Quality is more than a word

ESPEC

Platinous J Series

Low temperature (& humidity) chamber
Temperature & humidity chamber

CAT.NO.-E11110

The Platinous J Series – the next generation global standard

Our renowned Platinous chambers have evolved into a new model that achieves great reductions in power consumption.
With an abundant choice of options and improvements for an “on-demand” supply, the Platinous J Series is quickly and economically modeled according to your needs.
For this remodeling, we paid particular attention to the high reliability and performance carried out through this particular chamber, and polished it into the new J Series.
We have also been looking ahead to the demands of the times and worked to develop a series that incorporates those demands with the same ESPEC style and the essence of the Platinous Series you have come to expect.
Furthermore, the Platinous J Series is equipped with the new N-Instrumentation that makes connections with network communications possible.
Now a half-century from the first-generation Platinous Series, these are the chambers that will set the global standard for the next generation and make ESPEC rhymes with “best technology”.

Type 1

Type 2

Type 3

Type 4

* Equipped with options.

Characteristics

Networking communications and USB data transfer for optimum test operations

Network communication and USB memory support

An Ethernet port on the chamber side allows remote connection to the chamber for monitoring and control. (Wi-Fi)

Data management

Chamber operation log data can be exported to a PC using either the Ethernet connection or a USB memory.
Data can be opened as a list or graph thanks to a dedicated viewer or spreadsheet, and can be used to check historical data.

Program pattern edit and copy

Program patterns can be created on the PC and then transferred to the chamber either via the intranet or USB. The USB is also useful to transfer programs from one chamber to another.

Remote monitoring and control

You can operate the chamber from a remote PC to monitor the test status, change test conditions, and start or stop the chamber operation. A simple setting of the IP address on the controller and your PC, no software or drivers are necessary.

Remote monitoring

USB port

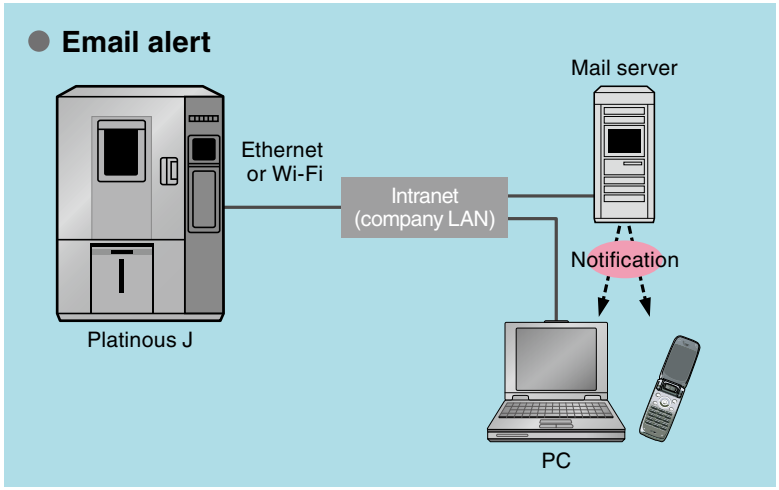
Ethernet port

Function compatibility

Functions	Ethernet	USB memory
Data management	○	○
Program pattern edit/copy	○	○
Remote monitor and control	○	×
Email alert	○	×
Traceback function	×	○

Characteristics

Email alert



Email alert

If the chamber stops because of some trouble, the chamber will send an email notifying the error to the recipient address(es) specified in advance.
This function is available by connecting the chamber to the company intranet and completing a simple setting via your browser.

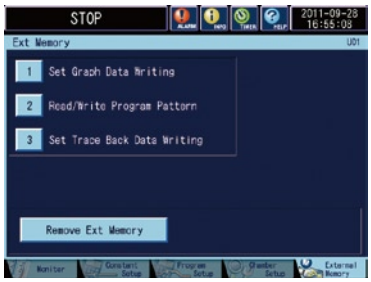
Traceback function

When the chamber stops because of trouble, the operation state just before the chamber stops is automatically recorded and saved. Saved data can be transferred by USB memory.
Attach this data file to an email to ESPEC, and we will perform troubleshooting.

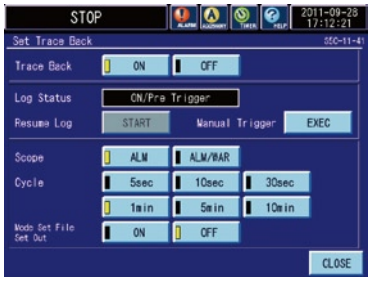
Instrumentation panel

LAN settings

External memory (USB) settings



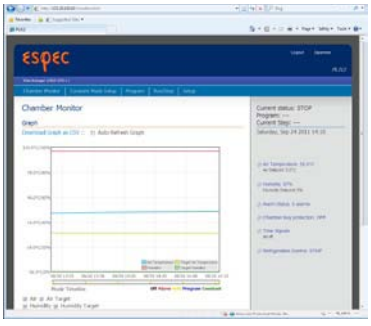
Traceback function



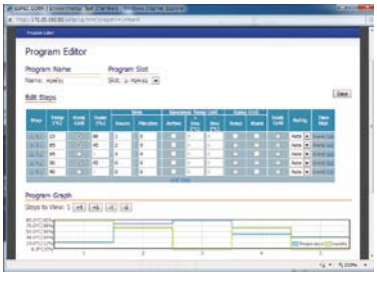
PC screen

Run/stop operation

Chamber monitor (graph)



Edit program



Characteristics

High-speed processing N-Instrumentation features improved operability and legibility

Tabbed user interface

Controller's new layout includes tabs at the bottom of the screen to easily activate any section.
Calculating and processing performances have been improved, and the screen layout optimized.

Register test patterns

Up to 40 patterns for program operation and 3 patterns for constant operation can be registered.

Sampling function

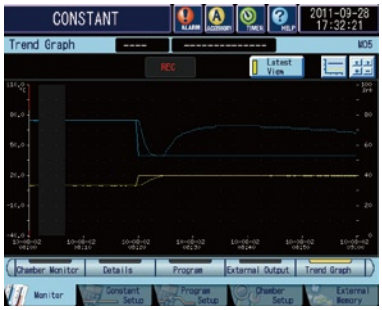
The temperature and humidity measurement targets, and measurement intervals can be set.
The trend graph with set conditions and data are saved in the controller memory. These data can then be transferred on a USB memory.

Information screen

The information section displays information on the chamber status, such as defrosting, or humidifying tray water auto refill.
Messages displayed according to operating timer inform you of the humidifier maintenance checks, condenser filter or strainer checks.
It is also possible to register and use additional notification items.

Program details settings

Trend graph



Operation mode

Information

Characteristics

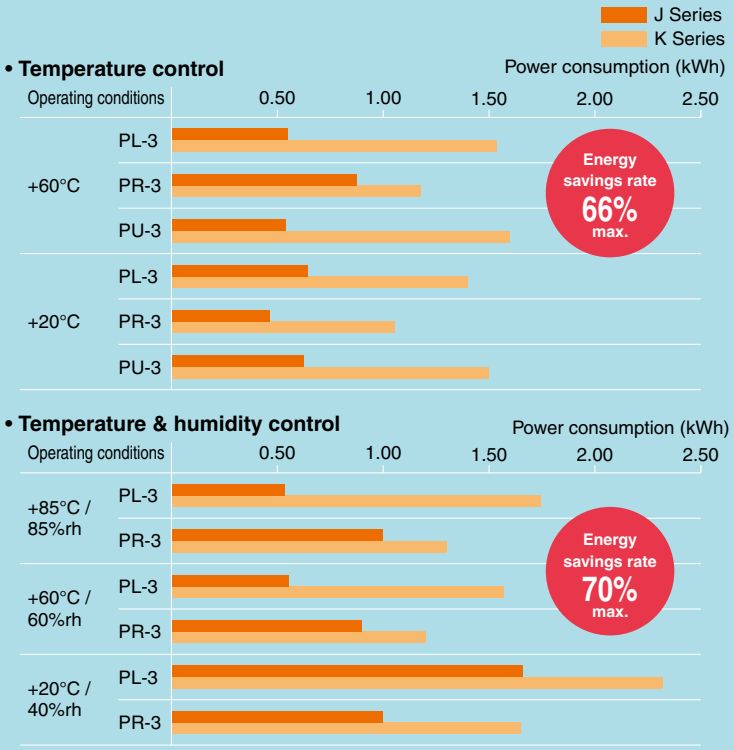
N-Instrumentation

Operating mode	Constant operation, program operation, remote operation, stop
Temperature & humidity control function	Control system: PID control (sample temperature control support), energy-saving refrigeration capacity automatic control Temperature input: Test chamber temperature (Thermocouple type T) Humidity input: Test chamber wet-and-dry-bulb temperature input system (Thermocouple type T) Input functions: 100 ms high-speed sampling, wire break detection Adjustment function: Temperature offset setting
Setting resolution	• Constant setup Setting range: 3 types Setting range and resolution: Temperature: (lowest attainable temp. –5°C) to +105.0°C, 0.1°C unit Humidity: 0% rh to 100% rh, 1% rh unit • Program setup Setting range: 40 programs (99 steps per program) Setting range and resolution: Temperature: (lowest attainable temp. –5°C) to +105.0°C, 0.1°C unit Humidity: 0% rh to 100% rh, 1% rh unit Time: 0 hours 1 minute to 9999 hours 59 minutes, 1 minute unit
Language	English, Japanese (switch without restarting)
Auxiliary functions	• Basic functions Operation, eco operation display, alarm, information, accessory (integrating hour meter, water discharge setting), help, test area monitor (temperature & humidity, external output, trend graph) • Management & setup functions Timer preset (start timer, stop timer, quick timer), sampling setting, protect, alarm history display, version display, hour meter with reset, notification • Maintenance functions Chamber operation settings (power outage recovery setting, backup operation setting, operation when door open setting), temperature attainment condition settings, time signal name registration, chamber detailed settings (refrigerator control mode setting, wick continuous water supply setting, humidifier pan water auto replacement function, external alarm output setting, humidifier delay setting), user password, date/time setting
External memory functions	• Interface: USB 2.0 standard compliant (connector A-type) • Supported functions Write log, read/write program, write traceback
Web function	• Interface: Ethernet (100base-TX) • Server functions Remote monitor, remote setup (constant, program), remote operation, alarm mail notification

Characteristics

Energy savings and high performance achieved thanks to the refrigeration system

Power consumption comparison (example)

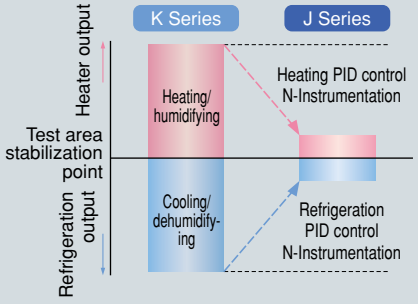


Smart Refrigerator and Dehumidifier System with PID control (Patent pending)

The J Series switches between large and small refrigerators, depending on the chamber capacity and the temperature and humidity range; it also handles precisely various heat loads by using a multi-compressor system that manage a main and a sub-circuit.
From the first Platinous Series sold in 1961, we have been strongly committed to response and accuracy in the control of temperature and humidity (air-conditioning system), by adopting our own unique systems.
In this series, we made further improvements of our control system by focusing on energy savings more than ever.
One of these enhanced features is the PID control of refrigeration capacity. The Smart Refrigerator & Dehumidifier System can control minutely both heating and cooling at minimal levels, thanks to the new N-instrumentation embedded in the chamber. PID control applies to both main and sub refrigeration circuits.

Chamber equipped with shelves (option)

Energy savings principle diagram



Characteristics

Newly developed refrigeration circuit
(Main refrigeration circuit)

The electronic expansion valve located on the cooling side, has an extended water flow control rate (0 to 100%), while the Smart Refrigerator & Dehumidifier System controls the refrigeration capacity to its minimum. Consequently, while creating a highly accurate temperature and humidity environment, the refrigeration circuit suppresses heater output and reduces power consumption of both refrigerator and heater.

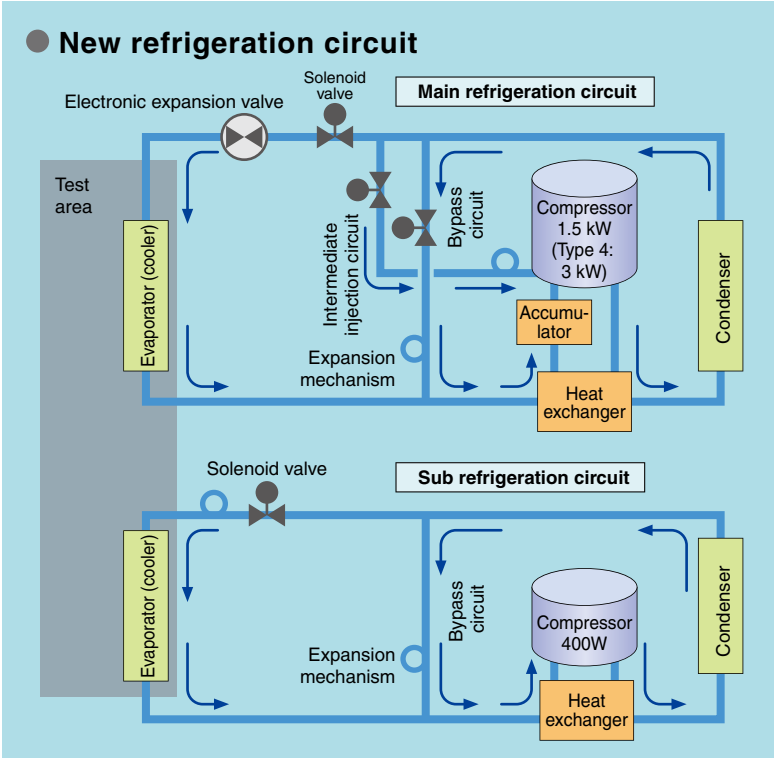
A sub refrigeration circuit for further energy savings
PL–2/3/4, PU–2/3/4

On chambers equipped with the 400 W refrigerator, the Smart Refrigerator & Dehumidifier System controls the operation when stable at constant ranges above 50°C /40%rh, after the chamber activated the sub refrigerator to run at minimum capacity.
Chambers using this double energy saving control can run with the best energy-saving rates.
For example, the PL−3J power consumption can be cut by 70% max. under 60°C /60%rh conditions.
(Compared to previous model)

Increased reliability of the refrigeration circuit

We have installed an injection circuit for compressor cooling. A heater exchanger is also installed in the refrigeration system and the compressor is protected from refrigerant accidentally flooding back.

New refrigeration circuit



Characteristics

Wide-view door (with hand-in ports)

Viewing window (Type 4)

Right-side cable port

Migration Evaluation System Connection (example)

Optimum use of your chamber

Select the combination of your features almost from scratch: combination of doors, viewing windows, hand-in ports in accordance with your needs.
We offer several configurations including water- or air-cooled refrigeration system, expanded temperature specification (to 150 or 180°C), etc. from basics, to deliver the customer its very own chamber.

Quick lead-time for extended range of options

Over 60 options are available for selection, and we arranged process so that compatibility to any model of the Series can be done smoothly according to your needs.
Even when selecting a number of options, we can deliver a customized product in short time.
25 retrofit options are also available as option package (easy installation).

Right-side cable port (Patent pending)

Until now, Platinous chamber were equipped with a control panel and machinery compartment, preventing access of the test area on the right side.
In the J Series, it is now possible to add a cable port on the right side of the chamber (option).
Right side now includes a customer space, where we can add several options, such as the right side cable port, but also decrease protrusions, according to the customer requests.

Combination with ESPEC evaluation systems

Even more accurate ion migration evaluations can be performed by connecting a Platinous J Series to our AMI System (sold separately).
When the right side cable port is equipped, free access on both sides of the chamber is available, and it is easier to install multiple units.

Characteristics

Wick replacement (Patent pending)

The difficulty in replacing the wet-bulb wick has been improved by changing the shape of the wick's plug part to allow smooth replacement work.

Wick inside chamber

Chamber restricted use with the door lock

It is now possible to lock the chamber door to prevent accidental operation of the chamber during testing.
The handle part design has also been improved so the door closing is easier and safer.
As an option, a power key switch can also be equipped to control the start and stop of the chamber.

Door handle lock

Power key switch

Automatic humidifier water replacement

Stagnant humidifier water contains impurities and is a cause of trouble, so the chamber now features a function that automatically replaces the water at the period set from the controller screen.

Water supply system

Several options to supply water to the chamber are offered, including direct tap water connection, pure water, additional tanks, etc.

Water tank

Additional water supply tank (option)

Easy filter cleaning

The condenser filter can be easily attached and removed from the left side of the chamber to make cleaning even easier.

Reuse, resource savings

The test area size is the same as the previous Platinous Series so shelves and shelf brackets can be reused.

Global safety design

ESPEC chambers support international safety standards based on IEC−60204, EMC directives, machinery directives, and pressure directives.

Condenser filter

PR

−20 to +100°C · 20 to 98% rh

TEMPERATURE & HUMIDITY CHAMBER

Model			PR−1J	PR−2J	PR−3J	PR−4J
System			Balanced Temperature and Humidity Control system (BTHC system)			
Performance*1	Temp. & humidity range		−20 to +100°C/20 to 98% rh (lowest attainable temperature in an ambient temperature of 0 to +30°C)			
	Temp. & humidity fluctuation		±0.3°C/±2.5% rh			
	Temp. & humidity gradient		3.0°C/10% rh			
	Temperature & humidity variation in space		1.5°C/5% rh			
	Temperature rate of change		Temperature range: −8 to +88°C Heat up rate: 3.0°C/min. Pull down rate: 2.0°C/min.			
	Temperature extremes achievement time		Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −20°C 40 min.			
Construction	Exterior material		Stainless steel plate: 18 Cr stainless steel plate, hairline finish			
	Test area material		Stainless steel plate: 18−8 Cr−Ni stainless steel plate, 2B polish			
	Heater		Nichrome strip wire heater			
	Humidifier		18-12−2.5 Cr−Ni−Mo stainless steel sheathed heater (surface evaporating system)			
	Cooler (dehumidifier)		Plate fin cooler			
	Air circulator		Cross flow fan			Sirocco fan
	Water supply	Supply system	Pump out system			
		Water tank	16 L			32 L
	Refrig-eration unit	System	Mechanical type single-stage compression cooling			
		Compressor	Rotary compressor (R404A)			
		Refrigerator capacity	0.65 kW			1.2 kW
		Expansion mechanism	Electronic expansion valve			
Capacity (L)			120	225	408	800
Chamber total load resistance (kg)			100			
Dimensions*2	Inside dimensions (W x H x D mm)		500 x 600 x 400	500 x 750 x 600	600 x 850 x 800	1000 x 1000 x 800
	Outside dimensions (W x H x D mm)		910 x 1440 x 873	910 x 1590 x 1073	1010 x 1690 x 1273	1410 x 1840 (1970) x 1273
Weight (kg)			260	305	365	480
Allowable ambient conditions			0 to +40°C/up to 75% rh			
Utility requirements	Power supply	200V AC 3ø 50/60 Hz	18.5 A	20.0 A	22.0 A	34.0 A
		220V AC 3ø 60 Hz	17.5 A	20.0 A	20.5 A	31.5 A
		380V AC 3ø 50 Hz	8.5 A	10.0 A	10.0 A	20.5 A
		400V AC 3ø 50 Hz	8.0 A	9.5 A	9.5 A	19.5 A
Allowable heat load			1100 W			1250 W

*1 Temperature and humidity chamber based on IEC60068−3−6:2001 (JIS C60068−3−6:2008 and JTM K09:2009), for ambient temperature +23°C, relative humidity 65±20% rh, rated voltage, no specimen.
*2 Excluding protrusions. Dimensions indicated in ( ) include protrusions.

PL

−40 to +100°C · 20 to 98% rh

LOW TEMPERATURE AND HUMIDITY CHAMBER

Model			PL−1J	PL−2J	PL−3J	PL−4J
System			Balanced Temperature and Humidity Control system (BTHC system)			
Performance*1	Temp. & humidity range		−40 to +100°C/20 to 98% rh (lowest attainable temperature in an ambient temperature of 0 to +30°C)			
	Temp. & humidity fluctuation		±0.3°C/±2.5% rh			
	Temp. & humidity gradient		3.0°C/10% rh			
	Temperature & humidity variation in space		1.5°C/5% rh			
	Temperature rate of change		Temperature range: −26 to +86°C Heat up rate: 3.0°C/min. Pull down rate: 2.0°C/min.			
	Temperature extremes achievement time		Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −40°C 50 min.			
Construction	Exterior material		Stainless steel plate: 18 Cr stainless steel plate, hairline finish			
	Test area material		Stainless steel plate: 18−8 Cr−Ni stainless steel plate, 2B polish			
	Heater		Nichrome strip wire heater			
	Humidifier		18−12−2.5 Cr−Ni−Mo stainless steel sheathed heater (surface evaporating system)			
	Cooler (dehumidifier)		Plate fin cooler	Plate fin cooler, stainless steel tube cooler		
	Air circulator		Cross flow fan			Sirocco fan
	Water supply	Supply system	Pump out system			
		Water tank	16 L			32 L
	Refrig-eration unit	System	Mechanical type single-stage compression cooling			
		Compressor	Rotary compressor (R404A)	Rotary compressor (R404A) Reciprocating compressor (R404A)		Scroll compressor (R404A) Reciprocating compressor (R404A)
		Refrigerator capacity	1.2 kW	1.5 kW + 0.4 kW		3.0 kW + 0.4 kW
		Expansion mechanism	Electronic expansion valve	Electronic expansion valve, capillary tube		
Capacity (L)			120	225	408	800
Chamber total load resistance (kg)			100			
Dimensions*2	Inside dimensions (W x H x D mm)		500 x 600 x 400	500 x 750 x 600	600 x 850 x 800	1000 x 1000 x 800
	Outside dimensions (W x H x D mm)		910 x 1440 x 873	910 x 1590 x 1073	1010 x 1690 x 1273	1410 x 1840 (1970) x 1273
Weight (kg)			270	340	420	610
Allowable ambient conditions			0 to +40°C/up to 75% rh			
Utility requirements	Power supply	200V AC 3ø 50/60 Hz	22.5 A	22.5 A	23.0 A	36.0 A
		220V AC 3ø 60 Hz	21.0 A	22.0 A	22.0 A	34.0 A
		380V AC 3ø 50 Hz	10.0 A	11.0 A	11.0 A	22.0 A
		400V AC 3ø 50 Hz	9.4 A	10.4 A	10.4 A	21.0 A
Allowable heat load			850 W	1400 W	1500 W	2850 W

*1 Temperature and humidity chamber based on IEC60068−3−6:2001 (JIS C60068−3−6:2008 and JTM K09:2009), for ambient temperature +23°C, relative humidity 65±20% rh, rated voltage, no specimen.
*2 Excluding protrusions. Dimensions indicated in ( ) include protrusions.

PU

−40 to +100°C
LOW TEMPERATURE CHAMBER

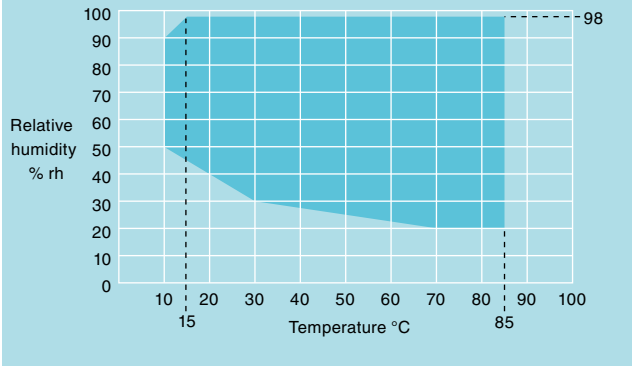
Model			PU−1J	PU−2J	PU−3J	PU−4J
System			Balanced Temperature Control system (BTC system)			
Performance*1	Temperature range		−40 to +100°C (lowest attainable temperature in an ambient temperature of 0 to +30°C)			
	Temperature fluctuation		±0.3°C			
	Temperature gradient		3.0°C			
	Temperature variation in space		1.5°C			
	Temperature rate of change		Temperature range: −26 to +86°C Heat up rate: 3.0°C/min. Pull down rate: 2.0°C/min.			
	Temperature extremes achievement time		Heat up time: from +20 to +100°C 30 min. Pull down time: from +20 to −40°C 50 min.			
Construction	Exterior material		Stainless steel plate: 18 Cr stainless steel plate, hairline finish			
	Test area material		Stainless steel plate: 18−8 Cr−Ni stainless steel plate, 2B polish			
	Heater		Nichrome strip wire heater			
	Humidifier		18-12−2.5 Cr−Ni−Mo stainless steel sheathed heater (surface evaporating system)			
	Cooler		Plate fin cooler	Plate fin cooler, stainless steel tube cooler		
	Air circulator		Cross flow fan			Sirocco fan
	Refrig-eration unit	System	Mechanical type single-stage compression cooling			
		Compressor	Rotary compressor (R404A)	Rotary compressor (R404A) Reciprocating compressor (R404A)		Scroll compressor (R404A) Reciprocating compressor (R404A)
		Refrigerator capacity	1.2 kW	1.5 kW + 0.4 kW		3.0 kW + 0.4 kW
		Expansion mechanism	Electronic expansion valve	Electronic expansion valve, capillary tube		
Capacity (L)			120	225	408	800
Chamber total load resistance (kg)			100			
Dimensions*2	Inside dimensions (W x H x D mm)		500 x 600 x 400	500 x 750 x 600	600 x 850 x 800	1000 x 1000 x 800
	Outside dimensions (W x H x D mm)		910 x 1440 x 873	910 x 1590 x 1073	1010 x 1690 x 1273	1410 x 1840 (1970) x 1273
Weight (kg)			260	330	410	600
Allowable ambient conditions			0 to +40°C/up to 75% rh			
Utility requirements	Power supply	200V AC 3ø 50/60 Hz	14.5 A	15.0 A	15.0 A	28.0 A
		220V AC 3ø 60 Hz	14.0 A	14.0 A	14.0 A	26.5 A
		380V AC 3ø 50 Hz	9.0 A	10.5 A	10.5 A	13.5 A
		400V AC 3ø 50 Hz	8.5 A	10.0 A	10.0 A	12.8 A
Allowable heat load			850 W	1400 W	1500 W	2850 W

*1 Temperature chamber based on IEC60068−3−5:2001 (JIS C60068−3−5:2006 and JTM K07:2007), for ambient temperature +23°C, relative humidity 65±20% rh, rated voltage, no specimen.
*2 Excluding protrusions. Dimensions indicated in ( ) include protrusions.

TEMPERATURE & HUMIDITY CONTROL RANGE

PR·PL

(At ambient temperature +23°C with no load)



* Continuous humidity operation at +40°C or lower because of frost on the cooler.

ACCESSORIES

- Power cable connection port
- Drain hose (approx. 1 m)
- Condenser filter (x1)
- Dew tray (x1)
- Cable port (I.D. ø50 mm on the left-side x1)
- Chamber lamp (Bulb-type fluorescent light x1)
- Casters (Free rolling type with leveling feet x4)
- Time signal terminal (2 contacts)
- Specimen power supply control terminal (1)
- LAN terminal (x1)

INCLUDED ITEMS

- Cable port rubber plug (ø50 mm) 1
- Door key 2
- Glass fuse (7A) 2
- Breaker handle stopper 1
- Wet bulb wicks (except PU) ..... 1 box
- User's Manual (DVD, booklet) ..... 1 set

MODEL (J Series)

P□ – □J

Size / Interior volume
1 : 120 L
2 : 225 L
3 : 408 L
4 : 800 L

Series
R –20 to +100°C / 20 to 98%rh
L –40 to +100°C / 20 to 98%rh
U –40 to +100°C

SAFETY DEVICES

- Control circuit overcurrent protection
- Glass tube fuse for control circuit short-circuit protection
- Air circulator short-circuit protection
- Electrical compartment door switch
- Absolute upper/lower temperature limit alarm (with built-in temperature/humidity controller)
- Chamber door switch
- Specimen power supply control terminal
- System error (error/alarm)
- Room temperature compensation burnout detection circuit
- Dry bulb temperature burnout detection circuit
- Wet bulb temperature burnout detection circuit
- Reverse prevention relay
- Temperature switch for air circulator
- Thermal fuse
- Temperature switch for condenser fan
- Condenser fan short-circuit protection
- Overheat protector
- Heater overcurrent protection
- Refrigerator 1 Temperature sensor burnout detection circuit
- Refrigerator-1 Circuit temperature range over
- Refrigerator-1 High-pressure pressure switch
- Refrigerator-1 Low-pressure pressure switch (Type 4 only)
- Refrigerator-1 Discharge pipe temperature switch
- Refrigerator-1 Discharge pipe out of temperature range
- Refrigerator-1 Compressor surface out of temperature range
- Refrigerator-1 Frost detection circuit (error/alarm)
- Refrigerator-1 Short-circuit protection
- Refrigerator-1 Overcurrent protection
- Refrigerator-3 High-pressure pressure switch (Models PL, PU–2 to 4 only)
- Refrigerator-3 Short-circuit protection (Models PL, PU–2 to 4 only)
- Refrigerator-3 Overcurrent protection (Models PL, PU–2 to 4 only)
- Humidifier overcurrent protection (except PU)
- Humidifier dry heat protector (except PU)
- Humidifier water level detection (except PU)
- Temperature upper limit deviation alarm (with built-in temperature/humidity controller)
- Absolute upper/lower humidity limit alarm (with built-in temperature/humidity controller)(except PU)
- Water tank drought switch (except PU)
- Water tank low-level switch (except PU)
- Dry wick detection (except PU)

DOOR (SELECTION)

Door with viewing window

Effective view (mm)
Type 1 to 3: W180 x H260
Type 4: W295 x H380
Hand-in ports
Type 2 & 3: 2 (a pair)
Type 4: 2 (a pair) or 4 (two pairs)

Wide view door

*The photo shows optional hand-in ports.

Effective view (mm)
Type 2: W470 x H720
Type 3: W570 x H820
Type 4: W970 x H970
Hand-in ports
Type 3 & 4: 2 (a pair)

Door without viewing window

OPTIONS

Additional cable port (with rubber plug)

Provided in addition/replacement of the standard cable port (left-side).
- ø25 mm (left-side or ceiling only)
- ø50 mm
- ø100 mm
- Flat cable port
  (left side or ceiling only)

* A cable port cannot be installed on the right side of the Type 1

Left-side (chamber interior)

Right-side

Cable port rubber plug

Prevents air leakage from the cable port.
- ø25 mm
- ø50 mm
- ø100 mm
- For the flat cable port
- Spiral-wrapped plug

ø50 mm

Spiral-wrapped type

Shelf/shelf bracket

- Stainless steel shelf/shelf brackets

- Resin-coated shelf/shelf brackets

Type 1: W350 x D467 mm
Type 2: W550 x D467 mm
Type 3: W750 x D567 mm
Type 4: W750 x D967 mm

OPTIONS

Specimen basket

For small specimens that cannot be placed directly on the shelf.

Material: Stainless steel (4 mesh)

• Small

Dimensions: W350 x H35 x D270 mm

Load capacity: 3 kg (equally distributed load)

Baskets per shelf: Type 1: 1
Type 2: 2
Type 3: 4
Type 4: 6

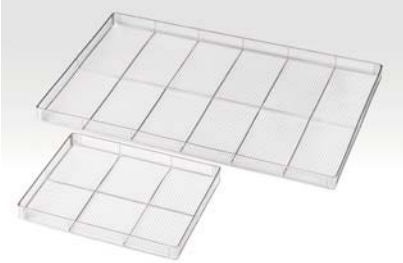
• Large

Dimensions: W750 x H35 x D450 mm

Load capacity: 5 kg (equally distributed load)

Baskets per shelf: Type 3: 1
Type 4: 2

* Place the specimen baskets on the shelf.
* Do not use when exceeding the shelf load capacity.
* Tests may not satisfy standard performance if the air flow is blocked, so ensure sufficient space around the specimen baskets.



Heavy-duty shelf

Used to hold heavy specimens exceeding the load capacity of the standard shelf.

• 30 kg (3 max.) Type 1 to 3
• 50 kg (2 max.) Type 1 to 4
• Rack (100 kg/5 level max.)

Load capacity for the standard shelf
Type 1 to 3: 10 kg
Type 4: 30 kg

Floor reinforcement

To enhance the floor load capacity inside the chamber.

• 100 kg
• 200 kg
• 300 kg

(Standard specification: 70 kg)

Inner glass door

A glass door is provided between the test area and the chamber door to observe specimens. Select hand-in ports and chamber door viewing window (4 selections).

• With hand-in ports, no viewing window
• With hand-in ports and a viewing window
• No hand-in ports, no viewing window
• No hand-in ports, with a viewing window

Specification changes when equipped with the inner door
Temperature extreme heat-up time:
heat-up time + 15 min.
Temperature extreme pull-down time:
pull-down time + 15 min.
Temperature distribution:
±0.5°C spread from each temperature distribution.
Humidity distribution:
±2% rh spread from each humidity distribution.

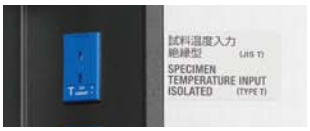
* The PU is not equipped with a wiper.
* When the inner door is attached, the lock release mechanism normally equipped as standard on the Type 4 is removed.

Inner glass door without hand-in ports

Specimen temperature control

Sensors are attached to the specimen to allow exposure tests that provide accurate temperature stress to the specimen.

• Insulated type
• Non-insulated type



Insulated type

Non-insulated type

Thermocouple

Attached to specimen to measure specimen temperature.
Thermocouple type T
(Copper/Copper-Nickel)

• 2 m
• 4 m
• 6 m

Airflow adjuster

Used when tests require low airflow velocity or a constant velocity.

OPTIONS

Precision inner chamber

Placing an aluminum box inside the chamber allow to reduce the air velocity and maintain the required temperature and humidity distribution.

Velocity: 0.5 m/sec. or lower
Temperature & humidity fluctuation:
±0.5°C/±2.5% rh
Temperature & humidity distribution:
±0.75°C/±5.0% rh
Outside dimensions (effective cross section):
Type 1 - W400 x H440 x D200 mm
(W335 x H285 mm)
Type 2 - W400 x H590 x D400 mm
(W335 x H435 mm)
Type 3 - W500 x H740 x D600 mm
(W435 x H585 mm)
Type 4 - W900 x H840 x D600 mm
(W835 x H685 mm)

Dew drip prevention

Ensures that specimens are not exposed to water that condenses on the test area ceiling.

Test area low-silicone

Reduces the production of silicone gas (siloxane) in the test area.

Brake oil protection

Changes resin parts (water tank front cover, door dew tray, chamber dew tray) to stainless steel.
* Type 3, 4

Power cable

- 2 m
- 5 m
- 10 m

Water-cooled specification

To reduce the effect of exhaust heat, this option changes the refrigeration system to a water-cooled condenser.
* Type 3, 4

Tank cart

Cart and tanks for supplying water to the chamber's fixed tank.
- 10 L x 3

Additional water supply tank

The additional water supply tank complements the water volume of the standard-equipped tank, to allow continuous operations for long periods.
- Capacity: 18 L

Water supply circuit

A water circuit to supply pure water continuously to the chamber.
- Water supply coupling (with ion exchanger)
- Pure water coupling (with pressure-reducing valve)
- Water purifier (WS-1) connection port

Ion exchanger

Water purifier (reverse osmosis)

Use to continuously supply pure water.
- 100 VAC
- 200 VAC
- 220 VAC
- 230 VAC

* When using the product on the second floor or a higher floor of a building, we provide a water leak detection system (sold separately) to prevent damage from accidental water leaks.
- Water-cooled specification
- Water purifier
- Water supply coupling (with ion exchanger)
- Pure water coupling (with pressure-reducing valve)
- Water purifier (WS−1) connection port

OPTIONS

Chamber dew tray

Prevents water leaks from the chamber onto the floor.

Air circulator removed for shipment

To prevent damages due to height restrictions, the air circulator for type 4 chambers is not mounted on the chamber during shipment.
(Height with: 1970 mm/ without: 1858 mm)

Paperless recorder

Records the temperature and humidity of each section such as the temperature inside the chamber.

- Data saving cycle: 5 sec.
- External recording media:
  CF memory card port
  (Includes a 256 MB CF card)
  USB memory port
- Languages:
  Can be switched between English/Japanese

<Temperature type>

- Temperature range: −50 to +100°C
  −100 to +100°C
  −100 to +200°C
- Number of inputs: Temperature 1
  (5 more channels can be turned ON)

<Temperature & humidity type>

- Temperature range: −50 to +100°C
  −50 to +150°C
  −100 to +100°C
  −100 to +150°C
- Humidity range: 0 to 100% rh
- Number of inputs: Temperature 1, Humidity 1
  (4 more channels can be turned ON)

Temperature (humidity) recorder (digital display)

• RJ11	6 dots	−50 to +100°C 0 to 100% rh
• RJ12	6 dots	−50 to +150°C 0 to 100% rh
• RJ13	6 dots	−100 to +100°C 0 to 100% rh
• RJ14	6 dots	−100 to +150°C 0 to 100% rh
• RJ21	6 dots	−50 to +100°C
• RJ23	6 dots	−100 to +100°C
• RJ25	6 dots	−100 to +200°C

Dual communication logger

In addition to the functions of the paperless recorder, the dual communication logger records temperatures inside the chamber and from the temperature (humidity) controller information, and it allows remote monitoring and chamber alarm reporting.
Transmitted data:
Operation state,
display temperature (humidity),
temperature (humidity) setting,
alarm count, alarm number 1/2

- −50 to +100°C
- −100 to +200°C
- −50 to +100°C/0 to 100% rh
- −50 to +150°C/0 to 100% rh

Temperature (humidity) recorder wiring

Preparation of a power cable, temperature sensor, relative humidity signal and a grounding wire for additional installation in the future.

Recorder output terminal

This terminal outputs the temperature and relative humidity in the test area.

Temperature sensor terminal

Terminal board for dry-bulb/wet-bulb sensors in the chamber.

Power meter

Displays the integral power consumption for the chamber.

OPTIONS

Overcool protector

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

Additional overheat protector

Additional preventive measures can be taken for excessive temperature rise in the chamber, in addition to the standard equipped overheat protector.

Emergency stop pushbutton

Stops the chamber immediately.

Main power switch

The main power switch allows turning the power ON and OFF from the chamber front.

Power key switch

Used to manage/restrict the chamber usage.

Power indicator

The operator can verify if the breaker is ON or OFF from the chamber front.

Status indicator light

Select light color, buzzer sound, and lighting or blinking.

- 1 level, light: 1 color, height: 533 mm
- 2 levels, light: 2 colors, height: 575 mm
- 3 levels, light: 3 colors, height: 616 mm
- 4 levels, light: 4 colors, height: 657 mm

Rotating signal light

The rotating signal lights up when an error occurs.
(Two types of colors are provided, red or yellow.)

Trouble buzzer

Buzzer notification when an error occurs.

External alarm terminal

If the safety device of the chamber is activated, external alarm terminal will notify it to a remote point.

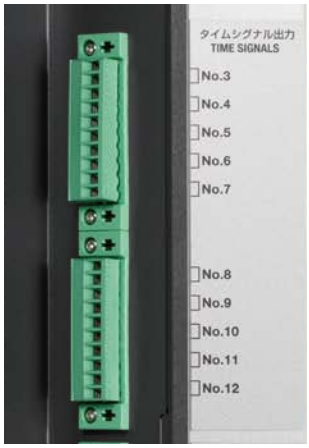
Door opening signal output terminal

Capable of controlling an external device that operates along with door operation and records the temperature disturbance history.

OPTIONS

Time signal terminal

Adds additional terminals to the standard time signal terminals.



Temp. & humid. SP attainment output

When the temperature (humidity) in the chamber reaches the set values, the chamber sends out a contact signal.
Use it to synchronize the power supply to the specimen, the timing for measurements or to prevent dew from condensing on the specimens.

Time run-out terminal

This option enables turning the power to the specimen ON or OFF with contact signal output when the time is up by using the timer function on the temperature (humidity) controller.

Interface

Communication ports to connect the chamber to a PC.
(Chamber side ports or connections inside the machinery)
- RS-485
- GPIB
- RS-232C

Communication cables

• RS−485	5, 10, 30 m
• GPIB	2, 4 m
• RS-232C	1.5, 3, 6 m

Defrost circuit

Automatically defrosts the refrigeration circuit.

Frost-free circuit

Prevents frost from accumulating on the refrigeration circuit to allow long-term continuous operation.

Evaporator frost check window

Equips a window inside the test chamber to allow checking frost accumulation on the evaporator.

Stainless steel evaporator

Increases the corrosion resistance of the evaporator when corrosive gases are produced from the specimen.
* Standard performance may not be met under certain conditions. Inquire for details.

Sheathed heater with fins

Changes the heater from a stripped wire heater to a sheathed heater with fins to lower the surface temperature of the heater, decrease corrosion, and reduce defective insulation.
- 200 V

Upper limit modification

Enables tests over 100°C.
(+120°C for the wide view door)
- Upper limit temperature +150°C
- Upper limit temperature +180°C

OPTIONS

Instrumentation-interlocking DC power supply

Capable of applying voltage to the specimen, used for bias testing. The DC power supply unit synchronizes with constant and program operations, and can be set for each temperature and humidity program step.

- 5 V
- 12 V
- 15 V
- 24 V
- 48 V

Operation panel cover

A cover for the operation panel. (Plastic)

User's manual

- DVD (extra copy)
- Booklet

Reports & certificates

- Calibration results
- Traceability system chart
- Traceability certificate
- Testing and inspection report
- Test data

DANGER

- 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 materials in the chamber. If corrosive substances or liquid is used, the life of the unit may be significantly shortened specifically because of the corrosion of stainless steel, resin and silicone materials.

CAUTION

- Be sure to read the user's manual before operation.
- Please contact us for non-standard specification.

Temperature & humidity chamber Series

Environmental Stress Chamber ARS · ARL · ARG · ARU

ESPEC's Environmental Stress Chambers achieve a broad temperature and humidity range with a superb rate of change in temperature.
They support a maximum heat-generation load from the specimen of 4,500 W. Each chamber is also equipped with a specimen temperature control function to meet stringent testing demands typically required for automotive parts and mobile products.

Model	Temp. (humidity) range	Inside dimensions (mm)
ARS–0680	–75 to +180°C/ 10 to 98% rh	W850 x H1000 x D800
ARS–1100		W1100 x H1000 x D1000
ARL–0680	–45 to +180°C/ 10 to 98% rh	W850 x H1000 x D800
ARL–1100		W1100 x H1000 x D1000
ARG–0680	–75 to +180°C	W850 x H1000 x D800
ARG–1100		W1100 x H1000 x D1000
ARU–0680	–45 to +180°C	W850 x H1000 x D800
ARU–1100		W1100 x H1000 x D1000

Bench-Top Type Temperature (& Humidity) Chamber SH · SU

ESPEC's Bench-Top Type Temperature (& Humidity) Chambers play a large role in ensuring reliability in the research and development of products including electronic components. These chambers achieve energy savings by reducing power consumption with the development of our unique refrigeration capacity variable control system.

Model	Temp. range	Humidity range	Capacity (L)
SH–221	–20 to +150°C	30 to 95% rh	22.5
SH–241	–40 to +150°C		
SH–261	–60 to +150°C		
SH–641	–40 to +150°C		64
SH–661	–60 to +150°C		

ESPEC CORP. http://www.espec.co.jp/english

Head Office
3-5-6, Tenjinbashi, Kita-ku, Osaka 530-8550, Japan
Tel : 81-6-6358-4741 Fax : 81-6-6358-5500

ESPEC NORTH AMERICA, INC.
Tel : 1-616-896-6100 Fax : 1-616-896-6150

ESPEC EUROPE GmbH
Tel : 49-89-1893-9630 Fax : 49-89-1893-96379

ESPEC (CHINA) LIMITED
Tel : 852-2620-0830 Fax : 852-2620-0788

ESPEC ENVIRONMENTAL EQUIPMENT (SHANGHAI) CO., LTD.
Head Office
Tel : 86-21-51036677 Fax : 86-21-63372237
BEIJING Branch
Tel : 86-10-64627025 Fax : 86-10-64627036
TIANJIN Branch
Tel : 86-22-26210366 Fax : 86-22-26282186
GUANGZHOU Branch
Tel : 86-20-83317826 Fax : 86-20-83317825
SHENZHEN Branch
Tel : 86-755-83674422 Fax : 86-755-83674228
SUZHOU Branch
Tel : 86-512-68028890 Fax : 86-512-68028860

ESPEC TEST TECHNOLOGY (SHANGHAI) CO., LTD.
Tel : 86-21-68798008 Fax : 86-21-68798088

ESPEC SOUTH EAST ASIA SDN.BHD.
Tel : 60-3-8945-1377 Fax : 60-3-8945-1287

IW10E23C03 (The contents of this catalog is as of October, 2011.)

JSA QMS JIS Q 9001 JSAQ 004

MS JAB CM001

MS JAB CM021

ISO 14001 JACO EC99J2046

UKAS ENVIRONMENTAL MANAGEMENT 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).

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

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

ESPEC CORP.