IX-210
UV Dicing & Scribing System

Applications
- Scribing and Dicing of LED and Semiconductor Wafers
  - Sapphire, Si, SiC, GaAs and other Semiconductor Materials
- Precision Foil and Film Cutting
- Metal Dicing
  - Cu, Mo, Alloys

Features
- High Speed Wafer Singulation
- Scribe Speeds up to 300 mm/sec
- Patented Astigmatic Line Beam for Narrow Cuts-Down to 2.5 microns
- Low Processing Cost - One System replaces Multiple Dicing Saws or Diamond Scribers
- High Quality, Reliable Non-contact Technique Provides 24/7 Maintenance-free Operation
- Versatile - “Scribe & Break” or Dicing/ Cutting for GaAs, Silicon and other Materials including Sapphire LED Wafers

IPG Microsystems’ IX-210 solid-state laser machining system delivers high-speed wafer singulation with operating costs 20-30 times less than dicing saws or diamond scribes. With its high throughput and process automation, the system pays for itself in weeks rather than years. The revolutionary IX-210 employs proprietary technology including lasers, optics, motion control and process automation, providing unparalleled performance; with multiple laser choices the system can be configured to process a multitude of materials.
**IX-210**  
**UV Dicing & Scribing System**

### Characteristics

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<tr>
<th>Frame and Enclosure</th>
<th>Fully enclosed Class I laser system, heavy duty weldment frame integrates laser, beam delivery system and control electronics into a single 1.2 m x 1.0 m footprint; includes casters and leveling feet with vibration isolation pads</th>
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<td>Available Wavelengths</td>
<td>266, 355, 532, 1064 nm</td>
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| Beam Delivery System for Wafer Dicing | **All Granite Beam Delivery Support Structure**  
Patented optical beam delivery configuration for ultra narrow scribing kerf; Vibration isolating mounting platform for wafer stages and beam delivery optics; Stiffness and large thermal mass of granite structure prevent changes in beam delivery system alignment over time; Pneumatic, 2 position Laser Beam Stop; Precision optic mounts for stability and ease of adjustment; Select grade UV optics; Cut widths down to 2.5 μm with patented high resolution optics |

### System Specifications

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<th>Motion Control Electronics</th>
<th>Up to 12-axes of Servo or Step Motor Control, integrated into single interface for all motorized components as well as the laser fire mechanism</th>
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<td>Air-bearing X-Y Part Positioning Stage</td>
<td>Linear Glass Scale Encoders; Linear Motor Servo Drive System</td>
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| X-Y Stage Specifications | Up to 150 mm diameter processing area  
Resolution: 0.1 μm  
Accuracy: ±3 μm over 150 mm travel  
Repeatability: <1 μm (bidirectional) |
| Z-theta Wafer Alignment Stage | Servomotor Drive System for both Z- and Theta-axes |
| Z-axis Specifications | Travel: 10.0 mm  
Resolution: 0.25 μm  
Accuracy: 5.0 μm  
Repeatability: 1.5 μm (bidirectional) |
| Theta-axis Specifications | Travel: ±175°  
Resolution: 3.6 μrad  
Accuracy: 300 μrad overall. 25 μrad/°  
Repeatability: ±5.0 μrad |
| Video Microscope System | MicroTech Camera Assembly  
OXC Camera for On-target Process Viewing  
High Magnification Inspection Camera |

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