Domestic tender notification for the procurement of - HIGH TEMPERATURE ACCESSORIES FOR EXISTING CREEP FATIGUE SETUP

A purchase of High Temperature Accessories for the existing 50KN creep fatigue setup is planned. These accessories will be utilized for testing and evaluating creep fatigue properties at elevated temperature of various materials of interest. Below, the detailed technical specifications for an ideal machine are mentioned.

TECHNICAL SPECIFICATIONS

Scope of work: Supply, installation, and commissioning of high temperature accessories for existing 50KN creep fatigue setup for possibly testing in an inert environment in accordance with ASTM E-606 testing standard with the following features.

S. No.	HIGH TEMPERATURE ACCESSORIES FOR EXISTING CREEP FATIGUE SETUP	
1	**Furnace and Accessories**	• Split Tube 3 Zone Furnace, with well-established calibration • Split construction with stainless-steel shell and heavy-duty hinge assembly Furnace Temperature Rating:1100°C. • Operating range upto1000°C. • Dimensions: 90 I.D x 320 O.D x 380 Total length (mm) • Elements: Super Kanthal A1, embedded windings. End Disk: 1-1/2 inch thick, bore 3.54 inch (90 mm) • End Caps: 2 inch thick, bore 3.54 inch (90mm) • 3 Thermocouple Ports:1/4-inch diameter, located mid length in each zone, back half of the furnace. • 3 Specimen Thermocouple, Type K, with ceramic insulator and connector with mounting bracket • 3 Zone Thermocouple, Type K, with ceramic insulator and connector with mounting bracket • Viewport: 1 inch diameter Extensometer cut out with mounting flat. Slot dimension and extensometer type to be customized. Single pivot mounting assembly with split furnace mounting brackets, furnace bar and frame attachment. Column diameter: 65mm Distance between the columns 600 mm • Ports with quartz / sapphire windows for subsequent optical access to sample for non-contact temperature (windows must be located to offer a clear view of the sample at max. temperature) • Temperature Control System: Controller: PID controller with digital set point and programmable heating rates. • Temperature display of all 3 zones • Facility to hold at any set temperature. • Possibility to have inert atmosphere. • HT grip cooling unit1kW or 0.3TR capacity, 8amps, Refrigerant R-134a, Set Water temperature-10-20 deg. • Flow: 8 to 10 LPM • Pressure 2 to 3bar

		• T uniformity along gauge length of +- 1% or better
2	**Transducers**	• G.L 12.5 mm T.L 1/-1 mm High Temperature LCF Extensometer • Gage length: 12.5 mm • Measuring range: ±1 mm • Accuracy: ± 0.5% of read out value as per ASTM E83 • Resolution: 0.02% of full-scale range • Excitation: 5 to 10 VDC • Sensitivity: 2 to 4 mv/V Full bridge, 350 ohms strain gauged design • Extensometers should be capable of testing a wide range of materials including metals, composites, ceramics, and plastics. • Work in both tension and compression, the design should be rugged and insensitive for vibrations, which permits higher frequency operation. • Should be supplied with a standard quick attach kit, for easy mounting on the specimen. The mounting of the extensometer should be rigid and support from existing machine setup should be provided for rigidity. • Mechanical over travel limits in both direction • Ceramic rods for testing up to 900°C.
3	**Grips and Accessories**	• 50 kN 1000°c Hydraulic Low Cycle Fatigue Grips • ± 50 kN self-aligning hydraulic grips • Fatigue rated, zero backlash, lightweight and easily mountable without special tool. • In accordance with ASTM E606 • Rated for operation up to 1000 °C • Compatible for use at room temperature. • Grips for testing round as well as flat samples (example super alloys) • Anti-buckling guide for flat specimens • High temperature thread mounting cups for M8 samples rated up to 900deg C. • High temperature thread mounting cups for M10 samples rated up to 900deg C. • High temperature thread mounting cups for M12 samples rated up to 900deg C. • High temperature thread mounting cups for M16 samples rated up to 900deg C.
4	**Pre-dispatch inspection**	• Based on a mutually agreed testing plan, on-site testing on samples provided by IISc and qualification will be done before the equipment is made ready for shipping. Data should be shared with IISc, and approval should be obtained before shipping. • Supplier should furnish the compositional analysis of pull rods, fixtures, adapters, grips, and couplers before shipping
5	**Acceptance**	• The supplier must demonstrate all the functions of the system according to the specifications after successful commissioning at IISc • Should be commissioned within one month at IISc • If commissioning in not possible,

TERMS AND CONDITIONS

1. The Bidder should belong to either Class-1 or Class-2 suppliers 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. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
3. Purchase preference as defined by the recent edits to GFR (within the "margin of purchase preference") will be given to the Class-1 supplier.
4. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
5. Two-bid system (separate technical and financial bids) in sealed tenders.
6. 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.
7. Vendors who include price information in the technical bids will be automatically disqualified.
8. The quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
9. The quotations should be on FOR-IISc Bangalore basis in INR only.
10. **The Vendors must have supplied at least 5 testing systems to centrally funded technical institutes (IISc, IITs and NITs) and national research labs (DAE, DRDO, DMRL, NAL, NML and equivalent) in the last 5 years. A detailed list of users, along with contact information of primary users, should be provided.**
11. **At least 3 independent reference letters from India (from institutions mentioned in point 4) should be provided at time of submission of tender (as part of technical bid). IISc may contact more users to obtain independent references. The committee will have the right to reject a bid based on reference letters.**
12. The financial turnover of the equipment manufacturer in the previous financial year should be more than or equal to 10 times the total order value. The bidder shall furnish specific details of the company's performance.
13. **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.**
14. 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.
15. After technical evaluation by a committee, vendors may be asked to re-quote in a specific format to facilitate comparison of prices.
16. Price bids of only technically qualified vendors will be considered.
17. **Prices to be quoted separately for the system with mandatory requirements and the optional items. Prices should be quoted in adequate detail with relation to packing details to cover insurance compensation in case of damage to any specific modules.**
18. Indicate separately the price of spares listed above in terms of unit cost. The price of these spares will be included in the price comparison. Any additional spares recommended by the company

will be considered for ordering but not included in the comparison. The buyer reserves the right to make the final decision on ordered spares.

19. IISc also reserves the right to cancel the tender at any time without assigning any reason whatsoever.
20. Indicate delivery period.
21. Order will be placed on lowest bid from technically qualified vendor.
22. The tender documents can be sent at the following address by 8th August 2023:

The Chairman
Department of Materials Engineering
Indian Institute of Science, Bangalore 560012
Karnataka
India