



Scientific & Laboratory Ovens, Incubators & Climate Chambers

Ecocell / Durocell / Venticell / Vacucell / Stericell / Incucell / CO2cell / Climacell / Friocell



BMT USA. Pure Results.

Device Quick Reference

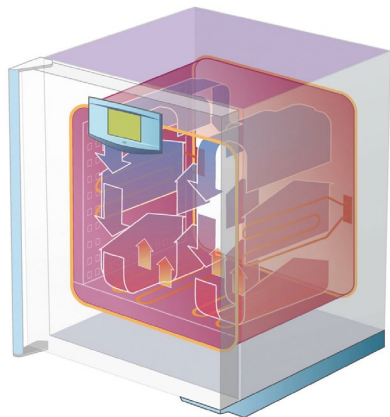
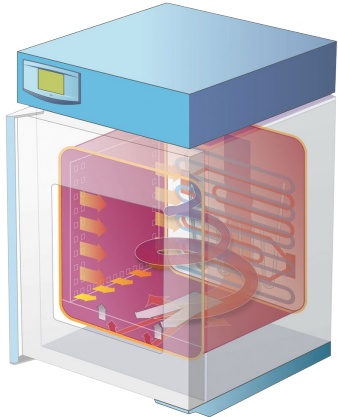
Device	Description	Heat Technology	Working Temperatures
Ecocell	Heating and drying oven	Natural gravity convection	Ambient + 5°C up to 250°C / 300°C option
Durocell	Heating and drying oven	Natural gravity convection	Ambient + 5°C up to 125°C
Venticell ECO / EVO	Heating and drying oven	Patented force air convection	Ambient + 10°C up to 250°C / 300°C option
Stericell	Dry heat sterilization oven	Patented forced air convection	Preset validated sterilization cycles: 160°C / 170°C / 180°C
Vacucell ECO	Vacuum drying oven	Servotherm direct heat transfer	Ambient + 5°C up to 200°C
Vacucell EVO	Vacuum drying oven	Servotherm direct heat transfer	Ambient + 5°C up to 300°C
Incucell ECO / EVO	Microbiological incubator	Natural gravity convection	Ambient + 5°C up to 100°C
Incucell V ECO / EVO	Microbiological incubator	Patented forced air convection	Ambient + 10°C up to 100°C
Friocell ECO	Cooling incubator	Patented forced air convection	0°C up to 100°C / -10°C option
Friocell ECO P	Peltier cooled incubator	Patented forced air convection / Peltier cooling	22, 55, 111, 222: Ambient (-) 21°C up to ambient (+) 45°C / 404, 707: Ambient (-) 14°C up to ambient (+) 30°C
Friocell EVO	Cooling incubator	Patented forced air convection	0°C up to 100°C / -20°C option
Climacell ECO	Climate chamber / Temperature & humidity	Patented forced air convection	0°C up to 100°C / -10°C option
Climacell EVO	Climate chamber / Temperature & humidity	Patented forced air convection	0°C up to 100°C / -20°C option
Climacell EVO CO ² / Friocell EVO CO ²	Large volume CO ² incubator	Patented forced air convection	0°C up to 100°C
CO2cell	CO ² incubator	3-circuit fanless direct heat	Ambient + 5°C up to 60°C

Heat Technologies



Patented forced air convection system

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

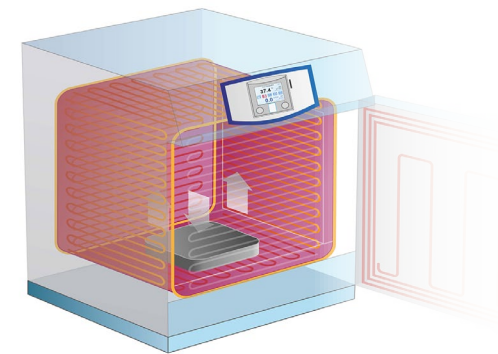
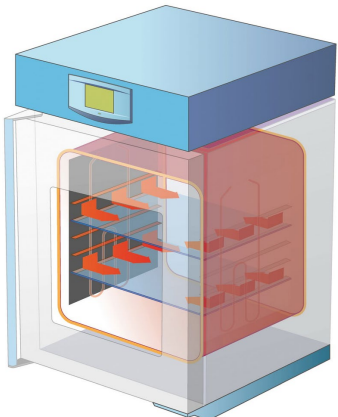


Natural gravity convection system

The natural gravity convection system evenly distributes heat throughout the chamber and operates without a fan, eliminating all noise and vibration while providing gentle airflow. The fanless operation also reduces power consumption and particle movement inside the chamber.

Patented Servotherm direct heat transfer system for vacuum ovens

The patented Servotherm direct heat transfer system heats the chamber walls via powerful heating elements fixed to the exterior surface of the chamber. Heat is then conducted from the chamber walls to the brushed aluminum shelving brackets and shelves. The conducted heat is passed from the shelves to the load for quick, safe, and effective drying of media and solvents.



3-circuit fanless direct heat system for CO2cell incubators

6-sided, 3-circuit (door, bottom/water pan, sides/top/back) fanless direct heat system virtually eliminates cross contamination, condensation, and vibration.

Design Features

Ensuring the accuracy and reliability of test results through features that improve performance and functionality.

To ensure accurate testing and the repeatability of results, laboratories and research centers require precise and dependable equipment that can create and maintain specific test conditions. BMT devices offer a range of exclusive features designed to ensure the highest level of performance and reliability. Fully removable pharmaceutical-grade stainless steel chambers allow for easier cleaning and maintenance. The patented four-point door locking system tightly seals the door to the chamber to maintain internal conditions with greater efficiency, while the fuzzy logic-enabled microprocessor controls provide precise control of all process parameters. When you choose a BMT device, you're investing in equipment that consistently delivers results you can trust.

Fully removable inner chamber walls for ease in cleaning and maintenance—all models are double-walled, no tools required.

Intuitive digital controllers with fuzzy logic enabled microprocessor and real-time data logging.

Shelf brackets molded into the chamber side walls offer increased load capacity and simplifies cleaning.

Stainless steel ports optional: 1" / 2" / 4"

of shelf brackets:
1212: 57 707 / 404: 19
222: 10 111: 7
55: 4 22: 4
(spaced @ 2.8")



Patented 4-point door locking system securely seals the door to the chamber gasket.

Inner glass doors allow viewing into the chamber without affecting internal conditions (Climacell / Friocell devices only).

Stainless steel chambers:
AISI 304 or 316

5 layers of insulation helps maintain internal chamber conditions and improves efficiency.

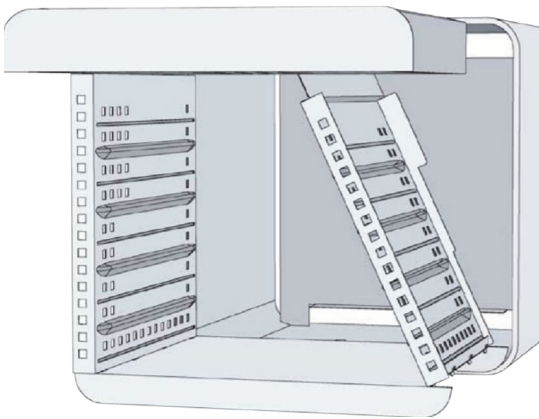
Pharmaceutical-grade construction: ISO 9001 / UL / FDA / ICH complaint

Chamber Design & Construction

Integrating pharmaceutical-grade materials with intelligent design characteristics for lasting durability, superior cleanliness, and efficient operation.

BMT devices are equipped with pharmaceutical-grade AISI 304 or 316 stainless steel chambers featuring a double-wall construction and five layers of insulation—including 2" of rock-wool or polyurethane—to help maintain internal conditions and improve efficiency. The walls of the chamber are seamless with rounded corners, while the inner chamber walls are fully removable for easier cleaning and maintenance. A reinforced frame can also be added to support heavy loads.

The chamber doors feature a patented multi-point locking system that utilizes four locking posts, distributing force evenly across the entire door panel, rather than being concentrated at a single point. As a result, the door remains securely closed and sealed air-tight. Interior glass doors on Climacell and Friocell devices help mitigate the impact on internal conditions when there is a need to view into the chamber during an ongoing cycle.



Pass-Through & Class 7 Models for Clean Rooms

Venticell and **Stericell** devices can be configured as pass-through models for clean room applications, and include special equipment to ensure the safety of staff and the environment:

- Pass-through (dirty side/clean side) configuration, including bioseal flange.
- Clean side controller for pass-through models.
- HEPA Filters for incoming air (H13 or H14).
- Particle-free modification prevents contamination.
- Over-pressure modification for clean side protection.
- Optional AISI 304 stainless steel exterior.
- Mechanical or automatic door locks available.



ECO & EVO Digital Controllers

Sophisticated digital control system with fuzzy logic enabled microprocessor for precise control of process parameters.

The ECO digital controller and advanced EVO digital controller utilizes a fuzzy logic algorithm to automatically assess process data, including operation temperature, chamber size, and other controlled elements. Based on the assessed data, the controller can make continuous adjustments to input values, such as heating intensity or cooling, to optimally regulate internal chamber conditions.

To minimize the time required to meet set process parameters, the ECO and EVO controllers can quickly ramp up to the temperature set-point without overshooting. The result is reduced overall cycle times, power consumption, and recovery times. The controllers also provide 30-day data logging functionality and are FDA 21 CFR part 11 compliant when paired with optional Warmcomm 4.0F software.



ECO Digital Controller	EVO Digital Controller
• 3" LCD display with wide-angle vision and adjustable contrast levels	• 5.7" full color touch screen display
Microprocessor controller with fuzzy logic	
• 9 programs with 2 segments each for varying loads and parameters, up to 99 cycles	• Up to 100 programs with up to 100 segments each, unlimited cycles
• Real time programming and cycling	• Real-time programming and cycling with settings for temperature ramping and delayed start/stop
• Large display of conditions, including temperature and humidity with LED indicator of device functions	• Graphical display of parameters over the course of the cycle
Audible and visual alarms	
• Keypad lock against unauthorized access	• Multi-level user password authentication with display lock against unauthorized use
Multi-language support including English and Spanish	
-	• Fan adjustments in 1% increments
-	• Digital safety thermostat, Class 3
-	• Service programs for quick error diagnostics, includes remote access
-	• Online or offline data export
-	• Direct printing of protocols in PDF format
• Optional: USB, RS 232 and Ethernet ports	• SD memory card, USB drive and RS 232 port
• Optional: 30-day USB data logger (standard in most 111, 222, 404, 707 and 1212 devices)	• Integrated 30-day data logger with numerical and graphic display
Optional: BMS contacts (24V, 1A); 4-20mA contact	
• Optional: ECO+, increase program segments from 2 up to a total of 8 segments (option is standard equipped on Climacell devices)	• Optional: Communication+, USB and Ethernet connection with IP address for remote data transfer, control and diagnostics

Optional: FDA CFR 21 part 11 compliance with addition of Warmcomm 4.0F software

Common Applications



Industry	Application	Suitable Devices
Pharmaceutical / Biotech / Cosmetics / Compounding Pharmacy	• Stability / photostability studies	• Climacell - Temperature & humidity • Friocell - Temperature controlled
	• Sterilization	• Stericell - Sterilization ovens • Venticell - Forced air convection ovens
	• Drying off compounds	• Vacucell - Vacuum drying ovens • Ecocell - Natural gravity convection ovens • Venticell - Forced air convection ovens
	• Removal of solvents from powders and chemicals	• Vacucell - Vacuum drying ovens
Food & Beverage	• Shelf life testing	• Climacell - Temperature & humidity • Friocell - Temperature controlled
	• Microbiology	• Incucell - Natural gravity convection • Incucell V - Forced air convection
Laboratory Research / Life Science	• Sample storage	• Friocell ECO - Cooling incubators • Friocell ECO P - Peltier cooled incubators
	• Microbiology / Virology / Cell Growth	• Incucell - Natural gravity convection • Incucell V - Forced air convection • CO2cell Standard - CO ² incubators • CO2cell Comfort - CO ² incubators with optional O ² control • Climacell EVO - Large volume CO ² incubators with humidity • Friocell EVO - Large volume CO ² incubators
	• Biochemical Oxygen Demand (BOD)	• Friocell ECO - Cooling incubators • Friocell ECO P - Peltier cooled incubators
	• Drying off solvents from granules, compounds, powders / drying combustible substances & powders	• Vacucell - Vacuum drying ovens

Industry	Application	Suitable Devices
Laboratory Research / Life Science Cont.	• Drying and sterilization of glassware, media & instruments	• Ecocell - Gravity convection ovens • Venticell - Forced air convection ovens • Stericell - Dry heat sterilization ovens
	• Seed germination and plant growth	• Climacell - Temperature & humidity • Friocell - Cooling incubators
Industrial / Aerospace / Electronics	• Materials Testing	• Climacell - Temperature & humidity • Friocell - Temperature controlled chambers • Ecocell - Gravity convection ovens • Durocell - Interpon coated, gravity convection ovens • Venticell - Forced air convection ovens • Venticell EVO IL Easy - Class 7 dry heat ovens
	• Freeze-Thaw	• Friocell - Temperature controlled chambers
	• Drying / Curing / Annealing	• Venticell - Forced air convection ovens • Ecocell - Gravity convection ovens • Vacucell - Vacuum drying ovens
Energy / Chemicals	• Accelerated Aging	• Venticell - Forced air convection ovens • Ecocell - Gravity convection ovens • Vacucell - Vacuum drying ovens
	• Drying / curing	• Ecocell - Gravity convection ovens • Venticell - Forced air convection ovens
	• Loss on drying	• Venticell - Forced air convection ovens
	• Caustic & Acidic Materials	• Durocell - Interpon coated, gravity convection ovens

Ecocell

Natural gravity convection ovens

Ecocell gravity convection ovens do not produce any noise or vibration while operating and provide gentle air flow with even temperature distribution throughout the chamber. The Ecocell is an ideal solution for carefully drying sensitive materials, including light powders and compounds, while also being suitable for industrial material testing applications and sterilizing laboratory glassware or media.



Working Temperature:

Ambient + 5°C up to 250°C

Option: 300°C max temperature

Ecocell Specifications:

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	9.4" x 13.8" x 11.8"	16" x 22" x 24"	4	115V
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 26.8" x 26.8"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 26.8" x 33.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 32.7" x 42.9"	10	115V / 230V**
404 / 14.3ft³	21.3" x 20.5" x 55.7"	29.9" x 31.1" x 75.2"	19	230V
707 / 25ft³	37" x 20.5" x 55.7"	45.7" x 31.1" x 75.2"	19	230V

All Ecocell models are standard equipped with (2) stainless steel shelves.
 **Denotes available option.

Options:

- Stainless steel exterior: AISI 304 or 316
- ECO plus: add 6 program segments for a total of 8 segments and 9 programs.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature probe.
- Ethernet communication port.
- Wire or perforated stainless steel shelves.
- Exhaust port extension to allow connection to external exhaust.
- Automatic key and door lock.
- Door sensor and alarm.
- Rolling cart for 22, 55, 111, 222.
- Interior electrical socket: 115V / 230V.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm 4.0 data capture software.
- Durocell option: Interpon coated chamber protects against corrosive substances.

Heating & Drying Ovens

BMT USA laboratory ovens deliver precise temperature control with even distribution for heating and drying applications. These ovens cater to a diverse range of industries, including biopharma, laboratory, energy and industrial manufacturing. With various models equipped with either natural gravity convection, forced air convection, or gentle vacuum drying, BMT USA can provide an ideal heating and drying solution for your specific requirements.

Venticell ECO / EVO

Patented forced air convection ovens

Venticell forced air convection ovens simultaneously move air vertically and horizontally within the chamber for precise temperature uniformity. The fuzzy logic enabled digital controller ensures repeatable cycles and precise temperature control without overshooting the set point. Venticell ovens are ideal for sterilizing glassware and equipment, drying compounds and media, material testing, and accelerated aging tests.



Working Temperature:

Ambient + 10°C up to 250°C

Option: 300°C max temp. – standard on 222 devices

Venticell ECO/EVO Specifications:

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	9.4" x 12.6" x 11.8"	16" x 22 " x 24"	4	115V
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 25.2" x 26.8"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 25.2" x 33.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 31.1" x 43.1"	10	115V / 230V**
404 / 14.3ft³	21.3" x 20.5" x 55.5"	29.9" x 31.1" x 75.2"	19	230V
707 / 25ft³	37" x 20.5" x 55.5"	45.7" x 31.1" x 75.2"	19	208V-3P
1212 / 43ft³	3x21.3" x 20.5" x 55.5"	85.6" x 33.3" x 75.2"	3x19	230V-3P

All Venticell models are standard equipped with (2) stainless steel shelves.
** Denotes available option.

Options:

- Stainless steel exterior: AISI 304 or 316.
- ECO plus: add 6 program segments for a total of 8 segments and 9 programs.
- Clean room / pass-through models (p. 5).
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Heavy load chamber.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Interior electrical socket: 230V.
- Rolling cart for 22, 55, 111, 222.
- BMS contacts (24V, 1A).
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm software:
 - 4.0B – data monitoring.
 - 4.0P – data monitoring and control.
 - 4.0F – FDA 21 CFR part 11 compliance.



Venticell EVO IL Easy

Class 7 Dry Heat Sterilization Ovens

The Venticell EVO IL Easy is designed for clean room applications and provides dry heat sterilization at temperatures up to 250°C. The ovens can also be utilized for Class 7 depyrogenation at temperatures up to 300°C. The equipped patented forced air convection system delivers rapid heating and cooling times with even temperature uniformity. Separate control panels are included with pass-through models for wall mounting on the load and unload side.



Working Temperature:

Ambient + 10°C up to 250°C

Option: 300°C max temperature

Venticell Specifications:

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
55 / 2ft³	15.7" x 15.4" x 13.8"	24.4" x 25.2" x 26.8"	4	115V
111 / 4ft³	21.3" x 15.4" x 20.8"	29.9" x 25.2" x 33.9"	7	115V
222 / 8ft³	21.3" x 21.3" x 29.9"	29.9" x 31.1" x 42.9"	10	115V / 230V**
404 / 14.3ft³	21.3" x 21.3" x 55.5"	29.9" x 31.1" x 75.2"	19	230V
707 / 25ft³	37" x 21.3" x 55.5"	45.7" x 31.1" x 75.2"	19	208V-3P

All Venticell models are standard equipped with (2) stainless steel shelves.
** Denotes available option.

Options:

- Stainless steel exterior: AISI 304 or 316.
- Clean room / pass-through models (p. 5).
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Heavy load chamber.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Interior electrical socket: 230V.
- Rolling cart for 55, 111, 222.
- BMS contacts (24V, 1A).
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm software:
 - 4.0B – data monitoring.
 - 4.0P – data monitoring and control.
 - 4.0F – FDA 21 CFR part 11 compliance.

Stericell

Dry heat sterilization ovens: patented forced air convection

Stericell dry heat sterilization ovens validate the sterilization process under specified parameters of temperature and time. The patented forced air convection system, combined with microprocessor controls and a PT 100 temperature sensor ensures precise temperature uniformity and fast heating times. The sterilization process is secured by an automatic door sensor and will only validate if the process is completed without interruption.



Working Temperature:

160°C / 170°C / 180°C

Preset and validated sterilization cycles - exposure times @ 60min. / 30 min. / 20min.

Stericell Specifications:

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	9.4" x 12.6" x 11.8"	16" x 22." x 24"	4	115V
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 26.8" x 26.8"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 26.8" x 33.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 32.7" x 42.9"	10	230V
404 / 14.3ft³	21.3" x 20.5" x 55.7"	29.9" x 31.1" x 75.2"	19	230V

All Stericell models are standard equipped with (2) stainless steel shelves.

Options:

- Stainless steel exterior: AISI 304 or 316.
- Clean room / pass-through models (p. 5).
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Heavy load chamber.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Interior electrical socket: 115V / 230V.
- Rolling cart for 22, 55, 111, 222.
- BMS contacts (24V, 1A).
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- Warmcomm software:
 - 4.OB - data monitoring.
 - 4.OP - data monitoring and control.
 - 4.OF - FDA 21 CFR part 11 compliance.

Vacucell ECO / EVO

Vacuum drying ovens

Vacucell vacuum drying ovens are ideal for drying temperature sensitive, easily decomposable or oxidative materials and solvents under careful vacuum. The ovens are equipped with the Servotherm direct heat transfer system, which utilizes aluminum brackets and shelving to conduct heat from the electrically heated chamber walls to the load. The units can be connected to a central vacuum source or equipped with a BMT Vacustation to house a dedicated vacuum pump.



Working Temperature:

ECO: ambient + 5°C up to 200°C

EVO: ambient + 5°C up to 300°C

Max Reachable Vacuum:

5x10⁻⁴ mbar (0.000375 Torr)

Chamber leakage: <5x10⁻³ mbar.l.s⁻¹

Vacucell Specifications:

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	13.4" x 10.2" x 11.8"	22.1" x 19.7" x 30.7"	5	115V
55 / 2ft³	15.7" x 12.6" x 16.9"	24.4" x 22.1" x 35.8"	8	115V
111 / 4ft³	21.3" x 16.1" x 18.9"	29.9" x 25.6" x 37.8"	9	115V

All Vacucell models are standard equipped with (2) aluminum shelves.

Additional Vacucell Features:

- 2cm Ventiflex safety glass in door releases in the event of over-pressure to prevent possible explosion.
- Inert gas connection for chamber air evacuation.
- Needle valve for fine dosing.
- Integrated 40mm duct for sensor.
- Connecting kit: DIN 16
- Pressure resistant AISI 316 stainless steel chamber.
- 4-point patented door locks for secure door seal.

Options:

- Stainless steel exterior: AISI 304 or 316.
- ECO plus: add 6 program segments for a total of 8 segments and 9 programs.
- Vacuum pump specific to user application.
- Vacustation for housing the vacuum pump.
- ECO digital vacuum display: 10 - 1,100 mbar.
- EVO digital vacuum display: 0.1 - 1,100 mbar.
- Ethernet communication port.
- Flexible PT 100 temperature probe.
- Door sensor and alarm.
- Interior electrical socket: 115V.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- Warmcomm software:
 - 4.OB - data monitoring.
 - 4.OP - data monitoring and control.
 - 4.OF - FDA 21 CFR part 11 compliance.

Incubators

Precise control of parameters and consistent temperature uniformity is critical for protecting samples and creating the optimal environment for cell growth and cultivation. BMT incubators are equipped with fuzzy logic enabled microprocessor controls that continuously analyze and adjust parameters to prevent overshooting the setpoint and efficiently maintain conditions.

With a diverse range of incubator models to choose from, BMT USA can deliver the right incubation solution for a range of industries and applications, including biotech, laboratory research, animal science, food and beverage processing, agriculture, and bio-chemical oxygen demand (BOD) studies.

Incucell

Microbiological incubators: natural gravity convection

Incucell natural gravity convection microbiological incubators provide noiseless operation and gentle airflow along with exceptional temperature uniformity. The lack of a fan significantly reduces particle movement inside the chamber, making incucell incubators ideal for the safe treatment of microbiological cultures. Incucell incubators are equipped with a fully-removable AISI 304 stainless steel chamber for easier cleaning and improved sterility.



Working Temperature:

Ambient + 5°C up to 100°C
(Programmable)

Incucell Specifications

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	9.4" x 13.8" x 11.8"	16" x 22" x 24"	4	115V
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 26.8" x 26.8"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 26.8" x 33.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 32.7" x 42.9"	10	115V
404 / 14.3ft³	21.3" x 20.5" x 55.5"	29.9" x 31.1" x 75.2"	19	115V
707 / 25ft³	37" x 20.5" x 55.5"	45.7" x 31.1" x 75.2"	19	115V
1212 / 43ft³	3X21.3" x 20.5" x 55.5"	85.6" x 33.3" x 75.2"	3x19	230V

All Incucell models are standard equipped with (2) stainless steel shelves.

Options:

- Stainless steel exterior: AISI 304 or 316.
- ECO plus: add 6 program segments for a total of 8 segments and 9 programs.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Heavy load chamber.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Interior electrical socket: 115V.
- Rolling cart for 22, 55, 111, 222.
- BMS contacts (24V, 1A)
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm software:
 - 4.OB - data monitoring.
 - 4.OP - data monitoring and control.
 - 4.OF - FDA 21 CFR part 11 compliance.

Incucell V

Microbiological incubators: patented forced air convection

Incucell V incubators produce optimal environments for the growth of microorganisms and bacteria. Equipped with a patented forced air convection system, Incucell V incubators deliver exceptional temperature uniformity and fast recovery times. The Incucell V is an ideal incubation solution for cell culturing, QC/QA testing of food and beverage products, and veterinary applications.



Working Temperature:

Ambient + 10°C up to 100°C
(Programmable)

Incucell V Specifications

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	9.4" x 12.6" x 11.8"	16" x 22" x 24"	4	115V
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 26.8" x 26.8"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 26.8" x 33.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 32.7" x 42.9"	10	115V
404 / 14.3ft³	21.3" x 20.5" x 55.5"	29.9" x 31.1" x 75.2"	19	115V
707 / 25ft³	37" x 20.5" x 55.5"	45.7" x 31.1" x 75.2"	19	115V
1212 / 43ft³	3X21.3" x 20.5" x 55.5"	85.6" x 33.3" x 75.2"	3x19	230V

All Incucell V models are standard equipped with (2) stainless steel shelves.

Options:

- Stainless steel exterior: AISI 304 or 316.
- ECO plus: add 6 program segments for a total of 8 segments and 9 programs.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- HEPA filter.
- Flexible PT 100 temperature sensor.
- Heavy load chamber.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Interior electrical socket: 115V.
- Rolling cart for 22, 55, 111, 222.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm software:
 - 4.OB - data monitoring.
 - 4.OP - data monitoring and control.
 - 4.OF - FDA 21 CFR part 11 compliance.

Friocell ECO

Cooling incubators: patented forced air convection

Friocell ECO cooling incubators are designed for applications that require temperatures ranging from -10°C up to 100°C, including biochemical oxygen demand (BOD) testing, sample storage, cell culturing, seed germination, and pharmaceutical stability testing. The patented refrigeration system prevents samples from drying out during cooling, while the patented forced air convection system delivers precise temperature uniformity for accurate and repeatable results.



Working Temperature:

0°C up to 100°C
Airflow controlled in 10% increments
Option: -10°C min. temp. with automatic defrost

Friocell ECO Specifications

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 25.2" x 34.4"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 29.2" x 44.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 35.4" x 50.2"	10	115V
404 / 14.3ft³	21.3" x 20.5" x 55.7"	41.7" x 31.1" x 75"	19	115V
707 / 25ft³	37" x 20.5" x 55.7"	57.5" x 31.1" x 75"	19	115V
1212 / 43ft³	3x21.3" x 20.5" x 55.7"	95.9" x 34.2" x 75"	3x19	230V

All Friocell ECO models are standard equipped with (2) stainless steel shelves.
All exterior height dimensions measured with legs. Measurements with casters may differ.

Options:

- Stainless steel exterior: AISI 304 or 316.
- AISI 316 stainless steel chamber.
- ECO plus: add 6 program segments for a total of 8 segments and 9 programs.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Heavy load chamber.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Interior electrical socket: 115 and 230V.
- Rolling cart for 22, 55, 111, 222.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm software:
 - 4.OB - data monitoring.
 - 4.OP - data monitoring and control.
 - 4.OF - FDA 21 CFR part 11 compliance.

Friocell ECO P

Peltier cooled incubators: patented forced air convection

Thermoelectric cooling does not require liquid refrigerant, and instead use solid metal to efficiently transfer thermal energy. The result is an environmentally friendly incubation solution with low energy consumption, quiet operation, and fast heating and cooling times. The Friocell ECO P produce working temperature between 0°C and 70°C, and is ideal for long term sample storage, biochemical oxygen demand (BOD) testing, cell cultivation, and stability testing applications.



Working Temperature:

22, 55, 111, 222 Models:

Ambient (-) 21°C up to ambient (+) 45°C
Programmable from 0°C up to 70°C

404, 707 Models:

Ambient (-) 14°C up to ambient (+) 30°C
Programmable from 0°C up to 70°C

Friocell ECO P Specifications

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
22 / 0.8ft³	9.4" x 12" x 11.6"	16" x 24" x 24"	4	115V
55 / 2ft³	15.7" x 14.6" x 13.8"	24.4" x 26.8" x 26.8"	4	115V
111 / 4ft³	21.3" x 14.6" x 20.9"	29.9" x 26.8" x 33.9"	7	115V
222 / 8ft³	21.3" x 20.5" x 29.9"	29.9" x 32.7" x 42.9"	10	115V
404 / 14.3ft³	21.3" x 20.5" x 55.7"	29.9" x 31.1" x 75.2"	19	115V
707 / 25ft³	37" x 20.5" x 55.7"	45.7" x 31.1" x 75.2"	19	115V

All Friocell ECO P models are standard equipped with (2) stainless steel shelves.

Options:

- Stainless steel exterior: AISI 304 or 316.
- AISI 316 stainless steel chamber.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Rolling cart for 22, 55, 111, 222.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- USB drive, 30-day data logging: 22, 55, 111.
- Warmcomm software:
 - 4.0B - data monitoring.
 - 4.0P - data monitoring and control.
 - 4.0F - FDA 21 CFR part 11 compliance.

Climacell EVO / Friocell EVO CO²+ N²/O²

Large volume CO² incubators: patented forced air convection

Climacell EVO and Friocell EVO large volume CO² incubators create accurate and reproducible conditions for cell growth, pharmaceutical drug structure testing, virology and other applications. The patented forced air convection systems creates precise temperature uniformity, while the drift-free infrared CO² sensor provides reliable measurements over the entire incubation process. With precise control of all environmental factors, the Climacell EVO and Friocell EVO can create the perfect conditions for your application.



Working Temperature:

0°C up to 100°C

(Climacell: 10°C up to 100°C with humidity)

160°C dry heat sterilization cycle

CO₂ Control:

0.1% up to 20%

(controlled in 1% increments)

Climacell Humidity:

10% up to 98%

(controlled in 1% increments)

Climacell EVO / Friocell EVO Specifications

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
222 / 8ft³	21.3" x 20.9" x 30.1"	30.7" x 34.8" x 57.1"	10	230V
404 / 14.3ft³	21.3" x 20.9" x 55.7"	43.3" x 34.8" x 74.4"	19	230V
707 / 25ft³	37" x 20.9" x 55.7"	59.2" x 34.8" x 74.4"	19	230V
1212 / 43ft³	3x21.3" x 20.9" x 55.7"	99.6" x 35.4" x 75.6"	3x19	230V

All Climacell EVO and Friocell EVO models are standard equipped with (2) stainless steel shelves.
All exterior height dimensions measured with legs. Measurements with casters may differ.

Vaisala Drift Free IR CO² Sensor

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

Options:

- 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.
- N² control:
 - 1% up to 20% (Climacell EVO 111 only).

C02cell Standard

CO² incubators: 3-circuit fanless direct heat

CO2cell incubators create constant and reproducible conditions for cell and tissue culture growth. The 3-circuit direct heating system operates without a fan, significantly reducing vibration and the risk of cross-contamination. A precise CO² infrared sensor with high stability provides reliable and accurate measurements. A sealed inner glass door allows for inspecting samples without affecting conditions within the chamber.



AISI 304 stainless steel chamber / Anti-microbial painted exterior

Working Temperature:

Ambient + 5°C up to 60°C

160°C dry heat sterilization cycle

CO₂ Control:

0.1% up to 20%

(controlled in 1% increments)

Relative Humidity:

Up to 90%

± 5% @ 37°C

CO2cell Standard Specifications

Model / Volume (ft ³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
50 / 1.7ft ³	15.8" x 11.8" x 15.8"	21" x 18.1" x 28.2"	3	115V

190 / 6.7ft ³	24.9" x 17.3" x 27"	30.1" x 28.9" x 33.9"	8	115V
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CO2cell 50: standard equipped with (3) stainless steel shelves. CO2cell 190: standard equipped with (4) stainless steel shelves.

Standard Controller:



- 2 x 3" LED digital display.
- Continuous indication of actual temperature and CO² concentration.
- Audible and visual alarm.
- Infrared drift free CO² sensor.
- Independent safety thermostat.
- 25mm access port at back of unit.

Options:

- Stainless steel exterior: AISI 304 or 316.
- Stacking platform for stacking two units.
- Rolling platform cart.
- Door sensor and alarm.
- Automatic CO² tank change over kit.
- CO² in-line pressure regulator.
- Two stage CO² regulator.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.

C02cell Comfort

CO² incubators: 3-circuit fanless direct heat + optional O²

CO2cell comfort incubators combine a 3-circuit, fan-less direct heating system with optional tri-gas O² control to create optimal conditions for cell growth. The direct heating system operates without a fan, significantly reducing vibration and the risk of cross-contamination. A precise CO² infrared sensor with high stability provides reliable and accurate measurements, while the sealed inner glass door allows for inspecting samples without affecting chamber conditions.



AISI 316 stainless steel chamber / Anti-microbial painted exterior

Working Temperature:

Ambient + 5°C up to 60°C

200°C dry heat sterilization cycle

CO₂ Control:

0.1% up to 20%

(controlled in 1% increments)

Relative Humidity:

Up to 90%

± 5% @ 37°C

CO2cell Comfort Specifications

Model / Volume (ft ³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
50 / 1.7ft ³	15.8" x 11.8" x 15.8"	21" x 18.1" x 28.2"	3	115V

190 / 6.7ft ³	24.9" x 17.3" x 27"	30.1" x 28.9" x 33.9"	8	115V
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CO2cell 50: standard equipped with (3) stainless steel shelves. CO2cell 190: standard equipped with (4) stainless steel shelves.

Comfort Controller:



- LCD color touch display.
- Continuous indication of actual temperature, CO² concentration, time and alarm limits.
- Audible and visual alarm.
- Infrared drift free CO² sensor.
- Independent safety thermostat.
- SD card data storage in excel format.
- RS 232 port and BMS relay alarm contact.
- On-board event and data logging with graph display.
- User password protection (5 users, 1 admin.)

Options:

- Stainless steel exterior: AISI 304 or 316.
- Ethernet communication port.
- Stacking platform for stacking two units.
- Rolling platform cart.
- Door sensor and alarm.
- Automatic door lock.
- Automatic CO² tank change over kit.
- CO² in-line pressure regulator.
- Two stage CO² regulator.
- Humidity display.
- BMS contacts (24V, 1A).
- 4-20mA contacts.
- IQ/OQ protocols with 9pt. or 27pt. temperature mapping.
- Tri-Gas O² control:
 - 1% up to 20% N² concentration.
 - Compartmentalized inner glass doors to minimize loss of conditions:
 - 50: 4 compartment doors.
 - 190: 8 compartment doors.

Climacell ECO / EVO

Temperature & humidity: patented forced air convection

Climacell ECO and EVO devices create exact, reproducible simulations of climate conditions through precise control of temperature, humidity and optional UV or VIS lighting inside the chamber. The devices are ideal for **ICH Q1A stability** or **Q1B photostability testing** of pharmaceuticals and cosmetic products, **shelf life testing** of food and beverage products, **freeze-thaw studies**, and **materials testing** applications.



Working Temperature:

0°C up to 100°C

(10°C up to 90°C with humidity)

Option: ECO -10°C / EVO -20°C min. temp. with automatic defrost

Humidity:

10% up to 95% (98% EVO)

(uniformity up to 2%)

Climacell ECO / EVO Specifications

Model / Volume (ft³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
111 / 4ft³	ECO: 21.3" x 14.6" x 20.9" EVO: 21.3" x 15" x 21"	29.9" x 29.5" x 44.9" 30.7" x 29.7" x 47.8"	7	230V
222 / 8ft³	ECO: 21.3" x 20.5" x 29.9" EVO: 21.3" x 20.9" x 30.1"	29.9" x 35.4" x 53.9" 30.7" x 34.8" x 57.1"	10	230V
404 / 14.3ft³	ECO: 21.3" x 20.5" x 55.7" EVO: 21.3" x 20.9" x 55.7"	41.7" x 33.9" x 75" 43.1" x 34.8" x 74.4"	19	230V
707 / 25ft³	ECO: 37" x 20.5" x 55.7" EVO: 37" x 20.9" x 55.7"	57.5" x 33.9" x 75" 59.2" x 34.8" x 74.4"	19	230V
1212 / 43ft³	ECO: 3x21.3" x 20.5" x 55.7" EVO: 3x21.3" x 20.9" x 55.7"	95.9" x 34.2" x 75" 99.6" x 35.4" x 75.6"	3x19	230V

All Climacell models are standard equipped with (2) stainless steel shelves.
All exterior height dimensions measured with legs. Measurements with casters may differ.

Options:

- Programmable UV and/or VIS ICH Q1B lighting for photostability studies (p. 27).
- Stainless steel exterior: AISI 304 or 316.
- AISI 316 stainless steel chamber.
- Stacking frame for 111 devices.
- 160°C sterilization cycle on EVO models.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Waterproof interior electrical socket: 230V.
- Rolling cart for 111 and 222 models.
- 4-20mA and BMS contacts (24V, 1A).
- 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.



Climate Chambers

Stability, shelf life, and materials testing require simulation of specific climate conditions to determine how products and materials respond to varying environmental factors, such as temperature and humidity. BMT USA climate chambers are ICH-compliant and provide precise control of temperature, humidity, and optional UV and visible lighting to ensure you always have the right climate for your testing application.

Friocell ECO / EVO

Temperature controlled: patented forced air convection

Friocell ECO and EVO devices utilize the patented forced air convection system to provide precise temperature control and uniformity with fast heating and recovery times. Friocell devices are suitable for **ICH Q1A stability testing** of pharmaceutical and cosmetics products, **materials testing**, **shelf life testing** of food and beverage products, **freeze-thaw studies**, and **ICH Q1B photostability** testing when equipped with optional UV or VIS lighting.



Working Temperature:

0°C up to 100°C

160°C dry heat sterilization cycle

Airflow controlled in 10% increments (ECO)
or 1% increments (EVO)

Option: ECO -10°C / EVO -20°C min. temp. with
automatic defrost.

Friocell ECO / EVO Specifications

Model / Volume (ft ³)	Internal Dimensions (w" x d" x h")	External Dimensions (w" x d" x h")	Max # of shelves	Power (50/60 Hz)
55 / 2ft ³	ECO: 15.7" x 14.6" x 13.8" EVO: 15.7" x 15" x 14"	24.4" x 25.2" x 34.4" 25.2" x 29.7" x 37"	4	115V
111 / 4ft ³	ECO: 21.3" x 14.6" x 20.9" EVO: 21.3" x 15" x 21"	29.9" x 29.5" x 44.9" 30.7" x 29.7" x 47.8"	7	115V
222 / 8ft ³	ECO: 21.3" x 20.5" x 29.9" EVO: 21.3" x 20.9" x 30.1"	29.9" x 35.4" x 50.2" 30.7" x 34.8" x 57.1"	10	115V
404 / 14.3ft ³	ECO: 21.3" x 20.5" x 55.7" EVO: 21.3" x 20.9" x 55.7"	41.7" x 33.9" x 75" 43.3" x 34.8" x 74.4"	19	115V
707 / 25ft ³	ECO: 37" x 20.5" x 55.7" EVO: 37" x 20.9" x 55.7"	57.5" x 33.9" x 75" 59.2" x 34.8" x 74.4"	19	115V
1212 / 43ft ³	ECO: 3x21.3" x 20.5" x 55.7" EVO: 3x21.3" x 20.9" x 55.7"	95.9" x 34.2" x 75" 99.6" x 35.4" x 75.6"	3x19	230V

All Friocell models are standard equipped with (2) stainless steel shelves.
All exterior height dimensions measured with legs. Measurements with casters may differ.

Options:

- Programmable UV and/or VIS ICH Q1B lighting for photostability studies (p. 27).
- Stainless steel exterior: AISI 304 or 316.
- AISI 316 stainless steel chamber.
- Stacking frame for 111 devices.
- 160°C sterilization cycle on EVO models.
- 1" (25mm) / 2" (50mm) / 4" (100mm) access port.
- Flexible PT 100 temperature sensor.
- Ethernet communication port
- Automatic key and door lock.
- Door sensor and alarm.
- Waterproof interior electrical socket: 230V.
- Rolling cart for 111 and 222 models.
- 4-20mA and BMS contacts (24V, 1A).
- 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.

Common Options

Enhance the functionality or compliance of any BMT device



- A. Perforated or wire shelves
- B. Rolling carts for 55 / 111 / 222 devices
- C. Leveling casters
- D. Stainless steel exterior
- E. Heavy load chambers
- F. 1" / 2" / 4" access ports
- G. Clean room pass-through models (p. 5)
- H. HEPA filters
- I. Flexible PT 100 sensor
- J. Monitoring system contacts
- K. Warmcomm 4.0F data capture software
- L. Vacustation for Vacucell devices.
- M. Interior electrical socket
- N. Exhaust port for connection to external exhaust.
- O. IQ/OQ protocols with 9pt. or 27pt. temperature mapping

Programmable ICH Q1B Lighting

UV/VIS Combination Shelf Lighting

- The following data is valid for measurement 12cm below the light shelf:
 - Model 111: up to VIS 12.2 klx, UV 1.05 mW/cm²
 - Model 222/404/1212: up to VIS 12.51 klx, UV 1.65 mW/cm²
 - Model 707: up to VIS 10.73 klx, UV - 1.44 mW/cm²

Single Wavelength UV and VIS Light Shelves

- VIS shelf, fluorescent light tubes:
 - Model 111: up to 16.5 klux
 - Model 222/404/1212: up to 18 klux
 - Model 707: up to 20 klux
- UV shelf, fluorescent light tubes:
 - up to 5 mW/cm²/s-1
 - mW/cm²/s-1 states how much UV light in mW is exposed to 1 square centimeter in 1 second.
- VIS LED shelves:
 - up to 30,000 lux

BMT USA Equipment:

cGMP Steam & Terminal Sterilizers

Pure & Clean Steam Generators

Class 5 & 7 Depyrogenation Ovens

cGMP Washers

Laboratory Steam Sterilizers

Laboratory Washers

Laboratory Ovens

Laboratory Incubators

Climate & Stability Test Chambers



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