

# 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 Scribes
- ▶ 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.

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## UV Dicing & Scribing System

### Characteristics

Frame and Enclosure	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
Available Wavelengths	266, 355, 532, 1064 nm
Beam Delivery System for Wafer Dicing	<b>All Granite Beam Delivery Support Structure</b> 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 $\mu\text{m}$ with patented high resolution optics

### System Specifications

Motion Control Electronics	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
Air-bearing X-Y Part Positioning Stage	Linear Glass Scale Encoders; Linear Motor Servo Drive System
X-Y Stage Specifications	Up to 150 mm diameter processing area Resolution: 0.1 $\mu\text{m}$ Accuracy: $\pm 3 \mu\text{m}$ over 150 mm travel Repeatability: $< 1 \mu\text{m}$ (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 $\mu\text{m}$ Accuracy: 5.0 $\mu\text{m}$ Repeatability: 1.5 $\mu\text{m}$ (bidirectional)
Theta-axis Specifications	Travel: $\pm 175^\circ$ Resolution: 3.6 $\mu\text{rad}$ Accuracy: 300 $\mu\text{rad}$ overall. 25 $\mu\text{rad}/^\circ$ Repeatability: $\pm 5.0 \mu\text{rad}$
Video Microscope System	MicroTech Camera Assembly OXC Camera for On-target Process Viewing High Magnification Inspection Camera

+1 (603) 518-3200

sales.ipgm@ipgphotonics.com

[www.ipgphotonics.com/microsystems](http://www.ipgphotonics.com/microsystems)

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