E-Coating—The Ultimate Protection

Our E-coated aluminum- and copper-fin coils have a continuous, impenetrable barrier that effectively seals out environmental contaminants. This impervious coating, when combined with the natural resistance of all-copper construction, gives our E-coated copper-fin coils improved corrosion resistance compared to dipped and baked coil coatings.

Epoxy Coating Process

- **Degreasing**
  - Complete immersion process—cleans all surfaces
  - Removes all contaminants
  - Ensures ultraclean coil surfaces

- **Water Rinse**
  - Rinses residual dust/contaminants away
  - Prepares coil for E-coating process

- **E-Coat Process**
  - Flexible coating material application
  - Penetrates deep into all coil surfaces
  - Covers edges and fills cracks
  - Ensures consistent film thickness

- **Final Rinse**
  - Removes and recovers residual coating material

- **Oven Bake**
  - Precise temperature controlled process
  - Uniformly cures film
  - Ensures consistent adhesion

- **UV Topcoat**
  - Protective layer applied by spray
  - Ensures durability and long life

As the world leader in Heating, Ventilation and Air Conditioning, Carrier is committed to continually improving the quality of comfort we provide to our customers.

But our level of responsibility extends well beyond... Carrier Corporation has identified six specific areas which directly impact how we, as a world manufacturer, balance our customers' needs for comfort with the environments' needs for responsible consumption.

These symbols graphically represent our six areas of concentration and will serve as visual reminders of the importance of managing our finite resources.

Each one of us at Carrier Corporation believes that, for generations to come, success will not only be measured by the quality of our products and systems, but also by how we have improved the quality of life.

Now with Epoxy-Coated E-Coat Coils

DURABLE SOLUTIONS FOR TODAY'S ENVIRONMENTS
You're making a big investment. Our Enviro-Shield system helps you protect it.

Air pollution and salt spray can rapidly corrode unprotected condenser, heating and cooling coils, leading to reduced efficiency, unsightly surface conditions and possible equipment failure.

Fortunately, Carrier has developed a way to minimize coil corrosion on all Commercial Unitary products: the Enviro-Shield system. This series of coil protection strategies lets you match the level of protection to the unit's operating environment, thereby ensuring the most cost-effective solution for each situation.

1. Start by analyzing your location.

Different operating environments require different types of corrosion protection. Here are the factors you should consider:

Coastal/Marine
The sodium chloride (salt) in sea spray, mist, or fog creates an electrolyte that causes a destructive chemical reaction where the aluminum cooling fins are bonded to the copper tubes. This reaction is known as galvanic corrosion. Winds can carry the salt as much as five miles inland, so galvanic corrosion is possible whenever the installation site is visible from the ocean, or even five miles from the coast. Another indicator is corrosion on nearby equipment of similar construction.

Industrial
Sulfur and nitrogen oxides from fossil fuel combustion rapidly attack copper. These emissions can also be dust particles laden with harmful metal oxides, chlorides, sulfates, sulfuric acid, carbon and carbon compounds. Most industrial applications should consider E-coated coils. However, because of the large number of possible chemical pollutants, you should contact your Carrier representative for guidance.

Marine & Industrial Combined
The harmful effects of salt mist combined with industrial emissions can accelerate corrosion. For this most severe operating environment, all-copper construction combined with complete encapsulation of all coil surfaces with E-coating is required.

Urban
The main threat here is from sulfur and nitrogen oxides from automobile emissions and fuel combustion. The corrosion severity will depend on the pollution levels, which in turn depend on population density, among other factors. Equipment exposed to diesel exhaust, incinerator discharge stacks, fuel-burning boiler stacks, or any areas exposed to combustion emissions is especially susceptible.

2. Pick the best protection method for each environment.

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<th>GOOD</th>
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A. Precoated Aluminum-Fin Coils
A baked-on organic coating is applied to aluminum fin stock prior to the fin-stamping process. This creates an inert barrier between the aluminum fin and the copper tube, thus inhibiting galvanic action. Precoated aluminum fins are an economical option for protection in mildly corrosive environments.

B. E-Coated Aluminum-Fin Coils
Coil assemblies undergo a precisely controlled scientific process that bonds an impermeable epoxy coating to the specially prepared fin coil surface. E-coating produces a smooth, consistent coating that is less brittle, more resilient and more durable than previous postcoating processes. E-coated aluminum-fins offer economical protection and improved coil life in many contaminated environments.

C. Copper-Fin Coils
All-copper construction eliminates the corrosion-inducing bimetallic junction that occurs when aluminum fins are bonded to copper tubes. This provides substantially improved corrosion protection in coastal environments. Uncoated copper forms a natural protective film in coastal environments and a monometallic bond exists between the tube and fin. However, it is not suitable for industrial applications, since many industrial contaminants attack copper.

D. E-Coated Copper-Fin Coils
Providing maximum protection in virtually all environments, this option combines the continuous, impermeable barrier of the E-coating process with the natural resistance of an all-copper construction. E-coated copper-fin coil assemblies ensure long life, even in environments that combine harsh coastal conditions with industrial contamination.
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Available on select Carrier Commercial Systems and Services products. Contact your local Carrier representative today or simply call 1-800-CARRIER or visit our website at www.carrier-commercial.com to learn more.