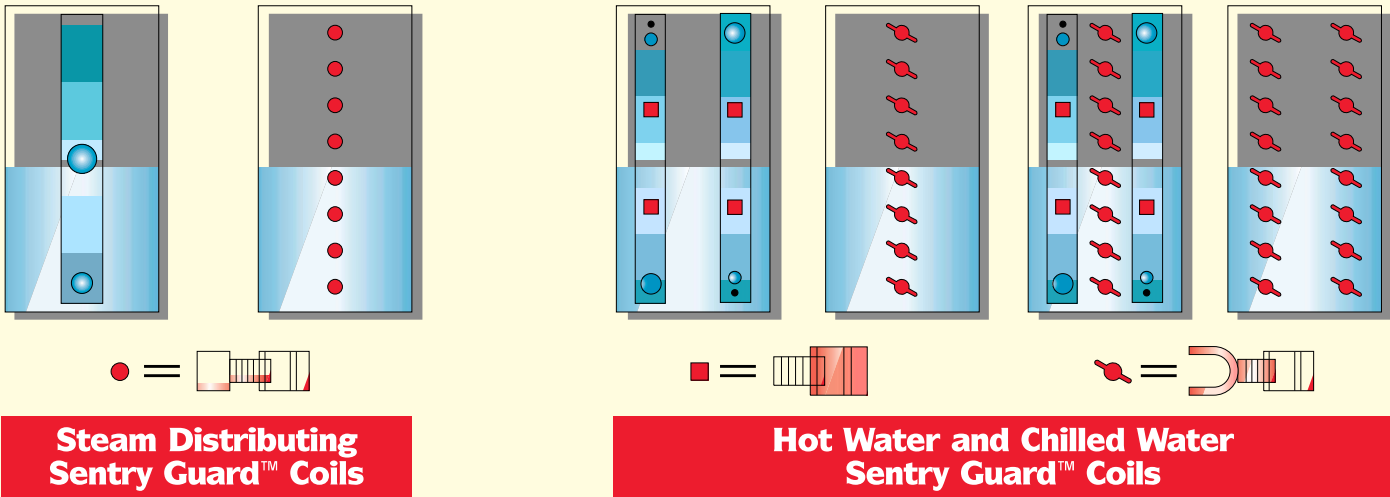




## Sentry Guard™ Freeze Relief Caps Types and Typical Arrangements



## Sentry Guard™ Burst Proof Coil Applications

### 1. Preheat Coils

Steam/Hot Water— 100% outside air, where air is 40 degrees F. or lower. The system may have built-in controls, freezstats, etc. to prevent freezing. But often these systems fail do to failure of these controls. Sentry-Guard™ becomes the “Last Line of Defense” against freeze damage.

### 2. Chilled Water Coils

Coils that are in operation during the winter and may experience freezing air temperatures. The coil may see 60 degree F. air one day and 25 degree F. air the next day. Chilled water coils can be 5 to 10 times as expensive to replace as heating coils due to increased rows, size, weight, etc.

### 3. Make-up Air Systems

Many applications such as kitchens, health facilities and industrial applications require 100% exhaust. These systems work 365 days a year and any mechanical malfunction can cause heating or cooling coils to freeze.

### 4. Idle Chilled Water Coils

During the winter, chilled water coils not in operation need to be totally drained or filled with a mixture of glycol/water, which is costly and corrosive. These are standard maintenance procedures, which often are ignored or not accomplished very well in most systems. Sentry-Guard™ requires partial draining (which is what is done most of the time anyway.) The worst case is that freezing occurs in small areas of the coil and that a few inserts rupture. Upon start-up in the spring, easy replacement of the inserts is all that is necessary to get the coils working. Complete coil replacement is not necessary.

# Q&A

## Sentry Guard™ Burst Resistant Coils Questions & Answers

### Q. What is a "Sentry Guard"™ Coil?

A. It is a hot water, steam or chilled water coil that is guaranteed\* to be burst resistant in any HVAC system or process heating or cooling system.

### Q. What is the benefit to the end user?

A. There are numerous systems that have freezing environments that cause partial or full damage to a coil because of a "freeze". The cost in downtime, repairs and replacement make this coil a real bargain.

### Q. What is the benefit to the service contractor?

A. Many service contracts require most systems to be as "freeze resistant" as possible. This is the guaranteed last line of defense against major coil damage.

### Q. What are some hidden damages to the heat exchanger coil during a "freeze cycle"?

A. When a coil receives freeze damage, many times there are initial leaks found and repaired, which can cause performance reduction. At the same time, walls of tubes and return bends may be weakened that will cause major problems in the upcoming seasons.

### Q. How do I know that the Sentry Guard™ coils work?

A. USA Coil & Air developed this patented product over a period of four years. We tested all of the coils in the laboratory as well as extensive tests in International Falls, Minnesota with ambient temperatures as low as minus thirty degrees F. Based on this testing, USA is offering a 30 month burst protection warranty. Simply, we wouldn't offer this extraordinary warranty if it didn't work.

### Q. Explain to me, in a way I can understand, how Sentry Guard™ coil series works?

A. USA Coil installs patented "Freeze Relief Plugs" on all applicable return bends, headers and tube stubs. They become a designated pressure point. When the pressure rises to 650 PSIG, the pressure relief plug within the circuit will rupture. Tests have shown that coil damage (bloating of tubes or splits) won't happen until at least 1,000 PSIG or higher. HVAC coil operating pressure is never above 200 PSIG and quality control testing at the factory never exceeds 400 PSIG for copper tube coils. Therefore, designated relief pressure is above any lifetime pressure except a "freeze cycle".

### Q. I thought that the formation of ice and the expansion process of liquid to solid is what caused the damage. Isn't that true?

A. No, it is the pressure inside the coil circuit that eventually causes the damage. It is a "hydraulic" related pressure, not a "change in state" pressure. The pressure will rupture the "weakest point" inside the circuit. It may be the tubes or return bends, but failure will always be above 1,000 PSIG with a properly built HVAC coil. Again, we are designating the failure point at the pressure relief plug. Therefore, the entire coil is protected from damage.

### Q. Do I still need anti-freeze in my preheat water coils?

A. Yes and no. Let's review some applications to specifically answer this question. Preheat water heating coils may or may not need anti-freeze, based on your system and its controls. The worst that can happen during a "freeze" is that several relief plugs may rupture. The system will be down, and defrosted water may leak out of the coil at the plug(s). This "freeze" condition may only happen a handful of times in the life of the coil, because of a mechanical malfunction that holds water in coil. In this case, you may want the system without anti-freeze.

The answer might be "yes", if your system cycles on and off thus holding water in the coil a great deal of the time. Sometimes, just any down time, even if it is an hour, can't be tolerated.

The answer might be "no", if you are located in a part of the country where ambient temperatures are rarely below freezing. States such as Georgia, Mississippi, Florida, Alabama, Louisiana, Texas, New Mexico, Arizona and California would be perfect examples. The chance of a "freeze cycle" is reduced.

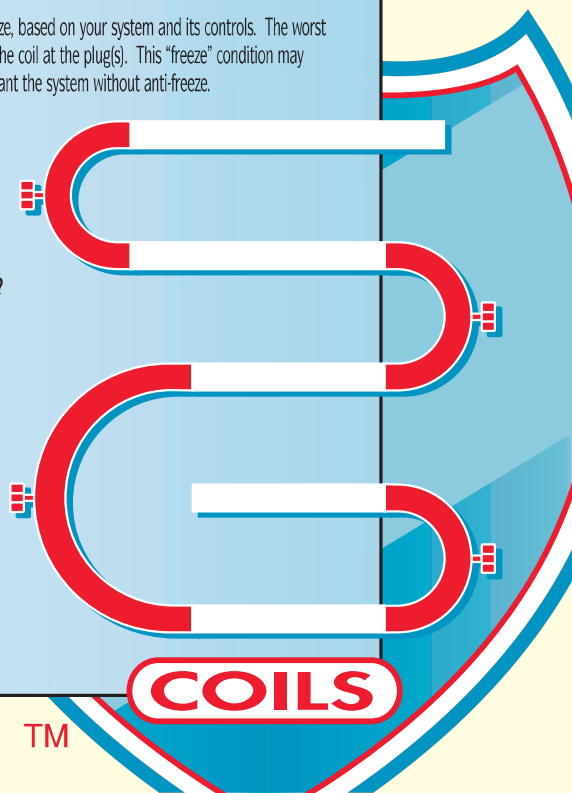
### Q. What about a water coil that stays totally idle during the winter season? Do I have to add anti-freeze or drain the coil completely?

A. Again, the worst scenario during a "freeze cycle" with a Sentry Guard™ coil is that a few pressure relief inserts burst. With the idle coil, drain most of the water out of coil. That's all you need to do. When you are placing the coil back into operation in spring, just inspect inserts, replace as required and you are back in operation. No more expensive, corrosive glycol.

### Q. Do I still need steam distributing (sometimes referred to as non-freeze) coils with Sentry Guard™?

A. In most cases, you probably do because steam distributing coils serve a very important purpose besides freeze protection. Steam needs an inner tube (especially with modulating steam) to properly distribute steam in a uniform manner down the entire length of each and every tube. Without this even distribution, coil air temperatures can be very uneven and performance may be reduced.

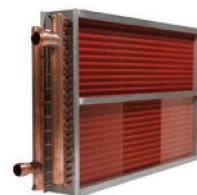
Remember, a steam distributing coil does offer some freeze protection if the coil sees freezing temperatures. If any coil pulls a negative pressure and condensate is held in the tubes with cold air being distributed on the outside of the coil at the same time, then even a steam distributing coil can get freeze damage. One third of the coils USA Coil replaces are steam distributing coils with freeze damage.



Whether you need replacement coils for an existing HVAC/Heat Exchange system or a totally new design, we have the expertise and the equipment to meet your needs. Standard and custom designs are available. Our cutting edge coil sizing/selection program is the most intuitive and easy to use sizing software application in the industry. Our software quickly generates performance charts & drawings to match your specification needs.

## EXISTING COIL REPLACEMENT

USA Coil & Air has an extensive library of OEM designs and can help with the replacement of all major OEM manufactured coils, including but not limited to: Carrier, Trane, McQuay, York, Heatcraft, Aerofin, American-Standard, Bohn, Colmac, Marlo and more.



## QUICK SHIPMENT OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines. All our coils can be built on our 5 or 10 working day Expedited Schedule. Under emergency circumstances, some coils can be built in as little as 1 day.



## COATING AVAILABILITY

USA Coil uses "Fin-KOTE", an 8th generation E-Coat designed for extreme environments, with high edge build for improved life, high flexibility for bending and improved handling, and corrosion protection like no other coating can provide. Corrosion resistance is superior to other coating application methods because immersion E-Coat provides a complete, uniform coating – even in corners, on edges and in hard to reach, partially enclosed spaces. Because the applied coating contains very little water, there are no runs or sags and parts can be handled almost immediately. Consistent, controlled application without spray gun error nearly eliminates the need for manual touch ups.



## SENTRY GUARD™ BURST RESISTANT COILS

Patented burst resistant design guarantees against freeze damage. Developed by USA Coil & Air, Sentry Guard™ addresses the need for freeze protection by providing internal pressure relief well before catastrophic damage occurs. Our Sentry Guard™ plugs can be manufactured with any new or replacement coil that handles water or steam.

If you have a system that is prone to freezing or it is very important it never be down then Sentry Guard™ series coils from USA should be your go-to choice.



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## MATERIALS & SPECIFICATIONS

Our chilled and hot water coils are offered in same or opposite end designs with a wide choice of tube, fin and material options along with multiple circuitry availability. All coils are constructed with plate fins and seamless tube construction.



### TUBES

Seamless copper tubes shall be mechanically expanded into plate aluminum or copper fins to form an everlasting bond between primary and secondary surfaces. Tubes are to be mechanically expanded into fins (secondary surface) for maximum heat transfer.



### FINS

Secondary surface (fins) shall be of the plate-fin design using aluminum or copper, with die-formed collars. Fin design to be flat, waffle, or sine-wave in a staggered tube pattern to meet performance requirements. Collars will hold fin spacing at specified density, and cover the entire tube surface. Fins are to be free of oils and oxidation.



### HEADERS

Headers (manifolds), if required, shall be constructed of a minimum .060" wall seamless copper. Die-formed copper end caps are brazed on the inside of the headers, and rounded so as to prevent excessive pressure drop. (Unless spun-closed — for sizes up to 1-3/8") All coils shall be provided with 1/4" vents and drains.



### CONNECTIONS

Connection is to be sweat type (SWT), MPT or FPT Grooved or flanged as required.



### CASING

Coil casing material shall be galvanized steel at a 16 gauge minimum. Heavier material, stainless steel, copper or aluminum casings are available as required. Intermediate supports are required every 42" of finned length and shall be bolted to top and bottom casing channels. Coil casings on top and bottom of coils are to have double-flange construction, allowing for vertical stacking of coils.



### PRESSURE TESTING

Coils shall be tested at 550 psig using dry nitrogen, submerged under water. Dual-operator verification shall determine that all coils are leak-free.

Fluid coils are guaranteed up to a maximum 300° F operating temp, and 250 psig maximum operating pressure.



### CERTIFICATION

All fluid coils designed with 1/2" or 5/8" tubes are to have ARI Standard 410 certification and shall bear the ARI symbol. Coils outside the scope of ARI's standard rating conditions or certification program will be acceptable to ARI since USA Coil is a current member of the ARI coil certification program, and coils will be rated in accordance with the ARI Standard 410.

## FLUID COILS (HW & CW)

Standard / Base in **Bold** Below

Tube O.D.	Tube Thick	Optional Tube	Fin Thick	Optional Fin
3/8"	<b>.014</b>	.016 .022	<b>.005</b>	.006 .0075
1/2"	<b>.016</b>	.025	<b>.006</b>	.0075 .010
5/8"	<b>.020</b>	.025 .035 .049	<b>.006</b>	.0075 .010

## FLUID COILS (HW & CW)

	Standard	Optional
Fin Material	<b>Aluminum</b>	Copper; Stainless Steel
Casing Material	<b>Galv. Steel 16 gauge</b>	Galv. Steel 14 gauge Stainless Steel 16 gauge
Connection Material	<b>Copper</b>	Steel; Red Brass
Tube Material	<b>Copper</b>	Stainless Steel • Cupro Nickel • Carbon Steel
Header Material	<b>Copper</b>	SS Tube will have SS HDR(s) • Cupro Nickel Tubes will have Cupro Nickel HDR(s) • Carbon Steel Tubes will have Carbon Steel HDR(s)

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Whether you need replacement coils for an existing HVAC/Heat Exchange system or a totally new design, we have the expertise and the equipment to meet your needs. Standard and custom designs are available. Our cutting edge coil sizing/selection program is the most intuitive and easy to use sizing software application in the industry. Our software quickly generates performance charts & drawings to match your specification needs.

## EXISTING COIL REPLACEMENT

USA Coil & Air has an extensive library of OEM designs and can help with the replacement of all major OEM manufactured coils, including but not limited to: Carrier, Trane, McQuay, York, Heatcraft, Aerofin, American-Standard, Bohn, Colmac, Marlo and more.



## QUICK SHIPMENT OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines. All our coils can be built on our 5 or 10 working day Expedited Schedule. Under emergency circumstances, some coils can be built in as little as 1 day.



## COATING AVAILABILITY

USA Coil uses "Fin-KOTE", an 8th generation E-Coat designed for extreme environments, with high edge build for improved life, high flexibility for bending and improved handling, and corrosion protection like no other coating can provide. Corrosion resistance is superior to other coating application methods because immersion E-Coat provides a complete, uniform coating – even in corners, on edges and in hard to reach, partially enclosed spaces. Because the applied coating contains very little water, there are no runs or sags and parts can be handled almost immediately. Consistent, controlled application without spray gun error nearly eliminates the need for manual touch ups.



## SENTRY GUARD™ BURST RESISTANT COILS

Patented burst resistant design guarantees against freeze damage. Developed by USA Coil & Air, Sentry Guard™ addresses the need for freeze protection by providing internal pressure relief well before catastrophic damage occurs. Our Sentry Guard™ plugs can be manufactured with any new or replacement coil that handles water or steam.

If you have a system that is prone to freezing or it is very important it never be down then Sentry Guard™ series coils from USA should be your go-to choice.



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## MATERIALS & SPECIFICATIONS

Our steam coils are available with opposite or same end connections, and are designed to withstand up to 150 psig saturated steam supply pressure. We often recommend pitched casing for quick condensate removal in Steam Distributing coils. Optional Sentry Guard™ freeze resistance available.

### TUBES



Seamless copper tubes shall be mechanically expanded into plate aluminum or copper fins to form an everlasting bond between primary and secondary surfaces. Tubes are to be mechanically expanded into fins (secondary surface) for maximum heat transfer.

### FINS



Secondary surface (fins) shall be of the plate-fin design using aluminum or copper, with die-formed collars. Fin design to be flat, waffle, or sine-wave in a staggered tube pattern to meet performance requirements. Collars will hold fin spacing at specified density, and cover the entire tube surface. Fins are to be free of oils and oxidation.

### HEADERS



Headers (manifolds), shall be constructed of a minimum .060" wall seamless copper. Die-formed copper end caps are brazed on the inside of the headers, unless spun-closed (for sizes up to 1-3/8"). Steam Distributing coils shall utilize a header within a header design to facilitate freeze protection.

### CONNECTIONS



Connection is to be sweat type (SWT), MPT or FPT Grooved or flanged as required. Connections shall be sized to accommodate supply steam and condensate loads.

### CASING



Coil casing material shall be galvanized steel at a 16 gauge minimum. Heavier material, stainless steel, copper or aluminum casings are available as required.

Intermediate supports are required on all coils 48" of finned length and longer. Coil casings on top and bottom of coils are to have double-flange construction, allowing for vertical stacking of coils.

### PRESSURE TESTING



Coils shall be tested at 550 psig using dry nitrogen, submerged under water. Dual-operator verification shall determine that all coils are leak-free.

Steam coils are guaranteed up to a maximum 150 psig saturated steam supply pressures with appropriate wall thickness.

### CERTIFICATION



All steam coils are ARI Standard 410 certification and shall bear the ARI symbol. Coils outside the scope of ARI's standard rating conditions or certification program will be acceptable to ARI since USA Coil is a current member of the ARI coil certification program, and coils will be rated in accordance with the ARI Standard 410.

## STEAM COILS

Standard / Base in **Bold** Below

Tube O.D.	Tube Thick	Optional Tube	Fin Thick	Optional Fin
5/8"	<b>.025</b>	.035 .049	<b>.006</b>	.0075 .010
1" (SD Only)	<b>.035</b>	.049	<b>.010</b>	N/A

## STEAM COILS

	Standard	Optional
Fin Material	<b>Aluminum</b>	Copper; Stainless Steel
Casing Material	<b>Galv. Steel 16 gauge</b>	Galv. Steel 14 gauge Stainless Steel 16 gauge
Connection Material	<b>Copper</b>	Steel; Red Brass
Tube Material	<b>Copper</b>	Stainless Steel • Cupro Nickel • Carbon Steel
Header Material	<b>Copper</b>	SS Tube will have SS HDR(s) • Cupro Nickel Tubes will have Carbon Steel HDR(s) • Carbon Steel Tubes will have Carbon Steel HDR(s)

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## EXISTING COIL REPLACEMENT

USA Coil & Air has an extensive library of OEM designs and can help with the replacement of all major OEM manufactured coils, including but not limited to: Carrier, Trane, McQuay, York, Heatcraft, Aerofin, American-Standard, Bohn, Colmac, Marlo and more.



## QUICK SHIPMENT OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines.



All our coils can be built on our 5 or 10 working day Expedited Schedule. Under emergency circumstances, some coils can be built in as little as 1 day.

## COATING AVAILABILITY

USA Coil uses "Fin-KOTE", an 8th generation E-Coat designed for extreme environments, with high edge build for improved life, high flexibility for bending and improved handling, and corrosion protection like no other coating can provide. Corrosion resistance is superior to other coating application methods because immersion E-Coat provides a complete, uniform coating – even in corners, on edges and in hard to reach, partially enclosed spaces.



Because the applied coating contains very little water, there are no runs or sags and parts can be handled almost immediately. Consistent, controlled application without spray gun error nearly eliminates the need for manual touch ups.



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## MATERIALS & SPECIFICATIONS

Our condenser coils are intended for use with a wide range of applications and refrigerant types. Coils are to be designed to maximize performance under specified conditions with minimal air-side pressure drop.

### TUBES



Seamless copper tubes shall be mechanically expanded into plate aluminum or copper fins to form an everlasting bond between primary and secondary surfaces. Tubes are to be mechanically expanded into fins (secondary surface) for maximum heat transfer.

### FINS



Secondary surface (fins) shall be of the plate-fin design using aluminum or copper, with die-formed collars. Fin design to be flat, waffle, or sine-wave in a staggered tube pattern to meet performance requirements. Collars will hold fin spacing at specified density, and cover the entire tube surface. Fins are to be free of oils and oxidation.

### HEADERS



Headers (manifolds), shall be constructed of a minimum .060" wall seamless copper. Die-formed copper end caps are brazed on the inside of the headers, unless spun-closed (for sizes up to 1-3/8").

### CONNECTIONS



Connection is to be copper sweat type (SWT), and shall be shipped with caps on connections.

### CASING



Coil casing material shall be galvanized steel at a 16 gauge minimum. Heavier material, stainless steel, copper or aluminum casings are available as required.

Intermediate supports are required on all coils 48" of finned length and longer. Coil casings on top and bottom of coils are to have double-flange construction, allowing for vertical stacking of coils.

### PRESSURE TESTING



Coils shall be tested at 550 psig using dry nitrogen, submerged under water. Dual-operator verification shall determine that all coils are leak-free.

Coils shall be shipped with nitrogen charge to verify leak-free integrity, and to prevent moisture migration into coil.

### CERTIFICATION



Coils shall be UL recognized as Refrigerant Containing Component. Coils to be used with refrigerant R-410A shall have undergone cycle testing, and shall be safety listed with 750 psig rating.

### CONDENSER COILS

Standard / Base in **Bold** Below

Tube O.D.	Tube Thick	Optional Tube	Fin Thick	Optional Fin
<b>3/8"</b>	<b>.014</b>	.016 .022	<b>.005</b>	.006 .0075
<b>1/2"</b>	<b>.016</b>	.025	<b>.006</b>	.0075 .010
<b>5/8"</b>	<b>.020</b>	.025 .035 .049	<b>.006</b>	.0075 .010

### CONDENSER COILS

	Standard	Optional
Fin Material	<b>Aluminum</b>	Copper; Stainless Steel
Casing Material	<b>Galv. Steel 16 gauge</b>	Galv. Steel 14 gauge Stainless Steel 16 gauge
Connection Material	<b>Copper</b>	N/A
Tube Material	<b>Copper</b>	N/A
Header Material	<b>Copper</b>	N/A

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USA Coil & Air uses “FinKOTE”, an 8th generation E-Coat designed for extreme environments, with high edge build for improved life, high flexibility for bending and improved handling, and corrosion protection like no other coating can provide.

Only FinKOTE offers pretreatment technology options to ensure your coils have the proper protection for the intended application. By using an Advanced Zirconium Oxide Pretreatment, FinKOTE maximizes corrosion resistance to environmental conditions and reduces corrosion “creep-back”.

With the addition of advanced Top Coat options, FinKOTE can be modified to provide enhanced UV resistance, higher abrasion resistance, lower coefficient of friction or to become NSF compliant. Hydrophilic and hydrophobic properties can also be incorporated into the FinKOTE System.

#### **FinKOTE ADVANTAGE**

- Round tube, plate fin coils up to 36 FPI
- Max Coil Dimensions: 342” L x 102” H x 33.6” D
- Zirconium Oxide Pretreatment
- UV Top-coat Options
- Formicary Corrosion Resistant
- 6900 Hours of SWAAT Test Resistance
- Low VOC’s
- 100% Coverage
- Very Flexible
- Short Lead Times
- High Edge Film-Build

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#### **PRETREATMENT**

Parts are cleaned and pretreated with a conversion coating to prepare the part for electro-coating.



#### **ELECTRO-COAT**

Direct current is applied between the parts and an electrode. Paint is attracted by the electric field to the part where it is deposited.



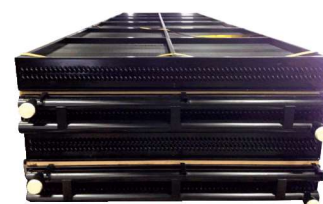
#### **RECOVERY**

Parts are rinsed to reclaim undeposited paint solids.



#### **CURE**

Paint is thermally cross-linked or cured.



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## FinKOTE ADVANTAGE

Corrosion resistance is superior to other coating application methods because immersion E-Coat provides a complete, uniform coating – even in corners, on edges and in hard to reach, partially enclosed spaces. Because the applied coating contains very little water, there are no runs or sags and parts can be handled almost immediately. Consistent, controlled application without spray gun error nearly eliminates the need for manual touch ups.

E-Coating dramatically cuts material costs because coating waste is minimal. Virtually all of the coating put in the tank goes on the products and stays on the product. In addition, low solvent, water-borne formulations make electro-coating the perfect environment-friendly finish for the new millennium and beyond.

PERFORMANCE TESTING		
TEST	SPECIFICATION	RESULTS
SWAAT Run to Fail	ASTM G85 A3	289 days (6936 hrs)
30 Day SWAAT + Adhesion	ASTM G85 A3, ASTM D3359	Pass, 4B
2400 hr Cyclic Corrosion + Burst	ASTM G85 A2	Pass, 2100 psig
Water Resistance	ASTM D870-09	Pass, 260 hrs, no flaking or chipping
Chipping Resistance	ASTM D3170	Pass, 7A
Steam Resistance	ASTM D714	Pass, 48hr, #6 or better
Humidity Resistance	ASTM D2247	Pass, 600 hrs, no blistering or gloss loss
UV & QUV Resistance	ASTM G53-88, D4587, D523	1000 hrs, no loss
Chemical Resistance		48 hr immersion resistance to over 200+ chemicals
Heat Transfer		<3%
Thickness	ASTM 376	.8 - 1.2 mil (E-coat)
1.8 - 4 mil (total)		
Flexibility	ASTM D4145, ASTM 522	2T, 5/8" mandrel
Impact Resistance	ASTM D2794-93	120 in. lbs, no cracking or chipping
Adhesion	ASTM 3359	5B

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From design/build to large project retrofit, USA Coil & Air has almost every type and size covered when it comes to direct drive fan coil units. As one of the few remaining manufacturers of these smaller, high demand units, we not only provide you with the broadest range of design options to suit your installation or exactly match a replacement, but we have your unit when you need it. Vertical and horizontal fan coils, ceiling, wall and room mounted units can be designed for just about any need or requirement. Special control systems and valve packages included.

## UNIT TYPES

- Two or four-pipe, Hydronic cooling/heating, Steam, Direct-Expansion (DX) and/or Electric Heat
- Galvanized steel for hidden units & painted cabinets for exposed units
- Direct Drive Horizontal 200 to 2000 CFM
- Direct Drive Vertical 150 to 2200 CFM

## ARRANGEMENTS

- Above the ceiling and exposed horizontal units
- Furred into wall and exposed vertical units
- Utility area and hallway designs

## HORIZONTAL FAN COIL UNITS

These affordable, compact units are perfect for installation in hotels, apartments, schools and other multi-office buildings as they take up minimal space, offering quiet operation and simplified maintenance. Offered in a variety of designs including low silhouette styling, telescoping frames, exposed and concealed units with removable access panels. High-static models available.



## VERTICAL FAN COIL UNITS

Easily installed and easily maintained, our vertical fan coil units are ideal for heating and cooling in hospitals, office buildings, dorms, hotels and many other applications. These units can be installed exposed or concealed with insulated removable access panels for sound control and easy maintenance.



## VERTICAL - UTILITY/CLOSET UNITS

High-static, high performance, ducted vertical cased units with a choice of either bottom or front return. These units are primarily used in vertical floor-mounted or hideaway applications. The unit is furred into partition walls or hidden in closets, utility rooms and other concealed locations with a ducted discharge.



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## OPTIONS

- Different row combinations
- ECM motors
- Slope top & low boy designs
- Large capacity unit design
- Valve packages of all types
- Thermostats and controls
- Outside air for vertical models
- Optional grilles

## APPLICATIONS

- Hotels & Motels
- Condos, Apartments & Townhouses
- Hospital & Medical Facilities
- Nursing Homes
- Office Buildings
- Military bases
- Government facilities
- Schools & Universities
- Shopping Centers
- Pharmaceutical & Technology

## QUICK SHIPMENT OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines.

Many of our direct drive fan coil units can be built on our 10 or 20 working day Expedited Schedule.



## DESCRIPTIVE INFORMATION:

### BASIC UNIT

The basic unit and cabinet is fabricated of galvanized steel. Many units have decorative cabinets fabricated of heavy gauge steel, bonderized and finished with an attractive, oven-baked paint. The **condensate drain pan** is fabricated of galvanized steel with closed cell, fire retardant, foam insulation coating. Water never touches the metal pan; thus, the possibility of corrosion is minimized. **Removable pan extensions** are available at the coil header end of the horizontal unit to provide positive control of condensate from valves and controls. This extension, being easily removable, provides ready access to valves and piping after unit installation. Vertical units have a **removable front panel** lined with 1/2" woven glass fiber for thermal insulation and acoustic treatment. Removal of the front access panel provides access for easy servicing.

### COILS

Coils have 1/2" O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested under water and are suitable for design working pressures of 250 psig @ 200° F. A variety of coil selections are available. The standard coil provides adequate capacity for most installations with an 8 to 10° design water temperature rise. A high capacity coil is offered for those installations requiring higher latent heat capabilities or those designed for a 12° water temperature rise. Also offered is a four-pipe coil consisting of standard or high capacity cooling with one and two rows of heating surface.

### FILTERS

Standard filters are 1" throwaway glass fiber. Optional cleanable filters are available.

### FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

### MOTORS

All motors are resilient-mounted, three-speed, with UNDERWRITERS listed thermal overload protection. Motor bearings are of the sleeve type of ball bearing type with oversized oil reservoirs provided to assure positive lubrication with minimum servicing required. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are permanent split capacitor.

### CERTIFICATION

All horizontal and vertical series units are certified in compliance with AHRI. All units are also listed by UNDERWRITERS' LABORATORIES, INC. This listing signifies that USA Coil & Air's fan coil units have been examined by UL and found to be in complete compliance with applicable standards.

*Products and specifications subject to change without notice.*



When the application calls for cooling capacities or external static pressures that cannot be met with standard or high performance direct drive fan coil units & large central station units are a financial challenge, our belt drive air handlers are the perfect economical fit for your needs. They are great for simple, straight forward applications where the design is pretty plain vanilla for a horizontal or vertical application. The best applications for these units are when there is a space that requires less than 1.5" of external static pressure on the fan for ductwork, grilles and doesn't require a custom arrangement.



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## UNIT TYPES

- Light to medium duty
- Up to 1.5" external static pressure
- Ranging from 800 to 12,000 cfm (2 – 30 tons)
- Two or four-pipe, Hydronic cooling/heating, Steam, Direct-Expansion (DX) and/or Electric Heat
- Galvanized steel or painted cabinet
- Horizontal or vertical configurations

## HORIZONTAL & VERTICAL BELT DRIVE UNITS

Our horizontal & vertical belt drive units offer an economical, well-constructed & efficient alternative to both a large and more expensive central station air handler, along with features you won't find in a lower capacity direct drive unit. These draw-through designs are available for indoor applications and are equipped with blowers that can handle high static applications. Multiple designs for both concealed and exposed units with access doors on both sides of the units for easy maintenance and cleaning.



*Products and specifications subject to change without notice.*



## BELT DRIVE SINGLE WALL AIR HANDLERS

New & Retrofit

### OPTIONS

- Different insulations
- Valves and controls
- 1 to 10 row coils
- Mixing boxes
- Filter options
- Construction options
- Double wall

### APPLICATIONS

- Hotel Space
- Apartments
- Condominiums
- Hospital & Medical Facilities
- Nursing Homes
- Office Buildings
- Military locations
- Government facilities
- Schools & Universities
- Shopping Centers
- Pharmaceutical & Technology
- Industrial Space

### QUICK SHIPMENT OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines.

Our Belt Drive Air Handling Units come with a standard ship of 7-12 weeks with expedited shipments of 2, 4 & 6 weeks – availability limited, based on design, size and materials.



### DESCRIPTIVE INFORMATION:

#### CABINET

Heavy-gauge galvanized steel insulated with ½" thick, three pound density, neoprene coated fiberglass



#### COILS

½" OD copper tube with aluminum fins (12 FPI) equipped with manual-air vent. Coils are 100% underwater pressure tested at 350 PSI with a 300 PSI working pressure

#### DRAIN PAN

Galvanized and powder coated epoxy with a 1/8" thick closed-cell insulation and has primary and secondary drain connections



#### BLOWER & ASSEMBLY

Belt-drive, draw-through design with forward-curved and dynamically balanced blowers. Adjustable, variable-pitch drive sheave and cast-iron pulley keyed to motor shaft

#### CONTROLS & MOTORS

Controls & motors are factory-wired and terminated in a junction box for single-point power supply



#### FILTER

Two-inch thick, flat, 30 percent pleated efficiency filter, with spring loaded clips on each side of access door for easy maintenance without the use of tools.



#### CERTIFICATION

All horizontal and vertical series units are certified in compliance with AHRI and ETL; 100% factory tested.

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USA Coil & Air has been an industry leader in building air handlers for replacement and add-on applications for decades. We bring a proven unit design and the newest technology to deal with the special requirements of the existing facility. Matching existing foot prints, shipment and job site breakdown allows even the tightest units to be replaced. Many times an owner can actually replace an old antiquated design rather than refurbishing the existing one. USA Coil & Air simply can create the perfect fit!

## QUICK SHIP OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines.

**Standard ship:** 7-12 weeks

**Expedited ship:** 2-3 & 4-5 weeks  
(availability limited, based on design, size and materials)

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## UNIT TYPES

- Indoor and Outdoor
- Medium to heavy duty
- Standard Double Wall Construction
- Ranging from 1,500 to 50,000 cfm
- Blow-through, Draw-through, Heating only, Ventilation only, Multizone

## APPLICATIONS

- Hospitals
- Government Facilities
- Office Buildings
- Schools
- Supermarkets
- Power Plants
- Warehouses
- Retail Centers

## SERVICE

USA Coil & Air can provide on site disassembly and reassembly services for customers not familiar with the process. Many times, some or all of the sections may need to be broken down into parts to allow transport from delivery area to the pad site for installation.  
(Not available in all markets)

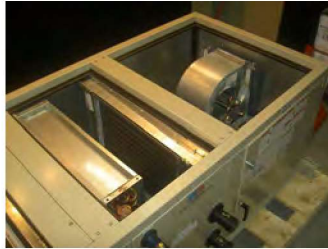
## INDOOR CENTRAL STATION AIR HANDLING UNITS



## OUTDOOR CENTRAL STATION AIR HANDLING UNITS



*Products and specifications subject to change without notice.*



## STANDARD FEATURES

- Custom Modular Design
- Double-wall Construction
- Lightweight Foam-injected Panels
- Preheat Coil Access Between Coils
- Extended Coil Connections
- Easy Access to Fan/Motor and Drive
- Gasketed Frame Channel Construction
- Low-leak Dampers
- Double-slope Drain Pans

## CUSTOM UNIT OPTIONS

### INDOOR & OUTDOOR UNITS

Variable increment feature for flexible cabinet sizing	Integral face and bypass dampers	<b>INDOOR ONLY</b> Galvanized or painted cabinet
Multiple section depths	Energy recovery sections	Variable base rail heights
Various casing and drain pan materials	Flush-mounted filter gauges	Electric heaters
Mixing boxes / economizers	Hinged access doors with full grip handles	Ultra-violet lights
Sound attenuators	Starters and inverters (VFDs)	<b>OUTDOOR ONLY</b> Multiple coil face areas per unit
Multiple blower options	Humidifier manifold	Multiple section, curb-ready base
Filters in side load and/or front-loading configurations	Sections to accommodate special components	Single Piece, unitized curb-ready base
HEPA filters in final filter location	Disconnect switches	Variable height roof curbs
Gas-phase filtration	Blenders and air mixers	Variable depth piping vestibules

Products and specifications subject to change without notice.

At USA we build all types of retrofit heat transfer equipment, from Replacement Tube Bundles to Full Tank Heaters and complete Shell and Tube Heat Exchangers. When replacing an existing tube bundle or re-tubing an existing exchanger, USA can duplicate your equipment to match existing dimensions or make changes to meet any engineering requirements you require.

## QUICK SHIP OPTIONS

USA Coil & Air applies more than 50 years of design and manufacturing experience in the coil and air handling business along with a sincere dedication to providing you with the right products fast. The USA Coil & Air Quick Ship Program helps assure that you can meet deadlines.

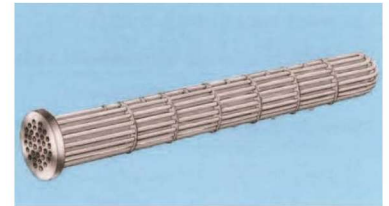
**Replacement Tube Bundles**  
Standard ship: 1-2 weeks

**Shell & Tube Heat Exchangers**  
Standard ship: 3-4 weeks

**Expedited ship:** Request Availability

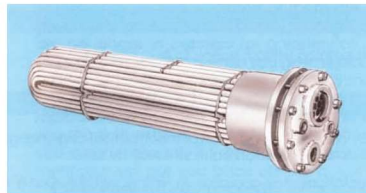
## TUBE BUNDLES

USA Coil & Air can duplicate any existing Bundle to include dimensions, materials and performance. We can build "U" tube bundles, straight tube "floating" tubesheet bundles or we can re-tube "fixed" tubesheet heat exchangers when the bundle is not removable.



USA can offer a wide variety of materials, including: carbon steel, stainless steel, cupro-nickle, admiralty brass and many others.

## TANK HEATERS



We build tank heaters for either steam or hot water use. We can offer the bundle by itself or we offer the entire tank heater assembly which includes: the bundle, cast or fabricated head and a sleeve which the bundle slide into. We have very few limitations on length or diameter and can size your tank heaters to match your existing tank.

## SHELL & TUBE EXCHANGERS

"U" tube heat exchangers and both "fixed" & "floating" straight tube tubesheet exchangers are built for high thermal efficiency with rugged construction for tough day to day operations.

- Special connection sizes and locations
- Various tube diameters and spacing
- Tube length and special materials available



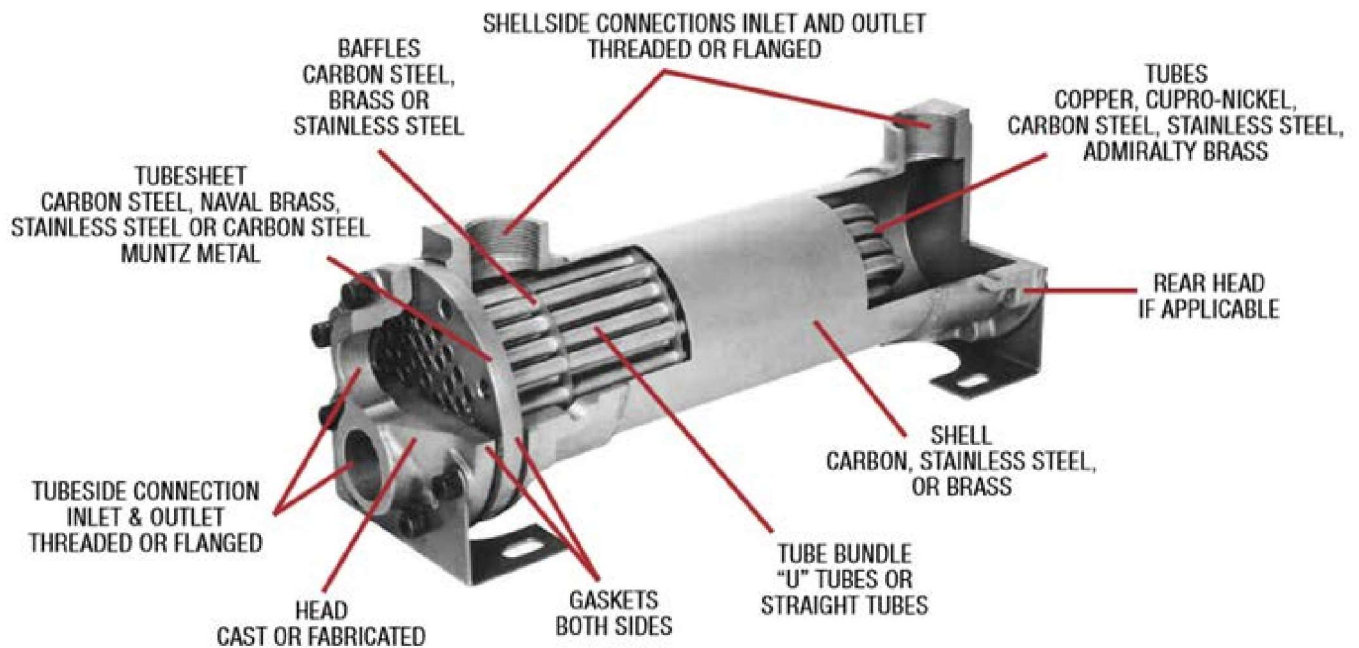
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## When to Retube?

It's economical to retube an existing heat exchanger or bundle in the following cases:

1. A straight tube fixed tubesheet exchanger - the bundle in this type of exchanger is not removable, that is the tubesheets at each end are welded to the shell, and the only way to save the existing shell and heads is to retube the exchanger.
2. A removable bundle, where the tubesheet has some intrinsic metal value - retubing a "U" tube bundle, where the tubesheet is steel and worth \$50.00 is not an economical proposition. If the tubesheet is stainless steel, brass, cast bronze, copper lined and has some value and you want to reuse it, then you should consider retubing the bundle.
3. Saving money is not your objective, but duplicating the existing bundle is more important. When you retube, you exactly duplicate the bundle and there is no room for error.

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