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## **Transparent Conductive Heaters with ITO, IMITO and IMO Coatings Are Ideal for Anti-Fogging or De-icing Window & Display Glass Solutions**

December 8, 2023 – Santa Paula, CA – Abrisa Technologies' ZC&R for Coatings for Optics (ZC&R) division provides transparent conductive heaters that incorporate coatings of Indium Tin Oxide (ITO), Index-Matched Indium Tin Oxide (IMITO) or Indium Molybdenum Oxide (IMO) making them ideal window and display glass solutions when anti-fogging or de-icing and high throughput and clarity are needed to maintain unobscured viewing and optical sensing in cold climates.

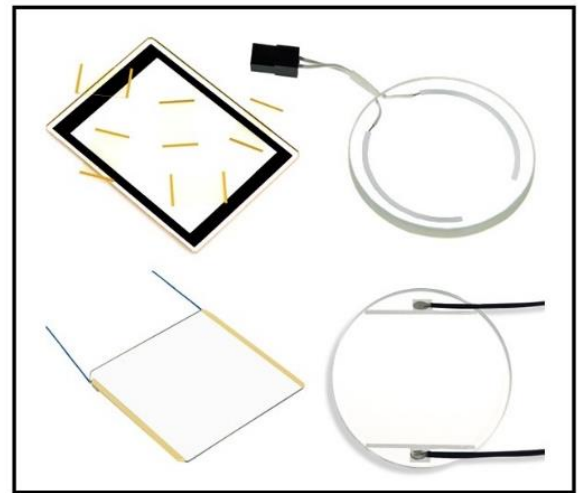
According to Lisa Tsufura, Product Manager for ZC&R "The coatings deliver the high uniformity and low scatter

performance needed to preserve high resolution digital imaging, sensing, or display outputs while maintaining high throughput efficiency and clarity. Our solutions incorporate key heating attributes that can be tailored for specific needs, including design considerations for anti-reflective properties for visible, NIR, SWIR, and IR, optimization to air or index matched for bonding, and delivery of color neutral performance in transmission, reflection, or both."

Lisa further explains, "Our ITO, IMITO, and IMO heater solutions are perfect for outdoor security surveillance, traffic monitoring, aircraft flap monitoring, digital CMOS imaging applications, avionics cockpit displays, outdoor displays, robotic and 3D sensing machine vision in refrigerated environments, military vehicle turret viewing, and optically transparent incubator sample surfaces for live cell microscopy imaging."

There are two types of ITO/IMITO constructs available: accessible or buried.

- **Accessible:** The ITO/IMITO is has the ITO on the top layer of the coating stack and is readily available for connectivity contact via conductive gaskets or bus bar application.
- **Buried:** The ITO layer is buried under or between dielectric layers. This process is the choice when a higher abrasion resistance is needed for environmental durability, or design flexibility to achieve enhanced transmission and anti-reflection properties. This option requires masking or etching to access the ITO layer for connectivity.



## Transparent Conductive Heaters

These ready-to-install heater solutions can be fabricated from a broad selection of technical glass such as SCHOTT BOROFLOAT®, SCHOTT D 263®, Low iron soda lime, Corning® Glass, SCHOTT AS 87 and more. Our transparent conductive heater glass can be HIE™ chemically strengthened or heat tempered for improved damage resistance, and can be enhanced with AR coatings, bus bars for electrical connectivity, wire bonding or soldering of connectors, screen printed ceramic frit or epoxy ink graphics, laser marking, and application of custom laser cut gaskets.

Coated sizes are available from 5.0mm to 27” in diameter and bus bars can be provided as silver epoxy, silver frit, or CrNiAu in “L”, “U” and surface.

[Abrisa Technologies](#), a member of HEF Photonics, is a globally recognized technology glass fabrication and optical thin film coating company with expertise in high volume manufacturing and engineering capabilities, delivering Total Solutions that provide excellent performance, fitness-for-use, and economies of scale.

Our US based, state-of-the-art ISO 9001:2015 and ITAR registered facilities include Abrisa Industrial Glass in Santa Paula, CA, and ZC&R Coatings for Optics in Torrance, CA. These two divisions produce solutions from cut-to-order coated glass components to custom complex and ready-to-install fabricated, strengthened, optically coated, electronically enabled, and branded sub-assemblies.

Our Total Solutions serve a variety of markets including Micro-Electronics, Defense and Avionics, Display, Industrial Automation, Optical Sensors, Imaging, Photonics, Medical & Dental, Life Science, and more.

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