

Transparent Conductive Heaters Indium Tin Oxide (ITO)

Cockpit Displays • Outdoor Imaging • Security & Surveillance • Incubators

Glass Fabrication



Coating Deposition



CNC Machining



Strengthening - Chemical & Heat



Screen Printing of Graphics



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.



Abrisa Industrial Glass
200 South Hallock Drive
Santa Paula, CA 93060

ZC&R Coatings for Optics
1401 Abalone Avenue
Torrance, CA 90501

(877) 622-7472

www.abrisatechnologies.com
info@abrisatechnologies.com

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Your Total Solution Partner

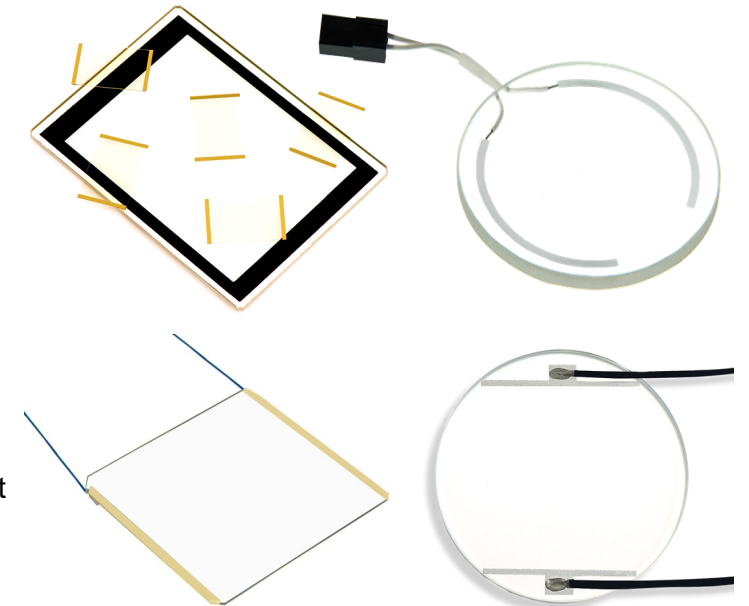
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Abrisa Technologies' Transparent Conductive Heaters incorporate coatings of Indium Tin Oxide (ITO), Index-Matched Indium Tin Oxide (IMITO) or Indium Molybdenum Oxide (IMO) and are ideal window and display glass solutions when anti-fogging or de-icing, and high throughput and clarity are needed to maintain unobscured viewing and optical sensing in cold climates. 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.

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.

These Ready-to-Install heater solutions incorporate your choice of technology glass, fabrication, HIE™ chemical strengthening or heat tempering, transparent conductive coatings, AR coatings, bus bars, electrical connectivity, wire bonding or soldering, connectors, screen printed ceramic frit or epoxy ink graphics, laser marking and applied gaskets.



Coatings & Solutions:

- Indium Tin Oxide (ITO)
- Index-Matched Indium Tin Oxide (IMITO)
- Indium Molybdenum Oxide (IMO) for Infrared (IR)
- Cut-to-Order Fluorine Doped Indium Tin Oxide (FTO)
- Single, Buried & Accessible (ITO) Layer
- Coated Sizes from 5.0mm to 27" Diameter
- Bus Bars - Silver Epoxy, Silver Frit, CrNiAu
- Wire Bonding, Wire Solder & More
- Mounting Gaskets & Oleo/Hydrophobics

Popular Substrate Materials:

- SCHOTT BOROFLOAT® 33 - Low CTE, High T%
- SCHOTT D 263® T eco Ultra-Thin
- Low Iron Soda Lime - Economical Float Material
- Low & Non-Alkaline, Corning® Eagle XG®
- Corning® Gorilla®, AGC Dragontrail®, SCHOTT AS 87
- Customer Furnished Materials & Wafers

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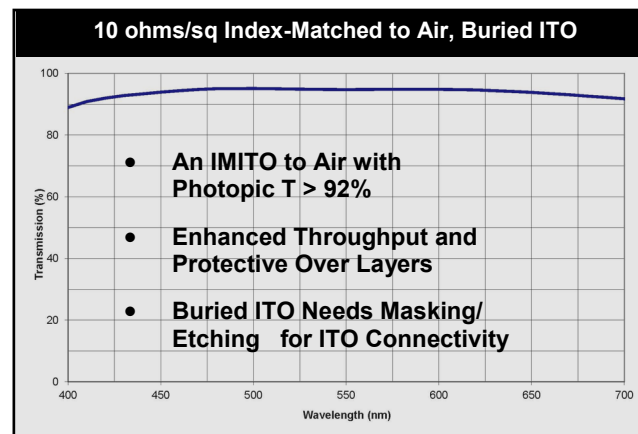
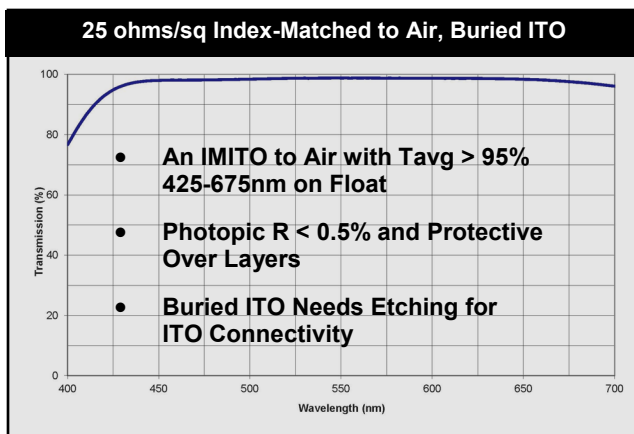
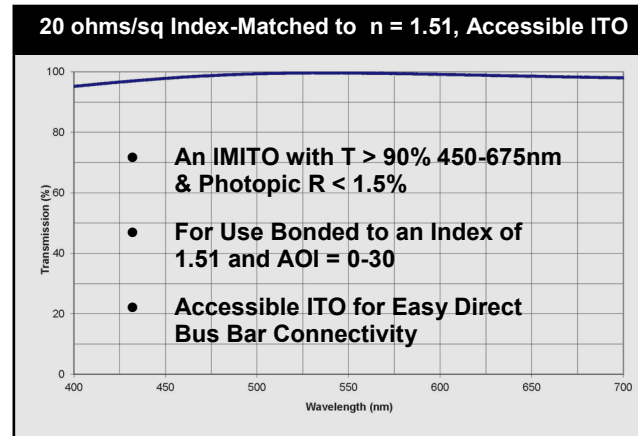
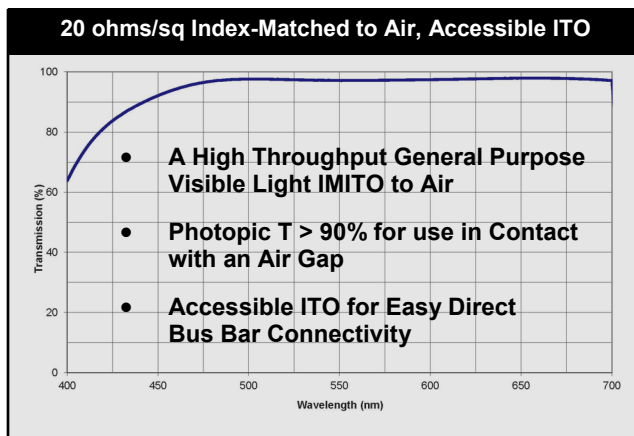
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Heated windows incorporating transparent conductive coatings as Indium Tin Oxide (ITO) and Index-Matched ITO (IMITO) are ideal for digital imaging and display applications to help prevent fogging and ice build-up which can obscure both viewing and image capture. Abrisa Technologies specializes in the design of ITO/IMITO heater solutions optimized for enhanced throughput performance in air or other mediums and additional performance attributes addressing broad or custom viewing angles, spectral ranges, and challenging use environments.

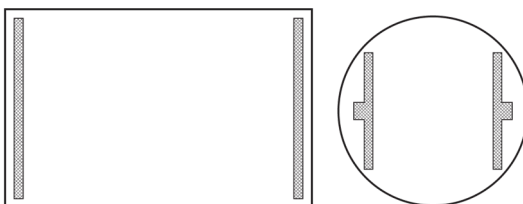
Two Types of ITO/IMITO Constructs:

Accessible ITO/IMITO – The ITO is the top layer of the coating stack and readily available for connectivity contact via conductive gaskets or bus bar application.

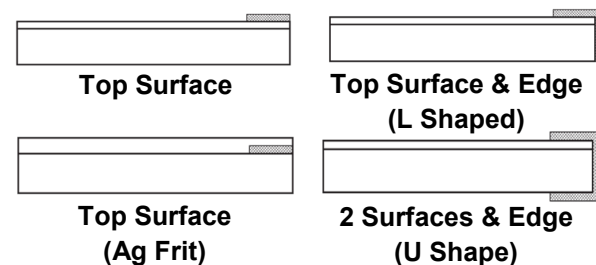
Buried ITO/IMITO – The ITO layer is buried under or between dielectric layers. Used for higher abrasion or environmental durability, or design flexibility to achieve enhanced transmission and anti-reflection properties. Requires masking or etching to access the ITO layer for connectivity.



Bus Bars for Heated Transparencies



Bus Bars - Application Locations



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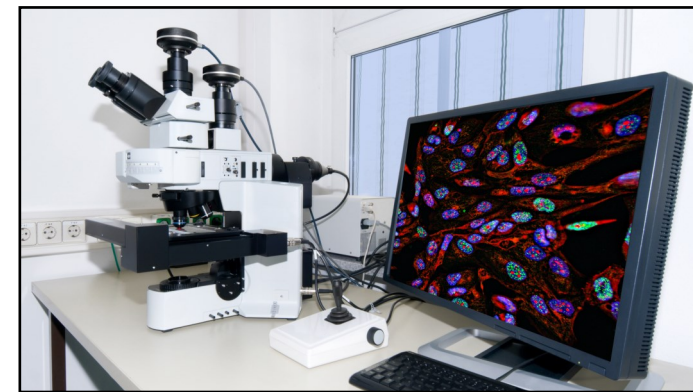
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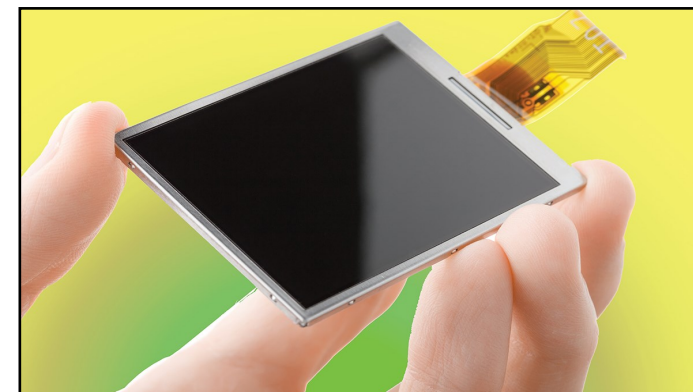
Cockpit Displays



Anti-Fogging Heater Windows



Microscope Live Cell Incubators



Electrical Conductivity

Options

Coatings:

- Custom V-Coat, Multi-band, Broadband AR
- AR Coatings to MIL-C-14806 A
- ITO/IMITO for EMI Shielding, Heater, LC Devices
- Custom SWP, LWP, Bandpass, UV & NIR Blocker
- Broad/Narrowband Scanning Mirror Coatings
- Deposition onto Filters, Silicon & Other Materials
- Autoclavable, Bio or Chemically Compatible

Substrates:

- **Fabrication to Shape & Size**
 - Cut & Seam or Circle Ground to Size & Shape
 - Precision CNC - Holes, Bevels, Steps, Notches
- **Damage Resistant Substrates**
 - HIE™ Aluminosilicates
 - AGC Dragontrail™
 - Corning® Gorilla®
 - SCHOTT AS 87
 - Chemically Strengthened Soda Lime Float
- **Low Expansion Chemically Resistant Substrates**
 - SCHOTT BOROFLOAT® 33
- **Ultra-Thin and Wafer Substrates**
 - Corning® Eagle XG®
 - SCHOTT AF32, D263® & AS 87
- **Other**
 - Applied Films & Tints
 - Custom Cut Gasket Application & Assemblies
 - Edge Treatment/Blackening
 - Laser Marking (QR & Barcodes, S/N)

Easy-to-Clean & Anti-Fog Solutions:

- Oleo/Hydrophobic Options
- ITO Heater, HTAF Anti-Fog Solutions

Graphics & Bus Bars:

- Color Matched Epoxy Ink
- Non-Conductive Ink
- High Temperature Frit Ink
- Dead Front Ink - Partially Transmissive
- Infrared IR Transmitting Ink
- Silver Epoxy, Silver Frit, CrNiAu Bus Bars