

INVITATION FOR TENDER FOR SUPPLY OF EQUIPMENT

Sealed tender offers are invited in two separate sealed covers (Technical and Commercial offers) from eligible manufacturers/suppliers or their direct Indian agents for the supply of the following equipment.

LARGE DIAMETER FIBER SPLICER AND CLEAVER

Please send offers, ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE. The validity of the bid should be at least four months (120 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than **21.02.2018 at 15:00 Hrs** at the following address:

**Dr. Shivakiran Bhaktha B.N.,
Assistant Professor, Department of Physics,
Indian Institute of Technology Kharagpur – 721 302, West Bengal, India**

Earnest money of **Rs. 75,000/-** is to be deposited in the form of Account payee Demand Draft in favour of IIT Kharagpur, payable at Kharagpur, India. Any bid which is not accompanied with an EMD shall be summarily rejected. Earnest money deposited will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. No interest will be paid on the earnest money of the unsuccessful bidders.

Tender Reference	IIT/SRIC/PHY/OIR/SKB/17-18/EQ2, Dated: 15.01.2018
Price of Tender Document	NIL
Last Date and Time for submitting the tender document	21.02.2018 at 15:00 Hrs (Indian time) (Extended Deadline)
Time and Date of Opening of Technical Bids	21.02.2018 at 16:00 Hrs (Indian time)
Place of Opening Tender	Department of Physics, Indian Institute of Technology Kharagpur – 721 302, West Bengal, India
Address of Communication	As stated above
Contact Telephone Numbers	+91- 3222 - 283802
E-mail	kiranbhaktha@phy.iitkgp.ernet.in

DETAILED TECHNICAL SPECIFICATIONS FOR **LARGE DIAMETER FIBER SPLICER AND CLEAVER**

(A) FIBER SPLICING SYSTEM

Fiber Splicing system with PM rotation, a desktop computer, and stand alone water cooling system utilizing filament fusion technology should meet or exceed the below specification:

1. The system should splice fiber ranging from 125micron to 1mm for providing consistent and reliable method of making high strength & low loss splices for Circular as well as non circular doped SM, MM, DCF, PCF, LMA, PM fibers.
2. Clean fusion using non-metallic heating material (graphite) , which does not leave residue on the fiber surface . The resistive heating element should be made of Graphite filament to achieve high temperature up to 3000°C.
3. Size shape and power of the resistive heating element can be changed to suit the application and also allows for easy scaling to very large diameter fibers.
4. PC based graphical interface to provide easy operation and control of the equipment stages such as:
 - Fusion process control
 - Data and image storage graphic
 - Fiber Imaging with fiber End view capability.
 - Core Alignment, Active XY Alignment, Edge Alignment
 - Filament Normalization
5. The system should be multipurpose platform with complete accessory for fiber application such as Fiber splicing.
6. Movement of filament assembly along fiber length for application such as fiber polishing etc
7. Auto-focusing CCD camera with illumination to have the capability of viewing magnified fiber image with sub-micron resolution:
 - Side (Front or Back) view of fibers during splicing
 - Top view of Fibers
 - End view of fibers.

Specifications:

Fiber Type (Non PM): MM, SM, PCF, LMA, Circular, Non-Circular, Silica, Soft Glass

Fiber Type (PM): Panda, Elliptical-Core, Bow-Tie, and Many Others

Fiber Cladding Diameter: 125 μ m - 1.25 mm

Fusion Method: Filament fusion

Filament Temperature range: room temperature to >3000 deg C

Typical Splice loss: 0.02 dB for SMF

Loss estimation to be included.

Typical splice strength: 250kpsi for SMF

Strength enhancement: fire polish

Polarization cross talk: Panda >35dB and others >30dB

Fiber Inspection and Measurement

Fiber Side Viewing

Fiber End Viewing Included for PM Alignment and Fiber Facet Inspection

Fiber Alignment Method " Manual or Fully Automated

End Face Inspection: Inspection via Display

Cleave Angle: Automatic Measurement

Splice Loss Estimation Automatic Measurement

Motion Control

Furnace "Z" Movement: 15mm, "Z" Movement Resolution: 0.2 μ m

Fiber "Z" Movement: 12 mm (Max)

X-Y Fiber Positioning Resolution: 0.02 μ m

Rotational Alignment: Fully automatic and manual

Rotation Drive Resolution: 0.02°

Rotation Travel: 200°

PC Control and Proprietary Software with monitor (High Resolution Full Color (1024 x 768), keyboard, mouse GUI included along.

Core Applications: Low and High Temperature Glass Splicing; PCF Splicing; Creating End Caps, Fiber Lenses, Many Others.

External Power Supply Unit, Universal Input: 90-240 VAC, 47-63 Hz, Single Phase

Graphite Filament Assembly, Ø80 µm - Ø250 µm Cladding 2 pcs

Graphite Filament Assembly, Ø125 µm - Ø600 µm Cladding 3 pcs

Graphite Filament Assembly, Ø400 µm - Ø1300 µm Cladding 3 pcs

Top insert:

Fiber Holder Top Insert with LED Illumination Indent, Ø57 µm – Ø759 µm 2 pcs

Dual-Sided Fiber Holder Top Insert with LED Illumination Indent, Ø410 µm - Ø1269 µm 2 pcs

Bottom insert:

Fiber Holder Transfer Bottom Insert, Ø112 µm - Ø208 µm 2 pcs

Fiber Holder Transfer Bottom Insert, Ø279 µm - Ø519 µm 2 pcs

Fiber Holder Transfer Bottom Insert, Ø516 µm - Ø1047 µm 2 pcs

Fiber Transfer Clamps:

Transfer Clamp with Magnetic Lid for Fiber Holder Transfer Inserts 6 pcs

Graphite v-grooves:

Extended Graphite V-Groove, Ø80 µm - Ø125 µm 2 pcs

Graphite V-Groove, Ø200 µm - Ø250 µm 2 pcs

Graphite V-Groove, Ø350 µm - Ø400 µm 2 pcs

Graphite V-Groove, Ø500 µm - Ø550 µm 2 pcs

(B) Fiber Cleaver:

Fiber Cladding Diameter Cladding: Ø80 µm to Ø1.25 mm Buffer: Ø80 µm to Ø3.198 mm

Fiber Types: SM, PM, MM, Specialty Fibers Including Microstructured Fiber,

Cleave type: Flat Cleave

Cleaving operation: Fully Automated

Cleave Method: Tension and Scribe

Tension: 63.7 N (14.3 lbs) Max, Programmable

Scribe: Diamond blade Stepper motor controlled (5000 Uses, 9 Positions)

Loading: Linear Tension, stepper motor controlled

Internal vacuum pump for fiber holding blocks for accurate fiber positioning and clamping

Power supply: 220VAC, Single phase, 50Hz

Complete set of Fiber holding block sets and sets of Bottom Inserts for 125 µm, 400 µm, 600 µm, 800 µm, or 1mm fibers:

Dual-Sided Fiber Holder Top Insert, Ø57 µm - Ø970 µm 2 pcs

Dual-Sided Fiber Holder Top Insert, Ø410 µm - Ø1269 µm 2 pcs

Fiber Holder Bottom Insert, Ø57 µm - Ø100 µm 2 pcs

Fiber Holder Bottom Insert, Ø112 µm - Ø208 µm 2 pcs

Fiber Holder Bottom Insert, Ø279 µm - Ø519 µm 2 pcs

Fiber Holder Bottom Insert, Ø516 µm - Ø1047 µm 2 pcs

Replacement Diamond Cleave Blades 2 pcs

OTHER REQUIREMENTS:

- SPARES/Optional accessories should also be quoted along with the basic equipment.
- Utility requirement should be specified.
- All the control software and operating systems required for Splicer should be preloaded on a Standard Branded desktop as well as software backup to be provided along with the system.
- Chiller unit suitable for the complete system.
- Installation/demonstration as per our required specifications and training should also be included in the quote.
- User list to be provided for same or similar system installed in India in last 5 years.

Acceptance Test Performance criteria

The system will be checked as per the details technical specifications also the following:

- Performance check/Calibration certificates issued by the OEM for the workstation.

Demonstration of:

- 1.1 Splicing of 800 μm fiber
- 1.2 Splicing of 400 μm fiber
- 1.3 Ball Lens fabrication using 125 μm fiber

GENERAL TERMS & CONDITIONS

PLEASE SPECIFICALLY INDICATE THE FOLLOWING POINTS IN YOUR QUOTATIONS AND COMPLY THE TERMS AS MENTIONED HEREUNDER:-

1. TENDERS ARE INVITED COMPLYING THE REQUIREMENT FOR TENDER AS DETAILED IN THE TENDER SPECIFICATION TO BE SUBMITTED IN THE COMPANY'S / FIRM'S LETTERHEAD NEATLY PRINTED / TYPED DULY SIGNED BY AUTHORIZED PERSON WITH THE SEAL OF THE BIDDERS. ALL ENVELOPS CONTAINING THE TENDER SHOULD BE PROPERLY SEALED. SEPARATE ENVELOPS SHOULD BE USED FOR TECHNICAL AND PRICE BID AND INDICATION TO THEIR EFFECT MAY PLEASE BE SUPERSCRIBED ON THE ENVELOP.

THE FOLLOWING DOCUMENTS ARE REQUIRED FROM THE INDIAN AGENTS OF FOREIGN FIRMS:

1.1 FOREIGN PRINCIPAL'S PROFORMA INVOICE INDICATING THE COMMISSION PAYABLE TO THE INDIAN AGENT AND NATURE OF AFTER SALES SERVICE TO BE RENDERED BY THE INDIAN AGENT.

1.2 COPY OF THE AGENCY AGREEMENT WITH THE FOREIGN PRINCIPAL INDICATING THE NATURE OF AFTER SALES SERVICES, PRECISE RELATIONSHIP BETWEEN THEM AND THEIR MUTUAL INTEREST IN THE BUSINESS.

1.3 PLEASE ENCLOSE THE DOCUMENT(S) RELATED TO THE ENLISTMENT OF THE INDIAN AGENT WITH DIRECTOR GENERAL OF SUPPLIES & DISPOSALS (DGS & R) UNDER THE COMPULSORY REGISTRATION SCHEME OF MINISTRY OF FINANCE.

2. TECHNICAL CATALOGUE/LEAFLET SHOULD BE ENCLOSED WITHOUT FAIL. PROVIDE COMPLIANCE STATEMENT WITH RESPECT TO THE TECHNICAL SPECIFICATIONS MENTIONED ABOVE.
3. PLEASE CONFIRM WHETHER YOU ARE AUTHORISED TO QUOTE ON BEHALF OF YOUR PRINCIPALS AND IF SO, PLEASE ENCLOSE A COPY OF SUCH AUTHORISATION WITH YOUR QUOTATION.
4. **PRICE BIDS FOR FOREIGN FIRMS:** PRICES ARE TO BE QUOTED ON 'EX-WORKS' DULY PACKED OR ON "FCA/FOB" INTERNATIONAL PORT" BASIS AND ALSO INCLUDING AGENCY COMMISSION PAYABLE TO YOUR INDIAN AGENTS, IF ANY SHOWING CLEARLY THE FOLLOWING BREAK UP:-

- I) EX-WORKS PRICE
- II) PACKING & FORWARDING
- III) FREIGHT
- IV) ANY OTHER RELEVANT EXPENSES.
- V) TAXES PAYABLE BY THE INSTITUTE

INSURANCE WILL BE PAID BY OUR INSTITUTE SEPARATELY AND SHOULD NOT FORM PART OF THE QUOTED PRICE.

PRICE BIDS FOR INDIAN FIRMS: PRICES ARE TO BE QUOTED ON F.O.R., IIT KHARAGPUR, ON DOOR DELIVERY BASIS CLEARLY SHOWING THE BREAK UP.

5. **PERIOD OF VALIDITY:** BIDS SHALL REMAIN VALID FOR ACCEPTANCE FOR A PERIOD OF 120 DAYS FROM THE DATE OF OPENING.
6. INDIAN AGENTS ADDRESS AND PERCENTAGE OF AGENCY COMMISSION INCLUDED IN ABOVE F.O.B./EX-WORKS PRICE. (THIS WILL BE PAID TO THE INDIAN AGENTS IN INDIAN RUPEES ONLY AND NOT IN **FE**). PLEASE ENCLOSE COPY OF AGENCY AGREEMENT ENTERED INTO WITH YOUR

PRINCIPALS INDICATING THE NATURE OF AFTER SALES SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP & MUTUAL INTEREST IN THE BUSINESS.

7. **MEASUREMENTS/WEIGHT:** NETT/GROSS OF THE CONSIGNMENT. IN CASE OF AN ORDER, YOU SHALL USE AIR WORTHY PACKAGE (AS APPLICABLE) DULY CERTIFIED WITH DOCUMENTS – PLYTO – SANITARY CERTIFICATE (AS PER QUARANTINE ORDER 2003).
8. **SCOPE OF SUPPLY:** SHOULD INCLUDE FREE INSTALLATION AND COMMISSIONING
9. **PAYMENT TERMS FOR FOREIGN FIRMS**

The offer will be made on a single currency and only one PO will be issued for the entire scope of the supply.

A) 90% PAYMENT THROUGH SIGHTDRAFT/FORIGN DEMAND DRAFT/LC (EXCEPTIONAL CASES)/SWIFT TELE TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION AND 10% AFTER SUCCESSFUL INSTALLATION & COMMISSIONING.

B) BANK CHARGES ON LC/SD (WITHIN INDIA APPLICANT ACCOUNT AND OUTSIDE INDIA TO BENEFICIARY ACCOUNT).

PAYMENT TERMS FOR INDIAN FIRMS

A) 100% PAYMENT THROUGH CROSSED ACCOUNT PAYEE CHEQUE / ELECTRONIC TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER & CONDITION AND SUCCESSFUL INSTALLATION & COMMISSIONING.

B) ENSURE MENTIONING

i) BANK DETAILS OF THE BENEFICIARY, GST NO. AND PAN NUMBER

ii) FULL NAME AND ADDRESS OF THE BENEFICIARY ON WHOM ORDER HAS TO BE PLACED

10. WHETHER ANY EXPORT LICENCE IS REQUIRED FROM YOUR GOVERNMENT, IF SO, PLEASE CONFIRM WITH DETAILS.
11. COUNTRY OF ORIGIN OF THE GOODS IS TO BE MENTIONED.
12. THE INSTITUTE SHALL PROVIDE THE CONCESSIONAL CUSTOMS DUTY AND EXCISE DUTY EXEMPTION CERTIFICATE AS PER GOVT. NOTIFICATION NO. 51/96 CUSTOMS DATED: 23.07.1996 AND CENTRAL EXCISE DUTY EXCEMPTION IN TERMS OF GOVT. NOTOFICATION NO. 10/97 – CENTRAL EXCISE DATED: 01.03.1997 AS AMENDED FROM TIME TO TIME.
13. **LIQUIDATED DAMAGES:** THE STORES SHOULD BE DELIVERED / DISPATCHED TO DESTINATION AND READY FOR OPERATION NOT LATER THAN THE DELIVERY DATE SPECIFIED. IT THE SUPPLIER FAILS TO DELIVER ANY OR ALL THE STORES OR PERFORM THE SERVICE BY THE SPECIFIED DATE, LIQUIDATED DAMAGES AT 1% PER MONTH OR PART THEREOF IN RESPECT OF THE VALUE OF STORES WILL BE DEDUCTED FROM THE CONTRACT PRICE SUBJECT TO A MAXIMUM OF 5%. ALTERNATIVELY, THE ORDER WILL BE CANCELLED AND THE UNDELIVERED STORES PURCHASED FROM ELSEWHERE AT THE RISK AND EXPENSE OF SUPPLIER.
14. **PATENT RIGHTS:** THE SUPPLIER SHALL INDEMNIFY THE PURCHASE AGAINST ALL THIRD PARTY CLAIMS OF INFRINGEMENT OF PATENT, TRADEMARK OR INDUSTRIAL DESIGN RIGHTS ARISING FROM USE OF THE GOODS OR ANY PART THEREOF IN INDIA.

15. ONLY THOSE BIDDERS WHO'S BIDS HAVE BEEN TECHNICALLY FOUND ACCEPTABLE WILL ONLY BE INVITED FOR PARTICIPATION IN THE PRICE BID.
16. THOSE BIDDERS WHO DO NOT RECEIVE ANY COMMUNICATION FOR PARTICIPATION IN PRICE BID OPENING MEETING MAY PRESUME THAT THEIR BID HAS NOT BEEN ACCEPTED BY THE INSTITUTE.
17. CONDITIONAL OFFER WILL NOT BE ACCEPTED.
18. LATE TENDERS I.E. TENDER RECEIVED AFTER THE DUE DATE AND TIME OF SUBMISSION AS MENTIONED ABOVE SHALL NOT BE ACCEPTED.
19. BIDDERS TO ENCLOSE THE FOLLOWING DOCUMENTS:-

A) INCOME TAX RETURN (3 YRS) AND LATEST SALES TAX RETURN (GST No.), AND PAN NO.

B) BANKER'S SOLVENCY CERTIFICATE

C) SUMMARY OF AUDITED STATEMENT OF ACCOUNTS FOR THE LAST THREE YEARS TO BE ENCLOSED AND FINANCIAL HIGHLIGHTS AND THE KEY PERFORMANCE DURING THE LAST THREE QUARTERS TO BE ENCLOSED AS PER FORMAT:-

COMPANY'S KEY PERFORMANCE

DESCRIPTION	JAN. TO MARCH	APRIL TO JUNE	JULY TO SEPT.
GROSS REVENUE			
PROFIT BEFORE TAX			
PROFIT AFTER TAX			
RETURN ON INVESTED			
CAPITAL (ROIC)			

D) CUSTOMER SATISFACTION CERTIFICATE FROM ONE SUCH ORGANIZATION IS TO BE ATTACHED WITH THE TECHNICAL BID AND PRICE BID.

E) NAME AND ADDRESS OF MINIMUM THREE CLIENTS TO WHOM SUCH EQUIPMENT HAVE BEEN SUPPLIED SHOULD BE MENTIONED.

20. **WARRANTY / GUARANTEE:** THIS COMPREHENSIVE WARRANTY / GUARANTEE SHALL REMAIN VALID FOR **12 MONTHS** AFTER THE GOODS (OR ANY PORTION THEREOF AS THE CASE MAY BE) HAVE BEEN DELIVERED AND COMMISSIONED TO THE FINAL DESTINATION.

21. THE INSTITUTE DOES NOT BIND ITSELF TO OFFER ANY EXPLANATION TO THOSE BIDDERS WHO'S TECHNICAL BID HAS NOT BEEN FOUND ACCEPTABLE BY THE EVALUATION COMMITTEE OF THE INSTITUTE.

22. ALL TENDERS (UNLESS OTHERWISE SPECIFIED) ARE TO BE SUBMITTED / HANDED OVER TO **Dr. Shivakiran Bhaktha B.N., Department of Physics, INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR - 721 302** AND ACKNOWLEDGEMENT TO BE OBTAINED.

IMPORTANT

1. IIT Kharagpur authority may accept or reject any or all the bids in part or in full without assigning any reason and does not bind itself to accept the lowest bid. The Institute at its discretion may change the quantity / upgrade the criteria / drop any item or part thereof at any time before placing the Purchase Order.
2. Promptly make arrangements for repair and / or replacement of any damaged item (s) irrespective of settlement of claim.
3. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.
4. For any query pertaining to this bid document correspondence may be addressed to **Dr. Shivakiran Bhaktha B.N.**, at the address mentioned above.

LAST DATE FOR SUBMISSION OF SEALED BIDS: 21.02.2018

- 1) Please Note that the Institute remains closed during Saturdays & Sundays and all specified government holidays.
 - 2) Fax, e-mail Tender will not be accepted.
 - 3) The General Terms and Conditions as stated above relate to supply of stores / equipment /assets etc. and for specific service other terms and conditions of the Institute will apply.
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