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Centre for Sustainable Technologies
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Date: 30.09.2021

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Ref: IISC/CST/2021/UTM01

Tender notification for the procurement of a Universal Testing Machine (UTM)

Last date of submission: 14 October 2021

Kindly send your best quotation for a “Universal testing machine” with the technical specifications/general compliance mentioned below.

Quote should come only from **Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor**. The quotations should be on FOR-IISc Bangalore basis in INR.

Technical specifications for the universal testing machine

The UTM (**static loading**) would be used to test concrete and mortar samples for compression, tensile and flexural strengths. Sample sizes for compression would include 100 mm cubes, 150 mm cubes and 300 mm cubes (compression) and other shapes of maximum dimension 650 mm (l) x 600 mm (w) x 700 mm (h). For flexural and tensile testing, the sample size would be according to Indian standard and ASTM C78 standard for unreinforced concrete (for example, 500 mm (l) x 75 mm (w) x 75 mm (h) beams).

Procedure:

1. The tenderer should submit the technical and financial bids separately in sealed envelopes superscribing the envelopes as ‘Technical bid’ and ‘Financial bid’. Both these envelopes must be put into a single envelope, superscribed ‘TENDER FOR: UNIVERSAL TESTING MACHINE’. This should reach the following address by 4 PM on 14 October 2021.

Attn: Dr. Souradeep Gupta
Centre for Sustainable Technologies
Indian Institute of Science,
Bengaluru, Karnataka - 560 012
Contact: +91(80)2293 2447

Soft copies are to be mailed to souradeep@iisc.ac.in with the subject line ‘TENDER FOR: UNIVERSAL TESTING MACHINE’

2. The technical proposal should contain a technical compliance table with 4 columns.
 - a. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
 - b. The second column should provide specifications of the instrument against the requirement (please provide quantitative responses wherever possible).
 - c. The third column should describe your compliance with a “Yes” or “No” only. Ensure that the entries in column 2 and column 3 are consistent.
 - d. The fourth column can contain additional remarks. You can use this opportunity to highlight technical features, qualify response of previous columns, or provide additional details.
3. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors
4. In the commercial bid, please provide itemized cost of the system and required accessories, such as software, power supply, etc.

Terms and conditions:

1. The decision of the purchase committee is final.
2. The tenderer is required to carry out full testing and demonstration of the UTM’s performance at Indian Institute of Science, along with training the representative(s) from the institute on the operation and some sample testing for acceptance. All guaranteed specifications will have to be demonstrated, upon request, in an active installation. Failure to demonstrate any promised specifications will be deemed as technical non-compliance.
3. The tenderer has a track record of supplying similar equipment to at least three other organizations, preferably in India. Relevant documents including user testimonial on product performance/maintenance shall be furnished.
4. Clarify if periodic (preventive) maintenance be done by a trained on-site engineer or requires a specialist from the OEM. The vendor should have qualified technical service personnel for the equipment based in India and must assure a response time of <2 business days after receiving a service request.
5. The lead-time for the delivery of the equipment should not be more than 2 months from the date of receipt of our purchase order unless otherwise negotiated by IISc.
6. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason.
7. The validity of the quotation shall be at least 12 weeks.

Technical specifications:

1. The machine must be **displacement controlled**. A separate manual control/pace control mechanism shall be provided.
2. **Measuring capacity:** 1000 KN with least count of 0.05 KN
3. Provision to test samples size of length up to 700 mm and height 600 mm shall be offered.
4. **Software systems:** User-friendly interface to allow control of displacement rate and pace (loading) rate. The software must also provide accurate plotting of load-displacement and similar graphs in real time and allow import of the data to MS excel format.
5. **Loading rate:** 40 KN/min – 2000 KN/min with accuracy of $\pm 5\%$
6. **Displacement rate:** 0.50 mm/min - 80 mm/min with accuracy of $\pm 5\%$
7. Base with roller supports and adjustable span size for flexural testing is to be provided.
8. Punch top radius of 16 mm and 22 mm
9. Fixtures for centre-point loading and four-point loading for flexural testing are to be provided. For four-point loading fixture, the distance between the punch tops (centre to centre) shall be adjustable. Typically, it is one-third of the span length.
10. Plates for compression tests are to be provided.
11. A PC with a compatible operating system, memory and processor specs and UPS are to be provided and installed by the tenderer.

Other requirement:

1. IISc required three (3) years complete warranty from the date of installation for all parts of the UTM.
2. IISc will not pay additional for installation and training. All such costs are to be considered in the base price.
3. IISc will expect acceptance tests, post installation. These can be recorded in the presence of representatives of the OEM. Inability to pass these tests will be counted as a technical failure and breach of contract.
 - a. Compression strength testing of a concrete cube and recording the load vs. displacement plot using the machine software
 - b. Flexural strength testing of a concrete beam and recording the load vs. displacement plot using the machine software
 - c. Demonstrate data import from the above tests into MS excel or similar software for manual plotting/analysis.

Thanking you,

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