BMT USA

MMM Group

CLIMACELL EVO

Stability chamber with forced air circulation, heating, cooling, controlled humidity and optional lighting or CO2 injection



protecting human health

Tradition, quality, innovation

Since its establishment in 1921, BMT Medical Technology s.r.o., the long established manufacturer of medical and laboratory technology, has gradually transformed from a small regional company to an international corporation.

In 1992, BMT became a subsidiary of the European MMM Group which has been operating in world markets since 1954, as a supplier of systems for the health care industry, as well as science and research. With its' comprehensive offerings of products and services, sterilization and disinfecting devices for hospitals, scientific institutes, laboratories and pharmaceutical industry, the MMM Group has established itself as an outstanding innovative manufacturer for the global market.

The knowledge and experience gained during the implementation of individual devices for our customers all over the world, and the technical innovations have been permanently and positively influencing the development, construction and production of our devices. The High level of our achievement has been confirmed by the number of patents and unique designs as well as an easy implementation of individual device improvements.

MMM Group – excellence in medical and laboratory technology.

CLIMACELL EVO

Stability chamber offers a wide range of applications

The CLIMACELL line of air-conditioned chambers provide all and any conditions for exact and reproducible simulation of various climatic conditions. Thanks to a wide range of adjustable parameters -20°C up to +100°C (-4°F – 212°F) of temperature and 10–95% of humidity, optional light sources and the opportunity for CO2 regulation , sterilization at 160°C (320°F) and a variety of options and accessories, the new generation of the stability chamber, Climacell EVO becomes an ideal tool for simulation of conditions in many fields and applications. Simple control via the color touch screen controller, precise parameters and wide options for data output meet the most demanding conditions of the pharmaceutical and laboratory industries. The EVO offers user friendly environmental simulation to meet the straight forward requirements for plant growth and offers an appealing alternative to expensive testing chambers and testing rooms. The microprocessor-controlled humidification and dehumidification system, together with the high-performance programmable system of exposure lighting guarantees excellent uniform parameters for tests and growth conditions.

Meets the requirements of regulations 2006/95/EC, 2004/108/EC

Application

Pharmaceutical and Bio Tech Industry

Stability testing and photo stability testing according to ICH 279/95 option 2, long term storage

Cosmetic Industry

Durability testing of cosmetic products or primary materials stability

Construction Industry

Long-term testing for quality and durability of materials in the construction industry – cement, paints, asphalt, construction plastics, adhesives, roofing products etc.

Research and Laboratories

Cultivation of human or animal tissue cultures

Food and Beverage Industry

Testing of food and beverage quality under simulated transport or storage conditions – export of fruits, etc.

Packing Material and Labeling Industry

Long-term testing of packing and labeling technologies

Electronics and Semi-Conductor Industry

Testing of durability of electronic plates and printed circuits

Automotive and Aerospace Industry

Testing of materials durability – tires, seals, adhesives, fabrics, components, batteries, etc.

Animal Science and Aquaculture

Simulation of conditions for sea organisms, research of seaweed or development of insect ovadrozophils

Plant Science and Agriculture

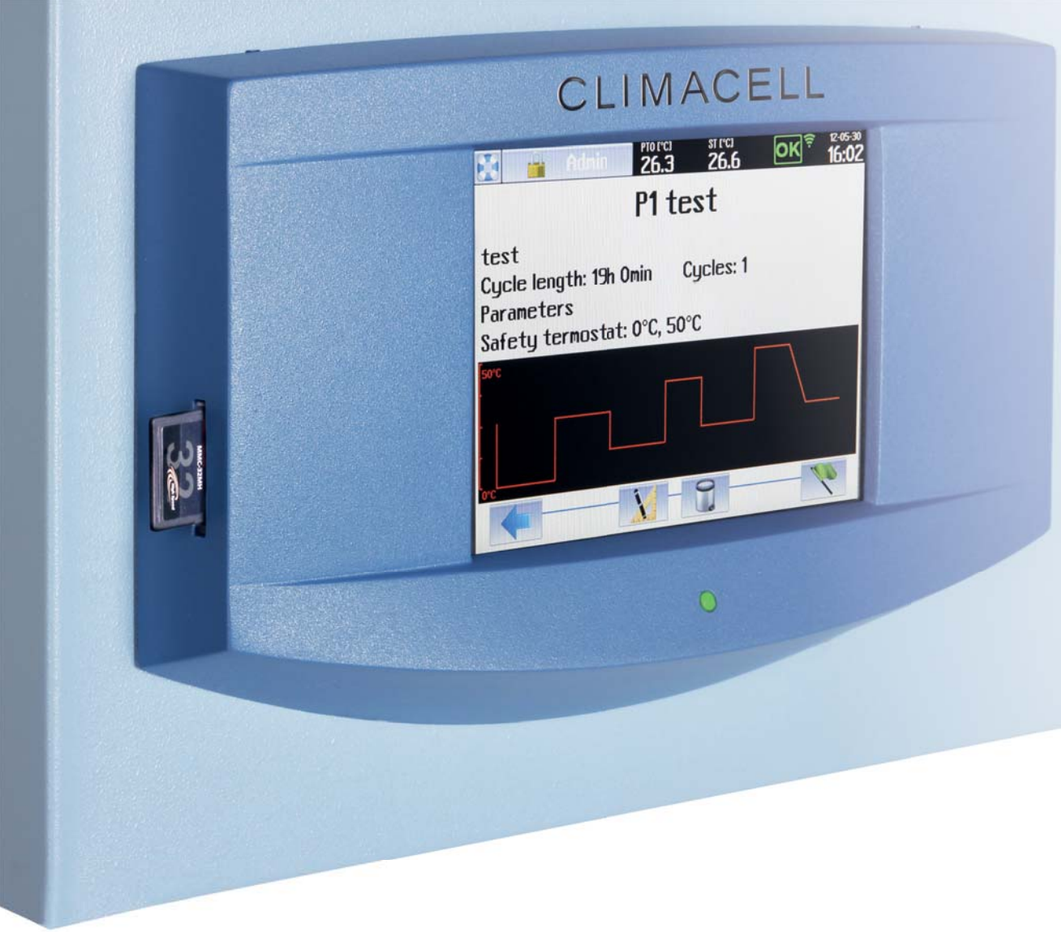
Studies of germination, research of green plant growth, seed oils, etc.

Field of Metrology and Quality in Industry

Checking and calibration of industrial measuring gauges

Chemical – Industrial

Fertilizers, pesticides, detergents, paint, oil, etc.



Connectivity

- Wi-Fi (optional equipment)
- RS 232
- USB Host
- USB Device (optional equipment)
- Ethernet / Internet (optional equipment)
- SD card
- Building Monitoring System – remote alarm (optional equipment)

Connection of Warmcomm 4.0 software

- Integrated data logger, SD card
- Compatible thermo-printer via RS 232
- USB/Wi-Fi Compatible desk-top printers
- Smartphones CLC monitor

Local

Remote (internet)





Data Outputs

Thanks to the most up-to-date electronic components, the Climacell EVO has multiple data peripherals connections. The basic configuration contains the traditional and reliable RS 232 as well as USB Host with the SD card as the data carrier. The device can be equipped with a Wi-Fi 802.11b/g module with up to 100 meters (328 ft) of remote connectivity or a wired connection with an Ethernet (RJ 45) connection. In addition the unit can be equipped with a USB device for bi-directional USB communication. Establishing an IP address allows easy connection to a PC or selected Wi-Fi printer, or other devices (Smartphone, tablet, etc.). Thanks to the open platform and adjusted data format it is also possible to configure a remote connection and to work with on-line data in remote mode (internet).

The new control system offers

- Microprocessor fuzzy logic process control
- Large touch screen allows for Intuitive control via color icons
- Programmable parameters for configuration of a new program
- Graphic display of the data course for each cycle
- Safety thermostat class 3
- Acoustic and visual alarms
- Multi-level user password administration (corresponding to FDA 21 Part 11)
- Keyboard lock against unauthorized use or handling
- Data encryption without possible manipulation (corresponding to FDA 21 CFR Part 11)
- Up to 100 programs and up to 100 segments for each program
- 30 day data logger with both numerical and graphic display
- On-line or off-line data export
- Prepared service programs for fast diagnostics of errors
- Easy service diagnostics including remote access
- Multi-language communication
- Direct printing of protocols in PDF format
- Easy user configuration of all parameters
- SD memory card, USB Host and RS 232 included in the standard model
- Wi Fi connection, USB device or Ethernet interface with own IP address for remote data transfer, control and diagnostics (optional equipment)
- Programable ramping in real time with the ability to cycle
- Fan adjustments at 0-100% intervals
- Main ON/OFF switch for security purposes
- Device functions represented with LED indicators

WARMCOMM 4.0

Data Administration for use with other devices from the MMM / BMT Group

- allows connection of up to 25 ovens and incubators manufactured by the MMM Group / BMT
- stable platform of the SQL library
- user-friendly • bi-directional communication – data monitoring and device control
- compatibility with older lines of TT devices
- Client-Server architecture
- service module for local and remote diagnostics
- three versions available depending on client´s requirements (B-P-F)
- compliance with FDA CFR 21 Part 11 (version F)
- web support, on-line updates
- protected license policy
- compatible to HW requirements, compatible with MS Windows and UNIX

CLIMACELL EVO

Comfort Line with superior features

BMT offers a full range of chamber sizes , from 111 liters (3.92 ft3), up to the new large 1212 liters (43 ft3), size with the best ratio to cost/performance. Patented vertical air flow with preheating chamber and asymmetrically perforated panels ensures the well proven vertical spiral air flow with the best temperature uniformity.

The deep experience of our factory engineers and many years of careful development have led to the high performance fuzzy logic control system.

By way of fuzzy logic, operations are continually evaluated, including the current process conditions as well chamber dimensions, set parameters, quantity of the samples inside all while optimizing heating, cooling and steam generation performance.

The new high pressure steam generator is located in an easily accessible location and the newly designed powerful freezing coil regulates the relative humidity quickly with a full range from 10–95 % RH, according to the user set parameters, and with negligible temperature interference.

Door handles which are both practical and easy to open, robust wheels with brakes and a 170° open range of the main door(s) contributes to high user-friendly characteristics of the Climacell. Light grey with light blue cabinet colors highlighted by our dark blue "smile" control panel create a pleasant and positive laboratory environment for the user each day.

New smart design
with user-friendly control panel

High-end RH sensor Rotronic
for reliable and exact results

Remote service diagnostics
using appropriate IP address

Wi-Fi connection
for wireless connection to PC / SMARTPHONE (optional equipment)

SD memory card
for ease in data transfer

Large color touch screen
with graphic interface

Main switch ON/OFF
safety switch

The Fuzzy logic microprocessor control allows for quick and easy operation

Increase maximum temperature up to 160 °C (320 °F) for sterilization of the chamber (optional equipment)

Improved attachment of the upper housing allows for easy service access

Automatic defrosting system
(optional equipment)

Efficient LED diods (up to 30 000 lx) low-temperature programmable exposure lighting (optional equipment)

Powerful high-pressure (2 kPa) steam generator for exact humidity control

Precise air vents in the air distribution panels for efficient air flow

Vertical construction of the cabinet
means floor space savings in your lab

Stainless steel chamber (AISI 304)
allowing for regular easy de-contamination of the chamber. All parts are sterilizable

5 –layer efficient chamber insulation for long-term stability of parameters in the chamber

Easily removable chamber air distribution panels for ease in chamber cleaning

Adjustable de-humidification system for rapid Rh change in the chamber

Improved cooling system
for shorter recovery times

Heating and cooling elements placed behind the chamber air distribution panels with maximum transfer surface allows for efficient heat exchange

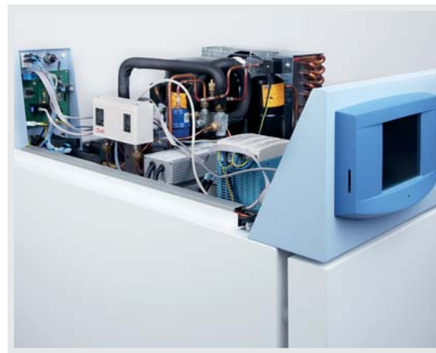
Unique vertical programmable system of air flow in the chamber
for precise conditions of the process and short recovery times

Inner glass door fully insulated made of safety glass Security latches according to EN 12150-2:2004

Four-point adjustable door for perfect door sealing

Castors with locks for easy device handling

Ergonomic door hand with new hardware for easy and safe door closing

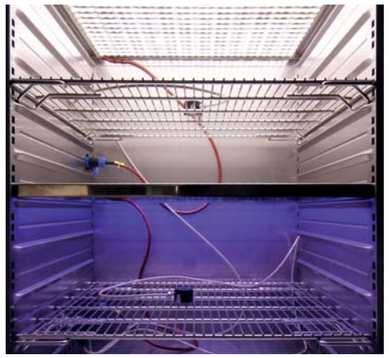


Programmable lighting

The new generation of climatic chamber Climacell EVO offers a wide range of possible lighting options and applications. Together with precise control of temperature, humidity, ventilation (fan speed) or CO2, it is also possible to control and program even the intensity of visible or ultra-violet exposure from the LED diodes.

Light shelves

In case of testing photo stability for the pharmaceutical industry, the most suitable option is the use of light shelves for exposure of samples. The lighting is in compliance with standards ICH Q1A and Q1B, option 2 and relevant European standards. There are available light shelves with visible light, ultra-violet light and their combinations. It is possible to set different temperature or humidity for each segment and accordingly, it is possible to set different levels of lighting for each segment. That allows programming of cycles of day and night simulations with gradual light intensity with both increases and decreases.



Exposure Lighting in the Doors

For applications with essential uniform lighting of the chamber, (ie. plant growth), there is an option available with lighting in the Climacell door. Just like with the light shelves, exposure light in the door allows separate regulation for each segment within the range of 0–100% in 10% increments.

Light Sensors

To meet strict requirements for light exposure measurement light sensors are available as option. The first version of sensor is able to exactly measure the quantity of visible light while the 2nd version will measure the quantity of ultra-violet light. When the sensors are installed, the operator is able to follow the exact exposure doses received by the samples either on a display via graphs or with the optional software Warmcomm 4.

Light Spectrums Available

As there are numerous possibilities with LED diodes, there are also extensive possibilities for their use in the Climacell EVO. Together with typical applications of visible (white) light or ultra violet light there are other light colors available. Our trained sales representatives and engineers will work with you to provide and configure the right LED diodes to meet your requirements.

Humidity Control

Climacell EVO is a climatic chamber – i.e. a device that is able to exactly and quickly regulate the quantity of humidity in the chamber. This is possible thanks to the configuration of a robust system which allows for the active increase and decrease of humidity in connection with the water supply to the device.

Steam Generator

The Climacell allows steam generation and precise dosing to the chamber. Thanks to our significant historical experience in the field of steam sterilization our expertise allows us to develop a pressure steam generator which is able to increase relative humidity in the chamber in a precise, reliable and rapid way. Steam overpressure is generated in the water reservoir using the heating element. Then, the valve releases an exact volume of steam into the chamber. The technology eliminates the over-shooting of set points while reaching the required level of relative humidity.

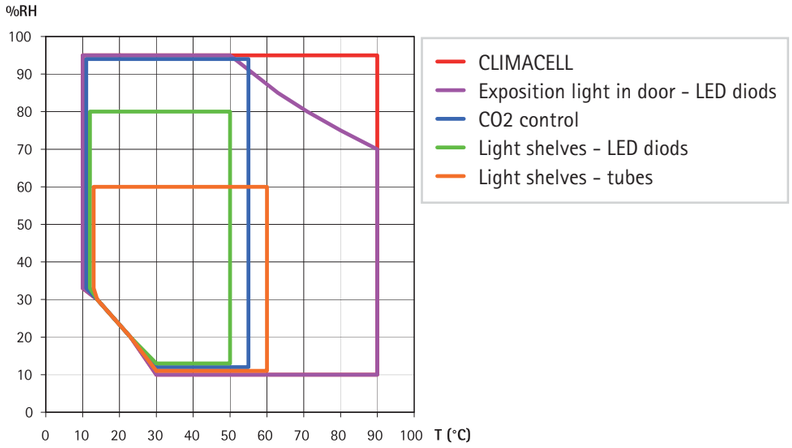
Humidity Reduction

Unique to the Climacell EVO both humidity increase and active humidity decrease using the separate cooling coils of the cooling system can be realized. The control system of Climacell EVO is able to reduce humidity in the chamber using the cooling system while keeping a nearly constant temperature. Operationally the humidity on the cooling coil condensates. Then the condensed water is taken back to the steam generator where the pump releases it to the drain. Thanks to this efficient system the Climacell EVO can reach even low relative humidity values very quickly.

Water Intake and Use

In order to create exact and reliable humidity levels over the long term, the built-in steam generator of the Climacell EVO should only be operated with distilled or de-ionized water. The water can be supplied in two ways. A standard solution means that you pour distilled / deionized water into the water tank, delivered with each Climacell EVO. Connect the supplied pump from the water tank to the connector on the rear side of the EVO cabinet. The other option includes connecting the distilled / deionized water supply from a facility water distribution system to the steam generator of Climacell EVO via pressure reduction valve. In both cases, the Climacell automatically takes the exact quantity of water as required for the humidity creation in the steam generator.

Restrictions of temperature and relative humidity setting combinations



Accessories included

Each Climacell EVO is supplied with standard equipment for each delivered unit:

Touch screen

Communication ports RS 232 and USB host

SD card

Steam generator, humidity control

Water Tank for distilled water

Reliable RH sensor

Multi-conductor temperature sensors

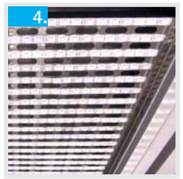
Sealing inner glass door

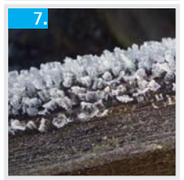
2 stainless steel trays

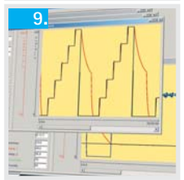
Optional Equipment

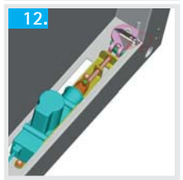
Thanks to the modular construction of our devices the Climacell EVO can be equipped according to your specific preferences with many additional options. Climacell EVO can serve as a chamber for testing of photo stability, light simulation of day and night, processes with CO2 control, hot-air sterilization, etc.

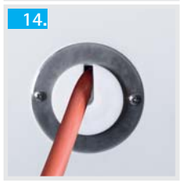
1. Hot-air sterilisation up to 160 °C
2. Additional cooling down to -20°C
3. Flexible temperature sensors
4. LED light shelves
5. Exposure lighting in the doors
6. Light sensors
7. Defrosting system
8. CO2 control
9. Warmcomm 4 Software
10. Data module with USB device, Ethernet, wi-fi
11. Mechanic door lock
12. Electromagnetic door lock
13. Wire trays or perforated shelves
14. Access ports in sizes 25, 50 or 100 mm
15. Programmable chamber electrical socket
16. External printer
17. Multi-point temp. / humidity measuring
18. IQ/OQ protocols











Technical parameters

Climacell EVO Technical Data		Model	111	222	404	707	1212
Interior dimensions	volume	ft3	3.9	7.8	14.3	25	43
		liters	111	222	404	707	1212
Chamber:	width	inches	21.25	21.25	21.25	37	3 x 21.25
stainless steel AISI 304		mm	540	540	540	940	3 x 540
AISI 316 available as option	depth	inches	14.6	20.5	20.5	20.5	20.5
		mm	370	520	520	520	520
	height	inches	20.9	29.9	55.6	55.6	55.6
		mm	530	760	1410	1410	1410
Volume of		ft3	5.9	10.8	18.7	31	62.9
the steam generator capacity		liters	167	305	530	878	1781
Shelves: stainless steel	# of shelf guides in chamber side walls	maximum #	7	10	19	19	3 x 19
		standard #	2	2	2	2	6
Shelf distance	min. distance	inches	2.8	2.8	2.8	2.8	2.8
	between trays	mm	70	70	70	70	70
Useable shelf area	width x depth	inches	20.5x13.3	20.5x19.1	20.5x19.1	36.3x19.1	
		mm	520x338	520x485	520x485	920x485	
Outer metal doors		No.	1	1	1	2	3
Inner glass doors		No.	1	1	1	2	3
Maximum shelf load	one shelf	lbs	44	66.1	66.1	110.2	66.1
		kg	20	30	30	50	30
	total per unit	lbs	110.2	154.3	220.5	286.6	661
		kg	50	70	100	130	300
Electric parameters: EVO 0°C	max consumption	W	2050	2100	3150	3400	-
Protective system	50/60 Hz	V	230	230	230	230	230
			IP 20	IP 20	IP 20	IP 20	IP 20
Electric parameters: EVO -20°C	Max consumption	W	1630	1780	2115	2640	3215
Protective system	50/60 Hz	V	230	230	230	230	230
			IP 20	IP 20	IP 20	IP 20	IP 20
Temperature Data	from 0.0°C to °C		0 °C - + 100	decontamination	160°C		
Operation Temperature	From -20°C to °C		-20 °C - + 100	decontamination	160°C		
Working temperature	range °C		0 -- 99.9	0 -- 99.9	0 -- 99.9	0 -- 99.9	
Temp. accuracy in ...distribution	at 10°C	± °C	<0.5	<0.5	<1	<1	<1.5
	at 37°C	± °C	<0.5	<0.5	<1	<1	<1.5
...in time		± °C	<0.2	<0.2	<0.3	<0.4	<0.8
Heating up time from ambient	to 37°C	min.	20	25	26	27	30
temp., Cooling down time	from 22°C - 10°C	min.	<21	<21	<21	<21	<21
Recovery time after	at 37°C	min.	4	4	4	4	4
1 min. door open	at 50°C	min	4	4	4	4	4
Relative Humidity	range	%	10%-95%	10%-95%	10%-95%	10%-95%	10%-95%
Heat Emission	at 37°C	W	70	97	123	148	200
External dimensions	width	inches	30.7	30.7	43.1	59.2	103.5
(including door/Handle, feet / rollers)		mm	780	780	1100	1500	2360
	depth	inches	29.7	34.8	34.8	34.8	34.8
		mm	755	885	885	885	885
	height	inches	46.3	57.2	74.3	74.3	75.2
		mm	1177	1452	1888	1888	1910
Weight Climacell EVO 0°C	net	lbs	242.5	309	529	617	-
		kg	110	140	240	280	-
	gross	lbs	309	390	617	719	-
		kg	140	177	280	326	-
Weight Climacell EVO -20°C	net	lbs	264.5	331	551	639	750
		kg	120	150	250	290	340
	gross	lbs	331	412	639	741	871
		kg	150	187	290	336	395
CO2 Concentration		%	0.1 - 20	0.1 - 20	0.1 - 20	-	-
CO2 Required Pressure		Bar / psi	0.3-0.7 / 5 -- 10	0.3-0.7 / 5 -- 10	0.3-0.7 / 5 -- 10	-	-

Note: All technical data is related to 22 °C ambient temperature and +/- 10% voltage swing (if specified). For other parameters see section: Electrical connections. Temperature and humidity variation occurs in the case of consistent air-flow during operation.

- No more than 50% of the tray should be filled in order to facilitate uniform air circulation inside the chamber
- MMM / BMT reserve the right to changes in design and manufacture of the device

Make acquaintance with our further offers ...

Laboratory ovens and incubators

ECOCELL
The highly cost-effective heating oven series for simple drying processes

DUROCELL
Special- purpose drying ovens with highly resistant EPOLON coating

VACUCELL
Vacuum drying ovens

STERICELL
Intended for hot air sterilization of materials under specified temperature and duration.

VENTICELL
Drying ovens with forced air circulation

INCUCELL / INCUCELL V
Suitable for safe treatment of microbiological cultures

FRIOCELL
Cooling incubators

CLIMACELL
Climatic chambers (stability testing)

CO2CELL
CO_2 atmosphere

Sterilization and depyrogenation

VENTICELL IL
series of modular large-sized laboratory devices with the chamber volume from 400 to 1500 liters. The devices are used for sterilization of items at temperatures up to 180°C, or for depyrogenation of items at temperatures of up to 300 °C with programmable exposure time. The devices can be used in laboratories, industry, pharmacy, and research.

Steam sterilizers (autoclaves)

UNISTERI HP IL
Medium-sized steam sterilizers, 73–254 l

STERIVAP HP IL
Large steam sterilizers,148–1490 l

BMT USA
MMM Group

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CLIMACELL EVO_USA_EN_10-2013-V01_BMT_PR