

# Ultra-Thin SCHOTT AS 87 eco Aluminosilicate Glass

Touch Displays • Biometric & Image Sensors • Cover Glass

## Glass Fabrication



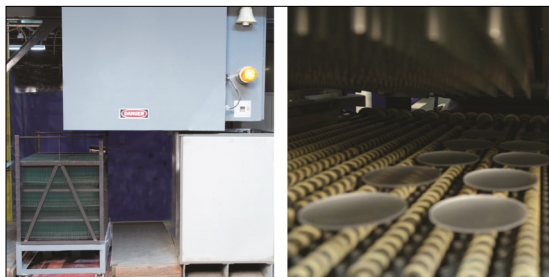
## Coating Deposition



## 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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AS87 10/21



Your Total Solution Partner

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SCHOTT AS 87 eco is an ultra-thin aluminosilicate glass with extremely high levels of bending and impact strength and superior scratch resistance. It's an excellent choice for use as cover or enhancement glass on low profile displays, touch sensors and other applications where thickness and weight are a concern. Abrisa Technologies also provides the material with optional HIE™ chemical strengthening for even higher levels of Knoop and Vicker's hardness, perfect for applications with high contact and frequent handling. Custom fabrication to size and shape, optical coatings, screen printed graphics and oleo/hydrophobic coatings Total Solutions are available.

## Benefits:

- Ultra-Thin for Low Profile Designs
- Optional HIE™ Strengthening
- High Impact Damage Resistant
- Excellent Clear Visual Quality
- Broad Transmission Range (UVB to IR)
- RoHS and REACH Compliant

## Sheet Sizes:

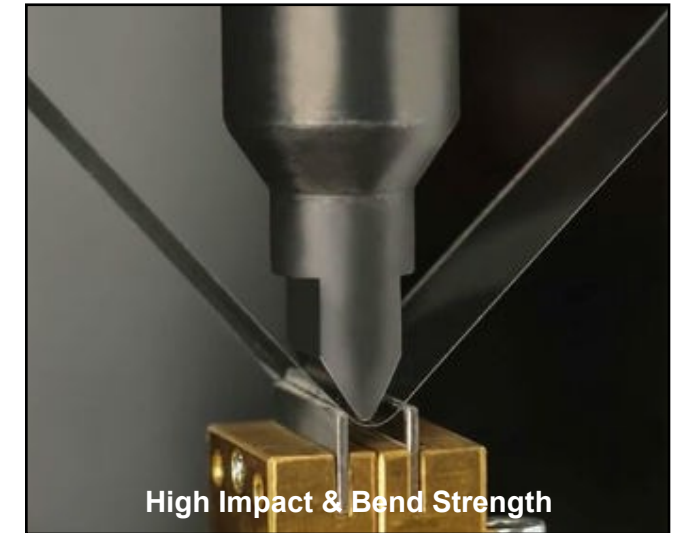
- 19.685" x 15.748" (500 mm x 400 mm)

## Stock Thicknesses: (\* These can be chemically Strengthened)

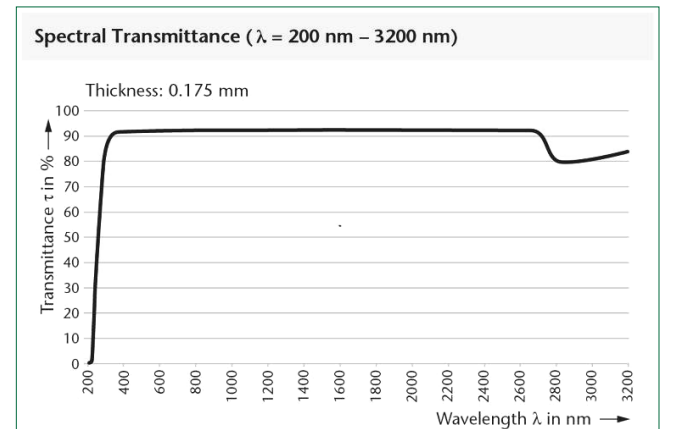
- 0.100 mm (0.0035" - 0.0043")
- 0.145\* mm (0.0053" - 0.0061")
- 0.210\* mm (0.0076" - 0.0088")
- 0.250\* mm (0.0092" - 0.0104")
- 0.330\* mm (0.0124" - 0.0136")

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High Impact & Bend Strength



## Applications:

- Cover Glass for Displays & Touch Panels
- Screen Protectors for Mobile Devices
- Fingerprint Sensor
- Ultra-Thin Glass Applications
- Medical & Bio-Medical
- Automotive Interiors
- Camera Imaging

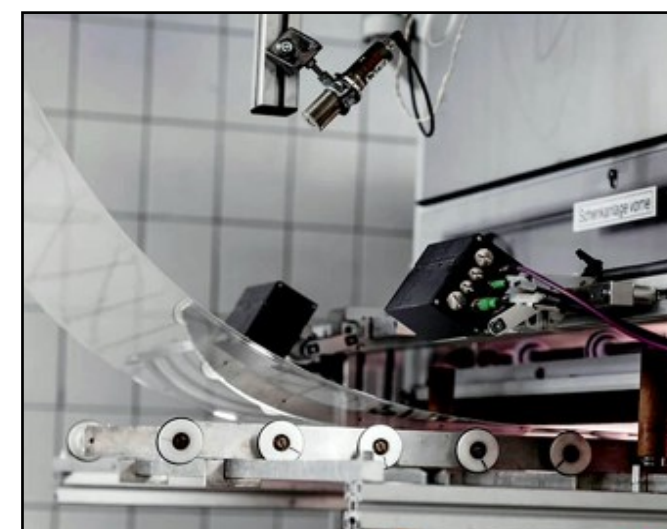
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Mechanical Properties	Measurement
Density $\rho$ in g/cm <sup>3</sup> (annealed at 40 °C/h)	2.46
Young's modulus E in kN/mm <sup>2</sup>	73.3
Torsion G modulus in kN/mm <sup>2</sup>	30.1
Poisson's ratio $\mu$	0.216
Knoop hardness HK 0.1/20	500/560*
Vickers hardness HV 0.2/25	550/630*
Thermal Properties	
CTE (Coefficient of thermal expansion) $\alpha$ in 10 <sup>-6</sup> · K <sup>-1</sup> (20 °C; 300 °C)	8.7
Mean specific heat capacity $c_p$ in J/(g · K) (20 °C to 100 °C)	0.84
Transformation temperature Tg in °C	621
Viscosity lg $\eta$ in dPas	Temp in ° C
Strain point 14.5	594
Annealing point 13.0	633
Softening point 7.6	872
Chemical Properties	
Hydrolytic resistance class	HGB 2
Acid resistance class	S 4
Alkali resistance class	A 1

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Optical Properties	
Refractive index as drawn $n_D$	1.5040 ± 0.0015
Abbe value $v_e$	59.5
Transmittance values $\tau$ ( $\lambda$ ) in %, thickness 0.175 mm	
254 nm	46.3
380 nm	91.5
632.8 nm	92.1
1064 nm	92.2

Electrical Properties	
Dielectric constant $\epsilon_r$ at $\vartheta = 25^\circ\text{C}$	
• At 1 MHz	7.7
• At 1 GHz	7.3
• At 5 GHz	7.2
Dissipation factor $\tan \delta$ at $\vartheta = 25^\circ\text{C}$	
• At 1 MHz	138 · 10 <sup>-4</sup>
• At 1 GHz	133 · 10 <sup>-4</sup>
• At 5 GHz	172 · 10 <sup>-4</sup>
Conductivity at $\vartheta = 25^\circ\text{C}$ , direct current in S/cm	5.6 · 10 <sup>-12</sup>

## 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® 0211 & Eagle XG®
  - SCHOTT AF32, D263® & AS 87
- **Other**
  - Applied Films & Tints
  - Gasket Application
  - Edge Treatment/Blackening

### 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
- Deadfront Ink - Partially Transmissive
- Infrared IR Transmitting Ink
- Silver Epoxy, Silver Frit, CrNiAu Bus Bars