

Environmental Chamber

NSW-152-TSC

THERMAL SHOCK CHAMBER

TWO CABINET VERSION, VERTICAL TYPE, AIR TO AIR THERMAL SHOCK CHAMBER

APPLICATION

NSW India climatic chambers are a great choice for cyclic low, high temperature and humidity tests. Built with the highest quality and reliability, this chamber can meet the most stringent testing needs of various international standards such as ASTM, IEC, MIL, DIN, etc.

NSW climatic chamber are designed for simulating, monitoring to control environment conditions. These chambers are double walled and modular in construction, easy to assemble at site. Size of chamber can be made as per customer requirement. Air circulation is made to create uniform temperature under RH inside.

NSW climatic chamber are used to carry out various climatic tests such as condensation free temperature cyclic, hot storage /cold storage test at different temperature which may be fixed or variable.

CALIBRATION / VALIDATION

- Temperature sensor probe calibration with traceability to ERTL
- Temperature controller calibration with traceability to ERTL

USES

- For drying environment of Plant and Animal Growth
- Investigation of vapor proofness of packed materials.
- Determination of di-electric strength, insulation tests of electrical components.
- To use as stability chamber in the pharmaceutical industries.

TEMPERATURE & HUMIDITY

- **Performance range for Temperature Testing**
- Nominal operating temperature range of the cold cabinet: -30/-40/-70°C/-80°C /-90°C to +120°C to +150°C +180°C/+200°C
- Nominal operating temperature range of the hot cabinet : +150°C +180°C/+200°C to 30/-40/-70°C/-80°C /-90°C to +120°C
- Temperature Range:
- Temperature fluctuation in Time $\pm 0.5^\circ\text{C}$
- Rate of Heating Min $1^\circ\text{C}/\text{min}$ to $10^\circ\text{C}/\text{min}$
- Rate of Cooling Min $1^\circ\text{C}/\text{min}$ to $10^\circ\text{C}/\text{min}$
- Cooling method in cold cabinet- Cooling by Mechanical Refrigeration system.
- Heating method in hot cabinet- Heating by Electrical resistance heaters.

CONTROLSYSTEM AND ITS PROGRAMMING

- Control, Data acquisition and Monitoring (minimum requirements)
- Digital 32 Bit measuringandcontrol system 4.3/5/7/10" or larger Size Color TouchPanel which have inbuilt controller for operation, with/without the need of PC
- TouchPanel: Colortouchpanelforoperation
- Thedisplayshall provide the Information set andactual values of temperatureand relative humidity ingraphical form andnumericalform.
- The temperature of the chamber shall be monitored by a temperature-sensing device suitably located in its working space. Provision for continuous display of set value and actual value of Temperature, Humidity and graphical representation of Temperature and Humidity with respect to time
- USBandEthernetInterface
- Program memory programs-
- Segments- Program controllers start parameters for programs: immediately, delayed, real time, pause.
- Password protection- Yes
- Provision for selection of manual and automatic modes
- Ethernet port for connection to a remote PC for programming and data logging

CONSTRUCTION

Interior: The inner chamber shall be constructed using AISI grade of stainless steel which is Corrosion Resistant. This shall be polished with a suitable finish. The entire test space is TIG welded and reinforced.

The inner shell of the test cabinets shall have suitable thickness and structural rigidity to withstand temperature induced thermal stress. Both the test cabinets shall be provided with a light & switch to illuminate the test space to assist visual inspection.

Narang Scientific Works Pvt. Ltd.

WHO GMP
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Environmental Chamber

The cold cabinet shall be provided with a shelf, and provision shall be made to adjust the shelf height for every 40/50mm. Load carrying capacity of each shelf shall be ≥ 10 kg.

Exterior construction: The exterior housing shall be made from lightweight, self-supporting, corrosion resistant, galvanized steel-sheet or better material of suitable thickness. It shall be primed and painted to a standard finish with high quality materials.

TEST SPECIMEN HOLDING CARRIAGE(BASKET): The thermal shock chamber shall be provided with electrically driven actuator / pneumatic piston actuator to transfer specimen holding carriage (Basket) between the test cabinets. The basket shall be transferred vertically between the test cabinet without any jerk & mechanical shock after the lapse of the set time in each cabinet. The basket shall be made of stainless steel and shall be designed to facilitate good air circulation.

Doors: Single door with door limit switches: Door shall have made using same material and thickness as of chamber with Limit Switch. Hinged on the left side, lockable, optimum contact pressure, one-handed operation with fog free heated viewing window.

LOCK: Lock on right hand side of chamber mandatory to meet building installation requirement.

Observation Window- Multilayer Observation Window of. Observation Window with internal heaters to avoid condensation formation on the Window
INSULATION- The chamber shall have double wall type construction with minimum 125 mm insulation thickness (glasswool/puff) to take care of heat loss from the workspace and avoid condensation / hot spots on exterior wall

GASKET: Double layer silicon gasket shall be provided for proper sealing of the door with chamber.

CASTER WHEELS: lockable non-metallic heavy duty castor wheels of sufficient weight carrying capacity shall be mounted for easy movement of the chamber on floor

Illumination Lamp: Chamber shall be provided with illumination lamp for the working space

Test Specimen protection: High and Low temperature limit controller which can be adjusted digitally (specimen protection with separate sensor) according to EN 60519-2 (1993)

Measurement sensors; PT 100 Platinum Temperature Sensor. Climatic Psychrometric humidity measurement with automatically wetted wet bulb temperature sensor

REFRIGERATION UNIT: Air-cooled /Water –cooled refrigeration unit

ACCESS PORT: 50mm/100mm/ Φ 125 mm/150mm/200mm

SIZE INSIDE CHAMBER (STAINLESS STEEL 304 QLTY)

MODEL	TEST BASKET DIMENSION			TEST BASKET VOLUME	RATING
	W	D	H		
TSC-1	250	x 250	x 400	147	4.0 KW
TSC-2	400	x 400	x 400	225	4.0 KW
TSC-3	550	x 550	x 400	330	5.0 KW
TSC-4	700	x 700	x 700	450	5.0 KW
TSC-5	600	x 600	x 1200	540	5.0 KW
TSC-6	600	x 650	x 1350	600	6.0 KW

OPTIONAL:

LCD Touch Screen display graphical profile, HMI/ PLC Controller with PC interface and serial communication port (RS-232/485) to cost extra

VALIDATION

- IQ, OQ, PQ and DQ documentation and protocols shall be provided with equipment.
- Documentation shall be given after supply & Installation.
- Performance Qualification with Temperature Mapping.
- The performance Validation Test consists of one cycle at any one temperature point for an 8 hour period.