

Bus Bars for Transparent Conductive Coatings

ITO Heaters • EMI Shielding • Incubators • E-Conductive Systems

Glass Fabrication



Coating Deposition



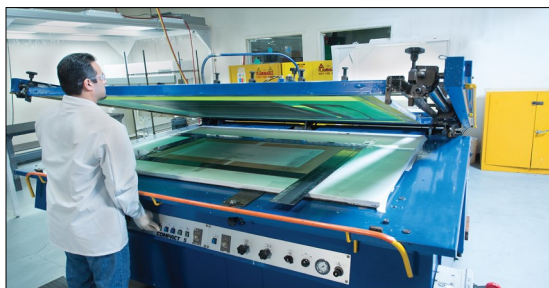
CNC Machining



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.



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BusBars 1022



Your Total Solution Partner

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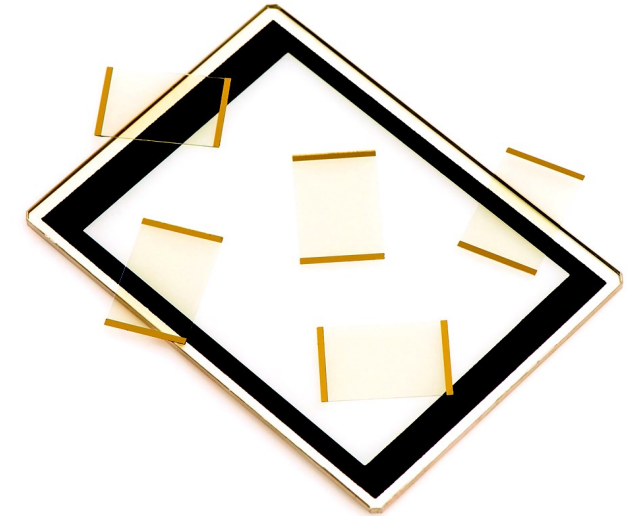
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Transparent conductive coatings such as Indium Tin Oxide (ITO), Indium Molybdenum (IMO) or Index-Matched (IMITO) are used to make robust transparent electro-magnetic shielded (EMI) display enhancement glass, anti-fogging/frost-free camera windows and controlled temperature sample surfaces for live cell imaging. Bus bars provide the pathways for electrical connectivity or grounding points to the coating and are themselves, made of conductive material.

Bus Bars are offered in strip, full perimeter, and other controlled patterns either on top of or under the coating with connection point options possible at the surface, side or rear surface. Abrisa Technologies offers Total Solutions inclusive of transparent conductive coatings, bus bars and wire bonding on our supply of fabricated specialty glasses.

Bus Bar Types:

- Chrome-Nickle-Gold - Solderable, Anti-Corrosion
- Silver Epoxy - Economical, Easy-to-Pattern, 3 Bond Surface Options, Wire Bonding
- Silver Frit - Solderable, Durable, High Adhesion
- Wire Soldering - Other Materials



Applications:

- Anti-Fogging, & Thermal Control
- EMI Shielding & Anti-Static

Transparent Conductive Coatings:

- Single Layer Indium Tin Oxide (ITO)
- IMITO (Index-Matched ITO)
 - Accessible & Buried
- Indium Molybdenum Oxide (IMO)
- Fluorine Doped Tin Oxide (FTO) Glass



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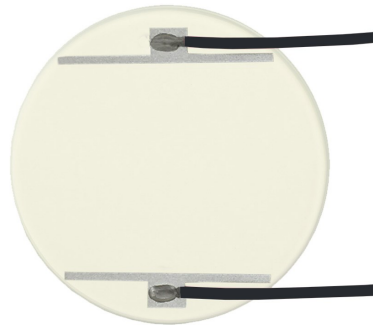
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Abrisa Technologies has a Full Suite of Capabilities to Support Ready-to-Install Total Solutions:

- Fabricated Specialty Glass
- Transparent Conductive Coatings
- Bus Bars & Wire Bonding

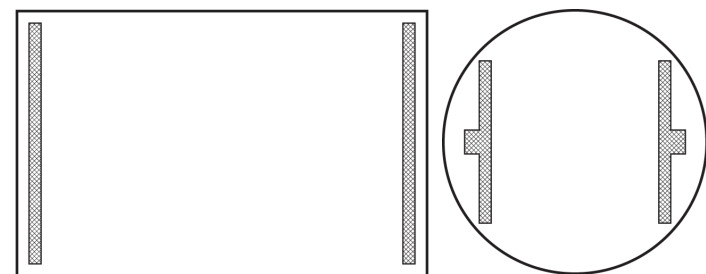
Popular Substrate Materials:

- SCHOTT Borofloat® 33 - Thermal Resistance, High Transparency
- SCHOTT D 263® T eco - Ultra-Thin, Broad Transparency Range
- Low Iron Soda Lime - Economical, HIE™ Strengthened Option
- Low & Non-Alkaline Glass - (AGC) EN-A1, Corning® Eagle XG®
- HIE™ Materials - Corning Gorilla Glass, (AGC) Dragontrail®, SCHOTT AS 87
- Customer Furnished Material for Coating & Bus Bars

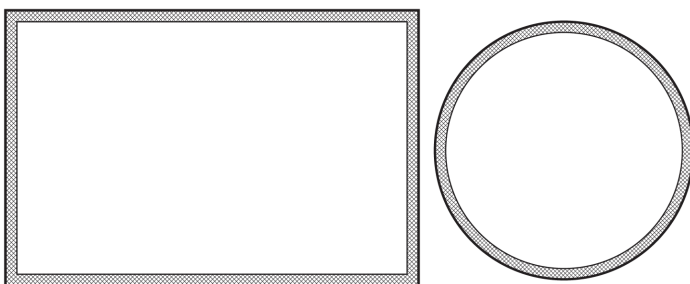


| Bus Bar Material | Application Method | Attributes | Bus Bar Configurations |
|---------------------|-----------------------------------|----------------------------------|--|
| Silver (Ag) | Screen Printed/ Cure | Low Investment for Thin Glass | Surface, L, U Shape |
| Silver (Ag) Frit | Screen Printed/ High Temp Cure | High Adhesion “Glass-Like” | Surface |
| “Gold” (CrNiAu) | PVD Coating with Mask Tooling | Solderable Anti-Corrosion | Surface, L, U Shape with Mask Tooling |

Bus Bars for Heated Transparencies



Bus Bars for EMI Shielding



Bus Bar Application Location



Custom configurations and patterning are available upon request.
Contact Us at: (877) 622-7472 or E-Mail: info@abrisatechnologies.com

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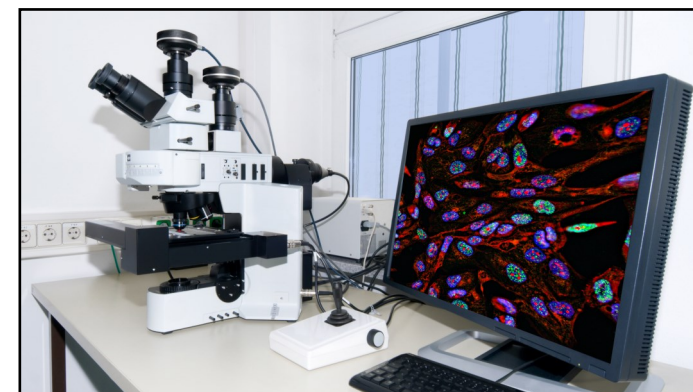
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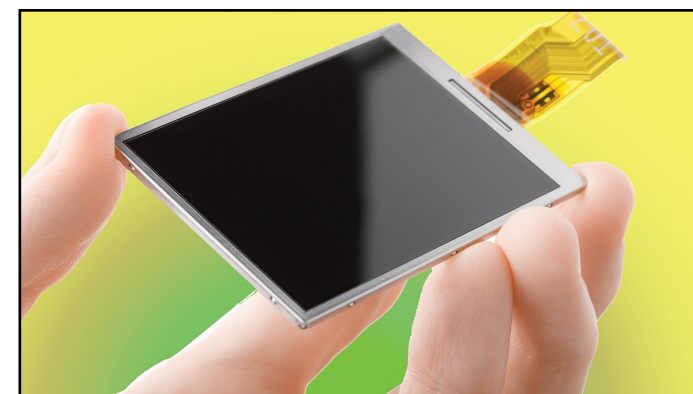
EMI Shielded Displays



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**
 - AGC EN-A1
 - Corning® Eagle XG®
 - SCHOTT AF32, D263® & AS 87
- **Other**
 - Applied Films & Tints
 - Gasket Application
 - 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