

Sentry-Guard Freeze Proof Coils

1-800-USA-COIL
(1-800-872-2645)

FAX: (610) 296-9763 • www.usacoil.com



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NOW YOU CAN STOP FREEZE DAMAGE COLD. GUARANTEED.



The Only Coils Guaranteed against freeze damage.

PATENT PENDING



Sentry-Guard. Patent Pending Technology makes it the first coil designed to protect itself from the cold.

Freeze damage is one of the leading causes of coil failure. Water or condensate, when held in a coil at ambient temperatures of 32°F or less, can freeze and expand, causing internal coil pressure to reach dangerous levels. And if cold air is delivered across coil surfaces by a fan, freezing can be greatly accelerated, resulting in damage occurring within a matter of minutes.

In either case, pressure can exceed the design limits of tubes, headers, and return bends, often causing one or more of these critical components to burst. Until now, bursting often lead to one repair solution— expensive and time-consuming coil replacement.

Developed by USA Coil & Air, leaders in problem-solving new and replacement coil technology, Sentry-Guard addresses the need for freeze protection head-on, providing internal pressure relief well before catastrophic damage occurs. No other product offers the breakthrough freeze protection technology built in to every new Sentry-Guard coil.

Sentry-Guard makes freeze protection easy, reliable, and very cost-efficient.

No other approach to coil freeze protection offers the operating and maintenance benefits of Sentry-Guard technology. The unique design incorporates easily removable pressure relief caps into every coil return bend of a Sentry-Guard coil. As pressure approaches design limits, a specially designed plate ruptures, releasing pressure when and where required, protecting critical coil components from damage— simply, effectively, and reliably.

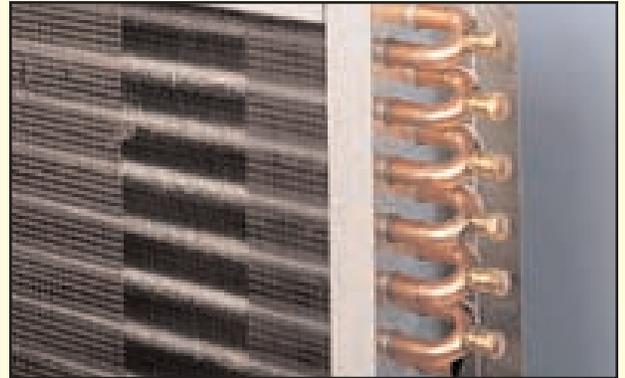
Freeze severity determines how many Sentry-Guard relief caps rupture. In all cases, repair is easy. Simply unscrew the cap and set in a replacement assembly. Hand tightening is all that is needed. Replacement Sentry-Guard inserts can be easily stored on or near each coil for quick, convenient servicing.

While Sentry-Guard does not eliminate the need to winterize coils by draining or adding glycol, it offers the security of straightforward, dependable freeze damage protection unequalled in the industry today.

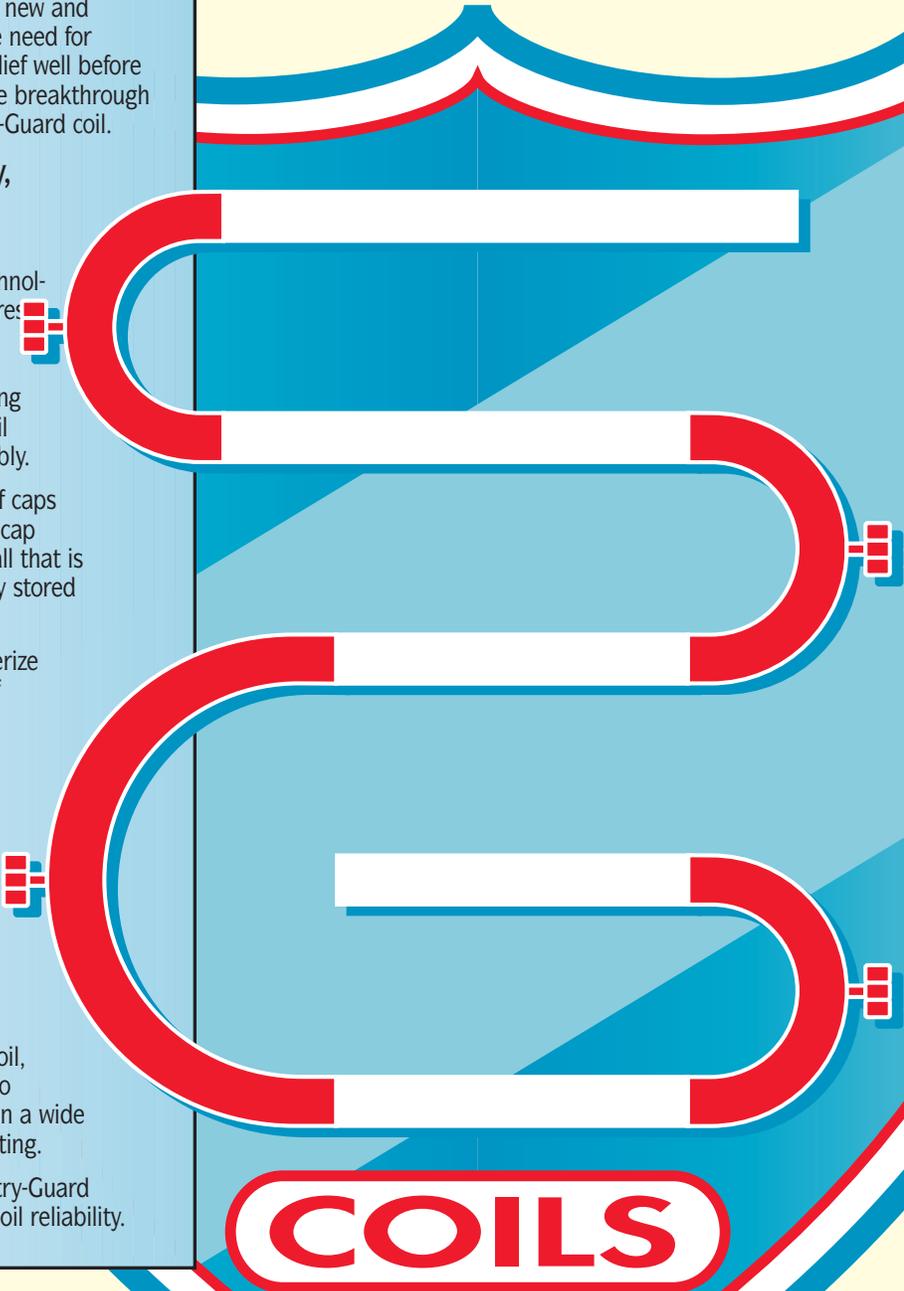
Protection that's right for all coil applications— cold or hot. All backed by a 30 Month Warranty.

Heating coils, especially for comfort applications, operate at peak levels during winter months, and can be exposed to the dangers of freezing ambient temperatures. Boiler breakdown, power failure, or improperly operating freezestats and controls are some factors which can lead to freeze damage to any type of coil, regardless of location. Sentry-Guard coils are available to meet most requirements served by conventional coils— in a wide range of sizes, types, and for heating, cooling, and reheating.

For your next new or replacement coil need, specify Sentry-Guard Coils— and break through the ice to a new standard in coil reliability.



Sentry-Guard Coil With Patent Pending Freeze Relief Caps.



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The Only Coils That Guard Against Freeze Damage. Guaranteed.



Patent Pending Freeze Relief Cap.

Sentry-Guard Coil Specifications

COILS— GENERAL

All coils shall be constructed with plate fins and seamless tube construction as shown on plans and specifications. All coils shall conform to A.R.I. standard 410.

Seamless copper tubes shall be mechanically expanded into plate aluminum or copper fins to form an everlasting bond between primary and secondary surfaces. Fins shall be continuous type and shall have full collars to allow for expansion and contraction of fins.

Headers (Manifolds), if required, shall be constructed of round pipe type and shall be constructed of a minimum of .060" wall seamless copper. End caps shall be rounded so as to prevent excessive pressure drop. All coils shall be provided with proper vent and drain connections.

Provide heavy gauge casings, tube sheets and intermediate supports. Tube sheets shall be free of sharp edges and have properly sized holes for expansion and contraction of tube. Intermediate supports are required every 42" of finned length and shall be bolted to top and bottom casing channels.

Coil connections shall be copper or steel MPT type and shall be brazed into manifold. Booster heating coils without manifolds may be copper sweat connections.

All coils shall be furnished with special Sentry-Guard freeze relief caps as applicable. Special fittings shall be brazed construction with screw-on, screw-off removable cap. They shall be on all return bends on both sides of coil, on applicable headers and tube ends as required.

All coils shall be leak tested at 400 PSI air pressure under warm water and shall be guaranteed for 200 PSIG water working pressure or 100 PSIG operating steam pressure if standard steam or steam distributing type. All coils are guaranteed up to 300 degrees F. working temperature.

All Sentry-Guard coils shall be guaranteed against freeze damage, except for caps, for a period of 30 months from date of shipment. Coils also have a standard 12 month material and workmanship warranty. (Please review Sentry-Guard limited warranty for full details)

Specific Water Coil Construction

(Use for hot water, chilled water or glycol coils, standard steam coils- same end connections.)

Tubes: 5/8" O.D. X ____ thick seamless copper tubes (.020" standard, .025" standard steam standard, optional on water coils, .035" and .049" optional)

Fins: ____ construction (aluminum or copper). ____ thickness (.0065" standard, and .010" optional)

Casing: ____ construction (galvanized steel standard, 304 stainless steel optional) ____ gauge (16 gauge standard, 14 gauge optional.)

Specific Steam Distributing Coil Construction

Same as water coils except as follows:

Tubes: 5/8" O.D. X ____ thick seamless copper condensing tube (.025" thick standard, .035" optional), 3/8" O.D. inner seamless copper distributing tube.

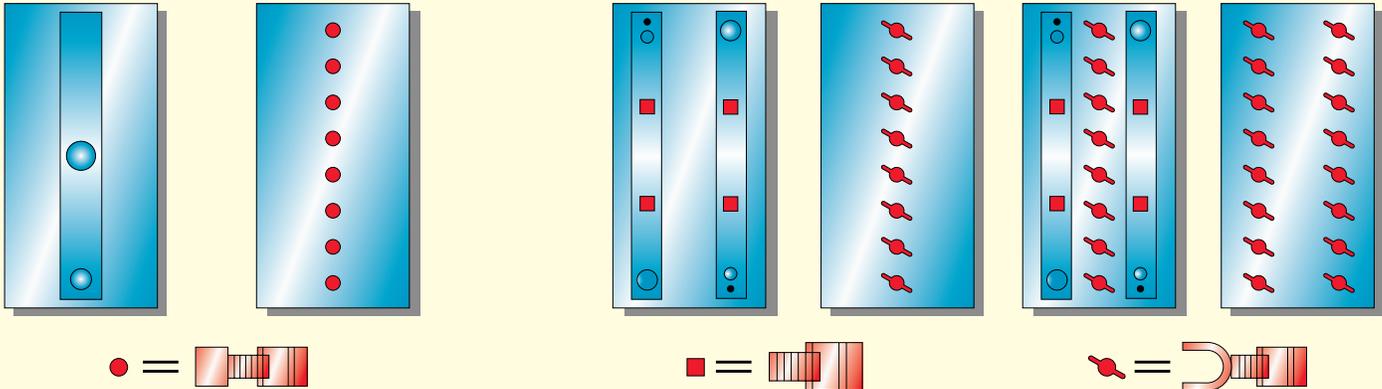
Contact USA Coil and Air, Inc. for specifications concerning other materials of construction. Special flat fin patterns, intermediate drain headers or other designs not shown.

USA Coil and Air reserves the right to change dimensions, construction and performance or other criteria shown without notice to our customers.



Sentry Guard™ Freeze Relief Caps (Patent Pending)

Types and Typical Arrangements



**Steam Distributing
Sentry Guard™ Coils**

**Hot Water and Chilled Water
Sentry Guard™ Coils**

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.

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 patent pending 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 patent pending "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.

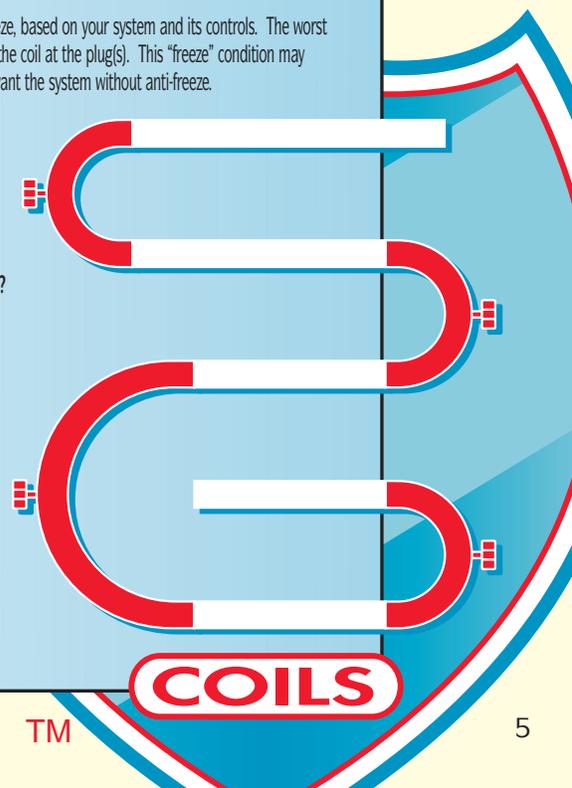
Q. What about a water coil that stays totally idle during the winter season? Do I have to add anti-freeze or drain the coil completely?

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.



The Only Air Handlers That Handle Coil Freeze Damage— Guaranteed.

Get Sentry-Guard™ coil freeze protection from the start...

Now there's no reason to fear the cold when installing a new or replacement air handler. USA Coil & Air units are now available with proven Sentry-Guard coils built in, so you know these air handlers are built to survive hostile cold temperature conditions without costly coil rupturing.

When you specify Sentry-Guard equipped units in the first place, you not only receive our industry-leading coil freeze damage guarantee, you also get perhaps even more important assurance— peace of mind in knowing catastrophic coil freeze damage is not going to leave you out in the cold.

...And get the features you need with performance that lasts...

USA Coil & Air air handlers are engineered for optimum performance and reliability. Heavy gauge galvanized steel construction adds strength and durability, while modular design allows customization to your exacting requirements, as well as easy future upgrades or modifications. And hinged and latched access doors and removable panels simplify servicing throughout all units.

Other features include:

- Galvanized or stainless steel drain pans and coil casings
- Standard to high efficiency filtration
- Single internally isolated forward-curved fan with internally-mounted motors
- Weatherproofing and weather hoods and dampers

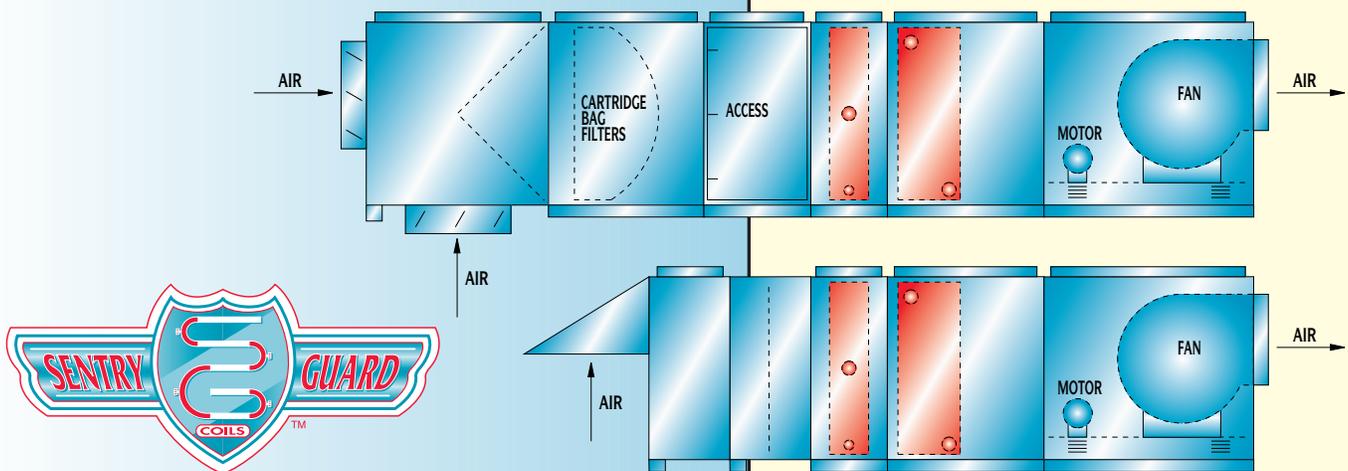
...Fast, and for any application requirement...

Horizontal or vertical designs, indoors or outdoors, with hot water or steam heating, chilled water cooling or both— USA Coil & Air offers unit configurations and connection locations for virtually any need, and within shipping times up to twice as fast as many in the industry.

For air handler performance, features, and unequalled protection from coil freeze damage, get your project off to the right start with a call to USA Coil & Air. We're changing the way America handles air handling.

Additional Central Station Accessories Available

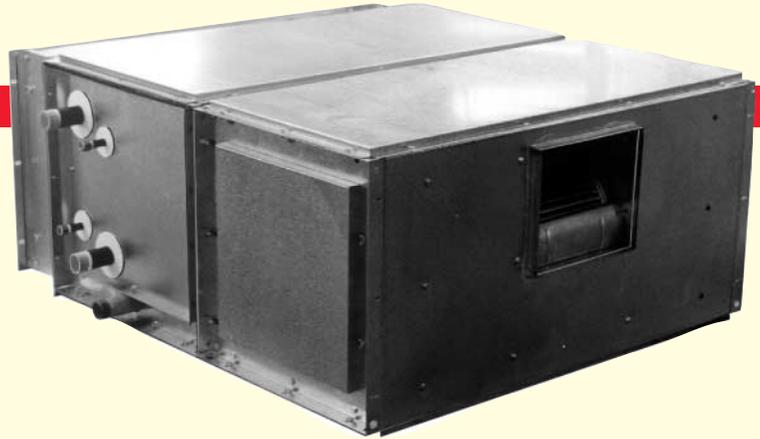
- Access Doors
- Access Section
- Airfoil Fans
- Bag Filtration
- Cartridge Filter
- Chemical Duty Motors
- Cleanable Filters
- Coil Coatings
- Combination Mixing Box
- Controls
- Copper Fins
- Cupro-Nickel Coils
- Double Wall Perforated
- Double Wall-Solid Liner
- Dual Drain Connections
- Dual Dr. Night Setback
- Dual Feed Steam Coils
- Electric Heaters
- External Mounted Motors
- External Unit Painting
- External Face & Bypass
- External Vibration Isolator
- Extra Long Coils
- Field Mounted Motors
- Final Filters
- Flat Fins
- Heating & Ventilation
- Heavy Wall Tube
- Hi-Efficiency Motors
- High Humidity Package
- High Pressure Steam
- High Temperature Construction
- Inlet Hood
- Inlet vanes
- Internal Mounted Motors
- Internal Face & Bypass
- Internal Isolation
- Intertwined Circuits
- Large Area Coils
- Low Leak Dampers
- Marine Lights
- Medium Pressure
- Motor Starters
- OSHA Belt Guard
- Outlet Damper
- Outside Air Section
- Plain Mix Box
- Pre-Filters
- Row Splits
- Single Fan Units
- Single Phase Motors
- Single Wall Construction
- Small Area Coils
- Space Between Coils
- Staggered Tubing
- Stainless Steel Coil Casings
- Standard Steam
- Steam Dist. Coils
- 3" Foil Face Insulation
- Unit Disassembly. (Field)
- Ventilation (Fan Section Only)
- Weatherproofing



Basic Units

Horizontal Central Station Unit

Horizontal Central Station Basic Units consist of an insulated fan section with fan, motor and drive assembly with short or long coil sections on integral structural steel rails under the unit. Heating and vent unit design has a 6" coil section in lieu of cooling coil sections.

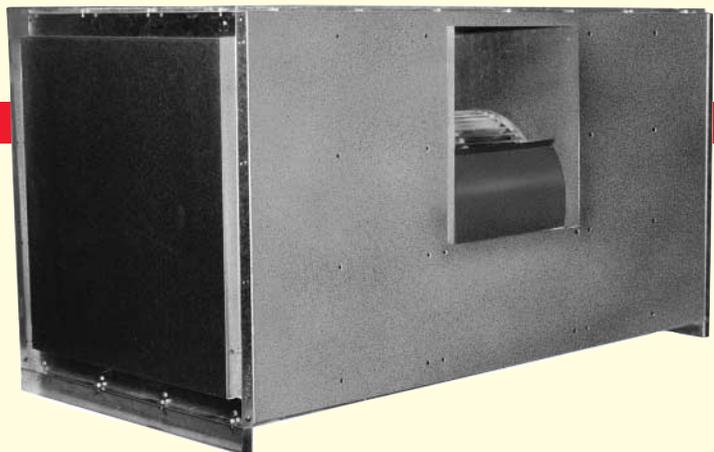


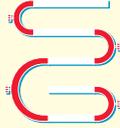
Vertical Central Station Unit

Vertical Central Station Basic Units consist of an insulated fan mounted on top or an insulated coil section with an integral structural steel base under the entire unit. Vertical design allows for horizontal inlet with either a vertical or a high horizontal discharge. Vertical units save space in a very compact design. The same design can be used for cooling or heating applications.

Horizontal Fan Section

Horizontal fan sections can be used as return air or exhaust cabinet style fans or in areas where the air moving device must be located at a different point in the system from other cooling or heating components.



**Sentry-Guard Coil Series 30 Month Limited Warranty • USA COIL & AIR****IMPORTANT INFORMATION:**

ANY PURCHASE ORDER AND SUBSEQUENT DELIVERY OF SENTRY-GUARD COILS SHALL BE IN STRICT ACCORDANCE WITH THE FULL WARRANTY SHOWN BELOW AND BUYER SHALL COMPLETE AND SIGN THE USA COIL & AIR "LIMITED WARRANTY ORDER AND REGISTRATION CARD" BEFORE OR AT THE TIME OF ORDERING TO SIGNIFY ACCEPTANCE OF THIS WARRANTY. USA COIL & AIR CANNOT SUPPLY THESE COILS TO POTENTIAL BUYERS WITHOUT FULL ACCEPTANCE. IT IS THE BUYER'S RESPONSIBILITY, IF BUYER SO DESIRES, TO CONTACT LEGAL ADVISORS BEFORE AGREEING TO THIS WARRANTY.

BASIC WARRANTY. MATERIAL AND WORKMANSHIP.

Seller warrants, to the original buyer only, that any equipment manufactured by it will be free of defects in material and workmanship, under normal use and service, for one year from date of shipment. Seller obligation under this warranty shall be strictly and exclusively limited to repairing or replacing free of charge, f.o.b. our plant, parts and materials which, in seller's judgement, are defective. Seller assumes no responsibility for the application environment or manner in which the equipment is used; therefore this warranty does not cover corrosion of equipment during use, or deterioration caused by conditions of use, or that applications of finishes supplied by others are sufficient, or that finishes applied are suitable for the Buyer's environment. Seller assumes no responsibility for reimbursing repair or replacement expenses incurred without its prior written authorization.

Buyer shall be responsible for all labor costs incurred in connection with such repair or replacement at installation site. Buyer shall also be responsible for all costs in removing, packing and shipping defective equipment back to seller. Seller shall be responsible for freight charges back to its factory and Buyer shall use the Seller's designated means of transportation. It is the total responsibility of the Buyer to return to Seller equipment or samples quickly (if requested by Seller) to determine possible warranty claims.

EXTENDED LIMITED WARRANTY TERMS— SENTRY-GUARD COIL SERIES ONLY.

If you have purchased a Sentry-Guard Coil from USA COIL & AIR, INC., then this additional warranty applies:

- A) USA COIL AND AIR, INC. will replace the exact same coil, free of charge, any "SENTRY-GUARD" coil that fails because of bursting tubes or headers and connections due to a "liquid phase freeze." Any damage of or leaks occurring on the special return bends, to include the pressure sensitive cap, are not a part of this limited warranty. Seller's decision on a warranty claim shall be final. Only professional reports will be accepted to dispute final decisions.
- B) This limited warranty for a SENTRY-GUARD COIL is for a period of 30 months from date of shipment and shall include only supplying a new coil, f.o.b. factory, in its standard lead time for that coil type and construction. There may be an expediting charge if coil is required sooner than standard lead time. USA COIL & AIR INC. assumes no responsibility for system downtime or repairs of existing equipment which may occur in such time required for shipment and installation of new warrantable coil.
- C) It is understood that an IDLE COIL WITHOUT HEAT PROTECTION ON THE ENTERING SIDE OF COIL may burst at return bends more than once during the cold weather season and Seller assumes no responsibility for loss of water, resultant damages due to coil failure, or other incidental losses.
- D) Terms of this extended warranty are identical to those terms as shown in "BASIC WARRANTY" above and "DISCLAIMER OF WARRANTIES AND LIMITATION OF REMEDIES" below, and do not include in any manner repair or replacement labor costs or other incidental or consequential costs due to any type of damages to include liquid or water damages arising from the use of coil(s) if they fail in a warrantable area in the allotted warranty time frame.

DISCLAIMER OF WARRANTIES AND LIMITATION OF REMEDIES

Seller makes no other warranties, expressed or implied, with regard to goods and services provided by Seller other than those set forth herein. Any implied warranty of merchantability or fitness for a particular purpose of Buyer which exceeds the foregoing warranty is hereby disclaimed by Seller.

Seller will not be liable for any direct or indirect consequential or incidental damages, losses or expenses, including, but not limited to, commercial losses, business interruption, or damages resulting to property other than that which is the subject of the sales transaction, nor shall Seller be liable for any personal injuries arising in connection with the sale, resale, use of operation of its goods or inability of the Buyer to use the goods of Seller for any reason whatsoever.

Limitations of remedy here stated shall apply to all warranties arising out of the sale here subject. It is understood between the parties that damage to the contents of the product herein vended, ineffectiveness of that product, or other unintended consequences may result because of many factors including the manner or use or application of the product, all of which are beyond the control of Seller. All such risks shall be assumed by the Buyer. Seller's maximum liability shall not, in any case, exceed the price of the goods claimed to be defective. Seller will not be liable for the infringement of any patents by the Buyer's use of any materials delivered herein.

No promise, representation or affirmation of fact, written or oral, of the Seller or its agent or employees, other than as stated herein, shall constitute a warranty of Seller or give rise to any liability or other obligation of Seller, unless specifically agreed to in writing by Seller.

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