

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. (*Details are given in Annexure-1*).

Optical Blue LED Light-based 3D Scanning System.

The system should be capable of providing 3D CAD models of the scanned parts through appropriate software(s) where CAD models are not available.

Please send offers, ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE. The validity of the bid should be at least five months (150 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than **22.10.2018 (Monday) by 15:00 Hrs. (IST)** 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. 1,50,000/-** (*Rupees One Lakh Fifty Thousand only*) 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/EQ30, Dated: 01.10.2018
Tender Fee	Rs. 5,000/- (<i>Account payee Demand Draft in favour of IIT Kharagpur, payable at Kharagpur, India</i>); Non-refundable
Last Date and Time for submitting the tender document	22.10.2018 (Monday) by 15:00 Hrs. (IST)
Time and Date of Opening of Technical Bids	22.10.2018 (Monday) by 17:00 Hrs. (IST)
Place of Opening Tender	SRIC Conference Room, Indian Institute of Technology Kharagpur, Kharagpur 721 302, West Bengal, India.
Address of Communication	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.
Contact Telephone Numbers	+91- 3222 - 281576
E-mail	coeamt@gmail.com

Annexure-1
Detailed Technical Specifications for
Optical Blue LED Light-based 3D Scanning System
(Hardware & Software Requirements)

Sl. No.	Description	Specifications
1	Resolution	Single Camera & Projector Based System with 5 Megapixels CCD Camera
2	Scanning light	Optical Blue LED light based 3D Scanning system.
3	Acquisition time	Should be 2 seconds or better
4	System accuracy	To be reported as per VDI 2634 – Part 3 for all Measuring / Scanning volumes. The System should be certified that it confirms to the above standard. System accuracy should be between 5 - 30 microns or better
5	Data transmission	Between sensor and data acquisition system should be Ethernet/USB
6	LED bulb life	Minimum 20,000 hours or better
7	Calibration	Certified calibration plates covering all measurement volumes to be supplied
8	Transport box & casing	Transport box and casing to be supplied
9	Mounting and Handling system	<ul style="list-style-type: none"> • Supplied Mounting and Handling system of the Sensor could be handled by a single person. • High quality height adjustable Tripod with manual tilt axis for quick and easy manual sensor positioning. The tripod should be equipped with high-quality and smooth-running wheels for maximum maneuverability. • 10 meter sensor cables & Power supply
10	Rotary table	<ul style="list-style-type: none"> • Rotation of rotary table should be auto-synchronised with scanning software. • One axis rotary table of diameter 400 mm (minimum) and load capacity 100 kg (Minimum) to be supplied. Resolution: 0.05° (or better), Rotation speed: maximum 10°/sec • Should be upgradable in future to dual axis or higher weight capacity automated rotary table.
11	Guided pointers	The system should be equipped with guided pointers for visualizing the optimum measuring distance.
12	Stand-off Distance	Common for all measurements volumes for better handling
13	Fields of View	<p>The item should be supplied with following Measurement Volumes & 3D point spacing</p> <ul style="list-style-type: none"> ➤ 45 mm FOV with Measuring point distance \leq 18 Micron, Measuring volume (x * y * z): 45 x 38 x 30 mm³ ➤ 100 mm FOV with Measuring point distance \leq 50 Micron, Measuring volume: 120 x 100x 60 mm³ ➤ 250 mm FOV with Measuring point distance \leq 105 Micron, Measuring volume: 260 x 215 x 140 mm³ ➤ 500 mm FOV with measuring point distance \leq 196 Micron, Measuring volume: 480 x 400x 250 mm³ <p>System should be upgradable with the ability to change only the lenses – if necessary, for adapting for different fields of views (FOV). No manual setting of focus is needed, either at projector or at camera.</p>

Sl. No.	Description	Specifications
14	Operating Conditions	The instrument should be capable of operating at 10 to 40 deg C temperature and Relative humidity 55% or less with no condensation.
15	Merging scanned data	Should have the ability to merge scanned data using different strategies such as:- <ul style="list-style-type: none"> • Free matching with variance analysis • Tie point matching with variance analysis • Global matching with variance analysis
16	Detection	Primitive Detection
17	Editing	Polygon creation / editing
18	Feature extraction	Feature extraction and sharpening
19	Datum creation	Should facilitate datum creation
20	3D analysis	Tolerance and deviation Computations
21	2D analysis	Tolerance and deviation Computations for sections and surfaces
22	Report	Should be capable of Report generation and Graphics feedback
23	Import of common CAD data formats	Catia V4/ V5, Pro/E, Unigraphics , SolidWorks, Parasolid, JtOpen, IGES
24	Import of point clouds and polygons	OBC, ASC, TXT, STL, PLY
25	Export of point clouds and polygons	ACS, POL, STL, TXT
26	Data export to statistics Programs	qs-STAT, CSV format
27	Scanner & Inspection Software	<p>The system should be supplied along with software for both scanning and inspections with following features:</p> <ul style="list-style-type: none"> • Software has point cloud to CAD alignment option. • Interactive and auto editing of triangle meshes (hole filling, cutting, smoothing, decimating). • 3-2-1 alignment of coordinate system. • Best fit alignment of measurement object to reference data (CAD) • Automatic post processing (conversion of point-clouds into triangle meshes, decimation and optimization in one automatic tolerance-based process) • Interactive and automatic calculation of cross sections • Automatic measurement of adapters • Calculation of the deviation for surface data, planar sections, borderlines, fold points • Display of deviation via freely scalable colour display. • Display of needle diagrams for comparison of border lines and intersections • Visualization of the results by freely definable flyers (GD&T information, object features, deviations and spatial position) • Software should have macro function for repetitive measurement tasks. • Mesh generation algorithm, triangles aligned along the curvature is included in the software.

Sl. No.	Description	Specifications
28	OEM Credibility	Manufacturer should be of good repute and should have office in India for their local after sales services, if their authorized dealer fails in it.
29	Reference	The supplier should have supplied similar systems to at least 5 premier government technical institutions like IITs, NITs & Central Universities.
Optional Item		
30	Reverse Engineering Software	<p>Reverse Engineering Software should be a dedicated software and be able to combine the history based CAD with 3D Scan data processing so as to create feature based, editable solid models compatible with the other CAD software</p> <p>The Software must have the following functionality</p> <ul style="list-style-type: none"> • Scan Directly into product Import\ Points, Import Mesh & Direct Modeling • Point Editing (Delete, Sample, Reduce Noise) • Basic Mesh Editing (Fill Holes, Trim, Mesh Doc) • Advanced Mesh Editing (Sandpaper, Sculpt etc.) • Intelligent Extraction of surfaces/solids/sketches • Complete Sketching and solid modeling • Mesh to solid deviation Analysis • Native output to NX, Solid works, Inventor & Creo. • Organic Shape Surfacing & 2D Drawing Creation • Creation and Management of Assembly Relationships • Simple geometry such as cylinders, cones and spheres should be quickly extracted as solid Geometry or surface geometry from the mesh. • Option to automatically extract surfaces, solids and sketches from the mesh. • Should be able to automatically heal various defects in the mesh.

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. COMPLIANCE STATEMENT WITH RESPECT TO THE TECHNICAL SPECIFICATIONS MENTIONED ABOVE SHOULD BE PROVIDED.
3. INDIAN AGENT SHOULD PLEASE CONFIRM WHETHER IT IS AUTHORIZED TO QUOTE ON BEHALF OF ITS PRINCIPALS AND IF SO, A COPY OF SUCH AUTHORISATION WITH ITS QUOTATION MAY PLEASE BE ENCLOSED.
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 THE INDIAN AGENT, 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 IIT KHARAGPUR 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 150 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). INDIAN AGENT SHOULD ENCLOSE COPY OF AGENCY AGREEMENT ENTERED

WITH ITS PRINCIPALS INDICATING THE NATURE OF AFTER SALES SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP AND 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 – COMPLY TO – 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 PURCHASER 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 WHOSE 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 MINIMUM 12 MONTHS (BUT 24 MONTHS OR MORE IS PREFERABLE) 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: 22.10.2018 (Monday) by 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.
