

**CSF**  
RANGE



# Contact Shock Freezers

B Medical Systems | CSF Range

Contact shock freezers are devices intended for the quick-freezing and subsequent temporary storage of blood plasma or biological samples to a core temperature below  $-30^{\circ}\text{C}$  within less than one hour.

**Compliant to Medical Device Class IIa according to MDD 93/42/EEC**

**2**

MODELS



$-30^{\circ}\text{C}$   
TEMPERATURE



60 > 96  
PLASMA BAGS  
(350ml)

**SN**

CLIMATE  
CLASS



medical  
systems

SAVING LIVES  
THROUGH RELIABLE  
AND INNOVATIVE  
TECHNOLOGY

**Blood Management Solutions**



# Safety Standards B Medical Systems



The **Safety Standards developed by B Medical Systems** define certain significant technical features of a product. These ensure the safe storage of the preparations as well as setting the highest standards of safety for the user.

CSF RANGE	
●	B Medical Systems Electronics
●	B Medical Systems 7" full touchscreen display
●	Power indicator light and digital temperature indicator (display: 0.1 digits)
●	Self-contained alarm system with integrated battery takes over the alarm function and temperature value measurements in case of system failure for at least 48 hours
●	Acoustic and visual alarm signal in case of temperature alarm and system failure
●	The alarm history function on the electronic stores all the relevant values during a temperature alarm, such as: min., max. and average temperature
●	Remote transmission alarm signal (via potential-free contact) in case of temperature alarm (change-over contact)
●	Designed and tested for climatic class SN (ambient temperature range +10°C to +32°C)
●	Interior made from stainless steel <i>[evaporator plates and drip channel made from stainless steel]</i>
●	Internal LED lighting
●	Additional remote transmission alarm signal (via potential-free contact) in case of system failure (change-over contact)
●	Smooth castors for optimum flexibility of movement
○	Water cooling <i>[standard for water-cooled version: CSF61-101 W models]</i>
○	Machine compartment as external unit <i>[standard for split version: CSF61-101 S models]</i>
●	Ambient temperature sensor
○	*B Connected - Universal software for the monitoring of refrigeration devices, including the acquisition, recording and visualization of temperature data
●	Ethernet interface for the visualization of all operating and control functions (hardware and software settings) via *B Connected monitoring software on a peripheral device (computer)
●	Battery operated emergency opening during the power failure

# Contact Shock Freezers

## B Medical Systems | CSF Range

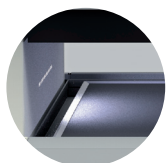
2 models • Set temperature  $-30^{\circ}\text{C}$  • Climate class SN • Compliant to MDD 93/42/EEC, Class IIa

In conformity with national and international guidelines, regulations for Medical Devices offering reliability, efficiency and safety at an optimal price.

MODELS CSF61-101 L

### Fastest contact shock freezers worldwide

Our contact shock freezers provide the shortest freezing cycle on core temperature of  $-30^{\circ}\text{C}$ : nearly 100 units of 250 ml within less than 60 minutes.

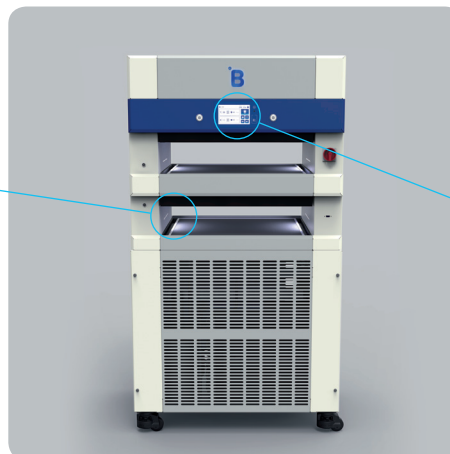


### State-of-the-art contact freezing technology™

Our innovative and patent pending system of inclined trays delivers the most homogeneous freezing and offers the best in repeatability and productivity, with operator independent performance for 100% performance consistency.

### Highest degree of ergonomics

Each tray has an effective and usable height, giving easier access for quicker loading and enabling easier manipulation of bags.



### Optimized pull-down of the layers

The freezing down is quicker, the clinical payback on investment is maximised and the concentration of factors 8, 9 and albumin is increased.

### Integrated multi-function electronics

Located at eye level, the electronics are easily accessible and can be connected with our fully integrated monitored solutions for a complete traceability of frozen bags.



### Maintenance-friendly design

- Our contact shock freezers offer an easy cleaning and disinfection facility
- Thanks to the additional battery, plates can still be opened to access the bags, in case of power failure

**Contact shock freezers are devices intended for the quick-freezing and subsequent temporary storage of blood plasma or biological samples to a core temperature below  $-30^{\circ}\text{C}$  within less than one hour. CSF models are built in compliance with directives for the preparation of blood plasma and offers multiple controls, warning and data recording safety features developed as a result of over 35 years of expertise in refrigeration technology.**

**CSF models are also available as split version (CSF61-101 S) and water cooled version (CSF61-101 W). Technical data available upon request.**



## Technical Data

### General features

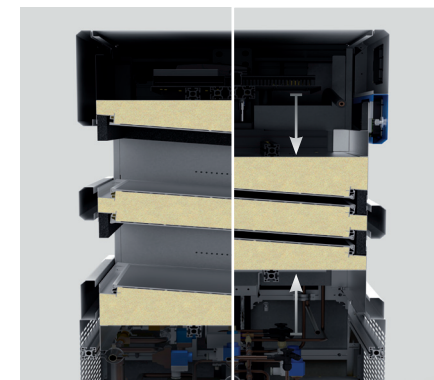


**CSF61 L**



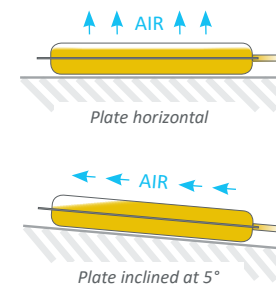
**CSF101 L**

<i>Freezing capacity (plasma bags)</i>	<i>Single layer</i>	20 at 1000ml (content 850ml)	32 at 1000ml (content 850ml)
	<i>Double layer</i>	30 at 350ml (content 250ml)	48 at 350ml (content 250ml)
<i>Freezing time to core temperature of -30°C at +25°C ambient temperature (in single layer)</i>		60 at 350ml (content 250ml)	96 at 350ml (content 250ml)
		20 units (1000ml) ± 45 min.	32 units (1000ml) ± 51 min.
<i>Operating temperature (preset)</i>		30 units (350ml) ± 26 min.	48 units (350ml) ± 26 min.
	<i>Pre-cooling</i>	-40°C	-40°C
	<i>Freezing</i>	-50°C	-50°C
	<i>Eco-mode</i>	-40°C	-40°C
<i>Climate class (ambient temperature range)</i>		SN (+10°C to +32°C)	
<i>Defrosting technique / time</i>		Manual (hot gas) / 10 min.	
<i>Refrigerant type</i>		R449a	
<i>External dimensions H x W x D (mm)</i>		1910 x 1080 x 830	1910 x 1500 x 830
<i>Dimensions contact plates W x D (mm)</i>		2 units of 680 x 630	2 units of 1110 x 630
<i>Net weight with standard equipment (kg)</i>		600	750
<b>Energy Saver</b>	<i>Operating voltage range</i>	380-400 V - 50/60 Hz (32A) or 480 V - 60 Hz (32A)	
		STABLE RUNNING unloaded	FREEZING PROCESS - fully loaded (with units at 1000 / 350ml in single layer)
	<i>Power (W)</i>	8200 (starting power)	4800 / 3500 (5700 at defrosting)
	<i>Energy consumption (kWh/24h)</i>	0.7	3.0 / 1.8 (per freezing cycle)
	<i>Heat emission (Kcal/h)</i>	601	4621 / 2448
	<i>Compressor running time (%)</i>	-	90
	<i>Noise level (dB(A)) (at 1.6m height &amp; 1m distance)</i>	73	73
		75	75



### OPTIMIZED CONTACT FREEZING

- Levels operate independently, allowing simultaneous freezing and defrosting as necessary
- Inclined plates at 5° ensure full contact with plasma and minimizes effect of air trapped in bags negatively influencing repeatability of freezing cycle times, providing operator independent performance for 100% performance consistency





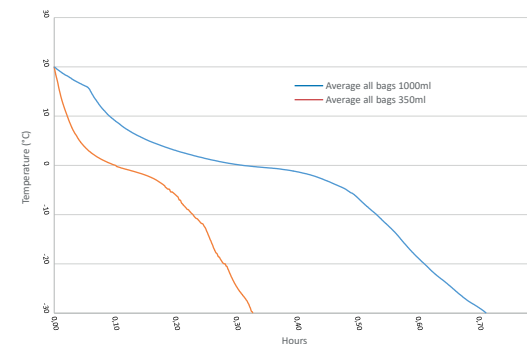
## Technical Data Specifications

	CSF61 L	CSF101 L
<i>Control/display sensor (4 sensors per device)</i> <i>Precision (from -80°C to +180°C) ± 0.3°C</i>	PT1000 3-WIRE 1/3DIN CL.B	
<i>Dummy bag sensor (optional)</i> <i>Precision (from -80°C to +180°C) ± 0.3°C</i> <i>in reference body / 100 ml DOW</i> <i>cornning 200-5CST (Silicon Oil)</i>	PT1000 2-WIRE 1/3DIN CL.B	
<i>Accu data / function time of the control panel when system failure</i>	12 V - 7 AH / 48h	
<i>Relative humidity at +32°C</i>	≤ 70%	
<i>Compressor</i>	Bitzer	
<i>Casing insulation (polyurethane)</i>	80 mm PU	
<i>Material</i>	<i>Inner body</i>	Stainless steel (V2A - 1.4301)
	<i>Outer body</i>	Steel (1.0330+ZE25/25) & Powder coated 60-90 ym
	<i>Contact plates</i>	Stainless steel (V2A - 1.4301)
<i>European Medical Device Directive</i>	93 / 42 / EEC, Class IIa	
<i>EMC directive</i>	2014 / 30 / EU	
<i>Low voltage directive</i>	2014 / 35 / EU	

### EXAMPLE OF "FREEZING CYCLE ON CORE TEMPERATURE OF -30°C"

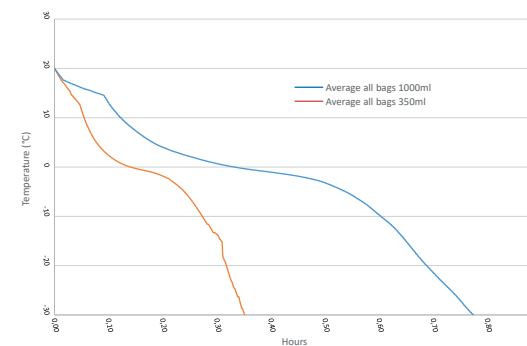
#### CSF61 L

- Voltage: 400V / 50Hz
- Ambient temperature: +25°C
- Relative humidity: 45%
- Test bag type:  
350ml, filled with 250ml (30 bags)  
1000ml, filled with 850ml (20 bags)
- Filling medium:  
saline solution, 0.9% salt



#### CSF101 L

- Voltage: 400V / 50Hz
- Ambient temperature: +25°C
- Relative humidity: 45%
- Test bag type:  
350ml, filled with 250ml (48 bags)  
1000ml, filled with 850ml (32 bags)
- Filling medium:  
saline solution, 0.9% salt





## Equipment

### Standard & optional

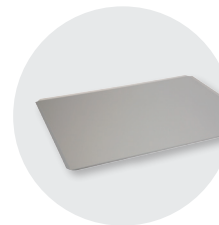


DUMMY /  
REFERENCE  
BAG

(Shown with  
sensor & cable)



TRANSPORT  
CARRIER



TRANSPORT  
TRAY



BARCODE  
READER



EXTERNAL  
AIR COOLING  
SYSTEM

	CSF61 L	CSF101 L
B Medical Systems Electronics 7" full touchscreen display	●	●
Internal LED lighting	●	●
GMP - Clean room classification	● A / ISO 5   ○ B / ISO 6	● A / ISO 5   ○ B / ISO 6
°B Connected - Monitoring Software	○	○
Ethernet interface / interface card	●	●
Ambient temperature sensor	●	●
Potential-free contact in case of system failure	●	●
Eco-mode (interim storage temperature of -37°C)	●	●
Dummy / reference bag port for accompanying core temperature readings during the freezing process	● 2	● 2
Dummy / reference bag with sensor & cable	○	○
Dummy / reference bag	○ 500ml	○ 500ml
Transport carrier   tray	○ 1   ○ 4 (recommended)	○ 1   ○ 4 (recommended)
Barcode reader	○	○
Condenser filter	●	●
Integrated air-cooled condenser	●	●
Water cooling	○   ● CSF61 W (water-cooled version)	○   ● CSF101 W (water-cooled version)
Air-cooled condenser & compressor as external unit (1080 x 1350 x 965 mm)	○   ● CSF61 S (split version)	○   ● CSF101 S (split version)
Securing feet for models with condenser & compressor as external unit	○	○
Smooth castors with stabilizers	●	●
Wooden packaging for ocean transport / export	●	●

### 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: CSF61-101 L). These costs are subject to an individual client request and can vary depending on the conditions in the designated building. CSF models are installed as a free-standing, air-cooled unit ready for connection.

On request the CSF models can also be equipped with the following cooling systems:

- External air cooling system (CSF61-101 S models)
- Water cooling system (CSF61-101 W models)
  - 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"

● Standard ○ Optional - Not available

# Full functionalities at a glance

## B Medical Systems | Electronics

### The new B Medical Systems Electronics

offers a wide range of adjustment and diagnostic facilities as well as additional protection / warning operations (via external alarm operations, histories and individual display signals).

Multi-function electronics with 7" full touchscreen display, located at eye level with pre-installed connection allowing exclusive °B Connected monitoring functionalities for a complete traceability of frozen bags.



#### Power switch OFF / ON

- Turn main switch to ON position, the controller will be switched on automatically and the green LED lights up and the display activates
- The display can be switched off with the ON/OFF button



#### Touchscreen 7" full display

The main screen has two different shapes depending on whether the batch management is active or not:

- At the top: login status (user level), current time and current voltage
- In the left-hand: the main screen shall always show two frames containing level specific data (operating mode, plate temperatures, dummy bag temperature, process time and progress bar). The entire frame and its content is an active touch area. When pressed, the selected level opens in detail view. The other level goes to minimized view
- In the right-hand: touch buttons to access menu, clean, light (or mute, during a warning or alarm situation) and message functions. When the batch management is inactive, the main menu button shall be replaced by 2 moving direction selection buttons (open/close plates)



Modern and user-friendly graphic display

#### Acoustic and visual alarm signal

When an alarm occurs, the red alarm LED lights up and an acoustic signal sounds. The corresponding alarm message appears on the display alternately with the measured inside temperature. If several alarms occur simultaneously, the messages will be shown alternately.



#### Keycard reader

Login / Unlock using a NFC card

#### Touch buttons

- CLEAN button: the cleaning button allows the user to disable the touch capability of the screen for a short period of time in order to clean the screen. This button is replaced by the logout button when any user is logged in
- MENU button: allows access to the menu screen
- MUTE / LIGHT button: deactivates the acoustic alarm for a predefined period of time. The mute button is only visible when an alarm occurs and is not muted, otherwise it is replaced by the light button
- MESSAGE button: during a warning or alarm situation, the color of this button and the corresponding level will change. Information on an active alarm and warning is accessible by pressing the message button



SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY



# Optimum control and protection

## B Medical Systems | °B Connected

### °B CONNECTED | MONITORING SOFTWARE

*Universal software for the monitoring of refrigeration devices, including the acquisition, recording and visualization of temperature data.*



- Unique monitoring software for the full range of Blood Management Solutions and Medical Refrigeration products
- Web-based interfaces for computers and mobile devices
- Modern design for simple and intuitive use
- Graphic display of temperature curves
- Integrated event and activity history of appliances' components
- Data recording on centralized database for long-term archiving
- Easy setting of specific alarm forwarding, via email or SMS
- Generation of reports compiling crucial data and activities
- Temperature and detailed device data export for third-party software
- Important price advantage compared to a traditional circular chart recorder and its spare parts
- REST API to access raw data directly from the database in read only mode

#### KEY BENEFITS:

- Unique interface for the monitoring of the full range of refrigeration devices
- Centralized database providing data access to entire customer network

#### 1 CONFIGURATION



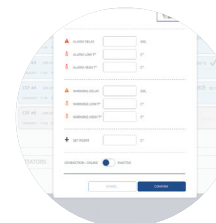
##### USER MANAGEMENT

- Password login
- Access right



##### DEVICE SETTINGS

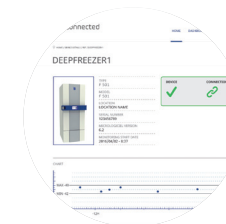
- Device information
- Device & user configuration



##### ALARM PROFILE

- Parameters of the alarm profile (day, hour, minute)
- Alarm management

#### 2 DISPLAYING



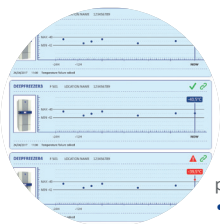
##### DETAILED DISPLAY

- Optimised design for mobile and touch compatible devices
- Support of multiple languages
- Real time data: Current temperatures, set point, upper and lower limit, door state, compressor runtime
- Log data: Events, alarms within date/time, event type, description of the event. Event and alarm confirmation function
- Batch management: Read in of plasma bags with a barcode scanner
  - Movement state and door control of Agitator devices
  - Parameter settings of each device: Factory settings, real time clock, language, firmware version, RS485 address, IP address



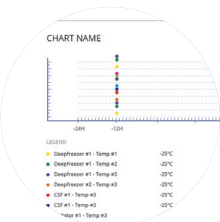
°B Connected offer a highly flexible system that is adaptable to specific customer requirements

- > Complete & legally safe documentation of temperature data
- > Comprehensive applications and diagnostic possibilities



#### REAL TIME GRAPHICS

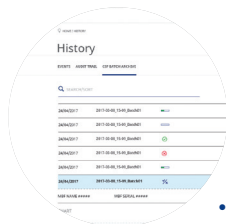
- Graphic temperature progress (in real time)
- Adjustable time axis
- Offline navigation



#### CONTROL CENTER

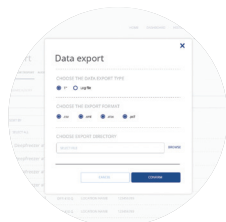
- Overview (Control Monitor) of all monitored appliances:
- Information regarding status, appliance name, location, connection, upper and lower limit, current temperature, events / alarms
  - Dashboard to combine several temperature measurements in one single graph

### 3 ANALYSING



#### INTERACTIVE ANALYSIS

- No limitation in terms of time range
- Freely scalable
- Detailed information for any point of time
- Temperature data, events and alarms
- Login history and audit trails



#### PRINTED ANALYSIS

- Customisable print reports on daily, weekly and monthly basis
- Exports in various file types
- Standardised format

SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY



## Blood Management Solutions

*Safe global blood management:  
from collection to transfusion,  
transportation, processing and storage*



## Vaccine Cold Chain

*Reliable solutions for safe vaccination  
around the world*



## Medical Refrigeration

*State-of-the-art technology  
for the exacting needs of the medical world*

### Our Global Expertise



### After Sales support and service

We strive to provide you with the highest standards of service; not only through our selected distributors and partners for all your maintenance and service but also our second line trouble shooting and after sales service. This Factory based group of engineers is there to help our partners and yourself to get the best solution for your cold storage needs.



### SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

*B Medical Systems (formerly Dometic Medical Systems) has more than 35 years' experience in the medical refrigeration sector.*

*The company, formerly known as Electrolux Medical Systems, was founded in 1979 when the World Health Organization approached Electrolux in Vianden, Luxembourg, to create a solution for the safe storage and transport of vaccines around the world. In 2001, Electrolux Medical Systems became part of the Dometic Group, and was renamed Dometic Medical Systems. Having established a legitimate reputation in the medical equipment industry, the company has also become a global leader in vaccine cold chain.*

#### B Medical Systems S.à r.l.

17, op der Hei  
L - 9809 Hosingen, Luxembourg

Tel.: (+352) 92 07 31-1  
Fax: (+352) 92 07 31-300  
info@bmedicalsyste.ms.com



[www.bmedicalsyste.ms.com](http://www.bmedicalsyste.ms.com)



Luxembourg, in the heart of Europe

