



Available Variants

1. Walk-In Stability Chamber – 2000 Ltr.
2. Walk-In Stability Chamber – 4000 Ltr.
3. Walk-In Stability Chamber – 6000 Ltr.
4. Walk-In Stability Chamber – 8000 Ltr.
5. Walk-In Stability Chamber – 12000 Ltr.
6. Walk-In Stability Chamber – 18750 Ltr.
7. Walk-In Stability Chamber – 23250 Ltr.
8. Walk-In Stability Chamber – 32500 Ltr.
9. Walk-In Stability Chamber – 45000 Ltr.
10. Walk-In Stability Chamber – 50000 Ltr.
11. Walk-In Stability Chamber – 80000 Ltr.

Description

Walk-In Stability Chamber is designed as per ICH guidelines to meet WHO and USFDA requirements. It fulfills the specified storage conditions of 25°C - 60% RH, 40°C - 75% RH, 30°C - 65% RH, 25°C - 40% RH and 30°C - 35% RH. The chamber is equipped with a PLC and touch-screen HMI system with highly accurate individual control loops for precise temperature and humidity control.

The chamber is constructed with stainless-steel interiors and exteriors, insulated prefabricated PUFF panels with cam-locks to minimize thermal leakage, and a viewing arrangement for inspection of samples without disturbing chamber operation. It incorporates controlled air circulation, steam-injection humidity generation, heating and refrigeration systems, safety provisions, electrical controls, data logging and 21-CFR Part-11 compliant software features.

Applications

- Stability testing and controlled storage under specified temperature and humidity conditions.
- Environmental storage conditions required according to ICH guidelines.
- Conditions intended to meet WHO and USFDA requirements.
- Monitoring and recording temperature and humidity conditions.
- Real-time environmental monitoring and data acquisition.
- Generation and maintenance of controlled temperature and humidity environments.

Apparatus Details

Construction

- CE Certified.
- Designed as per ICH guidelines to meet WHO and USFDA requirements.
- Fulfills storage conditions of 25°C - 60% RH, 40°C - 75% RH, 30°C - 65% RH, 25°C - 40% RH and 30°C - 35% RH.

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GST TIN No. : 24AABCE4018L1ZU
I.T. PAN No. : AABCE 4018L
IEC No. : 0813026598 Dt. 04/03/2014
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TAN No. : AHME00572F



- Equipped with PLC and touch-screen HMI system.
- Highly accurate individual control loop for precise temperature and humidity control.
- Interior fabricated from stainless steel.
- Exterior body fabricated from stainless steel.
- Toughened glass window for inspecting samples without affecting chamber temperature.
- Prefabricated PUFF panels with cam-locks to avoid thermal leakage.
- Electrical wiring as per CE compliances.
- LED chamber illumination with door switch.
- User-friendly chamber door and locking mechanism.
- Facility to open the chamber door from inside in case of emergency.
- Aesthetic outer appearance and high-quality construction.
- Supplied with IQ/OQ/PQ documents, calibration certificates and instruction manual.

Air Circulation

Temperature is maintained by a quiet-running blower circulating air throughout the chamber. Forced air is circulated vertically downward and re-circulated throughout the chamber to provide uniform temperature and humidity distribution.

Humidity Generation

Humidity is created by the steam-injection method. The boiler tank is fitted at the back side of the chamber for better servicing. An electromagnetic switch controls the wet heater and prevents it from burning when the water level is inadequate. A float valve automatically controls and maintains the water level in the boiler tank.

Heating & Cooling System

Long-lasting SS tubular heaters are used as heating elements, with stainless-steel fins for better heat transfer. A hermetically sealed, CFC-free compressor using 134A gas is coupled with an evaporation coil and condenser. Refrigeration components include expansion valve, driers, oil separators, pressure gauges and vibration eliminators. Reputed refrigeration systems such as Emerson/Kirloskar make are specified.

Door & Gasket

Robust hinges are fitted on the right-hand side with a front-opening single door. A leak-proof double-lined silicon gasket is provided. The inner door surface is provided with pre-polished stainless steel and mounted to avoid conduction.

Sample Trays

Removable stainless-steel rod/perforated trays are provided as specified. The trays are strong enough to withstand heavy loads of test specimens and facilitate better air circulation. The distance

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between trays is 15–20 cm. Tray quantities supplied include 8, 12, 20, 28, 36, 40, 66, 84, 100 and 200 numbers as provided in the source.

Electrical Controls

Relays, contactors, SSR, MCB, mains switch, fan-control switch, compressor ON/OFF switch with indicator, and dry-heater switch with indicator are provided for safe and easy operation.

Electrical Circuitry

CE-certified inner circuitry wires are provided with individual number tags for ease of servicing and maintenance.

Safety Provisions

- Over-temperature thermostat and thermal fuses for the heating system.
- Low-water-level boiler cut-off.
- Electrical overload cut-off.
- Time delay for compressor switch ON.
- Electrical circuit breaker.

Viewing Window & Wiper

The viewing window consists of multi-pane toughened clear glass sealed with silicone and separated by spacers to form a completely vacuumed/vacuumised window. A wiper is provided to clear condensed water droplets from the glass.

Advanced Features

- 7-inch touch-screen HMI controller and PLC system.
- GSM module for mobile alert configuration and parameter deviation alerts.
- Magnetic door-lock mechanism.
- Password-protected door access system.
- 21-CFR Part-11 compliant PC software.
- Audit-trail generation in PC software.
- In-built data logger with uniformity module.
- Temperature and RH sensors for data logging.
- Low-water-level monitoring.
- Automatic water-filling system.
- Automatic resume after power failure.
- Standby refrigeration system in case the main system fails.
- Standby humidity system in case the main system fails.
- Automatic switch-over from mains to standby system and vice versa.

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- Calendar option for selecting the days on which either the mains or standby system remains active.

The source also specifies, in one configuration, an email alert system for parameter deviation, a standby sensor in case the main sensor fails, and 5 temperature + 5 RH sensors consisting of 1 main and 4 for data logging.

21-CFR Part-11 Compliance Software Features

- Multi-chamber data acquisition software.
- Graphical analysis of data according to 21-CFR compliance guidelines.
- File encryption facility.
- Secure login facility.
- Password-protected system access controlled by the system supervisor.
- Limited system access.
- Limited module access.
- Password expiration.
- Bilateral user ID and password identification.
- Access-failure lockout.
- System access logs.
- System audit-trail report.
- System input/output logs.
- Mean kinetic temperature calculation.
- User activity logs including users logged in, login/logout time and changes made to software settings through audit-trail reports.
- Gap-free records.
- Reports scheduled through email.
- Compliance with tough standards.
- Real-time environmental viewing.
- Flexible alarm management.
- Consistent alarm acknowledgements.
- Highly secure and tamper-proof operation.
- Protection from data loss.

Specifications

Specification	Details
Chamber Size	1.6 × 0.75 × 1.7 m; 2 × 1 × 2 m; 2 × 1.5 × 2 m; 2 × 2 × 2 m; 2 × 3 × 2 m; 2.50 × 3.00 × 2.50 m; 3.10 × 3.00 × 2.50 m; 3.70 × 3.50 × 2.50 m; 3.85 × 5.20 × 2.50 m; 3.90 × 3.90 × 3.00 m; 6.40 × 5.00 × 2.50 m (W × D × H)
External Body Size	2.16 × 2.16 × 2.16 m (W × D × H)
Chamber Volume	2000 L; 4000 L; 6000 L; 8000 L; 12000 L; 18750 L; 23250 L; 32500 L; 45000 L; 50000 L; 80000 L

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Specification	Details
Inner Chamber	Stainless Steel S.S.-316 Mirror Polished with Cam Lock; Stainless Steel S.S.-304 Mirror Polished with Cam Lock; Stainless Steel S.S.-304 Matt Finished
Exterior Body	Stainless Steel S.S.-304 Matt Finished
Insulation	PUFF Insulation
Insulation Thickness	75 mm; 80 mm
Tray & Rack MOC	Stainless Steel S.S.-304 Grade
Tray Size	850 × 625 × 30 mm (W × D × H)
Number of Trays	8; 12; 20; 28; 36; 40; 66; 84; 100; 200 Numbers
Number of Racks	04 Numbers; 06–08 Racks as per tray adjustment
Tray Spacing	15–20 cm
Controlling System	Highly Advanced Touch-Screen HMI & PLC Control System
Display	Digital LCD Display, 7-inch Screen Size
Temperature Range	10°C to 60°C; 10°C to 70°C
Temperature Accuracy	±0.5°C
Temperature Sensor	Pt-100 Sensor
Number of Temperature Sensors	05 Nos. (01 Main + 04 for Data Logging Purpose); 09 Nos. (01 Main + 08 for Data Logging Purpose); 5 Temperature Sensors in the specified configuration
Humidity Range	40% RH to 90% RH
Humidity Accuracy	±3% RH
RH Sensor	Capacitance Type RH Sensor
Number of RH Sensors	05 Nos. (01 Main + 04 for Data Logging Purpose); 5 RH Sensors in the specified configuration
Validation Port Hole	150 mm Diameter, Port Hole Provided with Removable Sealed Cap

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Specification	Details
Observation Window	Provided to Inspect Test Samples Without Disturbing Chamber Operation
Observation Door	Polycarbonate Sheet Door for Inspecting Test Samples Without Disturbing Chamber Operation
Illumination	LED Light
Time & Date	User-Adjustable Date & Time Settings
PC Software	21-CFR (Part-11) Compliance Software as per USFDA Guidelines
Communication	RS-232 / RS-485 Communication Port
Magnetic Door Lock	Password-Protected Entry Levels for Operator, Supervisor, etc.
IQ/OQ/PQ	IQ, OQ, DQ Documents as per USFDA Guidelines, Validation Report and Instruction Manual
Blower	For Uniform Temperature & Humidity Distribution Throughout the Chamber
Power Consumption	3000 Watts (3 kW); 4500 Watts (4.5 kW); 5000 Watts (5 kW)
Power Supply	230 Volts, 50 Hz, Single Phase, AC Supply; 440 Volts, 50 Hz, Three Phase, AC Supply
Refrigerant	CFC-Free Compressor with 134A Gas
Refrigeration System	Hermetically Sealed Compressor, Evaporation Coil, Condenser, Expansion Valve, Driers, Oil Separators, Pressure Gauges and Vibration Eliminators
Refrigeration Make	Emerson / Kirloskar Make
Humidity Generation	Steam Injection Method
Boiler Tank	Fitted at the Back Side for Better Servicing
Water-Level Control	Float Valve for Automatic Water-Level Control and Maintenance
Door	Front-Opening Single Door with Right-Hand-Side Robust Hinges
Door Gasket	Leak-Proof Double-Lined Silicon Gasket

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Specification	Details
Emergency Door Facility	Chamber Door Can Be Opened from Inside in Case of Emergency
Electrical Controls	Relays, Contactors, SSR, MCB, Mains Switch, Fan Control Switch, Compressor ON/OFF Switch with Indicator and Dry Heater Switch with Indicator
Safety	Over-Temperature Thermostat, Heating-System Thermal Fuses, Low-Water-Level Boiler Cut-Off, Electrical Overload Cut-Off, Compressor ON Time Delay and Electrical Circuit Breaker
Viewing Window	Multi-Pane Toughened Clear Glass, Silicone Sealed with Spacers, Completely Vacuumed/Vacuumised
Wiper	Provided to Clear Condensed Water Droplets from Viewing Glass
Documentation	IQ/OQ/PQ Documents, Calibration Certificates and Instruction Manual
Additional Supplied Documents	General Assembly Drawing, Qualification Documents, Installation & Operational Instruction Manual, Electrical Wiring Diagram, Warranty Certificate and Calibration Certificate
Pre-Installation Flooring	Zero Flooring Level (± 5 mm)
Water Supply	Continuous Soft Water Supply at Rear Side of Unit for Humidity System
Installation Power Requirement	Stabilized Power Supply of 220 Volts, 50/60 Hz
Drainage	Drain Outlet at Rear Side of Unit
Installation Environment	Cross-Ventilated and Dust-Free Environment Below 35°C
Control Backup	UPS for Control System

The source specifically lists the general assembly drawing, qualification documents, installation/operational manual, electrical wiring diagram, warranty certificate and calibration certificate as supplied documentation, and gives the stated pre-installation requirements.

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Compliance & Design Requirements

- CE Certified.
- Designed as per ICH guidelines.
- Designed to meet WHO requirements.
- Designed to meet USFDA requirements.
- 21-CFR Part-11 compliant PC software as specified.
- Electrical wiring as per CE compliances.

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