Quality is more than a word

ESPEC

Compact Ultra Low Temperature Chamber

MC-711•811

CAT.NO.E94140-W1003

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.

Utility

Programming operation type

Constant operation type


Chamber interior


Paperless recorder (optional) *Sample photo

Four models available

The MC-series comes in two temperature ranges of −75 to +100℃／−85 to +180℃, 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.

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).

Safety measures

Enough precautions are taken to ensure the safety of operators, specimens and the chamber, with various safety measures. In case these safety devices activate, power is shut down to halt chamber operation and details of alarm is displayed on the screen.

Remote control from your PC

Please contact us for details on using a PC to monitor and remotely control the equipment.

SPECIFICATIONS

Model			MC-711	MC-811
Power supply			200V AC, 3φ 3W, 50/60Hz 220V AC, 3φ 3W, 60Hz 380V AC, 3φ 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℉)	
Performance *1	Temperature range *2		−75 to +100℃ (−103 to +212℉)	−85 to +180℃ (−121 to +356℉)
	Temperature fluctuation *2		±0.5°C	
	Temperature uniformity *2		±1.0℃ (±1.8℉)	±1.0℃ (±1.8℉): at −85 to +100℃ (−121 to +212℉) ±2.0℃ (±3.6℉): at +100.1 to +180℃ (+212.2 to +356℉)
	Temperature heat-up rate		+20 to +100℃ (+68 to +212℉) Approx. 20 min.	+20 to +180℃ (+68 to +356℉) Approx. 30 min.
	Temperature pull-down rate		+20 to −70℃ (+68 to −94℉) Approx. 60 min.	+20 to −80℃ (+68 to −112℉) Approx. 70 min.
Construction	Material	Exterior	Cold rolled and rust-proof steel plate (Melamine baked finish)	
		Interior	18-8 Cr-Ni stainless steel plate (2B polish)	
		Insulation	Rigid polyurethane foam, fiber reinforced plastics, others	
Heater			Nichrome-stripped wire heater 1kW	
Refrigeration system			Mechanical cascade refrigeration system (air-cooled condenser)	
Refrigerator			Hermetically sealed compressor (R404A/ R508A)	
Refrigerator capacity			650W+400W	800W+650W
Expansion mechanism			Capillary tube system	
Cooler			Plate-fin cooler	
Chamber air ciculator			Propeller fan (φ154mm, 4 blades)	
Fittings			Viewing window (φ120mm with frost prevention heater), Cable port (φ50mm, 1pc), Integrating hour meter, Power cable, Drain tube	
Inside dimensions			400W×400H×400D mm (15.7W×15.7H×15.7D in.)	
Outside dimensions *3			900W×1200H×610D mm (35.4W×47.2H×24.0D in.)	
Capacity			64L (2.2 ft^3)	
Weight			155kg (342 lbs)	

*1 At +23℃ (+73.4℉) ambient temperature , no specimen.
*2 The performance is according to JTM K 01-1998 of Japan Testing Machinery Association.
*3 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
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.	0 to 99hrs. 59min., 0 to 999hrs.
Setting and ndication resolution	Temp.	0.1°C	
	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 display function (SCP-220), Help function (SCP-220)	

* For T-instrumentation applies to remote program via the communications functions.

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)

ACCESSORIES

- Shelf (stainless) 2
- Shelf brackets (stainless) ..... 2 sets
- Cable port rubber plug (ϕ 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
- Temperature recorder
- Temperature recorder for future installation
- Thermocouple
- Emergency stop switch *except 380V AC spec.
- External alarm terminal
- Cable port
- Cable port rubber plug
- Shelf / Shelf bracket
- Caster
- Communication function (GPIB/ RS-232C)
- Power cable 5·10m *except 380V AC spec.

DANGER

- 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.

CAUTION

Be sure to read the user's manual before operation.

■Some photographs listed in this catalog contain Japanese display.

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UKAS ENVIRONMENTAL MANAGEMENT 051

ISO 9001/JIS Q 9001
Quality Management System Assessed and Registered

ESPEC CORP. has been assessed by and registered in the Quality Management System based on the International Standard ISO 9001:2008 (JIS Q 9001:2008) through the Japanese Standards Association (JSA).

ISO 14001 (JIS Q 14001)
Environmental Management System Assessed and Registered

ESPEC CORP.