

# ElectroFin<sup>®</sup> heat transfer coatings

## Factory-Applied Corrosion-Resistant Coil Coating

ElectroFin<sup>®</sup> E-Coat is a stand-alone brand in the HVAC&R industry, and offers the highest level of corrosion protection available from an electro coating applicator. Recognized internationally, ElectroFin<sup>®</sup> E-Coat extends the lives of HVAC&R heat transfer coils and components while reducing maintenance and operating costs.



- ElectroFin<sup>®</sup> E-Coat is a water-based, flexible epoxy polymer coating process engineered specifically for HVAC/R heat transfer coils.
- ElectroFin<sup>®</sup> uses a PPG POWERCRON<sup>®</sup> e-coat formulation specifically designed to provide excellent edge coverage and the thinnest coating offered, (between 0.6 and 1.2 mils.)
- Designed to protect the coil with less than 1% thermal performance degradation.
- Excellent corrosion and UV resistance make it suitable for coastal environments. E-Coat coated coils are tested and pass ASTM B117 Salt Spray tests exceeding 6,000 hours.
- ElectroFin<sup>®</sup> E-Coat has a 5 year guarantee.
- The only process that is optimized to guarantee 100% coil coverage without bridging, including enhanced fins up to 30 fins per inch.

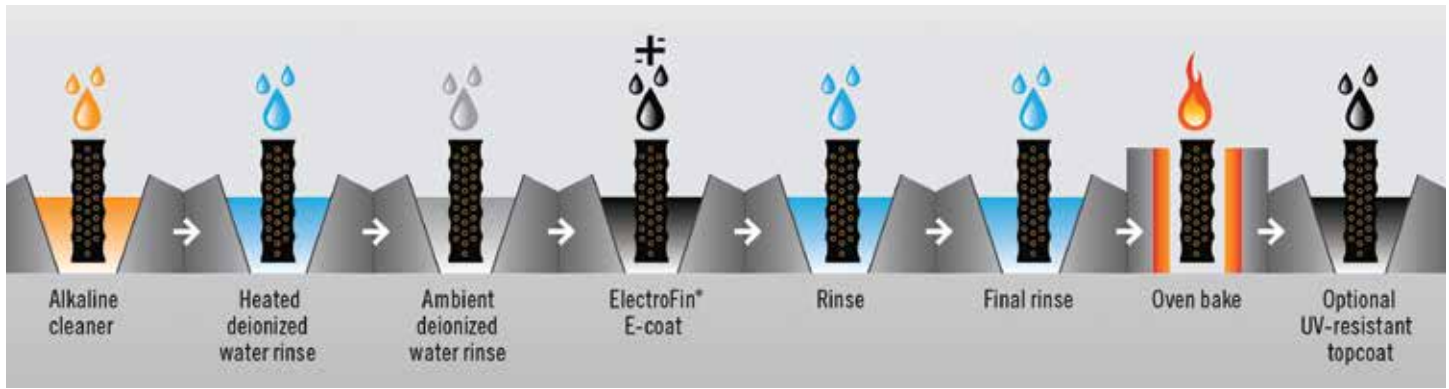
## ELECTROFIN<sup>®</sup> E-COAT TECHNOLOGY

Our unique process provides an electro-deposition coating that involves epoxy paint particles evenly suspended in deionized water. When electrically charged, the paint particles migrate to and bond with aluminum, copper, and other conductive metal surfaces that form the heat exchanger coils. Resin and pigment migrate to the part, and an organic uniform film is irreversibly deposited.

This unique phenomenon is particularly important for tiny cavities where fin and tube joints, high fin densities, and enhanced fins are present. The charged molecules are drawn to the metal and form an even, continuous film over the entire surface. This coating process creates a smooth, consistent, and flexible coating that penetrates deep into all coil cavities and covers the entire coil assembly, including the fin edges.

The Best Total Corrosion Protection For Commercial HVAC Rooftops & Chillers  
**SPECIFY ELECTROFIN<sup>®</sup> E-COAT & INSITU<sup>®</sup> SPRAY APPLIED COATING**

# ELECTROFIN® E-COAT PROCESS



## SPECIFICATIONS

Coil will have a flexible epoxy polymer e-coat uniformly applied to all coil surface areas with no material bridging between fins. The coating process will ensure complete coil encapsulation and a uniform dry film thickness from 0.6 – 1.2 mils on all surface areas (including fin edges) and meet 5B rating cross-hatch adhesion per ASTM B3359-09.

Corrosion durability will be confirmed through testing to no less than 6,000 hours salt spray resistance per ASTM B117-11 using scribed aluminum test coupons. Coils subjected to ultraviolet (UV) exposure will receive a spray-applied, UV-resistant topcoat to prevent UV degradation of epoxy e-coat film.

## CORROSION RESISTANCE

ElectroFin® E-Coat is ideally suited for coastal and industrial areas with high humidity and an aggressive atmosphere, such as nuclear and power plants, refineries, steam turbines, deserts, coastal and offshore areas with high salinity, and buildings or areas with nearly permanent condensation and high pollution.

## RESISTANCE TO UV DEGRADATION

ElectroFin® E-Coat demonstrates exceptional technical properties in ASTM, DIN, and MIL-STD testing for resistance to thermal loss, UV degradation, and moisture intrusion. Continuous testing is carried out to assure that performance continues to meet or exceed established standards.

ElectroFin® E-Coat is resistant to many different chemical compounds—many more than phenolic coating. In addition, ElectroFin® E-Coat exhibits excellent adhesion to all of the most common metallic heat transfer surfaces, including copper, aluminum, and galvanized and stainless steel, to assure a long operating life for its protective properties.

## PROVEN EFFECTIVE

The electro-deposition process is the most automatic, controllable, and efficient method for applying a corrosion inhibiting coating to a metallic workpiece. The process dictates that all metal surfaces are coated in an even, uniform finish. All coil surfaces reach an average e-coat dry film thickness of 1 mil (0.001”).

## TECHNICAL PERFORMANCE

PROPERTY	TEST METHOD	PERFORMANCE
Salt Spray Corrosion	ASTM B117 / DIN 53167	6,000+ hours
SWAAT Corrosion	ASTM G85-A3	2,500 hours
Cross Hatch Adhesion	ASTM D3359	4B-5B
Pencil Hardness	ASTM D3363	2H minimum
Dry Film Thickness	ASTM D7091	0.6-1.2 mils / 15-30 µm
Direct Impact	ASTM D2794	160 in-lb
Water Immersion	ASTM D870	1,000 hours
Humidity	ASTM D2247-99	1,000 hours minimum
Heat Transfer Reduction	--	less than 1%
Bridging	--	No bridging including enhanced & micro-channel fin designs
Coating of Enhanced fins	--	Up to 30 fins per inch
pH Range	--	3-12
Temperature Limits	--	-40°F to 325°F / -40°C to 163°C (dry load)
Gloss - 60 Degree	ASTM D523	55-75

## ELECTROFIN® E-COAT AS COMPARED TO OTHER ALTERNATIVES

	ElectroFin® E-Coat	Dip Phenolics	Elastomerics	Other E-Coats
Application Method	Complete Immersion Cathodic Deposition	Manual Dip or Flow	Manual Dip or Flow	Anodic or Cathodic Deposition
Flexibility	Excellent	Poor-Good	Excellent	Good
Coating Uniformity	Computer-controlled Consistent (0.6-1.2 mils)	Manual Inconsistent (2-6 mils)	Manual Inconsistent (2-6 mils)	Inconsistent (0.4-1.5 mils)
Coating Penetration	Computer-controlled Consistent	Uncontrolled/Potentially Inconsistent	Uncontrolled/Potentially Inconsistent	Inconsistent to Bare Metal
Bridging	None – up to 30 fpi & 16 rows	Limited to 16 fpi with some bridging	Limited to 14 fpi with some bridging	Limited to 14 fpi with some bridging
Thermal Loss	< 1%	2% – 6%	2% – 6%	1% – 4%

MODINE MANUFACTURING COMPANY  
Commercial & Industrial Solutions – Coatings

**Louisville**  
1423 West Ormsby Avenue  
Louisville, KY 40210  
Telephone: 502.634.9458

**Jacksonville**  
224 Talley Nichols Drive  
Jacksonville, TX 75766  
Toll-Free: 877.589.0009  
Telephone: 903.589.0009

**Italy**  
Via Pinzano 2  
Zona Industriale Ponerosso  
San Vito Al Tagliamento (PN)  
33078 Italy

**Mexico**  
Lib. Oscar Flores Tapia #1755 – 4  
Parque Ind. Amistad Aeropuerto Seccion II  
Ramos Arizpe, Coahuila, Mexico, 25900