Dharmsinh Desai University, Nadiad
Faculty of Technology

Civil Engineering Department

Tender No.: CVL-01 Date: 24/01/2024

NOTICE INVITING TENDER

Quotations are invited for purchase of equipment for Concrete Technology Laboratory, Civil Engineering Department - Faculty of Technology so as to reach us on or before 12th February 2024, 5.00pm. Tender documents can be downloaded from the website www.ddu.ac.in.

SCHEDULE OF REQUIREMENTS

Sr. No.	Scope	Quantity
1	Supply of Equipment for **Concrete Technology Laboratory** for Department of Civil Engineering (List of equipment and detailed specifications are mentioned in Annexure-1)	As mentioned in Annexure-1

Details	Information
Last date for receiving completed Tenders by Hard copy with proof documents:	12-02-2024(Monday), 5.00 pm
Address for Communication	Head, Civil Engineering Department, Faculty of Technology, Dharmsinh Desai University, College Road, Nadiad-387001.
Address for Delivery of Equipment	Civil Engineering Department, Faculty of Technology, Dharmsinh Desai University, College Road, Nadiad-387001.

TERMS & CONDITIONS

1. The bidder (vendor) must either be an Original Equipment Manufacturer (OEM) or an authorized dealer of OEM for the items offered in the bid. The certificate of OEM/Authorized Dealership should be enclosed with the bid.
2. The bidder should have prior experience in supply of similar equipment in technical institutes like IITs, NITs, LDCE-Ahmedabad, MSU-Vadodara, PDPU-Gandhinagar, Nirma Institute-Ahmedabad or other Government/Public undertakings/Organizations of National Importance and Reputed laboratory like KCT consultancy services, MK soil testing laboratory, Geo Designs & Research Pvt. Ltd., etc. in last three years. The bidder must enclose purchase order and satisfactory supply certificate from the respective organization for these types of works.
3. AIMIL, HEICO, EIE Instruments, Controls and Proceq are in the approved list of supplier with DDU. Their OEM or authorised dealers are eligible to bid for this Tender.
4. The bidder must submit a self-certified declaration that the bidding firm/manufacturer or the consortium (any partner of consortium) has not been blacklisted from participating in the tendering/bidding process by any Central or any State Government Institute/Organization (including autonomous Institute/Organization) in Last Three Years.
5. The basic rates quoted should be including packing, forwarding, transportation, loading & unloading, installation, demonstration as applicable for new equipment and similar process associate with old equipment, F.O.R.- D. D. University, Nadiad only.
6. The rates to be inclusive of all taxes other than GST. Also Bidder shall clearly mention applicable GST rates.
7. The quantity of the items mentioned may vary as per requirements.
8. Delivery period – 6 weeks from the date of receipt of order by the vendor/supplier.
9. 80 % payment against delivery of the equipment with all its components. Remaining 20% against satisfactory installation and demonstration of the goods as per specifications. No advance payment.
10. If the goods supplied failed to comply prescribed specifications, will be taken back by the supplier with no cost implication to DDU.
11. There will be 1 year replacement guarantee against any major manufacturing defects and 3 years of warranty against any defects. However, the vendor should provide minimum 1 routine maintenance services per year by company authorized engineer during the warranty period of 3 years.
12. The vendor will have to provide any of the unlock key or handover computerized passcode at the time of delivery of the Equipment for the future repair, calibration or other purposes.
13. The vendor shall visit the department for buyback offer for existing equipment.
14. Validity: Bids/quotations shall remain valid for 8 weeks from date of the Tender closing date.
15. DDU Nadiad reserves right to award the order to one or more bidder. Choice of award of order may not be based on lowest bid.
16. The equipment components or equipment as a whole shall be with NABL certification and provide NABL certificate every year during warranty period, where NABL Calibration certificate is required. The quoted rate shall include such charges for certification.

Dr. H. M. Desai
Vice Chancellor,
Dharmsinh Desai University, Nadiad-387001

Date: 24-01-2024

ANNEXURE-1

"SPECIFICATIONS of EQUIPMENTS for MATERIAL TESTING LABORATORY"

A. LIST OF ITEMS:

Sr. No.	Item Description	Quantity (Nos.)
1	Fully Automatic Compression Testing Machine (3000 kN) with necessary accessories/attachment to measure Modulus of Elasticity and Poisson's ratio against buyback of old 2000 kN Semi-Automatic Compression Testing Machine	1
2	Modification of old 2000 kN Semi-Automatic Compression Testing Machine to Digital Compression Testing Machine (500 kN) and Flexure Testing Machine (100 kN)	1
3	Schmidt Rebound Hammer for Concrete (Digital) against buyback of old non-digital Rebound Hammer	1
4	Schmidt Rebound Hammer for Concrete (Non Digital) against buyback of old non-digital Rebound Hammer	1

B. DETAILED SPECIFICATIONS:

1. **Automatic Compression Testing Machine (3000 kN) with necessary accessories/attachment to measure Modulus of Elasticity and Poisson's ratio against buyback of old 2000 kN Semi-Automatic Compression Testing Machine**

The Complete working set up to comply and to perform the test for Compressive strength of Concrete Cubes, Paver blocks and AAC Block as per IS Standards.

The Compression Testing Machine should be range of 0-3000 kN with least count of 0.01 kN.

Compression Testing Machine conform to IS: 14858 -2000 and IS 516 and calibrated with an accuracy of ± 1 %, of the indicated load.

The machine shall be supplied with NABL Calibration Certificate.

Loading Unit:

- The loading unit is of fully welded construction having a cross head, base and solid side plates. The hydraulic jack is fixed to the base. The platens of the machine are hardened, ground and polished. The upper platen is provided with self-aligning action and suitably sized spacers are also provided as standard to accommodate a variety of different sizes of specimen.
- The testing machine shall be equipped with two steel bearing platens with hardened faces with hardness not less than 60 HRC. One of the platens (preferably the one that normally will bear on the upper surface of the specimen) shall be fitted with a ball seating in the form of a portion of a sphere, the center of which coincides with the central point of the face of the platen. The other compression platen shall be plain rigid bearing block. The bearing faces of both platens shall be at least as large as, and preferably larger than the nominal size of the specimen to which the load is applied.
- The movable portion of the spherically seated compression platen shall be held on the spherical seat, but the design shall be such that the bearing face can be rotated freely and tilted through small angles in any direction.
- The centre of the sphere shall coincide with surface of the bearing face within a tolerance of ±5 percent of the radius of the sphere.
- The ball and the socket shall be so designed by the manufacturer that the steel in the contact area does not permanently deform under repeated use within the testing range.
- The bottom bearing block shall be at least 25 mm thick
- Minimum Vertical Clearance between platens 400 mm.
- Minimum horizontal clearance should be 400 mm.
- Platens size: Minimum 320mm x 320mm (Square)

Pumping Unit:

- The two-speed pump allows the fast approach of the platens for daylight closure. The pumping unit capable to control automatic pace rate to set value & pace rate can be changed during test also. Auto close / release of Dump Valve.
- It shall be electrically Operated Pumping Units, load gauge is fitted with micro switches to switch-off the motor when the load approaches the maximum capacity of the gauge, to avoid any over-loading. Relays are incorporated so that the motor does not restart on its own after a power breakdown.
- The electrically operated pumping units are provided with bonded strain gauge based pressure transducer. It should be operated with 220V, 50Hz.

Enhanced Digital Indicator (EDI):

EDI should have following specification:

- Configurable Engineering Unit for machine selection.
- Predefined Machine capacities for each engineering unit. Specific capacity can be selected from the drop menu.
- Flexible Calibration Points. Calibration can be done on 5 to 10 points.
- Peak Load, Peak Stress, Unique Record No. is displayed.
- Having facility to configure with Compression, Prism Testing and Tensile Splitting Strength. Each mode will have independent calibration points and calibration points are also flexible.
- Dynamic Calibration
- Minimum Data storage capacity is 2000 records and It can be viewed & print.
- Data should downloadable in PDF & Excel format.
- User can set break point.
- Peak stress calculation based on sample type and shape.
- 2% overload facility to calibrate the machine up to full capacity.
- Automatic Pace rate control to set value & Pace rate (Accuracy of 0.01kN/s) can be changed during test also.
- Communication Computer Software with through Serial Port (Rs232). Machine can be operated through Windows based analysis software.

Other Key Inclusion:

- The test machine should be Calibration of full scale deflection with traceability to NABL. NABL accredited calibration at site during installation for loading range of 0-3000 kN at 100kN interval point.
- A 2 speed pumping unit is provided to lift ram at faster rate
- Automatic Pace Rate Control - Implemented through 3 term PID Control with high Torque Stepper Motor & Micro Controller
- Online display of Load Vs Time
- A Load-hold Facility
- Automatic On-line Data Logging

- Logged-Data Printing Facility
- 4-line multifunction LCD and Keypad
- Adjustable pace rate setting
- Auto shutdown when the sample breaks
- Auto shutdown when the load exceeds the set maximum load
- Automatic release of oil-pressure as soon as the pump stops.
- Compatibility with all type of Printer.
- Must be supplied with facility and software analysis for Axial and Lateral Strain measurement & Measurement of Modulus of Elasticity.
- Should have Pace rate (load) control range from 5% to 90% of capacity.
- Platens hardness not less than 60 HRC, supported with a Third Party Testing Certificate(NABL).
- Should have capability to be integrated with LIMS (Laboratory information management system).

Software should have following features:

- Login and Access control.
- Multiple calibration files for different machine configuration.
- An intuitive and easy to use Graphical User Interface.
- Scale setting facility for graph of Load, Stress, Time, Axial expression, Axial strain, Lateral expansion, Lateral strain, Strain.
- Database backup and restore facilities are available.
- Compression with Axial & Lateral Test.
- Graph available with us: Load Vs Time, Load Vs stress, Stress Vs Time, Axial strain Vs Lateral Strain, Axial expression Vs Lateral Expansion (configurable).
- Compression with strain gauges indicator attachment.
- Show all graph along with related data.
- It provides the data acquisition in real time throughout the test execution up to the specimen failure.
- Database backup and restore facilities should available.
- The default report is generated automatically, in crystal reports and printed directly. The report is exported to Excel and PDF format.
- Captured data will be stored in database securely.
- User can get/generate report any time.
- Auto backup database.
- The advanced functions for data base management provide an easy navigation of all saved data.
- Import data from backup data file. (According to requirement)

The assembly should have smooth finish and have trace free powder coated paint.
The Equipment must be supplied with NABL calibration certificate during warranty period.

2. Modification of old 2000 kN Semi-Automatic Compression Testing Machine to Digital Compression Testing Machine (500 kN) and Flexure Testing Machine (100 kN)

For Compression Testing Machine – 500kN

To modify existing compression testing machine with manual pace rate 2000 kN (HEICO make) to digital compression testing machine with automatic pace rate controller 500kN with satisfy all functional & operational requirement and specification as mentioned under.

The Complete working set up to comply and to perform the test for Compressive strength of Cement cubes, bricks and aggregate crushing value as per IS Standards.

The Compression Testing Machine should be range of 0-500 kN with least count of 0.01 kN.

Loading Unit:

- The loading unit is of fully welded construction having a cross head, base and solid side plates. The hydraulic jack is fixed to the base. The platens of the machine are hardened, ground and polished. The upper platen is provided with self-aligning action and suitably sized spacers are also provided as standard to accommodate a variety of different sizes of specimen.
- The testing machine shall be equipped with two steel bearing platens with hardened faces with hardness not less than 60 HRC. One of the platens (preferably the one that normally will bear on the upper surface of the specimen) shall be fitted with a ball seating in the form of a portion of a sphere, the center of which coincides with the central point of the face of the platen. The other compression platen shall be plain rigid bearing block. The bearing faces of both platens shall be at least as large as, and preferably larger than the nominal size of the specimen to which the load is applied.
- The movable portion of the spherically seated compression platen shall be held on the spherical seat, but the design shall be such that the bearing face can be rotated freely and tilted through small angles in any direction.
- The centre of the sphere shall coincide with surface of the bearing face within a tolerance of ±5 percent of the radius of the sphere.
- The ball and the socket shall be so designed by the manufacturer that the steel in the contact area does not permanently deform under repeated use within the testing range.
- The bottom bearing block should be at least 25 mm thick
- Minimum Vertical Clearance between platens 400 mm.
- Minimum horizontal clearance should be 300 mm.
- Platen size must be adequate to accommodate: Cement cube (70.6 mm), Crushing Test Mould (230 mm-Square) and Brick (230 mm). Additional platens of different sizes are provided to test the specimen.

For Flexure testing Machine (100 kN)

The bed of the testing machine shall be provided with two steel rollers, 38 mm in diameter, on which the specimen is to be supported.

The rollers shall be so mounted that the distance from centre to centre is 600 mm for 150 mm specimens and 400 mm for 100 mm specimens. The load shall be applied through two similar rollers mounted at the third points of the supporting span, that is, spaced at 200 or 133 mm respectively centre-to-centre.

The Flexure testing Machine should be range of 0-100 kN with least count of 0.01 kN.

The Machine conform to IS: 14858 -2000 and IS 516 and calibrated with an accuracy of ± 1 %, of the indicated load.
The machine shall be supplied with NABL Calibration Certificate.

Pumping Unit:

- A common pumping unit should supply/modified existing pumping unit for Digital Compression Testing Machine (500 kN) and Flexure Testing Machine (100 kN).
- The two-speed pump allows the fast approach of the platens for daylight closure. The pumping unit capable to control automatic pace rate to set value & pace rate can be changed during test also. Auto close / release of Dump Valve.
- It shall be electrically Operated Pumping Units, load gauge is fitted with micro switches to switch-off the motor when the load approaches the maximum capacity of the gauge, to avoid any over-loading. Relays are incorporated so that the motor does not restart on its own after a power breakdown.
- The electrically operated pumping units are provided with bonded strain gauge based pressure transducer. It should be operated with 220V, 50Hz, Three Phase Supply.

The specification for Enhanced Digital Indicator (EDI) and Other Key Inclusion Features for Digital Compression Testing Machine with Automatic Pace Rate Controller 500kN and Flexure testing Attachment 100kN Should be satisfied as mentioned in Item no.-1.

The assembly should have smooth finish and have trace free powder coated paint.
The Equipment must be supplied with NABL calibration certificate during warranty period.

3. Schmidt Rebound Hammer for Concrete (Digital) against buyback of old non-digital Re-bound Hammer

Schmidt Rebound Hammer conform to EN 12504-2 and ASTM C805.

Digital Schmidt Rebound Hammer having following specifications and accessories:

- Impact Energy: 2.207 N-m
- Preferably Make: Proceq
- Display and Software: Inbuilt Analog as well Backlit Digital Screen
- Battery: Standard AAA (Alkaline and Rechargeable)
- Charging Slot: USB type with Adaptor
- Calibrator: Test anvil for calibration (Hardness: 65-67 HRC) (To be Quoted Separately)
- Complete with carrying case, grinding stone and instruction manual

- Specifications of old Schmidt Rebound Hammer: Type- Non-Digital.

The Equipment must be supplied complete with traceable calibration certificate.

4. Schmidt Rebound Hammer for Concrete (Non-Digital) against buyback of old non-digital Rebound Hammer

Schmidt Rebound Hammer conform to EN 12504-2 and ASTM C805.

Non-Digital Schmidt Rebound Hammer having following specifications and accessories:

- Impact Energy: 2.207 N-m
- Display: Inbuilt Analog
- Complete with carrying case, grinding stone and instruction manual
- Specifications of old Schmidt Rebound Hammer: Make: Controls, Type: Non-Digital.

The Equipment must be supplied complete with traceable calibration certificate.