

**TECHNICAL BID PROFORMA**  
**Item Name: Beam shaper for ultrafast laser**

**1.0 Bidder Eligibility Criteria:**

I	Bidder Eligibility Criteria-I (Public Procurement – Preference to Make in India)	Class I / Class II	Local Content value	Reference, Page No.
I	Only 'Class-I local suppliers' and 'Class-II local suppliers', as defined under DIPP, MoCI Order No. P-45021/2/2017-PP (BE II) dated 16 <sup>th</sup> September 2020 and other subsequent orders issued therein.			
<b>2.0</b>	<b>Bidder Eligibility Criteria-II</b>	<b>Compliance (Yes/No)</b>	<b>Reference Page No.</b>	<b>Remarks, If any</b>
1	The bidder/OEM should have supplied at least 5 similar items to IITS, NITS IISERS, CSIR Labs or other Govt. R&D organizations in the last 10 years. Purchase order copies or installation certificates with contact details of end user need to be submitted as the proof of supply. IIT Madras reserves its right to verify the claims submitted by the bidder and the feedback from the previous customers will be part of technical evaluation.			
2	Company should be registered in India for last 3 year. Proof of company registration should be enclosed.			
3	The bidder should have 10 lakhs turnover in any one of the last 3 Financial Year.			
4	The service center should be within Chennai, Tamilnadu. Proof of facility location & contact details to be provided along with technical bid.			

**3.0 Technical Compliance:**

1.0	Required output beam characteristics	Complied/N ot Complied	Reference Page No
<b>1(a)</b>	<b>Output shape parameters</b>		
1.1	Type	Free space collimated	
1.2	Target/ Feature Dimension	0.06 mm to 3.0 mm	
1.3	Target Shape/Geometry (s)	Please specify if available all (circular, square and line)	
1.4	Dimension in the processing plane	2 to 4 mm	
1.5	Beam quality	Diffraction limited	
1.6	Spatial mode	Square or circular flat top	
1.7	Total losses	< 10 %	
<b>1(b)</b>	<b>Laser environment</b>		
1.1	Ambient temperature	Constant value, set between 18 and 25°C	
1.2	Temperature stability	± 1,5 °C	

1.3	Humidity	< 50% @ 25°C		
1.4	Vibrations	Optical table or stable bench		
1.5	Electricity	110-250V AC 50 Hz, < 16 A@220V		
<b>2</b>	<b>Application requirements</b>			
2.1	Micro drilling of high aspect ratio holes on thick materials such as Ti6al4V and Nickel alloys with zero conicity (taper angle) , Circularity error < 5 µm			
2.2	Shaped micro holes with an acute angle of 15 to 30°			
2.3	Surface texturing			
<b>3</b>	It should be compatible with the existing system shown in <b>Appendix A</b>			

## APPENDIX - A

S. No.	Specifications	Details	Complied/ Not Complied	Reference Page No
<b>1.0</b>	<b>Existing Laser Features</b>			
1(a)	<b>Laser input characteristics</b>			
1.1.	Type	High power ultrafast fiber laser (Yb)		
1.2	Model	SATSUMA HP2		
1.3	Principle	M/s. AMPLITUDE SYSTEMS, FRANCE		
1.3	Wavelength	1030 nm		
1.6	Lenses for beam delivery	Silicon Carbide Mirrors		
1.7	Average power	Up to 20W		
1.8	Pulse energy range (minimum)	Up to 40 µJ		
1.9	Repetition rate (minimum)	2 kHz to 2 MHz		
2.1	Pulse width/Pulse duration	300fs to 10 ps		
2.2	Traverse mode	TEM00		
2.3	Beam quality, M <sup>2</sup>	<1.2		
2.5	Energy stability	<1% RMS		
2.6	Pulse to pulse energy variation	<1%		
2.7	Beam diameter	3 ± 0.5 mm		
2.8	Beam divergence	0.5-0.6 milli radians		
3.1	Operation	Computer control and full automation		
3.2	Cooling System	Close loop Air Cooled		
3.3	Machine Capability	Minimum spot/feature size 60 µm		
1(b)	<b>Galvo scanner and Laser Head</b>			
1.1	Model	LS Scan - XY 20 (LS View)		
1.2	Scanner aperture (input/output)	5 / 20 mm		
2.5	F Theta lens	F-Theta lens focuses the beam on a flat field		
	Make	Linos F-theta Ronar		
	Model:	4401:288:000:20		
2.6	TELECENTRIC F-THETA LENS	Addition to focalize the laser		

		beam on flat field, the Telecentric F-Theta objectives allows to conserve the same angle of attack for any points on this field		
2.7	Labjack near Galvo Scanner	Utilizes a dual-pantograph design which offers excellent rigidity		

S.NO	Other Requirements	Complied/Not Complied	Reference Page No
1	Quotations with the complete solution for the above requirement will only be accepted.		
2	I.I.T. Madras has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason		
3	The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. Quotations for a prototype machine will not be accepted.		
4	Test certificates for all the stages confirming the specifications from OEM are required with shipping/freight documents.		
5	Suppliers to provide training for programming, operation and maintenance at IIT Madras at free of cost.		
6	All necessary safety regulations such as CE compliance, low voltage directive, EMC regulations compliance details, Alarms and emergency switch off in case of any malfunctioning must be provided. The system must be equipped with all the necessary safety interlocks. Provisions for safety wear are essential.		
7	The complete system and its associated hardware should have a standard warranty of 1 year or more from the date of installation, commissioning and acceptance of the system at IIT madras. Suppler modification (s)/software upgrades shall be intimated and the same will be made available free of cost during the warranty period.		
8	All technical literature/catalogues and drawings of various systems should accompany the quotation. All the documents should be in English.		
9	Installation and commissioning should be provided by the supplier or its Indian agent. The Indian agent should have well proven service capability on similar systems with factory		

	trained service engineers available in India. Details of their engineers expertise should be enclosed along with the offer and will be a key factor in the decision making.		
10	The system should have compatibility with Indian environment conditions (for better power/energy stability)		

(Note: It is mandatory for the bidders to provide the compliance statement in tabular column format along with catalogue page number (comply/not comply) for the above points with document proof as required. Failing which bidders will be technically disqualified)

**SIGNATURE OF BIDDER ALONG WITH  
SEAL OF THE COMPANY WITH D**