PLOT NO. 1131 HARI ENCLAVE KIRARI SLEMAN NAGAR NEW DELHI-110086
2ND PLANT H-936 RIICO CHOPANKI INDUSTRIAL AREA ALWAR RAJSTHAN-301707

RESOTECH -PLANTH GROWTH Test Chamber

Professional Manufacturer of Test Equipment

MAKE : RESOTECH
MODEL NO. : RESOTECH PLANT-G-3011

RESOTECH-PLANTH GROWTH TEST CHAMBER

RAM

RESONANCE AUTOMATION & MACHINE

MANUFACTURERS SUPPLERS

SPECIAL PURPOSE MACHINE, MATERIAL TESTING MACHINE, LEAKAGE TESTING MACHINE, PACKIGING 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 PLANTH GROWTH distribution, fully supports demanding criteria

50-90%rh guaranteed

Supports severe storage conditions of
50-90%rh

Viewing window

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

Area Temperature and PLANTH GROWTH Control System

An area temperature and PLANTH GROWTH control system allows positioning of temperature sensors as desired. Control is performed tocorrect for deviation from the setting temperature due to the test area size and ambient temperature, which means highly accurate temperature and PLANTH GROWTH controlwithin 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 PLANTH GROWTH fluctuation that caused by opening and closing the outer door.

Vacuum Insulation

HG model PLANTH GROWTH test chamber is the firstin 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 PLANTH GROWTH detection terminal is equipped as standard.
A connector that provides simple connection and disconnection is equipped as an accessory.

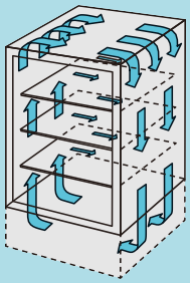
RESOTECH

Variety of volumes

Virtual Air Jacket System

A new developed Virtual Air Jacket system makes it possible to maintain uniform temperature and PLANTH GROWTH 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 mechanismkeeps 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 consolidatedin the front of the door and the bottom ofthe 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.

±50-90%rh guaranteed

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

Reliable temperature andPLANTH GROWTH sensor

A high-accuracy resistance temperature detector (Pt100) is used for the temperature sensor, and a capacitive thin-film polymer sensor is used for the PLANTH GROWTH 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

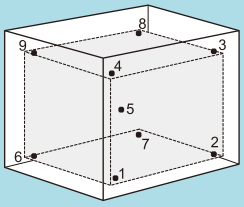
The 132, a newly developed large capacity type, can be used with the same power consumption as the 122, which is expected to hold down running costs during long-term usage. The maximum load current has been reduced 36% compared to previous model.

Frost-free, continuous operation

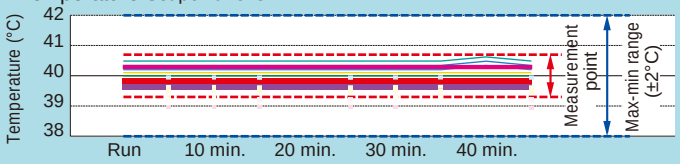
Evaporator frosting is prevented to allow continuous operation without interruptingtest.

Temperature and humidity distribution measurement dat

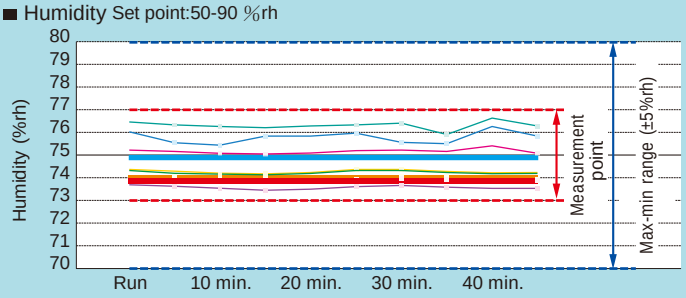
Nine points in the effective space of the test area are measured.
(Performance shown above conforms to IEC)



■ Temperature Set point:+5°C~35°C



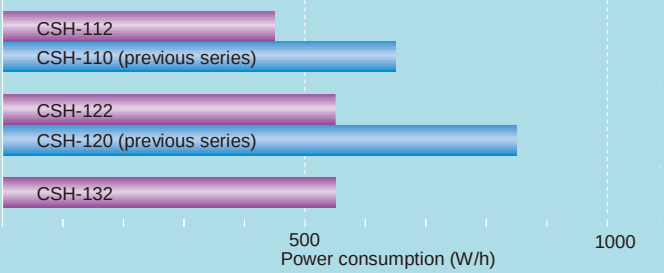
■ Humidity Set point:50-90 %rh



Power consumption comparison

- CSH

Operating conditions: +5°C/50-90%rh

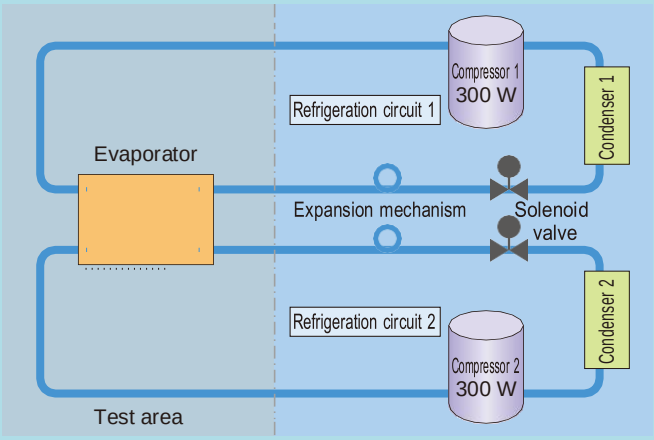


RESOTECH

±50-90%rh guaranteed

Accelerated testing at a more severe storage condition than ICH guideline, 40°C
±5°C to 35°C /50-90%rh ±1%rh is possible.

Double refrigerator circuit (CWH)

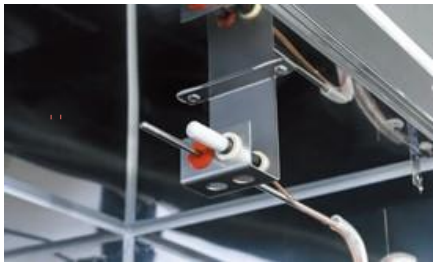


Double refrigerator circuit for reliable design

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 PLANTH GROWTH Control System

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

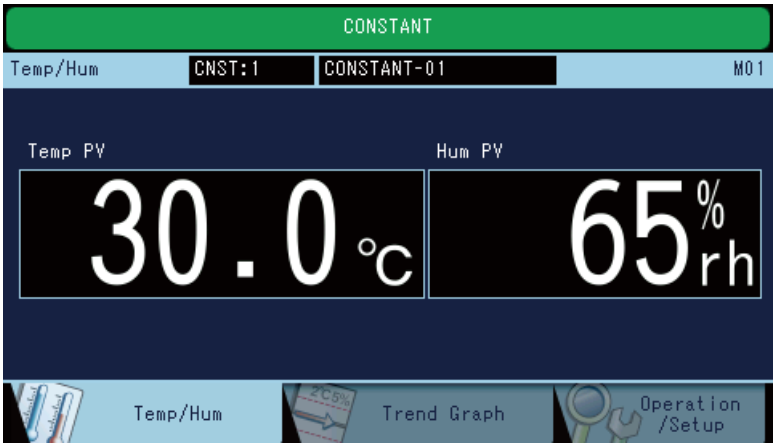


Temperature and humidity sensor

N-Instrumentation

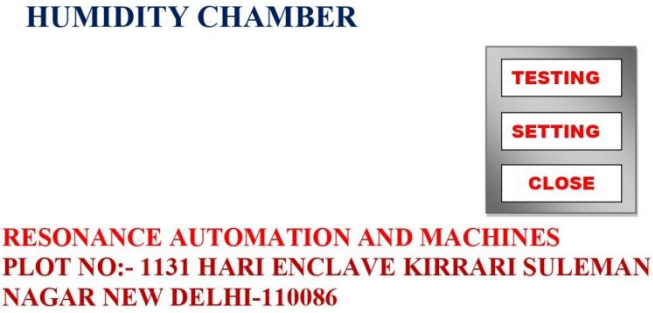
Easy-to-use instrumentation

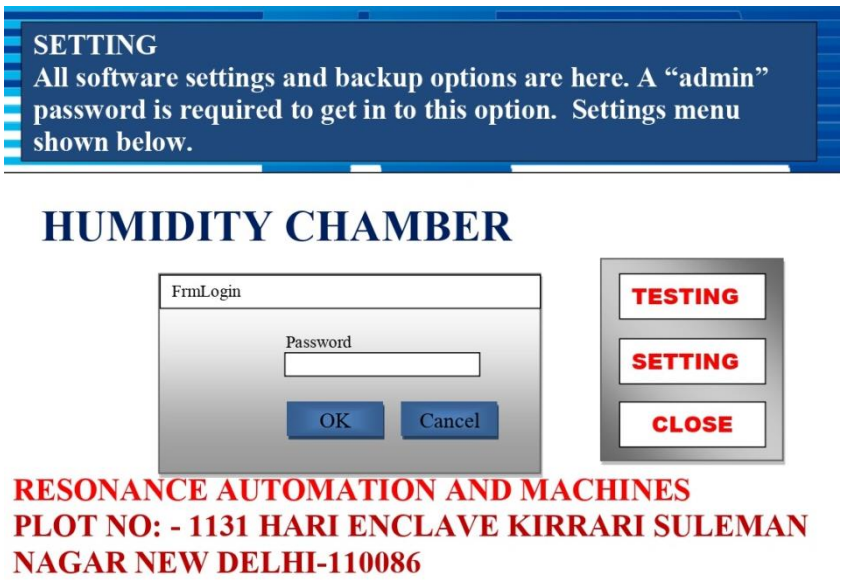
Unlike the smartphones, the controller comes with resistive touchscreen, which allows you to operate without taking off your gloves.
Various items, including operation settings and chamber setup, can be selected with the tabs at the bottom of the screen.



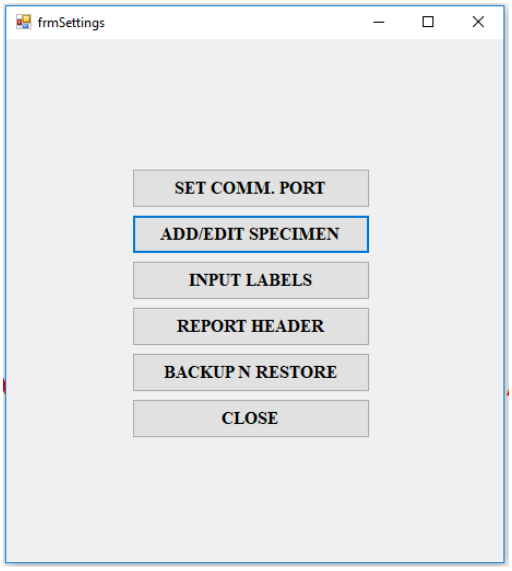
Absolute temperature/PLANTH GROWTH limit alarm

This chamber is equipped with a standard function to transmit an alarm when aprocess value has deviated from the temperature/PLANTH GROWTH set points. The temperature/PLANTH GROWTH allowable range and temperature/PLANTH GROWTHPLANTH GROWTH time can also be registered as desired. Registering the PLANTH GROWTH testing guideline standards of ±5°C To 35°C /50-90%rh allows a rapid response when problems occur.



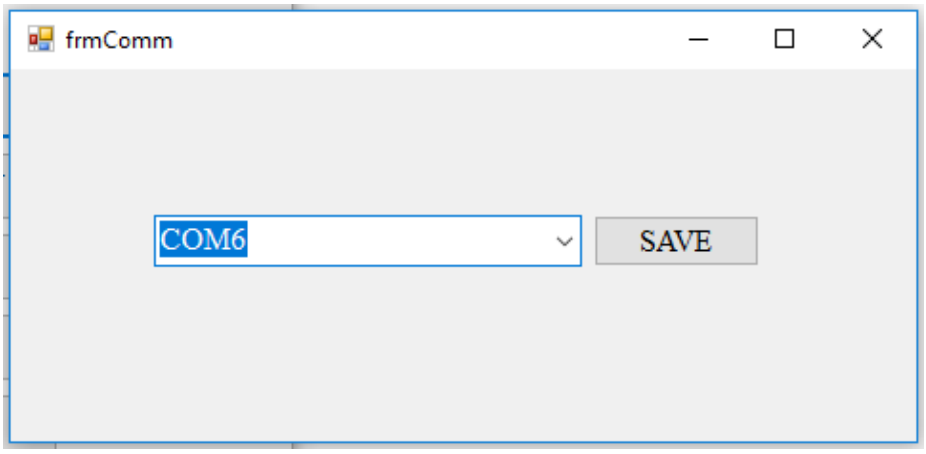


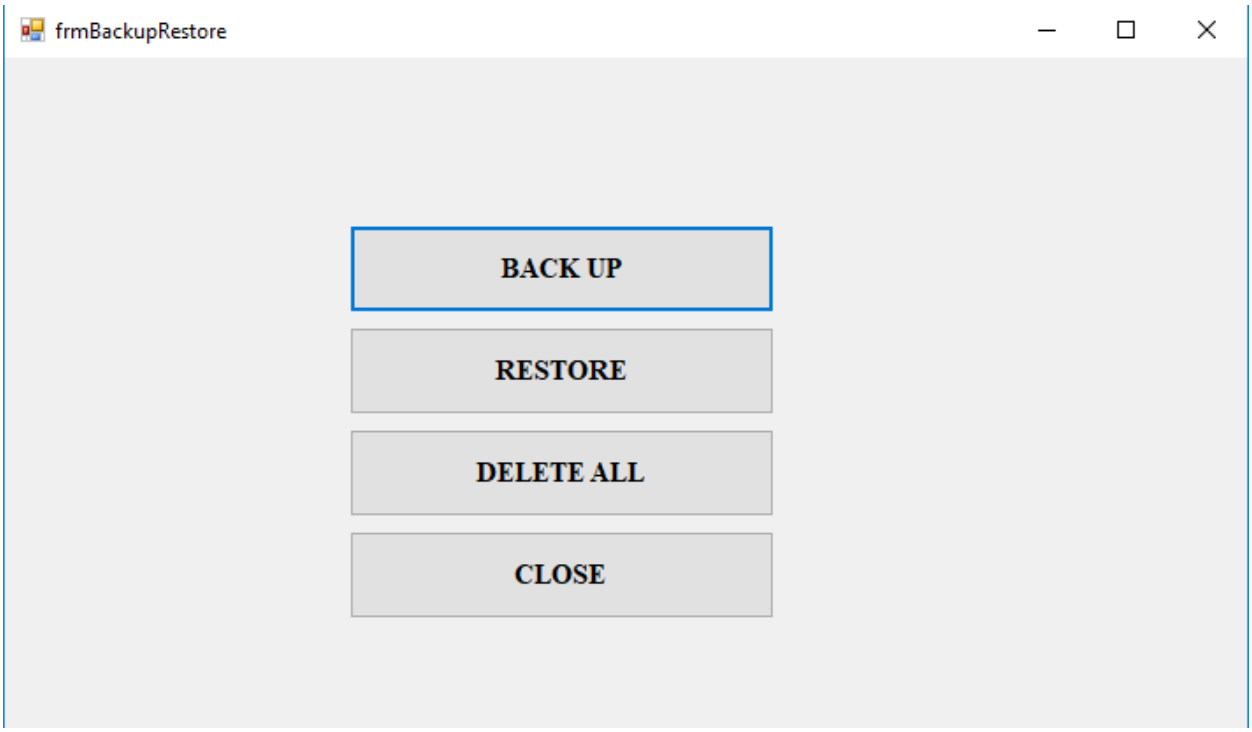
take backup of all test and settings here. It is advised to take back in regular intervals.



Restore

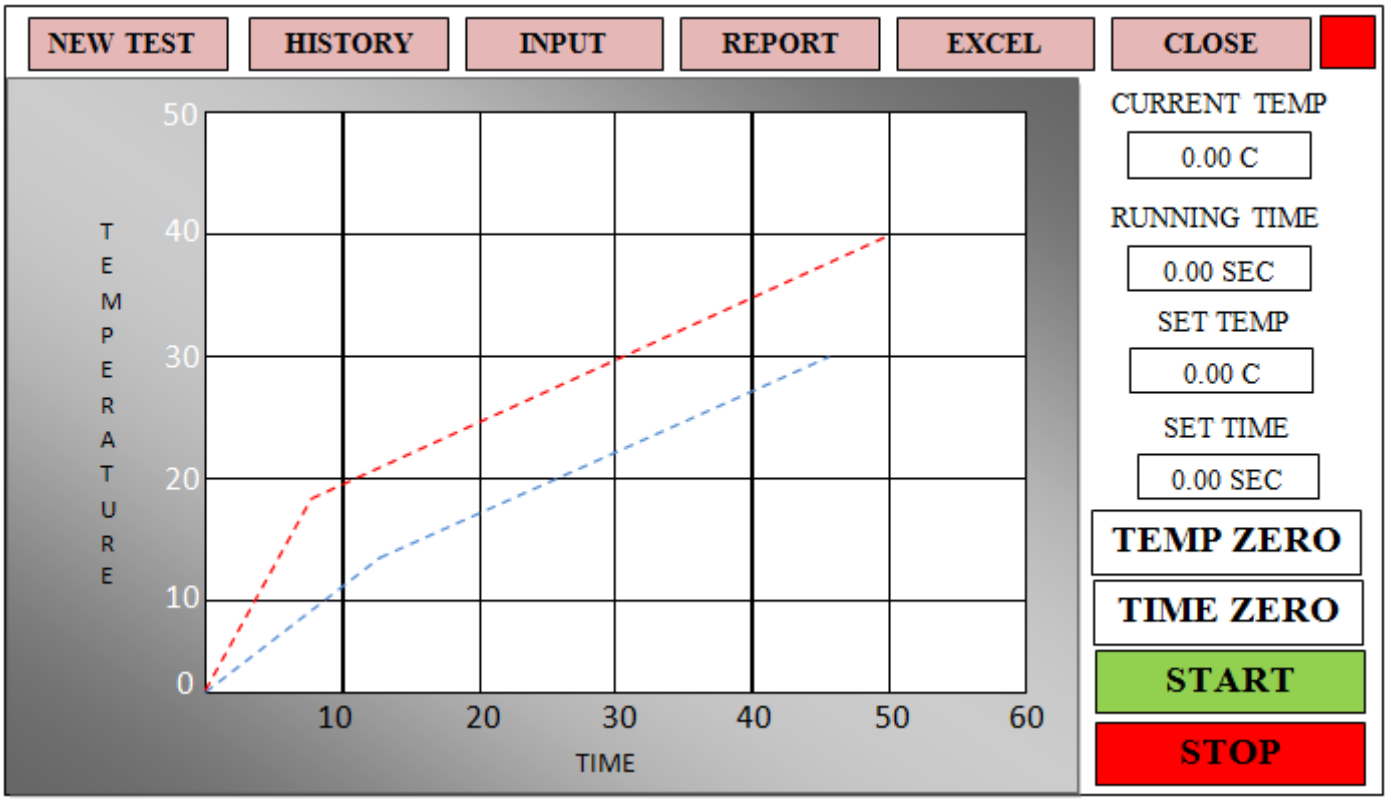
Any time if your software get corrupted or loss of data, administrator can restore back data back to system using this option. Care should be taken while restoring the data, by clicking delete all data administrator has to clear all current then use restore.(Note : only the data till backup date will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





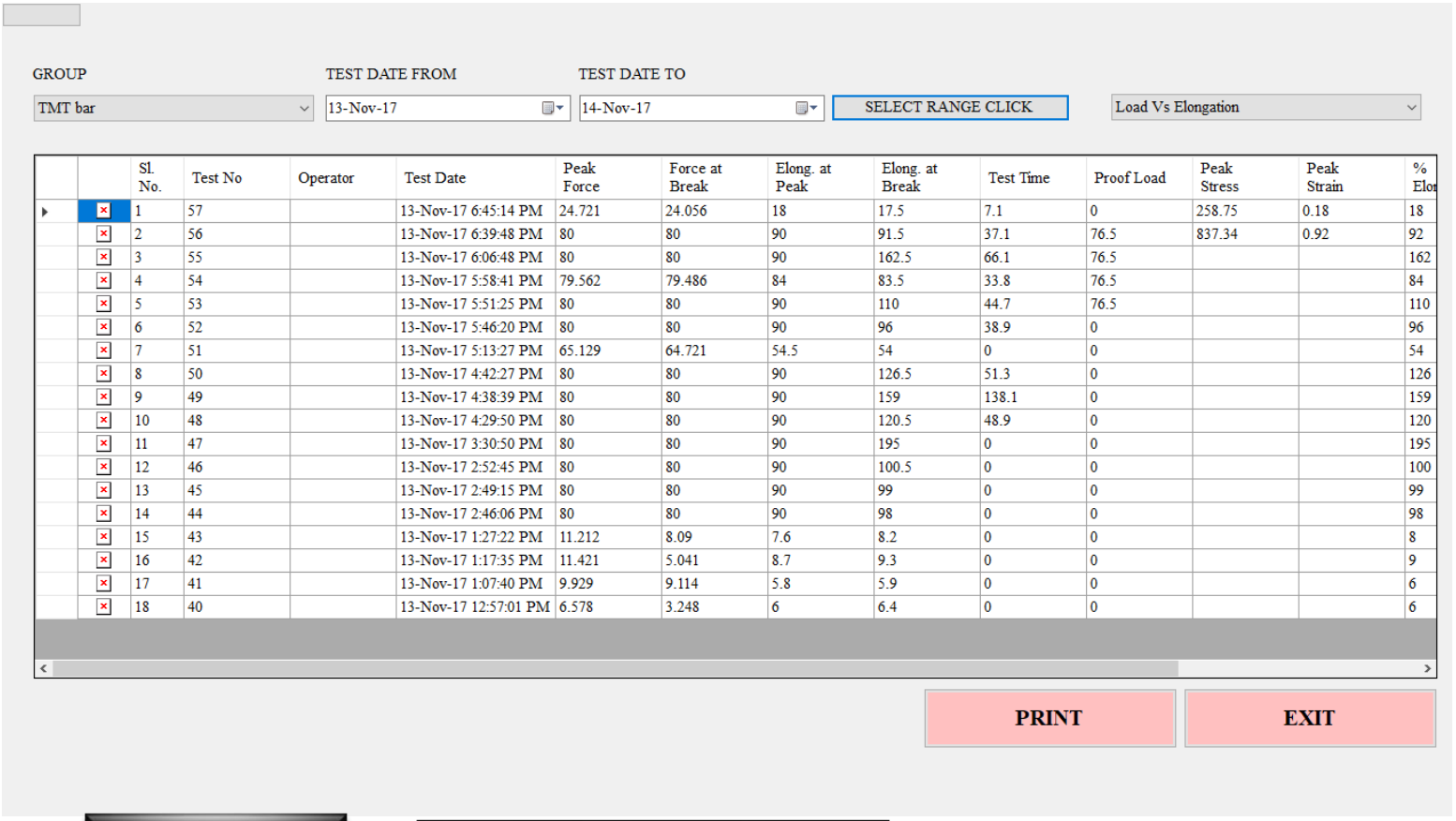
TESTING

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: TMT bar | TEST DATE FROM: 13-Nov-17 | TEST DATE TO: 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	% Elo
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

REPOR

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.

.

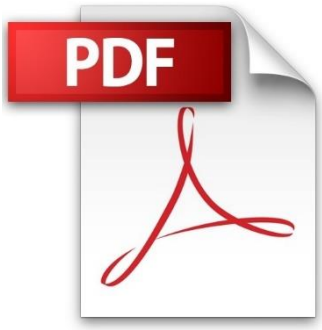
EXCEL

EXCEL

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

TEST REPORT FORMAT

EXCEL



PDF

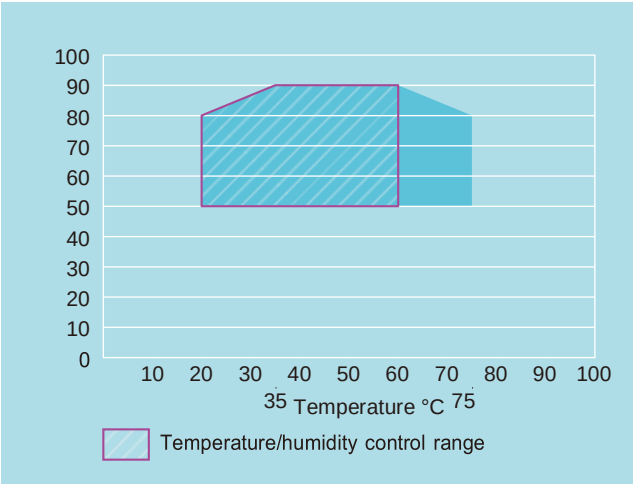
WORD

RESOTECH

Model	RESOTECH PLANT-G-3011	RESOTECH PLANT-G-3011
System	Balanced temperature and PLANTH GROWTH control system	
Temperature range	+5^{0}C to +35^{0}C lights off, +10^{0}C to +35^{0}C lights On	
Humidity range	50-90% rh	
Humidity accuracy	1%	
Humidity Uniformity	+/- 3%	
Volume	10,000 Ltr.	
Interior dimensions	2.0m (H) X 2.0m (W) X 2.2 (D)	
Height between two tiers	60cm or great from floor to the underside of lamps, for each air shelf on the 3 row side and height between two tiers on the 2 row side at least 1.0m.	
Air shelves	Enable uniform upward air flow	
Drain pan	Stainless steel drain pa under the entire growth area,	
Condensing unit access	Easy access to compressor and refrigeration components	
Doors	Keyed magnetic locks having observation window of size of at least 30cm by 30cm	
Exterior stainless	Interior stainless steel (Double walled with 80mm PUF insulated modular panels	
Flooring of linoleum carpet	Shelving with stainless steel trays	
Intensity[1]	800 micromoles/m^2/s or more over each air shelf and the intensity monitored real time with a PAR sensor	
Programming	LCD/LED	
Lamps	Balanced spectrum for plant growth using LED growth light over each of the grow areas	
Lamp Heat	Removed by refrigeration system	
Ballasts	High efficiency electronic and easily accessible	
Cycle	A programmable min. and max. temperature or a limit tracking alarm that automatically follows the programmed set point. Day/night programmable cycle.	
Features	1. Independent settings for temp, humidity and light period 2. Monitoring and control via LAN port 3. High and low temperature limit for increased assurance 4. Audible alarms included based on user defined limits.	
Aspirator	Located in the machine compartment, houses the sensor for controlling and recording environmental conditions within the cabinet.	
Valve	Electronic modulating valve that smoothly regulates the heating and cooling functions of the chamber	
Heat exchanger coil	Copper tube construction	
Refrigerant	Condensing unit is charged with CFC-free refrigerant	
Air flow	Conditioned air is directed to both growth areas seprately	

*1 The performance values are based on IEC 60068-3-6:2001.
Performance figures are given for a +5˚C to +35˚C ambient temperature, relative PLANTH GROWTH65±50-90%rh, rated power supply and no specimens inside the test area.
*2 Temperature and PLANTH GROWTH maximum and minimum range means maximum difference after stabilization, at any moment in time in the working space against the setting values; ambient temperature of +5 to +35°C, no load, no specimen.
*3 Excluding protrusions.

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 watercontinuously 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.

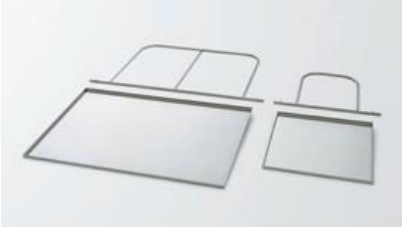
- WS-1
  Produced water capacity: 12 L/h
  Size: W480 × H400 × D280 mm

*To prevent damage in the event of water leakage when installing the following optional products, a dew tray (sold separatery) 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 witha touch-panel.
Display: 5.7inch color touch panelScan interval: 5 sec.
(default) Internal recording media:
Flash memory 8MB
Memory slot: Compact flash ×1, USB

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

Temperature (humidity) recorder

< Temperature & PLANTH GROWTH type > Temperature range: −50 to +100˚CPLANTH GROWTH range: 25 to 98%rh
Location: Left, right or lower left
(facing the chamber)

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

Number of inputs : Temperature 5, PLANTH GROWTH1

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 itstemperature.
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.

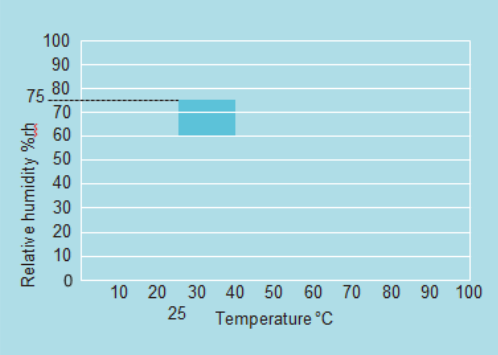
Operation manual

- CD
- Booklet

ACCESSORIES

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

TEMPERATURE/HUMIDITY CONTROL RANGE



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

Paperless recorder

A temperature & humidity recorder that utilizes a liquid-crystal display fitted witha touch-panel.
Display: 5.7inch color touch panelScan interval: 5 sec.
(default) Internal recording media:
Flash memory 8MB
Memory slot: Compact flash ×1, USB

Temperature (humidity) recorder

< Temperature & humidity type > Temperature range: −50 to +100˚C Humidity range: 0 to 100%rh

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 specimentemperature.
Thermocouple with a brass ball tip
Thermocouple type T (Copper/Copper-Nickel)
• 2 m
• 4 m
• 6 m

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, chamberoperation stops with alarm

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*

Validation

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

•

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/PLANTH GROWTH controller)
- PLANTH GROWTH burn-out circuit
  (with built-in temperature/PLANTH GROWTH controller)
- Absolute upper/lower temperature limit alarm
  (with built-in temperature/PLANTH GROWTH controller)
- Absolute upper/lower temperature/PLANTH GROWTH limit alarm
  (with built-in temperature/PLANTH GROWTH controller)
- System error
- Temperature upper limit deviation alarm

t-in temperature/PLANTH GROWTH controller)

Absolute upper/lower PLANTH GROWTH
limit alarm

t-in temperature/PLANTH GROWTH controller)

- System error (Alarm)
- Humidifier water level detection
- Water tank drought switch
- Area temperature burn-out circuit
  (with built-in temperature/PLANTH GROWTH controller)
- Water tank low-level switch
- External device error detection

OUR VALUED CUSTOMERS

Bharat Petroleum

Central Forensic Science Laboratory

एनपीसीआईएल NPCIL

Hero

Ministry of Defence
Government of India

PC POWER CORRIDOR

सशस्त्र सेनाओं का सशक्तिकरण
EMPOWERING THE ARMED FORCES

यंत्र इंडिया लिमिटेड
भारत सरकार का उद्यम, रक्षा मंत्रालय
YANTRA INDIA LIMITED
A Govt. Of India Enterprise, Ministry of Defence

हिएलि HAL

बी एच ई एल BHEL

ARMED FORCES MEDICAL SERVICES

INDIAN ORDNANCE FACTORIES

ORDNANCE FACTOR AMBARNATH
RECRUITMENT

INDIAN ARMY
भारतीय सेना

MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION

सत्यमेव जयते

रक्षा मंत्रालय
MINISTRY OF DEFENCE
भारत सरकार

रक्षा उत्पादन विभाग
DEPARTMENT OF DEFENCE PRODUCTION
GOVERNMENT OF INDIA

OFB

ORDNANCE FACTORY BOARD

MINISTRY OF DEFENCE, GOI

CENTRAL RESEARCH INSTITUTE (CRI) RECRUITMENT

एन एस आई सी NSIC ISO 9001 : 2008

BHARAT DYNAMICS LTD.
(A Govt. of India Enterprise)

भाकृअनुप ICAR

Indian Institute of Chemical Biology
a unit of C.S.I.R.

आयुध निर्माणी, कानपुर
ORDNANCE FACTORY, KANPUR

INDIAN ORDNANCE FACTORIES

सत्यमेव जयते
Department of Animal Husbandry, Dairying & Fisheries

TCL
TROOP COMFORTS LTD.

ICAT
Innovation • Service • Excellence
International Centre for Automotive Technology, Manesar

samvardhana motherson

Napino Auto & Electronics Ltd.

Cutwell Abrasives Pvt Ltd
ISO 9001 - Certified
Superior in Performance

RICO
RICO AUTO INDUSTRIES LIMITED

senior Flexonics

talbros
Automotive Components

fmi
Future Market Insights

JBM Group
Our milestones are touchstones

SOMIC ZF
SOMIC ZF Components Pvt. Ltd.

Genus
energizing lives

Continental
The Future in Motion

Saxon Fluid Sealing Devices

AMTEK

KIRAN UDYOD PVT. LIMITED

TOGETHER WE EXCEL
MHMC

MUNJAL KIRIU

Napino

JABIL

DESPL
DYNAMIC ENVIRONMENTAL SOLUTIONS PVT. LTD.

भारतीय खाद्य निगम
FOOD CORPORATION OF INDIA