

# FRIOCELL® P

Laboratory Incubators with Forced Air Convection and Peltier Cooling



The high technical standard of the FRIOCELL® P series enables time- and space-accurate temperature control of samples. The unique cooling system, based on Peltier cell technology, offers an accurate and economical simulation of selected natural processes and reduces sample evaporation. They are applicable in the fields of pharmacy, biotechnology, botany, zoology, food industry, cosmetics, chemistry, etc. The instruments are designed for long-term storage of samples at a constant temperature. The devices are not designed for processes requiring frequent temperature changes.

Interior volume: 22, 55, 111, 222, 404,707  
Temperature range: from 0.0 °C to 70 °C  
Inner glass door  
Inner chamber: stainless steel DIN 1.4301 (AISI 304)

The cooling system does not contain any refrigerant, so it does not contribute to the increase of greenhouse gases in the atmosphere.

The very low electric power consumption at the set temperature compared to compressor systems with maximum energy efficiency reduces CO<sub>2</sub> production, and thus the Peltier cell system makes a significant contribution to the global fight against global warming of the planet. Very fine control interventions at the set temperature together with a newly developed airflow system in the chamber contribute to the excellent thermohomogeneity of this incubator, without vibration. Temperature deviations in the chamber are thus among the lowest.

## Eco line



- Intuitive control
- Microprocessor control of the Fuzzy logic process
- Multilingual communication
- Audible and visual alarm
- LED indicator of device functionality
- LCD display 3 inches (7.6 cm)
- Transflective brilliant FSTN display, uses COG technology (it is backlit and uses the reflection of external light - higher intensity of external light increases the readability of the display)
- Adjustable display contrast depending on the location of the device
- Above-standard wide angle of view
- Large, remotely visible characters on the display
- Current temperature during program run increased for better readability
- Durable, membrane-like keyboard with a soft-touch surface
- Mechanical button response
- Backlit symbols integrated directly into the membrane keyboard
- Keypad lock against unauthorized access – adjustable by multi-press
- Real-time programming.
- 9 programs, 2 segments in each program, up to 99 cycles
- RS232 Interface and USB Device
- Ethernet (RJ 45) and USB Host (optional)

Technical Data									
Inner space	volume	l	22	55	111	222	404	707	
	width	mm	240	400	540	540	540	940	
	depth	mm	305	370	370	520	520	520	
	height	mm	295	350	530	760	1415	1415	
External dimensions (including door and handle, N-legs or K castors)	width	max. mm	406	620	760	760	760	1160	
	depth	max. mm	610	680	680	830	790	790	
	height	max. mm	610N	680N	860N	1090N	1910K	1910K	
Packaging – basic packaging	width	approx. mm	500	700	830	820	830	1230	
	depth	approx. mm	720	760	750	890	860	860	
	height (pallet included)	approx. mm	810	880	1060	1260	2085	2085	
Packaging – box (crate)	width	approx. mm	730	800	830	940	910	1330	
	depth	approx. mm	780	840	910	960	970	1010	
	height (pallet included)	approx. mm	855	900	1085	1310	2125	2125	
Trays/shelves	maximum number	pcs	4	4	7	10	19	19	
	standard equipment	pcs	2	2	2	2	2	2	
	minimal distance between trays/shelves	mm	60	70	70	70	70	70	
	usable area	mm	185x265	380x335	520x335	520x485	520x485	920x485	
Maximum permissible tray load *)	per 1 tray	kg	10	20	20	30	30	50	
	per shelf	kg	10	20	20	30	30	20	
	total inside the device	kg	25	50	50	70	100	130,0	
Weight	net	approx. kg	34	58	81	106	156	220,0	
	gross (basic packaging)	approx. kg	39	69	93	122	180	245	
Electrical data - 50/60 Hz mains	max. power consumption	W	155	193	353	353	427/585 ****	585/753 ****	
	power consumption at 10 °C	W	50	47	92	83	166	217	
	power consumption at 37 °C	W	39	48	69	67	106	137	
	power consumption at standby	W	5	5	5	5	5	5	
	max. current for voltage	A	0,7	0,8	1,5	1,5	1,9 (2,5*)	2,5	
		V	230	230	230	230	230	230	
	max. current for voltage	A	1,3	1,7	3,1	3,1	3,7 (5,1*)	5,1	
		V	115	115	115	115	115	115	
	max. current for voltage	A	0,6	0,8	1,5	1,5	1,8 (2,4*)	2,4	
	UL design	V	240	240	240	240	240	240	
max. current for voltage	A	1,3	1,6	2,9	2,9	3,6 (4,9*)	4,9		
UL design	V	120	120	120	120	120	120		
Noise level	at max. power	dB	< 50	< 50	< 53	< 53	< 53	< 55	
Degree of protection			IP20	IP20	IP20	IP20	IP20	IP21	
Temperature data									
Operation temperature		°C	0 to 70**	0 to 70**	0 to 70**	0 to 70**	0 to 70 ***	0 to 70 ***	
Deviations from operation temperature according to DIN 12880	10 °C	spatially	± °C	< 0,4	< 0,2	< 0,2	< 0,2	< 0,2	< 0,2
		temporally	± °C	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1
	37 °C	spatially	± °C	< 0,3	< 0,2	< 0,2	< 0,3	< 0,4	< 0,6
		temporally	± °C	< 0,1	< 0,1	< 0,1	< 0,1	< 0,1	< 0,2
Cooling time	from ambient temperature to 10 °C	min	< 36	< 60	< 50	< 60	< 100	< 100	
Heating time	from ambient temperature to 37 °C	min	< 32	< 35	< 50	< 60	< 50	< 55	
Recovery time after 30 s of open door according to DIN 12880	at 10 °C	s	< 2	< 4	< 3	< 4	< 6	< 6	
	at 50 °C	s	< 3	< 4	< 4	< 3	< 3	< 4,2	
Heat loss	at 37 °C	W	9	14	15	12	12	36	

**Note:**

All technical data are valid in an empty chamber (without samples on trays) for the ambient temperature of 22 °C and the supply voltage of 230 V ± 10 %.

\*) The trays can be filled up to approx. 50% of the area, if possible in such a way as to allow an even flow of air inside the chamber space.

\*\*\*) For volumes 22, 55, 111 and 222, the operation temperature range of 21 °C below ambient temperature to 45 °C above ambient temperature is guaranteed.

\*\*\*\*) For volumes 404 and 707, the operation temperature range of 14 °C below ambient temperature to 30 °C above ambient temperature is guaranteed.

For the same range of operating temperatures as for smaller devices, it is possible to additionally purchase enhanced cooling/heating, only for the volumes of 404 and 707.

\*\*\*\*\*) Enhanced cooling.

**Production:**



**BMT Medical Technology s.r.o.**  
 Cejl 157/50, Zábřovice, CZ 602 00 Brno  
 Tel.: +420 545 537 111  
 fax: +420 545 211 750  
 e-mail: mail@bmt.cz  
[www.bmt.cz](http://www.bmt.cz),  
[youtube.com/bmtbrno](https://youtube.com/bmtbrno), [facebook.com/bmt.cz](https://facebook.com/bmt.cz)

**Subsidiary company:**

**MMM Medcenter  
 Einrichtungen GmbH**  
 Semmelweisstrasse 6, -82152 Planegg / München  
 Tel.: +49 89 8992 2620  
 fax.: +49 89 8992 2630  
 e-mail: medcenter@mmm-medcenter.de  
[www.mmm-medcenter.de](http://www.mmm-medcenter.de)