



# LABORATORY DRYING OVENS, INCUBATORS & STABILITY CHAMBERS

ECOCELL® DUROCELL VENTICELL®  
STERICELL® VACUCELL®  
INCUCELL® INCUCELL® V FRIOCELL®  
CLIMACELL® CO2CELL



protecting human health

## Quality, Value, Performance

As one of the world's leading suppliers of sterile processing systems, MMM has been driven to promote good health since 1954. We have brought to market a full range of sterilization, disinfection products and services which can be found in every branch of healthcare from hospitals and scientific institutes, to laboratories and the pharmaceutical industry. MMM, over the years, consolidated its position as a worldwide pioneer of quality and innovation.

Building on this commitment, in 1992, BMT became a subsidiary of the MMM Group. For over six (6) decades BMT has produced innovative and robust ovens and incubators.

Technical innovation combined with the knowledge and experience gained during the deployment of devices all over the world, has permanently and positively influenced the on-going development, design and production of our units. Our high standards has resulted in numerous patents and exceptional design and performance features.

## Applications

### Pharmaceutical & Bio Tech Industry

Stability testing and photo stability testing according to ICH 279/95 option 2, long term storage FDA 21 CFR part 11 conformity with Warmcomm 4.0F.



### Cosmetic Industry

Stability testing of cosmetic products and primary materials.



### 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 & Laboratories

Cultivation of human or animal tissue cultures.



### Food and Beverage Industry

Testing of food and beverage quality under simulated shelf life conditions or transport conditions.



### Packing Material & Labeling Industry

Long-term testing of packing and labeling technologies.



### Electronics & Semi-Conductor Industry

Testing of durability of components, electronic plates and circuit boards.



### Automotive & Aerospace Industry

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



## Demonstrated Quality

A Factory Acceptance Test (FAT) is available, when regulated by the client. Also on request an on Site Acceptance Test (SAT) can be performed at the installation location. A 27-point temperature validation measurement, according to DIN 12880 and 3-point measuring of RH is available. It is also possible to perform temperature mapping with documentation to validate the processes in compliance with the parameters declared by the manufacturer. **IQ – installation qualification**  
**OQ – operation qualification**  
**PQ – process qualification (validation).** Tests and validations according to standards are performed using our accredited testing laboratory.

### Animal Science, Insect Rearing and Aquaculture

Simulation of conditions for sea organisms, research / development of insects such as drosophila.



### Plant Growth Science & Agriculture

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



### Field of Metrology & Quality in Industry

Checking and calibration of industrial measuring gauges.



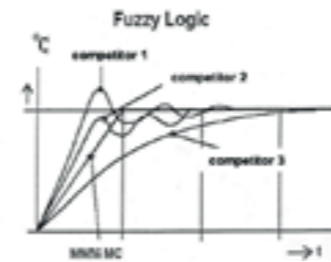
### Chemical Industrial

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



## Fuzzy Logic – Constant Monitoring of the Process

The advanced fuzzy logic technology, unlike classic mechanical or electronic control such as (PID), continually assesses conditions in the chamber such as chamber size, temperature, humidity and other regulated conditions from the start to the end of the process. Using specifically developed software, the fuzzy logic enabled processor simultaneously makes assessments such as the volume of media in the chamber. Based on this information, it continuously adjusts the input values such as the intensity of heating or cooling and then optimizes the process regulation with the aim of minimizing the time for reaching the process settings without overshooting the set temperature or relative humidity. In this way it is possible to reach pre-set operation levels in the shortest possible time, without excessive power consumption, all while operating with maximum efficiency. Simultaneously, fuzzy logic reduces recovery times after door openings during the course of the operating cycle.

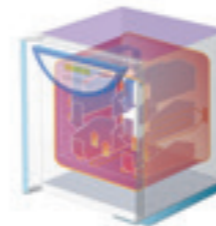


## 6 Methods for Control of Chamber Conditions

### Natural Air Circulation

**ECOCELL®, DUROCELL®, INCUCELL®**

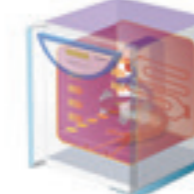
The principle of operation is based upon gravity / natural air flow in the chamber. The unique double-wall chamber (inner and main) construction, together with the automatic process control, creates uniform temperature distribution in the chamber. This includes short recovery times and a rapid return to the set temperature after a door opening. Natural / gravity convection is characterized by both its' quiet and economical operation. The EcoCell is suitable for processes such as the drying and heating of materials.



## Forced Air Circulation – Patented

**VENTICELL®, STERICELL®, INCUCELL® V**

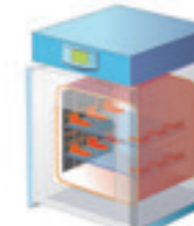
The operating design is based upon our patented forced air flow system. The thermo-dynamic system moves air uniformly, both vertically and horizontally inside the chamber. The process of heating from the bottom of the chamber to the top, simulates natural air flow. This process supports optimal heating of the media along with precise temperature distribution and minimal power consumption. The inner chamber air distribution vents distribute a uniform mixture of warm air, consequently creating an exact temperature profile.



## Heating in a Vacuum

**VACUCELL® & VACUCELL® Evo**

The direct heated 316 AISI stainless steel chamber allows precise heating and drying of samples to a constant weight. The operating principle is based upon drying in vacuum along with the additional feature for air displacement in the chamber with an inert gas. Standard equipment includes a 40mm (1.6") port, an input for inert gas connection and a needle valve for fine dosing. For safety and in the case of overpressurization, the VacuCell is designed with the "Ventiflex" door overpressure release valve.



## Temperature Control; Cooling & Heating

**FRIOCELL® & FRIOCELL® Evo**

Like many of our units the exceptional uniformity and performance is built upon the patented air flow system in conjunction with the powerful cooling design. The thermo-dynamic system moves air uniformly, both vertically and horizontally inside the chamber. The unique cooling system together with automatic process control offers precise simulation of the set process. As well this design reduces drying or evaporation of the media. The inner chamber air distribution vents distribute a uniform mixture of

air, consequently creating an exact temperature profile. Lighting both VIS and UV are available for the FrioCell (fluorescent) and FRIOCELL® Evo (LED and fluorescent)



## Humidity, Temperature, Cooling & Heating Control

**CLIMACELL® & CLIMACELL® Evo**

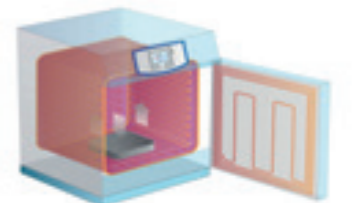
All of our units equipped with forced air have temperature management that is based upon our patented air flow system which both cools and heats. In conjunction with a powerful cooling design the steam generator creates reliable, stable and precise chamber conditions. The fuzzy logic microprocessor control system offers active humidification and dehumidification along with the option to add LED or Fluorescent lighting systems creating uniform conditions for exact simulation of the users selected climate and environmental studies.



## Direct Heat Fan-Less Air Convection – CO<sub>2</sub> Cell Incubator

**CO2CELL**

The direct-heat, (3) three circuit heating design eliminates the need for a fan by creating a gentle natural gravity convection in the chamber. This consequently eliminates the risk of vibration and cross-contamination as well as removing condensation from the inner glass door and inner chamber walls. The drift-free infra-red sensor provides maximum reliability and precision during the process. Thanks to the direct heated chamber, installation and maintenance is simplified.





# Drying Ovens or Incubators

## - As Specific As Your Application

Approval acc. to LVD 2006/95/EC,  
EMC 2004/108/EC, RoHS 2011/65/EC.  
The STERICELL® product line complies  
also with requirements of Medical Device  
Directive 93/42/EEC.



### ECOCELL®

These dry-heat ovens offer a wide temperature range, with exact and reliable conditions for drying and heating materials. The ECOCELL® line produces no noise and provides a natural / gravity air convection within the chamber.

#### Technical data

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3), 222 (8 ft3), 404 (14.3 ft3), 707 (25 ft3) liters (ft3)  
**Working temperature:** 5°C above ambient up to 250°C with option for 300°C  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304), double wall chamber (main and inner)

### DUROCELL

Special purpose drying ovens with a protective EPOLON coating. EPOLON protects the chamber from substances such as acids, caustic materials or alkaline liquids. This oven ensures uniform temperature distribution with the natural/gravity convection. The DUROCELL is ideal for acid and basic hydrolysis, extraction of non-inflammable materials and decomposition of solid substances.

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3), 222 (8 ft3) liters (ft3)  
**Working temperature:** 5°C above ambient up to 125°C  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304), double wall chamber (main and inner)

### VENTICELL®

The VENTICELL® patented air-flow system is a thermo-dynamic system which moves air uniformly both vertically and horizontally inside the chamber. The process of heating from the bottom of the chamber to the top, simulates natural air flow. This supports the optimal and rapid heating of the media along with precise temperature distribution in the chamber and minimal power consumption. The VENTICELL® is especially suited for wet materials.

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3), 222 (8 ft3), 404 (14.3 ft3), 707 (25 ft3) liters (ft3)  
**Working temperature:** 10°C above ambient up to 250°C with option for 300°C  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304), double wall chamber (main and inner)

### STERICELL®



STERICELL® is a dry-heat sterilization oven with three pre-set sterilization cycles and the ability to report validated cycles. The chamber has security features so that the process will only validate if the process is not interrupted. It is designed for users that require hot air sterilization cycles under a specific temperature and time. It features our patented forced air circulation system which eliminates the "cold" spots. During the sterilization process, substances can be sterilized in closed bottles. The device is suitable for medical and veterinary clinics, hospitals, pharmacies, health care centers and laboratories. Pass-Through models are available for clean-rooms.

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3), 222 (8 ft3), 404 (14.3 ft3)  
**Working temperature:** Three pre-set sterilization cycles 160°C, 170°C & 180°C, Temperature range is 10°C above ambient up to 250°C.  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304), double wall chamber (main and inner)



### VACUCELL®

VACUCELL® vacuum drying oven is a direct heat chamber transferring heat via the patented SERVO Therm shelves. Temperature sensitive (such as solvents), easily decomposable or oxidative materials can be dried carefully in the VACUCELL® vacuum drying ovens. The unit also offers the feature to evacuate air with an inert gas. Components with hard to access spaces and contours dry quickly and effectively. VACUCELL® ovens are ideal for drying samples to a consistent weight. Applications include use in the fields of plastics processing, pharmaceutical, chemical, electronics and other industries.

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3) liters (ft3)  
**Working temperature:** 5°C above ambient temperature up to 200°C  
**Door window**  
**Integrated port for sensors etc. (40 mm / 1.6")**  
**Inert gas connection**  
**Needle valve for fine dosing Pressure resistant inner chamber Safety valve-door VENTIFLEX**  
**Interior:** stainless steel, mat. No. 1.4571 (AISI 316Ti)

### INCUCELL® / INCUCELL® V

Incubators designed for the safe treatment of microbiological cultures. The INCUCELL® produces no noise or vibration and provides a soft natural gravity convection. The INCUCELL® V with forced air / mechanical air convection provides tighter temperature distribution. An exceptional sterilization and cleaning feature is the double wall chamber. The main seamless chamber and the removable inner chamber allow for higher cleaning standards. These units are used primarily in biological and microbiological laboratories, quality tests in water treatment facilities, pharmacies, cosmetics, veterinary medicine and food processing QA/ QC.

#### Technical data

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3), 222 (8 ft3), 404 (14.3 ft3), 707 (25 ft3) liters (ft3)  
**Working temperature:**  
INCUCELL®: 5°C above ambient temperature up to 99.9°C  
INCUCELL® V: 10°C above ambient temperature up to 99.9°C  
**Inner glass door**  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304), double wall chamber (main and inner)

### FRIOCELL®

The advanced technical features of the FRIOCELL® line allows precise control of the heating and cooling process from 0°C – 99.9°C (-10°C up to 99.9°C optional) The unique cooling system offers exact and efficient simulation of the process all but eliminating the drying-out of samples. VIS & UV lighting is available in both LED and Fluorescent tubes. Applications include, bio-technology, plant science, zoology, food & beverage, cosmetics, chemistry, etc., where short start-up times and recovery of temperature conditions are required. Meeting the following regulations: 2006/95/EC, 2004/108/EC, ICH 279/95 Option 2, FDA 21 CFR part 11.

**Volume:** 22 (.8 ft3), 55 (2 ft3), 111 (4 ft3), 222 (8 ft3), 404 (14.3 ft3), 707 (25 ft3) liters (ft3)  
**Working temperature:** 0.0°C up to 100°C, FC 22  
**Refrigerant:**  
R 134a without CFC (excluded model 22L)  
Peltier system for – FC 22  
**Inner glass door**  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304), double wall chamber (main and inner)

### CLIMACELL®

The CLIMACELL® was specifically developed for exact standards in reproducing environmental conditions with a temperature range from 0°C – 99.9°C (-10°C up to 99.9°C optional). Applications include, stability testing, packaging, food or chemicals, pharmaceutical stability and ICH, seed germination studies, plant cell or tissue cultures and insect cultures. The Climacell offers an alternative to expensive testing chambers and testing rooms. The Fuzzy logic microprocessor allows for controllable levels of humidity. When equipped with a VIS or UV lighting system uniformity parameters for test and growth conditions is exceptional.

**Volume:** 111 (4 ft3), 222 (8 ft3), 404 (14.3 ft3), 707 (25 ft3) liters (ft3)  
**Working temperature:** without humidity 0.0°C up to 99.9°C and with humidity: 10°C up to 100°C  
**Refrigerant:** R 134a  
**Humidity is produced by a steam generator supplied with distilled water or RO water**  
**Controlled humidity:** 10% – 98% RH  
**Microprocessor controlled humidifying / dehumidifying system**  
**Inner glass door**  
**Interior:** stainless steel, mat. No. 1.4301 (AISI 304)

### CO2CELL

Our latest generation of CO<sub>2</sub> incubators are focused on constant and reproducible conditions for cell growth, tissue and other cultivating cultures. The direct-heat, (3) three circuit heating system eliminates the need for fan by creating a gentle natural convection in the chamber. This consequently eliminates the risk of vibration and cross-contamination as well as removing condensation from the inner glass door and inner chamber walls. The drift-free infra-red sensor provides maximum reliability and precision during the process. Thanks to the direct heated chamber, installation and maintenance is very easy.



CO2cell 50 Comfort

**Volume:** 50 l (1.71 ft3), 190 (6.71 ft3) liters  
**Working temperature:** 1°C above ambient temperature up to 50°C  
**Non-controlled relative humidity: max 95% RH at 37°C**  
**CO<sub>2</sub> concentration:** 0,2 up to 20% CO<sub>2</sub>  
**CO<sub>2</sub> sensor:** Drift-free infrared (IR) sensor  
**Interior:**  
Standard: Stainless steel DIN 1.4571 (AISI 304)  
Comfort: Stainless steel DIN 1.4571 (AISI 316)

The inner glass door is sealed which allows you to check the samples without losing internal chamber conditions. 160°C sterilization is included on all 190L Standard models in North America. The range of options include: 200°C sterilization (Comfort model). There is no need to remove the CO<sub>2</sub> IR sensor during the sterilization cycle. Optional Oxygen O<sub>2</sub> control (1 – 20%) is available. For CO<sub>2</sub>, O<sub>2</sub> or N<sub>2</sub> applications the split inner glass door (optional) lowers the recovery time after door openings.

Natural Air Convection

Forced Air Convection

Vacuum

Natural / Forced Air Convection

Cooling Incubators

Climatic Chambers

CO<sub>2</sub> – Atmosphere



## Line EVO

Chambers Designed to Meet the Highest Requirements of Pharmaceutical, Scientific Research and Process.

The new line of EVO (Evolution) units are available for the following models:

VACUCELL®

FRIOCELL®

CLIMACELL®

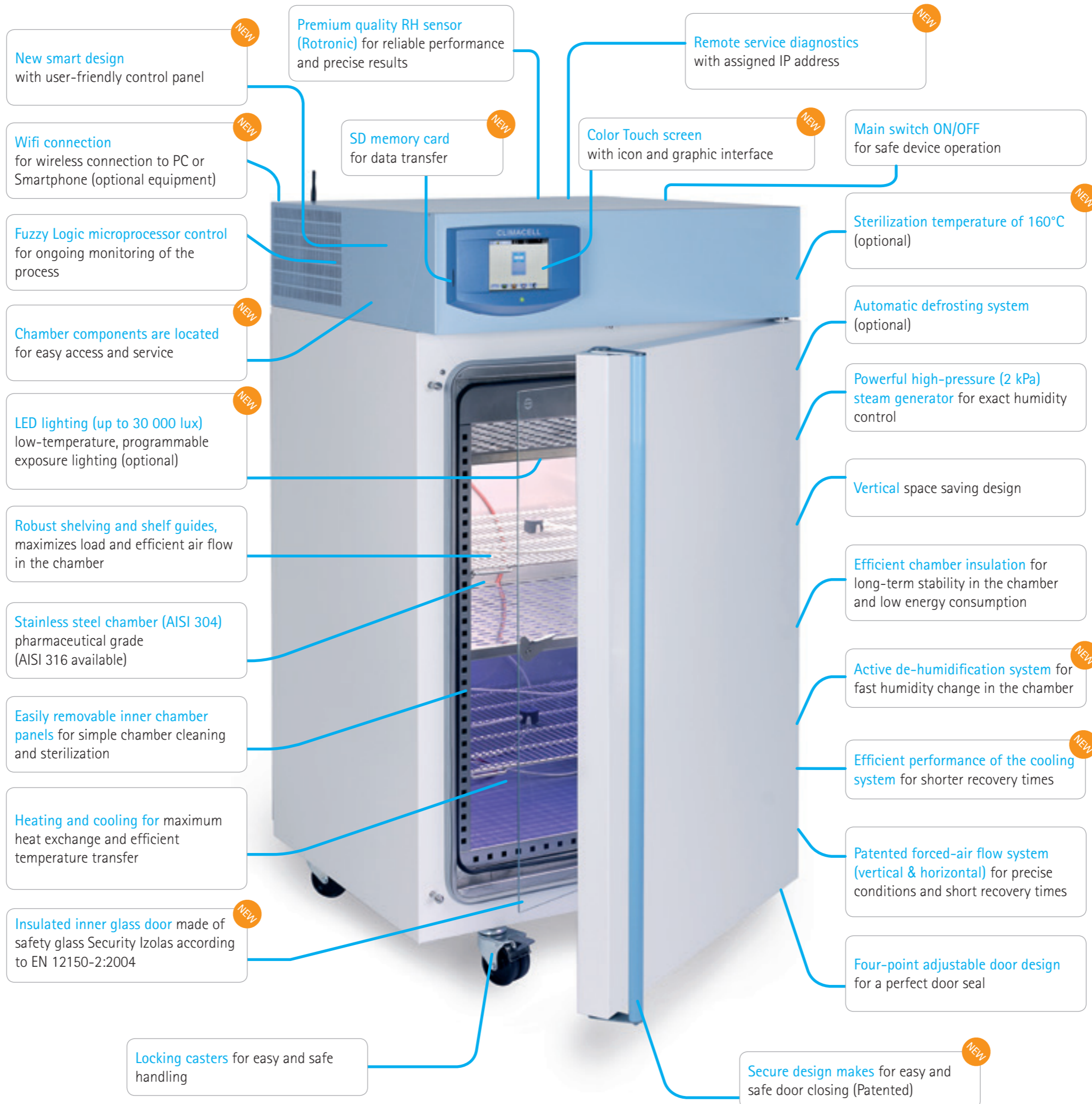
The EVO's chambers are configured with proven control and regulation systems such as Fuzzy Logic enabled microprocessors and our patented forced air convection. Also the EVO's are equipped with a new double door gasket, in conjunction with the patented door closing mechanism even greater environmental stability is achieved.

Operating Conditions: temperature from 0°C to 100°C (-20°C to 100°C option) with ability to add 160°C sterilization for the FRIOCELL® and CLIMACELL®. Humidity 10 to 95% for the CLIMACELL®.

A color 5.7" inch touch screen icon driven display allows for easy and intuitive control of the device, even with gloves on. Included is a 30-day integrated data logger which will automatically collect process information. The reader and SD card are supplied as a standard feature and can store data for several years. In addition the various communication platforms simplifies exchanging and storing data from one device to another. There is also data output from RS 232, USB-host for external memory connection as well as a USB-device for a thermal printer or even a standard office printer. Another exceptional feature is connectivity via Ethernet interface (RJ 45 or WiFi) on the users' network. Using a private IP address identification for the EVO unit also offers remote data collection or remote diagnostics from a BMT authorized service center.

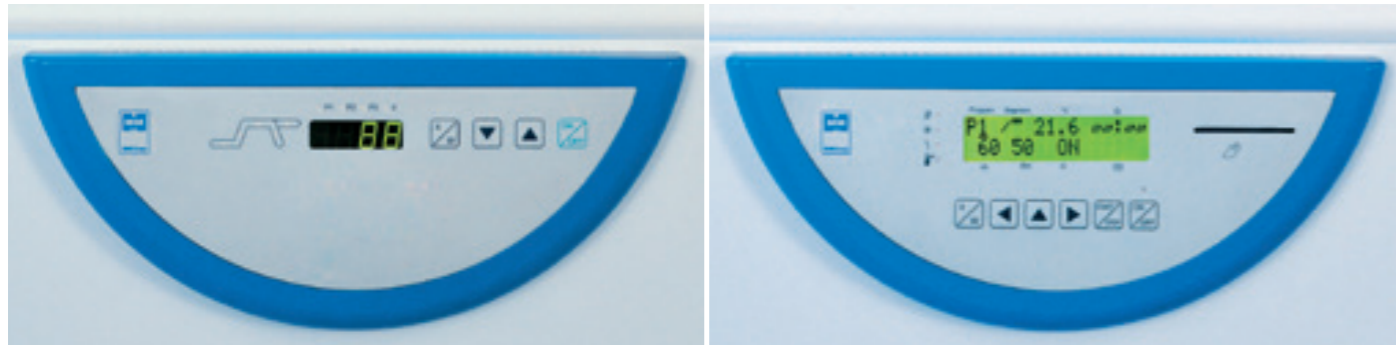
To provide the highest standards of performance, the EVO line has undergone long-term development and testing in preparation for the most demanding conditions.

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# Three Control Panels



## Standard controller

- 3 adjustable programs
- RS 232 – interface for printer or PC-communication
- Fuzzy logic enabled microprocessor for precise control of the process
- delayed heating start and stop function
- acoustic and visual alarm
- time range up to 99 hours 59 minutes
- digital safety thermostat
- manual control of the air exhaust port
- adjustable forced air fan rate from 50–100%
- RS232 Ethernet adaptor (optional)

## Comfort controller

- 6 adjustable programs with up to 40 segments
- chip card storage system for storing program parameters
- Fuzzy logic enabled microprocessor for precise control of the process
- RS 232 – interface for a printer or PC-communication
- delayed heating start and stop function
- acoustic and visual alarm
- time range 0–40 years in 1 minute intervals
- digital safety thermostat
- real time
- selectable rate of temperature increase or decrease ramps
- programming of program time segments
- program cycles
- adjustable forced air fan rate from 10 to 100%
- manual control of the air exhaust port
- keyboard locking
- door opening control
- RS232 Ethernet adaptor (optional)

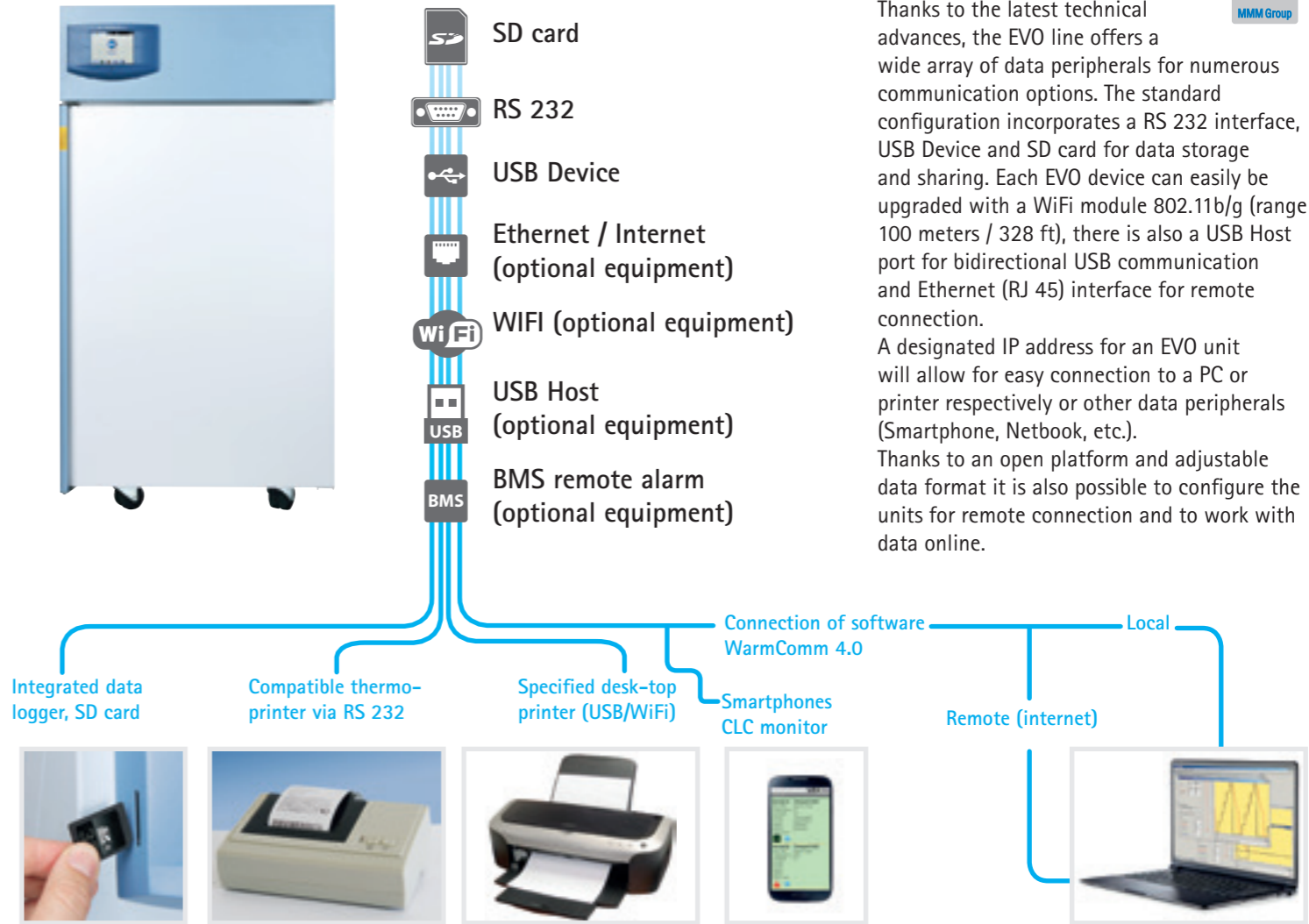


## EVO controller

- 5.7 inch (14.5 cm) touch screen display
- Fuzzy logic enabled microprocessor for precise control of the process
- Intuitive control of the process via color icons
- Graphic display of the program process
- Clear visual display of the process course, data and cycles
- Protective thermostat, class 3
- Acoustic and visual alarms
- Multi-level users administration (corresponding to FDA 21 Part 11)
- Password protected against unauthorized use

- Data encryption / non-manipulation (corresponding to FDA 21 Part 11)
- Up to 100 programs and up to 100 segments for each program
- 30 day data logger in graphic and numeric form
- On-line or off-line data export
- Prepared service programs for fast error diagnostics
- Easy service diagnostics including remote access
- Multi-language communication
- Direct printing of protocols in PDF format
- Easy user configuration of the device
- SD memory card, USB Host and RS 232 are included as standard features
- WiFi connection, USB device or Ethernet interface with own IP address for remote data transfer, control and diagnostics (optional equipment)
- Programming of ramps, real time and cycling
- Forced air fan control from 10–100%
- Main ON/OFF switch for security
- Device status provided with LED indicators
- Validation documentation IQ / OQ / DQ

# Connectivity



# Data Output

Thanks to the latest technical advances, the EVO line offers a wide array of data peripherals for numerous communication options. The standard configuration incorporates a RS 232 interface, USB Device and SD card for data storage and sharing. Each EVO device can easily be upgraded with a WiFi module 802.11b/g (range 100 meters / 328 ft), there is also a USB Host port for bidirectional USB communication and Ethernet (RJ 45) interface for remote connection. A designated IP address for an EVO unit will allow for easy connection to a PC or printer respectively or other data peripherals (Smartphone, Netbook, etc.). Thanks to an open platform and adjustable data format it is also possible to configure the units for remote connection and to work with data online.



# WarmComm 4.0

Universal Data Administration for use with all MMM / BMT devices



- 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 BMT 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



# Equipment Specifications



Equipment/Device	EC	DC	VC	SC	VU	VU EVO	IC	IC-V	FC	FCp	FC EVO	CLC	CLC EVO	CO2
Shelf	2+0/2+0	-/-	2+0	2+0	-/-	-	2+0/2+0	2+0/2+0	-	-	-	-	-	-
Shelf - stainless steel	o/o	2+0/2+0	o/o	o	-/-	-	o/o	o/o	2+0	2+0	2+0	2+0	2+0	-
Shelf, perforated	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup>	o/o	o	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o	-	o	o	o	4+0/4+0 <sup>2)</sup>
Servotherm-shelf	-/-	-/-	-/-	-/-	2+0/2+0	2+0	-/-	-/-	-	-	-	-	-	-
Shelf / Holder Loewenstein	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup>	-/-	-	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o	-	o	o	o	-
Condensation vat	o/o	o/o	o/o	o	-/-	-	o/o	o/o	o	-	o	o	o	*/*
Left hinged door	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup>	-/-	-	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1,5,6,7)</sup>	-	o <sup>1,5,6,7)</sup>	o <sup>1,5,6,7)</sup>	o <sup>5,6,7)</sup>	o/o
Door lock	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup>	-/-	-	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o	-	o	o	o	-
Door lock automatic 1-door	-/o <sup>1)</sup>	-/o <sup>1)</sup>	-/o <sup>1)</sup>	o <sup>1)</sup>	-/o <sup>1)</sup>	o	-/o <sup>1)</sup>	-/o <sup>1)</sup>	o <sup>1)</sup>	-	o	o	o	-/•
Door lock automatic 2-door (only for pass through modification)	-/-	-/-	o <sup>1)</sup>	o <sup>1)</sup>	-/-	-	-/-	-/-	-	-	-	-	-	-
Increased cooling/temperature	300 <sup>5,6)</sup>	-/-	300 <sup>6)</sup>	-	-/-	-	-/-	-/-	-9,9	-	-20	-9,9	-20	-
Stainless steel exterior	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	-
Stainless interior VAC	*/*	*/*	*/*	*	o/o	o	*/*	*/*	*	*	*	*	*	*
Interior glass door ESG	-/-	-/-	-/-	-	-/-	-	*/*	*/*	*	*	* <sup>10)</sup>	*	* <sup>10)</sup>	*/*
PT-100-flexible	1/3	1/3	1/3	3	1/3	4	1/3	1/3	3	o	4	3	4	-
Access port -25-R	o/o	o/o	o/o	o	-/-	-	o/o	o/o	o	o	o	o	o	*/*
Access port -25-L	o/o	o/o	o/o	o	-/-	-	o/o	o/o	o <sup>5,6)</sup>	o	o <sup>5,6)</sup>	o <sup>5,6)</sup>	o <sup>5,6)</sup>	-
Access port -50-R	o/o	o/o	o/o	o	-/-	-	o/o	o/o	o	o	o	o	o	-
Access port -50-L	o/o	o/o	o/o	o	-/-	-	o/o	o/o	o <sup>5,6)</sup>	o	o <sup>5,6)</sup>	o <sup>5,6)</sup>	o <sup>5,6)</sup>	-
Access port -100-R	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	-	-/-	-	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o	-	o	o	o	-
Access port -100-L	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	-	-/-	-	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>5,6)</sup>	o	o <sup>5,6)</sup>	o <sup>5,6)</sup>	o <sup>5,6)</sup>	-
Window and light (max to 250°C)	Δ <sup>1)</sup> /Δ <sup>1)</sup>	-/-	Δ <sup>1)</sup> /Δ <sup>1)</sup>	Δ <sup>1)</sup>	*/* <sup>9)</sup>	* <sup>9)</sup>	Δ <sup>1)</sup> /Δ <sup>1)</sup>	Δ <sup>1)</sup> /Δ <sup>1)</sup>	Δ <sup>1)</sup>	-	o	o	o	-
Interior light	o <sup>1)</sup> /o <sup>1)</sup>	-/-	o <sup>1)</sup> /o <sup>1)</sup>	-	-/o	o	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o	-	o	o	o	-
Integrated door alarm	-/-	-/-	-/o <sup>1)</sup>	*	-/o	*	-/-	-/o <sup>1)</sup>	*	-	*	*	*	*/*
BMS - Relay Contact Alarm	-/o	-/o	-/o	-	-/o	o	-/o	-/o	o	o	o	o	o	*/*
Pass through modification	-/-	-/-	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1)</sup>	-/-	-	-/-	-/-	-	-	-	-	-	-
Loading system	-/-	-/-	o <sup>1,2,3,4)</sup> /o <sup>1,2,3,4)</sup>	o <sup>1,2,3,4)</sup>	-/-	-	-/-	-/-	-	-	-	-	-	-
HEPA -filter	-/-	-/-	o/o	o	-/-	-	-/-	o/o	-	-	-	-	-	*/*
Over pressure modification	-/-	-/-	-/o	o	-/-	-	-/-	-/-	-	-	-	-	-	-
Particle free modification	-/-	-/-	o/o	*	-/-	-	-/-	-/-	-	-	-	-	-	-
Exhaust Vent elongation tube	o/o	-/-	o/o	o	-/-	-	-/-	o/o	-	-	-	-	-	-
Exhaust Vent elongation tube	o/o	-/-	o/o	o	-/-	-	-/-	o/o	-	-	-	-	-	-
Anti-dry system	-/-	-/-	-/-	-	-/-	-	o/o	o/o	-	-	-	-	-	*/*
Casters	o <sup>11)</sup>	-/-	o <sup>11)</sup>	o <sup>11)</sup>	-/-	-	o <sup>11)</sup>	o <sup>11)</sup>	o <sup>11)</sup>	o <sup>11)</sup>	o <sup>11)</sup>	*	*	-
Inert gas connection	-/-	-/-	-/-	-	*/*	*	-/-	-/-	-	-	-	-	-	-
Inner socket	-/-	-/-	-/-	-	o/o	o	-/o	-/o	o	o	o	o	o	-
Cart or Vacustation (VU)	o <sup>1,5,6)</sup> /o <sup>1,5,6)</sup>	o <sup>1)</sup> /o <sup>1)</sup>	o <sup>1,5,6)</sup> /o <sup>1,5,6)</sup>	o <sup>1,5,6)</sup>	o/o	o	o <sup>1,5,6)</sup> /o <sup>1,5,6)</sup>	o <sup>1,5,6)</sup> /o <sup>1,5,6)</sup>	o <sup>5,6)</sup>	-	o <sup>1,5,6,7)</sup>	-	-	o/o
Vacuum pump Vacubrand MZ2CNT	-/-	-/-	-/-	-	o/o	o	-/-	-/-	-	-	-	-	-	-
Vacuum pump Vacubrand MD4CNT	-/-	-/-	-/-	-	o/o	o	-/-	-/-	-	-	-	-	-	-
Acoustic alarm	*/*	*/*	*/*	*	*/*	*	*/*	*/*	*	*	*	*	*	*/*
Visual alarm	*/*	*/*	*/*	*	*/*	*	*/*	*/*	*	*	*	*	*	*/*
Key Lock	-/•	-/•	-/•	*	-/•	*	-/•	-/•	*	*	*	*	*	-/•
Hot air decontamination	-/-	-/-	-/-	-	-/-	-	-/-	-/o	-	-	o	-	o	o/- <sup>14)</sup>
Hot air sterilization	-/-	-/-	-/o	*	-/-	-	-/-	-/-	-	-	-	-	-	-/o
CO2 control	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	-	o <sup>6)</sup>	-	o <sup>6)</sup>	*/*
SD card reader, Chip card system	-/•	-/•	-/•	*	-/•	*	-/•	-/•	*	*	*	*	*	-/•
Digital vacuum display	-/-	-/-	-/-	-	o/o	*	-/-	-/-	-	-	-	-	-	-
Digital vacuum control (10-1100 mbar)	-/-	-/-	-/-	-	-/o	*	-/-	-/-	-	-	-	-	-	-
Digital vacuum control (0,1-1100mbar)	-/-	-/-	-/-	-	-/o	o	-/-	-/-	-	-	-	-	-	-
Defrosting system	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Increased cooling -10(B2V)/-20(EVO) °C	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Defrost system -10(B2V)/-20(EVO) °C	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Compressor cooling system with R134a	-/-	-/-	-/-	-	-/-	-	-/-	-/-	*	-	*	*	*	-
Compressor cooling system with R404a	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	-	o	-	o	-
Refrigerant Peltier system	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	*	-	-	-	-

Equipment/Device	EC	DC	VC	SC	VU	VU EVO	IC	IC-V	FC	FCp	FC EVO	CLC	CLC EVO	CO2
Door exposure light	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
LED door light VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Exposure light tray VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o <sup>2)</sup>	-	o <sup>2)</sup>	o	o	-
Exposure light tray UV	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o <sup>2)</sup>	-	o <sup>2)</sup>	o	o	-
Exposure light tray MIX	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o <sup>2)</sup>	-	o <sup>2)</sup>	o	o	-
LED light shelve VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o <sup>2)</sup>	-	o <sup>2)</sup>	o	o	-
LED light shelve UV	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	-	-	-	-	-
Light measurement-VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Light measurement-UV	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Integrated printer interface RS 232	*/*	*/*	*/*	*	*/*	*	*/*	*/*	*	*	*	*	*	-/•
Ethernet converter from RS 232	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	-
USB Device	-/-	-/-	-/-	-	-/-	*	-/-	-/-	-	-	*	-	*	-
USB Host	-/-	-/-	-/-	-	-/-	o	-/-	-/-	-	-	o	-	o	-
Wifi connection	-/-	-/-	-/-	-	-/-	o	-/-	-/-	-	-	o	-	o	-
Ethernet connection	-/-	-/-	-/-	-	-/-	o	-/-	-/-	-	-	o	-	o	-
Warmcomm 4.0 B	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	-
Warmcomm 4.0 P	-/o	-/o	-/o	-	-/o	o	-/o	-/o	o	o	o	o	o	-
Warmcomm 4.0 F	-/o	-/o	-/o	-	-/o	o	-/o	-/o	o	o	o	o	o	-
Protocol printer	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	-
Printer Archive	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	-
DLL data interface	-/o	-/o	-/o	o	-/o	o	-/o	-/o	o	o	o	o	o	-
Verification-1-point	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	o/o
Verification-3-point	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	o/o
Verification-9-point	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	o/o
Verification-3-points RH	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	-	-	o	o	-
Verification-DIN 12880	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	o/o
IQ, OQ Protocols	o/o	o/o	o/o	o	o/o	o	o/o	o/o	o	o	o	o	o	o/o
3 - Split inner door	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o <sup>13)</sup>
6 - Split inner door	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o <sup>13)</sup>
8 - Split inner door	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o <sup>14)</sup>
O2 concentration control 1-19%	-	-	-	-	-	-	-	-	-	-	-	-	-	-/•
4-20mA re-transmit	-	-	-	-	-	-	-	-	-	-	-	-	-	-/•
Humidity display/alarm	-	-	-	-	-	-	-	-	-	-	-	-	-	-/•
Stacking kit for two units	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o
CO2 stage regulator	-	-	-	-	-	-	-	-	-	-	o/o	-	o/o	o/o
Automatic CO2 Change over unit	-	-	-	-	-	-	-	-	-	-	o/o	-	o/o	o/o

## Explanations:

- EC - ECOCELL®
- DC - DUROCELL
- VC - VENTICELL®
- SC - STERICELL® comfort
- VU - VACUCELL®
- VU EVO - VACUCELL® EVO
- IC - INCUCCELL®
- IC-V - INCUCCELL® v
- FC - FRIOCELL® comfort
- FCp - FRIOCELL® Peltier comfort
- FC EVO - FRIOCELL® EVO
- CLC - CLIMACELL® comfort
- CLC EVO - CLIMACELL® EVO
- CO2 - CO2CELL

- 8) only stainless steel design for size 404.707
- 9) without light
- 10) internal sealed glass door of safety glass
- 11) basic vision from size 404
- 12) only 3 shelves for size 501
- 13) only for size 501
- 14) only for size 1901

## Laboratory Ovens and Incubators



**INCUCELL® / INCUCELL® v**

Safe treatment of microbiological cultures

**FRIOCELL® & FRIOCELL® EVO**

Temperature controlled cooling incubators

**CLIMACELL® & CLIMACELL® EVO**

Stability Chambers

**CO2CELL**

CO<sub>2</sub> incubator

**ECOCELL®**

Natural convection dry-heat oven

**DUROCELL**

Drying ovens with protective coated chamber and shelves with EPOLON

**VACUCELL® & VACUCELL® EVO**

Vacuum drying ovens

**STERICELL®**

Dry-heat ovens designed for hot air sterilization, heating and drying with validated sterilization cycles of temperature and time.

Patented forced air convection.

Programmed with 3 pre-set sterilization cycles of 160°C, 170°C and 180°C. Available in 22 L (.8 ft<sup>3</sup>), 55 L (2 ft<sup>3</sup>), 111 L (4 ft<sup>3</sup>), 222 L (8 ft<sup>3</sup>), and 404 L (14.3 ft<sup>3</sup>) chamber sizes with 707L (25 ft<sup>3</sup>) available on special order. Clean-Room pass through models available.



## Sterilization and Depyrogenation



**CLIMACELL® EVO**

Stability Chamber with patented forced air convection heating, cooling, 1% controlled humidity and optional LED lighting or CO<sub>2</sub> control. Adjustable parameters from -20°C up to +100°C and sterilization at 160°C. Available in 111L (4 ft<sup>3</sup>), 222L (8 ft<sup>3</sup>), 404L (14.3 ft<sup>3</sup>), 707L (25 ft<sup>3</sup>) and 1212L (43 ft<sup>3</sup>) chamber sizes.

**VENTICELL®**

Patented forced air drying ovens

## Steam Sterilizers (Autoclaves)



**UNISTERI® HP IL**

Medium-sized steam sterilizers, 73–254 l



**STERIVAP® HP IL**

Large steam sterilizers, 148–1 490 l

