



TECHNOLOGY FOR LIFE

 **Dometic**



# HIGH PERFORMANCE CONTACT SHOCK FREEZERS

**Biomedical Refrigeration | MBF**

- Fast freezing of plasma and biological samples to a core temperature of  $-30\text{ }^{\circ}\text{C}$
- Automated and transparent freezing process documentation included

[www.dometic.lu](http://www.dometic.lu)

## High Performance Contact Shock Freezers



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

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  $-30^{\circ}\text{C}$ .
- Automated and transparent freezing process documentation included.
- Simple and intuitive operation.
- Evenly shaped bags for optimum utilization of storage options, improved legibility of labels and barcodes, improved mechanics for 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).
- 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  $-50^{\circ}\text{C}$  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.



REINRAUMKLASSIFIZIERUNG  
CLEAN ROOM CLASSIFICATION

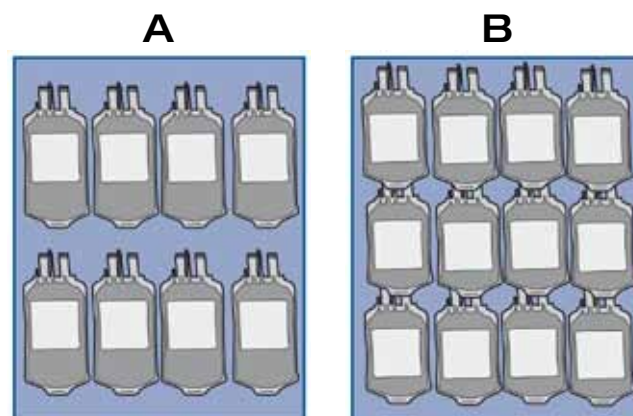


### MBF 12

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



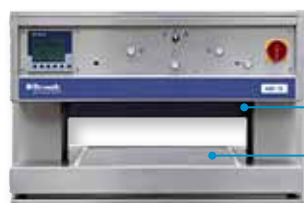
### Arrangement possibilities



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

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

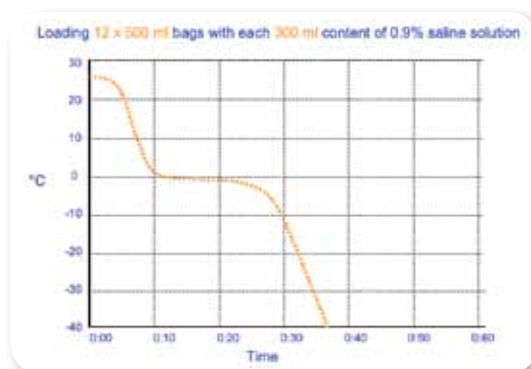
### Principle / Mode of operation



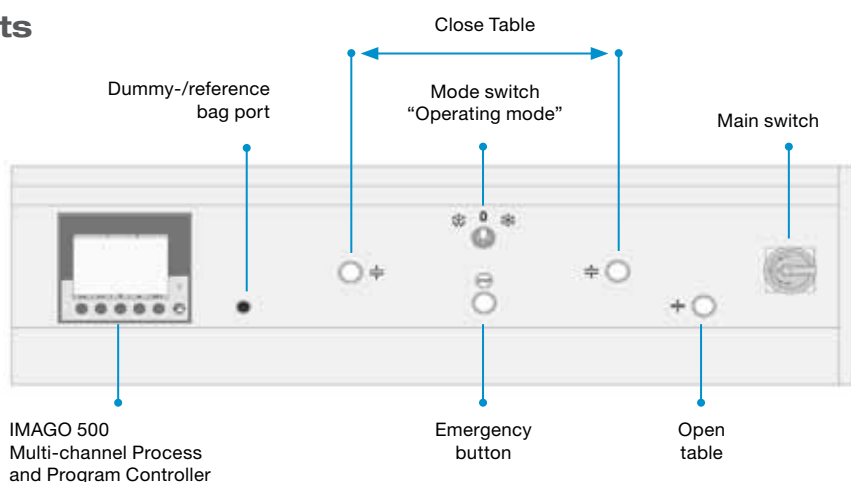
Contact cover plate fixed, separately controlled

Contact operating plate adjustable, separately controlled

### Freeze diagram



### Control elements



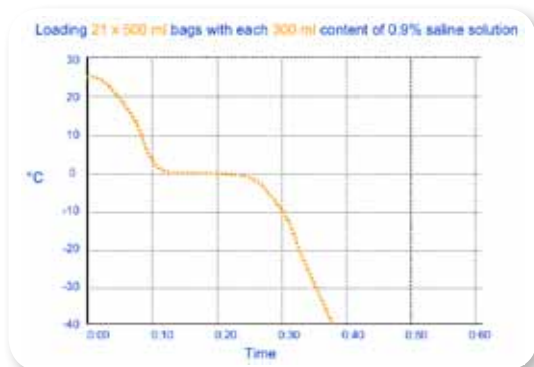


## Installation Instructions :

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 depending 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 :

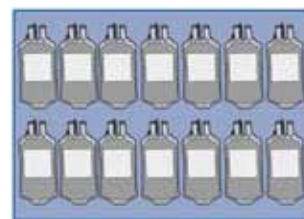
- **External air cooling system**  
(see Equipment / Options)
- **Water cooling system** (see Equipment / Options)
  - Directly connected to the in-house water system
  - Connected to a separate closed air-conditioning system, also called "A/C water cooling system"
  - Connected to a separate closed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

## Freeze diagram



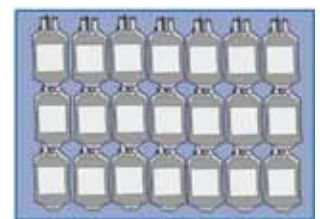
## Arrangement possibilities

**A**



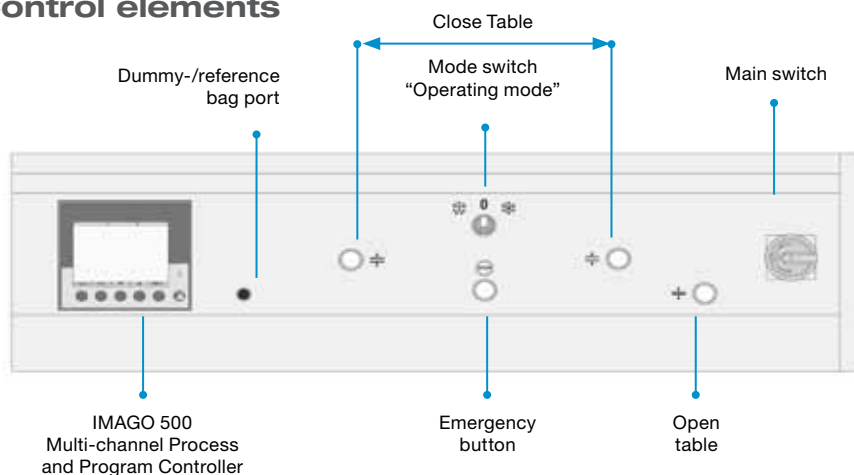
**A** 14 Plasmabags at 1000 ml each (content 850 ml)  
2 rows at 7 bags

**B**



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

## Control elements



## Principle / Mode of operation

Contact cover plate fixed, separately controlled



Contact operating plate adjustable, separately controlled

### Installation Instructions :

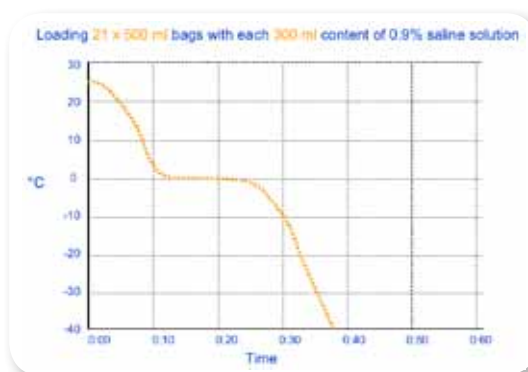
The installation costs for units with an external air cooling system or water-cooled system are not included in the unit price. These costs are subject to an individual client request and can vary depending on the conditions in the designated building.

The following cooling systems for the condenser are possible :

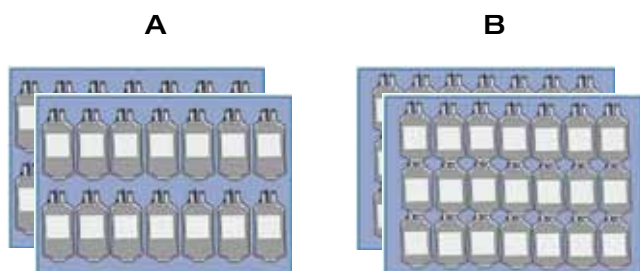
- **External air cooling system**  
(see Equipment / Options)
- **Water cooling system** (see Equipment / Options)
  - Directly connected to the in-house water system
  - Connected to a separate closed air-conditioning system, also called "A/C water cooling system"
  - Connected to a separate closed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



Freeze diagram



### Arrangement possibilities



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

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

### Principle / Mode of operation

#### Upper table

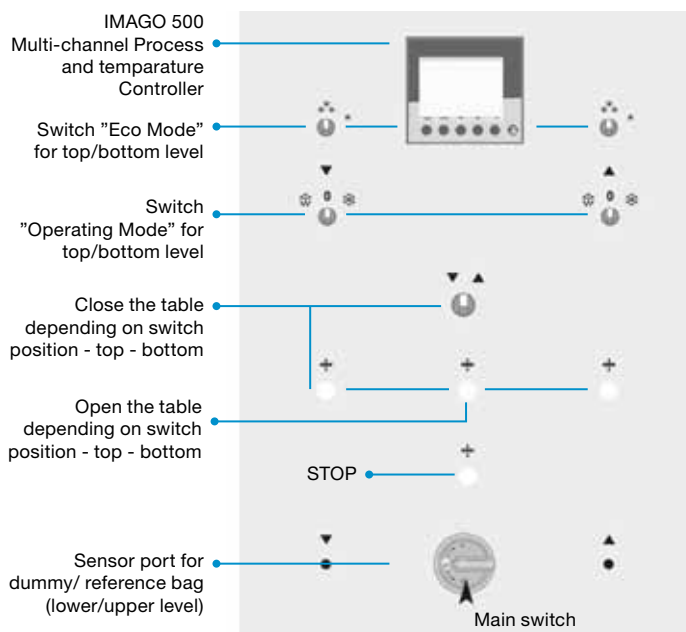
Contact cover plate adjustable, separately controlled  
Contact operating plate fixed, separately controlled



#### Lower table

Contact cover plate fixed, separately controlled  
Contact operating plate adjustable, separately controlled

### Control elements



# 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)	12 units ~ 40 min	21 units ~ 40 min	42 units ~ 40 min
for plasma bags of 1000 ml each (content 850 ml)	8 units ~ 55 min	14 units ~ 55 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)	-50°C (upper & lower contact plate)	-50°C (upper & lower contact plate)
Operation and control panel via control and recording unit	IMAGO 500 (multi-channel process & program controller) with 5" colour display (27 colours)	IMAGO 500 (multi-channel process & program controller) with 5" colour display (27 colours)	IMAGO 500 (multi-channel process & program controller) with 5" colour display (27 colours)
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

## Interior Equipment & 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 1550 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	■	■	■

■ standard / □ optional / - not available - All values were measured at +25°C ambient temperature

\* without external units



**Example of an external installation of the cooling system**  
(standard at MBF 42 and optional at MBF 21)



**Transport carrier & transport tray**



**Dummy / reference bag 500 ml** (content 450 ml)



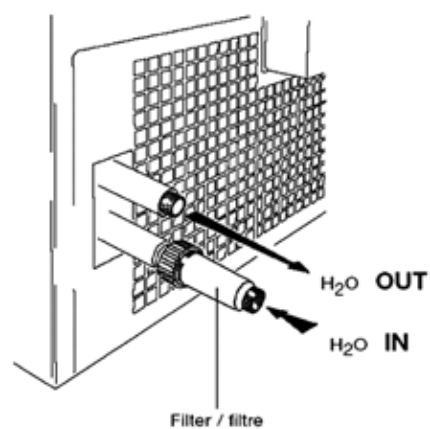
**Dummy / reference bag 1000 ml** (content 850 ml)



**Dummy / reference bag** (incl. sensor & cable)



**Barcode reader** (standard)



**Water cooling, external** (ex factory)



## DMN – Dometic Monitoring Network MBF Software Module

Universal software for collection, long-term recording and visualization of temperature data, individually developed for the MBF range, which 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.
  - Recording of process data of all MBF models in one database (no manipulation possible).
  - Only successfully completed freezing data are recorded.
  - Simultaneous data monitoring and recording.
  - Real-time visualisation
  - Graphical visualisation of all temperature curves.
  - Complete activity list (password protected).
  - Connection to existing or third-party appliances via network technology (LAN, WLAN, WAN).
  - Simple and intuitive utilization.
  - Automatic data export in XML and CSV.
  - Server / Client solution
- Compatibility with DMN.
  - Free of charge for all Dometic MBF models purchased from 2010 on.

### Your essential advantages:

- Complete traceability of frozen bags.
- Access to the data within your entire network via one central database.
- Economy of time and money as regular changes of recorder paper, ink and battery is not necessary.



Real-time visualization of an actual freezing process



Temperature curve/ freezing process of one selected lot