

# Compact Ultra Low Temperature Chamber

MC - 711 • 811



# Capable of ultra low temperatures as low as - 85 with our unique instrumentation for program or constant operation.

The Compact Ultra Low Temperature Chamber embodies the high performance, reliability, and durability of a full-size chamber.

The line-up is comprised of a total of four models.

Select either the P-instrumentation for programming temperature cycling or the T-instrumentation for constant operation.

Also choose from two very wide temperature ranges that use environmentally-friendly HFC refrigerants.

Select the best model for your specific application and test objectives.



## SPECIFICATIONS

Model	MC-711	MC-811
Power Supply	200V AC, 3 220V AC, 3 380V AC, 3	3W, 50/60Hz 3W, 60Hz 4W, 50Hz
Maximum Current	12A (8.3A at 380V AC)	14A (9.2A at 380V AC)
Temperature Control System	Balanced Temperature Control system (BTC system)	
Operating Temperature	0 to +40 ( +32 to +104° F)	
Performance *1	Temperature Range	- 75 to +100 ( - 103 to +212° F)
	Temperature Fluctuation	±0.5 ( ±0.9° F)
	Temperature Uniformity	±1.0 ( ±1.8° F)
	Temperature Heat-up Rate	+ 20 to +100 ( + 68 to +212° F) Approx. 20 min.
	Temperature Pull-Down Rate	+ 20 to - 70 ( + 68 to - 94° F) Approx. 60 min.
Construction	Material	Exterior: Painted steel (Melamine baked finish) Interior: 18-8 Cr-Ni stainless steel plate (2B polish) Insulation: Rigid polyurethane foam, glass fiber reinforced plastics, others
	Heater	Nichrome-stripped wire heater 1kW
	Performance *1	Refrigeration system
Refrigerator		Hermetically sealed compressor (R404A/ R508A)
Refrigerator capacity		650W + 400W      800W + 650W
Expansion mechanism		Capillary tube system
Chamber Air Circulator	Plate-fin cooler	
Fittings	Propeller fan ( 154mm, 4 blades)	
Viewing window	Viewing window ( 120mm with frost prevention heater), Cable port ( 50mm, 1pc), Integrating hour meter, Power cord, Drain tube	
Inside Dimensions	400W x 400H x 400D mm (15.7W x 15.7H x 15.7D in)	
Outside Dimensions *2	900W x 1200H x 610D mm (35.4W x 47.2H x 24.0D in)	
Inside Capacity	64L (2.2ft <sup>3</sup> )	
Weight	155kg (342 lbs)	

\*1 At +23 ( +73.4° F) ambient temperature, no specimen.

The performance is according to JTM K 01-1998 of Japan Testing Machinery Association.

\*2 Excluding protrusions.

## TEMPERATURE INDICATOR-CONTROLLER

Model	P-instrumentation (SCP-220)	T-instrumentation (ES-102)
Operating mode	Program/ Constant operation	Constant operation
Display	Color TFT LCD display	7-segment LED display
Setting	Analog touch panel method	Mechanical key input method
Program memory capacity	RAM pattern: 20 program patterns ( 99 steps per pattern) ROM pattern: 10 program patterns	————
Setting and indication range	Temp.	- 85 to +110 (MC-711), - 95 to +190 (MC-811)
	Time	0 to 999hrs. 59min.
Setting and indication resolution	Temp.	0.1
	Time	1 min.
Input	Thermocouple type T ( Copper/ Copper-Nickel)	
Communication function	RS-485	
Auxiliary functions	Input burn-out detection function, Upper and lower temp. limit alarm function, Self-diagnostic function, Alarm indication function, Power cut protection function, Refrigerator capacity automatic control function, Trend graph indication function (SCP-220), Help function (SCP-220)	

## ACCESSORIES

Shelf (stainless) .....	2
Shelf brackets (stainless) .....	2 sets
Cable port rubber plug ( 50mm) .....	1
Chamber lamp .....	1
Glass tube fuse .....	2 (200, 220 VAC), 1 (380 VAC)
Thermal fuse .....	1
Plug type fuse (for 380 VAC) .....	1
User's manual .....	1

## OPTIONS

Paperless recorder	Cable port
Temperature recorder	Cable port rubber plug
Temperature recorder for future installation	Shelf / Shelf bracket
Thermocouple	Caster
Emergency stop switch	Communication function (E-BUS/ GPIB/ RS-232C)
*except 380V AC spec.	Communication cable
External alarm terminal	Power cord 5• 10m
	*except 380V AC spec.



Do not use specimens which are explosive or inflammable, or which contain such substances. To do so could be hazardous, as this may lead to fire or explosion.

Do not place corrosive materials in the chamber. If corrosive substances or liquid is used, the life of the unit may be significantly shortened specifically because of the corrosion of stainless steel, resin and silicone materials.

Do not place life forms or substances that exceed allowable heat generation.



Be sure to read the instruction manual before operation.

Some photographs listed in this catalog contain Japanese display.



Programming operation type



Constant operation type



Chamber interior



Paperless recorder (optional) \*Sample photo

- **Four models available with a choice from two temperature ranges and two types of instrumentation**

The MC-series comes in two temperature ranges of - 75 to + 100 °C / - 85 to + 180 °F, and two types of instrumentation for constant or program operation. A wide temperature range supports tests from temperature characteristic tests to low temperature preservation tests.

- **P- and T-instrumentation to meet your test objectives**

P-instrumentation with 6.5-inch TFT color LCD enable easy test setting simply by following the displayed instructions. It offers 10 built-in standard programs, and can store up to 20 program patterns (99 steps per pattern), thus capable of diverse program tests. A wide variety of functions such as trend graph display of operation history, timer, and help support are provided for improved operational ease. T-instrumentation with large 7-segment LED offers constant operation.

- **Accurate PID temperature control**

Just by setting the test temperature, PID control automatically controls temperature, with high accuracy.

- **Ozone-friendly HFC refrigerant**

The refrigerator is loaded with R404A/ R508A HFC refrigerant which is zero ozone depletion potential to protect the global environment.

- **Paperless Recording (optional)**

The paperless recorder makes it easy record the temperatures of different components, such as the chamber temperature, on a memory card (Compact Flash).

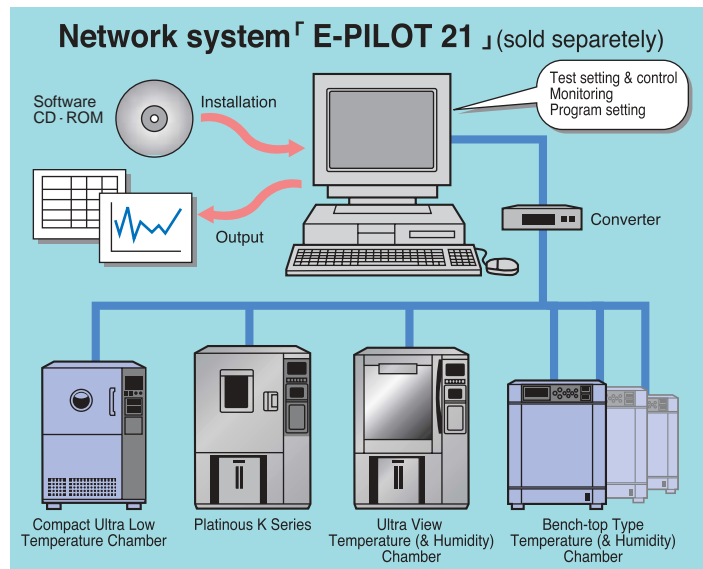
# User-friendly

## ● Network System E-PILOT 21 (Optional)

E-PILOT 21 is ESPEC's suite of networking tools for communicating between a computer and our environmental testing chambers. It enables the management of chamber operation and test settings from a remote location. Additionally, measurement data and system status can be constantly monitored and recorded on the computer.

## ● Safety measures

Enough precautions are taken to ensure the safety of operators, specimens and the chamber, with various safety measures such as the leakage breaker and control circuit overload & short circuit protection fuse. In case these safety devices activate, power is shut down to halt chamber operation and details of alarm is displayed on the screen.



### ■ SAFETY DEVICES

- Leakage breaker for power supply (for 200/220V AC only)
- Circuit breaker (for 380V AC only)
- Air circulator temperature switch
- Electric parts compartment door switch
- Control circuit overload & short circuit protection fuse
- Reverse prevention relay
- Refrigerator overload relay
- SSR overload & short circuit protecting circuit breaker
- Thermal fuse
- Specimen power supply control terminal (with power cord plug)
- Compressor temperature switch
- Upper and lower temperature limit alarms (built inside temperature controller)
- Burn-out circuit (built inside temperature controller)
- Watchdog timer (built inside temperature controller)
- Refrigerator automatic delay circuit (built inside temperature controller)
- Overheat protector (independent type)

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