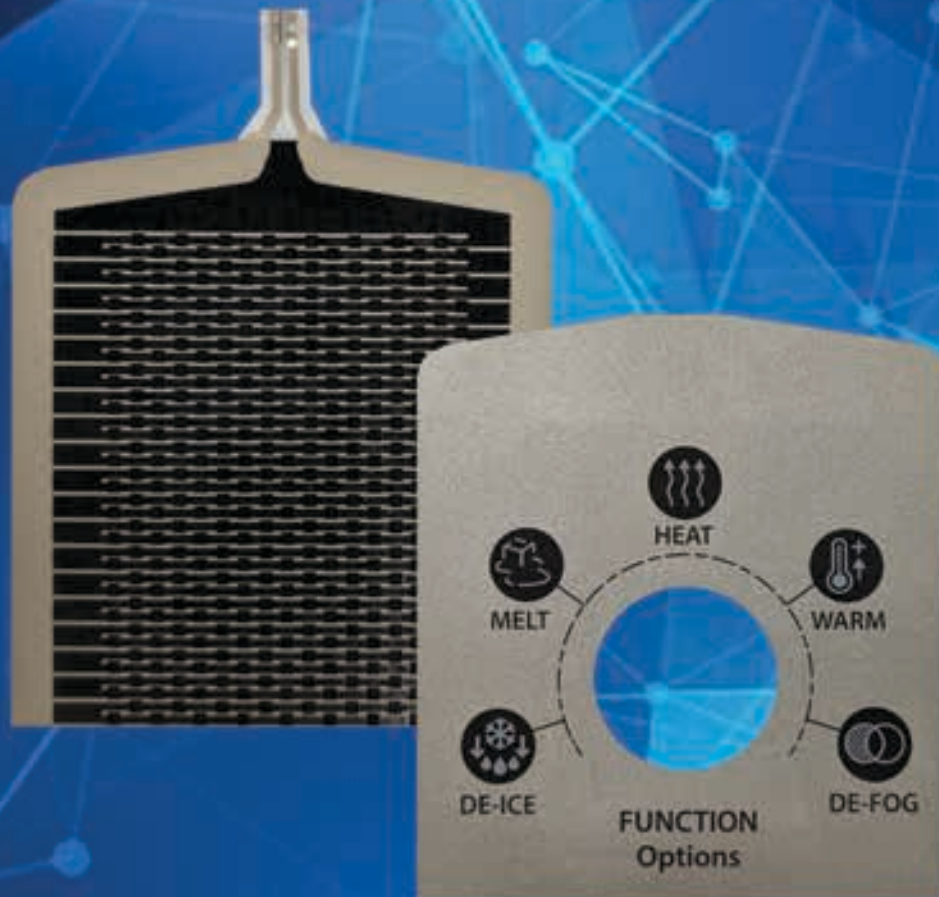




Printed Heaters



Printed Heaters: Innovative Heating Solutions

Printed heaters, born from Printed Electronics (PE), represent a revolutionary solution to age-old heating challenges. They offer durability, customization and space-savings, addressing the challenges experienced in traditional heating methods. This innovation is transforming heating solutions across various industries, promising a future where flexibility and efficiency join to meet the world's heating needs.

What are printed heaters?

Printed heaters are conductive heaters using Printed Electronics (PE) technology and traditional manufacturing processes. DuraTech typically utilizes silver conductive ink and dielectric inks, which serve to insulate within the printed circuit stack. These specific inks play a crucial role in the production of electronic elements, including printed flexible circuits and sensors.

Printed heaters can also be integrated into various surfaces and materials, including flexible substrates and 3D objects, making them suitable for applications where traditional heating elements may be challenging to incorporate.

HOW PRINTED HEATERS DIFFER FROM TRADITIONAL HEATING METHODS

Manufacturing Process: Printed heaters are typically produced using screen printing which allow for precise and customizable designs. Traditional heating methods often involve the use of bulk materials like wires or heating elements.

Design Flexibility: Offering greater flexibility in terms of shape and size, printed heaters can be tailored to fit specific applications and can be designed in intricate patterns. Traditional heaters may have fixed shapes and sizes.

Weight and Size: One significant benefit of printed heaters is their lightweight and low-profile design, making them advantageous for applications with stringent space and weight restrictions. Traditional heaters may be bulkier and heavier.

Durability: Printed heaters can be designed to be highly durable and resistant to environmental factors such as moisture and corrosion. Traditional heating elements may require additional protection or maintenance.

Environmental Considerations: Depending on the materials used, printed heaters can be more environmentally friendly as they may involve fewer materials and waste during production compared to traditional heating methods.

Cost-Effectiveness: The manufacturing process for printed heaters can be more cost-effective. Traditional heaters often involve higher setup and material costs.

APPLICATIONS

Optical and Security Equipment: Apparatus exposed to snow and ice, employ printed heaters in devices such as traffic camera lenses, traffic signal lenses, surveillance systems, on-road and off-road vehicles, as well as windows. These heaters play a crucial role in preventing ice and snow buildup, ensuring clear visibility and optimal functionality.

Renewable Energy: Solar panels benefit from printed heaters, particularly in northern climates where snow removal is essential for maintaining efficiency. These heaters help prevent snow accumulation, ensuring that solar panels continue to generate power effectively.

Medical Industry: Printed heaters are used for heating petri dishes, maintaining precise temperatures in incubators, and creating heated shelves for sample storage. These heaters also play a vital role in ensuring the consistent temperature of various medical samples.

Prepared Food Storage: Printed heaters are employed in heated popcorn bins and heated shelves in fast-food establishments, ensuring that food remains at the right temperature for consumption.

Automotive: This industry benefits from printed heaters in various ways, including heated cup holders, heated armrests, and heated seats (which involve a transfer process). Printed heaters are also used for battery warming and air intake pre-heating in cold climates, contributing to vehicle performance and comfort.

