



# Ropox Bathtub

User manual




This manual should always be in close proximity of the product.

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# 1. Symbols used in this manual

<b>Warning Symbol</b> Indication of potentially hazardous situation. If not avoided, it can result in serious injury or death.	
<b>Caution Symbol</b> Indication of potentially hazardous situation which may result in minor or moderate injury. It may also be used to alert against unsafe practices.	
<b>Notification Symbol</b> This symbol is used to notify correct use and handling of the product.	

## 2. General safety

	<p>This manual must be read and understood before use. Always keep this manual in close proximity of the product.</p> <p>The use, installation and service of this product must be in compliance with this manual to avoid accidents and serious personal injury.</p> <p>Never use or handle this product in other ways specified in this manual as it can result in personal safety hazards and/or cause damage to the product.</p> <p>Persons installing and/or are using this product either as operator or patient should have the necessary safety information and access to this manual.</p> <p>If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified designated persons in order to avoid a hazard. Always inspect the mains cable before placing the product in use.</p> <p>No Child or animal may play around or underneath the bathtub. Not complying may result in entrapment and crushing of body parts.</p>
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Always comply with instructions in this manual to avoid damaging or destroying the product. Not doing so can cause the safety of this product to be compromised.

Do not perform repairs, disassembly or assembly operations, add-ons, re-adjustments or modification of the product beyond what is described in this manual. These must be carried out by Ropox or Ropox authorized personnel. Do not perform service while in use with a patient.

Do not allow children to operate this product.  
The product is not intended to play with.

Do not use the product if it has defects or have become damaged before being repaired or replaced.  
If the control box makes unusual noise or smells, switch off the mains voltage immediately.

Ensure that the cables are not damaged.

Unplug the mains cable on mobile equipment before it is moved.

The products must only be used in an environment that corresponds to their IP protection.

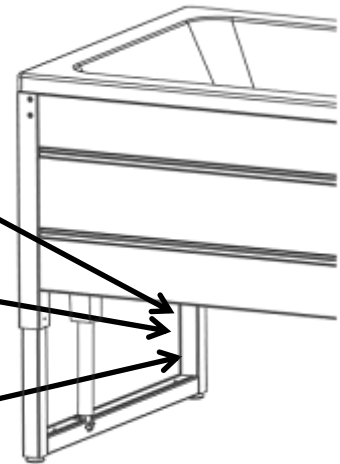
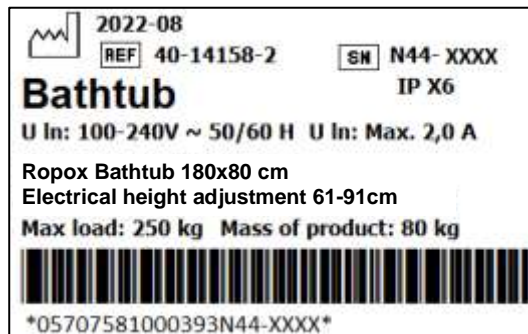


The information in this manual is based on correct installation in accordance with installation instructions for this product.

Ropox cannot be held liable if the product is used in any way that differs from stated in this manual and/or installation instruction.

Ropox reserve the right to amend this manual and reference documents without prior notice.

## 2.1 Product label



	This product is UKCA-marked in accordance with: UK SI 2002 No. 618 - <i>The Medical Devices Regulations 2002</i> , and its amendments
	This product is CE-marked in accordance with: European Medical Device Regulation (EU)2017/745 Considering the Council Directive 2006/42/EC on machinery Council Directive 2011/65/EU, RoHS
	Manufacturer name and address
	Date of production
	Stock number
	Serial number
	Operating interval of electrically operated equipment. The use of electrical height adjustable equipment can run at maximum 2 minutes, followed by an 18-minute break.
	Type BF applied part. The product complies with IEC 60601-1 requirements to provide protection against electric shock.
	Consult manual for important safety related information, warnings and safety precautions.
	Class II, double isolated electrical components.
	Do not dispose as unsorted municipal waste. Product must be returned to a designated recycling station.
	Operating temperatures may not exceed 5 °C to 40 °C.
	Consult the instructions for use

## 3. General information

### 3.1 Product information

<b>Manufacturer</b>	<b>Ropox A/S</b> Ringstedgade 221 DK-4700 Naestved +45 55 75 05 00 Info@ropox.com	<b>UK Responsible Person</b>	<b>Qserve Group UK, Ltd</b> 49 Greek Street, W1D 4EG London United Kingdom +44 740 885 936 3 <a href="mailto:info@qservegroup.com">info@qservegroup.com</a>
<b>Product models</b>	<b>Part number</b>	<b>Model</b>	<b>Configuration</b>
	40-14156-2 40-14157-2 40-14158-2  40-14356-2 40-14357-2 40-14358-5	Bathtub 160x70 cm Bathtub 170x75 cm Bathtub 180x80 cm  Bathtub 160x70 cm Bathtub 170x75 cm Bathtub 180x80 cm	Incl. standard mixer tap Incl. showerhead  Only cover 1 side + 1 end
<b>MDR Class 2017/745</b>	<b>Class I</b>		
<b>Applied part classification 60601-1</b>	<b>Type BF</b> applied part (Water supply/drain not considered)		
<b>Protection Class Acc. to 60601-1</b>	<b>Class II</b>		
<b>Height adjustment</b>	61-91 cm		
<b>Speed of actuation</b>	≈ 12 mm/s		
<b>Maximum user weight according to DS/EN 17966:2016</b>	250 kg including water weight		
<b>Power supply</b>	100-240 V ~50/60Hz		
<b>I in</b>	Max 2.0 A		
<b>Intermittence</b>	2 min on / 18 min off		
<b>IP rating</b>	IPX6		
<b>Ambient temperature range</b>	-10 °C to +50 °C Transport and storage +5 °C to +40 °C Operation		
<b>Relative humidity</b>	20% to 80% - non-condensing		
<b>Atmospheric pressure</b>	700 hPa to 1060 hPa		
<b>Materials in contact with patient</b>	Tub Frame  Covers Shower bed	PMMA Stainless steel 304 Steel 37 powder coated Aluminium powder coated	
<b>Intended environments</b>	This product is to be used only in: <ul style="list-style-type: none"> <li>- Professional healthcare facility</li> <li>- Homecare healthcare environment</li> </ul> <p><i>The device is not intended for HF surgical equipment.</i></p>		

<b>Accessories</b>	Safety stop for one side 40-14206 40-14207 40-14208	For model: 160x70 cm 170x75 cm 180x80 cm
	Safety stop for two sides 40-14216 40-14217 40-14218	160x70 cm 170x75 cm 180x80 cm
	Safety stop for extra front cover 40-14376 40-14377 40-14378	160x70 cm 170x75 cm 180x80 cm
	Front cover 40-14196 40-14197 40-14198	160x70 cm 170x75 cm 180x80 cm
	End cover 40-14192 40-14193 40-14194	160x70 cm 170x75 cm 180x80 cm
	Shower bed, folding up, right 40-14226 40-14227 40-14228	160x70 cm 170x75 cm 180x80 cm
	Shower bed, folding up, left 40-14236 40-14237 40-14238	160x70 cm 170x75 cm 180x80 cm
	Folding bed guard 40-14186 40-14187 40-14188	160x70 cm 170x75 cm 180x80 cm
	Showerhead holder [mounted by Ropox] 40-14120	160x70 cm / 170x75 cm / 180x80 cm

### **3.2 Product description**

Ropox bathtub is a daily living aid that can be adjusted in height to accommodate different caretaker needs. The bathtub is driven by a control box and associated electrical actuators. Height is set by the use of the handset, height can be set in the interval 61-91 cm. In addition, the Bathtub can be mounted with a shower bed to be used in showering operations that do not require submersion in water.

### **3.3 Intended use**

The height adjustable and disability friendly bathtub makes it easier and more comfortable for the user to get in and out of the bathtub. The bathtub also provides excellent working conditions with correct working heights and a reduced number of heavy lifts for the caretakers. It is also possible to use a mobile lift without any modifications to the bathtub. The height is infinitely adjustable from 61-91 cm. The bathtub is designed for washing and bathing children and adults in a gentle and comfortable manner while securing optimum working conditions for the carer. It is ideal for private homes, care centers and institutions that provide care for people with limited functional capacity.



### 3.4 Intended operator

Reading and understanding this manual will be sufficient training for an intended operator. Children or patient are not considered intended operator.

### 3.5 Known contraindications

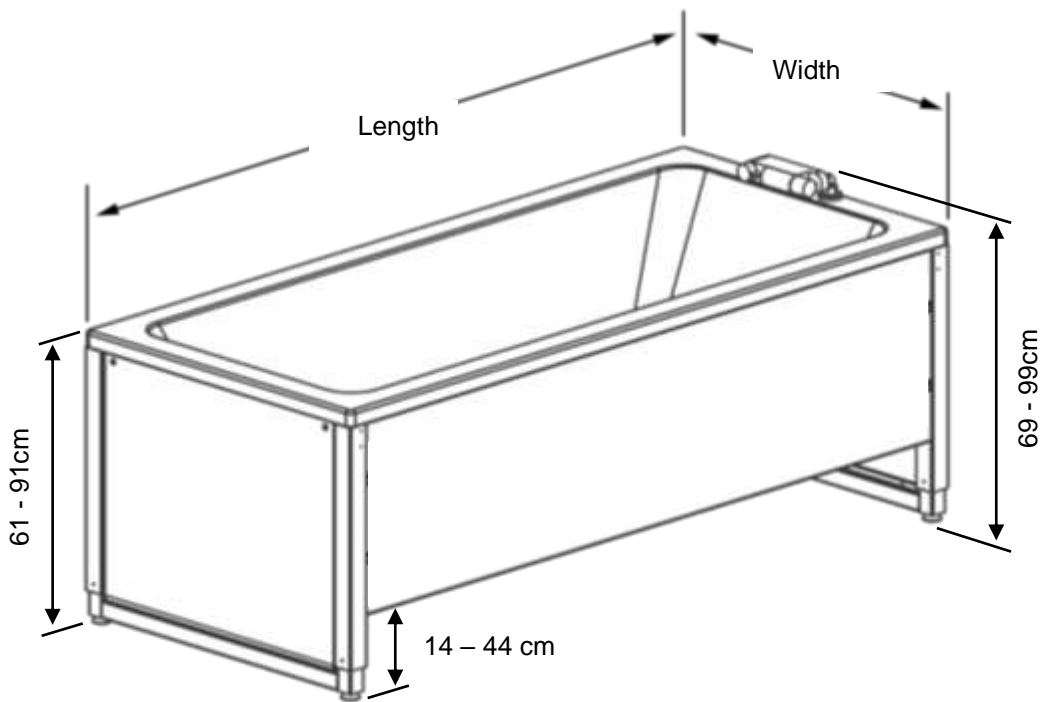
The bathtub is intended to contain large amounts of water and therefore there is risk of drowning. Patients with disabilities that make them unable to maintain their head above water are not suited for use with the bathtub

Other diseases like epilepsy where a sudden loss of body control can result in drowning are also not suited for use of the bathtub

### 3.6 Essential performance

The device does not have essential performance. The patient is not fixated to the product and in case of loss or degradation of performance the patient can still exit the product.

### 3.7 Dimension sketches



Model	Length	Width
40-14156	160 cm	70 cm
40-14157	170 cm	75 cm
40-14158	180 cm	80 cm

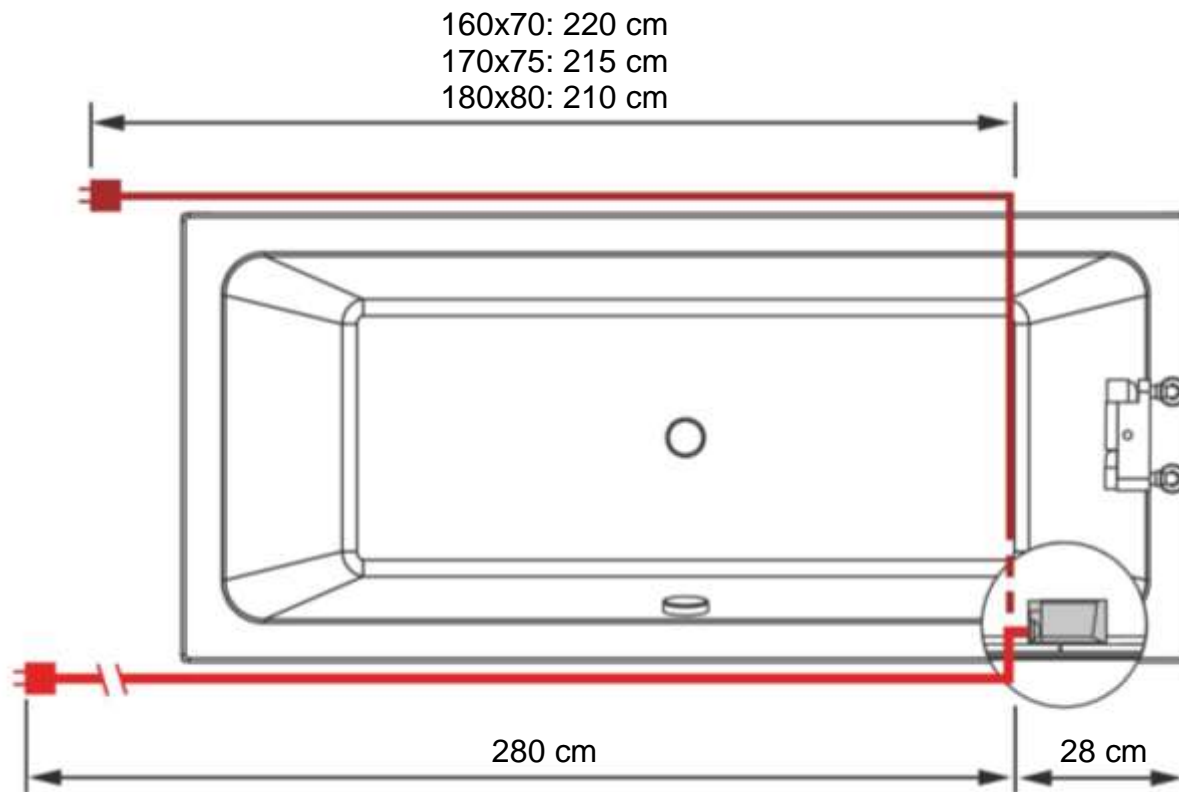
Model	Length	Width
40-14356	160 cm	70 cm
40-14357	170 cm	75 cm
40-14358	180 cm	80 cm

## 4. Instructions for use

### 4.1 Pre-installations information

#### 4.1.1 Electric installations

Reach of mains cable, full length 3.5 m



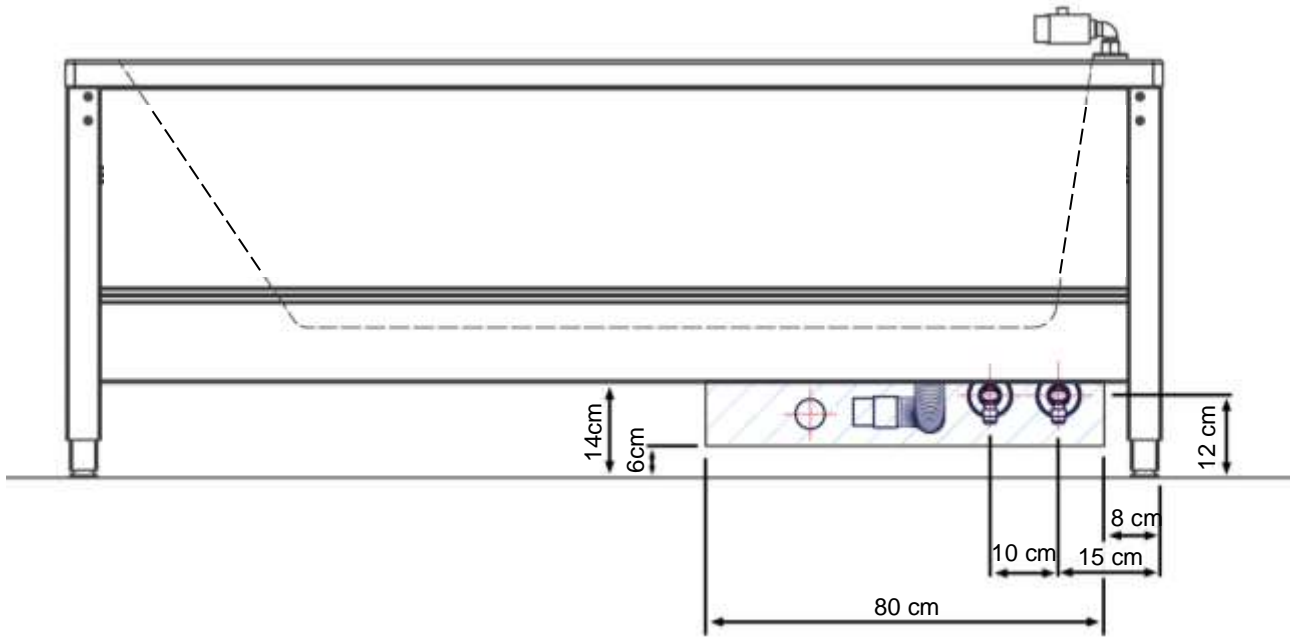
#### **Warning!**

Power supply points must be located in an easy to reach area. The power supply point shall not be placed under the bathtub. Disconnection to mains supply must be accessible at all times.

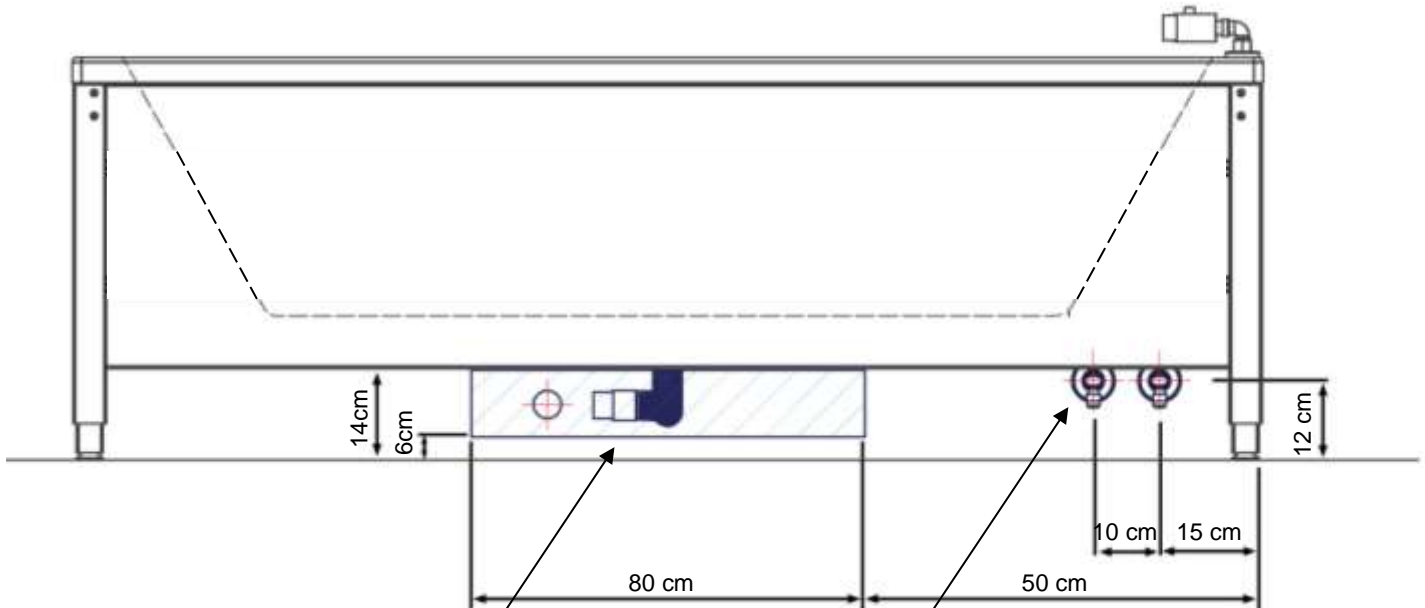
#### 4.1.2 Water

Applies to 160x70 cm and 170x75 cm bathtub:

The hatched area is the recommended area for location of drain.



Applies to 180x80 cm bathtub:

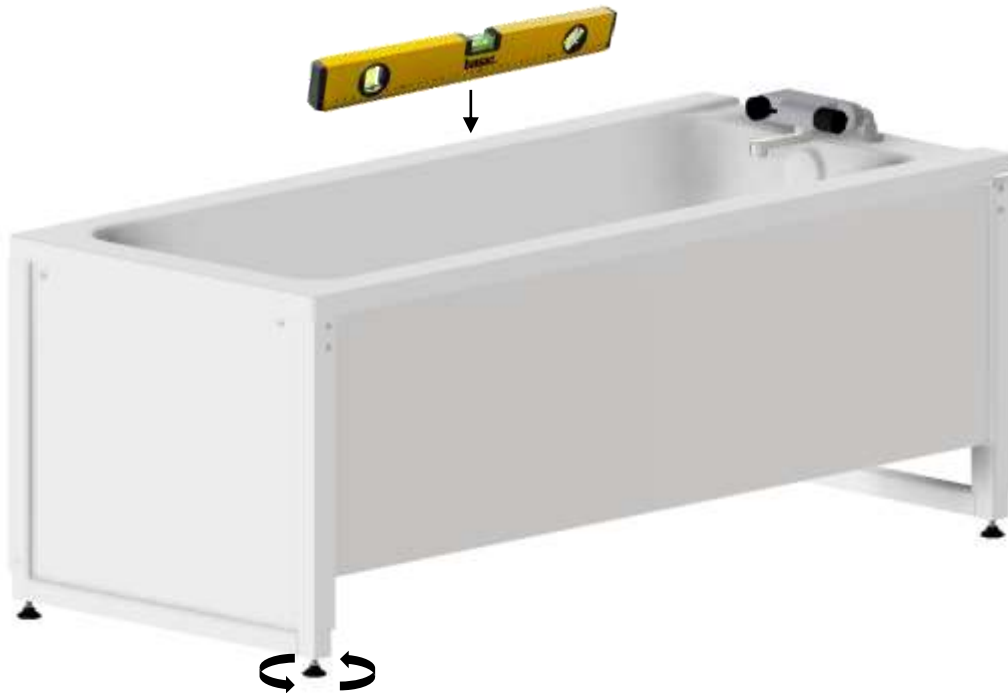


Note:  
Flexible drain hose (Ø40). Length 51-150 cm.  
Drain in wall finished with an Ø40x88° bend (not provided)

Note:  
Stop valves with 1/2" external thread (not provided).  
Turn downward as shown. Flexible hoses (100 cm) from mixer tap will reach 14 cm outside the frame.

## 4.2 Installation of product

The bathtub is delivered as an assembled unit. Place the bathtub and adjust the four setscrews of the feet to make sure that the bathtub is horizontal. Connecting the product to mains, as well as water supply and drain hoses, makes it operational.



### Warning!

Before use always make sure that mains cable and hand control cable will be able to travel freely without the risk of squeezing or disconnecting the product as result of the movement.



### Caution!

When connected to the mains the product must be placed in a manner according to power outlets so that the operator will be able to disconnect the product during use in case of an emergency.



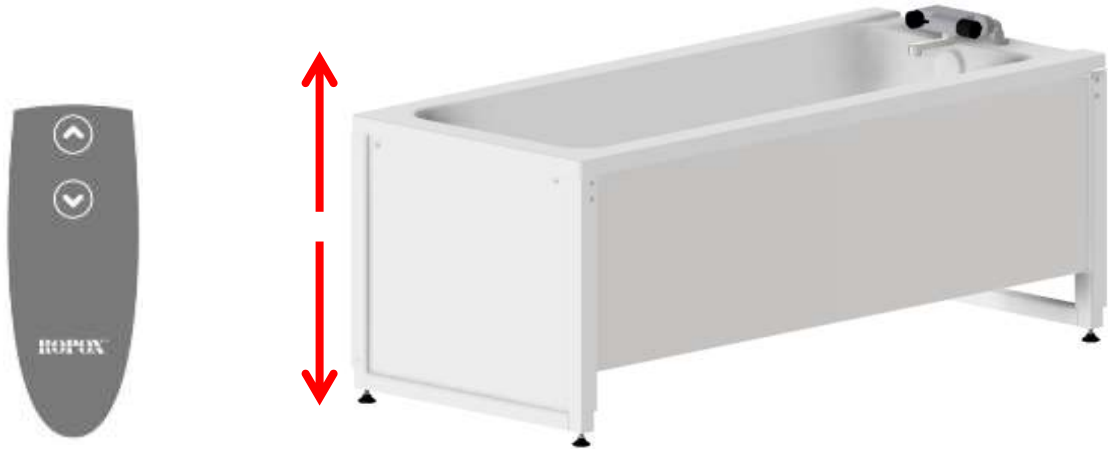
### Caution!

Do not perform installation or transfer the product between locations of use while the bathtub is filled with water.

### 4.3 Operating the product

#### 4.3.1 Actuation of the product

The product is operated with the spiral cord hand control. Arrow up will move the product upwards, and arrow down will move the product downwards.



	<p><b>Warning!</b></p> <p>The product should always be able to travel the full range of actuation without colliding with objects. Failing to do so will compromise the product stability. Special care should be taken in ensuring that no children or adults are sited under the product as severe injury from entrapment may occur.</p>
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	<p><b>Note!</b></p> <p>The movement of the bathtub stops as soon as you let go of the button. This is an important safety factor.</p>
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#### 4.3.2 Ambient temperature

Allow the product to reach operational temperature +5 °C to 40 °C when stored in temperatures outside this interval.

Storage temperature	Time to reach operational temperature (+5 °C or +40 °C) at 20 °C ambient temperature
-5 °C	3 Hours
+50 °C	3 Hours

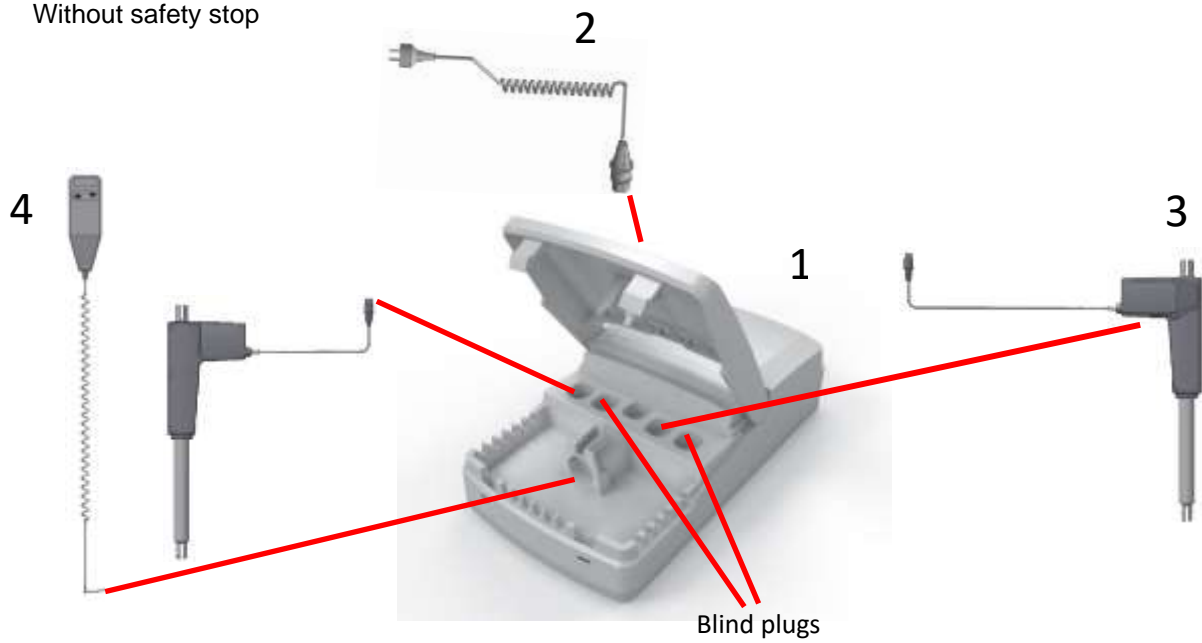
### 4.4 General recommendations for use

	<p><b>Warning!</b></p> <p>Never leave a patient on the shower bed or in the tub unattended.</p>
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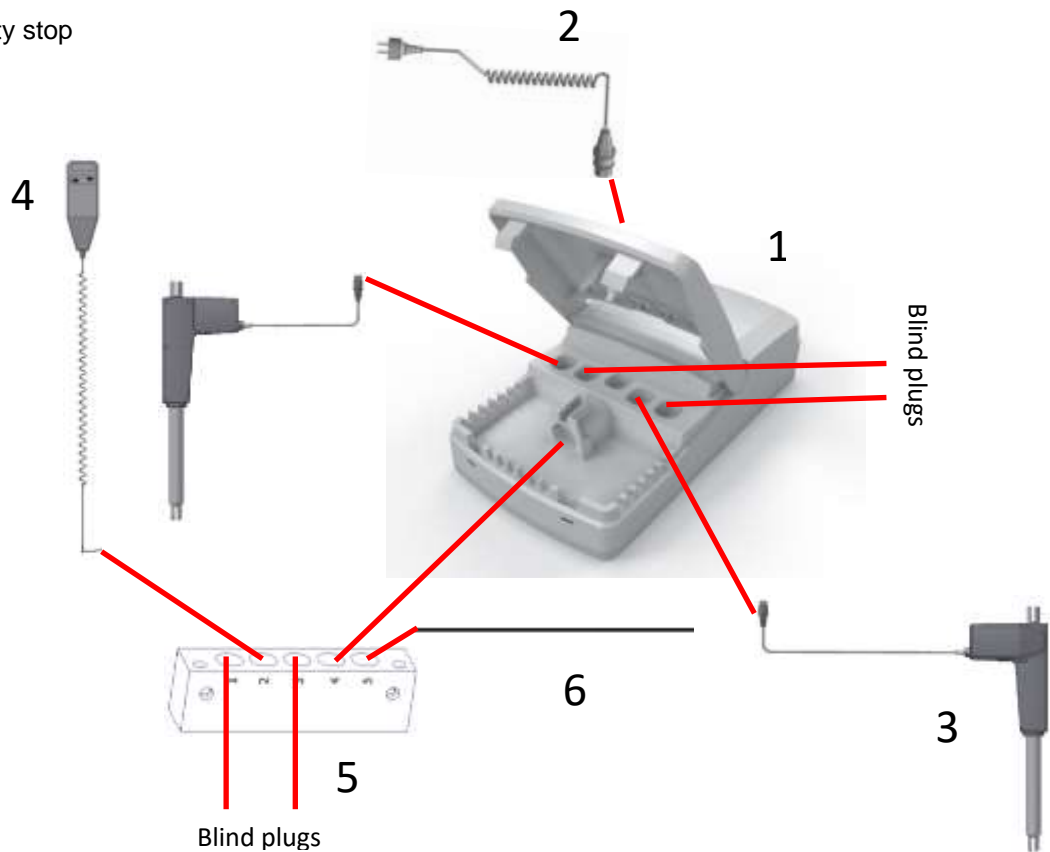
	<p><b>Caution!</b></p> <p>Be aware that using the bathtub and showerbed, there will naturally be water splashes on the floor that can make the floor slippery and cause a fall risk.</p>
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## 4.5 Wiring diagram

Without safety stop




With safety stop




1. Controlbox
2. 230V cable
3. Motor, connected to ports 1 and 3
4. Handheld control switch
5. MJ box (only with safety stop)
6. Safety stop

## 5. Cleaning

Simply use a soft cloth with soapy water of max 85°C. Always wash the bathtub after use to prevent dirt from sticking to the surface.

	<p><b>Caution!</b></p> <p>Do not perform cleaning, disinfection, or maintenance while the Bathtub is in use with a patient.</p>
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	<p><b>Note!</b></p> <p>Do not use cleaning agents containing abrasive e.g. scouring powder, steel wool, scouring sponge.</p> <p>This product is not designed to be sterilized, autoclaving and sterilization beyond normal cleaning is may possibly change the product safety and function.</p>
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### 5.1 Plastic tub

Clean the surface with a soft cloth and soapy water. Do not use abrasive cleaning agents. Resistant spots may be removed with hot water and a mild soap.

Spots of glue may be removed with vinegar and water. Wash with water.


Always clean the bathtub after use to prevent dirt from sticking to the surface.


	<p><b>Note!</b></p> <p>The bathtub may be used for washing clothes with a normal detergent. Do not use the bathtub for soaking over a longer period as some detergents may contain aggressive substances.</p>
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### 5.2 Mixer tap, shower hose and hand shower


Clean at regular intervals with a soft cloth with water and a customary cleaning agent. Decalcify the mixer tap and filter with vinegar and wash with water. Do not use strong cleaning agents for chrome surfaces.


### 5.3 Disinfection

	<p><b>Caution!</b></p> <p>Disinfect the Bathtub between multiple patients' uses to avoid cross contamination</p>
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	<p><b>Caution!</b></p> <p>Do not disinfect the product when connected to mains and/or are in use with a patient</p>
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## 6. Maintenance

	<p><b>Note!</b> Failing to comply with periodic maintenance may result of degrading of product function and safety.</p>
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	<p><b>Notification!</b> Ropox will make parts list and circuit diagrams available for maintenance and repair beyond what is described in this manual. Repair beyond what is described in this manual may only be done by Ropox designated service personnel.</p>
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### 6.1 Periodic maintenance

#### Once a year:

Adjust the bathtub to top position and check that:

1. All bolts on the top and bottom of the actuator are securely tightened.
2. All connections (water supply and drain) are in order and undamaged.
3. Mixer tap, shower hose and shower head are in order and undamaged.
4. The frame and cover plates are undamaged.
5. Press the DOWN button, adjust the bathtub to bottom position and check that the movement is smooth and even. See that the hose connections follow the movement of the bathtub without getting jammed.
6. Now press the UP button, adjust the bathtub to top position, and check that the movement is smooth and even. See that the hose connections follow the movement of the bathtub without getting jammed.
7. If a safety strip has been mounted. Press the DOWN button, let the bathtub move 2-5 cm downward, and activate the safety strip with a light pressure. The bathtub should now stop the downward movement, move 1-2 cm upward and stop. If the safety strip does not function, please contact Ropox or Ropox representative.

### 6.2 Trouble shooting

Problem	Remedy
The bathtub does not move up or down when the hand-control switch is pressed	<p>Check whether:</p> <ol style="list-style-type: none"> <li>1. 230V has been connected and the outlet is working.</li> <li>2. The motors are connected with the control unit.</li> <li>3. The handset has been connected with the control unit .</li> <li>4. The motors are overloaded (note: 2 min. ON, 18 min OFF)</li> </ol>
Control switch defective	<p>Check whether:</p> <ol style="list-style-type: none"> <li>1. The bathtub works with another control switch</li> </ol>
When pressing the UP and DOWN buttons you only hear "clicks" from the control unit, bathtub does not move	<ol style="list-style-type: none"> <li>1. The plugs may not have been inserted correctly. Dismount all cables from the control unit and insert them again. Resetting may be required.</li> </ol>
The bathtub is not horizontal / level	<p><b>"Reset"</b> Press and hold UP (▲) and DOWN (▼) buttons. Keep the buttons depressed until the control unit has beeped approx. ten times. After that, the bathtub may be adjusted to the bottom position for resetting.</p>



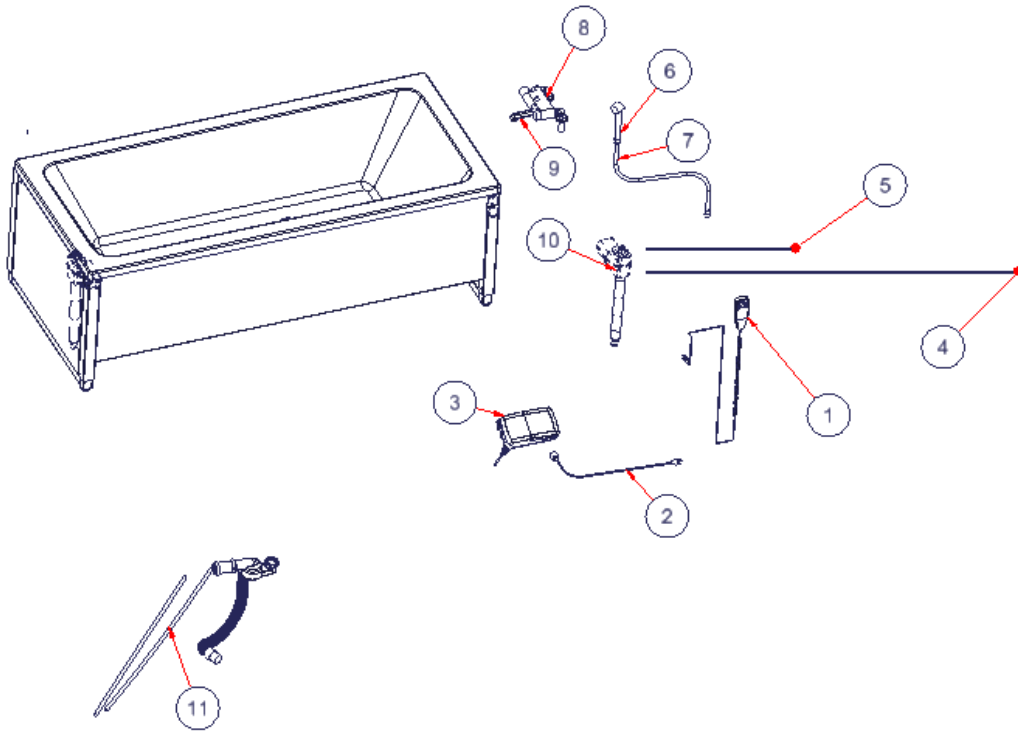
## 7. Environmental protection

The product is not intended to be disposed as municipal waste. Proper disassembly, sorting and disposal of components must be done by waste disposal professionals.



Part	Disposal recommendation
Bathtub	Hard plastic
Frame	Steel waste
Bed guards	Steel waste
Cover	Aluminum
Controlbox	Electronics
Actuator	Electronics
Handheld control switch	Electronics

## 8. Spare parts



#	Name	Item number
1	Hand control	97001656
2	230V cable	97000858
3	Controlbox CO61	97001720
4	Motor cable L= 2500mm	97001739
5	Motor cable L=1000mm	97001740
6	Shower head, Alterna Primeo	97001623
7	Hose for hand shower 1,6m	97001371
8	Mixer tap Damixa for bathtub	97001318
9	Spout for mixer tap, Damixa	97001319
10	Actuator LA40	97001702
11	Plumbing kit bathtub	40-14359-1



**Warning!**

Only qualified personnel may perform aftermarket installation of spare parts.



**Caution!**

Do not use spare parts other than those specified for the product.

## 9. Accessories

A number of configuration options are available. Such options are generally ordered and delivered installed on the product at first delivery.



**Warning!**

Only qualified personnel may perform aftermarket installation of accessories.



**Caution!**

Do not use accessories other than those specified for the product.

### 9.1 Safety stop

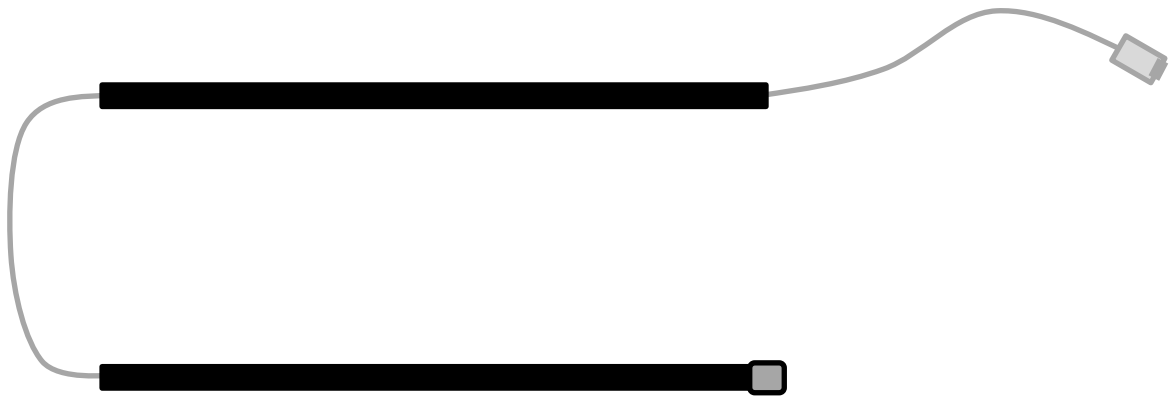
As an option, the bathtub can be ordered with safety stop strip for one or two sides. If the bathtub is placed in a corner, a safety stop for one side will be sufficient. If the bathtub is freestanding, safety stop is recommended on two sides.

Bathtub	160x70 cm	170x75 cm	180x80 cm
Safety stop for one side	40-14206	40-14207	40-14208
Safety stop for two sides	40-14216	40-14217	40-14218
Safety stop for extra front panel	40-14376	40-14377	40-14378

Safety stop for one side:



Safety stop for two sides:

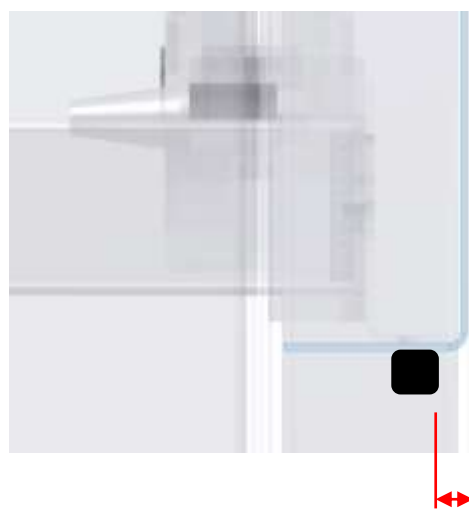
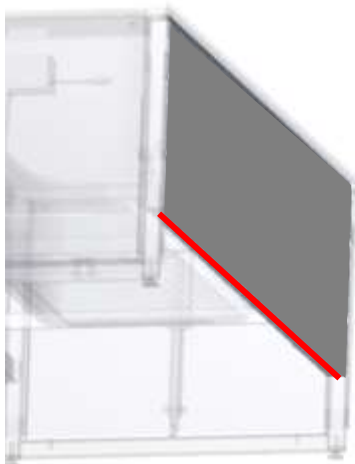


Safety stop for extra front panel:

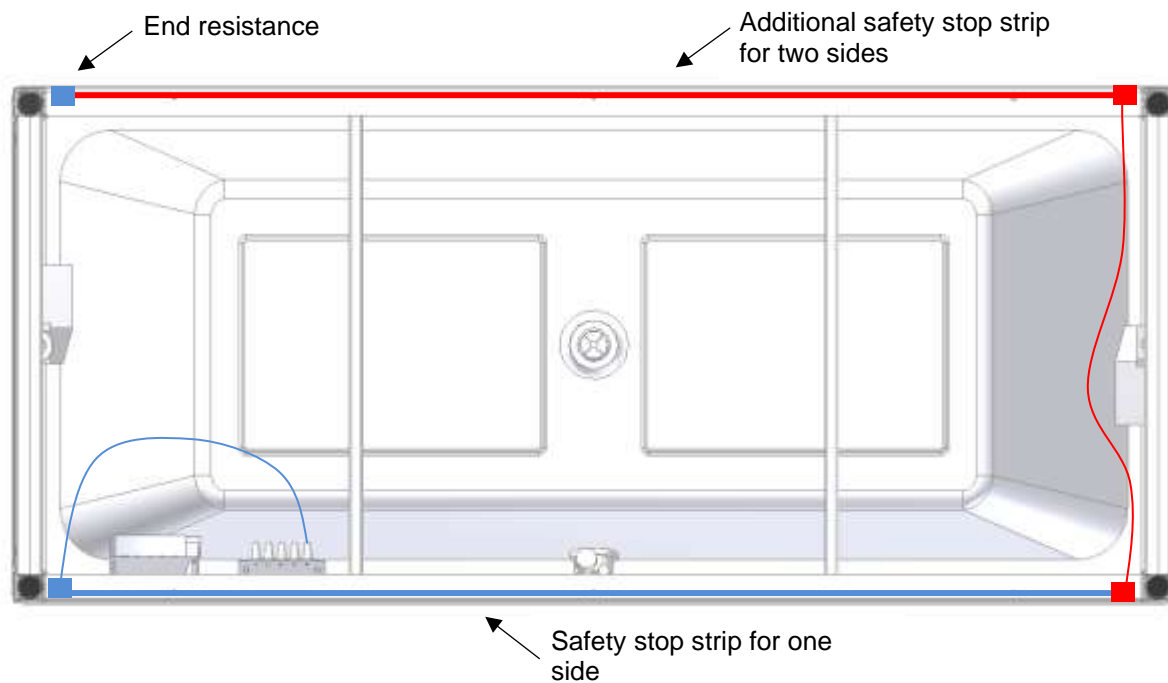


### 9.1.1 Mounting of safety stop

To ensure optimum safety, the safety stop strip should be located on the underside of the side cover as illustrated. See page 14 for wire diagram.



4 mm from edge



**Warning!**

Before using the product, check the function of the safety stop.

**9.2 Front cover**

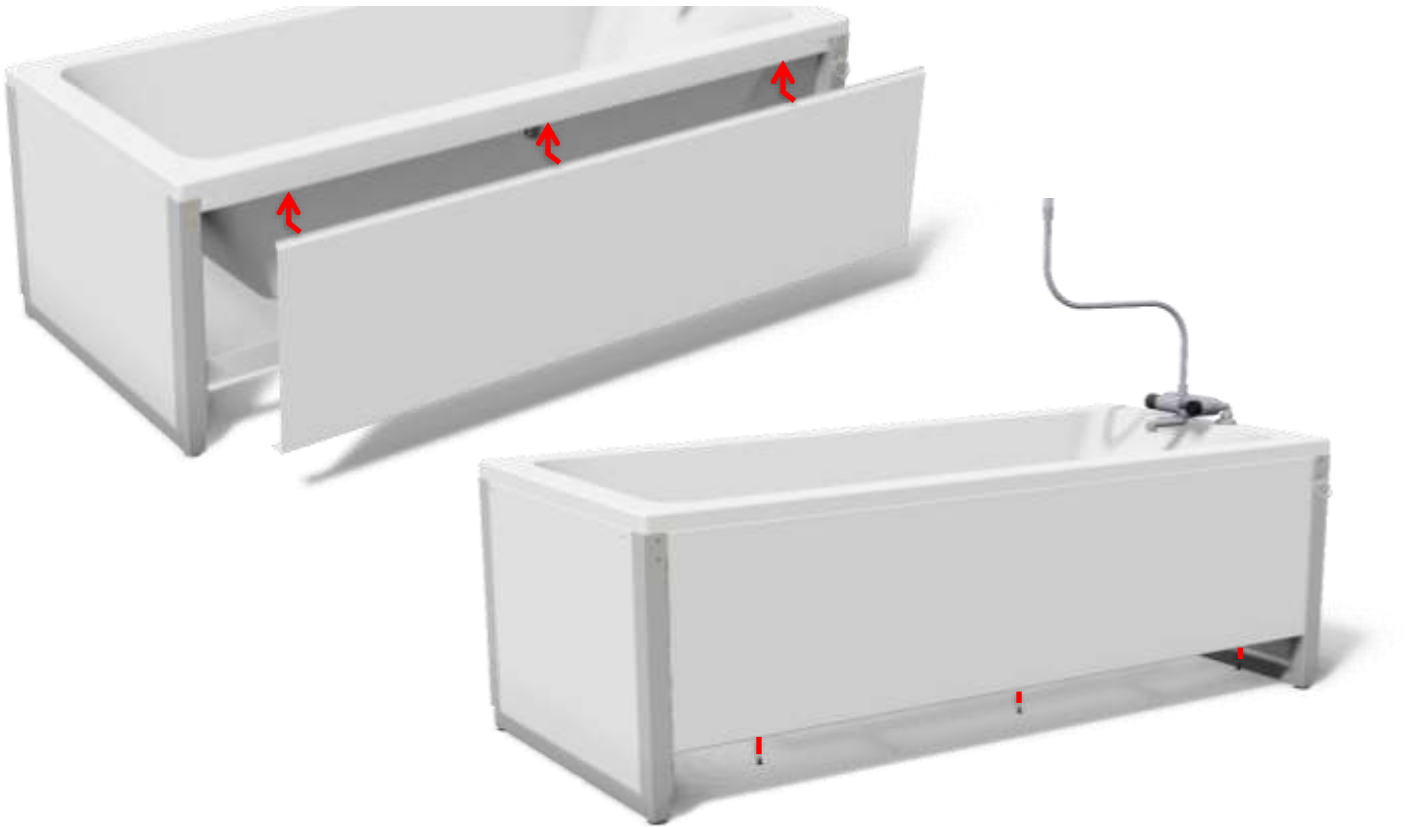
If the bathtub is supplied with one side cover and one end cover, an extra end and front cover can be ordered so that the bathtub is closed all the way around.



Bathtub	160x70 cm	170x75 cm	180x80 cm
Front cover	40-14196	40-14197	40-14198

### 9.2.1 Mounting of front cover

Slide the cover up under the edge of the bath and screw the underside onto the side frame with 3x M6x12 screws



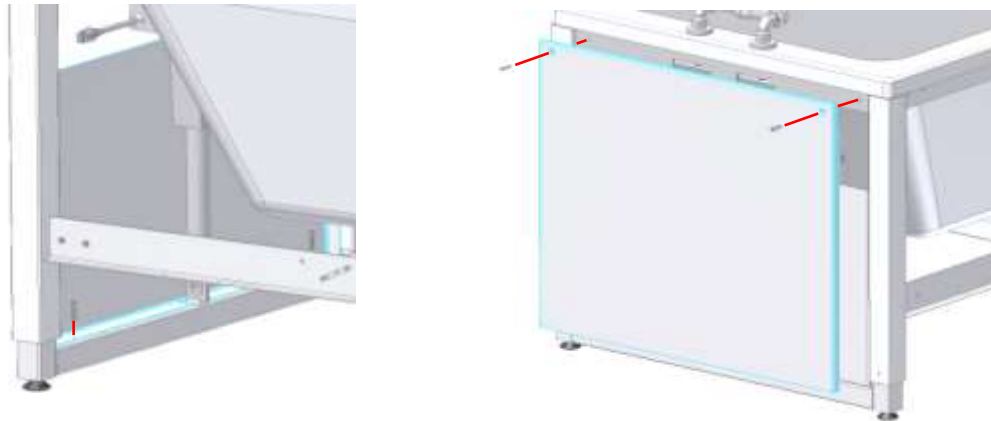
### 9.3 End cover



Bathtub	160x70 cm	170x75 cm	180x80 cm
End cover	40-14192	40-14193	40-14194

### 9.3.1 Mounting of end cover

Mount inner cover with 2x M6x12 and outer cover with 2x M6x10 countersunk screw.

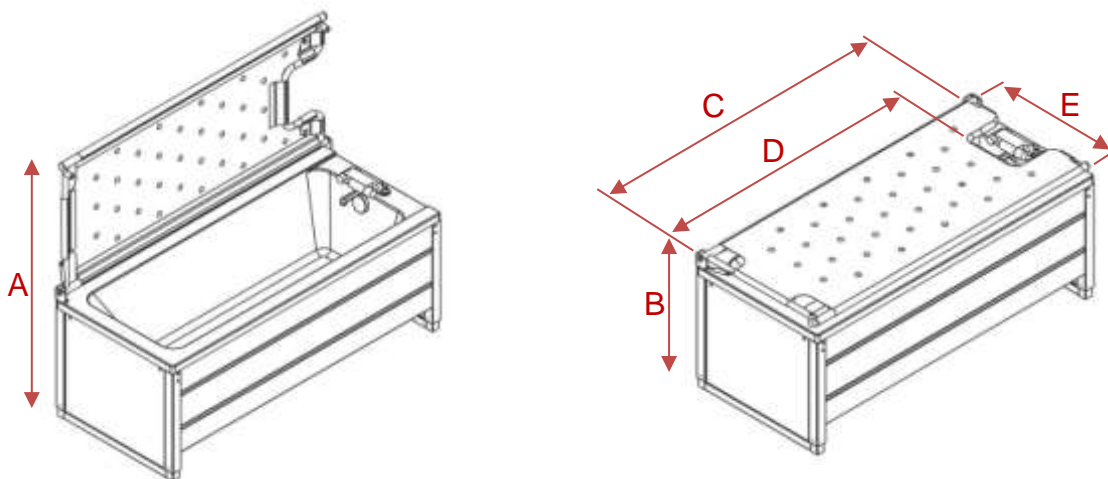


## 9.4 Shower bed, folding up

The shower bed is available as an option and may be mounted on existing bathtubs. It may be fitted on the right-hand or left-hand side of the bathtub. "Right-hand" means that the mixer tap is located to the right when viewed from the front of the bathtub. Available sizes appear from the table below.

Please note that the shower bed will result in an increase of the height by 5,5 cm

### 9.4.1 Dimension sketches



Bathtub	A	B	C	D	E
40-14156 40-14356	131–161 cm	66-96 cm	155 cm	131 cm	68 cm
40-14157 40-14357	136-166 cm	66-96 cm	165 cm	141 cm	73 cm
40-14158 40-14358	141-171 cm	66-96 cm	175 cm	151 cm	78 cm

Bathtub	40-14156 40-14356	40-14157 40-14357	40-14158 40-14358
Shower bed	40-14226 (right) 40-14236 (left)	40-14227 (right) 40-14237 (left)	40-14228 (right) 40-14238 (left)
Length/width	155x68 cm	165x73 cm	175x78 cm



**Warning!**

Maximum user weight for shower bed according to ISO 17966:2016 is 250kg incl. water



**Warning!**

If installed, always use bed guard when using the shower bed.



**Note!**

Operator should mind hands and other body parts when folding down the shower bed, there is risk of squeezing.

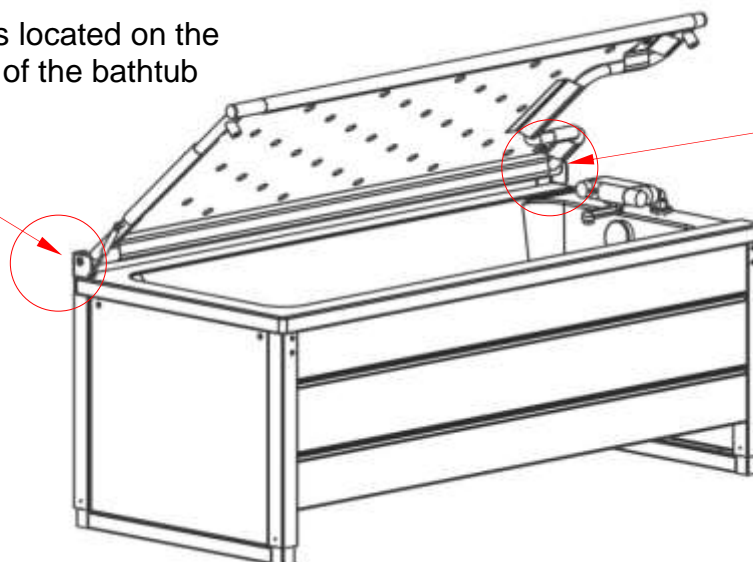
### 9.4.2 Mounting of shower bed

#### Right hand (standard)

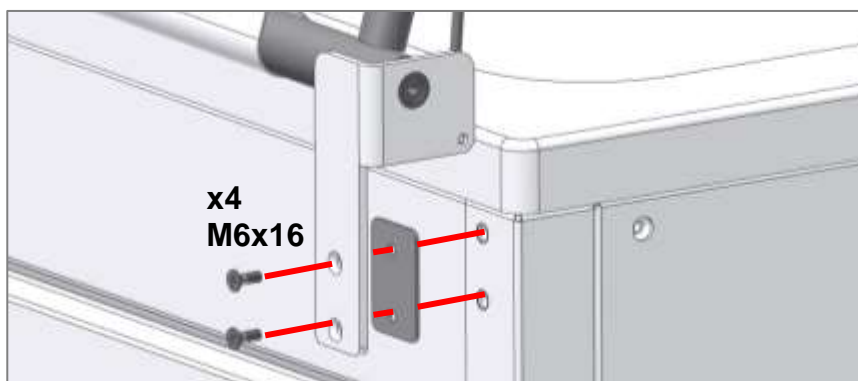
Definition:

The mixer tap is located on the right-hand side of the bathtub

Left-hand fitting  
with gas spring



Right-hand fitting



**Warning!**

Ensure safe travel of the shower bed up and down. If the shower bed in its upright position isn't properly propped up, it may come crashing down, resulting in blunt force trauma.

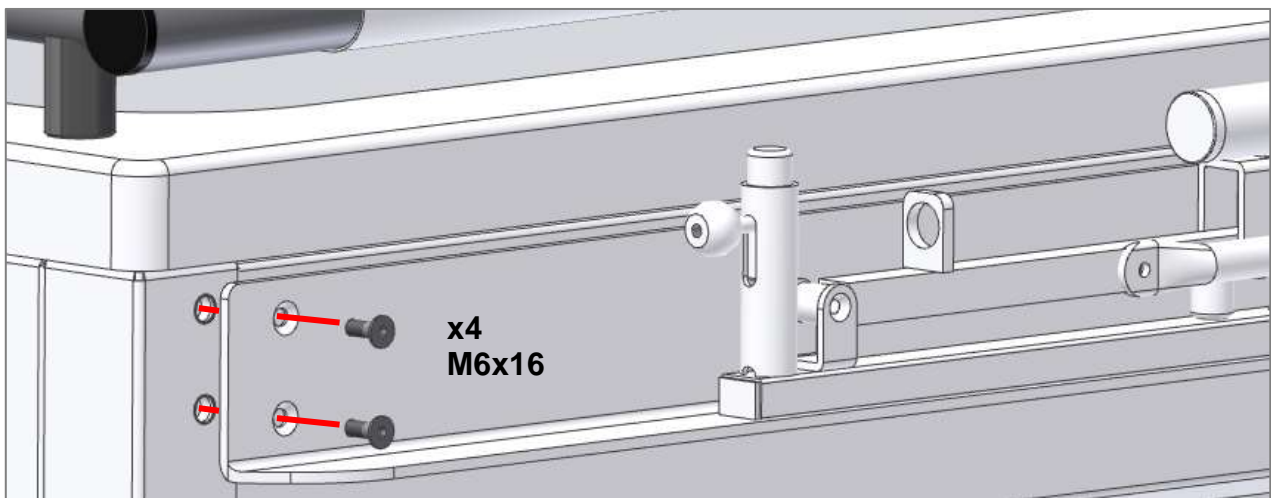
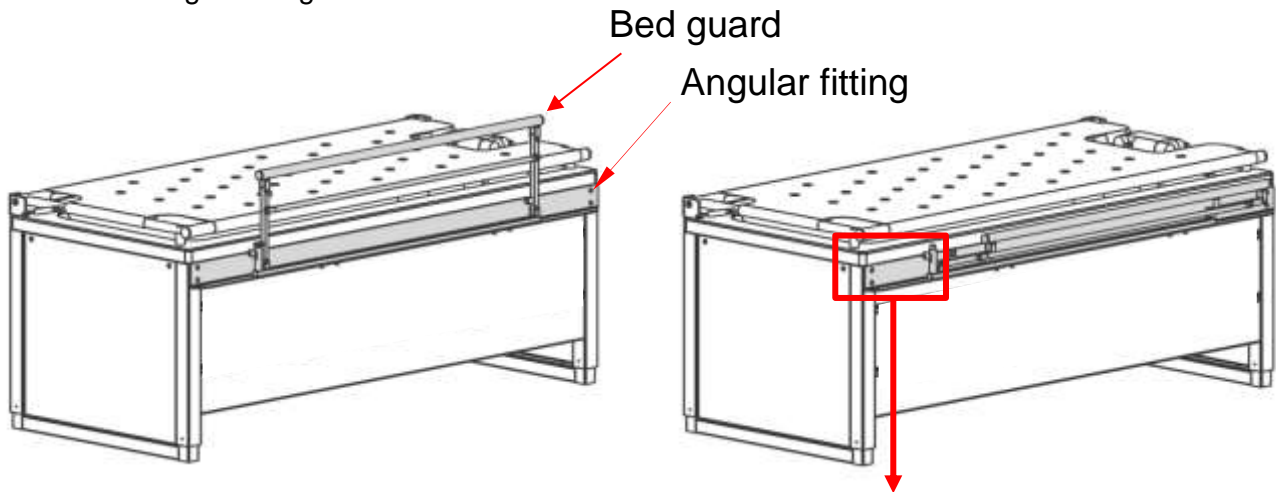
## 9.5 Folding bed guard

A folding bed guard is available as an option. It is mounted on the side of the bathtub by means of an angular fitting.

Note that the bed guard is identical for all bathtubs and that the angular fitting has different lengths to suit the specific bathtub.

Bathtub	40-14156	40-14157	40-14158
Bed guard (110cm)	40-14186	40-14187	40-14188

### 9.5.1 Mounting of bed guard



#### Warning!

Always make sure that the bed guard is locked when in use with a patient. Checking is done by rocking it back and forth to check the locking mechanism is engaged.



#### Note!

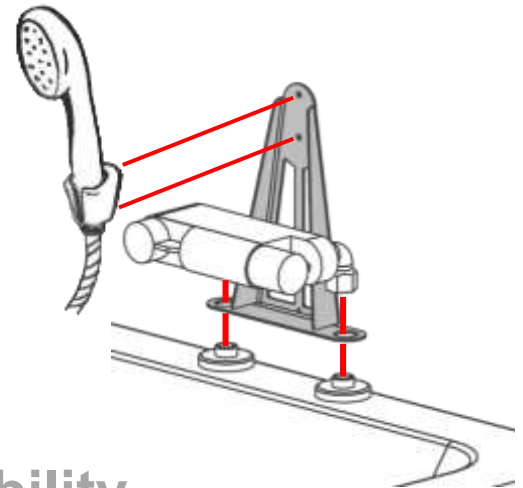
Operator should mind hands and other body parts when folding down the bed guard, there is risk of squeezing.



## 9.6 Showerhead holder - mounted by Ropox

As an option, a showerhead holder is available for mounting on the wall fitting of the showerhead.

Bathtub	40-14156 40-14356	40-14157 40-14357	40-14158 40-14358
Holder	40-14120		



# 10. Electromagnetic compatibility

## 10.1 Suitable Environments

The device is suitable for use at home, at day-care centers, at day centers for persons with physical or mental disabilities or at hospitals except near active HF surgical equipment and the RF shielded room of a medical electrical system for magnetic resonance imaging, where the intensity of electromagnetic disturbances is high.

## 10.2 Basic safety and Essential performance

The device does not have any function related to basic safety or essential performance. In case of loss or degradation of performance, the user can get on and off the product.

## 10.3 Adjacent and stacked use

	<p><b>Warning!</b></p> <p>Use of this equipment adjacent to or stacked with other equipment should be voided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.</p>
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## 10.4 Cables

Cable component	Length
Power cable	3,2 m
Hand control spiral cable	Approx. 5 m extended.
Motor cable	1m
Motor cable	2,5 m

	<p><b>Warning!</b></p> <p>Use of accessories, transducers, and cables other than those specified or provided by the manufacturer of this could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.</p>
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## 10.5 RF portable equipment

	<p><b>Warning!</b></p> <p>Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the device, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.</p>
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## 10.6 Compliance levels for emissions and immunity

Phenomenon	Test method	Class	Group
Conducted RF emissions	EN 55011	Class B	Group 1
Radiated RF emissions	EN 55011	Class B	Group 1
Harmonic current emissions	EN 61000-3-2	Class A	-
Voltage changes, voltage fluctuations and flicker emissions	EN 61000-3-3	-	-

Phenomenon	Test method	Immunity test level
Electrostatic discharge immunity	EN 61000-4-2	+/- 8 kV contact +/- 2, 4, 8, 15 kV air
Electrostatic discharge immunity – I/O SIO/SOP ports	EN 61000-4-2	+/- 8 kV contact, +/- 2, 4, 8, 15 kV air
Radiated RF electromagnetic field immunity	EN 61000-4-3	10 V/m 80 MHz to 800 MHz 20 V/m 800 MHz to 2.5 GHz 10 V/m 2.5 GHz to 2.7 GHz 80 % AM 1 kHz
Immunity to proximity fields from RF wireless communication equipment	EN 61000-4-3	385 MHz, 27 V/m, 18 Hz PM (50 % duty cycle square wave) 450 MHz, 28 V/m, FM +/- 5 kHz dev., 1 kHz sine 710 MHz, 9 V/m, 217 Hz PM (50 % duty cycle square wave) 745 MHz, 9 V/m, 217 Hz PM (50 % duty cycle square wave) 780 MHz, 9 V/m, 217 Hz PM (50 % duty cycle square wave) 810 MHz, 28 V/m, 18 Hz PM (50 % duty cycle square wave) 870 MHz, 28 V/m, 18 Hz PM (50 % duty cycle square wave) 930 MHz, 28 V/m, 18 Hz PM (50 % duty cycle square wave) 1720 MHz, 28/ V/m, 217 Hz PM (50 % duty cycle square wave) 1845 MHz, 28 V/m, 217 Hz PM (50 % duty cycle square wave) 1970 MHz, 28 V/m, 217 Hz PM (50 % duty cycle square wave) 2450 MHz, 28 V/m, 217 Hz PM (50 % duty cycle square wave) 5240 MHz, 9 V/m, 217 Hz PM (50 % duty cycle square wave) 5500 MHz, 9 V/m, 217 Hz PM (50 % duty cycle square wave) 5785 MHz, 9 V/m, 217 Hz PM (50 % duty cycle square wave)
Electrical fast transient/burst immunity – AC power ports	EN 61000-4-4	+/- 2 kV 100 kHz repetition frequency
Electrical fast transient/burst immunity – I/O SIO/SOP ports	EN 61000-4-4	+/- 1 kV 100 kHz repetition frequency
Surge immunity – AC power ports	EN 61000-4-5	Line-to-line: +/- 0.5, 1 kV line to line/neutral
Immunity to conducted disturbances induced by RF fields – AC power ports	EN 61000-4-6	3 V (6 V in ISM bands and amateur radio bands <sup>a</sup> ) 0.15-80 MHz 80 % AM 1 kHz
Immunity to conducted disturbances induced by RF fields – I/O SIO/SOP ports	EN 61000-4-6	3 V (6 V in ISM bands and amateur radio bands <sup>a</sup> ) 0.15-80 MHz 80 % AM 1 kHz
Power frequency magnetic field immunity	EN 61000-4-8	30 A/m 50 Hz and 60 Hz

Phenomenon	Test method	Immunity test level
Voltage dips, short interruptions and voltage variations immunity	EN 61000-4-11	0 % U <sub>T</sub> ; 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % U <sub>T</sub> ; 1 cycle at 0° 70 % U <sub>T</sub> ; 10 cycles at 0° 0 % U <sub>T</sub> ; 250 cycles at 0°
a) The ISM (industrial, scientific and medical) bands between 0.15 MHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz. The amateur radio bands between 0.15 MHz and 80 MHz are 1.8 MHz to 2.0 MHz. 3.5 MHz to 4.0 MHz. 5.3 MHz to 5.4 MHz. 7 MHz to 7.3 MHz. 10.1 MHz to 10.15 MHz. 14 MHz to 14.2 MHz. 18.07 MHz to 18.17 MHz. 21.0 MHz to 21.4 MHz. 24.89 MHz to 24.99 MHz. 28.0 MHz to 29.7 MHz and 50.0 MHz to 54.0 MHz.		

## 11. Complaints

See our general terms of sale and delivery on [www.ropox.com](http://www.ropox.com)



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