F
RANGE

Laboratory Freezers

B Medical Systems | F Range

Laboratory Freezers are devices intended for the safe storage samples, specimens, live virus vaccines, cultures, test materials, chemicals, reagents, and other laboratory preparations at temperatures below -20°C.

Compliant to DIN 13221 | Medical Device according to MDR (EU) 2017/745, Class I or 21CFR Part 862.2050, Class I

- 7 MODELS
- -41°C / -32°C TEMPERATURE
- 121 L > 949 L VOLUME
- SN SN/T CLIMATE CLASS
- MEDICAL DEVICE Certified (EU) 2017/745

medical systems

SAVING LIVES
THROUGH RELIABLE
AND INNOVATIVE
TECHNOLOGY

Medical Refrigeration

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
	●	Automatic switch-off of the evaporator fans when the door opens
●	●	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)
●	●	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
●	●	Additional remote transmission alarm signal (via potential-free contact) in case of system failure (change-over contact)
	●	Smooth castors for optimum flexibility of movement
	○	External water cooling
	○	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)
○	○	°B Connected - Universal software for the monitoring of refrigeration devices, including the acquisition, recording and visualization of temperature data
○		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)
	○	Integrated remote temperature monitoring device (RTMD), offering real-time worldwide remote monitoring, data access over WEB and GPS position

● Standard ○ Optional

Subject to change without prior notice.

Laboratory Freezers

B Medical Systems | F Range

Laboratory freezers are devices intended for the safe storage samples, specimens, live virus vaccines, cultures, test materials, chemicals, reagents, and other laboratory preparations at temperatures below -20°C developed as a result of 40 years of expertise in refrigeration technology.

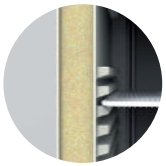
7 models • Volume **121 > 949 L** • Set temperature **-41°C / -32°C** • Climate class **SN** I **SN/T** • Compliant to **DIN 13221** I **MDR (EU) 2017/745, Class I**

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

MODEL F130-290-380 | **PRECISION LINE**

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.

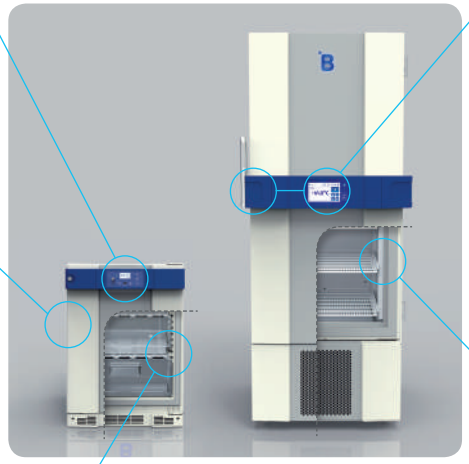


Rotomoulded or steel models

- Model F130: 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
- Models F290-380: Steel cabinets feature lower overall energy consumption, superior temperature distribution and a highly stable air circulation within the cabinet, remarkable sealing between gaskets, long autonomy and holdover times, and an exceptional life-span for the compressor
- 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 allowing modularity.



Exclusive integrated electronics handle bar *(Patent pending)*

All functionalities are easily accessible:

- Digital control with full functionalities - New B Medical Systems 7'' full touchscreen display integrated at optimal level in the door handle with pre-installed connection allowing exclusive °B Connected monitoring functionalities
- Open/close - Heavy duty door lock mechanism

High quality materials

New 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.

Special features for easy deicing and defrosting

- New evaporator offering better performance than market average, resulting in lesser ice formation with automatic defrost
- Insulated inner doors for significantly lower loss of cooling when open

MODELS F400-500-700-900 | **PREMIUM LINE**

F
RANGE

Technical Data
General features







	F130	F290	F380	F400	F500	F700	F900
Gross / Net volume (l)	121 / 106	296 / 281	338 / 318	478 / 387	634 / 514	791 / 641	949 / 768
Set temperature (preset)	-32°C			-41°C			
Set temperature (setting range) *can be adjusted in steps of 0.1°C*	-32°C to -20°C			-41°C to -20°C			
Preset cold / warm alarm limit	-37°C / -27°C			-46°C / -32°C			
Hold over time	0.7 h (-32°C to -23°C)	0.5 h (-32°C to -23°C)	0.6 h (-32°C to -23°C)	2.5 h (-41°C to -18°C)	3.0 h (-41°C to -18°C)	3.0 h (-41°C to -18°C)	3.2 h (-41°C to -18°C)
Climate class (ambient temperature range)	SN (+10°C to +32°C)			SN / T (+10°C to +43°C)			
Defrosting technique	Manual			Automatic (hot gas)			
Refrigerant type	R290						

	F130	F290	F380	F400	F500	F700	F900
External dimensions H x W x D (mm)	830 x 595 x 695	1750 x 603 x 650	1950 x 603 x 650	1988 x 699 x 1039	1988 x 845 x 1039	1988 x 992 x 1039	1988 x 1139 x 1039
Inner dimensions H x W x D (mm)	630 x 475 x 470	1525 x 475 x 421	1735 x 475 x 421	1173 x 447 x 738	1173 x 593 x 738	1173 x 740 x 738	1173 x 887 x 738
Net weight with standard equipment (kg)	58	97	106	276	301	319	346

		F130			F290			F380			F400			F500			F700			F900		
Energy Saver	*Supply voltage (V)*	220 -240	220 -240	115-127	220 -240	220 -240	115-127	220 -240	220 -240	115-127	230	220	115 -127	230	220	115 -127	230	220	115 -127	230	220	115 -127
	Frequency (Hz)	50	60	60	50	60	60	50	60	60	50	60	60	50	60	60	50	60	60	50	60	60
	Power (W)	300	300	360	300	300	360	300	300	360	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
	Energy consumption (kWh/24h)	2.8	2.9	3.1	2.2	1.9	1.8	1.9	1.8	1.9	5.4	5.0	4.9	6.6	5.4	5.2	7.4	5.7	5.3	6.8	6.1	7.6
	Heat emission (Kcal/h)	100	100	111	162	162	150	153	153	153	193	178	176	236	192	186	265	205	190	244	219	272
	Compressor running time (%)	51	51	50	54	54	41	50	50	40	50	40	40	42	40	43	50	39	43	50	43	52
	Noise level (dB(A)) *(at 1m height & 1m distance)*	45	47	47	36	37	37	37	38	38	47	49	50	44	46	47	45	47	48	45	47	48

All values were measured at +25°C ambient temperature and without load.
Subject to change without prior notice. Some of the accessories shown in the pictures are optional.

F
RANGE

Technical Data
Specifications

		F130	F290-380	F400-500-700-900
Regulation sensor		NTC, at 0°C ± 0.3°C		PT1000, at 0°C ± 0.1°C
Display sensor *in reference body / 100 ml DOW corning 200-5CST (Silicon Oil)*		NTC, at 0°C ± 0.3°C		PT1000, at 0°C ± 0.1°C
Accu data / function time of the control panel when system 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	65 mm PU	65-82 mm PU
Cabinet insulation (polyurethane)		60-65 mm PU	57-82 mm PU	77-82 mm PU
Material	*Inner body / door*	Polypropylene (copolymer UV)		Stainless steel (1.4301)
	Outer body / door	Polypropylene (copolymer UV)	Painted steel	DX51D + Z100 coated
	Separate interior doors	-		Anodized aluminium
	Drawer	Polycarbonate, transparent		-
	Shelf	-		Wire DIN177, PA11 coated
European Medical Device Regulation		MDR (EU) 2017/745, Class I (models: 220-240 V - 50/60 Hz & 230 V - 50 Hz)		
EMC directive		2014 / 30 / EU (models: 220-240 V - 50/60 Hz & 230 V - 50 Hz)		
Low voltage directive		2014 / 35 / EU (models: 220-240 V - 50/60 Hz & 230 V - 50 Hz)		
FDA regulation | Medical Device		21CFR Part 862.2050, Class I (models: 115-127 V - 60 Hz & 220 V - 60 Hz)		
cCSAus certificate		Yes (models: 115-127 V - 60 Hz & 220 V - 60 Hz)		
Energy Star certificate		-		Yes (models: 115-127 V - 60 Hz)
GMP - Clean room classification		Class ISO 6 / EC GMP B		Class ISO 5 / EC GMP A

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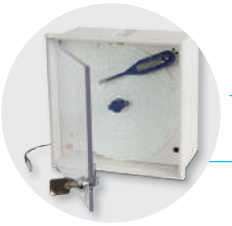
7" FULL TOUCHSCREEN DISPLAY

ERGONOMIC HANDLE

SEPARATE INTERIOR DOORS

Also available with 4 separate interior doors



TEMPERATURE CHART RECORDER

(sample image)

Equipment
General

		F130	F290	F380	F400	F500	F700	F900
B Medical Systems Electronics	Digital display	●	●	●	-	-	-	-
	7'' full touchscreen display	-	-	-	●	●	●	●
Ergonomic handle open/close - heavy duty door lock mechanism		-	-	-	●	●	●	●
Separate interior doors in order to minimize the loss of cold air		-	-	-	● 2 | ○ 4	● 2 | ○ 4	● 2 | ○ 4	● 2 | ○ 4
Ethernet interface		-	-	-	●	●	●	●
°B Connected - Monitoring Software		○	○	○	○	○	○	○
DCU - Data Communication Unit (in combination with °B Connected)		○	○	○	-	-	-	-
Integrated remote temperature monitoring device (RTMD)		-	-	-	○	○	○	○
Temperature chart recorder pre mounted (in the form of a circular chart recorder)		○	○	○	○	○	○	○
Ambient temperature sensor		-	-	-	○	○	○	○
Potential-free alarm contact in case of system failure		●	●	●	●	●	●	●
Integrated port for external sensor (installed by customer)		●	●	●	●	●	●	●
External water cooling		-	-	-	○	○	○	○
Rollers		● 2	● 2	● 2	-	-	-	-
Smooth castors with stabilizers		-	-	-	● 4	● 4	● 4	● 4
Door hinge Right | Left		● | ○	● | ○	● | ○	● | ○	● | ○	● | ○	● | ○

● Standard ○ Optional - Not available

Subject to change without prior notice.

F
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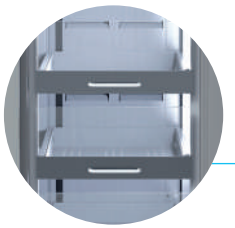
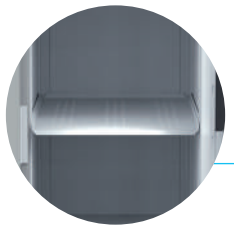
DRAWER
2 versions:
• with or without Front Cover
• bottom

WIRE SHELF



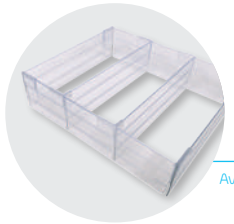
ST-DRAWER
(STAINLESS STEEL)
Available with or without Front Cover



ST-SHELF
(STAINLESS STEEL)

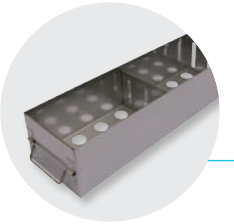
Equipment
Internal storage

Standard	F130	F290	F380	F400	F500	F700	F900
Drawer with Front Cover	● 2	● 6	● 7	-	-	-	-
Drawer without Front Cover	-	● 1	● 1				
Bottom Drawer	● 1	● 1	● 1	-	-	-	-
Wire Shelf	-	-	-	● 5	● 5	● 5	● 5
Optional							
ST-Drawer with Front Cover	-	-	-	○ 5 (max. per unit)	○ 5 (max. per unit)	○ 5 (max. per unit)	○ 5 (max. per unit)
ST-Drawer without Front Cover	-	-	-	○ 13 (max. per unit)	○ 13 (max. per unit)	○ 13 (max. per unit)	○ 13 (max. per unit)
ST-Shelf	-	-	-	○ 13 (max. per unit)	○ 13 (max. per unit)	○ 13 (max. per unit)	○ 13 (max. per unit)
Accessories							
Dividers Set (H 100 mm) to facilitate the handling and storage management	○ 2 (max. per unit)	● 6	● 7	-	-	-	-
S-Rack (H 100 x W 113 x D 638 mm)	-	-	-	○ 15 (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)
ST-Rack (H 95 x W 134 x D 648 mm) — *with ST-Drawer*	-	-	-	○ 2 (max. per tray)	○ 2 (max. per tray)	○ 3 (max. per tray)	○ 4 (max. per tray)
ST-Rack (H 95 x W 134 x D 648 mm) — *with ST-Shelf*	-	-	-	○ 2 (max. per tray)	○ 3 (max. per tray)	○ 4 (max. per tray)	○ 4 (max. per tray)
ST-Cover for Wire Shelf	-	-	-	○ 13 (max. per unit)	○ 13 (max. per unit)	○ 13 (max. per unit)	○ 13 (max. per unit)

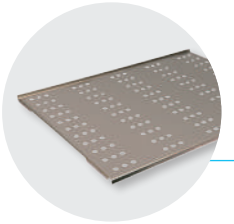


DIVIDERS SET
Available for Drawer with Front Cover

S-RACK



ST-RACK
(STAINLESS STEEL)



ST-COVER
(STAINLESS STEEL)
Available for Wire Shelf

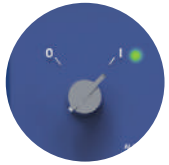
● Standard ○ Optional - Not available

Subject to change without prior notice.

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

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

Function buttons

- UP / DOWN buttons: navigation within the parameters and modification of their values
- ENTER button: use the ENTER-key to confirm the actual selection. This applies to 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

USB port

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 new 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.

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, defrosting, gasket heater 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

USB port & SD card slot

Acoustic and visual alarm signal

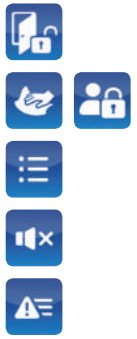
When an alarm occurs, the red alarm LED lights up and an acoustic signal sounds. The corresponding alarm message appears on the display together with the inside measured temperature. If several alarms occur simultaneously, the messages will be shown alternately.

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

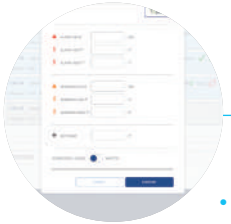
1 CONFIGURATION

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

- 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

°B Connected & DCU offer a highly flexible system that is adaptable to specific customer requirements
> Complete & legally safe documentation of temperature data
> Comprehensive applications and diagnostic functionalities

3 ANALYSING

REAL TIME GRAPHICS

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

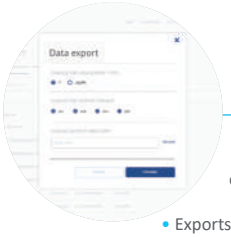
INTERACTIVE ANALYSIS

- 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

CONTROL CENTER

Overview (Control Monitor) of all monitored appliances:

- Information regarding status, appliance name, location, connection, upper and lower limits, current temperature, events / alarms
- Dashboard to combine several temperature measurements in one single graph



PRINTED ANALYSIS

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

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

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.

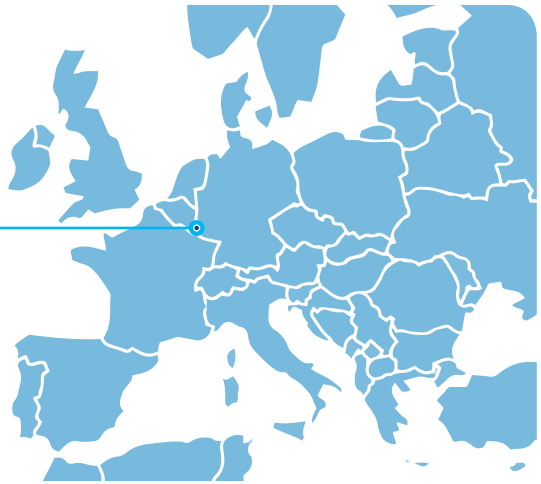
B medical systems

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. Having established a legitimate reputation in the medical equipment industry, the company has also become a global leader in vaccine cold chain.

Luxembourg, in the heart of Europe



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