

DETAILED TENDER DOCUMENT
SUPPLY OF LABORATORY EQUIPMENTS FOR
CIVIL ENGINEERING DEPARTMENT

GOVERNMENT POLYTECHNIC MAYEM
BICHOLIM – GOA

PHONE: 0832-2361235,

Fax: 0832-2361235

Email: - gpbstores@rediffmail.com

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Date:17/12/2020

NOTICE INVITING E-TENDER

E-Tenders are invited by The Principal, Govt. Polytechnic Mayem, Bicholim – Goa, on behalf of the Governor of Goa from authorized dealers/manufacturers for the supply of Laboratory Equipments for Civil Engineering Department

TENDER FEE: Rs.1000/-

E-TENDER PROCESSING FEE: Rs.1500/-

**SUPPLY OF LABORATORY EQUIPMENTS FOR
CIVIL ENGINEERING DEPARTMENT
(TENDER NO. GPB/S&P/E-Tender/Civil/2020/1057)**

Sr. No.	Description of Laboratory Equipment	Qty.
01.	Accelerated Curing Tank	01 no.
02.	Concrete Compression Testing Machine with flexure attachment	01 no.
03.	Hand Held Global Positioning System/GIC	01 no.
04	Digital Theodolite	03 nos
05.	Universal Testing Machine	01 no
06.	Brinnels Hardness Testing Machine	01 no
07.	Tile Flexure Strength Tester	01 no
08.	Rebound Hammer	01 no
09.	Ultrasonic non-destructive Tester	01 no

- N.B:
1. Specify clearly the details/make of each equipments and also enclose the scanned copies of the product literature online.
 2. The supply, installation and commissioning should be done by the supplier at Govt. Polytechnic Mayem, Bicholim-Goa.
 3. All equipments should carry one year onsite warranty.
 4. The tenderer shall submit authorization letter from manufacturer (Original Equipment manufacturer) for the items mentioned in the tender document. All warranty complaints shall be entertained by the vendor.
 5. The vendor shall rectify the faults within 15 working days failing which the vendor will arrange temporary (standby) replacement till the faults are rectified. If faults cannot be repaired, permanent replacement should be

provided for the same.

6. All warranty complaints shall be entertained by the vendor & registered with the ASC if required.

The detailed tender document can be downloaded from the websites www.goa.gov.in & www.gpb.goa.gov.in Prospective bidders are requested to visit these websites regularly, as any amendment in future will be uploaded to these websites only.

For participation in tender, please visit <https://goaenivida.gov.in>

For details on participation in E-Tender Please contact Sandesh Mandrekar(09881740604) of InfoTech Corporation of Goa Ltd, Altinho, Panajim-Goa.

- i. **Mode of Payment towards Cost of the Tender Document, EMD & Tender Processing Fee:** To be paid online through e-payment mode via NEFT/RTGS/debit card/credit card facility/net banking with pre-printed challans available on e-tendering website and directly credit the amount to ITG account as generated by challans for NEFT/RTGS.
- ii. The Tenderer should use the valid class III Digital Signature Certificate (Signing & encryption) in order to participate in E-tender.

The tender should be submitted through electronic mode only latest by 3.00 p.m. on **07/01/2021** and will be opened on **11/01/2021** at 11.30 a.m. (Technical Bid) in the presence of tenderers or their authorized representatives, if any. Meanwhile, the tender opening event can be viewed online by logging in to the E-tender site at the time of opening of the bid.

The Principal, Govt. Polytechnic Mayem, Bicholim reserves the right to accept or reject any or all tenders without assigning any reason thereof.

Bicholim – Goa
Date: 17/12/2020

Sd/-
(Subhash P. Borkar)
Principal
Govt. Polytechnic Mayem
Bicholim – Goa

**Government Polytechnic Mayem
Bicholim – Goa**

TENDER / CATALOGUE DETAILS

**GOVERNMENT POLYTECHNIC MAYEM
BICHOLIM – GOA**

TENDER / CATALOGUE DETAILS

1.	Tender Notice	No.GPB/S&P/E-tender/Civil/2020/1057
2.	Date of issue of Tender document	17.12.2020
3.	Last date of receipt of Tender	07.01.2021 up to 3.00 P.M.
4.	Date and time of opening of tender Technical bid	11.01.2021 at 11:30 A.M.
5.	Date & Time of Financial bid	To be communicated later
6.	Venue of opening of tender	Govt. Polytechnic Mayem, Bicholim – Goa
7.	Address of correspondence	The Principal Govt. Polytechnic Mayem, Bicholim - Goa

Sd/-
(Subhash P. Borkar)
Principal
Govt. Polytechnic Mayem
Bicholim – Goa

TERMS AND CONDITIONS

TENDER TERMS AND CONDITIONS
(Subject to legal jurisdiction of Goa)

1) **General Conditions:**

- A. The Principal, Government Polytechnic Mayem, Bicholim reserves the right to reject all or any of the tenders without assigning any reason thereof.
- B. Irrespective of whether mention was made in the Notice inviting tenders or otherwise, only registered dealers under the Sales Tax Act are eligible to submit tenders.
- C. Those who are submitting tenders for the first time, shall invariably enclose documentary evidence in support of the status described at (B) above, failing which such tenders/quotations shall be rejected.
- D. Except where exemption is granted by the Government of Goa, Earnest Money Deposit (E.M.D.) of 2% of the quoted rates of items shall be paid through electronic mode, which will be forfeited if the tenderer derogates, amends or withdraws the offer within validity period.
- E. If the tenderer desires, he/she will be permitted to be present at the time of opening of the tender.
- F. The E.M.D. is refundable in case of unsuccessful tenderer & incase of tenders which are acceptable, the EMD shall be adjusted against the Security Deposit which shall be 10% of the order value.
- G. The tenderer shall not be entitled to any interest/compensation on account of EMD/SD not being refunded in time.
- H. This office will take all the care to return the EMD within the reasonable time limit, which is normally 30 days after opening of the tenders and 30 days for Security Deposit after satisfactory and full execution of the order and on acceptance of the stores by The Principal, Government Polytechnic Mayem, Bicholim. However, if the supplies are covered by warranty period, the SD shall be retained till the warranty period is over. The SD should remain valid for 60 days beyond warranty period.
- I. If the tenderer fails to claim the EMD/SD within the period of 3 months from the time limit specified above, such EMD/SD will be deposited into the Government treasury at the full risk of the supplier and the Principal shall not be responsible for the delay, if any, to reclaim/return the same.
- J. All quotations/tenders will be received for consideration subject to the specified terms and conditions. The tenderers are required to get the necessary clarification regarding any of the terms and conditions before submitting the tender.
- K. Wherever applicable, following details shall be clearly and specifically indicated by the tenderer.
 - i) Disagreement, if any, with terms and conditions enclosed.
 - ii) Non-conformity, if any, of the stores with the specification given in the tender notice/tender paper.

- iii) Taxes, Excise Duty, Custom Duty, etc., if any, to be paid extra.
- iv) Freight, insurance, forwarding and hamali charges, if any, to be paid extra.
- v) The probable suppliers shall be required to demonstrate the equipments/software quoted by them at Govt. Polytechnic Mayem, Bicholim or at the suppliers' place. Expenditure towards the same shall be borne by the vendor.
- vi) Warranty at site shall be **one year** for equipments, while for computers and related hardware, it shall be **three years**.
- vii) AMC or extended warranty shall be mentioned separately, wherever required.
- viii) Catalogues/brochures/manuals, test results & certification/calibration certificates to be submitted by the supplier.
- ix) Delivery, cost of installation, loading/unloading and local charges shall be borne by the supplier.
- x) Training at Govt. Polytechnic Mayem, Bicholim shall be provided by the supplier free of cost, wherever required.

L. GST, Excise duty, Custom duty, etc:

Where the cost of the items is specified as exclusive of these statutory levies, unless accepted in writing or otherwise by The Principal, Government Polytechnic Mayem, Bicholim, before placing of the order, the said levies shall be payable only on production of the prescribed documents as below:

- i) Certificate (provisional certificate GST)
- ii) Custom duty certificate issued by the concerned Custom Office.
- iii) Freight & Insurance: Where the cost is exclusive of freight and insurance charges, the tenderer shall invariably provide the documentary evidence for having actually paid such charges, failing which the same shall be disallowed. However, where the rates or amount was not specified in the order, it shall be consistent with current market rates.

M. In case where clarity as at clause (K) above is not adhered to, then The Principal, Government Polytechnic Mayem, Bicholim shall be entitled to and it shall be lawful to do so:

- i) To accept for processing such tenders at the risk of the tenderer and /or
- ii) To reject the tender without assigning any reason thereof.

N. Irrespective of whether specifically stated in the Tender Notice or otherwise, the following tenders will be rejected:

- i) Where the tenderer demands advance payment or payment through bank against invoice or similar form of advance payment.
- ii) Where tender cost, EMD and E-Tender processing fee are not enclosed/paid.
- iii) Where the tenderer has not submitted leaflets, catalogues etc., giving detailed specification of the products.

- O. Unless expressly provided in writing by The Principal, Government Polytechnic Mayem, Bicholim, the order placed shall be subject to the terms and conditions and the specifications given herein under. If any of the terms and conditions and /or specifications of the tenderer on whom order is placed is contrary or inconsistent with any of these terms and conditions, the same shall be deemed to be and treated as inapplicable and of no effect.
- P. Any typographical/clerical error in relation to rates/units/quantity, size, etc., and /or contradicting with the tender specifications and /or the terms and conditions shall stand corrected to that effect without any written communication and the tenderer shall not be entitled to any claim whatsoever, based on such typographical/clerical error.
- Q. The tenderer shall sign with date on the certificate attached in token of acceptance of the terms and conditions without any reservations and affix the rubber seal of office stamp, if available. Where rubber stamp is not available, name of the person who has signed and the tenderer which he/she represents shall be clearly written in ink. Quotations received without being duly signed and stamped are liable to be rejected without assigning any reason thereof. However, The Principal, Government Polytechnic Mayem, Bicholim, in the public interest, may relax this condition.
- R. **MODE OF SUBMISSION & LATE TENDERS**
All the tenders are to be submitted in electronic mode only. The tenderwizard will not accept any tender submitted after the deadline for submission of Tenders. All the Tenderers participating in the tender are requested to submit the bids well ahead of the deadline. The Principal, Government Polytechnic Mayem, Bicholim will not accept any responsibility for any problems arising due to delay in the submission of the tender.

2) Validity of Rates:

- A. The rates quoted should be valid at least for a period of 90 days from the date of opening of the tender.
- B. Rates quoted shall be generally exclusive of transport, loading and unloading charges, excise, taxes, etc. However these other charges/taxes shall clearly be shown separately, otherwise it will be deemed that rates quoted are inclusive of all charges/taxes.
- C. The rates shall approximately conform to the current market rates specified by Government/Government approved agencies wherever applicable. If, at any stage, it is discovered that the rates quoted by the tenderer are/were not conforming to the prevailing market rates, The Principal, Government Polytechnic Mayem, Bicholim reserves the right to reject the stores, if received, in such cases and the tenderer will not have any claim against the Principal, Government Polytechnic Mayem, Bicholim except the actual cost of stores as per normal rates less whatever penalty levied by The Principal, Government Polytechnic Mayem, Bicholim. For this purpose, "Normal rates" means the actual cost of the stores on par with

market rates of similar stores exclusive of taxes, excise, transport, freight, etc., plus reasonable profit margin acceptable as decided by the arbitrator (See Clause no.8).

3) Execution of order:

- A. Acceptance of the order shall be conveyed by the tenderer by submitting a Security Deposit equivalent to 10% of the value of the order, within 15 days from the date of receiving order, in the form of Demand Draft/FDR/Bank Guarantee of any commercial Bank in favour of The Principal, Government Polytechnic Mayem, Bicholim, failing which the order shall stand cancelled, unless informed otherwise in writing by The Principal, Government Polytechnic Mayem, Bicholim. The Demand Draft must be payable at Bicholim.
- B. The Security deposit will be refunded to the supplier after full execution of the order or expiry of the period specified in the order and where the stores are warranted, the S.D. shall be returned after expiry of such warranty period. If the supplier fails to honour the warranty as promised, the S.D. will be forfeited.
- C. The entire order shall be executed within three weeks from the date of issue unless specified otherwise, in the order. However, The Principal, Government Polytechnic Mayem, Bicholim reserves the right to grant the extension of the time limit, if in his opinion, public interest does not suffer. Violation of this clause attracts provisions of clauses 5(A) and 5(C).
- D. The stores shall be properly packed and dispatched insured if necessary with any Indian Government approved insurance company or its branch at a cost consistent with Government regulations and the cost of the consignment against loss, damages, breakage, etc., upto destination by Road Transport on freight paid basis only.
- E. It shall be primarily the responsibility of the tenderer to inspect and satisfy that the stores to be supplied conform exactly to the specifications given in the order. In case of lapse on the part of the tenderer in this regard, The Principal, Government Polytechnic Mayem, Bicholim reserves the right to reject the stores.
- F. In case of rejection of the stores supplied by the tenderer on the grounds specified above at D & E or if found defective or not conforming to specification or any other grounds in accordance with the terms and conditions, it shall be the responsibility of the tenderer to make arrangement to collect back the stores. If the tenderer so desires the rejected stores may be dispatched back to the tenderer provided:
 - i) The tenderer gives an undertaking in the prescribed form accepting full responsibility for losses/damages which may be caused during transit due to accidents or any other reasons.
 - ii) The tenderer shall send in advance packing, forwarding and transport charges by way of Demand Draft in favour of The Principal, Government Polytechnic Mayem, Bicholim payable at Bicholim drawn on any Nationalised Bank.

4) **Withdrawal:**

The Successful tenderer cannot refuse to supply the item after the purchase order has been placed & accepted within the validity period. Refusal shall be violation of the Terms & Conditions of this tender, and may lead to blacklisting of the bidder.

5) **The time (delivery period stipulated)** is essence of the contract. In case the Tenderer fails to deliver the stores or any part thereof within the stipulated period of delivery or in case the stores are found not to be in accordance with specifications, The Principal, Government Polytechnic Mayem, Bicholim shall have the right to exercise his discretionary power as under:

- A. Either to recover as liquidated damages a sum not exceeding half percent of the price of stores which the tenderer has failed to deliver as aforesaid per each or part thereof during which the delivery of each may be in arrears but subject to a maximum limit of 5% of the stipulated cost of the stores,
- B. To Purchase from elsewhere at the cost and risk of the tenderer the stores, so undelivered or stores of a similar description without cancelling the order in respect of the consignment not yet delivered, or
- C. To cancel the entire/part of this order as deemed fit.

6) **Inspection/Acceptance of Stores:**

- A. Inspection of the stores shall invariably be done at the Polytechnic premises. The stores shall be deposited by the tenderer at his/her risk at the Polytechnic premises. In such cases acknowledgement shall in no case be deemed and will not be deemed as acceptance of the stores.
- B. In case the stores are delivered in packed cases either personally or through transport agencies including Rail/Road agencies, the acknowledgment given by the Storekeeper shall be "On said to contain basis". In such cases, The Principal, Government Polytechnic, Mayem, Bicholim reserves the right to verify actual contents after opening and therefore, the responsibility for damaged/defectives/shortages or the consequences of a similar nature shall be solely the responsibility of the tenderer. Therefore the tenderer may give open delivery by making suitable arrangement.
- C. In cases where the stores are deposited in open container/open condition the acknowledgment of the Storekeeper shall be to the extent of physical quantity and in no case the Storekeeper shall be responsible as to the exact nature/conformity of the stores with the specifications in the order.
- D. The Storekeeper of Government Polytechnic Mayem, Bicholim shall take maximum precaution for the safe custody of stores delivered by the tenderer. However, incase of loss/losses caused to the stores deposited by the tenderer in the Polytechnic premises due to fire, natural calamities or any other reason beyond human control, The Principal, Government Polytechnic Mayem, Bicholim, shall not be responsible to make good any losses, either in full/part or to pay any compensation of whatsoever nature in this regard.

- E. It shall be the responsibility of the Tenderer to arrange delivery of the stores at the Polytechnic premises at Mayem, Bicholim – Goa, during the office hours from 9.30 a.m. to 4.30 p.m.
- F. Advance intimation of dispatch of the stores with information like mode of transport, name and address of transport agency, likely date of arrival of the stores at Polytechnic premises and necessary documents, if any, to release the consignment must be sent by the tenderer to The Principal, Government Polytechnic Mayem, Bicholim.

7) **Warranty/Guarantee:**

- A. Unless specified otherwise in writing the machine/equipment supplied shall carry a warranty/guarantee against manufacturing defects for a period of 12 months from the date of final acceptance of such machine or equipment by The Principal, Government Polytechnic Mayem, Bicholim.
- B. During the warranty/guarantee period the firm responsible for supplying the machine and/or equipment under question shall provide free repairs and servicing, failing which Security Deposit will be forfeited.
- C. During the warranty, if it becomes essential to send/take the equipment to the works/factory of the manufacturer/supplier for replacing and/or servicing, Bank Guarantee in the prescribed form shall be provided by manufacturer/supplier toward the cost of such equipment/machine. The Bank Guarantee so drawn shall be for the period for which equipment remains with the manufacturer/supplier.

8) **Terms of Payment:**

- A. All bills shall be drawn in the name of The Principal, Government Polytechnic Mayem, Bicholim only and shall be submitted in triplicate with the original being affixed with a revenue stamp of Rs.1/- if the bill amounts to Rs.5000/- and above.
- B. Unless accepted otherwise in writing before placing of the order all payments towards the suppliers will be made against valid bills only and if the equipment is found in good condition and conforming to our specifications given in the order.
- C. Normally as per Government rules the payment of bills can be made within a period of 30 days provided the supply reaches Government Polytechnic Mayem, Bicholim in the last week of the month. However, in case of delays, no interest shall be paid by The Principal, Government Polytechnic Mayem, Bicholim on whatsoever any grounds.

9) **Arbitration Clause:**

In the event of their arising any dispute or difference of opinion concerning or touching any clause of this agreement or any of the terms and conditions in any of the documents which are made integral part of this agreement, the same shall be referred to the sole arbitration of a person appointed by the Governor of Goa and it shall be lawful for the Governor of Goa to appoint any officer who has in the discharge of his duties as such officer either expressed any opinion or issued any direction in the matter shall be final & binding on the parties.

Sd/-
Principal
Govt. Polytechnic Mayem,
Bicholim – Goa

CERTIFICATE

Certified that I/we have gone through the terms and conditions of supply/works and also the tender conditions. I/We hereby agree to abide by the same. In token of accepting as above I/We affix the signature as below:

Signature

Date: _____

Seal of the Tenderer

Name of the Firm/Organisation: _____

Contact Person: _____

Tel No: _____

Mobile No.: _____

E-mail ID: _____

NOTE: This certificate duly filled and signed shall be uploaded alongwith the tender offer without which the tender will not be considered.

DOCUMENTS TO BE SUBMITTED ALONGWITH THE TENDERS

- a) Certificate of Acceptance of terms and conditions duly filled and signed.
- b) Income Tax returns of current year.
- c) CGST & SGST Clearance certificate.
- d) The Tenderer should have documents supporting that he is manufacturer/ authorized dealer.
- e) Name and details of local agency who will attend to the complaints, in case required.
- f) Scanned copies of the product literature

DETAILS OF EQUIPMENTS

ANNEXURE – I

SR.NO	Description of Item	Qty.
01.	<p><u>Accelerated Curing Tank :</u> Capacity to accommodate 18 Concrete Cubes of 150mm size with a facility for accelerated curing by Boiling water method up to temperature range : 100 +/- 2 deg.C as per IS standard IS : 9013. Also it will have capacity for curing by warm water method at temperature 55 +/- 2 deg.C. Tank will consist of a rectangular double walled metal cabinet, inside lined with stainless steel, outer powder coated. A slow speed stirrer is provided to circulate water inside the chamber to maintain the uniform temperature of water. A strong stainless steel perforated platform is provided for keeping the cubes and also have a lid with lifting handle to cover the chamber. The temperature is indicated and controlled by a DIGITAL auto tuning PID Temp. Controller with soak timer to control the duration of heating and then to shut down the system without manual attendance. The front panel will have power supply indicating lamp, control action indication lamp and one main switch. Suitable for operation on 220 V, 50 Hz single phase, AC supply or 440 V 50 Hz, three phase AC supply, for bigger size of curing tank.</p>	01 no.
02.	<p><u>Concrete Compression Testing Machine with flexure attachment:</u> <u>Capacity required:</u> Digital compression testing machine with capacity of 300 tones(3000kN) with flexure attachment of 10 tonnes (100kN) capacity. Digital compression testing machine shall conform to IS:516 and IS:14858. Digital Compression testing machine for testing concrete cubes of size 100mm, 150mm, 300mm and concrete cylinder specimens up to 300mm dia and 300mm height <u>Loading frame:</u> Steel welded loading frame with top cross head, base and solid side walls. Hydraulic piston is fixed to the base and the platens are hardened, ground and polished. Machine shall be provided with suitable size spacers as standard to accommodate the variety of size of specimens as indicated above. The two speed pump to allow fast approach of platens for daylight closure and also to allow for precise control over load applications using control lever and valve. <u>Digital display:</u> Display shall show force and stress values in SI units. Storage capacity to record and store 2000 complete test results with facility of printing the results/logged data through built in parallel port. Least count 0.1kN. Machine shall be provided with overload safety protection. Menu driven sample details. Machine with 4-modes and flexible calibration points. <u>Power Supply:</u>Suitable for operation on 220V/230V, single phase</p>	01 no.

	<p>50Hz AC supply. Additional requirements: Maximum clearance between platens - 400mm; Maximum distance between side platens – 400mm, Platen size – 320mm square.</p> <p>ii) Flexure attachment: Flexure testing machine of 10 tonnes (100kN) capacity conforming to IS:516. Loading to be applied by the downward movement of piston. Machine shall be suitable to test beams of size 100x100x500mm and 150x150x700mm. machine shall be supplied with suitable standard spacers for testing different sizes of beams.</p> <p>Additional requirements: Three point loading Light weight rugged high strength frame. Least count 0.1Kn Distance between supporting rollers: 600mm for 150x150x700mm beam and 400mm for 100x100x500mm beams. Distance between loading rollers: 200mm for 150x150x700mm beam and 133mm for 100x100x500mm beams.</p> <p>Power supply: Suitable for operation ion 220V,50Hz, single phase, AC supply.</p>	
03.	<p>Handheld Global Positioning System /GIS: processor -500 MHz (minimum)*128MB RAM & 128 MB Flash (minimum support micro SD card up to 16GB * Support Micro SD card up to 16GB *3.5 inch colour touch screen display *Integrated 3 Megapixel Camera *Rechargeable Li Ion Battery with 10 hours back up *Integrated Bluetooth and Wireless LAN * Windows Mobile 6.1 or better operating system * USB port for data transfer.</p>	01 no.
04.	<p>Digital Theodolite :</p> <ol style="list-style-type: none"> 1. Telescope Magnification: 30X 2. Long-range laser pointer Safe Class such as Class ‘A’), about 200m 3. Accuracy (ISO 12857-2 1997): 2" 4. Display: LCD, 8 digits x 2 lines w/backlight and with good resolution. 5. Display location: On both faces 6. Compensator: Dual-axis compensator, working range $\pm 3''$ (± 55 mgon) 7. Dust and water protection: IP66 (IEC60529) 8. Chargeable batteries, Continuous use with alkaline batteries: Approx. 75 hours 9. Automatic restoration of Azimuth when restarted. 	03 nos.
05	<p>Universal Testing Machine 60 T Capacity :</p> <p>Max capacity:1000KN, Resolution 0-600kN, Max. Clearence for tensile test: 50-700mm , Max. Clearence for Comp test :0-700mm , Clearence between columns: 500mm, RAM stroke 200mm, Straining / Piston Speed at no load: 0-150mm/min, Electric supply 1.75KW, Dimensions :</p>	01 no.

	L=2060mm, W=750mm, H2180mm; Weight: 2500kg, ACCESSORIES: For Tension test : Clamping jaws for round specimen dia : 10-25mm and 25-40mm. Clamping jaws for flat specimens of thickness 0-15mm and 15-30mm, and width 65mm. For Compression test: pair of compression plates of diameter 120mm. For Transverse test: Table with adjustable rollers : 120mm, width of rollers : 160mm, Dia of rollers : 160mm, Max. clearance between supports 500mm. Radius of Punch tops - 12.16mm.	
06.	BRINNELS Hardness Testing Machine: Basic machine design & operation similar to B-3000 (H). In addition 'optical device' with 14 x magnification provided in front to project dia of ball impression on glass screen with a micrometer measuring system with 0.01mm accuracy. The indenter swivels & projects dia of ball impression immediately after unloading operation which avoids additional time for measurement of ball impression. Basic machine design & operation similar to B-3000(H). In addition 'optical device' with 14 x magnification provided in front to project dia of ball impression on glass screen with a micrometer measuring system with 0.01mm accuracy. The indenter swivels & projects dia of ball impression immediately after unloading operation which avoids additional time for measurement of ball impression Load(kgf) 250 to 3000 in stages of 250. Initial Load(kgf)NIL, Max. Test height 380mm, Depth of throat 200mm, Max. depth of elevation screw below base(approx) 180mm, Machine height (approx)1185mm, Net weight(approx)500kg, Drive motor 0.33HP, Main supply 415V/50cy/3ph,optical Device-direct reading optical device with 14x magnification.	01 no.
07	Tile Flexure Strength Tester : Tile Flexure Strength Tester IS:654-1972 For determination of breaking load of clay roofing tiles (Mangalore Pattern.) The equipment consists of two self aligning bearing rollers and one loading roller all of 40 mm dia. and length 305 mm. The centres of bearing rollers can be set at 250 mm or 270 mm apart. The loading is done through a double lever loading system by means of a steady flow of lead shot from a container into the receiver hung on the lever system. The lead shot flow stops automatically when the specimen fails. The failure load of the tile is estimated by multiplying the weight of the lead shot in the receiver by the lever ratio of the system i.e. 1:12. Maximum capacity of the machine is 2 kN. Lever ratio is 1:12. Supplied complete with 20 kg lead shot	01 no.

08	<p>Rebound Hammer: Rebound hammer test is done to find out the compressive strength of concrete by using rebound hammer as per ISI: 13311(part 2): 1992 Non- Destructive Testing of Concrete-Method of Test , part 2- Rebound Hammer</p> <p>Digital type with automatic calculation of mean rebound number, compressive strength and more, field printer, PC connection and software for downloading along with test anvil. Measuring range of 10 to 70 N/mm² 18 to 70 N/mm² Compressive strength f_c: for horizontal impacts and f_c for cubes 150/150/150 Accuracy of measurement: $\pm 0.2 R \pm 0.2 R$ Reproducibility : $\pm 0.5 R \pm 0.5 R$</p>	01 no
09	<p>Ultrasonic nondestructive tester : IS: 13311 (Part 1): 1992 Non-Destructive Testing of Concrete-Method of Test; Part 1-Ultrasonic Pulse Velocity</p> <p>Tester consisting of: Display unit, 2 transducers (54kHz), 2 BNC cables 1.5 m, couplant, calibration rod, battery charger with USB-cable, 4x AA(LR6) batteries, data carrier with software, documentation and carrying case;</p> <p>2 Exponential transducer 54 kHz, including calibration rod; carrying bag; Cable with BNC-plug, L=1.5m (5ft); Cable with BNC-plug, L=3.0m (10ft); Cable with BNC-plug, L=10m (33ft); Cable with BNC-plug, L=30m (100ft); Ultrasonic couplant, 250 mL bottle; Calibration rod 25 μs; Calibration rod 100 μs; Demo Block; Transducer Holder complete.</p>	01 no.