

**NATIONAL INSTITUTE OF TECHNOLOGY
KURUKSHETRA-136119**

INVITATION OF TENDERS

Servo Hydraulic Computerised Universal Testing Machine

Tender Reference : **MED/NITK/2017/02**

Date of Commencement : 21.02.2017
for Sale of Tender Documents

Last date and Time for : 10.03.2017 Upto 2:30 P.M
Receipt of Tenders

Time and date of opening : 10.03.2017 at 3:00 P.M
of Tenders

Place of opening of : **Office of the Dy. Registrar (I/c Stores)**
Tenders **NIT, Kurukshetra**

INSTRUCTIONS TO TENDERERS
&
CONDITIONS OF CONTRACT

1. The National Institute of Technology, Kurukshetra, Haryana an Educational Institution invite tenders for Supply of Servo Hydraulic computerised Universal Testing Machine.

The Tenders should be submitted in two parts in separate covers (Technical Bid & Financial Bid) in following manner:

- (i) Bid containing technical specifications and Earnest Money Deposit.
- (ii) Bid containing financial offer.
- (iii)

The envelopes should be marked as Technical Bid and Financial Bid with reference number and submitted in one cover.

The Technical Bid and Financial Bid will be opened in two stages on different dates. The bid containing technical specifications and Earnest Money deposit will be opened at 1st stage. The Financial Bid of technically qualified bidders will be opened on 2nd stage.

2. Tender must be sent in a properly sealed envelope with tender number and due date subscribed on the envelope addressed to the Deputy Registrar (I/c Stores), NIT, Kurukshetra.
3. The price should be quoted on prescribed price schedule. All corrections must be attested by the tenderer.
4. All the columns of the tender form shall be duly and properly filled in separately. The rates and units shall not be overwritten in the price schedule. The rates shall be quoted both in figures and words. The Tender should be signed by the authorized signatory of the firm.
5. The tenderer shall deposit earnest money as specified in Schedule of Requirement alongwith Technical Bid in form of Account paying Bank Draft, Fixed deposit receipt, Bankers Cheque or Bank Guarantee from any Commercial Bank in favour of Director, National Institute of Technology, Kurukshetra. The tenders without Earnest Money shall be rejected. The Earnest money will remain valid for a period of 45 days beyond the final bid validity period.
6. In case the Tender Documents are downloaded from the website of the Institute for submission of the tender, the Tender Document Fee may be deposited through Demand Draft alongwith the Tender otherwise the tender may be rejected.
7. The successful tenderer shall furnish the Performance Security for an amount of 5% of total value of the equipment in form of Account Paying Bank Draft, Fixed Deposit Receipt, Bankers Cheque or Bank Guarantee from any Commercial Bank in favour of Director, National Institute of Technology, Kurukshetra for the period of completion of performance obligations and warranty period. The Performance Security shall remain valid for a period of 60 days beyond completion of contractual obligations and warranty period.
8. The required delivery period must be mentioned against each item. After the order has been placed, the goods must be delivered within the stipulated period or by the delivery period extended by the Institute. In case of late delivery of goods the Institute is entitled to recover as penalty from the tenderer a sum @ 0.5% of the total value of the goods per week and the maximum 10% of the total value of the goods for which the consignment is delayed beyond the due date.

9. The payment will be made after receipt of goods according to specifications, its installation and good working order. In case the goods are rejected these have to be removed by the supplier at his own cost. The rejected goods must be replaced by the supplier within 15 days of the dispatch of registered notice intimating that the goods have been rejected failing which the order may be cancelled and security forfeited.
10. No payment will be made in advance for any supplies under this tender. No claim for any duty, not stipulated in tender will be admitted at any stage.
11. The valid documentary proof of Sales Tax, VAT/Service Tax Registration No. & details of Income Tax registration (PAN) should be submitted alongwith tender. The taxes must be quoted clearly and separately. If the taxes are not quoted separately, it will be presumed that the rates quoted are inclusive of taxes. The rates quoted should be firm and include all charges. The material may be dispatched "FREIGHT PAID" where the offer is F.O.R. destination. The Form D is not issued by the Institute.
12. In case of goods controlled by the Government, the tendered rates shall not be higher than the controlled rates.
13. Standard warrantee of the items should be mentioned in the tender. A list of users where similar equipment has been supplied in the past should be furnished with the tender.
14. Director of the Institute reserves the right to accept or reject any tender or to cancel the whole bidding process without assigning any reason.
15. The institute reserve the right to verify/seek confirmation of all original documentary evidence submitted by the venders in support of the tenders, specifications for eligible criteria. In case any information furnished by vender is found false/incorrect the tender will be rejected. The descriptive literature with full technical data and drawing/photos must be furnished alongwith the tender.
16. In case of dispute the decision of the Director shall be final. All above conditions will be enforced unless written orders of the Director are obtained relaxing any specific condition in any particular instance.
17. The tender shall remain valid for **90 days** from the date of opening of tender. Fax or conditional tenders shall not be accepted.
18. **Tender received beyond the fixed date and time shall not be accepted.**
19. The tenderers are required to quote their lowest rates in the very first instance and there shall be no negotiation in purchases. In case only one tender is received or only one tender remains according to specifications of the required goods, negotiations will be carried out.

PRICE SCHEDULE

Having examined the tender documents, the receipt of which is hereby duly acknowledged, we offer to supply the goods and services in conformity with the said tender documents at the rates shown below:

1	2	3	4	5	6	7	8	9	10	11
Sr.No	Particulars of the items	Unit	F.O.R	Duties inclusive, if exclusive rates be given	Packing forwarding charges if any	SalesTax	Total Cost F.O.R Kurukshetra	Delivery Period	Particulars of Manufacturers	Remarks

N.B.: The price column should be properly filled. In case nothing is mentioned in the columns the price will be considered inclusive of Taxes Duties, packing and forwarding etc.

Dated the _____ **Date of** _____

Address with seal

Signature

SCHEDULE OF REQUIREMENTS

Sr. No.	Name of the Items	Qty.	Earnest Money (in Rs.)
1.	Servo Hydraulic Computerised Universal Testing Machine	01 No.	1,60,000/-

Name of Equipment and Specifications	
Servo Hydraulic Computerised Universal Testing Machine	
The Machine should be suitable to test various metallic and non metallic materials for tension, compression, bending and shear, equipped with electronics, computer & software packages. Machine should be computer controlled and closed loop operation. It should be capable of controlling the test procedures as the pre-set programs and also displaying, recording & printing the test results, the testing curves may be drawn automatically in real time.	
Technical Specifications and Features Required :	
Type	Servo Hydraulic Computerised Universal Testing Machine <ol style="list-style-type: none"> i. High stiffness with 2000 KN/mm and above with four-column and twin lead screw structure. ii. The motor for middle crosshead movement should be mounted on the middle crosshead iii. Three notches for different length of sample test iv. open front hydraulic wedge grips v. Integrated displacement photoelectric encoder vi. Machine should be CE certified and supplier must provide CE certificate for the machine. Full details of each component to be provided.
Load Cell Capacity	<ol style="list-style-type: none"> i. 2000 KN/200 Ton (both tension and compression) ii. At least 250% overload capacity without mechanical failure iii. Accuracy should be $\pm 0.002\%$ of Load Cell Capacity or 0.5% of Indicated load, Whichever is greater - Meets or Surpasses ISO7500-1 Class 0.5, ASTM E 4, EN10002- 2 Class 0.5, JIS (B7721, B7733). Full details of each component to be provided.
Hydraulic Power Pack	<ol style="list-style-type: none"> i. Double control Mode: Manual control & PC Automatic servo closed loop control. ii. Maximum output pressure of 25Mpa or better iii. HPU should be of a silent type with submersible pump-motor, having the noise level 65 dB or better iv. Should include protection device for oil temperature, oil pressure, oil level, oil filter condition and motor temperature. v. Pressure and return line filtration with 5 micron or better filter. vi. Air cooling unit for running for 15 hours and above. vii. Servo Valve as the flow control unit. Full details of each component to be provided.
Minimum reading value	0.1 KN
Position control resolution	0.01mm or better
Data capture rate	50Hz or better
Extensometer deformation accuracy	$\pm 0.5\%$
Control modes	Both manual and automatic computer control
Control options	Servo Closed loop control (Displacement control, Load Control, Stress control, Strain Control etc)
Testing speed range	0.5 to 50 mm/min
Speed Control accuracy or position accuracy	$\pm 0.5\%$ with higher resolution encoder
Crosshead movement resolution	0.01 mm
crosshead speed	200 mm/min
Piston Stroke	250 mm
Stress control range	1-60 N/mm ² /S
Strain control range	0.00007/S – 0.0067/S
Effective Tensile Space	Minimum 1380 mm
Effective Compression Space	Minimum 780 mm
Column distance	Minimum 760 mm

Column diameter	Minimum 110 mm
Power Supply	3PH, 380/415V AC,50Hz
Electronic Extensometer	<ol style="list-style-type: none"> 1. Electronic Extensometer should be provided as per ASTM E83, ISO 9513, BS 3846, EN 10002-4 for standard test with Gauge length 100mm; Resolution 0.001mm & Max travel 10mm. 2. Extra rugged extensometer for long gauge length specifically designed to be left on through specimen failure, all standard units must meet ASTM class B-2 requirement for accuracy, easily replaceable hardened tool steel knife edges with a spare set, temperature range of -40⁰C to 100⁰C, high quality foam line case, replaceable arms and spacers, standard quick attach kit for quick mounting to specimens, linearity $\leq 0.15\%$ of full scale measuring range, <i>ultra-flexible cable 2.5 m</i>, gauge length 600mm for pc strands, gauge length adaptor to 200mm for rebar test, Twist option for use in applications where specimen twists greater than 3 degree and is expected up to 15 degree for bars. 3. Extensometers for testing rebar couplers, splices and sleeves, automatically releases from the rebar splice assembly upon reaching the full scale of the extensometer, exceeds ASTM A1034 requirements for extensometer accuracy; meets ASTM class B-1 and ISO 9513 class 0.5 accuracy requirements, temperature range of -40⁰C to 100⁰C, high quality foam line case, linearity $\leq 0.15\%$ of full scale measuring range, <i>ultra-flexible cable 2.5 m</i>, gauge length 95mm - 675mm, one system may be used for all common rebar and couplings/splice sizes, including 6 - 60mm dia rebar. 4. Bolt extensometers for proof load testing, All standard units have linearity readings of 0.20% or better, Rugged, dual flexure design for improved performance, includes high quality foam lined case, breakaway arm to help prevent extensometer damage in the event of bolt failure, self-supporting on the bolt specimen typically without the need for centering or punch marks, fully adjustable for different length bolts ranging from 25 mm in length to 150 mm, the standard maximum measuring range is 1.25 mm. <p>Full details of each component to be provided.</p>
Clamping jaws/Grips for Tensile Test (UTS, Y.S/PS and %E)	
Clamping Jaws for gripping of round specimen of dia. 8 mm to 60 mm and for gripping of flat specimen of thickness 0 mm to 70 mm of structural steel sections, steel reinforcement bar, high strength alloy, bar/plate.	2 Sets
Jaw Height Jaw width	160 mm 160 mm
Fixtures & Adaptors for bolt and Nut: Tensile Bowl and ring for each bolt for size for M12,M14,M16,M18,M20, M22,M26,M28,M30,M32, M34,M36,M38,M39.	1 Set
Suitable fixtures & grips with extra high pressure hydraulic power pack for the strands clamping. For PC Strands of 9.5, 12.7 & 15.2 mm	1 Set
Suitable Fixtures for Chain samples with specifications as per ANSI standard single strand chains. Bigger grip supporters For each size of chain from 50 to 120 mm	1 Set

For each size of chain from 140 to 240 mm Extra 5 pins for each type of grips.	
Suitable fixtures and grips for shoulder end samples and diameter can reach up to 60 mm	1 Set
Suitable fixtures & grip for Threaded samples: Thread end grips Fixed Pull rod for sample below M40. Fixed Pull rod for sample above M40. Thread sample size from M6 to M40.	1 Set
Compression plates for Compression Test	
Pair of Compression Plates and lower compression plate should be curved concentric circle.	200 mm
Fixtures and adapters for test of stiffness of helical spring	1 Set
Table with Adjustable Rollers for Transverse Test	1 Set
Bending Span	50mm – 720 mm
Rollers Dia.	50mm
Roller Length	160 mm
Bending Depth	180 mm
3 and 4 point bend test , Rebend test attachment and 180 ⁰ bend test attachment	1 Set each
Single Shear and Double Shear test attachment	1 Set with 8mm, 12 mm, 16 mm and 20 mm diameter
General Requirement	
Any other fixture/Grips/Clamps	Any other fixture/grips/clamp(Like grips for clamping of wires) required to test sample should be quoted as inclusive part of machine
Full details of each component to be provided.	
Electrical Calibration Module	Calibration of Load and Extensometer by Electrical Method, for doing calibration whenever needed without mechanical calibrators. Full details of each component to be provided.
Digital Readout/Graphic Display and Computer interface for saving and print test results	Machine must have inbuilt PC interface and real time graph/ test results recording system to save data and print. Machine should have facility to interface with system with USB or Ethernet. Full details of each component to be provided.
Application Software	<ul style="list-style-type: none"> i. Should have features for Windows-8.1/10 or higher based graphical user interface. ii. The software package should have different application modules for tension, compression, and cyclic testing of different materials such as metals, plastics, composites etc. iii. The software package should have provision for user defined loading patterns. iv. Test Curves Mode: Load- Deformation, Load- Time, Load -Displacement, Stress- Strain, Deformation-Time, Load-Strain v. The software should also have report format editor. vi. Parameter Processed with computer: Upper & Lower Yield point strength, Max Load point, breaking strength, Stress, deformation, Elastic modulus. Proof stress. Full details of each component to be provided.

Computer System	<p>PC desktop (from reputed vendor) capable of supporting the UTM system software and also interfacing with the UTM controller hardware and having at least Intel i7 6th generation or equivalent processor and at least 8 GB RAM, minimum 1 TB hard drive, with DVD read-write drive, SD card reader, USB 3.0 ports, HDMI port, Ethernet port and wifi capable and 24 inch HD monitor with HDMI cable.</p> <p>Laser Multifunctional Printer and online 1.0 KVA UPS for PC should also be included</p> <p>Full details of each component to be provided.</p>
Applied standard With proper test jigs	<ul style="list-style-type: none"> i. Load meets or exceeds the standards: ASTM E4, ISO7500-1, BS EN 10002-2, BS 1610 and DIN 51221 ii. Strain meets or exceeds the standards: ASTM E83, ISO 9513, BS 3846 and EN10002-4. iii. Tensile test at room temperature DIN EN 10002-1, ISO 6892, ASTM A370, ASTM E 8 iv. Tensile test on reinforced steel: ASTM A615/A615M, ISO 10606, EN 10080 v. Compression test DIN 1048, ISO 6784, ASTM C39, ISO 4506 vi. Tensile test for bolts ASTM F606-07 vii. Tensile Tests for Strands ASTM A416, BS 5896 viii. ASTM A185/A185M-07 Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete. ix. Safety: This machine shall conform to all relevant European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1 <p>Full details of each component to be provided.</p>
Safety Features	<ul style="list-style-type: none"> i. Software overload protection: When the testing load is over 2% - 5% of max. Load, the system will unload. ii. Emergency stop is built with the system iii. Current Protection iv. Interlocked enclosures v. Excellent linearity <p>Full details of each component to be provided.</p>
Installation and Commissioning	<p>The vendor should take full responsibility for supply, erection and installation of the Servo Hydraulic Computerised Universal Testing Machine in the SOM lab of the department and performance of the machine demonstrated to the satisfaction of the users. Necessary fittings and fixtures required for the installation will be in the scope of the vendor.</p>
Maintenance and service support of system during and after the warranty Period	<ul style="list-style-type: none"> a) The vendor should have competent and reliable service network in India for quick and necessary repair and maintenance of the machine. b) The vendor should provide the list of minimum 3-5 users of the same make (viz. IITs, NITs, reputed national Labs like DMRL, NAL etc.) along with the satisfaction certificate and their contact details. c) Details of the nature of service support the vendor can provide should be provided. d) Warranty should be for at least three years (3 years) after installation. At least 2 years of annual maintenance contract (AMC) after 3 years warranty should be provided without any additional cost. e) The vendor should commit to provide maintenance service and supply necessary spares for the machine for at least 10 years after successful installation and commissioning. f) Two sets of operation and maintenance manuals along with all necessary drawings should be supplied along with the machine. g) Specimen samples for all the tests that can be performed on the machine must be provided. h) The vendor should enclose all the relevant technical documents and catalogues for all the components. i) There should be OEM or exclusive agency in India for at least the last 5 years to ensure strong ties inside India for future maintenance/warranty convenience for the machine j) The supplier should be NABL accredited for calibration of the machine <p>Full details of each component to be provided.</p>
Other conditions	<ul style="list-style-type: none"> a) Maximum education discount, if any, should be offered and rates should be FOR NIT Kurukshetra. b) Training to laboratory personnel by the experts after installation and commissioning at NIT Kurukshetra. c) Prices should include the installation and training cost. d) Should carry proper certifications like agency certificate, Proprietary certificate, etc.

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| | <ul style="list-style-type: none">e) painted parts must be painted with two tone duco finish and highly scratch resistant paintg) Compliance statement needs to be provided by vendors clearly specifying COMPLY/NON COMPLY with remarks of all of the pointsh) Up gradation of software free for life time that will be compatible to any higher version of windows operating system.i) Annual Calibration Certificate during warranty and free AMC period. <p>Full details of each component to be provided.</p> |
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