cosmopia

Environmental Testing Apparatuses

Temperature and Humidity Chambers / Temperature Chambers

*Photo for illustrative purposes only

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BECOMING THE WORLD'S TOP MANUFACTURER IN TERMS OF TECHNOLOGY AND PRODUCT STRENGTH IN THE FIELD OF HEAT CYCLE TESTING

Environmental testing apparatuses are used in a wide range of fields, including semiconductors, electronic components, automotive components, and secondary batteries, and these systems must continue to evolve day by day to meet the needs of increasingly advanced development and research.
As samples become larger and climate change needs increase, COSMOPIA HIGHTECH will respond quickly to these changes and help our customers all over the world to develop cutting-edge technologies.

Company profile

Name	COSMOPIA HIGHTECH CORP.
Address	8-1, Shinmidori-cho, Shimizu-ku, Shizuoka-shi, Shizuoka
Established	August 22, 2023
Capital	¥100,000,000
Business	Manufacturing, design, sales, and after-sales service for environmental testing apparatuses

Freeze control technology

Our heat cycle technology, which makes maximum use of our core competence of freeze control technology, utilizes scroll compressors to deliver efficient and stable performance at low temperatures.
Scroll compressors use gas more efficiently than reciprocating compressors, allowing them to deliver stable cooling performance under constant temperature conditions and extremely low-temperature conditions down to -40° C.

COSMOPIA HIGHTECH values

Purpose of our existence

A company is ultimately a public institution, and exists to meet the expectations of people and society.
This is certainly true of COSMOPIA HIGHTECH, and providing natural environments that are ever more accurate is our public mission.
We aim to increase our value as a means of making it easier to exchange values with stakeholders, and to help bring happiness to people.

Company history

1970 Began selling environmental testing apparatuses at Hitachi, Ltd.
1994 Transferred the environmental testing apparatus business from Hitachi, Ltd. to Hitachi Shimizu Engineering Co., Ltd.
2003 Changed the company name to Hitachi-kucho SE,Ltd
2018 Merged with Johnson Controls-Hitachi Air Conditioning
2023 Established COSMOPIA HIGHTECH CORP.
Transferred the environmental testing business from Hitachi-Johnson Controls Air Conditioning, Inc.
Began OEM production
2024 Began selling Cosmopia brand products

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Temperature and Humidity Chambers
/ Temperature Chambers

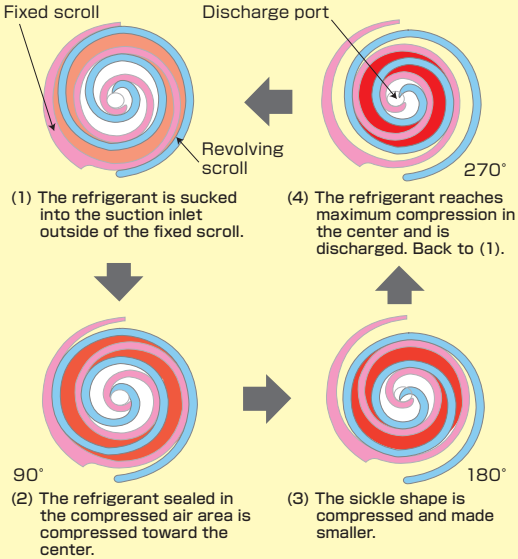
Cosmopia environmental testing apparatuses deliver the features and reliability that our customers need now.

Environmental testing apparatuses are used in a wide range of fields, including semiconductors, electronic components, and in-vehicle components, and these systems must continue to offer high functionality to meet the needs of increasingly advanced development and research.
At the heart of COSMOPIA HIGHTECH is our scroll compressors, which deliver efficient and stable performance at low temperatures.
We build testing environments crucial for improving product reliability and for conducting experiments and research in a wide range of fields, including food products, chemicals, and medical products.

*Photo for illustrative purposes only

How scroll compressors operate

Gas sealed in the sickle-shaped compressed air area formed between the fixed scroll and revolving scroll is compressed toward the center and discharged from the discharge port at the center.



(1) The refrigerant is sucked into the suction inlet outside of the fixed scroll.

(2) The refrigerant sealed in the compressed air area is compressed toward the center.

(3) The sickle shape is compressed and made smaller.

(4) The refrigerant reaches maximum compression in the center and is discharged. Back to (1).

PREMIUM EXCELLENT

Compatible with Low-GWP Refrigerants

Pages 7-8

●Uses low-GWP refrigerant and allows for rapid temperature changes

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
PXHH	−70 to 180℃	20 to 98%RH	235L

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
PXTH	−70 to 180℃	—	235L

*Photo for illustrative purposes only

EXCELLENT SERIES

Rapid Temperature Change Type

Pages 9-14

●Rapid temperature changes for quicker evaluation testing

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
EXH 10℃/min 306L 5℃/min 800L	−70 to 150℃	20 to 98%RH (95%RH)	306L/800L
EXHH 15℃/min	−70 to 180℃		235L/800L
EXHH20 20℃/min			800L

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
EXT 10℃/min 306L 5℃/min 800L	−70 to 150℃	—	306L/800L
EXTH 15℃/min	−70 to 180℃		235L/800L
EXTH20 20℃/min			800L

*Photo for illustrative purposes only

Heat Generation Load 1,000 W Type

Pages 15-16

●Enhanced heat generation load performance to support the durability evaluation testing of powered components such as LCDs.

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
EX-HL Handles high loads	−70 to 150℃	20 to 98%RH	800L

*Photo for illustrative purposes only

STANDARD SERIES

Basic Type

Pages 17-24

●All models equipped with scroll compressors

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
HH	−20 to 100℃	20 to 98%RH	120L 227L 408L 800L 1,000L
MH	−40 to 100℃		
MHH	−40 to 150℃		

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
HT	−20 to 100℃	—	120L 227L 408L 800L 1,000L
MT	−40 to 100℃		
MTH	−40 to 150℃		

*Photo for illustrative purposes only

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
LH <Low Temperature Type>	−70 to 100℃	20 to 98%RH	306L 800L
LHH <Low Temperature Type>	−70 to 150℃		

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
LT <Low Temperature Type>	−70 to 100℃	—	306L 800L
LTH <Low Temperature Type>	−70 to 150℃		

*Photo for illustrative purposes only

High Performance Type

Pages 25-28

●Higher energy saving performance than the Basic Type, with enhanced temperature change performance and continuous operation performance

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MH	−40 to 100℃	20 to 98%RH	408L 800L
MHH	−40 to 150℃		

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MT	−40 to 100℃	—	408L 800L
MTH	−40 to 150℃		

*Photo for illustrative purposes only

Large Size Type

Pages 29-32

● 1,500/3,780 L volume to support large materials

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MH	−40 to 100℃	20 to 98%RH	1,500L
MHH	−40 to 150℃		

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MT	−40 to 100℃	—	1,500L
MTH	−40 to 150℃		

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MH	−50 to 100℃	20 to 95%RH	3,780L
MHH	−50 to 150℃		
LH	−70 to 100℃		
LHH	−70 to 150℃		

*Photo for illustrative purposes only

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MT	−50 to 100℃	—	3,780L
MTH	−50 to 150℃		
LT	−70 to 100℃		
LTH	−70 to 150℃		

OTHER SERIES

Low Temperature/Humidity Type

Pages 33-34

●Expanded temperature/humidity control range up to 10° C and 10% RH

Temperature and Humidity Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MH	−40 to 100℃	10 to 98%RH	800L

*Photo for illustrative purposes only

Double Side Access Type

Pages 35-36

●Compatible with secondary battery evaluation systems

Temperature Chambers			
Model	Temperature range	Humidity range	Testing chamber volume
MT	−40 to 100℃	—	392L 784L

*Photo for illustrative purposes only

Low GWP Refrigerant Type

Uses low-GWP refrigerants and allows for rapid temperature changes.

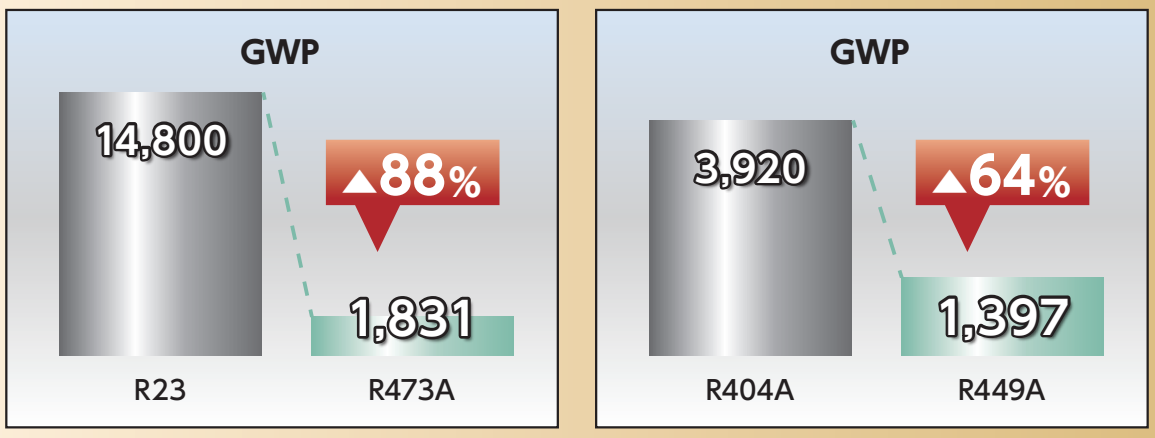
Controllable temperature range	Temperature change rate
−70℃ to 180℃	18℃/min.

Testing chamber volume 235L

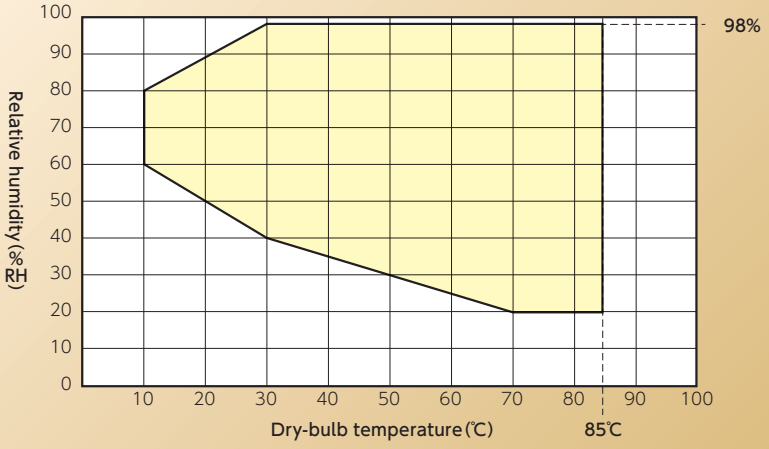
*Photo for illustrative purposes only.
(Includes optional specification:[Temperature (humidity) recorder])

Global warming potential (GWP) value

A low-GWP refrigerant is used on both the low-temperature side (R-473A) and high-temperature side (R-449A). COSMOPIA HIGHTECH values the environment.



Temperature/humidity control range



*Applicable only when the ambient temperature is from 5 to 35℃, the coolant inlet temperature is from 15 to 30℃, the power supply voltage is within ±5% of the rated voltage, there is no load, and the operation mode is set to standard.
*If the dry-bulb temperature is low (approximately 30 to 40℃ or lower), the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.

Temperature control range

This system has a temperature change rate of 18℃/min., and is compliant with JEDEC (JESD22-A104, IEC 60749-25: 15℃/min.) testing standards. It is environmentally friendly while still providing excellent rapid temperature change performance.

Standard specification table

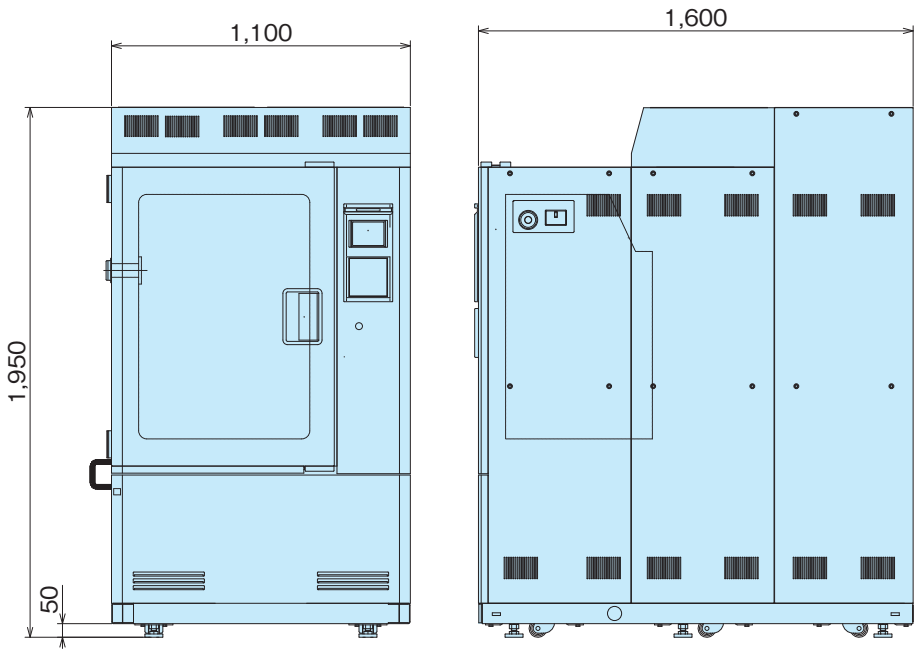
Item \ Model					EC-28PXHH	EC-28PXTH
					Temperature and humidity chambers	Temperature chambers
Performance	Temperature range			℃	−70 to 180	
	Humidity range			%RH	20 to 98	–
	JTM K09	Temperature/ humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 / ±3.0	±0.3
			100.1℃ or higher	℃	±0.5	
		Temperature/ humidity gradient	100.0℃ or lower	℃/%RH	3.0 / 10.0	3.0
			100.1℃ or higher	℃	5.0	
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	2.0 / 8.0	2.0
			100.1℃ or higher	℃	3.0	
		Temperature change rate	Drop	–	18.0℃/ min. (155℃ to -45℃)	
			Rise	–	23.0℃/ min. (-45℃ to 155℃)	
		Time to reach temperature extreme	Drop	–	Within 10 min. (20℃ to -70℃)	
			Rise	–	Within 10 min. (20℃ to 180℃)	
Testing chamber volume				L(mm)	235 (Width 630 x Depth 540 x Height 690)	
Product dimensions				mm	Width 1,100 × Depth 1,600 × Height 1,950	
Exterior coating color				–	Cold-rolled steel plate: Dark gray	
Cooling system	Cooling method			–	Mechanical single-stage compression refrigeration and dual refrigeration	
	Refrigerant			–	Single-stage side: R449A, Dual high/low-temperature side: R449A/R473A	
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)	
Safeguards				–	Electrical earth leakage circuit breaker, fuses (for heater, for compressor, or for operation circuit), overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system (temperature and humidity chambers only), etc.	
Equipment				–	Cable hole, casters, level adjusters, and sample temperature sensor connector	
Accessories				–	Sample shelf, shelf support, fuse, Y strainer, and instruction manual	
Coolant	Volume (coolant inlet temperature 32℃)			L / h	6,000	
	Water pressure			MPa	0.1 to 0.5	
	Piping diameter (system side)			–	Rc1 1/4	
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz	
	Maximum load current			A	114	
Product weight				kg	850	

Notes: 1. Can be operated in an ambient temperature from 0 to 40℃, a coolant inlet temperature from 5 to 38℃, and a power supply voltage within ±10% of the rated voltage.
2. Performance values are given in accordance with JTMA Standard JTMK07/JTMK09 under the following conditions:
(1) There is no load and no sample.
(2) The power supply voltage is within ±5% of the rated voltage.
(3) The ambient temperature is from 5 to 35℃ and the coolant inlet temperature is from 15 to 30℃.
However, values given for the temperature change rate and the time to reach extreme temperatures are applicable when the system is set to rapid mode and at an ambient temperature of 23℃ and a coolant inlet temperature of 25℃.
3. The maximum load current is the value at an ambient temperature of 23℃, coolant inlet temperature of 25℃, and the specified power supply voltage.

Dimensions

(Unit: mm)

EC-28



Rapid Temperature Change Type

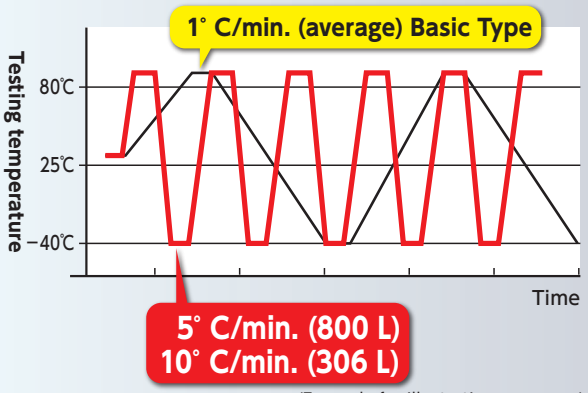
Gradient control between -40℃ and 85℃ for a temperature change rate of 10° C/min or 5° C/min.

Testing chamber volume 306L

Photo for illustrative purposes only.
(Includes optional specification: [Temperature (humidity) recorder])

Temperature change rate
10° C/min. (Testing chamber volume 306 L)
5° C/min. (Testing chamber volume 800 L)

Rapid temperature changes



(Example for illustrative purposes.)

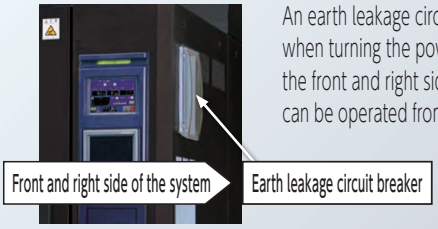
Quicker evaluation testing

The temperature rises and drops quickly, so a drastically shorter time is required to transition to the set temperature.
(26 hours, compared with 52 hours for the Basic - Low Temperature Type)

Operation details (testing conditions)
Temperature cycle operation between -55° C (60 min.) and 125° C (60 min.). (Maximum performance during temperature change)
Temperature rise/drop time
EC-36LHHP rise time: 41 min., Drop time: 150 min.
EC-35EXH rise time: 18 min., Drop time: 18 min.
(Values listed above will vary depending on usage conditions such as ambient temperature. Refer to the model specifications for details.)

Greater ease of use

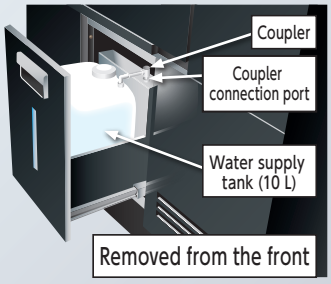
Can be operated from the front



An earth leakage circuit breaker to be used when turning the power on is located on the front and right side of the system, and can be operated from the front.

Water supply tank

The tank for supplying water to the humidifier and humidity measurement wick is located on the bottom front of the system and can be removed from the front.
The water supply tank is also equipped with a simple attachment coupler, allowing the tank to be removed even during operation in order to add more purified water.



Observation window

The 270 mm (H) x 190 mm (W) glass window allows the operator to observe samples in the testing chamber. The glass window is equipped with a heater to prevent fogging. The chamber light can be turned on from the LCD to observe conditions inside the chamber.

Service space and installation space

The water supply tank can be removed from the front, reducing the service space required for the system.

■Environmentally friendly

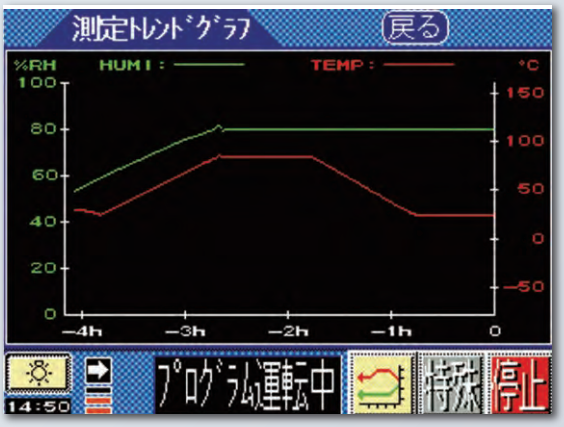
Helps to support recycling

The materials used for resin parts are indicated on the system to make it easier to sort trash.
(Examples: >ABS-A<, >PE<)

■Control panel

Equipped with highly visible, user-friendly color LCD touch panel

The touch panel can be used to configure and control the system simply by touching the screen.
The color display is highly visible and provides a wide range of functionality.

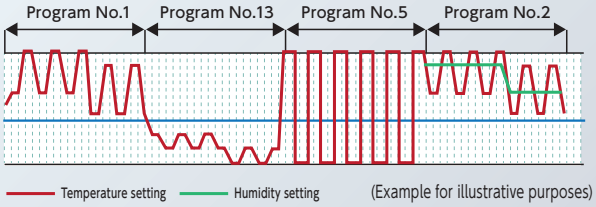


Available functions

- Set-point operation function
- Program operation function
- Program name input function
- Time signal function
- Program operation hold function
- Program operation jump function
- Step repeat function
- Combined-program operation function
- Trend graph display function
- Operation mode select function
- Wait function
- Excess temperature increase/decrease prevention function
- Black-out action function
- Power interruption safety function
- Fan delay function
- Timer function
- Fault detection function
- Measured temperature/humidity offset specification function

Combined-program operation function

This function allows two or more program settings (temperature, humidity, time, repeat mode) to operate continuously (in combination). Up to five combined programs can be operated.



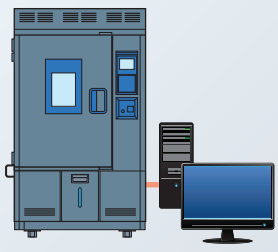
(Example for illustrative purposes)

Program name input function

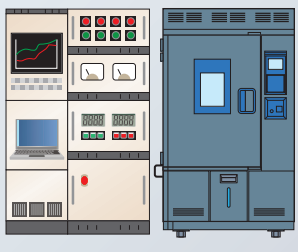
With this function, you can input a program name. Program names can include alphabets, numbers, and symbols (!"#%&'()@:,.=+-*/?_) up to 14 characters (maximum).

Communication interfaces

Communication interfaces can be used to remotely control the system or take measurements from a PC or user system.



Remote control via PC



Control via user system

Communication interfaces	
RS-232C	RS-485
Web interface (including Ethernet)	

Note: Contact us for information on other communication interfaces.

Standard specification table

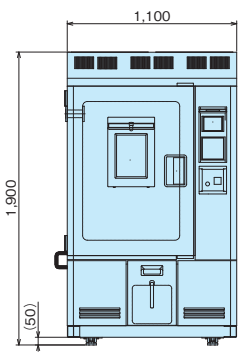
Item \ Model					EC-35EXH	EC-85EXH	EC-35EXT	EC-85EXT
					Temperature and humidity chambers		Temperature chambers	
Performance	Temperature range			℃	−70 to 150			
	Humidity range			%RH	20 to 98		–	
	JTM K09	Temperature/humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 / ±3.0			
			100.1℃ or higher	℃	0.5			
		Temperature/humidity gradient	100.0℃ or lower	℃/%RH	3.0 / 10.0			
			100.1℃ or higher	℃	5.0			
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	2.0 / 8.0			
			100.1℃ or higher	℃	3.0			
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	–		±0.3	
			100.1℃ or higher	℃			±0.5	
		Temperature gradient	100.0℃ or lower	℃			3.0	
			100.1℃ or higher	℃			5.0	
		Spatial temperature deviation	100.0℃ or lower	℃			2.0	
			100.1℃ or higher	℃			3.0	
	For JTM K09 K07	Temperature change rate	Drop	–	10.0℃/min. (128 to -48℃)	5.0℃/min. (128 to -48℃)	10.0℃/min. (128 to -48℃)	5.0℃/min. (128 to -48℃)
			Rise	–	10.0℃/min. (-48 to 128℃)	5.0℃/min. (-48 to 128℃)	10.0℃/min. (-48 to 128℃)	5.0℃/min. (-48 to 128℃)
		Time to reach extreme temperatures	Drop	–	Within 20 min. (20 to -70℃)	Within 30 min. (20 to -70℃)	Within 20 min. (20 to -70℃)	Within 30 min. (20 to -70℃)
			Rise	–	Within 20 min. (20 to 150℃)	Within 30 min. (20 to 150℃)	Within 20 min. (20 to 150℃)	Within 30 min. (20 to 150℃)
Testing chamber volume				L(mm)	306 (Width 630 x Depth 540 x Height 900)	800 (Width 1,000 x Depth 800 x Height 1,000)	306 (Width 630 x Depth 540 x Height 900)	800 (Width 1,000 x Depth 800 x Height 1,000)
Product dimensions				mm	Width 1,100 × Depth 1,960 × Height 1,900	Width 1,470 × Depth 2,240 × Height 2,000	Width 1,100 × Depth 1,960 × Height 1,900	Width 1,470 × Depth 2,240 × Height 2,000
Exterior coating color				–	Dark gray finish			
Cooling system	Cooling method			–	Water-cooling, single-stage compression refrigeration and dual refrigeration			
	Refrigerant			–	Single-stage side: R404A, Dual side: R404A (high-temperature side), R23 (low-temperature side)			
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)			
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system (temperature and humidity chambers only), heater overcurrent safeguard, etc.			
Equipment				–	Observation window, chamber light, cable hole (⌀50), casters, and level adjusters			
Accessories				–	Shelf support, shelf, fuse, Y strainer, wick, rubber plug, and instruction manual		Shelf support, shelf, fuse, Y strainer, rubber plug, and instruction manual	
Coolant				–	Volume: 5,000 L/h (coolant inlet temperature 32℃), Pressure: 0.1 to 0.5 MPa, Piping diameter (system side): Rc1 1/4			
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz			
	Maximum load current			A	100	105	91	95
Product weight				kg	925	1,130	920	1,120

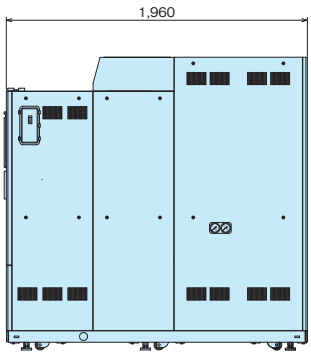
Notes: 1. Can be operated in an ambient temperature from 0 to 40℃, a coolant inlet temperature from 5 to 38℃, and a power supply voltage within ±10% of the rated voltage.
2. Performance values are given in accordance with JTMA Standard JTMK07/JTMK09 under the following conditions:
(1) There is no load and no sample in the testing chamber.
(2) The power supply voltage is within ±5% of the rated voltage.
(3) The ambient temperature is from 5 to 35℃ and the coolant inlet temperature is from 15 to 30℃.
(4) Values given for the temperature change rate and the time to reach extreme temperatures are applicable when the system is set to "rapid temperature change" with a sample set (iron 5 kg), an ambient temperature of 23℃, a coolant inlet temperature of 25℃, and no water in the heating tray.
"Rapid temperature change" setting: Available only during constant temperature operation. The humidity cannot be set or controlled (EC-35EXH, EC-85EXH).

Dimensions

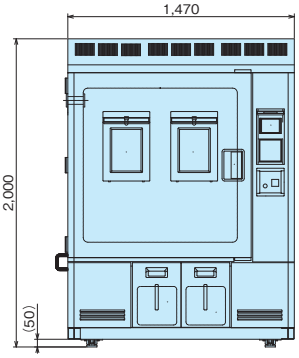
(Unit: mm)

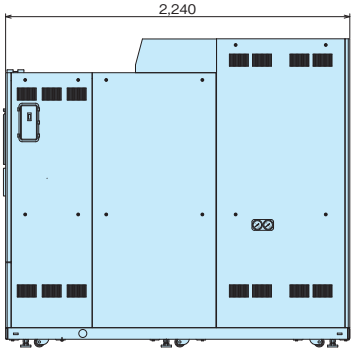
EC-35EX





EC-85EX





Rapid Temperature Change Type

Temperature and humidity chambers: EXHH / EXHH20

Temperature chambers: EXTH / EXTH20

Temperature change rate of 15℃/min. or 20℃/min. for air within the chamber.

EXHH・EXTH		
Temperature change rate (Setting: 180℃ ⇕ −70℃)	Drop	**15℃/min.** (Average temperature change rate from 155℃ to -45℃)
	Rise	**15℃/min.** (Average temperature change rate from -45℃ to 155℃)

EXHH20・EXTH20		
Temperature change rate (Setting: 180℃ ⇕ −70℃)	Drop	**20℃/min.** (Average temperature change rate from 155℃ to -45℃)
	Rise	**20℃/min.** (Average temperature change rate from -45℃ to 155℃)

*The temperature change rate for the Basic - Low Temperature Type (EC-86LHHP) is 1℃/min. (drop) or 3℃/min. (rise).

EC-25EXHH shown in photo

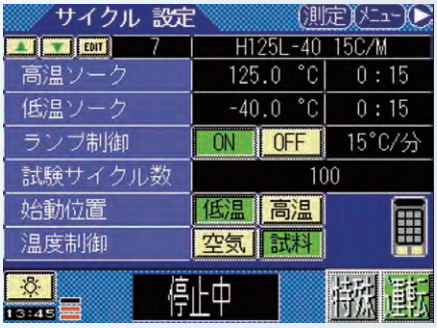
EC-85EXHH20 shown in photo

Photo for illustrative purposes only. (Includes optional specification: [Temperature (humidity) recorder])

New temperature cycle operation function

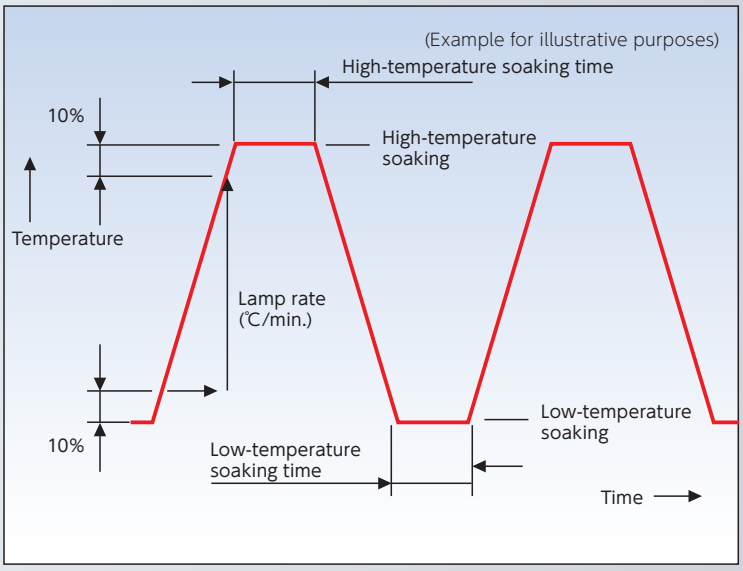
This system features the new temperature cycle operation function, which allows the configuration of settings such as high-temperature soaking, low-temperature soaking, lamp control, and sample temperature control.

Settings screen (temperature cycle operation)



<Setting ranges>

High-temperature soaking	180 to 60℃
Low-temperature soaking	0 to −70℃
Soaking time	1 min. to 99 hours 59 min.
Lamp rate	5 to 25℃/min.



Humidity control function

We offer a lineup of specifications with humidity control functionality. A single system can handle both temperature cycle testing and temperature/humidity testing.

*Humidity control operation: Enabled when set to "energy saving mode" or "standard mode."
Water supply/drainage specification: Supported with auto water supply and auto water drainage specifications.

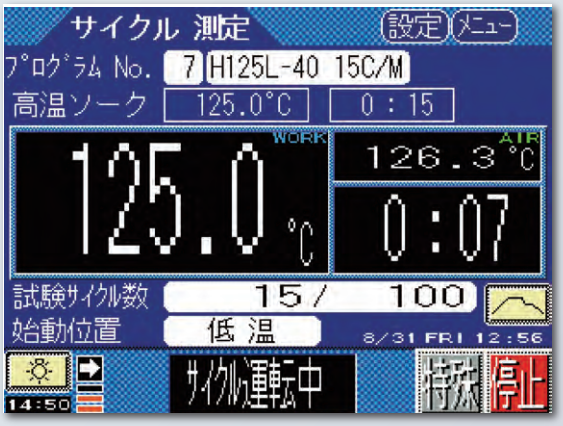
Expanded temperature range

The upper temperature range has been increased to 180℃
(compared with 150℃ for EXH/EXT models).

Control panel

Equipped with highly visible, user-friendly color LCD touch panel

The touch panel can be used to configure and control the system simply by touching the screen.
The color display is highly visible and provides a wide range of functionality.

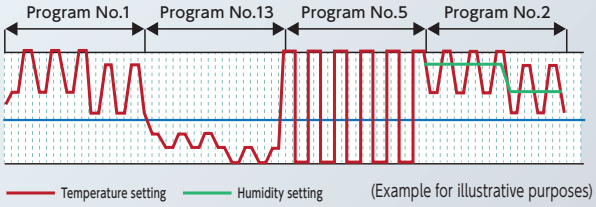


Available functions

- Temperature cycle operation function
- Set-point operation function
- Program operation function
- Program name input function
- Time signal function
- Program operation hold function
- Program operation jump function
- Step repeat function
- Combined-program operation function
- Trend graph display function
- Operation mode select function
- Wait function
- Excess temperature increase/decrease prevention function
- Black-out action function
- Power interruption safety function
- Fan delay function
- Timer function
- Fault detection function
- Measured temperature/humidity offset specification function
- Sample temperature control function

Combined-program operation function

This function allows two or more program settings (temperature, humidity, time, repeat mode) to operate continuously (in combination). Up to five combined programs can be operated.

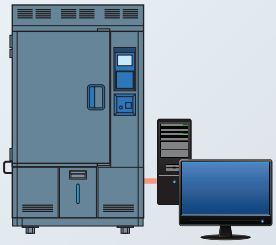


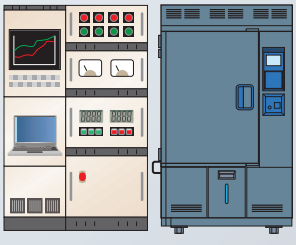
Program name input function

With this function, you can input a program name. Program names can include alphabets, numbers, and symbols (!"#%&'()@:,.=+-*/?_) up to 14 characters (maximum).

Communication interfaces

Communication interfaces can be used to remotely control the system or take measurements from a PC or user system.


Remote control via PC


Control via user system

Communication interfaces	
RS-232C	RS-485
Web interface (including Ethernet)	

Note: Contact us for information on other communication interfaces.

Model-specific options

Item	Specification
Sample temperature sensor	Pt sensor (Pt100 Ω)

*We also offer a wide range of options to suit various needs.
(Refer to P37 through P39)

Standard specification table

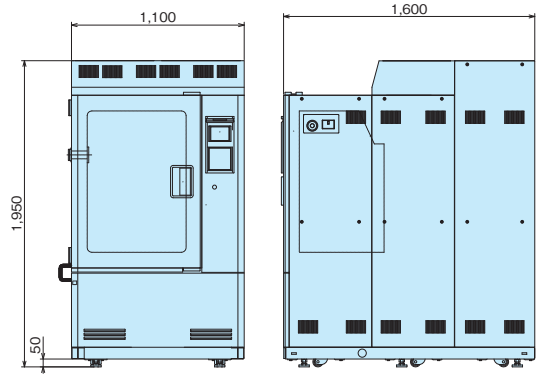
Item				Model	EC-25EXHH	EC-85EXHH	EC-85EXHH20	EC-25EXTH	EC-85EXTH	EC-85EXTH20
					Temperature and humidity chambers			Temperature chambers		
Performance	Temperature range			℃	−70 to 180					
	Humidity range			%RH	20 to 98	20 to 95		—		
	JTM K09	Temperature/ humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 / ±3.0					
			100.1℃ or higher	℃	±0.5					
		Temperature/ humidity gradient	100.0℃ or lower	℃/%RH	3.0 / 10.0	4.0 / 10.0				
			100.1℃ or higher	℃	5.0	7.0				
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	2.0 / 8.0	3.0 / 8.0				
			100.1℃ or higher	℃	3.0	5.0				
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	—			±0.3		
			100.1℃ or higher	℃				±0.5		
		Temperature gradient	100.0℃ or lower	℃				3.0	4.0	
			100.1℃ or higher	℃				5.0	7.0	
		Spatial temperature deviation	100.0℃ or lower	℃				2.0	3.0	
			100.1℃ or higher	℃				3.0	5.0	
	For JTM K09 K07	Temperature change rate	Drop	−	18.0℃/min. (155 to -45℃)	15.0℃/min. (155 to -45℃)	20.0℃/min. (155 to -45℃)	18.0℃/min. (155 to -45℃)	15.0℃/min. (155 to -45℃)	20.0℃/min. (155 to -45℃)
			Rise	−	23.0℃/min. (-45 to 155℃)	15.0℃/min. (-45 to 155℃)	20.0℃/min. (-45 to 155℃)	23.0℃/min. (-45 to 155℃)	15.0℃/min. (-45 to 155℃)	20.0℃/min. (-45 to 155℃)
		Time to reach temperature extreme	Drop	−	Within 10 min. (20 to -70℃)	Within 20 min. (20 to -70℃)	Within 20 min. (20 to -70℃)	Within 10 min. (20 to -70℃)	Within 20 min. (20 to -70℃)	Within 20 min. (20 to -70℃)
			Rise	−	Within 10 min. (20 to 180℃)	Within 15 min. (20 to 180℃)	Within 15 min. (20 to 180℃)	Within 10 min. (20 to 180℃)	Within 15 min. (20 to 180℃)	Within 15 min. (20 to 180℃)
Testing chamber volume				L(mm)	235 (Width 630 x Depth 540 x Height 690)	800 (Width 1,000 x Depth 800 x Height 1,000)		235 (Width 630 x Depth 540 x Height 690)	800 (Width 1,000 x Depth 800 x Height 1,000)	
Product dimensions				mm	Width 1,100 × Depth 1,600 × Height 1,950	Width 1,470 × Depth 2,235 × Height 2,065		Width 1,100 × Depth 1,600 × Height 1,950	Width 1,470 × Depth 2,235 × Height 2,065	
Exterior coating color				−	Dark gray finish					
Cooling system	Cooling method			−	Water-cooling, single-stage compression refrigeration and dual refrigeration					
	Refrigerant			−	Single-stage side: R404A, Dual side: R404A (high-temperature side), R23 (low-temperature side)					
Controller				−	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite) and cycle operation					
Safeguards				−	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system (temperature and humidity chambers only), heater overcurrent safeguard, etc.					
Equipment				−	Sample power supply control terminal, cable hole (⌀50), casters, and level adjusters					
Accessories				−	Shelf support, shelf, fuse, Y strainer, wick, rubber plug, and instruction manual			Shelf support, shelf, fuse, Y strainer, rubber plug, and instruction manual		
Coolant	Volume (coolant inlet temperature 32℃)			L/h	6,000	7,200	10,800	6,000	7,200	10,800
	Water pressure			MPa	0.1 to 0.5					
	Piping diameter (system side)			−	Rc1 1/4		Rc2	Rc1 1/4		Rc2
Electrical characteristics	Power supply			−	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz					
	Maximum load current			A	114	160	225	105	150	215
Product weight				kg	830	1,275	1,420	825	1,225	1,410

Notes: 1. Can be operated in an ambient temperature from 0 to 40℃, a coolant inlet temperature from 5 to 38℃, and a power supply voltage within ±10% rated voltage.
2. Performance values are given in accordance with JTMA Standard JTMK07/JTMK09 under the following conditions:
(1) There is no load and no sample.
(2) The power supply voltage is within ±5% of the rated voltage.
(3) The ambient temperature is from 5 to 35℃ and the coolant inlet temperature is from 15 to 30℃.
However, values given for the temperature change rate and the time to reach extreme temperatures are applicable when the system is set to rapid mode and at an ambient temperature of 23℃ and a coolant inlet temperature of 25℃.
3. The maximum load current is the value at an ambient temperature of 23℃, coolant inlet temperature of 25℃, and the specified power supply voltage.

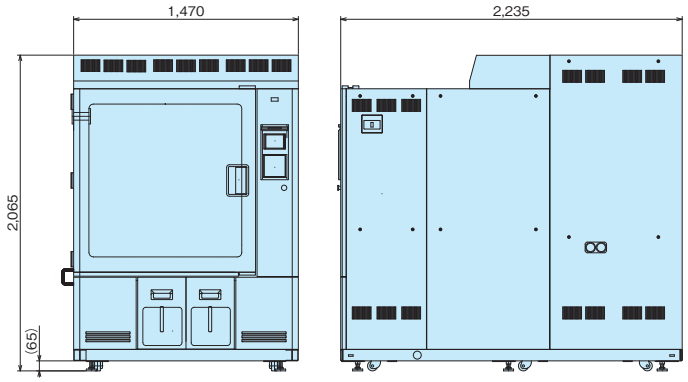
Dimensions

(Unit: mm)

EC-25



EC-85



Heat Generation Load 1,000 W Type

EX-HL

Enhanced heat generation load performance to support the durability evaluation testing of powered components such as LCDs.

Photo for illustrative purposes only.
(Includes optional specification: [Temperature (humidity) recorder])

Testing chamber volume **800L**

Handles high loads

This system can handle heat generation loads under high-temperature/humidity conditions and low-temperature conditions.

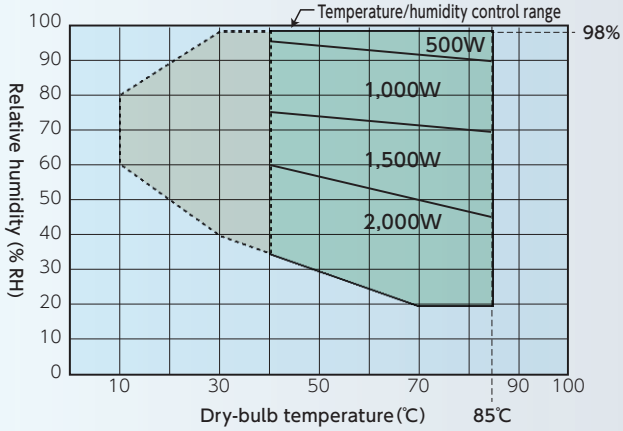
Testing conditions	Permissible heat generation
60℃／90%RH	1,000W
85℃／85%RH	1,000W
−40℃	2,000W

Note: During high load mode operation

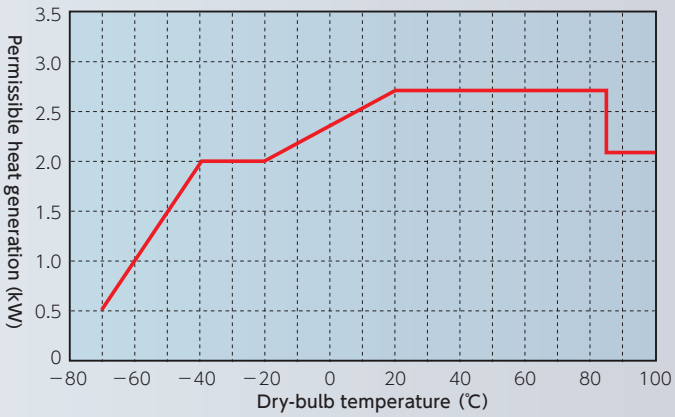
Permissible heat generation

<Conditions> Power supply: 200V 50/60Hz, Ambient temperature: 23° C, Coolant inlet temperature: 25° C, Operation mode: High load

■During constant temperature/humidity operation



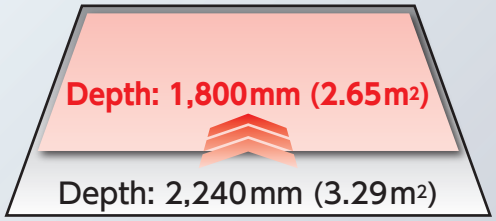
■During constant temperature operation



Notes:
1. ⋯⋯ The continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
2. Heat generation loads cannot be handled at a dry-bulb temperature of 40° C or lower.

Reduced space

Device layout and placement have been revised, reducing the installation area by approximately 19%.
(Compared with EC-85EXH)
(Product width: 1,470 mm [all models])



*Compared with EC-85EXH

Operation mode select function

All models come equipped as a standard with an operation mode select function that adjusts the system refrigeration performance based on the operation mode (energy saving mode, standard mode, or high load mode).

Energy saving mode	Reduced system performance Set when there is no heat generation load
High load mode	Increased system performance Set when the heat generation load is high

Standard specification table

Temperature and humidity chambers

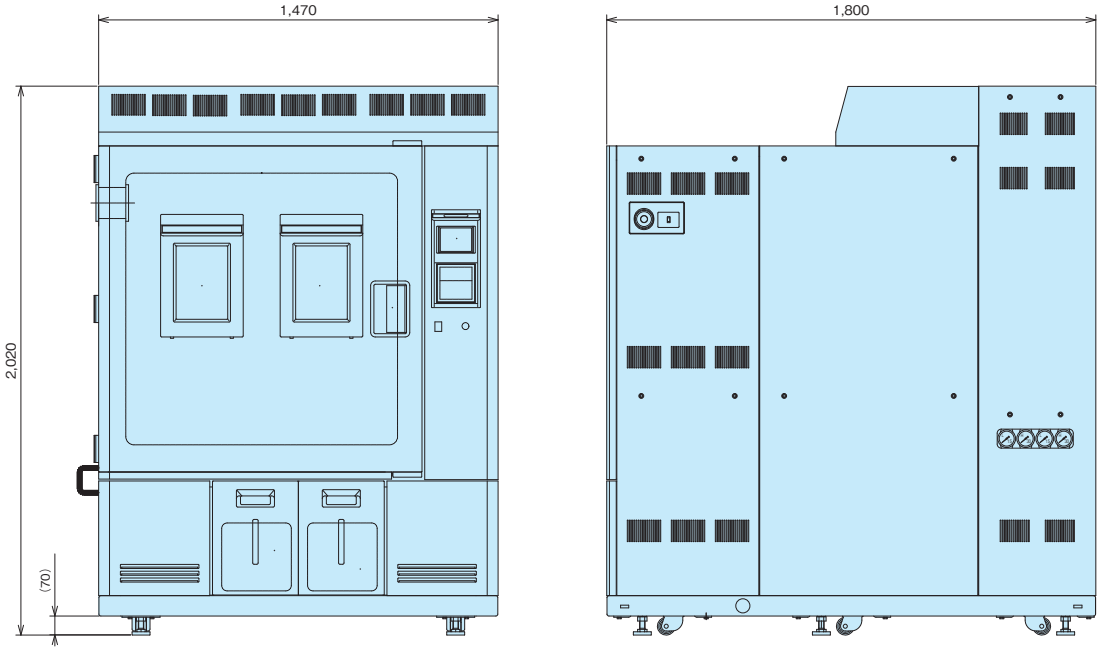
Item				Model: EC-85EX-HL
Performance	Temperature range		℃	−70 to 150
	Humidity range		%RH	20 to 98
	JTM K09	Temperature/humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 / ±3.0
			100.1℃ or higher	℃	±0.5
		Temperature/humidity gradient	100.0℃ or lower	℃/%RH	3.0 / 10
			100.1℃ or higher	℃	5.0
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	2.0 / 8.0
			100.1℃ or higher	℃	3.0
		Temperature change rate	Drop	–	2.5℃/min. (128 to -48℃)
			Rise	–	5.0℃/min. (-48 to 128℃)
		Time to reach temperature extreme	Drop	–	Within 45 min. (20 to -70℃)
			Rise	–	Within 45 min. (20 to 150℃)
Testing chamber volume				L(mm)	800 (Width 1,000 x Depth 800 x Height 1,000)
Product dimensions				mm	Width 1,470 × Depth 1,800 × Height 2,020
Exterior coating color				–	Dark gray finish
Cooling system	Cooling method			–	Water-cooling, dual refrigeration
	Refrigerant			–	Dual side: R404A (high-temperature side), R23 (low-temperature side)
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system, heater overcurrent safeguard, etc.
Equipment				–	Observation window, chamber light, cable hole, casters, level adjusters, and auto water supply connection port
Accessories				–	Shelf support, shelf, fuse, Y strainer, wick, rubber plug, and instruction manual
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz
	Maximum load current			A	62
Product weight				kg	700

Notes: 1. Can be operated in an ambient temperature from 0 to 40℃, a coolant inlet temperature from 5 to 38℃, and a power supply voltage within ±10% of the rated voltage. Although the system cannot perform as described in Note 2 within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK09, under these conditions: (1) There is no load and no sample; (2) The power supply voltage is within ±5% of the rated voltage; and (3) The ambient temperature is from 5 to 35℃and the coolant inlet temperature is from 15 to 30℃. However, values given for the temperature change rate and the time to reach extreme temperatures are at an ambient temperature of 23℃.
3. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces.

Dimensions

(Unit: mm)

EC-85EX-HL



Cosmopia STANDARD SERIES

Basic Type

Temperature and humidity chambers	Temperature chambers
HH	HT
MH	MT
MHH	MTH
LH	LT
LHH	LTH

All models are equipped with time-tested Hitachi scroll compressors.

EC-16HHP

EC-26HHP

EC-46HHP

Low Temperature Type

EC-36LHP

EC-86LHP

EC-106HHP

EC-86HHP

Photo for illustrative purposes only.
(Includes optional specification: [Temperature (humidity) recorder])

Lineup

Category	Model	Temperature range	Humidity range	Testing chamber volume					
				120L	227L	306L	408L	800L	1,000L
Temperature and humidity chambers	HH	−20 to 100℃	20 to 98%RH	EC-16HHP	EC-26HHP	—	EC-46HHP	EC-86HHP	EC-106HHP
	MH	−40 to 100℃		EC-16MHP	EC-26MHP	—	EC-46MHP	EC-86MHP	EC-106MHP
	MHH	−40 to 150℃		EC-16MHHP	EC-26MHHP	—	EC-46MHHP	EC-86MHHP	EC-106MHHP
	LH (Low Temperature Type)	−70 to 100℃		—	—	EC-36LHP	—	EC-86LHP	—
	LHH (Low Temperature Type)	−70 to 150℃		—	—	EC-36LHHP	—	EC-86LHHP	—
Temperature chambers	HT	−20 to 100℃	—	EC-16HTP	EC-26HTP	—	EC-46HTP	EC-86HTP	EC-106HTP
	MT	−40 to 100℃		EC-16MTP	EC-26MTP	—	EC-46MTP	EC-86MTP	EC-106MTP
	MTH	−40 to 150℃		EC-16MTHP	EC-26MTHP	—	EC-46MTHP	EC-86MTHP	EC-106MTHP
	LT (Low Temperature Type)	−70 to 100℃		—	—	EC-36LTP	—	EC-86LTP	—
	LTH (Low Temperature Type)	−70 to 150℃		—	—	EC-36LTHP	—	EC-86LTHP	—

Notes: 1. Air-cooling is used for these products. Water-cooling modification is available as an option.

Features

Exterior design

Stainless steel (SUS430) is used on the exterior, with a clear cover attached to the center of the system.

New functions

- Defrosting function
- Humidification delay function
- USB storage saving function
- Data log function
- Operation mode select function (selected each program step)

All models equipped with scroll compressors

All models are equipped with time-tested Hitachi scroll compressors.

Digital device to prevent excess temperature increase

The dial type device to prevent excess temperature increase has been replaced with a digital version for improved operation and temperature accuracy.

Three-year warranty on refrigeration cycle components

We provide a three-year warranty on refrigeration cycle components at no additional cost, for additional peace of mind.

*Does not apply to modified refrigeration cycle components.
*Limited to use in Japan only.

■Controller

The temperature/
humidity recorder is optional.

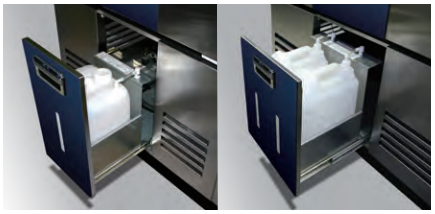
*Photo for illustrative purposes only

■LED chamber light

■External output terminal

■Cable hole

■Water supply tank



10L×1
(For 120 L to 408 L)

10L×2
(For 800/1,000 L)

■Digital device to prevent excess temperature increase

■Earth leakage circuit breaker

■Functions

Defrosting function

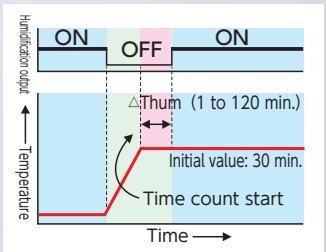
This function periodically defrosts the system at the set operation time.

- When the temperature inside the chamber is less than 5℃, the heater is used to increase the chamber temperature to the specified temperature in order to defrost the system.
- When the temperature inside the chamber is 5℃ or higher, the refrigerator is stopped in order to defrost the system.

Humidification delay function (temperature and humidity chambers)

When the humidity/temperature rises in order to prevent frost from forming on samples, this function waits for the specified time (from 1 to 120 min.) once the dry-bulb temperature reaches the specified temperature and then begins humidifying the system.

During program operation



USB storage saving function

The trend graph data can be saved to a USB storage device.This function saves data from trend graphs displayed on the LCD control panel (such as temperature and humidity measurements) as CSV files in a USB storage device.

Data log function

●Cycle data

This function saves cycle data during operation to a USB storage device.

●Back-tracing

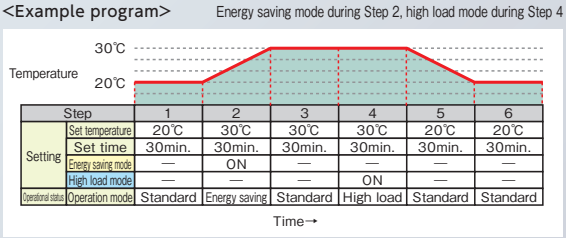
If the system stops with an alarm due to an error being detected, this function saves the operational status of the system immediately prior to stopping to a USB storage device.This data can be used for diagnosis and analysis.

Operation mode select function

The operation mode can now be set for each step during program operation (energy saving mode or high load mode). System performance settings can now be changed based on the test pattern, such as electric conduction testing.

Energy saving mode	Operates at reduced system performance, for when there are few samples or samples do not generate heat.
High load mode	Operates at increased system performance, for when there are many samples or samples generate heat.

<Example program> Energy saving mode during Step 2, high load mode during Step 4

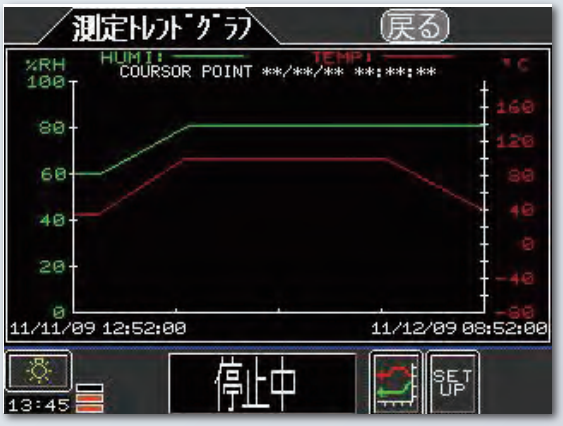


		Step	1	2	3	4	5	6
Setting		Set temperature	20℃	30℃	30℃	30℃	20℃	20℃
		Set time	30min.	30min.	30min.	30min.	30min.	30min.
		Energy saving mode	—	ON	—	—	—	—
		High load mode	—	—	—	ON	—	—
Operational status		Operation mode	Standard	Energy saving	Standard	High load	Standard	Standard

■Control panel

Equipped with highly visible, user-friendly color LCD touch panel

The touch panel can be used to configure and control the system simply by touching the screen.
The color display is highly visible and provides a wide range of functionality.

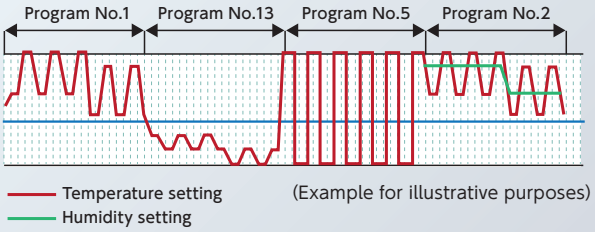


Available functions

- ■Set-point operation function
- ■Program operation function
- ■Program name input function
- ■Time signal function
- ■Program operation hold function
- ■Program operation jump function
- ■Step repeat function
- ■Combined-program operation function
- ■Trend graph display function
- ■Operation mode select function
- ■Wait function
- ■Excess temperature increase/decrease prevention function
- ■Black-out action function
- ■Power interruption safety function
- ■Fan delay function
- ■Timer function
- ■Fault detection function
- ■Measured temperature/humidity offset specification function
- ■Defrosting function
- ■Humidification delay function
- ■USB storage saving function
- ■Data log function
- ■Operation mode select function

Combined-program operation function

This function allows two or more program settings (temperature, humidity, time, repeat mode) to operate continuously (in combination). Up to five combined programs can be operated.



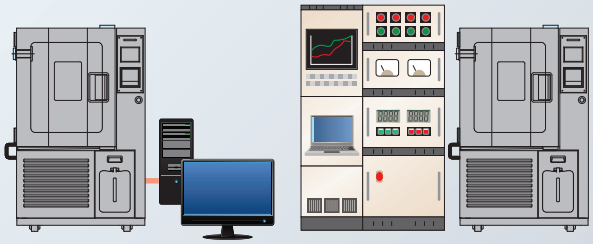
(Example for illustrative purposes)

Program name input function

With this function, you can input a program name. Program names can include alphabets, numbers, and symbols (!"#%&'()@:;.=+-*/?_) up to 14 characters (maximum).

Communication interfaces

Communication interfaces can be used to remotely control the system or take measurements from a PC or user system.



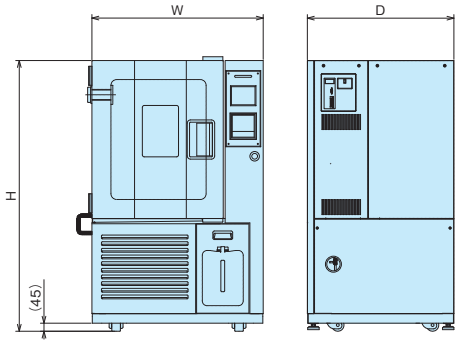
Remote control via PC　　Control via user system

Communication interfaces	
RS-232C (standard-equipped)	RS-485 (option)
Web interface (including Ethernet) (option)	

Note: Contact us for information on other communication interfaces.

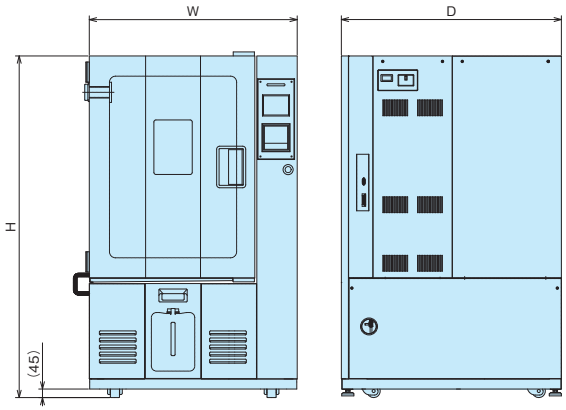
Dimensions

(Unit: mm)



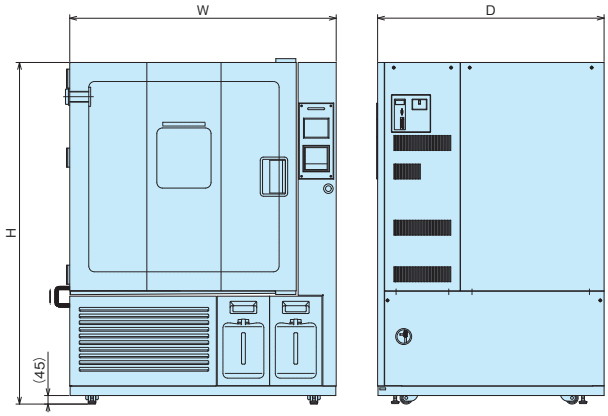
Model	Testing chamber volume (L)	External dimensions (mm)		
		W	H	D
EC-16	120	900	1,425	770
EC-26	227	1,030	1,695	770
EC-36L	306	1,030	1,695	1,090

Notes:
1. There is no observation window or chamber light included with the inner door specification.
2. There is no water supply tank or tank door included with temperature chambers.
3. Caster level adjusters are equipped as a standard.



Model	Testing chamber volume (L)	External dimensions (mm)		
		W	H	D
EC-46	408	1,030	1,695	1,090
EC-86	800	1,400	1,795	1,170
EC-106	1,000	1,400	1,795	1,370

Notes:
1. There is no observation window or chamber light included with the inner door specification.
2. There is no water supply tank or tank door included with temperature chambers.
3. Caster level adjusters are equipped as a standard.

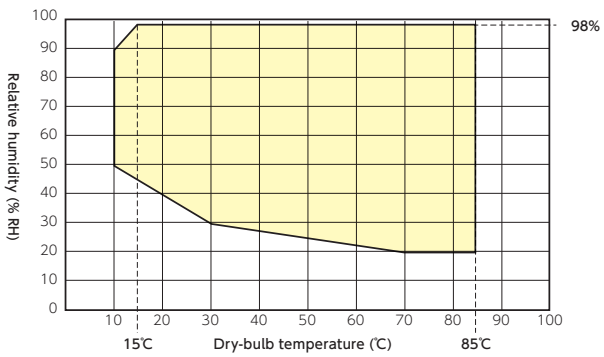


Model	Testing chamber volume (L)	External dimensions (mm)		
		W	H	D
EC-86L	800	1,400	1,795	1,190

Notes:
1. There is no observation window or chamber light included with the inner door specification.
2. There is no water supply tank or tank door included with temperature chambers.
3. Caster level adjusters are equipped as a standard.

Temperature/humidity control range

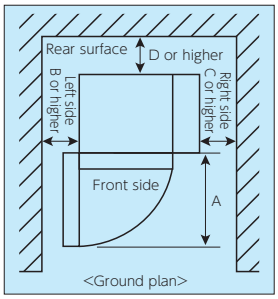
(for all temperature and humidity chamber models)



Note 1: If the dry-bulb temperature is low (approximately 30 to 40℃ or lower), the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
Note 2: Ambient temperature of 5 to 35℃, with no load.

Minimum installation space

(Unit: mm)



Model	A	B	C	D
EC-16	700	300	300	100
EC-26	830	300	300	100
EC-36L				
EC-46				
EC-86	1,200	300	300	100
EC-86L				
EC-106				

Note 1: These are the minimum dimensions required for operation.
An even larger space should be available for maintenance and inspections.

Standard specification table

Temperature and humidity chambers

Item				Model	MH					MHH				
					EC-16MHP	EC-26MHP	EC-46MHP	EC-86MHP	EC-106MHP	EC-16MHHP	EC-26MHHP	EC-46MHHP	EC-86MHHP	EC-106MHHP
Performance	Temperature/humidity range			℃/%RH	−40 to 100 ／ 20 to 98					−40 to 150 ／ 20 to 98				
	JTM K09	Temperature/humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 ／ ±2.5					±0.3 ／ ±2.5				
			100.1℃ or higher	℃	–					±0.5				
		Temperature/humidity gradient	100.0℃ or lower	℃/%RH	3.0 ／ 10				4.0 ／ 10	3.0 ／ 10				4.0 ／ 10
			100.1℃ or higher	℃	–					5.0				
		Spatial temperature/humidity deviation	100.0℃ or lower	℃/%RH	1.5 ／ 5				2.0 ／ 5	1.5 ／ 5				2.0 ／ 10
			100.1℃ or higher	℃	–					3.0				
		Temperature change rate	Drop	–	2.0℃/min. (86 to -26℃)				1.5℃/min. (86 to -26℃)	2.0℃/min. (131 to -21℃)				1.5℃/min. (131 to -21℃)
			Rise	–	3.0℃/min. (-26 to 86℃)					3.0℃/min. (-21 to 131℃)				
		Time to reach temperature extreme	Drop	–	Within 60 min. (20 to -40℃)	Within 40 min. (20 to -40℃)	Within 60 min. (20 to -40℃)	Within 90 min. (20 to -40℃)		Within 60 min. (20 to -40℃)	Within 50 min. (20 to -40℃)	Within 70 min. (20 to -40℃)	Within 90 min. (20 to -40℃)	
			Rise	–	Within 30 min. (20 to 100℃)				Within 40 min. (20 to 100℃)	Within 50 min. (20 to 150℃)				Within 65 min. (20 to 150℃)
Exterior				–	Stainless steel plate (SUS430, hairline finish)									
Testing chamber volume				L	120	227	408	800	1,000	120	227	408	800	1,000
Testing chamber dimensions	Width			mm	500	630	630	1,000	1,000	500	630	630	1,000	1,000
	Depth			mm	380	400	720	800	1,000	380	400	720	800	1,000
	Height			mm	630	900	900	1,000	1,000	630	900	900	1,000	1,000
Product dimensions	Width			mm	900	1,030	1,030	1,400	1,400	900	1,030	1,030	1,400	1,400
	Depth			mm	770	770	1,090	1,170	1,370	770	770	1,090	1,170	1,370
	Height			mm	1,425	1,695	1,695	1,795	1,795	1,425	1,695	1,695	1,795	1,795
Refrigerant				–	R404A									
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)									
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system, heater overcurrent safeguard, etc.									
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, RS-232C interface, etc.									
Accessories				–	Instruction manual, soft silicon plug for cable hole, and wick									
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz									
	Maximum load current			A	18	19	22	35	35	18	19	22	35	35
Product weight				kg	170	210	300	480	550	170	210	300	480	550

Item				Model	HH				
					EC-16HHP	EC-26HHP	EC-46HHP	EC-86HHP	EC-106HHP
Performance	Temperature/humidity range			℃/%RH	−20 to 100 ／ 20 to 98				
	JTM K09	Temperature/humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 ／ ±2.5				
			100.1℃ or higher	–	–				
		Temperature/humidity gradient	100.0℃ or lower	℃/%RH	3.0 ／ 10				4.0 ／ 10
			100.1℃ or higher	–	–				
		Spatial temperature/humidity deviation	100.0℃ or lower	℃/%RH	1.5 ／ 5				2.0 ／ 5
			100.1℃ or higher	–	–				
		Temperature change rate	Drop	–	1.5℃/min. (88 to -8℃)			1.2℃/min. (88 to -8℃)	1.0℃/min. (88 to -8℃)
			Rise	–	3.0℃/min. (-8 to 88℃)				
		Time to reach temperature extreme	Drop	–	Within 45 min. (20 to -20℃)				Within 60 min. (20 to -20℃)
			Rise	–	Within 30 min. (20 to 100℃)				Within 40 min. (20 to 100℃)
Exterior				–	Stainless steel plate (SUS430, hairline finish)				
Testing chamber volume				L	120	227	408	800	1,000
Testing chamber dimensions	Width			mm	500	630	630	1,000	1,000
	Depth			mm	380	400	720	800	1,000
	Height			mm	630	900	900	1,000	1,000
Product dimensions	Width			mm	900	1,030	1,030	1,400	1,400
	Depth			mm	770	770	1,090	1,170	1,370
	Height			mm	1,425	1,695	1,695	1,795	1,795
Refrigerant				–	R404A				
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)				
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system, heater overcurrent safeguard, etc.				
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, RS-232C interface, etc.				
Accessories				–	Instruction manual, soft silicon plug for cable hole, and wick				
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz				
	Maximum load current			A	18	19	21	34	34
Product weight				kg	150	185	245	425	480

Notes:
1. Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% of the rated voltage.
   Although the system cannot perform as described in the specification table within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK09 under the following conditions:
   (1) There is no load and no sample in the testing chamber.
   (2) The power supply voltage is within ±5% of the rated voltage.
   (3) The ambient temperature is from 5 to 35℃.
   However, the temperature change rate and the time to reach extreme temperatures depend on (4), and whether the lower limit of the temperature range is reached depends on (5).
   (4) The ambient temperature condition for the temperature change rate and the time to reach extreme temperatures is 23℃.
   (5) The ambient temperature to reach the lower limit of the temperature range is as follows:
   MH/MHH model: Ambient temperature from 5 to 30℃ (EC-16/26),
   Ambient temperature from 5 to 35℃ (EC-46/86/106)
   HH model: Ambient temperature from 5 to 35℃ (all models)
3. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
4. If the set temperature is 40℃ or lower, the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
5. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces. Refer to the separate specifications document for details.
   *Shelves and shelf supports are sold separately.

■Standard specification table

Temperature chambers

Item				Model	MT					MTH				
					EC-16MTP	EC-26MTP	EC-46MTP	EC-86MTP	EC-106MTP	EC-16MTHP	EC-26MTHP	EC-46MTHP	EC-86MTHP	EC-106MTHP
Performance	Temperature range			℃	−40 to 100					−40 to 150				
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	±0.3					±0.3				
			100.1℃ or higher	℃	–					±0.5				
		Temperature gradient	100.0℃ or lower	℃	3.0				4.0	3.0				4.0
			100.1℃ or higher	℃	–					5.0				
		Spatial temperature deviation	100.0℃ or lower	℃	1.5				2.0	1.5				2.0
			100.1℃ or higher	℃	–					3.0				
		Temperature change rate	Drop	–	2.0℃/min. (86 to -26℃)				1.5℃/min. (86 to -26℃)	2.0℃/min. (131 to -21℃)				1.5℃/min. (131 to -21℃)
			Rise	–	3.0℃/min. (-26 to 86℃)					3.0℃/min. (-21 to 131℃)				
		Time to reach temperature extreme	Drop	–	Within 60 min. (20 to -40℃)	Within 40 min. (20 to -40℃)	Within 60 min. (20 to -40℃)	Within 90 min. (20 to -40℃)		Within 60 min. (20 to -40℃)	Within 50 min. (20 to -40℃)	Within 70 min. (20 to -40℃)	Within 90 min. (20 to -40℃)	
			Rise	–	Within 30 min. (20 to 100℃)				Within 40 min. (20 to 100℃)	Within 50 min. (20 to 150℃)				Within 65 min. (20 to 150℃)
Exterior				–	Stainless steel plate (SUS430, hairline finish)									
Testing chamber volume				L	120	227	408	800	1,000	120	227	408	800	1,000
Testing chamber dimensions	Width			mm	500	630	630	1,000	1,000	500	630	630	1,000	1,000
	Depth			mm	380	400	720	800	1,000	380	400	720	800	1,000
	Height			mm	630	900	900	1,000	1,000	630	900	900	1,000	1,000
Product dimensions	Width			mm	900	1,030	1,030	1,400	1,400	900	1,030	1,030	1,400	1,400
	Depth			mm	770	770	1,090	1,170	1,370	770	770	1,090	1,170	1,370
	Height			mm	1,425	1,695	1,695	1,795	1,795	1,425	1,695	1,695	1,795	1,795
Refrigerant				–	R404A									
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)									
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, heater overcurrent safeguard, etc.									
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, RS-232C interface, etc.									
Accessories				–	Instruction manual, soft silicon plug for cable hole									
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz									
	Maximum load current			A	13	14	17	25	25	13	14	17	25	25
Product weight				kg	165	205	295	470	540	165	205	295	470	540

Item				Model	HT				
					EC-16HTP	EC-26HTP	EC-46HTP	EC-86HTP	EC-106HTP
Performance	Temperature range			℃	−20 to 100				
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	±0.3				
			100.1℃ or higher	–	–				
		Temperature gradient	100.0℃ or lower	℃	3.0				4.0
			100.1℃ or higher	–	–				
		Spatial temperature deviation	100.0℃ or lower	℃	1.5				2.0
			100.1℃ or higher	–	–				
		Temperature change rate	Drop	–	1.5℃/min. (88 to -8℃)			1.2℃/min. (88 to -8℃)	1.0℃/min. (88 to -8℃)
			Rise	–	3.0℃/min. (-8 to 88℃)				
		Time to reach temperature extreme	Drop	–	Within 45min. (20 to -20℃)				Within 60 min. (20 to -20℃)
			Rise	–	Within 30 min. (20 to 100℃)				Within 45 min. (-20 to 100℃)
Exterior				–	Stainless steel plate (SUS430, hairline finish)				
Testing chamber volume				L	120	227	408	800	1,000
Testing chamber dimensions	Width			mm	500	630	630	1,000	1,000
	Depth			mm	380	400	720	800	1,000
	Height			mm	630	900	900	1,000	1,000
Product dimensions	Width			mm	900	1,030	1,030	1,400	1,400
	Depth			mm	770	770	1,090	1,170	1,370
	Height			mm	1,425	1,695	1,695	1,795	1,795
Refrigerant				–	R404A				
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)				
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, heater overcurrent safeguard, etc.				
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, RS-232C interface, etc.				
Accessories				–	Instruction manual and soft silicon plug for cable hole				
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz				
	Maximum load current			A	12	13	16	23	23
Product weight				kg	145	180	240	415	470

Notes:

1. Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% of the rated voltage.
   Although the system cannot perform as described in the specification table within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK07 under the following conditions:
   (1) There is no load and no sample in the testing chamber.
   (2) The power supply voltage is within ±5% of the rated voltage.
   (3) The ambient temperature is from 5 to 35℃.
   However, the temperature change rate and the time to reach extreme temperatures depend on (4), and whether the lower limit of the temperature range is reached depends on (5).
   (4) The ambient temperature condition for the temperature change rate and the time to reach extreme temperatures is 23℃.
   (5) The ambient temperature to reach the lower limit of the temperature range is as follows:
   MT/MTH model: Ambient temperature from 5 to 30℃ (EC-16/26),
   Ambient temperature from 5 to 35℃ (EC-46/86/106)
   HT model: Ambient temperature from 5 to 35℃ (all models)
3. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
4. If the set temperature is 40℃ or lower, the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
5. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces. Refer to the separate specifications document for details.
   *Shelves and shelf supports are sold separately.

Standard specification table

Temperature and humidity chambers

Item \ Model				LH		LHH	
				EC-36LHP	EC-86LHP	EC-36LHHP	EC-86LHHP
Performance	Temperature range		℃	−70 to 100		−70 to 150	
	Humidity range		%RH	20 to 98			
	JTM K09 Temperature/humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 / ±2.5			
		100.1℃ or higher	℃	–	–	±0.5	
	JTM K09 Temperature/humidity gradient	100.0℃ or lower	℃/%RH	4.0 / 10			
		100.1℃ or higher	℃	–	–	7.0	
	JTM K09 Spatial temperature/humidity deviation	100.0℃ or lower	℃/%RH	3.0 / 5			
		100.1℃ or higher	℃	–	–	4.0	
	Temperature change rate	Drop	–	1.0℃/min. (83 to -53℃)		1.0℃/min. (128 to -48℃)	
		Rise	–	3.0℃/min. (-53 to 83℃)		3.0℃/min. (-48 to 128℃)	
	Time to reach temperature extreme	Drop	–	Within 70 min. (20 to -70℃)		Within 75 min. (20 to -70℃)	
		Rise	–	Within 30 min. (20 to 100℃)		Within 50 min. (20 to 150℃)	
Exterior			–	Stainless steel plate (SUS430, hairline finish)			
Testing chamber volume			L	306	800	306	800
Testing chamber dimensions	Width		mm	630	1,000	630	1,000
	Depth		mm	540	800	540	800
	Height		mm	900	1,000	900	1,000
Product dimensions	Width		mm	1,030	1,400	1,030	1,400
	Depth		mm	1,090	1,190	1,090	1,190
	Height		mm	1,695	1,795	1,695	1,795
Refrigerant			–	Dual refrigeration high-temperature side: R404A, Dual refrigeration low-temperature side: R508A			
Controller			–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)			
Safeguards			–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system, heater overcurrent safeguard, etc.			
Equipment			–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, RS-232C interface, etc.			
Accessories			–	Instruction manual, soft silicon plug for cable hole, and wick			
Electrical characteristics	Power supply		–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz			
	Maximum load current		A	30	48	30	48
Product weight			kg	370	560	370	560

Notes:
1. Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% of the rated voltage.
   Although the system cannot perform as described in the specification table within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK09 under the following conditions:
   (1) There is no load and no sample in the testing chamber.
   (2) The power supply voltage is within ±5% of the rated voltage.
   (3) The ambient temperature is from 5 to 35℃. However, the temperature change rate and the time to reach extreme temperatures depend on (4), and whether the lower limit of the temperature range is reached depends on (5).
   (4) The ambient temperature condition for the temperature change rate and the time to reach extreme temperatures is 23℃.
   (5) The ambient temperature to reach the lower limit of the temperature range is from 5 to 35℃.
3. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
4. If the set temperature is 40℃ or lower, the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
5. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces. Refer to the separate specifications document for details.
   *Shelves and shelf supports are sold separately.

Standard specification table

Temperature chambers

Item \ Model					LT		LTH	
					EC-36LTP	EC-86LTP	EC-36LTHP	EC-86LTHP
Performance	Temperature range			℃	−70 to 100		−70 to 150	
	Humidity range			–	–			
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	±0.3			
			100.1℃ or higher	℃	–	–	±0.5	
		Temperature gradient	100.0℃ or lower	℃	4.0			
			100.1℃ or higher	℃	–	–	7.0	
		Spatial temperature deviation	100.0℃ or lower	℃	3.0			
			100.1℃ or higher	℃	–	–	4.0	
		Temperature change rate	Drop	–	1.0℃/min. (83 to -53℃)		1.0℃/min. (128 to -48℃)	
			Rise	–	3.0℃/min. (-53 to 83℃)		3.0℃/min. (-48 to 128℃)	
		Time to reach temperature extreme	Drop	–	Within 70 min. (20 to -70℃)		Within 75 min. (20 to -70℃)	
			Rise	–	Within 30 min. (20 to 100℃)		Within 50 min. (20 to 150℃)	
Exterior				–	Stainless steel plate (SUS430, hairline finish)			
Testing chamber volume				L	306	800	306	800
Testing chamber dimensions	Width			mm	630	1,000	630	1,000
	Depth			mm	540	800	540	800
	Height			mm	900	1,000	900	1,000
Product dimensions	Width			mm	1,030	1,400	1,030	1,400
	Depth			mm	1,090	1,190	1,090	1,190
	Height			mm	1,695	1,795	1,695	1,795
Refrigerant				–	Dual refrigeration high-temperature side: R404A, Dual refrigeration low-temperature side: R508A			
Controller				–	Operation modes (set-point or program operation [Steps: 20 per pattern, Repetitions: Max. 98 and infinite])			
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, heater overcurrent safeguard, etc.			
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, RS-232C interface, etc.			
Accessories				–	Instruction manual and soft silicon plug for cable hole			
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz			
	Maximum load current			A	28	44	28	44
Product weight				kg	365	550	365	550

Notes:

1. Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% of the rated voltage.
   Although the system cannot perform as described in the specification table within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK07 under the following conditions:
   (1) There is no load and no sample in the testing chamber.
   (2) The power supply voltage is within ±5% of the rated voltage.
   (3) The ambient temperature is from 5 to 35℃. However, the temperature change rate and the time to reach extreme temperatures depend on (4), and whether the lower limit of the temperature range is reached depends on (5).
   (4) The ambient temperature condition for the temperature change rate and the time to reach extreme temperatures is 23℃.
   (5) The ambient temperature to reach the lower limit of the temperature range is from 5 to 35℃.
3. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
4. If the set temperature is 40℃ or lower, the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
5. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces. Refer to the separate specifications document for details.
   *Shelves and shelf supports are sold separately.

High Performance Type

Temperature and humidity chambers: MH, MHH
Temperature chambers: MT, MTH

Bringing temperature and humidity chambers and temperature chambers to the next level

The High Performance Type offers excellent energy saving performance, temperature change performance, and continuous operation functionality.

Testing chamber volume 408L
EC-46MHPE

Testing chamber volume 800L
EC-86MHPE

*Photo for illustrative purposes only. (Includes optional specification: [Temperature (humidity) recorder])

Lineup

Category	Model	Temperature range	Humidity range	Testing chamber volume	
				408L	800L
Temperature and humidity chambers	MH	−40 to 100℃	20 to 98%RH	EC-46MHPE	EC-86MHPE
	MHH	−40 to 150℃		EC-46MHHPE	EC-86MHHPE
Temperature chambers	MT	−40 to 100℃	—	EC-46MTPE	EC-86MTPE
	MTH	−40 to 150℃		EC-46MTHPE	EC-86MTHPE

Notes: 1. Air-cooling is used for these products. Water-cooling modification is available as an option.

■Controller

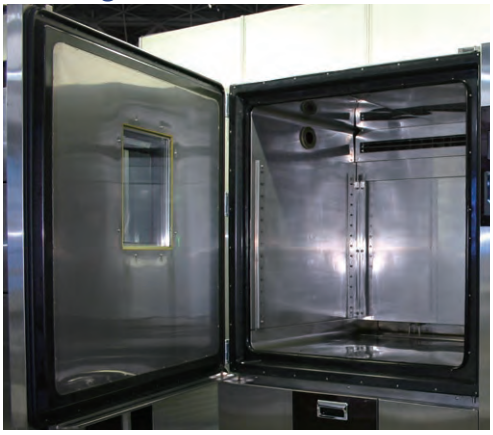
The temperature/humidity recorder is optional.

*Photo for illustrative purposes only

■Device to prevent excess temperature increase and earth leakage circuit breaker

■LED chamber light

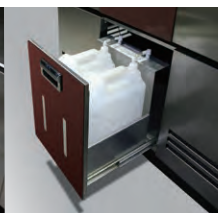
■Testing chamber



■Cable hole

■Water supply tank

10 L x 1
(For EC-46MHPE)

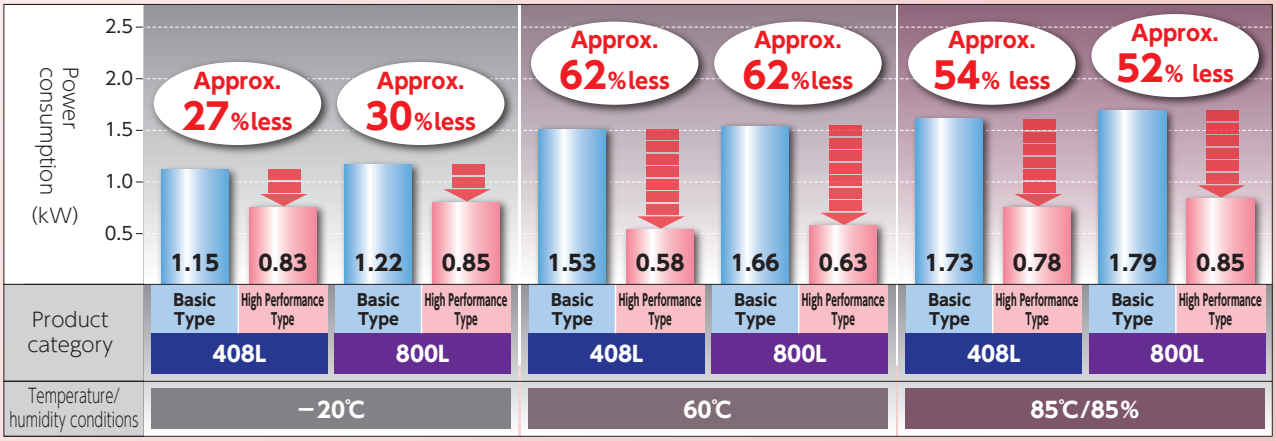


10 L x 2
(For EC-86MHPE)

Energy saving performance

Scroll compressor inverter control provides enhanced energy saving performance.

Inverter control of the scroll compressor (600 W) of refrigerator 1 delivers excellent energy saving performance throughout the entire temperature/humidity control range (system is equipped with two refrigerators).



*Comparison between the High Performance Type and the Basic Type running in energy saving mode at an ambient temperature of 23℃.

408L Basic Type: EC-46MHP 408L High Performance Type: EC-46MHPE ┆ 800L Basic Type: EC-86MHP 800L High Performance Type: EC-86MHPE

Temperature change performance

Temperature fluctuation (drop time) performance has improved by simultaneous operation of two refrigerators.

When the temperature changes (drops), refrigerator 1 and refrigerator 2 are used together to increase refrigeration performance, resulting in a temperature change rate of 3℃ /min for both temperature rise and drop.

Refrigerator 1	Main inverter-controlled refrigerator
Refrigerator 2	Refrigerator used during temperature changes and in the low-temperature range

Temperature rise rate = $\frac{\Delta t}{T_1}$ Temperature drop rate = $\frac{\Delta t}{T_2}$

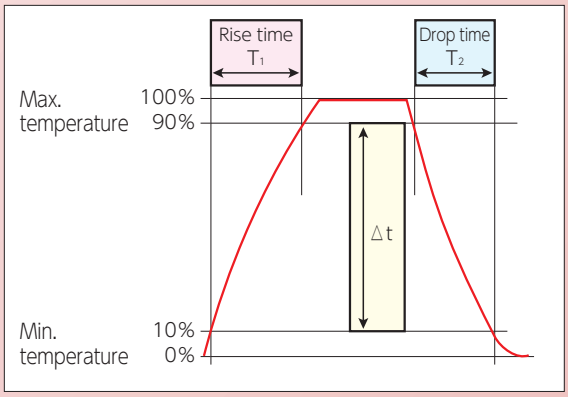
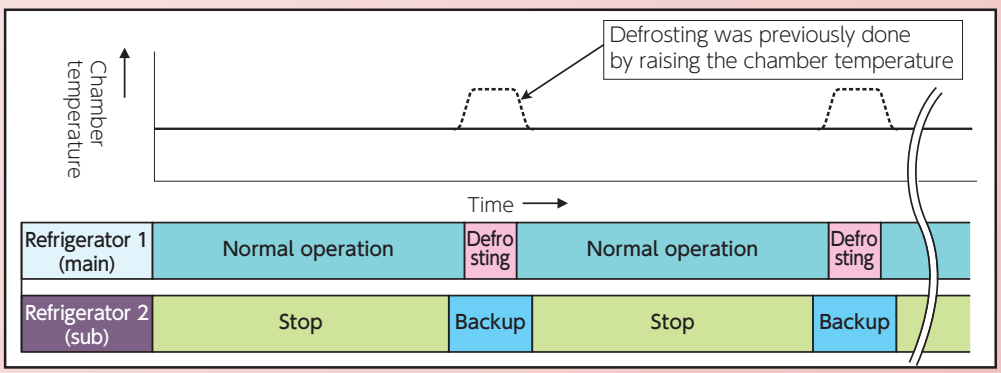


Chart to explain the general definition of the temperature change rate

Continuous operation performance

The system comes equipped as a standard with continuous operation functionality, which operates the two refrigerators alternately.

This new function allows for continuous operation. In operation modes where refrigerator 1 operates on its own, refrigerator 2 provides backup support during refrigerator 1 defrosting operations (off-cycle defrosting caused by the refrigerator stopping). This function provides both constant temperature control and constant temperature and humidity control when the dry-bulb temperature is from 10 to 40℃.



Continuous operation

Note: The temperature/humidity may change when switching refrigerators.

Standard specification table

Temperature and humidity chambers

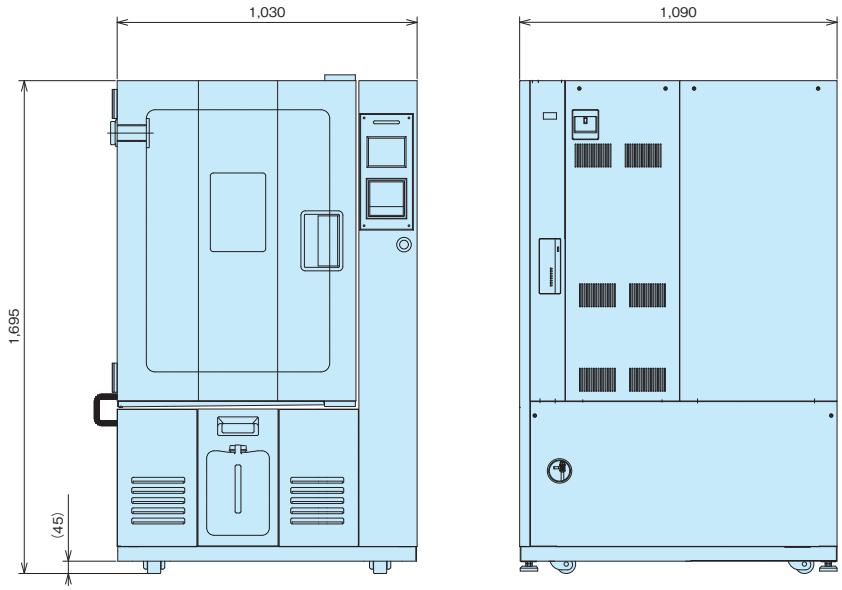
Item \ Model					EC-46MHPE	EC-46MHHPE	EC-86MHPE	EC-86MHHPE
Performance	Temperature range			℃	−40 to 100	−40 to 150	−40 to 100	−40 to 150
	Humidity range			%RH	20 to 98			
	JTM K09	Temperature/humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3／±2.5			
			100.1℃ or higher	℃	–	±0.5	–	±0.5
		Temperature/humidity gradient	100.0℃ or lower	℃/%RH	3.0／10			
			100.1℃ or higher	℃	–	5.0	–	5.0
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	1.5／5			
			100.1℃ or higher	℃	–	3.0	–	3.0
		Temperature change rate	Drop	–	3.0℃／min.(86 to −26℃)	3.0℃／min.(131 to −21℃)	3.0℃／min.(86 to −26℃)	3.0℃／min.(131 to −21℃)
			Rise	–	3.0℃／min.(−26 to 86℃)	3.0℃／min.(−21 to 131℃)	3.0℃／min.(−26 to 86℃)	3.0℃／min.(−21 to 131℃)
		Time to reach temperature extreme	Drop	–	Within 40 min. (20 to −40℃)			
			Rise	–	Within 30 min. (20 to 100℃)	Within 40 min. (20 to 150℃)	Within 30 min. (20 to 100℃)	Within 40 min. (20 to 150℃)
Exterior				–	Stainless steel plate (SUS430, hairline finish)			
Testing chamber volume				L(mm)	408 (Width 630 x Depth 720 x Height 900)		800 (Width 1,000 x Depth 800 x Height 1,000)	
Product dimensions				mm	Width 1,030 × Depth 1,090 × Height 1,695		Width 1,400 × Depth 1,170 × Height 1,795	
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)			
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system, heater overcurrent safeguard, etc.			
Compressor	Type			–	Scroll + scroll			
	Output			–	0.6 kW (inverter control) + 1.1 kW		0.6 kW (inverter control) + 1.5 kW	
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, and USB port			
Accessories				–	Instruction manual, soft silicon plug for cable hole, and wick			
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz			
	Maximum load current			A	23		39	
Product weight				kg	315		520	

Note: 1. Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% of the rated voltage.
Although the system cannot perform as described in the specification table within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK09 under the following conditions:
(1) There is no load and no sample in the testing chamber.
(2) The power supply voltage is within ±5% of the rated voltage.
(3) The ambient temperature is from 5 to 35° C. However, the temperature change rate and the time to reach extreme temperatures depend on (4), and whether the lower limit of the temperature range is reached depends on (5).
(4) The ambient temperature condition for the temperature change rate and the time to reach extreme temperatures is 23℃.
(5) The ambient temperature to reach the lower limit of the temperature range is from 5 to 35℃.
3. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
4. If the set temperature is 40℃ or lower, the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
5. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces. Refer to the separate specifications document for details.
*Shelves and shelf supports are sold separately.

Dimensions

(Unit: mm)

EC-46



Standard specification table

Temperature chambers

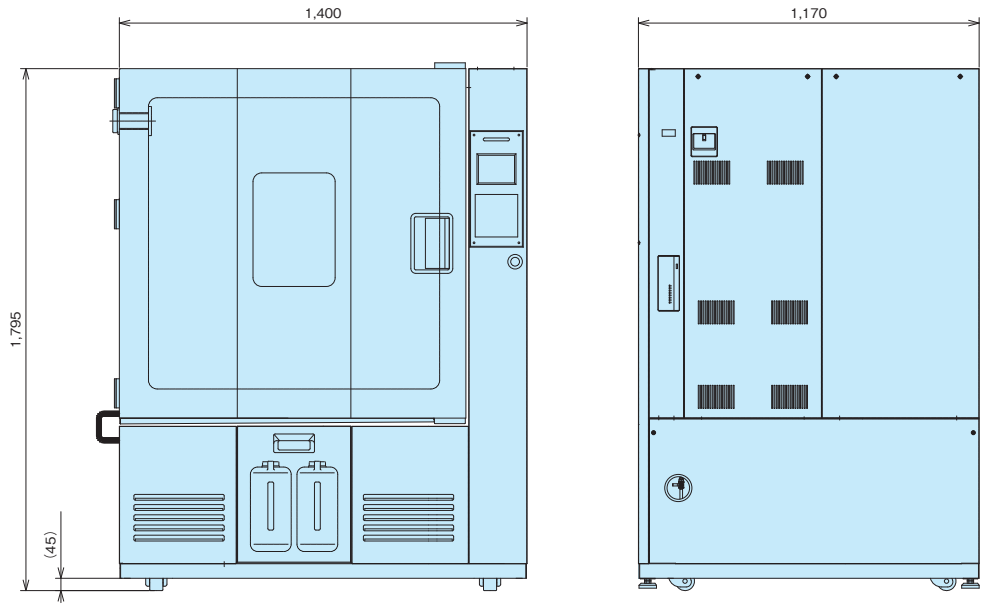
Item \ Model					EC-46MTPE	EC-46MTHPE	EC-86MTPE	EC-86MTHPE
Performance	Temperature range			℃	−40 to 100	−40 to 150	−40 to 100	−40 to 150
	Humidity range			–	–			
	JTM K07	Temperature/ humidity fluctuation	100.0℃ or lower	℃	±0.3			
			100.1℃ or higher	℃	–	±0.5	–	±0.5
		Temperature/ humidity gradient	100.0℃ or lower	℃	3.0			
			100.1℃ or higher	℃	–	5.0	–	5.0
		Spatial temperature /humidity deviation	100.0℃ or lower	℃	1.5			
			100.1℃ or higher	℃	–	3.0	–	3.0
		Temperature change rate	Drop	–	3.0℃／min. (86 to −26℃)	3.0℃／min. (131 to −21℃)	3.0℃／min. (86 to −26℃)	3.0℃／min. (131 to −21℃)
			Rise	–	3.0℃／min. (−26 to 86℃)	3.0℃／min. (−21 to 131℃)	3.0℃／min. (−26 to 86℃)	3.0℃／min. (−21 to 131℃)
		Time to reach temperature extreme	Drop	–	Within 40 min. (20 to −40℃)			
			Rise	–	Within 30 min. (20 to 100℃)	Within 40 min. (20 to 150℃)	Within 30 min. (20 to 100℃)	Within 40 min. (20 to 150℃)
Exterior				–	Stainless steel plate (SUS430, hairline finish)			
Testing chamber volume				L(mm)	408 (Width 630 x Depth 720 x Height 900)		800 (Width 1,000 x Depth 800 x Height 1,000)	
Product dimensions				mm	Width 1,030 × Depth 1,090 × Height 1,695		Width 1,400 × Depth 1,170 × Height 1,795	
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)			
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, heater overcurrent safeguard, etc.			
Compressor	Type			–	Scroll + scroll			
	Output			–	0.6 kW (inverter control) + 1.1 kW		0.6 kW (inverter control) + 1.5 kW	
Equipment				–	Observation window, cable hole, chamber light, casters, level adjusters, USB port, etc.			
Accessories				–	Instruction manual and soft silicon plug for cable hole			
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz			
	Maximum load current			A	18		29	
Product weight				kg	310		515	

Note: 1. Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% of the rated voltage.
Although the system cannot perform as described in the specification table within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. Performance values are given in accordance with JTMA Standard JTMK07 under the following conditions:
(1) There is no load and no sample in the testing chamber.
(2) The power supply voltage is within ±5% of the rated voltage.
(3) The ambient temperature is from 5 to 35℃. However, the temperature change rate and the time to reach extreme temperatures depend on (4), and whether the lower limit of the temperature range is reached depends on (5).
(4) The ambient temperature condition for the temperature change rate and the time to reach extreme temperatures is 23℃.
(5) The ambient temperature to reach the lower limit of the temperature range is from 5 to 35℃.
3. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
4. If the set temperature is 40℃ or lower, the continuous operation time will be limited due to frost forming on the cooler/dehumidifier.
5. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces. Refer to the separate specifications document for details.
*Shelves and shelf supports are sold separately.

Dimensions

(Unit: mm)

EC-86



Large Size Type

Temperature and humidity chambers: MH, MHH
Temperature chambers: MT, MTH

Can be used to test large products, such as 50-inch class LCDs.

Testing chamber volume 1,500L

Photo for illustrative purposes only.
(Includes optional specification:[Temperature (humidity) recorder])

Large sample testing

Expand the test chamber dimensions to accommodate large-size sample testing, such as large displays (e.g., LCD panels) or solar cell modules.

Item	Specification
Testing chamber dimensions (W×D×H)	1,000mm×1,500mm×1,000mm
Testing chamber volume	1,500L

Greater ease of use

The system uses a capacitive humidity sensor, and unlike dry/wet bulb type systems, there is no need to replace the wick.
It uses an LED chamber light that is brighter and uses less energy.

Uses less power

The system has two refrigeration cycles, and uses a combination of inverter control and fixed speed control. When under low-load testing conditions, refrigerator conditions are adjusted to suit the testing conditions, reducing power consumption.

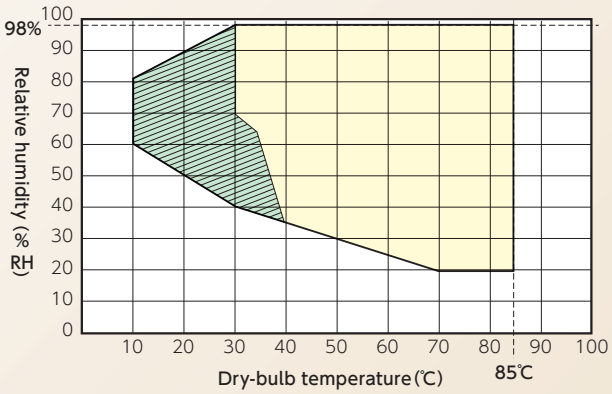
Can handle 2 kW heat generation loads

The system has a permissible heat generation load of 2 kW at 40℃ and 90% RH (high load mode).The system has a permissible heat generation load of 2 kW at 40℃ and 90% RH (high load mode).
It can handle testing with a heat generation load, such as testing powered samples.

Temperature/humidity control range

Supports a wide temperature/humidity testing range (10 to 85° C, 20 to 98% RH):

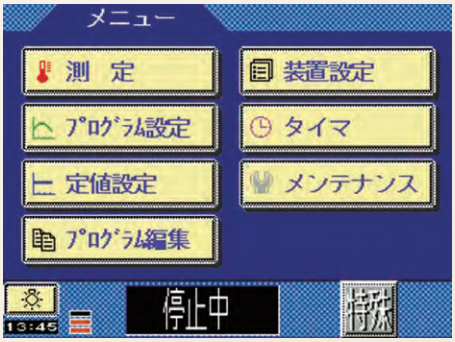
■Temperature/humidity control range
(for all temperature and humidity chamber models)

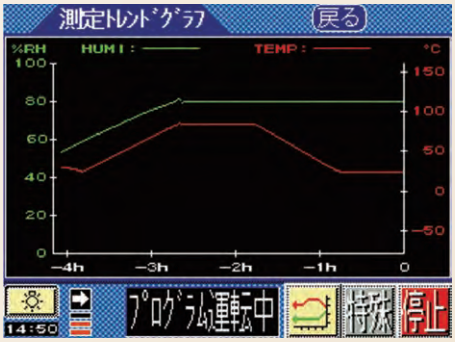


Notes: 1. Applicable when the ambient temperature is from 5 to 35℃, the coolant inlet temperature is from 18 to 32° C, the power supply voltage is within ±5% of the rated voltage, and there is no load.
2. ▨ The continuous operation time will be limited due to frost forming on the cooler/dehumidifier.

Equipped with highly visible, user-friendly color LCD touch panel

The touch panel can be used to configure and control the system simply by touching the screen.
The color display is highly visible and provides a wide range of functionality.





Standard specification table

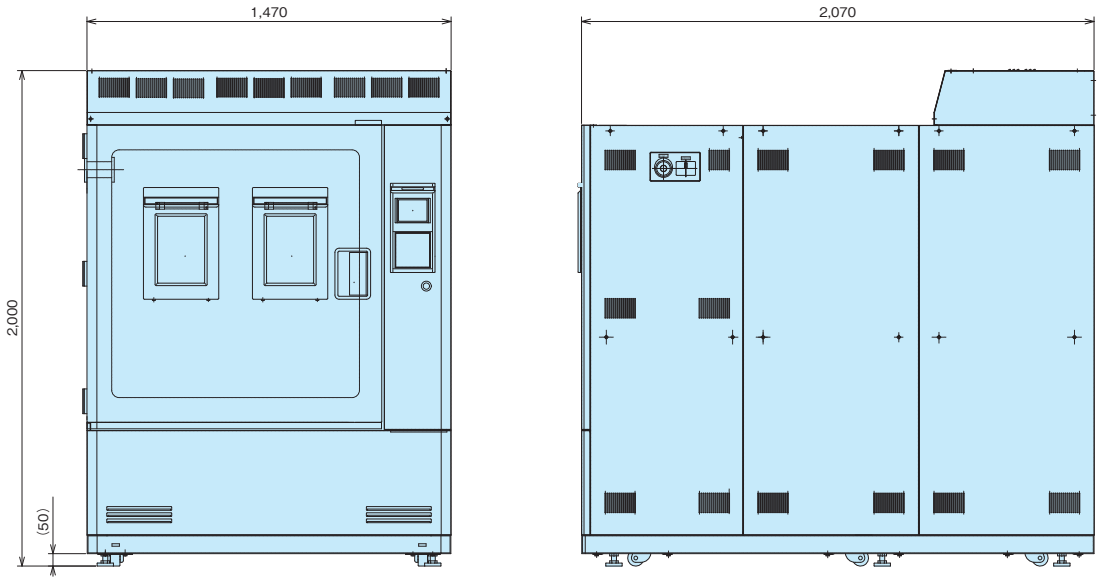
Item				Model	Temperature and humidity chambers		Temperature chambers	
					EC-155MHP	EC-155MHHP	EC-155MTP	EC-155MTHP
Performance	Temperature range			℃	−40 to 100	−40 to 150	−40 to 100	−40 to 150
	Humidity range			%RH	20 to 98		–	
	JTM K09	Temperature/ humidity fluctuation	100.0℃ or lower	℃/%RH	±0.3 / ±3.0			
			100.1℃ or higher	℃	–	±0.5		
		Temperature/ humidity gradient	100.0℃ or lower	℃/%RH	4.0 / 10.0			
			100.1℃ or higher	℃	–	5.0		
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	3.0 / 8.0			
			100.1℃ or higher	℃	–	4.0		
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	–		±0.3	
			100.1℃ or higher	℃			–	±0.5
		Temperature gradient	100.0℃ or lower	℃			4.0	
			100.1℃ or higher	℃			–	5.0
		Spatial temperature deviation	100.0℃ or lower	℃			3.0	
			100.1℃ or higher	℃			–	4.0
	For JTM K09 K07	Temperature change rate	Drop	–	1.0℃/min. (86 to -26℃)	1.0℃/min. (131 to -21℃)	1.0℃/min. (86 to -26℃)	1.0℃/min. (131 to -21℃)
			Rise	–	2.0℃/min. (-26 to 86℃)	2.0℃/min. (-21 to 131℃)	2.0℃/min. (-26 to 86℃)	2.0℃/min. (-21 to 131℃)
		Time to reach temperature extreme	Drop	–	Within 70 min. (20 to -40℃)			
			Rise	–	Within 40 min. (20 to 100℃)	Within 50 min. (20 to 150℃)	Within 40 min. (20 to 100℃)	Within 50 min. (20 to 150℃)
Testing chamber volume				L(mm)	1,500 L (Width 1,000 x Depth 1,500 x Height 1,000)			
Product dimensions				mm	Width 1,470 × Depth 2,070 × Height 2,000			
Exterior coating color				–	Natural gray (Munsell code: 1.0Y8.5/0.5)			
Cooling system	Cooling method			–	Water-cooling, single-stage compression refrigeration x 2			
	Refrigerant			–	R404A			
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)			
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system (temperature and humidity chambers only), heater overcurrent safeguard, etc.			
Equipment				–	Observation window, chamber light, cable hole, casters, level adjusters, and auto water supply connection port (for humidification [155MHP and 155MHHP])			
Accessories				–	Shelf support, shelf, fuse, Y strainer, rubber plug, and instruction manual			
Coolant				–	2,400 L/h (coolant inlet temperature 32° C), Pressure: 0.1 to 0.5 MPa, Piping diameter (system side): Rc1			
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz			
	Maximum load current			A	70		50	
Product weight				kg	850		830	

Notes: 1. Can be operated in an ambient temperature from 0 to 40° C, a coolant inlet temperature from 5 to 38° C, and a power supply voltage within ±10% rated voltage.
2. Performance values are given in accordance with JTMA Standard JTMK07/JTMK09 under the following conditions:
(1) There is no load and no sample. (2) The power supply voltage is within ±5% of the rated voltage. (3) The ambient temperature is from 5 to 35° C and the coolant inlet temperature is from 15 to 30° C.
However, values given for the temperature change rate and the time to reach extreme temperatures are at an ambient temperature of 23° C and a coolant inlet temperature of 25° C.
3. The maximum load current is the value at an ambient temperature of 23° C, coolant inlet temperature of 25° C, and the specified power supply voltage.

Dimensions

(Unit: mm)

EC-155



Large Size Type

Temperature and humidity chambers: MH, MHH, LH, LHH
Temperature chambers: MT, MTH, LT, LTH

Type configurations

Category	Model	Temperature range	Humidity range	Testing chamber volume 3,780L
Temperature and humidity chambers	MH	−50 to 100℃	20 to 95%RH	EC-385MHP
	MHH	−50 to 150℃		EC-385MHHP
	LH	−70 to 100℃		EC-385LHP
	LHH	−70 to 150℃		EC-385LHHP
Temperature chambers	MT	−50 to 100℃	—	EC-385MTP
	MTH	−50 to 150℃		EC-385MTHP
	LT	−70 to 100℃		EC-385LTP
	LTH	−70 to 150℃		EC-385LTHP

Testing chamber volume 3,780L

Photo for illustrative purposes only.
(Includes optional specification: [Temperature (humidity) recorder])

Large testing chamber

The large testing chamber has a volume of 3,780 L to support the testing of large samples such as solar cell modules, large displays, and secondary batteries.

Item	Specification
Testing chamber dimensions (W x D x H)	1,400mm×1,800mm×1,500mm
Testing chamber volume	3,780L

Compliant with solar cell module evaluation testing standards

The system can handle condensation/freezing testing in compliance with evaluation testing standards for solar cell modules (IEC 61646 [Edition 2.0]).

<Supported testing standards>

●IEC 61646 (Edition2.0):

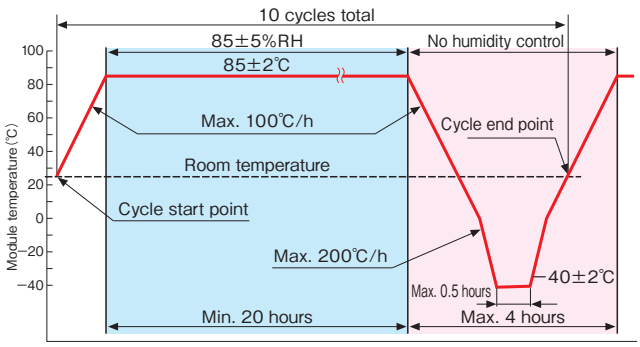
Temperature cycle testing, condensation/freezing testing, and humidity/heat testing

●JIS C 8917•8938:

Temperature cycle testing, temperature/humidity cycle testing, heat resistance testing, and humidity resistance testing

*(Compatible models: EC-385MHP, EC-385MHHP, EC-385LHP, and EC-385LHHP)

<IEC 61646 (Edition 2.0) condensation/freezing cycle> (For illustrative purposes)



Refrigerator control

Refrigerator control is adjusted to suit operation conditions and run at reduced refrigeration performance under high-temperature (humidity) testing conditions with low refrigeration performance requirements, reducing power consumption.

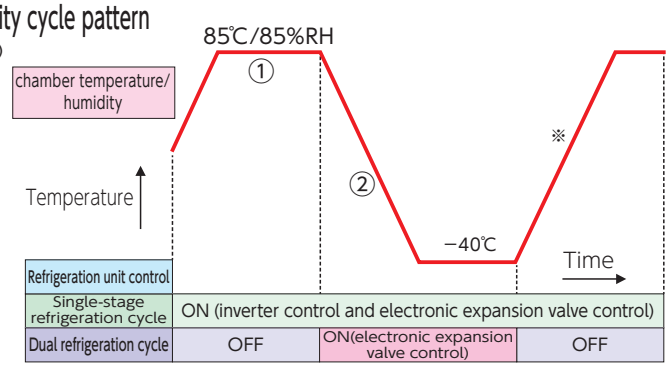
Operation conditions		Refrigerator control	
Operational status	Operation example	Refrigeration cycle	Refrigeration performance control
During temperature rise[1]	−40℃→85℃/85%RH	Single-stage refrigeration cycle operation[2]	Refrigeration performance reduced by inverter control
During high-temperature (humidity) operation	85℃/85%RH	Single-stage refrigeration cycle operation	Refrigeration performance increased by inverter control and electronic expansion valve control
During temperature drop	85℃/85%RH→−40℃	Dual refrigeration cycle operation[3]	Refrigeration performance increased by electronic expansion valve control

■Temperature/humidity cycle pattern

(For illustrative purposes)

(1) Operation is performed at reduced refrigeration performance.
(2) Operation is performed at increased refrigeration performance for both single-stage refrigeration cycle and dual refrigeration cycle.

Note: The asterisk * (when temperature rises) indicates when the temperature change time is set.



Notes: 1. When temperature rises, the system switches to single-stage refrigeration cycle operation if the temperature change time was set.
2. The single-stage refrigeration cycle provides inverter control and electronic expansion valve control functionalities.
3. The dual refrigeration cycle provides electronic expansion valve control functionality.

*(Compatible models: EC-385MHP, EC-385MHHP, EC-385LHP, and EC-385LHHP)

Standard specification table

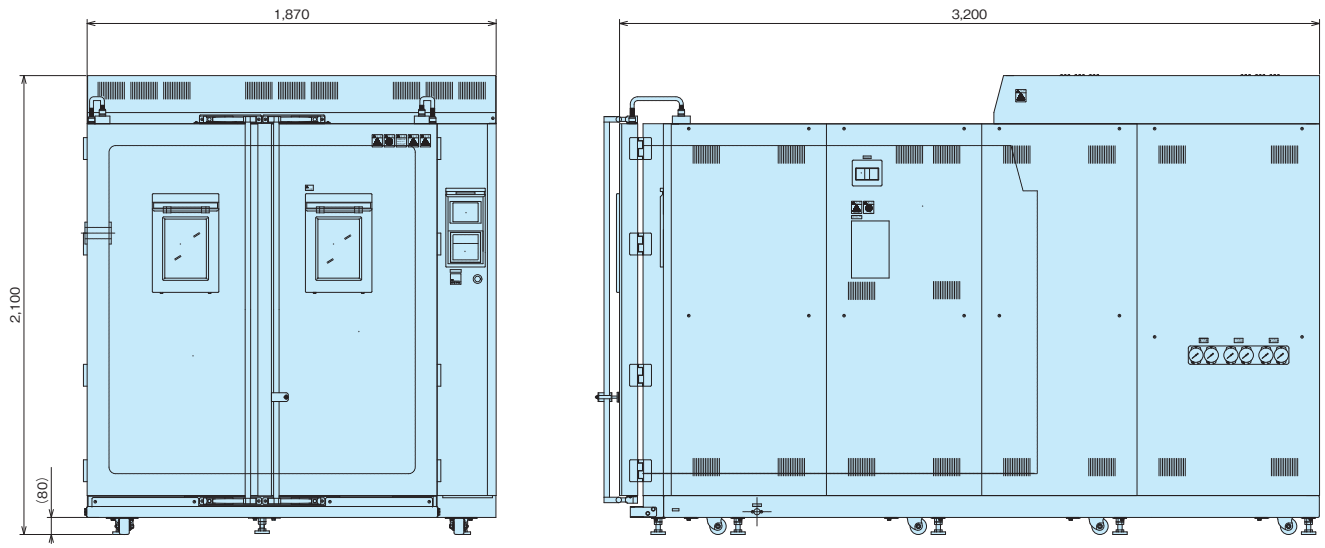
Item \ Model					Temperature and humidity chambers				Temperature chambers			
					EC-385MHP	EC-385MHHP	EC-385LHP	EC-385LHHP	EC-385MTP	EC-385MTHP	EC-385LTP	EC-385LTHP
Performance	Temperature range			℃	−50 to 100	−50 to 150	−70 to 100	−70 to 150	−50 to 100	−50 to 150	−70 to 100	−70 to 150
	Humidity range			%RH	20 to 95				–			
	JTM K09	Temperature/ humidity fluctuation	100.0℃ or lower	℃/%RH	±0.5 / ±3.0							
			100.1℃ or higher	℃	–	±1.0	–	±1.0				
		Temperature/ humidity gradient	100.0℃ or lower	℃/%RH	5.0 / 10.0							
			100.1℃ or higher	℃	–	7.0	–	7.0				
		Spatial temperature /humidity deviation	100.0℃ or lower	℃/%RH	4.0 / 8.0							
			100.1℃ or higher	℃	–	6.0	–	6.0				
	JTM K07	Temperature fluctuation	100.0℃ or lower	℃	–				±0.5			
			100.1℃ or higher	℃					–	±1.0	–	±1.0
		Temperature gradient	100.0℃ or lower	℃					5.0			
			100.1℃ or higher	℃					–	7.0	–	7.0
		Spatial temperature deviation	100.0℃ or lower	℃					4.0			
			100.1℃ or higher	℃					–	6.0	–	6.0
	For JTM K09 K07	Temperature change rate	Drop	–	1.5℃/min. (85 to -35℃)	1.5℃/min. (130 to -30℃)	1.5℃/min. (83 to -53℃)	1.5℃/min. (128 to -48℃)	1.5℃/min. (85 to -35℃)	1.5℃/min. (130 to -30℃)	1.5℃/min. (83 to -53℃)	1.5℃/min. (128 to -48℃)
			Rise	–	3.0℃/min. (-35 to 85℃)	3.0℃/min. (-30 to 130℃)	3.0℃/min. (-53 to 83℃)	3.0℃/min. (-48 to 128℃)	3.0℃/min. (-35 to 85℃)	3.0℃/min. (-30 to 130)	3.0℃/min. (-53 to 83℃)	3.0℃/min. (-48 to 128℃)
		Time to reach temperature extreme	Drop	–	Within 35 min. (20 to -50℃)	Within 35 min. (20 to -50℃)	Within 60 min. (20 to -70℃)	Within 60 min. (20 to -70℃)	Within 35 min. (20 to -50℃)	Within 35 min. (20 to -50℃)	Within 60 min. (20 to -70℃)	Within 60 min. (20 to -70℃)
			Rise	–	Within 35 min. (20 to 100℃)	Within 50 min. (20 to 150℃)	Within 35 min. (20 to 100℃)	Within 50 min. (20 to 150℃)	Within 35 min. (20 to 100℃)	Within 50 min. (20 to 150℃)	Within 35 min. (20 to 100℃)	Within 50 min. (20 to 150℃)
Testing chamber volume				L(mm)	3,780 (Width 1,400 x Depth 1,800 x Height 1,500)							
Product dimensions				mm	Width 1,870 × Depth 3,200 × Height 2,100							
Exterior coating color				–	Natural gray (Munsell code: 1.0Y8.5/0.5)							
Cooling system	Cooling method			–	Water-cooling, single-stage compression refrigeration and dual refrigeration							
	Refrigerant			–	Single-stage side: R404A, Dual side: R404A (high-temperature side), R23 (low-temperature side)							
Controller				–	Operation modes: Set-point or program operation (Steps: 20 per pattern, Repetitions: Max. 98 and infinite)							
Safeguards				–	Earth leakage circuit breaker, operation circuit fuse, electric motor overload safeguard, high-voltage shutdown system, excess temperature increase prevention system, empty heating prevention system (temperature and humidity chambers only), heater overcurrent safeguard, etc.							
Equipment				–	LCD control panel, power supply/operation/error indicators, external alarm terminal, sample power supply control terminal, cable hole (ø50), casters, and level adjusters							
Accessories				–	Fuse, Y strainer, rubber plug, and instruction manual							
Coolant				–	Volume: 7,200 L/h (coolant inlet temperature 32° C), Pressure: 0.1 to 0.5 MPa, Piping diameter (system side): Rc2							
Electrical characteristics	Power supply			–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz							
	Maximum load current			A	150							
Product weight				kg	1,700							

Notes: 1. Can be operated in an ambient temperature from 0 to 40° C, a coolant inlet temperature from 5 to 38° C, and a power supply voltage within ±10% rated voltage.
2. Performance values are given in accordance with JTMA Standard JTMK07/JTMK09 under the following conditions:
(1) There is no load and no sample. (2) The power supply voltage is within ±5% of the rated voltage. (3) The ambient temperature is from 5 to 35° C and the coolant inlet temperature is from 15 to 30° C.
However, values given for the temperature change rate and the time to reach extreme temperatures are at an ambient temperature of 23° C and a coolant inlet temperature of 25° C.
3. The maximum load current is the value at an ambient temperature of 23° C, coolant inlet temperature of 25° C, and the specified power supply voltage.

Dimensions

(Unit: mm)

EC-385



Low Temperature/Humidity Type

MH

Handles low-temperature/humidity testing.

Expanded temperature/humidity control range up to 10℃ and 10% RH.

■ Temperature/humidity control range

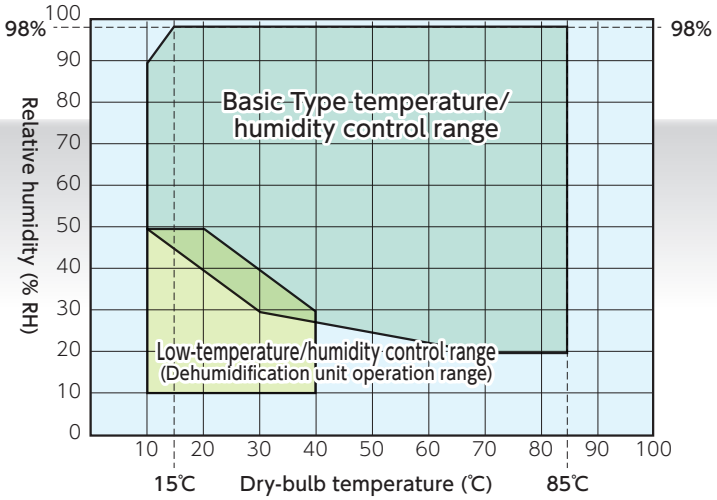


Photo for illustrative purposes only.
(Includes optional specification: [Temperature (humidity) recorder])

Continuous operation

Evaporation temperature control allows for continuous operation* within the low-temperature/humidity control range.

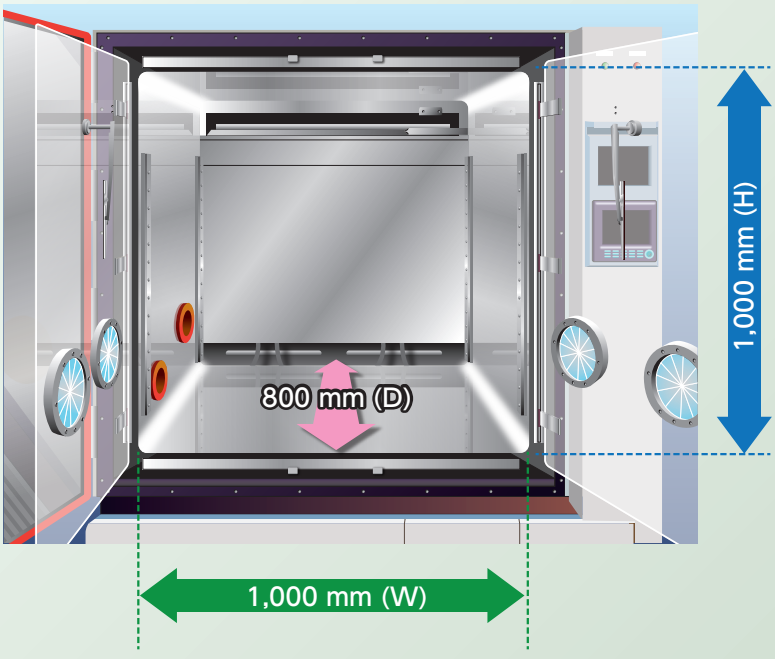
*Excluding maintenance, such as replacing the wick.

Handles heat generation loads

Evaporation temperature control and compressor suction pressure control now allow for 500 W sensible heat loads to be handled within the low-temperature/humidity control range.

Testing chamber dimensions

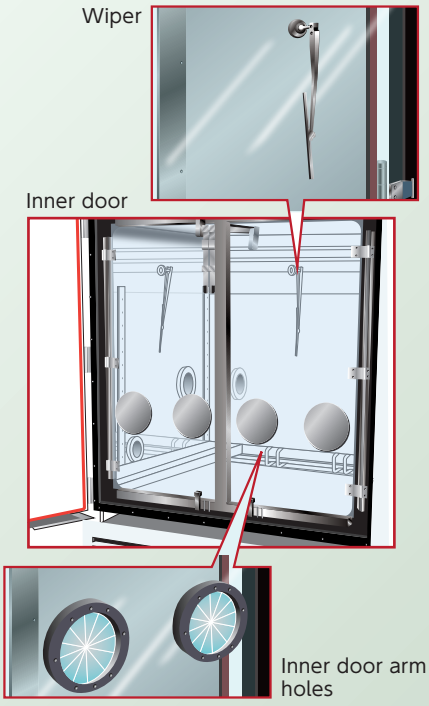
■ Testing chamber volume 800 L



(Optional inner door included in system shown.)

Options

Supports the same options as the Basic Type temperature and humidity chambers.



■Standard specification table

Temperature and humidity chambers

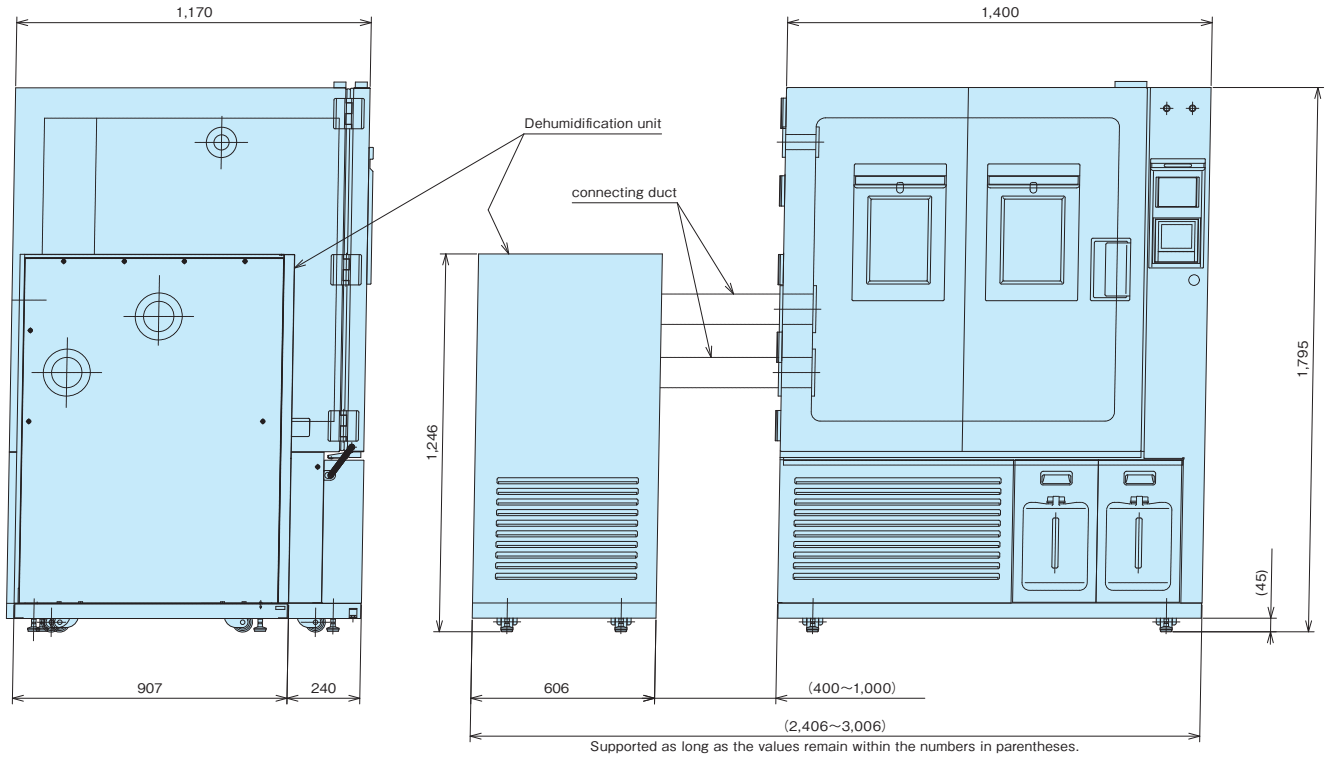
Item					Model	EC-85MHPD
Performance	Temperature range				℃	−40 to 100
	Humidity range				%RH	10 to 98
	JTM K09	Temperature/humidity fluctuation			℃/%RH	±0.5 ／ ±3.0
		Temperature/ humidity gradient	Normal control range		℃/%RH	4.0 ／ 8.0
			Low-temperature/humidity range		℃/%RH	6.0 ／ 8.0
		Spatial temperature /humidity deviation	Normal control range		℃/%RH	3.0 ／ 5.0
			Low-temperature/humidity range		℃/%RH	5.0 ／ 5.0
		Temperature change rate	Drop		–	1.5℃/min. (86 to -26℃)
			Rise		–	3.0℃/min. (-26 to 86℃)
		Time to reach temperature extreme	Drop		–	Within 70 min. (20 to -40℃)
			Rise		–	Within 40 min. (20 to 100℃)
Testing chamber volume					L(mm)	800 (Width 1,000 x Depth 800 x Height 1,000)
Product dimensions	System				mm	Width 1,400 × Depth 1,170 × Height 1,795
	Dehumidification unit				mm	Width 606 × Depth 907 × Height 1,246
Exterior coating color					–	Natural gray (Munsell code: 1.0Y8.5/0.5)
Cooling system	Cooling method				–	Air-cooling, single-stage compression refrigeration
	Refrigerant				–	R404A
Power supply					–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz
Maximum load current[Notes:2]					A	40
Product weight	System				kg	520
	Dehumidification unit				kg	100
Guaranteed performance range conditions (during low-temperature /humidity control)					–	Temperature: 5 to 30℃, Absolute humidity: 17.5 g/kg or lower

Notes: 1. Performance values are given in accordance with JTMA Standard JTMK09, under these conditions: (1) There is no load and no sample; (2) The power supply voltage is within ±5% of the rated voltage; and (3) The ambient temperature is from 5 to 35℃.
However, values given for the temperature change rate and the time to reach extreme temperatures are at an ambient temperature of 23℃.
*Can be operated in an ambient temperature from 0 to 40℃ and with the specified power supply voltage within ±10%. Although the system cannot perform as described within this operation range, it can operate continuously within this range without stopping due to the safeguard.
2. The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.
3. Dimensions inside the testing chamber and product dimensions do not include protrusions on surfaces.

■Dimensions

(Unit: mm)

EC-85MHPD



Double Side Access Type

Measurement instrument cables can be pulled out from the left and right sides of the temperature chambers. The system is also compatible with secondary battery evaluation systems.

(A batteries are batteries that can be repeatedly charged and discharged. They are also referred to as storage batteries or rechargeable batteries.)

EC-45MTB shown in photo

Testing chamber volume **392L**

Photo for illustrative purposes only.
(Includes optional specification: [Cable hole])

Lineup

●Type configurations

Product model	EC-45MTB	EC-85MTB
Testing chamber volume	392L	784L
Testing chamber dimensions (WxDxH)	630mm×720mm×900mm	1,000mm×800mm×1,000mm
Temperature control range	−40 to 100℃	

Accessible from both sides

Measurement cables can be pulled out from either side, for applications such as secondary battery evaluation testing.

■Installation example

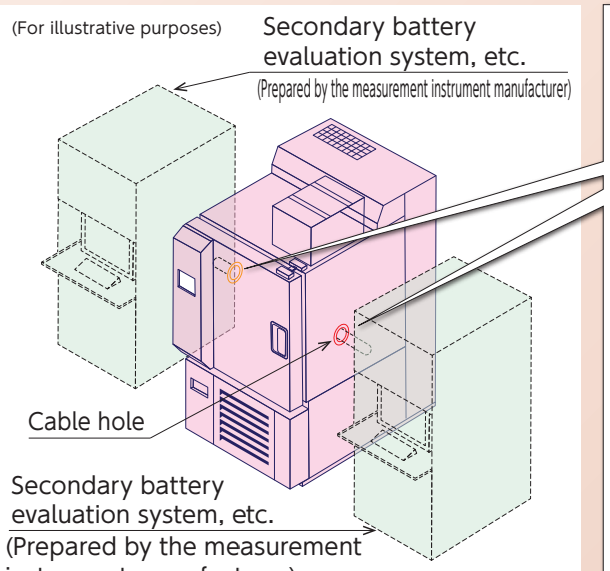
A touch panel is used for the control panel.

Standard-equipped

If you have not configured operation from a secondary battery evaluation system, the temperature chamber can be used on its own for set-point operation.

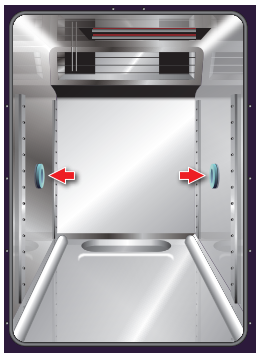
(Option)

An optional color LCD touch panel is available for program operation.



Left/right cable holes (Option)

Inside testing chamber (With cable holes)



Standard-equipped with extensive functionality

The system comes equipped as a standard with the functionality required to use the secondary battery evaluation system.

- Pressure discharge damper
- SUS seized-type heater
- Door locking bolt
- Emergency stop switch
- Communication interface (RS-485)

Note: Cable holes are optional.

Standard specification table

Item / Model					Temperature chambers	
					EC-45MTB	EC-85MTB
Performance	Temperature range			℃	−40 to 100	
	JTM K07	Temperature fluctuation		℃	±0.3	
		Temperature gradient		℃	3.0	
		Spatial temperature deviation		℃	1.5	
		Temperature change rate	Drop	–	2.0℃/min. (86 to -26℃)	
			Rise	–	3.0℃/min. (-26 to 86℃)	
		Time to reach temperature extreme	Drop	–	Within 45 min. (20 to -40℃)	Within 65 min. (20 to -40℃)
			Rise	–	Within 30 min. (20 to 100℃)	
Testing chamber volume				L	392	784
Testing chamber dimensions	Width			mm	630	1,000
	Depth			mm	720	800
	Height			mm	900	1,000
Product dimensions	Width			mm	830	1,200
	Depth			mm	1,410	1,490
	Height			mm	2,028	2,128
Compressor			Output	kW	1.5 (inverter control)	
Equipment				–	Casters and level adjusters	
Accessories				–	Shelf support, shelf, and instruction manual	
Electrical characteristics		Power supply		–	Three-phase 200V 50/60Hz, Three-phase 220V 60Hz, Three-phase 380V 50Hz	
		Maximum load current		A	13	18
Product weight				kg	320	495

Note: *Can be operated in an ambient temperature from 0 to 40℃ and with a power supply voltage within ±10% rated voltage.
*Performance values are given in accordance with JTMA Standard JTMK07 under the following conditions:
(1) There is no load and no sample.
(2) The power supply voltage is within ±5% of the rated voltage.
(3) The ambient temperature is from 5 to 35℃.
However, values given for the temperature change rate and the time to reach extreme temperatures are at an ambient temperature of 23℃.
*The maximum load current is the value at an ambient temperature of 23℃ and the specified power supply voltage.

Options

Item	Specification
Cable hole	ø50 (rubber plug separate), ø100 (rubber plug separate), ø150 (rubber plug separate)
Cable hole rubber plug	For ø50, for ø100, for ø150
Shelf and shelf support (10 kg per shelf, set of 2 shelves as standard)	10 kg sample per shelf (1 shelf per set and 2 shelf supports added) 50 kg sample per shelf (standard shelf and shelf supports not included)
Hose nipple	Attached to drain opening
Temperature recorder	Single punched (paperless, or 100 mm wide record paper)
Temperature recorder terminals	For connecting recorders
Program LCD control panel	With program functionality

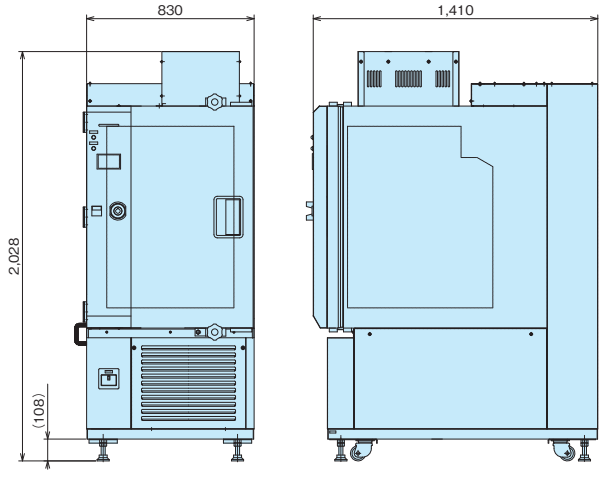
Item	Specification
Communication interface	RS-232C, web interface (including Ethernet)
Interface cable	2m, 4m, 6m (for RS-232C)
Signal tower	Three colors (Green: Operating, Yellow: Power supply, Red: Error), attached to ceiling
Air supply/exhaust damper	ø100 (attached to each) (electric)
Gas alarm	We will contact you separately to discuss the gas type.
CO_2 fire extinguisher	We will contact you separately to discuss the fire extinguishing conditions.
Smoke detector	Suction type
Testing chamber load capacity specification	We will contact you separately to discuss the details based on the sample weight.

Note: There is only one type of communication interface function. Cannot be used with other communication functions.

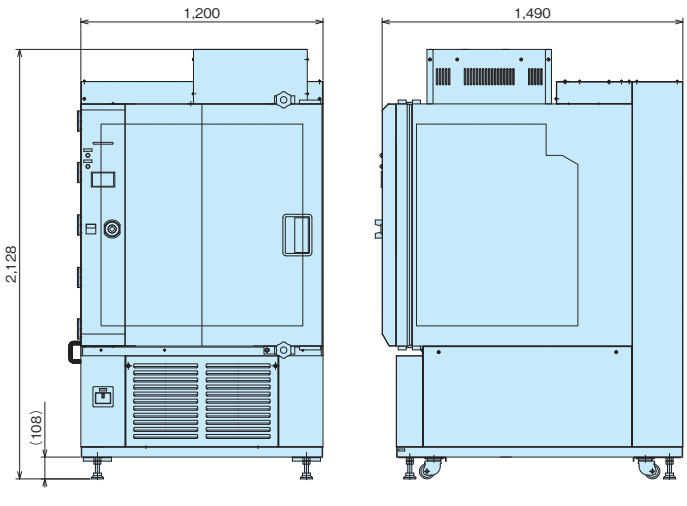
Dimensions

(Unit: mm)

EC-45MTB



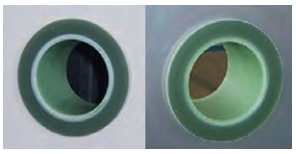
EC-85MTB



Options for temperature and humidity chambers and temperature chambers

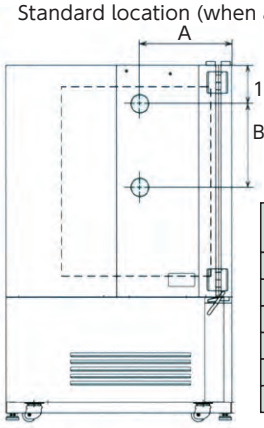
Cable hole

Standard diameters for cable holes and other option holes are shown below. Note that adding a cable hole will affect the temperature increase/decrease performance. In order to maintain the performance, do not exceed the numbers shown below.



Option hole diameter (mm)	Additional option holes by series			
	EC-16	EC-26	EC-36L•46	EC-86•86L•106
ϕ50	2	2	2	3
ϕ100	1	1	1	2
ϕ150	Incompatible	Incompatible	1	1

Standard location (when adding 1)



Can also be located outside of the standard location. Contact us for details.

Location (mm)	A	B
EC-16	280	300
EC-26	280	400
EC-36L	357	400
EC-46	447	400
EC-86,86L	487	450
EC106	587	450

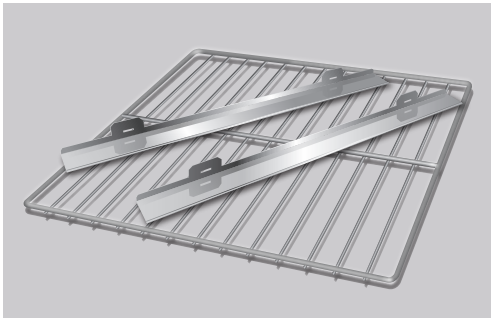
Shelf and shelf support

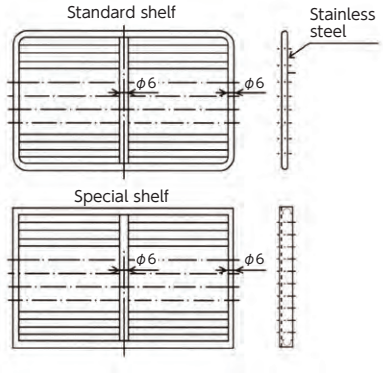
Standard shelf

Although the load capacity per shelf is 10 kg under an equally distributed load (static load), the total sample load should not exceed 20 kg on shelves inside the testing chamber.

Special shelf

Although the load capacity per shelf is 50 kg under an equally distributed load (static load), the total sample load should not exceed 100 kg on shelves inside the testing room.





Testing chamber load capacity

The load capacity of the testing chamber floor surface is up to 200 kg under an equally distributed load (static load) with reinforcement panels on the floor surface. If using shelves, the floor surface load capacity will be the total sample load on the shelf subtracted from 200 kg.

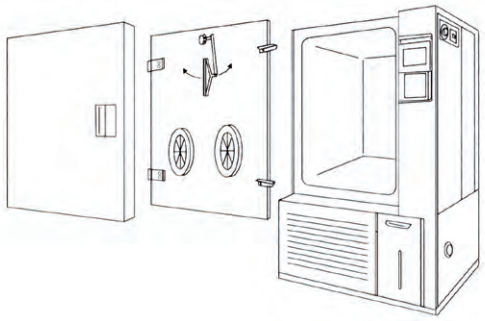
*No casters or level adjusters are included, so the product height will be 45 mm lower.

	Standard	Special shelf	Special floor
Shelf load capacity	10kg	50kg	–
Shelf total load	20kg	100kg	–
Testing chamber floor load capacity	50kg	50kg	200kg
Total load capacity in testing chamber	70kg	100kg	200kg

Inner door specification

In contrast with the standard specification, which provides an observation window to observe conditions within the testing chamber, the inner door specification allows the inside of the testing chamber to be observed from the front surface when needed.

*There is no outer door observation window or chamber light included with the inner door specification.
**Select whether to include arm holes, wipers, and arm hole gloves.



Large observation window

This larger observation window makes it possible to observe more of the inside of the chamber.
The observation window is equipped with a chamber light, and the glass surface temperature inside and outside the chamber is controlled to prevent fogging, improving the visibility of the inside of the chamber.
Arm holes are also available as an option.
There are some models where these options are not available. Contact us for details.

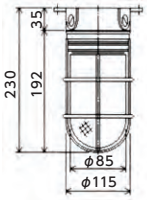
EC-106 model (with arm holes)

*Photo for illustrative purposes only

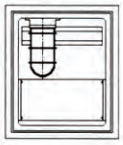
Chamber light

Increases the brightness inside the testing chamber, improving visibility. This option is available for models with an upper limit temperature of 100℃ and a lower limit temperature of -40℃.(It is not compatible with the -70℃ specification and 150℃ specification.)

*Installing a chamber light will reduce the height of the testing chamber by around 230 mm. The temperature/humidity gradient and spatial temperature/humidity deviation will increase.
When the chamber light is on, the temperature/humidity control, temperature/humidity gradient, and spatial temperature/humidity deviation inside the testing chamber will fluctuate.

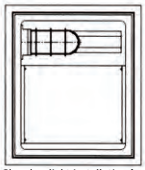


[Specifications]
Materials: [Unit] Aluminum alloy (ADC), [Glass] Clear hard glass
Specification ambient temperature: -60 to 120℃
Socket rating: 250V, 5A
Compatible bulb: AC 100V/40W
*Bulbs are consumable parts.



*Attached to the ceiling inside the testing chamber.

Chamber light installation for the EC-16/26 Series



*Attached to the left side in the testing chamber.

Chamber light installation for the EC-46/86/106 model

Water supply tank

This is identical to the standard-equipped internal water supply tank.
A spare water supply tank filled with purified water can be placed near the product so that the water supply tank can be replaced once it becomes empty.

*Separate modifications will be required to use this as a spare tank connected with the water supply tank inside the system.

Water supply tank exterior

EC-16/26/36L/46/86L model

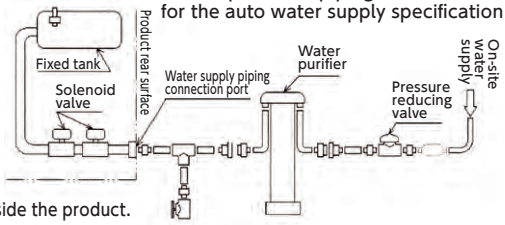
EC-86/106 model

Auto water supply specification

This option automatically supplies water to a water purifier (prepared by the user), in order to automatically supply water to the temperature and humidity chambers.
It supplies purified water by automatically opening and closing the solenoid valve depending on the water level of the fixed tank inside the system.

*The auto water supply specification does not include the standard-equipped water supply tank inside the product.

Example of the piping connection for the auto water supply specification



Temperature (humidity) recorder

Paper (chart width 100 mm) and paperless (with memory card) temperature (humidity) recorders are available as an option.

Paper

Paperless

Temperature (humidity) recorder terminals

An optional terminal block is available to output data to an external temperature recorder, in order to record the dry-bulb temperature, wet-bulb temperature, and relative humidity within the chamber (output DC 1 to 5V).

Communication interface functionality

RS-485 and a web interface (including Ethernet) are available as options for communication interface functionality. Either can be installed to the system. (Selecting this option will remove RS-232C, which is normally equipped as a standard for EC6 models.)

Water-cooling specification

The water-cooling specification may be selected instead of the air-cooling specification for the system (air-cooling specification models only).

Auto drain

This option automatically drains purified water into the humidifier pan based on the operation conditions of the temperature and humidity chambers.

Signal indicator

The optional signal indicator shows the operational status of the system.
- Green: System is operating
- Yellow: Earth leakage circuit breaker is ON
- Red: Safeguard operating, system operation stopped

Emergency stop switch

An optional emergency stop switch can be added to stop the system during an emergency. The emergency stop switch trips the earth leakage circuit breaker on the system to stop power from being supplied.

Overview of the web interface (optional circuit board)

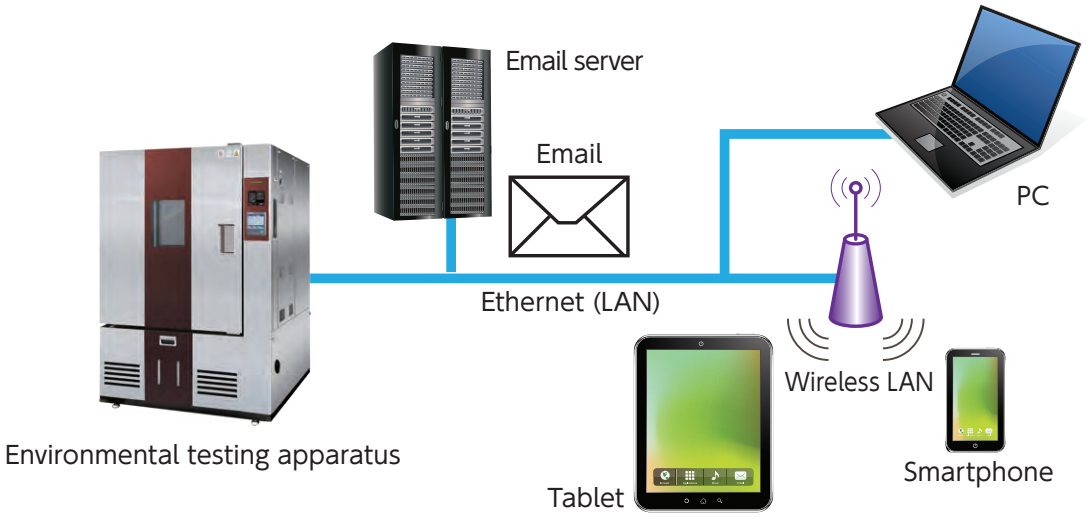
Features

Easy connectivity

The operational status can be monitored and the testing apparatus can be controlled even from a remote location. It is controlled using a web browser, so there is no need to install any specialized software on devices. It can be used with a PC, smartphone, or tablet.

Email transmission

Email notifications can be sent when there is a change in the status of the testing apparatus (for example, if an alarm occurs, testing starts or ends, or operation starts or stops).



Web browser

*Photos and illustrations for illustrative purposes only.

*An email server is required to use the email transmission function. Only a single unit can be operated if multiple devices are connected.
A wireless LAN environment is required to use the wireless LAN.

memo

memo

memo

SAFETY PRECAUTIONS

- ●Read the Instruction Manual thoroughly prior to use, to ensure that the system is used properly.
- ●Do not bring volatile or flammable objects inside the testing room. Doing so could cause an explosion. Do not use the system for conducting carbide floating tests, testing living things such as animals or plants, or testing materials that could corrode substances such as stainless steel, resin, and silicon.
- ●The products described in this catalog are for indoor use only. Use and store products away from rain.
- ●Installation work and electrical work are required. Contact your place of purchase or a qualified service contractor for support.

Refrigerant

- ●The disposal of testing apparatuses (refrigeration cycle) requires separate fees for the recovery, transportation, and destruction of fluorocarbons, in compliance with the Act on Rational Use and Proper Management of Fluorocarbons.

Installation precautions

1. Do not install in environments with corrosive gas atmospheres such as hydrogen sulfide.
2. Do not install near flammable or explosive materials, or near high-temperature heating elements.
3. If installing in a location with devices that generate electromagnetic waves or noise, avoid installing the system in such a way that it directly faces these devices. Install the system at least three meters away from these devices to avoid the effects of noise propagation in the air.

Manufactured by

COSMOPIA HIGHTECH CORP. 8-1, Shinmidori-cho, Shimizu-ku, Shizuoka-shi, Shizuoka 424-0927

Cosmopia website ▶
https://www.cosmopia.co.jp

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