



# ENVIRONMENTAL CHAMBER

AN ISO 9001 : 2015 CERTIFIED CO. & CE MARK PRODUCT

Model No : SRL - ECH - 01



## Construction :

The chamber is triple wall at back & bottom inner both the walls are stainless steel 304 quality duly polished with mirror finish buffing & outer wall is Stainless Steel 304 quality mat finish. This Construction avoids rusting problems caused due to condensation at  $-70^{\circ}\text{C}$  humidity.

## Heating & Humidification :

Air Heaters are provided for heating above ambient temperatures. Ultrasonic humidification system for the chamber.

## Power Supply :

440V AC, 50Hz.

## 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.

## Temp. Range :

$-70^{\circ}\text{C}$  to  $+180^{\circ}\text{C}$

Temperature Fluctuation :  $\pm 0.2^{\circ}\text{C}$ , Temperature Gradient :  $\pm 2^{\circ}\text{C}$

Humidity Range : 10% to 98% RH

Accuracy :  $\pm 1\%$ R.H, Humidity Gradient :  $\sim \pm 2\%$

Heating Rate :  $1-5^{\circ}\text{C}/\text{Min}$

Cooling Rate :  $1-5^{\circ}\text{C}/\text{Min}$

## Refrigeration system :

### Cooling :

By hermetically sealed Danfoss / Embraco / Tecumseh Make Compressors, for double stage compressor cooling system & humidity control.

### Cooling coil:

Copper cooling coil is sandwiched between the "PUFF" insulation & the Outer side of Inner working Chamber to transfer the cooling by conduction process for ULTRA Low temperature range. A separate finned cooling coil is fitted behind the baffle wall below the blower fan for humidity control system.

### Condensing Unit :

Heavy duty air cooled condensing unit with condensing fan will be provided at bottom side of the chamber. The complete assembly is fitted on base in such a way that any component can be replaced very easily.

### Refrigerant :

CFC Free : 404A, 508B

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## PLC with HMI [Touch Screen 3.8"] :

Programs : edit up to 100 PTNs (1000 steps per pattern) each PTN can be executed 999 times, could store logs at an interval from 1 to 60 seconds for 600 days (24 hr operation), logs downloaded by USB port. PLC automatic calculation. Micro computer multi function controller, main components data automatically output including compressor, solenoids, heating units etc. Errors of main components appear on the LCD panel. Programs auto-save function if power cut off suddenly. Have HOLD & ADV buttons in programs. Automatically set the high & low temperature limits after programs set. Password set function. Print the operation graph by connecting mini printer. factory calibration of 23°C / 50% RH & 95°C / 50% RH. Time sequence control interface relays have 3 groups which manage the output of outside logic units including signal, mechanical & power etc.

**Sensors :** Direct RH% Rotronic Make Hygroclip sensor for Relative Humidity which can withstand a temp. of 200C, PT-100 sensors.

## Air Circulation :

The humidity chamber is provided with best air 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 than 1deg c. temperature uniformity in working chamber, evaporator, heaters & steam injection system is from back side, behind baffle wall, the air circulation blower is also fitted in this compartment only. This arrangement helps to mix steam and air together and pass well mixed air inside the working chamber. Due to above system the temperature and humidity (R.H.) in complete chamber almost uniform

## Certification :

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

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

## Special Care :

Please note that this equipment has to be operated at an ambient temperature of +25°C +/- 2°C & suitable rating Servo Controlled Voltage Stabilizer has to be installed in case of voltage fluctuations.

## Safety Features :

Supervisory Safety Monitoring System has been introduced for additional Safety measures. Individual additional micro - controlled is used for this supervisory system. If the temperature & humidity value crosses set Hi & Low limits for either or both parameters, safety control action will be taken over by this controller. If the parameters sets within the limit value, main control action will resume automatically.

- ELCB, MCB for Compressor, Boiler heater, Air heater & Mains.
- 2 Min. Compressor ON delay time for safety of compressor.
- Float switch to cutoff the main supply & audio visual alarms in case of low water level.

## 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.



Due to continuous development & improvements in design, we reserve the right to change the specification without notice.