



MMM Group

CLIMACELL[®] EVO

Climatic Chamber with Forced Air Circulation,
Cooling and Controlled Humidity



Innovative Heat Technology



protecting human health

Tradition, Quality, Innovation

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

In 1992, it became a member of the European MMM Group which has been operating on the world markets since 1954 as an important supplier of systems for the health care industry, science and research. With its comprehensive offer of products and services, sterilization and disinfection devices for hospitals, scientific institutes, laboratories and pharmaceutical industry, MMM Group has established itself as an outstanding quality and innovations producer on the global markets.

The knowledge and experience gained during the implementations of individual supplies 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. High level of our work has also been confirmed by the number of patents and industrial designs as well as an easy implementation of individual device adjustments.

MMM Group – excellence in medical and laboratory technology.

Basic Characteristics

Volume: 111, 222, 404, 707, 1 212 liters

Temperature range:
with humidity 10°C to 90°C,
without humidity 0°C to 100°C
(options of -20°C and +160°C sterilization)

Humidity range: 10–95%

Refrigerant:

R404a (down to -20°C),
R134a (down to 0°C)

Requested water quality:
demineralized water <8 µS/cm
(ideally <3 µS/cm)

Sealing inner glass door

Interior: stainless steel,
mat. No. 1.4301 (AISI 304)

CLIMACELL® EVO

Climatic Chamber With a Wide Range of Applications

Air-conditioned chambers of the CLIMACELL® line 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 - of temperature and 10–95% of humidity, possibility of CO₂ regulation and sterilisation at 160°C and numerous variety of options and accessories, the new generation of the climatic chamber CLIMACELL® EVO becomes an ideal tool for simulation of conditions in many fields of human activities. Simple control via touch screen, precise regulation and wide possibilities of data outputs meet the most demanding conditions of pharmaceutical industry and they also allow user friendly simulation of simple requirements for plants growing. The devices offer an interesting alternative for expensive testing chambers and testing rooms. The microprocessor-controlled system of humidification and dehumidification together with high-performance programmable system of exposition lighting guarantee excellent homogenous parameters for tests and growth conditions.

Meeting the requirements of regulations
2006/95/EC, 2004/108/EC, ICH 279/95 Option 2, FDA 21 part 11.



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



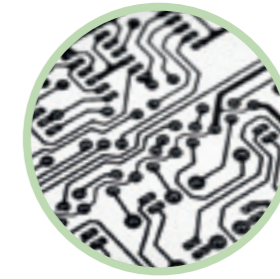
Food and Beverage Industry

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



Packing Material Industry

Long-term testing of packing technologies



Electronic Industry

Testing of durability 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



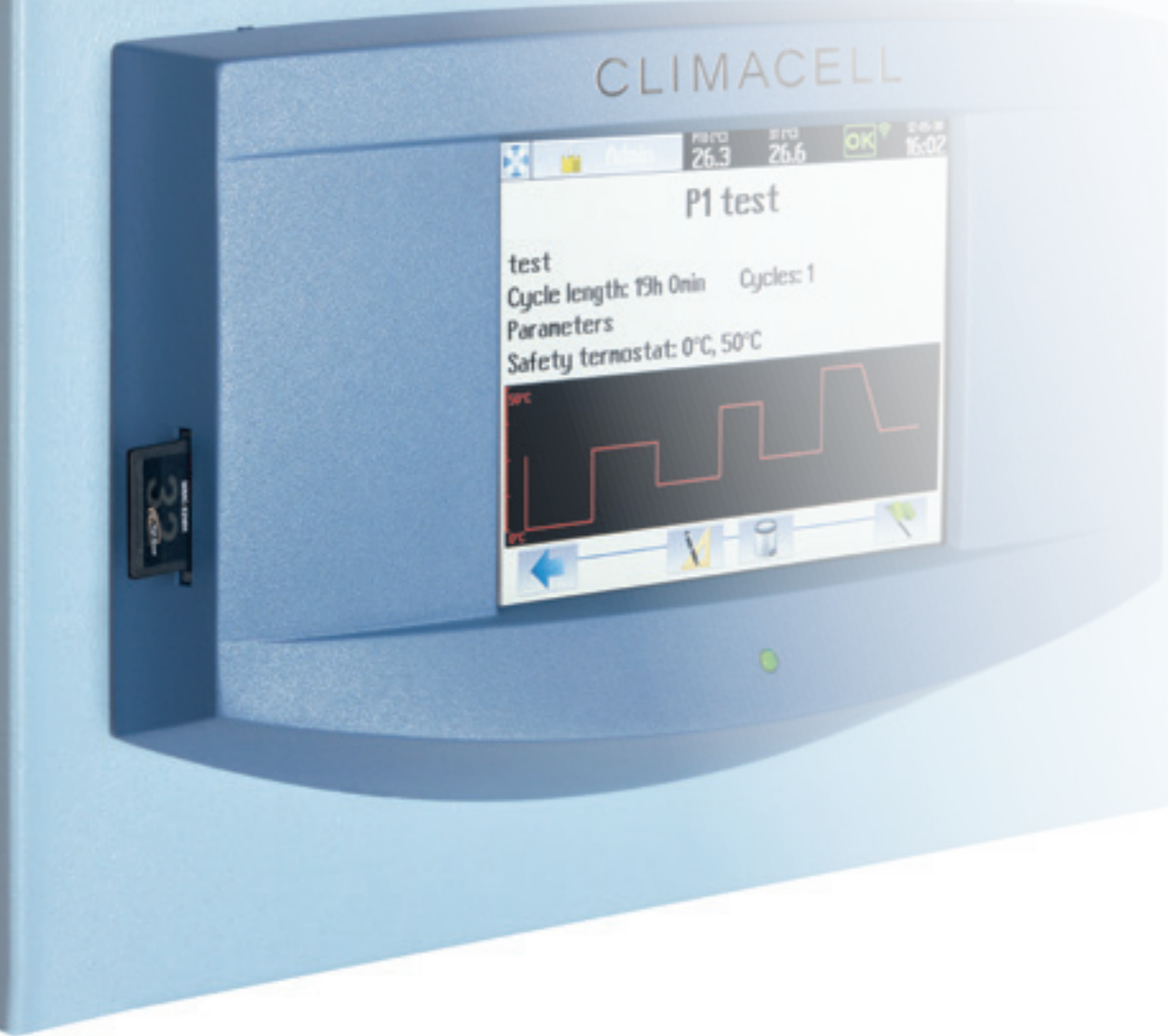
Field of Metrology and Quality in Industry

Checking and calibration of industrial measuring gauges



Chemical – Industrial

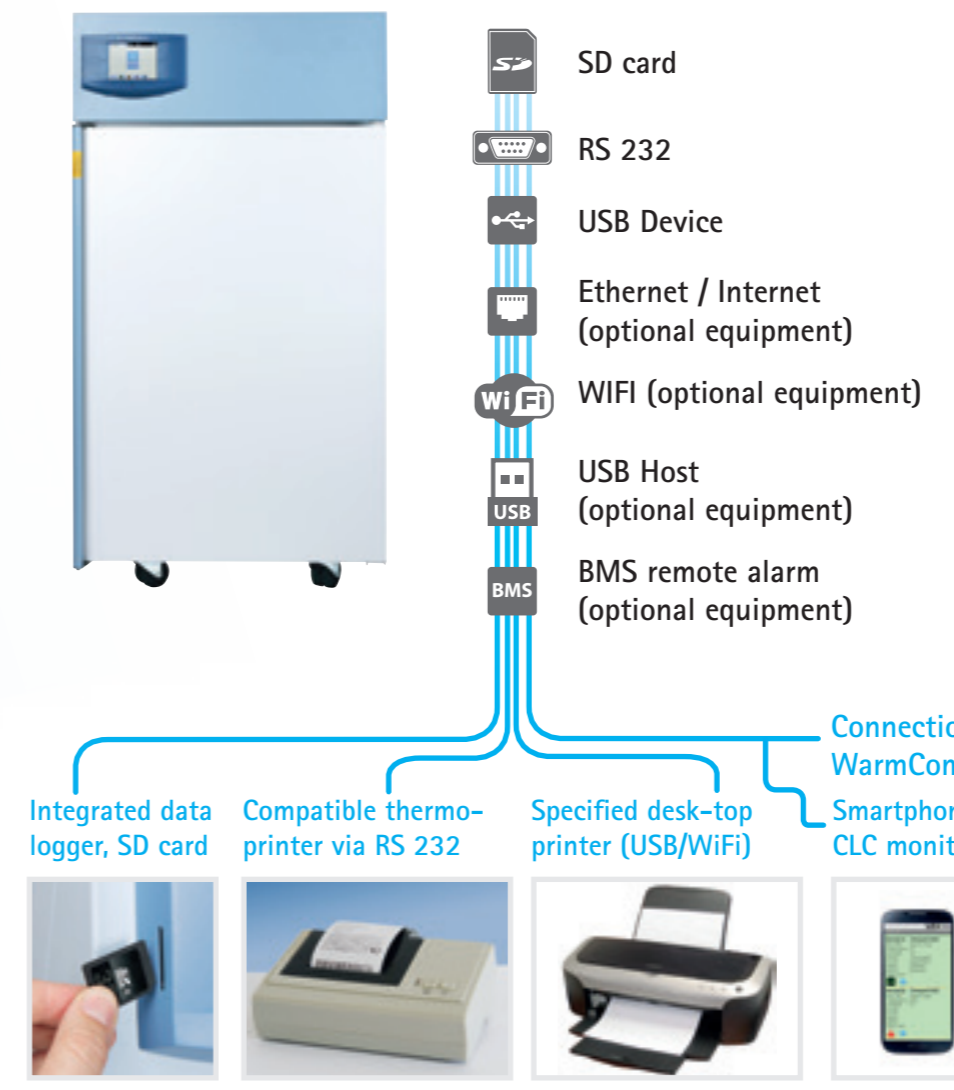
Fertilizers, pesticides, detergents, paint, oil, etc.



The New Control System Offers

- 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
- 30 day 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
- Direct printing of protocols in PDF format
- 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



Data Outputs

Thanks to the most up-to-date components of electronic, the device CLIMACELL® EVO does not have any data peripherals connection limit. The basic configuration contains traditional and reliable RS 232, USB Device and the SD card as the data carrier. The device can be easily extended with the Wifi 802.11b/g module with up to 100 meters reach, there is also available the USB Host for bi-directional USB communication and for remote connection there is the Ethernet (RJ 45) connection. Proper IP address allows easy connection to PC or selected WIFI printer, respectively other usual data periphery (Smartphone, Netbook, etc.). Thanks to the open platform and adjusted data format it is also possible to configure remote connection and to work with on-line data in remote mode (internet).

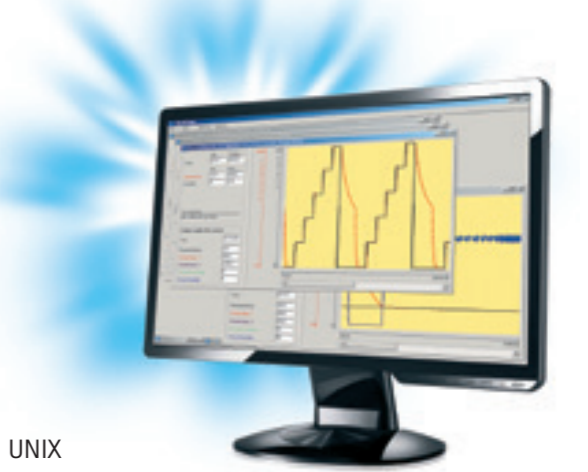


WarmComm 4.0

Universal Data Administration with Devices of the MMM Group



- connectible to all the devices of the MMM Group
- stable platform of the SQL library
- user-friendly environment
- connection of up to 25 devices
- 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 and UNIX



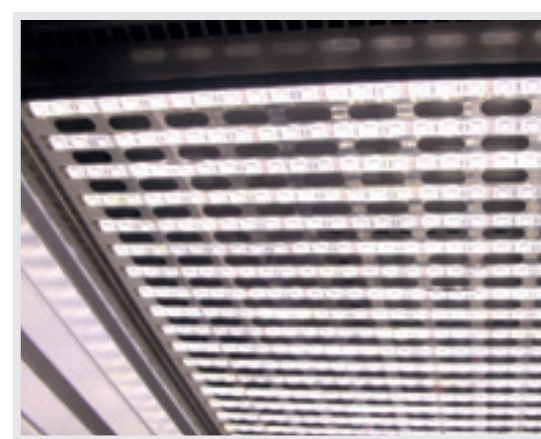
Comfort Machine with Superior Parameters

MMM Group offers traditionally fully ranged size of the cabinet, from personal size 111 litres, up to new size 1 212 litres, with the best ratio cost/performance. Patented vertical air flow with preheating chamber and asymmetrically perforated panels ensure the well proven vertical spiralled air flow with the best spatial homogeneity.

Deep experience of the factory engineers and many years of careful development help with sophisticated Fuzzy Logic control system. By means of the fuzzy logic are continually evaluated the current process conditions as size of chamber, set parameters, quantity of the samples inside and herewith optimizing heating, cooling and steaming performance.

High pressure steam generator in new easy accessible position and newly designed powerful freezing coil regulate the relative humidity quickly in full range from 10–95% RH, according the customer set, and without significant temperature interference.

Practical large and popular door handle, robust wheels with brakes and 170° openable main door(s) contributes to high user friendly character of the device. Light grey with light blue device colours highlighted by dark blue smiley control panel cause a pleasant feeling of harmony in the user every morning

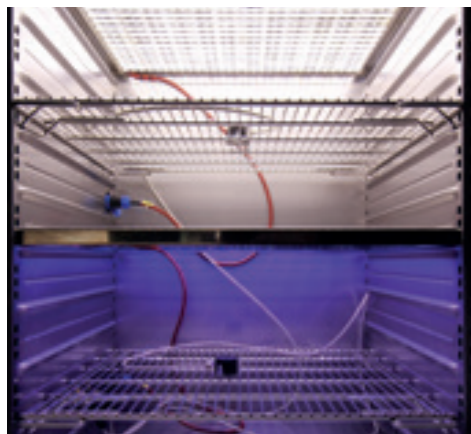


Programmable Lighting

The new generation of climatic chamber CLIMACELL® EVO offers wide possibilities of light options applications. Together with control of temperature, humidity, ventilation or CO₂ it is possible to control and program even intensity of visible or ultra-violet exposure in the form of LED diodes.

Light Shelves

In case of testing the photo-stability for pharmaceutical industry, the most suitable option is the use of light shelves for exposition 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 level of lighting for each segment. That allows programming of cycles of day and night simulations with gradual light intensity increase and decrease.



Exposition Lighting in Doors

For applications with necessary equal lighting of the chamber, for example for plants growth, there is available an option with lighting in the device door. Just like in the light shelves, even exposition light in door allows separate regulation for each segment within the range of 0–100% in steps of 1%.



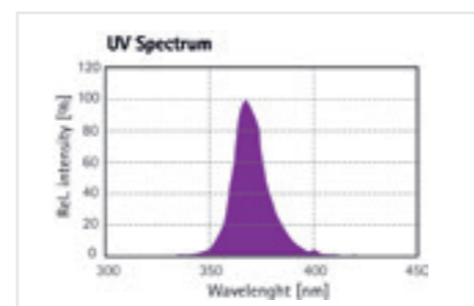
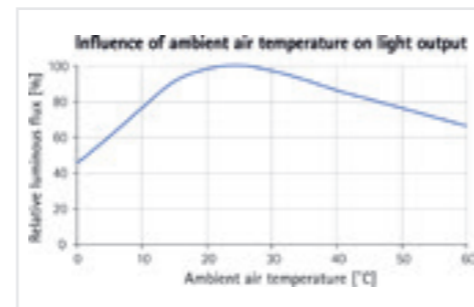
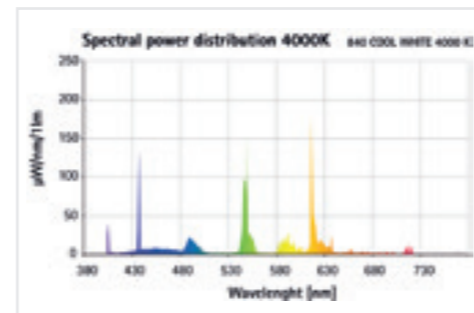
Light Sensors

To meet the most strict requirements for light exposition measurability there is available the option of light sensors. One type of sensors is able to exactly measure the quantity of visible and the other the quantity of ultra-violet light. In case of such sensors installation it is possible to follow exact exposition doses received by samples on a display, in graphs or in the software WarmComm 4.0.



Light Spectrums Available

As there extend the possibilities of LED diodes manufacturers, there also extend the possibilities of their use in CLIMACELL® EVO. Together with usual possibilities of visible (white) light or ultra violet light we will try our best to get even LED diodes meeting your requirements towards other light colours. Please do not hesitate to contact us in such cases and we will be glad to discuss the possibilities with you.



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 strong system of active increase and decrease of humidity in connection with the system of water supply to the device.

Steam Generator

The device allows steam generation and its precise dosing to the chamber. Thanks to our long-term experience in the field of steam sterilisation we succeeded to develop pressure steam generator able to increase relative humidity in the chamber in a precise, reliable and fast way. Steam overpressure is generated in the water reservoir using the heating element. Then, the valve releases exact volume of steam to the chamber. The technology eliminates the overshootings while reaching required level of relative humidity.

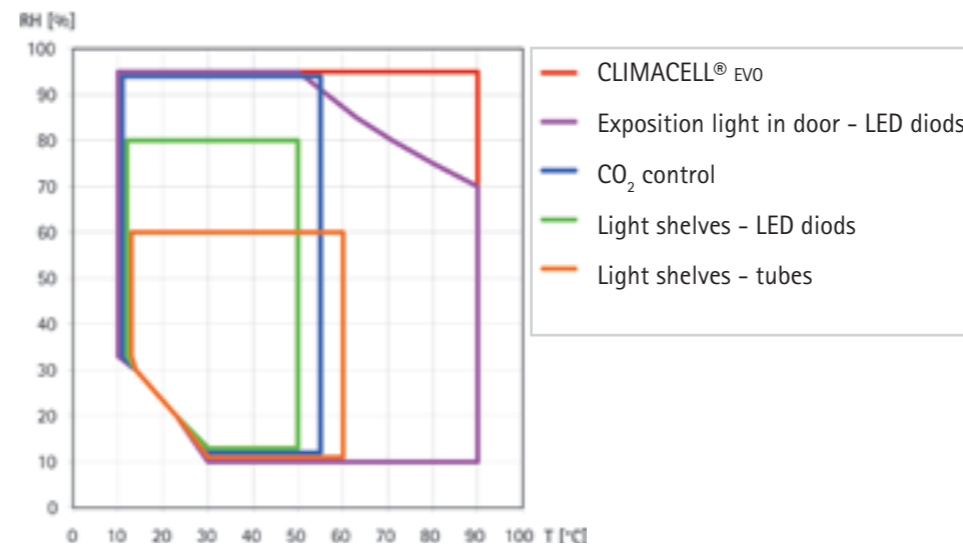


Humidity Reduction

Unlike many other manufacturers we are not engaged only in humidity increase, but we also focus on active humidity decrease, using the separate cooling snake of the cooling system. The control system of CLIMACELL® EVO is able to reduce humidity in the chamber using the cooling system while keeping a nearly constant temperature. The humidity on the cooling



Restrictions of Temperature and Relative Humidity Setting Combinations



coil condensates and condensed water is taken back to the steam generator where the pump releases it to the water waste. Thanks to the efficient system CLIMACELL® EVO reaches even the low relative humidity values very quickly.



Water Intake and Use

In order to create the humidity exactly and reliably in the long term, the steam generator of CLIMACELL® EVO operates only with demineralized water. The access to such water can be solved in two ways. A standard solution means that you pour demineralized water to a barrel, delivered with each CLIMACELL® EVO and you connect the pump from the barrel to the connector on the rear side of the device. The other possibility includes connection of demineralized water intake from the laboratory water distribution system to the steam generator of CLIMACELL® EVO via reduction pressure valve. In both cases, the device automatically takes exact quantity of water as needed for humidity creation in the steam generator.



Accessories Included

Each CLIMACELL® EVO is supplied with standard equipment which does not have to be additionally ordered and it makes a standard part of delivery:



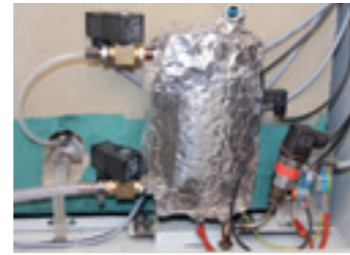
Touch screen



Communication ports RS 232 and USB host



SD card



Steam generator, humidity control



Water barrel for demineralized water



Reliable RH sensor



Multi-conductor temperature sensors

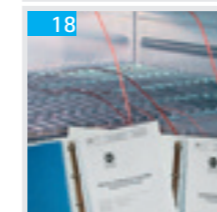
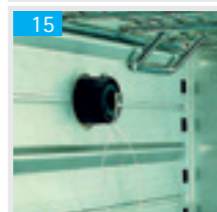
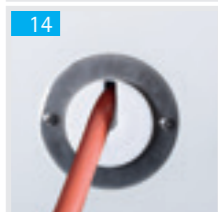
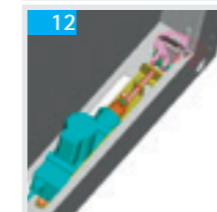
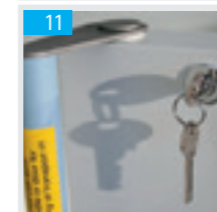
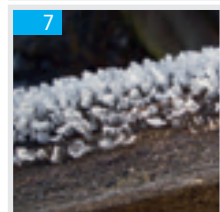
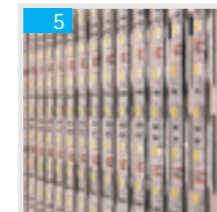
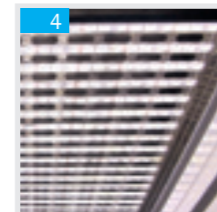


Sealing inner glass door

Optional Equipment

Thanks to modular construction of our devices even CLIMACELL® EVO may be additionally equipped according to your preferences with many additional options. CLIMACELL® EVO may then serve as a chamber for testing of photo-stability, light simulation of day and night, processes with CO₂ control, hot-air sterilisation, etc.

- | | | |
|---------------------------------|---|--|
| 1. Hot-air sterilisation 160°C | 7. Defrosting system | 13. Trays or shelves |
| 2. Additional cooling -20°C | 8. CO ₂ control | 14. Access port Ø 25, 50, 100 mm |
| 3. Flexible temperature sensors | 9. Software WarmComm 4,0 | 15. Programmable inner socket |
| 4. LED light shelves | 10. Data module USB device, Ethernet, wi-fi | 16. External printer |
| 5. Exposition lighting in doors | 11. Mechanic door lock | 17. Multi-point temp. / humidity measuring |
| 6. Light sensors of exposition | 12. Electromagnetic door lock | 18. IQ/OQ protocols |



Technical Parameters

CLIMACELL® EVO (CLC EVO) 111, 202, 404, 707, 1212								
Technical data Internal space - chamber, stainless steel DIN 1.4301 (AISI 304)	volume	cca l	111	222	404	707	1212	
	width	mm	540	540	540	940	3x540	
	depth	mm	380	530	530	530	530	
	height	mm	535	765	1415	1415	1415	
Volume of the steam space	cca l	167	305	530	878	1753		
Trays of stainless steel *	trays	max. No.	7	10	19	19	3x19	
	standard equipment	pcs. included	2	2	2	2	6	
	min. distance between trays	mm	70	70	70	70	70	
	Storage area (w x d)	mm	520x335	520x485	520x485	920x485	3x520x485	
Maximal weight of the load *	per tray	max. kg/tray	20	30	30	50	30	
	loading capacity in total	kg/unit	50	70	100	130	300	
Door	number of outer metal doors/ number of inner glass doors	No.	1/1	1/1	1/1	2/2	3/3	
External dimensions (including door, handle and Rolls)	width	mm	780	780	1100	1500	2630	
	depth	mm	840	980	950	950	950	
	height (incl. Rolls)	mm	1360	1630	2070	2070	2105	
Weight CLC EVO 0°C	net	cca kg	110	140	240	280	-	
	brut	cca kg	140	177	280	326	-	
Weight CLC EVO -20°C	net	cca kg	120	127	250	290	340	
	brut	cca kg	150	153	290	336	395	
Electricity	max. power CLC EVO 0°C	W	2050	2100	3150	3400	-	
	max. power CLC EVO -20°C	W	1630	1780	2115	2640	3215	
	mains 50/60 Hz	V	230	230	230	230	230	
	protective system		IP 20	IP 20	IP 20	IP 20	IP 20	
Temperature data Working temperature	from 0.0°C from -20.0°C	to °C to °C	100 (decontamination 160°C) 100 (decontamination 160°C)				0 - +70 -20 - +70	
Temperature accuracy	in space at 10°C at 37°C	cca (±)°C	<0.4	<0.4	<0.9	<0.9	<1,5	
		cca (±)°C	<0.4	<0.4	<0.5	<0.5	<1,5	
	in time	cca (±)°C	<0.2	<0.2	<0.3	<0.4	<0,8	
Heating/up time to 37°C from the ambient temperature		min	20	25	26	27	30	
Cooling/down time from 22°C to 10°C		min	<21	<21	<21	<21	<21	
Recovery time after 30 s of door opening according to DIN 12 880	at 37°C	min	4	4	4	4	4	
	at 50°C	min	5	4	4	4	4	
Relative humidity CLC EVO	range	%	10-95	10-95	10-95	10-95	10-95	
Heat emission	at 37°C	cca W	70	97	123	148	200	
Complete device noise level		dB	46	50	56	58	60	
CO₂ concentration		%	0.1-20				-	0,1-20
Required pressure CO₂		bar/psi	0.3-0.7/5-10				-	0,3-0,7/5-10

*) Approx. 50% of the tray area can be filled in a way a uniform air circulation is enabled inside the chamber.
Note: All technical data are related to 22°C ambient temperature and ± 10% voltage swing (if not specified).
For other parameters see section Electric connections.

Change in the design and make reserved

Make Acquaintance With Our Further Offers ...

Laboratory Ovens and Incubators



INCUCELL® / INCUCELL® V
Suitable for safe treatment of microbiological cultures

FRIOCELL®
Cooling incubators

CLIMACELL®
Climatic chambers

CO2CELL
CO₂ atmosphere

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

DUROCELL
Special- purpose drying ovens DUROCELL 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

Sterilization and Depyrogenation



VENTICELL® IL
series of modular large-sized laboratory devices with the chamber volume of from 700 to 2.000 liters. The devices are used for items sterilization at the temperature of up to 180°C, or for items depyrogenation at the temperature of up to 300°C and optional time mode. The devices can be used in laboratories, industry, pharmacy and research.

Steam Sterilizers (Autoclaves)



STERILAB®
Small steam sterilizer, 25 l



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



STERIVAP® HP IL
Large steam sterilizers, 148–1490 l

