

## **CABINET CONSTRUCTION**

The cabinet of Laptop Blood bank refrigerators is insulated with high density CFC free Poly Urethane Foam. Interior of chamber is stainless steel (304, 0.8 mm thick). The exterior is white powder coated (1.0 mm thick) mild steel and the door has a magnetic gasket with a keyed lock. Stainless steel baskets are provided inside.



## **REFRIGERATION SYSTEM**

The cooling is effected by CFC free refrigeration system with a condensing unit located inside the chamber. Labtop condensing units are characterised by high-efficiency heat transfer and low power consumption.



- CFC free refrigeration with time delay to safe guard the compressor
- Inner grooved copper tubes and slit aluminum fins for superior heat transfer
- Filter drier for moisture and dirt protection
- Safety and control devices for better system protection
- Thermally protected and permanently lubricated fan motors

## **PROGRAMMABLE LOGIC CONTROLLER (PLC) SYSTEM**

A **programmable logic controller (PLC)** is a digital computer used for automation of controlling electromechanical processes, such as control of Temperature, Relative Humidity, Standby systems and event management with less maintenance hence no moving parts.

- PLC with 4.3" touch screen and color Display
- Password protected Human Machine Interface (HMI)
- Data storage to record set values, process values, date & time with variable time intervals
- Display of set value and process value
- Auto changeover of standby systems and other event managements
- High speed Ethernet connectivity
- Data logging capacity up to 200000 readings
- Programmable alarms with event management
- Log reports of event management
- Self diagnostic system with error display
- High quality PT-100 sensor for better accuracy



## TEMPERATURE CONTROL SYSTEM

- Micro-control based Temperature controller
- 4 digit, 7 segment LED display
- Password protected keypad lock
- Visual alarm for faulty sensor
- Display of set temperature and process temperature
- High quality PT-100 sensor for better accuracy
- Temperature alarm system with adjustable high-low alarm limits



## **SAFETY FEATURES**

- Miniature circuit breaker to protect electronic components in case of abnormal power supply
- Audio visual alarm when temperature deviates from the pre set temperature
- Overload protector for safeguard the compressor
- 180 seconds time delay for compressor switch ON

## **SALIENT FEATURES**

- Unidirectional air flow system ensures even temperature distribution and quick recovery after door openings.
- Foamed in place CFC free PUF insulation ensures temperature stability and reduced power consumption.
- Specially designed roll-out stainless steel Basket ensures even temperature distribution.
- Chamber illumination with LED light.
- Caster wheels for ease of mobility.
- 7 days circular chart recorder for temperature recording.

<b>Technical Specifications</b>									
<b>Volume</b>	100 Liters	200 Liters	300 Liters	400 Liters	600 Liters	800 Liters	1000 Liters	1500 Liters	2000 Liters
<b>No. of tray</b>	3	5	6	6	6	12	12	12	12
<b>Temperature</b>	4.0°C								
<b>Accuracy</b>	± 0.5°C								
<b>Uniformity</b>	± 1.0								
<b>Power</b>	275 W	275 W	275 W	300 W	350 W	500 W	850 W	850 W	850 W
<b>Voltage</b>	230 VAC , 50/60Hz								
<b>Dimensions (W x D x H) in mm and weight (kg)</b>									
<b>Internal Dim</b>	435x400x600	505x400x1005	565x450x1205	635x530x1205	745x670x1205	1120x600x1205	1150x670x1300	1300x890x1300	1500x1030x1300
<b>External Dia</b>	580x584x1275	650x880x1680	710x935x1885	780x1010x1880	890x1150x1960	1370x1075x1920	1400x1145x1920	1550x1365x1920	1750x1505x1920
<b>Packing size</b>	707x972x1478	777x1007x1883	837x1062x2088	907x1137x2083	1017x1277x2163	1497x1202x2123	1527x1272x2123	1677x1492x2123	1877x1632x2123
<b>Net Weight</b>	120	145	200	255	280	310	335	360	380
<b>Gross Weight</b>	175	225	275	325	350	400	425	450	480

## CENTRAL MONITORING SOFTWARE

- Multiple Equipment data monitoring on single software.
- Reports in Tabular and Graphical form.
- Mean Kinetic Temperature Report.
- Back up Provision.
- Multi user environment.
- Multiple level password with automatic expiry.
- Electronic signature.
- Audit trial report.
- Mobile alert via SMS in case of any deviations.
- Online and offline trends.

# **OPTIONAL ACCESSORIES**

## **PC interface communication**

Micro control based controller to control, record, and store and print the set values, process values, Date & time with variable print time intervals with RS-485 communication for central monitoring software.

## **PLC system**

Programmable Logic Control with Safety controller, auto changeover of Standby systems & other event managements with 4.3” Color HMI with touch screen, Ethernet connectivity and security lock for prevention of unauthorized tampering.

## **Central monitoring Software**

“LABTOPWARE” CFR 21 Part 11 compliance windows based communication software for data management. Complete with RS-485 multi dropping to monitor chambers to one software.

## **Power Backup**

Uninterrupted online power supply for PLC in case of power failure

## **Chart paper**

One packet (100 Nos.) 7 days circular chart suitable for temperature recorder.

## **Fiber tip pen**

One packet (5 nos.) fiber tip disposable pen suitable for temperature recorder.

## **Stand by Refrigeration system**

Ready to use stand by refrigeration system if the regular system fails. This includes Compressor, Evaporator, condensers and other accessories.

## **Door Access system**

Biometric door access system with magnetic lock for unauthorized door open and close with event log and PC interface communication.

## **Calibration**

The equipment is calibrated with the help of master calibrator, which is certified for its accuracy by Electronics Regional Testing Laboratory (ERTL West) Government of India recognized testing laboratory with reference to National Physical Laboratories (NPL).