



Equipment for the storage and transport of blood and blood components

The transport boxes are specially designed to meet the requirements of field conditions for military tasks as well as for civil aid organizations for the transport of temperature-sensitive supplies such as blood and blood products, vaccines, plasma, blood samples and pharmaceutical products. The icepacks the boxes require as their source of refrigeration are frozen in a supplementary device specially designed for this purpose.

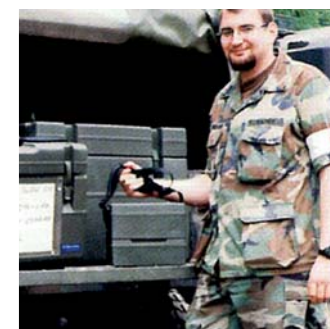


Depending on the product:



ADR (94/55/EWG)

RID (96/49/EWG)



The "approximate" figures are based on the number of blood bags that are really to be stored and on the different bag manufacturers' specifications available on the market, on the actual bag sizes and their volumes and the possibly differing contents resulting from those as well as on the individual user's practice of loading.



External validation ^{①②} of the passive transport systems RCB 8, RCB 12 and RCB 25 incl. Standard Operating Procedures (SOPs)	
Available SOPs:	<p>① Externally Validated Ambient Temperature Ranges: +10°C and +32°C. As minimum or maximum limits, these temperature ranges cover more than 90% of the transport scenarios imaginable. The lower limits of the typical number of blood bags for the respective container sizes were chosen as charges. These low charge levels are more unstable, and the resulting test readings are significantly more telling in respect to critical temperature ranges. With increasing charges the preparations' temperatures in the secondary (inner) container become increasingly stable.</p> <p>② External Validation of "Maximum Cold Life" for the Ambient Temperature Ranges of +32°C and +43°C These ambient temperature ranges were chosen according to the validation parameters set by the WHO. As maximum limits including a safety margin, these temperature ranges cover all imaginable transport scenarios. Because it is the objective of the validation to determine the maximum operating time, the upper limits of the typical number of blood bags for the respective container sizes were chosen as charges. With decreasing charges, the reliable operating time is slowly decreasing.</p>
<ul style="list-style-type: none"> Process description and standard operating procedures for the transport of blood preparations using the transport systems mentioned above Conditioning of cooling elements Visual inspection Technical inspection Charging with cooling elements 	

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Conformity to the prescriptions for transport packaging applying to ADR & RID.

ADR (94/55/EWG)

Declaration of Conformity (in accordance with ADR / RID)

RID (96/49/EWG)

European Agreement on the international transport of hazardous goods by

- Road (ADR), directive 94/55/EEC
- Rail (RID), directive 96/49/EEC

RCB 2, RCB 8, RCB 25 und RCB 42 P

have been approved for goods of the packaging groups II and III of class 6.1, and also as outer packing for class 6.2 goods

RCB 4 und RCB 12

have been approved for goods of the packaging groups I, II and III of class 6.1, and also as outer packing for class 6.2 goods

Basis:

RCB 2: Certificate Nr. 03016 - Test report Nr. 0008A/ME/CMP/03 · RCB 4: Certificate Nr. 04023 Test report Nr. 0018/ME/CMP/04rev.1

RCB 8: Certificate Nr. 03017 Test report Nr. 0008B/ME/CMP/03 · RCB 12: Certificate Nr. 03018 Test report Nr. 0008C/ME/CMP/03

RCB 25: Certificate Nr. 03019 Test report Nr. 0008D/ME/CMP/03 · RCB 42 P: Certificate Nr. 03021 Test report Nr. 0008D/ME/CMP/03

(Test reports of the accredited test laboratory CSI S.p.A., Bollate, Italy)

Made of rotomoulded polyethylene, the transport boxes offer excellent mechanical resistance, as proven by drop tests, and are not subject to corrosion. They are perfectly suited to intensive use, with frequent handling under difficult climatic conditions.

The polyurethane foam injected between the double walls of these boxes ensures perfect insulation and thus preservation of the quality of blood, blood products and pharmaceutical products even over long periods of transport. Used with frozen icepacks or also wet ice for some versions, they are fully self-sufficient with respect to the ambient environment and therefore ideal for transport stages.

The **RCB 2** has been specially designed for brief transports. One icepack (of 300 ml) is enough for the container to maintain an adequate temperature. Easy to carry thanks to the shoulder strap, it is also fitted with a liquid crystal thermometer for monitoring the inside temperature, and with a synthetic separation wall to prevent direct contact between the temperature-sensitive materials and the icepacks.

Created for increasing the storage capacity as well as its Cold Life (supported by 3 icepacks), the **RCB 4** is still easy to handle, thanks to its shoulder strap. As already the RCB 2, the RCB 4 is fitted with a liquid crystal thermometer to monitor the inside temperature and with a synthetic separation wall to prevent direct contact between the temperature-sensitive materials and the icepacks.

The **RCB 8** is perfectly suited for the transport of blood and blood products such as plasma. Its internal polystyrene compartment protects the blood bags against direct contact with the frozen icepacks.

Transparent folders containing identification documents at the front of the RCB 8 allow the contents to be identified without having to open the lids.

The **RCB 12** is sufficiently large to accommodate blood and pharmaceutical products in their original packaging, as well as a substantial amount of plasma. Transport is done on short distances by the RCB 12 type. The one latch of the lid can be lead-sealed to prevent any unauthorised handling of the contents during transport.

Standard equipment that comes with the RCB 12 includes a removable steel compartment as well as 12 icepacks (of 600 ml), 3 of which are constantly in use.

Foreseen for a transport of larger quantities, the **RCB 25** is sufficiently large to accommodate blood and pharmaceutical products in their original packaging, as well as a large amount of plasma. A plastic reinforcement at the bottom of the RCB 25 allows the removable steel compartment to be held in place. The latches of the lid can be lead-sealed to prevent any unauthorised handling of the contents during transport.

Standard equipment that comes with the RCB 25 includes a removable steel compartment as well as 24 icepacks (of 600 ml), 6 of which are constantly in use.



RCB 42 P (active system / ThermoSTABILIZER)

Gross volume: 43 litres
Transport capacity: app. 30 blood bags at 500 ml each
app. 50 blood bags at 270 ml each
Operating temperature: +4°C (+/- 2°C)
Application range: -32°C to +43°C
(ambient temperature)

Depending on the ambient temperature, the thermoelectric unit automatically switches from cooling to heating

Power supply AC: 90V to 264V (48Hz - 62Hz)
115V / 400Hz
DC: 11V to 42V (battery voltage)

Numerous applications:
Cars, HGVs, ships, (with conditions) helicopters and planes

Integrated alarm system (visual/acoustic) with fault indicator port

Long "hold over time / Cold Life" times (10 h at ambient temperature of +32°C) even without power supply, due to optimum insulation capabilities

Function independent of inclination, cooling free from vibration, impervious to bumps, hardly any moving components, compact aggregate dimensions, low weight of cold system, both cooling and heating possible (Thermostabilizer), low-noise operation

The **RCB 42 P** is a thermostabilizer designed for storing and transporting pre-cooled blood and medicinal products over long periods of time. The refrigerating unit operates with nearly all types of electricity (DC/AC). The RCB 42 P ensures mobility and provides all the services of a blood bank refrigerator.

The RCB 42 P provides huge storage capacity. It can contain up to thirty 500 ml whole blood bags. It is standard-equipped with 2 plastic-laminated wire baskets that facilitate handling. The forced-air refrigeration system ensures a constant, even temperature.

A thermoelectric unit (Peltier block) together with an electronic control unit keeps the temperature in the cool box constant. The thermoelectric unit is switched automatically from cooling to heating, depending on the ambient temperature. The perfect insulation ensures the temperature in the cool box to be kept constant for up to 10 hours when transporting or storing items without power supply at an ambient temperature of +32°C. The temperature within the container can be thus maintained at a preset temperature of +1 to +10°C regardless of external climatic conditions. This is even applicable at ambient temperatures of -32°C to +43°C.

The internal temperature can be displayed by an optional temperature recorder located in the container. Because of its interference suppression the RCB 42 P is also operable in airplanes.



MT 900 (freezer of cooling elements)

Freezing capacity: 48 cooling elements
at 0,6 l each within 24 hs
at +43°C ambient temperature

Storage capacity: 135 cooling elements at 0,6 l each

The model MT 900 has been specifically developed for the freezing of cooling elements. The appliance can accommodate up to 135 cooling elements at 0,6 l each; 69 cooling elements in the lower three storage compartments, and 66 in the upper three freezing compartments.

The model MT 900 can freeze up to 48 cooling elements within 24 hours at an ambient temperature of +43 °C. Due to its low energy consumption, the use is very economical. Simple and intuitive operation is ensured by the user-friendly operation and control panel, which is equipped with a red alarm control light for the monitoring of the interior temperature. The appliance features a visual and an acoustic alarm signal. The interior is automatically illuminated when the front door is opened.

An integrated rapid freeze button allows the quick freezing of larger batches.



RCB 2 (passive system)

Gross volume: 2,2 litres
Transport capacity: app. 1 blood bags at 450 ml each
app. 2 blood bags at 270 ml each
Cold Life at +32°C: up to 13,5 h



RCB 4 (passive system)

Gross volume: 8 litres
Transport capacity: app. 4 blood bags at 450 ml each
app. 6 blood bags at 270 ml each
Cold Life at +32°C: up to 46 h
Cold Life at +43°C: up to 32,5 h



RCB 8 (passive system)

Gross volume: 8 litres
Transport capacity: app. 8 blood bags at 450 ml each
app. 14 blood bags at 270 ml each
Cold Life at +32°C: up to 57.02 h
Cold Life at +43°C: up to 16.39 h



RCB 12 (passive system)

Gross volume: 24 litres
Transport capacity: app. 15 blood bags at 450 ml each
app. 25 blood bags at 270 ml each
Cold Life at +32°C: up to 96.14 h
Cold Life at +43°C: up to 56.5 h



RCB 25 (passive system)

Gross volume: 44 litres
Transport capacity: app. 26 blood bags at 450 ml each
app. 40 blood bags at 270 ml each
Cold Life at +32°C: up to 109.08 h
Cold Life at +43°C: up to 74 h

Technical Data

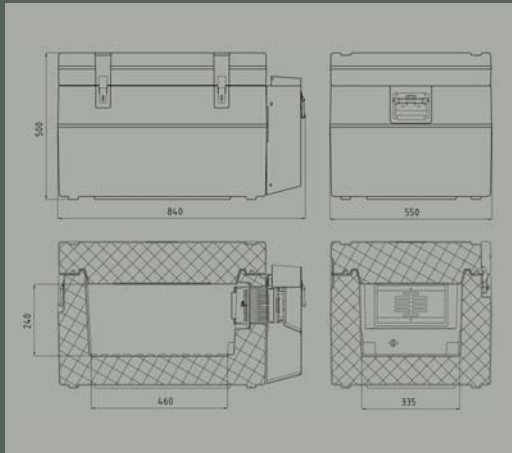
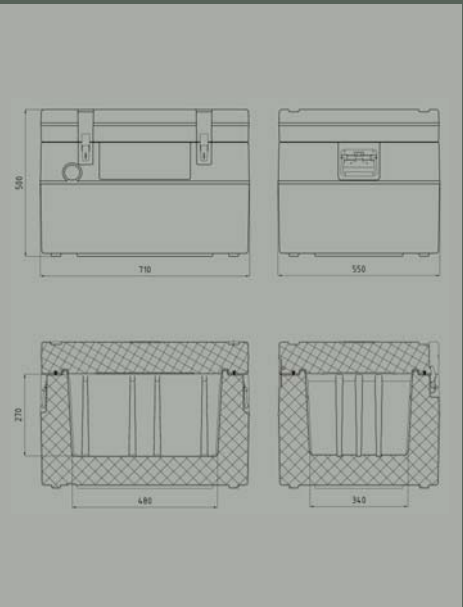
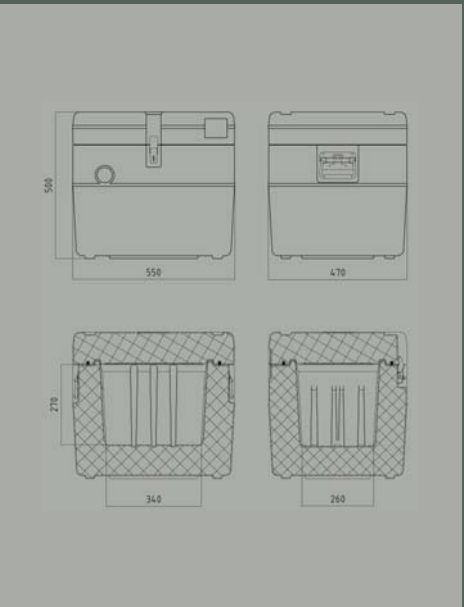
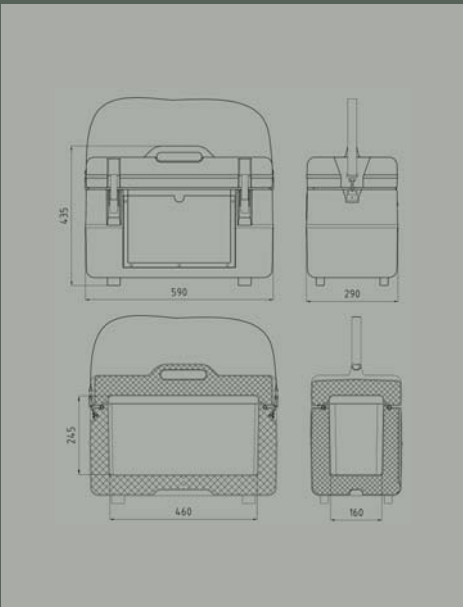
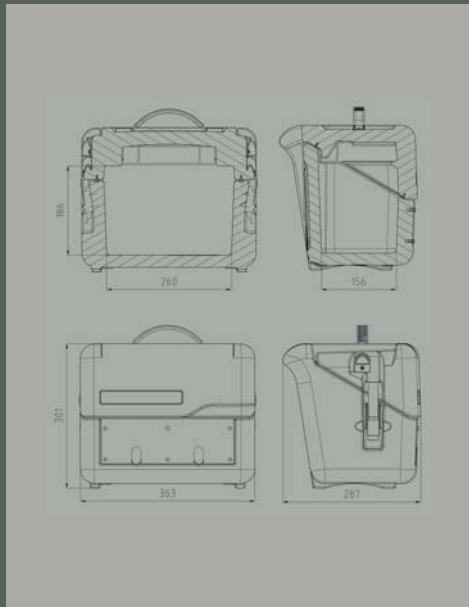
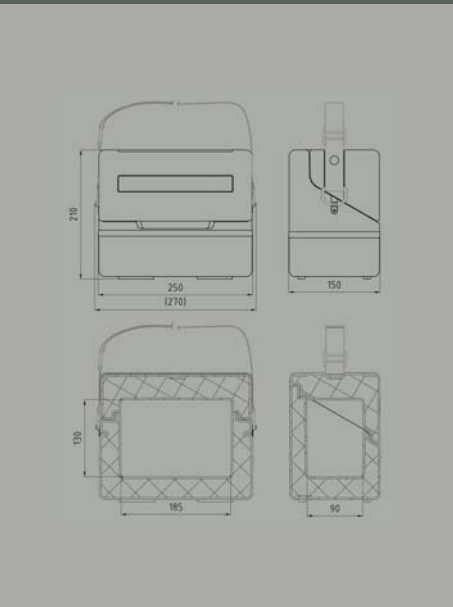


	RCB 2	RCB 4	RCB 8	RCB 8	RCB 12	RCB 25
Cooling	Passive	Passive	Passive	Passive	Passive	Passive
Gross volume	2.2 l	8 l	18 l	24 l	44 l	44 l
Transport capacity	app. 1 blood bags at 450 ml each app. 2 blood bags at 270 ml each	app. 4 blood bags at 450 ml each app. 6 blood bags at 270 ml each	app. 8 blood bags at 450 ml each app. 14 blood bags at 270 ml each	app. 15 blood bags at 450 ml each app. 25 blood bags at 270 ml each	app. 26 blood bags at 450 ml each app. 40 blood bags at 270 ml each	app. 26 blood bags at 450 ml each app. 40 blood bags at 270 ml each
Cold Life at +32°C	Up to 13.5 h	Up to 46 h	Up to 57.02 h	Up to 96.14 h	Up to 109.08 h	Up to 109.08 h
Cold Life at +43°C	/	Up to 32.5 h	Up to 16.39 h	Up to 56.5 h	Up to 74 h	Up to 74 h
Outer dimensions (H x W x D)	210 x 250 x 150 mm	301 x 363 x 287 mm	435 x 590 x 290 mm	500 x 550 x 470 mm	500 x 710 x 550 mm	500 x 710 x 550 mm
Inner dimensions (H x W x D)	130 x 185 x 90 mm	186 x 260 x 156 mm	245 x 460 x 160 mm	270 x 340 x 260 mm	270 x 340 x 260 mm	270 x 480 x 340 mm
Dimensions of interior container (H x W x D)	/	130 x 240 x 90 mm	207 x 375 x 155 mm	192 x 310 x 237 mm	192 x 310 x 237 mm	192 x 390 x 237 mm
Net weight (empty)	1.3 kg	3.1 kg	7 kg	11.7 kg	17 kg	17 kg
Gross weight (fully stocked)	2.2 kg	7.4 kg	16 kg	21 kg	44 kg	44 kg
Outer material / Interior material	Polyethylene	Polyurethane	Polyurethane	Polyethylene	Polyethylene	Polyethylene
Material of interior container	/	Polystyrene	Polystyrene	Stainless Steel	Stainless Steel	Stainless Steel
Color	RAL 6031	RAL 6031	RAL 6031	RAL 6031	RAL 6031	RAL 6031
Insulation	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane
Insulation thickness	30 mm	25 mm	60 mm	105 mm	105 mm	105 mm
Insulation	Free from CFC and HCFC	Free from CFC and HCFC	Free from CFC and HCFC	Free from CFC and HCFC	Free from CFC and HCFC	Free from CFC and HCFC
Accessories (standard)	2 cooling elements at 0.3 l each 1 synthetic separator 1 crystal thermometer Carrying strap (adjustable)	3 cooling elements at 0.3 l each 2 cooling elements at 0.6 l each 1 polystyrene interior container 2 document compartments (front) 1 document compartment (back) Carrying strap (adjustable)	4 cooling elements at 0.6 l each 1 polystyrene interior container (with lid) 1 document compartment (front) Carrying strap (adjustable)	12 cooling elements at 0.6 l each 1 stainless steel interior container (with lid)	24 cooling elements at 0.6 l each 1 stainless steel interior container (with lid) Securing frame for interior container	24 cooling elements at 0.6 l each 1 stainless steel interior container (with lid) Securing frame for interior container
Accessories (optional)	SU (40 u.) cooling elements at 0.3 l	SU (40 u.) cooling elements at 0.3 l SU (24 u.) cooling elements at 0.6 l polystyrene interior container	SU (24 u.) cooling elements at 0.6 l polystyrene interior container (with lid)	SU (24 u.) cooling elements at 0.6 l	SU (24 u.) cooling elements at 0.6 l	SU (24 u.) cooling elements at 0.6 l

- Accessories for models RCB 2 - RCB 25 (optional)
- Starter set (incl. PC Interface, optional RS232 or USB port, Data Logger Mini, Software)
 - Temperature Data Logger Mini (separate, optional, the starter set is required for configuration)

	RCB 42 P	MT 900
Cooling	Active (Peltier)	
Transport capacity	app. 30 blood bags at 500 ml each app. 50 blood bags at 270 ml each	
Outer dimensions (H x W x D)	500 x 840 x 550 mm	1805 x 595 x 720 mm
Inner dimensions (H x W x D)	240 x 460 x 335 mm	1440 x 445 x 413 mm
Net weight (empty)	29 kg	-18°C
Gross weight (fully stocked)	44 kg	-13°C
Gross volume	43 l	247 l
Outer material / Interior material	Polyethylene	228 l
Color	RAL 6031	Outer dimensions (H x W x D)
Insulation	Polyurethane	Inner dimensions (H x W x D)
Insulation thickness	100 mm	Operating temperature
Insulation	Free from CFC and HCFC	Alarm
Operating temperature	+4°C +/- 2°C	Defrosting
Application range (ambient temperature)	-32°C to +43°C	Insulation (casing) polyurethane
Hold over time / Cold Life, without power supply	10h (at +32°C)	Insulation (door) polyurethane
Power supply	AC/ mains voltage DC / battery voltage	Hold over time
Power supply	90 V to 264 V (48 Hz - 62 Hz) 115 V / 400 Hz 11 V to 42 V	Refrigerant type
Radioshielding	EMV according to MIL Standard 461 C & 462, 704 D & EC Directive 89/336 EEC	Refrigerant and insulation
Low-voltage Directive	73 / 23 / EEC	Free from CFC and HCFC
Vibration test	EC Directive DIN / IEC 68-2-6	Climate class (ambient temperature range)
Shock test	EC Directive DIN / IEC 68-2-25	T (+16°C to +43°C)
Accessories (standard)	2 plastic-coated wire baskets Fault indicator port AC connection cable DC connection cable Fault indicator connection cable	Relative humidity (at +32°C ambient temperature)
Accessories (optional)	Temperature Data Logger 177-T3 with additional external sensor ports Handheld IR Rapid Printer Data gatherer for Data Logger and Software (alternatively for RS232 or USB connection)	≤ 70%
		Voltage
		220-240V / 50/60 Hz (10A)
		Power
		215 W
		Energy consumption
		5.77 kWh/24h
		Heat emission
		210 Kcal/ h
		Compressor running time
		48.0 %
		Noise level (at 1m height and 1m distance)
		45 dB(A)
		Safety class
		I
		EMV Directive
		89 / 336 / EEC
		Low-voltage Directive
		73 / 23 / EEC
		Material inner body
		Styrene (SAN)
		Material outer casing and door
		Galvanized sheet steel (STO2Z-AZ150)
		Color outer casing
		White (similar to RAL9010)
		Color contrasts
		Blue (similar to RAL5002)

Options	
Door hinge right	●
Door hinge left	○
Wooden packaging for ocean transport / export	●



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