Thin & Ultra-Thin (≤0.4mm) Glass Fabrication & Coating

Touch ● Displays ● Imaging ● Sensors ● LiDAR ● Portables

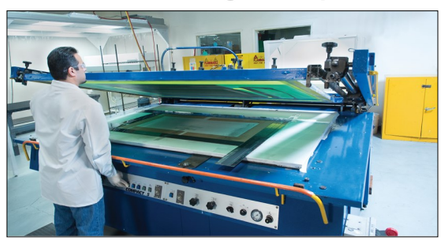
Glass Fabrication

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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ABRISA TECHNOLOGIES
HEF® PHOTONICS

Your Total Solution Partner

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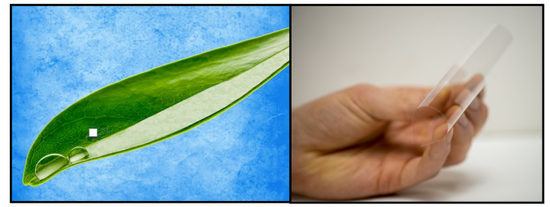
Abrisa Technologies offers ultra-thin (≤0.4mm) technology glass for next generation devices needing miniaturization, slim formats, flexible glass, lightweight components, or bio or chemical compatibility. Glass solutions have optical properties well suited for imaging, LiDAR, scanning, control panels, displays and windows. In addition to our broad selection of ultra-thin borosilicates, HIE™ aluminosilicates, low fluorescence and low alkaline glass options, we provide glass fabrication, HIE™ strengthening, optical coating, screen printing and packaging for ready-to-install Total Solutions.



Ultra-Thin Glass ≤ 0.4mm:

Damage Resistant Glass:

- SCHOTT AS 87 eco Aluminosilicate (0.1 - 0.33mm)
- Corning® Gorilla® Glass 3 (0.4mm)

Low Fluorescence Glass:

- SCHOTT D 263® T eco Borosilicate (0.07 - 0.4mm)
- Soda-Lime Float (0.2mm)

Thin Glass ≤ 0.7mm:

Damage Resistant Glass:

- SCHOTT Borofloat® 33 (0.7mm)

Low Fluorescence/Low Alkaline Glass:

- AGC EN-A1 (0.3mm)
- Corning® Eagle XG® (0.55 & 0.7mm)

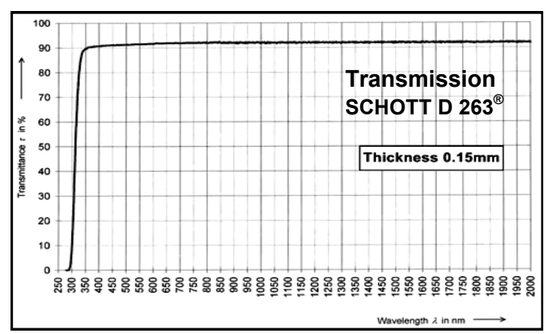
Applications:

Displays & Instrument Panels:

- Ultra-Thin Protective Cover Glass
- Low Profile Displays/Human Interface
- Low Alkali Mobility for Active Matrix Displays
- Sunlight & Heat Resistant In-Cabin Displays

Imaging, Sensing, Scanning, Portables:

- Damage Resistant LiDAR Scan Optics
- Lightweight Windows & Filters for Portables
- Ultra-Thin ITO EMI Shields & Heaters
- Wafer-Based Micro-Optics for AR, VR Telecom
- “Non-Ghosting” Optics & Beam Splitters
- Optical Filters for Sensors & Diodes
- Biotech Sample & Prep Slide Surfaces



Abrisa Technologies ● 200 South Hallock Drive, Santa Paula, CA 93060 ● (877) 622-7472
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Glass Material	Thickness Offered	Optical Properties	Mechanical Properties	Thermal Properties
Corning® Gorilla® Glass HIE™ Aluminosilicate Fusion-Draw & High Ion-Exchange (HIE)	0.4mm, 0.55mm (other thicknesses available)	Index of Refraction nD = 1.50/1.51 Core/Compression	HIE™ High Damage & Scratch Resistance (up to 4X)	CTE 7.58 x 10^{-6}/°C (0-300°C)
SCHOTT AS 87 HIE™ Aluminosilicate	0.100, 0.145, 0.210, 0.250, 0.330mm	Index of Refraction nD = Transparency 200-3200nm	HIE™ High Damage & Scratch Resistance	CTE 8.7 x 10^{-6}/°K (20°C - 300°C)
Corning® Eagle® XG Alkaline Earth Borosilicate	0.5, 0.7mm (other thicknesses upon request)	Index of Refraction nD = 1.5099 High Surface Quality, Excellent Thermal Properties, Low Density & High Resistance to Chemicals	Vicker's Hardness 640 200 gm load, 25 sec dwell	CTE 3.17 x 10^{-6}/°C (0-300°C) Low & Close to Si
SCHOTT D 263® T eco Advanced Borosilicate Downdrawn	0.1, 0.175, 0.2, 0.3, 0.4, 0.55, 0.7mm	Index of Refraction nD = 1.5230, Low < 1nm Roughness Surface, Low Alkali Content, High UV to NIR Transmission	Knoop Hardness 590 HK 0.1/20	CTE 7.2 x 10^{-6}/°K 20°C - 300°C) Similar to Metals for Sealing
AGC EN-A1 Alkali-Free Boro-Aluminosilicate	0.3mm	Index of Refraction nD = 1.52 Low Fluorescence, Popular for Biosensors, 400-2300nm Transmittance		CTE 3.8 x 10^{-6}/°C (50°C - 250°C) Close to Si
SCHOTT Borofloat® 33 Advanced Borosilicate Float Glass	0.7mm & higher	Index of Refraction nD = 1.47133 Good Clarity & Transmission, High UV to NIR, Popular for use with Image Sensors	Knoop Hardness 480 HK 0.1/20	CTE 3.25 x 10^{-6}/°K (0°C - 300°C) Low & Close to Si Resistant to Thermal Gradient & Shock
Soda-Lime Float	0.2, 0.28, 0.4, 0.55, 0.7 mm	Index of Refraction nD = 1.52	Chemical strengthening, Vickers Hardness 6·356 Pascals	CTE 7.2 x 10^{-6}/°C (0°C - 300°C)

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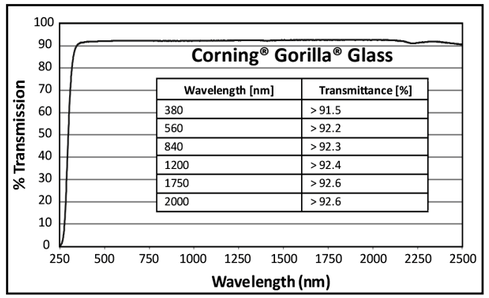

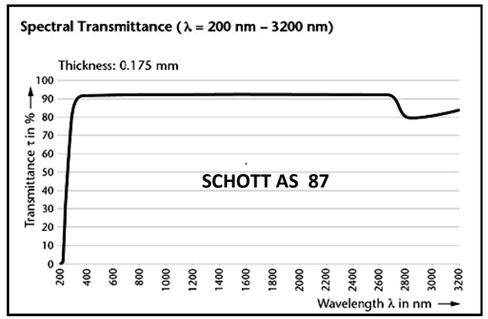

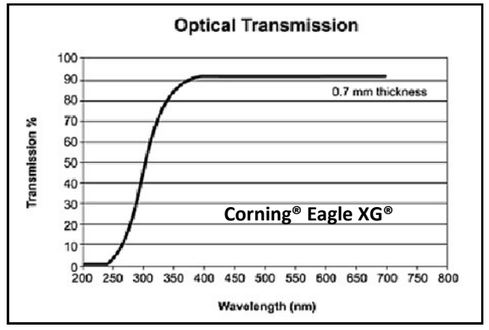

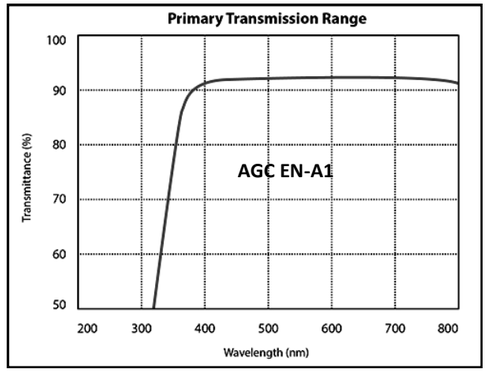

Options

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