

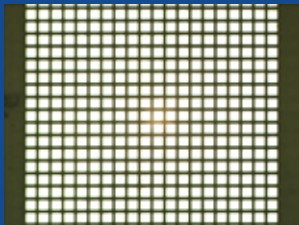
# IX-6100-PCD

## Probe Card Drilling System

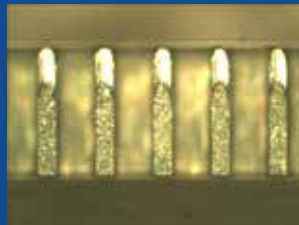


### Applications

- ▶ Probe Card Drilling



Thin Walls between  
Micro Holes

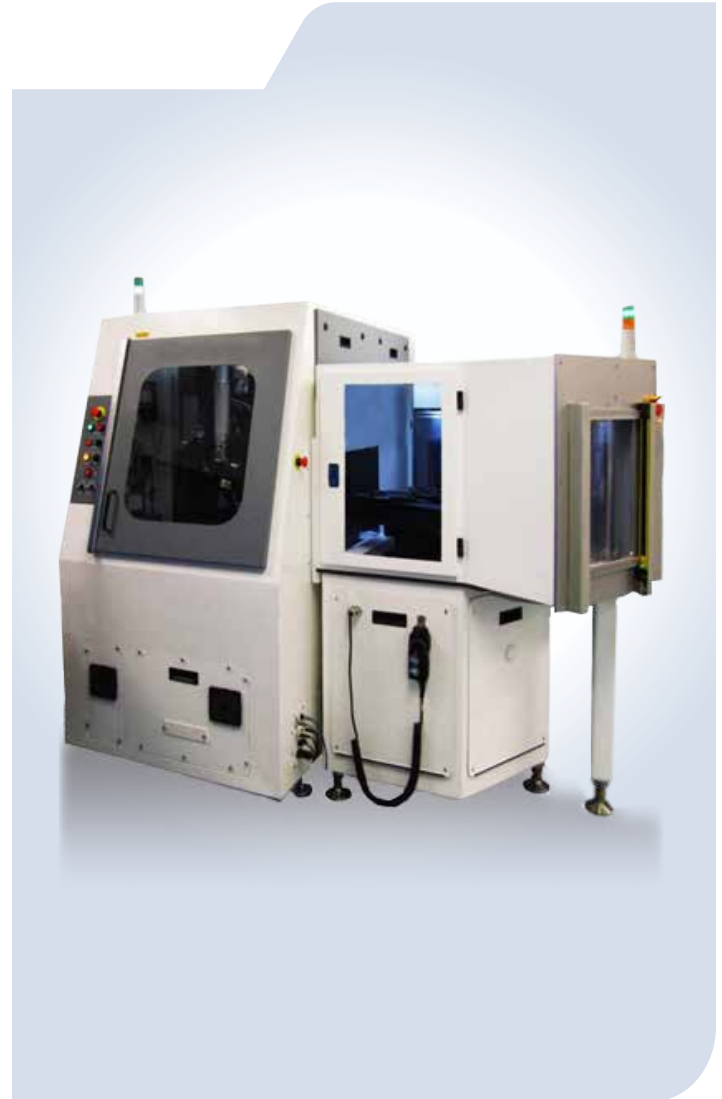


Cross Section:  
Controlled Taper



### Features

- ▶ Tight Feature Dimensional Control
- ▶ High Feature Placement Accuracy  $< \pm 3 \mu\text{m}$
- ▶ High Feature Drilling Rates
  - 200  $\mu\text{m}$  Thick Silicon Nitride:  $< 1$  second per hole
  - 250  $\mu\text{m}$  Thick Silicon Nitride: 1 second per hole
  - 381  $\mu\text{m}$  Thick Silicon Nitride:  $< 2$  seconds per hole



**IPG Microsystems' IX-6100-PCD** (Probe Card Driller) solid-state laser hole drilling system delivers high throughput at  $< 1$  second per hole for 200  $\mu\text{m}$  thick, 1 second per hole for 250  $\mu\text{m}$  thick and  $< 2$  seconds for 381  $\mu\text{m}$  thick silicon nitride. With low operating costs, virtually zero taper holes and hole placement accuracies at  $\pm 3 \mu\text{m}$ , the IX-6100-PCD sets new benchmarks in process speed, guide plate yield and return on investment.

The IX-6100-PCD is optimized for demanding 24/7 high volume production of silicon nitride hole drilling with proprietary beam forming optics and high accuracy air bearing stages configured for multiple guide plate sizes and shapes. By providing the highest drilling throughput, the IX-6100-PCD provides the lowest cost of ownership of any probe card laser machining system.

# IX-6100-PCD

## Probe Card Drilling System

### 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 M x 1.9 M footprint; includes casters and leveling feet with vibration isolation pads
Beam Delivery System for Wafer Dicing	<b>All Granite Beam Delivery Support Structure</b> 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

### System Specifications

Motion Control Electronics	Up to 8-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 Guide Plate Positioning Stage	Linear Glass Scale Encoders; Linear Motor Servo Drive System
X-Y Stage Specifications	Travel: Up to 200 mm diameter processing area Optional Stages: Compatible up to 300 mm wafer processing Resolution: 0.1 $\mu\text{m}$ Accuracy: $\pm 3 \mu\text{m}$ over 125 x 125 mm Processing Area Repeatability: $\pm 1.5 \mu\text{m}$ over 125 x 125 mm Processing Area
Z-axis Specifications	Travel: 10.0 mm Resolution: 50 nm Accuracy: $\pm 2.5 \mu\text{m}$ Repeatability: 1.5 $\mu\text{m}$
Theta-axis Specifications	Travel: $\pm 175^\circ$ Resolution: 3.6 $\mu\text{rad}$ Accuracy: 300 $\mu\text{rad}$ overall. 25 $\mu\text{rad}/^\circ$ (unidirectional) Repeatability: $\pm 5.0 \mu\text{rad}$
Video Microscope System	MicroTech Camera Assembly OXC Camera for On-target Process Viewing; High Magnification Inspection Camera
Programmable Illumination	Programmable Control of Lighting Intensity for Automated Imaging and Alignment
Optional Equipment	Automated Cassette Load/ Unload System Wafer Pre-aligner Features Vision System with Automatic Part Alignment Database Connectivity Software; Optional 12-axes of motion On-target Power Meter; Laser Calibration Power Meter/ Beam Stop Debris Management System

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