


PREPARED BY	5/21/02 KCW		CRITERION TEMPERATURE CHAMBER SPECIFICATIONS	Model	Drawing No.	Spc. No.	ECSP02001	1/4	
REVISION	A	01/14/04 KCW		ECT-3	2AAE0001				
	B	02/10/05 BP							
	C	9/21/06 KCW							
	D								
	E								

1. Product Name

Criterion Temperature Chamber.

2. Model

Model	Size (Approx.)
ECT-3	1.2 cu. ft.

3. Power Source Voltage

115 VAC $\pm 10\%$ - 1 \emptyset - 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 -73 to 180°C (-100° to 356°F).
- 6.2. Temperature Constancy $\pm 0.5^\circ\text{C}$ ($\pm 0.9^\circ\text{F}$).
- 6.3. Temperature Uniformity (60 Hz) $\pm 1.0^\circ\text{C}$ ($\pm 1.8^\circ\text{F}$) at -68 to 100°C (-90 to 212°F).
 $\pm 1.5^\circ\text{C}$ ($\pm 2.7^\circ\text{F}$) at 101 to 180°C (214 to 356°F).
- 6.4. Temperature Uniformity (50 Hz) $\pm 1.5^\circ\text{C}$ ($\pm 2.7^\circ\text{F}$) at -68 to 100°C (-90 to 212°F).
 $\pm 2.0^\circ\text{C}$ ($\pm 3.6^\circ\text{F}$) at 101 to 180°C (214 to 356°F).
- 6.5. Temperature Heat-Up Time 23 to 170°C (74 to 340°F) within 43 min.
-40 to 85°C (-40 to 185°F) within 35 min.
- 6.6. Temperature Pull-Down Time (60 Hz) 23 to -65°C (74 to -85°F) within 43 min.
85 to -40°C (185 to -40°F) within 33 min.
- 6.7. Temperature Pull-Down Time (50 Hz) 23 to -65°C (74 to -85°F) within 55 min.

6.8. Capacity for Live Load (Approx.)

	Temp.	-65°C (-85°F)	-40°C (-40°F)	-18°C (0°F)
60 Hz	Watts	110 W	200 W	390 W
50 Hz	Watts	90 W	160 W	320 W

7. Construction

7.1. General Material

- 7.1.1. Exterior Stainless Steel (S.S. 430).
- 7.1.2. Interior Stainless Steel (S.S. 304), 20 GA.
- 7.1.3. Color Instrumentation Panel: Dark Silver.
- 7.1.4. Insulation Fiberglass.
- 7.1.5. Gasket Silicone, Double Gasket.

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7.2. Door	
7.2.1. Door Handle	Handle on the Right Side and Hinges on the Left Side.
7.3. Test Space Area	Dry Bulb Temp. Detector, Cable Port (Inside dia.: 100 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	Watlow F4 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.
8. Heater	Nichrome Wire Heater: 500 W.
9. Cooler	Aluminum Evaporator Coil.
10. Refrigeration System	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.
11. Instrumentation	Temperature Digital Programmable Controller.
11.1. Model	Watlow F4 with RS-232 Computer Interface.
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 mins. 59 sec. Ramp Resolution.....1 sec. or 1 to 3,000°/min. Rate. Soak Range 0 to 99 hrs. 59 mins. 59 sec. Soak Resolution 1.0 sec. Guaranteed Soak..... Any Ramp or Soak Step.
11.2.3. Sensor	Thermocouple Type T.
11.2.4. Control Function	5 PID Function groupsStep Selectable.

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11.2.5. Indication Display	Upper-Temperature - °C LowerMain Page: Other Variable and Operating Prompt Information. LEDOutputs, Alarms, Communications.
11.2.6. Program	Setting System Interactive Setting. Program Capacity ... 256 Steps, assignable in 40 Profiles. FunctionsAutostart, Ramp/Soak, Wait For, Jump (up to 256 times), Link Profile, End, Idle.
11.2.7. Keyboard	Function Keys PROFILE, INFO, LOWER DISPLAY, LEFT, RIGHT, UP, DOWN. Numerical Entry Raise/Lower keys.
11.2.8. Display	UpperFive 7 Segment LED (RED). LowerFour Line LCD with Back Light.
11.2.9. Memory Backup	Nonvolatile Memory (backup battery not necessary).
11.2.10. Operational Conditions	0 to 55°C (32 to 131°F), 0 to 90%RH, No Condensation.
11.3. Main Function	
11.3.1. Monitoring Function	Monitoring/Controlling 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 256 steps in 40 Profiles using Profile Left/Right, Raise/Lower keys.
11.3.4. Program Start/Stop	Selection and running of Set Programs using Profile key.
11.3.5. Limit Setting	High/Low Temperature Setting in Control Set-up Group.
11.3.6. Lockout Function	4 Levels of Security.
11.3.7. Other Functions	Alarm Indication, Input Burn-out Detection, Automated Refrigeration/Bypass Switching, Constant Manual Output, Auto Tune.

12. Safety Devices

12.1. Electrical	Fuse For Heater. 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.

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13. Dimensions

13.1. Exterior

Width	Depth	Height	Weight
37.00 in.	21.00 in.	25.00 in.	309 lbs.
940 mm	533 mm	635 mm	140 kg

13.2. Interior

Width	Depth	Height	Capacity
16.00 in.	11.00 in.	12.00 in.	1.2 cu.ft.
406 mm	279 mm	305 mm	0.03 cu.M.

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

14.1. Total Load Current 16 A MAX.

14.2. Service Circuit Protector Required 20 A.

15. Accessories

ECT-3 Manual.

Spare Fuses.

16. Optional Equipment

100 mm Video Recorder, Auxiliary Gas Injection Port,
Cart with Casters, Viewing Window, LN2 boost cooling,
Overheat/Overcool Protector.

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