

## Blast Freezer



### High Performance Contact Shock Freezers

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

Automated and transparent freezing process documentation included

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.

## Blast Freezer

**MBF 12**

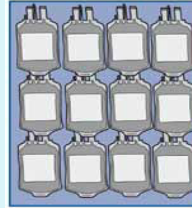
**Arrangement possibilities**

**A**



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

**B**

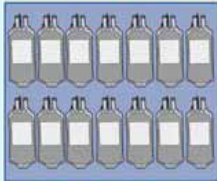


12 Plasma bags at 500 ml each (content 450 ml) 3 rows at 4 bags each

**MBF 21**

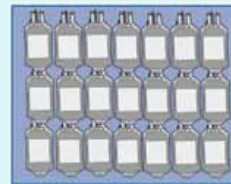
**Arrangement possibilities**

**A**



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

**B**



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

**MBF 42**

**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

## Blast Freezer

MBF 12



MBF 21



MBF 42



<b>Freezing capacity</b>	12 plasma bags	21 plasma bags	42 (2 x 21) plasma bags
	at 500 ml (content 450 ml)	at 500 ml (content 450 ml)	at 500 ml (content 450 ml)
	8 plasma bags	14 plasma bags	28 (2 x 14) plasma bags
	at 1000 ml (content 850 ml)	at 1000 ml (content 850 ml)	at 1000 ml (content 850 ml)
<b>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)</b>	12 units ~ 40 min	21 units ~ 40 min	42 units ~ 40 min
	8 units ~ 55 min	14 units ~ 55 min	28 units ~ 55 min
<b>External dimensions (H x W x D)</b>	1600 x 970 x 770 mm	1600 x 1470 x 770 mm	1920 x 2050 x 770 mm
<b>Dimensions contact plates / working surface (W x D)</b>	490 x 640 mm	970 x 620 mm	2 units of 970 x 620 mm
<b>Operating temperature (preset), reached within ~ 20min (pre-cooling phase)</b>	-50°C	-50°C	-50°C
	(upper & lower contact plate)	(upper & lower contact plate)	(upper & lower contact plate)
<b>Operation and control panel via control and recording unit</b>	7 inch Touch Screen Colour Display	7 inch Touch Screen Colour Display	7 inch Touch Screen Colour Display
<b>Defrosting (manual via mode switch "Operating Mode")</b>	Hot gas	Hot gas	Hot gas
<b>Defrosting time (duration), as preset safety factor</b>	8 min	8 min	8 min
<b>Compressor</b>	Danfoss	Danfoss	2 x Danfoss
<b>Refrigerant Type</b>	R507	R507	R507
<b>Net weight (with standard equipment)</b>	300 kg	400 kg	550 kg
<b>Climate class (ambient temperature range)</b>	N (+16°C to +32°C)	N (+16°C to +32°C)	N (+16°C to +32°C)
<b>Relative humidity (at +32°C ambient temperature)</b>	≤ 70%	≤ 70%	≤ 70%
<b>Voltage (3ph)</b>	3~400V / 50 Hz (16A)	3~400V / 50 Hz (16A)	3~400V / 50 Hz (32A)
<b>Power</b>	1800 W	3000 W	6000 W
<b>Energy consumption</b>	4 kWh / freezing cycle	6 kWh / freezing cycle	6 kWh / freezing cycle / level
<b>Safety class</b>	I	I	I
<b>Material outer casing</b>	Stainless Steel 304	Stainless Steel 304	Stainless Steel 304
<b>EMV directive</b>	2004/108/EEC	2004/108/EEC	2004/108/EEC
<b>Low voltage directive</b>	2006/95/EEC	2006/95/EEC	2006/95/EEC
<b>GMP - clean room classification A / ISO 5</b>	A / ISO 5	A / ISO 5	A / ISO 5
<b>GMP - clean room classification, with external water cooling</b>	B / ISO 6	B / ISO 6	B / ISO 6
<b>Interior Equipment &amp; Options</b>			
<b>Control and operating components integrated -</b>	yes	yes	no
<b>Control and operating components as external unit - -</b>	no	yes	yes
<b>Eco mode (interim storage temperature of -37°C)</b>	yes	yes	yes
<b>Dummy / reference bag port for accompanying core temperature readings during the freezing process</b>			
	1 set	1 set	2 set
<b>Dummy / reference bag (incl. sensor)</b>	<b>For dummy bag port</b>	<b>For dummy bag port</b>	<b>For dummy bag port</b>
	500 ml/ 1000ml	500 ml/ 1000ml	500 ml/ 1000ml
<b>Dummy / reference bag</b>			
<b>Transport carrier</b>	0	1	1
<b>Transport tray, recommended</b>	0	4	4
<b>Interface / interface card</b>	yes	yes	yes
<b>DMN-Monitoring Software with MBF-Module</b>	yes	yes	yes
<b>Barcode reader</b>	yes	yes	yes
<b>Integrated air-cooled condenser -</b>	yes	yes	yes
<b>Smooth castors with stabilizers -</b>	yes	yes	yes
<b>Wooden packaging for ocean transport / export</b>	yes	yes	yes

All values were measured at +25°C ambient temperature