

**Department of Materials Engineering
Indian Institute of Science (IISc), Bangalore, INDIA**

Local Tender Notice

Tender Notification Ref No.: MT/ENQ-TNDR/VJ/23-24/02

Date: 26th May 2023

The Department of Materials Engineering Indian Institute of Science, Bangalore, invites tenders for supply of **“Mechanical test system with fixtures and accessories capable of carrying out standard tension, compression, bending and fracture tests under monotonic and cyclic loading with details as listed below.”**

This Invitation for Bids is open to all domestic (India based) manufacturers, Indian OEM or its authorized Indian distributors only.

The vendor should describe the basic layout of the equipment, furnace design, thermocouple locations and fixture design/fixture materials proposed to be used in the various test geometries, location of grips with respect to the furnace, cooling of hot sections and chamber.

Machine specifications:

- Load capacity: 50 kN
- Maximum Temperature of operation: 1500 C
- Displacement rate in the range of 0.1 to 500 micrometres /second
- Computerized control of operating parameters and data acquisition (load, displacement, COD, etc.) and software for analysis)
- Grips for testing flat samples up to 1500 C but also round samples up to 1200 C.
- Grips for testing metals (e.g., Nb alloys) and also for testing carbon fibre reinforced ceramic composites up to 1500 C
- Programmable furnace capable of continuous operation of test sample at 1500 C with source of heating elements identified along with manufacturer’s certificates
- Self contained cooling system for machine, pull rods, etc.
- Separate thermocouples for furnace control and for measuring sample temperature.
- T uniformity along gauge length of +- 1% or better at 1500 C, +- 2 C below 1200 C
- Contact extensometer for measuring displacements in uniaxial / bending tests and for crack opening
- Inert Gas Purging and optional evacuation system to create positive pressure and avoid oxidation of the test sample at 1500 C. It is desirable to have gas ports so that low speed laminar gas flow can take place past the sample surface at the temperature of operation
- Ports with quartz / sapphire windows for subsequent optical access to sample for non-contact temperature / displacement measurement (windows must be located so as to offer a clear view of the sample at max. temperature)
- Alignment fixture to ensure minimal bending of load frame during testing

Test fixtures as per ASTM standards as below:

- Tensile Test Fixture as per C1359
- Compression Test Fixture as per C1358 – 18
- 4 point bend fixture as per C1341–13
- 3 point bend fixture as per C1341–13, C 1421
- Fixtures for room T composite testing as per C1275
- E 21 high T standards

Attachments and support blocks as per C 1421 and C 1292 fracture toughness and interlaminar shear strength tests

Set of spares of recommended items for smooth operation for 2 years plus an extended warranty for 2 years will be part of the basic price

List of customers to whom a similar system has been supplied (at least one must be specified)

Performance and payment schedules: Vendor shall demonstrate mechanical tests for standard materials such as IN-718 and/or steels and validate the measured data with reported data at temperatures up to 1000 C. For the 1500 C tests, coated Nb-alloy samples will be provided by IISc/DRDO. Pre-despatch inspection (PDI) tests at the vendor's factory site prior to delivery of the equipment at IISc must demonstrate the overall functionality of the machine including temperature uniformity, tensile tests at room temperature and high temperature (1500 C), bend tests, high temperature extensometer, inert gas purging and windows for optical access to the sample. Payment terms should indicate milestones of achievement of technical specifications against which pre-despatch payment will be made. Final balance payment amount will be made after meeting the above acceptance standards after installation at site in IISc.

Charges must be inclusive of delivery, insurance (including shipment damage), installation on site, taxes, spares for 3 years operation and training for 2-3 operators.

Options:

- Extended warranty
- Maintenance support charges upon expiration of warranty may be separately identified
- Grips for testing round samples up to 1500 C

Additional:

Delivery time

List of utility requirements needed from customer on site

Tender Summary

1.	Tender Number	MT/ENQ-TNDR/VJ/23-24/02
2.	Tender Date	26th May 2023
3.	Item Description	Mechanical test system with fixtures and accessories capable of carrying out standard tension, compression, bending and fracture tests under monotonic and cyclic loading
4.	Tender Type	Two bid system: (a) Technical Bid (Part A) (b) Commercial Bid (Part B)
5.	Place of tender submission	The Chair Department of Materials Engineering, Indian Institute of Science, Bengaluru 560012 Kind Attn: Prof. Vikram Jayaram
6.	Last Date & Time for submission of tender	10 th June 2023, on or before 1700 hrs

Terms and conditions

1. Two-bid system (separate technical and financial bids) in sealed tenders.
2. The technical bid must clearly specify the prescribed technical specifications without including the prices. Please provide in detail the specifications under each subhead and bullet point. Unique characteristics may be highlighted.
3. Vendors who include price information in the technical bids will be automatically disqualified.
4. Technical bids will be opened first. IISc may seek clarifications after opening of technical bids and may ask vendors to perform some example experiments on the samples given by IISc to demonstrate the promised technical specifications. Vendors may be required to give presentations.
5. There are several items that require detailed information to be provided by the supplier. If information is not provided against any of these items, this will disqualify the supplier.
6. After technical evaluation by a committee, vendors may be asked to re-quote in a specific format to facilitate comparison of prices.
7. Price bids of only technically qualified vendors will be considered.
8. This tender, as per the government of India rules, **has not** obtained Global Tender Enquiry (GTE) -Exemption. Hence, it is limited to the Indian manufactures qualified to participate in such tenders.
9. The price should be on FOR-IISc Bangalore basis in INR only.
10. IISc also reserves the right to cancel the tender at any time without assigning any reason whatsoever.
11. Indicate delivery period.

12. Order will be placed on lowest bid from technically qualified vendor.

13. The tender documents can be sent at the following address:

The Chair
Department of Materials Engineering
Indian Institute of Science, Bangalore 560012
Karnataka (INDIA)
Attn: Prof. Vikram Jayaram

Annexure 2: Eligibility Criteria

Prequalification criteria:

- 1. The Bidder should belong to either class 1 or class 2 supplier distinguished by their “local content” as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter.**
 - a) Class 1 supplier: Goods and services should have local content of equal to or more than 50%.**
 - b) Class 2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.**
- 2. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to Class-1 supplier.**
- 3. MSME can seek exemption to some qualification criteria. IISc follows GFR2017 for such details.**
- 4. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere.**
- 5. Original Invoice, Original Warranty Certificate, Original Test Reports should be produced for all imported items from OEM (Original Equipment Manufacturer) at the time of supply of the equipments.**
- 6. Details of experienced service engineer including contact detail should be provided in tender document.**
- 7. Bidder shall have to submit audited accounts (Balance sheet profit and loss account) of financial year 2015-16, 2016-17 and 2017-18. Audited statement must be signed and stamped by qualified chartered accounted.**
- 8. Bidder must submit Income Tax return for assessment year – 2016-17, 2017-18 and 2018-19.**
- 9. Bidder must submit up to date sales tax or GST clearance certificate.**