

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.

Closed loop high frequency resonance testing machine for pre-cracking, fatigue crack growth and variable loading fatigue tests

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 **16/04/2018 at 15:00 Hrs** at the following address:

Prof. Rahul Mitra
Professor and Head, Metallurgical and Materials Engineering,
Indian Institute of Technology Kharagpur – 721 302, West Bengal, India

Earnest money of **Rs. 1,20,000/-** 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/MME/SHW/RM/17-18/EQ-3, Dated: 12.03.2018
Price of Tender Document	NIL
Last Date and Time for submitting the tender document	16.04.2018 at 15:00 Hrs (Indian time)
Time and Date of Opening of Technical Bids	16.04.2018 at 16:00 Hrs (Indian time)
Place of Opening Tender	Metallurgical and Materials Engineering Department, Indian Institute of Technology Kharagpur – 721 302, West Bengal, India
Address of Communication	As stated above
Contact Telephone Numbers	+91- 3222 - 282280
E-mail	rahul@metal.iitkgp.ernet.in

DETAILED TECHNICAL SPECIFICATIONS FOR
CLOSED LOOP HIGH FREQUENCY RESONANCE TESTING MACHINE FOR PRE-CRACKING,
FATIGUE CRACK GROWTH AND VARIABLE LOADING FATIGUE TESTS

2.4.3	<p>FCG Software Crack propagation (da/dN) software for FCG test according to ASTM E647, with FCG cyclic programs for the following types of tests.</p> <ul style="list-style-type: none"> (1) Constant K_{max} control (2) Constant Load control (3) ΔK-decreasing-constant R (load ratio) (4) ΔK-decreasing-constant K_{max} (5) ΔK-decreasing-constant K_{mean} (6) ΔK-increasing-constant R (7) ΔK-increasing-constant K_{max} (8) ΔK-increasing-constant K_{mean} tests (9) Constant ΔK. <p>Test termination criteria: Crack length, applied ΔK, change in PD Display of the termination criteria by which test has stopped. Provision for post processing & incorporating crack closure correction</p>
2.5	Pull rods/Grips/Three point bend Fixtures (Nimonic 105 or equivalent grade)
2.5.1	<p>Pull rods rated to operate at 1100°C with suitable adapters to connect to the machine</p> <ul style="list-style-type: none"> (1) 50 kN (for future provision to use at high temperature) (Optional)
2.5.2	<p>Three point bend fixtures with roller supports 20 kN (Oscillating force : 0 to -20 kN, Span : 20-200 mm)</p>

2.6	Gages (2) Room temperature Clip-On Gage with signal conditioner, Gage length : 5 mm Measuring range : 0 to +2.5 mm. (Other ranges optional) Specifications: 1. Excitation Voltage : 5 to 10 Volts DC. 2. Output Voltage : 2 to 4 mV/V nominal. 3. Linearity : minimum 0.2 % of the measuring range. 4. Resolution : Better than $\pm 1\%$ in full range 5. Measurement cable: 2500 mm. length minimum. Wiring diagrams and calibration details shall be provided.	Nos	2 each
2.7	Safety features Manual override to stop test and return to no load. Tripping on overload and mains failure Furnace to machine interlock (to trip the system, in case of temperature overshoot)		
2.8	Operator terminal and output data recorder with minimum configuration Processor Intel Core i5 or higher DDR4 RAM 8GB or higher SATA Hard disk 1TB Seagate make Display unit, Cabinet with 450 watts SMPS and necessary accessories. Latest suitable data output recorder for generating data report	Nos	2
2.9	Pre-dispatch Inspection : One scientist / engineer representing the buyer shall visit the manufacturer's site pre-dispatch inspection. The calibration of load and , stroke, proper operation of the machine & accessories, practicing safety norms, handling the software for operation, data acquisition and maintenance procedures should be indicated in the offer & quoted with break-up. Acceptance Criteria: Successful demonstration of 1. Dynamic Load calibration 2. Pre-cracking of a CT and TPB specimens (to demonstrate the software, alignment of the load train and the fixtures) 3. FCG test as per ASTM E647 (ΔK , K_{max} increasing decreasing , crack length by COD gauge /compliance (Optional DCPD)-with CT and TPB specimens (to demonstrate performance of the test at room temperature.		
2.10	Sales and Service Requirements Calibration certificates: For the load, stroke measurement (COD) gauges. Test certificates : For materials for all the pull rods, grips, fixtures, pins etc Operation & Maintenance: The supplier shall make available a trained engineer at user site to operate and maintain the equipment for 2 years (plus 1 year of AMC period). The amount towards this shall be indicated separately in the offer.		
2.11	Spares and tools The offer shall quote separately the following: <ul style="list-style-type: none"> • Spares for 5 years of trouble-free and smooth operation of the systems. • A complete set of tools normally required for the operation and maintenance of the machines shall be included, especially any special spanner and tools Spares and optional accessories will not be considered for evaluating the lowest offer		

2.12	<p>Installation & Commissioning-Installation requirement</p> <p>Quotation shall include installation & commissioning of the equipment at users' site. Demonstrate the performance of the equipment to the specifications by conducting trial tests. 3 scientist/engineers should be provided training by the manufacturer at user site for proper operation and maintenance of the machine & accessories, practicing safety norms, handling the software for testing and data acquisition</p> <p>Complete set of manuals for installation, commissioning and safety along with circuit/block diagrams shall be provided along with the technical details.</p> <p>Quotation shall clearly indicate the delivery schedule, crate size, weight after packing, space requirement, special civil requirement, electrical requirements in terms of current, voltage and power supply connections, earthing, water supply for cooling requirements for safe operation of the machine etc</p>		
2.13	<p>Guarantee</p>		
	<p>The equipment with major accessories shall be guaranteed for a period of 24 months from the date of installation and commissioning</p>		
2.14	<p>Bidder evaluation criteria :</p> <ul style="list-style-type: none"> • Only the original manufacturers of the equipment or their authorized Indian agent (in the case of foreign manufacturers) shall quote. • Those bidders who have supplied similar equipment with the accessories in the past 5 years only shall qualify. A list of such supplies in the past 5 years (preferably in India) with details of contact persons shall accompany the quotation. Failure to comply with this shall result in rejection of the bid. 		
2.15	<p>Final acceptance criteria</p>		
	<p>Final acceptance at site will be based on successful installation and commissioning with integration of the accessories, and demonstration of the following:</p> <ol style="list-style-type: none"> (1) Pull rods alignment and dynamic load calibration at user site. (2) All 9 types of FCG tests (as per ASTM standard E647), with 3 crack measurement methods, at 25 °C with CT and TPB specimens at room temperature (3) Success of the test will be based on the completion of test procedure and data acquisition as per the requirements given in test input details, and temperature accuracy and stability during the test. 		
2.16	<p>After sales service</p>		
	<p>Any updates in the software should be provided during the warranty period. The supplier shall indicate the type of maintenance required for the system and quote for non-comprehensive annual maintenance contract (AMC) for a period of 5 years, applicable after guarantee/warranty period.</p>		
2.17	<p>Operation and maintenance manual</p>		
	<p>A copy of operation and maintenance manual with following instructions in English. Safety, general information about system, testing procedure, routine and periodical maintenance, operation, error message manual, machine calibration manual, preventive maintenance manual, trouble shooting manual, electrical and electronic circuit diagrams, complete list of parts with identification numbers</p>		
3.0	<p>Special Instructions, if any, to Purchase Section</p>		
	<p>Quotation should indicate available service centers in India for repair/maintenance after guarantee period</p>		

	File may be processed as a two-part public tender Optional accessories shall not be considered for evaluating the lowest offer		
	Any Other Relevant Information : Quotations from the original manufacturers of the equipment or their authorized Indian subsidiary (in the case of foreign manufacturers) only shall be entertained. Those bidders who have supplied similar equipment with the accessories in the past 5 years only shall qualify. A list of such supplies in the past 5 years (preferably in India) with details of contact persons shall be sought with the quotation.		
5.0	Sound proof cabins for the machine. (Optional)		

GENERAL TERMS & CONDITIONS

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

1. TENDER 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. IF 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 **24 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 **PROF. RAHUL MITRA, DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING, 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 **Prof. Rahul Mitra**, at the address mentioned above.

LAST DATE FOR SUBMISSION OF SEALED BIDS: 16.04.2018

- 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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