



ENVIORNMENTAL **TEST CHAMBERS**

MODEL NO. - ACM-78091-S





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We are manufacturers of environmental chambers in India since last two decades. Our environmental test chambers/environmental control chambers are conceptualized and designed to create test chambers to study and contemplate the effects of different environmental parameters such as humidity, temperature and light in various applications tests involving micro-organisms, plants, tissues, electronic components etc. apart from various customized industrial and research applications. Our environmental chambers have a variety of usage in R & D laboratories, research studies and product testing facilities across the globe.

Apart from that, these environmental test/control chambers have a variety of usages in tissue culture applications, enzyme reaction studies, growth observation studies, fermentation analysis and various other general and specialized applications in various laboratories.

We specialize in both standard and customized environmental test chambers, specifically designed to meet the challenging demands of various scientists for individual and specialized research applications. Over a

short period of time Weiber brand have been established as reliable exporters of environmental chambers in India, catering to the vast in South East Asia, Middle East, Africa and Europe.

Apart from that we are supplying our environmental test chambers in India, catering to a variety of customers ranging from Defence Installations, Research Laboratories, Educational Institutes and various R& D laboratories of leading national and multinational companies.

SALIENT FEATURES

- Reliable
- Precise Control Of Environmental Parameters
- Micro-processor based Controllers
- Aesthetically designed
- Corrosion Resistant interior and exteriors
- Energy Efficient
- CFC free cooling
- Sturdy Construction
- Low Maintenance



CONSTRUCTION

Weiber environmental chambers are double walled convection heated and cooled units. Outer body of our environmental chambers are constructed out of thick PCRC sheet duly pre-treated with primers and rust proofing and painted with long lasting stove enamel or elegantly powder coated.. The inner chamber is made of heavy gauge stainless steel sheet of SS-304 grade or anodized aluminum sheet or G.I. (as per the customer's requirements). The gap between the walls is filled high grade mineral glass wool, which ensures maximum thermal efficiency in our chambers.

The unit is provided with two doors , the inner door is made of thick plexi glass/float glass, to view the specimens/culture media/stocks, without disturbing the temperature of the chamber. This door is provided with magnetic door closer. The outer door is made of mild steel sheet lined with stainless steel from inside.. This door is provided with lock and key arrangement. The unit is mounted on a sturdy steel frame The unit is provided with various customized shelves in various permutations and combinations to suit individual requirements. The triple walled back of our environmental

chambers are provided with two/ Four/ Six/ Eight (size specific) air circulation fans for uniform maintenance of the temperature throughout the chamber.

HEATING

Indirect heating system is provided in our units, comprising of air heaters made of high grade Kanthal A-1 wires of suitable wattage. The warm air is evenly distributed throughout the chamber through efficient motor fans ensuring a very good temperature sensitivity.

COOLING

An energy efficient cooling unit is installed in our environmental chambers to enable bio chemical demand , cyclic and growth studies at lower room temperatures. We use ISI marked high end CFC free compressors of Kirloskar/Tecumseh make, conforming to latest international standards and guidelines.

HUMIDIFICATION

A low-pressure droplet free vapor boiler using direct vaporization system is used. Water Reservoir is provided at



the side of the chamber with a 10 x 8mm PU tube quick connector and water level is automatically controlled through a water-in solenoid valve. The wick tank water level is automatically maintained through a water solenoid valve and an electrical float switch. The de-mineralized water or single distilled water supply to the humidity inlet having a resistance measurement of approximately 50,000 – 200,000 Ohm/cm is provided with the unit.

HUMIDITY RANGE

10% to 95% (Humidity Applicable as per the Temperature Humidity Graph Attached)

DEHUMIDIFICATION

Refrigeration based de-humidification system is used. The desired level of lower humidity will be achieved by maintaining the precise dew point temperature. The output will automatically be activated based on the set point as well as in ramp up mode after a low temperature cycle.

HUMIDITY SENSITIVITY

Humidity is controlled by mean of an electronic humidity controller cum indicator with an accuracy of +5%

TEMPERATURE CONTROL

The temperature inside our environmental chambers is controlled through programmable micro-processor based temperature controller cum indicator.

TEMPERATURE RANGE

Temperature range of our standard Chamber is 5° c to 90° c. However we have the capacity to modify the same from -100 to +300°C to suit the individual specialized requirements of our customers.

TEMPERATURE SENSITIVITY

Temperature inside our environmental chambers are controlled with a sensitivity of $\pm 0.5^{\circ}$ c or better.

ILLUMINATION

Our environmental chambers are provided with door operated illumination system comprising of fluorescent lights, beside two panels of diffused fluorescent light panel located at the either side of the chamber to enable the user to conduct the photo periodic tests and experiments.

ILLUMINATION CONTROL

The illumination is controlled through solid state cyclic timer to control the photoperiodic cycle of the chamber.



FRONT PANEL

Front panel of our units comprises of on/off switches heating, cooling and mains indicator lamps, temperature controllers and voltmeters.

INSULATION

The gap of 75 mm between the outer and the inner wall is filled with special grade glass wool to prevent thermal losses.

MINERAL GLASS WOOL INSULATION

Glass mineral wool is one of the most environmentally friendly, stable and sustainable insulants available. Glass wool is incombustible by nature. Euro class classification is A. It does not propagate flames and toxic smokes. Thanks to a dense entanglement of materials with a low conduction and trapping a great amount of air, glass wool is an excellent thermal insulant. The thicker it is, the best thermal resistance it has, thus reducing heat losses in our equipments for better sensitivity and economical operations. And its impact on the environment in manufacture, use and disposal is minimal.

AIR CIRCULATION

Triple walled back of unit is fitted with two air circulation fans for maintaining temperature uniformly throughout the chamber.

FEATURES OF COAXIAL CIRCULATION FAN

- Vacuum impregnated stator winding with dr. back varnish under red baktol
- Non-hygroscopic.
- Best IR value
- Bright bar (EN - 8 class) shaft.
- Bush bearing of branded companies.
- Surge comparison testing in fans and pumps eliminates into turn short circulating of the stator.
- Pressure die-casted-rotor manufactured with zero error.
- Boats of high accuracy

DOORS

Full view inner glass/Perspex door permits inspection of specimens, without disturbing the chamber temperature.



Lock and Key arrangement is provided in the double walled outer door.

FRONT PANEL

The front panel is provided with separate indicator lamps for main heating and incoming voltage. Digital Temperature controller cum Indicator voltmeter.

SHELVES

The unit is supplied with three shelves of stainless steel sheet.

VOLTAGE

To work on 220/230V A.C. supply.

REFRIGERATION UNIT

Refrigeration unit is formed by ISI marked compressor/cooling kit. Of Kiloskar Copeland or Tecumseh.

FEATURES

- High Energy Efficiency

- Compact
- Ozone-friendly refrigerants
- Proven Technology
- Wide Voltage Range

APPLICATION

| | |
|------------------------|----------------------------|
| Evaporating Temp Range | 0-60 Degree C |
| Refrigerant | R- 134a |
| Refrigerant Control | Capillary |
| Compressor Cooling | Static |
| General Applications | Refrigerator/ Deep Freezer |

RATED PERFORMANCE

| | |
|-------------------------|-----------------------------------|
| Cooling Capacity -Rated | 282 – 650 Btu/hr (Model specific) |
| Power input -Rated | 80-110 Watts (Model Specific) |
| Energy Efficiency Ratio | 3.53 Btu/Whr |
| Current - Rated | 0.70 Amps |
| LRA -Rated | N/A |
| Evaporating Temperature | -23.3°C |



| | |
|-------------------------|-------------------------|
| Condensing Temperature | 54°C |
| Liquid Sub Cooling Temp | 32°C |
| Return Gas Temperature | 32°C |
| Ambient Temperature | 32°C |
| Pressure- Suction | 0.32 Kg/Cm ² |
| Pressure- Discharge | 12.9 Kg/Cm ² |

MECHANICAL DATA

| | |
|--------------------------|---------------|
| Design | RECIPROCATING |
| Displacement/Revolution | 3.14 CC |
| No. of Cylinders | One |
| Speed (Nominal) | N/A |
| Oil Charge | 230 CC |
| Weight | 7.3 Kgs |
| Internal Pressure Relief | PROVIDED |
| Valve | |

MOTOR DATA

| | |
|------------|--------|
| Motor Type | PTCSIR |
| Frequency | 50 Hz |

MOTOR DATA

| | |
|---------------------|-----------|
| Phase | SINGLE |
| Voltage -Rated | 230 Volts |
| Voltage -Range | N/A |
| High Potential Test | N/A |

OVER LOAD

PROTECTOR

| | |
|------|----------|
| Type | EXTERNAL |
|------|----------|

STANDARD SIZES

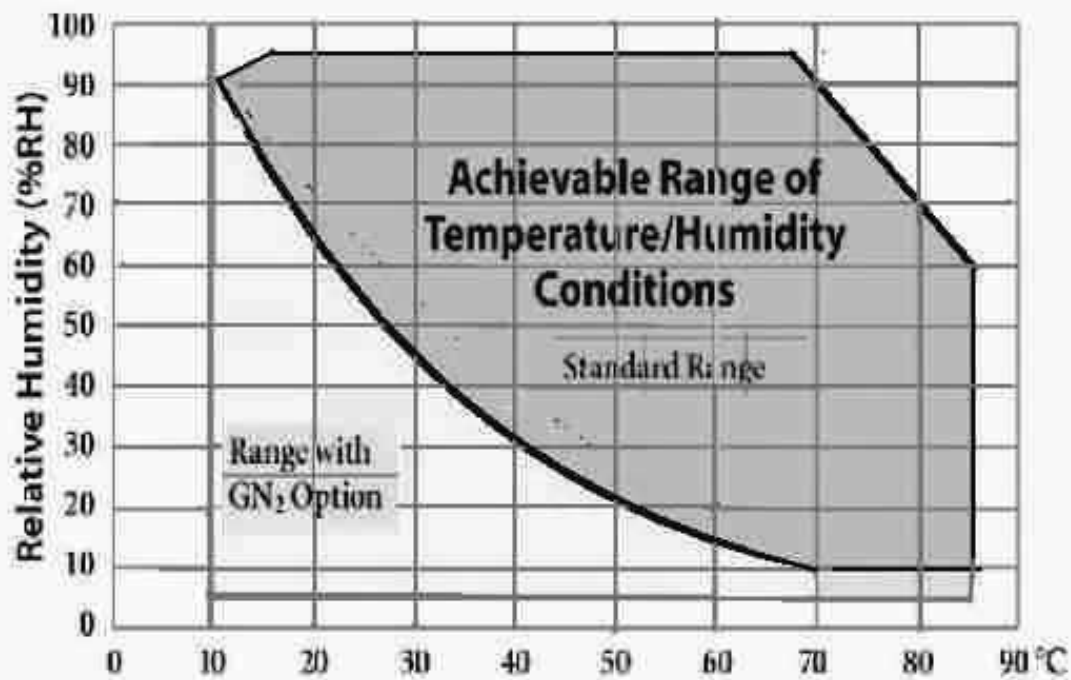
| W x H x D | CAPACITY |
|---------------------|----------|
| 505 x 830 x 415 mm | 6 Cu.ft |
| 570 x 875 x 550 mm | 10 Cu.ft |
| 650 x 900 x 550 mm | 12 Cu.ft |
| 700 x 900 x 650 mm | 15 Cu.ft |
| 775 x 900 x 775 mm | 20 Cu.ft |
| 825 x 1200 x 825 mm | 30 Cu.ft |
| 900 x 1720 x 800 mm | 45 Cu.ft |

Note: We undertake to manufacture customized environmental chambers as per the specific requirements.



HUMIDITY VS TEMPERATURE GRAPH

Standard Humidity Range:



Above is a chart that shows the achievable range of humidity as compared to temperature

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- High Energy Efficiency



TECHNICAL MATRIX

| | | |
|----------------------------|------|---|
| Temperature Control | - | - |
| Temperature Sensitivity | ± °C | 0.5 or better |
| Spatial Deviation In | ±°C | 0.5 or better |
| Temperature | | |
| Readability | °C | 0.1 |
| Humidity Range | % | 10% to 95% (Humidity Applicable as per the Temp. Humidity Graph Attached) |
| Humidity Sensor | | Capacitive |
| Temperature range | °C | 5°C to 90°C |
| Temperature Sensor | - | PT-100 |
| Temperature Controller | - | PID Controller |
| Display | - | LED/LCD |
| Adjustable alarm limits | - | Optional |
| Water Quality | - | Distilled / Ionized |

| | | |
|-----------------------------------|---|--------|
| Safety thermostats | - | - |
| Temperature variation Adjustments | - | 3 |
| Temperature Sensors | - | PT-100 |
| Automatic temperature setting | | Yes |
| Adjustable limits | - | Yes |

| | | |
|----------------------------------|-----|-------------------------------|
| Light control | - | - |
| Readability or Set ability | % | 10% (optional feature) |
| Light intensity (Middle chamber) | Lux | As Desired (optional feature) |
| Light intensity (Both Sides) | Lux | As Desired (optional feature) |

| | | |
|---------------------------|--------|----------|
| Accessories | - | - |
| De-icing module | - | Optional |
| Timer (999 mins) | - | Optional |
| Program (Real Time) | - | Optional |
| Data Acquisition Program | - | Optional |
| Serial Port (Printer) | RS232C | Optional |
| Inspection window in door | - | Optional |
| Access Port 30 mm | - | Optional |
| Castors, lockable | - | Yes |

| | | |
|---------------------|----|-----------------------------------|
| Shelves | - | - |
| Standard | - | 3 |
| Internal Dimensions | mm | Model Specific |
| Power consumption | - | - |
| Nominal voltage | V | 220-230 Volts, 50 Hz Single Phase |
| Frequency | HZ | 50 |



OPTIONAL UPGRADES FOR ENVIRONMENTAL CHAMBER (IF DESIRED)



DATA ACQUISITION AND CONTROL SYSTEM FOR ENVIRONMENTAL CHAMBER

This is unique module which can be incorporated with our environmental chamber to log in temperature and environment related data with a help of a data logger unit which has pc connectivity by means of RS 232 C interface.

This data is then analyzed and formatted with the help of our unique user friendly analysis software to enable the user to get a formatted and analyzed reports of various inputs during the full operation cycle of the equipment. This is an ideal module for pharmaceutical laboratories, process control applications and high research projects where maintaining a viable record of the performance of the equipment is very essential.

FEATURES

- Our system incorporates multiple Devices such as in line process Indicators, environment scanners and temperature or humidity controllers.
- Provides Astech cable for direct interface to any dot matrix or laser printer for online or offline data records printing
- It has Bulk data storage capacity with high data retention life.
- Facility to obtain nicely formatted print out of the logged data or records with proper headers.
- Our system provided facility to program recording interval with various options to suit individual requirements.
- It is provided with the feature to adjust or select baud rate for any serial communication port.
- Our system is provided with user friendly custom developed software which obtains and analyze the data and facilitates the user to generate reports and graphs etc.



An ISO 9001 : 2208 | ISO 14001 : 2008 | ISO 13485

WHO: GMP Products | GLP Compliant Products

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