

Geode™ A

CO₂ Via Drilling For FCBGA(ABF) IC
Substrate Manufacturing .



mks | ESI

The industry's most Innovative CO₂ via drilling system
powered by quasi-continuous wave laser and AOD
technology for maximum performance.

The Geode™ A laser drill combines special laser/optics configuration with precision pulse shaping and steering specifically designed for ABF materials. Geode's technology enables a greener manufacturing solution through 21% less floor space 72% less weight and up to 65% less power consumption than the competition. The combination of QCW laser and AOD technology also ensures highest throughput and lowest cost of ownership for our customers.



Throughput



Hypersonix

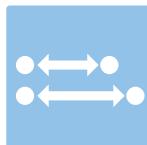
MKS expertise with acousto-optic devices (AOD) enables sound waves to modify laser energy for optimum throughput.



AcceleDrill

Geode uses AODs for spatial energy distribution and beam steering to maximize applications flexibility.

Accuracy



VDC

Via Density Compensation improves via diameter stability, accuracy and throughput.



BCT

The MKS beam characterization tool offers precision in-line laser/optical evaluation and control for improved calibration and via consistency.

Footprint



LiteDesign

Compact and lightweight system architecture allows for more installation flexibility and reduces production footprint.



UpTime

Easy-access design improves serviceability and decreases maintenance and service downtime.

Dimensions (w Std. L/UL)		Measurement with doors closed (during system operation)
Width		403cm (159in)
Depth		194cm (76in)
Height (beacon light tower removed)		198cm (78in)
Height (beacon light tower installed)		221cm (87in)
Height (front door open)		250cm (98in)
Feature	Specification	
Target Applications	FCBGA-IC Substrate	
Target Via Range*	30-85um	
Total System Accuracy	<7um $ M + 4\sigma$	
Scan Area**	12mm x 6mm	
Panel Size Range	16"x20" to 22.05"x24.5"	
Panel Thickness Range	50um-3000um	
Panel Processing	Dual-head two panel system	
Material Types	ABF, non-Cu cladded dielectric	
Throughput***	1m Vias: 13k VPS 2m Vias: 15k VPS 3m Vias: 18k VPS	
Peak Power	100W	
Laser Pulse Frequency	200kHz (No rep rate)	
Average Power	>250W	
Processing	LDD Conformal Mask	
Energy Monitoring	Real time pulse energy & monitoring (programmable alarm settings)	
Special Features	Beam Characterization Tool, Temperature Control Unit	
Panel Height Detection	Touchdown sensor (calibrated to align with camera focus), Z-Mapping	
Available Load/Unload Automation	Standard, Standard with NG Function, Panel Flipper with NG Function	
Automation Accuracy (panel to chuck)	500um	

* Target Via Ranges indicate range for best throughput performance. Actual range is larger.

** ESI's Third Dynamics™ beam positioning technology.

*** Figures are single-pulse recipes based on Test Toolpath for 45um via (38um PET, 25um ABF).

Ask an Expert! For facilities guidelines, requirements or more information, please contact your local MKS representative or visit www.esi.com.