INVITATION FOR INTERNATIONAL COMPETITIVE BID
REFERENCE NUMBER: EPHI/ICB/01/02/2020

1. The Ethiopian Public Health Institute now invites sealed bids from eligible bidders for procurement of different laboratory equipment, instrument, glassware, refrigerators, air conditioners, reagents, chemicals and spare parts.
2. Interested bidders have to fulfill the government guidelines and to submit the following copy documents:- renewed trade license for the current budget year, Tax clearance, PPA registration certificate, Relevant professional practice registered certificate and VAT registration evidence.
3. Bid must be accompanied by 2% bid security in the form of certified payment order (CPO).
4. Bidding will be conducted through International competitive bidding (ICB) procedures and is open to all eligible bidders.
5. Delivery period will be within 30 calendar days starting from date of LC opening.
6. A complete set of BID document can be obtained from Ethiopian Public Health Institute, procurement case team room no. 05 during working hours against a non-refundable payment of 200 birr (two hundred birr) from the date of issuance of this bid on the Ethiopian Herald newspaper.
7. Bidders should submit their technical and financial proposals having one original and one copy in wax-sealed separate envelopes to the institute starting from the date announced on the Ethiopian Herald newspaper for the consecutive 45 days.
8. Bid will be closed in the presence of bidders or their legal representatives on April 2, 2020 at 2:00 PM (afternoon) and opened on the same date at 2:30 PM (afternoon) in the presence of bidders or their legal representatives, who choose to attend at the address below.
9. Late bids will be rejected.
10. Bids shall be valid for a period of one hundred twenty (120) days after bid opening.
11. Bidders may obtain further information from Ethiopian Public Health Institute, procurement case team room no. 05 during working hours or use the below phone numbers.
12. The Institute has the right to accept or reject any or all the bids.

Delivery address for the documents
Ethiopian Public Health Institute (EPHI)
TEL. +251 11277 1054/56
Swaziland Street
Addis Ababa, Ethiopia

Lot 1: Lab Analyzers

1) Electrolyte Analyzer
2) Coagulation Analyzer

Lot 2: Ancillary lab equipment and microscope

1) High pressure Autoclave
2) Hot Air Sterilizer
3) Incubator
4) CO2 Incubator
5) Laboratory Centrifuge
6) Water Distiller
7) Hot plate
8) Digital Weighing Balance
9) Laboratory Water Bath
10) Micropipettes
11) Basic Light Microscope
12) Fluorescence Microscope

Lot 3: Class 2 Biosafety Cabinet

Lot 4: Refrigerator and Air conditioner

1) Double Doors Refrigerator
2) Single Door Refrigerator
3) Ultralow Chest Freezer
4) Upright Ultralow Freezer
5) Upright Freezer
6) Blood Bank Refrigerator
7) AC

Lot 5: UPS

Lot 1 : Lab Analyzers

1) Electrolyte Analyzer

2) Coagulation Analyzer

1. Electrolyte Analyzer	**Quantity=15**
Parameter/consideration	**Description**
Clinical Purpose/ Description:	Electrolyte analyzer uses blood plasma, serum, or urine samples; some analyzers can use whole blood (for faster turnaround time) and cerebrospinal fluid (CSF) in order to determine the electrolytes content of body fluids using ion selective electrodes (ISE), techniques.
Technical Specification:	Measure Electrolyte levels in all kinds of samples type (whole Blood, Serum, Plasma& Diluted Urine)
	Analysis Time: <40 sec.
	Reagent utilization: should be closed system
	Electrodes: Na+, K+, Cl -, Ca 2+, some analyzers (Li3+)
	Measuring Range is from • Na 40 - 200 mmol/L • K 1.5 - 10 mmol/L • Cl 20 - 200 mmol/L • Li 0.19 - 3 mmol/L
	Electrodes life: a minimum of 6 months
	Capacity for at least 50 specimens tested per hour.
	Internal memory capacity: >5,000 samples.
	Quality control routines to be user friendly with results recorded internally.
	Automatic one and two points calibration.
	Should have QC memory storage of at least 2 levels
	Bar code reader facility required for automated registering of samples
	Automatic calibration and equipment stably calibrated
	Touch screen or latest technology supported
	Continuous reagent level monitoring with graphic display. Waste also should be collected in the same module
	Rinse procedures and reference measurements performed with each sample
	Automatic zero calibration within each cycle
	Patient results, calibration, maintenance schedule and quality control data are displayed on well-illuminated, adequate size touch screen display.
	Different report lay-outs are selectable
	Data print out on built in graphic printer.

	Built in auto Quality control facility
	Automatic result processing, test ordering and transmission to Hospital Information System
	USB ports for easy connection of e.g. flash drives, keyboards, etc.
	Hospital network integration through ASTM and HL7 standard communication protocols.
	Maintenance free electrodes with individual electrodes ON/OFF facility
System Configuration Accessories, spares, Consumables and other consumables:	Should have external printing capability
	UPS and stabilizer as one unit
	Thermal printer paper-20
	Internal Quality control and calibration system and control material
Operating Environment:	• Operating Temperature: +10°C to +43°C • Relative Humidity: <85%
Utility Requirement:	• Power: 220V / 50Hz • Compatible UPS with maintenance free battery and Resettable over current breaker (voltage regulator) • Resettable over-current mains fuse to be incorporated • Electrical protection by resettable over-current breakers or replaceable fuses fitted in both live and neutral lines
Standards & safety Requirements:	• FDA/CE approved, • Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility • Should comply with quality system- Medical device applicable to manufacturers and service providers that perform their own design activities • Should comply with electrical safety requirements for electrical equipment for measurement control and laboratory use
Installation/Training Commissioning:	• The supplier must be provide installation, and commissioning of the device • The supplier must be providing minimum of two years warranty including labour and spare part from the date of installation. Supplied with startup reagent /kits
Warranty/After sale Service:	• After basic warranty the supplier must be provide Five years maintenance contract period with price break down along with quotation.

Documentation:	• User, technical and maintenance manual must be supplied in English along with quotation and devices/machines • Approved certificate and other international electrical safety standards must be submitted along with the quotation. • List of important spare parts, consumables (if any) with their part no. and costing for Five years must be submitted along with quotation. • Advanced maintenance tasks required shall be documented
Packaging and Labeling	• Packing of all the goods must be clearly marked and securely packed. Each goods will be further packed in separate package with all its standard accessories of distinct identification and numbers consecutively • Additional packing and labeling requirements should bear in each package

2. Coagulation Analyzer	**Quantity =15**
Parameter/ consideration	**Description**
Clinical Purpose/ Description:	• Devices that measure the clotting mechanisms of hemostasis; used primarily to detect clotting deficiencies related to thromboembolytic disease, thrombocytopenia, impaired liver function, hemophilia, von Willebrand disease, and other conditions. • They include anticoagulant therapy monitoring, routine screening, and diagnosis for patients with blood clotting and bleeding disorders.
Technical Specification:	• Complete with all its accessories • Fully automated, open random access, 4 detector channel Blood Coagulation Analyzer having clotting, chromomeric and immunological assay channels,walk away capability, STAT capability,reruns, reflex testing features,Able to use primary sample tube. • Continuous sample & reagent loading. i.e. during the run, detect automatically positive sample and Regent positions • Availability of 1000 Curettes in roll. • Clotting detection methods by recording change of viscosity and/or change of light transmutability and permitting both chromogenic and immunogenic assays • Measuring principle: turbodensitometric; opto-mechanical with automatic zero adjustment and magnetic stir bar for homogenizing of the test suspension and increased sensitivity. • Provision for simultaneous random analysis for at least 15 parameters such as PT, APTT, Fibrinogen, Protein S, Protein C, APC resistance, ProC, Ant thrombin III, Heparin, Plasminogen Activator inhibitor, D-Dimer Plus, von Will brand Antigen, Lupus Anticoagulant, and coagulation factors VIII & IX • Pre-programmed and user definable methods • Tests include intrinsic and extrinsic pathway factors, thromboplastin time, prothrombin time (PT), activated partial thromboplastin time (aPTT), fibrinogen (FIB), thrombin time (TT) and D-dimer, Factor XIII antigen ntithrombin Activity, Protein C Activity, Protein S Activity, Free & Total, Protein S Antigen, Lupus Anticoagulants, VWF Antigen, Plasminogen, Calibrators, Quality controls • Flexibility: test parameters can be modified • Multi batch Q.C. Capacity on levy- Jennings graphs should be available in the system. • Sensitivity: PT> 10 % of norm • Test through put: PT, >100 tests/Hr, PTT 60tsts /h • Curette volume: min 150ul, max. 300ul (test suspension) • Celebration: manual input of calibration points, method dependent • **Software:** loaded in memory

Technical Specification:	• **Programmed method:** PT, in sec, %, Ratio, INR (combinations) aPTT, in sec, and Ratio Fibrinogen, in sec, mg/dl, thrombin T in sec D-Dimer PT/Fib (derived Fibrinogen) internal factor, in external factor, in % • **Light source:** LED or, halogen lamp • **Measuring channels:** 4 • **Cuvette positions:** 96 samples, 45 reagents, 1,000 cuvettes onboard provide refrigerated reagent positions Sample and reagent level detector
System Configuration Accessories, Spares, Consumables and other components	• UPS APC standard • Supplied with external printer with local market available cartilage • Continues supply of reagents, controls and calibrator • Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
Operating Environment:	• Operating Temperature: +10^{o}C to +43^{o}C • Relative Humidity: <85%
Utility Requirement:	• Voltage: 220 ± 10 % V, 50 Hz, UPS of suitable rating with minimum 30 minute back up with In built voltage stabilizer, Resettable over-current mains fuse to be incorporated • Electrical protection by resettable over-current breakers or replaceable fuses fitted in both live and neutral lines
Standards & safety Requirements	• ,Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility ISO 13485,FDA and Stringent Regulatory Authority(SRA)
Installation/Training Commissioning:	• The supplier must be providing installation, and commissioning of the device at facilities • The supplier must provide technical and end user training for two weeks on site. Supplied with startup reagent /kits
Warranty/After sale Service:	• The supplier must be providing minimum of Two years' warranty including labor and spare part from the date of installation. • After basic warranty the supplier must be provide Five years maintenance contract period with price break down along with quotation.
Documentation:	• User, technical and maintenance manual must be supplied in English along with quotation and devices/machines • Approved certificate and other international electrical safety standards must be submitted along with the quotation. • List of important spare parts, consumables (if any) with their part no. and costing for Five years must be submitted along with quotation., Advanced maintenance tasks required shall be documented
Packaging and Labeling	• Packing of all the goods must be clearly marked and securely packed. Each good will be further packed in separate package with all its standard accessories of distinct identification and numbers consecutively • Additional packing and labeling requirements should bear in each package

Lot 2: Ancillary lab equipment and microscope

1) High pressure Autoclave
2) Hot Air Sterilizer
3) Incubator
4) CO2 Incubator
5) Laboratory Centrifuge
6) Water Distiller
7) Hot plate
8) Digital Weighing Balance
9) Laboratory Water Bath
10) Micropipettes
11) Basic Light Microscope
12) Fluorescence Microscope

1. High Pressure Autoclave	**Quantity=15**
Parameter/consideration	**Description**
Type	Horizontal Rectangular High Pressure High Vacuum Steam Sterilizer.
Power Supply	Voltage: 220 ± 10 % V, 50 Hz
Chamber volume	Shall be a minimum of 150 liters
Water supply	There should be an adequate water softener to prevent failure on the heaters and other parts.
Steam generator volume	Compatible with the chamber volume for pre treated water and should be fitted with suitable electrical heater, to produce steam to sterilizer
All connecting pipes	Shall be made of good quality stainless steel
Working temperature of sterilizer	121-134 Deg. C and the corresponding pressure is 1.2-2.1 kg/cm2.
Safety features of sterilizers	Door locking facility, Low water protection system, Pressure cut off facility and all other necessary safety features
operate and maintain	Equipment shall be simple to use (User friendly), It shall be designed for easy access to serviceable parts
Automatic operation with printer	Printer that shall automatically and continuously monitor and record dates, time of day, load, identification no. and operating parameters.
Standards & safety	**Must meet US or European or Equivalent Standard** The unit should be manufactured as per IS specifications Mark ISI: 3829and also should bear the certification.
	Electrical safety shall conform to standards for electrical safety IEC-60601- 2-25 Safety of electrocardiograms (OR EQUIVALENT BIS Standard).
	Electrical safety shall conforms to standards for electrical safety IEC-60601/IS-12450
	Equipment performance should not be affected by electromagnetic interference radiated or conducted through power lines from another device.
After sale service ,Spares and accessories	**Two set of heating element and door gasket must be included** All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Documentation should be provided at the time of delivery	• Operator's / instruction/ service manual in English. • Installation qualification ,Operation qualification ,Design qualification ,Performance qualification • Hydraulic test certificate ,Material test certificate ,Gauge calibration certificate ,Master gauge calibration certificate • Warranty certificate = 2 Year
Installation, commissioning and training	Should be provided by vendor, End user and technical training should be provide at facility

2) HOT AIR OVEN	**Quantity=15**
Parameter/consideration	**Description**
Capacity	Not less than180 Liter
Operating Temp. Range	+20°c up to 250°c
Storing ambient Temp.	5-40°C
Temp. Accuracy	at least ±1°C
Temp. Fluctuation	at least ±0.1°C
Temp. Uniformity	at least ±1°C
Temp. Resolution	at least ±0.1°C
Timer Range	1-9999min
Control and display	Microcomputer intelligent control with LCD display
Voltage/ frequency	Voltage: 220 ± 10 % V, 50 Hz
Door	With the inner observation, with nanophase material magnetic seal strips prevents heat loss
Inner chamber	Stainless steel
Standards & safety	**Must meet US or European or Equivalent Standard** The unit should be manufactured as per IS specifications Mark ISI: 3829 and also should bear the certification.
	Electrical safety shall conform to standards for electrical safety IEC-60601-2-25 Safety of electrocardiograms (OR EQUIVALENT BIS Standard).
	Electrical safety shall conforms to standards for electrical safety IEC-60601/IS-12450
After sale service ,Spares and accessories	one set of heating element and door gasket must be included All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Documentation should be provided at the time of delivery	Operator's / instruction/ service manual in English.
	Installation qualification
	Operation qualification
	Design qualification
	Performance qualification
	Warranty certificate = 2 year
Installation ,commissioning &training	Should be provided by vendor End user and technical training should be provide at facility

3. Incubator	**Quantity= 15**
Parameter/consideration	**Description**
Capacity	Not less than 170 litter
Parameter Controlled	• Fully programmable microprocessor based temperature and humidity • Automatic re-setting of the pre-set parameters in case of power failure • Should have front display of all the set and real time parameters • Alarm function and malfunction parameters should be displayed on screen
Temperature control	• From 10°C below ambient to 50°C with accuracy at least with ±0.1°C • Have the facility for security system from over temperature cut off
Relative Humidity	• Relative Humidity Ambient to 95% at 37°C • Humidity System 3L stainless-steel pan
Voltage/frequency	Voltage: 220 ± 10 % V, 50 Hz
Other essential items	• UPS and voltage stabilizer as one unit computable with incubator with minimum 30min. Backup • All other needed accessories and recommended spare parts should be provided along with equipment
Quality standards	• Must meet US or European or Equivalent Standard • Quality standards of ISO 9000 or ISO/17025.
After sale service ,Spares and accessories	one set of heating element and door gasket must be included All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Documentation should be provided at the time of delivery	• Operator's / instruction/ service manual in English. • Installation qualification • Operation qualification • Design qualification • Performance qualification • Warranty certificate = 2 Years
Installation ,commissioning &training	Should be provided by vendor End user and technical training should be provide at facility

4. CO2 Incubator	**Quantity=15**
Parameter/consideration	**Description**
Capacity	Not less than 170 litter
Parameter Controlled	• Fully programmable microprocessor based temperature, humidity and co2 control • Automatic re-setting of the pre-set parameters in case of power failure • Should have front display of all the set and real time parameters • Alarm function and malfunction parameters should be displayed on screen
Temperature control	• From 10ºC below ambient to 50ºC with accuracy at least with ±0.1ºC • Have the facility for security system from over temperature cut off
CO2 control	• From 0 to 20% with accuracy and uniformity of at least with ±0.1oC • Should be provided with infra red (IR) CO2 sensor and equipped with rapid recovery to set % CO2 • Should essentially be equipped with HEPA filter on CO2 inlet
Relative Humidity	• Relative Humidity Ambient to 95% at 37°C • Humidity System 3L stainless-steel pan
Voltage/frequency	Voltage: 220 ± 10 % V, 50 Hz
Other essential items	• Replacement HEPA filters (minimum 6 No. Or more) and cleaning kit. • Gas regulators: minimum two • Kit for checking CO2 levels • one CO2 cylinders and regulators should be essentially supplied with the system • UPS and voltage stabilizer as one unit computable with incubator with minimum 30min. Backup • All other needed accessories and recommended spare parts should be provided along with equipment
Quality standards	• Must meet US or European or Equivalent Standard • Quality standards of ISO 9000 or ISO/17025.
After sale service ,Spares and accessories	-one set of heating element and door gasket must be included -All needed accessories and recommended spare parts should be provided along with equipment -The supplier must provide after sale service
Documentation should be provided at the time of delivery	A) Operator's / instruction/ service manual in English. (B) Installation qualification (C) Operation qualification (D) Design qualification (E) Performance qualification (f) Warranty certificate = 2 Years
Installation ,commissioning &training	Should be provided by vendor End user and technical training should be provide at facility

5. Laboratory Centrifuge	**Quantity= 15**
Parameter	**Description**
	• Microprocessor controlled, user friendly, brushless drive motor
Speed	• Speeds up to 15,000 rpm and can use a range of rotors up to 2.2ml capacity. A Haematocrit and PCR rotor is also available.
Tube Capacity	Minimum 24
Rotor	• Three(3) rotors for each unit : with 24 x 2.2ml, 18 x 0.5ml rotor, PCR strip or haematocrit rotor. • Alternatively, combine the 24 x 2.2ml rotor with a tube support for added flexibility. • All the three rotors should be supplied with the centrifuge
Sound level	<64 decibels
Voltage/frequency	Voltage: 220 ± 10 % V, 50 Hz
Safety features	• Self diagnostic error messages, Soft close lid lock and interlock system • Display of mal functions like lid open, rotor imbalance, over speed, temperature shoot sensor, abnormal rotor mounting, power fluctuations etc., Rotor identification and error display
Standards and Safety	• **Must meet US or European or Equivalent Standard** • Should be compliant with IEC 61010-1:covering safety requirements for electrical equipment for measurement control and laboratory use. • Product should be FDA/CE or ISI approved, Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.
Other essential items	-UPS and voltage stabilizer as one unit computable with incubator with minimum 30min. Backup for each unit -All other needed accessories and recommended spare parts should be provided along with equipment -All the rotors should be provided with the equipment
After sale service ,Spares and accessories	One door gasket must be included All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Documentation should be provided at the time of delivery	Operator's / instruction/ service manual in English.
	Installation qualification, Operation qualification, Design qualification, Performance qualification
	Warranty certificate = 2 Years
Installation ,commissioning training & Packaging	End user and technical training should be provide at facility by vendor Well packed with Shock watch Impact Indicators Labels / Stickers.

6. Water Distiller	**Quantity= 15**
Parameter/ consideration	**Description**
Description /Features	• Durable and long lasting performance • User friendly operation and controls Glass construction with long life metal heating element • Two independent safety thermostats • with its own stands • Lower maintenance & easy cleaning
Output Liters / Hr	Output a minimum of 15 Liters / Hr
Distiller stage	Both Double and single
pH	pH 5.0 – 6.5
Pyrogen Content	Pyrogen Free (output to be checked before use)
Conductivity µS/cm	Single distillate: approx. 2.2 µs / cm at 25 °C, Double distillate: approx. 1.6 µs / cm at 25 °C
Resistivity meg Ohm-cm	0.25 – 0.30
Water Supply	Approx. 1 liter/min Min. pressure 3 - 100 p.s.i. (20 - 700 KPa)
Voltage/ frequency input	Voltage: 220 ± 10 % V, 50 Hz
Heater	Chromium plated
Safety feature	The chromium plated heating element is fitted with two thermostats to protect the still from overheating in the event of water supply failure.
Distillate Temperature	25-35° C
After sale service ,Spares and accessories	Two set of heating element must be included for each unit All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Documentation	• User Manual and Service manual in English • List of important spare parts and accessories with their part number and costing, Certificate of calibration and inspection from factory.
Standards, Safety and Training	Must meet US or European or Equivalent Standard Electrical safety conforms to standards for electrical safety IEC-60601 / IS 13450 Manufacturer should have ISO certification for quality standards. Should have local service facility .
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Installation and warranty	The vendor can install and commission with minimum of 2 yrs warranty after installation and after sale service
Training	Provide user and maintenance training

7. Hot plate	**Quantity= 15**
Parameter/ consideration	**Description**
FEATURES	• Digital control • Overheat prevention circuit turns off the heater if the top plate temperature reaches 450°C • Hot top warning indicator • Microprocessor PID temperature control • Three user-selectable temperature control modes: > Optimal Mode > Fast Mode > Slow Mode • Two-user selective timer, showing actual and set value simultaneously • Non-slip heating bath (optional) • Transparent safety shield (optional)
Display	LED digital (0.1C resolution)
Temperature Range	Temperature Range Ambient 50°C to 350°C / 122°F to 662°F
Heating Control	Feedback Control with PID
Maximum Load	25kg / 55.1lbs
Body Material	Cast aluminum
After sale service ,Spares and accessories	Two set of heating element and thermostat must be included for each unit All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Quality standards	• Must meet US or European or Equivalent Standard • Quality standards of ISO 9000 or ISO/17025.
Heating Power	About 600W
Voltage/ frequency input	Voltage: 220 ± 10 % V, 50 Hz
Certifications	EN 12469 ,Certifications CE and Warranty = two years
Installation ,commissioning &training	• Should be provided by vendor • End user and technical training should be provide at facility

8. Digital Weighing Balance	**Quantity =15**
Parameter/consideration	**Description**
Type	Mono pan Balance with Glass partitions on all sides
Technical specification	• Weighing pan: Three side triangular weighing pan with at least 80mmdia. • Weighing modes: In grams, milligrams, Kilograms, oz,lb • Selectable application programs: Mass unit conversion by toggling, tare memory, net total, weighing in percent, counting, averaging • Internal Calibration • Must have RS232port • Balance must be ISO certified • Warranty of at least two years must be provided • Suitable stabilizer to be Supplied • Calibration certification must be provided
Power	70 hours continuous Batteries operation
Capacity	300 to 320gm
Readability	0.1mG
Repeatability	0.2mG or better
Linearity	0.3mG or better
Average response time	3 seconds or better
After sale service ,Spares and accessories	All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Quality standards	Must meet US or European or Equivalent Standard
Installation ,commissioning &training	Should be provided by vendor End user and technical training should be provide at facility

9. Laboratory Water Bath	**Quantity =15**
Parameter/consideration	**Description**
Temperature Range:	10 to +100°Celsius
Temperature accuracy:	+/- 0.02° C
Heater Capacity:	2.0KW
Cooling Capacity:	240W/Voltage: 220 ± 10 % V, 50 Hz
Size	25 L
Technical specification	Should be microprocessor controlled and have self-tuning PID controller for optimized temperature control
	Inner chamber should be made of stainless steel
	Should have 5 programmable set point temperatures
	Should have RTA (Real Temperature Adjustment) for calibration
	Should be microprocessor controlled and have self-tuning PID controller for optimized temperature control
	Inner chamber should be made of stainless steel
	Should have 5 programmable set point temperatures
	Should have RTA (Real Temperature Adjustment) for calibration
	Two levels of pump speed adjustment to increase flow or bath agitation
	Change digital display resolution between 0.1 and 0.01 and between °C –°F –°K
	Should have acoustic and optical alarm
	Should have auto-restart feature after power failure
After sale service ,Spares and accessories	one set of heating element and door gasket must be included All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Standard and Certifications	Must meet US or European or Equivalent Standard
Installation, commissioning & maintenance training	Should be provided by vendor End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

10. Micropipettes with different volumes	**Quantity =45**
Parameters	**Description**
Material of Construction	Corrosion resistant piston and sealing material, to allow uniform and smooth pipetting .
tip type	Compatible with universal tip
Sterilization	Completely autoclavable at 121^0C (20 min) without disassembly -for maximum protection from contamination
Identification:	Individual serial number engraved on the instrument and also has Individual labeling area for user specific identification.
Display	Should have 4 position volume display, with an integrated lens for better visibility of the volume, Display always visible and facing the user during operation.
Ejector	Very low ejection force and positioned for perfect ergonomics.
Accuracy & Precision	Accuracy and Precision values should be those laid down in the ISO 8655 standards
Standards and Mark	Must meet US or European or Equivalent Standard and
	ISO certified
Calibration	Each micropipette should be supplied with factory calibration certificate
Adjusting tools	Provided with pipettes adjustment tools
Manuals	Each instrument will be provided with user manual which has pictorial description of all operation, limitation and functions.
Warranty	2-year warranty
Provided Tips	1000 pieces of most suitable tips should be provided with pipettes.
Tips	Should be optimized wetting properties, high transparency, and highest accuracy.
Type 1	**1) 2–20 µL adjustable micropipette with suitable 1000nos tips Qty: 10**
	Volume range: 2–20 µL
	Volume 2 µL: Systematic error:±0.1 µL, Random error:±0.03 µL
	Volume 10 µL: Systematic error:±0.1 µL, Random error:±0.05µL
	Volume 20 µL: Systematic error: ±0.2 µL, Random error:±0.06 µL
Type 2	**2) 20–200 µL adjustable micropipette with suitable 1000nos tips Qty: 15**
	Volume range: 20–200 µL
	Volume 20 µL: Systematic error:±0.5 µL, Random error:±0.14 µL
	Volume 100 µL: Systematic error:±1.0 µL, Random error:±0.3 µL

	Volume 200 µL: Systematic error: ±1.2 µL, Random error:±0.4 µL
Type 3	**3) 200–1000 µL adjustable micropipette with suitable 1000nos tips Qty: 10**
	Volume range: 100–1000 µL
	Volume 200 µL: Systematic error:±3 µL, Random error:±0.6 µL
	Volume 500 µL: Systematic error:±5 µL, Random error:±1 µL
	Volume 1000 µL: Systematic error: ±6 µL, Random error:±1.5 µL
Type 4	**4) 0.5–5 mL adjustable micropipette with suitable 1000nos tips Qty: 10**
	Volume range: 500–5000 µL
	Volume 500 µL: Systematic error:±12 µL, Random error:±3 µL
	Volume 2500 µL: Systematic error:±30 µL, Random error:±6µL
	Volume 5000 µL: Systematic error: ±30 µL, Random error:±8 µL

11. Basic light microscope	**Quantity =15**
Parameter/consideration	**Description**
Clinical or other purpose	To magnify and study specimens and small objects by transmitted visible light
Overview of functional requirements	White light, either daylight or a bulb, shall illuminate a slide from below, allowing viewing through a lens system from above.
	Focus shall be possible through a movable slide table or movable lens system
	Lens selection shall allow for variable magnification
Detailed requirements	Adjustable inter-pupil distance.
	Variable user eye function shall be compensated for by fine focus adjustments on each eyepiece
	Movement of the slide in X and Y directions shall enable smooth viewing of features and cell counting
	Objectives shall be held on rotating changer, with ribbed grip for easy rotation and click stops, accommodating at least 3 at once
	Objectives to be achromatic, oil immersion and spring loaded
	Sub stage illumination to be approx. 20W halogen lamp or a Light-Emitting Diode (LED).
	Eyepiece tubes shall be mounted at approx. 45 deg
	Eyepiece interpupillary distance adjustable with a minimum range of 54 to 74 mm
	Sub-stage condenser shall be fitted with a spherical lens and iris diaphragm
	Focusing shall be achieved by coaxial coarse and fine adjustments with a safety stop at end of range
	At least one eyepiece shall include dipotric adjustment
	A mirror with sub stage mounting shall be supplied for direct light operation with no electricity
	Slide holder shall have spring loaded side clamps
	Slide stage shall have Vernier gauge rule in at least one dimension, with movement possible in both X and Y directions with range not smaller than 60mm for x-direction and 40 mm for y-direction.
	Wide-field eyepieces at least 10x and 15x.
	At least the following plan achromatic objectives provided: 10x, 20x, 40x and 100x (oil immersion) with Numerical Aperture (N.A.) for each objective respectively of at least 0.25, 0.4, 0.65 and 1.25.
	Anti fungus treated observation tubes, eyepieces and objectives.
User adjustable settings	Light power on / off and intensity control shall be fitted
Components	Main body and lenses shall be supplied in airtight protective container(s)
Raw Materials	All material shall be non-ferrous and corrosion proof
Electrical supply	Electrical source requirements: Voltage: 220,Frequency: 50HZ

	Fuse protection of mains line to be incorporated
Accessories	At least n. 1 blue filter for the condenser.
	Dust cover and hard box.
	Windows compatible software for data transmission, printing and storage (if available).
Accessories	One bottle immersion oil, lens tissue paper, lens cleaning solution and anti-static cleaning brush with each unit
Spare parts	Two spare bulbs to be supplied (in case LED is not provided)
	Two spare fuses to be supplied
	provided of other spare parts anticipated during one year's operation, with costs
Context-dependent requirements	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
	Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
	Objectives and eyepieces to have antifungal coating
Requirements for commissioning	Supplier to perform installation, safety and operation checks before handover
	Local clinical staff to affirm completion of installation
Training of user/s	Training of users in operation and basic maintenance shall be provided
User care	The case is to be cleanable with alcohol or chlorine wipes
Warranty	Duration of warranty to be stated, minimum two year.
	Specific inclusions and exclusions to be listed.
	Contact details of manufacturer, supplier and local service agent to be provided
Maintenance tasks	List shall be provided of equipment and procedures required for local calibration and routine maintenance
	Advanced maintenance tasks required shall be documented
Type of service contract	Costs and types of post-warranty service contract available shall be described.
Spare parts availability post-warranty	Guaranteed time period of availability of spare parts post-warranty shall be described.
Documentation requirements	User, technical and maintenance manuals to be supplied in English language.
Estimated Life Span	Supplier to describe estimated lifetime of fully maintained device
Risk Classification	Class A (GHTF Rule 12); Class I (USA)
Regulatory Approval / Certification	Certificate of factory calibration and inspection to be provided.
International standards	Must meet US or European or Equivalent Standard, Electrical safety: According to DIN EN 61010-1 (IEC 61010-1) and in accordance with CSA and UL standards White-light LED, Peak wavelength 440 nm, LED hazard group 1 according to DIN EN 62471 (low risk)

12. Microscope - Fluorescence	**Quantity =15**
Parameter/consideration	**Description**
Clinical Purpose/Description:	Fluorescence microscope observation visualizes intracellular structures, particularly protein and molecular structures, using fluorescent proteins or dyes
Technical Specification:	Eyepieces: 30 mm diameter
	With visual field number 18: PL 10× / 18 Br. foc.
	With visual field number 20: PL 10× / 20 Br. foc.
	Object stage: XY stage, 75 × 30 right/left
	Dimensions (width × depth) :140 × 135 mm
	Range of adjustment (width × depth):75 × 30 mm
	Coaxial drive: Optionally right or left
	Verniers: Can be read off from left
	Object holder: With spring lever left
	Abbe condenser 0.9/1.25; fixed Köhler for Vobj 4× to 100×
	Abbe condenser 0.9/1.25; full Köhler for Vobj 4× to 100×
	Binocular Tube 30°/20
	Maximum field of view:20
	Eyepiece distance (pupil distance): Adjustable from 48 to 75 mm
	Viewing angle:30°
	Viewing height:380 to 415 mm
	Visual output: Tube factor 1×
System Configuration Accessories, Spares, Consumables	• Transport case • Rechargeable battery pack • Illuminating mirror • Rechargeable battery: Fuses according to IEC 127 T4.0 A/H
Operating Environment;	Fluorescence microscope observation visualizes intracellular structures, particularly protein and molecular structures, using fluorescent proteins or dyes
Utility Requirements:	240 V (±10%)
	50/60 Hz

Standards & Safety Requirements:	Must meet US or European or Equivalent Standard,
	Electrical safety: According to DIN EN 61010-1 (IEC 61010-1) and in accordance with CSA and UL standards
	White-light LED, Peak wavelength 440 nm, LED hazard group 1 according to DIN EN 62471 (low risk)
Installation/Training/ Commissioning:	Suppliers must provide installation, and commissioning of the device. They must provide technical and end user training.
Documentation:	User, technical and maintenance manual must be supplied published in English along with quotation and devices/machines. List of important spare parts, consumables with their part no. and cost for one year's must be submitted along with quotation.
Packaging and Labeling;	Packing of all the goods must be clearly marked and securely packed. Each good will be further packed in separate package with all its standard accessories of distinct identification and numbers consecutively.

Lot 3 : Class 2 Biosafety Cabinet

1. Class 2 Biosafety Cabinet	Quantity= 17
Parameter/consideration	**Description**
General parameters	Biosafety cabinet class II Type A2 having 70% circulation and 30%exhaust.
	General Construction
	External Dimensions (Width x Depth x Height)
	Without Base stand: 1340 x 753 x 1400 mm (52.8” x 29.6” x 55.1” With Optional Base stand 711 mm (28”): 1340 x 753 x 2111 mm (52.8" x 29.6" x 83.1")
	Internal Work Area Dimensions (Width x Depth x Height)
	1220 x 580 x 660 mm (48.0" x 22.8" x 26.0") Area: 0.56 m² (6.0 ft²)
	Tested Opening - 203 mm (8”)
	Material : Main body: 1.2 mm (0.05”) 18-gauge electro-galvanized steel with white oven-baked epoxy-polyester anti-microbial powder-coated finish
	Work Zone: Abrasion and corrosion resistant 304 grade, 1.5 mm 16-gauge stainless steel with 4B finish
	Side walls: 1.5 mm (0.06”) 16 gauge stainless steel, type304, with 4B finish
Control Panel and Electrical	Four-line LCD display
	Soft touch keys for Blower, Light, and UV lamp with LED indicator
	Quick Start Mode and Standby Mode
	UV timer
	Audible and visual alarms
	Electrical Requirements
	Power rating: 220-240 V AC 50/60 Hz, 1 Ø
	Nominal Power Consumption: 200 W
	Heat dissipation: 628 BTU/h
	Lighting
	Fluorescent lamp intensity: ≥ 1200 Lux
	Optional UV lamp (253.7 nm)
	LCD display of airflow/air velocities and display other parameters like, UV and HEPA filter usage hours, remaining life of the filters/alarm for filter change, etc.
Air flow control : Blower and Filtration	Equipped with one Direct current Electronically Commutated Motor (DC ECM)
	Low heat and low energy consumption offering 70% more energy savings
	Auto-compensating feature that adjusts blower speed in order to maintain the optimum airflow in case of filter loading.

Voltage/frequency	Voltage: 220 ± 10 % V, 50 Hz
Certified	NSF/ANSI-49 ,**Each model/size has to be NSF listed**
Ergonomy	Easy-to-service. All electrical components located at the back of the front panel
	Centered and angled-down location of the control panel
	Low noise emission less than61 dBA (NSF/ANSI 49)
	Optional ergonomic footrest and lab chair
	Angled arm rest for comfortable working position
	Easy-to-reach electrical outlets located at the sides of the cabinet
	Easy-to-clean coved corners in the working area and smoothly finished corners of the drain pan
	Spill-containing single-piece work tray with large tray handles
Technical specification and consideration	Front side of the cabinet should be made of at least 1/4" thickness UV PROTECTIVE tempered safety glass inclined at 10^{o} and sash opening 203 mm for providing access to work area.
	Single Wall piece with large radius for easy cleaning
	For SAFETY, UV light should be closed automatically, when viewing window is open and when White light is on
	With at least 2 electric power supply point on 220 V inside the cabinet
	Cabinet noise level must be less than 61dBA
	UPS and voltage stabilizer as one unit computable with incubator with minimum 30min Backup
Standards, Safety and Training	Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
	Manufacturer should have ISO 9001: certification for quality standards..
After sale service ,Spares and accessories	One supply and one exhaust HEPA filter shoulder be included for each unit All needed accessories and recommended spare parts should be provided along with equipment The supplier must provide after sale service
Documentation	User Manual and Service manual in English
	List of important spare parts and accessories with their part number and costing
	Certificate of calibration and inspection from factory.
	Log book with instruction for daily, weekly, monthly and
	List of Equipment's available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Installation and commissioning	The vender has to install , certify and commission the BSC
	Testing and commissioning to be done by an NSF certified engineer
Training	The vendor should provide user and service training at facility
Warranty	At least two years from installation

Lot 4: Refrigerator and Air conditioner

1) Double Doors Refrigerator

2) Single Door Refrigerator

3) Ultralow Chest Freezer

4) Upright Ultralow Freezer

5) Upright Freezer

6) Blood Bank Refrigerator

7) AC

1. Double doors Laboratory Refrigerator	**Quantity=15**
Parameter/consideration	Description
Temperature Range	+2 / +8 °C
maximum ambient operating temperature	Tropical 23°C -48°C
Volume	690 lt.
External Dimensions (W x D x H)	Appropriate dimension
Structure and Insulation	Sanitized pre-coated steel with bacteriostatic activity, in/out (rust- corrosion-proof material), or stainless steel 18/10 AISI 304 inside and sanitized pre-coated steel outside; insulation polyurethane thickness 70 mm
Feet/Roller	4 adjustable feet/Wheel to compensate for uneven floors
Door	2 blind door pre-coated steellockable/handle in aluminum
Internal fittings	6 or more shelves Extractible Aluminum Drawer with partitions
Temperature Graph	A customizable real time graphic always visible from the home page.
Safety	Thermostat
Refrigeration Type	Forced-air, ventilated upright
Refrigerant	R134a
Defrost	Automatic with automatic evaporation of the condensate water
Voltage/Frequency	Voltage: 220 ± 10 % V, 50 Hz
After sale service ,Spares and accessories	Compressor
	Evaporator Fan
	Thermostat/Overload Relay/Starting Relay
	All needed accessories and recommended spare parts should be provided along with equipment
	The supplier must provide after sale service
Standards	ASHRAE standards. US or European or Equivalent Standard
Installation, commissioning &maintenance training	Should be provided by vendor End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

2. Single door Refrigerator	**Quantity=15**
Parameter/consideration	**Description**
Temperature Range	+2 / +8 °C
Working Environment Temperature	Tropical 23°C - 48°C
Volume	340 lt.
External Dimensions (W x D x H)	Appropriate dimension
Structure and Insulation	Sanitized pre-coated steel with bacteriostatic activity, in/out (rust- corrosion-proof material), or stainless steel 18/10 AISI 304 inside and sanitized pre-coated steel outside; insulation polyurethane thickness 70 mm in the back, 50 in the sides
Feet/Rollers	4 adjustable feet/Wheel rollers
Door	1 blind door pre-coated steel, with ergonomic handle in aluminum/Reversible
Internal fittings	3-more shelves Extractible Aluminum Drawer with partitions
Temperature Graph	A customizable real time graphic always visible from the home page.
Safety	Thermostat
Refrigeration Type	Forced-air, ventilated upright
Refrigerant	R134a
Defrost	Automatic with automatic evaporation of the condensate water
Voltage/Frequency	Voltage: 220 ± 10 % V, 50 Hz
Spare Parts one per unit	Compressor
	Evaporator Fan
	Thermostat/Overload Relay/Starting Relay
	All needed accessories and recommended spare parts should be provided along with equipment
	The supplier must provide after sale service
Standards	ASHRAE standards. US or European or Equivalent Standard
Installation, commissioning &maintenance training	Should be provided by vendor. End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

3. Ultra low Chest freezer	**Quantity=15**
Parameter/consideration	**Description**
Temperature Range	-86 °C
Maximum ambient operating temperature	Tropical up-to 48°C
Volume	760 Liters
Internal Dimensions:	Height x Width x Depth Appropriate dimension
Structure and Insulation	Stainless steel 18/10 AISI 304 inside and sanitized pre-coated steel white color- outside; insulation polyurethane thickness 130 mm
Door	Top opening 1 lid pre-coated steel Key Lock
Rollers	Castors with brakes
Internal equipment	6 or more shelves Stainless Steel Vertical Freezer Rack Compatible Cardboard Storage Boxes.
Controller	Digital electronic thermostat
Alarms	Acoustic and visual for door open, temperature deviations, failures and power failure. The alarm system is fed by an automatic recharging battery
Data and Event recording	Extended weeks with download from USB port (software included)
Refrigeration Type	Chest Static two stage(cascaded) compressors
Refrigerants:	High Stage Refrigerant: R404A / Low Stage Refrigerant: R508B/R290
Voltage/Frequency	Voltage: 220 ± 10 % V, 50 Hz
Spare Parts one per unit	Compressor
	Heat exchanger
	High/Low pressure control
	Microprocessor control board
	Thermostat/Overload Relay/Starting Relay
	All needed accessories and recommended spare parts should be provided along with equipment
	The supplier must provide after sale service
Standards	ASHRAE standards. US or European or Equivalent Standard
Installation, commissioning &maintenance training	Should be provided by vendor End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

4. Upright Ultralow freezer	**Quantity=15**
Parameter / consideration	**Description**
Temperature Range	-86 °C
maximum ambient operating temperature	Tropical up-to 48°C
Volume	725 lt.
Internal Dimensions:	Height x Width x Depth ,Appropriate dimension
Interior	Stainless-steel grade
Structure and Insulation	stainless steel -coated steel Vacuum insulation panels and urethane foam
Door	Standard/ Key Lock
Rollers	Castors with brakes
Internal equipment	6 or more shelves Stainless Steel horizontal Freezer Drawer Rack with compatible Cardboard Storage Boxes.
Controller	Digital electronic Microprocessor thermostat
Alarms	Acoustic and Visual for door open, temperature deviations, failures and power failure. The alarm system is fed by an automatic recharging battery
Refrigeration Type	Upright Static and Two stage(cascaded)compressors
Refrigerants:	High Stage Refrigerant: R404A / Low Stage Refrigerant: R508B/R290
Voltage/Frequency	Voltage: 220 ± 10 % V, 50 Hz
Spare Parts one per unit	Compressor
	Heat Exchanger
	High/Low pressure control
	Microprocessor control board
	Thermostat/Overload Relay/Starting Relay
	All needed accessories and recommended spare parts should be provided along with equipment

	The supplier must provide after sale service
Standards	ASHRAE standards. US or European or Equivalent Standard
Installation, commissioning & maintenance training	Should be provided by vendor End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

5. Upright freezer	**Quantity=15**
Parameter/consideration	**Description**
Temperature Range	-20
Maximum ambient operating temperature	Tropical up-to 48°C
Working Environment Temperature	Tropical 23°C - 48°C
Volume	482 lit
External Dimensions (W x D x H)	Appropriate dimension
Interior/Exterior Structure and Insulation	Polystyrene resin /Zinc galvanized steel w/powder polyester coating (PCM)/
Feet/Rollers	4 adjustable feet/Wheel rollers
Door	1 blind door pre-coated steel, with ergonomic handle in aluminum/Reversible
Internal fittings	6-more shelves Extractible Aluminum Drawer with partitions
Temperature Graph	A customizable real time graphic always visible from the home page.
Temperature controller	Microprocessor controlled system with non-volatilized memory. Temp. set range: -10°C to -30°C
Refrigerant	HFC refrigerant R-134a or compatible
Voltage/Frequency	Voltage: 220 ± 10 % V, 50 Hz
Spare Parts one per unit	Compressor
	Evaporator Fan

	Thermostat/Overload Relay/Starting Relay
	All needed accessories and recommended spare parts should be provided along with equipment
	The suplier must provide after sale service
Standards	ASHRAE standards. US or European or Equivalent Standard
Installation, commissioning &maintenance training	Should be provided by vendor End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

6. Blood Bank upright Refrigerator	**Quantity=15**
Parameter/consideration	**Description**
Temperature setting	+2°C to + 8 °C
Maximum ambient operating temperature	Tropical up-to 48°C
Volume	700 liters
Dimensions (w x h x d)	Appropriate dimension
Structure and Insulation	Outer housing in stainless steel
Door	Self-closing blind door pre-coated steel lockable/handle in aluminum
Feet/Roller	4 adjustable feet/Wheel to compensate for uneven floors
Internal fittings	Additional drawer made of aluminum, Drawer insert (Set) with 4 adjustable length and 40 cross dividers per drawer, Drawer made of stainless steel instead of aluminum, Drawer insert/dividers for stainless steel drawer, Shelf with mounting brackets or rails, Baskets with rails, Aluminum tray with rails
Refrigeration Type	Blood refrigerator Forced-air cooling upright
Refrigerant	R134a
Defrost	Automatic with automatic evaporation of the condensate water
Voltage/ Frequency	Voltage: 220 ± 10 % V, 50 Hz
Spare Parts one per unit	Compressor
	Evaporator Fan
	Thermostat/Overload Relay/Starting Relay
	All needed accessories and recommended spare parts should be provided along with equipment
	The supplier must provide after sale service
Standards	ASHRAE standards. US or European or Equivalent Standard
Installation, commissioning & maintenance training	Should be provided by vendor End user and technical training should be provide at facility
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	At least two years starting from installation

7. 24000 BTU High walls mount Split Type Air conditioner		**Quantity=30**	
Parameter/consideration			
Application Cooling	Capacity	Btu/h	24000
	Input	W	3700
	Rated current	A	16.8
	EER (Energy Efficiency Ratio)	W/W	2.41
	COP (Coefficient of performance)	W/W	3.64
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50/60Hz
Moisture Removal		L/h	3.8
Max. input consumption		W	4900
Max. current		A	22
Compressor Type		1Ph	Rotary
Refrigerant type		g	R22 or Relevant
Design pressure		MPa (Mega Pascal Pressure Unit)	2.6/1.0
Refrigerant piping	Liquid side (High Side)/ Gas side (Low Side)	mm(inch)	1/2"/3/4"
	Max. refrigerant pipe length	m	standard
	Max. difference in level	m	standard
Thermostat type	Auto Restart		Remote Control
Operation temperature	Indoor (cooling)	℃	17~32
	Outdoor (Condensing)	℃	18~52
Spare Parts		Compressor Evaporator Fan motor Oil Separator	
Accessories		Mounting Bracket Copper Insulation /wrapping Tape Electrical connecting cable Copper tube 1/2 and 3/4 Standard Length	
Warranty		2 Years	
Packaging		Well packed with Shock watch Impact Indicators Labels / Stickers.	
Supply, Installation, commissioning & Provide maintenance training		Should be provided by Supplier	

1. Backup power UPS	**Quantity=30**
Parameter/consideration	**Description**
Output power capacity	4.5 K Watts / 5.0 kVA
Nominal Output Voltage	220V
Output Voltage Distortion	Less than 2%
Output Frequency (sync to mains)	50Hz
Topology	Double Conversion Online
Bypass	Internal Bypass (Automatic and Manual)
Waveform type	Sine wave
Nominal Input Voltage	220±10 V
Input frequency	50±10 HZ
Input Connections	Hard Wire 3 wire (1PH+N+G)
Battery type	Maintenance-free sealed Lead-Acid battery with suspended electrolyte: leak proof
Run Time	Full load 1 hour
Typical recharge time	Maximum 1.5 hour
Power off	Emergency Power Off (EPO)
Operating Temperature	0 to +40 °C
Operating Relative Humidity	0 - 95 (non-condensing) %
Operating Elevation	0-3000meters
Protection Class	IP 20
Standards	• EN62040 for General and Safety Requirements • EN62040 for EMC – Electromagnetic Compatibility • EN62040 for Performance, US or European or Equivalent Standard
Packaging	Well packed with Shock watch Impact Indicators Labels / Stickers.
Warranty	3 years repair or replace (excluding battery) and 2 years for battery
Installation, commissioning &maintenance training	Should be provided by vendor