

# Temperature & Humidity Chambers

- › Temp. & Humid. Chambers (Floor Standing)
- › Temp. & Humid. Chambers (Table Top)
- › Pharmaceutical Stability Test Chambers
- › Clean Temp. & Humid. Chamber
- › Plant Growth Chambers



## General Applications

### Temperature & Humidity Chambers

Test for reliability, durability, climatic, freezing resistance, quality assurance, thermal endurance.

### Specific Purpose Chambers

- **Pharmaceutical Stability Test Chambers**  
Stability test in accordance with ICH Guideline Q1A (R2) and Q1B (option 2)
- **Clean Environmental Test Chamber**  
Designed for the process requiring environmental test in the clean condition. (ISO class 5 air cleanliness as per ISO 14644-1)
- **Plant Growth Chambers**  
Optimal photosynthesis condition for plant growth.

Product Name		Temperature & Humidity Chambers (Floor Standing Models)		
Model		TH-G	TH-I	TH-KH
Chamber volume (L)		189, 302, 408, 800, 1000, 1450	189, 302, 408	189, 302, 408
Temp. control	Operating temp. range ( / )	-40 to 150 / -40 to 302	-40 to 150 / -40 to 302	-70 to 150 / -94 to 302
	Fluctuation ( $\pm$ / )	0.3 / 0.54 at 40 / 75%RH	0.3 / 0.54 at 40 / 75%RH	0.3 / 0.54 at 40 / 75%RH
	Variation ( $\pm$ / )	0.5 / 0.9, 0.8 / 1.44 at 40 / 75%RH	0.5 / 0.9 at 40 / 75%RH	0.5 / 0.9 at 40 / 75%RH
Humid. control	Operating humid. full range (%RH)	25 to 95	20 to 95	25 to 95
	Fluctuation ( $\pm$ %RH)	0.4, 1.0, 2.0 at 75%RH/40	0.4 at 75%RH/40	0.4 at 75%RH/40
	Variation ( $\pm$ %RH)	3.0 at 75%RH/40	3.0 at 75%RH/40	3.0 at 75%RH/40
Control	Timer	Wait on/off	Wait on/off	Wait on/off
	Auto-tuning	0	0	0
	Program function	0	0	0
	Computer interface	RS-232 port, RS-485 port (optional)	RS-232 port, RS-485 port (optional)	RS-232 port, RS-485 port (optional)
Safety	Over temp. limit	0	0	0
	Door open alarm	0	0	0
	Over current limit	0	0	0
	Auto-run (power failure)	0	0	0

Product Name		Pharmaceutical Stability Test Chambers	Clean Temp. & Humid. Chamber	Plant Growth Chambers
Model		TH-ICH	TH-CR	GC
Chamber volume (L)		300, 760	270	300, 1000
Temp. control	Operating temp. range ( / )	-5 to 85 / 23 to 185	-35 to 100 / -31 to 212	5 to 50 / 41 to 122 - Lamp off 10 to 50 / 50 to 122 - Lamp on
	Fluctuation ( $\pm$ / )	0.3 / 0.54 at 40 / 60%RH	0.5 / 0.9 at 40 / 60%RH	0.4 / 0.72 at 25
	Variation ( $\pm$ / )	0.5, 0.7 / 0.9, 1.3 at 40 / 60%RH	0.5 / 0.9 at 40 / 60%RH	1.0 / 1.8 at 25
Humid. control	Operating humid. full range (%RH)	20 to 85	30 to 90	40 to 90
	Fluctuation ( $\pm$ %RH)	3.0 at 60%RH/40	3.0 at 60%RH/40	3 at 60% RH
	Variation ( $\pm$ %RH)	5.0 at 60%RH/40	3.0 at 60%RH/40	-
Control	Timer	Wait on/off	Wait on/off	Wait on/off
	Auto-tuning	0	0	0
	Program function	0	0	0
	Computer interface	RS-232 port, RS-485 port (optional)	RS-232 port, RS-485 port (optional)	-
Safety	Over temp. limit	0	0	0
	Door open alarm	0	0	0
	Over current limit	0	0	0
	Auto-run (power failure)	0	0	0

Temperature & Humidity Chambers (Floor Standing Models)			Temperature & Humidity Chambers (Tabletop Models)		
TH-TG		TH-DG (Dual)	TH-KE	TH-ME	TH-PE
180, 314, 419	770, 997, 1540	150 x 2 chambers, 288 x 2 chambers, 384 x 2 chambers	25, 65, 100		
-5 to 100 / 23 to 212		-5 to 100 / 23 to 212	-40 to 150 / -40 to 302	-20 to 150 / -4 to 302	0 to 120 / 32 to 248
0.3 / 0.54 at 40 / 60%RH		0.3 / 0.54 at 40 / 75%RH	0.4, 0.3 / 0.72, 0.54 at 50 / 60%RH	0.3, 0.2 / 0.54, 0.36 at 25 / 60%RH	0.2, 0.3 / 0.36, 0.54 at 25 / 60%RH
0.5 / 0.9 at 40 / 60%RH		0.5 / 0.9 at 40 / 75%RH	0.3, 0.4 / 0.54, 0.72 at 50 / 60%RH	0.6, 0.2 / 1.08, 0.36 at 25 / 60%RH	0.3 / 0.54 at 25 / 60%RH
10 to 95	20 to 95	15 to 90	20 to 95		30 to 95
2.0 at 60%RH/40		0.8 at 75%RH/40	4.1, 2.8, 1.8 at 60%RH/50	2.0, 2.7 at 60%RH/55	1.6, 0.4, 0.5 at 60%RH/55
3.0 at 60%RH/40		3.0 at 75%RH/40	0.9, 1.0, 1.2 at 60%RH/50	0.6, 1.1, 1.2 at 60%RH/55	3.0 at 60%RH/55
Wait on/off		Wait on/off	Wait on/off		
0		0	0		
0		0	0		
RS-232 port, RS-485 port (optional)		RS-485 port, RS-232 port (optional)	RS-232 port, RS-485 port (optional)		
0		0	0		
0		0	0		
0		0	0		
0		0	0		

## Temperature & Humidity Chambers (Floor Standing - TH-G)



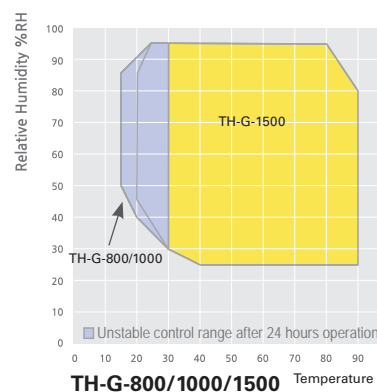
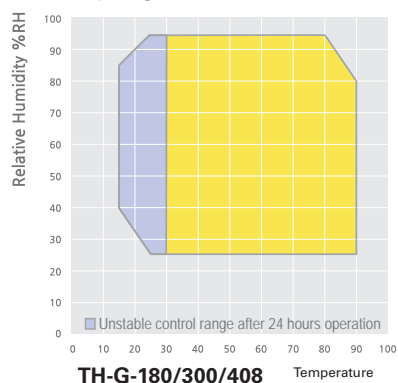
Standard environmental test chamber.

Highly interactive LCD controller, beneficial for sophisticated long-term test cycles.



### Control range

- Temperature range from -40 to 150
- Humidity range from 25 to 95% RH



### TH-G

with optional recorder

#### Standard accessories

- Viewing window, Wire shelves, Cable port (Ø50mm)
- Water container, Door key

#### Optional accessories

see page 242

- Interface converter, Water purifiers, Direct water system

## Performance

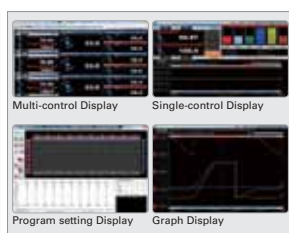
- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling and filtering system reduce water consumption for longer operation.
- Air-tight door closure with perfect sealed packing.
  - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
  - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
  - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60 °C.

## Safety

- Built in door lock with a key.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.



Color LCD controller



Computer interface



Door handle



Portable water container

## Convenience

- Spacious chamber volume with a maximum capacity of 1500L.
  - Various volume sizes, available to suit any users' need.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Maintenance of water supply are easily performed with a front water tank.
  - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
  - Tempered glass door with built in heating wire.
  - Energy efficient, long life span LED lighting.
  - Wider view, inner glass door is available for monitoring of samples. (optional)
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the left side of the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.
- User friendly LCD controller.
  - 5.7 inch colorful interactive touch type LCD controller.
  - Set value and present value are clearly visible together on display.
  - Operating progress visible in graph mode allow for direct data interpretation.
  - Built-in SD card drive.
  - Trilingual support. (English / Chinese / Korean)
  - Temperature and other operating parameters recorded with use of selectable recorder. (optional)
  - Sufficient programmable control support.

Description	No
Programmable pattern capacity	120
Pattern repeat time	999
Max. segments per a pattern	100
Available max. segments*	1200
Programmable process time per a segment	0 to 999hr. 59 min. 59 sec.

\* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment an patterns properly.

- Computer interface.
  - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
  - Program patterns are simple to set with the use of our software.
  - Storage of program information, backup of value settings, recovery, temperature, humidity values.
  - RS-232 communication port comes standard.

# Temperature & Humidity Chambers (Floor Standing - TH-G)

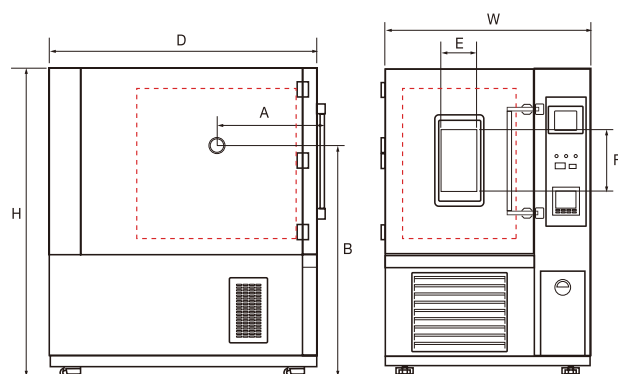
Model		TH-G-180	TH-G-300	TH-G-408	TH-G-800	TH-G-1000	TH-G-1500
Chamber volume (L / cu ft)		189 / 7.4	302 / 11.9	408 / 14.4	800 / 28.3	1000 / 35.3	1450 / 51.2
Controller		Programmable, Touch screen type controller (5.7" color monitor)					
Temperature	Range (   /   )	-40 to 150 / -40 to 302 without humidity, 15 to 90 / 59 to 194 with humidity * Best programmable control range : -30 to 140 / -22 to 284					
	Fluctuation <sup>1)</sup> (±   /   ) at 40   / 75%RH	0.3 / 0.54					
	Variation <sup>1)</sup> (±   /   ) at 40   / 75%RH	0.5 / 0.9					0.8 / 1.44
Time	Heating - without humidity (min.)	70 from -40 to 120 (40 to 248 )			70 from -40 to 120 (40 to 248 )		90 from -40 to 120 (40 to 248 )
	Cooling - without humidity (min.)	75 from 20 to -40 (68 to -40 )			85 from 20 to -40 (68 to -40 )		90 from 20 to -40 (68 to -40 )
Humidity	Range (%RH)	25 to 95 See page 216 for more detailed humidity range check.					
	Fluctuation <sup>1)</sup> (±%RH) at 75%RH / 40	0.4			1.0		2.0
	Variation <sup>1)</sup> (±%RH) at 75%RH / 40	3					
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)			Mechanical dual stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507					
Water Supply	Capacity	15L (0.53cu ft) - Cartridge type					
	Water quality	pH6.2 to 7.2 / Electrical conductivity 20µS /cm to below					
No. of wire shelves (standard / max.)		2 / 9	2 / 10	2 / 10	2 / 14	2 / 14	3 / 18
Distance of between shelves (mm / inch)		40 / 1.6	40 / 1.6	40 / 1.6	40 / 1.6	40 / 1.6	40 / 1.6
Max. load per shelf (kg / lbs)		20 / 44.1	25 / 55.1	25 / 55.1	40 / 88.2	40 / 88.2	40 / 88.2
Permitted total load (kg / lbs)		50 / 110.2	65 / 143.3	65 / 143.3	100 / 220.5	100 / 220.5	100 / 220.5
Dimension (WxDxH)	Interior (mm / inch)	500×630×600 / 19.7×24.8×23.6	600×630×800 / 23.6×24.8×31.5	600×850×800 / 23.6×33.5×31.5	1000×800×1000 / 39.4×31.5×39.4	1000×1000×1000 / 39.4×39.4×39.4	1000×1000×1450 / 39.4×39.4×57.1
	Exterior (mm / inch)	1003×1139×1468 / 39.5×44.8×57.8	1103×1139×1668 / 43.4×44.8×65.7	1103×1359×1668 / 43.4×53.5×65.7	1503×1319×1968 / 59.2×51.9×77.5	1503×1519×1968 / 59.2×59.8×77.5	1503×2065×2007 / 59.2×81.3×79
	Viewing windows (mm / inch)	200×330 / 7.9×13			270×330 / 10.6×13		
	Net weight (kg / lbs)	320 / 705.5	385 / 848.8	410 / 903.9	620 / 1366.9	680 / 1499.1	860 / 1895.9
Cable port		Basically one hole provided / Ø50mm (2") - Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")					
Interface port		Basically RS-232C [RS-485-optional]					
Electrical requirements (230V, 60Hz)		1ph / 26.3A		1ph / 26.7A			
Cat. No.		AAH80011K	AAH80021K	AAH80031K	-	-	-
Electrical requirements (230V, 50Hz)		1ph / 26.3A		1ph / 26.7A			
Cat. No.		AAH80013K	AAH80023K	AAH80033K	-	-	-
Electrical requirements (380V, 50Hz)		3ph / 9.1A		3ph / 9.2A		3ph / 12.2A	
Cat. No.		AAH80018K	AAH80028K	AAH80038K	AAH80048K	AAH80058K	AAH80078K

1) Technical data according to DIN 12880, IEC 60068.

Permissible environmental conditions: temperature (18 to 30 ) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 (68 ), No load.

FDA establishment registered company. FDA listed products.

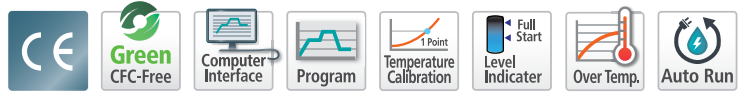


## Dimension

Model	TH-G-180	TH-G-300	TH-G-408
Capacity	189L (7.4cu ft)	302L (11.9cu ft)	408L (14.4cu ft)
W	1003mm (39.5")	1103mm (43.4")	1103mm (43.4")
D	1139mm (44.8")	1139mm (44.8")	1359mm (53.5")
H	1468mm (57.8")	1668mm (65.7")	1668mm (65.7")
A	412mm (16.2")	432mm (17.0")	532mm (20.9")
B	1110mm (43.7")	1246mm (49.0")	1246mm (49.0")

## Dimension

Model	TH-G-800	TH-G-1000	TH-G-1500
Capacity	800L (28.3cu ft)	1000L (35.3cu ft)	1450L (51.2cu ft)
W	1503mm (59.2")	1503mm (59.2")	1503mm (59.2")
D	1319mm (51.9")	1519mm (59.8")	2065mm (81.3")
H	1968mm (77.5")	1968mm (77.5")	2007mm (79.0")
A	509mm (20.0")	609mm (23.9")	482mm (19.0")
B	1465mm (57.7")	1465mm (57.7")	1500mm (59.0")

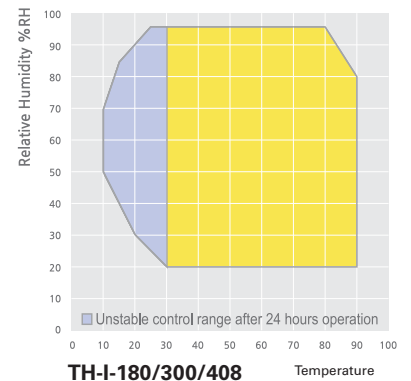


Great low temperature and humidity control performance.



## Control range

- Temperature range from -40 to 150
- Humidity range from 20 to 95% RH



## TH-I

with optional recorder

### Standard accessories

- Viewing window, Wire shelves, Cable port (Ø50mm)
- Water container, Door key

### Optional accessories see page 242

- Interface converter, Water purifiers, Direct water system

## Performance

- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling and filtering system reduce water consumption for longer operation.
- Air-tight door closure with perfect sealed packing.
  - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
  - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
  - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60 °C.

## Safety

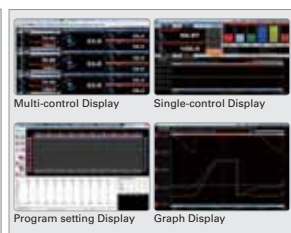
- Built in door lock with a key.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.

## Convenience

- Three different volume sizes are available to suit any users' needs.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Maintenance of water supply are easily performed with a front water tank.
  - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
  - Tempered glass door with built in heating wire.
  - Energy efficient, long life span LED lighting.
  - Wider view, inner glass door is available for monitoring of samples. (optional)
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the left side of the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.
- User friendly LCD controller.
  - 5.7 inch colorful interactive touch type LCD controller.
  - Set value and present value are clearly visible together on display.
  - Operating progress visible in graph mode allow for direct data interpretation.
  - Built-in SD card drive.
  - Trilingual support. (English / Chinese / Korean)
  - Temperature and other operating parameters recorded with use of an selectable recorder. (optional)
  - Sufficient programmable control support.



Color LCD controller



Computer interface



Portable water container



Door handle

Description	No
Programmable pattern capacity	120
Pattern repeat time	999
Max. segments per a pattern	100
Available max. segments*	1200
Programmable process time per a segment	0 to 999hr 59 min 59 sec

\* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment an patterns properly.

- Computer interface.
  - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
  - Program patterns are simple to set with the use of our software.
  - Storage of program information, backup of value settings, recovery, temperature, humidity values.
  - RS-232 communication port comes standard.



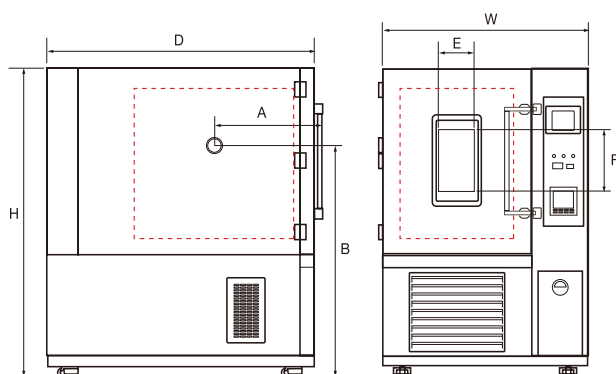
Model		TH-I-180	TH-I-300	TH-I-408
Chamber volume (L / cu ft)		189 / 7.4	302 / 11.9	408 / 14.4
Controller		Programmable, Touch screen type controller (5.7" color monitor)		
Temperature	Range ( / )	-40 to 150 / -40 to 302 without humidity, 15 to 90 / 59 to 194 with humidity * Best programmable control range : -30 to 140 / -22 to 284		
	Fluctuation <sup>1)</sup> (± / ) at 40 / 75%RH	0.3 / 0.54		
	Variation <sup>1)</sup> (± / ) at 40 / 75%RH	0.5 / 0.9		
Time	Heating - without humidity (min.)	70 from -40 to 120 (-40 to 248 )		
	Cooling - without humidity (min.)	75 from 20 to -40 (68 to -40 )		
Humidity	Range (%RH)	20 to 95 See page 219 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 75%RH / 40	0.4		
	Variation <sup>1)</sup> (±%RH) at 75%RH / 40	3		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507		
Water Supply	Capacity	15L (0.53cu ft) - Cartridge type		
	Water quality	pH6.2 to 7.2 / Electrical conductivity 20µS /cm to below		
No. of wire shelves (standard / max.)		2 / 9	2 / 10	2 / 10
Distance of between shelves (mm / inch)		40 / 1.6	40 / 1.6	40 / 1.6
Max. load per shelf (kg / lbs)		20 / 44.1	25 / 55.1	25 / 55.1
Permitted total load (kg / lbs)		50 / 110.2	65 / 143.3	65 / 143.3
Dimension (W×D×H)	Interior (mm / inch)	500×630×600 / 19.7×24.8×23.6	600×630×800 / 23.6×24.8×31.5	600×850×800 / 23.6×33.5×31.5
	Exterior (mm / inch)	1003×1139×1468 / 39.5×44.8×57.8	1103×1139×1668 / 43.4×44.8×65.7	1103×1359×1668 / 43.4×53.5×65.7
	Viewing windows (mm / inch)	200×330 / 7.9×13		
	Net weight (kg / lbs)	320 / 705.5	385 / 848.8	410 / 903.9
Cable port		Basically one hole provided / Ø50mm (2") - Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface port		Basically RS-232C [RS-485-optional]		
Electrical requirements (230V, 60Hz)		1ph / 26.3A	1ph / 26.7A	
Cat. No.		AAH80111K	AAH80121K	AAH80131K
Electrical requirements (230V, 50Hz)		1ph / 26.3A	1ph / 26.7A	
Cat. No.		AAH80113K	AAH80123K	AAH80133K
Electrical requirements (380V, 50Hz)		3ph / 9.1A	3ph / 9.2A	
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1) Technical data according to DIN 12880, IEC 60068.

Permissible environmental conditions: temperature (18 to 30 ) and relative humidity (up to 85%).

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## Dimension

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W	1003mm (39.5")	1103mm (43.4")	1103mm (43.4")
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H	1468mm (57.8")	1668mm (65.7")	1668mm (65.7")
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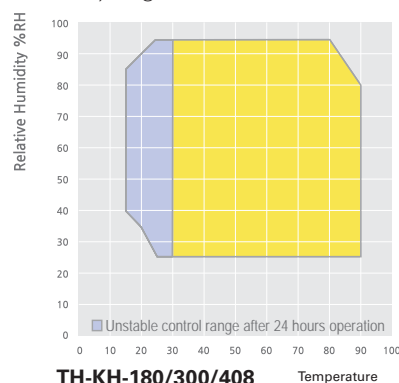


Wide temperature range down to  $-70^{\circ}\text{C}$  and high advanced safety features for quality and reliability.



### Control range

- Temperature range from  $-70$  to  $150$   
Humidity range from 25 to 95% RH



### TH-KH

with optional recorder

#### Standard accessories

- Viewing window, Wire shelves, Cable port ( $\varnothing 50\text{mm}$ )
- Water container, Door key

#### Optional accessories

see page 242

- Interface converter, Water purifiers, Direct water system

## Performance

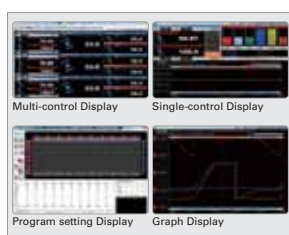
- Microprocessor PID control / Temperature calibration / Automatic tuning.
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- Air-tight door closure with perfect sealed packing.
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- Energy efficiency is achieved by optimization of the insulation system.
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## Safety

- Built in door lock with a key.
- Automatic shut off after overheat alarm.
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- Power supply leakage breaker.
- Over current protection.
- Open door alarm.



Color LCD controller



Computer interface



Door handle



Portable water container

## Convenience

- Three different volume sizes are available to suit any users' needs.
  - Various volume sizes, available to suit any users' need.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
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- Clear observation of samples.
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Programmable process time per a segment	0 to 999hr 59 min 59 sec

\* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment an patterns properly.

- Computer interface.
  - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
  - Program patterns are simple to set with the use of our software.
  - Storage of program information, backup of value settings, recovery, temperature, humidity values.
  - RS-232 communication port comes standard.

# Temperature & Humidity Chambers (Floor Standing - TH-KH)

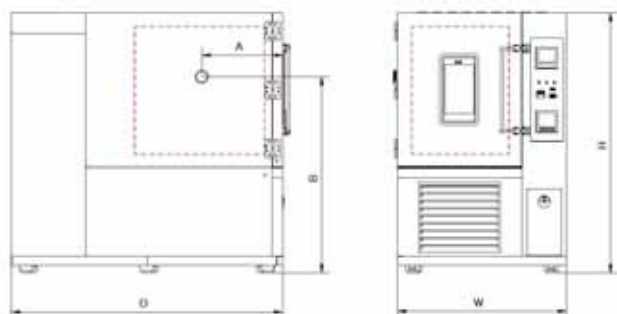
Model		TH-KH-180	TH-KH-300	TH-KH-408
Chamber volume (L / cu ft)		189 / 7.4	302 / 11.9	408 / 14.4
Controller		Programmable, Touch screen type controller (5.7" color monitor)		
Temperature	Range ( / )	-70 to 150 / -94 to 302 without humidity, 15 to 90 / 59 to 194 with humidity * Best programmable control range : -60 to 140 / -76 to 284		
	Fluctuation <sup>1)</sup> (± / ) at 40 / 75%RH	0.3 / 0.54		
	Variation <sup>1)</sup> (± / ) at 40 / 75%RH	0.5 / 0.90		
Time	Heating - without humidity (min.)	70 from -70 to 120 (96 to 248 )		
	Cooling - without humidity (min.)	80 from 20 to -70 (68 to -96 )		
Humidity	Range (%RH)	25 to 95 See page 222 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 75%RH / 40	0.4		
	Variation <sup>1)</sup> (±%RH) at 75%RH / 40	3.0		
Refrigeration	System	Mechanical dual stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507, R-23		
Water supply	Capacity	15L (0.53cu ft) - Cartridge type		
	Water quality	pH6.2 to 7.2 / Electrical conductivity 20µS/cm to below		
No. of wire shelves (standard / max.)		2 / 9	2 / 10	2 / 10
Distance of between shelves (mm / inch)		60 / 2.4	60 / 2.4	60 / 2.4
Max. load per shelf (kg / lbs)		20 / 44.1	25 / 55.1	25 / 55.1
Permitted total load (kg / lbs)		50 / 110.2	65 / 143.3	65 / 143.3
Dimension (WxDxH)	Interior (mm / inch)	500×630×600 / 19.7×24.8×23.6	600×630×800 / 23.6×24.8×31.5	600×850×800 / 23.6×33.5×31.5
	Exterior (mm / inch)	1050×1615×1560 / 41.3×63.6×61.4	1150×1615×1760 / 45.3×63.6×69.3	1150×1835×1760 / 45.3×72.2×69.3
	Viewing windows (mm / inch)	200×330 / 7.9×13		
	Net weight (kg / lbs)	320 / 705.5	385 / 848.8	410 / 903.9
Cable port		Basically one hole provided / Ø50mm (2") - Optionally max. two holes available / Ø 50 or 80mm (2 or 3.2")		
Interface port		Basically RS-232C [RS-485-optional]		
Electrical requirements (380V, 50Hz)		3ph / 10.1A	3ph / 10.2A	
Cat. No.		AAHC3014K	AAHC3114K	AAHC3214K

1) Technical data according to DIN 12880, IEC 60068.

Permissible environmental conditions: temperature (18 to 30 ) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 (68 ), No load.

FDA establishment registered company. FDA listed products.



## Dimension

Model	TH-KH-180	TH-KH-300	TH-KH-408
Capacity	189L (7.4cu ft)	302L (11.9cu ft)	408L (14.4cu ft)
W	1050mm (41.3")	1150mm (45.3")	1150mm (45.3")
D	1615mm (63.6")	1615mm (63.6")	1835mm (72.2")
H	1560mm (61.4")	1760mm (69.3")	1760mm (69.3")
A	550mm (21.7")	570mm (22.4")	670mm (26.4")
B	1225mm (48.2")	1325mm (52.2")	1325mm (52.2")

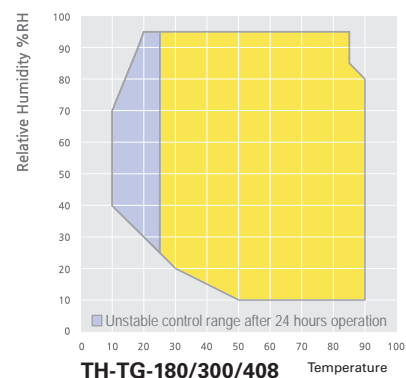


Economy environmental test chamber.  
Stability test in accordance with ICH guidelines Q1A (R2)

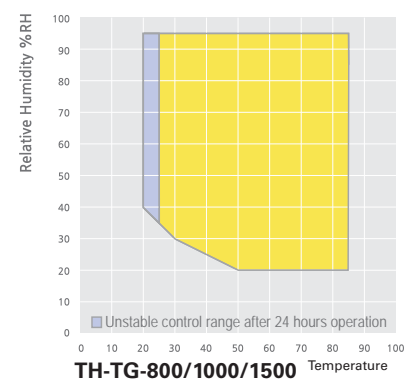


## Control range

- Temperature range from -5 to 100  
Humidity range from 10 to 95% RH



- Temperature range from -5 to 100  
Humidity range from 20 to 95% RH



## TH-TG

with optional recorder

### Standard accessories

- Viewing window, Wire shelves, Cable port (Ø50mm)
- Water container, Door key

### Optional accessories

see page 242

- Interface converter, Water purifiers, Direct water system

# Temperature & Humidity Chambers (Floor Standing - TH-TG)

## Performance

- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling system reduce water consumption for longer operation.
- Air-tight door closure with perfect sealed packing.
  - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
  - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
  - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60 °C.

## Safety

- Built in door lock with a key.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.

## Convenience

- Spacious chamber volume with a maximum capacity of 1500L.
  - Various volume sizes, available to suit any users' need.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Maintenance of water supply are easily performed with a front water tank.
  - Portable water container makes supplying water convenient.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
  - Tempered glass door with built in heating wire.
  - Energy efficient, long life span LED lighting.
  - Wider view, inner glass door is available for monitoring of samples. (optional)
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the left side of the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.
- User friendly LCD controller.
  - Colorful interactive touch type LCD controller.
  - Set point temperature and present temperature are clearly shown together on display.
  - Sufficient programmable control support.
  - Operating progress can be shown in graph mode for better data understanding.
  - Automatic start/stop can be programmed for unattended operations.
  - Display indicates abnormal temperature changes or power failures.
  - Selective bilingual language support.  
(Korean / English or English / Chinese, selectable only when placing an order)
  - Temperature and other operating parameters can be recorded using a six channel digital recorder. (optional)
- Computer interface.
  - RS-485 communication port (optional) enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
  - Program patterns are simple to set with the use of our software.
  - Easy to check status of real-time operations. Graph data supports easy understanding.
  - Storage and documentation of programs.
  - Data with saving capabilities in excel and text format.
  - Storage of program information, backup of value settings, recovery, and temperature values.
  - RS-232 communication port as standard offer.



LCD controller



Computer panel



Viewing window



Portable water container

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	2000
Programmable process time per a segment	0 to 99 hr. 59 min.

\* Even though the max. segments per pattern are 100, the total available segments are up to 2000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

Model			TH-TG-180	TH-TG-300	TH-TG-408	TH-TG-800	TH-TG-1000	TH-TG-1500
Chamber volume (L / cu ft)			180 / 6.4	314 / 11.1	419 / 14.8	770 / 27.2	997 / 35.2	1540 / 54.4
Controller			Program controller (LCD type)					
Temperature	Range	without humidity ( / )	-5 to 100 / 23 to 212					
		with humidity ( / )	10 to 90 / 50 to 194			20 to 90 / 68 to 194		
	Fluctuation <sup>1)</sup> (± / ) at 40 / 60%RH		0.3 / 0.55					
	Variation <sup>1)</sup> (± / ) at 40 / 60%RH		0.5 / 0.9					
Time	Heating (min.)		50 (5 → 100 )			55 (5 → 100 )		
	Cooling (min.)		120 (100 → 5 )			145 (100 → 5 )		
Humidity	Range (%RH)		10 to 95 See page 225 for more detailed humidity range check.			20 to 95 See page 225 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 60%RH / 40		2					
	Variation <sup>1)</sup> (±%RH) at 60%RH / 40		3					
Refrigeration	System		Air-cooled					
	Refrigerant		R-507A					
Water tank	Capacity (L / cu ft)		15 / 0.53					
	Water quality		pH6.2 ~ 7.2, Electrical conductivity 20µS / cm to below					
No. of wire shelves (standard / max.)			2 / 7	2 / 8	2 / 8	2 / 17	2 / 17	2 / 17
Distance of between shelves (mm / inch)			60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4	60 / 2.4
Max. load per shelf (kg / lbs)			20 / 44.1	25 / 55.1	25 / 55.1	40 / 88.2	40 / 88.2	40 / 88.2
Permitted total load (kg / lbs)			50 / 110.2	65 / 143.3	65 / 143.3	100 / 220.5	100 / 220.5	100 / 220.5
Dimension (WxDxH)	Interior (mm / inch)		500×600×600 / 19.7×23.6×23.6	748×600×700 / 29.4×23.6×27.6	748×800×700 / 29.4×31.5×27.6	748×920×1120 / 29.4×36.2×44.1	748×1190×1120 / 29.4×46.9×44.1	1100×1000×1400 / 43.3×39.4×55.1
	Exterior (mm / inch)		952×907×1503 / 37.5×35.7×59.2	1201×907×1525 / 47.3×35.7×60.0	1201×1107×1525 / 47.3×43.6×60.0	120×1228×1993 / 47.3×48.3×78.5	1201×1498 ×1993 / 47.3×59.0×78.5	1554×1872×1935 / 61.2×73.7×76.2
	Viewing window (mm / inch)		200×330 / 7.9×13					
	Net weight (kg / lbs)		220±10 / 485±22	250±10 / 551±22	280±10 / 617±22	360±10 / 794±22	410±10 / 904±22	480±10 / 1058±22
Cable port			Basically one hole provided / ø 50mm (2"). Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")					
Interface port			Basically RS-232C, [RS-485 : optional]					
Electrical requirements	AC230V, 1ph, 60Hz		12.3 A	14.5 A	14.5 A	15.4 A	15.4 A	25.0A
	Cat.No.		AAHC2001K	AAHC2011K	AAHC2021K	AAHC2031K	AAHC2041K	AAHC2051K
	AC230V, 1ph, 50Hz		12.3 A	14.5 A	14.5 A	15.4 A	15.4 A	25.0A
	Cat.No.		AAHC2002K	AAHC2012K	AAHC2022K	AAHC2032K	AAHC2042K	AAHC2052K

1) Technical data according to DIN 12880, IEC 60068.

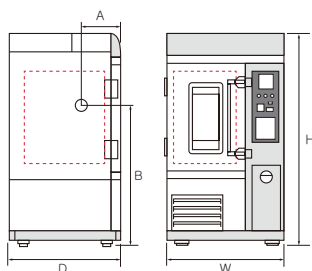
Permissible environmental conditions: temperature (18 to 30 °C) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 °C (68 °F), No load.

FDA establishment registered company. FDA listed products.

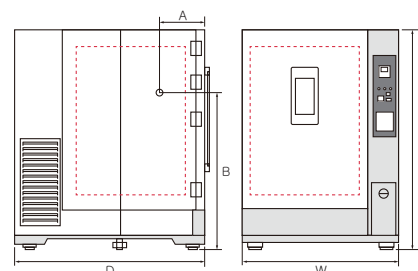
## Dimension

Model	TH-TG-180	TH-TG-300	TH-TG-408
Capacity	180L (6.4 cu ft)	314L (11.1 cu ft)	419L (14.8 cu ft)
W	952mm (37.5")	1201mm (47.3")	1201mm (47.3")
D	907mm (35.7")	907mm (35.7")	1107mm (43.6")
H	1503mm (59.2")	1525mm (60.0")	1525mm (60.0")
A	321mm (12.6")	366mm (14.4")	366mm (14.4")
B	1004mm (39.5")	1016mm (40.0")	1016mm (40.0")



## Dimension

Model	TH-TG-800	TH-TG-1000	TH-TG-1500
Capacity	770L (27.2 cu ft)	997L (35.2 cu ft)	1540L (54.4 cu ft)
W	1201mm (47.3")	1201mm (47.3")	1554mm (61.2")
D	1228mm (48.3")	1498mm (59.0")	1872mm (73.7")
H	1993mm (78.5")	1993mm (78.5")	1935mm (76.2")
A	385mm (15.2")	520mm (20.5")	447mm (17.6")
B	1335mm (52.6")	1335mm (52.6")	1384mm (54.5")





## Temperature & Humidity Chambers (Floor Standing - TH-DG)



### Environmental test equipment with dual chambers.

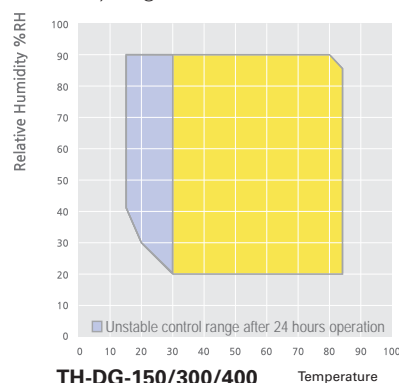
Specially designed for conducting each different experiment at once.

Stability test in accordance with ICH guidelines Q1A (R2)



### Control range

- Temperature range from -5 to 100
- Humidity range from 15 to 90% RH



### TH-DG

with optional recorder

#### Standard accessories

- Viewing window, Wire shelves, Cable port (Ø50mm)
- Water container, Door key

#### Optional accessories

see page 242

- Interface converter, Water purifiers, Direct water system



### Efficient lab space use with dual chamber

- Designed to offer an ideal and cost-effective solution for laboratories with limited space and budget.
  - Two chambers merged into a single unit.
- Optimum model selection between three sized chambers according to application demand.
- Suitable for conducting each different experiment at once.
  - Independent temperature and humidity control of each chamber using microprocessor PID.



## Performance

- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.
- Water recycling system reduce water consumption for longer operation.
- Air-tight door closure with perfect sealed packing.
  - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
  - Two-point door latch also enhances tightness to door closure.
- Energy efficiency is achieved by optimization of the insulation system.
  - Even if the unit is operating at max. temperature, the surface of the unit doesn't allow high temperatures of over 60 °C.

## Safety

- Built in door lock with a key.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.



Viewing window



Door key lock



Two-point door latch

## Convenience

- Three different volume sizes are available to suit any users' needs.
- Corrosion resistance stainless steel chamber and electric polished humidification tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
  - Tempered glass door with built in heating wire.
  - Energy efficient, long life span LED lighting.
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.
- User friendly LCD controller.
  - Colorful interactive touch type LCD controller.
  - Set point temperature and present temperature are clearly shown together on display.
  - Sufficient programmable control support.
  - Operating progress can be shown in graph mode for better data understanding.
  - Automatic start/stop can be programmed for unattended operations.
  - Display indicates abnormal temperature changes or power failures.
  - Selective bilingual language support.  
(Korean / English or English / Chinese, selectable only when placing an order)
  - Temperature and other operating parameters can be recorded using a six channel digital recorder. (optional)
- Computer interface.
  - RS-485 communication port enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
  - Program patterns are simple to set with the use of our software.
  - Easy to check status of real-time operations. Graph data supports easy understanding.
  - Storage and documentation of programs.
  - Data with saving capabilities in excel and text format.
  - Storage of program information, backup of value settings, recovery, and temperature values.
  - RS-232 communication port (optional)

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	2000
Programmable process time per a segment	0 to 99 hr. 59 min.

\* Even though the max. segments per pattern are 100, the total available segments are up to 2000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

# Temperature & Humidity Chambers (Floor Standing - TH-DG)

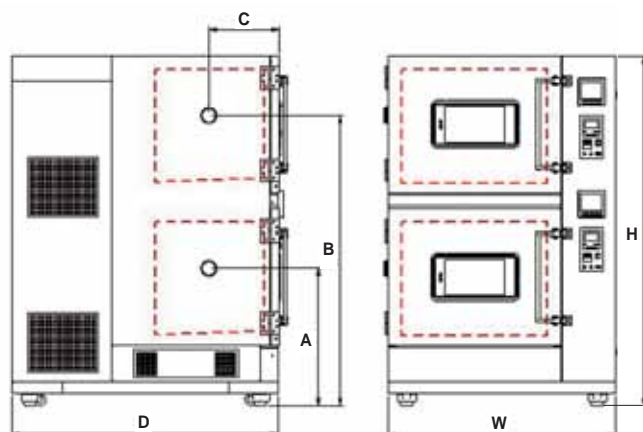
Model		TH-DG-150	TH-DG-300	TH-DG-400
Chamber volume (L / cu ft)		150 / 5.30 x 2 chambers	288 / 10.17 x 2 chambers	384 / 13.56 x 2 chambers
Controller		PID control (LCD Type)		
Temperature	Range (   /   )	-5 to 100 / 23 to 212   without humidity,   15 to 90 / 59 to 194 with humidity		
	Fluctuation <sup>1)</sup> (±   /   ) at 40   / 75%RH	0.3 / 0.55		
	Variation <sup>1)</sup> (±   /   ) at 40   / 75%RH	0.5 / 0.9		
Time	Heating - without humidity (min.) from -5   to 100	85		
	Cooling - without humidity (min.) from 100   to -5	100		
Humidity	Range (%RH)	15 to 90 See page 228 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 75%RH / 40	0.8		
	Variation <sup>1)</sup> (±%RH) at 75%RH / 40	3.0		
Refrigeration	System	Air - cooled		
	Refrigerant	R- 507A		
Water Supply	Capacity (L / cu ft)	20 / 0.70	24 / 0.84	
	Water quality	pH6.2 to 7.2 / Electrical conductivity 20µs /cm to below		
No. of wire shelves (standard / max.)		2 / 7	2 / 8	2 / 8
Distance of between shelves (mm / inch)		60 / 2.4	60 / 2.4	60 / 2.4
Max. load per shelf (kg / lbs)		25 / 55.1	25 / 55.1	25 / 55.1
Permitted total load (kg / lbs)		75 / 165.3	75 / 165.3	75 / 165.3
Dimension (WxDxH)	Interior (mm / inch)	600x500x500 / 23.6x19.7x19.7	800x600x600 / 31.5x23.6x23.6	800x600x800 / 31.5x23.6x31.5
	Exterior (mm / inch)	1055x1320x1725 / 41.5x52.0x67.9	1255x1470x1925 / 49.4x57.9x75.8	1255x1670x1925 / 49.4x65.7x75.8
	Viewing windows (mm / inch)	200x330 / 7.9x13 *2set		
	Net weight (kg / lbs)	420 / 925.9	516 / 1137.6	560 / 1234.6
Cable port		Basically one hole provided / ø50mm (2") - Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")		
Interface port		Basically RS-485C [RS-232-optional]		
Electrical requirements (230V, 60Hz)		1ph / 13.6 A x 2ea	1ph / 17.5 A x 2ea	
Cat. No.		AAHC6001K	AAHC6011K	AAHC6021K
Electrical requirements (230V, 50Hz)		1ph / 13.6 A x 2ea	1ph / 17.5 A x 2ea	
Cat. No.		AAHC6002K	AAHC6012K	AAHC6022K

1) Technical data according to DIN 12880, IEC 60068.

Permissible environmental conditions: temperature (18 to 30 °C) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 °C (68 °F), No load.

FDA establishment registered company. FDA listed products.



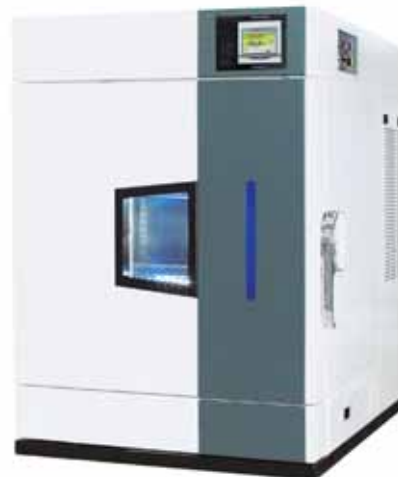
## Dimension

Model	TH-DG-150	TH-DG-300	TH-DG-400
Capacity	150L (5.30cu ft)	288L (10.17cu ft)	384L (13.56cu ft)
W	1055mm (41.5")	1255mm (49.4")	1255mm (49.4")
D	1320mm (52.0")	1470mm (57.9")	1670mm (65.7")
H	1725mm (67.9")	1925mm (75.8")	1925mm (75.8")
A	710mm (28.0")	760mm (29.9")	760mm (29.9")
B	1450mm (57.1")	1600mm (63.0")	1600mm (63.0")
C	345mm (13.6")	385mm (15.2")	485mm (19.1")



Light weight and compact design with high performance.

Various environmental tests can be performed due to wide temperature and humidity control range.



## TH-KE / TH-ME / TH-PE

### Standard accessories

- Viewing window, Wire shelves, Cable port (Ø50mm), Door key

### Optional accessories

- Two step stands, Direct water system

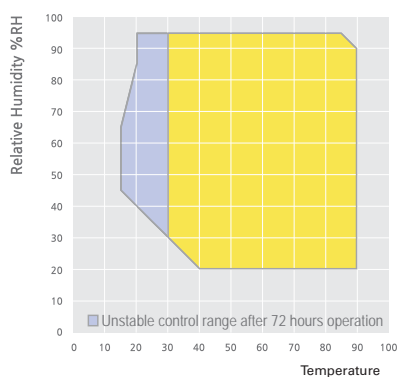
see page 242

Above products design can be changed without prior notice.

Inner glass door is not equipped to the unit since 2013.

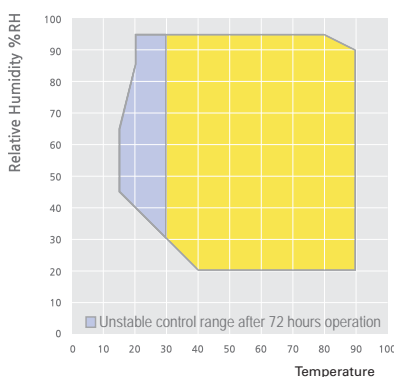
### TH-KE

- Temperature range from -40 to 150
- Humidity range from 20 to 95% RH



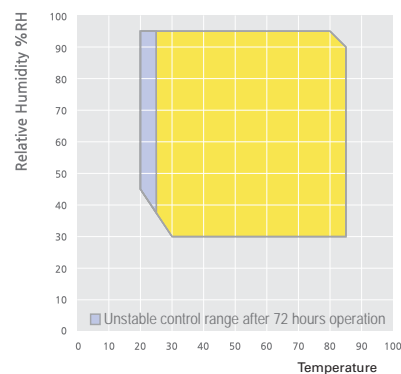
### TH-ME

- Temperature range from -20 to 150
- Humidity range from 20 to 95% RH



### TH-PE

- Temperature range from 0 to 120
- Humidity range from 30 to 95% RH



## Performance

- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Uniform temperature and humidity control guarantees reliable test result.
- Air-tight door closure with perfect sealed packing.
  - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Maintenance of water supply is easily performed.
  - Water level condition is easy to check by the water level indicator on the front control panel.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)

## Safety

- Built in door lock with a key.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.



LCD controller

Viewing window



Stand with caster (optional)

## Convenience

- Compact design and quite operation.
- Three different size models are available to suit user's need.
- Corrosion resistance stainless steel chamber.
- Operating condition is clearly noticed by front LED indicator.
  - Three different colored lights show each status of running, stop, and power off condition.
- Clear observation of samples.
  - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the left side of the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Two type of stands for space-saving. (optional)
  - Single stand with a drawer provides enough storage space.
  - Two step stand accepts loading two units to save limited space.
- User friendly LCD controller.
  - Colorful interactive touch type LCD controller.
  - Set point temperature and present temperature are clearly shown together on display.
  - Sufficient programmable control support.
  - Operating progress can be shown in graph mode for better data understanding.
  - Automatic start/stop can be programmed for unattended operations.
  - Display indicates abnormal temperature changes or power failures.
  - Selective bilingual language support.  
(Korean / English or English / Chinese, selectable only when placing an order)
  - Temperature and other operating parameters can be recorded using a six channel digital recorder. (optional)
- Computer interface.
  - RS-485 communication port (optional) enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
  - Program patterns are simple to set with the use of our software.
  - Easy to check status of real-time operations. Graph data supports easy understanding.
  - Storage and documentation of programs.
  - Data with saving capabilities in excel and text format.
  - Storage of program information, backup of value settings, recovery, and temperature values.
  - RS-232 communication port as standard offer.

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	2000
Programmable process time per a segment	0 to 99 hr. 59 min.

\* Even though the max. segments per pattern are 100, the total available segments are up to 2000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

Model		TH-KE-025	TH-KE-065	TH-KE-100
Chamber volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.5
Controller		Program controller (LCD type)		
Temperature	Range ( / )	-40 to 150 / -40 to 302 without humidity 15 to 90 / 59 to 194 with humidity		
	Fluctuation <sup>1)</sup> (± / ) at 50 / 60%RH	0.4 / 0.72	0.4 / 0.72	0.3 / 0.54
	Variation <sup>1)</sup> (± / ) at 50 / 60%RH	0.3 / 0.54	0.4 / 0.72	0.4 / 0.72
Time	Heating - without humidity (min.) from -40 to 100	60		
	Cooling - without humidity (min.) from 20 to -40	65	92	90
Humidity	Range (%RH)	20 to 95 See page 231 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 60%RH / 50	4.1	2.8	1.8
	Variation <sup>1)</sup> (±%RH) at 60%RH / 50	0.9	1.0	1.2
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507A		
Water tank	Capacity (L / cu ft)	7.5 / 0.26	10 / 0.35	14.5 / 0.51
	Water quality	pH6.2 ~ 7.2, Electrical conductivity 20 / cm to below		
No. of wire shelves (standard / max.)		2 / 7	2 / 10	2 / 10
Distance of between shelves (mm / inch)		20 / 1.6	20 / 1.6	20 / 1.6
Max. load per shelf (kg / lbs)		25 / 55.1	25 / 55.1	25 / 55.1
Permitted total load (kg / lbs)		65 / 143.3	65 / 143.3	65 / 143.3
Dimension (WxDxH)	Interior (mm / inch)	348×220×353 / 13.7×8.7×13.9	398×330×498 / 15.7×13×19.6	498×390×538 / 19.6×15.4×21.2
	External (mm / inch)	611×878×911 / 24.1×34.6×36.2	660×1048×1056 / 23.7×41.2×41.6	761×1108×1096 / 30.0×43.6×43.1
	Viewing window (mm / inch)	220×300 / 8.7×11.8		
	Net weight (kg / lbs)	110 ±10 / 242.5 ±22	140 ±10 / 308.6 ±22	150 ±10 / 330.7 ±22
Cable port <sup>2)</sup>		Basically one hole provided / ø 50mm (2") Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")		
Interface port		Basically RS-232C, (RS-485: optional)		
Electrical requirements (AC230V, 1ph, 60Hz)		10.1A	12.4A	16A
Cat. No.		AAH82411K	AAH82421K	AAH82431K
Electrical requirements (AC230V, 1ph, 50Hz)		10.1A	12.4A	16A
Cat. No.		AAH82412K	AAH82422K	AAH82432K

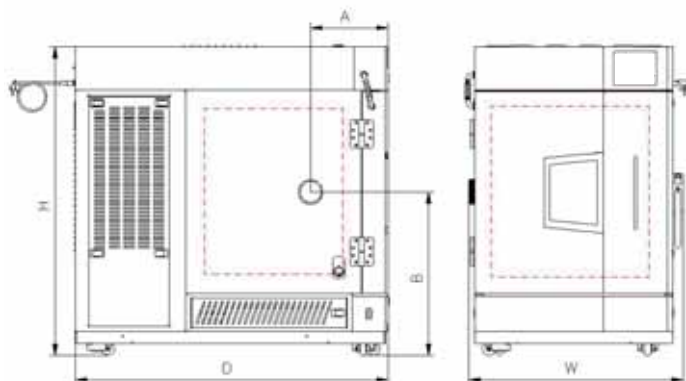
1) Technical data according to DIN 12880, IEC 60068.

2) 80mm cable access hole is NOT available for 25L chamber.

Permissible environmental conditions: temperature (18 to 30 °C) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 °C (68 °F), No load.

FDA establishment registered company. FDA listed products.



## Dimension

Model	TH-KE-25	TH-KE-65	TH-KE-100
Capacity	25L(0.9 cu ft)	65L(2.3 cu ft)	100L(3.53 cu ft)
W	611mm(24.1")	660mm(26.0")	761mm(30.0")
D	878mm(34.6")	1048mm(41.3")	1108mm(43.6")
H	911mm(36.2")	1056mm(41.6")	1096mm(43.1")
A	211mm(8.3")	276mm(10.9")	276mm(10.9")
B	495mm(19.5")	580mm(22.8")	580mm(22.8")

# Temperature & Humidity Chambers (Tabletop - TH-KE /TH-ME /TH-PE)

Model		TH-ME-025	TH-ME-065	TH-ME-100
Chamber volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.5
Controller		Program controller (LCD type)		
Temperature	Range ( / )	-20 to 150 / -4 to 302 without humidity 15 to 90 / 59 to 194 with humidity		
	Fluctuation <sup>1)</sup> (± / ) at 25 / 60%RH	0.3 / 0.54	0.2 / 0.36	0.2 / 0.36
	Variation <sup>1)</sup> (± / ) at 25 / 60%RH	0.6 / 1.08	0.2 / 0.36	0.2 / 0.36
Time	Heating - without humidity (min.) from -20 to 120	60	67	73
	Cooling - without humidity (min.) from 120 to -20	174	144	153
Humidity	Range (%RH)	20 to 95 See page 231 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 60%RH / 55	2.0	2.7	2.7
	Variation <sup>1)</sup> (±%RH) at 60%RH / 55	0.6	1.1	1.2
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-507A		
Water tank	Capacity (L / cu ft)	7.5 / 0.26	10 / 0.35	14.5 / 0.51
	Water quality	pH6.2 to 7.2 / Electrical conductivity 20 /cm to below		
No. of wire shelves (standard / max.)		2 / 7	2 / 10	2 / 10
Distance of between shelves (mm / inch)		20 / 1.6	20 / 1.6	20 / 1.6
Max. load per shelf (kg / lbs)		25 / 55.1	25 / 55.1	25 / 55.1
Permitted total load (kg / lbs)		65 / 143.3	65 / 143.3	65 / 143.3
Dimension (WxDxH)	Interior (mm / inch)	348x220x353 / 13.7x8.7x13.9	398x330x498 / 15.7x13x19.6	498x390x538 / 19.6x15.4x21.2
	External (mm / inch)	611x878x911 / 24.1x34.6x36.2	660x1048x1056 / 23.7x41.2x41.6	761x1108x1096 / 30.0x43.6x43.1
	Viewing window (mm / inch)	220x300 / 8.7x11.8		
	Net weight (kg / lbs)	80±5 / 176±11	110±5 / 242±11	130±5 / 286±11
Cable port <sup>2)</sup>		Basically one hole provided / ø 50mm (2") Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")		
Interface port		Basically RS-232C (RS-485 optional)		
Electrical requirements (230V, 1ph, 60Hz)		9.6A	12A	15.5A
Cat. No.		AAH82111K	AAH82121K	AAH82131K
Electrical requirements (230V, 1ph, 50Hz)		9.6A	12A	15.5A
Cat. No.		AAH82112K	AAH82122K	AAH82132K

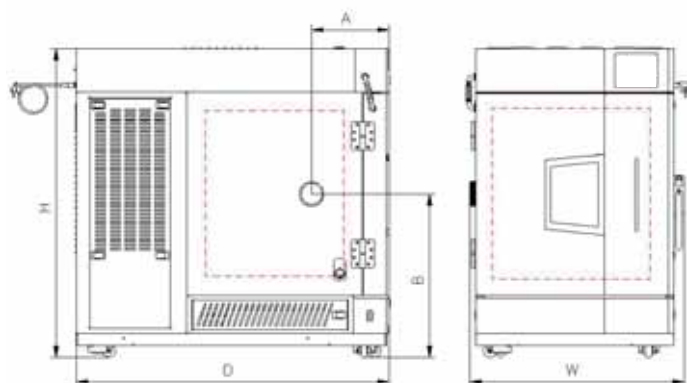
1) Technical data according to DIN 12880, IEC 60068.

2) 80mm cable access hole is NOT available for 25L chamber.

Permissible environmental conditions: temperature (18 to 30 °C) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 °C (68 °F), No load.

FDA establishment registered company. FDA listed products.



## Dimension

Model	TH-ME-25	TH-ME-65	TH-ME-100
<b>Capacity</b>	25L(0.9 cu ft)	65L(2.3 cu ft)	100L(3.53 cu ft)
<b>W</b>	611mm(24.1")	660mm(26.0")	761mm(30.0")
<b>D</b>	878mm(34.6")	1048mm(41.3")	1108mm(43.6")
<b>H</b>	911mm(36.2")	1056mm(41.6")	1096mm(43.1")
<b>A</b>	211mm(8.3")	276mm(10.9")	276mm(10.9")
<b>B</b>	495mm(19.5")	580mm(22.8")	580mm(22.8")

Model		TH-PE-025	TH-PE-065	TH-PE-100
Chamber volume (L / cu ft)		25 / 0.9	65 / 2.3	100 / 3.5
Controller		Program controller (LCD type)		
Temperature	Range ( / )	0 to 120 / 32 to 248 without humidity 15 to 90 / 59 to 194 with humidity		
	Fluctuation <sup>1)</sup> (± / ) at 25 / 60%RH	0.2 / 0.36	0.3 / 0.54	0.2 / 0.36
	Variation <sup>1)</sup> (± / ) at 25 / 60%RH	0.3 / 0.54		
Time	Heating - without humidity (min.) from 0 to 120	40		
	Cooling - without humidity (min.) from 20 to 0	30		
Humidity	Range (%RH)	30 to 95 See page 231 for more detailed humidity range check.		
	Fluctuation <sup>1)</sup> (±%RH) at 60%RH / 55	1.6	0.4	0.5
	Variation <sup>1)</sup> (±%RH) at 60%RH / 55	3.0		
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)		
	Refrigerant	R-404A		
Water tank	Capacity (L / cu ft)	7.5 / 0.26	10 / 0.35	14.5 / 0.51
	Water quality	pH6.2 ~ 7.2, Electrical conductivity 20 / cm to below		
No. of wire shelves (standard / max.)		2 / 7	2 / 10	2 / 10
Distance of between shelves (mm / inch)		20 / 1.6	20 / 1.6	20 / 1.6
Max. load per shelf (kg / lbs)		25 / 55.1	25 / 55.1	25 / 55.1
Permitted total load (kg / lbs)		65 / 143.3	65 / 143.3	65 / 143.3
Dimension (WxDxH)	Interior (mm / inch)	348x220x353 / 13.7x8.7x13.9	398x330x498 / 15.7x13x19.6	498x390x538 / 19.6x15.4x21.2
	External (mm / inch)	611x878x911 / 24.1x34.6x36.2	660x1048x1056 / 23.7x41.2x41.6	761x1108x1096 / 30.0x43.6x43.1
	Viewing window (mm / inch)	220x300 / 8.7x11.8		
	Net weight (kg / lbs)	80±5 / 176±11	110±5 / 242±11	130±5 / 286±11
Cable port <sup>2)</sup>		Basically one hole provided / ø 50mm (2") Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")		
Interface port		Basically RS-232C [RS-485 optional]		
Electrical requirements (230V, 1hp, 60Hz)		9.6A	12A	14.4A
Cat. No.		AAH82211K	AAH82221K	AAH82231K
Electrical requirements (230V, 1hp, 50Hz)		9.6A	12A	14.4A
Cat. No.		AAH82212K	AAH82222K	AAH82232K

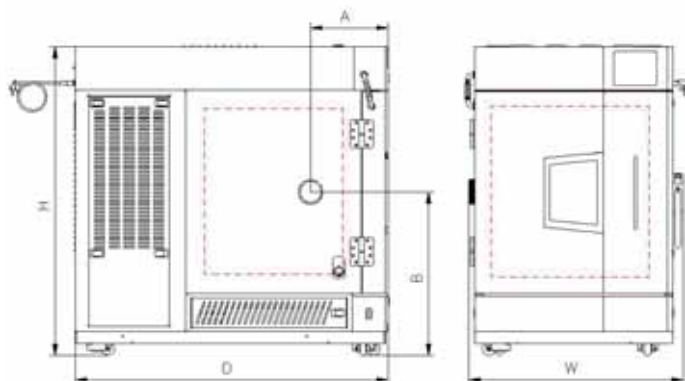
1) Technical data according to DIN 12880, IEC 60068.

2) 80mm cable access hole is NOT available for 25L chamber.

Permissible environmental conditions: temperature (18 to 30 °C) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 °C (68 °F), No load.

FDA establishment registered company. FDA listed products.

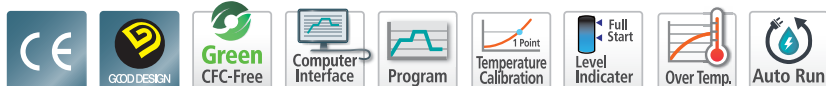


## Dimension

Model	TH-PE-25	TH-PE-65	TH-PE-100
Capacity	25L(0.9 cu ft)	65L(2.3 cu ft)	100L(3.53 cu ft)
W	611mm(24.1")	660mm(26.0")	761mm(30.0")
D	878mm(34.6")	1048mm(41.3")	1108mm(43.6")
H	911mm(36.2")	1056mm(41.6")	1096mm(43.1")
A	211mm(8.3")	276mm(10.9")	276mm(10.9")
B	495mm(19.5")	580mm(22.8")	580mm(22.8")



## Pharmaceutical Stability Test Chambers (TH-ICH)



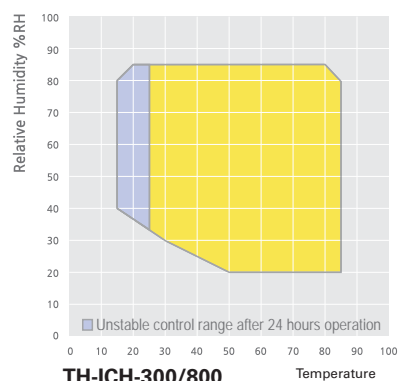
Manufactured in accordance with ICH Guidelines  
Q1A-Stability test (R2), Q1B-Photostability test (Option 2).

- ▶ Optimum temperature and humidity control system for long-term stability test.
- ▶ Independent luminescence control system for photostability test.



### Control range

- Temperature range from -5 to 85  
Humidity range from 20 to 85% RH



## TH-ICH

with the optional recorder

### Standard accessories

- Wire shelves, Cable port (Ø50mm)

### Optional accessories see page 242

- Direct water system
- Fluorescent lamp (cool white), UVA lamp, UV sensor, Illumination sensor, Door key

## Performance

- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Rapid humidity control is achieved by adapting the humidification tank interior to the chamber.
- Air-tight door closure with perfect sealed packing.
  - Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.

## Convenience

- Two different sized models available to suit any users' needs.
- Corrosion resistant stainless steel chamber.
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the left side of the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Inner glass door with entry ports for handling samples without affecting inner chamber temperature and humidity. (optional)
- Casters for easy mobility during installation or relocation.
- User friendly LCD controller.
  - Colorful interactive touch type LCD controller.
  - Set point temperature and present temperature are clearly shown together on display.
  - Sufficient programmable control support.
  - Operating progress can be shown in graph mode for better data understanding.
  - Automatic start/stop can be programmed for unattended operations.
  - Display indicates abnormal temperature changes or power failures.
  - Selective bilingual language support.  
(Korean / English or English / Chinese, selectable only when placing an order)
  - Temperature and other operating parameters can be recorded using a six channel digital recorder. (optional)
- Computer interface.
  - RS-485 communication port (optional) enables connection up to maximum 32 units. Simultaneous monitoring and operating of multiple units is an available feature.
  - Program patterns are simple to set with the use of our software.
  - Easy to check status of real-time operations. Graph data supports easy understanding.
  - Storage and documentation of programs.
  - Data with saving capabilities in excel and text format.
  - Storage of program information, backup of value settings, recovery, and temperature values.
  - RS-232 communication port as standard offer.

Description	No
Programmable pattern capacity	100
Pattern repeat time	999
Part repeat time	255
Max. segments per a pattern	100
Available max. segments*	2000
Programmable process time per a segment	0 to 99 hr. 59 min.

\* Even though the max. segments per pattern are 100, the total available segments are up to 2000 not 10000, therefore arrangement of the number of segment and patterns will need to be done properly.

## Stability test ICH guideline Q1A (R2)

- Operating progress visible through graph mode for better data analyzation.
- Cyclic defrost system, designed to work excellently for the long period stability test operation.
  - ( Temperature and humidity changes may occur during automatic defrost.)
- Maintenance of water supply are easily performed with a front water tank.
  - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term test. (optional)

## Photostability test ICH guideline Q1B (Option 2)

- Built in UV and fluorescent lamps for uniformed luminescence.
- Equipped with movable UV and VIS sensors .
- Independent lamp controller
  - An indicator for Total usage time of UV and fluorescent lamps.
- Convenient set function of cumulative dosage and lamp Off.

## Safety

- Built in door lock with a key.
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.



Lamp controller



LCD controller



Digital recorder (optional)



Water level indicator

# Pharmaceutical Stability Test Chambers (TH-ICH)

Model		TH-ICH-300	TH-ICH-800
Chamber volume (L / cu ft)		300 / 10.6	760 / 26.8
Controller		PID control (LCD Type)	
Temperature	Range	without humidity ( / )	-5 to 85 / 23 to 185 without Light 0 to 85 / 32 to 185 with Light
		with humidity ( / )	+15 to 85 / 59 to 185 with Light
	Fluctuation <sup>1)</sup> (± / ) at 40 / 60%RH	0.3 / 0.55	0.3 / 0.55
	Variation <sup>1)</sup> (± / ) at 40 / 60%RH	0.5 / 0.9	0.7 / 1.3
Time	Heating	25min (20 → 85 )	30min (20 → 85 )
	Cooling	35min (20 → 5 )	40min (20 → 5 )
Humidity	Range (%RH)	20 to 85 See page 236 for more detailed humidity range check.	
	Fluctuation <sup>1)</sup> (±%RH) at 60%RH / 40	3	
	Variation <sup>1)</sup> (±%RH) at 60%RH / 40	5	
Light source (ICH Q1B option 2)	Cool white <sup>2)</sup>	6,000 lux	6,500 lux
	Ultraviolet-A <sup>2)</sup>	4.5 W/m <sup>2</sup>	5 W/m <sup>2</sup>
	Light uniformity	VIS. : ±10% UVA : ±15%	VIS. : ±15% UVA : ±15%
Typical time required to reach ICH Recommendation of 1.2 million lux-hr		200Hr	184Hr
Typical time required to reach ICH recommendation of 200 W-hr/m <sup>2</sup>		50Hr	40Hr
Refrigeration	System	Air-cooled	
	Refrigerant	R-404A	
Water tank	Capacity (L / cu ft)	15 / 0.53	
	Water quality	pH6.2 ~ 7.2, Electrical conductivity 20µS / cm to below	
No. of wire shelves (standard / max.)		2 / 8	2 / 17
Distance of between shelves (mm / inch)		60 / 2.4	60 / 2.4
Max. load per shelf (kg / lbs)		25 / 55.1	40 / 88.2
Permitted total load (kg / lbs)		75 / 165.3	100 / 220.5
Dimension (WxDxH)	Interior (mm / inch)	750×650×650 / 29.5×25.6×25.6	750×880×1160 / 29.5×34.6×45.7
	Exterior (mm / inch)	1130×985×1520 / 44.5×38.8×59.8	1220×1215×1965 / 48×47.8×77.4
	Net weight (kg / lbs)	280±10 / 617±22	400±10 / 882±22
Cable port		Basically one hole provided / ø 50mm (2"), Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")	
Interface port		Basically RS-232C, [RS-485 : optional]	
Electrical requirements	AC230V, 1ph, 60Hz	15.4 A	24.5 A
	Cat.No.	AAHC1001K	AAHC1011K
	AC230V, 1ph, 50Hz	15.4 A	24.5 A
	Cat.No.	AAHC1002K	AAHC1012K

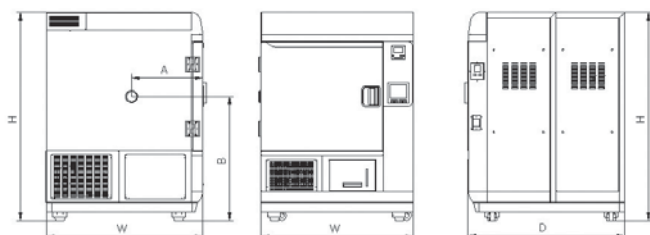
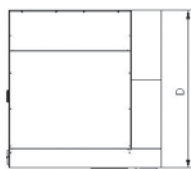
1) Technical data according to DIN 12880, IEC 60068.

2) The value is measured on the center of chamber at the point of vertical direction.

Permissible environmental conditions: temperature (18 to 30 ) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 (68 ), No load.

FDA establishment registered company. FDA listed products.



## Dimension

Model	TH-ICH-300	TH-ICH-800
Capacity	300L (10.6 cu ft)	760L (26.8 cu ft)
W	1130mm (44.5")	1220mm (48")
D	985mm (33.8")	1215mm (47.8")
H	1520mm (59.8")	1965mm (77.4")
A	460mm (18.1")	545mm (21.5")
B	905mm (35.6")	1185mm (46.7")



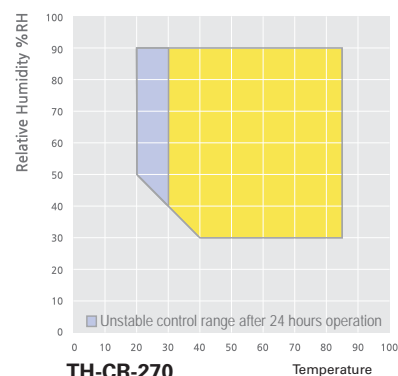
Specially designed for processes requiring clean and controlled environmental test conditions. (ISO class 5 air cleanliness as per ISO 14644-1)

- ▶ Heat-resisting HEPA filter provides clean environment.
  - 0.3  $\mu\text{m}$  and larger particulates are removed with 99.99% efficiency
- ▶ ULPA filter provides for better air cleanliness of the chamber. (optional)
  - 0.1  $\mu\text{m}$  and larger particulates are removed with 99.999% efficiency
- ▶ No external exhaust system required.



## Control range

- Temperature range from -35 to 100
- Humidity range from 30 to 90% RH



## TH-CR

with optional recorder

### Standard accessories

- Viewing window, Wire shelves, Cable port ( $\varnothing 50\text{mm}$ ), HEPA filter, Water container

### Optional accessories

see page 242

- ULPA filter, Water purifier, Direct water system

## Clean Temp. & Humid. Chamber (TH-CR)

### Performance

- Microprocessor PID control / Temperature calibration / Automatic tuning.
- Exhaust duct is located at the upper right side of the unit to avoid influence other devices.
- Built-in differential pressure gauge for easy observation of HEPA filter condition.

### Convenience

- Silicone-free construction for clean environment.
- Corrosion resistance stainless steel chamber.
- Maintenance of water supply are easily performed with a front water tank.
  - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Direct water system provides user great convenience when performing long-term tests. (optional)
- Clear observation of samples.
  - Tempered glass window with wire heater and lighting provides a clear view of samples in the chamber, beneficial for during testing.
  - Inner glass door with entry ports for handling samples without affecting inner chamber temperature and humidity. (optional)
- Cable port for introduction of external probes or wires.
  - 50mm diameter cable port comes standard on the left side of the unit.
  - Additional 50mm or 80mm diameter cable ports, custom ordered. (optional)
- Casters for easy mobility during installation or relocation.
- User friendly LCD controller.
  - 5.7 inch colorful interactive touch type LCD controller.
  - Set value and present value are clearly visible together on display.
  - Operating progress visible in graph mode allow for direct data interpretation.
  - Temperature and other operating parameters recorded with use of selectable recorder. (optional)
  - Sufficient programmable control support.
  - Programming operation.

Description	No
Programmable pattern capacity	120
pattern repeat time	999
Max. Segments per a pattern	100
Available max. segments*	1200
Programmable process time per a segment	0 to 99 hr. 59 min.

\* Even though the max. segments per a pattern are 100, available total segments are up to 1200 not 12000, so you need to arrange the number of segment and patterns properly.

- Computer interface.
  - RS-485 communication port enables connection of up to maximum 9 units. Simultaneous monitoring and operating of multiple units is an available feature. (optional)
- Program patterns are simple to set with the use of our software.
- Storage of program information, backup of value settings, recovery, temperature, humidity values.
- RS-232 communication port comes standard.

### Safety Features

- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection.
- Open door alarm.



Control panel



Air-filter



Viewing window



Water level indicator

Model		TH-CR-270
Chamber volume (L / cu ft)		270 / 9.5
Controller		Programmable, Touch screen type controller (5.7" color monitor) Local controller (fixed - command control)
Temperature	Range ( / )	-35 to 100 / -31 to 212 without humidity 20 to 85 / 104 to 185 with humidity
	Fluctuation <sup>1)</sup> (± / ) at 40 / 60%RH	0.5 / 0.9
	Variation <sup>1)</sup> (± / ) at 40 / 60%RH	0.5 / 0.9
Time	Heating - without humidity (min.)	60 from -35 to 120 (31 to 248 )
	Cooling - without humidity (min.)	65 from 20 to -35 (68 to -31 )
Humidity	Range (%RH)	30 to 90 See page 239 for more detailed humidity range check.
	Fluctuation <sup>1)</sup> (±%RH) at 60%RH / 40	3
	Variation <sup>1)</sup> (±%RH) at 60%RH / 40	3
Cleanliness		Class 100 (ISO 14644-1)
Refrigeration	System	Mechanical single stage refrigerator system (air-cooled condenser)
	Refrigerant	R-404A
Water supply	Capacity	15L (0.53cu ft) - Cartridge type
	Water quality	pH6.2 to 7.2 / Electrical conductivity 20µS /cm to below
No. of wire shelves (standard / max.)		2 / 10
Distance of between shelves (mm / inch)		40 / 1.6
Max. load per shelf (kg / lbs)		25 / 55.1
Permitted total load (kg / lbs)		65 / 143.3
Dimension (WxDxH)	Interior (mm / inch)	600×700×648 / 23.6×27.6×25.4
	Exterior (mm / inch)	1180×1120×1935 / 46.5×44.1×76.2
	Viewing windows (mm / inch)	200×330 / 7.9×13
	Net weight (kg / lbs)	400±10 / 881.8±22
Cable port		Basically one hole provided / ø 50mm (2") Optionally max. two holes available / ø 50 or 80mm (2 or 3.2")
Interface port		Basically RS-232C [RS-485 optional]
Electrical requirements (230V, 1ph)		60Hz / 29A
Cat. No.		AAH83011K
Electrical requirements (380V, 3ph)		50Hz / 9.6A
Cat. No.		AAH83018K

1) Technical data according to DIN 12880, IEC 60068.

Permissible environmental conditions: temperature (18 to 30 ) and relative humidity (up to 85%).

All specifications are under ambient temperature 20 (68 ), No load.

Upon request, other sizes of chambers are available. Please contact with us.

FDA establishment registered company. FDA listed products.



## Dimension

Model	TH-CR-270
Capacity	270L (9.5 cu ft)
W	1180mm (46.5")
D	1120mm (44.1")
H	1935mm (76.1")
A	325mm (12.8")
B	1155mm (45.5")

# Accessories & Options

## for Tabletop Chambers & Floor Standing Chambers

### Accessory check list

☐ Standard ☐ Optional

Description	Models									
	TH-G	TH-I	TH-KH	TH-TG	TH-DG	TH-KE	TH-ME	TH-PE	TH-ICH	TH-CR
Recorder (6 points)										
Recorder (digital, 6 channels)										
Interface converter (RS-485C 232C included a cable, 5m / 16.4ft)										
Interface cable (5m / 16.4ft)										
Warning signal lamp										
Inner glass door						-	-	-		-
Viewing window									-	
Wire shelf										
Perforated shelf										
Cable port (Ø 50mm / 2")										
Cable port (Ø 80mm / 3.2") <sup>1)</sup>										
Temperature sensor (RTD type)										
Humidity sensor										
Fluorescent lamp (Cool White)	-	-	-	-	-	-	-	-		-
UVA lamp	-	-	-	-	-	-	-	-		-
UV sensor	-	-	-	-	-	-	-	-		-
Illumination Sensor	-	-	-	-	-	-	-	-		-
HEPA filter	-	-	-	-	-	-	-	-	-	
ULPA filter	-	-	-	-	-	-	-	-	-	
Water cartridge tank (Water Container)					-	-	-	-	-	
Water purifier										
Direct water system										
Stand	-	-	-	-	-				-	-
Two step stand	-	-	-	-	-				-	-

1) 80mm cable access hole is NOT available for 25L chamber.

### Ordering information

Cat. No.	Description	Suitable for
AAA8T504	Recorder (6 points)	Tabletop models
AAA8T500		Floor standing models
AAA8T506		Tabletop models
AAA8T505		Floor standing models
AAA8T540	Interface converter (RS-485C 232C included a cable, 5m / 16.4ft)	All models
AAA8T542	Interface cable (5m / 16.4ft)	All models
AAA80550	Warning signal lamp	All models
AAA81552	Inner glass door	TH-G//KH-180
AAA81551		TH-G//KH-300, 408, CR-270
AAA81550		TH-G-800, 1000
AAAC2501		TH-TG-180
AAAC2502		TH-TG-300, 408
AAAC2503		TH-TG-800, 1000
AAAC6511		TH-DG-150
AAAC6512		TH-DG-300
AAAC6513		TH-DG-400
AAA81554		TH-ICH-300
AAA81555		TH-ICH-800
AAA8T610		All models
AAA8T611		All models
CFA1185	Temperature sensor (RTD type)	TH-G//DG TH-TG//ICH/CR, TH-KE/ME/PE
CFA7113	Humidity sensor	All models
RTD1190	Fluorescent lamp (cool white)	TH-ICH-300
RTD1191		TH-ICH-800
RTD1188		TH-ICH-300
RTD1189	UVA lamp	TH-ICH-800
AAA80680	THE-680 UV sensor	TH-ICH-300/800
AAA80681	THE-681 Illumination sensor	TH-ICH-300/800
AAA80661	Door lock device	TH-ICH-300/800
EDA9184	HEPA filter	TH-CR-270
EDA9175	ULPA filter	TH-CR-270
AAA80622	Water cartridge tank	All models
AAA8T621	Water purifier	All models
AAA80620	Direct water system	All models
AAA80631	Stand	TH-KE/ME/PE-025
AAA80632		TH-KE/ME/PE-065
AAA80633		TH-KE/ME/PE-100
AAA80634		TH-KE/ME/PE-025
AAA80635	Two step stand	TH-KE/ME/PE-065

Cat. No.	Description	Suitable for
RTD679	Wire shelf	TH-KE/ME/PE-025
RTD680		TH-KE/ME/PE-065
RTD681		TH-KE/ME/PE-100
EDA8212		TH-G//KH-180
EDA8213		TH-G//KH-300
EDA8214		TH-G//KH-408
EDA8215		TH-G-800
EDA8216		TH-G-1000
RTD1302		TH-TG-180
RTD1303		TH-TG-300
RTD1300		TH-TG-408
RTD1304		TH-TG-800
RTD1301		TH-TG-1000
RTD1305		TH-G/TG-1500
EDA8251		TH-DG-150
RTD1280		TH-DG-300
EDA8250		TH-DG-400
RTD1196		TH-ICH-300
RTD1198		TH-ICH-800
STT1040		TH-CR-270
AAA80602-6	Perforated shelf	TH-KE/ME/PE-025
AAA80602-7		TH-KE/ME/PE-065
AAA80602-8		TH-KE/ME/PE-100
AAA80602-1		TH-G//KH-180
AAA80602-2		TH-G//KH-300
AAA80602-3		TH-G//KH-408
AAA80602-4		TH-G-800
AAA80602-5		TH-G-1000
AAA80604-11		TH-TG-180
AAA80604-12		TH-TG-300
AAA80604-13		TH-TG-408
AAA80604-14		TH-TG-800
AAA80604-15		TH-TG-1000
AAA80604-16		TH-G/TG-1500
AAAC6501		TH-DG-150
AAAC6502		TH-DG-300
AAAC6503		TH-DG-400
AAA80604-2		TH-ICH-300
AAA80604-4		TH-ICH-800
AAA80603-1		TH-CR-270





Optimal photosynthesis condition guaranteed when using our plant growth chamber.

Ample capacity, maximum capacity of 1000L to satisfy user's plant growth needs



### GC-1000TLH / GC-300TLH

with optional recorder

#### Standard accessories

- Inner glass door, Wire shelves

#### Optional accessories

- Perforated shelves, CO<sub>2</sub> sensors

see page 245

### Optimal photosynthesis condition for plant growth.

- ▶ Uniform temperature and humidity. (TLH models)
- ▶ Reinforced Blue and Red spectrums lighting system for plant photosynthesis.
- ▶ Optional CO<sub>2</sub> sensor (optional)
- ▶ Programmable temperature, humidity, and lighting.
- ▶ Progressive temperature, humidity, illumination program control for optimization of plant growth environment for night and day.

# Plant Growth Chambers (GC)

## Performance

### General control system

- 5 to 50 (lamp off) / 10 to 50 (lamp on)
- Max. to 35,000Lux for GC-1000.  
Max. to 20,000Lux for GC-300 Models.
- 40 to 80% RH for GC-300TLH. (at 20 to 35 °C)  
50 to 90% RH for GC-1000TLH. (at 20 to 35 °C)
- Max. 5,000ppm CO<sub>2</sub> on/off system. (optional)
- Microprocessor PID control / Temperature calibration / Automatic tuning
- 10 step programmable temperature, humidity, and illumination profiles and repeatable steps of up to 999 cycles.
- Advanced performance of low and high temperature and humidity control, achieved by adapting the humidification tank exterior to the chamber, added benefit for long term test.

### Illuminance control system

- Uniformed luminescence distribution.
- Broad distribution of side lamps for hastening the growth of plants.
- High intensity illumination of upper lamp for light efficient and low thermal load. (for GC-1000TLH/1000TL)
- Unique construction for minimization of heat increase from surrounding lamps.
  - Tempered glass door blocks heated air from lamps.
  - Designed to exhaust heated air through upper vent holes. (for GC-1000TLH)
- Stable and long lasting lighting through introduction of high frequency electronic ballast lamps.

## Convenience

- Ergonomically designed door construction.
  - Inner glass door with silicone and external door with magnetic sealing for dual airtight packing.
  - Well designed providing a smooth open for minimization of damage to plants.
- Wide inner tempered glass door for clear observation of plant growth without affecting inner chamber's environment.
- Tall plants can be grown inside of the chamber with adjustment of shelf level.
- Maintenance of water supply are easily performed with a front water tank. (GC-1000TLH)
  - Water level check indicated by water level bar in the tank.
- Water supply during operation is also available for long term test purposes.
- Adjustable water tank position. (for GC-300TLH)
- Detachable condenser air-filter for easy maintenance of refrigerating efficiency.
  - Maintenance of air filter no longer cumbersome with our detachable condenser air filter.

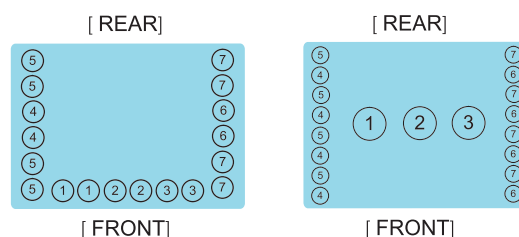
- Casters for easy mobility during installation or relocation.
- Eco-friendly CFC-free refrigerant use.

## Safety

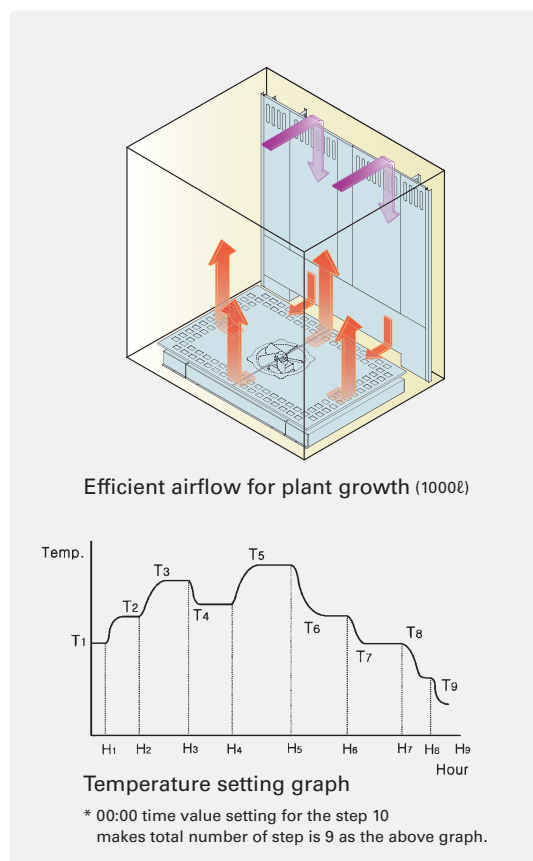
- Automatic shut off after overheat alarm.
- Low and empty water level alarm.
- Power supply leakage breaker.
- Over current protection,
- Open door alarm.

## Lamps setting

- Control illumination values with the below lamp setting arrangements.



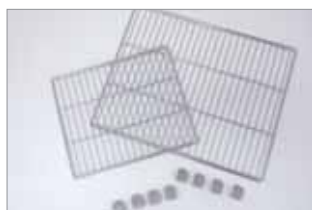
GC-300 lamp arrangement    GC-1000 lamp arrangement



Model		GC-300TL		GC-300TLH		GC-1000TLH	
Chamber volume (L / cu ft)		300 / 10.6				1000 / 35.3	
Control system		Microprocessor PID controller					
Temperature	Range (   /   )	5 to 50 / 41 to 122 - Lamp off					
		10 to 50 / 50 to 122 - Lamp on					
		20 to 50 / 68 to 122 - with humidity					
	Fluctuation (±   /   ) at 25	0.4 / 0.72 - without humidity					
	Variation (±   /   ) at 25	1.0 / 1.8 - without humidity					
Illumination	Range (Lux)	0 to 20,000				0 to 35,000	
	Control (steps)	10				11	
	Lamp	FI lamp (32W×18ea)				FL lamp (32W×16ea)	
Humidity	Range (% RH)	-	40 to 80 at 20 to 35		50 to 90 at 20 to 35		
			70 to 90 at 36 to 50		60 to 90 at 36 to 50		
	Fluctuation (±RH) at 60% RH	-	3				
	CO <sub>2</sub> (optional)	Range (ppm)	Max. 5,000				
Sensor		NDIR CO <sub>2</sub> sensor					
Refrigerant (HP)		1/2				3/4	
Temp. heater power (W)		750×2ea				1,500×2ea	
Humid. heater power (W)		-		1800			
Dimension (W×D×H)	Interior (mm / inch)	510×540×1100 / 20×21.3×43.3				1200×800×1080 / 47.2×31.5×42.5	
	Exterior (mm / inch)	700×760×1930 / 27.6×29.9×76		700×920×1930 / 27.6×36.2×76		1410×1068×2160 / 55.5×42×85	
	Net weight (kg / lbs)	250 / 551.2				550 / 1212.5	
Electrical requirements (230V)		60Hz / 15A	50Hz / 15A	60Hz / 15A	50Hz / 15A	60Hz / 17A	50Hz / 17A
Cat. No.		AAHA1011K	AAHA1012K	AAHA1021K	AAHA1022K	AAHA1031K	AAHA1032K

FDA establishment registered company. FDA listed products.

## Accessories & Options



Wire shelves



Perforated shelves



Recorder (dot type)



CO<sub>2</sub> sensor

Model	Wire shelves			Perforated shelves		
	Cat. No.	Dimension (W×L, mm / inch)	No. of shelves (standard/max.)	Cat. No.	Dimension (W×L, mm / inch)	No. of shelves (max.)
GC-300TL	EDA8220	466×490 / 18.3×19.3	3 / 14	AAA22522	466×490 / 18.3×19.3	14
GC-300TLH	EDA8220		3 / 14	AAA22522		14
GC-1000TLH	EDA8222	580×770 / 2.8×30.3	6 / 29	AAAA1512	580×770 / 22.8×30.3	29
Model	Recorder			CO <sub>2</sub> sensor		
	Cat. No.			Cat. No.		
GC-300TL	AAAA1501			AAAA1521		
GC-300TLH	AAAA1501			AAAA1521		
GC-1000TLH	AAAA1502			AAAA1521		