USA Coil & Air , Inc. July 2013

Simple Coating Information for Owners & Installers

The coating of coils for corrosion protection has been around for many decades. In the beginning, there were very few choices and they were very flawed. Over the years, new and very innovative coatings have arrived in the marketplace and should be viewed as viable options. Let's first go over some common misconceptions about coatings on coils.

All coatings have to be designed and applied so that heat transfer is maintained. Most coatings cause less than 1% difference in heat transfer. The benefits completely outweigh the negative impact on heat transfer. Another common misconception is based on the application of coatings and that "sprayed on" coatings can be as good as a baked and dipped type coating. It is not and will never be. Coatings that are dipped and baked usually cost more, but you get what you pay for and spray type coatings just do not offer the overall corrosion resistance of the baked and dipped type.

Coatings are used for corrosion resistance and one of the largest reasons for coating is salt laden atmosphere problems. Let's get down to exact definition and symptoms of salt atmospheres. It is known as electrolytic corrosion and it means that the salt attacks where dissimilar metals are in contact with each other. Aluminum fins and copper tubes are dissimilar metals and they are in contact with each other since the tube is expanded into the fin for a lifetime bond. Salt corrosion starts where the two touch at the fin collar. If a coating is not applied properly at this area (and we don't believe spray coatings are), then there can be real problems with the salt eating away at the fin root and there will be performance problems because of it. If the fin is not touching the tube, much of the secondary heat transfer is eliminated. This can mean as much as 20% of the coil's capacity is eliminated by lack of fin to tube contact. The other problem is the corrosion starts to build a white chalky substance and this can really load up the coils resistance and thus, reduce the overall air flow in the system.

Most coatings in the industry have good corrosion resistance. You need to select a coating that will cover the entire effective area of the coil and will be on the coil in the same manner years later after all the expansion and contraction of the coil has taken place. We have seen coatings that actually are peeling off the coil and this should tell you that the coating used can't handle the expansion and….

Epoxy Coil Coating Did You Know?

Did you know?

USA, in conjunction with it's e-coaters, can provide expedited coils with coatings. We can provide coils and coating in 12, 15, or 20 working days as standard.

Did you know?

USA provides quality reusable crates to the coater. This is very important since the crater needs to disassemble the crate and then reassemble the crate after the coating. This gives you a guarantee the coil will be delivered in good shape.

Did you know?

USA Coil & Air has professional field personnel that can evaluate systematic conditions that may be affecting performance or coil longevity and then also measure coils so they fit perfectly in your existing unit.

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contraction. You can't see this because the tube temperature and fin temperature are different. The slight amount of movement over time can cause the coating to peel. If the coil is not 100% coated, it might as well not be on any part of the coil. Use coatings that are sacrificial to the metals. E-coat in which charged particles are attracted to an oppositely charged metallic surface works best with coils. This process continues until there is a sufficient thickness and a barrier not to coat the surface anymore. This produces a coating that is uniform and covering the entire coil surface. Think of coating like paint on automobiles and you will then understand e-coat on coils.

Another area that an owner and installer may need to know about coatings is the warranty period and the very limited terms of warranty. Owners expect a coater to warrant their products against the known corrosive agents and they do. These warranty periods can be anywhere from 1-10 years with 3 to 5 years being the most common. It may seem to be something acceptable until you read the actual warranty and what it covers. First, you have to supply records in writing that the coils have been cleaned periodically and that the correct solution and application has taken place. If it is found that the coating isn't the quality it should be or that it is being attacked, then the coater responsibility may be no more than showing up at the job site and re-applying the coating. The maximum the warranty will ever yield is the cost of a new coating. Let's say the coating didn't hold up in the atmosphere and whole new coil needs to be purchased and installed with a new coating. The best you will get might be that the new coil will get it's new coating for free. That is, after you have jumped through hoops finding out if you voided the warranty with all the requirements and cleaning during the coil's life in the system.

In short, coils coating have a very good track record in the industry for corrosion resistance to many different corrosive agents. It is important you select a proven coating design that will increase the life of your coils.

Many of you may already be USA Coil & Air customers and we thank you for your current and past business. If you are not a customer yet, we hope you will be in the very near future. We believe that this newsletter will give you keen insight into our equipment, typical applications and will answer service questions as well. We hope you enjoy.

Contact Us

Thank you for allowing us to share with you. We'd be happy to answer any questions you may have from the services we offer to general product info.

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Did you Know ?

We fabricate coils in our standard 4 to 5 weeks year-round and then also offer our 5 and 10 working day shipment program. We can also build coils in 2 or 3 working days as well as expedite coatings for environmental condition.

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