

Temperature Chamber Series



World-Class Ovens

The "Perfect Oven"

Ideal for numerous applications ranging from high-temperature tests to drying and heat processing.

The "Perfect Oven" epitomizes the features and performance of the ideal oven. It performs a wide range of roles, from high-temperature tests and drying to heat treatment in production lines with unsurpassed reliability and performance. The 56 models offered by ESPEC precisely answers the various needs of our customers.





VARIATION OF CHAMBERS

PV(H) + 200 / + 300
(+392°F / +572°F)

Temperature Chamber (Vertical type)

Due to its slim design which utilizes your precious space more efficiently, the required installation area can be significantly reduced.



PH(H) + 200 / + 300
(+392°F / +572°F)

Temperature Chamber (Horizontal type)

This basic "Perfect Oven" model is designed to handle numerous applications ranging from high-temperature testing to drying and heat treatment.



STPH + 500
(+932°F)

Ultra-High Temperature Chamber

Offers temperature control up to + 500 .
It is ideal for high-temperature life tests, heat resistance tests and other test applications.



SSPH + 700
(+1292°F)

Ultra-High Temperature Chamber

This oven has an effective range of + 100 to + 700 .



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.



CAUTION

Periodical cleaning of the chamber and exhaust duct is required for it may cause combustion and fire when vapor of specimen is built up. Furthermore, an interior argon welding can be applied to the insulation layer of the chamber to minimize vapor penetration which may cause fire (except IPH(H)). For more information, please contact us.

SPH(H) + 200 / + 300
(+392°F / +572°F)

Temperature Chamber with Explosion Vent

Suitable for drying, heat-treatment and temperature characteristic testing of specimens including volatile solvents. The oven is equipped with an explosion vent which releases explosion and a safety door for security.



IPH(H) + 200 / + 300
(+392°F / +572°F)

Anaerobic Temperature Chamber

Equipped with non-oxidizing gas intake device to prevent the oxidation of samples or work items.



GPH(H) + 200 / + 300
(+392°F / +572°F)

Temperature Chamber with Rotating Specimen Rack

This temperature chamber is equipped with a rotating device to ensure uniform testing of samples, drying and heat treatment.



OVEN SERIES FOR VARIOUS APPLICATIONS

ST(H)

**DESK-TOP TYPE
HIGH-TEMP
CHAMBER**



(H)LKS

**LARGE VOLUME
TEMPERATURE
CHAMBER**



PV(H)C

CLEAN OVEN



VAC

VACUUM OVEN

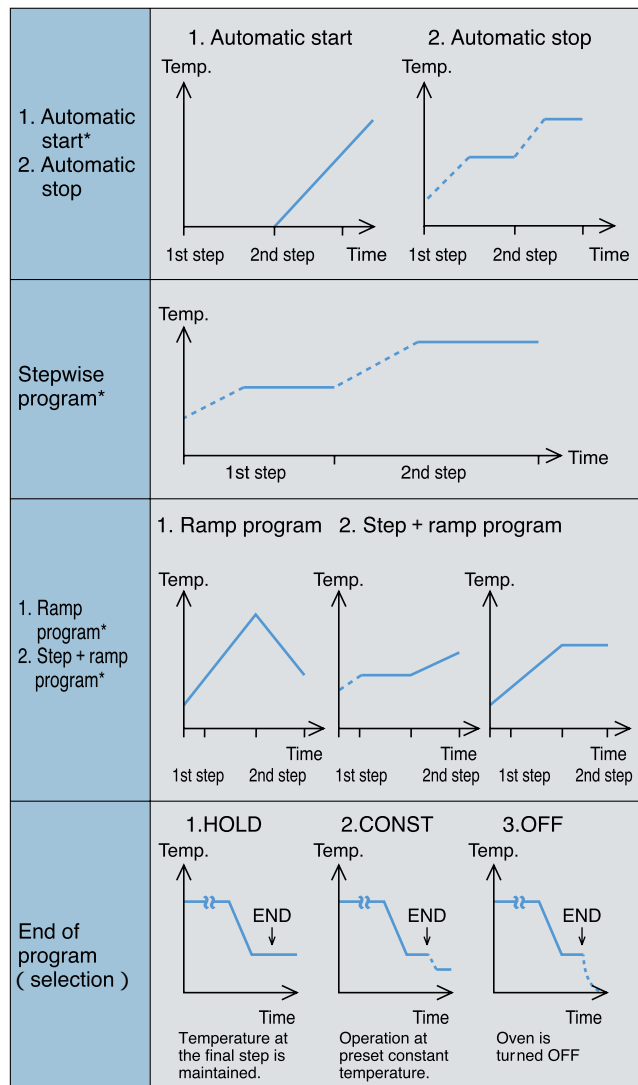


Standard Instrumentation



Capable of four programmed operations for use in heat treatment and drying during manufacturing processes: constant temperature mode, automatic start/stop mode, stepwise mode and ramp mode (which takes the oven up a preset temperature gradient). The large display makes the oven easy to operate.

Examples of Programmed Operations



Standard Instrumentation Specifications

Operation mode	Constant operation, programmed operation and remote operation through E-BUS system
Setting and indication ranges	temperature: 0 to + 210 (+ 32 to + 410° F) 0 to + 310 (+ 32 to + 590° F) 0 to + 510 (+ 32 to + 950° F) 0 to + 710 (+ 32 to + 1310° F) time: 0 to 99 hours 59 minutes 100 to 999 hours (in 1 hour increments)
Setting and indication resolution	temperature: 1 time: 1 minute
Indication accuracy*	temperature: within $\pm (2 + 1 \text{ digit})$ time: $\pm 300 \text{ ppm}$ of readout value
Programming function	Two-fixed-step program entry is possible. Ramp setting Stepwise temperature ramp setting is possible. Automatic start Timed start-up is possible by setting the first step to 0 (i.e. oven OFF). Automatic stop Timed termination is possible by setting the oven to turn OFF upon completion of a program. OFF mode The oven can be turned off during programmed operation. Completion The operating status upon completion of a program can be set to HOLD, CONST or OFF. Repetition Up to 999 times.
Communication	E-BUS terminal (standard)
Auxiliary functions	Input burnout detection Upper and lower temperature limit alarm Buzzer alarm Automatic overheat prevention Fault indication Alarm number indication Self diagnosis Guarantee soak testing Operation mode switching from failure to power recovery Power failure protection

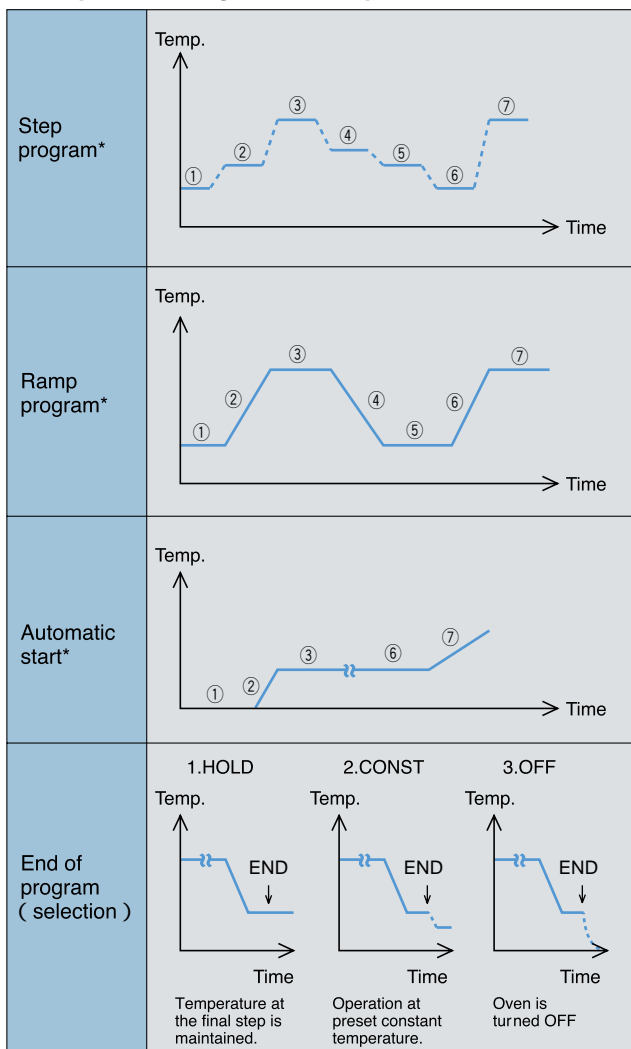
* The number of repetitions of a program can be preset between 1 and 999.
Stepwise damper setting is possible using an optional automatic damper.
Guarantee soak function, whereby the timer is used to maintain a preset temperature for a preset length of time, can also be performed.

* At ambient temperature $\pm 23 \pm 5$

M-Instrumentation

Allows programmed operations up to three patterns with 18 steps in total for temperature characteristics testing, heat treatment, and drying. Its advanced functions include rising and falling temperature gradient settings, repeated operations (up to 999 cycles), setting of operation status on completion of a program (HOLD, CONST or OFF), and automatic program start/stop at any chosen time.

Examples of Programmed Operations



* The number of repetitions of a program can be preset between 1 and 999. Operation status upon completion of a program can be set to HOLD, CONST or OFF. ① to ⑦ stepwise damper setting is possible using an optional automatic damper. Guarantee soak function, whereby the timer is used to maintain a preset temperature for a preset length of time, can also be performed.



M-Instrumentation Specifications

Operation mode	Constant operation, programmed operation and remote operation through E-BUS system
Setting and indication measurement ranges	temperature: 0 to +210 (+32 to +410°F) 0 to +310 (+32 to +590°F) 0 to +510 (+32 to +950°F) 0 to +710 (+32 to +1310°F) time: 0 to 99 hours 59 minutes 100 to 999 hours (in 1 hour increments)
Setting and indication resolution	temperature: 1 time: 1 minute
Indication accuracy*	temperature: within ± (2 + 1 digit) time: ± 300 ppm of readout value
Programming function	Three-pattern, 18-step program entry is possible. Ramp setting Stepwise temperature ramp setting is possible. Automatic start Timed start-up is possible by setting the first step to 0 (i.e. oven OFF). Automatic stop Timed termination is possible by setting the oven to turn OFF upon completion of a program. OFF mode The oven can be turned off during programmed operation. Completion The operating status upon completion of a program can be set to HOLD, CONST or OFF. Repetition Up to 999 times.
Communication	E-BUS terminal (standard)
Auxiliary functions	Input burnout detection Upper and lower temperature limit alarm Buzzer alarm Automatic overhear prevention Fault indication Alarm number indication Self diagnosis Guarantee soak testing Operation mode switching from failure to power recovery Power failure protection

* At ambient temperature ±23 ±5



Chamber interior

● **A Space-Saving Upright Chamber**

Components are incorporated into the top portion of the vertical chamber, reducing installation space by 20~60% (comparison with conventional model). Increases productivity on the production line, and saves laboratory space.

● **Inner Side of Door is Seamless**

The seamless molding inside of door prevents heat loss from loose joint.

● **Large Processing Capacity**

Since the floor and shelves of the chamber have been greatly reinforced, a large amount of specimens can be loaded and processed at the same time. Furthermore, the slide-out shelf ensures easy handling of the specimens.

● **Excellent Heating Performance**

Heating performance is greatly enhanced so that the chamber temperature remains constant even if the ventilation damper is opened. (at + 20 ambient temperature)

SPECIFICATION

Model	PV-211	PV-221	PV-231	PV-331	PVH-211	PVH-221	PVH-231	PVH-331	
System	Forced hot-air circulation & ventilation system								
Power supply (Voltage fluctuation: ± 10% of rated value)	200 / 220 / 230 / 240V AC 1 50/60Hz		200 / 220V AC 3 3W 50/60Hz		200 / 220 / 230 / 240V AC 1 50/60Hz	200 / 220V AC 3 3W 50/60Hz			
Max power consumption (kVA)	4.0	4.8	5.8	6.8	4.0	5.8	6.2	8.8	
Performance*1	Temperature range	Ambient temp + 20 (+ 68°F) to + 200 (+ 392°F)				Ambient temp + 20 (+ 68°F) to + 300 (+ 572°F)			
	Temperature constancy	± 0.2 at + 100 (+ 212°F), + 200 (+ 392°F)				± 0.2 at + 100 (+ 212°F), + 200 (+ 392°F), ± 0.3 at + 300 (+ 572°F)			
	Temperature uniformity	± 1.0 at + 100 (+ 212°F), ± 2.0 at + 200 (+ 392°F)				± 1.0 at + 100 (+ 212°F), ± 2.0 at + 200 (+ 392°F), ± 3.0 at + 300 (+ 572°F)			
	Temperature heat-up rate	Ambient temp to + 200 (+ 392°F) within 40 min				Ambient temp to + 300 (+ 572°F) within 60 min			
Operable ambient temp	0 to + 40 (+ 32 to + 104°F)								
Construction	Exterior Material	Cold rolled rust-proof steel plate, Melamine resin coating							
	Interior Material	Stainless steel plate							
	Insulation Material	Glass wool							
	Heater	Sheathed heater							
	Air Circulator	Iron sirocco fan with heat resistant finish							
	Damper	Circulation/ Ventilation (manual switching)							
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals (relay contact is opened during malfunction .Voltage capacity 250V AC 3A)								
Inside dimensions W x H x Dmm (in)	600 x 600 x 600 (23.6 x 23.6 x 23.6)	600 x 900 x 600 (23.6 x 35.4 x 23.6)	600 x 1200 x 600 (23.6 x 47.2 x 23.6)	800 x 1200 x 800 (31.5 x 47.2 x 31.5)	600 x 600 x 600 (23.6 x 23.6 x 23.6)	600 x 900 x 600 (23.6 x 35.4 x 23.6)	600 x 1200 x 600 (23.6 x 47.2 x 23.6)	800 x 1200 x 800 (31.5 x 47.2 x 31.5)	
Outside dimensions*2 W x H x Dmm (in)	770 x 1200 x 925 (30.3 x 47.2 x 36.4)	770 x 1500 x 925 (30.3 x 59 x 36.4)	770 x 1800 x 925 (30.3 x 70.9 x 36.4)	1030 x 1800 x 1145 (40.6 x 70.8 x 45.1)	770 x 1200 x 925 (30.3 x 47.2 x 36.4)	770 x 1500 x 925 (30.3 x 59 x 36.4)	770 x 1800 x 925 (30.3 x 70.9 x 36.4)	1030 x 1800 x 1145 (40.6 x 70.8 x 45.1)	
Inside capacity (L)	216	324	432	768	216	324	432	768	
Weight (kg)	165	190	210	325	165	190	210	325	

*1 Measurement of circulation operation at + 20 ambient temperature under no load.

*2 Excluding protrusions.

Shelf pitch, number of shelves and shelf load capacity

Model	Shelf pitch	Shelves	Load capacity (equally distributed load)
PV(H)-211	50mm	11	25kg
PV(H)-221	50mm	17	25kg
PV(H)-231	50mm	23	25kg
PV(H)-331	80mm	14	45kg

Maximum specimen load capacity of each model is 200kg.

SAFETY DEVICES

- Leakage breaker for power supply
- Overheat protector
- Circuit breaker for SSR overload shortcircuit protection
- Air circulator thermal switch
- Electrical compartment door switch
- Chamber door switch
- Short circuit protection fuse for control circuit
- Thermal fuse

ACCESSORIES

- Shelf (stainless steel wire) 2
(stainless steel plate for type 331)
- Shelf bracket (stainless steel plate) 2 sets
- Connector (for specimen power supply control terminal) 1
- Fuse 2
- Instruction manual 1 each
(for chamber and temperature indicator-controller)
- Warranty 1



Chamber interior

● High Performance Chamber

A temperature-indication controller with an advanced PID operation, and an originally developed chamber configuration provide unmatched oven performance. Temperature uniformity, temperature constancy, temperature heat-up rate, and temperature recovery time are performed with the upmost reliability.

● Safety Measures

Triple safety mechanisms are employed especially for excessive overheating.

● Various Models to Choose from

We provide a total of 16 ovens with combination of temperature range, capacity, and instrumentation.

SPECIFICATION

Model	PH-101	PH-201	PH-301	PH-401	PHH-101	PHH-201	PHH-301	PHH-401	
System	Forced hot-air circulation & ventilation system								
Power supply (Voltage fluctuation: ± 10% of rated value)	200/220/230/240V AC 1 50/60Hz		200/220V AC 3 3W 50/60Hz		200/220/230/240V AC 1 50/60Hz		200/220V AC 3 3W 50/60Hz		
Max power consumption (kVA)	2.0	2.7	5.0	6.5	2.7	3.8	6.5	9.5	
Performance*1	Temperature range	Ambient temp + 20 (+ 68°F) to + 200 (+ 392°F)				Ambient temp + 20 (+ 68°F) to + 300 (+ 572°F)			
	Temperature constancy	± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F)		± 0.2 at + 100 (+ 212°F) ± 0.4 at + 200 (+ 392°F)		± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F) + 300 (+ 572°F)		± 0.2 at + 100 (+ 212°F) ± 0.4 at + 200 (+ 392°F) ± 0.6 at + 300 (+ 572°F)	
	Temperature uniformity	± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F)		± 1.0 at + 100 (+ 212°F) ± 2.0 at + 200 (+ 392°F)		± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F) ± 2.5 at + 300 (+ 572°F)		± 1.0 at + 100 (+ 212°F) ± 2.0 at + 200 (+ 392°F) ± 3.0 at + 300 (+ 572°F)	
	Temperature heat-up rate	Ambient temp to + 200 (+ 392°F) within 40 min				Ambient temp to + 300 (+ 572°F) within 60 min			
Operable ambient temp	0 to + 40 (+ 32 to + 104°F)								
Construction	Exterior Material	Cold rolled rust-proof steel plate, Melamine resin coating							
	Interior Material	Stainless steel plate							
	Insulation Material	Glass wool							
	Heater	Iron chrome strip wire heater							
	Air Circulator	Stainless steel propeller fan							
	Damper	Circulation/ Ventilation (manual switching)							
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals (relay contact is opened during malfunction .Voltage capacity 250V AC 3A)								
Inside dimensions W x H x Dmm (in)	450 x 450 x 450 (17.7 x 17.7 x 17.7)	600 x 600 x 600 (23.6 x 23.6 x 23.6)	800 x 800 x 800 (31.5 x 31.5 x 31.5)	1000 x 1000 x 1000 (39.4 x 39.4 x 39.4)	450 x 450 x 450 (17.7 x 17.7 x 17.7)	600 x 600 x 600 (23.6 x 23.6 x 23.6)	800 x 800 x 800 (31.5 x 31.5 x 31.5)	1000 x 1000 x 1000 (39.4 x 39.4 x 39.4)	
Outside dimensions*2 W x H x Dmm (in)	1040 x 820 x 635 (41 x 32.3 x 25)	1190 x 970 x 785 (46.9 x 28.2 x 30.9)	1500 x 1210 x 1065 (59.1 x 47.6 x 41.9)	1730 x 1480 x 1275 (68.1 x 58.3 x 50.2)	1040 x 820 x 635 (41 x 32.3 x 25)	1190 x 970 x 785 (46.9 x 28.2 x 30.9)	1500 x 1210 x 1065 (59.1 x 47.6 x 41.9)	1730 x 1480 x 1275 (68.1 x 58.3 x 50.2)	
Inside capacity (L)	91	216	512	1000	91	216	512	1000	
Weight (kg)	95	130	240	430	95	130	240	430	

*1 Measurement of circulation operation at + 20 ambient temperature under no load.

*2 Excluding protrusions.

Shelf pitch, number of shelves and shelf load capacity

Model	Shelf pitch	Shelves	Load capacity (equally distributed load)
PH(H)-101	50mm	8	20kg
PH(H)-201	50mm	11	20kg
PH(H)-301	80mm	9	30kg
PH(H)-401	140mm	6	40kg

Maximum specimen load capacity

PH(H)101, 201, 301: 50kg PH(H)401: 100kg

ACCESSORIES

Shelf (stainless steel wire for type101• 201)	2
(stainless steel punched plate for type 301• 401)	2
Shelf bracket (stainless steel plate)	2 sets
Connector (for specimen power supply control terminal)	1
Fuse	2
Instruction manual	1 each
(for chamber and temperature indicator-controller)	
Warranty	1

SAFETY DEVICES

Leakage breaker for power supply
 Overheat protector
 Circuit breaker for SSR overload shortcircuit protection
 Air circulator thermal switch (except type 401)
 Electrical compartment door switch
 Air circulator overload relay (type 401 only)
 Chamber door switch (type 401 only)
 Short circuit protection fuse for control circuit
 Thermal fuse



● Temperature Control of + 500

Effective temperature range of (ambient temp + 20) to + 500 . The chamber can be used for a variety of applications, including tests of viability under high-temperatures and temperature resistance.

● Door Equipped with a Single-Action Lever

The door can be firmly locked by an easy-to-use single-action lever. It prevents accidents from unlocked doors.

SPECIFICATION

Model	STPH-101	STPH-201
System	Forced hot-air circulation & ventilation system	
Power supply (Voltage fluctuation: ± 10% of rated value)	200 / 220V AC 3 50 / 60Hz	
Max power consumption (kVA)	6.5	8.3
Performance*1	Temperature range	Ambient temp + 20 (+ 68°F) to + 500 (+ 932°F)
	Temperature constancy	± 0.5
	Temperature uniformity	± 0.8 at + 100 (+ 212°F) ± 1.8 at + 200 (+ 392°F) ± 2.8 at + 300 (+ 572°F) ± 3.8 at + 400 (+ 752°F) ± 4.8 at + 500 (+ 932°F)
	Temperature heat-up rate	Ambient temp to + 500 (+ 932°F) within 60min
Operatable ambient temp	0 to + 40 (+ 32 to + 104°F)	
Construction	Exterior Material	Cold rolled rust-proof steel plate, Melamine resin coating
	Interior Material	Stainless steel plate
	Insulation Material	Glass wool, MG wool
	Heater	Iron chrome strip wire heater
	Air Circulator	Stainless steel propeller fan
	Damper	Circulation/ Ventilation (manual switching)
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals (relay contact is opened during malfunction. Voltage capacity 250V AC 3A), Ventilation fan for electrical compartment	
Inside dimensions W × H × Dmm (in)	450 × 450 × 450 (17.7 × 17.7 × 17.7)	600 × 600 × 600 (23.6 × 23.6 × 23.6)
Outside dimensions*2 W × H × Dmm (in)	1190 × 1110 × 795 (46.9 × 43.7 × 31.3)	1340 × 1260 × 945 (52.8 × 49.6 × 37.2)
Inside capacity (L)	91	216
Weight (kg)	190	250

*1 Measurement of circulation operation at + 20 ambient temperature under no load.

*2 Excluding protrusions.

ACCESSORIES

Shelf (stainless steel wire)	2
Shelf bracket (stainless steel plate)	2 sets
Connector	1
(for specimen power supply control terminal)	
Fuse	2
Instruction manual	1 each
(for chamber and temperature indicator-controller)	
Warranty	1

SAFETY DEVICES

Leakage breaker for power supply
Overheat protector
Circuit breaker for SSR overload shortcircuit protection
Air circulator thermal switch
Electrical compartment door switch
Electrical compartment thermal switch
Short circuit protection fuse for control circuit
Thermal fuse

● The Insulation Configuration Saves Energy

Ceramic fiber and aluminium foil are used as insulation materials. It increases effective insulation and prevents heat loss, thus saving energy. Also, this configuration has made the chamber compact in size.

● A Double Seal Gasket Configuration

A gasket made of stainless steel fiber and a leaf spring are used to form a double seal between the door and the chamber. Prevents heat radiation on door.

● Door Equipped with a Single-Action Lever

The door can be firmly locked by an easy-to-use single-action lever. It prevents accidents from unlocked doors.



SPECIFICATION

Model	SSPH-101	SSPH-201	
System	Forced hot-air circulation & ventilation system		
Power supply (Voltage fluctuation: ± 10% of rated value)	200 / 220V AC 3 50 / 60Hz		
Max power consumption (kVA)	8.3	9.5	
Performance*1	Temperature range	+ 100 to + 700 (+ 212 to + 1292° F)	
	Temperature constancy	± 0.5 at + 100 to + 500 (+ 212 to + 932° F) ± 0.8 at + 501 to + 700 (+ 933 to + 1292° F)	
	Temperature uniformity	± 0.8 at + 100 (+ 212° F) ± 2.8 at + 300 (+ 572° F) ± 4.8 at + 500 (+ 932° F) ± 7.0 at + 700 (+ 1292° F)	
	Temperature heat-up rate	Ambient temp to + 700 (+ 1292° F) within 120min within 160min	
	Operatable ambient temp	0 to + 40 (+ 32 to + 104° F)	
Construction	Exterior Material	Cold rolled rust-proof steel plate, Melamine resin coating	
	Interior Material	Stainless steel plate	
	Insulation Material	Glass wool, Ceramic fiber	
	Heater	Iron chrome strip wire heater	
	Air Circulator	Stainless steel propeller fan	
	Damper	Circulation/ Ventilation (manual switching)	
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals (relay contact is opened during malfunction. Voltage capacity 250V AC 3A), Ventilation fan for electrical compartment		
Inside dimensions W × H × Dmm (in)	450 × 450 × 450 (17.7 × 17.7 × 17.7)	600 × 600 × 600 (23.6 × 23.6 × 23.6)	
Outside dimensions*2 W × H × Dmm (in)	1190 × 1110 × 795 (46.9 × 43.7 × 31.3)	1340 × 1260 × 945 (52.8 × 49.6 × 37.2)	
Inside capacity (L)	91	216	
Weight (kg)	250	330	

*1 Measurement of circulation operation at + 20 under no load.

*2 Excluding protrusions.

ACCESSORIES

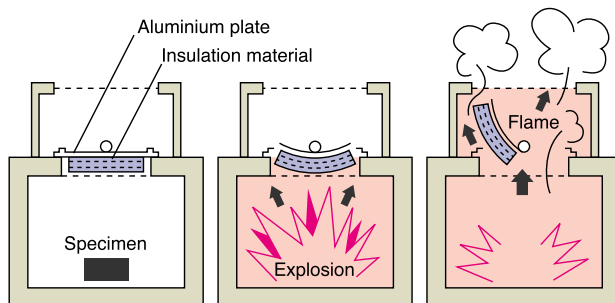
Shelf (stainless steel wire)	2
Shelf bracket (stainless steel plate)	2 sets
Connector (for specimen power supply control terminal)	1
Fuse	2
Instruction manual	1 each
(for chamber and temperature indicator-controller)	
Warranty	1

SAFETY DEVICES

Leakage breaker for power supply
Overheat protector
Circuit breaker for SSR overload shortcircuit protection
Centrifugal switch
Electrical compartment door switch
Electrical compartment thermal switch
Short circuit protection fuse for control circuit
Thermal fuse
Air circulator overload relay



Release explosion safely



In case an explosion occurs inside the test chamber, as shown in the below figures, insulation material is bent and blown upward together with the aluminium plate to the metal screen at the top of the chamber.

In this way the explosion is safely channeled and released through the top metal screen. For SPH(H)-401, explosion is released through the top metal screen by bending insulation material on the rear wall.

● Temperature Chamber with Explosion Vent

This temperature chamber is suitable for drying and heat-treatment of flammable synthetic resins or volatile solvents. It is equipped with an explosion vent which releases explosion and a safety door for security.

● Door Equipped with a Single-Action Lever

The door can be securely locked by an easy-to-use single-action lever. Even if the operator accidentally turns on the power when door is unlocked, the door lock detection switch prevents heater fan from starting. Further, in three minutes, the alarm buzzer sounds to call for warning.

⚠ WARNING

- 1) The following flammables or materials containing them can be subjected to drying (heat treatment) with this chamber. However, to avoid explosion, ventilate the chamber well and use the chamber below the explosive limit.

Inflammables:

Ignitable Substances

1. Ethyl ether, gasoline, acetaldehyde, propylene oxide, carbon disulfide, carbon dioxide and other substances with an ignition point of below -30°C .
2. Normal hexane, ethylene oxide, acetone, benzene, methyl ethyl ketone and other substances with an ignition point above -30°C and below 0°C .
3. Methanol, ethanol, xylene, pentyl acetate, amylacetate and other substances with an ignition point above 0°C and below $+30^{\circ}\text{C}$.
4. Kerosene, light oil, turpentine oil, isopentyl alcohol (also called isoamyl alcohol), acetic acid and other substances with an ignition point above $+30^{\circ}\text{C}$ and below $+65^{\circ}\text{C}$.

Combustible Gases

Hydrogen, acetylene, ethylene, methane, ethane, propane, butane, and other combustible substances that are in a gaseous state at a temperature of $+15^{\circ}\text{C}$ and at a pressure of 1 atmosphere.

- 2) Temperature chamber with explosion vent is fitted with a comprehensive range of devices to ensure safety. In addition to the regular inspection, these must be carefully inspected before reusing after an explosion.
- 3) This equipment is designed to prevent any damage to people or equipment in the vicinity for explosion pressures not exceeding 29.4kPa. If the explosion pressure exceeds 9.8kPa, reuse of the equipment itself may not be possible.
- 4) Please refer to the instruction manual before using the chamber to ensure safe operation.

SPECIFICATION

Model	SPH-101	SPH-201	SPH-301	SPH-401	SPHH-101	SPHH-201	SPHH-301	SPHH-401	
System	Forced hot-air circulation & ventilation system								
Power supply (Voltage fluctuation: ± 10% of rated value)	200 / 220 / 230 / 240V AC 1 50/60Hz		200 / 220V AC 3 3W 50/60Hz		200 / 220 / 230 / 240V AC 1 50/60Hz		200 / 220V AC 3 3W 50/60Hz		
Max power consumption (kVA)	2.0	2.7	5.0	6.5	2.7	3.8	6.5	9.5	
Performance*1	Temperature range	Ambient temp + 20 (+ 68°F) to + 200 (+ 392°F)				Ambient temp + 20 (+ 68°F) to + 300 (+ 572°F)			
	Temperature constancy	± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F)	± 0.2 at + 100 (+ 212°F) ± 0.4 at + 200 (+ 392°F)	± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F)	± 0.2 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F)	± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F)	± 0.2 at + 100 (+ 212°F) ± 0.4 at + 200 (+ 392°F)	± 0.2 at + 100 (+ 212°F) ± 0.6 at + 200 (+ 392°F)	± 0.2 at + 100 (+ 212°F) ± 0.6 at + 200 (+ 392°F)
	Temperature uniformity	± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F)	± 1.0 at + 100 (+ 212°F) ± 2.0 at + 200 (+ 392°F)	± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F)	± 1.0 at + 100 (+ 212°F) ± 2.0 at + 200 (+ 392°F)	± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F)	± 1.0 at + 100 (+ 212°F) ± 2.0 at + 200 (+ 392°F)	± 1.0 at + 100 (+ 212°F) ± 2.0 at + 200 (+ 392°F)	± 1.0 at + 100 (+ 212°F) ± 3.0 at + 200 (+ 392°F)
	Temperature heat-up rate	Ambient temp to + 200 (+ 392°F) within 40 min				Ambient temp to + 300 (+ 572°F) within 60 min			
Operatable ambient temp	0 to + 40 (+ 32 to + 104°F)								
Construction	Exterior Material	Cold rolled rust-proof steel plate, Melamine resin coating							
	Interior Material	Stainless steel plate							
	Insulation Material	Glass wool							
	Explosion vent	Safety door to safely release the chamber pressure on explosion, Explosion exhaust duct, Safety grille, Insulation, External panels							
	Heater	Stainless steel, Sheated heater with fin							
	Air Circulator	Stainless steel propeller fan							
	Damper	Circulation/ Ventilation (manual switching)							
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals(relay contact is opened during malfunction .Voltage capacity 250V AC 3A).								
Inside dimensions W x H x Dmm (in)	450 x 450 x 450 (17.7 x 17.7 x 17.7)	600 x 600 x 600 (23.6 x 23.6 x 23.6)	800 x 800 x 800 (31.5 x 31.5 x 31.5)	1000 x 1000 x 1000 (39.4 x 39.4 x 39.4)	450 x 450 x 450 (17.7 x 17.7 x 17.7)	600 x 600 x 600 (23.6 x 23.6 x 23.6)	800 x 800 x 800 (31.5 x 31.5 x 31.5)	1000 x 1000 x 1000 (39.4 x 39.4 x 39.4)	
Outside dimensions*2 W x H x Dmm (in)	1040 x 1260 x 635 (41 x 49.6 x 25)	1190 x 1370 x 785 (46.9 x 53.9 x 30.9)	1500 x 1715 x 1065 (59.1 x 68.1 x 41.9)	1730 x 1800 x 1775 (68.1 x 70.9 x 69.9)	1040 x 1260 x 635 (41 x 49.6 x 25)	1190 x 1370 x 785 (46.9 x 53.9 x 30.9)	1500 x 1715 x 1065 (59.1 x 68.1 x 41.9)	1730 x 1800 x 1775 (68.1 x 70.9 x 69.9)	
Inside capacity (L)	91	216	512	1000	91	216	512	1000	
Weight (kg)	95	130	270	500	95	130	270	500	

*1 Measurement of circulation operation at + 20 ambient temperature under no load.

*2 Excluding protrusions.

ACCESSORIES

Shelf (stainless steel wire for type101• 201)	2
(stainless steel punched plate for type301• 401)	2
Shelf bracket (stainless steel plate)	2 sets
Connector (for specimen power supply control terminal)	1
Fuse	2
Safety grille (stainless steel mesh with soft aluminium foil)	1
Insulation (glass wool)	3
External panels (thin soft aluminium panel)	1
Stand bracket and hexagon socket head cap screw for type 101• 201	4 each
Instruction manual	1 each
(for chamber and temperature indicator-controller)	
Warranty	1

SAFETY DEVICES

Leakage breaker for power supply
Overheat protector
(Upper and lower temperature limit alarm, Automatic overheat prevention, Independent overheat protector)
Circuit breaker for SSR overload shortcircuit protection
Air circulator thermal switch
(except type 401)
Air circulator overload relay (for type 401 only)
Electrical compartment door switch
Chamber door lock detection switch
Explosion detection limit switch
Short circuit protection fuse for control circuit
Thermal fuse



● Low Oxygen Level Testing

Equipped with a non-oxidizing gas intake structure which fills the chamber with non-oxidizing gas such as CO₂ or N₂ for heat treatment or temperature characteristics testing under low oxygen concentration level atmosphere.

● Hermetically Sealed Configuration

The chamber is hermetically sealed to decrease oxygen inside the chamber. The inner stainless steel plate is seamless welded with argon gas.

● O₂ Concentration Indicator Controller (optional)

An optional O₂ concentration indicator controller equipped with an oxygen sensor is available. It allows precise regulation of the O₂ level throughout the range 0.5 to 21% (using N₂).

SPECIFICATION

Model	IPH-201	IPHH-201	
System	Forced hot-air circulation system		
Power supply (Voltage fluctuation: ± 10% of rated value)	200 / 220 / 230 / 240V AC 1 50 / 60Hz		
Max power consumption (kVA)	2.7	3.8	
Performance*1	Temperature range	Ambient temp + 20 (+ 68°F) to + 200 (+ 392°F)	Ambient temp + 20 (+ 68°F) to + 300 (+ 572°F)
	Temperature constancy	± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F)	± 0.1 at + 100 (+ 212°F) ± 0.2 at + 200 (+ 392°F) ± 0.2 at + 300 (+ 572°F)
	Temperature uniformity	± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F)	± 0.5 at + 100 (+ 212°F) ± 1.5 at + 200 (+ 392°F) ± 2.5 at + 300 (+ 572°F)
	Temperature heat-up rate	Ambient temp to + 200 (+ 392°F) within 40min	Ambient temp to + 300 (+ 572°F) within 60min
Operatable ambient temp	0 to + 40 (+ 32 to + 104°F)		
Construction of gas intake unit	Fluid	CO ₂ , N ₂ gas (ordinary temperature, dry gas)	
	Fluid pressure	Allowable max pressure: 2.0MPa (Gauge) (primary side of valve) Secondary side is adjusted with the valve to 0.05MPa (Gauge)	
	Flow rate	Max flow rate: 20 L / min (0.05MPa (Gauge), + 20)	
	Lowest chamber O ₂ level	0.5%	
	Chamber internal pressure	29Pa (Gauge) and over (at max flow rate)	
	Valve	1/4" brass needle valve	
	Pressure gauge	75mm embedded type class 2.5 Scale range: 0 ~ 0.1MPa (Gauge)	
	Flow meter	Floating type flow meter (provided with needle valve for flow rate control)	
	Scale range	0 to 30L / min N ₂ gas	
	Safety valve	Working pressure: 2.0kPa (Gauge)	
Connection	1/4" ring joint		
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals(relay contact is opened during malfunction. Voltage capacity 250V AC 3A)		
Inside dimensions W x H x Dmm (in)	600 x 600 x 600 (23.6 x 23.6 x 23.6)		
Outside dimensions W x H x Dmm (in)*2	1190 x 970 x 785 (46.9 x 38.2 x 30.9)		
Inside capacity (L)	216		
Weight (kg)	130		

ACCESSORIES

Shelf (stainless steel wire)	2
Shelf bracket (stainless steel plate)	2 sets
Connector	1
(for specimen power supply control terminal)	
Fuse	2
Instruction manual	1 each
(for chamber and temperature indicator-controller)	
Warranty	1

SAFETY DEVICES

Leakage breaker for power supply
Overheat protector
Circuit breaker for SSR overload shortcircuit protection
Air circulator thermal switch
Electrical compartment door switch
Short circuit protection fuse for control circuit
Thermal fuse

*1 Measurement of circulation operation at + 20 ambient temperature under no load.

*2 Excluding protrusions.

GPH(H)

+ 200 / + 300

TEMPERATURE CHAMBER WITH ROTATING SPECIMEN RACK

● Offers Heat Deterioration Test

Based on the PH Temperature Chambers, these models incorporate a detachable rotating specimen rack and is especially designed for heat deterioration testing of rubbers and plastics including polyesters and vinyls.

● Incorporates a Rotating Specimen Rack

The rack drive unit is installed inside, enhancing function and lending them a simple appearance. By removing the rack, this unit may also be operated as an ordinary temperature chamber.

SPECIFICATION

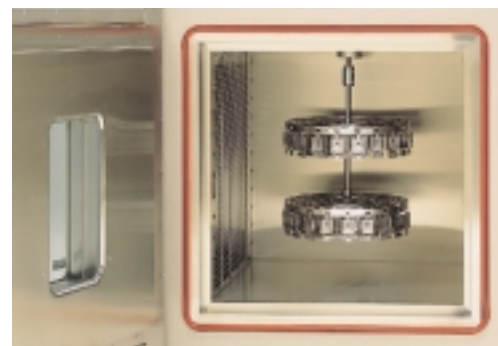
Model	GPH-101	GPH-201	GPHH-101	GPHH-201	
System	Forced hot-air circulation & ventilation system				
Power supply (Voltage fluctuation: ±10% of rated value)	200 / 220 / 230 / 240V AC 1 50 / 60Hz				
Max power consumption (kVA)	2.0	2.7	3.8		
Performance*1	Temperature range	Ambient temp +20 (+68°F) to +200 (+392°F)		Ambient temp +20 (+68°F) to +300 (+572°F)	
	Temperature constancy	±0.1 at +100 (+212°F) ±0.2 at +200 (+392°F)		±0.1 at +100 (+212°F) ±0.2 at +200 (+392°F) ±0.2 at +300 (+572°F)	
	Temperature uniformity	±0.5 at +100 (+212°F) ±1.5 at +200 (+392°F)		±0.5 at +100 (+212°F) ±1.5 at +200 (+392°F) ±2.5 at +300 (+572°F)	
	Temperature heat-up rate	Ambient temp to +200 (+392°F) within 40min		Ambient temp to +300 (+572°F) within 60min	
Operatable ambient temp	0 to +40				
Specimen rack rotating unit	Number of racks	1	2	1	2
	Outside diameter	320mm (12.6in)			
	Available numbers of specimens/weight	56pcs per rack (up to 0.7kg)			
	Specimen clip	50pcs per rack			
	RPM of specimen rack	5rpm / 50Hz, 6rpm / 60Hz			
Motor	1 15W				
Viewing window	W × H × D (in)	190 × 340 (7.48 × 13.39)		_____	
	Construction	Heat resisting reinforced glass 3-plate sets		_____	
Chamber lamp	5.5W incandescent lamp		_____		
Fittings	Power cord (approx 2m from chamber), Specimen power supply control terminals (relay contact is opened during malfunction. Voltage capacity 250V AC 3A)				
Inside dimensions W × H × Dmm (in)	450 × 450 × 450 (17.7 × 17.7 × 17.7)	600 × 600 × 600 (23.6 × 23.6 × 23.6)	450 × 450 × 450 (17.7 × 17.7 × 17.7)	600 × 600 × 600 (23.6 × 23.6 × 23.6)	
Outside dimensions*2 W × H × Dmm (in)	1040 × 820 × 635 (91 × 32.3 × 25)	1190 × 970 × 785 (46.9 × 38.2 × 30.9)	1040 × 820 × 635 (91 × 32.3 × 25)	1190 × 970 × 785 (46.9 × 38.2 × 30.9)	
Inside capacity (L)	91	216	91	216	
Weight (kg)	95	130	95	130	

*1 Measurement of circulation operation at +20 ambient temperature under no load.

*2 Excluding protrusions.



*Viewing window for GPH



Inside chamber

ACCESSORIES

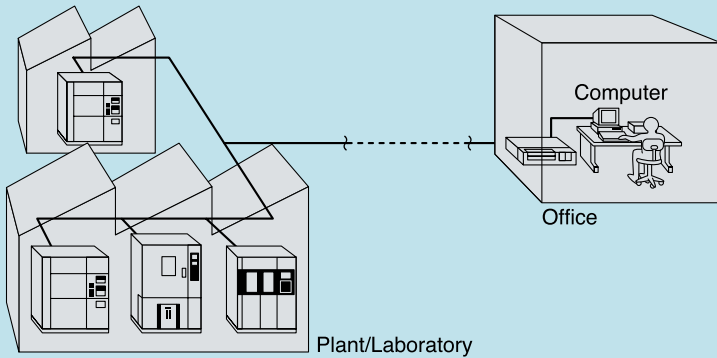
Shelf (stainless steel wire)	2
Shelf bracket (stainless steel plate)	2 sets
Connector (for specimen power supply control terminal)	1
Fuse	2
Specimen clip type101	50
type201	100
Instruction manual	1 each
(for chamber and temperature indicator-controller)	
Warranty	1

SAFETY DEVICES

Leakage breaker for power supply
Overheat protector
Circuit breaker for SSR overload shortcircuit protection
Air circulator thermal switch
Electrical compartment door switch
Short circuit protection fuse for control circuit
Thermal fuse

CENTRALIZED CONTROL SYSTEM FOR ENVIRONMENTAL CHAMBERS

A personal computer can control and monitor test chambers, and store the test data.



- **Compatibility with Centralized Control System CMS-J30 (sold separately)**

This is a fully customizable system that provides centralized control, centralized monitoring, remote operation and specimen data management of ESPEC products (up to 32 units of which 16 are dedicated to centralized monitoring) by the use of a PC.

- **Environmental Testing Centralized Control Software ERC-100M (sold separately)**

The ERC-100M application software makes it easy to monitor operations and remote control of up to 16 ESPEC test chambers. You can drastically save time while your PC collects data for analysis and graphing.

*Software: English /Chinese in simplified characters / Japanese

- **Web Monitoring via Web-PILOT ERC-300M (sold separately)**

Set up a Web-PILOT site with an Ethernet (intranet) to allow monitoring of up to 16 chambers through a PC.

*Software: English / Japanese

- **Driver Software for Measurement Control Application Software**

Driver software to integrate LabVIEW and ESPEC chambers. It can be downloaded from our website for free.

ERC-100M main screen



ERC-100M detail monitoring



*Screen shown here is an example.

OPTIONS

Option	Model	PV				PH				STPH		SSPH		SPH				IPH	GPH	
		211	221	231	331	101	201	301	401	101	201	101	201	101	201	301	401	201	101	201
Nitrogen Gas Introducing Unit																				
O ₂ Concentration Indicator-controller		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	—
Inert Specifications		—	—	—	—	—	—	—	—									—	—	—
Wind Velocity Controller										—	—	—	—	—	—	—				
Automatic Damper																		—		
Time-up Output Signal																				
Calendar Timer																				
Integrating Hour Meter																				
Voltage Application Terminal										—	—	—	—					—		
Temperature Recorder/ Paperless Recorder																				
Temperature Recorder (for subsequent installation)																				
Temperature Detection Terminal																				
Thermocouple										—	—	—	—	—	—	—	—	—		
Cable Port												—	—	—	—	—	—	—		
Rubber Plug for Cable Port		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chamber Lamp		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Exhaust Port Flange																		—		
Exhaust Duct									—								—	—		
Stand	Vertical type			—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Horizontal type	—	—	—	—				—								—			
Angle type Stand		—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
Chamber Stacking Plate		—	—	—	—				—	—	—	—	—	—	—	—	—	—	—	—
L-type-stand Two-level Stacking Plate		—	—	—	—				—	—	—	—	—	—	—	—	—	—	—	—
Old/new Two-level Stacking Spacer		—	—	—	—				—	—	—	—	—	—	—	—	—	—	—	—
Old/new Two-level Stacking Bracket		—	—	—	—				—	—	—	—	—	—	—	—	—	—	—	—
Viewing Window		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Shelf and Shelf Bracket	18-8 Cr-Ni stainless steel wire				—				—	—						—	—			
	18-8 Cr-Ni stainless steel punched plate	—	—	—						—	—	—	—	—	—	—	—	—	—	—
Mesh Shelf					—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Shelf/ Shelf Bracket for Voltage Application Terminal					—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Resistant Shelf	Vertical type				—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Horizontal type (25kg)	—	—	—	—				—	—	—	—	—	—	—	—	—	—	—	—
	Horizontal type (60kg)	—	—	—	—	—				—	—	—	—	—	—	—	—	—	—	—
Floor Load Resistant		—	—	—	—					—	—	—	—	—	—	—	—	—	—	—
Casters		—	—	—	—				—	—										
Casters for Stand		—	—	—	—				—	—	—	—	—	—	—	—	—	—	—	—
Fin Heater		—	—	—	—					—	—									
Color Specification																				
External Alarm Terminal																				
Emergency Stop Switch																				
350 Specification		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
E-BUS Cable																				
Power Cord																				
Power Plug																				

Standard specification

OPTIONS

Nitrogen Gas Introducing Unit

Used for reducing specimen oxidation.
 Fluid pressure: Max allowable pressure
 2.0MPa (Gauge) on
 primary side of valve
 0.05MPa(Gauge)on
 secondary side using valve.
 Max flow rate: 30 L min
 Flow meter: Float type flow meter

O₂ Concentration Indicator-controller

Controls oxygen concentration inside
 the oven.

Inert Specifications

Used to minimize the oxidation of specimens
 Applies to: STPH
 * Standard dampers are not fitted.

Wind Velocity Controller

Allows low air velocity in chamber
 PV(H) 0.6~2.2m/s
 PH(H)-101/201/401
 GPH(H)-101/201 0.4~1.5m/s
 IPH(H)-201
 PH(H)-301 0.3~1.2m/s
 (Mean air circulation velocity at
 central vertical section of chamber.
 Represents the typical mean value
 for each chamber.)

A tachogenerator is used in a feedback
 mechanism.(except PH(H)-401)
 Inverter control (only PH(H)-401)
 Equipped operation panel in electrical
 compartment.



Wind Velocity Controller

Automatic Damper

Automatically opens or closes synchronously
 with program operation for ventilation
 and faster cooling of chamber temperature.



Automatic Damper

Time-up Output Signal

Produces contact output at the end of
 programmed operation.
 Power supply rating: 250VAC 1A
 Contact closed when operated.
 Equipped on back side of the electrical
 compartment.

Calendar Timer

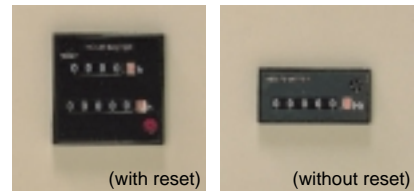
Automatically sets the chamber on and
 off every day up to one week. Installed
 on operating panel.
 Setting range: Sunday to Saturday
 (one week, 24 hours)
 0:00a.m.~11:59a.m.
 0:00p.m.~11:59p.m.
 Margin of error per month: ± 15sec
 Where located: Operating panel



Calendar timer

Integrating Hour Meter

Integrates and indicates running hours.
 Comes with or without reset, installed
 on operating panel.
 (Does not integrate prior to automatic
 start or after automatic stop of oven
 during programmed operation, nor during
 chamber stop due to failure)
 Measuring time: 99999.9hr
 (does not return to zero)
 9999.9hr (with reset)
 Minimum measuring time: 0.1 hr (6min)
 Speed: 1m/revolution (without reset)
 2m/revolution (with reset)



Voltage Application Terminal

This terminal is used to charge specimens
 with an electrical voltage while running
 high temperature or endurance tests.
 *Depending on the set position of the voltage
 application terminal, the standard shelf may not be
 used because it contacts the terminal.
 *The voltage application terminal cannot be fitted to
 some of the rear mounting positions if the optional
 exhaust duct is mounted.

< Possible installation points >

Model	Top	Rear	Left side
PH(H)-101			×
PH(H)-201			×
PH(H)-301			×
PH(H)-401	×		
SPH(H)-101	×		×
SPH(H)-201	×		×
SPH(H)-301	×		×
SPH(H)-401	×	×	
GPH(H)-101	×		×
GPH(H)-201	×		×

OPTIONS

Paperless Recorder

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

Temperature range: 0 ~ + 200
 0 ~ + 300
 0 ~ + 600
 0 ~ + 800

Number of inputs:
 1 (5 more but turned OFF*)

Data saving cycle: 5 sec

External recording media:

CF memory card (32MB)

Language: English

*Settings may be modified.



Paperless recorder

Temperature Recorder

Temp range: 0 to + 200
 0 to + 300
 0 to + 600
 0 to + 800

Recording system: Pen recorder (1 pen)
 or multi-point recorder (6 dots)

Recording speed: 30, 60mm/hr
 (two-speed switching)



Temperature Recorder

Temperature Recorder (for subsequent installation)

Power cord, temperature sensor, and a grounding wire are equipped for future installation of temperature recorder.

Temperature Detection Terminal

Outputs chamber temperature through thermocouple type K (JIS C 1602)

Thermocouple type K (JIS C1602)

Measures the temperature within chamber
 2m/4m/6m

Cable Port

A through hole provided on the wall of chamber.

Material: Stainless steel plate
 Inside diameter: 25, 50, 100mm
 (50mm for STPH-101•201)

*The cable port cannot be used with some chambers equipped with the optional exhaust duct. (except PV(H))

< Possible installation points >

Model	Top	Rear	Left side
PH(H)-101			×
PH(H)-201			×
PH(H)-301			×
PH(H)-401	×		
GPH(H)-101•201	×		×
STPH(H)-101•201	×		×



Cable Port

Rubber Plug for Cable Port

Inside diameter: 25, 50, 100mm

*This rubber plug cannot be used when operating the chamber at + 200 or higher.

Chamber Lamp

Required when the door is fitted with viewing windows.

Where located (incandescent light bulb):

PH-101, 201-Inner chamber ceiling

PH-301, 401-Inner chamber rear wall

Exhaust Port Flange

Flange for discharging hot air from the oven. Installed on rear of chamber. (for oven with damper.)

Material: (Cold rolled steel plate
 Unichrome plated finish
 Stainless steel plate
 (STPH-101, 201, SSPH-101, 201)

Diameter: 90mm

*When connecting to exhaust duct, the length of duct must be less than 4m.



Exhaust Port Flange

Exhaust Duct

Exhausts hot air toward the ceiling. Installed on rear of chamber. (for oven with damper.)

Diameter: 90mm



Exhaust Duct and Exhaust Port Flange

When the exhaust port flange is connected to the exhaust duct.



OPTIONS

Stand

Exterior: Cold rolled and rust-proof steel plate with melamine baked finish

< Vertical type >

Type	Height	Model
MV-23	300mm	PV(H)-211· 221
MV-23C	321mm	
MV-26	600mm	PV(H)-211
MV-26C	621mm	

*Type C: Casters and adjusters
*with door



MV-23C

< Horizontal type >

Type	Height	Model
L-1	140mm	PH(H)-101, GPH(H)-101
L-2		PH(H)-201, GPH(H)-201 IPH(H)-201
L-3	200mm	PH(H)-301, SPH(H)-301
M-1	365mm	PH(H)-101, GPH(H)-101
M-2	400mm	PH(H)-201, GPH(H)-201 IPH(H)-201
M-3		PH(H)-301, SPH(H)-301
MS-1		STPH-101, SSPH-101
MS-2		STPH-201, SSPH-201
H-1(D)	505mm	PH(H)-101, SPH(H)-101, GPH(H)-101
H-2(D)	540mm	PH(H)-201, SPH(H)-201, GPH(H)-201, IPH(H)-201
H-3(D)	585mm	PH(H)-301, SPH(H)-301

*Type(D): with door



From the size, L-2, M-2 and H-2

Please refer to chart on p.18 for applicable models.

Angle type Stand

Exterior: Equal-angle steel
Melamine baked finish

Added to the chamber's original stand, this stand makes it easier to load and unload the specimen to the lower part of the test chamber.

Type	Height	Model
L	150mm	PH(H)-401 SPH(H)-401
M	300mm	
H	450mm	

Chamber stacking plate

When stacking two chambers, this plate couples the top and bottom chambers securely.

*Only the L model optional stand can be used when chambers are stacked.

L-type-stand Two-level Stacking Plate

An L-type stand is fitted to the optional two-level stacking plate.

Old/ new Two-level Stacking Spacer

With rubber mounting feet. Used when stacking two units in the PS type (old Perfect Oven).

* The PS type must be on the lower level only.

Old/ new Two-level Stacking Bracket

Used for connection when stacking two units in the PS type (old Perfect Oven)

* The PS type must be on the lower level only. Drilling is required.

Viewing Window

Allows observation of specimens inside the chamber.

Size: 190W x 340H mm

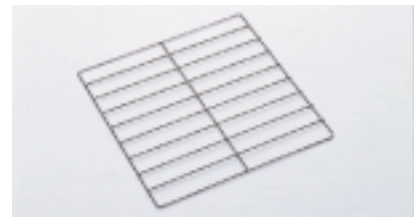


Viewing Window

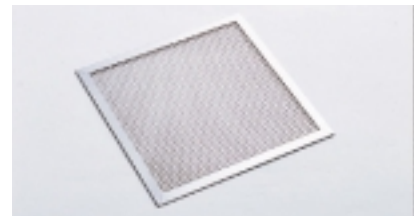
Shelf and Shelf Bracket

Equivalent to standard accessory. PH(H)-101/201, SPH(H)-101/201, GPH(H), and IPH(H) include a stainless-steel punched plate shelf that differs from the standard shelf provided.

- Load capacity 10kg
(uniformly distributed load)



Stainless steel wire



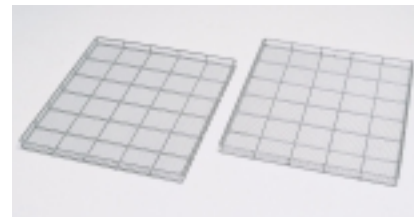
Stainless steel punched plate

Mesh Shelf

For testing small specimens.

Material: 18-8 Cr-Ni stainless steel

*To use, place this shelf on a standard shelf.



Mesh Shelf

Model	Material	Size	Max load capacity*
PV(H)-211 -221 -231	5 wire 0.8, 5 mesh	W550 x D600 x H35 mm	22kg (10kg)
PV(H)-331		W740 x D740 x H38 mm	40kg (20kg)

*Uniformly distributed load.

The figures in the parentheses indicate the load capacity when using only the mesh shelf.

Shelf/shelf Bracket for Voltage Application Terminal

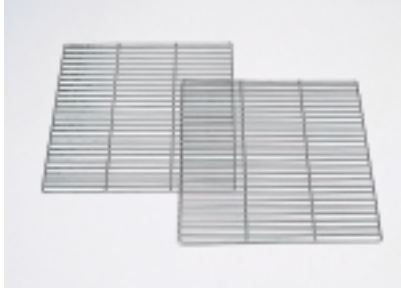
This shelf and shelf bracket make up effective shelf area lost when installing the voltage application terminal.

Material: 18-8Cr-Ni Stainless steel wire

OPTIONS

Load Resistant Shelf

Used for testing specimens whose weight exceeds the maximum allowable load for standard shelves.



Load Resistant Shelf

< Vertical Type >

Material: 18-8 Cr-Ni stainless steel wire
Total allowable shelf load: Max 200kg

Model	Max load capacity*
PV(H)-211 -221 -231	45kg
PV(H)-331	90kg

*Uniformly distributed load

< Horizontal Type >

For 25kg

Material: 18-8 Cr-Ni stainless steel wire
Total allowable shelf load: Max 50kg

*Equipped with 2 sets of shelf and shelf bracket.

For 60kg

Material: 18-8 Cr-Ni stainless steel plate
Total allowable shelf load: Max 200kg

Floor Load Resistant

Used when testing load is larger than standard maximum load capacity.

*This option should be ordered together with the chamber.

Model	Floor load capacity*	Standard load capacity*
PH(H)-201 SPH(H)-201 GPH(H)-201 IPH(H)-201	Up to 200kg	50kg
PH(H)-301 SPH(H)-301 PH(H)-401 SPH(H)-401	Up to 300kg	60kg
		100kg

*Uniformly distributed load

Caster

Where located: chamber stand

- Height adjustable (Height 92mm)
 - Free-turning wheel 4
 - Adjuster foot 4
- Non-adjustable (Height 85mm)
 - Free-turning wheel with stopper 2
 - Fixed wheel 2

Casters for Stand

Attached to the optional stand.

- Height adjustable (Height 92mm)
 - Free-turning wheel 4
 - Adjuster foot 4

Fin Heater

Used when anti-corrosive, shock resistant properties are required.

Stainless steel sheathed heater with fins.



Fin Heater

Color Specification

Chamber can be painted with specified colors.

Does not apply to:

door handle (handle and handle covering), instrumentation frame, operation panel, damper operation panel (including button), hinge cover, name plate

*Submit a color sample when specifying a color.

External Alarm Terminal

Outputs alarm signals. Installed on rear of chamber.

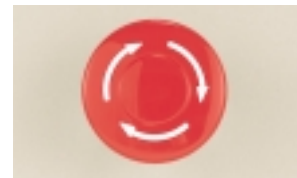
Output point: 1 point

Power supply rating: 250V AC 1A

Action: Contact output at "close" of emergency.

Emergency Stop Switch

Immediately stops operation of the chamber in case of emergency.



Emergency Stop Switch

350 Specifications

Adapted to provide a maximum temperature of 350 .

Applies to PHH only.

E-BUS Cable

5, 10m

Power Cord

A standard cord is 2.5m long. We provide two other choices.

- 5, 10m

Power Plug

The power plug is fitted at the end of the power cord.

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

Europe Branch

Tel: 49-0-89-30765661 Fax: 49-0-89-30767573

ESPEC NORTH AMERICA, INC.

Tel: 1-616-896-6100 Fax: 1-616-896-6150

ESPEC EVALUATION & TEST SYSTEMS, INC.

Tel: 1-408-433-2295 Fax: 1-408-433-2296

ESPEC ENVIRONMENTAL EQUIPMENT (SHANGHAI) CO., LTD.

Head Office

Tel: 86-21-58303322 Fax: 86-21-58661781

BEIJING Rep. Office

Tel: 86-10-64627025 Fax: 86-10-64627036

GUANGZHOU Rep. Office

Tel: 86-20-83317826 Fax: 86-20-83317825

SHENZHEN Rep. Office

Tel: 86-755-83674422 Fax: 86-755-83674228

SUZHOU Rep. Office

Tel: 86-512-68664007 Fax: 86-512-68661994

WUXI Rep. Office

Tel: 86-510-2735036 Fax: 86-510-2735039

ESPEC TEST TECHNOLOGY (SHANGHAI) CO., LTD.

Tel: 86-21-68798008 Fax: 86-21-68798088

ESPEC (MALAYSIA) SDN. BHD.

Tel: 60-3-89451377 Fax: 60-3-89451287



JIS Q 9001:2000
Registration Number
JSAQ 004



JAB Certificate Number
R001



JAB
EMS Accreditation
RE 009



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 9001:2000 (JIS Q 9001:2000) through the Japanese Standards Association (JSA).

ISO 14001 (JIS Q 14001)

Environmental Management System Assessed and Registered

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