

MADDEN

ENGINEERED PRODUCTS, LLC

SAMPLE COOLERS

(PUMP SEAL FLUSH COOLERS)

*Efficient liquid to liquid mini heat exchangers.
Available with copper and stainless steel coils.*



Madden Sample Coolers are miniature heat exchangers designed to reduce high temperature liquid samples to safe, usable temperatures for analysis. They also function as effective coolers for pump seal flush liquid. The counter flow design efficiently cools the tube side liquid.

Sample coolers are available in copper and Type 316 stainless steel tube coil material. All Madden sample coolers disassemble with standard tools for cleaning, or replacement of damaged coils. Carbon steel shell parts are painted with grey acrylic enamel. Shell side pressure rating is 150 psi. Madden Type 2 models may be constructed using a variety of materials to meet a customer's specific requirements. Contact the factory for a quotation for applications with special material specifications.

Type 1 sample cooler models have all the piping connections for the sample and the cooling water on the threaded cap on the top of the sample cooler. All coils are 1/4" OD tubing, and all piping connections are 1/4"NPT. Cooling water enters on the left and exits opposite on the right. Sample inlet connection is vertical on the top, and the cooled sample exits from the spout.



Type 2 sample coolers offer both 1/4" and 3/8" OD tubing coils. Sample connections are 1/4"NPTF and are made on the top plate. Cooling water connections are 3/8" NPTF located on both top and bottom plates. On our Type 2 design, we can offer up to 1" NPT cooling water connections.

NOTE: Typically, liquid grab samples can be cooled with 1.3 square foot coil surface area models. For continuous cooling of samples for instrument probes, or for steam samples, 2.6 sf or larger coil surface area is recommended.

Part Number	Coil Type (Max PSI & Temp)	Description - (Type, HX surface area, size of tube and connections)	Height & Weight
SC0001	Copper - 300 @ 400°F	Type 1, 1.3 Sq. Ft., CI head, 1/4" OD tube & NPT	17.25" - 15#
SC0002	Copper - 300 @ 400°F	Type 1, 2.6 Sq. Ft, CI head, 1/4" OD tube & NPT	31.5" - 25#
SC0003	316SS - 3,000 @ 1,000°F	Type 1, 1.3 Sq. Ft, SS head, 1/4" OD tube & NPT	17.25" - 15#
SC0004	316SS - 3,000 @ 1,000°F	Type 1, 2.6 Sq. Ft, SS head, 1/4" OD tube & NPT	31.5" - 25#
SC101	Copper - 300 @ 400°F	Type 2, 1.3 Sq. Ft, 1/4" OD tube & NPT/Compression	13.38" - 25#
SC102	316SS - 3,850 @ 1,000°F	Type 2, 1.3 Sq. Ft, 1/4" OD tube & NPT/Compression	13.38" - 25#
SC103	Copper - 250 @ 400°F	Type 2, 1.9 Sq. Ft, 3/8" OD tube & NPT/Compression	17" - 30#
SC104	Copper - 250 @ 400°F	Type 2, 3.8 Sq. Ft, 3/8" OD tube & NPT/Compression	34" - 59#
SC105	316SS - 2,500 @ 1,000°F	Type 2, 1.9 Sq. Ft, 3/8" OD tube & NPT/Compression	17" - 30#
SC106	316SS - 2,500 @ 1,000°F	Type 2, 3.8 Sq. Ft, 3/8" OD tube & NPT/Compression	34" - 55#
SC107	316SS - 4,925 @ 1,000°F	Type 2, 3.8 Sq. Ft, 3/8" OD tube (0.065") & NPT/Compression	34" - 61#
SC108	316SS - 4,925 @ 1,000°F	Type 2, 1.9 Sq. Ft, 3/8" OD tube (0.065") & NPT/Compression	17" - 35#

SHELL MATERIAL: standard is Carbon Steel, Type 1's rated to 300 PSI, Type 2's rated to 150 PSI

OPTIONAL: all units are available in SS shell material. Denote P/N with the letter 'A' at the end (ex. SC0003A)

Dimensions and Specifications

3-1/2"

1/2"

H

2-7/8"

MYLAR SLEEVE TO PROTECT TUBE COIL

COPPER OR STAINLESS STEEL

SHELL MATERIAL:
2-1/2" STEEL OR STAINLESS STEEL PIPE

1-3/4"

7-1/2"

1/4" NPTF SAMPLE INLET

1/4" NPTF COOLING WATER INLET AND OUTLET

1/4" PIPE SAMPLE OUTLET SPOUT WITH 90° BEND INCLUDED

Part Number	Coil Area	Coil Material	Cap Material	"H"
SC0001	1.3 sf	Copper	CI	17.25"
SC0002	2.6 sf	Copper	CI	31.50"
SC0003	1.3 sf	316 SS	316 SS	17.25"
SC0003A	1.3 sf	316 SS	316 SS	17.25"
SC0004	2.6 sf	316 SS	316 SS	31.50"
SC0004A	2.6 sf	316 SS	316 SS	31.50"

Type 1 - Sample Cooler Specifications

The Contractor shall furnish and install _____ sample coolers to cool the hot liquid sample to the desired temperature for safe handling and analysis. The sample cooler will be a Type 1 as manufactured by Madden Engineered Products, LLC. The unit will be constructed with a 1/4" OD (copper or 316 stainless steel) tube coil for the sample, with a surface area of (1.3 or 2.6) square feet. The coil will be rated for a maximum (300 or 1,200) psi service. The shell will be sch. 40 pipe with a threaded cap made of (cast iron or SS). All piping connections are 1/4" NPT located on the threaded cap. The cap will be removable for cleaning or coil replacement. *Valves for the sample and cooling water inlets are to be provided and installed by the contractor.*

FRONT VIEW

MOUNTING HOLES (2) SIZE: .406"

2.5"

A

COOLING WATER INLET: 3/8" NPT

SIDE VIEW

2.75"

COIL FOR COOLING SAMPLE

BAFFLE

TOP VIEW

3"

5"

2.75"

SAMPLE INLET

SAMPLE OUTLET

Type 2 - Sample Cooler Specifications

The Contractor shall furnish and install (qty) sample coolers to cool the hot liquid sample to the desired temperature for safe handling and analysis. The sample cooler will be a Type 2 model no. SC10__ as manufactured by Madden Engineered Products, LLC. The unit will be constructed with a (1/4" or 3/8") OD (copper or 316 SS) tube coil for the sample, with a coil surface area of () square feet. The coil will be rated for a maximum () psi service. The shell will be carbon steel. Cooling water connections will be () NPTF and sample connections will be 1/4" NPTF. The unit will disassemble for cleaning or coil replacement. Valves for the sample and cooling water inlets are to be provided and installed by the contractor.

Part Number	Max. Coil PSI	Description	Weight	Dim. A
SC101	300	Type 2, 1.3 sf, copper coil, 1/4" OD tube	25#	13.38"
SC102	5,100	Type 2, 1.3 sf, 316 SS coil, 1/4" OD tube	25#	13.38"
SC103	250	Type 2, 1.9 sf, copper coil, 3/8" OD tube	30#	17"
SC104	250	Type 2, 3.8 sf, copper coil, 3/8" OD tube	59#	34"
SC105	3,300	Type 2, 1.9 sf, 316 SS coil, 3/8" OD tube	30#	17"
SC106	3,300	Type 2, 3.8 sf, 316 SS coil, 3/8" OD tube	55#	34"
SC107	6,500	Type 2, 3.8 sf, 316 SS coil, 3/8" OD tube	61#	34"
SC108	6,500	Type 2, 1.9 sf, 316 SS coil, 3/8" OD tube	35#	17"