MMM Group

LABORATORY DRYING OVENS AND INCUBATORS

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



protecting human health

Tradition, Quality, Innovation

As one of the world's leading suppliers of sterile processing systems, MMM has been working actively to promote good health since 1954. With a full range of sterilization and disinfection products and services – that can be found in every branch of healthcare from hospitals and scientific institutes, to laboratories and the pharmaceutical industry – MMM, has over the years, consolidated its position as a pioneer of quality and innovation both in the German and international market.

In our two production facilities based in Stadlern, Germany, and Brno, in the Czech Republic, we manufacture products that meet the highest demands of our customers world wide. The depth and precision of production standards at both plants ensure that we accomplish the rigorous quality requirements of medical engineering.

900 competent employees work together as a committed and enthusiastic team, dedicated to achieving the mission of the MMM Group.

General and Actively Provable Quality

Technical acceptance of a device (FAT) in the extent as required by a client is a natural feature. On request, it may be performed in the presence of the user or in the location of the device installation (SAT) if possible. After the outlet control, it is possible to perform 27-point measuring according to DIN 12880 and 3-point measuring of Rh on the device. It is possible to supply the thermal engineering device users with documentation to prove stable quality of processes in compliance with parameters of the device declared by the manufacturer (importer).
IQ – installation qualification
OQ – operation qualification
PQ – process qualification (validation).
Tests and validations according to standards are performed using the potential of our accredited testing laboratory.

Applications

Pharmaceutical Industry

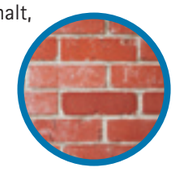
Stability testing and photo stability testing according to ICH 279/95 Option 2, long term storage

Cosmetic Industry

Durability testing, testing of cosmetic products or primary materials stability

Construction Industry

Long-term testing of quality and ageing of materials in construction industry – cement, paints, asphalt, construction plastics, glues, etc.



General and Applied Industry (research field)

E.g. cultivation of tissue cultures – human or animal ones

Food and Beverage Industry

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

Packaging Material Industry

Long-term testing of packing technologies

Electronic Industry

Durability testing of electronic boards and printed circuits

Automotive Industry

Testing of materials ageing – tyres, sealing, etc.

Zoology

Simulation of conditions for sea organisms research – seaweed or cultivation of insect eggs.

Botany

Studies of germination, green plants growing for further research

Field of Metrology and Quality Control in Industry

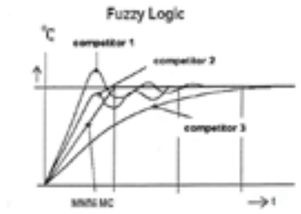
Checking and calibration of industrial measuring gauges

Chemical – Industrial

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

Fuzzy Logic Regulation

Advanced fuzzy logic technology – unlike classic mechanic or electronic control (PID) – makes assessment of data from a running process, like chamber size, operation temperature, humidity or other regulated items after the program start, using specially developed software and simultaneously it makes an assessment of chamber filling with samples. Based on the information, it continuously adjusts the input values of regulation (intensity of heating, cooling, etc.) and optimises the process of regulation with the aim of minimising the time for reaching the process parameters without individual items overshoots. In this way it is possible to reach pre-set operation levels of items in shortest possible time, without useless power consumption and to make the work with the device maximally efficient. Simultaneously, the fuzzy logic reduces restoration times after the device door opening in the course of the operation cycle.

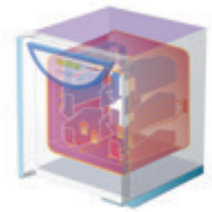


6 Physical Ways of Heat Transfer

Natural Circulation

The principle of operation is based on fine gravitation air flow in electrically heated chamber of the device.
The double-tube construction of the chamber together with control automatics arrange homogenous distribution of temperature in the chamber, exact progress of processes and short recovery times (return to selected temperature) after the door opening. It is characterised by its economic operation. It is suitable for simple process of drying and heating of standard materials. The devices work on no-noise basis.

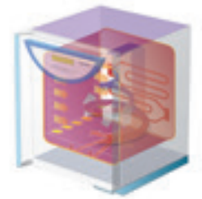
ECOCELL®, DUROCELL, INCUCELL®



Forced Circulation

The principle of operation is based on fine patent-protected air flow using a ventilator in electrically heated chamber of the device. The used patent thermo-dynamic system arranges development of a homogenous air flow rising in a spiral inside of the operation chamber. By natural tempering from the bottom upstairs, the process simulates natural processes and it arranges optimal heating of materials and high space precision of temperature in the chamber with minimal power consumption. The use of the system of air distribution in rear and side walls arranges homogenous mixture of warm air and consequently exact temperature profile.

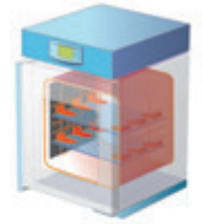
VENTICELL®, STERICELL®, INCUCELL® V



Circulation in Vacuum

The principle of operation is based on the principle of drying in vacuum with the possibility of air displacement in the chamber by an inert gas. The direct heated stainless steel chamber of the device allows precise heating and drying of samples up to constant weight. Standard equipment includes a bushing with a diameter of 40 mm, input for inert gas connection and a needle valve for fine dosing. For the case of inner overpressure, the device is equipped with a large-area door overpressure valve "Ventiflex".

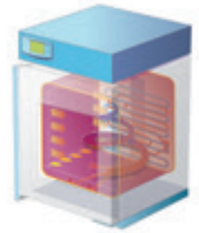
VACUCELL®



Circulation with Cooling

The principle of operation is based on fine forced circulation of air in connection with patent-protected powerful cooling located in the chamber. The unique cooling system together with multi-processor control automatics offers exact and economical simulation of selected natural processes and it reduces samples evaporation.

FRIOCELL®



Circulation with Cooling and Controlled Humidity

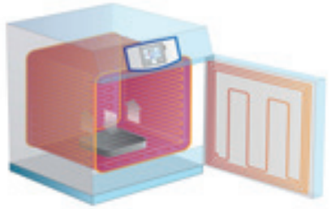
The principle of operation is based on fine forced circulation of air in connection with patent-protected powerful cooling and humidifier located in the chamber. The multi-processor control system of active humidification and dehumidification with powerful lighting system guarantees excellent homogenous conditions for exact simulation of selected climatic actions.

CLIMACELL®

Circulation with CO_2 Atmosphere

The principle of operation is based on fine gravitation flow of operation gas in direct heated chamber at high relative humidity and selected gas concentration. The unique system of chamber and door eliminates the necessity of a ventilator and so it eliminates even related risks of mutual contamination of samples due to vibrations and forced circulation of operation atmosphere. Possible work in CO_2, respectively O_2 and N_2 atmosphere.

CO2CELL



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.

Natural Air Convection

ECOCELL®

The line of economic driers with wide temperature range, exact and reliable course of simple drying processes and materials heating. The ECOCELL® line produces no noise and provides a very soft air convection within the chamber.

Technical data

Volume: 22, 55, 111, 222, 404, 707 litres
Working temperature: 5°C above ambient temperature up to 250°C/300°C
Interior: stainless steel, mat. No. 1.4301 (AISI 304)

DUROCELL

Special purpose drying ovens DUROCELL with highly resistant EPOLON coating, protecting the internal chamber aggressive substances like acids or alkaline liquids. This device ensures an optimal goods temperature equalisation. It is ideal for acid and basic hydrolysis, extraction of non-inflammable materials and decomposition of substances in solid phase.

Volume: 22, 55, 111, 222 litres
Working temperature: 5°C above ambient temperature up to 125°C
Interior: stainless steel, mat. No. 1.4301 (AISI 304)

Forced Air Convection

VENTICELL®

Due to a patented ventilation system the air within the VENTICELL® chamber is ventilated in a regular spiral way. This leads to a homogenous temperature profile throughout the chamber and short heating times. Operating economy is ensured by higher rate and precision of heating in laboratories. Especially suitable for very moist goods.

Volume: 22, 55, 111, 222, 404, 707 litres
Working temperature: 10°C above ambient temperature up to 250°C/300°C
Interior: stainless steel, mat. No. 1.4301 (AISI 304)

STERICELL®

CE 0123

STERICELL® is intended for hot air sterilization of materials under the specified temperature and duration. It is characterized by quiet running with a patented fine system of forced air circulation in the chamber by means of a built-in fan which eliminates the "cold air" area formation. Loose and deposit-forming substances can be sterilized in closed bottles. The device is suitable for medical and veterinary clinics, hospitals, pharmacies, health care centres, and laboratories.

Volume: 22, 55, 111, 222, 404 litres
Working temperature: 10°C above ambient temperature up to 250°C
Interior: stainless steel, mat. No. 1.4301 (AISI 304)

Vacuum

VACUCELL®

Temperature sensitive, easy decomposable or oxidative materials can be dried very tenderly in VACUCELL® vacuum drying ovens, where there is the opportunity of extrusion of air by inert gas. Also complicated components with hardly accessible hollow spaces are drying quickly and effectively in VACUCELL® ovens. Ideal for drying of samples to constant weight. Special application of the device is possible mainly in the fields of plastics processing, pharmaceutical, chemical, electro technical and other industries.

Volume: 22, 55, 111 litres
Working temperature: 5°C above ambient temperature up to 200°C
Door window
Integrated duct for sensors etc. (∅ 40 mm)
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)

Natural / Forced Air Convection

INCUCELL® / INCUCELL® V

Suitable for safe treatment of microbiological cultures. The INCUCELL® line produces no noise and provides a very soft air convection within the chamber, the variant INCUCELL® V (with a fan) has an advantage of more precise temperature distribution with small deviations. These devices can be used especially in biological and microbiological laboratories, quality tests in pharmacy, cosmetics and testing in veterinary medicine and food processing industry.

Technical data

Volume: 22, 55, 111, 222, 404, 707 litres
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)

Cooling Incubators

FRIOCELL®

The high technical standard of our FRIOCELL® incubators allows exact incubation processes both for variation and deviation. The units have very short recovery times and show an excellent results in keeping the precise regulation. A unique cooling system ensures, that the samples are not dried while cooling. A high performance system of lighting ensures outstanding homogenous parameters for tests and growth conditions. These devices are designed for use in biotechnology, botany, food processing industry, cosmetics, chemical industry etc.

Volume: 22, 55, 111, 222, 404, 707, 1212 litres
Working temperature: 0.0°C up to 100°C
Refrigerant:
R 134a without CFC (excluded volumen 22)
Peltiér effect – FC 22
Inner glass door
Interior: stainless steel, mat. No. 1.4301 (AISI 304)

Climatic Chambers

CLIMACELL®

The CLIMACELL® series was specially developed for applications, in which as far as possible exact and reproducible simulation of various environmental conditions is important, e.g. stability testing of components, packaging materials, food or chemicals, drugs, germination studies, plant cell or tissue cultures, insect cultures. This devices offers an interesting alternative to expensive testing chambers and testing rooms. Microprocessor controlled humidity assembly with powerful lighting system are warranty of the excellent homogene parameters for tests and growth conditions.

Volume: 111, 222, 404, 707, 1212 litres
Working temperature: without humidity 0.0°C up to 99.9°C, with humidity: 10°C up to 100°C
Refrigerant: R 134a
Cooling medium for generating the humidity: distilled water
Controlled humidity: 10% - 98% RH
Microprocessor controlled humidifying / dehumidifying system
Inner glass door
Interior: stainless steel, mat. No. 1.4301 (AISI 304)

CO_2 – Atmosphere

CO_2CELL

Latest generation of CO_2 incubators is focused on constant and reproducible conditions for cell growth procedures, tissue and other cultivating cultures. Trial circuit heating system eliminates the need of fan and consequently lowers the risk of vibrations and cross-contamination. Drift-free infrared sensor provides maximum reliability and measurement precision during the whole process. Thanks to the direct heated chamber, installation and maintenance is very easy. Inner glass door is sealed towards the chamber insulation which allows you to check the samples without losing the internal conditions. Outer glass door is sealed towards external sealing. Range of useful options supports features like sterilization on 200°C while CO_2 sensor remains inside machine, split inner glass door lowers the recovery time after door opening, Oxygen control, etc.

CO2cell 50 Comfort

Inner volume: 50, 190 litres
Working temperature: 1°C above ambient temperature up to 50°C
Non-controlled relative humidity: max 95% RH at 37°C
CO_2 concentration: 0,2 up to 20% CO_2
CO_2 sensor: Drift-free infrared (IR) sensor
Interior:
Standard: Stainless steel DIN 1.4571 (AISI 304)
Comfort: Stainless steel DIN 1.4571 (AISI 316)

Line EVO

Perfectly Equipped Device Meeting the Highest Requirements of not only Pharmaceutical Processes

The newly developed line of devices - EVO (Evolution) – is available for models VACUCELL®, FRIOCELL® and CLIMACELL®. Together with well-proven regulation system Fuzzy Logic and patented vertical air flow (at devices with forced circulation), the EVO devices are equipped with a new double door sealing for significant improvement of chamber environment stability, with patented door lock mechanics for fine but safe closing of the chamber by the user. There was also increased operation range of regulated vakues, temperature from -20°C to +160°C at FRIOCELL® and CLIMACELL® (option) and humidity up to 95% at CLIMACELL® so as to extend the spectrum of devices use. A completely new solution is the colour 5,7-inch touch display. The resistance technology of the display with graphic symbols allows easy and intuitive control even with the gloves on. 30-day integrated data logger will arrange process data collection directly in automatics. The reader and SD card supplied as a standard multiply the saved data volume for several years and it simultaneously simplifies service data transmission from one device to another. Naturally, there is also the data output RS 232, USB-host for external memory connection as well as a USB-device for supplied thermo printer connection or even direct printing from ordinary office printer (according to specification). A revolutionary solution is the connection of the EVO device via the Ethernet interface (RJ 45 or Wifi) to data network of the user. Using own IP address identification, it offers remote data collection or remote diagnostics from authorized service centre.
Devices of the EVO line are long-term tested devices developed for the most demanding conditions of items simulation in modern certified laboratories.

NEW
New smart design
with user-friendly control panel

High-end RH sensor Rotronic
for reliable and exact results

NEW
Remote service diagnostics
using proper IP address

NEW
Wifi connection
for wireless connection to PC / SMARTPHONE (optional equipment)

NEW
SD memory card
for data transfer

NEW
Touch screen
with graphic interface

Main switch ON/OFF
safe device stopping

Fuzzy Logic microprocessor control
for start time minimisation

NEW
Increased maximal temperature up to 160°C for the chamber sterilisation (optional equipment)

NEW
Improved fixation of the upper construction for easy service access

Automatic defrosting system
(optional equipment)

NEW
Effective LED diods
(up to 30 000 lx) low-temperature programmable exposition lighting (optional equipment)

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

Rigid, but airy trays for efficient air flow in the chamber

Vertical construction of the case
means space savings in your lab

Stainless steel chamber (AISI 304)
making regular de-contamination of the device easier

Efficient chamber insulation
for long-term stability of parameters in the chamber

Easily removable inner panels
for easy chamber cleaning

NEW
Adjusted de-humidification system
for fast Rh change in the chamber

Heating and cooling elements placed in the pre-chamber with maximal transfer surface for efficient heat exchange

NEW
Improved cooling system
for shorter recovery times

NEW
Fully insulated inner glass door
made of safety glass Security Izolas according to EN 12150-2:2004

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

Four-point adjustable door fixation
for perfect door sealing

Caster with a brake for easy and safe device handling

NEW
Door closing and securing mechanism for easy and safe door closing (Patent protected)

Three Lines of Control System

Standard line

- 3 adjustable programs
- RS 232 – interface for printer or PC-communication
- delayed heating start and stop function
- acoustic and visual alarm in error state
- time range 99 hours 59 minutes
- digital safety thermostat
- manual control of the air exhaust flap
- programme cycles
- adjustable ventilation rate 50–100%

Comfort line

- 6 adjustable programs
- chip card system for individual program storage
- RS 232 – interface for printer or PC-communication
- delayed heating start and stop function
- acoustic and visual alarm in error state
- time range 0–40 years with 1 min intervals
- digital safety thermostat
- real time
- selectable rate of temperature increase or decrease – "RAMPS"
- programming of program time segments – "SEGMENTS"
- programme cycles
- manual control of the air exhaust flap
- keyboard blocking
- door opening control

NEW

EVO line

- 5.7 inch (14.5 cm) touch screen display
- Microprocessor fuzzy logic process control
- Intuitive control via colour icons
- Graphic configuration of a new program
- Transparent displaying of data course at the cycle
- Protective thermostat class 3
- Acoustic and visual alarm
- Multi-level users administration (corresponding to FDA 21 Part 11)
- Keyboard lock against unauthorised handling

- Data encryption and non-manipulability (corresponding to FDA 21 Part 11)
- Up to 100 programs and up to 100 segments for each program
- Yearly data logger in graphic and numeric form
- On-line or off-line data export
- Prepared service programs for fast diagnostics of faults
- Easy service diagnostics including remote access
- Multi-language communication
- Printing of protocols in PDF format via Warmcomm 4.0
- Easy user configuration of the device
- SD memory card, USB Host and RS 232 standardly included
- 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
- Fan setting 10–100%
- Main ON/OFF switch for security reasons
- Device state LED indicator

Connectivity

SD card

RS 232

USB Device

Ethernet / Internet (optional equipment)

WIFI (optional equipment)

USB Host (optional equipment)

BMS remote alarm (optional equipment)

Integrated data logger, SD card

Compatible thermo-printer via RS 232

Specified desk-top printer (USB/WiFi)

Connection of software WarmComm 4.0

Smartphones CLC monitor

local

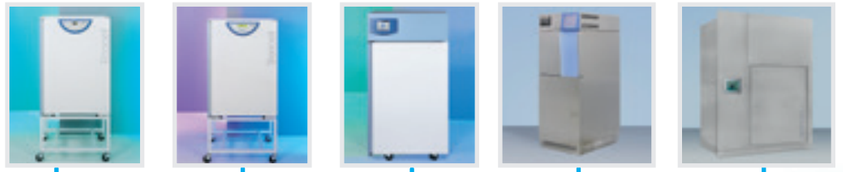
remote (internet)

Data Output

Thanks to use of the up-to-date electronic components, the devices of the EVO line do not have any limitation in data peripherals connection. The basic configuration contains traditional and reliable RS 232 interface, USB Device and SD card as data carrier. The device may be easily completed with a Wifi module 802.11b/g with reach up to 100 meters, there is also available the USB Host port for bidirectional USB communication and Ethernet (RJ 45) interface for remote connection. Proper IP address allows easy connection to a PC or selected printer respectively other ordinary data peripherals (Smartphone, Netbook, etc.). Thanks to open platform and adjusted data format it is also possible to configure remote connection and to work with data online in remote mode (internet). Devices of standard and comfort lines are as a standard equipped with the RS232 interface respectively with a converter for Ethernet connection.

WarmComm 4.0

Universal Data Administration with Devices of the MMM Group



messages

internet

GSM

- connectible to all the devices of the MMM Group
- stable platform of the SQL library
- user-friendly environment
- Connection via the Ethernet to unlimited number of devices via RS 232,USB, then limited by the number of PC ports
- bilateral communication – data monitoring and device control
- compatibility with older lines of heat technology devices
- Client-Server architecture
- service module for local and remote diagnostics
- three levels depending on client´s requirements (B-P-F)
- compliance with FDA CFR 21 Part 11 (version F)
- web support, on-line updates
- protected licence policy
- unpretentious to HW requirements, compatible with MS Windows
- validation documentation IQ/OQ

Equipment

Equipment/Device	EC	DC	VC	SC	VU	VU EVO	IC	IC-V	FC	FCp	FC EVO	CLC	CLC EVO	CO2
Tray	2+o/2+o	-/-	2+o	2+o	-/-	-	2+o/2+o	2+o/2+o	-	-	-	-	-	-
Tray - stainless steel	o/o	2+o/2+o	o/o	o	-/-	-	o/o	o/o	2+o	2+o	2+o	2+o	2+o	-
Shelf, perforated	o[1]/o[1]	o[1]/o[1]	o[1]/o[1]	o[1]	o/o	o	o[1]/o[1]	o[1]/o[1]	o	-	o	o	o	4+o/4+o[12]
Servotherm-tray	-/-	-/-	-/-	-/-	2+o/2+o	2+o	-/-	-/-	-	-	-	-	-	-
Holder Loewenstein	o[1]/o[1]	o[1]/o[1]	o[1]/o[1]	o[1]	-/-	-	o[1]/o[1]	o[1]/o[1]	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[1]/o[1]	o[1]/o[1]	o[1]/o[1]	o[1]	-/-	-	o[1]/o[1]	o[1]/o[1]	o[1, 5, 6, 7]	-	o[1, 5, 6, 7]	o[1, 5, 6, 7]	o[5, 6, 7]	o/o
Door lock	o[1]/o[1]	o[1]/o[1]	o[1]/o[1]	o[1]	-/-	-	o[1]/o[1]	o[1]/o[1]	o	-	o	o	o	-
Door lock automatic 1-door	-/o[1]	-/o[1]	-/o[1]	o[1]	-/o[1]	o	-/o[1]	-/o[1]	o[1]	-	o	o	o	-/•
Door lock automatic 2-door (only for pass through modification)	-/-	-/-	o[1]	o[1]	-/-	-	-/-	-/-	-	-	-	-	-	-
Increased coolin/temperature	300 [5, 6]	-/-	300 [8]	-	-/-	-	-/-	-/-	-9,9	-	-20	-9,9	-20	-
Stainless steel housing	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	-/-	-/-	-/-	-	-/-	-	•/•	•/•	•	•	• [10]	•	• [10]	•/•
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 [5, 6]	o	o [5, 6]	o [5, 6]	o [5, 6]	-
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 [5, 6]	o	o [5, 6]	o [5, 6]	o [5, 6]	-
Access port -100-R	o[1]/o[1]	o[1]/o[1]	o[1]/o[1]	-	-/-	-	o[1]/o[1]	o[1]/o[1]	o	-	o	o	o	-
Access port -100-L	o[1]/o[1]	o[1]/o[1]	o[1]/o[1]	-	-/-	-	o[1]/o[1]	o[1]/o[1]	o [5, 6]	o	o [5, 6]	o [5, 6]	o [5, 6]	-
Window and light (max to 250°C)	Δ[1]/Δ[1]	-/-	Δ[1]/Δ[1]	Δ[1]	•/• [9]	• [9]	Δ[1]/Δ[1]	Δ[1]/Δ[1]	Δ[1]	-	o	o	o	-
Interior light	o[1]/o[1]	-/-	o[1]/o[1]	-	-/o	o	o[1]/o[1]	o[1]/o[1]	o	-	o	o	o	-
Integrated door alarm	-/-	-/-	-/o [1]	•	-/-	•	-/-	-/o [1]	•	-	•	•	•	•/•
BMS - Relay Contact Alarm	-/o	-/o	-/o	-	-/o	o	-/o	-/o	o	o	o	o	o	•/•
Pass through modification	-/-	-/-	o[1]/o[1]	o[1]	-/-	-	-/-	-/-	-	-	-	-	-	-
Loading system	-/-	-/-	o[1,2,3,4]/o[1,2,3,4]	o[1,2,3,4]	-/-	-	-/-	-/-	-	-	-	-	-	-
HEPA -filter	-/-	-/-	o/o	o	-/-	-	-/-	o/o	-	-	-	-	-	•/•
Over pressure modification	-/-	-/-	-/o	o	-/-	-	-/-	-/-	-	-	-	-	-	-
Particle free modification	-/-	-/-	o/o	•	-/-	-	-/-	-/-	-	-	-	-	-	-
Ventilation prolongation flange	o/o	-/-	o/o	o	-/-	-	-/-	o/o	-	-	-	-	-	-
Ventilation prolongation flange	o/o	-/-	o/o	o	-/-	-	-/-	o/o	-	-	-	-	-	-
Antidry system	-/-	-/-	-/-	-	-/-	-	o/o	o/o	-	-	-	-	-	•/•
Rolls	o [11]	-/-	o [11]	o [11]	-/-	-	o [11]	o [11]	o [11]	o [11]	o [11]	•	•	-
Inert gas connection	-/-	-/-	-/-	-	•/•	•	-/-	-/-	-	-	-	-	-	-
Inner socket	-/-	-/-	-/-	-	o/o	o	-/o	-/o	o	o	o	o	o	-
Cart or Vacustation (VU)	o [1,5,6]/o [1,5,6]	o[1]/o[1]	o [1,5,6]/o [1,5,6]	o [1,5,]	o/o	o	o [1,5,6]/o [1,5,6]	o [1,5,6]/o [1,5,6]	o [5,6]	-	o [1,5,6,7]	-	-	o/o
Vacuum pump Vacubrandt MZ2CNT	-/-	-/-	-/-	-	o/o	o	-/-	-/-	-	-	-	-	-	-
Vacuum pump Vacubrandt MD4CNT	-/-	-/-	-/-	-	o/o	o	-/-	-/-	-	-	-	-	-	-
Acoustic alarm	•/•	•/•	•/•	•	•/•	•	•/•	•/•	•	•	•	•	•	•/•
Visual alarm	•/•	•/•	•/•	•	•/•	•	•/•	•/•	•	•	•	•	•	•/•
Key Lock	-/•	-/•	-/•	•	-/•	•	-/•	-/•	•	•	•	•	•	-/•
Hot air decontamination	-/-	-/-	-/-	-	-/-	-	-/-	-/o	-	-	o	-	o	o/-[14]
Hot air sterilisation	-/-	-/-	-/o	•	-/-	-	-/-	-/-	-	-	-	-	-	-/o
CO2 control	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	-	o [6]	-	o [6]	•/•
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	-
Defrosting systém -10(B2V)/-20(EVO) °C	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Compresor cooling system with R134a	-/-	-/-	-/-	-	-/-	-	-/-	-/-	•	-	•	•	•	-
Compresor cooling system with R404a	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	-	o	-	o	-
Refrigerant Peltier	-/-	-/-	-/-	-	-/-	-	-/-	-/-	-	•	-	-	-	-

Equipment/Device	EC	DC	VC	SC	VU	VU EVO	IC	IC-V	FC	FCp	FC EVO	CLC	CLC EVO	CO2
Door exposition light	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
LED door light VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o	-	o	o	o	-
Exposition light tray VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o [2]	-	o [2]	o	o	-
Exposition light tray UV	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o [2]	-	o [2]	o	o	-
Exposition light tray MIX	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o [2]	-	o [2]	o	o	-
LED light shelve VIS	-/-	-/-	-/-	-	-/-	-	-/-	-/-	o [2]	-	o [2]	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 [13]
6 - Split inner door	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o [13]
8 - Split inner door	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o [14]
O2 concentration control 1-19%	-	-	-	-	-	-	-	-	-	-	-	-	-	-/•
4-20mA re-transmit	-	-	-	-	-	-	-	-	-	-	-	-	-	-/•
Humidity display/alarm	-	-	-	-	-	-	-	-	-	-	-	-	-	-/•
Stacking kit for two units	-	-	-	-	-	-	-	-	-	-	-	-	-	o/o
CO_2 two stage regulator	-	-	-	-	-	-	-	-	-	-	-	o/o	-	o/o	o/o
Automatic CO_2 Change over unit	-	-	-	-	-	-	-	-	-	-	-	o/o	-	o/o	o/o

Standard / Comfort
• in basic package
o optional
- cannot be ordered
Δ possible with reservations
o[1] optional with remark

1) except for size 22
2) except for size 55
3) except for size 111
4) except for size 222
5) except for size 404
6) except for size 707
7) except for size 1212

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

Explanations:

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

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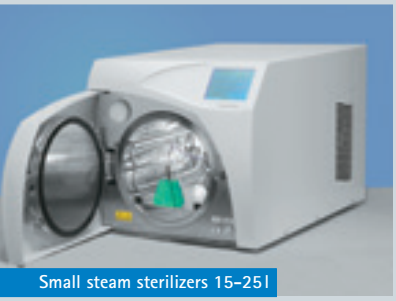
Small steam sterilizers 15–25 l


Steam sterilizers 140–1490 l


Laboratory drying devices and incubators 22–1212 l


Stainless steel instrumentation


Formaldehyde sterilizer 110 l


Hot-air sterilizer 400–2000 l


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MMM Group

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