

TENDER DOCUMENT

For supply and installation of Lab Equipment's, under the project
"Establishment of the FATA University, FR Kohat

For the Geology/Earth Sciences Lab

On

(Single Stage Two Envelope procedure)



Issued by

Procurement Section / Office of the Treasurer,

FATA University, FR Kohat

Khyber Pakhtunkhwa, Pakistan

Phone: 091-5885510

Web: www.fu.edu.pk

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FATA UNIVERSITY, FR KOHAT

Website: www.fu.edu.pk; Email: info@fu.edu.pk
NOTICE INVITING TENDER / BID No. 02/2025
(Single Stage – Two Envelope Procedure)

Sealed bids are invited for the supply & installation of the Lab Equipment's for the Department of Geology/Earth Sciences, under Single Stage Two Envelope Procedure from Manufacturers, Authorized Dealers registered with Sales Tax and Income Tax Department.

Sr.No	Department	Items
1	Department of Geology & Earth Sciences	Lab Equipment's, as per specifications and quantity at annexure "A & B".

(1) Tender forms along with detailed specification, terms and conditions can be obtained from the office of the treasurer, FATA University upon online Deposit Receipt of fee **Rs. 3000/- (Non-Refundable)** in favor of the "HEC, FATA University", A/C 3310729039, Branch Code 2028, NBP Aitemaad. (2) Interested firms should have adequate financial soundness (supported by latest bank statement), similar work experience and personal capabilities. (3) Bid Cost shall comprise of **rate of the item and applicable all taxes** (federal, provincial and professional tax) **separately. (As per the price schedule given in the bidding document).** (4) All bids shall be prepared by mentioning all applicable taxes including GST as per Govt Rules, after award the applicable taxes will be deducted from the bidders. (5) Any addition, deletion, disfiguring /Over writing, Manipulation in the tender/BOQ shall be liable to rejection. (6) All the bids will be scrutinized by the procurement/technical committee. Incomplete and conditional bids shall not be acceptable; however, the Committee may allow based on nature and suitability (on case-to-case basis) in best interest of the University. (7) The competent authority reserves the right to reject anyone or all the tenders, the reasons for rejection shall be communicated to the firm upon request as per KPPRA rules. (8) Bid security @ 2% of the bid cost shall be placed in financial bid, an affidavit shall be attached with technical bid (s) stating that the bid security is placed in financial bid. (9) Pre-Bid Meeting will be held on 13-02-2025 at 11:00 A.M in the Committee Room of the FATA University. (10) The sealed envelope containing technical and financial bids must be submitted to the office of the Treasurer, FATA University up to 21.02.2025 till 11:00 A.M through registered courier services (No bid will be received by hand). Technical bids will be opened on the same day at 11:30 A.M in the presence of the bidders or their authorized representative in the committee Room of the FATA University. (11) In case of tie, toss shall be carried out in front of the bidders by the committee. (12) The details i.e. Tender Specification and TORs can also be obtained from the official website of the University i.e. www.fu.edu.pk

CONVENER UNIVERSITY PURCHASE COMMITTEE
FATA UNIVERSITY, FR KOHAT
Phone No. 091 5885502



Tender Application Form FATA University

1. Registered Name of the Firm (Block Letters) _____												
2. Name of CEO (Block Letters) _____												
3. CNIC Number												
4. Contact Information : _____												
i. Head Office: _____												
ii. Franchise/Outlet: _____												
iii. Postal Address: _____ _____												
iv. Office No: _____ Cell No: _____ Email: _____												
5. Registration with sale Tax (Copy to be attached) _____												
6. National Tax No. (NTN): _____												
7. Aggregate of the total quoted price _____												
8. Amount of CDR (@2% of the total Amount _____												

Signature of
CEO/Bidder Dated:
_____/_____/_____

Terms & Conditions

1. Rates should be quoted against each item of the bid.
2. Call deposit at the rate of 2% (two percent) earnest money/bid security shall be attached with the Financial Bid.
3. Income Tax and Sale Tax shall be deducted at source.
4. In case of non-supply of required item(s) mentioned in the Tender documents, CDR will be forfeited in favor of the FATA University.
5. The successful bidder will be bound to complete supply of items in 30 days for Non-imported items and 90 days for imported items after issuance of the supply order, otherwise penalty will be imposed @ 0.1 % Rupees /Day, Maximum up to 10 % of the total amount in supply order. (Provision of bill of entry copy is mandatory in case of imported items)
6. Quantity of equipment can be increased or decreased as per actual requirement.
7. For the laboratory equipment, the warranty period of at least 01 (one) year is mandatory to be mentioned in the bids & for the Expendables of the items will be one month from issuance of completion certificate.
8. Retention money will be deducted from running bill @10% and will be released after the successful completion of the Defect Liability Period / Issuance of completion certificate/End User Certificate.
9. No tender or bid shall be entertained without 2% Bid Security.
10. Provision of sample of the local items is obligatory for the firms in due course of time, if mentioned in supply order. For imported item catalogue of the supplier must be provided and if the firm fails to provide the sample/catalogue, then the firm will be excluded from the tender.
11. No alternate rate shall be entertained for the items/equipment.
12. All prices should be quoted on F.O.R (Pak Rupees) inclusive of all taxes.
13. Your bid proposal should be inclusive of freight and all other taxes and to be Delivered at the FATA University's premises.
14. All pages of the bidding documents are mandatory to be signed, stamped meaning thereby bidder agrees to our terms and conditions, mentioned herein, failing which the bid may be liable to rejection.
15. If the vendor fails to deliver the goods / services to the FATA University , within the given deadline, any of the following can be opted by University on the

- recommendation of the end user and approval of the authority;
- a. An extension in the delivery period may be granted in case a valid reason/justification with necessary documentary evidence is provided by the vendor supporting the reason for delay.
 - b. A penalty up to 10% of the invoice value may be charged.
 - c. Purchase order may be cancelled along with confiscation of earnest money if the vendor fails to deliver the goods / services after the initial or extended delivery time, as the case may be.
16. The Competent Authority reserves the right to accept or reject any or all of tenders processed by assigning any reason(s) (as per KPPRA Rules).
 17. If the delivered goods / services are not according to the required quality standards / specifications, the same shall be liable to be rejected after inspection. The vendor would be required to supply as per requirements mentioned in our BOQ, otherwise the purchase / work order will be cancelled after due date with confiscation of earnest money.
 18. Purchase order (s) will be awarded to the Most Advantageous or technically recommended bidder (s) on the basis of item wise / subtotal wise / grand total wise according to the nature of BOQ.
 19. No overwriting / cutting / corrections or interpolation will be allowed in the BOQ /Quotations/bids, if any.
 20. Any bids received after the prescribed date & time for submission of bids shall be returned un-opened.
 21. All prices should be valid for at least 120 days from the date of Tender opening, Withdrawal or any modification of the original offer within the validity period shall entitle FATA University to forfeit the earnest money and put a ban on such vendor on participation in University's Tenders / works.
 22. Payment will be made on submission of Invoice in the name of "FATA University" with a copy of delivery challan (s) after the complete order has been supplied, inspected and accepted which includes delivery / installation, and acceptance / inspection thereof.
 23. All the bids will be scrutinized by the committee. Incomplete and conditional bids shall not be acceptable; however, the Committee may allow based on nature and suitability (on case-to-case basis) in best interest of the University.
 24. In case of any dispute or grievance, the matter shall be addressed as per

PPRA/KPPRA rules.

25. Product Qualification Criteria: If the product offered by vendor, failed to meet the specifications / standards mentioned in the BOQ, it will be rejected straightaway and no further consideration will be given. Also, if the offered product has better specifications than the requirement of BOQ it will be accepted.
26. Please submit bid (rates) on our prescribed BOQ Form and clearly mention the quoted model / brands, with complete terms and conditions signed, stamped with bids, otherwise your bid (s) may be rejected.
27. In case more than one bidder have quoted same rates for an item; the bidder securing more items (in terms of cost) will be awarded the specific item.
28. Refurbished, Grey, used, open box or smuggled products will not be accepted in any case.
29. As per Notification No. KPPRA/M&E/SBDs/1-1/2015, Dated Peshawar the May 03, 2016, Clause No: 32.2 reproduced as "Within thirty (30) days of receipt of the Contract Form/Supply Order, the successful Bidder shall sign and date the contract/Supply Order and return it to the Procuring agency.
30. As per Notification No. KPPRA/M&E/SBDs/1-1/2015 , Dated Peshawar the May 03, 2016 clause No: 33.2,Reproduced as " Failure of the successful Bidder to comply with the requirement of ITB Clause 32 or ITB Clause 33.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Procuring agency may make the award to the next lowest evaluated Bidder or call for new bids."
31. Note: All the Equipment's should be installed in required Labs; all the installed items, expenses should be provided by Supplier. Supplier should give training to at least 3 persons/end-user.

Undertaking

It is certified that the above terms & conditions have been read, learned and accepted.

Signature of
CEO/Bidder Dated:
_____/_____/_____

Technical Specification

At Annexure “A” & “B” at the End of this Document

Note:

- 32. The unit rate for the item/equipment will be considered.
- 33. The rate of item/equipment must include all charges of transportation and delivery to the FATA U.
- 34. The rate shall be inclusive of all taxes, (Showing item wise cost and all applicable taxes separately)

Bidder Signature with Date: _____

Method of Procurement

The method of procurement adopted by FATA University will be Single Stage – Two Envelope Procedure for selection of the firm as per KPPRA Rule-2014 (amended till date). The bidder should submit two separate sealed envelopes. One envelope should contain the Technical Proposal and the other envelope should contain the Financial Proposal. Both envelopes should be clearly marked “**Technical Proposal**” and “**Financial Proposal**”. Initially only the envelope marked Technical Proposal shall be opened, while the Financial Proposal shall be retained in the custody of Procurement Committee for Goods without being opened. The Technical Proposal will be opened and evaluated 1st against the evaluation criteria set for the equipment/item. The Financial Proposal of the technically successful bidder(s) shall be opened at a time, date and venue announced/communicated to the bidders in advance. The bid found to be the lowest/best evaluated shall be accepted, while the financial proposal of bids found technically non-responsive shall be returned unopened to the respective bidders.

Bidder Signature with Date: _____

Technical Evaluation Criteria of the Bid

BID Evaluation Criteria

Name of the Bidder: _____

S. No	ITEM NAME	Max MARKS	Marks Obtained
(i)	Tender FEE of Rs.3000/- attached	Compulsory	
(ii)	An affidavit showing that 02% Security is enclosed in the financial bid without showing the CDR amount	Compulsory	
(iii)	FBR active Income Tax Certificate attached	Compulsory	
(iv)	FBR active Sales Tax Certificate attached	Compulsory	
(v)	Warranty Certificate attached	Compulsory	
(vi)	Non-Black Listing Certificate attached	Compulsory	
(vii)	Fair Price Certificate attached	Compulsory	
(viii)	Manufacturer's Authorization Form /Authorized Dealer Certificate	Compulsory	
(ix)	List of clients where such equipment/item delivered, 5 Marks / client.	25 Marks	
(x)	Firm Profile/Soundness/Financial position for the last Three (03) years including bank statements for the month of June & December of each year or Audit Report of three years.	25 Marks	
(xi)	Guarantee/Warranty, 5 Marks /Year Maximum up to 15	15 Marks	
(xii)	Satisfactory letter from client in favor of quoted items: 02 Mark / Letter Maximum up to 10	10 Marks	
(xiii)	Provision of Training to End user, 2 Marks / Training Maximum up to 10	10 Marks	
(xiv)	Numbers of office / Workshop facilities at different Cities of Pakistan, 5 Marks/ city office	15 Marks	
Total Marks		100	

Note:

- (i) Submit document as per mentioned criteria
- (ii) Qualifying Marks are 60.

Signature of the Committee Members:

Price Schedules

(To be printed at Company Letter
Head)

To

The Treasurer
FATA University.

S.No	Item Name	Specifications	Unit Price Without GST (PKR)	GST	Qty	Total Price With GST (PKR)
1						
2						
3						
4						
5						
6						
7						

Note: in Case of Discrepancy between unit price and total, the unit price shall prevail)

Bidder Signature with Date: _____

Fair Price Certificate

(TO BE ENCLOSED WITH BID DOCUMENT)

(To be printed at stamp paper)

I/We, M/s _____

hereby certify that prices quoted by us against FATA University for the tender _____ are the lowest and most competitive as generally applicable to all other buyers and or sold through our agents as per prevailing international market as on the date of quote and if it is established at any stage that these were higher we shall be held responsible and agree to pay immediately the differential to the FATA University.

SIGNATURE AND SEAL OF THE

BIDDER/MANUFACTURER/SOLE AGENT/AUTHORIZED DEALER

Warranty/Guarantee Certificate

(TO BE ENCLOSED WITH BID DOCUMENT)

(To be printed at stamp paper)

Firm's Name _____

Contract No. _____

1. I/We hereby guarantee that the items supplied against the above contract are in accordance with the relevant specifications and terms of the contract and that material used (whether or not of our manufacture) are in accordance with the latest approved standard specifications are of good quality throughout, and that we shall replace free of cost, every article or part thereof which before use or in use, shall be defective or not within the limits and tolerance of specifications requirements, or in any way not in accordance within the terms of the contract.
2. In case of our failure to replace the defective goods free of cost within the period specified by the purchaser, we will refund the cost involved.
3. The Warranty/Guarantee will remain valid for 12 months for Lab Equipment and 01 Month for Expandable items any other agreed term after receipt of goods by the consignee/installation of items.

Signature: _____

Name: _____

Status in the firm: _____

Dated: _____

Contract Agreement

(TO BE ENCLOSED WITH BID DOCUMENT)

THIS CONTRACT is made at day of between the FATA University (hereinafter called the “Purchaser”) of the First Part and M/s..... a firm registered under the laws of Pakistan and having its registered office at

(Hereinafter called the “Supplier”) of the Second Part.

WHEREAS the Purchaser invited bids for procurement of items, in pursuance whereof M/s..... being the supplier/ manufacturer/ authorized Agent of (Item name) in Pakistan and ancillary services offered to supply the required item (s); and whereas the Purchaser has accepted the bid by the Supplier for the supply of (Item name) and services in the sum of Rs (amount)- (Rupees.....) cost per unit, the total amount of (Quantity of item) (Item name) shall be Rs..... (Amount)- (Rupees

IN WITNESS Whereof the Parties hereto have caused this Contract to be executed at the place and shall enter into force on the day and year first above mentioned.

Signed/ Sealed by the
Supplier/ authorized Agent

Signed/ Sealed by Purchaser

Non-Black Listing Certificate

(TO BE ENCLOSED WITH BID DOCUMENT)

(To be printed at stamp paper)

I, _____ S/o _____ working as
Proprietor/Managing Partner/Director of M/s _____
having its registered office at _____ do hereby
solemnly affirm and declare on oath as under:

1. That I am competent to swear this affidavit being proprietor/one or the partners/ Director of M/s _____
2. That M /s _____ is a proprietorship/partnership firm/company is participating in tender process conducted by Institute.
3. That I hereby confirm and declare that none of my/our group/sister concern/associate company is participating/ submitting this tender.
4. That I hereby confirm and declare that my/our firm/company M/s _____ and my/our firm/group/company/ sister concern / associate company have not been black listed/de-listed by any Institutional agencies/Govt. Deptt/ Public Sector Undertaking.
5. That there is no change in the Name & Style, Constitution and Status of the firm, after Pre-qualification.
6. That I further undertake that in case any of the facts contained above and in-our application is round other-wise or incorrect or false at any stage, my/our firm/company/ group/sister concerns/ associate companies shall stand debarred from the present and future tenders of the University of Swat.

(Signature of the Proprietor/ Managing Partner/Director with Seal) DEPONENT

Verified at _____ on _____ that the contents of paras 1 to 6 of this affidavit are true and correct to best of my knowledge and no part of this is false and nothing material has been concealed or falsely stated therein.

(Signature of the Proprietor/ Managing Partner/ Director with Seal)

DEPONENT

(Signature & Seal of Notary)

Manufacturer's Authorization Form

(To be printed at Manufacturer's Letter Head)

Bidders.] To: *[name of the Procuring agency]*

WHEREAS *[name of the Manufacturer]* who are established and reputable manufacturers of *[name and/or description of the goods]* having factories at *[address of factory]*

do hereby authorize *[name and address of Agent]* to submit a bid, and subsequently negotiate and sign the Contract with you against IFB No. *[Reference of the Invitation to Bid]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty of the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Bids.

[Signature for and on behalf of Manufacturer]

Note: This letter of authority should be on the letterhead of the Manufacturer and should be signed by a person competent and having the power of attorney to bind the Manufacturer. It should be included by the Bidder in its bid.

Annexure A, B (Technical Specification for the Lab of Geology/Earth Sciences)

A. Specification of thin section and Geotechnical laboratory equipment's:

S.No	Specification	OR	Quantity
01	<p><u>THIN SECTION CUTTING AND GRINDING MACHINE</u></p> <p>Precision thin section cutting and Grinding machine , Diamond or CBN Cut off Wheels up to 200mm diameter, Grinding wheel 175mm diameter, Specimen holder with vacuum for standard slides, Vacuum chuck to hold a variety of slide dimensions 76 x 26 mm and 25 x 50mm slides, Vacuum pump with gauge and filter, Built in micrometer with digital readout for precise grinding of material, Water cooling, Electrical: 220-1-50</p>	Equivalent	01
02	<p><u>GEOLOGICAL LAPPING MACHINE</u></p> <p>Geological lapping machine is able to accurately lap and polish thin sections mounted on glass slides down to 30 microns. Metered dosing of conventional and diamond abrasives is applied to the lapping plate using the dispenser. The Lift off Disc system allows quick transitions between the lapping and polishing stages.</p> <p><i>Main Features</i></p> <ul style="list-style-type: none"> • Cast iron Serrated Lift Off Disc • Aluminium Lift off Disc • Variable Speed up to 70 rpm • Capacity for up to 3 vacuum jigs with diamond faced stoppers • Water Trap and Filter 	Equivalent	01

	<ul style="list-style-type: none"> • Stand –alone vacuum pump • Integrally mounted high torque drive unit with 0.37kW (0.5HP) motor • Sealed maintenance free reduction gearbox • Three adjustable conditioning ring roller bearing yoke assemblies • accurate peristaltic dispensing system for metered dosing • Integrated abrasive tank with stirrer • Electronic digital timer with variable time ranges • Electrical: 230V-single phase-50Hz <p><i>Technical Specifications</i></p> <p>Height 400 mm</p> <p>Working Height 310 mm</p> <p>Width 800 mm</p> <p>Depth 650 mm</p> <p>Nett Weight 90 Kg</p> <p>No of jig stations 3</p> <p>Main Motor 0.37 kW</p>		
03	<p><u>Digital Electric Hot plate</u></p> <p>Digital Electric Hot Plate, Dimension 400x600 mm approx./large size, Voltage 220-240, Power supply frequency 50-60 Hz</p> <p>Temperature Range: Ambient to 350°C</p> <p>Control system: Digital Thermostat</p> <p>Temperature sensitivity: ± 2°C</p> <p>External chamber: Electrostatic Powder Paint, Steel</p>	Equivalent	01

	Weight: 7.5kg approx.		
04	<p><u>Digital Balance</u></p> <p>Digital balance fitted with strain gauge load cells and are designed with large backlit LCD displays that give precise measurements within the 0°C to 40°C temperature range. Digital Balance have an internal automatic calibration feature and can be connected to printers or PC's through their RS 232 outputs and are supplied with 220-240 V, 50-60 Hz AC/DC adapters.</p> <p>Capacity: 6 kg Readability: 0.1 g Pan Size(mm): 300x230 Additional Power supply: Rechargeable Batt. Under bench weighing facility, Dimension 300x400x400 mm, weigh 4.5 kg approx.</p>	Equivalent	01
05	<p><u>Laboratory Rock coring machine/Rock drilling machine</u></p> <p>This machine is specifically used in the laboratory for cutting core samples from hard materials such as rock and concrete. A clamp is provided to firmly secure the material during the cutting cycle. The coring area is protected by a transparent cylinder. A special clamping device to prepare rock samples from core pieces. Laboratory coring machine, 2-speed, complete with water inlet. 220 V, 50-60 Hz, 1 ph.</p> <p>Power unit: 1800 W Coring speed: 1485/2720 r.p.m. Coring range: from 8 to 100 mm dia. Dimensions of the base tray assembly: 600x500x200 mm. Weight approx.: 80 kg</p> <p><i>Accessories</i></p>	Equivalent	01

	<ul style="list-style-type: none"> • Diamond core bit diameter 42.04mm/1.655inches, core bit length upto 400mm. • Diamond core bit diameter 38.10mm/1.5inches, core bit length upto 400mm. • • Clamping device for cores max. dia. 100 mm, complete with transparent protection. 		
06	<p><u>Core trimmer and cut-off machine</u></p> <p>Used to obtain rock samples perfectly machined (cube, prisms, etc.) from irregular rock or core pieces. It is supplied complete with a proper vice to hold irregular pieces firmly in place up to 70x140 mm approximately and “V” device for cores up to 75 mm dia. Longer cores can be machined by turning the sample upside down in the device. The machine also include cooling water inlet and transparent cover, conforming to CE requirements, with switch that stops automatically the machine when opened.</p> <p>The machine can be fit with either a cutting blade or a double-faced cup wheel for surfacing cylindrical specimen’s ends. Laboratory core trimmer and cut-off machine complete with water inlet. 220 V, 60 Hz, 1 ph.</p> <p>Power: 1100 W, Blade speed 3000 r.p.m., Dimensions: 730x1050x590 mm approx.</p> <p>Weight approx.: 100 kg</p> <p><i>Accessories</i></p> <ul style="list-style-type: none"> • Cooling recirculating pump complete with reservoir. 220 V, 60 Hz, 1 ph. • Cutting blade and cup wheel Diamond cutting blade, 230 mm dia. x 2.8 thick. Maximum cutting area 110x70 mm 	Equivalent	01
07	<p><u>Rock, concrete and masonry saw</u></p> <p>This universal saw, completed with the suitable accessory, can be used to cut concrete / rock cores and irregular rock samples in order to obtain geometrically defined samples. It can be fitted with 350 to 450 mm dia. blades.</p>	Equivalent	01

	<p>The head is adjustable in height. The tilting motor head permits cuts up to 45° inclination. The tank and the trolley are zinc plated to avoid corrosion. Complete with water pump for cooling the blade and double filtering system.</p> <p>Rock, concrete and masonry saw. 220V, 60 Hz, 3 ph.</p> <p>Accessories</p> <ul style="list-style-type: none"> • Diamond blade, 450 mm dia., for hard rock • V shaped support for cylinders and cores up to 160 mm dia. <p>Weight approx.: 4 kg</p> <ul style="list-style-type: none"> • Locking clamp device for irregular pieces 		
08	<p><u>Fully Automatic Uniaxial and Triaxial compression test system (Compression frame bearing capacity 3000KN)</u></p> <p>ASTM D2664 ASTM D2938 ASTM D3148 ASTM D5407 EN 14580 EN 1926 ASTM D7012</p> <p>The Automatic configuration for determining the elastic modulus and strength characteristics of rock specimens under uniaxial and triaxial conditions is based on the Multitest control console for axial load and hydraulic unit for confining pressure. The 2 consoles are operated independently and the failure envelope is obtained by few individual tests (single - stage) with automatic application of axial load and confining pressure at different levels. Multitest allows to perform tests under load and strain control.</p> <p>The confining pressure into the Hoek cell, applied by hydraulic unit is also measured by Multitest for simultaneous plot of all test quantities, e.g. stress, strain and cell pressure.</p> <p>Multitest</p> <p>The Multitest consists of an ergonomic control console which houses the power unit and the PC.</p> <p>Specifications</p>	Equivalent	01

Hydraulics

- Dual stage pump: centrifugal low pressure for fast approach and automatic switching to radial multi-piston high pressure for loading
- DC motor. 720 W, 50-60 Hz
- Maximum working pressure 650 bar
- Third and fourth frame option, active frame selection by software
- Flow-sharing technology to perform loading and unloading cycles
- ES Energy Saving technology to reduce power consumption and silent operation

Hardware

- 131.000 points effective resolution
- Closed-loop P.I.D. control
- 4 channels for load sensors (pressure transducers/load cells)
- 1 channel for confining pressure (acquisition only)
- 6 channels for strain/displacement transducers (potentiometers, magnetostrictive, LVDTs)
- 3 channels for strain gauges
- Memorization of the calibration curve enables sensors to be connected and used immediately
- Digital linearization of the calibration curve (multi-coefficient).

The hydraulic unit controls the lateral pressure in the Hoek cell in case of Triaxial testing. A cooling device is incorporated, for superior control and uniformity of pressure throughout the test.

The control console includes a large graphic display with a membrane keyboard allowing easy setting and test monitoring.

Specifications

Hydraulics

	<ul style="list-style-type: none"> ▪ Maximum working pressure: 700 bar ▪ Maximum oil delivery: 0.7 litres/min ▪ Flow control: by servo-valve system ▪ Hydraulic ports: 2 ▪ Power: 750 W ▪ Voltage: 220 V, 60 Hz, 1ph ▪ Dimensions: 470x410x1000 mm(d x w x h) ▪ Weight: 120 kg (approx.) <p>Hardware</p> <ul style="list-style-type: none"> ▪ Large graphic display with a membrane keyboard for inputting test data ▪ 65.000 points effective resolution ▪ Closed-loop P.I.D. control 		
09	<p><u>ULTRASONIC PULSE ANALYZER</u> EN 12504-4 ASTM C597</p> <p>The PULSONIC is used for measuring the velocity of ultrasonic pulses through a concrete section providing informations on cracks, voids, strength, and giving quick estimates of dynamic modulus of elasticity on site or in the laboratory. It can also be used for estimating times for formwork striking. The pulse velocity can be combined with the rebound hammer value for the strength evaluation of concrete.</p> <p>The unit includes an excel spreadsheet for the acquisition of the waveform on the PC for further elaborations.</p> <ul style="list-style-type: none"> ▪ 2 MHz sampling rate with 12 bit resolution ▪ 7 selectable pre-amplifier gains 		01

- 8 selectable low-pass filter cut frequencies
- Advanced signal processing (Transit time, Wave shape, FFT, SonReb)
- Selectable pulse rate 1, 2, 5 per second
- Transmitter pulse 2500 V
- Transit time up to 16 ms with 0.1 μ s resolution
- Slot for memory to save data
- RS 232 and USB port for real time downloading to PC
- Battery operated by internal rechargeable battery pack (7.2 Ah) up to 9 working hours before recharging
- Dimensions:
(instrument only) 264x233x83 mm
(carrying case) 500x400x140 mm
- Weight approx.:
(instrument only) 2.6 kg
(complete outfit) 5 kg

ACCESSORIES

User programmable digital concrete hammer. 110-230V, 50-60Hz, 1Ph.

Concrete test hammer type N. Aluminium body. Supplied with hard plastic carrying case. Conforming to EN 12504-2 and ASTM C805

Piezoelectric head for ultrasonic tester. Nominal frequency 50 kHz, dia.30mm x 50mm. Can be used either as receiver or transmitter. Fitted with BNC connector for coaxial cable

Piezoelectric head with sampling button for ultrasonic tester series 58-E4900. Nominal frequency 50 kHz, dia.30mm x 80mm. Fitted with BNC connector for coaxial cable.

Spare 2 m cable for testing probe connection

Coupling agent (contact paste), 250 cc bottle (two bottles)

10	<p>Ground water detector</p> <p>Maximum depth (\leq 500 meters)</p> <p>Channel input: 16 channels of simultaneous input with a standard electrode spacing of 2.5m, and optional spacings of 5m, 7.5m, or 10m</p> <p>Channel Options : 1-14</p> <p>Scan Interval: 10-80</p> <p>Connections: Serial port, Wifi, Bluetooth 4.0, USB (optional 4G)</p> <p>Display: 10.1-inch IPS wide-angle 178° visual touch screen (1024×600)</p> <p>OS: Android 6.0.1</p> <p>CPU: ARM Cortex-A7 8-core CPU 2.0Hz</p> <p>GPU: OpenGL ES 2.0</p> <p>Core Features: Multiple options of depths, 2D/3D plotting, removable battery</p> <p>Sensing Mode: MN/TT</p> <p>Frequency Range (hz): 1-8K 0.01-6K</p> <p>Filtering: Preset or intelligent frequency selection, analog + data filtering 1-16 times superposition optional</p> <p>Discrim. 0.1mV±3% 0.01mV±2%</p> <p>Acquisition Time (s): 60-3600 120-5400</p> <p>Battery: 800mA/H</p> <p>Console Weight : 1.85kg</p> <p>With complete accessories</p>		
11	<p>Portable Proton Magnetometer</p>		

Resolution: 0.1 nT.

Clock: Julian date, accuracy 5 sec. per month.

Tuning: Auto or manual, range 20,000 to 90,000 nT.

Gradient Tolerance: 1000 nT/meter.

Max Sample Rate: 0.3 Hz (1 sample every 3 seconds).

Read: Manual, or auto cycle for base station use.

Memory: 65,000 field or base station readings.

Display: Six-digit display of field/time, three-digit auxiliary display of line number, day.

Digital Output: RS-232, switch-selectable to 115200 baud.

Digital Input: Will accept external cycle command.

Physical: Console: L: 18 cm; W: 27 cm; H: 9 cm; Weight: 2.7 kg

(7x10.5x3.5 in; 6 lb).

Sensor: DIA: 9 cm; L: 13 cm; Weight: 1.8kg (3.5x5 in; 4 lb).

Environmental: Meets specifications within 0° to +40°C

(+32° to +105°F) operate satisfactorily from -20° to +50°C (-40 to +122°F).

Power: 12 Volt rechargeable Gel Cell.

Standard Accessories: Sensor, staffs, chest harness, two sets of batteries, battery charger, RS-232 cable, USB Serial adapter, operations manual, applications manual, Mag Map software.

Options: External power/RS-232/sensor cable, spare rechargeable battery and charger set, tripod kit, Garmin® Oregon 600® GPS.

B. Specification of Laboratory Instruments:

S. No.	Item and Specification	OR	Qty
01	<p><u>Binocular Polarizing Microscopes:</u></p> <p><u>Optical System:</u> Infinity optical, <u>Eyepiece lens:</u> 10X, 22 mm field of view, cross-lines with micrometer scale <u>Eyepiece tube:</u> Binocular <u>Magnification:</u> 40X to 1000X observation <u>Nosepiece:</u> Quadruple, fixed to main body <u>Objectives:</u> Achromat 4X, 10X, 20X, 40X, 100X <u>Intermediate tube:</u> Built-in focusable Bertrand lens and analyzer, removable from optical path; Conoscopic/Orthoscopic observations switchable; built-in analyzer with compensator slot <u>Compensators:</u> Standard 1/4 wave and tint plate: Quartz wedge or Senarmont compensator <u>Polarizer:</u> Fixed-type on bottom of condenser Analyzer: 360° rotary dial, minimum reading angle 0.1 <u>Stage:</u> Circular rotating stage, Graduated 360° with 1° increments and Vernier reading 0.1°, 2 stage clips <u>Condenser:</u> Abbe N.A.1.25 with iris diaphragm <u>Illumination:</u> 6V/30W halogen lamp, centered and focused, variable intensity control <u>Filter:</u> Built in blue filter for correct color rendition. <u>Focusing:</u> Coarse and fine focusing controls.</p>	Equivalent	10
02	<p><u>Trinocular Polarizing Microscopes:</u></p> <p><u>Eyepiece tube:</u> Trinocular, inclined at 30°. <i>(Rest of Specification should be minimum of as mentioned for binocular)</i></p>	Equivalent	1

	<p><u>High-definition color camera head:</u> High-definition above 5 megapixel color CCD camera to get pictures and live image display, compatible with 50 inch LED Screen, low weight (upto 300 g) and wide field of view observations.</p> <p><u>Microscope camera control unit:</u> 10 inches or above, touch panel display, allowing operation of high-definition color camera head, can captured and save images and video, variety of analysis tools, images be viewed simultaneously in tube and on 50 inches LED Screen, bluetooth accessories such as a keyboard and mouse connectable.</p>		
03	<p><u>LED Screen: (latest model)</u> 50 inch Remote compatible NFC WI-FI Built in Resolution FHD 1920x 1080 or Higher Backlight Module Slim LED</p>	Equivalent	1
04	<p><u>Trinocular Stereo-Microscope:</u> Head Observation Trinocular, 45° inclined Interpupillary adjustment 52~76mm Zoom ratio 1:6.5 Built-in magnification range 0.8X~5X Remain in focus throughout the entire zoom magnification range Field of view 2.2~55mm Microscope Body-Standard Supplied with auxiliary objective and eyepieces to view up to 300X illumination LED</p> <p>Camera: High Mega pixel Camera with adopter and software for Computer</p>		

	System to get pictures and live image display		
06	<p><u>Cocla stratum compass</u></p> <ul style="list-style-type: none"> • Measurement and reading of azimuth of dip and angle of dip in one single operation (according to Clar method) • Declination ($\pm 30^\circ$) and inclination adjustable • Automatic arresting of the needle when not in use • Eddy current damping allows reading after approx. 3 sec. • Transparent circle with a diameter 50mm with an interval of graduation of 1° • Dip measurement range 270° graduated in 5°; Reading by estimation 1° • Deep etched tracing edge graduated (60mm) • Circular spirit level (observable also from underneath) • Compass circle diameter 50 mm • Precision compass needle (balanced for zone 1 - magnetic north) • Can be balanced for use in other zones (ask about lead time) • Dimensions of closed compass 2.9" (74mm) x 3.78" (96mm) x .98" (25 mm) • Includes leather case • Weight .6 lbs (275 g) 	Equivalent	03

Note: Country of origin: USA/UK/ Europe or Equivalent

