

Carbo e-Therm

Thin coating for electrical heating

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Carbo e-Therm is a carbon based, electrically heated coating for highly efficient heat applications

Carbo e-Therm is a family of highly efficient, electrically heated coatings, utilizing the conductivity of a defined mix of carbon materials in different water based binding systems.

Due to the excellent conductivity of the coating (e.g. R_{\square} of 1 Ω) it is possible to realize high heating power from non-hazardous low voltages such as 12 V or 24 V up to 230 V heating applications with high power density.

The excellent applicability of the coating to very different geometries and surfaces in combination with its high heating power allow for the utilization of Carbo e-Therm in a wide range of possible applications.

Benefits

Compared to conventional resistance heating, Carbo e-Therm distributes heat absolutely uniformly without any hot spot.

The illustrations below (fig. 1) depict the highly homogeneous heat distribution of a Carbo e-Therm heating coating vs. a conventional resistance heater with hot spots where the conductor is situated.

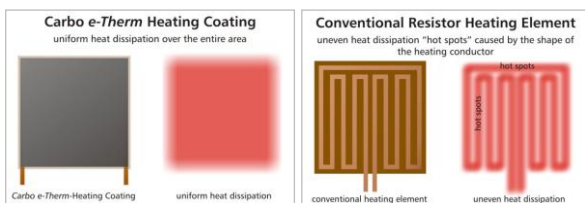


Fig. 1: Thermal images of Carbo e-Therm coating vs. a conventional resistor heating

Compared to conventional heating elements Carbo e-Therm presents numerous advantages:

- heating of different surface geometries,
- direct use of low-voltage sources (e.g. 12/24 V onboard, solar power),
- easy regulation and control,
- high heating power,
- perfectly uniform heating of large surface areas without hot spots,
- cost-efficient compared to conventional heating systems,
- safe and easy handling, since water based and free from solvents.

Properties

Carbo e-Therm heating layers are mechanically robust. It can be applied manually or automatically, either by brush, blade, roller, knifing, screen printing or spraying on various soft and hard substrates:

- Textile, fiber, foils, etc.
- Metal, plaster, wood, glass, FR4, etc.

To fulfill all different kind of application requirements, FutureCarbon offers a wide variety of Carbo e-Therm versions, differing in their matrix systems, resistivity and maximum operating temperatures:

Product Version	Max. Operating Temp.
Carbo e-Therm ACR70-200A	70 °C
Carbo e-Therm ACR120-200A	120 °C

Industries & Applications

- Construction: underfloor heating, IR heating panels, defogging of mirrors, heating films, walkway and ramp heating
- Industrial: process heating, curing
- Wind Energy: anti-icing, humidity prevention



Fig. 2: Application examples: De-fogging mirror and underfloor-heating with integrated Carbo e-Therm coatings