



Dept. of Applied Mechanics,
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Date: 05.12.2019

Ref. No.: APM/SOL/2019/ENQ1
Loading frame and data acquisition system

DUE DATE: 30.12.2019

1. Quotations are invited in duplicate for the various items shown in Enclosed list (Annexure - I).
2. Quotations are invited as TWO-BID system, i.e., **technical bid and financial bid**.
3. 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.
4. 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.
5. Brochure detailing technical specifications and performance, list of industrial and educational establishments where the items enquired have been supplied must be provided.
6. Compliancy certificate is to be provided indicating conformity to the technical specifications.
7. 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.
8. 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.
9. Packing and delivery charges must be clearly indicated.
10. 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.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. 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.
14. In case of LC, 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.
15. 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
16. 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

Pijush Ghosh, Department of Applied Mechanics.

ANNEXURE – I

Ref.. No.: **APM/SOL/2019/ENQ1**Date: **05.12.2019**DUE DATE: **30.12.2019****Specification**

1	Dual column floor type Frame with anti – backlash ball screws driven, max load cell capacity 50kN with a rigidity of not less than 180% of the maximum rated capacity.
2	Equipment to offer real-time auto tuning to perform strain control based on measured test force and strain data which must be compatible to ISO 6892 or equivalent standards.
3	USB connectivity or better
4	Load Cell 50kN with $\pm 1\%$ Fixed accuracy between 100N - 50kN and acceptable to international standards (JIS, EN, ISO, BS, DIN, & ASTM). Built-in Automatic Calibration.
5	Crosshead Position Control Resolution: 0.033 μ m (explicit need)
6	Cross-head Speed range min with ≤ 0.001 to ≥ 700 mm/min. Capacity at Max speed: Range-less. Max speed at Max Load capacity 700mm/min or better. Total Cross head travel 1200mm or better. Cross-head return speed 1000mm/min or better. Horizontal daylight 420mm. Cross head speed accuracy: $\pm 0.1\%$ or better.
7	Position resolution 0.01mm or $\pm 0.1\%$ of indicated value.
8	Data Sampling rate: 1kHz or better.
9	Frame stiffness: 90kN/mm or better.
10	Test Force Display Resolution: At 15% of the rated load cell capacity 1/50000.
11	<p>Explicit Needs:</p> <p>A. Load cells (accuracy of $\pm 1\%$) 50kN with minimum rated load range</p> <p>B. Manual operated wedge grips for testing Metals, Plastics</p> <p>C. Tensile grip faces for testing 1) Flat samples 0 – 12mm 2) Round Samples 5 – 13mm.</p> <p>D. Compression Platens. 100mm Upper and Lower compression platen with Max 150kN capacity and surface hardness of HRC60.</p> <p>E. Flexure Jig: 50kN/100kN Three-point bending jig for metals with support distance of minimum 400mm and punch radius of R5.</p> <p>All grips should be manufactured and supplied from the Main Unit Manufacturer. Machine should have optical encoder measuring technology.</p>
12	<p>Software with following features Compatible with Windows 10OS, Built-in library of ASTM & ISO methods for testing flexible materials, Software should possess feature in adopting control type testing (User defined settings) for metals, composites & other similar materials Tabbed navigation for easy user interface Fully customizable screen layout & report format Real-time data display & curves.</p> <ul style="list-style-type: none"> • Software for Tensile/Compression/Bending/Peel Test. • Software for Cyclic loading with Maximum 999 cycles. • Software for User-defined pattern for hold and cyclic tests
13	<p>Safety Features:</p> <ul style="list-style-type: none"> • Stroke limiter: Upper and Lower limits. • Overload limiter Automatically stops test if indicated test force value reaches 102% of rated load cell capacity or better. • Contact load feature: If a contact load is detected in jog or return operation, the movement should be automatically stopped. • Load cell protection: Emergency-stop of servo motor if absolute test force value reaches 150% of rated load cell capacity. • Emergency stop button to Shut OFF power to the servo amplifier.
14	Automatic values like modulus, tensile strength should appear as the test proceeds Option of multiple graphs on the same screen & report to observe multiple events at the Same time. Curve regenerations, post data analysis should be possible. Off line mode to analyse data generate methods on the secondary PC which is not connected to machine. Power saving feature is compulsory for the machine. With total 4 input and 2 outputs. The output ports should provide force, stroke/displacement, extensometer results etc.,
15	Multi-level user access. Should be able to freely change the report layout. Reports to be generated in PDF, Word, Excel and other formats. One touch method selection and faster data search facility.
16	Warranty: The supplied machine should provide minimum one-year warranty to the equipment. Any manufacturers defects to be replaced at Free of cost by the supplier.
17	Installation Pre-requisites: Supplier needs to specify the requirements for successful installation and proper guidance for a trouble-free operation.
18	It's mandatory to have that the firm should have supplied at-least 7 loading frame and DAQ's to IIT's, NIT's or DRDO, CSIR Labs in the last four years and a successful performance till date

Note:

The sealed quotation to be sent to

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