



Friocell Eco + Evo



Patented Forced Air Convection
Materials Testing Chambers



FRIOCELL® climate test chambers are designed to create exact reproducible simulations of a wide range of environmental conditions through precise control of temperature and optional lighting.

FRIOCELL® test chambers are designed for degradation testing, QC/QA testing of products and packaging, and material quality and durability testing. FRIOCELL® EVO models can be equipped with programmable LED or fluorescent shelf and door lighting for a variety of VIS or UV light testing studies.



Materials testing in both automotive and aerospace industries



Electronics testing including use in metrology labs



Quality and durability testing of materials, components, and packaging



ECO Controller

3" LCD display

Fuzzy Logic algorithm constantly monitors chamber conditions and continuously optimizes parameters.

(9) programs with (2) segments each for varying loads and parameters

Audible & visual alarms – temperature, time & humidity

FDA CFR 21 Part 11 compliant with addition of Warmcomm 4.0F software

USB flash & device, RS232 & optional Ethernet port

Integrated USB 30-day data logger for temperature measurement & recording

50mm (2") port



EVO Controller

5.7" LCD touch display

Fuzzy Logic algorithm constantly monitors chamber conditions and continuously optimizes parameters.

(100) programs with (100) segments each for varying loads and parameters

Audible & visual alarms – temperature, time & humidity

FDA CFR 21 Part 11 compliant with addition of Warmcomm 4.0F software

USB device, RS232 & optional Ethernet port

Integrated SD card 30-day data logger & multi-level secure user authentication

50mm (2") port

Temperature Range:

0°C up to 100°C (10°C up to 95°C with humidity)

- -10°C min. temperature option available on ECO units
- -20°C min. temperature option available on EVO units

Temperature Control:

Very short recovery times and precise temperature regulation cooling system ensures the samples are protected from drying

Chamber Volumes:

55 (2 ft³) • 111 (4 ft³) • 222 (8 ft³) • 404 (14.3 ft³) • 707 (25 ft³) • 1212 (43 ft³)

Chamber Construction:

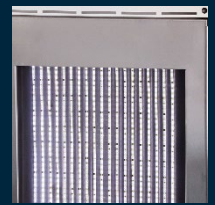
- AISI 304 stainless steel chamber (AISI 316 SS option available)
- Double wall, seamless main chamber & removeable inner chamber

Electrical Data:

115V 50/60Hz, model 1212 & lighted devices 230V 50/60Hz

Optional Programmable Lighting:

- VIS & UV fluorescent lighting
- VIS LED shelf and door lighting
- Light intensity controlled in 1% increments
- LED Door lighting (pictured)



Optional Equipment:

- AISI 316 stainless steel chamber
- 160°C sterilization cycle (EVO only)
- Access ports 25 (1"), 50 (2"), 100 (4") mm
- Ethernet communication port
- Rolling carts for 111 & 222 models
- Door sensor and alarm
- Automatic and key door lock
- Warmcomm data acquisition software:
 - ✓ 4.0B – Receive data
 - ✓ 4.0P – Receive data and control the device
 - ✓ 4.0F – FDA 21 CFR part 111 compliant
- BMS – Building monitoring alarm contact
- Flexible PT 100 sensor
- Stainless steel exterior
- Interior light
- Water-proof socket 230V
- IQ / OQ protocols with 9pt temperature mapping

Friocell ECO/EVO Technical Data		Model	55	111	222	404	707	1212
Interior Dimensions Chamber: AISI 304 stainless steel (AISI 316 stainless steel option available)	Volume	ft ³	1.9	3.9	7.8	14.3	25	43
		liters	55	111	222	404	707	1212
	Width	inches	15.7	21.25	21.25	21.25	37	3 x 21.25
		mm	400	540	540	540	940	3 x 540
	Depth	inches	14.6/15	14.6/15	20.5/20.9	20.5/20.9	20.5/20.9	20.5/20.9
		mm	370/380	370/380	520/530	520/530	520/530	520/530
	Height	inches	13.8/14	20.9/21	29.9/30.1	55.7	55.7	55.7
		mm	350/355	530/535	760/765	1415	1415	1415
Exterior Dimensions (ECO/EVO)	Width	inches	24.4/25.2	29.9/30.7	29.9/30.7	41.7/43.3	57.5/59	92.9
		mm	620/640	760/780	760/780	1060/1100	1460/1500	2360
	Depth	inches	25.2/29.7	29.2/29.7	35.2/34.8	31.1/34.8	31.1/34.8	34.2/35.4
		mm	640/755	640/755	895/885	790/885	790/885	870/898
	Height (Legs L, Casters C)	inches	34.4L/37C	41.1L/46.7C	50.2L/57.1C	75L/35C	75L/35C	75L/75.6C
		mm	875L/940C	1045L/1187C	1275L/1450C	1905L/1890C	1905L/1890C	1905L/1921C
Shelves: Stainless Steel	Capacity: # of shelf guides in chamber side walls	Maximum #	4	7	10	19	19	3 x 19
		Standard #	2	2	2	2	2	6
Shelf Distance	Min. distance between trays	Inches	2.8	2.8	2.8	2.8	2.8	2.8
		mm	70	70	70	70	70	70
Useable Shelf Area	Width x Depth	Inches	15x13.2	20.5x13.2	20.5x19.1	20.5x19.1	36.3x19.1	20.5x19.1x3
		mm	380x335	520x335	520x485	520x485	920x485	520x485x3
Maximum Shelf Load	One Shelf	lbs	44.1	44.1	66.1	66.1	110.2	66.1
		kg	20	20	30	30	50	30
	Total Per Unit	lbs	110.2	110.2	154.3	220.5	286.6	661
		kg	50	50	70	100	130	300
# Outer Metal Doors			1	1	1	1	2	3
# Inner Glass Doors			1	1	1	1	2	3
Volume of Steam Space		ft ³	3.1/3.2	5.8/5.9	10.6/10.8	18.5/18.7	30.9/31	61.9
		liters	89/91	163/167	299/305	524/530	876/878	1753
Operation Temperature	From 0°C (-10°C / -20°C)	Up to °C	100	100	100	100	100	100/70
Temperature Accuracy	Distribution @ 10°C	± °C	<0.5	<0.5	<0.5	<1	<1	<0.6
	Distribution @ 37°C	± °C	<0.5	<0.5	<0.5	<1	<1	<0.5
	Uniformity	± °C	<0.2	<0.2	<0.2	<0.3	<0.4	<0.2
Heating Time to 37°C From the Ambient Temperature		Minutes	<11	<11	<11	<13	<13	<30
Cooling Down Time From 22°C to 10°C		Minutes	<21	<21	<17	<19	<21	<21
Recovery time after door opened for 30 s according to DIN 12880	@ 37°C	Minutes	<5	<5	<2	<2	<6	<10
	@ 50°C	Minutes	<6	<6	<3	<4	<6	<10
Heat Emission	@ 37°C	W	55	70	63	123	148	200
CO2 Concentration (EVO Only)		%	0.1 - 20		-		0.1 - 20	
CO2 Required Pressure (EVO Only)		Bar/PSI	0.3-0.7/5--10		-		0.3-0.7/5--10	
Noise Level of Complete Device		dB	45	46	50	56	58	60
Electrical Data	Max Consumption 50/60Hz	W	700/850**	1000/1150**	1150/1300**	1700	2000/2050**	2500/3300**
		A	7.6	7.7/10	9.2/11.2	16	17.9	11.6
		V	115	115	115	115	115	230
IP Code			IP20	IP20	IP20	IP20	IP20	IP20
ECO/EVO Weight	Net	lbs	183/209.4	233.7/242.5	302/315.3	493.8/507.1	562.2/565.2	1144.2/1201.5
		kg	83/95	106/110	137/143	224/230	255/270	519/545
	Gross	lbs	224.9/396.8	299.8/485	383.6/579.8	606.3/859.8	707.7/1102.3	1849.7/1907
		kg	102/180	136/220	174/263	275/390	321/500	839/865
EVO Weight -20°C	Net	lbs	231.5	44.1	337.3	551.2	639.3	1201.5
		kg	105	120	153	250	290	545
	Gross	lbs	419	507.1	601.9	881.8	1124.4	1907
		kg	190	230	273	400	510	865

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**Value at cooling down to -20°C

ECO Value/EVO Value