Blood Bank Refrigerators

+4°C

Technology for life

◍ Dometic
MEDICAL SYSTEMS
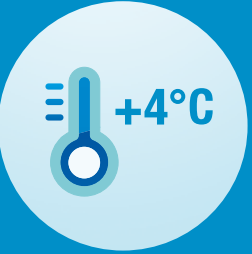
Refrigerators for the legally safe storage of blood bags / erythrocyte concentrates at +4°C

The BR range comprises 5 Blood Refrigerators that are built in compliance with the requirements of :

- DIN 58371 (Germany, "Blutkonserven-Kühlgeräte"/ Blood Refrigerators)
- ÖNORM K 2030 (Austria, "Blutkonserven-Kühlschränke"/ Blood Refrigerators)

In conformity with :

- AS 3864 (Australia, "Medical refrigeration equipment – for the storage of blood & blood products")
- BS 4376-1:1991 (UK, "Electrically operated blood storage refrigerators. Specifications for closed reach-in types")
- European Directive "Guide to preparation, use and quality assurance of blood components"

The BR range complies with the Dometic GOLD Safety Standard

MODEL	BR 55 G	BR 250 G	BR 410 G	BR 490 G	BR 750 G
DIN 58371 & ÖNORM K 2030 ('Blood Refrigerators')	●	●	●	●	●
Glass door with triple insulating glazing	-	●	●	●	●
GMP Clean Room Class A / ISO 5 (ISO EN 14644-1)	-	●	●	●	●
GMP Clean Room Class B / ISO 6 (ISO EN 14644-1)	●	-	-	-	-
Dometic Electronic	●	●	●	●	●
Key-operated power switch (power ON/OFF)	●	●	●	●	●
Safety door lock	●	●	●	●	●
Digital temperature indicator (display : 0.1 digits)	●	●	●	●	●
Controlled fan cooling system for constant temperature and even temperature distribution across the entire refrigerating chamber. Automatic fan switch-off when front door opens	●	●	●	●	●
Self-contained alarm system with integrated battery takes over the alarm function and temperature value measurements in case of power failure for at least 48 hours	●	●	●	●	●
Acoustic/visual alarm signal in case of temperature alarm and power failure	●	●	●	●	●
All relevant data of temperature alarm and power failure alarm are stored in the alarm history. Such as date and time of start and end, min. max and average temperature	●	●	●	●	●
Alarm function test : simulation of a temperature rise or drop in order to test the alarm system functionality	●	●	●	●	●
Control via self-diagnostic system	●	●	●	●	●
Safety thermostat prevents dropping of the cold storage products' temperature below +2°C	●	●	●	●	●
Interior lighting	●	●	●	●	●
Door opening alarm	●	●	●	●	●
Remote transmission alarm signal (via potential-free contact) in case of temperature alarm (change-over contact)	●	●	●	●	●
Remote transmission alarm signal (via potential-free contact) in case of power failure (change-over contact)	●	●	●	●	●
Automatic closing of the front door below a door opening angle of 90°	-	●	●	●	●
Interior made from stainless steel	-	●	●	●	●
Climate class (ambient temperature range) N (+16°C to +32°C)	●	●	●	●	●
Climate class (ambient temperature range) T (+16°C to +43°C)	-	●	●	●	●
Smooth castors with stabilizers for optimum flexibility of movement	-	●	●	●	●
RS 485 interface for the display of all operating and control functions (hardware and software settings) via DMN monitoring software on a peripheral device (computer)	●	●	●	●	●
DMN software package	●	●	●	●	●
DCU - Dometic Communication Unit	○	○	○	○	○

● standard / ○ optional / - not available
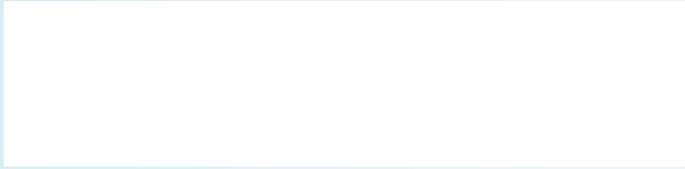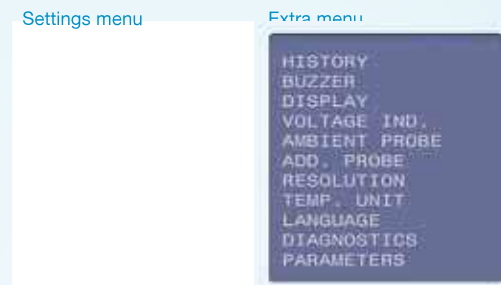
Dometic Electronic

The new and innovative Dometic Electronic (operation and control panel) assures thanks to its **password protected settings menu** optimum protection for your stored preparations.

The menu structure of the **modern and user-friendly graphic display** offers a simple and intuitive utilization.

Settings menu

Extra menu

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

Beside this the new Dometic Electronic offers :

- 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 miliA outlet.

- An optional 20 miliA outlet to transmit temperature data of a sensor connected to the electronic.
- Connection facilities for additional (optional) temperature sensors.
- DMN (Dometic Monitoring Network) and the (optional) DCU (Dometic Communication Unit) allows to illustrate texts on the product's display.

The models of the BR range feature a natural defrosting system that does not affect the product temperature of the stored preparations during defrosting.

The refrigeration system is optimally adjusted with regard to power consumption, waste heat and noise development. The interior temperature of the refrigerator is monitored via an autonomous control sensor and adjusted to +4°C. This ensures that the product temperature of the stored preparations is kept at +4°C ± 1.5K. The equally autonomous display sensor – located in a reference body defined by standards (for models BR 250 G – BR 750 G) – shows the temperature changes on the operation and control panel, in analogy to the temperature within the preparation to be cooled. This ensures that the entire product still has the allowed temperature (+4°C ± 2K) if an alarm is triggered.

The glass doors of models BR 250 G – BR 750 G allow a quick check and pre-selection of the refrigerator's content. The transparent front panels of the ST-Drawers and the individual drawer compartments (N-Racks) minimize physically caused cold losses when the door is opened.

The (subsequent) control of the product temperature and the documentation of the temperature changes can be carried out via an optional temperature recorder (in form of a circular chart recorder) or via the optional DCU via the Monitoring & Visualization software DMN.

BR 55 G

Gross volume :   55 L
Net volume :   37 L
Storage capacity : app. 12 blood bags at 450 ml each
app. 20 blood bags at 350 ml each

BR 250 G

Gross volume :   246 L
Net volume :   167 L
Storage capacity : app. 120 blood bags at 450 ml each
app. 160 blood bags at 350 ml each

BR 410 G

Gross volume :   408 L
Net volume :   319 L
Storage capacity : app. 240 blood bags at 450 ml each
app. 320 blood bags at 350 ml each

BR 490 G

Gross volume :   489 L
Net volume :   395 L
Storage capacity : app. 300 blood bags at 450 ml each
app. 400 blood bags at 350 ml each

The illustrations show the models of the BR range with standard interior equipment as easy-to-use and tried and tested combination of stainless steel drawers (on telescopic runners with safety stop) with transparent front panel, inclusive separately detachable N-Racks and Wire Shelves with individually detachable N-Racks with Front Cover. This makes it easy – especially for the upper levels or compartments – to choose and remove preparations. The option to equip the device completely with ST-Drawers is available.

Control of the storage temperature and documentation of the temperature changes can – depending on the application – be carried out via an optional temperature recorder (in form of a circular chart recorder) or via the optional DCU, this through the Monitoring & Visualization Software DMN.

Reference body for control sensor with reference fluid 100 ml DOW corning 200-5CST (Silicon Oil). Simulates the temperature inertia of the stored product.

BR 750 G

Gross volume :	746 L
Net volume :	620 L
Storage capacity :	app. 450 blood bags at 450 ml each
	app. 525 blood bags at 350 ml each

GOLD SAFETY STANDARD

Technical Data

	BR 55 G	BR 250 G
Gross volume	55 l	246 l
Net volume	37 l	167 l
Storage capacity: blood bags / approx.	12 at 450 ml each	120 at 450 ml each
	20 at 350 ml each	160 at 350 ml each
External dimensions (H x W x D)	645 x 486 x 475 mm	1305 x 850 x 785 mm
External dimensions (with mounted temperature recorder)	820 x 486 x 475 mm	-
Inner dimensions (H x W x D)	487 x 416 x 295 mm	655 x 680 x 552 mm
Net weight (with standard equipment)	30 kg	142 kg
Set temperature (preset - not changeable, ● by DIN 58371)	+4°C	+4°C
Temperature cold alarm limit (preset - not changeable, ● by DIN 58371)	+2°C	+2°C
Temperature warm alarm limit (preset - not changeable, ● by DIN 58371)	+6°C	+6°C
Control sensor	PT1000 2-WIRE 1/3DIN CL.B	PT1000 2-WIRE 1/3DIN CL.B
Precision (from -80°C to +180 °C)	± 0,2°C	± 0,2°C
Display sensor	PT1000 2-WIRE 1/3DIN CL.B	PT1000 2-WIRE 1/3DIN CL.B
Precision (from -80°C to +180 °C) in reference body with reference fluid 100 ml DOW corning 200-5CST (Silicon Oil)	± 0,2°C	± 0,2°C
Voltage	220-240 V - 50/60Hz (10A)	220-240 V - 50/60Hz (10A)
Power	85 W	200 W
Energy consumption	0.60 kWh /24h	1.40 kWh /24h
Heat emission	65 Kcal/h	172 Kcal/h
Compressor running time	31%	18%
Noise level (at 1m height & 1m distance)	34 dB(A)	57 dB(A)
Accu data / function time of the control panel when power failure	12V -7 AH / 48 hours	12V -7 AH / 48 hours
Climate class (ambient temperature range)	N (+16°C to +32°C)	T (+16°C to +43°C)
Relative humidity at ambient temperature	≤ 70% at 32°C	≤ 70% at 32°C
Defrosting technique	automatic (natural)	automatic (natural)
Refrigerant type	R134a	R134a
Door insulation	85 mm	100 mm, with triple insulating glazing
Casing insulation (polyurethane)	33 - 46 mm	85 - 95 mm
Hold over time (from +4°C to +10°C)	105 min	90 min
Safety class	I	I
EMC directive	2004 / 108 / EEC	2004 / 108 / EEC
Low voltage directive	2006 / 95 / EEC	2006 / 95 / EEC
GMP - clean room classification	B / ISO 6	A / ISO 5
Material inner body	PS (Polystyrene)	Stainless steel (V2A - 1.4301)
Material outer casing & door	Galvanized sheet steel (STO2Z-AZ150)	Galvanized sheet steel (STO2Z-AZ150)
Material (Drawers)	-	Stainless steel (V2A - 1.4301)
Material (Wire Shelves)	SAN (Styrol)	Wire DIN 172-2, PA11 coated
Material (N-Rack)	Polycarbonate, transparent	Polycarbonate, transparent
Color outer casing	White (similar RAL 9010)	White (similar RAL 9010)
Color contrasts	Blue (similar RAL 5002)	Blue (similar RAL 5002)

Interior Equipment & Options (Concerning further information on accessories please see our leaflet "Racking & Storage Systems")

	BR 55 G	BR 250 G
Standard interior equipment	ST-Drawers 2 Containers ●	1 ST-Drawer with Front Cover ● incl. 5 N-Racks without Front Cover
	Wire shelves 1 ●	1 ● incl. 5 N-Racks with Front Cover
Wire Shelves, recommended / maximum	-	2 / 4 ○
ST-Drawers with front cover, maximum	-	2 ○
ST-Drawers without Front Cover recommended / maximum	-	2 / 4 ○
N-Racks	-	max. 5 per Drawer ○
N-Racks with Front Cover	-	max. 5 per ST-Drawer ○
Rilsan Separator for N-Rack	-	○
W-Rack, maximum	0	8
DCU interface	○	○
RS 485 interface	●	●
DMN Software package	●	●
Ambient temperature sensor	○	○
Potential-free contact in case of power failure	●	●
Integrated inlet for external sensor (installed by customer)	●	●
Display sensor in reference bottle with reference fluid	●	●
Smooth castors with stabilizers for optimum flexibility of movement	-	●
Interior lighting	●	●
Temperature recorder in form of a circular chart recorder	Mounted ○	Integrated ○
Measuring / recording range : -10°C to +20°C	for 24h or 7 days	for 24h or 7 days
External water cooling	-	○
Door hinge right	●	●
Door hinge left	○	○
Wooden packaging for ocean transport / export	○	○

● standard / ○ optional / - not available - All values were measured at +25°C ambient temperature and without load (with inertial mass). Models BR 250 G - BR 750 G can be supplied with 110-120V / 60 Hz and 220-240V / 60 Hz

BR 410 G   BR 490 G   BR 750 G

Temperature recorder
(in form of a circular chart recorder),
mounted for model BR 55 G
and integrated for models
BR 250 G -750 G

ST-Drawer
with/without Front Cover, on
telescopic runners with safety stop
(optional, for BR model range)

N-Racks with/without Front Cover
can be equipped with
Rilsan Separator
(optional, for models
BR 250 G - 750 G)

**Remote temperature
and power failure
alarm**

Water cooling, external (ex factory)
(optional, for BR model range)

DMN – Dometic Monitoring Network

Universal software for collection, long-term recording and visualization of temperature data.

- Complete activity list (password protected).
- Integrated event and activity history of all appliance components.
- Graphical visualisation of all temperature curves.
- Connection to existing or third-party appliances via network technology (LAN, WLAN, WAN).
- Simultaneous data monitoring and recording.
- Possibility for specific and individually configurable alarm forwardings, e. g. via email, SMS (with optional GSM module) or via DECT.
- Simple and intuitive utilization.
- Essential price advantage compared to a traditional circular chart recorder and its spare parts.

- Economy of time as regular changes of recorder paper, ink and battery is not necessary.

Your essential advantages :
▶ One central database for all connected appliances.
▶ Remote inquiry of all data possible, even from different sites simultaneously.
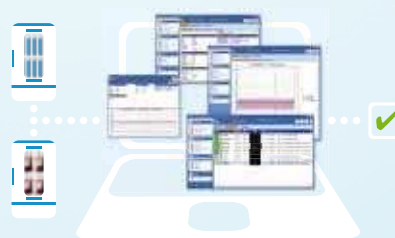
DCU – Dometic Communication Unit

Hardware module that notes all operating conditions and passes them through to a central data base – via local network, on which devices are connected.

- Interface connection of Dometic appliances to existent network.
- The DCU offers direct connection to the Ethernet, even wireless, to the serial BUS RS 485, as well as to the central building control system (4 ... 20 miliA).
- Possibility of connection of actors (4 ... 20 milliA out).
- Digital IN/OUT (customer-specific use of these connections is programmable).
- The integrated USB port allows to write stored data to an external memory stick.
- Recording and storage of relevant data of the appliance.
- The DCU replaces the paper temperature recorder.
- The DCU also works with Dometic electronics which were applied until October 08 (upgrade possible).

- All data are recorded and saved in the data base of the DMN and are available for analysing purposes at any time.
- Possibility of connection of several additional self-sufficient temperature sensors (up to 4 PT1000 & 2 PT100).

Your essential advantages :
▶ One integrative system for collecting all temperature relevant appliances and ambients.
▶ Many different connection facilities allow flexible upgrades for individual projects.

CON1 : DC inlet
CON2 : Electronic
CON3 : -----
CON4-6 : Add. sensors
USB Remote
CON7 : 4-20mA / RS 232
CON8 : RS 485

WLAN (option)
Ethernet LAN
USB

DMN & DCU in combination offer a highly flexible system that is adaptable to specific customer requirements.

+ **=** Complete & legally safe documentation of temperature data

Comprehensive applications and diagnostic possibilities

Technology for life

⟨⟩ **Dometic**
MEDICAL SYSTEMS