

Friocell EVO: CO₂

Large Volume CO₂ Incubators
Patented Forced Air Convection



Temperature:

0°C up to 100°C

Dry Heat Sterilization:

160°C

CO₂ Concentration:

0.1% up to 20%

- Drift-free infrared CO₂ sensor

O₂ Control (Model 222 Only):

- Tri-Gas N₂ injection for O₂ control: 1-20%

Chamber Construction

- AISI 304 stainless steel chamber (AISI 316 SS option available)
- HEPA filter on incoming CO₂ gas tubing
- 50mm (2") stainless steel port

Electrical:

230V 50/60Hz

Optional Equipment:

- Stainless steel exterior: AISI 304 or 316.
- Heated inner glass door - eliminates condensation.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Waterproof interior electrical socket: 230V.
- Rolling cart for 222 model.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- Warmcomm software:
 - 4.0B - data monitoring.
 - 4.0P - data monitoring and control.
 - 4.0F - FDA 21 CFR part 11 compliance.

Friocell EVO CO₂ incubators provide precise control of temperature, airflow and CO₂ concentration to create optimal conditions for various cell culture applications, including cell growth, tissue cultivation, virology studies, and other culturing processes.

The patented forced air convection system produces simultaneous vertical and horizontal air movement, emulating natural airflow and delivering even temperature distribution throughout the chamber.

A standard-equipped Vaisala drift-free infrared CO₂ sensor provides accurate measurements throughout the incubation process, ensuring reliable results.

Key Benefits:

- Vaisala drift-free infrared CO₂ sensor
- Patented forced air convection system with simultaneous vertical and horizontal airflow for even distribution of temperature and humidity with rapid heating and cooling times.
- Pharmaceutical-grade stainless steel chamber for easier cleaning and sterilization.
- Connectivity: various communication interfaces including Ethernet, WiFi, USB, and RS232 for data logging and remote monitoring

Vaisala Drift-Free Infrared CO₂ sensor

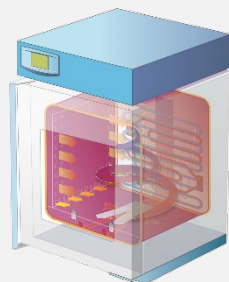
Vaisala drift free infrared CO₂ sensors provide accurate carbon dioxide measurements to ensure samples are always incubating at the correct concentration levels. The sensor does not require any additional auto-referencing or zeroing to prevent drifting of the CO₂ calibration.



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.
- Real-time programming and cycling with settings for temperature ramping.
- Fan adjustments in 1% increments.
- Programmable audible & visual alarms - temperature, time & humidity.
- Service programs for quick error diagnostics.
- USB device, RS232 & optional Ethernet port.
- Integrated SD card 30-day data logger & multi-level secure user authentication.
- Optional FDA CFR 21 part 11 compliance.
- 50mm (2") port.

Friocell EVO CO2 Incubator Technical Data			Model	222	404	707	1212
Interior Dimensions Chamber: AISI 304 stainless steel (AISI 316 stainless steel option available)	Volume	ft ³	8	14.3	25	43	
		liters	222	404	707	1212	
	Width	inches	21.3	21.3	37	3 x 21.3	
		mm	540	540	940	3 x 540	
	Depth	inches	20.9	20.9	20.9	20.9	
		mm	530	530	530	530	
	Height	inches	30.1	55.7	55.7	55.7	
		mm	765	1415	1415	1415	
Exterior Dimensions	Width	inches	30.7	43.1	59.2	99.6	
		mm	780	1100	1500	2530	
	Depth	inches	34.8	34.8	34.8	35.4	
		mm	885	885	885	898	
	Height	inches	57.1	74.4	74.4	75.6	
		mm	1450	1890	1890	1921	
Shelves: Stainless Steel	Capacity: # of shelf guides in chamber side walls	maximum #	10	19	19	3 x 19	
		standard #	2	2	2	6	
Shelf Distance	Min. distance between trays	inches	2.8	2.8	2.8	2.8	
		mm	70	70	70	70	
Useable Shelf Area	Width x Depth	inches	20.5x19.1	20.5x19.1	36.3x19.1	20.5x19.1x3	
		mm	520x485	520x485	920x485	520x485x3	
Maximum Shelf Load	One Shelf	lbs	66.1	66.1	110.2	66.1	
		kg	30	30	50	30	
	Total Per Unit	lbs	154.3	220.5	286.6	661	
		kg	70	100	130	300	
# Outer Metal Doors			1	1	2	3	
# Inner Glass Doors			1	1	2	3	
Volume of Steam Space		ft ³	10.8	18.7	31	61.9	
		liters	305	530	878	1753	
Operation Temperature		From 0°C up to °C	100	100	100	100	
Temperature Accuracy	Distribution @ 10°C	± °C	<0.5	<1	<1	<0.6	
	Distribution @ 37°C	± °C	<0.5	<1	<1	<0.5	
	Uniformity	± °C	<0.2	<0.3	<0.4	<0.2	
Heating Time to 37°C From the Ambient Temperature		minutes	<11	<13	<13	<30	
Cooling Down Time From 22°C to 10°C		minutes	<17	<19	<21	<21	
Recovery time after door opened for 30 s according to DIN 12880	@ 37°C	minutes	<2	<2	<6	<10	
	@ 50°C	minutes	<3	<4	<6	<10	
Heat Emission	@ 37°C	W	63	123	148	200	
CO2 Concentration		%	0.1 – 20				
CO2 Required Pressure		Bar/PSI	0.3-0.7/5--10				
Noise Level of Complete Device		dB	50	56	58	60	
Electrical Data	Max Consumption 50/60Hz	W	1150/1300**	1700	2000/2050**	2500/3300**	
		A	9.2/11.2	16	17.9	11.6	
		V	230	230	230	230	
IP Code			IP20	IP20	IP20	IP20	
Weight	Net	lbs	315.3	507.1	565.2	1201.5	
		kg	143	230	270	545	
	Gross	lbs	579.8	859.8	1102.3	1907	
		kg	263	390	500	865	



Patented Forced Air Convection

Our patented force air convection system produces simultaneous vertical and horizontal airflow for precise temperature uniformity and rapid heating and cooling times. The process of heating from the bottom of the chamber to the top emulates natural airflow, allowing for a more accurate simulation of climate conditions.