



Central University of South Bihar

(A Central University established under Central Universities Act 2009)

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[Formerly Central University of Bihar, and since changed under the Central Universities (Amendment) Act, 2014]

1. Specification for Equipment – Deep Fridge (-20C)

Purpose

For storage of various biological products including enzymes, vaccines, chemicals or material testing components for a longer period of time

Specifications of Deep Fridge (-20C)

Capacity in liters	310-350
Type of cabinet	Vertical
Cooling type	Direct cooling
Freezer body	Galvanised steel body with tough powder coated exterior finish
Lockable outer doors and lids	Yes
Material of internal cabinet	Stainles Steel

Freezer should use CFC-free, HCFC-free non flammable refrigerants. Refrigeration system must be energy efficient.

Pull down time in hrs	5.2 hrs
Operating Temperature in degree celcius	minus 10 degree to minus 40
Increment variation setting	1° C
Number of corrosion resistant racks	5
Number of inner stroage compartments with insulated doors and	5
Noise level in dB	50
Stabilizer should be capable to run any voltage between 190V - 270 V	Yes
Warranty of Freezer in Years (from the date of installation)	3

Digital temperature display should be provided.

It should have battery backup for the display and security lock for the display.

Audible and visible alarm system should be provided for unwanted temperature rise, sudden power failure , system failure and battery low.

One 5KVA stabilizer be supplied with at least 5 year and with capability to run any voltage between 190V - 270 V

Fully programmable microprosessor controlled with membrane keypad and eye level control panel

It be energy efficient in consumption rate (@KWh/day)

Freezer must have washable condenser filter indicator which should keep fins free of dust to maintain peak cooling efficiency

Manufacturer should have ISO certification. Copies of all certifications and reports to be provided to buyer on demand at time of supplies

2. Specification for Equipment – Cryocan

Purpose

To store viable cells for long period

Specifications of Cryocan:

Capacity	32 - 35 Lits
Empty weight	14 – 15 kg
Neck dia	50 -52 mm (it may vary according to type and make)
Outer dia	about 450 mm
Total height	about 70cm
Static holding time	about 5 - 6 months
Canister/rack height	It must dip even in less than half filled cryocan
Number of canister	6 (3-4 if rack system)
Straw capacity	more than 700 of 0.5mL vol.

Rubber rings and pad must provided for shock absorbance

3. Specification for Equipment – Incubator

Purpose

To propagate malaria parasite at 37C

Specifications of incubator:

Capacity	≥160L
Control	Temperature set by control keypad to 0.1°C, digital LCD/LED microprocessor temperature controlled
Temperature accuracy	±0.1°C (should be high accuracy at 37°C)
Temperature range	ambient +5 to 50 C
Temperature uniformity	±0.3°C
Shelves	3 (or more)
Inner chamber dimensions	Approx 53 x 47 x 60.7 cm (it may vary with make)
Audio and Visual alarms for variation of ±1°C from set temperature	
Visual indicators on LCD/LED display for current temperature and set Temperature	
Electrical Requirements 230 V, 50/60 Hz	
Warranty	3 years warranty

4. Specification for Equipment – Mixed Gas Cylinders with Double stage regulators (TWO Units)

Purpose

To store essential gases required for malaria culture

Specifications of mixed cylinders

Empty High Pressure Seamless carbon steel gas cylinder of 46.7 liter water capacity, complete with neck ring and valve, painted as specified under gas cylinder act 2004 and suitable for gas mixture

Refilling of 5% Carbon Dioxide + 5% Oxygen Balance Nitrogen in above 46.7 liter water capacity cylinder.

Filling pressure : 120-130 Kg/Cm²

Certificate Accuracy: +1%

Stability: Twelve Months

Double stage double meter brass body Imported regulator fitted with stainless steel diaphragm suitable for Gas Mixture with

Inlet Pressure Gauge: 0-250 Kg./Cm²

Outlet Pressure Gauge: 0-16 Kg./Cm²

(Working Range: 0-10 Kg./Cm²)

A regular supply, on requirement, of the mixed gas refilling must be provided at CUSB by the supplier.

5. Specification for Equipment – Vertical Electrophoresis Unit

Purpose

To separate proteins based of mobility in electric field

Specifications of Vertical Electrophoresis Unit :-

- Should include tank, lid with power cables, electrode assembly, casting stand for minimum 4 gels, five each 10-well combs of 1.0mm thickness, and five sets of glass plates with 1.0mm spacers
- Should be able to run 1-4 hand-cast and precast mini gels
- System should have single molded buffer tank.
- Should require not more than 1000 ml buffer for 4 gels
- Should have casting stand with wing clamp assembly for simple and leak proof casting
- Should have the capability for adding an interchangeable module, which can run SDS-PAGE or do western blotting in same buffer tank
- Should be supplied with wet blotting module along with system for blotting of 2 gels at a time
- System should be supplied with additional five sets of glass plates for 1.5mm gel along with 15 well comb for 1.5mm Gel
- Should be supplied with set of fast cast SDS PAGE kit.

6. Specification for Equipment – Constant Power supply for electrophoresis

Purpose

To vertical and horizontal electrophoresis system at constant voltage or constant current

Specifications of Power Supply:

- Should have minimum voltage output =10-300 V
 - Should have minimum current output = 4- 400 mA
 - Should have minimum power output = 1- 75W
 - Should be able to run at constant voltage and constant current.
 - Should have automatic recovery after power failure
 - Should also have safety features like no-load detection, sudden load change detection, ground leak detection, overload/short circuit protection, over-voltage protection
 - Should have an internal fan to keep the system cool and safe
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7. Specification for Equipment – Horizontal gel electrophoresis apparatus (DNA Electrophoresis System)

Purpose

To separate DNA based mobility in an electric field

Specifications of DNA electrophoresis system:

- Should be UV Transparent gel tray with an integrated fluorescent ruler & safety lid
- Should be having universal gel caster to fit different size of gel tray.
- Same buffer tank should accommodate different sizes of gel tray.
- Multiple options for hand casting gels of different sizes
- Combs to fit virtually every need-multichannel pipette compatible combs, fixed height combs, adjustable height combs, and preparative combs
- Easy to replace electrode cassettes
- IEC 1010(EN 61010) Electrical safety certification.

- Main Unit with buffer tank with single molding casted
- UV Transparent Gel tray size 15 X 10 cm
- Should be supplied with Midi Gel caster for tape free gel casting
- 15 well and 20 well combs, other sizes of combs can be quote optionally.
- It could accommodate other gel tray size like 15 x 25 cm,
- Can put minimum two combs and can run upto 60 samples,
- Buffer volume: approx 1000 mL.

8. Specification for Equipment – Biosafety Cabinet BSL type II A2

Body Stainless Steel	304
Working Chamber Stainless Steel	304
HEPA/ULPA filter	2 No, 0.3 µm and/or 0.1 µm
Pre Filter	10 µm
Noise Level	<65 DB
Control Panel	Digital with Display
UV Light	standard brand and must be durable
Light	standard brand and must durable Fluorescent Light (LED)
Air Circulation	70% recirculation, 30% exhaust
Manometer	Digital
Motor	Heavy duty motor with enough HP with blower to maintain the inflow and downflow
Working Area	48x24x24 inches (approx)
External Size	minimum to be accommodated in culture room
Testing	Smoke Test, DOP Test, Particular Test, Integrated Test
Inflow	Minimum 100 ft/min (0.51 m/s) average
Downflow	range 50 to 80 ft/min (0.25 to 0.40 m/s) average

Proper Audible and visual alarm system

BSCs must be continue to operate, under an audible and visual alarm state, until the exhaust system recovers, or the BSC's blower(s) is shut off or loses electrical power.

Sliding sash window to a full-open position

An servo stabilizer must be provided of required KAV with BSC

CE ISO certification

9. Specification for Equipment – Electroporator

- Single Cuvette Electroporation system for all cell types (Eukaryotic & Prokaryotic cells).
- Wave form: square and exponential.
- Should have preset optimized protocols for common bacteria, fungi, and mammalian cells, optimization protocols and many others.
- Modular design for the choice of system configurations should come with main unit, CE module and PC module, ShockPod cuvette chamber.
- Pulse trac Circuitry and arc protection for reproducibility and sample protection Choice of programs for manual operations, preset protocols, user protocols, an optimization protocols in both exponential and square wave forms.
- System should be open to deliver plasmid DNA, siRNA and other molecules in both eukaryotic and prokaryotic cells.
- Should Deliver up to 3000V or more , minimum 10v steps
- Capacitance: 10-500 V, 25-3275 uF in 25uF increments; 200-3000V, 10, 25, 50uF.
- Sample Resistance: 20ohm, minimum at 10-2500V; 600ohm minimum at 2500 3,000V
- Square Wave Timing: 10-500V: Pulse length 0.05-10ms duration in 0.05ms; 500-3,000V: Pulse length 0.05-5ms duration in 0.05 ms.
- Display of actual time constant and voltage.
- Audio and visual indicators.
- Programmed methods for most common specimens.
- Provision for manual programming and storage of user methods.
- Line voltage 230v \pm 10VAC 50Hz.
- System should include all necessary components like cuvette chamber and accessories.
- System should pre-set optimized protocols for mammalian cells and others.
- Compliance with safety regulatory.