

For more than 75 years, Super Radiator Coils

has been committed to designing and building custom coils for a variety of applications. A.O. Bredeson and George Cunningham founded Super Radiator Coils in 1927 when they initiated the manufacturing of fin type heat exchangers for steam heating coils. The following year, Super Radiator Coils designed and produced its first modern coil at the Minneapolis, Minnesota facility. Soon after the company began manufacturing coils, Bredeson was awarded a patent on flared compression joints. In the late 1940s, Bredeson experimented with and created a fin-punching die for 5/8" tube. This breakthrough initiated the start of Super Radiator Coils serving the evaporator, condenser, chilled water, and hot water coil markets. These new products poised Super Radiator Coils to be a top supplier to the rooftop air conditioner, furnace air conditioner, refrigerated food cabinet, computer room cooling unit, and military cooling equipment industries for the next several decades. Super Radiator Coils built its Richmond, Virginia facility in 1980 to meet the growing needs of the East Coast market as well as additional markets nationwide. This growth was sustained in 1993 by establishing a third full service facility in Phoenix, Arizona to support its markets in the western United States and Asia.



The actual name Super Radiator Coils evolved from the birth of the company, which involved replacing cast iron radiators - exemplified in the photographs to the right and above - with much smaller finned heat exchangers. Starting as a nickname, Super Radiator progressed as a product name and, with the addition of the word "Coils", eventually became a company name.

-1-



All of our facilities are fully staffed and managed to support our own engineering, fabrication, and customer service. Each one is equipped with well-trained and experienced personnel to create optimal product performance and complete customer satisfaction. In addition, company personnel work closely with customers to ensure good communication and quality service. We provide the most cost-effective solutions to serve our customers.

Super Radiator Coils operates three manufacturing locations: a 65,000- square- foot facility in Minneapolis, Minnesota, which also serves as the corporate headquarters; a 110,000-square-foot facility in Richmond, Virginia; and a

“three plants are equipped with more than eighteen fin lines, and eight tube machine tools”

30,000-square-foot facility in Phoenix, Arizona. These three plants are equipped with more than eighteen fin lines and eight tube machine tools, which handle 3/8", 1/2", 5/8", 7/8", and 1" OD tube sizes. The majority of our tooling capabilities are duplicated at all three locations, thus allowing for backup of our manufacturing capabilities. In combination with this, each of our facilities is networked to the same order tracking system, improving the accuracy and dependability of communication with our customers.



-2-



The staff of Super Radiator Coils realizes the importance of being able to design and produce custom coils for our customers. We work closely with clients to understand their needs, while assuring quality, performance, and durability. The Engineering Departments are staffed with personnel that have the insight and practical experience to ensure custom-engineered and cost-effective coil designs for specific applications. Super Radiator engineers constantly strive to develop new designs and methods in heat transfer technology, promoting enhancement of coil performance. The Windows-based programs that are used by engineering personnel augment our ability to perform these tasks.

“Super Radiator engineers constantly strive to develop new designs and methods in heat transfer technology”

Super Radiator’s three manufacturing facilities are outfitted with fin lines and tube cutoff and bending machines equipped with the latest technological advances. These machine tools are designed to handle a variety of materials including copper, aluminum, cupro-nickel, carbon steel, stainless steel, and hastelloy. All of these materials can be used for both tubes and fins in the construction of a Super Radiator coil. A wide variety of tube wall thicknesses are available ranging from .012" to .109", along with fin thicknesses ranging from .0045" to .020", depending on the materials selected.

Once a coil order reaches the production stage, its assembly begins with the production of fins and tubing that may include either straight tubes or hairpins.

The next step of assembly involves the expansion of the tubes into the fins using either hydraulic or mechanical techniques to form a permanent metal-to-metal bond for maximum heat transfer and stability. Then the coil is thoroughly cleaned using a degreasing process, after which a craftsman brazes or welds the coil joints. These well-trained craftsmen use their experience and proven techniques to ensure leak-free joints. Following brazing and welding, all coils are leak-tested under water using high-pressure dry nitrogen.



After making its way through the production department, the coil is ready to be shipped. All coils are transported in custom-built crates, which guarantee their safe arrival to the customer.





“We realize that the service is just as important as the quality of our products.”



Since 1927, Super Radiator Coils has been providing high-quality products to our customers. We have a long-standing tradition in excellence and unparalleled customer service. We realize that the quality of our service is just as important as the quality of our products. Therefore, whether you contact one of our representatives or one of our facilities directly, you will always find courteous and experienced personnel to assist you.

We stand behind our products and offer great flexibility in building just the right coil for our customers. Our trained engineers can identify possible concerns and offer alternatives, which can extend the service life of the coil. Commitment to continuity is vital at Super Radiator Coils. As a result, our customer service representatives work closely with our customer keeping them informed of the status of an order or scheduling modifications.

Super Radiator Coils has three well-equipped facilities to serve customers, enabling us to provide shipping in two to three days, further enhancing JIT (Just-In-Time) scheduling, ensuring on-time delivery, and providing backup fabrication capabilities.

A highly recognized degree of quality goes into every coil that Super Radiator Coils produces. Starting from the time an order is received all the way through to the shipping department, we make sure that every coil is fabricated to specifications, tested, approved, and complies with required certification standards. Super Radiator Coils offers NDE (Non Destructive Examination) services performed by a Certified Level II SNT-TC-IA Inspector, including Radiographic Testing, Ultrasonic Testing, Magnetic Particle Testing, Liquid Penetrant Testing, and Visual Examination. Each coil design is sized individually by our Engineering personnel using computer-aided selections to achieve proper performance. We also design and produce products that are environmentally friendly, yet still meet every heating and cooling requirement of the industry. Super Radiator Coils guarantees hands-on attention throughout the manufacturing process to ensure the standard of quality that we stand behind.



CUSTOMER SERVICE
 CUSTOMER SERVICE
 CUSTOMER SERVICE
 QUALITY
 QUALITY
 QUALITY

WATER-GLYCOL HOT OILS GAS-FLUIDS COILS



At Super Radiator Coils, we design coils for comfort and space conditioning, as well as a wide variety of industrial and process applications. We offer a large selection of fin patterns and circuiting arrangements to optimize the efficiency of our coil design. A full range of coil sizes, tube sizes, fin spacing, and coil connection orientations are also available.

We maintain a standard water coil design, which offers size flexibility. Our 5CW (chilled water) and 5HW (hot water) coil product lines have been extensively tested and are certified to ARI standard 410 for guaranteed operating performance. Our coils for hot oils or special fluids can be built with special materials and thicknesses to accommodate high temperatures, pressure, or the corrosive nature of the gas and/or fluid medium.

STEAM COILS

Our steam coils are designed for maximum steam loading and rapid condensate removal. Additionally, our steam-distributing coils are designed for operation in both modulated steam systems and freezing air environments. Steam coils constructed of copper tubes with copper or aluminum fins are suitable for steam pressures up to 150 PSIG. Our 5SS steam coil product line is ARI-certified for guaranteed performance.

We also manufacture custom heavy-duty coils that are constructed with cupro-nickel, carbon steel, or stainless steel and can withstand pressures of 300 PSIG and higher. We offer tube sizes with outside diameters of $\frac{3}{8}$ ", $\frac{7}{8}$ ", and 1". All of our steam coils are designed to accommodate thermal expansion and contraction of the coil in high temperature and pressure applications and can be built for various mounting and connection orientations.



CONDENSER COILS

Our condenser coils are available in single and multi-stage designs. The use of corrosion-resistant materials combined with our experience in the rooftop industry allow our units to perform excellently under the most severe operating conditions. Our designs can function in almost any condensing or heat reclaim application. These coils are also available with UL and CSA listings.



EVAPORATOR COILS

Our evaporator coils fulfill a wide range of applications from comfort cooling to ultra-low temperature refrigeration and vapor stripping. The various fin and tube combinations provide many options from wide or stage fin spacing, which handles frost, to small tube sizes that minimize refrigerant charge. Different circuiting arrangements offer various percentages of cooling control with distributors and headers sized for the specific application. We can work with a wide variety of standard and special refrigerants (including AMMONIA, R-123, R-508B, and many others) to meet almost any application requirement. Many of these coils are available with UL and CSA listing.

Fin Materials & Thicknesses

ALUMINUM	.0045" TO .020"
COPPER	.006" TO .020"
90/10 CUPRO-NICKEL	.008" TO .016"
CARBON STEEL	.008" TO .020"
STAINLESS STEEL	.008" TO .020"

Contact plant for other fin materials and thicknesses.

Fin Surface Patterns

$\frac{3}{8}$ " - 1" x $\frac{3}{4}$ "	$\frac{1}{2}$ " - $1\frac{1}{4}$ " x 1"	$\frac{5}{8}$ " - $1\frac{1}{2}$ " x 1.299"	$\frac{7}{8}$ " - $2\frac{1}{4}$ " x 1.949"
$\frac{3}{8}$ " - 1" x .866"	$\frac{1}{2}$ " - $1\frac{1}{4}$ " x 1.08"	$\frac{5}{8}$ " - $1\frac{1}{2}$ " x $1\frac{1}{2}$ "	1" - 3" x 2"
$\frac{3}{8}$ " - 1" x 1"	$\frac{1}{2}$ " - $1\frac{1}{2}$ " x 1.299"	$\frac{5}{8}$ " - $1\frac{3}{4}$ " x 1.516"	1" - 3" x 2.6"
$\frac{3}{8}$ " - $1\frac{1}{4}$ " x 1"	$\frac{1}{2}$ " - $1\frac{1}{2}$ " x $1\frac{1}{2}$ "		
$\frac{3}{8}$ " - $1\frac{1}{4}$ " x 1.08"			

Tube OD & Thickness

TUBE OD	ALUMINUM	COPPER	CUPRO-NICKEL	CARBON STEEL	STAINLESS STEEL
$\frac{3}{8}$ "	.025" TO .049"	.012" TO .049"	.022" TO .035"	.035"	.028" TO .035"
$\frac{1}{2}$ "	.035" TO .065"	.016" TO .065"	.022" TO .035"	.035" TO .049"	.035" TO .049"
$\frac{5}{8}$ "	.049" TO .065"	.020" TO .065"	.025" TO .049"	.035" TO .065"	.035" TO .065"
$\frac{7}{8}$ "	.049" TO .065"	.049" TO .109"	.049" TO .109"	.049" TO .109"	.035" TO .065"
1"	.049" TO .109"	.031" TO .109"	.049" TO .065"	.049" TO .109"	.035" TO .083"

Optional tubing: Brass, Hastelloy, AL-6XN, and other materials



ASME “S” STAMP—AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Coils meet the requirements of the ASME Boiler and and Pressure Vessel Code for Power Boilers under Section I of the code.



ASME “N” and “NPT” STAMP—AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Coils meet the requirements of the ASME Boiler and Pressure Vessel Code for Nuclear Vessels and Appurtenances under Section III, Division 1 of the Code.



ASME “U” STAMP—AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Coils constructed in accordance with the requirements of the ASME Boiler and Pressure Vessel Code for Unfired Pressure Vessels under Section VIII/Division I of the code.



ASME “UM” STAMP—AMERICAN SOCIETY OF MECHANICAL ENGINEERS
Coils constructed in accordance with the requirements of the ASME Boiler and Pressure Vessel Code for Unfired Pressure Vessels under Section VIII/Division I of the code.

CRN

CRN—CANADIAN REGISTRATION NUMBER
Super Radiator Coils can provide coils that are certified in accordance with the Canadian “Boiler, Pressure Vessel and Pressure Piping Code (B51-97).”



CE—EUROPEAN “CONFORMITÉ EUROPÉEN” MARK
Super Radiator Coils is capable of supplying coils with a CE Mark in compliance with the European Pressure Equipment Directive, Category I.

ARI

ARI-410—ARI - AIR CONDITIONING & REFRIGERATION INSTITUTE
Super Radiator Coils is a participating company in the ARI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program and can provide ARI-certified chilled water, hot water, and steam coils within the scope of ARI Std 410.



UL 207—UNDERWRITER’S LABORATORIES
Super Radiator Coils routinely manufactures evaporator, condenser, steam, and water coils, which are recognized by Underwriter’s Laboratories and built in accordance with the requirements of UL 207 and ANSI/ASHRAE Std 15, the Safety Code for Mechanical Refrigeration.



CSA—CANADIAN STANDARDS ASSOCIATION
Additional options for our customers are refrigerant coils that are certified with CSA and built in compliance with Std C22.2 and all provisions governing that certification.



INTERTEK - ETL SEMKO
Refrigerant coils for high pressure R-410A service are listed with ETL in accordance with the requirements of the Standard for Safety Heating and Cooling Equipment. (ANSI/UL 1995 and CAN/CSA C22.2)



HERESITE™

Heresite is a baked phenolic coating that can withstand exposure to many corrosive and chemical fumes. This coating has a maximum temperature resistance of 400° F.

ACRYLIC

Acrylic is an aluminum fin coil coating that is resistant to organic/inorganic acids (less than 10% concentrate), alkalis, salts (less than 20% concentrate) and many solvents. This coating is particularly good in acidic or caustic environments (i.e. food acids).

ELECTROFIN™

ElectroFin is a dip coating process that guarantees edge coverage, uniform thickness, and adhesion to metallic surfaces, including aluminum, copper, and steel (galvanized and stainless). This coating is resistant to fumes containing acids, alkalis, salts, sulfates, alcohols, and other solvents.

EPOXY POWDER COATING

Epoxy powder coating can be applied to steel, copper, galvanized steel, and aluminum. It is mostly used for aesthetic purposes, as it can be applied in any color. This coating does have some corrosion resistance that is dependent on the particular brand of epoxy powder being used.

ELECTROPOLISH

Stainless steel can be electropolished, or smoothed, to improve corrosion resistance. This process brings the chromium, already present in the stainless steel, to the surface of the material. Unlike a plating process, an electropolish surface is permanent.

NICKEL PLATE

Nickel plating can be applied through an electrostatic (does not guarantee uniformity throughout coil) or electro-less (guarantees uniformity) process and is resistant to acids, alkalis, salts, seawater, and chlorides. Nickel plating is more wear-resistant than tin plating and has a bright, shiny appearance.

PRE-COATED

Super Radiator Coils can produce coils with pre-coated fin stock. Generally, coated fin stock is corrosion resistant (salt spray) and provides decorative features. Types of coated fin stock include silicone polyester, tin, and hydrophilic.

IRIDITE

Iridite is a protective chromate conversion film (yellow appearance) used for corrosion resistance. Iridite is also a good primer for painting.

TIN PLATE

Tin plating is similar to nickel plating and is used for corrosion resistance. It has a soft, dull finish with a less dense deposit than nickel.

HOT-DIP GALVANIZED

Hot-dip galvanized is a zinc coil coating that is resistant to corrosion from food acids.

For over 75 years, Super Radiator Coils has continued to design and manufacture custom coils for a wide selection of applications and industries. We provide value to our customers by catering to their specific needs. The following is a partial list of the industries and applications that we support.



INDUSTRIES

- Agricultural**
- Ammonia**
- Chemical**
- Clean Rooms**
- Compressed Air**
- Environmental Chambers**
- Food Processing**
- Fuel Cell**
- HVAC Equipment**
- Industrial Process**
- Laundry and Dry Cleaning**
- Natural Gas**
- Petroleum**
- Pharmaceutical**
- Plastics**
- Power Generation**
- Pulp & Paper**
- Refrigeration**
- Replacement Coils**
- Textile**
- Transportation**



APPLICATIONS



- Compressor Inter/After Cooling**
- Cryogenic**
- Engine Cooling**
- Engine/Motor Cooling**
- Gas-to-Gas Cooling**
- Heat Reclaim**
- Oil Cooling**
- Plume Abatement**
- Portable Power Cooling**
- Power Plant Cooling**
- Refrigerated Display Cases**
- Solvent Recovery**
- Turbine Inlet Cooling**
- Wind Tunnel**



1/2" OD copper tube and aluminum fin evaporator coil. The fin spacing is varied in the direction of the air flow to handle frost buildup, and the fins are notched to accommodate electric defrost elements.



Water coil used for electronics cooling on a mobile cart. The coil assembly was designed to be ready for the mounting of the fan and motor by the customer.



304L 3/8" stainless steel contaminated oil cooling coil for corrosive atmosphere applications



Large face area 3/8" OD copper tube and aluminum fin condenser coil for a condensing unit application. The circular shape occupies a small footprint, and the open center section houses the fan and compressor.



All stainless steel polypropylene glycol-cooling coil with stainless steel plate fins spaced at 1.5 fins per inch to handle severe frost buildup. This coil is used in refrigerated food processing.



Water coil with stainless steel tubes, copper fins, and built-in air bypass ducting. This coil is designed for micro-turbine heat recovery applications.



Copper tube evaporator coil designed for installation in a heat pump application for aircraft ground support equipment. The intricate refrigerant distribution tubing is held in close to the manifold to fit a confined space. Multiple headers and distributors permit coil operation in a variety of environments.



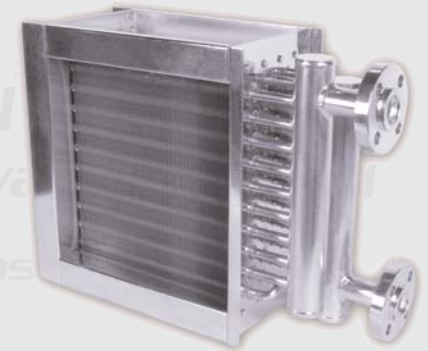
Three-row steam coil with stainless steel tubes, copper fins, and welded half-pipe header. This coil is designed for food processing smokehouses.



84"x 384", multi-stage condenser coil with copper tube and aluminum fin construction. This coil was exported to Hong Kong as a replacement for an existing rooftop installation.



Stainless steel, ASME Section VIII, Division 1 "U" stamped, electro-polished chilled water coil with copper fins and removable cover headers. This design is used where optimum thermal efficiency must be maintained and minimal down time is critical.



All 316L stainless steel hot water-heating coil for drying pharmaceutical products. The smooth electro-polished, mirror-like finish makes the coil easier to sanitize.

Custom-designed flue stack gas hydrocarbon condenser using LN2 on the tube side as the cooling medium. This ASME-rated vessel cools 100 PSIG compressed air through a 28-row finned, chilled water coil. It achieves maximum cooling in minimal space, and has low air friction loss.



40" x 133", 16 row flooded ammonia-cooling coil with carbon steel 3/8" OD tubes and .012" thick fins. Entire coil is hot-dipped galvanized and is used to freeze packaged vegetables and food.



Hot-dipped galvanized, ASME Section VIII, Division I "UM" stamped water coil for air handling unit. Used for oil/gas drilling applications.



3/8" OD x .065" bare carbon steel tube, ASME "U" stamped cooling coil. The header box includes removable plugs for cleaning and is designed to float during thermal expansion. These coil features are required for the rigorous application of drying compressed wood fiberboard.



7/8" OD stainless steel tube, flooded ammonia coil designed for vertical airflow textile dryers. The .020" thick aluminum fins, at 3 fins per inch, handle condensation, minimize fiber fouling, and are easy to clean.



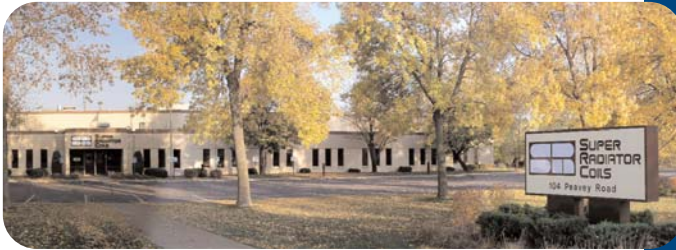
All stainless steel heat recovery coil with 4 fins per inch to handle fouling in a corrosive and volatile chemical exhaust gas atmosphere. The coil casing is 1/16" thick stainless steel for stack strength and containment in an air tight housing.



**SUPER
RADIATOR
COILS™**

An Employee-Owned Company

**451 Southlake Boulevard
Richmond, VA, USA 23236-3091
P. 804-794-2887
F. 804-379-2118
1-800-229-2645
vainfo@superradiatorcoils.com**



**104 Peavey Road
Chaska, MN, USA 55318-2324
P. 952-556-3330
F. 952-556-3331
1-800-394-2645
mninfo@superradiatorcoils.com**

**2610 South 21st Street
Phoenix, AZ, USA 85034-6790
P. 602-257-9708
F. 602-257-0472
1-800-899-2645
azinfo@superradiatorcoils.com**



www.superradiatorcoils.com