



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION**

PR NO. 1000044306

RFX No.: 610002008

**Technical specifications for Neodymium doped :Yttrium Aluminium Garnet
solid-state laser for pulsed laser deposition (1 Unit)**

Sr.No.	Description	Value / Range	Technical Compliance (YES/ NO)	Additional Information (if any)
1	Application	Pulsed Laser Deposition		
2	System	Nd:YAG pulsed laser with 1064 nm wavelength, 532 nm wavelength with frequency doubler module and 266 nm wavelength with frequency quadrupler module		
3	Repetition rate	0 – 10 Hz adjustable frequency rate within this range		
4	Output energy per pulse (mJ)	850 mJ or higher at 1064 nm and 100 mJ or higher at 266 nm (after quadrupling the frequency)		
5	Pulse-to-pulse energy stability	± 2% or better at 1064 nm; ± 8% or better 266 nm		
6	Power drift	+/-3% or better at 1064 nm; +/- 10% or better at 266 nm over 5 hours or more without readjustment of phase-matching between the operating temperature range		
7	Pulse duration (length)	~6-10 ns at 1064 nm; ~5-10 ns at 266 nm		
8	Beam diameter (mm)	~9 – 12 mm at 1064 nm		
9	Beam divergence (mrad)	<0.55 at 1064 nm		
10	M ² (Beam parameter product) at 1064 nm	≤ 2		
11	Pointing stability (μrad)	<45 at 1064 nm, 266 nm		
12	Line-width at 1064 nm	≤ 0.75 cm ⁻¹		
13	Lamp life (pulses)	5 x 10 ⁷ or higher at 80% energy or 1 year, whichever comes earlier		
14	Timing jitter (ns)	≤ ± 0.5		

15	Voltage (VAC)	220 – 250		
16	Frequency (Hz)	50		
17	Power phase	Single		
18	Operating temperature range	18° – 25° C or wider		
19	Maximum storage temperature range	-10° – 50° C or wider		
20	Water chiller	With appropriate specs to keep the system within operating temperature range		
21	Warranty	<ol style="list-style-type: none"> 1. Optics, mechanics, and electronics to be guaranteed for at least 1 year from the date of installation or at least 1 year 3 months from the date of shipment, whichever comes first 2. Flash lamps to be guaranteed for at least 108 (100 million) number of shots (80% of energy) or at least for 1 year, whichever comes first. 3. Spare parts shipment during warranty to be at least on CIP Mumbai basis. 		