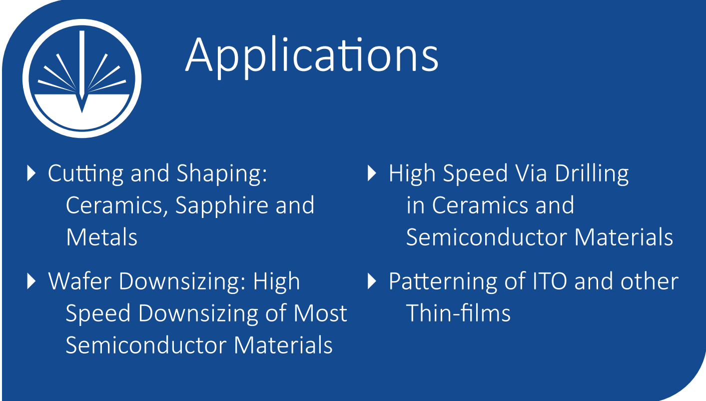
IPG PHOTONICS

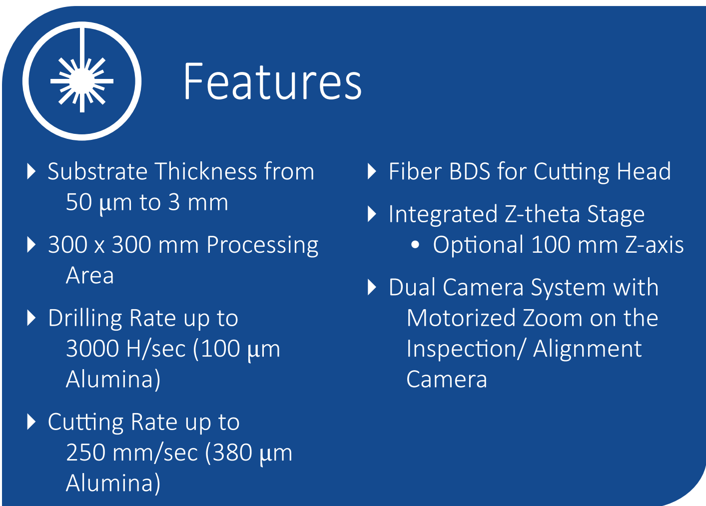
IX-280-C
Ceramic Packaging Micromachining System

NEW PRODUCT



Applications

- Cutting and Shaping: Ceramics, Sapphire and Metals
- Wafer Downsizing: High Speed Downsizing of Most Semiconductor Materials
- High Speed Via Drilling in Ceramics and Semiconductor Materials
- Patterning of ITO and other Thin-films



Features

- Substrate Thickness from 50 µm to 3 mm
- 300 x 300 mm Processing Area
- Drilling Rate up to 3000 H/sec (100 µm Alumina)
- Cutting Rate up to 250 mm/sec (380 µm Alumina)
- Fiber BDS for Cutting Head
- Integrated Z-theta Stage
  - Optional 100 mm Z-axis
- Dual Camera System with Motorized Zoom on the Inspection/ Alignment Camera

IPG's IX-280-C provides high speed drilling and cutting of ceramics and semiconductor materials. The system combines a Class 1 workstation including part-handling stages, vision systems and control electronics, integrated with a high efficiency QCW fiber laser.

Applications include drilling and singulation of ceramic devices, substrates and packages. Specifications are dependent on materials but minimum drilled hole diameters of 15 µm, scribing rates of >300 mm/ sec and cutting speeds >250 mm/sec for 380 mm thick alumina are typical.

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Characteristics

Base Platform	Class 1 laser system with integrated laser, heavy duty weldment frame, all-granite vibration isolation platform and beam delivery support structure in a 1000 mm x 1220 mm footprint

Specifications

Laser	1070 nm QCW, power selectable at time of order; typically 150/1500 W or 300/3000 W
Beam Delivery	FLC-D30 Cutting Head or FLC Micro Cutting Head
Part Handling	
Motion Control Electronics	Additional 4- or 8-axes of motion, required for some options
X-Y Stage Specifications	300 mm x 330 mm; Accuracy: ±5 µm over 125 µm travel (±3 µm Optional); Repeatability: <1.0 µm
Z-theta Adjust	Choice of standard or high performance manual or motorized Z-theta stages
Lathe Stage (Optional)	Rotary stage for round parts up to 10 mm diameter; mounts to standard X-Y stage
Beam Formation and Scanning	
Beam Delivery	Fiber delivery to cutting head
Laser Optics	Beam demagnification or expansion optics to support target application
Thermal Cutting/ Weld Head	Integrated gas jet assembly, two process gasses supported, options include lens focal lengths and nozzle diameters
Beam Characterization	
Power Meter	On-target power meter and data logging enables programmable measurement and adjustment
Vision System and Alignment	
Dual Camera System	MicroTech vision system with 8.3 and 0.12 µm/ pixel process and inspection resolution
Programmable Illumination	Programmable control of lighting intensity for automated optimization of imaging and alignment
Alignment	Options for automated part, beam-camera alignment and in-process positional adjustment

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