

Thin & Ultra-Thin Lightweight Mirrors

UAVs • Surgical Instruments • Industrial Devices • Enhanced Vision

Glass Fabrication



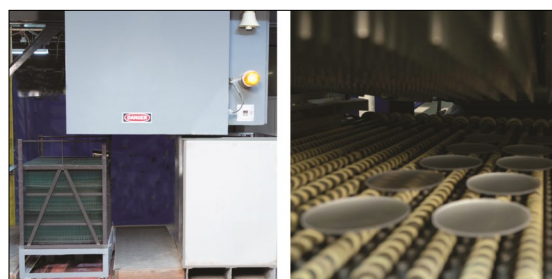
Coating Deposition



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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Your Total Solution Partner

Thin & Ultra-Thin Lightweight Mirrors

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Abrisa Technologies offers ultra-thin (0.1 to 0.55 mm) mirrors that can be inserted into compact devices needing miniaturization, ultra-lightweight or where space for beam steering is at a premium. Custom coated partially reflective mirrors and beam splitters/combiners are also available on ultra-thin substrates offering the advantage of virtually no beam or image translation. Ultra-thin, lightweight mirrors and optics are ideal for use in unmanned drones and UAV's, hand-held surgical devices, compact LiDAR systems, head-mounted AR displays and other portables, and wearables.

Mirrors are offered cut-to-order from our 0.55 mm thick Standard Enhanced Aluminum soda lime glass stock or can be custom coated and optimized for specific spectral requirements on your choice of one of our thin or ultra-thin glasses. Our Total Solutions include ultra-thin glass, specialty fabrication, HIE™ strengthening, optical coating, screen printing, and packaging.

Applications:

- UAV's and Drones
- Handheld Surgical Devices
- Ultra-Light Compact LiDAR
- AR/Head-Mounted Wearables
- Compact System Beam Train

Substrates Available:

- Soda Lime Float
- Ultra-Thin Borosilicates
- High Ion-Exchange (HIE™) Aluminosilicates
- Low Alkaline Glass



Light as a Feather Ultra-Thin Mirrors

Ultra-thin Mirrors require specialized expertise and processes for fabrication, HIE™ strengthening, coating, screen printing, and packaging, all from Abrisa Technologies, **Your Total Solution Partner.**

Cut to Order Mirrors:

- Enhanced Aluminum on 0.55 mm Soda Lime

Custom Coated Mirrors:

- Visible Enhanced Aluminum on 0.1-0.4 mm
- Violet Enhanced Aluminum on 0.1-0.4 mm
- Blue/Green Enhanced Aluminum on 0.1-0.4 mm
- Red Enhanced Aluminum on 0.1-0.4 mm
- NIR/Diode Enhanced Metallic on 0.1-0.4 mm
- Semi-Transparent Mirrors w/AR on 0.1 – 0.4 mm

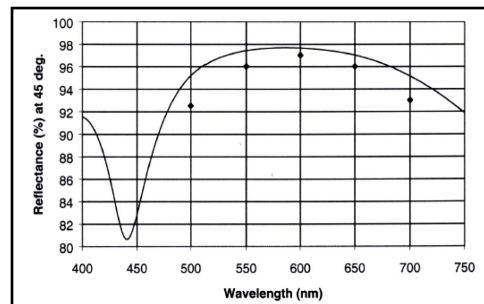
Other Coated Options:

- ITO and IMITO
- AR Coatings
- Beam Splitter
- Filters (on > 0.3 mm Thickness)

Thin & Ultra-Thin Lightweight Mirrors

Abrisa Technologies' ultra-thin mirrors are offered with standard and custom mirror coatings for use in the UV to IR. Metallic coatings already deliver high reflectivity over a broad spectral range, but Abrisa Technologies' ultra-thin mirror coatings also incorporate special dielectric layers that enhance the reflectivity to values as 93-98% which can also be custom tailored for specific wavelengths and angles.

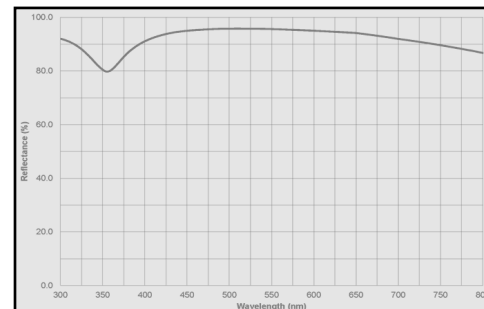
Stocked Enhanced Aluminum



Glass Material, Thicknesses & Min/Max Dimensions

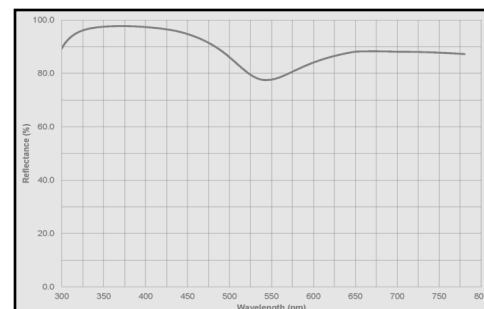
SCHOTT D 263®	SCHOTT AS 87	Corning® Gorilla® Glass	Soda Lime Float Glass
N/A	N/A	N/A	0.55 mm
N/A	N/A	N/A	Dimensions 1.6 mm Min. 350 mm Max.

Visible Enhanced Aluminum



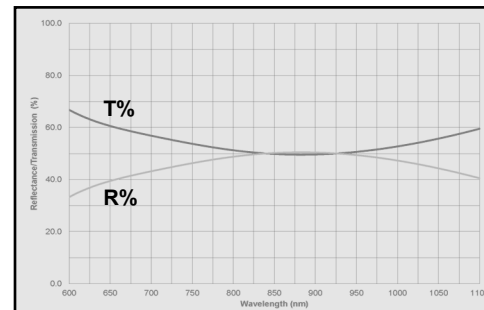
SCHOTT D 263®	SCHOTT AS 87	Corning® Gorilla® Glass	Soda Lime Float Glass
0.1 to 0.4 mm	0.1 to 0.33 mm	0.4 mm	0.2 to 0.4mm
Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 595 mm Max.

Custom Enhanced Aluminum



SCHOTT D 263®	SCHOTT AS 87	Corning® Gorilla® Glass	Soda Lime Float Glass
0.1 to 0.4 mm	0.1 to 0.33 mm	0.4 mm	0.2 to 0.4mm
Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 595 mm Max.

Custom Beam Splitter



SCHOTT D 263®	SCHOTT AS 87	Corning® Gorilla® Glass	Soda Lime Float Glass
0.1 to 0.4 mm	0.1 to 0.33 mm	0.4 mm	0.2 to 0.4mm
Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 200 mm Max.	Dimensions 1.6 mm Min. 595 mm Max.

Thin & Ultra-Thin Lightweight Mirrors



UAVs & Drones



Medical Instruments & Devices



Augmented & Enhanced Vision

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 & 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