

# Thermo Scientific Environmental Chambers

Versatile chambers for any application



# Environmental Chambers to meet your needs

Your work is unique and specific, just like the conditions required for maximum sample integrity. The Thermo Scientific™ 3900 Series Environmental Chambers are flexible in design with many options, providing the ideal conditions for you to develop, test and store your samples, all while meeting industry compliance standards.

## Choose the environmental chamber with the features you need

Thermo Scientific Stability Chambers are the ideal choice to meet compliance standards for ICH, FDA, TAPPI, ASTM, or national testing standards when controlled temperature and humidity are required.

- See pages 4-8

Thermo Scientific Reach-in Incubator Chambers are the ideal choice if you are focused on elevated temperature-only segments of drug stability and culture.

- See pages 9-13

Thermo Scientific Vertical Light Chambers are the ideal choice for light stability testing, as they meet the ICH guidelines for photo stability testing Q1B. These models also allow you to stimulate gradual transitions from day to night, making them suitable for plant and insect growth.

- See pages 14-19

## At-a-glance environmental chamber comparison

Temperature Range	Relative Humidity	Size (Cu. Ft./L)	CO <sub>2</sub>	Model/Cat No.
<b>Stability Chambers</b>				
Large Chamber 0°C to 60°C	Above ambient to 95% @ 37°C	29 / 821	Optional	3948
Small Chamber 0°C to 60°C	Above ambient to 95% @ 37°C	11 / 311	Optional	3907
<b>Reach-in Incubator Chambers</b>				
Large Chamber 5°C above ambient to 60°C	N/A	29 / 821	N/A	3962
<b>Vertical Light Chambers</b>				
Large Chamber 0°C to 60°C *	Above ambient to 95% @ 37°C *	29 / 821	N/A	3943
Small Chamber 0°C to 60°C *	Above ambient to 95% @ 37°C *	11 / 311	N/A	3906

\* Stated values refer to lights off. Temperature range and humidity range will vary depending on light and chosen parameters. Please refer to the specification tables on pages 18-19 for details on use of light.

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# Stability Chambers provide optimal conditions

The stability chambers meet International Conference on Harmonization (ICH) guidelines for drug substance and product storage testing. The units are ideal for drug stability studies, shelf-life testing for packaged products, and insect and other large-scale biological research.

## **Optimum uniformity and a wide temperature range for easy compliance with regulatory requirements**

These chambers feature a 0°C to 60°C (32°F to 140°F) temperature range that can be set in 0.1°C increments. The broad temperature range, and optimum temperature uniformity and recovery contribute to an ideal test environment, even when the chamber contains large product loads and low-output, heat-generating equipment.

## **Advantages of a directed horizontal laminar airflow system**

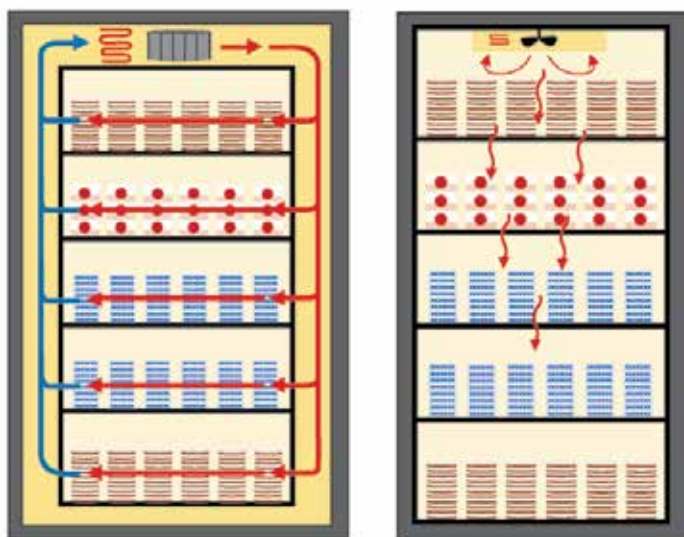
The Thermo Scientific™ Directed Airflow System (shown below in Figure 1) promotes an ideal growth environment. The enhanced design includes a positive pressure feed plenum on the right side of the chamber and a negative pressure return plenum on the left to distribute the airflow uniformly throughout the chamber.

This combination directs air across the surface of each solid shelf. Even when filled with samples or equipment, each shelf receives a consistent flow of conditioned air for optimum temperature uniformity and recovery.

As opposed to a horizontal airflow system, top-to-bottom (non-directed) airflow systems use a top-mounted fan to push air down through wire shelves.

Temperature uniformity and recovery can deteriorate quickly when shelves are filled because air movement is blocked. That variation in temperature, alone or when combined with frequent door openings, may compromise environmental conditions or make process validation difficult.

Standard 4 to 20 milliamp output connects to most alarm/monitoring systems, allowing you to meet internal and regulatory product documentation requirements. Chart recorders are also available.



**Figure 1. The Thermo Scientific Directed Airflow System (left) versus a top-to-bottom, undirected airflow design (right).** The directed airflow minimizes the risk of product desiccation and loss, and wasted time and money due to poor temperature uniformity and recovery.



# Durable construction and intuitive control panel



# Broad range of options create a perfect fit for your applications

Many options are available so you can tailor this series to your specific applications.

## **Factory-installed options (ordered separately) include:**

- Choice of access ports for inserting data logging sensors or cables.
- Interior socket to run electrical devices in chamber.
- Choice of chart recorders for data logging.
- Infrared CO<sub>2</sub> Control Package for control of a CO<sub>2</sub> environment.
- Solid outer door with choice of inner glass door - for light sensitive applications, such as incubation or storage.
- Door options include door lock, left-hand door, and Lexan™ inner door.
- Choice of shaker support systems provides system safety.
- Temperature mapping and calibration certificate – customised.

## **Accessories/on-site options (ordered separately) include:**

- Extra and special shelving.
- Reinforced floor options for heavy weights – up to 250 lb.
- Cell roll system for production of monolayer cell cultures (see page 12).
- On-site IQ / OQ / PQ validation services.



**Thermo Scientific Large Stability Chamber with control of temperature and humidity, with optional solid door and inner glass door.**

## **Options for the humidity system:**

- Heatless dryer for low humidity conditions – check temperature / humidity chart on the following page.
- Condensate pump kit: recommended when the accessible drain on lab wall is well above the drain on back of environmental chamber.
- Condensate evaporator: recommended for labs with no accessible drain. External heating device which burns off waste water.
- Carboy kit for installation in labs with no water connection.

See page 22 for order numbers, model compatibility and additional information

# Temperature/humidity performance chart

for stability and refrigerated incubator chambers

The chart in Figure 2 illustrates the maximum and minimum attainable humidity within the cabinet at a given set temperature under the following nominal conditions: refrigeration on, defrost off, no wet bulb recorder, no air exchange, set for 22.2°C (72°F) and 50% RH ambient. Optional heatless dryer is available for lower humidity levels.

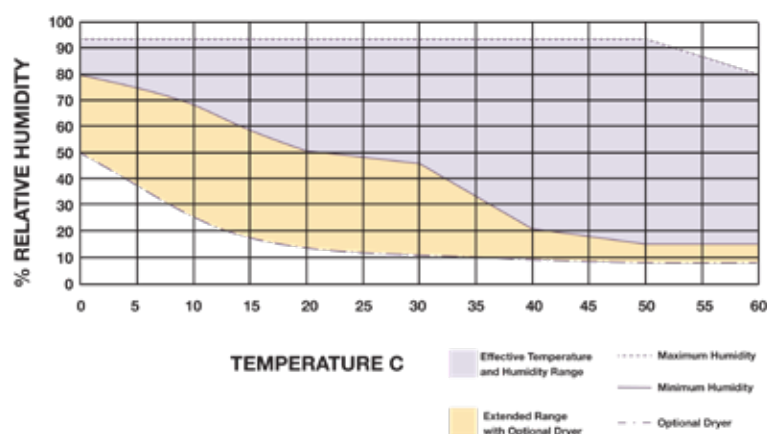


Figure 2. Illustrates the humidity range of the Thermo Scientific Environmental Chamber Models 3948 and 3907.



## Specifications

Thermo Scientific Stability Chamber		Thermo Scientific Stability Chamber	
Cat. No. 3948		Cat. No. 3907	
Physical properties			
821 L Stability Chamber with heating / cooling / humidity control		311 L Stability Chamber with heating / cooling / humidity control	
Temperature			
Temperature range	0°C to 60°C (32°F to 140°F)		
Controller, sensor	Watlow Microprocessor - PID, with RTD sensor		
Display	Digital dual LED, 0.1°C steps readability & setability		
Programmability	Single setpoint, ramp & soak (to 40 steps)		
Temp. uniformity @ 20 to 37°C	≤ ±0.3 °C		
Temp. stability @ 20 to 37°C	≤ ±0.1 °C		
Temperature safety	Adjustable over- and under-temperature thermostat with analog reference dial, audible/visual alarm		
Compressor	1/4 HP, air-cooled		
Refrigerant	Non-CFC, R134A refrigerant; 0.382kg; GWP:1420; CO2e: 0.54t *		

\* The devices 3907 & 3948 comply with EU-F-Gas Regulation No.517/2014 and contain fluorinated greenhouse gases in a hermetically sealed system.



## Specifications, continued

Thermo Scientific Stability Chamber		Thermo Scientific Stability Chamber	
Cat. No. 3948		Cat. No. 3907	
Humidity			
Water consumption / specification		Max. 14 L per day / 3.7 gal per day; demineralised water, resistance: 0.5 - 1 MΩ cm	
Input water pressure		Gravity to 40 psi (2.76 bar)	
Relative humidity range		Above ambient to 95% @ 37°C (98.6°F) ±5.0% RH	
Controller, sensor		Watlow Microprocessor - PID, with capacitive sensor - thin film polymer	
Display		Digital dual LED, 1% RH steps readability & setability	
Programmability		Single setpoint, ramp & soak (to 40 steps)	
Humidity safety		Audible / visual alarm in case of deviation from setpoint	
Water connection*		Fill port: 1/8" female NPT, drain port: 3/8" FPT & 3/8" O.D. P-trap right rear, intial fill approx. 1L / 1qt.	
Electrical			
Voltage		230V, 50/60Hz, 15.0 Amps	
Plug		CEE 16 A, 6 h	
Power switch		2-Pole	
Dry contacts		Common, NO, NC	
Data output		4-20 milliamp, temperature and RH	
Data collection			
Access port		54mm / 2.1 in. Diameter; left side; with exterior and interior silicone stopper	
Chamber dimensions			
Exterior (W x H x D)	965 x 2248 x 813 mm / 38.00 x 88.50 x 32.00 in.	965 x 1308 x 813 mm / 38.00 x 51.50 x 32.00 in.	
Interior (W x H x D)	787 x 1524 x 686 mm / 31.00 x 60.00 x 27.00 in.	787 x 609 x 686 mm / 31.00 x 24.00 x 27.00 in.	
Net weight	347 kg / 765 lbs	261 kg / 575 lbs	
Shipping weight	472 kg / 1040 lbs	325 kg / 715 lbs	
Shelving			
Materials		Solid stainless steel, reinforced	
Number of shelves: standard / maximum	6 / 19	3 / 11	
Shelf size (W x D)		778 x 656 mm / 30.62 x 25.81 in.	
Shelf surface area		0,5 m² / 5.4 ft²	
Load per shelf	15.9 kg / 35 lbs slide in/out; 22.7 kg / 50 lbs stationary; not to exceed 272 kg / 600 lbs (136 kg / 300 lbs) total per large (small) cabinet		
Compliance			
Certifications		CE	
Medical device		FDA registered - class 1	

\* All models require a drain unless fitted with the optional Thermo Scientific Condensate Evaporator (Cat. No. 1900031). and a constant water source for controlled humidity.

NOTE: All figures in all tables are typical average values for series devices, based on factory standard following norm DIN12880. Please reference page 25 and/or contact us for certification information or IQ/OQ documents. For other voltage versions, please refer to the Forma Environmental Chamber models, available at [thermofisher.com/chambers](http://thermofisher.com/chambers) in relevant countries.





# Reach-in incubator for elevated temperature applications

Precise temperature control and monitoring makes this unit ideal for clinical applications where elevated temperature stability is required

**Thermo Scientific™ Enviro-Scan™** controls with easy-to-read display of actual temperature studies, and shelf-life testing. See pg 10 for more information on the Enviro-Scan control panel.

**Two access ports included**, one on each side of equipment, with silicone stopper for independent data monitoring, e.g. with Thermo Scientific Smart-Vue Sensor.

**Solid, stainless steel interior** and thermal fibre insulation.

**Large size** for high volumes and a broad range of products.

**18-gauge cold-rolled steel**, powder coated exterior cabinet resists scratches and chipping.

**Thermo Scientific Reach-in Incubator Chamber with optional outer solid door plus inner glass door. (Standard is just outer glass door.)**

**Temperature range**  
ambient + 5°C to 60°C (140°F), increasing at 0.1°C increments.

**Interior socket** for use of electrical equipment inside, i.e., a stirrer.

**Solid door with inner glass door** (option with separate order code) for microbiological or other incubation applications that are light sensitive.

**Solid stainless steel shelves.** 29 cu ft models include 6 adjustable shelves, 11 cu ft models include 3 adjustable shelves.



# Uniformity and elevated temperature range to meet compliance needs

## Intuitive, powerful temperature control

- The control panel
  - ensures precise temperature control without complicated programming.
  - provides audible/visual under-temperature and over-temperature alarms for peace-of-mind.
  - includes an easy-to-read display for convenient, continuous monitoring.
- The Thermo Scientific Enviro-Scan user interface operating modes include run, setpoint, calibration, and system configuration.
- Standard remote alarm contacts and available data outputs allow connection to an in-house monitor/alarm system to track chamber conditions, helping you meet internal and regulatory documentation requirements. Chart recorders are available.
- Utilises direct airflow system for an ideal growth environment. The proven design includes a positive pressure feed plenum and a negative pressure return plenum. This combination directs air across the surface of each solid shelf. Even when filled with samples or equipment, each shelf receives a consistent flow of conditioned air for optimum temperature uniformity and recovery. By design, the feed plenum cannot be blocked by the chamber's contents. (Refer to Figure 1 on page 4.)



Thermo Scientific Reach-in Incubator Chamber with optional outer solid door and interior glass door is optimally designed for cell growth.

# Valuable features included for flexibility

Casters, access ports, convenience receptacles, heated glass door, and remote alarm contacts are supplied as standard. The Thermo Scientific Reach-In Incubator Chambers will help you meet your changing application needs without the added cost of expensive add-on options.



Swivel, locking casters ensure easy mobility during installation and cleaning. Leveling feet provide stability and added safety in the lab.



Thru-wall access ports, located on the right and left sides of the chamber, make it possible to add probes, sensors, etc. without altering the cabinet. A Thermo Scientific Smart-Vue Sensor is pictured above. For more information, visit [thermofisher.com/wirelessmonitoring](http://thermofisher.com/wirelessmonitoring).

Interior and exterior accessory receptacles provide a convenient power source



Interior GFCI receptacle located in the upper right corner of the rear wall, permits the use of shakers, cell rollers, and other equipment inside the chamber, eliminating the inconvenience of an extra external power strip.



Exterior receptacle, located on the upper-right side of the control panel, is available for connecting an optional recorder or other Thermo Scientific accessories.

# Cell Roll System

An optional cell roll system allows extensive production of monolayer cell cultures in standard roller culture vessels. This helps improved oxygenation and exposure of the cells to the media growth area. Combined uniform temperature control and continuous, gentle rotation provided by the cell roll system create the ideal conditions to help increase culture yields.

The reach-in incubator chamber accommodates a cell roller up to 7 decks high with 5 positions per deck for a maximum total of 35 positions, or bottles.

Achieving maximum capacity requires a Thermo Scientific™ Cell Roll System, which includes a Thermo Scientific™ Three-Tier Cell Roller Base (15 positions), four add-on tiers (20 positions), and a reinforced floor/ramp.

All position drive is standard. Adjustable speed control provides precise speeds of 0.125 to 6.25 RPM with  $\pm 1.0\%$  accuracy, based on 110 mm bottles.

**Thermo Scientific Three-Tier Cell Roller System.** See accessory list on page 23 for the complete list of accessory catalog numbers.



**Thermo Scientific Reach-in Incubator Chamber with standard outer glass door and optional Thermo Scientific Cell Roller System, three-tier roller base, four add-on tiers and reinforced floor with ramp.**





## Specifications

### Thermo Scientific Reach-In Incubator Chamber Cat. No. 3962

#### Physical properties

821 L Reach-In Incubated Chamber with heating only

#### Temperature

Temperature range	5°C above ambient to 60°C
Controller, sensor	Enviro-Scan - PID, with RTD sensor
Display	Digital dual LED, 0.1°C steps readability & setability
Temp. uniformity	≤ ±0.4 °C @ 30°C; ≤ ±0.3 °C @ 37°C; ≤ ±0.5 °C @ 45°C
Temp. stability @30 to 45°C	≤ ±0.1 °C

#### Electrical

Voltage	230V, 50/60Hz, 5.0 Amps
Plug	230V: CEE 7/7
Power switch	2-Pole
Interior convenience receptacle	230W max., for standard EU CEE7/7
Exterior convenience receptacle	75W max., for connection of available options, e.g. chart recorder
Alarm contacts	Temp. Deviation and power failure; Common, NO, NC; customer connections through RJ11 jack

#### Data collection

Access port	61mm / 2.4 in. diameter; one on each side; with exterior stopper
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#### Chamber dimensions

Exterior (W x H x D)	965 x 2032 x 833 mm / 38.00 x 80.00 x 33.00 in.
Interior (W x H x D)	787 x 1524 x 686 mm / 31.00 x 60.00 x 27.00 in.
Net weight	227 kg / 500 lbs
Shipping weight	300 kg / 660 lbs

#### Shelving

Materials	Solid stainless steel, reinforced
Number of shelves: standard / maximum	5 / 27
Shelf size (W x D)	778 x 656 mm / 30.62 x 25.81 in.
Shelf surface area	0,5 m² / 5.4 ft²
Load per shelf	13.6 kg / 30 lbs, fully inserted and stationary; not to exceed 136 kg / 300 lbs total per cabinet, unless shaker support is installed

#### Compliance

Certifications	CE
Medical device	FDA registered - class 1

NOTE: All figures in all tables are typical average values for series devices, based on factory standard following norm DIN12880. Please reference page 25 and/or contact us for certification information or IQ/OQ documents. For other voltage versions, please refer to Forma Environmental Chamber models, available at [thermofisher.com/chambers](http://thermofisher.com/chambers) in relevant countries.





# Vertical light chambers

Thermo Scientific Vertical Light Chambers address a variety of applications that require sample exposure with light, along with temperature control

- Solid door is supplied as standard.
- Height adjustable vertical light modules allow flexibility to maintain distance between samples and light, for a wide range of sample volumes.
- Optimal conditions can be achieved through a choice of light settings. Wide light distribution is achieved with 7 light bulbs. See pages 15-17 for application details.
- Three different light modules are available to address specific applications:
  - ICH stability testing – addressing light and UV exposure according to guideline Q1B
  - Plant growth – addressing high red/blue radiation for optimal growth conditions
  - Animal hatching – providing daylight simulation
- Program light cycles:
  - Day/night or individual on/off cycles for every day of the week
  - Dawn/dusk simulations with increasing light intensity in 3 steps



Light modes can be active or inactive, making the chambers suitable for non-light applications, using temperature and humidity controls only.

Install up to 3 light modules without humidity control or 2 light modules with humidity control in the large unit (water-proof special electrical connectors are provided).

Install up to 2 light modules in the small unit (special water-proof electrical connectors are provided).

Thermo Scientific 29 cu. ft. Vertical Light Chamber with two plant growth light modules (top) and Thermo Scientific 11 cu. ft. Vertical Light Chamber with two ICH light modules (left).

# Light stability testing

## According to ICH guidelines Q1B

The light modules for light stability testing according to ICH guidelines Q1B\* have a combination of bulbs that address the required wavelengths, and UV light according to these guidelines.

A typical process to expose the samples with at least 1.2 million lux hours and 200 watt hours/square metre of UV-light will take less than 170 hours. Such a cycle can easily be programmed: The light will switch off automatically as the specified exposure time is reached.

Tip: For safety reasons we offer an additional “light protection” feature when following ICH testing guidelines. With this added, the light will automatically switch off as the door is opened, helping to prevent UV light exposure as it can be detrimental to the operators’ eyes. Special UV-goggles are an alternative approach.

## The International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH)

The International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH) is an initiative that brings together regulatory authorities and pharmaceutical industry to discuss scientific and technical aspects of pharmaceutical product development and registration. The mission of the ICH is to promote public health by achieving greater harmonisation through the development of technical Guidelines and requirements for pharmaceutical product registration. The ICH guidelines for testing are adopted by many organizations and companies. The guideline Q1B is a very important guideline for pharmaceutical and related industries.



Thermo Scientific Vertical Light Chamber with glass door option and ICH light modules installed.

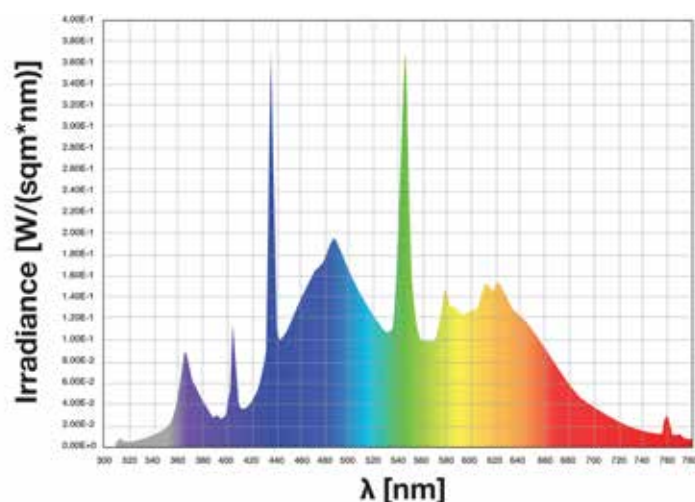


Figure 3. This graph shows the range of the light spectrum inside the Thermo Scientific Vertical Light Stability Chamber Models 3906 and 3943 when set with ICH light modules.

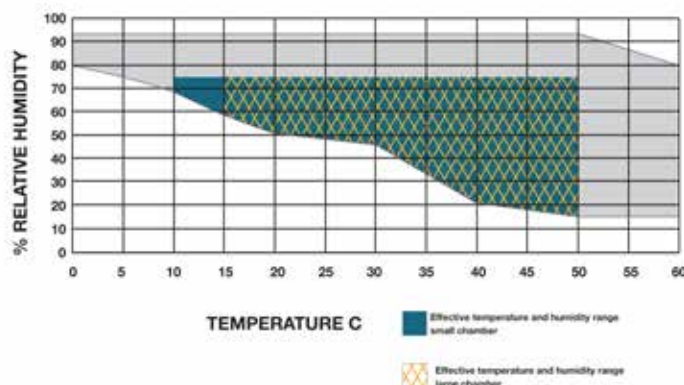


Figure 4. Illustrates the humidity range of the Thermo Scientific Vertical Light Stability Chamber Models 3906 and 3943 when light is switched on - two light modules installed.

\*[https://www.ich.org/fileadmin/Public\\_Web\\_Site/ICH\\_Products/Guidelines/Quality/Q1B/Step4/Q1B\\_Guideline.pdf](https://www.ich.org/fileadmin/Public_Web_Site/ICH_Products/Guidelines/Quality/Q1B/Step4/Q1B_Guideline.pdf), Accessed April 15, 2019



# Plant growth

The light modules for plant growth have light bulbs that emit increased red and blue wavelengths based on typical sunlight patterns, which are beneficial for plant growth. The light control allows for the programming of individual day/night cycles, as required for your specific plants or experiments.

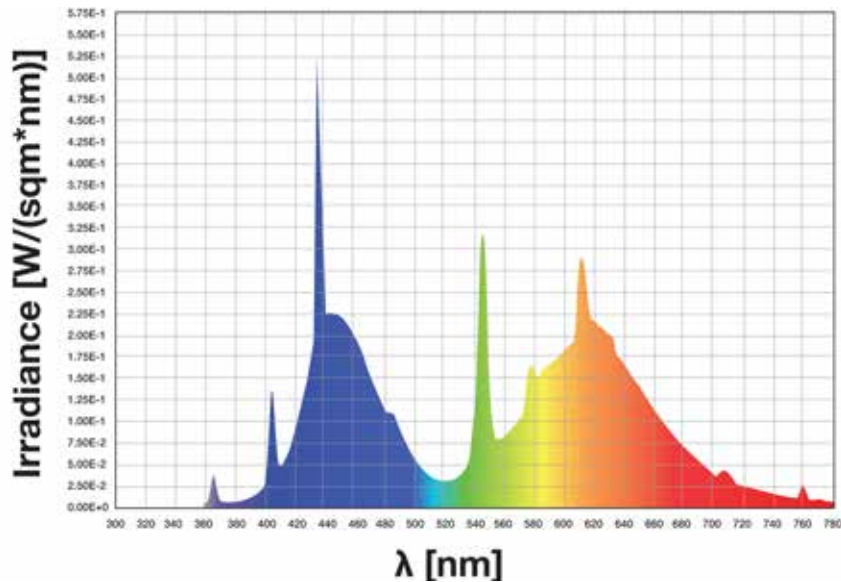


Figure 5. This graph shows the range of the light spectrum inside the Thermo Scientific Vertical Light Stability Chamber Models 3906 and 3943 when set up with plant growth light modules.



Interior of Thermo Scientific Vertical Light Chamber with plant growth light modules installed.



Thermo Scientific Vertical Light Chamber with glass door option and plant growth light modules installed.

# Insect hatching

The light modules for insect hatching have bulbs that mimic daylight – ideal for the required day/night simulation. A dusk/dawn feature enables a progressive program that simulates a rising and setting sun, switching on and off in three steps. This helps prevent stress to insects and animals from sudden high-light exposure.

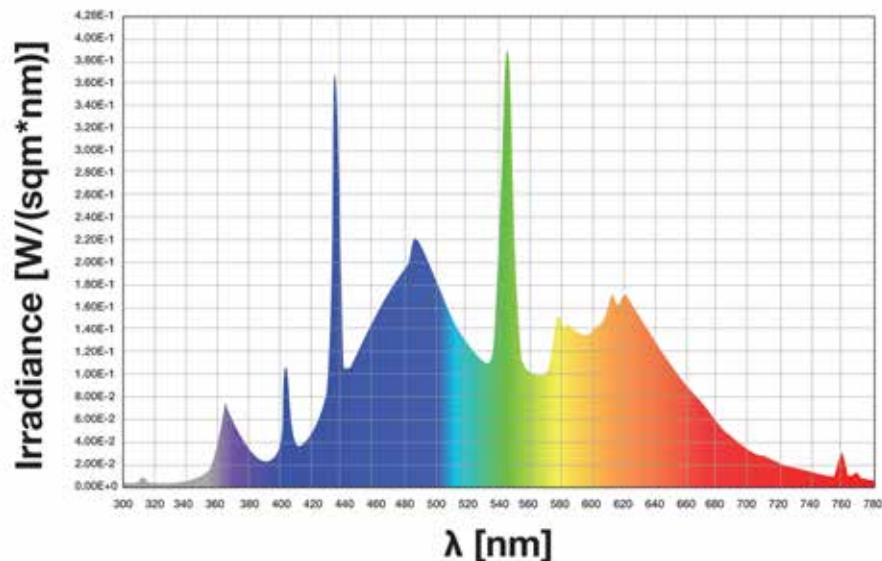


Figure 6. This graph shows the range of the light spectrum inside the Thermo Scientific Vertical Light Reach-In Incubator Chamber Model 3943 when set up with animal hatching light modules.



Interior of Thermo Scientific Vertical Light Chamber with animal hatching light modules installed.



Note: For applications that require control of all three parameters, temperature, light and humidity a maximum of 2 light cassettes can be used in both the small and large chambers.



## Specifications



Thermo Scientific Vertical Light Stability Chamber		Thermo Scientific Vertical Light Stability Chamber	
Cat. No. 3943		Cat. No. 3906	
Description			
Physical properties	821 L Stability Chamber with heating / cooling / humidity control / light option		311 L Stability Chamber with heating / cooling / humidity control / light option
Temperature	Stated values are for applications without light - just temperature / temperature + humidity control		
Temperature range	0°C to 60°C (32°F to 140°F)		
Temp. uniformity @ 20 to 37°C	≤ ±0.3 °C		
Temp. stability @ 20 to 37°C	≤ ±0.1 °C		
Please refer to changes in temperature values when using light (see next page, section “Performance with light”)			
Controller, sensor	Watlow Microprocessor - PID, with RTD sensor		
Display	Digital dual LED, 0.1°C steps readability & setability		
Programmability	Single setpoint, ramp & soak (to 40 steps)		
Temperature safety	Adjustable over- and under-temperature thermostat with analog reference dial, audible/visual alarm		
Compressor	1/4 HP, air-cooled		
Refrigerant	Non-CFC, R134A refrigerant; 0.382kg; GWP:1420; CO2e: 0.54t **		
Humidity	Stated values are for applications without light - just temperature + humidity control		
Water consumption / specification	Max. 14 L per day / 3.7 gal per day; demineralised water, resistance: 0.5 - 1 MΩ cm		
Input water pressure	Gravity to 40 psi (2.76 bar)		
Relative humidity range (light off)	Above ambient to 95% @ 37°C (98.6°F) ±5.0% RH		
Controller, sensor	Watlow Microprocessor - PID, with capacitive sensor - thin film polymer		
Display	Digital dual LED, 1% steps readability & setability		
Programmability	Single setpoint, ramp & soak (to 40 steps)		
Humidity safety	Audible / visual alarm in case of deviation from setpoint		
Water connection*	Fill port: 1/8” female NPT, drain port: 3/8” FPT & 3/8” O.D. P-trap right rear, intial fill approx. 1L / 1qt.		
Electrical			
Voltage	400V, 50/60Hz, 15.0 Amps		
Plug	CEE 16 A, 6 h		
Power switch	2-Pole		
Dry contacts	Common, NO, NC		
Data output	4-20 milliamp, temperature and RH		
Data collection			
Access port	54mm / 2.3 in. diameter; left side; with exterior and interior silicone stopper		

\* All models require a drain unless fitted with the optional Thermo Scientific Condensate Evaporator (Cat. No. 1900031) and a constant water source, unless humidity control is not activated.

\*\* The devices 3943 & 3906 comply with EU-F-Gas Regulation No.517/2014 and contain fluorinated greenhouse gases in a hermetically sealed system.



## Specifications, continued



Thermo Scientific Vertical Light Stability Chamber		Thermo Scientific Vertical Light Stability Chamber	
Cat. No. 3943		Cat. No. 3906	
Chamber dimensions			
Exterior (W x H x D)	965 x 2248 x 813 mm / 38.00 x 88.50 x 32.00 in.	965 x 1308 x 813 mm / 38.00 x 51.50 x 32.00 in.	
Interior (W x H x D)	787 x 1524 x 686 mm / 31.00 x 60.00 x 27.00 in.	787 x 609 x 686 mm / 31.00 x 24.00 x 27.00 in.	
Net weight	347 kg / 765 lbs	261 kg / 575 lbs	
Shipping weight	472 kg / 1040 lbs	325 kg / 715 lbs	
Shelving			
Materials	Solid stainless steel, reinforced		
Number of Shelves: standard / maximum	3 / 16	2 / 9	
Shelf size (W x D)	778 x 656 mm / 30.62 x 25.81 in.		
Shelf surface area	0,5 m² / 5.4 ft²		
Load per shelf	15.9 kg / 35 lbs slide in/out; 22.7 kg / 50 lbs stationary; not to exceed 272 kg / 600 lbs (136 kg / 300 lbs) total per large (small) cabinet		
Performance with light			
Set light and temperature (no humidity control)			
Max. number of light modules	3	2	
Temperature range	25°C to 50°C (68°F to 122°F)	10°C to 50°C (50°F to 122°F)	
Temp. uniformity @ 20 to 37°C	≤ ±3.0 °C	≤ ±2.5 °C	
Temp. stability @20 to 37°C	≤ ±0.3 °C	≤ ±0.3 °C	
Set light, temperature, humidity			
Max. number of light modules	2		
Relative humidity range	Above ambient to 75% @ 50°C (122°F)		
Humidity stability	≤ ±5% RH		
Temperature range	15°C to 50°C (59°F to 122°F)	10°C to 50°C (50°F to 122°F)	
Temp. uniformity @ 20 to 40°C	≤ ±3.0 °C		
Temp. stability @30°C, 75% RH	≤ ±0.5 °C		
Compliance			
Certifications	CE		

NOTE: All figures in all tables are typical average values for series devices, based on factory standard following norm DIN12880. Please reference page 25 and/or contact us for certification information or IQ/OQ documents.

For other voltage versions, please refer to the Forma Environmental Chamber models, available at [thermofisher.com/chambers](http://thermofisher.com/chambers) in relevant countries.

# Accessories

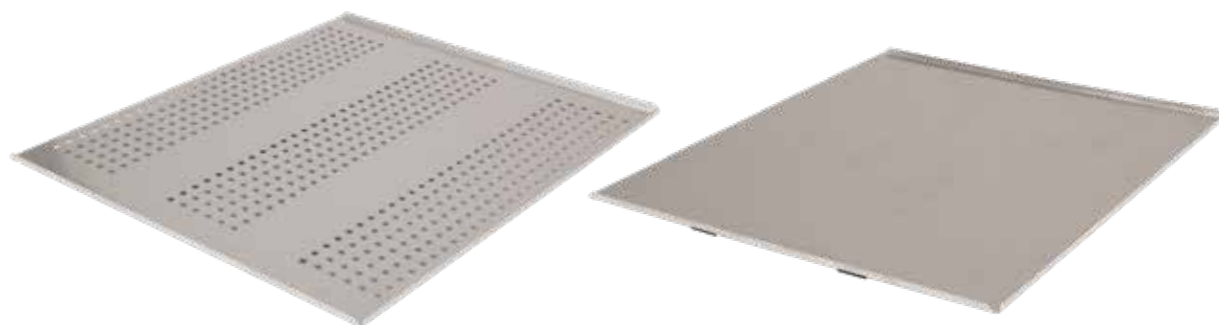
## Ordering information for chamber accessories and options

All environmental chamber accessories are customer installed unless otherwise indicated.

Product	Description	Compatibility with chamber models	Cat. No.
<b>Shelving – not for shakers</b>			
Stainless steel shelf kit	Additional standard solid stainless steel shelf with channels. For shelf load please refer to chamber specification table	All models	224139
Perforated stainless steel shelf kit	Perforated shelf with channels. For shelf load please refer to chamber specification table. Same load as stainless steel shelf kit	All models	224155
Reinforced stainless steel shelf kit	Reinforced stainless steel shelf and channels; not for shakers 68 kg / 150 lbs load max. with shelf fully inserted and stationary; max amount of shelves per cabinet: 2 in 3962 (300 lbs), 3 in all other models (600 lbs)	All models	224161
<b>Shaker support system – Rubber isolators replace casters for maximum stability, factory installed</b>			
Two shelf shaker support system without interior outlet	Each shelf will hold 91 kg / 200 lbs. Must be ordered with duplex outlet (505099) for use with model 3940; replaces standard shelving	3948, 3962	1900005
Three shelf shaker support system with interior outlet	Each shelf will hold 91 kg / 200 lbs. Duplex outlet is included. Replaces standard shelving	3948	190761
<b>Door options – factory installed</b>			
Lexan™ inner doors kit*	Kit provides five separate inner doors for additional sample protection: 5 separate compartments with use of 5 shelves	3948, 3962	190239
Door lock assembly	Key door lock for safety and protection	All models	190514
Left-hand door swing kit	Chamber will be delivered with hinge on opposite side. Not available for solid door / solid door with inner glass door	3948	190597
Solid door large	Outer solid door for large models, heated for reduced condensation	3948, 3962	1900665
Solid door small	Outer solid door for small models, heated for reduced condensation	3907	1900666
Solid door with glass door large	Outer solid door for large models, heated for reduced condensation - with inner glass door for undisturbed observation of samples	3948, 3962	1900667
Solid door with glass door small	Outer solid door for small models, heated for reduced condensation - with inner glass door for undisturbed observation of samples	3907	1900668

\* Lexan inner doors kit cannot be ordered in combination with inner glass door.

**Thermo Scientific  
Perforated  
Stainless Steel  
Shelf (left) and  
Solid Stainless  
Steel Shelf (right).**



## Ordering information for chamber accessories and options, continued

All environmental chamber accessories are customer installed unless otherwise indicated.

Product	Description	Compatibility with chamber models	Cat. No.
<b>Access ports – factory installed</b>			
Port for reach-in refrigerated incubator and stability chambers	1.5 in. (3.8 cm) I.D. Installed on center right wall	3906, 3907, 3943, 3948	505101
Port with cover	2 in. (5.1 cm) nominal I.D., installed on center of right side	3906, 3907, 3943, 3948	193004
Port with cover	4 in. (10.2 cm) nominal I.D., installed on center of right side	3906, 3907, 3943, 3948	193005
Port for reach-in incubator chambers (heat only)	2.4 in. (6.1 cm) I.D., installed on right side below standard port	3962	190164
<b>Reinforced floor options</b>			
Reinforced floor with removable ramp	Accommodates a cell roller. Ramp extends 23.0 in. (58.4cm) in front of the chamber. Customer installed	3948, 3962	500182
Factory installed reinforced floor with removable ramp	Accommodates a cell roller. Ramp extends 23.0 in. (58.4cm) in front of the chamber. Factory installed	3948, 3962	190777
Reinforced floor only	Accommodates a cell roller, no ramp included. Customer installed	3948, 3962	194039
<b>Convenience receptacles – factory installed</b>			
230V Single	Includes separate line cord Located on upper rear wall	3907, 3948	505094
<b>Chart recorders – factory installed</b>			
Single pen 6-in. 7 day recorder	0°C to 60°C (32°F to 140°F)	3907, 3948	201144
Dual pen 6-in. 7 day recorder	0°C to 60°C (32°F to 140°F)	3907, 3948	201146
Single pen 6-in. 7 day recorder	0°C to 60°C (32°F to 140°F)	3962	201156
<b>Chart recorders – customer installed</b>			
Single pen 6-in. 7 day recorder	0°C to 60°C (32°F to 140°F)	3907, 3948	201145
Dual pen 6-in. 7 day recorder	0°C to 60°C (32°F to 140°F)	3907, 3948	201147

## Ordering information for chamber accessories and options, continued

All environmental chamber accessories are customer installed unless otherwise indicated.

Product	Description	Compatibility with chamber models	Cat. No.
<b>Replacement chart paper</b>			
12-in. paper	100 per box	3907, 3948	197054
6-in. paper	50 per box For Single Pen 0°C to 60°C (32°F to 140°F)	3907, 3948, 3962	180006
6-in. paper	50 per box For Single Pen 10°C to 70°C (14°F to 58°F)	3907, 3948, 3962	197030
6-in. paper	50 per box For Single or Dual Pen 0°C to 100°C (32°F to 212°F)	3907, 3948, 3962	197075
<b>Humidity system options</b>			
Condensate evaporator	Evaporates condensate water in labs with no accessible drain. Includes separate line cord, 220V	3906, 3907, 3943, 3948	1900391
Heatless dryer kit for sub-ambient chamber relative humidity	Requires a minimum air supply of 90 psi capable of 10 cfm. It is recommended that the air supply be greater than the minimum required by the dryer. Factory installed.	3907, 3948	1900139
Carboy kit	Water reservoir for lab installations with no water connection. Carboy to be placed on top of unit, manual refill required.	3906, 3907, 3943, 3948	191596
<b>Deionization cartridge assembly for chambers with humidity and no DI water source</b>			
Cartridge assembly	Includes DI cartridge, wall bracket, pressure regulator and gauge, and 1/4 in. flexible tubing.	3906, 3907, 3943, 3948	01916800
Replacement cartridge	Replacement deionization cartridge	3906, 3907, 3943, 3948	58503600
<b>Infrared CO<sub>2</sub> control packages – Factory installed</b>			
Infrared CO <sub>2</sub> control package	CO <sub>2</sub> is controlled at user panel	3907, 3948	1900227



The Thermo Scientific Condensate Evaporator is recommended for labs with no accessible drain.

### Ordering information for data outputs for the Thermo Scientific Reach-in Incubator Chamber (heat-only)

The below data outputs are factory installed and compatible only with the Thermo Scientific Reach-In Incubator Chamber (heat-only) model 3962.

Product	Description	Compatibility with chamber models	Cat. No.
RS-485 interface	Compatible with 1535 monitor/alarm only. Factory installed	3962	190523
4-20 milliamp	Factory installed	3962	190512
0-5V	Factory installed	3962	190543
0-1V	Factory installed	3962	190544

### Ordering information for cell roller systems

All cell roll accessories are compatible with the Thermo Scientific Reach-In Incubator Chamber model 3962. All environmental chamber accessories are customer installed unless otherwise indicated.

Product	Description	Dimensions	Cat. No.
Three-tier roller base	15 positions 230V, 50Hz	W x H x D: 29.8 in. x 27.8 in. x 24.4in. (75.7 cm x 70.6 cm x 62.0 cm)	4868
Add-on tier	5 positions, up to 4 tiers can be added to one base. Customer installed	W x H x D: 29.8 in x 7.1 in. x 24.4 in. (75.7 cm x 18.0 cm x 62.0 cm)	186001
Reinforced floor with removable ramp	Factory installed	Ramp extends 23.0 in. (58.4 cm) in front of the chamber	190777
Reinforced floor with removable ramp	Customer installed	Ramp extends 23.0 in. (58.4 cm) in front of the chamber	500182
Rotation alarm system	Includes announcer jack. Customer installed		228082
Battery back-up	Provides 24 hours of power if a power failure occurs. Customer installed		228083
Glass bottles	4 per case	110 mm x 285 mm	475560



## Ordering information for vertical light chambers

All light modules are compatible with Thermo Scientific Vertical Light Chamber models 3906 and 3943. All environmental chamber accessories are customer installed unless otherwise indicated.

Product	Details on fluorescent bulbs	Average illumination on the shelf at 25° C	Cat. No.
<b>All light modules come with 7 fluorescent lights</b>			
Plant growth light module	7 x Osram Fluora Focus on red and blue light waves	8000 lux	50158128
ICH light module*	5 x Osram Biolux, 2 x JUST daylight 6500 Daylight with UV content	9500 lux	50158127
Animal hatching light module	7 x Osram Biolux Daylight	1000 lux	50158129
Light/UV protection	Light/UV protection for operator: Light is switched off automatically when door is opened. Factory installed option. Recommended for ICH.		1900663
Kit replacement bulbs for Plant growth light module	Osram Fluora Focus on red and blue light waves		50158287
Kit replacement bulbs for ICH light module*	Osram Biolux, 2 x JUST daylight 6500 Daylight with UV content		50158286
Kit replacement bulbs for Animal hatching light module	Osram Biolux Daylight		50158288

### \* Meets ICH guidelines for light stability testing

NOTE: A maximum of 2 light modules fit in a small chamber and 3 light modules fit in a large chamber. Please refer to the specification tables on pages 18-19 for restrictions with humidity control. Please exchange all 7 bulbs at once to help ensure uniform light distribution. No individual bulbs supplied. Light measurements are based on distance of 145 mm/5.51 in (small chamber) and 165 mm/6.5 in (large chamber) between light module and measuring point.



Interior of Thermo Scientific Vertical Light Chamber with plant growth light modules installed.



Interior of Thermo Scientific Vertical Light Chamber with animal hatching light modules installed.

## Ordering information for reports and certificates

All environmental chamber accessories are customer installed unless otherwise indicated.

Product	Description	Compatibility with chamber models	Cat. No.
<b>Reports and certificates</b>			
Temperature mapping report	15 measurement points. Factory installed	All models	260045
Calibration certificate	Specify test parameters, 1 measurement point temperature and humidity if not specified otherwise. Factory installed	All models	260049

## Ordering information for cGxP protocols and on-site validation services

Specification sheets for protocol and validations are available for review upon request\*.

Product	Description	Compatibility with chamber models	Cat. No.
<b>IQ OQ</b>			
GLP level protocols		3962	IOQDOCE89003499
GLP level protocols		3906, 3907, 3943, 3948	IOQDOCE89003710
GLP level field validation	Performed at customer site, protocol included at no additional charge	3962	IOQPCKE89003499
GLP level field validation	Performed at customer site, protocol included at no additional charge	3906, 3907, 3943, 3948	IOQPCKE89003710
<b>IQ OQ PQ</b>			
GMP level protocols		3962	IOPQDOCE89003499
GMP level protocols		3906, 3907, 3943, 3948	IOPQDOCE89003710
GMP level field validation	Performed at customer site, protocol included at no additional charge	3962	IOPQPCKE89003499
GMP level field validation	Performed at customer site, protocol included at no additional charge	3906, 3907, 3943, 3948	IOPQPCKE89003710

\*Environmental chamber pre-sales can be contacted via email at [lpq.presales@thermofisher.com](mailto:lpq.presales@thermofisher.com).

## Warranty

We confidently back our environmental chambers with a two-year parts and labour warranty.

## Wireless Data Monitoring

For more information about Thermo Scientific Smart-Vue Sensors and all available data monitoring solutions for temperature, humidity, and light, visit: [thermofisher.com/wirelessmonitoring](http://thermofisher.com/wirelessmonitoring).

Find out more at [thermofisher.com/chambers](http://thermofisher.com/chambers)

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