



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076

Purchase Requisition No. 100005823 (SRM/Rfx No. 610000093)
Technical Specification For
Nanosecond Pulse Laser Equipment for Dielectric Ablation and Metal
Fire Through Dielectric for PERC Solar Cell Applications

I	Major Application	Dielectric ablation and metal fire through dielectric for PERC solar cells.
II	Major Requirement	Stand-alone nanosecond pulse laser system with galvo scanner and computer installed with interfacing software.
III	Technical Details	
	Laser	
	1. Type	Pulse Nanosecond Solid State Laser
	2. Medium	ND: YV04 , End diode pumped
	3. Wavelength	532 nm (Green)
	4. Pulse Frequency	15 kHz to 400 kHz
	5. Power	Minimum 10 W @200 kHz
	6. Pulse Width and Energy	25 ns or less and more than 600 μ J at 30 kHz
	Galvo Scanner	
	1. Lens	250 mm
	2. Marking field	180 mm x 180 mm
	3. Beam Expander	1:1.5
	4. Position Accuracy	Less than or equal to 50 μ m
	5. Repetition Accuracy	Less than or equal to 25 μ m
	6. Minimum scribe width	25 μ m
	Supply Unit	
	1. Power Supply	230 V AC single phase or 400 V AC three phase, 50 Hz as per Indian standard
	Cooling Unit	
	1. Coolant	Preferably air cooled with integrated water cooling

System Footprint	
1. Length x Width	Maximum 1.5 m x 1.5 m
Computer and Software	
1. Operating System	Windows 7 or above. (Free upgradation as applicable) Language : English
2. Software	Provision to set laser parameters like pulse properties, power ramp up etc., drawing and editing objects and its positions, correction for non-normal incidence, import and export different file formats like PLT, DXF, PS, PDF etc.
Warranty	At least one year warranty from the date of installation.
Operation and service manual	Electronic and hard copy in English language should be provided with the equipment.
Others	<ol style="list-style-type: none"> 1. The facility requirements like vacuum, exhaust, gases, requirements for installation etc. to be stated in the bid. 2. Installation and training to be included in the quote. 3. Vendors may be called for technical presentation to an expert committee. 4. We may require the evaluation of test samples as part of technical evaluation. 5. List of at least 5 consumers (Industry/ acclaimed research and development centres) who are using the equipment for PERC solar cells, with contact details should be included. 6. The system should be completely field serviceable and should not need a factory repair. 7. The company should have trained manpower in India for quoted system for after sale service.

		8. Required to have the provision for remote online access.
	Optional Items	<ol style="list-style-type: none"> 1. Class I, IP54 protection class housing for the laser system (if applicable) to be included in the quote. 2. Camera-based system for detecting the positioning of wafers (if applicable) should be quoted as an option. 3. Vacuum fixed chuck of size 158 mm x 158 mm should be quoted if it is not included in the basic standalone system. 4. Essential spare parts for preventive maintenance should be listed and quoted as an option. 5. Consumables (if any) for using the system for one year should be quoted as an option.

Note : Optional Items will not be consider for calculating L1.