



PLOT NO. 1131 HARI ENCLAVE KIRARI SLEMAN NAGAR NEW DELHI-110086

2ND PLANT H-936 RIICO CHOPANKI INDUSTRIAL AREA ALWAR RAJSTHAN-301707



RESOTECH - HUMIDITY CABINET CHAMBER

Professional Manufacturer of Test Equipment



MAKE: RESOTECH

MODEL NO. : RESOTECH KARA-2607

RESOTECH-HUMIDITY CABINET CHAMBER



RESONANCE AUTOMATION & MACHINE

MANUFACTURERS SUPPLERS

SPECIAL PURPOSE MACHINE, MATERIAL TESTING MACHINE, LEAKAGE TESTING MACHINE, PACKAGING TESTING MACHINE, ENVIRONMENTAL TEST CHAMBER, ASSY. LINE EQUIPMENT, SOLUTION FOR ELECTRONIC AUTOMATION AND PRODUCT DEVELOPMENT, COMPUTERIZED CONTROL MACHINE , PLC HMI SCADA VISUAL BASIC SOFTWARE DEVELOPMENT SOLUTION AND OTHER SERVICES.

Characteristics

Superior temperature and humidity distribution, fully supports demanding criteria

- **$\pm 0.5^{\circ}\text{C}/\pm 2\%\text{rh}$ guaranteed**

Supports severe storage conditions of $\pm 0.5^{\circ}\text{C}/\pm 2\%\text{rh}$

- **Viewing window**

The viewing window on the door comes with a heat element, to prevent it from fogging.



- **Area Temperature and Humidity Control System**

An area temperature and humidity control system allows positioning of temperature sensors as desired. Control is performed to correct for deviation from the setting temperature due to the test area size and ambient temperature, which means highly accurate temperature and humidity control within the test area.

- **Door Lock**

A door lock protects against loss of specimens and ensures security.



● Full-view inner glass door

Full-view inner glass door is equipped as standard. It lets you easily check on samples without temperature and humidity fluctuation that caused by opening and closing the outer door.



● Vacuum Insulation

HG model HUMIDITY test chamber is the first in the environment test chamber industry to adopt vacuum insulation, which reduces the effect of ambient temperature.



● Temperature and humidity recording and monitoring

A temperature and humidity detection terminal is equipped as standard.

A connector that provides simple connection and disconnection is equipped as an accessory.



RESOTECH

● Variety of volumes

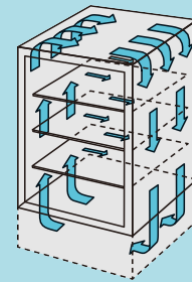
● Virtual Air Jacket System



A new developed Virtual Air Jacket system makes it possible to maintain uniform temperature and humidity distribution within the chamber.

Air blown from below circulates along the chamber walls for stable airflow that is not affected by specimen volume, etc. Storage conditions stipulated by ICH guidelines are maintained, regardless of the position in which specimens are located (within effective dimensions).

● Air flow (Virtual Air Jacket)



● Smooth specimen access

Sliding shelves are used to allow easy access to specimens. Shelves can be pulled out to one-half of their depth. When heavy specimens such as liquids are placed on the shelves, a fall-prevention mechanism keeps them from being pulled out when slid forward. (Equally distributed load per shelf is 30 kg)

Due to low exhaust heat design, it is not required space between the back of the chamber and the wall. The electric circuits and refrigeration circuit are consolidated in the front of the door and the bottom of the chamber to minimize the chamber's width.

● Easy maintenance

Maintenance work such as cleaning the condenser fins and filling the water tank can be easily operated.



● $\pm 0.5^{\circ}\text{C}/\pm 2\%\text{rh}$ guaranteed

All models fulfill the HUMIDITY requirements of the Long Term Storage Testing and Intermediate Testing. The conforms to more demanding Accelerated Testing HUMIDITY requirements.

● Reliable temperature and humidity sensor

A high-accuracy resistance temperature detector (Pt100) is used for the temperature sensor, and a capacitive thin-film polymersensor is used for the humidity sensor. You are free from wet-bulb wick replacement in dry-bulb systems and the effects of microorganisms that have become attached to the wick.

● Saving energy

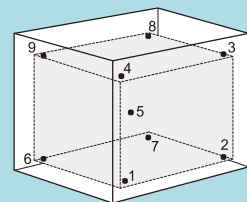
The 132, a newly developed large capacity type, can be used with the same power consumption as the 122, which is expected to hold down running costs during long-term usage. The maximum load current has been reduced 36% compared to previous model.

● Frost-free, continuous operation

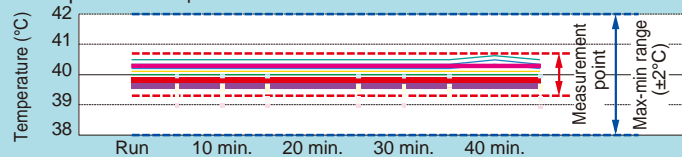
Evaporator frosting is prevented to allow continuous operation without interrupting test.

● Temperature and humidity distribution measurement data

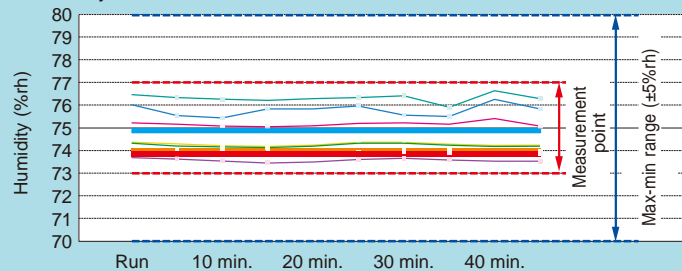
Nine points in the effective space of the test area are measured.
(Performance shown above conforms to IEC)



■ Temperature Set point: $+20^{\circ}\text{C}$ to 70°C



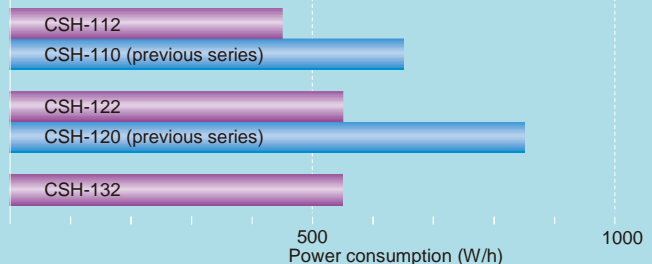
■ Humidity Set point: 20%rh to 95%rh



● Power consumption comparison

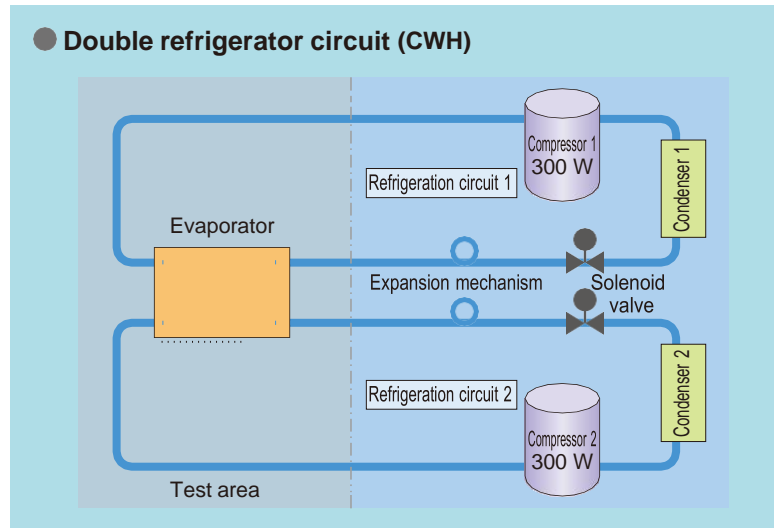
— CSH

Operating conditions: $+20^{\circ}\text{C}/95\%\text{rh}$



RESOTECH

● $\pm 0.5^{\circ}\text{C}/\pm 2\%\text{rh}$ guaranteed



Accelerated testing at a more severe storage condition than ICH guideline, 20° to 70°C
 $\pm 0.5^{\circ}\text{C}/\pm 2\%\text{rh}$ is possible.

● **Double refrigerator circuit for reliable design**

Two independent refrigerator circuits are provided to ensure that operation continues even should one circuit experience problems. Those can be used alternately, which contributes to longer overall refrigerator circuit service life. The result is a system with built-in risk management.

● **Area Temperature and Humidity Control System**

An area temperature and humidity control system allows positioning of temperature sensors as desired. Control is performed to correct for deviation from the setting temperature due to the test area size and ambient temperature, which means highly accurate temperature and humidity control within the test area. The growth of bacteria is suppressed with a structure that maintains a high humidifying water temperature. The humidifier is also easier to clean.



Temperature and humidity sensor

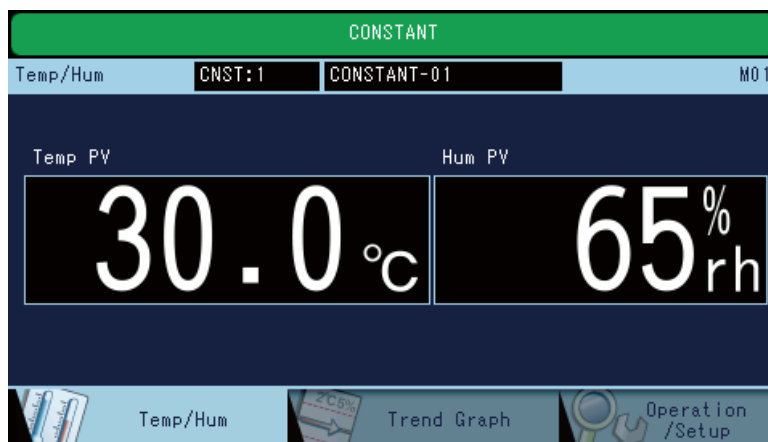


N-Instrumentation

● Easy-to-use instrumentation

Unlike the smartphones, the controller comes with resistive touchscreen, which allows you to operate without taking off your gloves.

Various items, including operation settings and chamber setup, can be selected with the tabs at the bottom of the screen.



● Absolute temperature/humidity limit alarm

This chamber is equipped with a standard function to transmit an alarm when a process value has deviated from the temperature/humidity set points. The temperature/humidity allowable range and temperature/humidity HUMIDITY time can also be registered as desired. Registering the HUMIDITY testing guideline standards of $\pm 0.5^{\circ}\text{C}/\pm 2\%\text{rh}$ allows a rapid response when problems occur.

HUMIDITY CHAMBER



RESONANCE AUTOMATION AND MACHINES
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SETTING

All software settings and backup options are here. A “admin” password is required to get in to this option. Settings menu shown below.

HUMIDITY CHAMBER

FrmLogin

Password

OK

Cancel

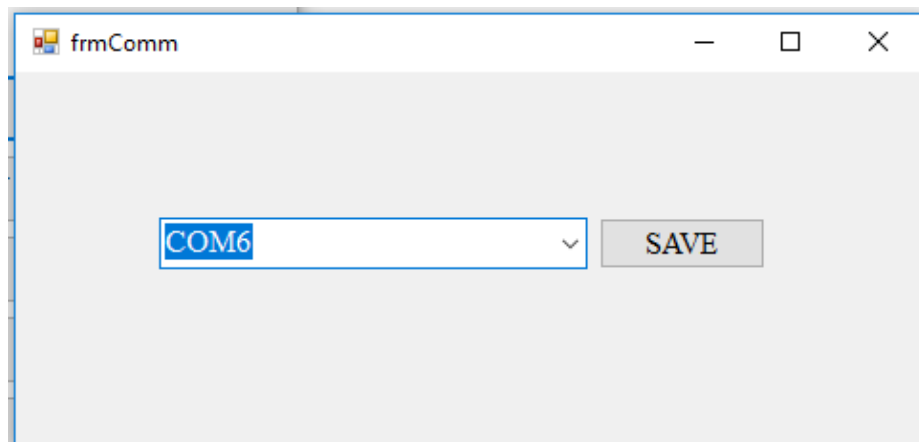
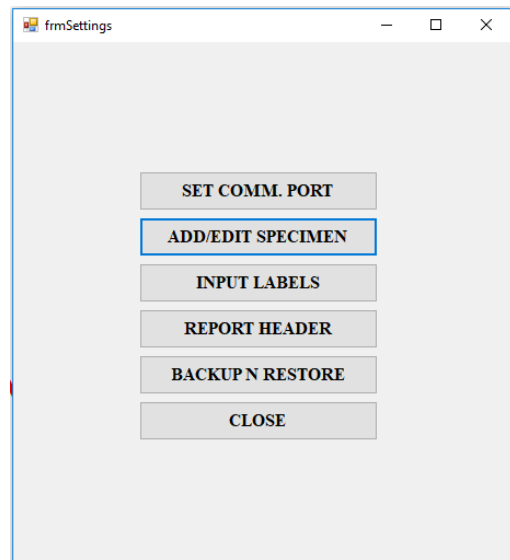


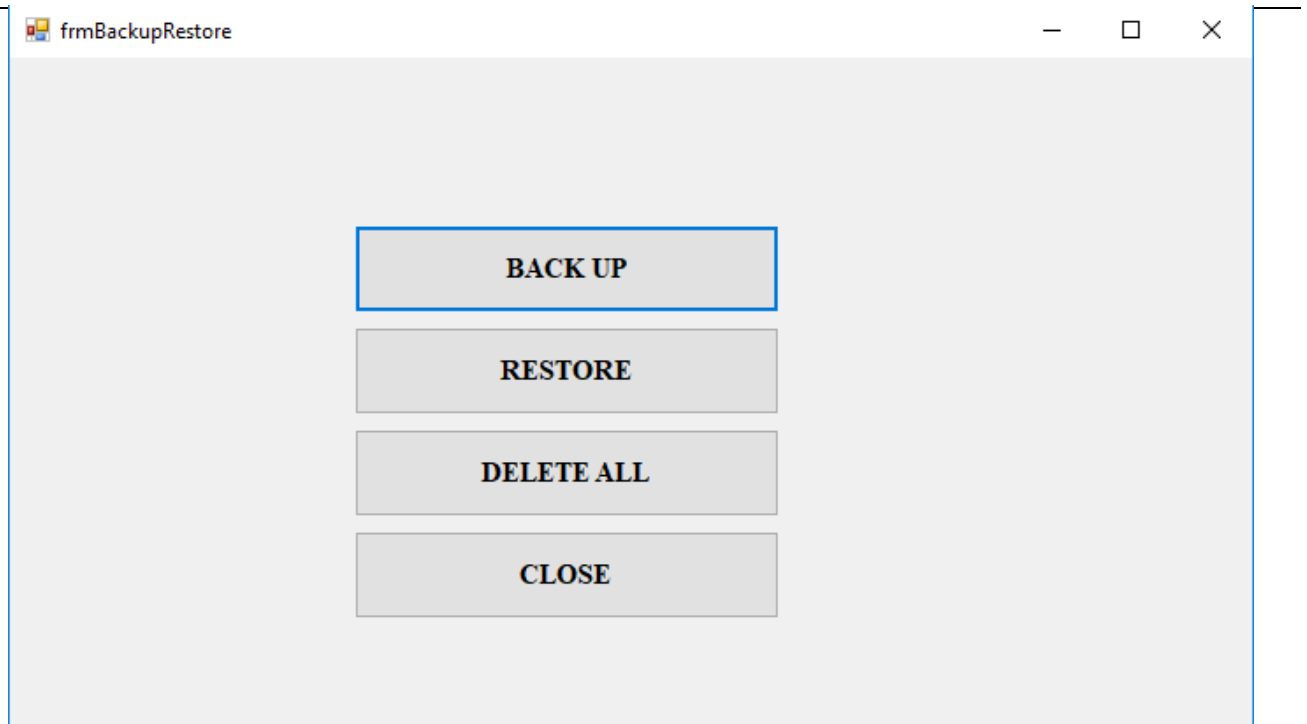
RESONANCE AUTOMATION AND MACHINES
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take backup of all test and settings here. It is advised to take back in regular intervals.

Restore

Any time if your software get corrupted or loss of data, administrator can restore back data back to system using this option. Care should be taken while restoring the data, by clicking delete all data administrator has to clear all current then use restore.(Note : only the data till backup date will be restored).



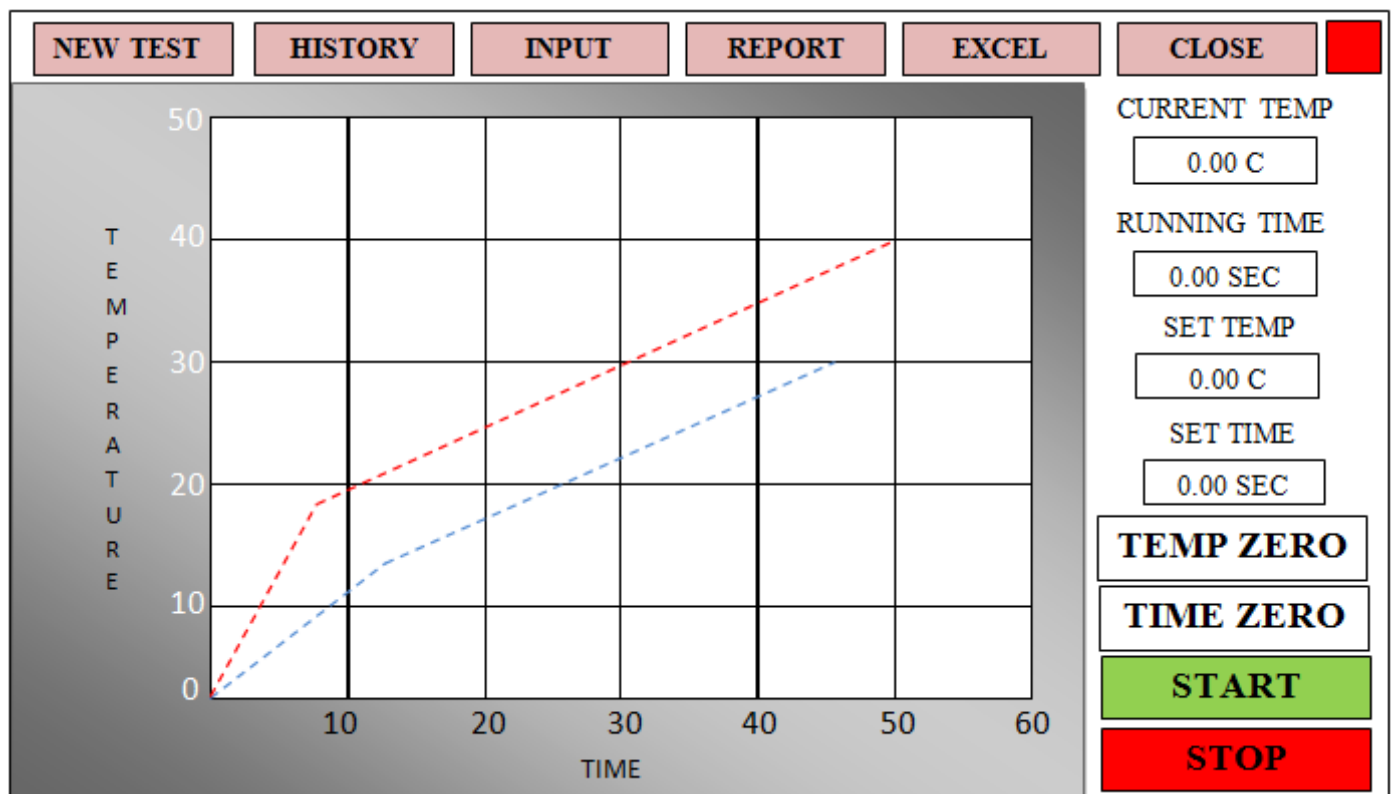


TESTING

New Test – Old Test data and graph get cleared and ready for new test.

User has to select the group in which he want to do testing. When user select a group all settings get loaded.

Click Start to start test. Input details given below.



HISTORY

Here user can see all previous test and take print out from here.

GROUP

TEST DATE FROM

TEST DATE TO

TMT bar

13-Nov-17

14-Nov-17

SELECT RANGE CLICK

Load Vs Elongation

		Sl. No.	Test No	Operator	Test Date	Peak Force	Force at Break	Elong. at Peak	Elong. at Break	Test Time	Proof Load	Peak Stress	Peak Strain	% Elong
		1	57		13-Nov-17 6:45:14 PM	24.721	24.056	18	17.5	7.1	0	258.75	0.18	18
		2	56		13-Nov-17 6:39:48 PM	80	80	90	91.5	37.1	76.5	837.34	0.92	92
		3	55		13-Nov-17 6:06:48 PM	80	80	90	162.5	66.1	76.5			162
		4	54		13-Nov-17 5:58:41 PM	79.562	79.486	84	83.5	33.8	76.5			84
		5	53		13-Nov-17 5:51:25 PM	80	80	90	110	44.7	76.5			110
		6	52		13-Nov-17 5:46:20 PM	80	80	90	96	38.9	0			96
		7	51		13-Nov-17 5:13:27 PM	65.129	64.721	54.5	54	0	0			54
		8	50		13-Nov-17 4:42:27 PM	80	80	90	126.5	51.3	0			126
		9	49		13-Nov-17 4:38:39 PM	80	80	90	159	138.1	0			159
		10	48		13-Nov-17 4:29:50 PM	80	80	90	120.5	48.9	0			120
		11	47		13-Nov-17 3:30:50 PM	80	80	90	195	0	0			195
		12	46		13-Nov-17 2:52:45 PM	80	80	90	100.5	0	0			100
		13	45		13-Nov-17 2:49:15 PM	80	80	90	99	0	0			99
		14	44		13-Nov-17 2:46:06 PM	80	80	90	98	0	0			98
		15	43		13-Nov-17 1:27:22 PM	11.212	8.09	7.6	8.2	0	0			8
		16	42		13-Nov-17 1:17:35 PM	11.421	5.041	8.7	9.3	0	0			9
		17	41		13-Nov-17 1:07:40 PM	9.929	9.114	5.8	5.9	0	0			6
		18	40		13-Nov-17 12:57:01 PM	6.578	3.248	6	6.4	0	0			6

PRINT

EXIT

REPORT

REPORT

After each testing the report will be auto generated and saved into specified folder. User can generate a report directly from testing window and from history. range settings also here.

EXCEL

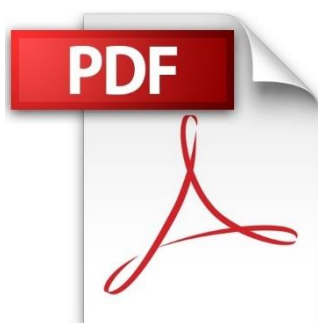
EXCEL

User save raw test data into excel file using this option.

TEST REPORT FORMAT



EXCEL



PDF

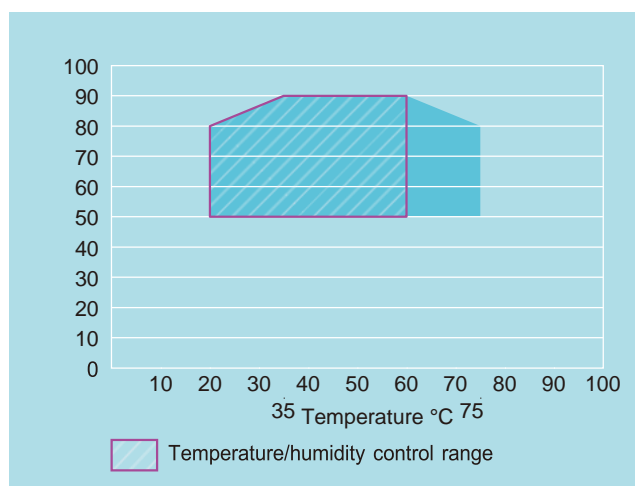


WORD

RESOTECH

Model		RESOTECH KARA-2607	RESOTECH KARA-2607	
System		Balanced temperature and humidity control system		
Performance	Temp./humid. range *1	+20°C to +70°C/ 20% to 95% Rh		
	Accuracy	±0.5°C/±2%rh		
	Temp. Resolution	±0.1°C		
	Dimension	600mm (H) X 450mm (W) X 450mm (D)		
Accessories		Inner door (reinforced glass), Power cable (about 2m), Drain hose (x2), Temperature detect terminal (Pt100), Humidity sensor terminal, External alarm terminal, Ethernet port (LAN port), Through-hole for sensor (ø25 mm, right side), Quick joint for water circuit drain, Leveling feet casters (x4), Dew tray		
Heat exhaust		1650 kJ/h	2130 kJ/h	
Weight		127 kg	240 kg	370 kg
Maximum chamber loadcapacity		Maximum 120 kg to 370 kg		
No. of shelves		03		
No. of trays		03		
Temperature display		Digital		
Drift Over 72 hours		Less than 1°C & 2% rh		
Main Cabinet		Triple walled main cabinet with forced air circulation by motorized blower		
Wall made		Innermost of SS Middle wall of G.I sheet		
MS Outer body with		1. Rustproof, permanent powder coated finish to prevent corrosion 2. Outer double walled insulated door and inner full view transparent		
Nos.		3 Nos. heavy duty removable S.S shelves.		
Whole unit		Mounted on castor wheels for easy movement		
Power supply		230 V/ 1 Ph/ 50 AC		
Water supply		One inlet and one outlet port for continuous water supply and overflow.		
Temperature control		Chamber is heated by nickel chromium air heaters and below ambient temperature is attained with mechanical refrigeration by an ISI marked hermetically sealed compressor unit		
Safety features		1. High temperature safety cut off 2. Low water level boiler cut off 3. Electrical overload cut off 4. Electrical circuit breaker 5. Float valve to control water level in boiler tank 6. Safety from input power fluctuation 7. Control panel 8. Digital temperature controller 9. Energy regulator for heat control & blower ON/OFF cycle 10. Load indication lamp 11. Voltage stabilizer		

TEMPERATURE/HUMIDITY CONTROL RANGE



ACCESSORIES

- Key (for door) 2
- Shelf/bracket (stainless) 3
- Cartridge fuse (7 A)..... 1
- Temperature-detecting terminal connector..... 1
- Humidity-detecting terminal connector..... 1
- Filter for water..... 1
- Water tank (about 10 L) 1
- Hose with quick joint 1
- Level gauge 1
- Silicon rubber plug..... 1
- Operation manual (CD, Installation manual)..... 1 set

OPTIONS

Power supply voltage

- 220 V AC 1ø 2 W 50/60 Hz
- 230 V AC 1ø 2 W 50 Hz

Direct water coupling to tap water

A water circuit to supply pure water continuously to the chamber.

- Pure water coupling with pressure-reducing valve
- Pure water coupling without pressure-reducing valve

Water purifier (reverse osmosis)

Use to continuously supply pure water.

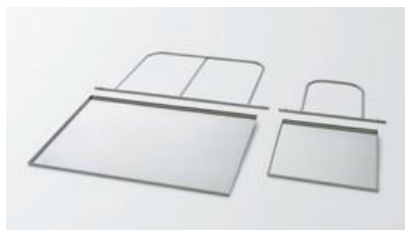
- WS-1
- Produced water capacity: 12 L/h
Size: W480 × H400 × D280 mm

*To prevent damage in the event of water leakage when installing the following optional products, a dew tray (sold separately) and other preventive measures can be prepared.

- Continuous water supply
- Water purifier

Shelf/shelf bracket

Equivalent to standard accessory.



Paperless recorder

A temperature & humidity recorder that utilizes a liquid-crystal display fitted with a touch-panel.

Display: 5.7inch color touch panel
Scan interval: 5 sec.

(default) Internal recording media:

Flash memory 8MB

Memory slot: Compact flash ×1, USB

×1 Inputs: Temperature ×1, Humidity

×1 t

200

1440

* External dimensions change when attaching the recorder at the left or right side.
(Please refer to the recorder location.)

Temperature (humidity) recorder

< Temperature & humidity type

> Temperature range: -50 to

+100°C Humidity range: 0 to

100%rh Location: Left, right or lower left

(facing the chamber)

* External dimensions change when attaching the recorder at the left or right side.
(Please refer to the recorder location.)

Number of inputs : Temperature 5, Humidity 1

Recorder backup

In case of power failure, power is supplied to the temperature/humidity recorder and humidity sensor, and test area temperature/humidity is recorded.

Recharge time: 12 h

Backup time: 40 min.

Thermocouple

Attached to specimen to measure its temperature.

Thermocouple with a brass ball tip

Thermocouple type T (Copper/Copper-Nickel)

- 2 m
- 4 m
- 6 m

Anchoring fixtures

Used to fix the chamber to the floor.

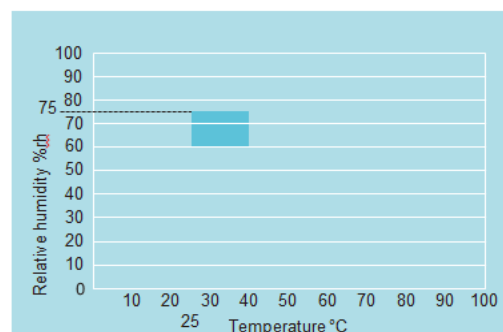
Chamber dew tray

Prevents water leaks from the chamber onto the floor.

Operation manual

- CD
-
- Booklet

TEMPERATURE/HUMIDITY CONTROL RANGE



ACCESSORIES

- Key (for door).....2
- Rubber plug (for 50ø cable port).....1
- Cartridge fuse (3 A).....2
- Temperature-detecting terminal connector1
- Humidity-detecting terminal connector.....1
- Operation manual (CD, Installation manual).....1 set

OPTIONS

Stainless steel shelf

Shelf: 4
Dimensions: W910×H1587×D460
mmWeight: 22 kg
Shelf load capacity: 250 kg (per shelf)

Time signal terminal

Equipment Terminal boards: 2

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Overcool protector

If the temperature inside the chamber decreases excessively, the chamber stops operating to prevent the specimens from being damaged.

Operator safety switch

A mushroom type button installed to protect operators. When pressed, chamber operation stops with alarm buzzer.



Emergency stop pushbutton

Stops the chamber immediately

Operation manual

- CD
- Booklet

Reports & certificates

- Testing and inspection report
- Calibration results
- Calibration certificate
- Traceability certificate
- Traceability system chart
- Validation service*

SAFETY DEVICES Stability Test Chamber

- Leakage breaker for power supply
- Short circuit protection fuse for control circuit
- Electrical compartment door switch
- Chamber thermal fuse
- Humidifier boil-dry protector
- Temperature switch for air circulator
- Refrigerator overcurrent protection
- Overheat protector
- Temperature burn-out circuit (with built-in temperature/humidity controller)
- Humidity burn-out circuit (with built-in temperature/humidity controller)
- Absolute upper/lower temperature limit alarm (with built-in temperature/humidity controller)
- Absolute upper/lower temperature/humidity limit alarm (with built-in temperature/humidity controller)
- System error
- Temperature upper limit deviation alarm (with built-in temperature/humidity controller)
- Absolute upper/lower humidity limit alarm (with built-in temperature/humidity controller)
- System error (Alarm)
- Humidifier water level detection
- Water tank drought switch
- Area temperature burn-out circuit (with built-in temperature/humidity controller)
- Water tank low-level switch
- External device error detection

Validation

We supply service for highly reliable installation qualification (IQ) validation, including system inspection, calibration, and operational qualification (OQ) validation (option).

OUR VALUED CUSTOMERS



IndianOil

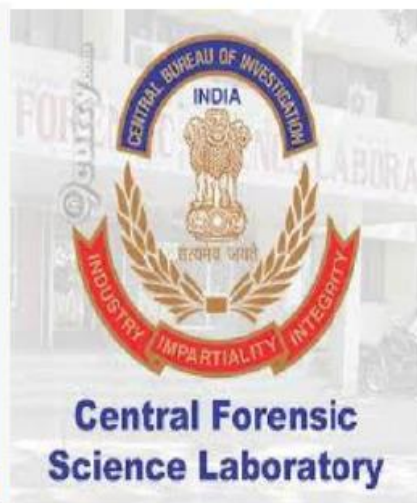


आरोग्यम् सुख सम्पदा



भारतीय मानक ब्यूरो
Bureau of Indian Standards
 The National Standards Body of India







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