Quality is more than a word

ESPEC

Stability Test Chamber

CSH/CWH

CAT.NO.E15114

Three promises to guarantee performance meeting ICH guideline for stability testing

CWH-40A

* Equipped with options.

Designed for stability test requirements

Accelerated testing at a more severe storage condition than ICH guideline, 40°C ±1°C/75%rh ±1%rh is possible.

Frost-free refrigeration for continuous operation

One of remote assistance features, alarm notification via email for faster recovery

CSH-112

CSH-122

CSH-132

* Equipped with options.

Characteristics

Superior temperature and humidity distribution, fully supports demanding criteria

±1°C/±5%rh guaranteed

Supports severe storage conditions of ±1°C/±5%rh (CSH-HG, CWH)

Viewing window

The viewing window in the door prevents fogging with heat-resistance glass containing a heating element.

Area Temperature and Humidity Control System

Patent pending

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. (CWH)

Door handle lock

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

CWH door lock

Full-view inner glass door

Full-view inner glass door is equipped as standard. (CSH)
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 stability test chamber is the first in the environment test chamber industry to adopt vacuum insulation, which reduces the effect of ambient temperature.

CWH-40A

CSH-122

CSH door lock

Temperature and humidity recording and monitoring

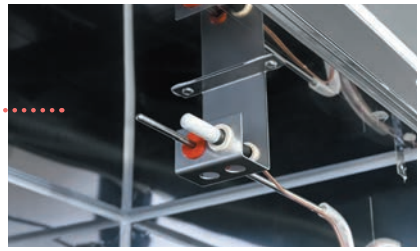
A temperature and humidity detection terminal is equipped as standard.
A connector that provides simple connection and disconnection is equipped as an accessory.

CSH left side

Characteristics

Sliding shelves (CSH)

Air conditioning system



Temperature and humidity sensor

Indirect heating humidifier with antibacterial cassettes

CSH chamber front

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. (CSH)
(Equally distributed load per shelf is 30 kg)

Cable port for validation

A cable port that can be used to insert a temperature and humidity distribution measurement sensor is standard. A silicon rubber plug is also included to ensure air tightness when the sensor is inserted in the chamber.

CSH cable port

Reliable temperature and humidity 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 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.

Clean humidifier

The growth of bacteria is suppressed with a structure that maintains a high humidifying water temperature. The humidifier is also easier to clean. (CWH)

Easy maintenance

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

Characteristics

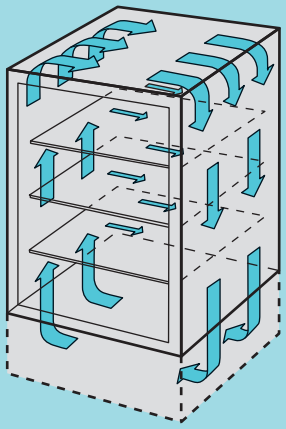
±1°C/±5%rh guaranteed

For all models, ±2°C/±5%rh is guaranteed as the temperature/humidity max-min range for the temperature/humidity difference in the test chamber. Accelerated testing at a more severe storage condition than ICH guideline, 40°C ±1°C/75%rh ±1%rh is possible. (CSH-HG, CWH)

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). (CSH)

Air flow (Virtual Air Jacket)



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. (CWH)

Frost-free, continuous operation

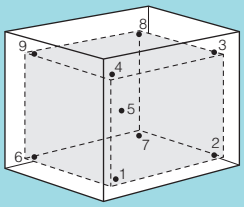
Evaporator frosting is prevented to allow continuous operation without interrupting test.

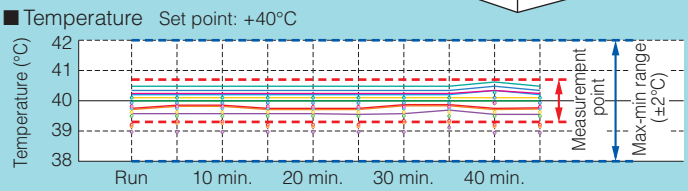
Storage conditions in ICH stability testing guidelines

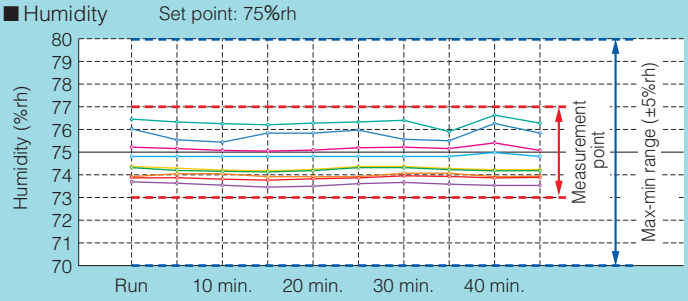
Test types	Storage conditions	Minimum testing period
Long term storage testing	25°C±2°C/60%rh±5%rh or 30°C±2°C/65%rh±5%rh	12 months
Intermediate testing	30°C±2°C/65%rh±5%rh	6 months
Accelerated testing*	40°C±2°C/75%rh±5%rh	6 months

Temperature and humidity distribution measurement data (CSH)

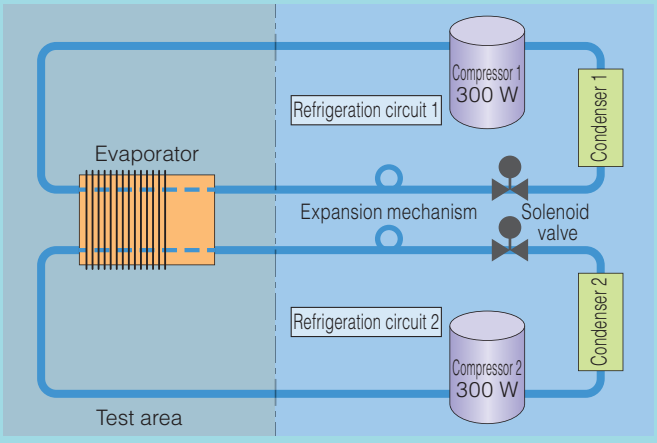
Nine points in the effective space of the test area are measured.
(Performance shown above conforms to IEC)





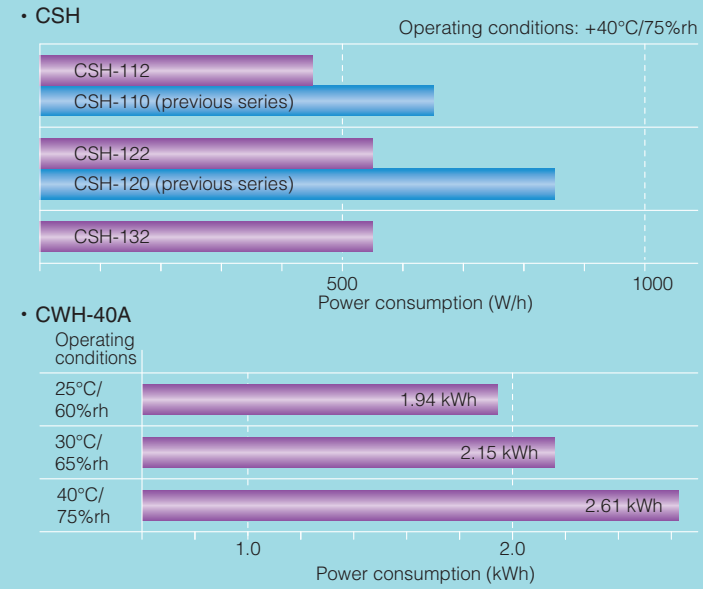


Double refrigerator circuit (CWH)

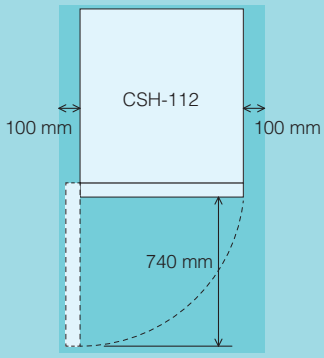


Characteristics

Power consumption comparison



Installation space



Model	Front
CSH-112	740 mm
CSH-122	890 mm
CSH-132	1240 mm

Saving energy

The CSH-132, a newly developed large capacity type, can be used with the same power consumption as the CSH-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.

Quiet/low exhaust heat

The noise level of the refrigeration circuit has been reduced to achieve a quiet environment even when installed in a laboratory. Exhaust heat from the refrigeration circuit has also been reduced.

Saving space

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.

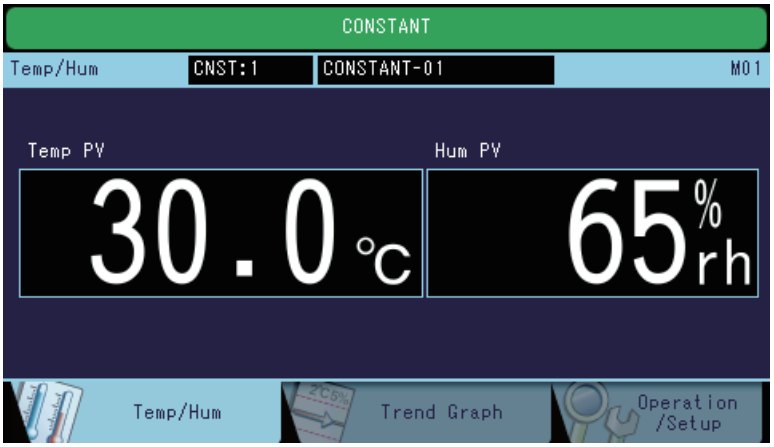
Validation

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

N-Instrumentation

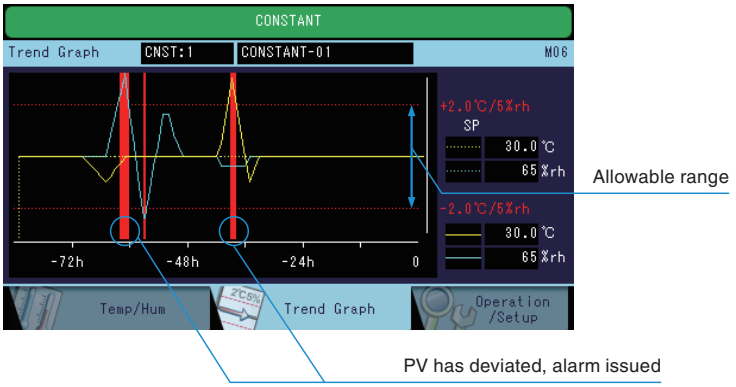
Easy-to-use instrumentation

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

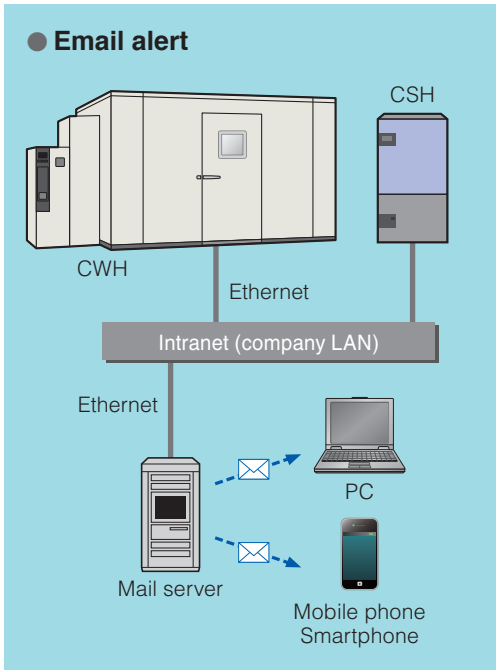
This chamber is equipped with a standard function to transmit an alarm when a process value has deviated from the temperature/humidity set points. The temperature/humidity allowable range and temperature/humidity stability time can also be registered as desired. Registering the ICH stability testing guideline standards of ±2°C/±5%rh allows a rapid response when problems occur.



Email alert

When an alarm is triggered, an e-mail is sent to the registered PC or mobile address. A notification can also be sent at the time of test completion.

* Requires an intranet environment capable of sending emails.



Instrumentation

Name	N-instrumentation P-200
Operating modes	Constant, program, stop
Operation settings	• Constant mode setup No. of setting types: 3 Setting range and resolution: Temperature: lowest attainable temperature -5°C to highest attainable temperature +5°C in 0.1°C increments Humidity: 0%rh to 100%rh in 1%rh increments • Program setup No. of setting types: 1 (12 steps) Setting range and resolution: Temperature: lowest attainable temperature -5°C to highest attainable temperature +5°C in 0.1°C increments Humidity: 0%rh to 100%rh in 1%rh increments Time: 0 hour 1 minute to 9999 hours 59 minutes in 1 minute increments
External memory function	• Interface Conforming to USB 2.0 (Connector A type) • Supported device Flash memory of USB Mass Storage Class (supporting up to 32 GB) • Supported functions Set Graph data Writing Read/Write Program Pattern (PC application: Pattern manager lite) Write Back Trace Data
Web function	• Interface Ethernet port (100base-TX) • Server functions Remote monitor (Web application: WEB Manager) • Supported browsers Windows Internet Explorer 10

SPECIFICATIONS

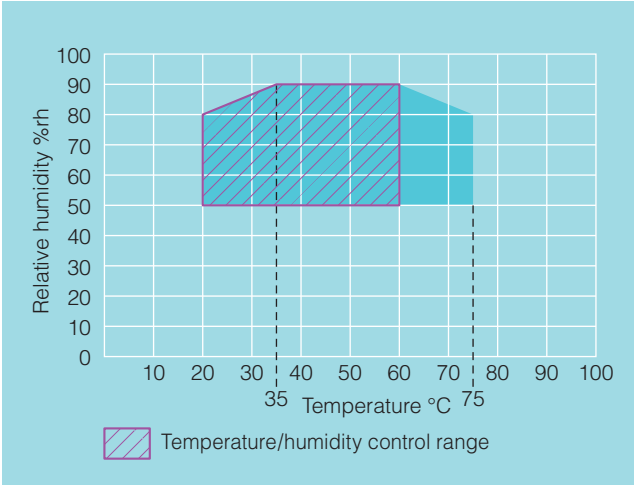
Model			Stability Test Chamber CSH		
			CSH-112/CSH-112HG	CSH-122/CSH-122HG	CSH-132/CSH-132HG
System			Balanced temperature and humidity control system (BTHC system), Virtual air jacket system		
Performance	Temp./humid. range *1		+20°C to +75°C/50%rh to 90%rh (See the figure below)		
	Temp./humid. fluctuation *1		±0.3°C/±3%rh		
	Temp./humid. max-min range *2		±2˚C/±5%rh ±1˚C/±5%rh (HG Type) of set temperature/humidity		
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		
Volume			235 L	470 L	794 L
Inside dimensions			W600×H700×D560 mm	W750×H950×D660 mm	W1100×H950×D760 mm
Outside dimensions *3			W740×H1550×D774 mm	W890×H1800×D874 mm	W1240×H1800×D974 mm
Water supply			Pure water (Conductivity 0.1 to 10 µS/cm)		
Heat exhaust			1650 kJ/h	2130 kJ/h	
Weight			200 kg	240 kg	370 kg
Maximum chamber load capacity			Maximum 100 kg		
Specimen shelf load capacity			Maximum 30 kg/shelf (Equally distributed load)		
Utility requirements	Allowable ambient conditions		Ambient temperature +5 to +40°C		
	Power supply	100V AC 1ø 50/60 Hz	13A		
		220V AC 1ø 50/60 Hz	5.9A		
		230V AC 1ø 50 Hz	5.7A		

*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 humidity 65±20%rh, rated power supply and no specimens inside the test area.
*2 Temperature and humidity 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 +32°C, no load, no specimen.
*3 Excluding protrusions.

ACCESSORIES

- Key (for door) 2
- Shelf/bracket (stainless) 3
  CSH-112/CSH-112HG: W500×D510 mm
  CSH-122/CSH-122HG: W650×D610 mm
  CSH-132/CSH-132HG: W1000×D710 mm
- Cartridge fuse (7 A) 1
- Temperature-detecting terminal connector 1
- Humidity-detecting terminal connector 1
- Socket adapter 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

TEMPERATURE/HUMIDITY CONTROL RANGE



SPECIFICATIONS

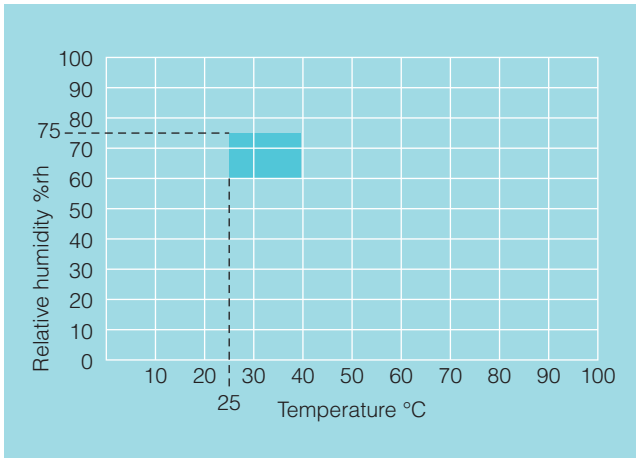
Model		Stability Test Chamber CWH		
		CWH-20A	CWH-30A	CWH-40A
System		Balanced temperature and humidity control system (BTHC system)		
Temp. range		Ambient temperature +5 to +32°C		
Performance *1	Temp./humid. range	+25°C to +40°C/60%rh to 75%rh (See the figure below)		
	Temp./humid. fluctuation	±0.5°C/±3%rh		
	Temp./humid. max-min range *2	±1°C/±5%rh of set temperature/humidity		
Load capacity		Equal load distribution: 4 kPa (400 kgf/m²)		
Door		Single-door W870×H1800 mm		
Accessories		Door viewing window, W300×H300 mm, Cable port (1 unit, inside diameter of 50 mm), Chamber lamp (Damp-proof fluorescent lamp), Water tank (10 L), Temperature sensor terminal, Humidity sensor terminal, External alarm terminal, Temp./humid. limit error output terminal, Temperature/humidity attainment output terminal, Door open output terminal		
Inside dimensions		W1850×H2100×D2080 mm	W2750×H2100×D2080 mm	W2750×H2100×D3000 mm
Power supply voltage *3		200 V AC 3ø 3 W 50/60 Hz (rate voltage ±5%)		
Maximum load current		27 A		

*1 Performance indications are based on IEC 60068 3-6:2008.
Measured performance at control point after 30 minutes of maintaining stability; ambient temperature of +5 to +32°C, no load, no specimen.
Power supply of 200 V AC with no specimen.
*2 Temperature and humidity maximum and minimum range means maximum difference after stabilization, at any moment in time in the working space against the setting values. Area temperature/humidity control "ON" is selected.
*3 A step down transformer is available for the other voltage.

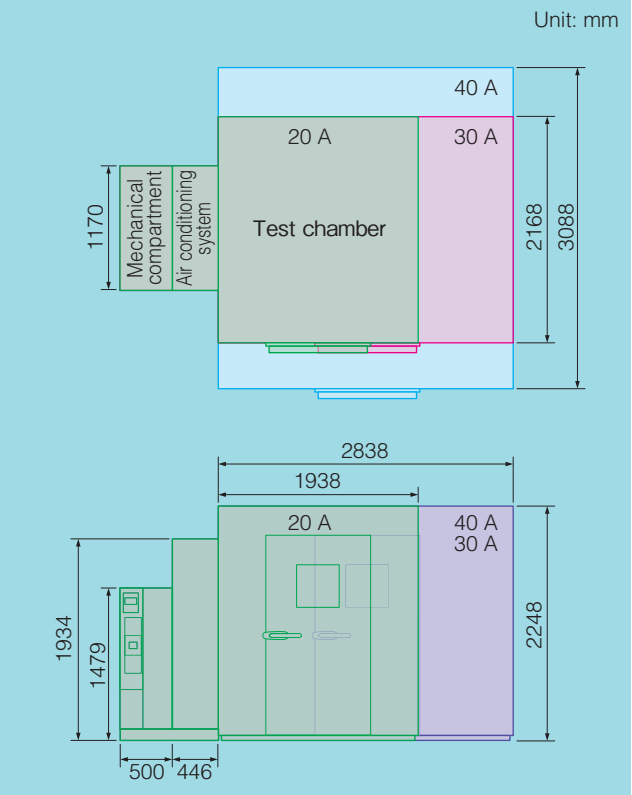
ACCESSORIES

- 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



DIMENSIONS



* Excluding protrusions.

SAFETY DEVICES Stability Test Chamber CSH

- 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
- Humidity burn-out circuit
- Absolute upper/lower temperature limit alarm
- Absolute upper/lower temperature/humidity limit alarm
- System error
- Temperature upper limit deviation alarm
- Absolute upper/lower humidity limit alarm
- System error (Alarm)
- Humidifier water level detection
- Water tank drought switch
- Water tank low-level switch

SAFETY DEVICES Stability Test Chamber CWH

- 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

Safety precautions

- Do not use specimens which are explosive or inflammable, or which contain such substances. To do so could be hazardous, as this may lead to fire or explosion.
- Do not place corrosive substances in the chamber. If corrosive substances are generated by the specimen, the life of the chamber may be significantly shortened specifically because of the corrosion of stainless steel and copper and because of the deterioration of resin and silicon.
- Do not place life forms or substances that exceed allowable heat generation.
- Be sure to read the operation manual before operation.

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.

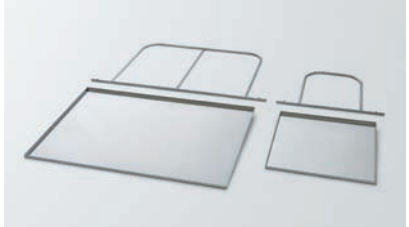
- WS-1
  Produced water capacity: 12 L/h
  Size: W480 × H400 × D280 mm

WS-1

* 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.



For CSH-132/CSH-112

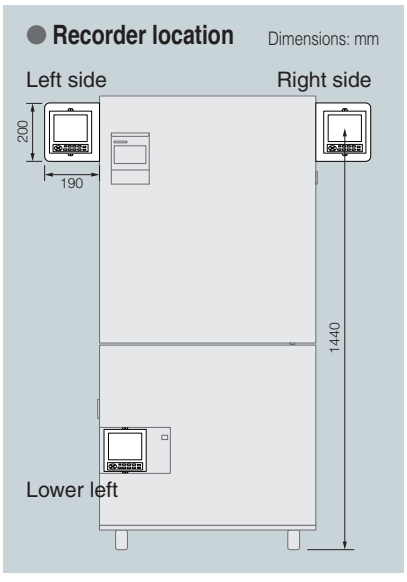
Paperless recorder

Records the temperature and humidity of each section such as the temperature inside the chamber.
Rocation: Left side, right side or lower left

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

Data saving cycle: 5 sec.
Internal memory: 4 MB (Nonvolatile flash memory)
External recording media:
CF memory card port (Includes a 256 MB CF card)
USB memory port
< Temperature & humidity type >
Temperature 1, Humidity 1
(4 more channels can be turned ON)

At the lower left



Temperature (humidity) recorder

< Temperature & humidity type >
Temperature range: −50 to +100˚C
Humidity range: 0 to 100%rh
Rocation: Left side, right side or lower left

* External dimensions change when attaching the recorder at thel eft 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 specimen 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

Reports & certificates

- Testing and inspection report
- Test data
- Temperature (& humidity) uniformity measurement
- Calibration results
- Calibration certificate
- Traceability certificate
- Traceability system chart
- Validation service*

* Please ask detail to ESPEC.

Stainless steel shelf

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

Time signal terminal

Equipment Terminal boards: 2

Paperless recorder

Records the temperature and humidity of each section such as the temperature inside the chamber.
Data saving cycle: 5 sec.
Internal memory: 4 MB (Nonvolatile flash memory)
External recording media:
CF memory card port
(Includes a 256 MB CF card)
USB memory port
< Temperature & humidity type >
Temperature 1, Humidity 1
(4 more channels can be turned ON)

Temperature (humidity) recorder

< Temperature & humidity type >
Temperature range: −50 to +100˚C
Humidity range: 0 to 100%rh
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 specimen temperature.
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, 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*

* Please ask detail to ESPEC.

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IS10B27C03 (The contents of this catalog is as of September, 2015.)

JSA QMS JIS Q 9001 JSAQ 004

MS JAB CM001

MS JAB CM021

ISO 14001 JACO EC99J2046

UKAS MANAGEMENT SYSTEMS 051

ISO 9001/JIS Q 9001
Quality Management System Assessed and Registered

ESPEC CORP. has been assessed by and registered in the Quality Management System based on the International Standard ISO 9001:2008 (JIS Q 9001:2008) through the Japanese Standards Association (JSA).

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(Overseas subsidiaries not included)

ISO 14001 (JIS Q 14001)
Environmental Management System Assessed and Registered

＊Registration : ESPEC CORP.
(Overseas subsidiaries not included)