



# ULTRA LOW TEMP. CIRCULATION BATH CRYOSTAT

AN ISO 9001 : 2015 / 14001 : 2015 / WHO-GMP CERTIFIED CO. & CE MARK PRODUCT

Model No : SRL / ULB-19



## Construction :

Double walled in construction inner made of SS 304 & outer made of CRCA powder coated with PUF & ceramic wool Insulation in between two walls.

- (i) Door with silicon gasket sealing, metallic with PUF insulation.
- (ii) The unit will be made of double walled leak proof metal door with lock.
- (iii) Forced air circulation for uniform temperature.
- (iv) Lockable & Movable PU wheels for easy movement.

**Insulation of Walls, ceiling and floor:** 100mm thick puff plus ceramic wool Insulation with puff in-place density of minimum of 1kg per cubic foot or its equivalent. Insulation with expanded polystyrene or any equivalent material having R factor of minimum 34. Insulation material shall maintain its dimensional stability in an operating temperature range of Insulation puff.

**Door :** Flush type doors of metal surfaces (as per above specification of metal) with proper puff insulation of above mentioned standard or its equivalent. Doors shall have magnetic snap-in perimeter gasket or its equivalent, self-closing cam lift gravity hinges or its equivalent, a posi-seal door closure or its equivalent. Door shall have key lockable latch handle. Doorjamb shall be made fiberglass reinforced plastic or any other suitable material compatible with constructed door.

## Application :

These equipments are used for climatic & durability tests of electrical & electronic components, corrosion test on mechanical assemblies, materials for simulated tropical & extreme tropical conditions.

## Refrigeration system : (Air Cooled)

**Emerson / Danfoss / Tecumseh:** make compressors, 2 stage cooling system with Cascade system for ULTRA LOW TEMP. Range & Single stage system for Humidity Control. All accessories such as HPCO/LPCO, Oil Separators, Dryers, Relays, OLP etc. of **Danfoss/Tecumseh Emerson** Make. CFC free refrigerant to be used to comply with the New Environmental Regulation. Will have suitable tonnage compressor for maintain temperature with lights on. Will have hermetically sealed condensing unit compressor coupled with Evaporation coil and condenser, safe guarded by time delay circuit. Cabinet shall be supplied with air-cooled condensing unit with extended compressor life and close temperature control. Cooling system will be split type to place condenser unit in a ventilated area to avoid hot air in growth chamber. Cooled air shall be delivered in such a way to reduce or eliminate condensation within media dishes and to provide maximum uniformity In different research vessels. This may be through silent and durable fan motors or through any kind of advanced air diffusers. Air Cooled Condenser with solenoid & LP to pass hot gas to the chamber for uniformity & long life of compressor for continuous usage. Phenolic coating for cooling & condensing coils (All weather proof).

## Temp. Range :

-10°C to -80°C

**Resolution :** 0.1°C

**Temp. Fluctuation :**  $\pm 0.2^\circ\text{C}$ ,

**Temp. Uniformity :**  $\pm 2^\circ\text{C}$

# ULTRA LOW TEMP. CIRCULATION BATH CRYOSTAT

## Controller :

**Standard PID:** Provides Precise Temperature, Maintain Uniform And Accurate Growth Environment, Timer, Alarm, Auto-Tuning And Auto Start Stop Function. Technical Design and Construction Silent Fan Motor to Maintain Uniform Temperature Over Temperature and Current Protection Capability Ensure User Safety, Adjustable Sliding Rack, Alert Unexpected Interruption Of Electrical Power Or Unauthorized Change.

### Optional : [PLC with HMI touch screen]

PLC Control system with touch screen display & HMI for data Storage, data logger reading & audit trail, Door access & SMS records, Email alert. Data Logger 1 temp + 1 RH. Data Logger with LCD display window capable to store non volatile data memory up to 5000 readings with audit trail facility complies 21 CFR Part 11. Change over to stand by system automatically as per schedule or on detecting fault with current system Temperature & Humidity overshoot and under shoot protection Mobile Alarm system, Door Access, system setting reset , Graph, SMS, Email alert, etc. In built PC port for connectivity for PC base operation of data management.

## Circulation :

The Ultra low temp. circulation bath is provided with best circulation to give better temperature uniformity this is achieved by using one set of motor & blower in baffle wall Compartment to push treated air in working chamber. This system gives better temperature uniformity in working chamber.

## Power Supply :

Single Phase 230V AC, 50Hz / Three Phase 440V AC, 50Hz

## Certification :

ISO 9001:2015 Certified Co. D&B registered & CE mark product.

ISO 14001:2015 & WHO-GMP

NSIC & MSME registered

Calibration & validation certificates traceable to NABL / ERTL accredited labs.

## Sensor :

**Sensors :** PT-100 'A' class for temp. calibrated from ERTL / NABL accredited labs.

## Safety Features :

2 minute compressor "on" delay timer to safeguard the compressor. Compressors overload relay protector. Electronic low water level cut off device to cut off the supply to boiler heater in case of low water level. Safety Temp. Controller. MCB for mains.

- (I) Unit will be provided with safety devices for temperature and humidity overshoot in case of malfunction.
- (ii) Built-in temp. Deviation, audio/visual alarms. Safety thermostat for over shooting of temp. Safety circuit to cut off the whole system.
- (iii) OLP (Overload Protector) & Time delay Circuit for safety of compressors.
- (iv) HRC fuses for compressors, Heaters & Mains.

## Documentation :

To comply with the documentation requirements, we provide IQ, OQ & PQ protocols to be executed before taking the chamber in to for regular use, and support the supply with the following documents with the detail operational and service manual.

Standard Operating Procedure (SOP)  
Operational Manual for Controller  
IQ,PQ,OQ protocols certificate.  
Calibration certificate of all controlling modules with traceability.  
Certificate of MOC.  
Test Report of chamber prior to supply with mapping certificate.  
wiring diagram for ease of service maintenance.