HIRAYAMA

simac

PC-R9series

UNSATURATED & SATURATED HAST Chamber

PC-304R9/422R9

- ■Remote operation by LAN and WiFi.
- ■Cleaning mode.
- ■USB port.
- ■Air-HAST Feature (Option)

Leaders by Innovation and service
Excellence by Design and Reliability
Condensation Free by design
Guaranteed Accuracy Real Time
Engineered for Perfection and Others…

PC-422R9

TÜV SÜD EN ISO 13485 tuv-sud.com/ps-cert
ISO 13485 CERTIFIED
Products shown in this brochure are manufactured by the company, ISO 13485 certified.

Pioneer in HAST Technology

HIRAYAMA MANUFACTURING CORPORATION

A new programmable high precision temperature-humidity controller enables more precise HAST evaluation.
More advanced functions and operations including the remote operation using an external terminal device became available with the latest touch screen.

HAST Chamber PC-R9series

Advantages of new controller

Programmable high-precision temperature-humidity controller
The new temperature-humidity controller enables the more accurate accelerated evaluation when compared to conventional HAST chamber. It is easy to operate the controller, because an interactive touch screen input system is employed.

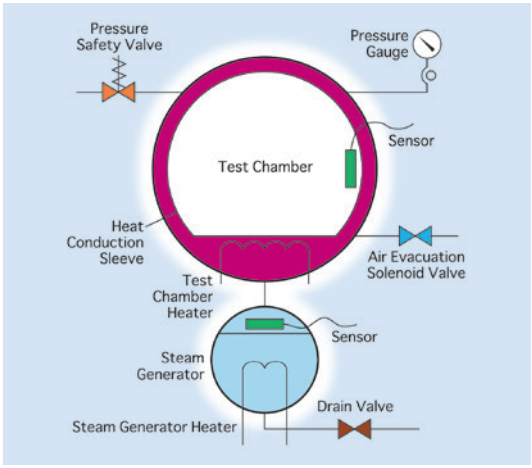
Remote operation
It is possible to remotely control by using an external terminal device. Even when many PC-R9 HAST chambers are used or when a PC-R9 HAST chamber is installed in a wide place, they can be monitored and adjusted by a small number of operators.
The setting operation is easy.
(Download the application software for connecting external terminal devices.)

Steam generator separated

Test chamber and steam generator are separated and independent from each other.
The dual vessel structure consisting of a test chamber and a steam generator which are separated and independent from each other is employed. When compared to the single vessel structure, the dual vessel structure has the following advantages.

- The mutual thermal influence between a test chamber (DRY bulb) and a steam generator (WET bulb) is small.
- Effective dimension is large.
- The working humidity range is wide.

The round shaped chamber that is effective for the strength and that can enlarge the effective space to the maximum is used.



Easy-to-operate. Easy-to-connect

Electric clamp and slide tray
An electric clamp method that can open /close the door only by pressing a button is employed. In addition, a slide tray which can draw the door toward this side is equipped. It is easy to put specimens in and taking them out. It is not necessary for an operator to handle specimens in the chamber, therefore, the safety of an operator is ensured.

Bias terminals installed inner face of the door
The bias terminals are installed inner face of the door. Connection work with specimens at a bias test can be performed outside of the door. 20 bias terminals are installed as standard, and the optional terminals can be added by up to 100.

The control method can be selected according to the purpose.

Two (2) control methods

1. Unsaturated control

The unsaturated control mode prevents dew condensation and can set humidity at any value between 65%RH and 100%RH. In addition to the fixed value operation, this mode can set the gradient for temperature rise and fall. Humidity control is also available. This mode conforms to the IEC 60068-2-66 and JIS C 60068-2-66.

2. Saturated control

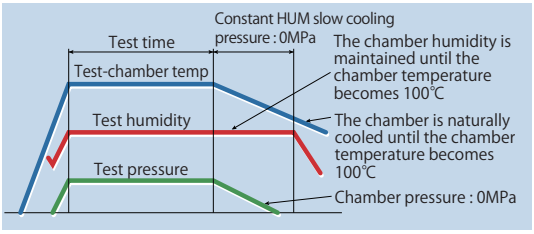
In the saturated control mode, humidity is fixed at 100 %RH. Humidity is maintained at 100%RH from the rising start time. This mode is also called as a wet saturation test, and dew condensation occurs on the specimens. A test that corresponds to the conventional saturated type pressure cooker can be performed.

The exhaust mode can be selected according to the purpose.

Three (3) exhaust modes

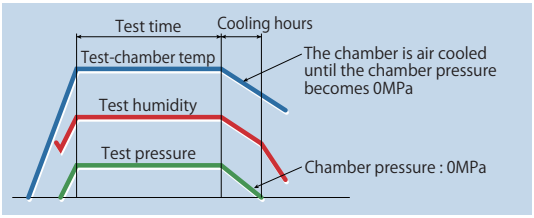
1. Slow cooling at the set humidity

After a test, the test chamber is cooled down slowly with humidity maintained until the chamber temperature becomes 100℃ and the chamber pressure drops to 0MPa. This mode can protect specimens from pressure stress and drying that are caused by rapid exhaust. The high accurate test that minimizes the influence on the specimens caused by taking them out on the way can be performed.



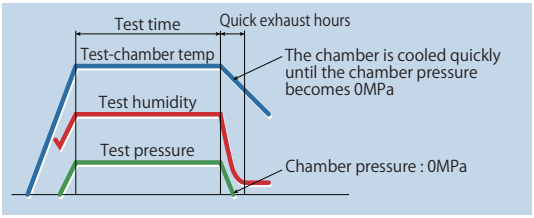
2. Cooling with moisture maintained

After a test, it is possible to cool the chamber in a short time compared to the slow cooling with humidity maintained while minimizing the pressure stress and drying.



3. Quick exhaust

Immediately after a test, the exhaust valve is opened to carry out exhaust and hot water drainage in a short time. Removing the specimens after a test can be carried out in the shortest time. This mode is suitable for specimens that are not affected by pressure stress. Data is compatible with the data of a saturated type pressure cooker.



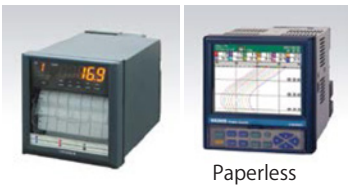
Options

■Communication software

It is possible to control and monitor up to16 sets of devices collectively with one PC.

■Recorder

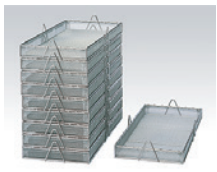
6-point dotting recorder
Digital recorder.



Paperless

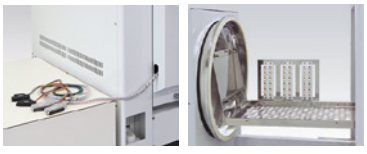
■Basket

- PC-304R9 : W172×D346×H30mm
- PC-422R9 : W252×D410×H30mm



■High resistance measuring terminal (Measuring wire)

Insulation resistance can be measured automatically when used in combination with a migration tester.



■Three-tiered shelf

Frame size

- PC-304R9 : W264×D350×H135mm
- PC-422R9 : W370×D412×H215mm

■Bias terminal

For PC-422R9, up to 100 terminals can be installed including 20 standard terminals. For PC-304R9, it is possible to install up to 60 terminals including 20 standard terminals.

■Board Rack

- Custom-made board rack available.

■Automatic water supply system to plastic tank

Water is supplied to a built-in plastic tank directly from the pure water piping.

■High voltage terminal
1000V or 2000V is available.

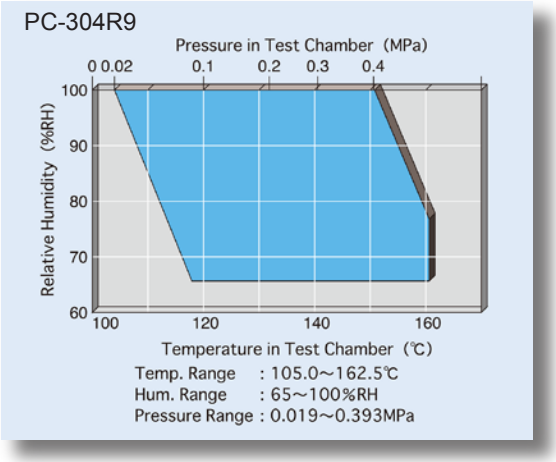
■Max. heat dissipation value of specimen: 50 watts

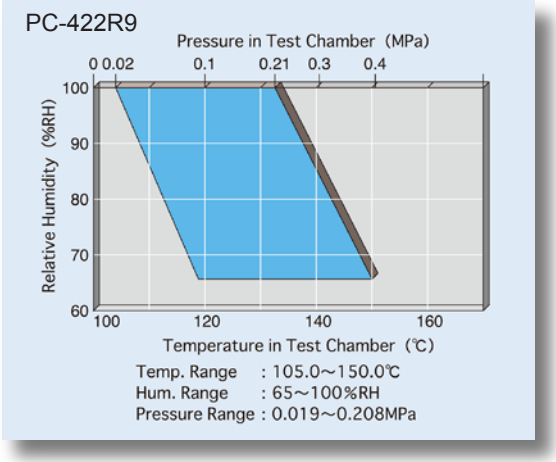
Main specifications

Model	PC-304R9	PC-422R9
Outside dimension	W710×D950×H1620 mm	W710×D950×H1620 mm
Test chamber size	Φ300×D522 (34.5 L)	Φ420×D657 (84.4 L)
Effective chamber size	Φ220×D350 (12 L)	Φ340×D475 (40 L)
Weight (approx.)	260 kg	295 kg
Power supply	1 φ AC220V/230V/240V 50/60Hz 2.3kW	1 φ AC220V/230V/240V 50/60Hz 3.0kW
Heater capacity	Steam generator 1.5kW	Steam generator 1.5kW
	Test chamber 0.6kW	Test chamber 1.3kW
Operation mode	Programmed operation, Fixed-value operation	
Programmed operation	Up to 150 patterns, 1500 steps (maximum)	
Test mode	HUM (unsaturated), STD (saturated)	
Temperature control method	PID control, SCR drive	
Working temperature range	105.0 ～ 151.4℃ (at 100%RH)	105.0 ～ 133.3℃ (at 100%RH)
	110.0 ～ 157.5℃ (at 85%RH)	110.0 ～ 140.0℃ (at 85%RH)
	118.0 ～ 162.5℃ (at 65%RH)	118.0 ～ 150.0℃ (at 65%RH)
Temperature control accuracy	±0.5℃	
Temperature distribution accuracy	±0.5℃ (at 100%RH)	
	±1.0℃ (at 100%RH)	
Working humidity range	65-100%RH	
Humidity control accuracy	±3%RH (at 85%RH)	
Working pressure range	0.019 ～ 0.393MPa	0.019 ～ 0.208MPa
Pressure vessel category	Small sized pressure vessel	
Continuous operation time	Up to 500 hours	
Time setting range	1 minute - 999 hours 59 minutes	
Temporary power failure backup	Approx. 4 seconds	
Temperature rise time	Approx. 70 minutes (time to 120℃ / 85%RH from room temperature)	
Exhaust mode	EXHT MODE Selector Switch MODE 1: Slow cooling at the set humidity MODE 2: Cooling with moisture maintained MODE 3: Quick exhaust	
Bias terminal	20 (Applied voltage:125V, within 30W in total)	
Time signal terminal	4	
Emergency stop switch	Equipped	
Chamber material	Stainless steel SUS316L (Electro-polished)	
Water supply method	A water supply tank is built in, and initial supply of water into the steam generator is performed automatically	
Door operation	Drawer type door, Door clamping driven by motor	
Safety devices and alarms	Pressure safety valve, Over-pressure prevention device, Overheat prevention device, Low water cut off device, Water supply abnormality detection device, Over-current and earth leakage breaker, Circuit breaker for heater Fuse, Thermal fuse, Set-value lock, Hot water drainage treatment system, Self-diagnosis function of sequence controller, Negative pressure prevention system, Door safety system (Door lock check mechanism during operation, Door open/close check mechanism)	
Supplied accessories	USB port x 1, Drainage hose x 2, Water supply/drainage hose x 1, Auxiliary water supply tank x 1 Lid gasket x 2, Power supply switch key x 2, Power supply cord x 1, Operation manual x 1	

・The size of protrusions is not included in the outside dimension. ・The above performance values were obtained when the ambient temperature was normal and there was nothing in the test chamber.

Temp. & Humidity Control Range at Test process





Specifications and appearance are subject to change without notice due to continuous product improvement.

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