

Annexure II

Horizontal Laminar air flow chamber

Size -6x2x2 ft (2 seater)
(Sl.No. 1 of the above eqp. list.)

- Cleanliness : Class 100
- Particle retention : 0.3 micron
- Velocity : 90FPM + 20%
- Illumination : 750 – 800 lumen
- Noise level : 60-65 decibels
- Standard : FED 209E
- Power supply : 220v single phase

pH meter

(Sl.No. 2 of the above eqp. list.)

Bench top pH meter

Specifications

Product specification	Description	
pH Range	: - 1.000 to 14.000 pH	
Resolution & Accuracy	: - 0.01/0.001 pH & ± 0.01/0.002 pH	
mV Range	: - 1850 to + 1850 mV	
Resolution & Accuracy	: 0.1 mV & ± 0.2 mV	
Temperature range	: - 5.0 to 105.0°C (23.0 to 221.0°F)	
Resolution & Accuracy	: 0.1°C (0.1°F) & ± 0.5°C (0.9°F)	
No. of pH calibration points	: 1 to 5	
pH Buffer options	: USA NIST User User Custom	1 2
Memory	: 100 Data sets with date/time stamping	
Temperature compensation	: Automatic / manual (0 to 100°C)	
pH slope & offset display	: Yes	

Print output	:	Bi-directional RS232C, Recorder (± 1850 mV)
Display	:	Alpha – numeric Dot-matrix LCD with Backlit
Special functions	:	Auto-buffer recognition, Date/time Indexed (GLP Compliance); Calibration due prompt, Alarm; Stability criteria, Stability indicator & Self-diagnostic
Power requirement	:	9 VDC, Using AC adapters 110 VAC or 220 VAC, 50/60 Hz

Accessories

- Glass pH electrode ECFG7350401B – 2 No.
- DAS
- RS 232C Cable
- ATC probe
- Integral electrode holder & universal power adapter

Electronic Orbital Laboratory double Decker Shaker (Sl.No. 5 of the above eqp. list.)

1. Includes

- Universal tray – 1
- Clamps to hold 250 ml flasks upper tier – 25
- Clamps to hold 250 ml Flasks lower tier – 21
with Voltage stabilizer

Specification

Shaking frequency	:	50 – 175 rpm
Shaking motion	:	Orbital
Shaking deviation	:	+/- 2% of the set value
Diameter of orbital motion	:	25 mm
RPM indication	:	Digital
Drive	:	DC motor

Tray dimension : 420 x 420 mm – 2 Nos.
External dimension : 56 x 70 x 70 mm
Electrical requirement : 230 V, 10 Amps, 50 Hz

- Shaker should incorporate five pin systems and mounted with a counter balanced fly wheel to ensure uniformity in motion with eccentric pin coupled by long life rubber.
- The system to have safety cut out over current etc.
- Illumination upto 1000 lux in their on top/sides to be mounted with independent control for lamps and times help in controlling the illumination from minimum of 10 minutes to 24 hours as per your convenience.
- The tray size should be of 420 x 420 mm with two tiers, to accommodate various sizes of clamps within the universal tray without changing the tray.
- Shaking frequency should be 20 – 175 RPM with maximum of +/- 2% deviation of the set values with 5 mm dia throw.

Horizontal Rectangular autoclave
(Sl.No. 9 of the above eqp. list.)

with one No. SS carriage and one No. MS Trolley

Technical specification

- Horizontal Rectangular High pressure steam sterilizer, electrically operated.
- Dimension of chamber : 600 mm width x 600 mm height x 1200 mm depth (2' x 2' x 4')
- Material of chamber : AISI 316 quality stainless steel, 432 litres volume.
- Mode of cycle operation: A manual cycle operated multiport operating valve made of stainless steel to set and select different cycles of operation.
- Door: Hinge type single door made of stainless steel with radial locking using shooting bolts, having pressure locking safety facility. The unlocking is possible only when the chamber is exhausted.
- Material of Boiler : Stainless steel.
- Electrical load: 18 KW, 3 phase 4-wires, 400 – 440 volts 50 Hz A.C. supply.
- Working temperature: 121°C @ 15 psi to 18 psi; Working pressure: 1-2 kg/cm²
The unit would be manufactured as per specification mark IS: 3829 (Part-1) and also would bear the certification.
- One No. stainless steel carriage and one No. metal steel transfer trolley.

Additional Technical Specification

The quoted horizontal autoclave will be equipped with the following:

- Dial thermometer.
- Calibrated pressure Gauge and compound Gauge.
- Boiler controller
- Plug screen, vacuum breaker, steam trap, water level glass, control panel, contactor, pressure switch etc.
- The unit will be mounted on tubular stand of mild steel in a ready to use condition.
- The sterilizer will be fitted with all necessary safety features.
- MOC of Horizontal autoclave

Chamber : SS316 quality, thickness – 6 mm

Door : SS316 quality, thickness – 12 mm

Radial arm (shooting bolts) : Made of stainless steel 304 quality

Door Gasket : Heat resistant - SILICON GASKET

Outer cover : made of stainless steel 304 quality

Model : 24SR/E-Qty – 1 No.

Precision Top Loading Balances

(Sl.No. 13 of the above eqp. list.)

Specification

Uni Top loading

Accuracy : 0.001 gm (1 mg)

Calibration

Range with : 100-420 gm

External weights

Repeatability (G) : ≤ 0.001

Linearity (G) : ± 0.002

Response time (S) : 1.5 – 2.5

Ambient

Temperature (°C)	:	5 – 40
Temperature coefficient	:	± 3
Sensitivity (ppm/E °C) (10-30 °C)		
Pan size (mm) Approx	:	108 x 105
Main Body Dimension	:	190 W x 317 D x 78 H (mm) approx.
Weight (kg) Approx	:	3.4
Display	:	LCD with Backlight
Power requirement	:	12 V 1-A
Data ± 10	:	Rs. 232C
Features	:	Windows Direct PSC Clock – Cal GLP / GMP / ISO conformance with internal calibration

Precision balance: Specification

Readability	:	0.001g
Capacity	:	200 g
Repeatability	:	0.001 g
Linearity	:	0.002 g
Response time	:	1.5 S
Pan size	:	115 mm
Calibration	:	Internal
ISO	:	Production according ISO standards OSO 9001 : 2000 and ISO 14001

Features

Accurate and fast: The new generation of monolithic weighing system measures even faster. The internal calibration, activated by a push of the bottom always guarantees reliable weighing results.

Convenient: The clear display and the ergonomic key pad with large clear function keys offer easy operation at any time.

Flexible: The compact dimension of the TBT – series require very little space, pans and draft shields office sufficient room for larger container.

Robust: The well-engineered construction is designed for a long life time. The monolithic weighing system is overload protected and maintenance free.

Hot Air Oven

(Sl.No. 18 of the above eqp. list.)

Double walled chamber, Inner made of stainless steel sheets of 304 Grade and outer made of cold rolled mild steel sheets duly finished in powder coating, Inter spaces in between the walls is highly packed with special grade glass wool to minimize radiation heat loss.

Inner chamber accommodates perforated stainless steel trays at adjustable heights, insulated double walled door in the front is provided with locking arrangements. Heating is achieved by Nichrome wire heaters evenly distributed at the bottom of the chamber.

Temperature is indicated and controlled by precision thermostat within the rating range. Air circulation fan assembly is incorporated in the unit for maintaining uniform temperature inside the working chamber. Built in control panel accommodation all electrical accessories is provided at the lower portion of the chamber for operation convenience.

Chamber size : 605 x 605 x 900 mm ht.
Temp. range : Ambient + 5°C to 250°C
Temp. accuracy : 1-2 to 3°C
Power Rating : 4.0 KW
Operating voltage : 230 volts single phase 50 cys.

Optional accessories

a) Digital controller with sensor

Temp. range - Ambient – 250°C
Temp. controller - Thermostat
Temp. indicator - Bend thermometer
Temp. accuracy - +/- 4°C

Construction

Inner chamber : Made out of stainless steel 304
Outer chamber : Made out of mild steel with powder coating
Insulation : Glass wool

Outer door made out of MS with powder coating

Inner chamber Dia : 24" x 24" x 36"
(60 x 60 x 90 cm)

Power consumption : 3000 watts

No. of shell : 3 Nos. with air circulation fan

Optional accessories

Digital temp. controller cum indicator with suitable senses

TISSUE CULTURE RACK

(Sl.No. 14 of the above eqp. list.)

R1 Fixed Racks two No's. In room 1

R2 Movable Racks with rail and geared movement seven No's in room 2

TECHNICAL SPECIFICATIONS

TYPE OF RACK

Rack		Specification				
R1		Fixed Rack on castor wheel for little mobility in case of cleaning and maintenance				
R2		Movable rack on rails with chain sprocket and gear arrangement with handle for easy mobility				
Rack	Size (Approx)	No. Of Racks	No. Fl. Light	Cap. Tray/ rack	Cap. Bottles/ Rack	Total Cap. Bottles
R1	3900x1315x2500mm	6	80	240	6720	40320

Power requirement/ room and total

Rack	No. Fl. Light / rack	Power/ tube W	Power/ Racks W	No. of Rack	Total power W
R1	80	40	3200	6	19200

ELECTRICAL CONTROLS FOR EACH RACK

1. MCB for each row to switch on / OFF the lights
 2. Digital / Mechanical timer fixed on the rack or externally on the control panel outside or inside the room.
 3. Provision for Main power on/ off per rack with digital display of temperature and humidity.
- Within the room or externally on control panel separate for each room

Rack Specification

Construction:-

Bottom Frame:- MS channel (ISBC 75) 75x50x5mm

Side Frames:- 25x50mm MS tubular 16 SWG

Tube and Chock Mounting:- 12x60x12mm C Chanel constructed out of 1.6mm MS Sheet

Tray Mounting Chanel:- 20x20mm L and T Chanel constructed out of 1.6mm MS Sheet

Rack Mounting:- On MS wheel with gear arrangement mounted on solid rail for easy mobility for cleaning and other purpose using rotating handle on side. Or Heavy castor wheel mounted.

Control panel:- mounted on side with MCB'S contactor and Digital timer

Painting:- Powder coated classic white

Fittings:- MS coated Bolts

Electrical:-

Tube:- Philips 36 W Fl. Tube

Ballast:- Philips Sumo 36 W

Side Holders:- Cona

Timer: - programmable Digital

Contactor: - 16 amps 3 Pole Branded

Control:- 9 Nos of MCBs branded one each for each row

Wiring:- Main input wire 2.5 Sq.mm Havels/ Finolex or similar make in PVC casing

Particulars	R1
Size (Approx)	3900x1315x2500mm
Bottom Frame	ISBC 75
Side/ Supporting frames	MS tubular 25x 50mm 16 Swg
Tube and chock & Tray Chanel mounting	C Chanel 12x60x12mm 1.6mm MS sheet
Tray mounting Chanel	L & T type Chanel 20x20mm 1.6mm MS Sheet
Distance between Tray bottom and Tube frame bottom	250mm
Rack fixing	MS coated bolts and nuts
Painting	Epoxy powder coated
Colour	Classic white
Size of Tray	365x435x75mm
Tube size	1200mm
Tube Wattage	36 W
Ballast	Electronic 36 W

Tube to chock:- 0.25 sq.mm wire

MEDIA Storage Racks

(Sl.No. 15 of the above eqp. list.)

Slotted angle racks

Constructed out of 2mm sloted angle side frames and 1mm ms sheet for shelf

Mounted with help of ms coated boalts.

With 6 shelves including the top equally mounted gap

Size 6' x 16" x 3'

Trolleys

(Sl.No. 11 of the above eqp. list.)

Stainless Steel tubular Construction with three trays to hold approx 12 trays with castor wheel arrangement for easy mobility

Qty:- 10 Nos

Poly house (1200 sq ft.)

Size of Shed house -12mx9m=108msq.

Anteroom- 5mx4m=20m sq.

Total= 128 msq.

Technical specification

s.no	particulars	details
1	Centre height	5m
2	Slope of gutter	1% to 1.5%
3	Design	Forced vent top and side closed
4	Civil foundation	Telescopic insertion
5	Structure	Entire structure is made of GI tubes
6	Fixing	In bolted form and joints through GI/MS clamps and bracket
7	Poly fixtures	UV stabilized LDPE white film
8	Ventilation	Through fan and pad only
9	Door	Aluminum frame with poly carbonate and alu. Panel with door closure
10	Auto panel	Fitted with temperature and humidity control digital with auto run system
11	Fogging system	4 way foggers with anti lockage with weight discharge 7 lit/min
12	PVC pipe line	6kg/cm PVC pipe line size as required
13	Water filter	Imported disc filter
14	Cooling fans	Size 50"- 4 nos

15	Cooling pads	Size – 5'x2'x4''''
16	Pad frame	GI/ Au
17	Shed net	50% green / white for inside, 35%for top over UV sheet

including

SNo.	particulars	Details
1	Plinth wall	1.5ft width 9"abobe GL for both sides of length
2	Fan foundation wall	9' at fan base -4 nos, 14"front side, 3ft above GL
3	Cooling pad foundation wall	14"wall with water channel for pad out let height up to 3 ft above GL
4	RCC water tank	10,000 ltrs below ground level 1.5 ft wall above ground level with cover
5	Motor pumps	Open well submersible pumps for pad 1.5 HP3 phase head 35 meter and 2 HP3 ph head 50 meters for foggers

AIR CURTAIN

(Sl.No. 6 of the above eqp. list.)

To create curtain of air between air-conditioned or clean room to adjoining room used in various applications in industry, hospitals, hotels, showrooms etc

Qty :- 03 nos.

Plain glass bottle 370ml capacity with autoclavable PP cap

Qty:- 42,000 Nos

Tissue Culture tray

PVC coated classic white wire mesh trays

Cap:- 30 bottle 250 ml, Trays size 365x435x75mm

Qty :- 1500 Nos

Air Pressure Module

Construction:- Mild steel powder coated with GE Marathon double shaft motor 1400

RPM with Aerosol HEPA filter 99.9% accuracy and pre filter Aerosol. With test certificate. To work on 240V Ac 50z.

Qty :- 5 Nos

Shed House

Size of Shed house -18mx12m=216msq.

Anteroom- 5mx4m=20m sq.

Total= 236 msq.

Technical specification

S.No	Particulars	Details
1	Centre height	3m
2	ventilation	Through shed net
3	Design	Flat roof
4	Civil foundation	Telescopic insertion
5	Structure	Entire structure is made of GI tubes
6	Fixing	In bolted form and joints through GI/MS clamps and bracket
7	profile	Grippers and spring for fixing shed net
8	Shed net	75% green shed net
9	Door	GI construction
10	PVC pipe line	6kg/cm PVC pipe line size as required

Including

SNo.	Particulars	Details
1	Plinth wall	1.5ft width 9" above GL for all sides of length and width
2	Motor pumps	Open well submersible pumps 2 HP 3 ph head 50 meters for watering