

DAIHAN Scientific

ThermoStable™

*Renewal*

# Temperature/Humidity Test Chamber

- Auto Supplement Water Tank
- Precise Temperature, Humidity Control
- Smart-Lab™ Controller



*Smart-Lab™ System  
Based on Internet of Thing(IoT)*

# DAIHAN Scientific Temp. / Humidity Test Chamber

## ThermoStable™ STH

# Temperature / Humidity Test Chamber

Smart-Lab™  
Controller

Auto  
Supplement  
Water Tank

Precise  
Temperature  
Humidity  
Control

## Wide Range of Temp./Humidity Control

- Temperature Range : -40°C/-20°C to 100°C
- Humidity Range : 30% to 98% RH

## Large Clear Viewing Window

- Clear Observation of Samples on High-temperature/humidity and Sub-zero temp. by membrane heating element (Moisture-Proof)
- Size : 220 × h320 mm

## Automatic Defrost Function

- Designed to work excellently for the long period stability test operation.



### Cable port

- 50mm diameter cable port on the left side of the unit.
- Additional 50mm or 80mm diameter cable ports (optional)



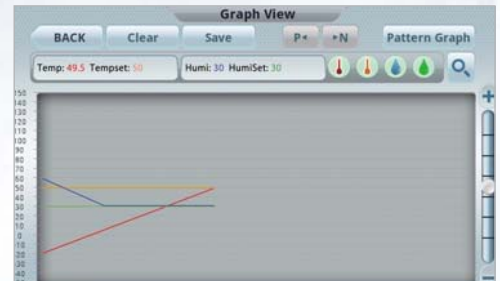
### Door Lock

- Easy and Safety
- Heat-resistant silicone packing completely blocks high heat leakage from the inner chamber.
- Two-point Door Latch for tight closure



## Smart-Lab™ Controller

- Ergonomic 7" Full Touch Screen TFT LCD(Smart-Lab™ Controller)
- WiRe™ App Service.
- Self-Diagnostic Function
- Push Alarm Service to Smart Phone : Power- / Temperature-/Door Open-Error Status
- Built in USB port for data download and program upgrade
- Password protected setting
- Digital Calibration(Offset Function)
- Door ajar and Power failure alarm
- Internet connectivity with WiFi
- Automatic data recording
- Interactive Temperature Graph
- Min-/Max-Temperature Memory
- Program Function



### Chart Recorder

- 6 Channels & 2 Pens Temperature & Humidity Recorder
- 33-day Recorders use pressure sensitive chart paper
- Chart Recorder for recording of precise temperature
- Battery Back up for temperature recording in case of power failure.



### Water tank

- Sliding water supply tank makes supplying water convenient
- Auto Water Supplementing System : Water supply during operation is available for long term test purpose
- Low Water Level Alarm System
- Corrosion resistance Stainless-steel tank



### Others

- CFC-Free Refrigerant (R-404A)
- RS232C Interface for remote monitoring and controlling with PC
- Over temperature & Over current Protection, Sensor error detection and leakage breaking



# Smart-Lab™ System Features

# 1 IoT

## Realize Smart Laboratory. Based on Internet of Things(IoT)

Patented(No. 10-1471368)

- WiRe™ App Service : Remote monitoring and controlling lab equipments
- Self Diagnostic Function : Automatic notifications of abnormal condition to users and service Center
- Self Diagnostic Function : Provides free App on the Android and Apple iOS
- Multiple User Registration available for an equipment using e-mail accounts

## Intergrated Control Smart-Lab™ System Based on IoT



We assure higher security of an equipment and samples in it, and make the time of a scientist more valuable.



## Remote Control System. WiRe™ App Service

- Anytime, Anywhere You are, and Anyhow, You can check and control the equipment in your lab using your Smart Phone.
- It is possible to monitor and control the Smart-Lab™ Equipment through all Smart Phone, Tablet without restraint of time and place.
- You can download App at Android and iOS App Store

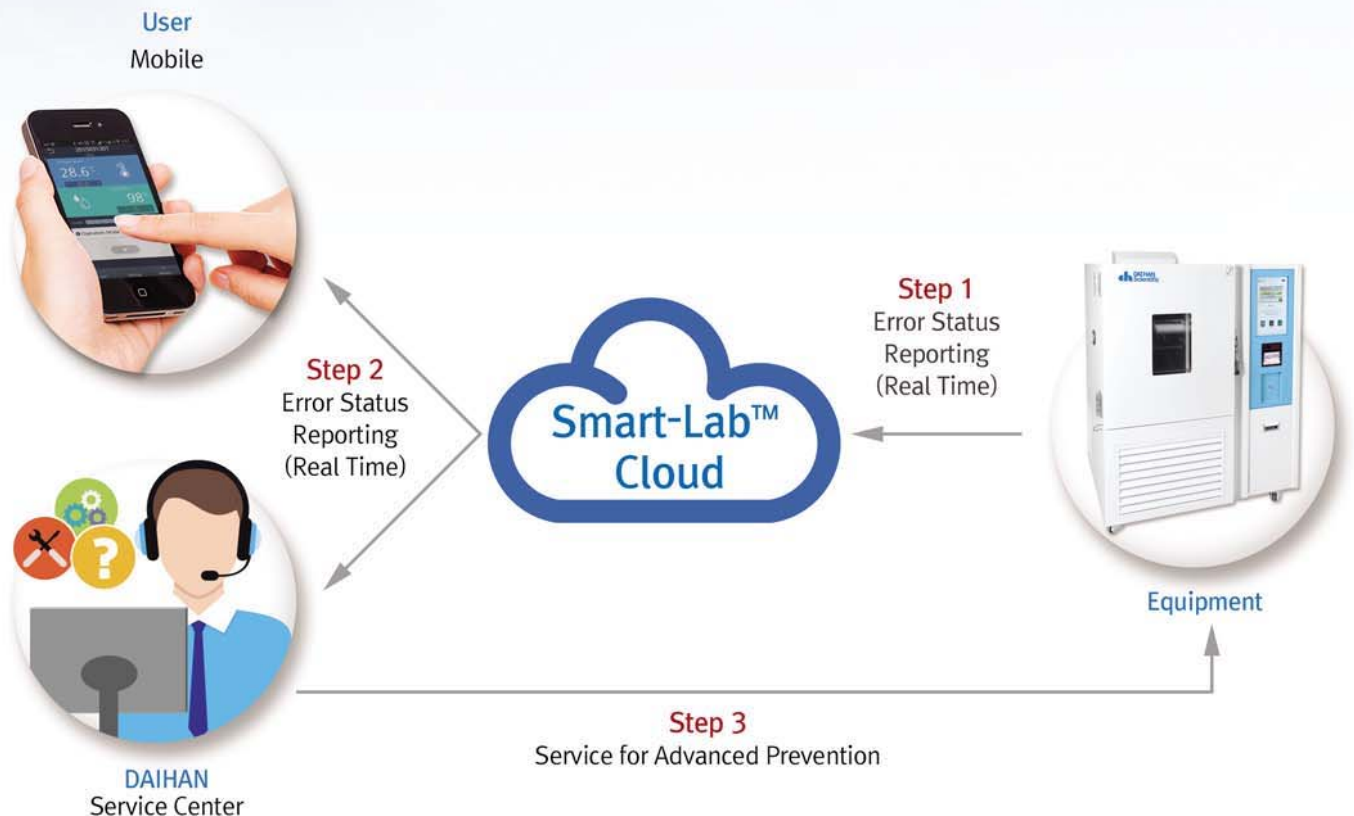


## User Registration Management

- A Single unit can be remote controlled and monitoring by admin and monitoring by multiple users
- A Single User can remote control multiple units in the lab
- Smart-Lab™ Equipment offer registration of multiple Users with simple account information

## 3 Step Self Diagnostic System

The Self-Diagnosis System senses a certain defect within the unit, and reports it to the service center through the servers operated by DAIHAN. The Service Center verifies the defects of the unit received, and could offer prompt service.





# Smart-Lab™ System Features

## 2 Controller

### What is “Smart-Lab™ Controller” ?

Full-touch Screen Controller(4-inch or 7-inch) Based on Android System.

The DAIHAN Smart-Lab™ Controller is embedded in all of Smart-Lab™ Equipment, which has a lot of useful functions like Data Recording, Storage Management, and Self-diagnostic Function and so on.

These functions are unique and Innovative in the Laboratory Equipments. and the controller is connected with Researcher’s Smart Phone, Tablet through Internet, by WiFi, so Scientists are able to check all the equipments in the Laboratory at any time, and at any place.

### Self Diagnostic Function

- Automatic Check & Alarm for the failures in key parts of the equipment
- Real-time notification of any failure in the equipment to the user(s), to the service man and to supplier, through WiRe™ Service.
- Implemented by LIN and empowered by WiRe™ Service



### Ergonomic/Intuitive Design UI

- 4” or 7” Full Touch Screen TFT LCD
- Intuitive User Interface
- No-extra Button, Knob and Switch
- All the main functions and Parameters are displayed on the main Screen.
- Simple Touch to set the Temperature, Time, and other Parameters



### Program Control Function

- Variable Program setting for multiple patterns with multiple segments
- Preview window offered to check simply the input patterns
- Very Easy to input and edit Patterns



No Button. No Kn  
Full Touch Screen Controlle

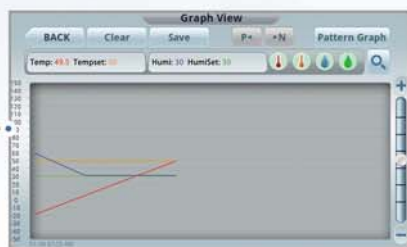
# Key Features of Smart-Lab™ Controller

- 4" or 7" Full Touch Screen TFT LCD
- Ergonomic Design for Intuitive User Interface
- Program Control : Multiple Pattern with Multiple Segments
- Data Recording : On-screen Temperature chart
- USB storage for Recorded data
- Internet connectivity with WiFi
- Remote Monitoring and Control by WiRe™ Service
- Self Diagnostic Function : Automatic Check & Alarm for the Failures in Key Parts
- Storage Management Function : Record the location of Samples in the chamber and find easily afterwards on screen (for SMART ULT Freezer)



## User Registration Management

- A Single unit can be remote controlled and monitoring by admin and monitoring by multiple users
- A Single user can remote control multiple units in the Lab
- Smart-Lab™ Equipments offer Registration of multiple users with simple account information



## Automatic Data Recording & Graph Display

- High Resolution Graphic Display
- On-Screen Temperature Chart : Check the temperature record graph on the screen and could see the details by Zoom-in & Zoom-out enabled at your finger tips.
- The Recorded Data could be transferred to PC by USB Memory.



## Internet Connectivity with WiFi

- Remote Control is available for all the Equipments in the laboratory using Smart Phone, and tablet
- Available WiRe™ App Service

**ob. Simply Touch!!  
and Internet Connectivity!!**



SMART Precise Temp./Humidity Chamber, "ThermoStable™ STH", 155-/305-/420-/800-Lit **NEW** with Smart-Lab™ System, Auto Supplement Water Tank, Touch-Screen LCD, CFC-Free, -40°C/-20°C to 100°C, up to 98% RH



SMART Precise Temp. / Humidity Chamber "ThermoStable STH-155"

- CE Certified
- PL(Product Liability) Insurance
- with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- CFC Free Refrigerant (R-404A)
- Smart-Lab™ Controller
  - Ergonomic 7" Full Touch Screen TFT LCD(Smart-Lab™ Controller)
  - WiRe™ App Service.
  - Self-Diagnostic Function
  - Push Alarm Service to Smart Phone : Power-/Temperature-/Door Open-Error Status
  - Built in USB port for Data Download and Program Upgrade
  - Password Protected Setting
  - Digital Calibration(Offset Function)
  - Door Ajar and Power Failure Alarm
  - Internet Connectivity with WiFi
  - Automatic Data Recording
  - Interactive Temperature Graph
  - Min-/Max-Temperature Memory
  - Program Function
- \* Precise Temperature Control (-40°C/-20°C to 100°C) and Humidity (30% to 98% Relative Humidity)
- \* Electronic Humidity Sensor has Excellent Response Time and Durability.
- \* CFC-Free Refrigerant (R-404A)
- \* Low Water Level Alarm System
- \* Automatic Defrost Function
- \* Easy and Safety Door Lock
- \* The Powerful and Silent Dual Fan Motor Assures Temperature Uniformity by Strong Air Circulation (2 ~ 4pcs)
- \* Large Clear Viewing Window with Membrane Heating Element (Moisture-Proof)
- \* Sliding Water Supply Tank : Auto Water Supplementing System
- \* Over Temperature & Over Current Protection, Sensor Error Detection and Leakage Breaking
- \* RS232C Interface for Remote Monitoring and Controlling with PC (Standard)
- \* 6 Channels & 2 Pens Temperature & Humidity Recorder(Optional)

## Specification

Spec.	Model	ThermoStable STH-155	ThermoStable STH-305	ThermoStable STH-420	ThermoStable STH-800
Temp. Range		-20°C to 100°C			
Humidity Range		30% to 98% RH			
Compressor		7/8 HP	1.5 HP	1.5 HP	3 HP
Heater	for Temp.	1.5 kW	2.0 kW	2.2 kW	2.5 kW
	for Humi.	2.0 kW	3.0 kW	3.0 kW	3.0 kW
Spec.	Model	ThermoStable STH-L155	ThermoStable STH-L305	ThermoStable STH-L420	ThermoStable STH-L800
Temp./Humidity Range		-40°C to 100°C / 30% to 98% RH			
Compressor		1.5 HP	2 HP	3 HP	4 HP
Heater	for Temp.	1.5 kW	2.0 kW	2.2 kW	2.5 kW
	for Humi.	2.0 kW	2.0 kW	3.0 kW	3.0 kW
Dimension (w×d×h)	Interior (mm)	505×505×610	620×620×800	700×700×820	1,000×800×1,000
	Exterior (mm)	1,100×960×1,550	1,310×1,080×1,765	1,390×1,135×1,690	1,570×1,245×2,060
Capacity		155 Lit.	305 Lit.	420 Lit.	800 Lit.
Refrigerant		CFC-Free(R-404A) Refrigeration System			
Temp.	Accuracy	±0.3°C			
	Stability	±0.3°C			
Humidity	Accuracy	±0.3% RH			
	Stability	±0.3% RH at 70%			
Heat-up Time		35 min (-20°C to 80°C)			
Cool-down Time		45 min (+20°C to -20°C)			
Controller & Display		Smart-Lab Controller, 7" Full Touch Screen TFT LCD			
Program Function		Multiple Programs(Patterns by multiple Segments) Supported			
Sensor		PT100 & Capacitive Sensor			
Material	Internal	Stainless-steel (# 304)			
	External	Powder Coated steel			
Shelves		3ea of Perforated Stainless steel Shelves of Adjustable Position			
Safety Device		Over Temp. and Over Current Protector, Sensor Error and Low Level Detector, Leakage Breaker			
Others		CE Certified, PL(Product Liability) Insurance			
Packing Dimension (w×d×h) (cm)		134×116×175	152×125×207	160×130×202	178×141×237
Gross Weight		353 kg	369 kg	478 kg	678 kg
Power Consumption		4.7 kW	5.7 kW	6.3 kW	9 kW
		6.2 kW	7.9 kW	9.9 kW	12.7 kW
Electric Reqts.		1 Phase AC 120V, 60Hz or AC 230V, 50/60Hz or 3 Phase			

\* Other Specifications are available upon Customer's Request.

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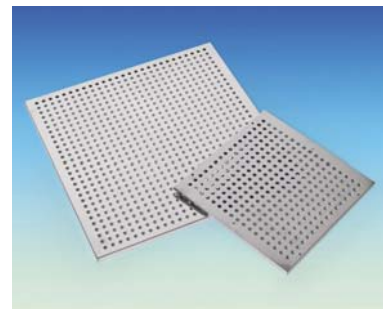
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<Continued from... SMART Precise Temp./Humidity Chamber, "ThermoStable™ STH" >

## Ordering Information

### (1) Programmable Temp./Humidity Chamber, 1 Phase

DH.STH01155 DH.STH01305 DH.STH01420 DH.STH01800  DH.STH02155 DH.STH02305 DH.STH02420 DH.STH02800  DH.STH05155 DH.STH05305 DH.STH05420 DH.STH05800  DH.STH06155 DH.STH06305 DH.STH06420 DH.STH06800	Temp. / Humidity Chamber, "STH-155", -20°C to 100°C, 155 Lit, <b>230V</b> , "STH-305", -20°C to 100°C, 305 Lit, <b>230V</b> , "STH-420", -20°C to 100°C, 420 Lit, <b>230V</b> , "STH-800", -20°C to 100°C, 800 Lit, <b>230V</b>  Temp. / Humidity Chamber, "STH-L155", -40°C to 100°C, 155Lit, <b>230V</b> , "STH-L305", -40°C to 100°C, 305Lit, <b>230V</b> , "STH-L420", -40°C to 100°C, 420Lit, <b>230V</b> , "STH-L800", -40°C to 100°C, 800Lit, <b>230V</b>  Temp. / Humidity Chamber, "STH-155", Same as Above, but only <b>120V</b> , "STH-305", Same as Above, but only <b>120V</b> , "STH-420", Same as Above, but only <b>120V</b> , "STH-800", Same as Above, but only <b>120V</b>  Temp. / Humidity Chamber, "STH-L155", Same as Above, but only <b>120V</b> , "STH-L305", Same as Above, but only <b>120V</b> , "STH-L420", Same as Above, but only <b>120V</b> , "STH-L800", Same as Above, but only <b>120V</b>
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**Perforated Stainless-steel Shelves (Included)**



**Auto Water Supplementing System**

### (2) Programmable Temp./Humidity Chamber, 3Phase, for Customizing

DH.STH07155 DH.STH07305 DH.STH07420 DH.STH07800  DH.STH08155 DH.STH08305 DH.STH08420 DH.STH08800	Temp. / Humidity Chamber, "STH-155", -20°C to 100°C, 155 Lit. , "STH-305", -20°C to 100°C, 305 Lit. , "STH-420", -20°C to 100°C, 420 Lit. , "STH-800", -20°C to 100°C, 800 Lit.  Temp. / Humidity Chamber, "STH-L155", -40°C to 100°C, 155Lit. , "STH-L305", -40°C to 100°C, 305Lit. , "STH-L420", -40°C to 100°C, 420Lit. , "STH-L800", -40°C to 100°C, 800Lit.
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### Spare Perforated Stainless-steel Shelves

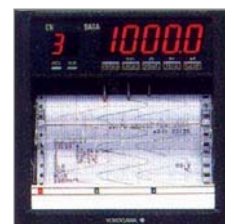
DH.WTH11155 DH.WTH11305 DH.WTH11420 DH.WTH11800	Perforated Shelf, Stainless-steel, "THS1155", for 155 Lit, w470×d480mm , "THS1305", for 305 Lit, w590×d580mm , "THS1420", for 420 Lit, w720×d640mm , "THS1800", for 800 Lit, w970×d980mm
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### Optional Temp & Humidity Recorder and Chart Paper

DH.WTH05100 DH.WTH05105	Temperature & Humidity Recorder, "WTH5100" Chart Paper, "WTH5105", 33 Days
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### Programmable Temp./Humidity Chamber with Validation (IQ, OQ) Service

DH.STH31155 DH.STH31305 DH.STH31420 DH.STH31800  DH.STH32155 DH.STH32305 DH.STH32420 DH.STH32800	Validation Service(IQ, OQ), with "STH-155", "STHV1155" , with "STH-305", "STHV1305" , with "STH-420", "STHV1420" , with "STH-800", "STHV1800"  Validation Service(IQ, OQ), with "STH-L155", "STHV2155" , with "STH-L305", "STHV2305" , with "STH-L420", "STHV2420" , with "STH-L800", "STHV2800"
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**Temp. & Humidity Recorder 6 Channel 2 Pens(WTH5100) (Optional)**

SMART Temp./Humidity Chamber, "ThermoStable™ STH-E", 155-/305-/420-/800-Lit **NEW**  
with Smart-Lab™ System, Water Tank, Touch-Screen LCD, CFC-Free, -20°C ~80°C ±0.3 °C, up to 95% RH



SMART Temp./Humidity Chamber "ThermoStable STH-E"

- **CE Certified**
- **PL(Product Liability) Insurance**
- **with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System**
- **Economical & Practical Type**
- **CFC Free Refrigerant (R-404A)**
- **Automatic Defrost System**
- **Smart-Lab™ Controller**
  - Ergonomic 7" Full Touch Screen TFT LCD(Smart-Lab™ Controller)
  - WiRe™ App Service.
  - Self-Diagnostic Function
  - Push Alarm Service to Smart Phone : Power-/Temperature-/Door Open-Error Status
  - Built in USB port for Data Download and Program Upgrade
  - Password Protected Setting
  - Digital Calibration(Offset Function)
  - Door Ajar and Power Failure Alarm
  - Internet Connectivity with WiFi
  - Automatic Data Recording
  - Interactive Temperature Graph
  - Min-/Max-Temperature Memory
  - Program Function
- \* Low Water Level Alarm Lamp
- \* Temperature range from -20°C to 80°C, Relative Humidity from 30% to 95% RH
- \* Inner Tempered Glass Door with Silicon Packing
- \* RS232 Interface for Remote Monitoring and Controlling with PC (Standard)
- \* Temperature & Humidity Recorder(6 Channels & 2Pens) and RS232C Communication Interface (Optional)
- \* The Powerful and Silent Dual Fan Motor Assures Temperature Uniformity by Strong Air Circulation
- \* Over Temperature and Over Current Protection for User Safety

### Specifications & Ordering information

Spec.		Model	ThermoStable STH-E155	ThermoStable STH-E305	ThermoStable STH-E420	ThermoStable STH-E800
		Capacity		155 Lit.	305 Lit.	420 Lit.
Temp.	Range	-20°C ~ +80°C				
	Accuracy	±0.3°C (Stability ±1.0 °C)				
Humidity	Range	30% ~ 95% RH				
	Accuracy	±2% (Stability ±3% RH)				
Dimension (w×d×h)	Interior (mm)	505×505×610	620×620×800	750×660×850	1000×800×1000	
	Exterior (mm)	745×920×1645	820×1290×1720	990×1075×1885	1200×1100×1920	
Heater	for Temp.	1.5 kW	2.0 kW	2.2 kW	2.5 kW	
	for Humi.	2.0 kW	3.0 kW	3.0 kW	3.0 kW	
Compressor		7/8 HP	1.5 HP	1.5 HP	3 HP	
Refrigerant		CFC-Free(R-404A) Refrigeration System				
Controller & Display		Smart-Lab Controller, 7" Full Touch Screen TFT LCD				
Program Function		Multiple Programs(Patterns by multiple Segments) Supported				
Sensor		PT100 & Capacitive Sensor				
Material	Internal	Stainless-steel (# 304)				
	External	Powder Coated steel				
Shelves		3ea of Perforated Stainless steel Shelves of Adjustable Position				
Safety Device		Hi-Low Temp, Protector, Over Current & Leakage Breaker, Water Level Sensor				
Others		CE Certified PL (Product Liability) Insurance				
Net Weight		290 kg	309 kg	378 kg	558 kg	
Packing Dimension (w×d×h) (cm)		99×112×185	122×122×205	128×128×216	149×132×220	
Gross Weight		355 kg	369 kg	478 kg	678 kg	
Power Consumption		4.4 kW	5.7 kW	6.3 kW	8.2 kW	
Electric Reqts.		1 Phase AC 120V, 60Hz or AC 230V, 50/60Hz or 3 Phase				
Cat. No.	230V	DH.STHE0155	DH.STHE0305	DH.STHE0420	DH.STHE0800	
	120V	DH.STHE4155	DH.STHE4305	DH.STHE4420	DH.STHE4800	
	3Phase	DH.STHE5155	DH.STHE5305	DH.STHE5420	DH.STHE5800	

\* Other Specifications are available upon Customer's Request.

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<Continued from... SMART Temp./Humidity Chamber, "ThermoStable™ STH-E" >

***Spare Perforated Stainless-steel Shelves***

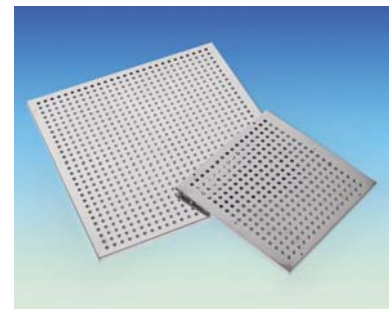
- DH.WTH11155**      Perforated Shelf, Stainless-steel, "THS1155", for 155 Lit, w470 × d480mm
- DH.WTH11305**      , "THS1305", for 305 Lit, w590 × d580mm
- DH.WTH11420**      , "THS1420", for 420 Lit, w720 × d640mm
- DH.WTH11800**      , "THS1800", for 800 Lit, w970 × d980mm

***Optional Temp & Humidity Recorder and Chart Paper***

- DH.WTH05100**      Temperature & Humidity Recorder, "WTH5100"
- DH.WTH05105**      Chart Paper, "WTH5105", 33 Days

***Economic Temp./Humidity Chamber with Validation (IQ, OQ) Service***

- DH.STHE3155**      Validation Service(IQ, OQ), with "STH-E155", "STHEV155"
- DH.STHE3305**      , with "STH-E305", "STHEV305"
- DH.STHE3420**      , with "STH-E420", "STHEV420"
- DH.STHE3800**      , with "STH-E800", "STHEV800"



**Perforated Stainless-steel Shelves (Included)**



**Temp. & Humidity Recorder 6 Channel 2 Pens (WTH5100) (Optional)**