



Freeze-Thaw Incubator



BETATEK INC.
Instrumentation Superbly Supported
L'instrumentation à son meilleur

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FRIOCELL EVO

Freeze - Thaw Incubator

Assuring Your Quality



Pharmaceutical & Bio Tech

Stability testing and photo stability testing. Freeze Thaw studies



Biology & Microbiology

Testing, tissue growth human and animal, bacteria cultures and microorganisms



Plant Growth & Agriculture

Simulating conditions for agricultural: germination, green plant growth, plant tissue culture, crops & fruits



Food Science & Packaging

Stability testing and photo stability testing of food products including shelf life studies



Aerospace, Auto, Industrial

Testing of materials quality and durability; adhesives, textiles, seals, composites, components & electronics



111 (4 ft3)



707 (25 ft3)



404 (14.3 ft3)



1212 (43 ft3)

The **FRIOCELL EVO** is the evolution in BMT chambers, **designed** to create exact and reproducible simulation of environmental conditions including but not limited to microbiology, plant growth, photo stability and stability.

The Friocell's fuzzy logic enabled microprocessor allows for complete control of incremental temperature increases in chamber temperature for Freeze-Thaw studies. Complete data reporting, evaluation and security is available with Warmcomm 4.0F Software, **FDA 21 CFR part 11 conformity**.

The EVOs' all stainless steel (AISI 304) double-wall chamber design (main & inner chamber) allows for long life expectancy and elevates contamination control by facilitating the easy cleaning and sterilization.

Forced Air / Mechanical Convection: Patented Air flow system moving air both vertically and horizontally

Chamber Sizes:

Liters (Ft3) 55 (2), 111 (4), 222 (8), 404 (14.3), 707 (25), 1212 (43)

Working Temperature Range: -20.0 °C up to 100 °C

Automatic Defrost

Lighting: VIS & UV shelf & door lighting – LED and Fluorescent

Fully programmable light intensity, microprocessor dimming 0 – 100%

111 & 222: up to 2 shelf lights, 404, 707 & 1212: up to 3 shelf lights

Power: 115V & 230V 50 / 60Hz

EVO Features

- removable inner chamber for cleaning and sterilization
- AISI 304 seamless stainless steel chamber & shelves w/ rounded corners
- Data encryption FDA 21 CFR Part 11
- Multi-level user admin., FDA 21 CFR Part 11
- fuzzy Logic "learning logic" microprocessor
- Continuous indication of temp., CO2 (optional) concentration, time & alarm
- Audio and visual alarm
- digital independent safety thermostat
- RS232 communication. Optional Ethernet
- 5 layers of insulation for precise internal chamber uniformity
- patented forced air system and adjustable from 1% to 100 %
- fuzzy logic microprocessor controlled humidification and de-humidification

EVO Color LCD Touch Screen



- LCD touch screen display, simple icon navigation
- Glove friendly touch screen
- 100 programs – 100 segments – for varying loads and parameters
- SD card data storage in CSV and real time graph of the process
- Graph display of cycle parameters
- 30 day data logger with graphs
- High process security – users protected by passwords (5 users, 1 admin)
- program temperature ramps, real time, heating sequences and cycling
- delayed heating start and stop
- Graphic display of cycle parameters

Optional Lighting: LED & Fluorescent

- Programmable lighting is 1% increments of intensity
- shelf lighting – VIS LED & Fluorescent
- door lighting – VIS LED & Fluorescent
- shelf lighting - VIS / UV fluorescent lighting for ICH Q1B compliance

Options

- Communication Plus: WiFi, Ethernet & USB device
- light sensors 10 - 70°C
- access ports 25 (1"), 50 (2"), 100 (4")
- automatic door lock or key lock
- 160°C sterilization cycle
- water proof inner socket 115V
- BMS monitoring alarm contact
- flexible PT 100 sensor
- WarmComm 4.0P & 4.0 FDA software
- Stainless steel exterior
- AISI 316 stainless steel chamber

FRIOCELL® EVO (FC EVO)			55	111	222	404	707	1212
Technical data Internal space - chamber, stainless steel DIN 1.4301 (AISI 304)	volume	cca l	54	110	219	404	704	1408
	volume	ft3	1.9	3.9	7.8	14.3	25	43
	width	mm	400	540	540	540	940	3×540
		inch	16	21.3	21.3	21.3	21.3	21.3
	height	mm	355	535	765	1415	1415	1415
		inch	14	21	30	56	56	56
	depth	mm	380	380	530	530	530	530
		inch	15	15	21	21	21	21
Volume of the steam space		cca l	91	167	305	530	878	1753
External dimensions (including door, Handle H and wheels W)	width	mm	640	780	780	1100	1500	2530
		inch	25	31	31	43	59	99.6
	height	mm	940H	1215H	1450H	1880W	1880W	1915W
		inch	37	47.8	57	74	74	75.4
	depth	mm	755	755	885	885	885	885
		inch	29.7	29.7	36	35	35	35
Package – dimensions (three-layers carton)	width	cca mm	820	890	950	1340	1680	2750
	depth	cca mm	1290	1590	1740	2200	2200	2230
	height (incl. palette)	cca mm	980	890	1070	1060	1060	1130
Weight	net	kg	110/120**	110/120**	143/153**	240/250**	280/290**	519/545**
		lbs	243/265	243/265	315/337	529/551	617/639	1144/1202
	Gross (carton)	kg	140/150**	140/150**	162/172**	280/290**	326/336**	803/829**
		lbs	309/331	309/331	357/379	716/639	719/741	1770/1828
Shelves of stainless steel *	trays	max. No.	5	7	10	19	19	3×19
	standard equipment	pcs.	2	2	2	2	2	6
	min. distance	mm inch	70 2.8	70 2.8	70 2.8	70 2.8	70 2.8	70 2.8
	Storage area (w × d)	mm	380×335	520×335	520×485	520×485	920×485	520×485
Maximal load *	per 1 screen	kg/screen	20	20	30	30	50	30
	for a shelf	kg/shelf	20	20	30	30	50	30
		lb/shelf	44	44	66	66	110	110
	total inside of device	kg/chamber	50	50	70	100	130	300
		lb/chamber	110	110	154	220	287	661
Number of outer metal doors		psc.	1	1	1	1	2	3
Number of inner glass doors		psc.	1	1	1	1	2	3
Electrical data	maximum power requirement without decontamination	W	700/850**	1000/1150**	1150/1300**	1700/1700**	2000/2050**	2500/3300* *
	maximum power requirement with decontamination	W	700/850**	1000/1150**	1150/1300**	1700/1700**	2600/2650**	2500/3300* *
	50/60 Hz	V	115	115	115	230	230	230
	protective system		IP20	IP20	IP20	IP20	IP20	IP20
Temperature data Working temperature	from 0.0°C from -20.0°C	to °C to °C	100 (decontamination 160°C) 100 (decontamination 160°C)					70 70
Temperature accuracy	distribution at 10°C	cca (±) °C	<0.5	<0.5	<0.5	<1	<1	<0.6
	uniformity	cca (±) °C	<0.2	<0.2	<0.2	<0.3	<0.4	<0.5
Heating/up time to 37°C from ambient temperature	min		<11	<11	<11	<22	<13	<30
Cooling/down time from 22°C to 10°C	min		<21/<11**	<21/<11**	<17/<14**	<19/<11**	<21/<22**	<21
Recovery time after 30 s of door opening according to DIN 12 880	at 37°C	min	<5	<5	<2	<10	6	10
	at 50°C	min	<6	<6	<3	<13	6	10
Heat emission	at 37°C	cca W	55	70	63	123	148	200
Complete device noise level	dB		45/50**	46/52**	50/56**	56/58**	58/65**	60
CO₂ concentration	%		0.1- 20				-	0.1 - 20
Required pressure CO₂	bar/psi		0.3 - 0.7/5 -10**				-	0.3-0.7/5-10**

*Approx. 50% of the tray area can be filled to allow for proper air circulation is enabled inside the chamber.

** Value at cooling up to -20°C.

Note: All technical data are related to 22°C ambient temperature and ± 10% voltage swing (if not specified). For other parameters see section Electric connections. Change in the design and make reserved