

NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR
Silchar – 788 010 (ASSAM)

No: NITS/PS-66/ME/Servo Hydraulic UTM/16(R)

Date : 03/04/2017

NOTICE INVITING TENDER

**FOR SUPPLY AND INSTALLATION OF SERVO HYDRAULIC UNIVERSAL TESTING MACHINE
FOR ME DEPARTMENT AT NIT SILCHAR**



LAST DATE & TIME OF SUBMISSION : 24/04/2017 up-to 01.00 PM
DATE & TIME OF OPENING : 24/04/2017 at 03.30 PM



**NATIONAL INSTITUTE OF TECHNOLOGY
SILCHAR - 788 010**

Tel.No. Director: (03842) 224879

Fax: (03842) 224797

NOTICE INVITING TENDER

Adv. No: NITS/PS-66/ME/Servo Hydraulic UTM/16(R)

Sealed Tender/Quotations are invited from reputed Firms/Agencies/Manufacturer/Authorized Dealer **FOR SUPPLY AND INSTALLATION OF SERVO HYDRAULIC UNIVERSAL TESTING MACHINE FOR ME DEPARTMENT AT NIT SILCHAR** along with Earnest Money Deposit (EMD) of Rs.2,90,000/- in the form of Demand Draft/Bank Guarantee in favour of "The Director, NIT, Silchar", Payable at Silchar. No Interest shall be paid on EMD.

Detail specification of the item/items is given in **(Annexure – A)**.

Tender documents can be obtained from Purchase Section, NIT Silchar or may be downloaded from our website www.nits.ac.in or <http://tenders.gov.in>. **The cost of tender document is Rs.1,000/-** (Non-refundable) to be submitted in cash or in the form of DD in favour of The Director, NIT Silchar, Payable at Silchar. The last date and time for submission of Tender documents will be **24/04/2017** up-to **01.00PM** and tender will be opened on the same date at **03.30 PM** in office of HOD, ME Dept., NIT SILCHAR.

The offers without Cost of Tender & Earnest Money Deposit (EMD) shall be outrightly rejected.

Director, NIT Silchar reserves the right to extend the date, or cancel the tender, accept or reject any/all quotations or not to purchase all or any of the items.

Quotations are to be sent/submitted in sealed covers addressed to :-

**The Purchase Officer
National Institute of Technology, Silchar
788 010 (Assam)**

REGISTRAR, NIT SILCHAR

NOTICE INVITING TENDER

Credential Criteria :

- The bidder should have provided similar nature of services to IITs/NITs/Govt. Departments/Semi Govt. Departments/PSU/Educational Institutions of National Importance etc. during last 3(three) years. **Duly certified copies are to be enclosed.**
- Quotations are to be submitted in **TWO PARTS** i.e. **(a) Technical Bid and (b) Price Bid**, in two separate properly sealed covers; and both these covers will have to be again put in to a single sealed cover. Also, the address of the firm submitting the quotation must appear distinctly on both the inner sealed covers, indicating also **TECHNICAL BID / PRICE BID** as may be applicable. The outer most cover shall be super scribed as
 - "QUOTATION FOR SUPPLY & INSTALLATION OFFOR
..... NIT SILCHAR.
 - VIDE TENDER REF NO NITS/PS-....., DATED.....DATE OF
OPENING

[The bid will summarily be rejected & returned to the bidder if the sealed envelope containing the quotation is not super scribed as above].

- **Genuine Pricing** (Both foreign & indigenious) :Vendor is to ensure that quoted price is not more than the price offered to any other customer in India to whom this particular item has been sold recently, particularly to IIT/Institutes and other Government Organization.
- **No Part Delivery:** Part shipment for any items will not be allowed.
- **Any Optional item quoted by the supplier will not be entertained.**
- **Termination for default :** Default is said to have occurred -
- If the supplier fails to deliver any or all of the items/services within the time period(s) specified in the purchase order or any extension thereof granted by NIT Silchar, the Institute may terminate the contract / purchase order in whole or in part and forfeit the EMD/PBG as applicable.

TERMS & CONDITIONS:

1. The bidding agency should be reputed firm and having all necessary certificates, viz. VAT registration certificate, PAN, Registration, Sale Tax clearance Certificate, Authorized Dealership/Distributorship certificate, etc. The photocopies of all the certificates should be attached with the tender.
2. The firm should be an original equipment manufacturer (OEM) in the business of manufacture or supply of equipment for minimum 5 (five) years. The firm should submit audited financial statements for latest three financial years in support of this claim.
3. The items being quoted should be of Original Manufacturer and no non-standard item should be quoted. All detailed specifications with make & model no. of the items accompanied by proper leaflets should be clearly mentioned and attached with the offer. In case of proprietary or patented item, necessary certificates in support of the same should be attached. The bidder must submit the Compliance Statement and Deviation Statement of technical specification.
4. The firm should have average annual turnover (Indian fabricated equipment and imported equipment) of not less than Rs.0.70 crores in the last 3 financial years. The firm should submit audited financial statements of the latest three financial years.
5. The firm should have satisfactorily manufactured and supplied equipment, as requisitioned in this tender, to IITs/NITs/Govt. Departments/Semi Govt. Departments/PSU/Educational Institutions of National Importance etc. during the last three years ending the last day of March 2016.

6. **The firm should submit 3(three) completed works costing not less than Rs.25.00 Lacs and the performance certificate of the works completed in the last three years from the client along with their technical bid.**
7. **The rate quoted must be both in words and figures and F.O.R. / Destination National Institute of Technology, Silchar inclusive of packing, forwarding etc. Octroi, surcharge, insurance, Installation and any other charges.** Educational discount, if any should be indicated clearly. Tenderer(s) may note that the Government of India exempts this Institute from paying custom duty/excise duty on selected items. Necessary documents will be furnished if required on demand by the Tenderer(s). **Rate quoted for any other destination shall not be accepted.**
8. Assam Sales Tax must be quoted as extra in the tender, wherever applicable.
9. NIT Silchar will not provide educational concession Central Sales Tax Form'D', wherever applicable.
10. Payment shall be made only after receipt and installation of the materials/articles in good and working conditions as per specifications and after satisfactory installation and commissioning of the equipment/machinery/accessories by the department.
11. Manufacturer's/Company's name, it's trademark should be mentioned in the Tender and illustrative leaflets giving technical particulars, etc. should be attached in the tender.
12. Tenderer(s) registered with the State/Central Government must quote his registration numbers, if any, and submit a Xerox copy of registration along with the tender.
13. Guarantee/Warranty period offered for the tendered item is to be clearly specified.
14. The rates to be quoted by the agency should be valid for a period of six months after the deadline date specified in the tender.
15. The quantity against each item mentioned in the tender may vary according to the actual requirements at the time of placing Purchase Order.
16. It is not binding for the bidding agency to quote for all the items.
17. **Each bidder should clearly specify that the bidder agrees to abide by the conditions of this tender document on their printed letter head duly sealed & signed by an authorized person.**
18. **Bid Price**
 - a) The contract shall be for the full quantity as described above. Corrections, if, shall be made by crossing out, initialing dating and rewriting.
 - b) **The bidder should quote the total price for each item inclusive of packing and forwarding, all duties, levies, insurance, installation, any other charges, etc. Only taxes & (discount if any) should be mentioned separately.**
 - c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
19. Each bidder shall submit only one quotation.
20. All necessary documents shall be furnished along with the bid.
21. Validity of Tenders/Quotations: Tenders/Quotations shall remain valid for a period not less than 6 months after the deadline date specified for submission of tender.
22. **Packing**
 - a) The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall have to be taken into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

- b) The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements.

23. Evaluation of Quotations :

NIT Silchar will evaluate and compare the quotations determined to be substantially responsive i.e. which

- a) are properly signed
b) Conform to the terms and conditions, and specifications.

24. Award of contract:

NIT Silchar will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

- a) The bidder whose bid is accepted will be notified of the award of contract by the NIT Silchar prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
b) Normal commercial warranty/guarantee shall be applicable to the supplied goods.
c) The goods (both indigenous & imported) should be insured against theft, loss or breakage during transit till destination.
d) Upon delivery of goods, the supplier shall submit Suppliers Invoice, Insurance certificate, Warranty Certificate, or any other document.

25. **Acknowledgement of the Purchase Order:** The supplier shall give an acknowledgement of the Purchase Order within 15 days of the date of the Purchase Order. In case, the supplier fails to acknowledge the Purchase Order within the stipulated time, the Institute is at liberty to cancel the Purchase Order.

26. No alternations in tender forms shall be made by the bidder and if any such alteration is made, the tender is liable to be rejected.

a) **Delivery Schedule and Penalty for Delay:** Delivery of equipment should be made within 30days /as per Purchase Order from the date of Purchase Order. **Penalty at the rate of 0.5% or part thereof of the order value per week, subject to a maximum of 2.5% will be imposed for delayed delivery and installation.**

27. Demurrages and penalty, if any, paid by the supplier shall not be borne by the Institute.

28. The tenders submitted shall clearly mention the name of the firm/person in whose favour the purchase order is to be placed.

29. Contact details of the person for all post sales/installation maintenance support should clearly be given with **Name & Designation, Phone No, Fax No, Mobile, E-mail and official address.**

30. National Institute of Technology Silchar is not liable for non-receipt of the tender forms in time due to wrong address/ any delivery delay of the mail service provider/ force majeure. Tender documents received after the last date and time for receiving tenders will be summarily rejected.

31. **Successful bidder shall give a performance security @5% in the form of Bank Guarantee.** The performance security shall be furnished after the order for supply is placed and before the final payment. Validity of the Performance Security shall cover the warranty period.

- The proceeds of the Performance Security shall be payable to the purchaser as compensation for any loss resulting from the suppliers failure to complete its obligations under the contract.

32. All legal disputes shall be under the jurisdiction of the Silchar Courts of Cachar District in the state of Assam.



Registrar, NIT Silchar

DECLARATION

I / We hereby declare that no case is pending with the police/ court against the proprietor/ firm/ partner or the company (Agency). Also I /We have not been suspended / blacklisted by any PSU / Government Department / Financial Institution / Court.

(Signature & seal of the contractor)

Place:

Date:

NO DEVIATION CERTIFICATE

Notwithstanding anything mentioned in our bid, we hereby accept all the terms and conditions of this tender and we do not have any deviation to this tender enquiry. We hereby undertake and confirm that we have understood the scope of work properly and shall be carried out as mentioned in this tender enquiry.

(Signature & seal of the contractor)

Place:

Date:

BIDDERS DETAILS

Name of the Contractor /Party/ Firm	:	<input type="text"/>
Name of Authorized Representative	:	<input type="text"/>
Phone Nos.	:	<input type="text"/>
Mobile Nos.	:	<input type="text"/>
Fax No.	:	<input type="text"/>
E-Mail Address	:	<input type="text"/>
Web Site Address (If Any)	:	<input type="text"/>

(Signature & seal of the contractor)

Place:

Date:

CHECK-LIST (TECHNICAL BID)

SUMMARY OF COMPLIANCE TO REQUIREMENT OF TENDER

Sl. No.	Description of Requirement	Yes / No / NA	Page No.
1.	Tender Cost Rs.1,000/- (Non-refundable) in the form of Demand Draft in favour of "Director, NIT Silchar" in a separate envelope		
2.	EMD of Rs.2,90,000/- in the form of Demand Draft /Bank Guarantee in favour of "Director, NIT Silchar" in a separate envelope		
3.	Copy of Manufacturer/ Authorized Supplier Certificate		
4.	Audited financial statement for the last 3 years		
5.	Copy of the PAN card.		
6.	Copy of VAT registration certificate		
7.	Copies of previous work order of similar work with completion certificate		
8.	Declaration certificate		
9.	No Deviation certificate		
10.	Bidder's details		
11.	Technical Specification		
12.	NSIC/SSI Certificate where applicable		
13.	All the pages of tender document have been signed		
14.	Sealed envelope of price bid submitted.		
15.	Complete copy of Techno Commercial Bid submit along with the Price Bid.		

(Signature & seal of the contractor)

Place:

Date:

TECHNICAL SPECIFICATION**1. Servo Hydraulic Universal Testing Machine Qty. Required = 01**

The detailed specification of Servo Hydraulic Universal Testing Machine is given below:

This equipment is a Dual Column Servo Hydraulic Dynamic Universal Testing Machine using hydraulic pressure. This machine features rigid construction with high stiffness and precision capable for static, quasi static and dynamic testing of standard specimens or structural components in axial loading for metal, polymers, composites and ceramics.

Equipment Specification:		
Sl. No.	Item Name	Detailed Specification
01.	Capacity	±100 kN load cell.
02.	Load Frame	±100 kN frame with free/floor standing, rigid, heavy-duty precision aligned high stiffness (4 times of max load capacity of frame per mm i.e. 400kN/mm, accepted ± 10kN/mm), two column loading frame with fixed lower platen and adjustable upper cross-head, ensuring all operations at ergonomically convenient height for efficient operation. Column Diameter better than 65 mm.
03.	Day Light	Frame with test space: Vertical (distance between load cell & actuator at mid stroke) 1000 mm or higher range & Horizontal (distance between two columns) 550 mm or higher.
04.	Upper Cross Head	Hydraulically operated, fitted with hydraulic lifts for adjustment of upper cross head at variable heights and hydraulic clamps for position-locking of the cross-head with all the operations linked/integrated with electronic controls.
05.	Lower Platen	Integral, Actuator mounted and with all other controls.
06.	Actuator	Capacity: ±100 kN; The actuator provided with axial Hydrostatic bearing actuator or suitable actuator for higher side-load resistance or material critical applications like low-cycle fatigue along with LVDT for precise measurement of actuator displacements. Total stroke: 150 mm (±75 mm). The servo-hydraulic actuator shall be fitted complete with stroke transducer, servo-valve, filter, accumulator and actuator electronic system for signal conditioning and control. Signal conditioning units to be of integrated modular type. Provision shall also be made for a hand-held control mechanism with operational facilities for actuator positioning, grip control etc.
07.	Manifold/Servo-Valves Hoses	Hydraulic service manifold mounted directly to actuator system with servo-valves of 40 ltr/min or better capacity and hoses of rated capacity compatible with the hydraulic power package.

08.	Hydraulic Power Unit	Water cooled hydraulic power unit of sufficiently rated capacity at least 40 ltr/ min or better nominal flow rate at 200 -250 bar maximum output pressure on 50/60 Hz with guaranteed high service life which shall include matching pump, highly efficient cooler (water) for maintaining oil temperature, protection devices for oil conditions viz., oil level, temperature, filter and pressure, power level, over-load, filter blockage warning besides facility of local or remote start/stop functionality. There must be PLC operator interface with digital display of pressure and oil temperature. Protection devices for oil temperature, oil pressure, oil level, oil filter condition and motor temperature must be provided. Offer shall also include specifications for quality and quantity of oil required and complete fill of oil at the time of supply. 2 micron or better pressure and return line filtration. Reservoir capacity shall be of 200-250 liter. Star-Delta starting shall allow hydraulic power supply to be started and stopped from control panel. Noise level should not exceed 65 dB.
09.	Operational Voltage	Machine Frame: Single-Phase Mains 220-240 VAC 50/65 Hz, Power Consumption: 1kVA max, HPU 415 (±10%) V, 3 Ph., 50 Hz power supply.
10.	Preventive Devices & Controls	<p>As per International Standard/CE(European conformity):</p> <ul style="list-style-type: none"> i. Anti-Vibration Mount: Provision shall be provided to prevent vibration transmission to the Laboratory floor. ii. Anti-Rotation Device: Provision to suit the purpose to prevent rotation of the holder with the specimen from the axis for effective functioning of the testing machine. iii. Grip Control: Effective interlocking of the grips with the controls so the user cannot open grips while running a test. iv. The load frame must feature a specimen loading mode, restricting the actuators force and velocity during test set-up. v. Changing from specimen loading mode to run test mode must be positive and deliberate action performed only by the test operator. This cannot be performed remotely, such as from a computer. vi. For the safety of the operator, in specimen loading mode, the only allowable actuator control mode is position control. vii. Commanding the opening and closing of hydraulic grips must always be disabled when a test is running/ the system is in load control/ the system is NOT in specimen loading mode. viii. Commanding the actuator to move using a frame mounted control must be disabled when the system is in computer control/NOT in specimen loading mode. ix. The load frame must feature a frame-mounted jog control handset with both coarse and fine actuator position adjustment both in linear.

		x. For the safety of the operator, operation should be jog control/ handset , when not in specimen loading mode, shall require the use of both hands.
11.	Control Electronics	<ul style="list-style-type: none"> i. Provision for full amplitude and mean level control. ii. Shall provide 6 term control for PID, Lag, Feed-forwarded & notch system and also provision for continuous update of PID terms at 1 kHz, eliminating the need for operator set-up and automatically compensating for specimens stiffness. iii. Control Loop Update Rate: Minimum 10 kHz or better. iv. Data Acquisition Rate (DAR): 10 kHz or better, synchronous on all sensor channels v. Data/System resolution should be 19 to 24 bit across the complete span of the sensor. vi. Auto Tuning: On Position and Load. vii. Frequency range is preferred from 0.001Hz to 1 kHz or better in increments of 0.001 Hz when necessary. viii. Position Accuracy: $\pm 0.2\%$ of Transducer Full Travel Under Normal Operating Conditions ix. Transducer capacity or reading, transducer accuracy, should meet or surpass the different international standard like ASTM, ISO etc. x. Basic Characteristics: Auto-transducer recognition; Signal conditioning of transducers to offer greater stability and low noise levels with transducer filtration system facilitating infinite adjustment in the entire range.
12.	Load Cell	<ul style="list-style-type: none"> i. Capacity: ± 100 kN, with an overload capability of over 150% capacity without mechanical failure. ii. Accuracy: $\pm 0.5\%$ of load reading or better from full capacity down to 1/250 of range or better and should meet or Surpasses international standards like ASTM, ISO etc. iii. Fatigue life with full stress reversed cycles at full capacity. iv. Good repeatability, linearity and side load resistance.
13.	Control System	<ul style="list-style-type: none"> i. Controller: The system should be provided with state-of-the-art digital controller with high resolution and different functional modules placed in server type/ suitable cabinet with facilities of digital linearization, adaptive control, low noise. PC interface to machine should be of faster data transfer rate. Specimen protection facility should be provided for complete safety for the specimen installation. It should be provided with adequate protection device, applicable for a modern sophisticated testing machine. ii. Multi-function Microprocessor System: There should be a multi-function Microprocessor System based on precision floating point bit architecture for efficient & fool proof operation of the testing machine. The digital control system capable of controlling the actuator in position, load, and strain modes.
14.	Computer System	Suitable workstation to support software with laser jet printer

15.	Software	<p>The interface & software should be compatible PC based software packages to conduct tension, compression, bend, fatigue (fatigue crack growth, HCF and LCF) and fracture toughness (both K_{Ic} and J_{Ic}) properties as per appropriate standards for metals, polymers and composites and laminates, should be included. Dynamic testing software, fracture mechanics software, and static material testing software must be provided.</p> <p>Program for Tensile Test: Program for conducting tensile test to latest issues of specifications according to international standard for metals polymers, composites etc. to determine/direct reading of the following characteristics where ever applicable:</p> <ul style="list-style-type: none"> ○ Upper yield stress & lower yield stress. ○ 0.2% proof stress (off set). ○ Ultimate tensile strength. ○ % elongation. <p>Graphical representation of stress vs. strain curve on screen in real time and provision for copying the graphical presentation per graphic representation.</p> <p>Program for Fracture Toughness (Pre-crack): Programmed for growing a fatigue crack at a controlled and specified stress intensity at the crack tip as per international standard for metals, polymers, composites etc. The test shall be automatically stopped at the pre-specified crack length. The crack length cycle count shall be stored and printed at regular intervals during the test.</p> <p>Program for Fracture Toughness (Fracture): Program for fracture of the pre-cracked specimen at a programmed rate at a selected control mode as per international standard for metals, polymer, composites etc. The crack opening displacement should be measured with a clip gauge. The signal and the load should be stored during the test. This program should use the data file from pre-crack for the pre-test information. The equipment shall also include provision for low cycle fatigue test facility.</p> <p>Program for HCF and LCF Test: Program for HCF and LCF test with real- time graphs, calculation of results, storage of data to disk and post-test graphs and reports in accordance with international standard for metals, polymers, composites etc.</p>
16.	Accessory Mounting Block with Grips	Accessory mounting block to use with 100 kN hydraulic grips and manual grips for mounting fixtures for dynamic & static testing applications.
17.	Grips, Fixture and COD gauge for low and high temperature testing in Environmental Chamber	<p>i. Fatigue Rated Hydraulic Grips and Manifolds: Hydraulic fatigue rated grips of capacity: 100 kN static and dynamic loading with suitable grip control manifolds quality: one pair. Control of the grips shall be via a frame mounted handset and the grips shall be interlocked to prevent opening when the system is in load or strain control for safety reasons.</p> <p>ii. Fatigue Rated Manual Grips: For polymers, composites, laminates and ceramics. Manual fatigue rated grips of capacity: 100 kN static and dynamic loading with suitable grip control manifolds quality: one pair.</p>

		<p>iii. Fatigue Rated Jaw Faces: For holding flat specimens of width: 40 mm & thickness ranges from 0 to 15 mm for both hydraulic and manual grips or better.</p> <p>iv. Fatigue Rated Vee Jaw Faces: For holding round specimens of diameter ranges 5 mm to 16 mm for both hydraulic and manual grips.</p> <p>v. Fatigue Rated Bend Fixture: Three and four points bend fixtures suitable for bend testing of test specimens within the rated capacity of the machine. Fatigue rated 3 and 4 point bend fixture, 100 kN dynamic capacity, with 25 mm and 10 mm diameter rollers. Adjustable lower span from 30 to 250 mm with maximum specimen width is 50 mm.</p> <p>vi. Fatigue Rated Compression Anvils: 50 mm diameter fatigue rated compression platens for 100 kN under static and dynamic condition.</p> <p>vii. Clevis Grips: For holding 6.5 mm, 13 mm and 25 mm thickness CT specimens as per standard.</p> <p>viii. COD Gauge: Crack Opening Displacement (COD) Gauge Length: 5mm and 10 mm and Travel: 2 mm and 4 mm with subzero and high temperature range complies with the requirements of ASTM standards for testing metals and plastics suitable for low and high temperature.</p>
18.	Extensometer, & Strain Channel	<p>i. Two dynamic extensometer for direct strain measurement and closed loop strain control suitable for low and high temperature. Suitable for tensile, compressive and fatigue testing. The extensometer has gauge length of 12.5, 25 and 50mm with a travel of ± 5 mm for each of the gauge length. It should satisfy the ASTM and ISO standard.</p> <p>ii. Strain data acquisition channel controller supports closed-loop control and data acquisition.</p>
19.	Environmental Chamber	<p>Temperature range: -150 to +600 °C.</p> <p>Minimum internal dimension: 550(H) x 350(W) x 400 (D)</p> <p>Includes:</p> <ul style="list-style-type: none"> - Digital temperature controller - Internal light - Removable wedge-ports with instrumentation cut-out - Roller carriage brackets with reverse stress Pull Rods - Anti-Rotation Device, cooling fan etc. - 120 ltr. Pressurized Dewar flux cylinder for liquid nitrogen. - Grips for flat and round sample/specimen usable for low and high temperature test inside the chamber. - Threaded specimen holder usable for low and high temperature test inside the chamber

20.	Compulsory Accessories	<p>Must be quoted.</p> <ul style="list-style-type: none"> i. Cooling tower & pump with cover for cooling tower. ii. 120 liter Dewar vessel for liquid nitrogen storage. iii. Adequate UPS for running the full system with a backup for at least 30 minutes. iv. Hydraulic Oil (Supply With Machine) v. Manufacturer has to provide ISO or equivalent international certificate. References with purchase orders of the offered Model are to be mentioned with in India. All the necessary details are to be mentioned in offer e.g., chilling/cooling water, motor, UPS, etc. from Indian Sources.
21.	Hardware Operator Panel (MMI) (Optional)	<ul style="list-style-type: none"> i. Should provide convenient manual control and system status for one axis of control. ii. Functions include the ability to run fatigue tests in position, load, or strain control without a computer; setting of limits; setting of test waveforms; and data displays. iii. Provides system status information when using computer control. iv. Fully compatible with control software.
22.	Other optional Accessories (May be quoted as optional)	<ul style="list-style-type: none"> i. Additional extensometer. ii. Additional pin for different COD and clevis grips. iii. Additional hydraulic oil (can supply at the time of requirement). iv. Accessories for cooling tower. v. Necessary Safety devices. vi. Clevis and loading blocks for double cantilever beam (DCB) test vii. Video extensometer: It should be able to measure strains for both static and dynamic tests. It should have the capability to be used in different UTM machines and should be movable. It should work for metals, plastics, composites, films and biomaterials. ASTM standard should be obeyed. Modulus and strain can be measured. Continuous camera image collection should be supplied. Resolution of the extensometer should be high quality.
23.	Installation & Warranty	<p>Installation, demonstration and training on site with at least 3 years warranty from date of successful installation.</p>
24.	Pre-installation, spares and consumables	<p>Pre-installation requirements such as room size, tolerable limits of EM field, AC machines etc. are to be stated clearly, and to be verified/surveyed by the supplier at the installation site.</p> <p>Pre-installation: Including ACs 2 ton 2 Numbers, electrification with earthing.</p> <p>Necessary environmental requirements, i.e., temperature, humidity etc. during the operation should be specified clearly.</p>

25.	Training and Support	<p>On-site training for 1 weeks of the entire configuration and on-site Calibration of the Load cell & Actuator with NABL/NVLAP traceability must be provided by factory trained Engineer at the buyer's site for free of cost.</p> <p>Service response time must be 4 – 5 days.</p>
26.	Terms & Conditions	<p>Manufacturer has to provide ISO or equivalent international certificate. References with purchase orders of the offered Model are to be mentioned within India.</p> <p>The supplier must submit a comprehensive list of users and no of installation base which should be at least 10 numbers of similar machine installations in India with supporting installation documents.</p> <p>The supplier must provide authorized dealership or original equipment manufacturing certificate.</p> <p>The supplier must submit the name of the service engineers employed by them who are competent to service the equipment being quoted with their locations in India, preferably in eastern India.</p> <p>The supplier must have installed at least 2 nos. of similar equipment in Government and autonomous organizations in east region of India.</p> <p>The bidder must certify that accessories/spares parts/consumables of the equipment and attachments being quoted should be available in the market for at least next ten (10) years.</p> <p>The vendors must provide the names of factory trained service engineers employed by them who are competent to service the equipment being quoted with their locations in in eastern region of India along with the details of their tenure in the company.</p> <p>The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted.</p> <p>Foreign Company may quote on CIF/CIP basis and machine should be delivered at NIT Silchar.</p>