carbon Steel	¼" 316SS	0.035"	1.3 ft ²	3,850 @ 1,000°F	12.125"	25
SC102A	304SS	¼" 316SS	0.035"	1.3 ft ²	3,850 @ 1,000°F	12.125"	25
SC103	Carbon Steel	3/8" Copper	0.030"	1.9 ft ²	250 @ 400°F	15.75"	25
SC104	Carbon Steel	3/8" Copper	0.030"	3.8 ft ²	250 @ 400°F	32.75"	55
SC105	Carbon Steel	3/8" 316SS	0.035"	1.9 ft ²	2,500 @ 1,000°F	15.75"	25
SC105A	304SS	3/8" 316SS	0.035"	1.9 ft ²	2,500 @ 1,000°F	15.75"	25
SC106	Carbon Steel	3/8" 316SS	0.035"	3.8 ft ²	2,500 @ 1,000°F	32.75"	50
SC106A	304SS	3/8" 316SS	0.035"	3.8 ft ²	2,500 @ 1,000°F	32.75"	50
SC107	Carbon Steel	3/8" 316SS	0.065"	3.8 ft ²	4,925 @ 1,000°F	32.75"	55
SC107A	304SS	3/8" 316SS	0.065"	3.8 ft ²	4,925 @ 1,000°F	32.75"	55
SC108	Carbon Steel	3/8" 316SS	0.065"	1.9 ft ²	4,925 @ 1,000°F	15.75"	30
SC108A	304SS	3/8" 316SS	0.065"	1.9 ft ²	4,925 @ 1,000°F	15.75"	30

*NOTES: (1) All shell-side pressure ratings are 300 PSI. (2) Type 2 C.W. connections available in ½", ¾", and 1" for cost adder.

SELECTION GUIDE

Liquid grab sampling

Intermittent sampling services at ≤ 0.5 GPM. Typical applications include: boiler drum, deaerator, condensate return, and makeup water sampling. 1.3 ft² coil capacities are sufficient for most single-phase liquid services.

SC0001 • SC0003 • SC102

Continuous liquid flow

Sustained flow above 0.5 GPM, higher duty cycle, or where very low approach temperature is required. Also suitable for saturated steam condensate grab samples.

SC0004 • SC105 • SC106

Steam grab sample / high pressure

All steam sampling including saturated and superheated steam. 3.8 ft² surface area recommended - larger surface accounts for desuperheating before condensation begins. Models are also for high coil pressure requirements.

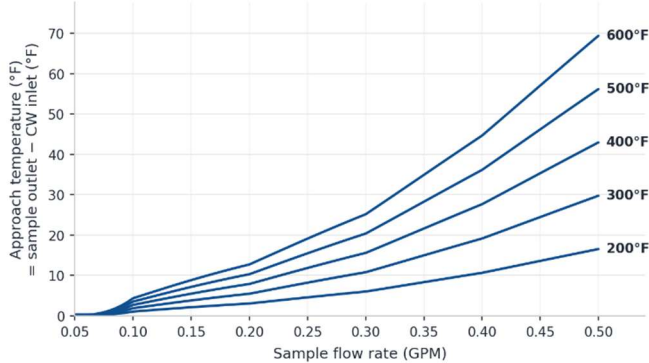
SC106 • SC107 • SC108

PERFORMANCE CURVES – LIQUID SERVICE

Fixed Assumptions: 75°F Cooling Water • 5 GPM Flow • Liquid (water-like) Sample

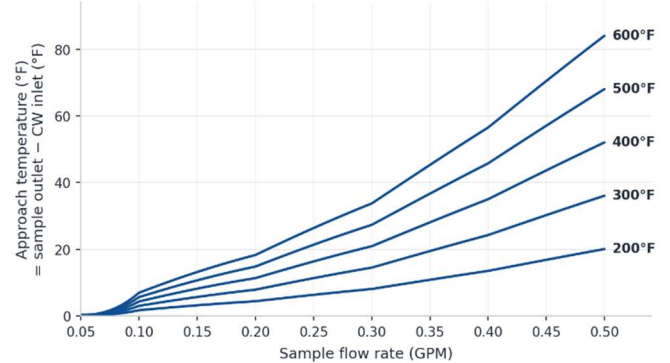
1/4" Copper Coil — 1.3 ft²

Models: SC0001, SC101



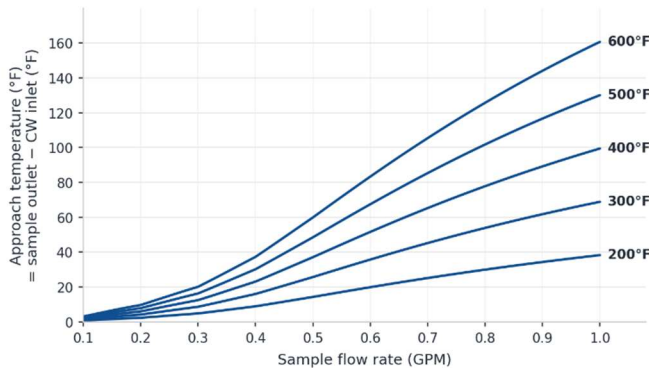
1/4" 316SS Coil — 1.3 ft²

Models: SC0003, SC0003A, SC102, SC102A



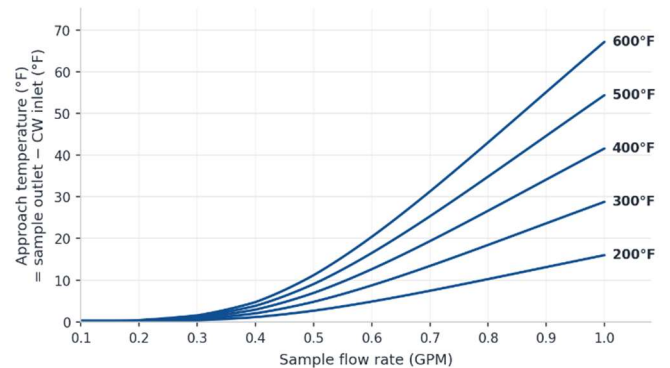
3/8" 316SS Coil, 0.035" wall — 1.9 ft²

Models: SC105, SC105A



3/8" 316SS Coil, 0.035" wall — 3.8 ft²

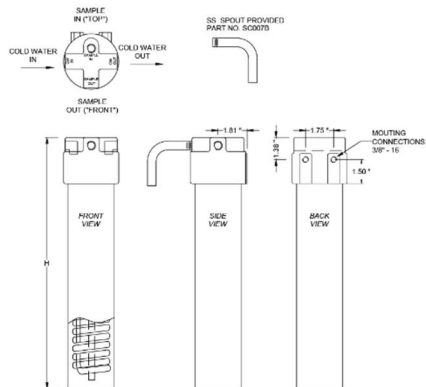
Models: SC106, SC106A



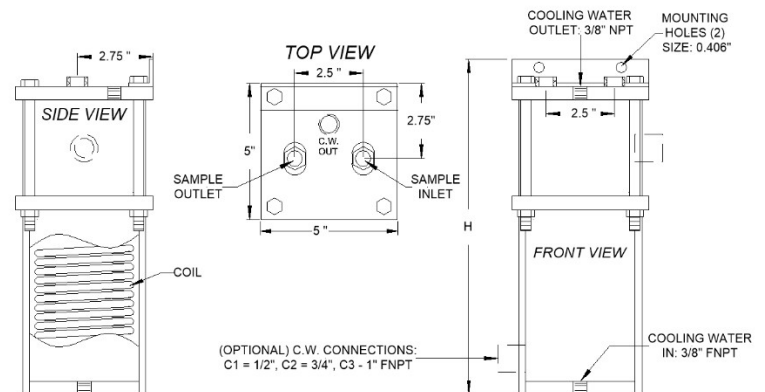
CONNECTIONS & DIMENSIONS

Individual, model-specific prints available upon request

Type 1 – Compact



Type 2 – Larger Capacities



COMPLETE, TURNKEY SAMPLE CONDITIONING PANELS

Need more than just the cooler? Madden also builds fully assembled sample conditioning panels. This includes your sample cooler, metering valve, pressure and temperature gauges, sink, and mounting hardware. Pre-designed compact stations and build-to-order systems available.