

## Specification for Equipment

### No.1. Deep Freezer (-80) Capacity 150 lit

- Type 86°C ULT Freezer
- Cabinet Type should be Upright
- Cooling Type should be Direct cooling
- Defrost Mode should be Manual
- Refrigerant should be CFC Free and have HFC
- Noise Level should be below (dB) 50
- Temperature Range(°C) 40~ 86
- should be Microprocessor controlled
- should have Display LED
- Power Supply(V/Hz) 220/240/
- Power(W) 900 1000 1200
- Electrical Current(A) 7.5 8 18
- Capacity should be (L/Cu.Ft) 338/11.9
- Net/Gross Weight(approx) 238/278(kg) /524.7/612.9(lbs)
- Interior Dimensions(W\*D\*H) 465\*630\*1165(mm)/ 18.3\*24.8\*45.9(in)
- Exterior Dimensions(W\*D\*H) 812\*893\*1846(mm) /32.0\*35.2\*72.7(in)
- Should have High/Low Temperature
- Should have Remote Alarm
- Should have Hot Condenser
- Should have alarm for Power Failure
- High/Low Voltage N/A
- Should have alarm for Sensor Error
- Should have alarm for Low Battery
- Should have alarm for High Ambient Temp
- Should have alarm for Door Ajar
- Should be supplied with Caster ,Foot Test Hole Shelves/Inner Doors 3/2
- Should be optional facility for Temperature Recorder ,USB Interface ,Rs232/485 Interface ,CO2 Backup, System ,LN2 Backup System ,.Racks And Boxes

## No.2. BOD Incubator

**Capacity : 100 Litres**

**Internal size H x W x D cm : 50 x 50 x 40**

**Trays : 2 Nos**

**Certification : CE Certification**

**Construction :** Double walled construction with backside triple.

**Insulation :** 3" Thick PUF Insulation ensures stable temperature & reduced energy consumption

**Air Circulation** Motorized Blower at back side of the chamber develops unique air flow system which maximum uniform temperature condition inside the chamber.

Unique air flow assures quick recovery after door openings.

**Blower motor** 1/12 HP, TEFC , F-class insulation, Single phase, 1440 RPM, 230 Volts

**Heating System** High quality S.S. Tubular Heaters are used for better heating.

**Observation Door** Full view observation Acrylic door with gasket to observe sample inside the chamber.

**Refrigeration system** By means of CFC Free hermitically sealed Emerson Copland make compressor with R 134 A for better cooling with ECO friendly refrigerant with time delay to safe guard compressor system.

**Validation Port** 50 mm validation port hole with Silicon rubber seal to insert sensors for validation.

**Lighting** Interior illumination for working area.

**Safety features:** 1. In case of Temperature variation, Temperature deviation alarm will active & give audio visual alarm. 2. Safety Thermostat Cutoff the supply in case temperature goes above 600 C & activate safety alarm. 3. Compressor ON delay timer (2 min.) to safe guard the compressor. 4. In built over load protector provided for hermetically sealed compressor. **Features** 1. Fiber/PU Wheel with front lockable for easy movement. 2. MCB for electrical safety 3. Adjustable tray height arrangements.

**Trays** Specially designed stainless steel rod trays ensure uniform temperature distribution. **Supply** 230V AC, Single Phase, 50Hz

**Optional Safety digital temperature controller with accessories CFR 21 Part 11 compliance window based communication software for data management.**

**Complete with RS 485 multi dropping monitor 8 chambers to one software.** 1.

Password protected 2. Logger & Scanner report with graph 3. Online change controller setting 4. Logger & Scanner Alarm report 5. Audit Trail report 6. Backup & Restore Utility 7. Create user & give the password .

## No.3. All Quartz Double Distillation Unit

**Capacity: 2.5 litres / hr**

Manufactured with imported fused Quartz tubes so it's all boiler, condenser & heater are built with quartz

## **No.4. Biochemistry Analyzer**

### **Features**

- Easy Windows operation system with large touch-screen
- Display the reaction curve in real-time
- Continuously wavelength adjustable grating, enhances the stability and reliability
- Reagent-open system supports flow cell and cuvette mode, close system on request
- Analytical modes include kinetic, fixed time, bichromatic end point with or without reagent blank or sample blank, linear or non-linear calibration
- Large memory, up to 200 test protocols and 10000 results can be stored
- Powerful QC program: Westgard multi-rule, Levey-Jennings plots, 2 controls per test
- Multifunction result output including patient comprehensive report
- Multi-interface support RS-232, VGA, USB, SD and Ethernet
- Easy communication with PC
- Compact design enables USER-DIY maintenance
- Multi-language software available on request

## **No.5 Refrigerated Centrifuge**

Technical specifications:

Max speed: 15000 rpm (200-15000rpm), increment: 10 rpm

Max. RCF (xg): 21380 x g, increment: 10 x g

Speed Accuracy (rpm): +/- 20 rpm

Temperature range: -200C~400 C

Rotor Capacity: 5ml x 18; 0.2ml/0.5ml/1.5ml/2mlx24; 0.5mlx36; PCR8x4

Run Time: 30sec-99min-HOLD (continuous operation)

Driving Motor: Brushless DC motor

Safety Devices: Dual door interlock, Over-speed detection, over-temperature detection, Automatic internal diagnosis

Power: Single-phase, AC220V-240V, 50Hz/60Hz, 10A; AC110V-120V, 50Hz/60Hz,10A

Noise Level (dB): ≤56

Acceleration: 25s↑ 25s↓

Dimensions: (L)338x(D)580x(H)324

Weight: 30kg

## No.6. KEL PLUS Automatic Nitrogen / Protein Estimation System

### **A. Automatic Macro Block PC Compatible Digestion System**

- Twelve Place 250 ml capacity PC Compatible Block Digestion System with all essential accessories
- TFT Graphic Touch Screen Display with unique wireless mouse to operate at a distance of 1-2 mtrs.
- Should have 2 Ports in the motherboard one for PC connectivity another for direct connection to Remote Mouse/Datalogger/ Memory stick
- Memory stick for data storage with separate port in mother board apart from PC Port
- Integrated autosequencing time/temperature domain of 70 programs and 12 sequencing steps
- Inbuilt mini printer for print options to document preprogrammed settings and logged datas
- PC software performs Live graphical representation of time /temperature gradient on touch screen display
- Direct USB Port for PC with live process view on touch screen display of various stages with print options,
- Remote control module for wireless data monitoring, control and transfer to PC at a distance of 10 feet. The Entire display screen of Controller should wirelessly appear in the PC/ Laptop of user, to monitor & control from his work table.
- Heater Source : Casted Aluminium Alloy Heaters, Temperature Range: Room temperature to 450 °C.
- Should include 12 Nos. of 250 ml capacity digestion tubes, Stainless steel insert rack, Fume Exhaust Manifold System, Suction Aspirator Filter pump etc with inbuilt safety features.

### **B. Scrubber System**

- **Four stage acid neutralization scrubber.**
- Non corrosive centrifugal inbuilt magnetic suction pump with inbuilt self priming feed pump for water recirculation,
- FRP Tank, Containers for Alkali and Water, Electrical Requirement: 230v/50Hz Mains.

### **C. Automatic Distillation System**

- Autosequencing Programmable Microprocessor based Distillation with inbuilt software, Colour Touch Screen high resolution TFT LCD Display,
- Auto Intelligent run of programmable steps, Addition of Boric Acid, Dilution, KMNO<sub>4</sub> Addition for Available Nitrogen, Alkali Addition, Steam Processing, Residue Removal, Process over indication with inbuilt delay time features, Auto Titration Connectivity feature for future upgradation, Aspiration of Receiver Residue
- Inbuilt mini printer for instantaneous results on input of titre value with inbuilt formula for Nitrogen, Available Nitrogen, Ammonical Nitrogen etc. without connecting to PC. Complete Automatic safety features.
- Facility to program and control distillate volume for determination of available nitrogen
- Auto sensing of "NO WATER" condition in condenser & steam generator with alarm & signal to alert user.
- Auto deactivation of operation after warning in case of user non availability
- Enables Automatic monitoring and measuring of high temperature in distillate with sensor for auto warning signal and safety alarm to alert user to control distillate temperature. Temperature displayed digitally.
- Auto reagent Level Sensor with Alarm for Reagents, Stainless steel non corrosive steam Generator

**No.7 UPS system with batteries**

<b>Rating</b>	<b>3KVA/3000VA</b>
Technology	Microprocessor based True On-Line Double Conversion IGBT based DSP controlled with Automatic By-Pass.
Input System	220/230/240 VAC Single Phase
Input Voltage	160 – 280 VAC at full load
Input Frequency	45 Hz – 55 Hz
Input Power Factor	0.99 to Unity
Output System	220/230/240 VAC Single Phase (User Selectable)
Output Voltage Regulation	+/- 1%
Output Frequency	50 Hz +/-0.05 Hz
Output Power Factor	0.9
Voltage Harmonic Distortion (THD)	< 5% for non-linear load, <2% for linear load
Overload Capacity	110% for 10 mins, 150% for 1min
Output Waveform	Pure Sine wave
Bypass Operating Voltage	80 – 265V
Crest Factor	3 : 1
Transfer Time	0 ms
Efficiency (AC to AC)	>92%
Battery Type	Sealed Maintenance Free Lead Acid Batteries
External Battery Voltage (DC Volt)	96V
Battery Test	Programmable Automatic Test
Battery Management	Automatic Backup time adjustment and protection against deep discharge
<b>Backup Time Details</b>	<b>8 nos 65Ah Battery</b>
Charging Duration	90% of Battery capacity in 4hrs
Cold Start facility	Without Main AC UPS can be put on provided batteries are in charged condition
Battery Charger	Built-in solid state float-cum-boost charger with automatic boost/trickle charge modes with current limit features
Over / Under Voltage Protection at I/P	Yes
Short Circuit Protection	The UPS shuts down and will not transfer to the bypass mode when short circuit occurs at the output of the UPS.
	After the short circuit removed the UPS will operate normally again. At short condition the fault LED will glow as a warning
	To the users. Protection through MCB and advanced electronic circuitry.
Indicators / Display	User friendly Mimic panel, Multifunction LED display / LCD Display for UPS status, Battery Level, Load Level, Fault Line
	Inverter, Bypass, Fault, Battery / Load. Input and output voltage, Input and output frequency, Load% and Battery%
Audible Alarm	Mains Failure, Low Battery, Load on Bypass, Overload and Short Circuit
Operating Temperature	0 to 50 deg C
Relative Humidity	0 to 95%, non-condensing
Audible Noise	Less than 40 dBA at 1 mtr distance
Communication Interface	RS232 / USB port for software interface , SNMP Optional
Certification	ISO 9001, ISO 14001, ISO 18001, RoHS, CE, BIS License
Test Certificate	Should be certified from National Test House