

TENDER (E - PROCUREMENT MODE)

FOR

SUPPLY & INSTALLATION OF COMPRESSION & FLEXURE TESTING

MACHINE IN SCHOOL OF ENGINEERING

AT IIT MANDI



Tender No.: IITMANDI/S&P/PUR-307/2016-17/3270-71

Tender date: 21st March, 2017

Last Date of submission: 11th April,, 2017

Indian Institute of Technology Mandi

IIT Mandi, Administrative Block at Bamboo Hut, Near Director Office,

Kamand - 175005

Ph. No.: 01905-267145 email: tenders@iitmandi.ac.in & srkr@iitmandi.ac.in

Indian Institute of Technology Mandi, Kamand invites online Bids for the supply, erection, installation, commissioning, testing, demonstration and training of “**Compression & Flexure Testing Machine**” as per specifications given in the Annexure attached to the Tender form. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the CPP Portal (<http://eprocure.gov.in/eprocure/app>) & Institute website <http://iitmandi.ac.in/administration/tenderseoi.php>.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions provided herein. Non-compliance with specifications/instructions provided in this document may disqualify the bidders from the tender exercise. The Director, IIT Mandi, Kamand reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

Instruction to bidder:

1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.
2. Bidder should take into account any corrigendum published on the tender document before submitting their bids.
3. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the documents that need to be submitted. Any deviations from these may lead to rejection of the bid.
4. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app>. In the Technical Bids, the bidders are required to upload all the documents in .pdf format. All quotation (**both Technical and Financial**) **should be submitted in the E-procurement portal.**
5. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in the company's name is a prerequisite for registration and participating in the bid submission activities through <http://eprocure.gov.in/eprocure/app>. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://eprocure.gov.in/eprocure/app> under the link “Information about DSC”.

Instruction for Preparation & Submission of bids:

1. Technical & Financial Bids should be submitted in .pdf format.

2. **All items listed below may not be necessarily ordered and the quantities mentioned in the tender document are also approximate. Items and their numbers to be ordered will be decided by the committee later at the time of ordering. Hence, only those vendor quote, who are able to supply all item. The vendor should quote for all items.**
3. **In case of Financial bids**, a standard BOQ format has been provided in .pdf format. Bidders are required to download the BOQ .pdf file and fill their financial offer on the same BOQ format. After filling the same, submit it online in .pdf format, without changing the financial template format. If the BOQ format file is found to be modified by the bidder, the bid will be rejected.
4. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and must, they can be in .pdf formats. Bid documents may be scanned with 100 dpi with black and white option.
5. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
6. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
7. **Kindly add scanned .pdf of all relevant documents in a single .pdf file like, compliance sheet, OEM/Principle Certificate etc.**
8. Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
9. Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
10. The technical and financial bids should be submitted online through portal <http://eprocure.gov.in/eprocure/app> **in original**. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
11. Each bidder should be marked with the following reference on the top bids submitted online: **“IITMANDI/S&P/PUR-307/2016-17/3270-71/Item Name. dated 21st March, 2017”**.
12. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance in .pdf format.
13. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
14. **Tender Cost:** The bidder should submit a demand draft of **Rs. 1,000/- (Rupees One Thousand only)** towards non-refundable **tender fee, drawn in favour of “The Registrar, IIT Mandi”** payable at Mandi in a sealed envelope super-scribed

as **“Tender fee & NIT No.IITMANDI/S&P/PUR-307/2016-17/3270-71/Item Name. dated 21st March, 2017”** on or before last date & time of submission of bids. In the absence of tender fee, the tender will not be accepted.

15. **Earnest Money Deposit (EMD):**

Bidder should furnish an EMD of a refundable amount of **Rs. 1,20,000/-** in the shape of DD from a scheduled bank in India drawn in favour of **“The Registrar, IIT Mandi” payable at Mandi**. This EMD should be submitted in sealed envelop super-scribed as EMD & NIT No. **“IITMANDI/S&P/PUR-307/2016-17/3270-71/Item Name. dated 21st March, 2017”**. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. **Failure to deposit Earnest Money will lead to rejection of tender**. In the event of the awardee bidder backing out, EMD of that bidder will be forfeited.

Note: Both (tender fee & EMD) envelops should be placed in another sealed envelope and addressed to:

**“Assistant Registrar, Stores and Purchase”
Indian Institute of Technology Mandi (IIT Mandi),
Near Director Office, Kamand Distt. Mandi – 175005 (H.P), India”**

This envelop having the tender fee & EMD should reach on or before the last date & time of submission of bid.

16. **EMD Exemption:** The Institute may accept bids without EMD from those bidders who are registered with the Central Purchase Organization, National Small Industries Corporation (NSIC) or the concerned Ministry or Department **as Manufacturer**. To claim the exemption, the bidder must be offering goods manufactured by themselves. Exemption will not be granted in case the bidder is acting as an agent for some other vendor.

General Terms & Condition:

1. While sending rates, the firm shall give an undertaking to the effect that **“the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.” in .pdf format**. In case the firms do not give this undertaking, their rates will not be considered.
2. If the supplier/firm is an original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect should submit in .pdf format.
3. The quantity shown against each item is approximate and may vary as per demand of the Institute at the time of placing order.
4. Any bids received after **3:00 P.M. on 11th April, 2017** shall not be considered.
5. The Technical Bids will be opened on **12th April, 2017 at 03:00 P.M.** The date & time for opening of Financial Bids will be informed later on to the technically qualified bidders.
6. The tenders will be received online through portal <http://eprocure.gov.in/eprocure/app>. All tender documents received after the specified date and time shall not be considered.

For any correspondence regarding tenders is on below address:

**“Assistant Registrar, Stores and Purchase”
Indian Institute of Technology Mandi (IIT Mandi),
Near Director Office, Kamand Distt. Mandi – 175005 (H.P), India”**

7. **Arbitration Clause:** In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, IIT Mandi”, Kamand who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act,1996. The decision of the arbitrator shall be final and binding on both the parties.
- In case of a dispute between the purchaser and a foreign supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause above. But if this is not acceptable to the supplier then dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.
 - The venue of the arbitration shall be the place from where the order is issued.
 - The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
 - All disputes shall be subject to Mandi Jurisdiction only.
8. All tenders in which any of the prescribed conditions is not fulfilled or any condition is putforth by the tenderer shall be summarily rejected.
9. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Note: Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be intimated only to the technically qualified bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

10. **Clarifications:**

In case the bidder requires any clarification regarding the tender document, they are requested to submit their queries on the e-mail i.e. srkr@iitmandi.ac.in & tenders@iitmandi.ac.in on or **before 03/04/2017**.

11. **Assistance to Bidders:** Any queries relating to the tender document and the terms & conditions contained therein should be addressed to tender Inviting Authority for a tender or relevant contact person indicated in the tender.

12. **Pre – Qualification Criteria:**

- The Bidder should be a manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- OEM should be internationally reputed Branded Company.
- The bidder should submit at least three certificates of successful installation of equipment of similar capacity at institutes of national/international repute.
- Technical catalogues for all the components and accessories stated should be provided as a part of the bid
- Bidders may also be called upon to deliver a presentation at IIT Mandi as a part of the technical scrutiny process, subjected to the prima facie compliance to desired specifications
- Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid.
- **In the tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product in the same tender.**
- **If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf another Principal/OEM in the same tender for the same item/product.**
- **Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

13. **Prices:**

- The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi/Kamand). IIT Mandi is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by IIT Mandi. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. Nothing extra shall be paid on any account.
- **In case of imports/foreign supplier, the price should be quoted on ex-work price/FOB/FCA basis only. Under special circumstance (e.g. perishable chemicals), when the item is imported on CIP/CIF, please indicate CIF/CIP charges separately upto Delhi indicating the mode of shipment. IIT Mandi**

will make necessary arrangements for the clearance of imported goods at the Airport/Seaport.

- In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. **IAC shall be paid after satisfactory installation & commissioning of the goods at the destination.** For imported equipment, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.
- **In case of indigenous item, the vendor should clearly mention the final FOR IIT Mandi, Kamand Campus Price, as applicable in their bid.**

14. Validity:

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required without any additional financial implications.

15. Delivery:

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use preferably within **12-14 weeks** of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipment or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

16. Installation, Training & Demonstration:

Bidders need to provide adequate training to the nominated persons of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure. The supplier is required to carry out the installation and demonstration of the equipment within **one month** of arrival of materials at the IIT Mandi site of installation, otherwise the penalty clause will be the same as per the supply of material.

In case of any mishappening/damage to equipment and supplies during carriage from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own cost. Supplier will settle his claim with the insurance company as per his convenience. IIT Mandi will not be liable to any type of losses in any form.

- 17. Insurance:** For delivery of goods at the purchaser's premises, the Insurance shall be obtained by the supplier on **"All Risk"** basis. The insurance shall be valid for a period of not less than 3 months after installation and commissioning. **In case of order placed on FOB/FCA basis, the purchaser shall arrange insurance. If order placed on CIF/CIP basis, the insurance should be up to New Delhi.**

18. Warranty Declaration:

Bidders must give the comprehensive on-site warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that *“everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document.*

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction/specifications specified in the order / contract and demonstrate at their own cost.

- The Purchaser Shall Promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately within **Two weeks** arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie to the Purchaser for the replacement parts/goods thereafter. The period for correction of defects in the warranty period is **Two week**. If the supplier having been notified fails to remedy the defects within **Two week**, the purchaser may proceed to take such remedial action as may be necessary, at the supplier’s risk and expenses without prejudice to any other rights, which the purchase may have against supplier under the contract.
- The warranty period should be clearly mentioned. The maintenance charges (AMC) under different schemes after the expiry of the warranty should also be mentioned. The comprehensive warranty will commence from the date of the satisfactory installation/commissioning of the equipment against the defect of any manufacturing, workmanship and poor quality of the components.
- After the warranty period is over, Annual Maintenance Contract (AMC)/Comprehensive Maintenance Contract (CMC) should be started. The AMC/CMC Charges will not be included in computing the total cost of the equipment.

19. **Performance Bank Guarantee:** A performance bank guarantee from a scheduled bank in India for an amount equal to 10% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

20. **Terms of Payment:** Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. **This must be specified in the tender/quotation.**

- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through irrecoverable Letter of Credit in two installments. 80 % of the money will be released on submission of shipping of documents. Re-

maining 20 % will be released after successful installation of the instrument and submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty. All the bank charges within India will be borne by the Institute and outside India will be borne by the Supplier.

- In case of required item quoted in INR, 80% payment will be made through E-payment after receipt of material in good condition and Remaining 20% will be released on successful installation of the instrument and on submission of a performance bank guarantee for 10% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty.

21. **Tender expenses and documents:** All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.

22. **Tender Evaluation Criteria:** The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

23. **Return of EMD:**

- The earnest money of unsuccessful bidders will be returned to them without any interest within 15 working days after awarding the contract.
- The earnest money of the successful bidder will be returned to them without any interest within 15 days after supply of material.

24. **Manual and documentation:** All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

25. IIT Mandi reserves the right to cancel the tender at any stage (point of time) without assigning any reason.

26. Bidders should go through the tender terms, conditions and specifications carefully and fill in the attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

Sd/-
Assistant Registrar
Stores & Purchase

BID PARTICULARS

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment : Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No. _____ Bank _____ Amount _____

5. EMD enclosed : Yes / No if Yes

D.D. No. _____ Bank _____

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web :

< Organization Letter Head >>

DECLARATION SHEET

We, _____ hereby certify that all the information and data furnished by our organization with regard to this tender specification are true and complete to the best of our knowledge. I have gone through the specification, conditions and stipulations in details and agree to comply with the requirements and intent of specification. This is certified that our organization has been authorized (Copy attached) by the OEM to participate in Tender. We further certified that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, OEM has agreed to support on regular basis with technology / product updates and extend support for the warranty.

We, further specifically certify that our organization has not been Black Listed/De Listed or put to any Holiday by any Institutional Agency/ Govt. Department/Public Sector Undertaking in the last three years.	NAME & ADDRESS OF THE Vendor/ Manufacturer / Agent
1 Phone	
2 Fax	
3 E - mail	
4 Contact Person Name	
5 Mobile Number	
6 TIN Number	
7 PAN Number	
8 Kindly provide bank details of the bidder in the following format: a) Name of the Bank	
b) Account Number	
c) Kindly attach scanned copy of one Cheque book page to enable us to return the EMD to unsuccessful bidder	

**Ref: -ENQUIRYNO:-IITMANDI/S&P/PUR-307/2016-17/ Compression & Flexure
Testing Machine**

SPECIFICATIONS

General

The machine shall be calibrated for measuring ranges as per BS EN ISO 7500-1:1999 and IS: 1828:Part1: 2005.

The setup should comprise of the following components:

1. Computerized control unit (1 no.):

- Comprising of a PC interface loaded with an interactive software for exercising fully automatic load, displacement and strain controlled testing of specimen via appropriate hardware
- Capable of storing, analyzing and presenting key test data through the software GUI

2. Compression frames (3 nos.):

- Capable of testing cement, mortar, concrete and masonry specimen with loading capacities of 5000 kN (1 no.), 300 kN (1 no.), and 15 kN (1 no.)

3. Flexure frame (1 no.):

- Capable of testing cement, mortar, concrete and masonry specimen with a loading capacity of 300 kN

The detailed technical specifications for the above are presented as follows.

A. Technical specifications for the computerized control unit:

Sr. No.	Particulars
1	<p>Hydraulics:</p> <ul style="list-style-type: none"> • Should be capable of implementing servo-hydraulic control of load, displacement and strain • Should be capable of producing a continuous and non-pulsating oil flow of suitable pressure • Should consist of oil-filter(s), oil-strainer(s), air-cooling system, oil temperature indicator, oil level indicator, and a drain plug • Should have the provision of connecting to a minimum of

	<p>four test-frames and run any one at a given time</p> <ul style="list-style-type: none"> • Should be capable of running on standard AC single or three phase supply • The noise rating of hydraulic power pack should be lesser than 75 db • The hydraulic power pack should be vibration free and compact
<p>2</p>	<p>Controller:</p> <ul style="list-style-type: none"> α. Should be based on a P.I.D. algorithm with an update rate of 10 kHz or better β. Should take user specified values of test control parameters - load, displacement and strain rates - through software GUI as set points χ. Should be capable of driving the hydraulics to generate maximum and minimum loading rates of 15 kN/s and 0.1 kN/s respectively or better δ. Should be capable of driving the hydraulics to generate maximum and minimum displacement rates of 0.09 mm/s and 0.01 mm/s respectively or better ε. Should be capable of providing a load resolution of 0.1 kN or better at an accuracy of ±1% or better φ. Should be capable of providing a displacement resolution of 0.001 mm or better at an accuracy of ±1% or better γ. Should have a minimum of four input channels for data acquisition through load, displacement and strain transducers. Each channel should be calibrated for flexible inputs η. The data acquisition hardware should incorporate essential circuitry, chips and buses for signal conditioning, conversion and transmission. The sampling of analogue signals should be at a rate of 100 Hz or faster and corresponding digital signals should be generated at a resolution of 16 bits or better ι. Should be capable of automatically turning the pump on and off, controlling the set pace rate and switching off the machine under predetermined conditions of load, displacement or strain φ. Should be capable of automatically releasing the pressure at the end of every run and re-initialize the machine at the beginning of every test

3	<p>PC interface:</p> <p>A desktop system with -</p> <ul style="list-style-type: none"> α. Core i7 processor or better β. 4 GB- DDR3 RAM or higher χ. 500GB hard disk or higher δ. Window 7 Professional with office (licensed copy) ϵ. LED display 21' monitor or better ϕ. Wireless keyboard and mouse γ. Color laser printer η. 800 VA UPS
4	<p>Legal and licensed software:</p> <ul style="list-style-type: none"> α. Should be compatible with Windows operating system β. Should have a GUI with input fields for: loading, strain and displacement rates; specimen shape and size χ. Should be capable of real-time data acquisition, processing and display of load-time and stress-strain curves δ. Should be capable of archiving data in text or spreadsheet format ϵ. Should be capable of printing test reports

B. Technical specifications for compression test frames:

Sr. No.	Particulars
1	<p>5000 kN:</p> <ul style="list-style-type: none"> a. The frame should have a column/plate type structure with safety guard doors b. The frame should have a single acting hydraulic cylinder at its center c. The frame should have a longitudinal stiffness of 3 MN/mm or better d. The loading platens should have a Rockwell hardness of 50 HRC or better e. The top platen should have a spherical ball seat arrangement and the bottom platen should have suitable marking to facilitate the centering of cubic and cylindrical specimen f. Platen size: 300 mm or bigger g. Minimum vertical clearance between platens: 500 mm h. Minimum horizontal clearance: 425 mm i. Suitable distance pieces should be provided to facilitate holding of specimen of up to 100 mm height j. The actuator should have a suitable transducer capable of measuring load in range of 1% to 100% of the full-scale with a resolution of 0.1 kN and an accuracy of $\pm 1\%$ or better

	<ul style="list-style-type: none"> k. The actuator should have a suitable transducer capable of measuring displacement of up to 50 mm at 0.001 mm resolution with an accuracy of $\pm 1\%$ or better l. Maximum travel of ram should be equal to 50 mm with suitable travel limit switch m. The frame should conform to the force transfer requirements as per EN 12390-4
2	<p>300 kN:</p> <ul style="list-style-type: none"> a. The frame should have a column/plate type structure with safety guard doors b. The frame should have a single acting hydraulic cylinder at its center c. The loading platens should have a Rockwell hardness of 50 HRC or better d. The top platen should have a spherical ball seat arrangement and the bottom platen should have suitable marking to facilitate the centering of cubic and cylindrical specimen e. Platen size: 150mm or bigger f. Minimum vertical clearance between platens: 200 mm g. Minimum horizontal clearance: 200 mm h. The frame should be capable of holding cubic specimen of up to 50 mm height, if required, through suitable accessories i. The actuator should have a suitable transducer capable of measuring load in range of 1% to 100% of the full-scale with a resolution of 0.1 kN and an accuracy of $\pm 1\%$ or better j. The actuator should have a suitable transducer capable of measuring displacement of up to 10 mm at 0.001 mm resolution with an accuracy of $\pm 1\%$ or better k. Maximum travel of ram should be equal to 50 mm with suitable travel limit switch
3	<p>15 kN:</p> <ul style="list-style-type: none"> 1. The frame should have a column/plate type structure with safety guard doors 2. The frame should have a single acting hydraulic cylinder at its center 3. The loading platens should have a Rockwell hardness of 50 HRC or better 4. The top platen should have a spherical ball seat arrangement and the bottom platen should have suitable marking to facilitate the centering of cubic and cylindrical specimen

	<ol style="list-style-type: none"> 5. Platen size: 150mm or bigger 6. Minimum vertical clearance between platens: 200 mm 7. Minimum horizontal clearance: 200 mm 8. The actuator should have a suitable transducer capable of measuring load in range of 1% to 100% of the full-scale with a resolution of 0.1 kN and an accuracy of $\pm 1\%$ or better 9. Maximum travel of ram should be equal to 30 mm with suitable travel limit switch 10. The frame should also facilitate three-point flexure testing of prism specimen of 40 mm * 40 mm * 160 mm size, through suitable accessories
--	---

C. Technical specifications for flexure test frame:

SI.No.	Particulars
1	<p>300 kN:</p> <ol style="list-style-type: none"> a. Working range: 3 to 300 kN b. The frame should have a suitable structure with safety arrangements c. The frame should have a single acting hydraulic cylinder at its center d. The frame should be capable of implementing three-point and four-point flexure tests e. Minimum vertical clearance: 400 mm f. Distance between loading rollers: Adjustable from 133 mm to 500 mm or higher over a suitable scale g. Distance between support rollers: Adjustable from 400 mm to 1500 mm or higher over a suitable scale h. The rollers should be made up of steel and have a diameter of 38 mm i. The actuator should have a suitable transducer capable of measuring load in range of 1% to 100% of the full-scale with a resolution of 0.1 kN and an accuracy of $\pm 1\%$ or better j. The actuator should have a suitable transducer capable of measuring displacements of up to 1000 mm at 0.001 mm resolution with an accuracy of $\pm 0.5\%$ or better k. Maximum travel of ram should be equal to 100 mm with suitable travel limit switch l. The frame should be capable of testing beam specimen of 0.5 to 1.5 m length or longer

m. Suitable distance pieces should be provided to facilitate testing of beam specimen with 100 mm and 150 mm depths

D. Accessories:

S. No.	Particulars
1	<p>Specimen holder for split tensile test of (Quantity - 1):</p> <p>α. Cylindrical specimen with diameters in the range of 100 to 200 mm and of up to 300 mm length</p> <p>β. Cubic concrete specimen of up to 150 mm size</p> <p>χ. Should conform EN 12390-6:2009, ASTM C496</p>
2	<p>Electronic extensometer (Quantity - 2):</p> <ul style="list-style-type: none"> • Should be capable of testing cylindrical specimen of 150 mm diameter and 300 mm height • Gauge length: not less than 102 mm • Should be capable of measuring strains to an accuracy of 2×10^{-6} or better • Conforming to EN 12390-13, EN 13412:2006, ASTM C 469, ISO 1920-10:2010
3	<p>Cylinder compressometer/ extensometer system (Quantity - 2)</p> <ul style="list-style-type: none"> • Should be capable of testing cylindrical specimen of 150 mm diameter and 300 mm height • Should be capable of measuring deformations with a resolution 0.01 microns of at an accuracy of $\pm 1\%$ or better
4	<p>Clip guage (Quantity - 1) conforming to BS EN 14651:2005</p>
5	<p>Accessories for the flexural testing of fiber reinforced concrete</p> <p>α. Auxiliary testing frame capable of holding beam specimen of following sizes:</p> <ul style="list-style-type: none"> • 100 mm × 100 mm × 500 mm • 150 mm × 150 mm × 700 mm <p>β. Two displacement measuring transducers with working range of 0 to 10 mm and a resolution of 0.001 mm at an accuracy of $\pm 1\%$ or better</p> <p>χ. Conforming to BS EN 14488-3: 2006, ASTM C1609</p>
6	<p>Accessories for the testing of flexural toughness of fiber reinforced concrete (Quantity - 1)</p> <p>a. Lower support frame and upper loading element for slab of 800 mm diameter and 75 mm thickness</p> <p>b. Displacement transducers with working range of 0 to 50 mm travel and a resolution of 0.01 mm at an accuracy of $\pm 1\%$ or better</p>

	c. Conforming to ASTM C 1550-12a
--	----------------------------------

**COMPLIANCE STATEMENT FOR THE TENDER SPECIFICATIONS
INDIAN INSTITUTE OF TECHNOLOGY MANDI
HIMACHAL PRADESH-175005**

**Ref: -ENQUIRYNO:-IITMANDI/S&P/PUR-307/2016-17/Compression & Flexure
Testing Machin**

Instructions:

1. You have to fill in all columns and ensure that you furnish all the required information accurately and unambiguously.
2. If our specification contains any values, you have to provide your values against the column in the same unit as we have specified.
3. Deviation in values, materials etc. from our specification may be explained in the remarks column

Sr. NO	Check list of documents/ Undertakings ?	YES/NO	Remarks (Give explanation if answer is No)
1	Is Tender fees attached?		
2	Is EMD attached?(If applicable)		
3	Is the bidder original equipment manufacturer (OEM)/authorised dealer?		
4	If authorised dealer, recent dated Certificate to this effect from OEM, attached or not?		
5	Undertaking from OEM regarding technical support & extended warranty period		
6	Validity of 180 days or not?		
7	Undertaking from bidder regarding acceptance of tender terms & conditions		
8	Whether list of reputed users (along with telephone numbers of contact persons) for the past three years specific to the instrument attached.		
9	Whether special educational discount for Indian Institute of Technology (IIT) Mandi (H.P) given.		
10	Whether two weeks training of operator and research students without any charges offered.		
11	Does the instrument complies with all the required specifications as per annexure A. Attach a separate sheet showing compliance with the specifications and explanations thereto if the equipment's varies from the requested specifications.		
12	Whether free Installation, Commissioning and Application Training offered.		
13	Whether three years comprehensive onsite extended warranty offered.		
14	Whether Annual maintenance after expiry of comprehensive onsite warranty quoted separately as optional.		