

Sensor and Scanner Window Solutions

Imaging • 3D Metrology and Mapping • Obstacle Avoidance

Glass Fabrication



Coating Deposition



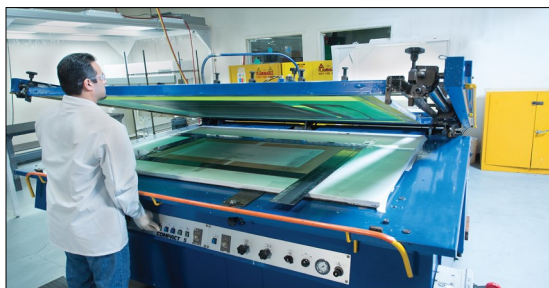
CNC Machining



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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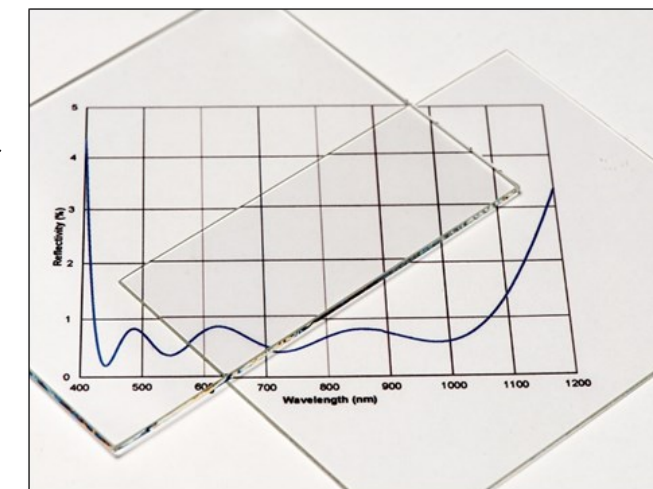


Your Total Solution Partner

Sensor and Scanner Window Solutions

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Optical and image sensor use is on the rise with growing applications in industrial 3D metrology, machine vision, automotive obstacle avoidance, security and surveillance, document and 3D scanning, gesture recognition and other digital imaging applications. Abrisa Technologies' rare combination of performance coating design and volume glass fabrication offers the OEM an opportunity for a Total Solution for their sensor and scanning windows; an excellent balance of optical coating performance and economies of scale.



Abrisa Technologies now offers a selection of coated solutions for both laser line and broad spectral ranges from the visible to SWIR, with large angle-of-incidence accommodation and high throughput. Spectrally selective coatings for use outdoors or with discreet diode emitters are also available.

Sensor and Scan Window Coatings:

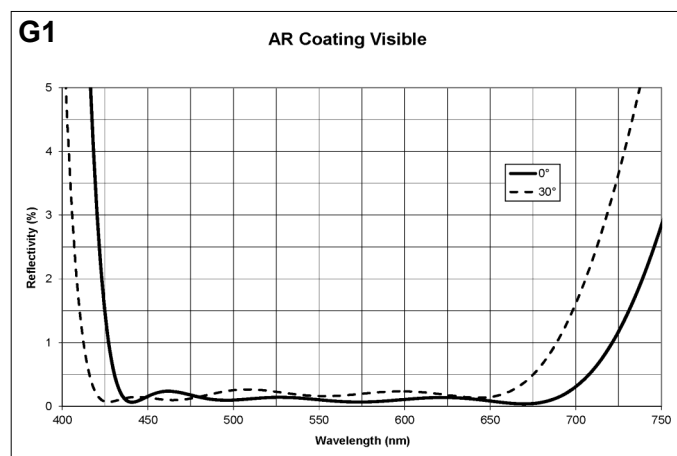
- | | |
|---|------------------------------------|
| • Anti-Reflection Visible (425nm-675nm) | Ravg < 0.5% (AOI = 0-30°) |
| • Anti-Reflection Visible-NIR (425-950nm) | Ravg < 1.0% (AOI = 0-30°) |
| • Anti-Reflection SWIR (900-1700nm) | Ravg < 1.0% (AOI = 0-30°) |
| • Broad Angle Anti-Reflection Laser Line | Ravg < 0.5% (AOI = 0-50°) |
| • Ultra-low Anti-Reflection NIR Diode | Ravg < 0.1% (AOI = 0-30°) |
| • Cut Off, IR Blocking Filter/Mirror | Visible Transmission, NIR Blocking |
| • Cut On, VIS Blocking Filter, Mirror | Visible Blocking, NIR Transmitting |

Damage Resistant and "Tough" Environment Solutions:

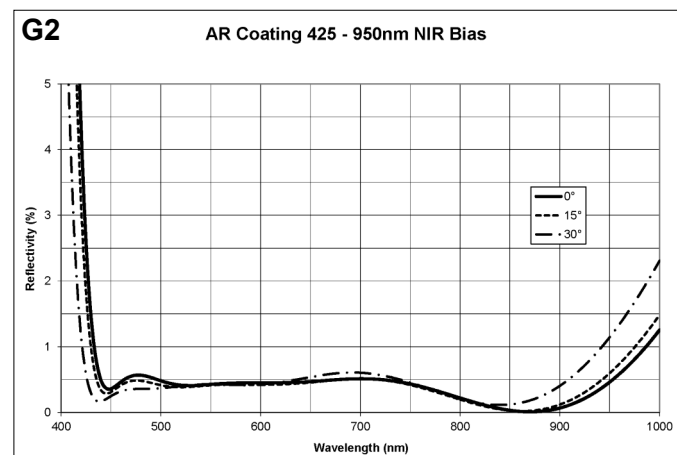
Many applications for sensors and scanners are industrial or for field use where uptime and reduced product maintenance are not just desirable, but a necessity. Abrisa Technologies offers coated sensor and scanner window solutions for these "tough" use environments as well, whether they be outdoors in sunlight, on the seas or on the road, installed in a hot and humid factory, have high traffic interface contact or constant exposure to dirt and other contaminants.

Sensor and Scanner Window Solutions

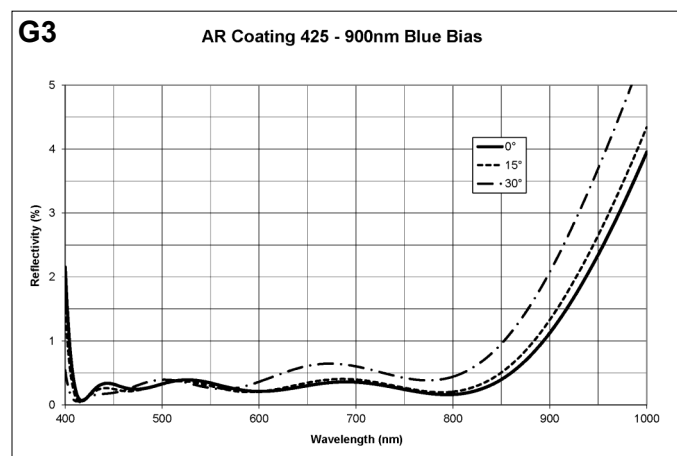
Imaging • 3D Metrology and Mapping • Obstacle Avoidance



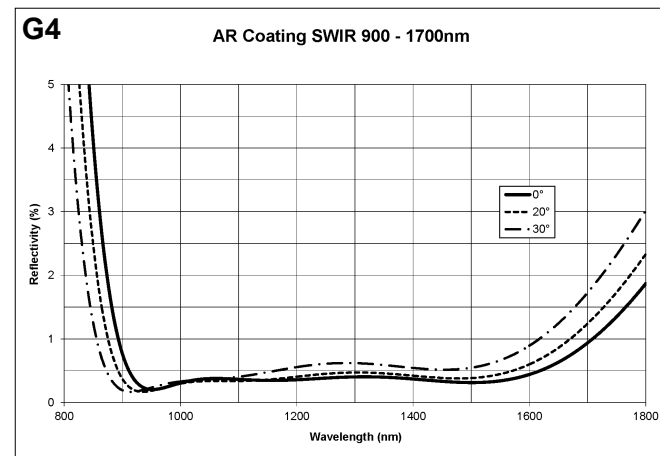
- Visible AR coating for full color LCD & OLED Displays
- $R_{avg} < 0.5\%$ (AOI = 0-30°) 425-675nm
- Also available with oleo/hydrophobic properties



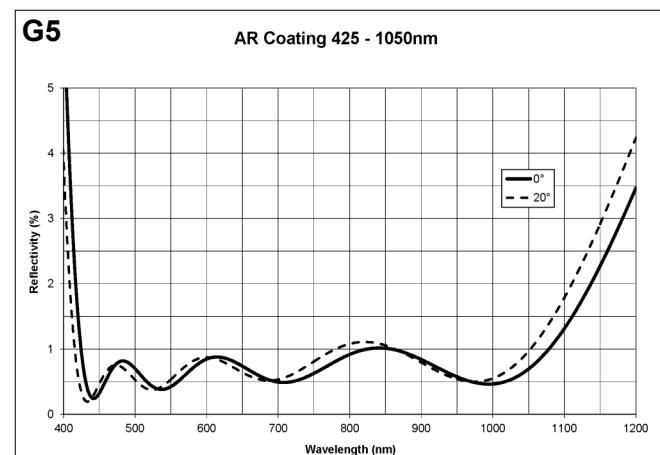
- VIS-NIR coating compensates for weak diode signal
- $R_{avg} < 1\%$ 425-900nm & $R < 0.5\%$ NIR, (AOI = 0-30°)
- Also available with oleo/hydrophobic properties



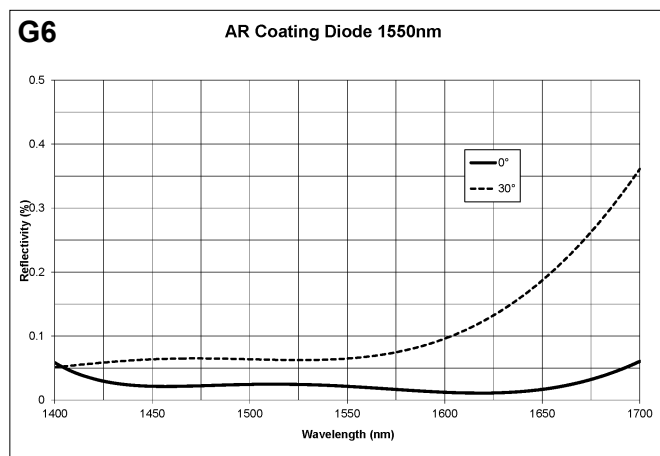
- VIS-NIR coating to enhance blue responsivity
- $R_{avg} < 1.25\%/1.5\%$ 425-850nm (AOI = 0/30°)
- Also available with oleo/hydrophobic properties



- Coating for machine vision & spectral analysis
- $R_{avg} < 1.0\%/1.5\%$ 900-1700nm (AOI = 0/30°)
- Also available with oleo/hydrophobic properties



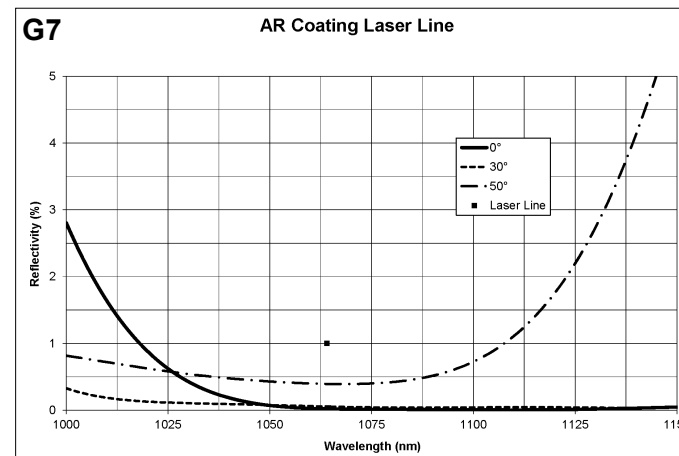
- Expanded range VIS-NIR AR coating
- $R_{avg} < 1.0\%$ 425-1050nm (AOI = 0-20°)
- Accommodates diode emitter sources (730-980nm)



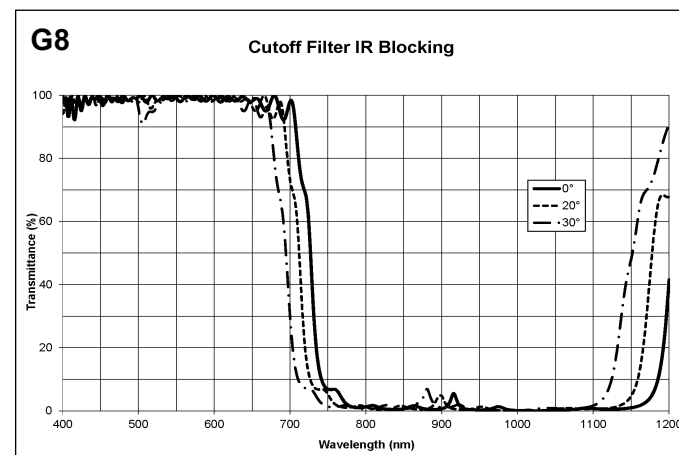
- Low loss coating $R < 0.1\%$ for 1550nm
- Maximum signal preservation for diode emitters
- Accommodates diode spectral variance/thermal drift

Sensor & Scanner Window Solutions

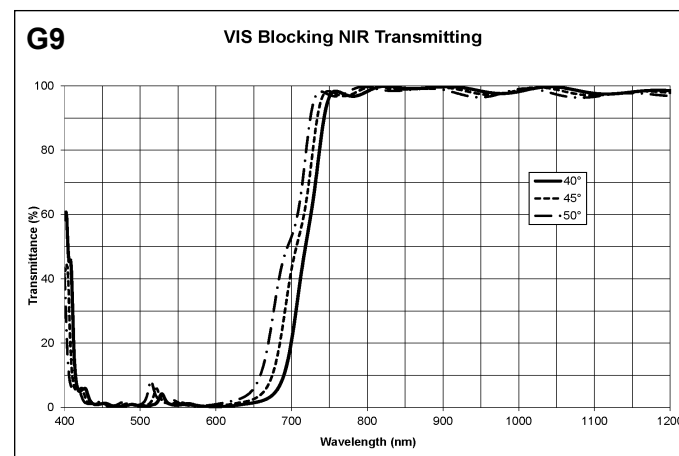
Security and Surveillance • Machine Vision • Displays



- Wide angle coating for 3D metrology, printing, scanning
- $R_{avg} < 0.5\%$ (0-50°) at single wavelength
- Custom designs for diode & laser wavelengths



- Heat or NIR blocking, visible light transmitting
- Protects underlying sensor from NIR heat load
- Blocks unwanted NIR diode source interference



- Visible reflecting, NIR Transmitting
- Reduces visible light saturation, improves contrast
- Transmits diode source emitter wavelengths

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

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