

PREPARED BY		05/09/08 GLM	ALTITUDE CHAMBER SPECIFICATION	Model	Drawing No.	Spc. No.	409380	1/1
REVISION	A	12/17/08 GLM				ESPEC		
	B							
	C							
	D							
	E							

1. **Product Name** Altitude chamber.
2. **Model** EV21.
3. **Temperature Control System** Bi-modal altitude PID.
4. **Performance**
 - 4.1. Altitude Performance With clean, dry, chamber.
 - 4.1.1. Altitude Range Site level to 15,000 ft.
 - 4.1.2. Altitude Fluctuation ± 500 ft.
 - 4.1.3. Altitude Transition From site level to 15,000 ft within 20 minutes.
5. **Dimensions**
 - 5.1. Exterior

Model	Width		Depth		Height ¹		Weight	
	In.	mm.	In.	mm.	In.	mm.	Lb.	Kg.
EV21	53.8	1544	48.2	1283	79.7	1854	3000	1364

- 5.2. Interior

Model	Width		Depth		Height		Volume	
	In.	mm.	In.	mm.	In.	mm.	Ft ³	m ³
EV21	35.0	889	35.0	889	30.0	762	21	0.59

6. **Site requirements**
 - 6.1. Ambient Temperature Allowable Range of Operation: 5 to 35°C (41 to 95°F).
Range of Assured Performance: 10 to 25°C (50 to 77°F).
 - 6.2. Electrical Power 460V, 3PH, 60HZ.
 - 6.2.1. Chamber Service 15A.
 - 6.3. Vacuum Pump Vent
 - 6.3.1. Connection 7/8" copper stub.
 - 6.3.2. Flow 15 scfm.
7. **Construction**
 - 7.1. General Material
 - 7.1.1. Altitude Vessel Welded steel plate with structural reinforcement to withstand all pressures below ambient.
Medium gray inside and out.
 - 7.1.2. Color
 - 7.2. Door
 - 7.2.1. Size Full Opening
 - 7.2.2. Configuration Hinged on right side.
 - 7.2.3. Window Pressure pane, 11"W x 11"H view, with integral fluorescent light.
 - 7.2.4. Hinge/Latch Floating altitude hinges / handwheel latches.
 - 7.2.5. Gaskets Neoprene.
 - 7.3. Test Space Cables extending through cable glands, AC power plug/receptacle panel, overtemp limit temperature detector.
 - 7.4. Instrumentation Panel Altitude programmer/controller, chamber control switches, overtemp protector, run time meter, specimen power and external alarm inlets.
 - 7.5. Machinery Compartment
 - 7.5.1. Rear Vacuum pump vent outlet.
 - 7.5.2. Inside Vacuum pump, altitude control valves, altitude transducer.

¹ Including components protruding on top of chamber structure.

8. Altitude System

8.1. Vacuum Pump

1.5 hp, 15 cfm nominal pumping capacity, with oil mist eliminator.
Control Valves Solenoid climb (throttle) and dive (bleed) valve.
Manual override dive safety valve.

8.2. Altitude Measurement

Absolute pressure transducer with pressure to altitude signal conditioner.

9. Instrumentation

9.1. Model

Altitude programmer/controller.....Watlow F4.

10. Safety Devices

Fuse for control circuit.
Overload for vacuum pump motor.
Pressurization check valve for chamber.
Adjustable overtemp for chamber.
Specimen power supply control for specimen power interlock.
External alarm terminal for equipment.

11. Accessories

11.1. Maintenance Items

Fuse(s), light bulb, mating plugs for specimen power and external alarm inlets.

11.2. Documentation

Chamber operation manual.
Control operation manual.
Replacement parts list.

12. Included Features

12.1. Shelf

Adjustable height stainless steel welded wire shelf.

12.2. Port

4" dia, with bolted/gasketed cover.

12.3. Recorder

Yokogawa FX-106, 6 chan paperless recorder. Flash memory data storage, and ethernet communication port. Data view software included.

Chan 1: chamber altitude.

Chan 2-6: spare.

12.4. Computer Interface

RS-232 for Watlow F4.

12.5. Software

WatView RT remote monitoring/control software.

12.6. Cable Feedthroughs

Through chamber left side wall as follows (see drawing C-409380-001):

Feedthrough #	Seal Type	Feedthru Type / ID	Gender/Termination/Length	
			Atmosphere	Vacuum
Connection 1				
1	Cable gland (2.5")	1) Ribbon cable (460939-04) ²	M / connector / TBD	F / header / TBD
		1) 2-coax with overbraid ³ (460895-04) ²	MF / connector / TBD	2)M / connector
2	Sealed bulkhead	2) SMA 50 ohm coax	M / SMA / NA	M / SMA / NA
3	Sealed bulkhead	with overbraid (460894-05)	M / SMA / NA	M / SMA / NA
Connection 2				
4	Sealed bulkhead	15-pin sub-D bulkhead	M / mates with 30-460872 female end / NA	F / mates with 30-460872 male end / NA
5	Sealed bulkhead	15-pin sub-D bulkhead	M / mates with 30-460872 female end / NA	F / mates with 30-460872 male end / NA
6	Sealed bulkhead	15-pin sub-D bulkhead	M / mates with 30-460872 female end / NA	F / mates with 30-460872 male end / NA
Connection 3				
7	¾" NPT molded multi-conductor feedthu	115 vac power	M / computer power inlet / NA	F / NEMA 5-15 receptacle / NA
		115 vac power	F/ NEMA ML2 receptacle (mates with 460819-01 male end) / NA	M / NEMA ML2 plug (mates with 460819-01 female end) / NA
		Ground	NA / Binding post (for 460620-02 w/ ring terminal) / NA	NA / Binding post (for 460620-02 w/ ring terminal) / NA
8	Cable gland (2.5")	Small HD cable (460960-02) ²	M / connector / TBD	M / connector / TBD
		Large HD connector (460749-02) ²	M / connector / TBD	M / connector / TBD
9	Sealed bulkhead	26-pin HD sub-D bulkhead	M / mates with 460996-03 female end / NA	F / mates with 460996-03 male end / NA
10	Tubing bulkhead	¼" ID tubing	NA / ¼"hose barb fitting / NA	NA / ¼" hose barb fitting / NA

² Customer supplied cables routed through cable gland.

³ Requires removal of overbraid where coax cable passes through cable gland.