

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.

High resolution Field Emission Scanning Electron Microscope (FESEM) configured for Automated Steel Cleanliness Analysis Tool (ASCAT)

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 ~~02/04/2018 (Monday) by 15:00 Hrs~~ **26/04/2018 (Thursday) by 15:00 Hrs (extended date)** at the following address:

**Professor-in-Charge,
DHI Centre of Excellence on Advanced Manufacturing Technology,
(Inside Steel Technology Centre),
Indian Institute of Technology Kharagpur, 721 302,
West Bengal, India**

Earnest money of **Rs. 2,00,000/-** 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/CoE_AMT/DHI/2018/EQ6, Dated: 08.03.2018
Tender Fee	Rs. 10,000/-
Last Date and Time for submitting the tender document	02.04.2018 at 15:00 Hrs (Indian time) Extended to 26.04.2018 at 15:00 Hrs (Indian time)
Time and Date of Opening of Technical Bids	03.04.2018 at 11:00 Hrs (Indian time) Extended to 27.04.2018 at 11:00 Hrs (Indian time)
Place of Opening Tender	Office of Professor-in-Charge, DHI Centre of Excellence on Advanced Manufacturing Technology, (<i>Inside Steel Technology Centre</i>), Indian Institute of Technology Kharagpur, 721 302, West Bengal, India
Address of Communication	As stated above
Contact Telephone Numbers	+91- 3222 - 281576
E-mail	coeamt@gmail.com

DETAILED TECHNICAL SPECIFICATIONS FOR

Sem Based Automated Steel Cleanliness Analysis Tool (ASCAT) High Resolution Field Emission Scanning Electron Microscope (Fesem) Configured For Automated Steel Cleanliness Analysis Tool (ASCAT), with specification similar or better than as given below

Sl. No.	Component description	Requirements
1.	Test Standards for ASCAT compliances	The offered system should support and comply with international standards like ASTM E45, ASTM E2142, E2283, ISO 4967, DIN 50602 and EN 10247
2.	SEM Electron Gun type	High brightness Field Emission Schottky Emitter
3.	SEM Image Resolution	<ul style="list-style-type: none"> • Resolution with SE detector 1.5nm at 15 kV or better The definition of resolution and the method used to determine the resolution should be clearly specified
4.	Accelerating voltage	<ul style="list-style-type: none"> • Adjustable from 200 eV to 30 Kev
5.	Probe Current	<ul style="list-style-type: none"> • Variable from 2 pA to 100 nA or better • Probe current setting must be fully automatic without need for column tuning or change of aperture
6.	Magnification	10 x to 10,00,000x or better.
7.	Vacuum System	Should have IGP for GUN and TMP with dry scroll pump for ultra clean and fast pumping. <ul style="list-style-type: none"> • Chamber Vacuum: 7×10^3 Pa or better • Gun vacuum: 4×10 Pa or better • Pumping time: Less than 3 minutes after specimen exchange.
8.	SEM Chamber	<ul style="list-style-type: none"> • Internal Diameter: 230 mm or more • Chamber ports 10 or more with ports for EDS, WDS, EBSD, etc
9.	Specimen Stage	All 5 axis fully motorized, Eucentric / Compucentric stage with X = 80 mm or higher Y = 60 mm or higher Z = 40 mm or higher Tilt from -10° to $+80^\circ$ or better <ul style="list-style-type: none"> • Rotation: 360 degree continuous • Multi sample holder for holding 7 or more sample stubs • Stage movements must be fully Software controlled for absolute or relative co-ordinate movements, storing of positions, resorting to saved positions, moving to pre-set specimen positions, mouse click to centre moving, drag with mouse, WD & Z movement synchronization
10.	Standard Detectors	<ul style="list-style-type: none"> • Chamber SE Detector

		<ul style="list-style-type: none"> • Chamber BSE detector <p>Imaging of magnetic sample should be facilitated</p> <ul style="list-style-type: none"> • Detector for beam current measurement: Integrated Pico ammeter with faraday cup for continuous display of probe current / absorbed current.
11.	Anti-vibration support:	Should have a fully integrated self-levelling pneumatic vibration isolation
12.	SEM Automated Operation	<ul style="list-style-type: none"> • WD (Focus) & Stigmator, • Contrast & Brightness • Scanning Speed (According to Signal – Noise Ratio) • Gun heating • Gun centering • Column Centering • Vacuum Control • Auto-diagnostics • Direct and continuous control of beam spot size. • Direct and continuous control of beam current <p>All parts including valves, apertures should be operated through computer controlled software</p>
13.	SEM Computer	Latest PC with Intel Dual core processor, RAM 8 GB, HDD, DVD-RW, Ethernet network card, high performance graphic processor, Windows10 Pro 64-bit
14.	Image Acquisition and display	<ul style="list-style-type: none"> • 24-inch HD LCD or LED screen • Scanning Speed: From 20 ns (TV) to 10 ms per pixel adjustable in steps or continuously • Image Size: Selectable up to 5000 x 5000 pixels or better • Image Depth: Up to 16 bits per channel • Image Formats: BMP, TIFF, JPEG, JPEG2000, GIF, PNG or PGM, PPM • Point & Line Scan, Image rotation, Image shift, Tilt compensation • Dynamic Focus – in plane or folded plane • Multi Detectors Display: Displaying atleast 2 live detector signals simultaneously in two frames side by side • Detector Mixing: Provision for mixing in user defined ratios & display of different live signals from same field of view. • Signal averaging using Frame Accumulation or Line Accumulation • Pseudo coloring: Provision for Images to be artificially colored using colour mapping
15.	SEM Software	<ul style="list-style-type: none"> • Image Operations

		<ul style="list-style-type: none"> • Analysis & Measurement • Image Processing • Image Measurement • Remote control network software with internet TCP / IP open protocols. • Built-in self-diagnostics for system readiness check • 3-D Imaging Software for Live Stereo Imaging with storage in AVI format
16.	EDS X-Ray Micro Analysis System for ASCAT	<ul style="list-style-type: none"> • Detector Type: <ul style="list-style-type: none"> ➤ SDD crystal with atleast 50 mm sq active area ➤ Resolution 129 eV at Mn K alpha and 57 eV at Carbon K alpha as per latest ISO 15632 norms ➤ Element range: Be to U • Detector features: <ul style="list-style-type: none"> ➤ Motorised drive to insert the detector in chamber and retract back ➤ Adaptor to work at high working distances • Standard Software: <ul style="list-style-type: none"> ➤ Qualitative and Quantitative analysis with ZAF P/B software and Phi Rho Z for bulk and thin samples ➤ Intensity mapping line scan multipoint analysis (ROI to be defined by spot, line, square, polygon, circle, grid; etc) ➤ Facility in software for operator to check detector parameters like crystal temp stability; peak deviation; resolution etc • Special Software: <ul style="list-style-type: none"> ➤ Auto stage control on large sample area with facility to stitch images for multiple frames • ASCAT Software: <ul style="list-style-type: none"> ➤ Steel inclusion software with supporting documents for Automated Steel Cleanliness Analysis Tool (ASCAT). ➤ Software should be fully compliant with international standards like ASTM E45, ASTM E2142, ISO 4967, DIN 50602, EN 10247 • Standard Samples for calibration: <ul style="list-style-type: none"> ➤ Necessary standards samples for calibration as required for above should be offered
17.	Spares and Consumables	Spare parts and consumable required to run instrument for two years to be quoted as standard supply
18.	On-Line UPS	Suitable on-line UPS with minimum 30 minutes back up
19.	Essential Accessories	Track ball for imaging operations <ul style="list-style-type: none"> • IR Chamber scope: Chamber view camera (IR CCD)

		<ul style="list-style-type: none">• Touch alarm safety detector for specimen stage and detectors.• TCP / IP Remote control Network interface & software for remote operations and on-line fault diagnostics.• All essential operating accessories like air compressor, water recirculating chillers, gas cylinders, regulators, chillier, etc, if required have to be included in the offer
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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 ENVELOPES CONTAINING THE TENDER SHOULD BE PROPERLY SEALED. SEPARATE ENVELOPES SHOULD BE USED FOR TECHNICAL AND PRICE BID AND INDICATION TO THEIR EFFECT MAY PLEASE BE SUPERSCRIBED ON THE ENVELOPE.

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.

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 AUTHORIZED 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/FOREIGN 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 **36 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

**OFFICE OF PROFESSOR-IN-CHARGE,
DHI CENTRE OF EXCELLENCE ON ADVANCED MANUFACTURING TECHNOLOGY,
(INSIDE STEEL TECHNOLOGY CENTRE),
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR, 721 302, WEST BENGAL, INDIA**

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 *Professor-In-Charge*, at the address mentioned above.

**LAST DATE FOR SUBMISSION OF SEALED BIDS: ~~02.04.2018 (15:00 HRS IST)~~
EXTENDED TO 26.04.2018 AT 15:00 HRS (IST)**

- 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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