



WALK IN RADON CALIBRATION CHAMBER

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

Model No : SRL / WIRCC-12



Construction : {As Per GMP Guideline}

MOC of the Chamber will be: Double walled Chamber with Inner of stainless steel 304 grade & outer of stainless steel 304 grade. PUF Insulation in between two walls.

- (I) Flooring: 2 mm aluminum chequer plates.
- (ii) The unit will be made of double walled leak proof metal door with lock, with a provision of opening door from inside.
- (iii) Forced air circulation for uniform temperature.
- (iv) Exhaust system with all accessories such as programmable fans/ blower, pipe lines, vacuum valves, etc. for quick release of the radon from the chamber.

Insulation of Walls, ceiling and floor : 80mm thick puff panels with puff in-place density of minimum of 1kg per cubic foot or its equivalent. Insulation with expended polystyrene or any equivalent material having R factor of minimum 34. Insulation material shall maintain its dimensional stability in an operating temperature range of 5°C to +60°C Insulation puff.

Doors : Large viewing windows which shall be vacuum sealed. The chamber shall be leak proof. A smoke test shall be performed to determine any leakage. A fancy door to be provided to make the chamber aesthetically appealing. Flush type doors of metal surfaces (as per above specification of metal) with proper puff insulation of above mentioned standard. Doors shall have magnetic snap-in perimeter gasket. 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 :

Used for large number of sample in hospitals, Research institution. Public health laboratories etc. These chamber can be used for environment testing of production sample & large size equipments where temp. & humidity are to be controlled. They are suitable for storage of electronic components, biological specimen & accelerated ageing test of large number of pharmaceutical samples. They can also be used for botany, cytological, Deptstrurents, plan & animal breeding laboratories where controlled condition of temp. humidity & illumination are required.

Ecocentric System :

Chamber runs on the basis of Dewpoint control. Less deviations during short-term door opening & power failure. Less utility area Increased storage area. Low operating cost. Minimum power & water consumption. Reduced deviations. Less breakdowns due to standby refrigeration & humidification system. Due to PLC HMI & controlling through microprocessor based PID Temp. & RH operations the on time of both Temp. & RH system is reduced & efficiency of this system is increased with reduced energy consumption.

Temp. & Humidity Range :

+5°C to +50°C

Accuracy : $\pm 0.2^\circ\text{C}$, Uniformity : $\pm 2^\circ\text{C}$, Resolution : 0.1°C

Relative humidity from 30% to 95%

Accuracy : $\pm 2\%$ RH , Uniformity : $\pm 5\%$ RH., Resolution : 0.1% RH

Air Circulation :

The Walk in Radon 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 1 deg 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 remains equal.

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Refrigeration system : (Air Cooled)

Emerson /Danfoss/Tecumseh: make compressors, 1 stage cooling system for TEMP. & 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).

Trays & Racks :

Removable SS perforated trays are provided, adjustable and will slide out for easy clean up. Assembled Stainless Steel racks to accommodate trays

Stability Data Management Software 21 CFR Part 11 Compliance :

21 CFR part 11 Compliance.

Online & Offline Data representation in Tabular as well as Graphical Form.

Separate display formats for Real time Data & Acquired Data for single or multiple chambers

Mean Kinetic Value (MKT) as per USP 24 NP 19 - Daily, Weekly, Monthly.

Power Supply :

Single phase 230V AC, 50 Hz / Three phase 440V AC, 50 Hz.

Certification :

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

ISO 14001:2015 & WHO-GMP

NSIC & MSME registered

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

Controller : [PLC with HMI TFT screen]

Display of set value and process value. Provision for introducing additional power supply and signal, communication cables for the instrument. Data logging software to store data on a desktop or laptop. USB, RS 485 RS 232 cables on external body. Provision for auto switch ON and OFF of the pumps supplying radon gas to the chamber to maintain the desired concentration values.

PLC Control system with touch screen display & HMI for data Storage, data logger reading & audit trail, Door access & SMS records, Email alert. Data Logger 8 temp + 8 RH. Data Logger with LCD display window capable to store nonvolatile 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. Protection of ups system in built with the controller for safe and uninterrupted functioning.

Humidification & Dehumidification :

Will consist of humidifier tank fitted with boiler heaters, and give alarm if fault occurs or Ultrasonic Humidification System. Water reservoir tank will be connected to the humidifier. De-humidification coils are installed below the cooling coils for lower humidity.

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. (v) Interior safety release knob for door. (vi) Hooter with switch inside (Alarm).

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.