



**Dept. of Mechanical Engineering,
Indian Institute of Technology Madras
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Ref. No.: MECH/VVSDRK/2015/ENQ2
Universal testing machine

Dear Sirs,

DUE DATE: 27.05.2015

1. Quotations are invited in two bid system for the various items shown in Enclosed list (Annexure - I).
2. The Quotations duly sealed and super scribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The Quotations should be valid for sixty days from the due date and the period of delivery required, warranty terms etc. should also be clearly indicated. A minimum of one year warranty required.
4. Brochure detailing technical specifications and performance, list of industrial and educational establishments where the items enquired have been supplied must be provided.
5. Compliancy certificate is to be provided indicating conformity to the technical specifications.
6. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
7. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples / machine/ equipment if called for should be submitted / demonstrated at free of charges, and collected back at the supplier's expenses.
8. Packing and delivery charges must be clearly indicated.
9. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
10. Goods should be supplied carriage paid and insured.
11. Goods shall not be supplied without an official supply order.
12. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.
13. In case of LC. payment, 90% of the payment will be made after completion of the supply. The balance 10% of the payment will be made after satisfactory installation of the software.
14. IIT Madras is exempt from payment of Excise Duty and is eligible for concessional rate of custom duty. Necessary certificate will be issued on demand. IIT Madras will make necessary arrangements for the clearance of imported goods at the Airport/Seaport. Hence the price should not include the above charges.
15. **Acceptance and Rejection:-** I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully

Dr. V V S D Ratna Kumar Annabattula.

Annexure – I

TECHNICAL SPECIFICATION OF UNIVERSAL TESTING MACHINE

Key Features:

- **Double column table top model** with ability to perform numerous mechanical tests upto **50 kN load cell capacity**
- The testing system should have high **data capture rate (3kHz or better)** and data **sampling rate (200 kHz or better)**
- **Auto tuning function (auto gain setting)** : The system should be able to calculate the PID constants during the test automatically.
- The system must have a **frame stiffness of 120kN/mm or higher**.
- The machine should be capable of testing metals, metallic alloys, ceramics, composites, polymers, rubber, in the standard or sub-size configuration within the load range.

Important Technical features:

Sl. No	Parameters	Values or Notes
1	Types of tests to be performed	Tensile, compressive, 3 point bending The supplied machine must have all required accessories as it is required for performance of the above mentioned tests.
2	Materials to be tested	Metals, alloys, ceramics, composites, polymers and rubber within the load range.
3	Load capacity	50kN
4	Load cell accuracy	1/1000 th of load cell capacity or better
5	Position control resolution	0.025 µm or better
6	Crosshead speed accuracy	± 0.1% or better
7*	Data capture rate (Controller to PC)	3kHz or better
8*	Data sampling rate (Load cell to controller)	200kHz or better
9	Testing speed range	From ≤ 0.001 to ≥ 1000 mm/min Maximum speed @ full load – 1000mm/min or better Cross head return speed – 1100mm/min or better
10	Compatibility with test specifications	ASTM, ISO

* Please provide a detailed description of specifications and a documented proof of claim.

11	Stiffness of machine (at testing height)	120 kN/mm or higher
12	Grips for holding tensile samples	Wedge grips with operating temperature -70 °C to 300 °C.
13	Compression platens	Diameter 100 mm
14	Bend fixture	3 point bend fixture
15	Strain gauge Extensometer	<ul style="list-style-type: none"> • Extensometer should be provided as per ASTM standards.
16	Materials Testing Software	<ul style="list-style-type: none"> • Should have features for Windows-7/8 based graphical user interface. • The software package should have different application modules for tension, compression, and cyclic testing of different materials such as metals, plastics, composites etc. • The software package should have provision for user defined loading patterns.
17	Equipment utilization	Up to 24 hrs daily.
18	Power Supply (Mains)	220/240 V AC in single or three phases.
19	Manuals	Soft copy in .pdf format and 2 sets of hard copies.
20	Computer	<ul style="list-style-type: none"> • Branded Computer system with minimum 4 GB RAM, 500 GB HDD with intel processor and compatible with the machine. • Related softwares and necessary peripherals.

21	Supplier capability	<ul style="list-style-type: none"> Supplier must provide the details of similar supplied equipment (same make) to the government/semi-government institutions where it is being used successfully.
22	Warranty period	<ul style="list-style-type: none"> Entire machine inclusively all systems/ accessories should be warranted for 12 months from the date of installation/commissioning against all the design, material or manufacturing defects. Supplier should make atleast two free visits per year to IIT Madras facility as customer support program during warranty period.
23	Training	<ul style="list-style-type: none"> Supplier should provide necessary training to at least 5 persons designated by the customer in all types of testing (as mentioned in “<u>Types of test to be performed</u>” parameter) at the customer site.
24	Delivery Condition	Equipment to be delivered in test ready, factory calibrated condition.
25	Bidders	<ul style="list-style-type: none"> Bidders should be direct manufacturer/subsidiary office in India or exclusive agent (Certificate of exclusive agent of minimum 5 years should be enclosed) . They should have a solid service support & provide the service network in India. The supplier should provide the user list of the same model as well as the same series of machine sold in India. Please do not send all machines of all different models sold (irrelevant)
26	Compliance statement	<ul style="list-style-type: none"> Compliance statement needs to be provided by vendors clearly specifying COMPLY/NON COMPLY with remarks of all of the points mentioned above.

Options: Mandatorily the optional items need to be quoted. It will be the discretion of IITM to choose any or all of the optional items depending on the available funds

27	Accessory for conducting shear test	<ul style="list-style-type: none">Special attachments/fixtures for conducting tests to determine shear strength, bond strength and peel strength with high resolution/accuracy should be provided (especially to know the bond strength and peel strength of components like laminated composites, thin films, coatings etc.).
28	Load cell	<ul style="list-style-type: none">Capacity : 5kN
29	Pantograph grips	<ul style="list-style-type: none">5kN Pantograph type grips for testing rubber and soft plastics
30	Heating chamber (environmental chamber)	<ul style="list-style-type: none">Room temperature to 300°C for both tensile /compression tests
31	Compression platens	<ul style="list-style-type: none">Operating at high temperature (upto 250 °C)
32	Extended Warranty	<ul style="list-style-type: none">2 years additional

Note: It will be sole discretion of IITM to choose one or more technical qualified vendors. Compliance to this point is mandatory.

Note:

The sealed quotations to be sent to

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