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FDA APPROVED

PRIMA GRN ng-ie

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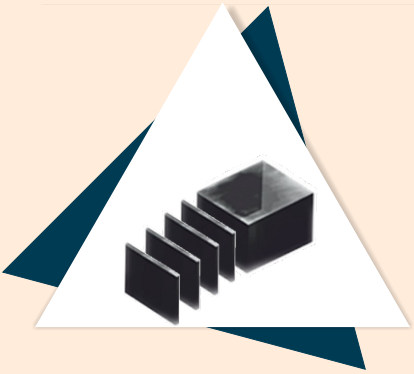
STPL Laser Diamond Cutting System

The PRIMA GRN-ng line of laser cutting systems from STPL utilize a green 532nm Northrop Grumman laser to achieve the smoothest, most precise cuts.

This US Government FDA approved 3-axis laser cutting system offers an economical, high-throughput configuration capable of core and slicing up to 49 and 20 stones in a single batch respectively. The indigenous fixture can be readily changed for switching the jobs between slicing and coring.



Slicing/Seed Cutting

- Smooth Surface
- Minimum Taper
- Minuscular Blackening
- Minimum Kerf
- Fast Speed
- 20 Stones in a single setting

Coring/2D Shape Cutting

- Smooth Surface
- Sharp Edges
- Minimum Weight Loss
- Minimum Breakage
- User Friendly Software for Simple pre defined Shapes
- 49 Stones in a single setting

Specifications

Performance/Specifications		Values	Units	
Laser Power (532nm)		>16	watts	
Axis		3	qty	
Slicing				
Stone Capacity		20	qty	Max
Roughness RA		upto N4	ISO 1302	Typ
(Test IS 3073, ISO 4287, 4288)		0.21	microns	Typ
Kerf @ 12W	5x5mm	140	microns	Typ
	7x7mm	190	microns	Typ
	10x10mm	246	microns	Typ
Time to Slice (Typ Kerf Above)	5x5mm	8	minutes	Typ
	7x7mm	13	minutes	Typ
	10x10mm	30	minutes	Typ
Coring				
Stone Capacity		49	qty	Max
Time to Core (Typ Kerf Above)	5x5x5mm	18-25	minutes	Typ
	7x7x5mm	25-30	minutes	Typ
	10x10x5mm	35-45	minutes	Typ

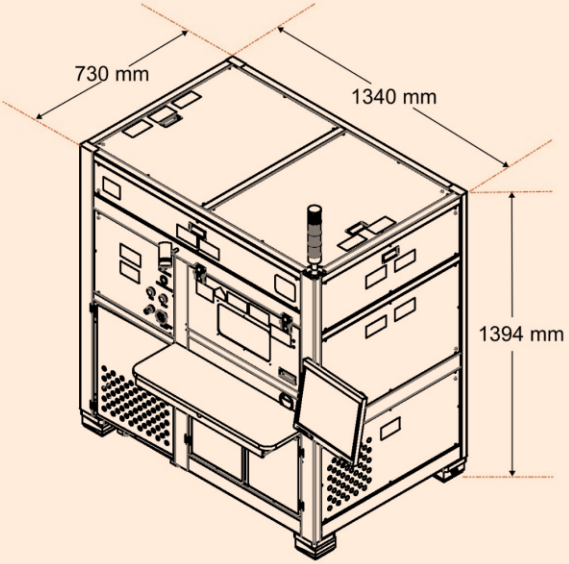
Component	Type	Manufacturer
HLR Laser	Nd:YAG, 532nm, >16W, TEM_{oo}	Iklwa, Northrop Grumman
Cooling System	Water Cooled	SMC USA
Power Supply	Programmable	Sorensen, USA
Q-Switch Driver		Gooch & Housego, UK
Ball Screw		THK, Japan
Motor		Fuji, Japan

Operational Environment		
Temperature	72-77	°F
	22-25	°C
Humidity	60-70	%
Electrical Power	Single Phase	2.5kW, 230V, 50Hz, 11A

Heavy electrical loads from nearby machinery or equipment (i.e., elevators or electric welders) can cause intermittent system errors even if that equipment is on a separate circuit breaker. When faced with these conditions, you should provide a separate, completely independent power panel with an isolated ground and circuit breaker coming directly from the main building power source or secondary power source

Additional Equipment Required (not included in system)	
Uninterruptible Power Supply (UPS)	>5kVA 30 minute with isolation transformer and a harmonic reduction filter
Safety Glasses	532nm Protection
Dehumidifier	60-70% optimal
Power Meter	For monitoring laser stability and power *https://www.ophiropt.com/laser--measurement/laser-power-energy-meters/products/smart-displays/nova*
Temp/Humidity Monitor	Monitor Laser Room
Laser IR Plate	For Laser Alignment
Carbon Evacuation System	Approximately 10cm (4") Duct. See your local codes and facilities management for detailed requirements.
Fire Control System	The fire control system should be implemented in the Laser room. (CO_2 fire extinguisher should be available in case of fire in or around the system. Don't use liquid or Halon fire extinguishers).
Consumables	Distilled Water (20Liters initial startup) for chiller, cooling of laser head. PH ~7.06 Conductivity at 25°C = 0.01 µS/cm at 25°C Resistance = 10-18 MΩ at 25°C
	Optishield for corrosion resistance *https://www.optishield.net/Optishield_Plus.php*
	Dry Air for cleaning optics
	Acetone and high quality wipes for lens/optics cleaning
	Stone sticking adhesive
	5 micron partial filter to prevent the accumulation of debris in the cooling system
	Hydrogen Peroxide (30%) for coolant system cleaning maintenance

Weights and Dimensions			Units
Machine Dimension	L×D×H	1340×730×1394	mm
Dimensions with LCD and Keyboard	L×D×H	1672 (with LCD) ×1068(with keyboard pad) ×1656 (with tower light)	mm
Required Space Around System	Clearance	530	mm



PRIMA GRN ng-ie (3-axis) / PRIMA GRN ng-ie (5-axis)

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