



**Advanced Test Equipment Rentals**  
**www.atecorp.com 800-404-ATEC (2832)**

**CRITERION CHAMBER  
ECT-2  
INSTRUCTION**



PREPARED BY	96●2●15 RH	<b>CRITERION TEMPERATURE CHAMBER SPECIFICATIONS</b>	Model	Drawing No.	Spc. No.	ECSP96001	1/4	
<b>REVISION</b>	A		96●7●17 MRT	ECT-2	2AAE0001	<b>ESPEC CORP.</b>		
	B							
	C							
	D							
	E							

**1. Product Name**

Criterion Temperature Chamber.

**2. Model**

Model	Size (Approx.)
ECT-2	1.2 cu. ft.

**3. Power Source Voltage**

115 VAC ±10% - 1Ø - 50/60 Hz.

**4. Temperature Control System**

Heating PID with Demand Cooling.

**5. Ambient Temperature**

Allowable Range of Operation..... 5 to 30°C (41 to 86°F).

**6. Performance**

(in a clean, dry, empty chamber; and an ambient temp. of 23°C (74°F))

- 6.1. Temperature Range -68 to 180°C (-90° to 356°F).
- 6.2. Temperature Constancy ±0.5°C (±0.9°F).
- 6.3. Temperature Uniformity (60 Hz) ±1.0°C (±1.8°F)..... at -68 to 100°C (-90 to 212°F).  
±1.5°C (±2.7°F)..... at 101 to 180°C (214 to 356°F).
- 6.4. Temperature Uniformity (50 Hz) ±1.5°C (±2.7°F)..... at -68 to 100°C (-90 to 212°F).  
±2.0°C (±3.6°F) ..... at 101 to 180°C (214 to 356°F).
- 6.5. Temperature Heat-Up Time 23 to 177°C (74 to 351°F): within 50 min.
- 6.6. Temperature Pull-Down Time (60 Hz) 23 to -65°C (74 to -85°F) within 55 min.
- 6.7. Temperature Pull-Down Time (50 Hz) 23 to -65°C (74 to -85°F) within 65 min.
- 6.7. Capacity for Live Load (Approx.)

	Temp.	-65°C (-85°F)	-40°C (-40°F)	-18°C (0°F)
60 Hz	Watts	50 W	100 W	200 W
50 Hz	Watts	40 W	80 W	160 W

**7. Construction**

7.1. General Material

- 7.1.1. Exterior Painted Galvanized Steel, 16 & 20 GA.
- 7.1.2. Interior Stainless Steel (S.S. 304), 20 GA.
- 7.1.3. Color Chamber: Beige.  
Instrumentation Panel: Dark Silver.
- 7.1.4. Insulation Fiberglass.
- 7.1.5. Gasket Silicone, Double Gasket.

7.2. Door

- 7.2.1. Door Handle Handle on the right side and hinges on the left side.

7.2.2. Viewing Window (Option)	Tempered and evacuated air type round glass: (125 mm dia.: 1 pc.). *Chamber Lamp Switch is equipped on the door.
7.3. Test Space Area	Dry bulb temp. detector, Cable port (Inside dia.: 50 mm).
7.4. Air Conditioning Area	Air Grill, Cooler, Heater (with thermal fuse), Factory Set Overheat and Air Circulator (propeller type).
7.5. Machinery Compartment	
7.5.1. Front: Instrumentation Panel	Honeywell UDC3000 Controller, Power Switch, Refrigeration Mode Switch.
7.5.2. Inside	Electrical chassis, Refrigeration unit for cooling, Motor for air circulator, Power Fuses.
7.5.3. Rear	Electrical power supply port, Ventilation grille.
<b>8. Heater</b>	Nichrome Wire Heater: 500 W.
<b>9. Cooler</b>	Aluminum Evaporator Coil.
<b>10. Refrigeration System</b>	Mechanical Cascade Refrigeration System.
10.1. Refrigeration Compressor	Hermetically Sealed Compressor: 1/3 hp x 2 pcs.
10.2. Condenser	Air-cooled Condenser.
10.3. Expansion System	Capillary Tube.
10.4. Refrigerants	Non-CFC.
<b>11. Instrumentation</b>	Temp. digital programmable controller.
11.1. Model	Honeywell UDC3000.
11.2. Performance	
11.2.1. Temperature Setting	Setting Range..... -75 to 180°C. Setting/Indication Resolution..... 0.1°C.
11.2.2. Time Setting	Ramp Range ..... 0 to 99 hrs. 59 min. Ramp Resolution ..... 1.0 min. Soak Range..... 0 to 99 hrs. 50 min. Soak Resolution..... 1.0 min. Guaranteed Soak..... Any Soak Step.
11.2.3. Sensor	Thermocouple..... Type T for Dry Bulb.
11.2.4. Control Function	PID Function (groups).
11.2.5. Indication Display	Upper - Temperature..... ±(0.5 + 1 digit)°C. Lower - Choice of Set Point, Deviation, Output, PID Group, Time.
11.2.6. Program	Setting System ..... Interactive Setting. Program Capacity..... Ramp/Soaks in 12 Steps. Repeat Function..... Each step repeated up to 99 times.
11.2.7. Keyboard	Function Keys... FUNCTION, SET UP, LOWER DISPLAY,

MANUAL/AUTO, SET POINT SELECT, RUN/HOLD.  
 Numerical Entry ..... Raise/Lower keys.  
 Display Characters ..... 2 Lines Alphanumeric 7 seg.  
 Vacuum Fluorescent.

11.2.8. Display

11.2.9. Memory Backup Nonvolatile Memory (backup battery not necessary).

11.2.10. Operational Conditions 0 to 55°C (32 to 131°F), 5 to 99%RH, No Condensation.

11.3. Main Function

11.3.1. Monitoring Function Monitoring the actual temperature conditions inside the chamber (at the supply air).

11.3.2. Constant Setting Simple setting of the temperature in local set mode.

11.3.3. Program Setting Setting up to 12 steps using FUNCTION, Raise/Lower keys in Program set point mode.

11.3.4. Program Start/Stop Automatic running of the set program using RUN/HOLD keys.

11.3.5. Limit Setting High/Low temperature setting in control set up group.

11.3.6. Lockout Function 5 Levels of Security.

11.3.7. Other Functions Alarm indication, Input burn-out detection, Automated refrigeration/bypass switching, °C/°F, Constant manual output, Adaptive tune.

**12. Safety Devices**

12.1. Electrical Fuse..... For Heater.  
 Fuse..... For Refrig. Compressor (High Temp. Side).  
 Fuse..... For Refrig. Compressor (Low Temp. Side).  
 Fuse ..... For Control Circuit.  
 Fuse ..... For Controller.

12.2. Refrigeration Relief Valve ..... For Refrig. Circuit.  
 Inner Thermal Relay ..... For Refrig. Compressor.

12.3. Cabinet Thermal Fuse: 216°C (421°F).... For Overheat Protection.  
 Overheat Protector ..... For Chamber.

**13. Dimensions**

13.1. Exterior

Width	Depth	Height	Weight
940 mm	534 mm	637 mm	140 kg
37.0 in	21.0 in	25.0 in	309 lbs.

13.2. Interior

Width	Depth	Height	Capacity
407 mm	280 mm	305 mm	34.6 l
16.0 in	11.0 in	12.0 in	1.22 cu. ft

**14. Load Current (at 115 VAC - 1Ø - 60 Hz.)**

14.1. Total Load Current 16 A MAX.

14.2. Minimum Service Current 20 A.

**15. Accessories**

ECT-2 Manual, Spare Fuses.

**16. Optional Equipment**

Viewing Window/Chamber Lamp, 100 mm Strip Chart Recorder,  
Auxiliary Gas Injection Port, Communications (RS-485), Cart.