

High Performance Contact Shock Freezers

Biomedical Refrigeration | MBF



Technology for life

 **Dometic**
MEDICAL SYSTEMS

High Performance Contact Shock Freezers

Horizontal contact shock freezing technology for blood plasma, biological and pharmaceutical preparations.

“Utility model registered DE 203 03 339.5”

“Patent PCT/EP2004/001634”

Safety of law and compliance with directives for the preparation of blood plasma storage at a core temperature of $< -30^{\circ}\text{C}$.

Advantages of the horizontal contact shock freezing technology

- Fast freezing to core temperature of -30°C .
- Automated and transparent freezing process inclusive documentation.
- Simple and intuitive operation.
- Evenly shaped bags for optimum utilization of storage options, improved readability of labels and barcodes, improved mechanical further processing in automated systems.
- Shock freezing of several batches in succession (without intermediate defrosting).
- State-of-the-art compressor technology with optimized cooling systems.
- Air-cooled condenser (MBF 12, MBF 21) or optional water cooling (MBF 21 W).
- Air-cooled condenser and compressor as external unit (MBF 21 S, MBF 42 S) or optional water cooling (MBF 42 W).
- Refrigerant free from CFC and HCFC.
- Separate refrigeration of the fixed cover plate and the electrically adjustable working surface (MBF 12 & MBF 21).
- Separate freezing of the electrically adjustable cover plate and the fixed working surface of the upper table, as well as separate freezing of the fixed cover plate and the electrically adjustable working surface of the lower table (MBF 42).
- Quick and easy loading / removal of preparations.
- Ergonomic design.
- The preset and operating temperature (set point) of -50°C minimizes the risk of bags rupturing.
- Mobility by means of heavy castors with brakes (standard equipment for MBF 12 and MBF 21 models).
- High-grade stainless steel housing.
- Compact, service- and maintenance-friendly construction, easy cleaning and disinfection.
- Lower surface area and lower area load requirements.
- Delivered ready for use (3ph 400 V / 50Hz, 16A) – standard models MBF 12 & 21.



CFC & HCFC free

The **MBF 12** is installed as a free-standing, plug and play air-cooled unit.

Principle / Mode of operation

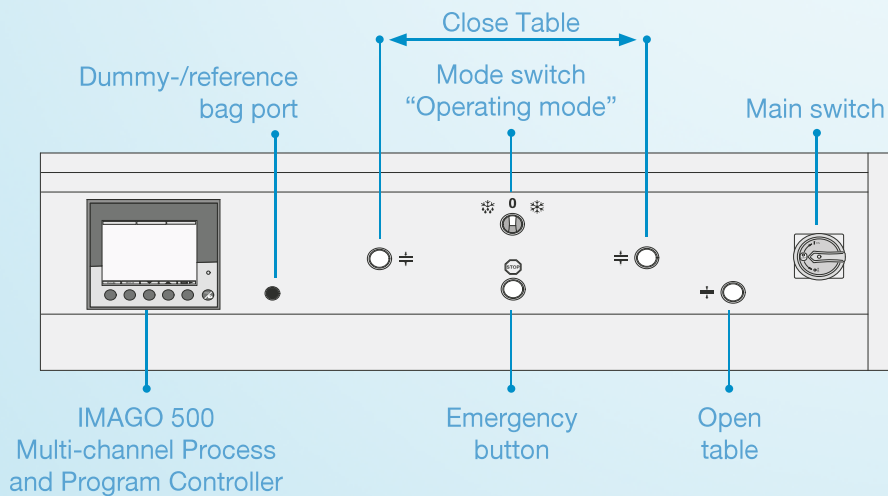


Contact cover plate
fixed, separately controlled

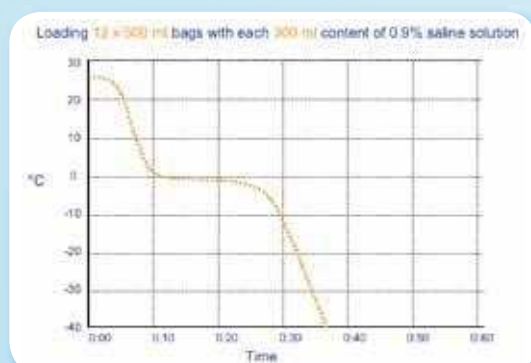
Contact operating plate
adjustable, separately
controlled



Control elements



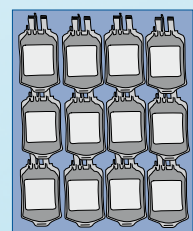
Freeze diagram



Arrangement possibilities



8 Plasmabags
at 1000 ml each (content 850 ml)
2 rows at 4 bags



12 Plasmabags
at 500 ml each (content 450 ml)
3 rows at 4 bags each



Installation Instructions :

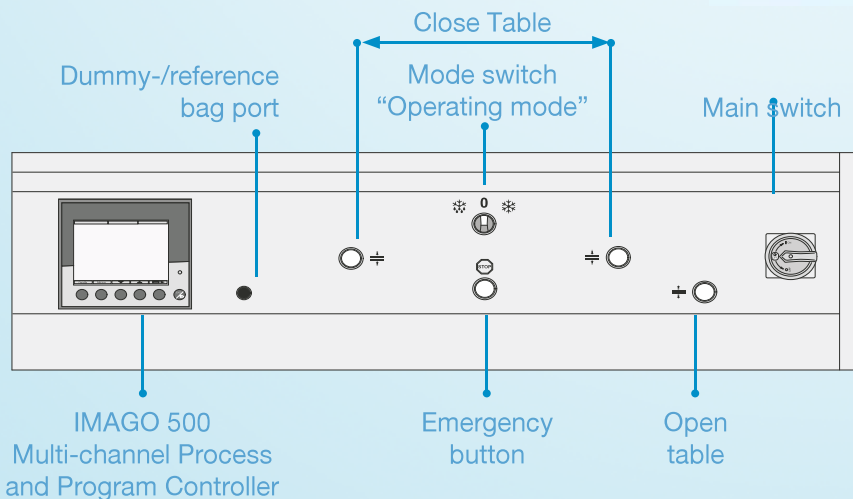
The installation costs for units with an external air cooling system or water-cooled system are not included in the unit price (standard version). These costs are subject to an individual client request and can vary dependant on the conditions in the designated building.

The MBF 21 is installed as a free-standing, air-cooled unit ready for connection.

On request the **MBF 21** can also be equipped with the following cooling systems :

- External air cooling system (see Equipment / Options)
- Water cooling system (see Equipment / Options)
 - Directly connected to the in-house water system
 - Connected to a separate closed air-conditioning system, also called "A/C water cooling system"
 - Connected to a separate closed water circuit, also called "refrigerated water tower"

Control elements



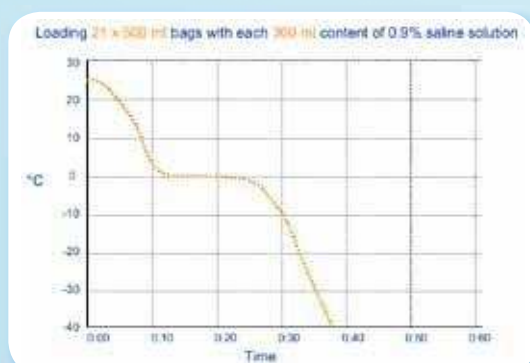
Principle / Mode of operation



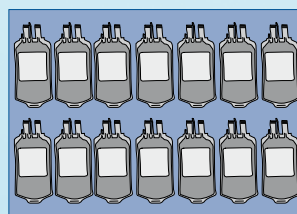
Contact cover plate fixed, separately controlled

Contact operating plate adjustable, separately controlled

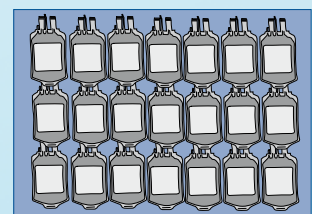
Freeze diagram



Arrangement possibilities



14 Plasmabags
at 1000 ml each (content 850 ml)
2 rows at 7 bags



21 Plasmabags
at 500 ml each (content 450 ml)
3 rows at 7 bags each

Installation Instructions :

The installation costs for units with an external air cooling system or water-cooled system are not included in the unit price (standard version). These costs are subject to an individual client request and can vary dependant on the conditions in the designated building.

MBF 42

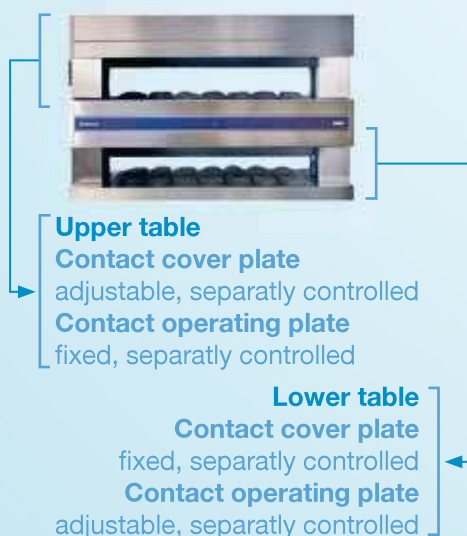
The following cooling systems for the condenser are possible :

- External air cooling system (see Equipment / Options)
- Water cooling system (see Equipment / Options)
 - Directly connected to the in-house water system
 - Connected to a separate closed air-conditioning system, also called "A/C water cooling system"
 - Connected to a separate closed water circuit, also called "refrigerated water tower"

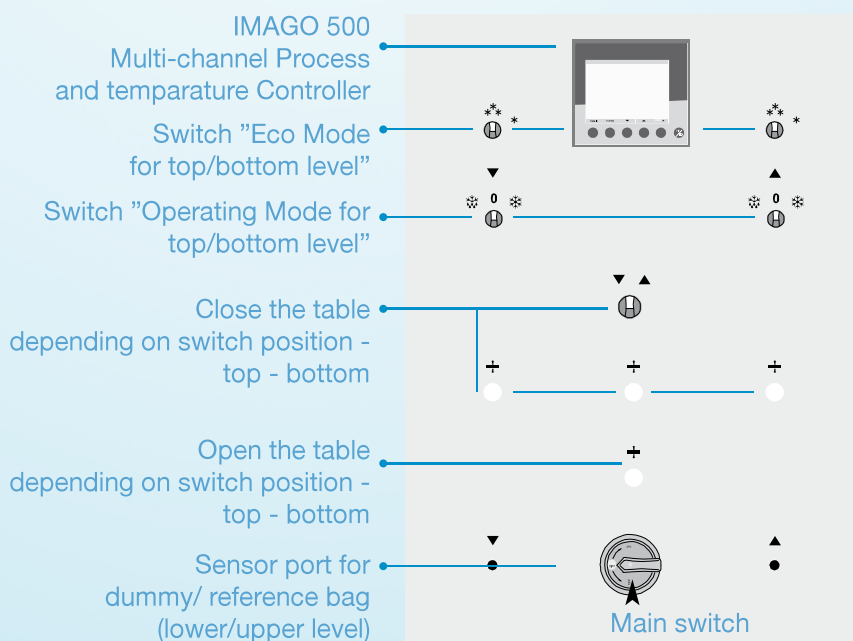


MBF 42

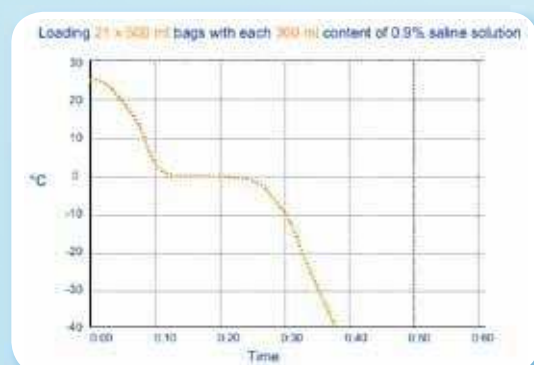
Principle / Mode of operation



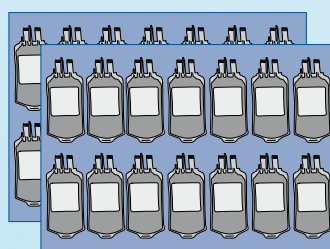
Control elements



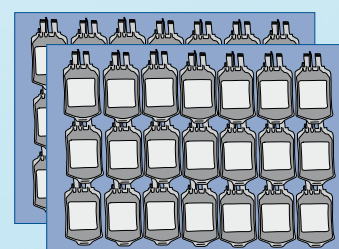
Freeze diagram



Arrangement possibilities



28 (2 x 14) Plasmabags
at 1000 ml each (content 850 ml)
4 (2 x 2) rows at 7 bags



42 (2 x 21) Plasmabags
at 500 ml each (content 450 ml)
6 (2 x 3) rows at 7 bags each

Technical Data

MBF 12



MBF 21



MBF 42



Freezing capacity	12 plasma bags at 500 ml (content 450 ml) 8 plasma bags at 1000 ml (content 850 ml)	21 plasma bags at 500 ml (content 450 ml) 14 plasma bags at 1000 ml (content 850 ml)	42 (2 x 21) plasma bags at 500 ml (content 450 ml) 28 (2 x 14) plasma bags at 1000 ml (content 850 ml)
Freezing time, depending on load & ambient temperature	30 - 60 min	30 - 60 min	30 - 60 min
Freezing time to core temperature of -30°C for plasma bags of 500 ml each (content 450 ml) for plasma bags of 1000 ml each (content 850 ml)	12 units ~ 40 min 8 units ~ 55 min	21 units ~ 40 min 14 units ~ 55 min	42 units ~ 40 min 28 units ~ 55 min
External dimensions (H x W x D)	1600 x 970 x 770 mm	1600 x 1470 x 770 mm	1920 x 2050 x 770 mm
Dimensions contact plates / working surface (W x D)	490 x 640 mm	970 x 620 mm	2 units of 970 x 620 mm
Operating temperature (preset), reached within ~ 20min (pre-cooling phase)	-50°C (upper & lower contact plate) IMAGO 500 (multi-channel process & program controller) with 5" color display (27 colors)	-50°C (upper & lower contact plate) IMAGO 500 (multi-channel process & program controller) with 5" color display (27 colors)	-50°C (upper & lower contact plate) IMAGO 500 (multi-channel process & program controller) with 5" color display (27 colors)
Operation and control panel via control and recording unit			
Defrosting (manual via mode switch "Operating Mode")	Hot gas	Hot gas	Hot gas
Defrosting time (duration), as preset safety factor	8 min	8 min	8 min
Compressor	Bitzer	Bitzer	2 x Bitzer
Refrigerant Type	R507	R507	R507
Net weight (with standard equipment)	300 kg	400 kg	400 kg*
Climate class (ambient temperature range)	N (+16°C to +32°C)	N (+16°C to +32°C)	N (+16°C to +32°C)
Relative humidity (at +32°C ambient temperature)	≤ 70%	≤ 70%	≤ 70%
Voltage (3ph)	3~400V / 50 Hz (16A)	3~400V / 50 Hz (16A)	3~400V / 50 Hz (32A)
Power	1800 W	3000 W	6000 W
Energy consumption	4 kWh / freezing cycle	6 kWh / freezing cycle	6 kWh / freezing cycle / level
Safety class	I	I	I
Material outer casing	stainless steel 1.4301	stainless steel 1.4301	stainless steel 1.4301
EMV directive	2004/108/EEC	2004/108/EEC	2004/108/EEC
Low voltage directive	2006/95/EEC	2006/95/EEC	2006/95/EEC
GMP - clean room classification	A / ISO 5	A / ISO 5	A / ISO 5
GMP - clean room classification, with external water cooling	-	B / ISO 6	B / ISO 6

Equipment and Options

Control and operating components integrated	●	●	-
Control and operating components as external unit	-	-	●
Eco mode (interim storage temperature of -37°C)	●	●	●
Dummy / reference bag port for accompanying core temperature readings during the freezing process	1 x ●	1 x ●	2 x ●
Dummy / reference bag (incl. sensor)	For dummy bag port ○	For dummy bag port ○	For dummy bag port ○
Dummy / reference bag	500 ml/1000ml ○	500 ml/1000ml ○	500 ml/1000ml ○
Transport carrier	-	1	1
Transport tray, recommended	-	4	4
Interface / interface card	●	●	●
DMN-Monitoring Software with MBF-Module	●	●	●
Barcode reader	○	○	○
Integrated air-cooled condenser	●	●	-
Air-cooled condensers and compressors as external units (850 x 1500 x 760 mm each)	-	1 external unit MBF 21 S ○	2 external unit MBF 42 S ●
Water cooling via in-house / site water supply	-	MBF 21 W ○	MBF 42 W ○
Smooth castors with stabilizers	●	●	-
Securing feet with models with condensers and compressors as external units	-	MBF 21 S ●	MBF 42 S ●
Wooden packaging for ocean transport / export	●	●	●

Equipment / Options

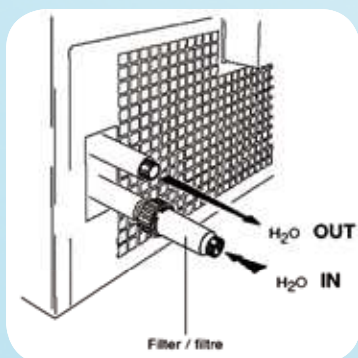
Example of an external installation of the cooling system

(standard at MBF 42 and optional at MBF 21)

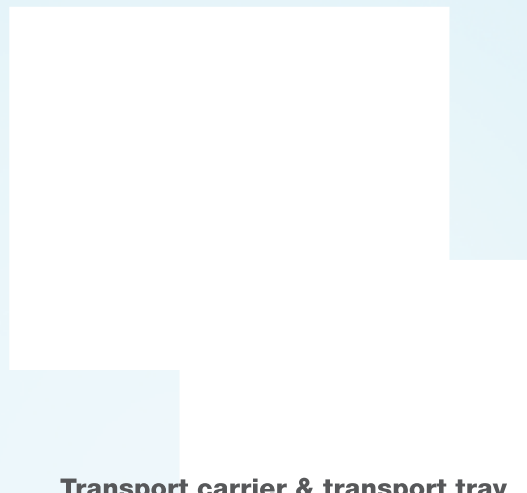


Dummy / reference bag

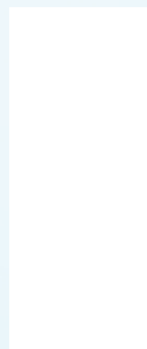
(incl. sensor & cable)



Water cooling, external (ex factory)



Transport carrier & transport tray



Dummy / reference bag 1000 ml

(content 850 ml)



Barcode reader

(optional)

DMN – Dometic Monitoring Network

Universal software for collection, long-term recording and visualization of temperature data.

- Complete activity list (password protected).
 - Integrated event and activity history of all appliance components.
 - Graphical visualisation of all temperature curves.
 - Connection to existing or third-party appliances via network technology (LAN, WLAN, WAN).
 - Simultaneous data monitoring and recording.
 - Possibility for specific and individually configurable alarm forwardings, e. g. via email, SMS (with optional GSM module) or via DECT.
 - Simple and intuitive utilization.
 - Essential price advantage compared to a traditional circular chart recorder and its spare parts.
- Economy of time as regular changes of recorder paper, ink and battery is not necessary.

Your essential advantages :

- ▶ One central database for all connected appliances.
- ▶ Remote inquiry of all data possible, even from different sites simultaneously.



MBF – Module

The newly developed MBF Module allows :

- Collection of plasma bags by means of a barcode scanner.
- Creation of bag groups (lots) that can be assigned to freezers and processes.
- Recording of the freezing process.
- Process data are recorded in the DMN data base and cannot be manipulated.
- Only successfully completed freezing data are recorded.
- Complete traceability of frozen bags.

Dometic S.à.r.l. – Division Medical Systems

17, Op der Hei
L-9809 Hosingen, Luxembourg

Tel. : + 352 92 07 31-1
Fax : + 352 92 07 31-300

medical.systems@dometic.lu
www.dometic.lu