

# **Blood Bank Refrigerators**

# B Medical Systems | B Range

Blood Bank Refrigerators are devices intended for the safe storage of whole blood and blood components at temperatures ranging from  $+2^{\circ}$ C to  $+6^{\circ}$ C.

Compliant to DIN 13277 | AABB Standards |
Medical Device according to MDR (EU) 2017/745, Class IIa
or 21CFR Part 864.9700, Class II











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.

PRECISION LINE	PREMIUM LINE	
		B Medical Systems Electronics
		B Medical Systems digital display
		B Medical Systems 7" full touchscreen display
		Safety door lock (with 2 keys) and key-operated power switch ON/OFF (with 2 keys)
		Power indicator light and digital temperature indicator (display: 0.1 digits)
		Controlled fan cooling system for constant temperature and even temperature distribution across the entire refrigerating chamber [not applicable for model BF261 (Freezer compartment)]
		Automatic switch-off of the evaporator fans when the door opens [not applicable for model BF261 (Freezer compartment)]
		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., average temperature and alarm duration
		Remote transmission alarm signal (via potential-free contact) in case of temperature alarm (change-over contact)
		Safety thermostat prevents dropping of the temperature below +2°C
		Door opening alarm (visual / acoustic)
		Designed and tested for climatic class SN (ambient temperature range +10°C to +32°C)
		Designed and tested for climatic class SN / T (ambient temperature range +10°C to +43°C)
		Interior made from stainless steel
		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
	0	Ambient temperature sensor
		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)
0	0	B Connected - Universal software for the monitoring of refrigeration devices, including the acquisition, recording and visualization of temperature data
0		DCU (Data Communication Unit) - Hardware module monitoring all operating conditions and passing them through to a central database – via local network (in combination with °B Connected)

MODELS 8401-501-701-901 | PREMIUM LINE

# **Blood Bank Refrigerators**

# B Medical Systems | B Range

9 models • Volume 52 > 949 L • Set temperature +4°C • Climate class SN | SN/T • Compliant to DIN 13277 | MDR (EU) 2017/745, Class IIa | AABB Standards

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

#### Integrated multifunction monitoring electronics

Integrated B Medical Systems multifunction electronics; with easy access in the door level; offers alarms, central alarm system, set point security, battery backup, full display and many other control features; compatible with °B Connected solution for data monitoring and recording.



MODELS B51-131-291-381 & BF261 | PRECISION LINE

#### • Lifetime warranty corrosion-free cabinet

- One piece material cabinet with a lifetime warranty for zero corrosion, highest quality polypropylene for better insulation and no sharp edges to provide easier maintenance and cleaning
- · Smart ergonomy Easier and safer handling because of heavier components placed at the bottom



#### High storage capacity

High storage per square meter in terms of net volume, with a very versatile inner volume utility due to multiple user friendly rails



#### Exclusive integrated electronics handle bar

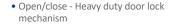
All functionalities are easily accessible:



Blood Bank Refrigerators are devices intended for the safe storage of whole blood and blood components

at temperatures ranging from +2°C to +6°C with multiple controls, warning and data recording safety features developed as a result of 40 years of expertise

in refrigeration technology.





#### O High quality materials

High quality coating, certified medical devices quality and antibacterial, high quality steel for better longevity and easy hygiene control.



#### Versatile modularity

Excellent storage capacity and modularity - Large choice of shelves and drawers offering modularity for every need.



#### Highest insulation value (organic glass door)

4-layer (Precision Line) and 5-layer (Premium Line) PMMA organic glass offering highest insulation, combined with reduced weight reducing efforts to close door and constraints on hinges, offering better longevity.







# **Technical Data**General features











		E	351	В	131	В	291	В	381	Bf	<b>-261</b>	Refrigerator & Freezer cor	nbined
Gro	oss / Net volume (I)	52 / 45		121 / 106		297 / 269		362 / 329		R   121 / 106		F   121 / 10	06
Storage capacity (blood bags)*		24 (450ml) 31 (350ml)		51 (450ml) 84 (350ml)		159 (450ml) 235 (350ml)		213 (450ml) 313 (350ml)		51 (450ml) 84 (350ml)		84 (plasma bags at 350ml)	
Set	temperature (preset)						+4°C					-32°C	
Pre	set cold / warm alarm limit					+2°	C / 6°C					-37°C / -27	°C
Но	ld over time	1.5 h (+4°C t	to +10°C)	1.7 h (+4°C t	to +10°C)	1.8 h (+4°C t	o +10°C)	1.6 h (+4°C to +10°C)		1.7 h (+4°C to +10°C)		1.6 h (-32°C to -23°C)	
Clir	mate class (ambient temperature range)					SN (+10	°C to +32°C)						
Defrosting technique			Natural									Manual	
Refrigerant type						R	600a					R290	
Inn	ernal dimensions H x W x D (mm) er dimensions H x W x D (mm) t weight with standard equipment (kg)	670 x 495 470 x 375 39			x 470	1670 x 595 x 695 1470 x 475 x 470 98 96		1980 x 595 x 695 1780 x 475 x 470 111 109		1650 x 595 x 695 630 x 475 x 470 118 117		630 x 475	x 470
	Supply voltage (V)	220-240	115-127	220-240	115-127	220-240	115-127	220-240	115-127	220-240	115-127	220-240	115-127
	Frequency (Hz)	50 / 60	60	50 / 60	60	50 / 60	60	50 / 60	60	50 / 60	60	50 / 60	60
y Sa	Power (W)	100	100	200	200	200	200	200	200	200	200	300	360
nerg	Energy consumption (kWh/24h)	0.8 / 0.8	0.8	1.1 / 1.1	0.9	1.8 / 1.9	1.6	2.0 / 2.1	1.9	1.1 / 1.1	0.9	2.8 / 2.9	3.1
	Heat emission (Kcal/h)	29	29	39	32	64	57	72	68	39	32	100	111
	Compressor running time (%)	30	30	25	23	40	37	36	43	25	23	51	50
	Noise level (dB(A)) (at 1m height & 1m distance)	35 / 36	37	35 / 36	38	38 / 40	39	40	38	35 / 36	38	45 / 47	47



# **Technical Data**General features









		В	401	В	501	В	701	В	901		
Gro	oss / Net volume (I)	478 / 390		634 / 517		792 / 645		949 / 773			
Storage capacity (blood bags)*		270 (450ml) 375 (350ml)		360 (450ml) 450 (450ml) 500 (350ml) 625 (350ml)				540 (450ml) 750 (350ml)			
Set	temperature (preset)	+4°C									
Pre	set cold / warm alarm limit				+2.5°0	C / +5.5°C					
Hold over time		2.3 h (+4°C t	o +10°C)	2.8 h (+4°C t	o +10°C)	2.7 h (+4°C t	o +10°C)	2.6 h (+4°C t	o +10°C)		
Clir	mate class (ambient temperature range)	SN / T (+10°C to +43°C)									
Dej	frosting technique	Natural									
Ref	rigerant type	R600a									
Ext	ernal dimensions H x W x D (mm)	1988 x 699 x 1039		1988 x 845 x 1039		1988 x 992 x 1039		1988 x 1139 x 1039			
Inn	er dimensions H x W x D (mm)	1173 x 447 x 743		1173 x 593 x 743		1173x 740 x 743		1173 x 887 x 743			
Ne	t weight with standard equipment (kg)	206		228		251		273			
	Supply voltage (V)	220-240	115-127	220-240	115-127	220-240	115-127	220-240	115-12		
	Frequency (Hz)	50 / 60	60	50 / 60	60	50 / 60	60	50 / 60	60		
Energy Save	Power (W)	300	300	300	300	300	300	300	300		
nerg	Energy consumption (kWh/24h)	1.5 / 1.5	1.4	1.5 / 1.5	1.4	1.5 / 1.6	1.4	1.6 / 1.7	1.4		
Ш	Heat emission (Kcal/h)	36	30	35	35	36	35	41	36		
	Compressor running time (%)	27	25	26	29	27	29	29	30		
	Noise level (dB(A)) (at 1m height & 1m distance)	46 / 49	52	47 / 51	50	50 / 51	46	47 / 47	46		



# **Technical Data**Specifications

















<b>B51</b>	 ~ ~	

B291-381

B401-501-701-901

Regulation se	rnsor	NTC, at 0°C ± 0	0.3°C	PT1000, at 0°C ± 0.1°C						
Display senso in reference body corning 200-5CST	/ 100 ml DOW	NTC, at 0°C ± 0	).3°C	PT1000, at 0°C ± 0.1°C						
Accu data / fu panel when s	unction time of the control ystem failure	12 V - 2.3 AH ,	/ 48h	12 V - 10.0 AH / 48h						
Relative humidity at +32°C		≤ 75%								
Door insulation (polyurethane)		82 mm PU with 4-Layer PM	MA organic glass*	65-82 mm PU with 5-Layer PMMA organic glass						
Cabinet insulation (polyurethane)		60-65 mm I	PU	77-82 mm PU						
	Inner body	Polypropylene (cop	olymer UV)	Stainless steel (1.4301)						
	Outer body	Polypropylene (copo	olymer UV)	DX51D + Z100 coated						
Material	Inner door	Polypropylene (copolymer UV)	Aluminium	Stainless steel (1.4301)						
iviateriai	Outer door	Polypropylene (copo	olymer UV)	DX51D + Z100 coated						
	Drawer	Polycarbonate, tra	nsparent	Stainless steel (1.4301)						
	Shelf	-		Wire DIN177, PA11 coated						
European Me	dical Device Regulation		MDR (EU) 2017/745, Cla	ISS IIa (models: 220-240 V - 50/60 Hz)						
EMC directive	?	2014 / 30 / EU (models: 220-240 V - 50/60 Hz)								
Low voltage d	directive	2014 / 35 / EU (models: 220-240 V - 50/60 Hz)								
FDA regulation   Medical Device		21CFR Part 864.9700, Class II (models: 115-127 V - 60 Hz)								
cCSAus certificate		Yes (models: 115-127 V - 60 Hz)								
Energy Star co	ertificate	Yes (models: 115-127 V - 60 Hz excepted models BF261, B401, B501)								
Clean room c	lassification   ISO 14644-1		Class 4 (excepted model BF261 = Class 5)							









ORGANIC



### Equipment General

		B51	B131	B291	B381	BF261	B401	B501	B701	B901
B Medical	Digital display	•	•	•	•	<b>2</b>	-	-	-	-
Systems Electronics	7" full touchscreen display	-	-	-	-	-				
Ergonomic har open/close - heavy	n <b>dle</b> duty door lock mechanism	-	-	-	-	-	•	•	•	•
Organic glass door for quick check / pre-selection of the refrigerator's content		•	•	•	•	•	•	•	•	•
Internal LED lighting		•	•	•	•	•	•	•	•	•
thernet interf	face	-	-	-	-	-	•	•	•	•
°B Connected - Monitoring Software		0	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	0	$\bigcirc$	0
DCU - Data Communication Unit (in combination with °B Connected)		0	0	0	0	0	-	-	-	-
Temperature control or the mounted (in the	hart recorder e form of a circular chart recorder)	0	0	0	0	0	0	0	0	0
Ambient tempe	erature sensor	-	-	-	-	-	0	$\circ$	$\circ$	0
Potential-free of case of system fa	alarm contact <sub>ilure</sub>	•	•	•	•	•	•	•	•	•
ntegrated por installed by custom	t for external sensor <sup>ner)</sup>	•	•	•	•	<b>2</b>	•	•	•	•
Rollers		-	<b>2</b>	• 2	• 2	<b>2</b>	-	-	-	-
Smooth castors with stabilizers		-	-	-	-	-	<b>4</b>	• 4	• 4	• 4
Door hinge Rig	nht   Left					$\bullet$   $\bigcirc$	$\bullet$   $\bigcirc$			$\bullet$







DRAWER 2 versions:

Front Cover

bottom







### Equipment Internal storage

Standard		B51	B131	B291	B381	BF261	B401	B501	B701	B901
Drawer with From	nt Cover	-	<b>1</b>	<b>5</b>	<b>6</b>	<b>3</b>	-	-	-	-
Drawer without I	Front Cover	<b>1</b>	-	-	-	-	-	-	-	-
Bottom Drawe	r	<b>1</b>	<b>1</b>	• 1	• 1	• 2	-	-	-	-
Wire Shelf		-	-	-	-	-	0 2 E -	2 7 -	2 Tu -	<sup>2</sup> 0 2 1 0 - 2 0
ST-Drawer with Front Cover		-	-	-	-	-	9 VERS 5	3 × 5	9 3 VERSION 5	Versii Ve
Optional										
ST-Drawer without Front Cover		-	-	-	-	-	13 (max. per unit)			
Accessories										
Dividers Set (H to facilitate the han	100 mm) ndling and storage management	-	<b>1</b>	<b>6</b> 5	<b>6</b>	<b>3</b>	-	-	-	-
S-Rack (H 100 x V	W 113 x D 638 mm)	-	-	-	-	-	10 (max. per unit)	20 (max. per unit)	25 (max. per unit)	30 (max. per unit)
ST-Rack (H 95 x W 134 x D 648 mm)	with Wire Shelf	-	-	-	-	-	2 (max. per tray)	3 (max. per tray)	3 (max. per tray)	4 (max. per tray)
	with ST-Drawer	-	-	-	-	-	2 (max. per tray)	2 (max. per tray)	3 (max. per tray)	4 (max. per tray)
	with ST-Shelf	-	-	-	-	-	2 (max. per tray)	3 (max. per tray)	4 (max. per tray)	4 (max. per tray)
ST-Cover for Wire	e Shelf	-	-	-	-	-	13 (max. per unit)			





SET



S-RACK



ST-COVER (STAINLESS STEEL) Available for Wire Shelf

■ Standard ○ Optional - Not available

# Full functionalities at a glance

### B Medical Systems | Electronics

**PRECISION LINE** | Multifunctional electronics with digital display and easy access, in the door handle; compatible with °B Connected monitoring solution.



#### • Key power switch • O = OFF / I = ON

- To switch the unit on, turn the key switch to position "I". The green power LED lights up
- After the self-check, the temperature inside the device is displayed



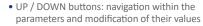
#### Digital display

During normal operation the display shows:

- Left-hand side: current time and internal temperature displayed in °C (Celsius) or °F (Fahrenheit) in increments of 0.1°
  - Right-hand side: the maximum and minimum inside temperature



#### Function buttons





 ENTER button: use the ENTER-key to confirm the actual selection. This applies the parameter value. The change of a parameter only becomes effective when confirmed



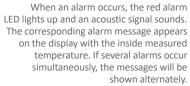
 MUTE / BACK button: in case of an alarm, the acoustic alarm can be muted for a specified time. In Parameter-mode the same key acts as "BACK-button" to go one step back



 LIGHT button: allows to switch on or off the interior light of the device without opening the door









A USB port is available for data export only. Measured values of the display sensor are stored for at least 30 days (ring buffer) together with a time stamp.



#### The B Medical Systems Electronics

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

PREMIUM LINE | Multifunction electronics with 7" full touchscreen display, integrated at optimal level in the door handle with pre-installed connection allowing exclusive °B Connected monitoring functionalities.



#### O Power switch OFF / ON

- To switch on press the ON/OFF button for 1 second. The green LED will light up
  - Switch off protected by password. The door will automatically unlock before powering down



### ■ Touchscreen 7" full display

During normal operation the display shows:

- At the top: current voltage, current time, and login status (user level)
- Left-hand side: temperature of the regulation sensor (displaying this temperature can be disabled through the settings) and internal temperature displayed in °C (Celsius) or °F (Fahrenheit) in increments of 0.1°
- Right-hand side: touch buttons to access door unlock, clean, menu, alarm mute and message functions



O USB port & SD card slot

#### 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 together with the inside measured temperature. If several alarms occur simultaneously, the messages will be shown alternately.



#### Keycard reader

Login / Unlock using an NFC card

#### Touch buttons

- DOOR UNLOCK button: unlocks the door of the device
- 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 user is logged in
- MENU button: allows access to the menu screen
- ALARM MUTE button: deactivates the acoustic alarm for a predefined period of time
- ACTIVE ALARMS AND WARNINGS 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















# Optimum control and protection

# B Medical Systems | °B Connected & DCU



#### **°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, via email or SMS alerts
- Generation of reports compiling crucial data and activities
- Temperature and detailed device data export for third-party software
- Important cost 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







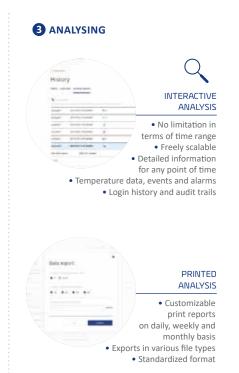


- Optimized design for mobile and touch compatible devices
- Support of multiple languages
- Real-time data: Current temperatures, set point, upper and lower limit, door state, compressor runtime
- Log data: Events, alarms within date/time, event type, description of the event. Event and alarm confirmation function
- Parameter settings of each device: Factory settings, real-time clock, language, firmware version, RS485 address, IP address

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







#### DCU | DATA COMMUNICATION UNIT (PRECISION LINE)

# Hardware module monitoring all operating conditions and passing them through to a central database – via local network.



- Interface connection of B Medical Systems appliances to an existing network
- Graphical user interface displaying temperature and configurating devices and alarms easily
- Direct connection to Ethernet and serial bus RS485
- Digital in/out (programmable and customer-specific use)
- Recording and storing appliance-relevant data
- Integrated USB port allowing to export archived data
- The DCU combined with the °B Connected software replaces the paper temperature recorder
- All data are recorded and saved in the internal storage of the DCU and backed up in °B Connected database if connected
- Several additional self-sufficient temperature sensors (up to 4 PT1000) may be connected
- Humidity sensor input (4-20 mA)

#### **KEY BENEFITS:**

- Central system collecting relevant temperature data of the appliances and their respective operating conditions
- A number of connection abilities allowing flexible upgrades for individual projects



Safe global blood management:

transportation, processing and storage

from collection to transfusion,



around the world

Reliable solutions for safe vaccination



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.



From Azenta Life Sciences

#### SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

B Medical Systems (formerly Dometic Medical Systems) has more than 40 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. In 2015 after MBO, the company was named B Medical Systems. In 2022 Azenta Life Sciences acquired B Medical Systems.

#### B Medical Systems S.à r.l.

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Since 2019 B Medical
Systems has been committed
to the UN Global Compact
corporate responsibility
initiative and its principles
in the areas of human rights,
labour, the environment
and anti-corruption.

#### Luxembourg, in the heart of Europe

