



**TIRUCHIRAPPALLI ENGINEERING AND TECHNOLOGY CLUSTER (TREAT)**  
Regd. Office: P2, Adjacent to GK industrial park Pvt Ltd.,  
Reddimangudi village, Siruganoor, Lalgudi TK, Trichy dt. pin: 6211015  
Admin Office: Shed No. A3, TREC-STEP campus, Thuvakudi, Trichy-620015.  
Ph: (+91)431-2500606 Fax: (+91)431-2500616  
Email: [treat.trichy@gmail.com](mailto:treat.trichy@gmail.com) ; web: <http://www.treatcluster.in>

**FIBRE LASER CUTTING WELDING & HARDENING MACHINE**

**FOR TIRUCHIRAPPALLI ENGINEERING AND TECHNOLOGY CLUSTER (TREAT)**

**REFERENCE NO: TREAT/CAP/0015/14-15.**

**Date and time of tender opening: 25/03/2015 at 4.00 P.M.**

**Venue:**

**Shed No: A3-TREC STEP,**

**NIT CAMPUS,**

**THUVAKUDI,**

**TRICHY-620 015.**

Tender opening can be attended by authorized personnel of the company. They should bring the authorization letter in original.



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TENDER FOR : 3KW FIBRE LASER CUTTING WELDING & HARDENING

REFERENCE NO: TREAT/CAP/0015/2014-15.

DATE AND TIME OF TENDER OPENING: 25/03/2015 AT 4.00 P.M.

**SPECIFICATION OF 3KW fibre laser facility**

The laser facility will consist of a CNC XY table and robotic laser cutting welding facility with common 3kw fibre laser .

**01.SALIENT FEATURES**

1.a	The laser should be used with different diameter processing fibres form 10 microns to 300 microns for cutting and welding and hardening applications .the laser should be able to cut 15mm thick low carbon steel (LCS) ,6mm aluminium alloys and 10mm stainless steel (304ss) .it can also weld 6mm LCS and 304ss.
1.b	Wall -plug efficiencies should be about 25% or more .in addition over 300,000 hours for individual laser pump source is needed.
1.c	It should have stable output power from switch on.
1.d	The laser should have user -friendly software, fast modulation, pulsing with programmable dwell ,upslope and down slope..
1.e	The system should protect from back reflection from damaging reflected laser light when processing highly reflective materials such as aluminium ,copper ,brass and gold.
1.f	Pre-aligned fibre design which can be easily plugged-in.
1.g	Collimation : ability of laser beam not to spread significantly (low divergence)with distance.
1.h	Fibre health safety to be monitored on -line.
1.i	Time share option should be available 2 way min.
1.j	Fibre length 2 x 20m.

**02.LASER CUTTING MACHINE**

SL NO	DESCRIPTION	SPECS FIR THE LASER SOURCE
2.a	Laser Type	Fiber Laser
2.b	Output Power	3 kW
2.c	Operating modes	CW & Modulated
2.d	Output power range	20%-100%
2.e	Power stability	±3% ( peak to peak)



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<b>2.f</b>	<b>Wavelength</b>	<b>1070nm</b>
<b>2.g</b>	<b>Polarization</b>	<b>Unpolarized</b>
<b>2.h</b>	<b>Pulse shaping capability</b>	
<b>2.i</b>	<b>Minimum raise time: -</b>	<b>minimum 15micro seconds</b>
<b>2.j</b>	<b>Maximum modulation frequency :-</b>	<b>20kHz</b>
<b>2.k</b>	<b>Beam product parameter:-</b>	<b>2.6mm.mRad</b>
<b>2.l</b>	<b>Wall plug efficiency:-</b>	<b>30%</b>
<b>2.m</b>	<b>Safety protection system for fiber cable</b>	
<b>2.n</b>	<b>Two Sharing of Power</b>	
<b>2.o</b>	<b>Beam Deliveries for hardening cutting and welding</b>	

**03.SPECS FOR ROBOT**

3.a	Reach :	2m
3.b	Payload :	15kg
3.b	Positional Repeatability :	0.10mm
3.c	Path Repeatability :	0.5mm
3.d	Number of axis :	6
3.e	Operating Range :	Axis 1 : +200 to -200
		Axis 2 : +150 to -90
		Axis 3 : +75 to -180
		Axis 4 : +400 to -400
		Axis 5 : +120 to -125
		Axis 6 : +400 to -400
3.f	Pedestal for the Robot.	
3.g	I/O's : 32 input/output.	
3.h	Capable of controlling parameters of laser system	

**04.SPECS FOR XY TABLE**

4.a	X axis 3000mm	
4.b	Y-axis 1500 mm	
4.c	Z-axis 100 mm	
4.d	Rotary axis : 0 to 360 to be quoted as option .	
4.e	Accuracy: 10 microns for each liner axis and 1min for rotary axis.	



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4.f	Gantry type	
4.g	Z-axis to be mounted on the y axis	
4.h	Rotary axis to be positioned at the end	
4.i	Tail stock to be made for rotary axis.	
4.j	Table payload : 2 tons	
4.h	Cnc control : simens fanuc	
4.k	Capable of controlling parameters of laser system	
4.l	Nesting software	
4.m	Gas supply ,solenoid options	
4.n	User authorization system	
4.o	Ergonomic design for ease of operations	
4.p	Quick move option	
4.q	RAPID programming.	
<b>05.OTHER POINTS</b>		
5.a	Pendant for robots	
5.b	Equiped with laser chiller unit to be included and all modles have digital temprature control system.	
5.c	Supplier should have integrated supplied similar item in INDIA	
5.d	Stalilizer & spike amester for the laser, robot & cnc.	
5.e	The power supply should be 415 v .3 phase 4 wire system and all interconnecting cables to be supplied.	
5.f	The supplier to prove out component decided at the time of final technical discussion.	
5.g	The machine to be erection & commission at our work shop .the supplier should also train our operators.	
5.h	the robot to be preferably ABB,KUKA ,FANUL (or) PANASONIC switching our specification as per "B"	
5.i	In case the supplier in not able to supply welding robot .re should be able to integrated robot purchased by us to the laser system.	



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### **06. COMMERCIAL OFFER**

The Bidder shall indicate the price for complete scope of their supply in detail on Ex-works in rupees. Exclusions if any shall be specified by the Bidder.

### **07. PAYMENT TERMS AND CONDITIONS**

- Tax and duties will be paid extra. Please specify the rate of tax.
- Supplier to furnish the performance bank guarantee for 10% of PO value for 1 year validity from the date of commissioning
- payment terms to be discussed mutually

### **08. ERECTION AND COMMISSIONING**

- Vendor to deploy required manpower (fitter, technician, and helper etc..) during commissioning of plant. Any rectification works found necessary during commissioning due to faulty workmanship will have to be undertaken by the vendor at their own cost & responsibility.
- **Power supply will be provided by TREAT**
- **All erection equipment including crane should be provided by vendor.**
- **Storage space for material provided by vendor for erection work will be at TREAT site**

### **09. TWO PART BID SYSTEM**

1st Part – Technical bid, 2nd Part-Price bid is invited from experienced, resourceful and bonafide original machinery manufacturer for supply of **FIBRE LASER CUTTING, WELDING & HARDENING MACHINE**. Separate envelope should be used for Technical & Price bid and indication to that effect may please be super-scribed on the envelopes. The sealed envelope should reach us on or before 25-03-2015 at 4 PM and technical bid will be opened on the same day. Financial bids only of those firms will be opened, who qualify on the basis of the Technical Evaluation by the Tender Committee.



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## GENERAL CONDITIONS OF TENDER

### COMMERCIAL TERMS & CONDITIONS

#### 10. Transportation:

All consignments shall be dispatched by road through reliable transporters on freight to pay and door delivery basis. Necessary Road / State Government Sales Tax Permits/Forms wherever applicable shall be furnished by the supplier. Any demurrage and other charges levied by the transporter for delays in unloading by customer shall be borne by the supplier and settled directly by the supplier with the transporter.

#### 11. Transit Insurance:

Transit Insurance shall be extra and arranged by us.

System lay-out/ GA drawings shall be sent for approval within ONE week of receipt commercially clean purchase order. Order acceptance: shall be sent by email within two days and signed copy shall be sent within four days by courier.

#### 12. Scope of Supply:

Scope of supply should add to our Purchase Order, Specification sheet, drawings and terms and conditions.

Short Shipment/Loss/Damage: Short shipment if any shall be replaced by supplier without hindering erection or commissioning with own expenses.

#### 13. Warranty:

supplier shall warrant that the machinery and equipment to be supplied shall be free from any defect due to design, materials and workmanship. Warranty period shall be 18 months from the last date of dispatch or 12 months from the date of commissioning, whichever is later.

#### 14. Penalty Clause / Liquidated Damages:

As the time is the essence in establishing the facility intended under this tender, the risk of delays in supplies needs to be mitigated. Therefore, in case of any delay in the supply of items from the agreed delivery pattern, schedule causing time overrun in implementation of project, the supplier would be subject to liquidated damages.

In case supplier fails to meet the supply, erection & commission schedule released on the supplier and accepted by the supplier as defined in PO, the supplier will be charged 0.50% per week or part thereof, subject to maximum of 10% of PO value.

#### 15. Jurisdiction:

All legal dealings are subject to Tiruchirappalli jurisdiction only.

#### 16. General:

Purchase order No. and date should be mentioned in all future correspondence.

In case of any change to that mentioned in the purchase order, prior information should be given to us and Purchase order amendment should be collected from us prior to dispatch.