

# Precision XY Saw Cutting of Glass, Wafers & Filters

Micro-Optics • Sensing • Scanning • Sights • Indicators

## 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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XY Sawing 0424



Your Total Solution Partner

# Precision XY Saw Cutting of Glass, Wafers & Filters

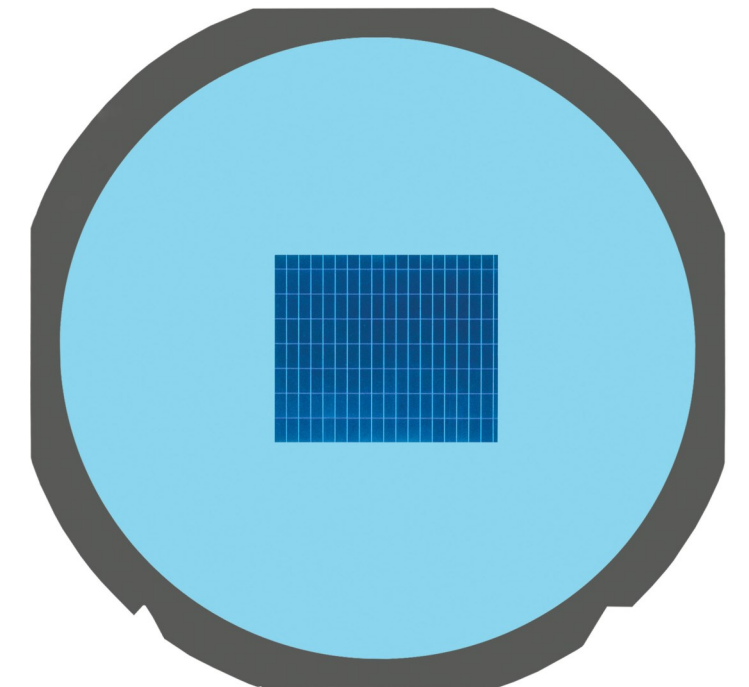
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Abrisa Technologies offers Precision XY Saw Cutting services utilizing processes originally developed for semiconductor wafer dicing. The camera assisted array saw cutting method is ideal when parts are rectangular and volumes high as well as when parts are small or when parts require XY dimensional tolerances such as 0.025mm with consistent perpendicularity of edges to faces. The process is key when small optical components must be fit/press fit or hermetically sealed and in need of low cosmetic, chip free defects and a near "100%" coated clear aperture for imaging, sensing, laser beam steering, indicators, and sighting.

Edges generated by the saw cutting/dicing process have a ground finish, making them well suited for epoxy bonding. Other features as steps, grooves, channels, or mini mounting "flanges" can also be generated using the saw cutting process. Popular materials processed include coated and uncoated glass, glass wafers, filter glass, rods, acrylic and optically bonded structures of 0.2mm to multi mm's in thickness.

## Capabilities:

- Vinylized Diced Patties/Wafer Dicing
- Precision Thin Linear Grooves
- Fine Ground Edges & Tight Tolerances
- Low Cosmetic & Chip Defects
- Camera Assisted Array Cutting
- Glass, Acrylic & Bonded Structures
- Edge Printing, Graphics & Laser Marking



## Ideal for:

- High Volume, Small Part Fabrication
- Filters, Mirrors, Windows, Beam Splitters, Sights
- Precision Fit Rectangular Components
- "100%" Clear Aperture Parts
- Wafer or Filter Glass Master Formats



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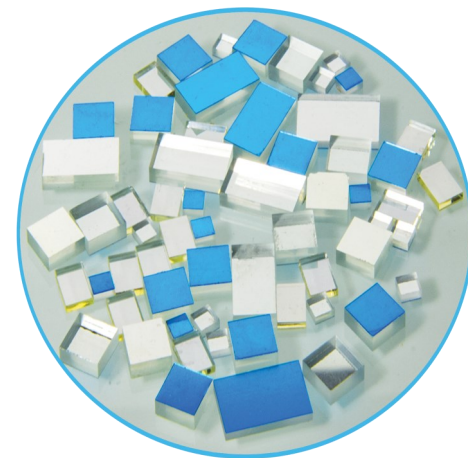
Abrisa Technologies offers saw cutting on coated & uncoated materials including:

- Corning® Eagle® XG, SCHOTT D263®-T eco & BOROFLOAT® 33
- Soda Lime Float, Glass Wafers, Filter Glass, Non-Glare Glass
- Coated Stock Sheet Glass Mirrors, Beam Splitters, Display Glass
- Abrisa Technologies Custom Coated Materials or Customer Furnished Material
- Acrylic, Bonded/Laminated Sandwich Assemblies & More

## Precision XY Sawing (Slicer)

Cut Tolerance*	0.025 mm [0.001"]
Maximum Thickness	5 mm [0.236"]
Minimum Thickness	0.20 mm [0.008"]
Maximum Material Size	165 mm x 165 mm [6.5" x 6.5"]
Minimum Material Size	51 mm x 51 mm [2" x 2"]

\* Cut tolerances are 0.05 mm [0.002"] for thicknesses greater than 2.5



## Feature Types



**Channels/Grooves**  
0.010 to 0.080" (0.254 to 2.03 mm) Wide



**Steps/Flanges**



**Full Saw Cut Singulation**  
0.008 to 0.197" (0.20 to 5.0 mm) Thick

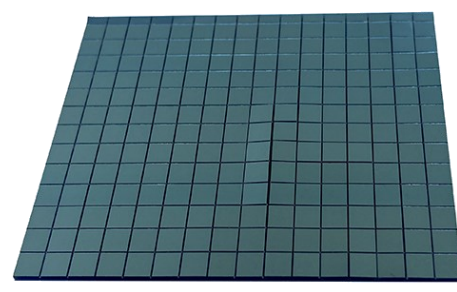
## Camera Assisted Array Cutting:

Our saw cutting process is camera assisted and can perform XY array cutting with position registration to within 0.001" (0.25 mm) relative to a corner, edge, fiducial, notch, flat, or other precision locating feature. Camera assist is critical when both part singulation and concurrent channel/groove or step location is key or when coatings, patterns, or other surface treatments are clocked or optically located.

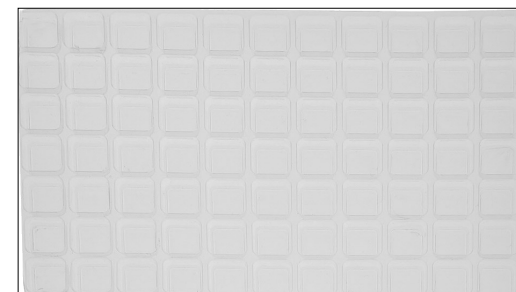
## Special Packaging:



**Packaging in Capsules**



**Vinylized Singulated Parts**



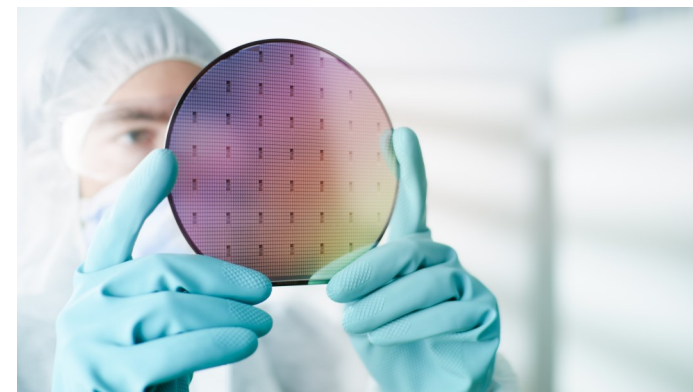
**Custom Molded Packaging Trays**

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**Cockpit Displays & Indicators**



**Semi/Micro-Optics**



**Handheld Surgical Systems**



**Sights & Beam Steering**

## 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**
  - Corning® Eagle XG®
  - SCHOTT AF32, D263® & AS 87
- **Other**
  - Applied Films & Tints
  - Custom Cut Gasket Application & Assemblies
  - 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