



Friocell *Evo*

Patented Forced Air Convection

Large Volume CO₂ Incubators



Pharmaceutical drug structure testing



Virology and cancer research



Microbiological sample cultivation and cell culture growth



EVO Controller

5.7" LCD touch display

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

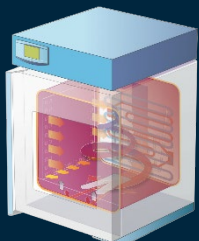
(100) programs with (100) segments each for varying loads and parameters.

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.



Patented Forced Air Convection System

BMT's patented force air convection system moves air vertically and horizontally inside the chamber for precise temperature uniformity and fast heating and cooling times. The process of heating from the bottom of the chamber to the top mimics natural airflow, allowing for more precise simulation of climatic conditions.

The Friocell EVO series of large capacity CO₂ incubators are focused on constant & repeatable conditions for cell growth, tissue growth, virology, and other culturing procedures.

The incubators allow for full control of all chamber conditions, including controllable CO₂, humidity in 1% increments, temperature in 0.1°C increments, and a patented air flow system controllable in 1% increments.

The infrared (IR) drift free CO₂ sensor provides maximum reliability & measurement precision during the entire incubation process.

The inner glass door is sealed, allowing for full viewing of the inner chamber, and can be optionally heated to eliminate condensation.

CO₂ Concentration

0.1% up to 20% - controlled in 1% increments

- Infrared (IR) drift free CO₂ sensor

Temperature Range:

0°C up to 100°C

Dry Heat Sterilization:

160°C

Chamber Volumes:

222 (8 ft³) • 404 (14.3 ft³) • 707 (25 ft³) • 1212 (43 ft³)

Chamber Design:

- AISI 304 stainless steel, Double Wall: seamless main chamber & removeable inner chamber
- 50mm (2") stainless steel port
- HEPA filter on incoming CO₂ gas tubing

Electrical Data:

230V 50/60Hz

Optional Equipment:

- Ethernet communication port
- Rolling carts for 222 models
- Optional heated inner glass door - eliminates condensation on the inner glass door(s)
- Door sensor and alarm
- Automatic lock and key door lock
- Stainless steel exterior
- 316 AISI stainless steel chamber
- Warmcomm data acquisition software:
 - ✓ 4.0B - Receive data
 - ✓ 4.0P - Receive data and control the device
 - ✓ 4.0F - FDA 21 CFR part 11 compliant
- BMS - Building monitoring alarm contact
- 4-20mA & BMS contacts
- Water-proof socket 230V
- IQ / OQ protocols with 9pt or 27pt temperature mapping

| Friocell EVO Large Volume 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 | 7.8 | 14.3 | 25 | 43 | |
| | | liters | 222 | 404 | 707 | 1212 | |
| | Width | inches | 21.25 | 21.25 | 37 | 3 x 21.25 | |
| | | 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 | 43.3 | 59 | 92.9 | |
| | | mm | 780 | 1100 | 1500 | 2360 | |
| | Depth | inches | 34.8 | 34.8 | 34.8 | 35.4 | |
| | | mm | 885 | 885 | 885 | 898 | |
| | Height (Legs L, Casters C) | inches | 50.2L/57.1C | 75L/35C | 75L/35C | 75L/75.6C | |
| | | mm | 1275L/1450C | 1905L/1890C | 1905L/1890C | 1905L/1921C | |
| 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 | 115 | 115 | 115 | 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 | |
| BMT USA, LLC • 360.863.2252 • sales@bmtusa.com • www.bmtusa.com | | | | | | | |

**Value at cooling down to -20°C