



# Coil Company News

HVAC COILS • SPACE COOLERS • AIR HANDLING EQUIPMENT

Issue 13

## Why Do Coils Fail?

*Old Age, Freeze-ups and Misapplication.  
Take a look at all three scenarios.*

### Coil Company's Quick Ship Program

#### Standard Ship

Almost all coils ship in 4-5 weeks as standard. There are some exceptions, based on special materials, but 95% of all coils will ship in 4-5 weeks with no premium.

#### 10 Work Day Ship

Most coils can ship in 10 work days (2 weeks) for a premium of 20% based on the size of the job. We guarantee that the coil will ship on time or you don't pay the additional premium.

#### 5 Work Day Ship

For major coil emergencies, you can have your coil ship in 5 work days (1 week). The required premium for this shipment is 40%. We guarantee shipment or you don't pay the premium.

### This Issue

*Why Do Coils Fail?.....pg. 1-2*  
*Stock Hot Water Booster Coils.....pg. 2*

### Coils invariably fail for one of three different reasons:

- 1 Coils die of "old age". This is, obviously, the best reason, because it means that the coil was designed properly, and lasted a decade or two.
- 2 Coils freeze. It's easy to freeze just about any coil. This is not such a good reason, because you can freeze a coil two months after installation.
- 3 Coils are misapplied by the designer or contractor or manufacturer. This is probably the "big secret" of the industry. Nobody wants to admit to it, but it happens all the time.

### Let's take a look at these three scenarios, one at a time.

#### Old Age

One of our favorite questions is "How long does a coil last?" The answer to this can be almost anything from 366 days (1 day over the warranty) to 30 years. It depends on so many factors. Is the air clean? Is the water or steam clean? Is the coil ever cleaned or maintained properly? It's an almost unanswerable question, but one everybody likes to ask. So, we at Coil Company, have come up with an answer, and the answer is 15 years. It could be 10 years, or it could 20 years, and we wouldn't quarrel with any number that was given. The point is that there is no "hard and fast answer to this question, and once your coil begins to fail because it's old, then it's time to replace it. (You can use 15 years also, if that's the answer you like too.)

Over time, erosion takes place within a coil at the tubes, manifolds and joints. Steam is more erosive than water, but erosion takes place in all coils. In addition, fins become loose on the tubes and efficiency decreases. Also, coils make great filters! When there is little maintenance done, or when filters are not changed properly, then you can count on your coil acting just like a filter. None of this is any good for a coil and causes coils to fail prematurely.

When coils begin to "wear out", you get pinhole leaks in multiple places. You can postpone replacement for weeks or even a couple of months, but not much beyond that. You can give the coil a quick fix by "blocking a tube" or taking tubes out of the circuiting. You can braze over a leak. None of this is going to make a long-term difference, because the coil is just "passing away from old age". Save yourself a lot of aggravation and pain and just replace the coil.

#### Freeze-ups

As we've mentioned in previous newsletters, any coil can freeze at any given time, based on the wrong set of conditions. If you have a coil, and it's been in service for 6 months and you freeze it in one or two places, then it's probably repairable. You can braze it or block it and the rest of the coil will operate with little or no problem. It is possible,

*continued on page 2*

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## Why Do Coil Fail?

*continued from page 1*

*Old Age, Freeze-ups and Misapplication.*

*Take a look at all three scenarios.*

however, to freeze the same coil in 15 different places, and you should just pronounce “last rites”, over the thing and replace it immediately. You’re wasting your time trying to do anything but give it a temporary fix. When coils freeze, the fractures at the tubes are longer than pinhole leaks, and run the length of the tube rather than around the tube. They are very distinct and easy to spot. Coils don’t freeze the way that you think they do. It’s not really the ice that causes the bulge in the tubes, and ultimately the fracture or leak. Freezing takes place within a tube at several places simultaneously, and pressure builds-up between the freeze points. It’s this pressure that causes the tube to bulge and break. Pressures range from 1,000 P.S.I.G. (return bends break) to 2,000 P.S.I.G (tubes & manifolds break). Trust us when we tell you that at these pressures, you will do some serious, long-lasting damage to coils.

### Misapplication

It’s very common to have a coil that was never designed properly in a system. Sometimes the coil is not designed for the performance, and sometimes the coil is not designed for the duty. Usually, the reason for a shortcut in coil design is money. Either the contractor or somebody needed to save a few bucks. The user, however, is stuck trying to make a coil operate properly when there are obvious problems with the coil and the system. Does the coil need to be replaced? That depends on how much nonsense the user is willing to put up with, and how critical the coil is to the operation of the facility. Fully 25% of the coils that Coil Company replaces are because the coil was either built incorrectly, or was never designed properly in the first place.

Most coil replacements involve some kind of problem-solving. You don’t want to duplicate the problem that caused the coil to fail. That’s where Coil Company comes in handy. Over the years, we’ve built a lot of replacement coils for a lot of customers. We’ve seen most of the problems that cause coils to fail, and we’re pretty good at diagnosing them.

***Please call Coil Company at 800-523-7590 and we’ll walk you through any replacement job that you might have.***

## Stock

### Hot Water Booster Coils



*Hot Water Booster Coils  
sized from 6" x 12" to 30" x 60",  
shipped from stock in 1-3 days.*

### Replacement Hot Water Booster Coils, Shipped from Stock in 1 day to 3 days

It seems there’s never a convenient time to install hot water duct coils. When it’s time you know it, and you know you need to install them fast, with a quality coil specified for your application.

Coil Company consistently ships a broad range of hot water duct coils, and applying our combined experience of more than 75 years we’ll make sure the coil suits the specifications of your application.

- 1 and 2 row coils in 33 different sizes from 6" X 12" to 30" X 60"
- Flanged or Slip & Drive

**For all your coil needs,  
technical information or questions, call our toll-free number**

**800-523-7590**



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