

ML/MP
RANGE



Medical Refrigerators

B Medical Systems | ML/MP Range

For the safe storage of laboratory and pharmaceutical preparations being subject to cold chain and temperature sensitivity

> according to DIN 58345

4

MODELS



+5°C
TEMPERATURE



670 L > 1430 L
VOLUME

SN
SN/ST
CLIMATE
CLASS



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.

ML/MP RANGE	
●	B Medical Systems Electronics
●	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. and average temperature
●	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) [for MP models]
●	Designed and tested for climatic class SN / ST (ambient temperature range +10°C to +38°C) [for ML models]
●	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
○	Ambient temperature sensor
○	*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)

Medical Refrigerators

B Medical Systems | ML/MP Range

4 models • Volume 670 > 1430 L • Set temperature +5°C • Climate class SN I SN/ST • According to DIN 58345

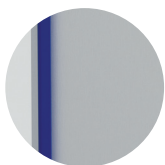
In conformity with national and international guidelines offering reliability, efficiency and safety at an optimal price.

MODELS ML 670-1430 SG & MP 670-1430 SG



Integrated multi-function electronics

Integrated B Medical Systems multi-function electronics, compatible with °B Connected monitored solution for data monitoring and recording.



High quality materials

High quality stainless steel, certified antibacterial, for better longevity and easy hygiene control.



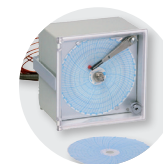
High storage capacity

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.



Special features

- Control of storage temperature and documentation of temperature changes can - depending on the application - be carried out via an optional integrated temperature recorder (in the form of a circular chart recorder) or via the optional DCU, through the Monitoring & Visualization Software °B Connected
- Full compatibility of inner modules and rails, no need to buy new racks, you can keep racks previously used in different ML/MP models
- MP models are equipped with triple insulating glass door (anti-mist) for quick check and pre-selection of the refrigerator's content



Medical refrigerators for the safe storage of laboratory and pharmaceutical preparations at cold temperatures between +4°C and +15°C with multiple safety features developed as a result of over 35 years of expertise in refrigeration technology.



Technical Data

General features

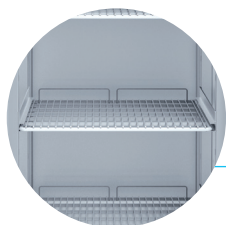

ML 670 SG
ML 1430 SG
MP 670 SG
MP 1430 SG

Gross / Net volume (l)	670 / 615	1430 / 1395	670 / 615	1430 / 1395	
Set temperature (preset)	+5°C				
Set temperature (setting range) <small>can be adjusted in steps of 0.1°C</small>	+4°C to +15°C		+5°C to +15°C		
Temperature cold / warm alarm limit	+2°C / +8°C				
Hold over time (+5°C to +10°C)	120 min.	85 min.	60 min.	50 min.	
Climate class (ambient temperature range)	SN / ST (+10°C to +38°C)		SN (+10°C to +32°C)		
Defrosting technique	Natural				
Refrigerant type	R290				
External dimensions H x W x D (mm)	2050 x 710 x 910	2050 x 1441 x 910	2050 x 710 x 910	2050 x 1441 x 910	
Inner dimensions H x W x D (mm)	1544 x 560 x 707	1544 x 1291 x 707	1544 x 560 x 707	1544 x 1291 x 707	
Net weight with standard equipment (kg)	152	244	172	285	
Energy Saver	Supply voltage (V)	220-240			
	Frequency (Hz)	50			
	Power (W)	230	270	230	270
	Energy consumption (kWh/24h)	1.1	1.9	1.5	2.5
	Heat emission (Kcal/h)	31	48	44	73
	Compressor running time (%)	16	20	22	30
	Noise level (dB(A)) <small>(at 1m height & 1m distance)</small>	47	50	47	50



Technical Data Specifications

	ML 670 SG	ML 1430 SG	MP 670 SG	MP 1430 SG
Regulation sensor <i>Precision (from -80°C to +180°C) ± 0.3°C</i>	PT1000 2-WIRE 1/3DIN CL.B			
Display sensor <i>Precision (from -80°C to +180°C) ± 0.3°C</i> <i>in reference body / 100 ml DOW</i> <i>corning 200-5CST (Silicon Oil)</i>	PT1000 2-WIRE 1/3DIN CL.B			
Accu data / function time of the control panel when system failure	12V - 7 AH / 48h			
Relative humidity at +32°C	≤ 75%		≤ 70%	
Door insulation (polyurethane)	63 mm PU		63 mm PU with triple insulating glass	
Casing insulation (polyurethane)	56-75 mm PU			
Material	Inner / Outer body		Stainless steel (V2A - 1.4301)	
	Inner / Outer door		Stainless steel (V2A - 1.4301)	
	Shelf		Wire DIN177, PA11 coated	
Safety class	I			
EMC directive	2014 / 30 / EU			
Low voltage directive	2014 / 35 / EU			


WIRE
SHELF

ST-DRAWER
(STAINLESS STEEL)
Without Front Cover

Equipment

Standard & optional

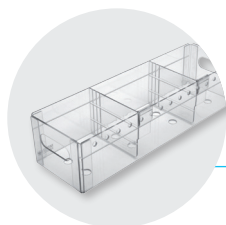
	ML 670 SG	ML 1430 SG	MP 670 SG	MP 1430 SG
<i>B Medical Systems Electronics</i>	●	●	●	●
<i>Interior equipment</i> <i>Wire Shelf</i>	● 6 ○ ≤ 12	● 12 ○ ≤ 24	● 6 ○ ≤ 12	● 12 ○ ≤ 24
<i>ST-Drawer</i>	○ ≤ 12	○ ≤ 20	○ ≤ 12	○ ≤ 20
<i>Internal LED lighting</i>	○	○	○	○
<i>GMP - Clean room classification</i>	○ Class ISO 6 / EC GMP B	○ Class ISO 6 / EC GMP B	○ Class ISO 6 / EC GMP B	○ Class ISO 6 / EC GMP B
<i>*B Connected - Monitoring Software</i>	○	○	○	○
<i>DCU - Data Communication Unit</i> <i>(in combination with *B Connected)</i>	○	○	○	○
<i>Ambient temperature sensor</i>	○	○	○	○
<i>Potential-free alarm contact</i> <i>in case of system failure</i>	●	●	●	●
<i>Integrated port for external sensor</i> <i>(installed by customer)</i>	●	●	●	●
<i>Glass door heating (anti-mist)</i>	-	-	●	●
<i>Shortened feet (unit height 1990 mm)</i>	○	○	○	○
<i>Smooth castors with stabilizers</i>	○	○	○	○
<i>Door hinge Right Left</i>	● ○	-	● ○	-
<i>Wooden packaging</i> <i>for ocean transport / export</i>	○	○	○	○

● Standard ○ Optional - Not available

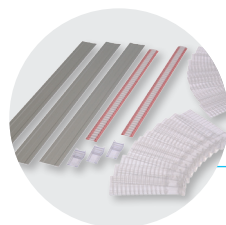
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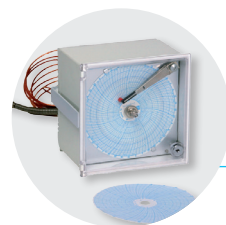
Accessories Optional



W-RACK
(Shown with
bags separators)

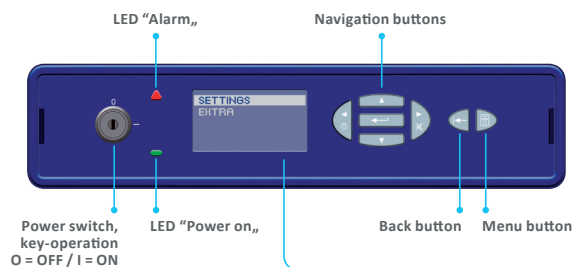


AL-KIT
Available for
ST-Drawer



**TEMPERATURE
CHART
RECORDER**

	ML 670 SG	ML 1430 SG	MP 670 SG	MP 1430 SG
<i>W-Rack</i> (H 104 x W 155 x D 640 mm)	○ ≤ 3 (per level)	○ ≤ 3 (per level)	○ ≤ 3 (per level)	○ ≤ 3 (per level)
<i>Bag separator for W-Rack</i>	○	○	○	○
<i>AL-Kit</i> to facilitate the handling and storage management	○	○	○	○
<i>Temperature chart recorder</i> integrated (in the form of a circular chart recorder)	○	○	○	○
<i>Additional reference bottle</i> with reference fluid and fitting	○	○	○	○



Settings menu

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DATE/TIME
---
DOOR HEATER
FRAME HEATER
ALARM TEST
COMM ADDRESS
SERVICE
USER PASSWORD
CALIBRATION

```

Extra menu

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HISTORY
BUZZER
DISPLAY
VOLTAGE IND.
AMBIENT PROBE
ADD. PROBE
RESOLUTION
TEMP. UNIT
LANGUAGE
DIAGNOSTICS
PARAMETERS

```

THE B MEDICAL SYSTEMS ELECTRONICS OFFERS (STANDARD):

- A wide range of adjustment and diagnostic facilities as well as additional protection / warning operations (via external alarm operations, histories and individual display signals)
- An optional PT 100 sensor inlet to show the sensor's temperature data on the display as well as forwarding and further processing via a 4-20 mA outlet
- An optional 20 mA outlet to transmit temperature data of a sensor connected to the electronic
- Connection facilities for additional (optional) temperature sensors
- *B Connected (Monitoring Software) and the DCU (Data Communication Unit) allows illustration of texts on the product's display (optional)

○ Optional - Not available

Subject to change without prior notice.

SAVING LIVES THROUGH RELIABLE AND INNOVATIVE TECHNOLOGY

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 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



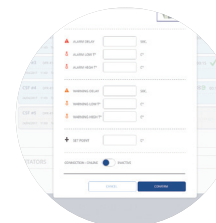
USER MANAGEMENT

- Password login
- Access right



DEVICE SETTINGS

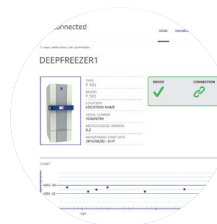
- Device information
- Device & user configuration



ALARM PROFILE

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

2 DISPLAYING

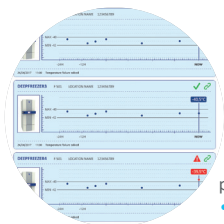


DETAILED DISPLAY

- 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

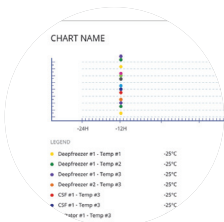
°B Connected & DCU offer a highly flexible system that is adaptable to specific customer requirements

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



REAL TIME GRAPHICS

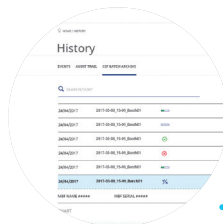
- Graphic temperature progress (in real time)
- Adjustable time axis
- Offline navigation



CONTROL CENTER

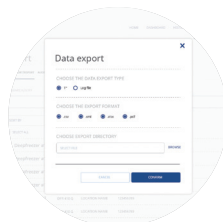
- Overview (Control Monitor) of all monitored appliances:
- Information regarding status, appliance name, location, connection, upper and lower limit, current temperature, events / alarms
 - Dashboard to combine several temperature measurements in one single graph

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

DCU | DATA COMMUNICATION UNIT

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 configuring 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 stored data
- The DCU combined with the °B Connected software replaces the paper temperature recorder
- All data are recorded and save in the internal storage of the DCU and backed up in °B Connected data base 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 facilities allowing flexible upgrades for individual projects



Blood Management Solutions

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



Cold Chain

*Reliable and innovative 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.

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