

Puro



Clinic | Care | Homecare

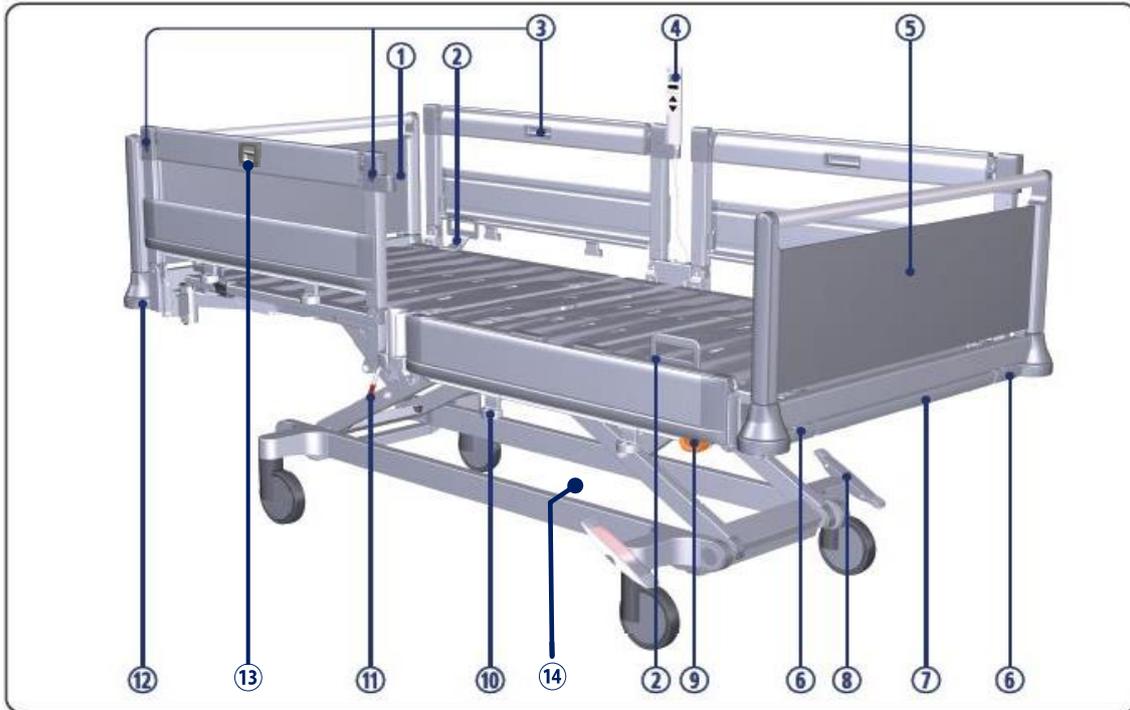


Instruction Manual

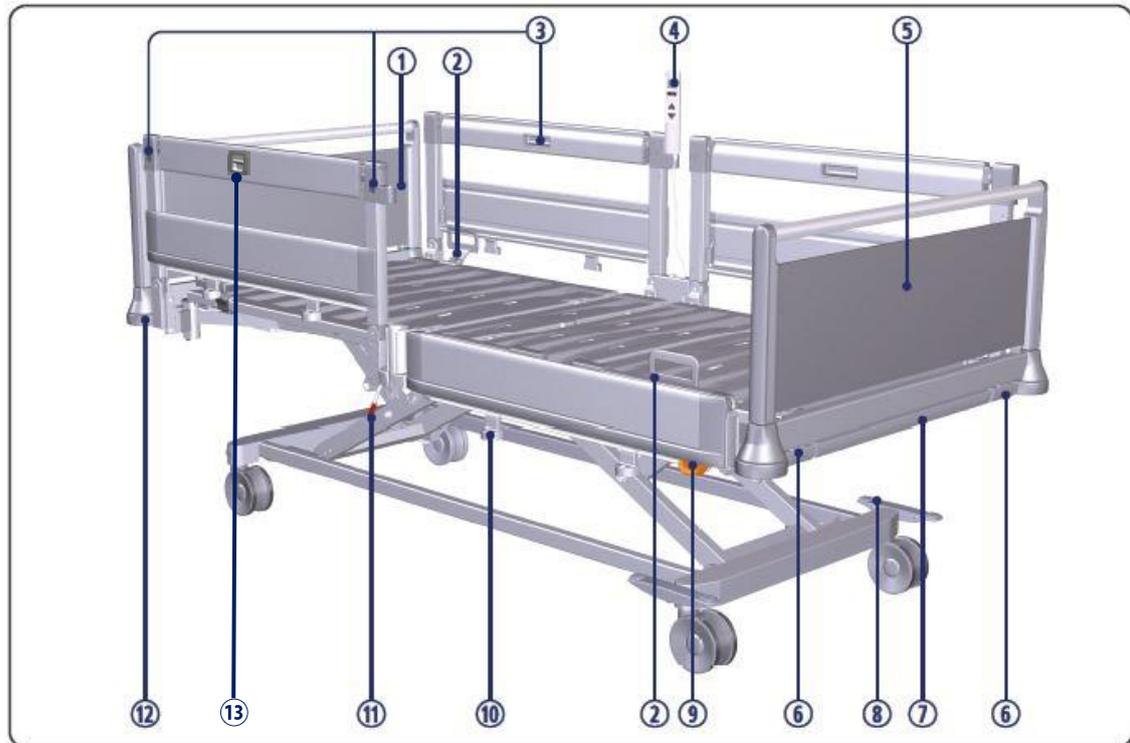
Puro and model variants

2017/07/28 | Version 0 | 265114

Puro MultiFlex hospital bed⁺



Puro brevo MultiFlex hospital bed⁺



- | | | | |
|----|--|----|---|
| 1 | Headboard, removable | 2 | Grab handles / side mattress guides |
| 3 | Safety side handle | 4 | LCD handset |
| 5 | Footboard, removable | 6 | Bed extension release handles |
| 7 | Linen holder, extensible, with gallery rail | 8 | Foot lever (both sides) for operating castor brakes or for steering |
| 9 | Magnet (on both sides) to unlock control levels on LCD handset | 10 | Universal holder, sliding, on both sides |
| 11 | Lever (on both sides) for manual adjustment or CPR release of the backrest | 12 | Wall buffer wheels |
| 13 | Safety side activation | 14 | Fifth castor (not visible in image) only available with Puro |

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1 Address, Change History, Market Information

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Customers outside Germany can contact our sales distributors in their particular country if they have any questions. Contact details can be found on our website.

Version	Date	Change
0	28/07/2017	First issue

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This product is not licenced for use on the North American market. This applies particularly to the United States of America. The distribution and use of the hospital bed in these markets, including via third parties, is prohibited by the manufacturer.

2 Foreword

Dear Customer,

Stiegemeyer has built this bed to give you the best possible help with the challenges posed by nursing and caregiving. We passionately pursue the goal of developing products that are durable and of a high-quality. Our products should make patients and residents feel as safe and comfortable as possible during their stay in bed and also maximise the safety and lighten the workload of nursing and care staff. For this reason, the electrical safety and all functions are tested prior to delivery. Each bed leaves our factory in perfect condition.

Correct operation and care are necessary to keep the bed in excellent condition during long-term use. Please therefore read and observe these instructions carefully. They will help you to put the bed into service for the first time and to use it on a daily basis. This instruction manual contains all the information you will need to make controlling and handling this bed as easy and safe as possible, both for you as the operator and for your users. It is a practical reference book and should be kept close to hand at all times.

Even after purchasing a bed, Stiegemeyer is still on hand to help at any time. Our Assist business division can provide you with customised solutions in all matters relating to inspection and maintenance, repair and process optimisation. You can contact our service centre in Germany by phone at +49 (0) 5221 185 - 777. Customers outside Germany can contact our sales distributors in their particular country if they have any questions. Contact details can be found on our website www.stiegemeyer.com.

We wish you and your users every success and satisfaction in caring for your patients and residents.

Stiegemeyer GmbH & Co. KG

3 Target Groups, Qualifications and Duties

3.1 Operator

An operator (e.g. clinic, hospital, hospital administration) is every natural and legal person with property rights to the product. The operator is responsible for the safe operation of this medical device.

3.2 Operator Responsibilities

Please observe your obligations as the operator in accordance with the Medical Devices Operator Ordinance (*Medizinprodukte-Betreiberverordnung*, German abbreviation: *MPBetreibV*), to ensure that this medical product is always operated safely and with no risk of danger to patients, users, or third parties. In other countries, the relevant national regulations concerning the duties of the operator must be followed!

Only permit persons who have been properly instructed to use this bed!

- In Germany: Ensure that users know where this instruction manual is kept, in accordance with § 9 of the Medical Devices Operator Ordinance (*MPBetreibV* § 9)! In other countries, the relevant national regulations must be complied with!
- Using this instruction manual, which is provided with this hospital bed, ensure that every user is instructed in the safe operation of this bed before using it for the first time!
- Draw every user's attention to the possible hazards that can arise if the hospital bed is improperly used. This applies in particular to the use of electrical actuators and safety sides!
- Make sure that substitute staff are also sufficiently well instructed in the safe operation of the hospital bed!

Check to ensure that the safety instructions are adhered to!

If the hospital bed is in long-term use, test the functions and check for any visible damage after a reasonable period of time (at least once a year)!

If the hospital bed changes ownership, the instruction manual must be handed over with the bed.

If any other equipment is attached to the bed, (e.g. compressors for positioning systems, etc.), ensure that this is securely fastened and is functioning properly.

If you have any queries or concerns, consult the manufacturer of the equipment or Stiegemeyer.

3.3 Users (Medical Staff)

Users (e.g. medical specialists, doctors, nursing staff, carers and attendants) are persons who, based on their training, experience or briefing, are qualified to operate the bed on their own authority or to carry out work on it, or have been instructed in how to handle this bed. Furthermore, they are able to recognise and avoid possible hazards as well as assess the clinical condition of the patient.

3.4 Users (Technical Staff)

Users with a technical background (e.g. company technicians, service engineers or persons who are capable of carrying out special technical work on the hospital bed due to their training or briefing through the operator).

3.5 Qualification of Users

The operator must only appoint users with the following three minimum qualifications to operate the hospital bed:

- Medical training
- Experience in dealing with patients and hospital beds
- Instruction in handling this hospital bed through the operator

For adjusting (technician control level of the LCD handset) and maintaining the hospital bed, the operator must only appoint persons with the following minimum qualification:

- Technical experience of setting and maintaining hospital beds
- Have read and understood the special operation and maintenance instructions for this bed (technician control level of the LCD handset) contained in this instruction manual

3.6 Duties of Users

Ensure that the operator instructs you in the safe operation of this bed.

In Germany: Before using a hospital bed, you, as the user, must check each time that the hospital bed is fully functional and in perfect working order, and must observe the instructions in the instruction manual - particularly the safety information - during operation and maintenance in accordance with the Operators of Medical Products Ordinance (*MPBetreibV*) § 2. This is the only way to prevent operating errors and ensure correct handling in order to prevent injuries and damage from occurring. In other countries, the relevant national regulations concerning the duties of the operator must be followed!

Please also follow the corresponding instructions in the instruction manual for accessories attached to the bed.

Pay special attention here to the safe routing of all loose connector cables, tubing, etc.

Ensure that no obstacles, such as bedside lockers, supply rails or chairs could impede adjustments to the bed.

If other equipment (e.g. compressors for positioning systems, etc.) is attached, ensure that all items of equipment are fixed securely and function properly.

If you have any queries or concerns, consult the manufacturer of the equipment or Stiegemeyer.

CAUTION

Risk of Injury

If any damage or malfunction is suspected, take the bed out of service.

- Unplug the bed from the mains supply immediately.
- Indicate clearly that the hospital bed is “OUT OF ORDER”.
- Report this immediately to the operator responsible.

3.7 Patient

A patient is defined as a person who is in need of care, ill, infirm, or disabled, and occupies this bed.

It is a requirement that the operator or user instructs each new patient in the bed functions that are important for him/her.

4 Conventions of this Instruction Manual

4.1 Safety Information

In this instruction manual, safety information is displayed in the following way:

DANGER

DANGER

DANGER indicates an imminent hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

WARNING

WARNING indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

CAUTION

CAUTION indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.

IMPORTANT

IMPORTANT indicates a harmful situation that could result in damage to the product or something around it.

4.2 Icon Information

General information and cross-references will be displayed in the following way:



General information, tips and helpful courses of action.



Cross-reference or active link: The double arrow separates the chapter title from the page number. Example: see Safety Information »15.

5 Safety Information

5.1 Safety Information for Bed Operation

This hospital bed is not suitable for patients under 146 cm in height or for small children.

This hospital bed may only be operated by persons who have received instruction from the operator in its safe operation.

Electrical adjustments are only possible when the hospital bed is properly connected to the mains supply (exception: emergency battery operation).

If the hospital bed changes ownership, the instruction manual must be handed over with the bed.

5.1.1 Electrical Cabling and Connections

WARNING

Danger Due to Electric Shock

Damaged mains cables can cause fatal electric shocks. Take the following measures to prevent hazards due to electric shock and malfunctions.

- If a damaged mains cable continues to be used, this can lead to electric shock, fire and other hazards as well as malfunctions. A damaged mains cable must be replaced immediately!
- Connect the bed only to a mains electricity supply with an earth wire.
- Route the mains cable in such a way that it cannot be pulled, driven over, damaged by moving parts, crushed or damaged in any other way when the bed is operated.
- Before moving the bed, always make sure that you have unplugged it from the mains socket.
- Hang the mains cable in the mains cable holder provided on the headboard to ensure that it will not fall off or trail on the floor.
- At weekly intervals when the bed is being used, carry out a visual inspection of the mains cable to check for damage (scuffing, exposed wires, kinks, pressure points, etc.). A check should also be performed whenever the cable has been subjected to any mechanical load, e.g. has been driven over by the bed itself or by an equipment trolley, or whenever the cable has been bent, stretched or violently pulled, e.g. due to the bed rolling away while it is still plugged into the mains socket, and before plugging the cable back into the mains socket whenever the bed has been moved or relocated.
- Check the strain relief for the mains cable regularly to ensure that the screws are tight.
- Do not place multiple socket outlets under the bed. This could cause electrical hazards due to damaged mains cables or penetrating fluids.
- Do not continue to use the bed if you suspect that the mains cable could be damaged.

5.1.2 Length of Operation of Electric Actuators



Continuous operation must not exceed two minutes. After this time, a rest period of at least 18 minutes must be observed.

If the electric actuator is operated for a much longer period, e.g. due to the patient continually "playing" with the handset, the electronic thermal protection device integrated in the control unit will deactivate the thermal protection device temporarily.

In this extremely rare case, the control unit will be available for use again after cooling down for approximately 20 minutes.

5.1.3 LCD Handset

When not in use, stow the LCD handset in the holder in such a way that it cannot inadvertently fall off, and ensure that the keypad is not facing outwards away from the bed where it is exposed to potential harm, since collisions with other objects or equipment may accidentally trigger adjustments to the bed.

When routing the LCD handset cable, ensure that it cannot be damaged by any moving parts of the bed:

- Hang the LCD handset with the keypad facing the inside of the bed.
- Make sure that the cable cannot be crushed, stretched or otherwise damaged by moving parts of the bed.

This will prevent unnecessary hazards arising through automatically activated electrical adjustments that were not previously locked-out and system faults occurring due to locked electrical adjustment systems.

To safeguard the patient, and children in particular, against unintentional electrical adjustments, place the LCD handset out of their reach (e.g. at the foot end of the bed) or lock the appropriate adjustment options.

In these cases, adjustments must only be performed by a person trained by the operator, or in the presence of a trained person!

CAUTION

Risk of Injury

Lock the operating functions for the patient on the handset if

- The patient is unable to operate the bed safely,
- The patient is unable to free himself or herself from potentially dangerous situations,
- The patient is exposed to an increased risk of entrapment during backrest and thigh rest adjustments when the safety sides are raised,
- The patient could be at risk from inadvertent adjustment of the actuators;
- Children are left unsupervised in the room with the bed.

The following sticker on the linen holder reminds you about handset locking:



5.1.4 **Bed Adjustment**

CAUTION

Risk of Crushing

When making any adjustments, always ensure that there are no limbs belonging to patients, users, other persons, and especially playing children, that could be trapped underneath the rests or the mattress base.

IMPORTANT

The user must check that:

- No obstacles such as bedside lockers, supply rails, other equipment, chairs or chair rails are in the way,
- There are no objects lying on the chassis,
- People do not sit on slightly raised sections of the backrest and leg rests.

↳ Otherwise, the hospital bed and/or lifting frame could be damaged, and this could have an adverse effect on the loading capacity of the hospital bed or the adjusting functions.

 If the load is too high, an electronic overload switch is activated and the actuator system is automatically switched off. After a short movement in the opposite direction and removal of the overload source, the actuator system will continue to move in the intended direction.

5.2 Special Hazards

5.2.1 Risk of Fire

WARNING

Risk of Fire

Various external factors can result in a fire. To prevent a fire, take the following precautionary measures:

- Use only flame-retardant mattresses and bedding if possible.
- Inform patients that smoking is not allowed in bed.
- Only use additional equipment (e.g. electric blankets) and other electrical devices (e.g. lamps, radios) that are in perfect working order!
- Ensure that this equipment is used only for the purpose intended.
- Ensure that this equipment is not inadvertently placed on or under the bedding (danger of overheating)!
- Avoid using extension cables or multiple socket bars under the bed (risk of fire due to penetrating fluids).

5.2.2 Electromagnetic Interference

As electromedical equipment, this hospital bed is subject to special safety measures with respect to electromagnetic compatibility (EMC). For this reason, observe the following instructions when installing and operating the hospital bed:

Portable and mobile high-frequency communication devices (e.g. cordless telephones, mobile telephones, baby monitors, WLAN, WIFI, wireless equipment, etc.) can influence the operation of electromedical equipment. These influences have been minimised by means of the robust, interference-resistant design of the electrical adjustment features of this bed.

As with every electrical device, even if all the specified EMC limits are adhered to during operation, interference from other nearby high-frequency communication devices and vice versa cannot be eliminated completely (e.g. “crackling” in a radio). In such rare cases, increase the distance between the devices or align them differently, and make sure that they do not use the same electrical outlet, or switch the disruptive/disrupted device off temporarily. Explain the necessary precautions to the patient as well.

5.3 Safety Information for Attachments and Additional Equipment

Efficient and safe operation combined with maximum protection of patients can only be guaranteed if original Stiegemeyer accessories are used that are designed for the relevant model of bed!

Make sure that the attachment of accessories does not produce any crush or shearing zones when the bed sections are adjusted. If this cannot be ensured, you must lock those particular adjustment controls! (Use the locking functions on the LCD handset for this purpose).

5.3.1 Use of Additional Electromedical Equipment

When additional mains-operated electrical (electromedical) equipment such as infusion pumps, data processing devices, ECG/EEG devices, etc., is used in combination with this electrically adjustable bed, the entire arrangement constitutes an "electromedical system".

When using electromedical equipment, precautions must be taken to comply with electromagnetic compatibility (EMC) requirements and allowable leakage current limits. The installation and commissioning of electromedical devices must be carried out in accordance with EMC recommendations described in the accompanying documentation. If necessary, the bed (using the connection pin at the head end of the bed), and also the additional equipment associated with the bed, should be connected to the hospital's potential equalisation (PE) system.

When the bed is connected to the mains electricity supply, it must always be connected to the hospital's potential equalisation system when intravascular and intracardial applications are involved. The potential equalisation of the bed applies to the mattress base frame. Additional assemblies and accessories (such as headboards and footboards, safety sides, patient lifting poles, infusion stands) are excluded from these requirements.

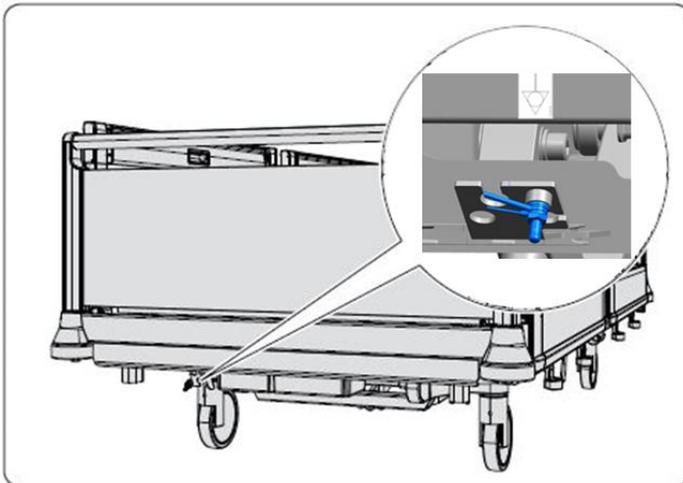


Fig. 1: Connection pin and potential equalisation symbol

In addition, observe the information given in:

- Chapters Safety Information Concerning the Place of Use » 51 and Electromagnetic Interference » 18.
- All the information given in the instruction manuals of the additional devices as well as the requirements stipulated in the relevant standard EN 60601-1, Chapter 16 (formerly EN 60601-1-1).

5.3.1.1 Use of ECG/EEG Equipment

It is not normally a problem to use ECG/EEG patient monitoring equipment together with this hospital bed.

Should the bed's own electrical equipment, contrary to expectation, have a marginal effect on the measurements, the ECG electrode conductors should be placed as parallel as possible to the patient's arms and legs. The bed should then be connected to the hospital's potential equalisation (PE) system using the connection pin at the head end of the bed.

Many of these devices also feature a 50Hz / 60Hz line filter which can be turned on if necessary. Should this measure not be sufficient, unplug the bed from the mains supply.

This effectively avoids any possible malfunctions.

5.3.1.2 Use of Defibrillators

Even without a PE connection, the hospital bed is defibrillator-proof.

Observe the information contained in the instruction manuals for the defibrillators as well.

5.3.2 Use of Patient Lifts with Puro brevo

IMPORTANT

Due to the extremely low base height of this bed model, the use of patient lifts incurs the risk of damaging cables and actuators.

- Do not wheel the patient lift under the hospital bed when this is at its lowest level.
- Raise the mattress base until it is about 10 cm higher before wheeling the patient lift under the hospital bed.

5.4 Safety Information for Accessories

CAUTION

Efficient and safe operation combined with maximum protection of patients can only be guaranteed if original Stiegemeyer accessories are used that are designed for the relevant model of bed!

5.5 Safety Instructions for Putting into Service

WARNING

Risk of Infection

The operator must ensure that all components of the bed that are to be disposed of are not infectious or contaminated.

CAUTION

Environmental Risk

Batteries must not be disposed of as household waste.

- They can be returned to Stiegemeyer or disposed of at local waste collection points in the same way as car batteries.
 - Outwardly undamaged, discharged battery sets can also be returned to Stiegemeyer.
 - When returning BA21-type lithium-ion batteries, use only the transport packaging specified for this purpose in accordance with UN3480! (For this purpose, re-use the original transport packaging provided by Stiegemeyer for the replacement batteries supplied).
 - Outwardly damaged battery sets must not be returned to Stiegemeyer but must be disposed of in leakproof sealed containers at local collection points in accordance with national regulations.
 - In the case of BA21-type lithium-ion batteries, read and follow the information given in the safety data sheet supplied with every replacement delivery.
-

6 Product Description

This bed fulfils all the requirements of the 93/42/EEC Medical Products Directive. It is classified as a Class I active medical device in accordance with the Medical Devices Act (*Medizinproduktegesetz*, German abbreviation: *MPG*) § 13.

6.1 Designated Use

- This bed is designed for positioning and transporting patients, as an aid to diagnosing, monitoring, treating, and alleviating illnesses or compensating for injuries or disabilities. For detailed instructions for use, see Chapter 9 » 64
- This bed is suitable for accommodating adult patients only (= persons whose height is at least 146 cm).
- The bed itself is not life sustaining or life supporting.
- The bed has no medical indication.

6.2 Use for the Intended Purpose

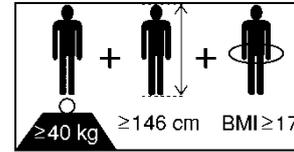
- The bed may only be used in hospitals and comparable medical facilities with qualified personnel within closed rooms.
- Qualified personnel must be skilled in handling the beds through being thoroughly conversant with the instruction manual.
- If the owner of the hospital bed changes, the instruction manual must be handed over with the bed.
- The bed with its stable, smooth-running castors is designed for being moved within the room as well as frequently in corridors and across thresholds with a height of up to 2 cm.
- The safe working load is 260 kg (patient + accessories).
- This bed is suitable for repeated use.
- This bed must not be used in explosive environments caused, for example, by cleaning agents or anaesthetics.
- This bed must not be used in combination with high frequency surgical equipment.
- Before using the safety sides, assess and take into consideration the clinical condition and particular physical build of the patient: Observe the special safety information in Chapter 9.12 » 84!

This bed may only be used under the operating conditions described in this instruction manual. Any other use shall be regarded as contrary to the intended purpose.

:

6.3 Contraindications

- This bed is only suitable for occupants who do not fall below the following minimum body size/weight:
 - Height: 146 cm,
 - Weight: 40 kg
 - Body Mass Index¹ 'BMI': 17.



Sticker on chassis of bed

- Owing to the smaller limbs of occupants with lower body measurements/weight, there is an increased risk of entrapment between the open spaces of the safety sides when safety side systems are used.

6.4 Side Effects

Unless suitable measures are taken, long-stay patients may develop decubitus.

6.5 Product Variants

The Puro hospital bed is available in the variants Puro and Puro brevo.

The difference between these variants is indicated in the table below and the technical data.

	Puro	Puro brevo
Mattress base height (adjustment range)	32/35 – 88/91 cm (depending on type of castors)	28/30 – 84/86 cm (depending on type of castors)
Overall bed width	103.8 cm (lino: 99.8 cm)	103.8 cm (lino: 99.8 cm)
Mattress width	90 cm (lino: 87 cm)	90 cm (lino: 87 cm)

6.6 Components of the Bed

6.6.1 Headboards and Footboards

The standard version of the bed comes with removable head and footboards to provide better access to the patient in certain cases (such as for taking X-rays).

¹ Calculation of BMI = $\frac{\text{Weight of Patient [kg]}}{\text{Height of Patient [m]}^2}$; example: a) $\frac{41 \text{ kg}}{1.5\text{m} \times 1.5\text{m}} = 18.2 \rightarrow \text{OK!}$; b) $\frac{35 \text{ kg}}{1.5\text{m} \times 1.5\text{m}} = 15.6 \rightarrow \text{Not OK}$

6.6.2 Mattress Base

The mattress base is divided into a backrest, a seat section, a thigh rest and a lower leg rest. The mattress base height can be adjusted horizontally, and can be tilted into a Trendelenburg or reverse-Trendelenburg position. The backrest and thigh rest can be adjusted separately. The components for the electric actuator system are accommodated under the mattress base.

A bed extension is contained in the standard version. For details concerning use, refer to Extending / Shortening the Mattress Base » 54.

6.6.3 Chassis

The chassis is located underneath the mattress base. The bed has four castors that can be centrally locked with a foot lever. One of the castors is equipped with a steering lock which enables the bed to be moved in a straight line.

- i Fifth castor (optional)**
The bed can be fitted with an optional fifth castor which is located in the centre of the chassis. In this case, the fifth castor takes over the function of the steering lock.

6.6.4 Electrical Actuator System

The electrical actuator system for this bed consists of the following components:

- Four actuators for the backrest, the thigh rest and the mattress base height.
- Central control unit under the mattress base (head end). The control unit there uses a transformer to generate a 24-volt protective low voltage which is non-hazardous for patients and users. The actuators, the LCD handset, the control box and the locking box are connected to the control unit. These components operate on 24-volt protective low voltage and have dust and water protected plug connections.
- Batteries (lead-acid/lithium) for mains-independent emergency operation.
- Optionally: external locking box, brake alarm, under bed light, OOB system (N.B. Installation and operating instructions for the Out-of-Bed system (OOB) are given in a separate manual).

6.6.5 Control Units

The Puro hospital bed provides various control units for adjusting the bed and positioning components. The bed is equipped with an LCD handset as standard supply. The following table shows the standard features and the optional equipment. The control box, locking box and foot pedal are for only for use by medical and technical personnel.

Designation	Component Variants	Standard Features (x) / Options (o)
Control units	LCD handset	x
	LCD handset + locking box	o
	LCD handset + control box	o
	Conventional handset	o
	Foot pedal	o

6.6.5.1 LCD Handset

The LCD handset is the principal operational control for adjusting and setting the bed, both for the patient and for medical and technical users.

All motorised adjustments by the patient are carried out using the LCD handset. The adjustments that can be carried out by the patient can be locked-out by the users. The adjustment options for medical and technical users are defined at different control levels that each need to be activated separately. The control level for medical users comprises the locking function, while on the control level for technical users (technician control level) the symbols are displayed against a dark background.

The LCD handset has a straightforward layout and a user-friendly design. It has a backlit display, a toggle switch and two buttons.

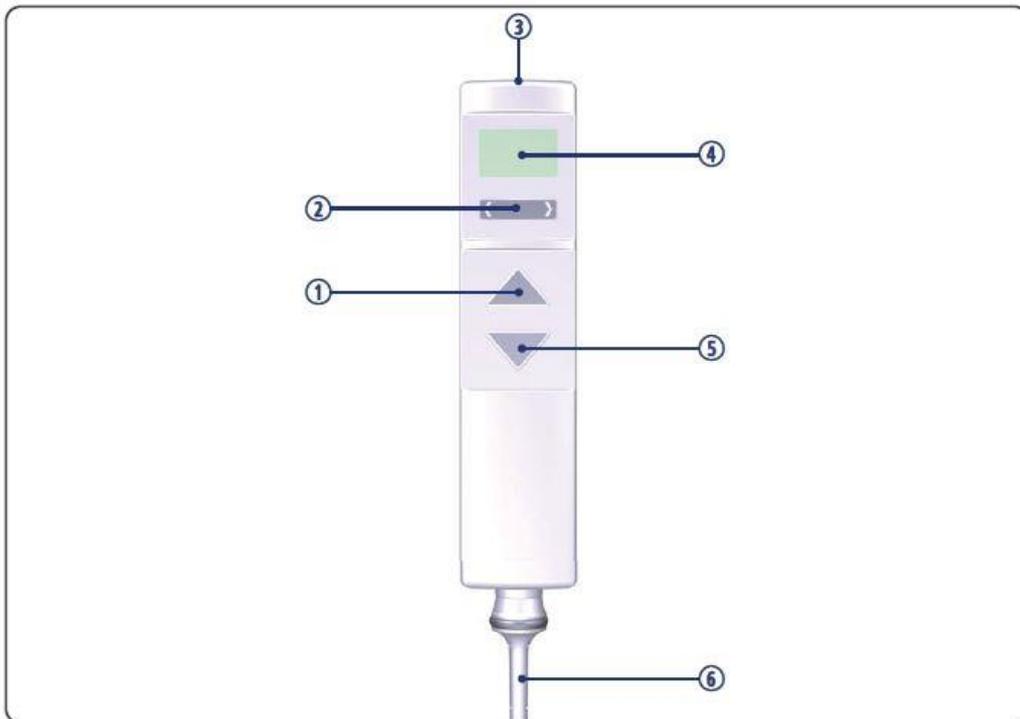


Fig. 2: LCD Handset

1	UP button	2	Toggle switch
3	Magnetic sensor	4	Display
5	DOWN button	6	Handset cable

When not in use, the LCD handset can be stored in the following places if used with MultiFlex⁺ safety sides:

- On the safety side post for use by the patient (on either side of the bed), between the bars for moving the bed (also on either side of the bed),
- On both the headboard and the footboard (with a special holder).

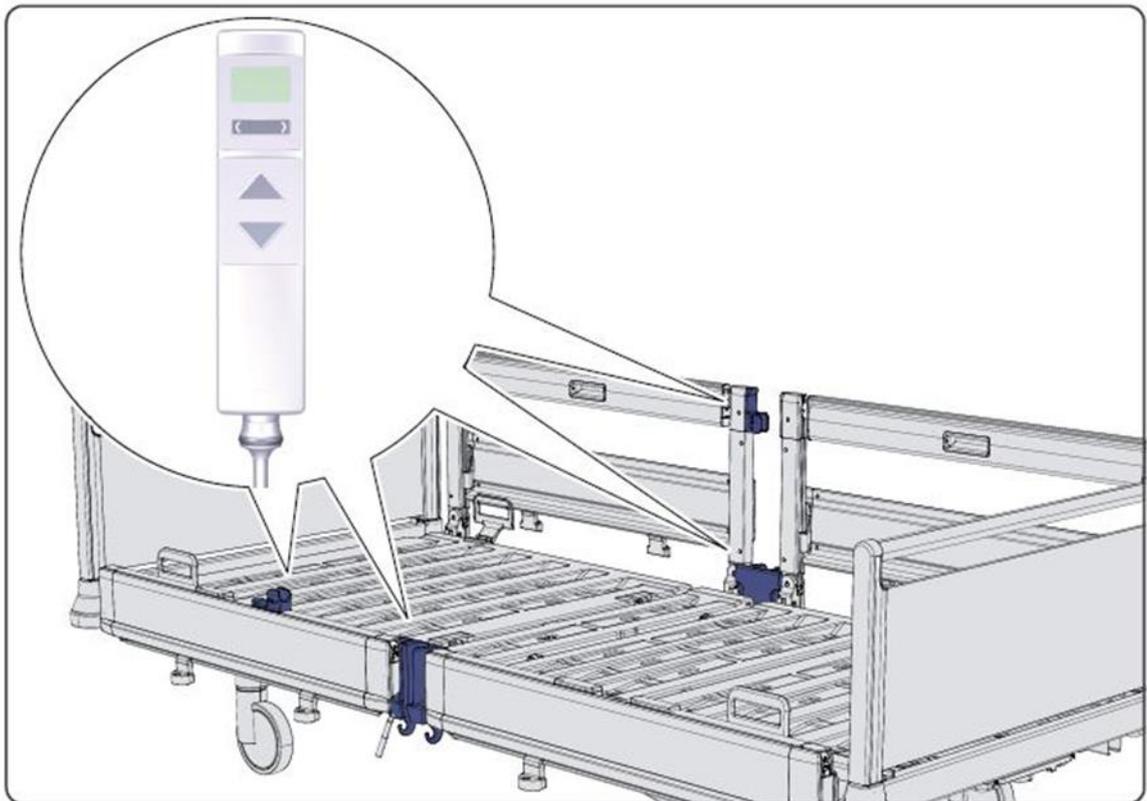


Fig. 3: Positions for storing the LCD handset when using MultiFlex⁺ safety sides

When not in use, the LCD handset can be stored in the following places if used with full-length safety sides:

- On the safety side for use by the patient (on either side of the bed),
- On both the headboard and the footboard (with a special holder).

Patient Control Level

This chapter contains an overview of the adjustment options on the patient control level. Adjustment options are selected by pressing the toggle switch and are then carried out by pressing the UP or DOWN buttons.

i Adjustment options can also be locked by medical staff. The symbols for locked-out adjustment options are then no longer displayed at the patient control level.

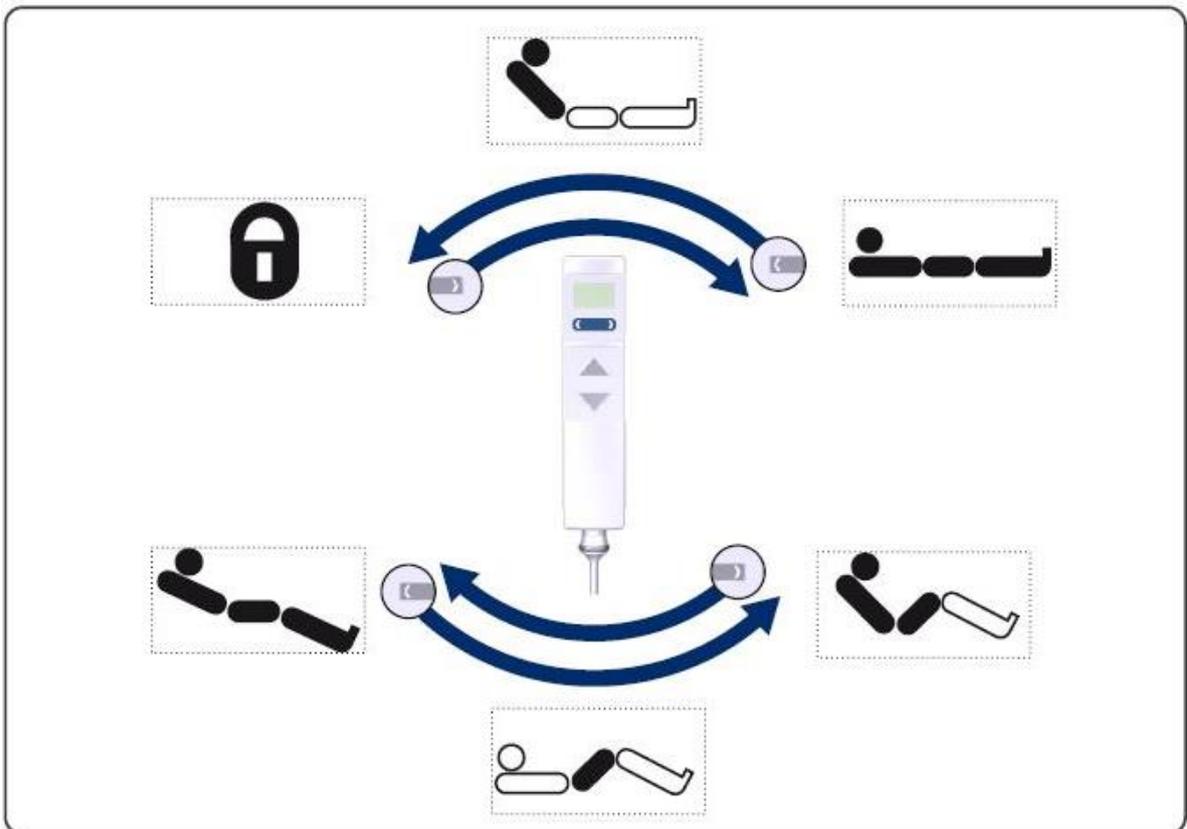


Fig. 4: Patient control level

Icon	Explanation	Icon	Explanation
	Adjusting the backrest		Thigh rest adjustment function
	Mattress base height adjustment function		Sitting position adjustment function
	Auto contour adjustment function		All adjustment options locked

Medical Staff Control Level

This provides an overview of the adjustment options at the medical staff control level. Adjustment options are selected by pressing the toggle switch and are then carried out by pressing the UP or DOWN buttons.

- i** Adjustment options can be locked using the locking functions and then released again (see Locking / Releasing Electric Adjustment Functions » 67). The symbols for locked-out adjustment options are then no longer displayed at the patient control level.

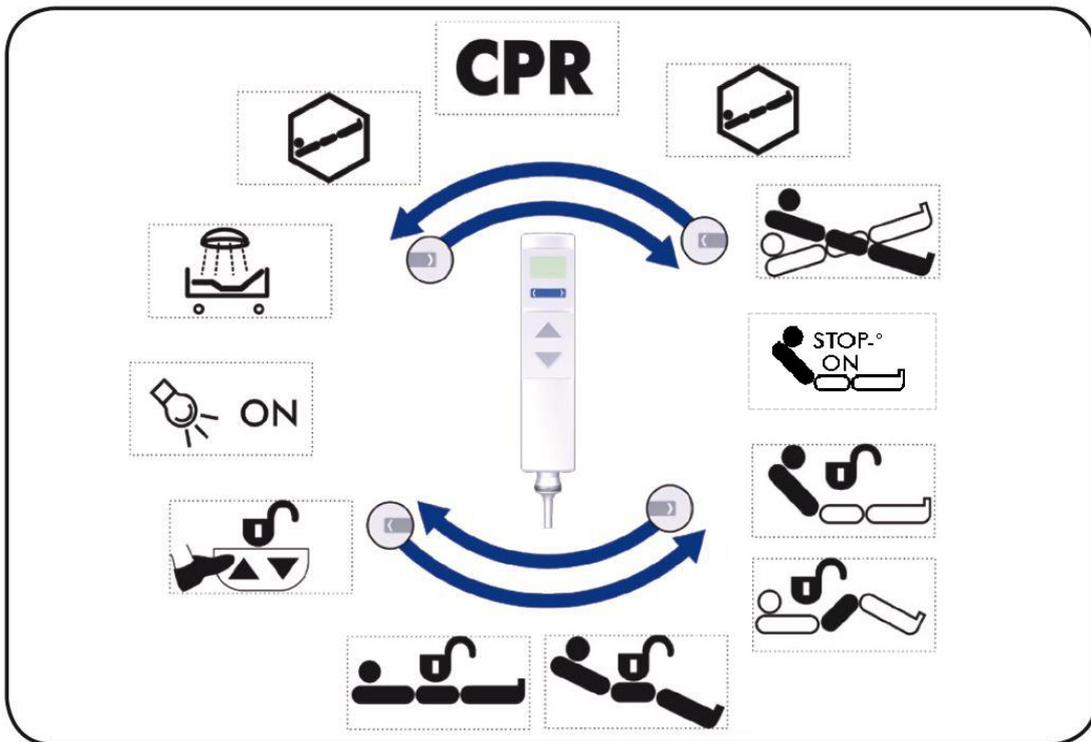
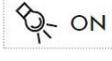


Fig. 5: Medical staff control level

Icon	Explanation	Icon	Explanation
	Resuscitation position adjustment function		Thigh rest locking function
	Shock position (Trendelenburg position) locking function		Sitting position locking function
	Automatic washing system position		Foot pedal locking function (optional equipment)
	Trendelenburg / reverse-Trendelenburg position adjustment function		Under bed light ON/OFF switch (optional equipment)
	Backrest locking function		ON/OFF switch for backrest intermediate stop

Technician Control Level

This provides an overview of the handset functions at the level accessed by technical personnel (technician control level). Adjustment options are selected by pressing the toggle switch and are then carried out by pressing the UP or DOWN buttons.

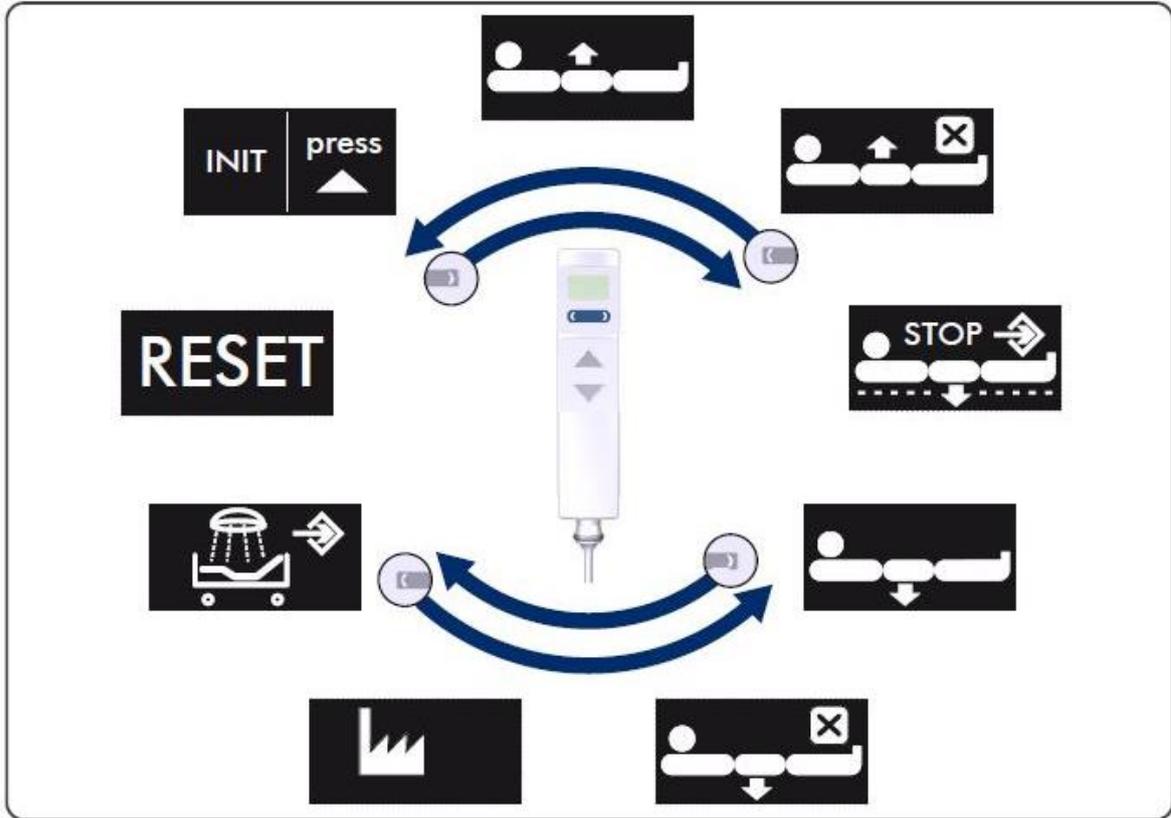


Fig. 6: Technician control level

Icon	Explanation	Icon	Explanation
	Function: Restrict maximum mattress base height		Function: Restore factory settings
	Function: Delete maximum mattress base height		Function: Define automatic washing system position
	Function: Set an intermediate stopping position (Puro brevo variant)		Function: RESET
	Function: Limit minimum mattress base height		Function: Initialisation
	Function: Delete minimum mattress base height		

6.6.5.2 Control Box

The control box is an optional piece of equipment. The control box is used to carry out all motorised adjustments and to lock LCD handset functions for the patient.

When the bed is connected to the mains supply, a yellow LED indicates that the battery is charging:

The control box is located in the linen holder and can be attached to the footboard rail.

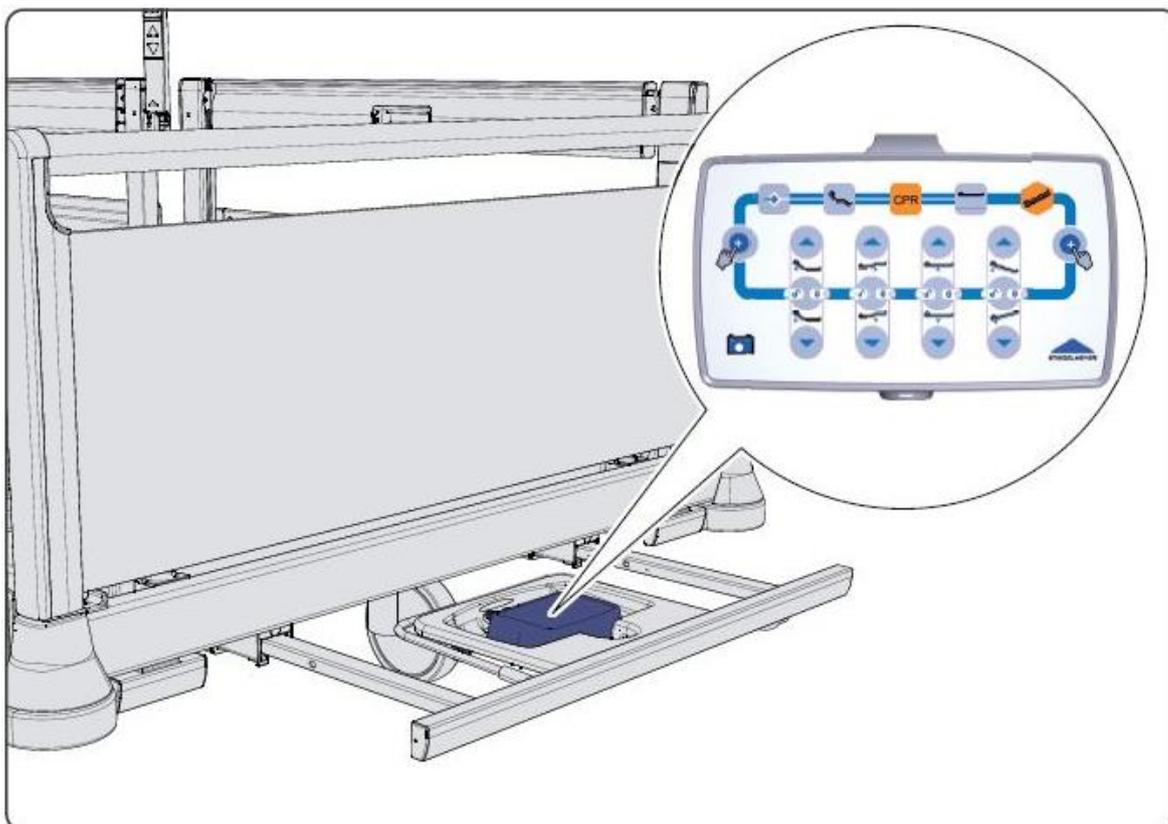
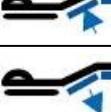
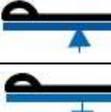
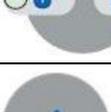
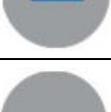
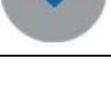


Fig. 7: Position of control box

The buttons and LEDs on the control box have the following functions:

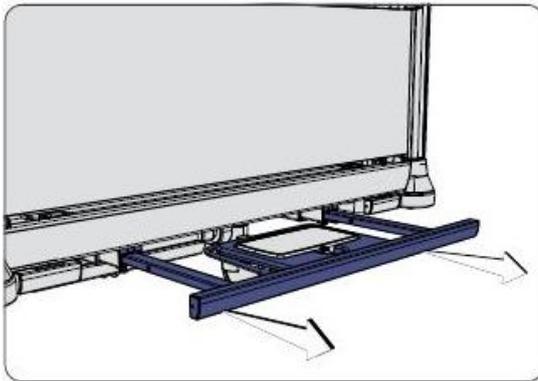
Button / Display	Explanation
	Unlock button
	Memory button

Button / Display	Explanation
	Sitting position button
	Emergency "CPR" button (to return all mattress base sections quickly to a level position)
	Normal position button
	Shock recovery position button (Trendelenburg position)
	Battery charge indicator
	Raise backrest
	Lower backrest
	Raise thigh rest
	Lower thigh rest
	Adjust height: Raise mattress base
	Adjust height: Lower mattress base
	Reverse-Trendelenburg position
	Trendelenburg position
	Buttons for locking and releasing each of the functions
	UP button for each function
	DOWN button for each function

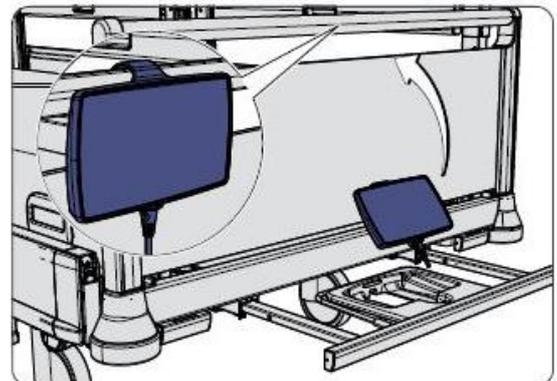
A yellow LED indicates the charging status when the bed is plugged into the mains socket.

- LED on: the battery is charging
- LED off: the battery is fully charged

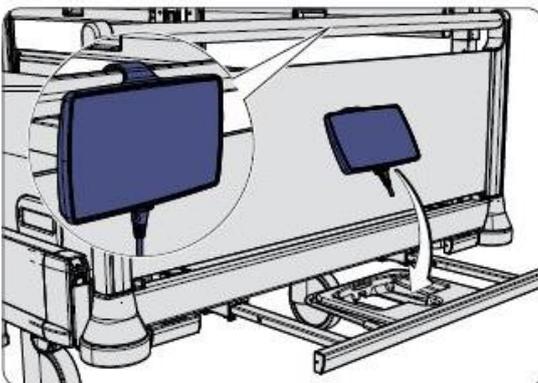
Using the Control Box



- 1 Pull the linen holder out from under the mattress base. The linen holder is located under the footboard.



- 2 Take the control box out of the linen holder and hang it onto the top rail of the footboard. This makes it easier and more ergonomic to use.



- 3 Place the control box back in the linen holder when it is no longer needed and slide the linen holder back under the footboard. Ensure that cables are routed correctly (do not pinch or trap the cables).

6.6.5.3 Locking Box

The locking box is an optional piece of equipment and is located in the linen holder. The locking box is used to adjust the bed to the shock recovery position and normal position, and to lock adjustment options for the patient in two stages.

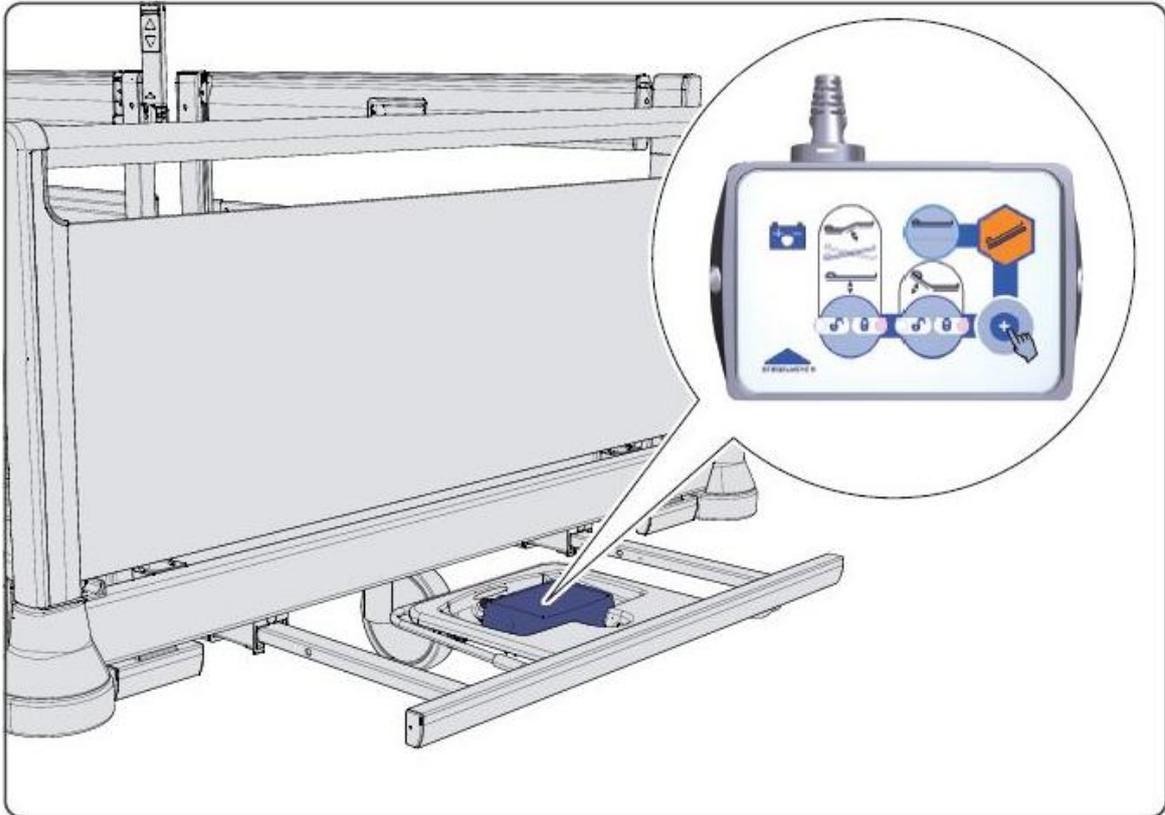
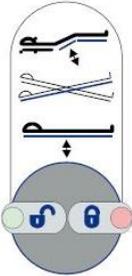
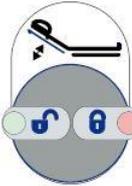


Fig. 8: Position of locking box

The buttons and LEDs on the locking box have the following functions:

Button / Display	Explanation
	Battery charge indicator
	Normal position button
	Shock recovery position button (Trendelenburg position)

Button / Display	Explanation
	Button for locking and releasing all adjustment options except backrest adjustment
	Button for locking/releasing backrest adjustment
	Unlock button

6.6.5.4 Conventional Handset

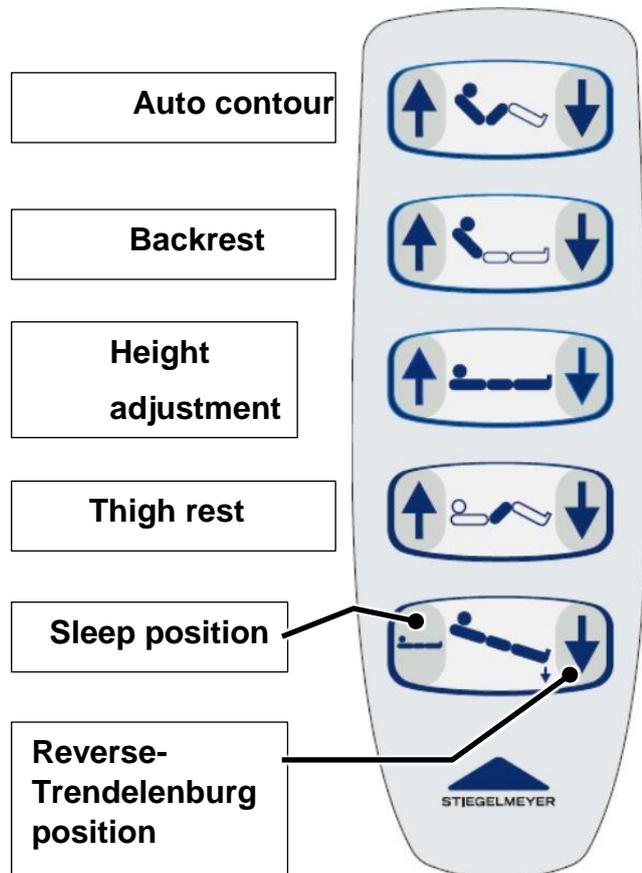
Optionally, the Puro hospital bed can be provided with a conventional handset. This handset can only be used together with a locking box or a control box. On the locking box or the control box, the displayed functions (see illustration on the right) can be locked or enabled by qualified personnel.

The following symbols apply when using the controls on the handset:

 Press = Raise

 Press = Lower

 For more details on each of the adjustment options, see Chapter 9.4 onwards » 70.



6.6.5.5 Foot Pedal

The foot pedal is attached to the crossbeam on the bed chassis. Users can raise or lower the bed by pressing the corresponding part of the toggle switch.

The foot pedal is safeguarded with a pedal guard to prevent accidental use.

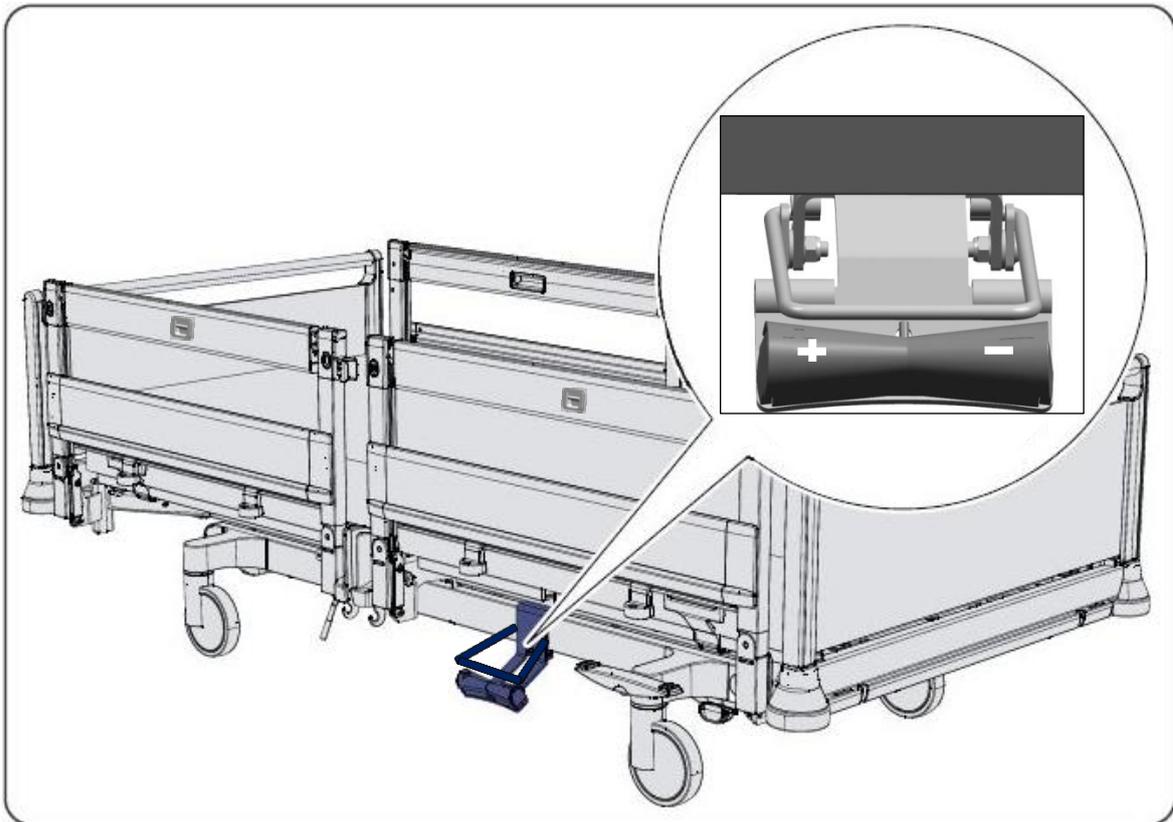


Fig. 9: Position of foot pedal

The different parts of the toggle switch on the foot pedal are used to operate the following functions:

Button	Explanation
+	Height adjustment: Raise mattress base
-	Height adjustment: Lower mattress base

 Foot pedals are always locked for safety reasons. Refer to Chapter 9.6.3 » 74 for instructions on how to unlock the foot pedal

6.6.6 Safety Sides

The bed is equipped with either full-length or combined safety sides to protect the patient from accidentally falling out of bed. The safety sides are divided into two side rails which nursing staff can lower by hand. The lower bars have an integrated rail to which universal holders can be attached.

The following illustrations show the standard features (full-length safety sides) and the optional equipment (MultiFlex⁺ safety sides):



Fig. 10: Full-length safety sides



Fig. 11: MultiFlex⁺ safety sides

6.6.7 Linen Holder

The foot end of the bed is fitted with a linen holder that can be drawn out to provide a hygienic surface to put bedding on. Depending on the bed model, there is also either a control box or a locking box in the linen holder.

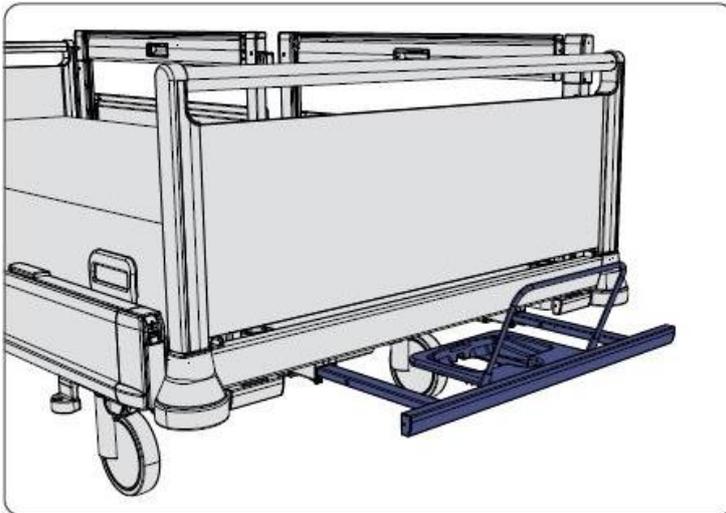


Fig. 12: Linen holder

6.6.7.1 Using the Linen Holder

IMPORTANT

Avoid Damaging the Linen Holder

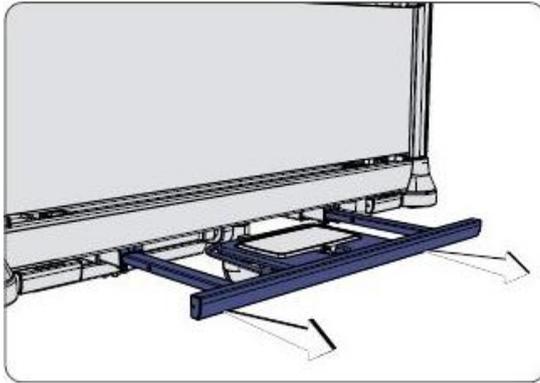
The maximum load-bearing capacity of the linen holder is 15 kg.

- Do not sit on the linen holder!
- Do not lean on the linen holder!
- When removing and re-inserting the control box, pay attention to the cable routing. Ensure that the cable cannot be caught, stretched, crushed or otherwise damaged.

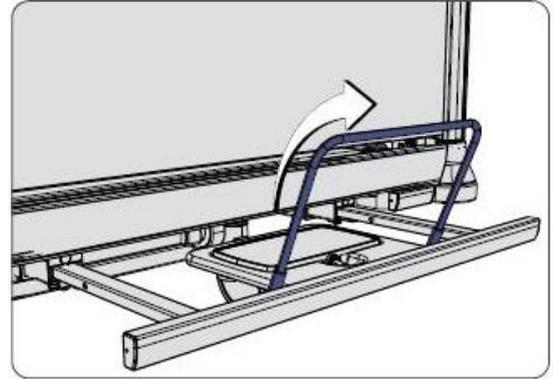
CAUTION

Risk of Injury

- The extended linen holder can easily become a tripping hazard.
- Always slide the linen holder back into place immediately after use.



1 Pull the linen holder out from under the mattress base with a slight jerk.



2 A gallery rail is attached to the linen holder. If necessary, raise the gallery rail to an upright position. This helps to hold the bedding in place.

6.6.8 Mains Cable Holder

The mains cable holder is attached to the mains cable.

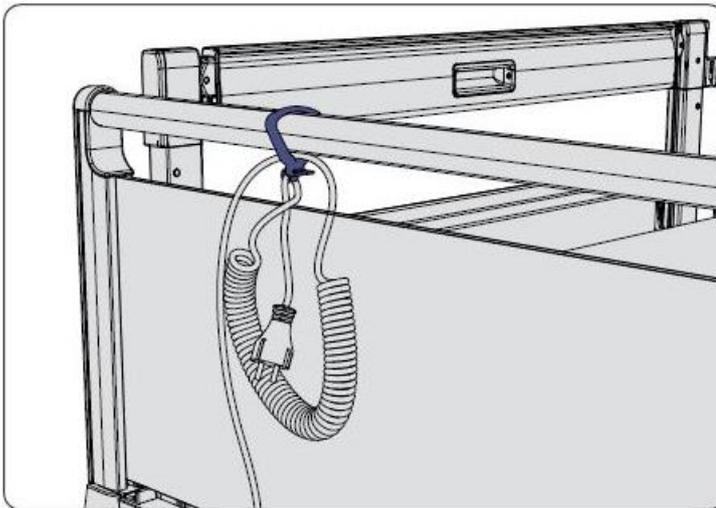


Fig. 13: Mains cable holder attached to the headboard or footboard

Hook the mains cable holder onto the headboard or footboard before moving the bed to prevent the mains cable from being driven over, crushed or torn off.

6.6.9 Adaptor Sleeves for Patient Lifting Pole / Infusion Stand

On the inside of the headboard, there is an adaptor sleeve on each side of the bed for attaching a patient lifting pole or infusion stand.

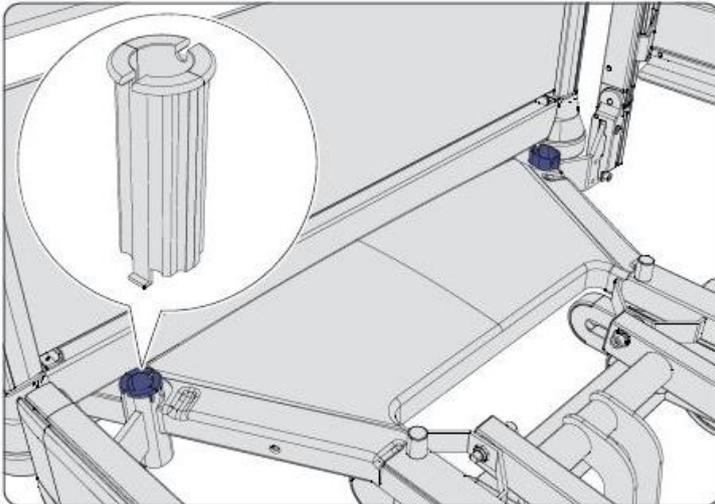


Fig. 14: Position of sleeves

A plastic reducing adapter is inserted in one of the sleeves. This can be used as required if an infusion stand is inserted. This adapter must be removed before inserting the patient lifting pole into the sleeve.

A grab handle is normally attached to the patient lifting pole (see Available Accessories » [141](#)).

6.6.10 Universal Holders

Depending on the bed model, a rail with three sliding universal holders can be attached to each of the long sides of the bed. These universal holders can be used for hanging accessories, urine bottle holders, universal brackets, etc. When the bed is moved, ensure that accessories hanging in the universal holders are not knocked against and damaged as a result.

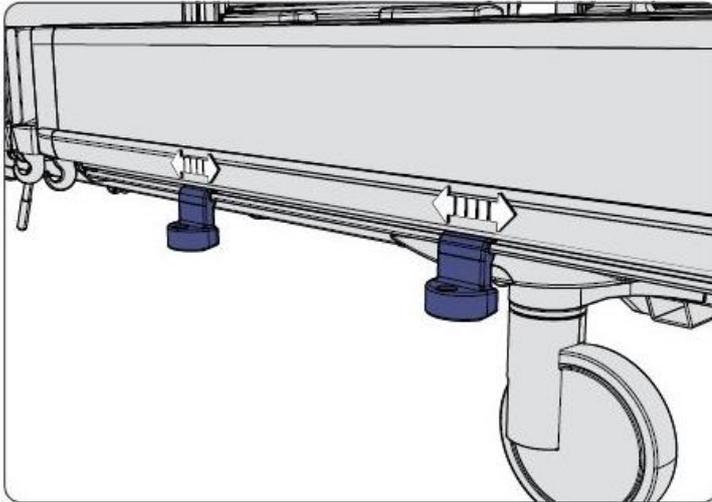


Fig. 15: Universal holders

6.6.11 Standard Sliding Rails

Depending on the bed model, a standard sliding rail can be attached to the end faces of the head end and to each of the long sides of the bed.

Additional sliding rails can be inserted in the universal holders on the long sides of the bed (see Available Accessories » 141).

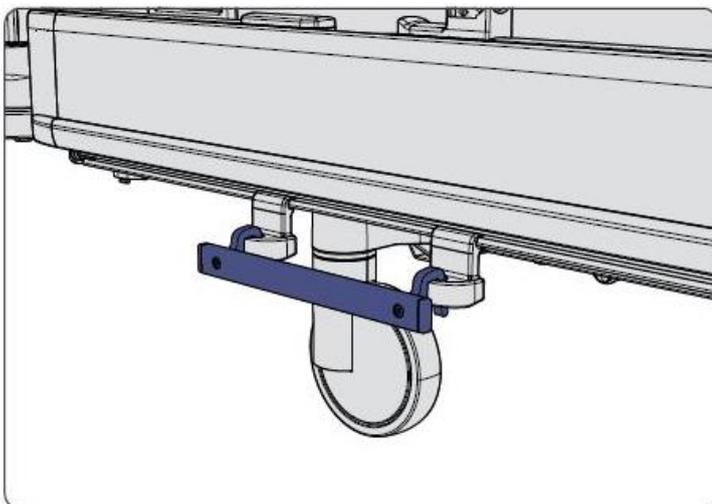


Fig. 16: Standard sliding rail

6.6.12 Attachment Points for Posey Belts

The plastic mattress base can optionally be fitted with slots for posey belts. The arrows show slots in the plastic mattress base through which restraint system belts can be threaded.

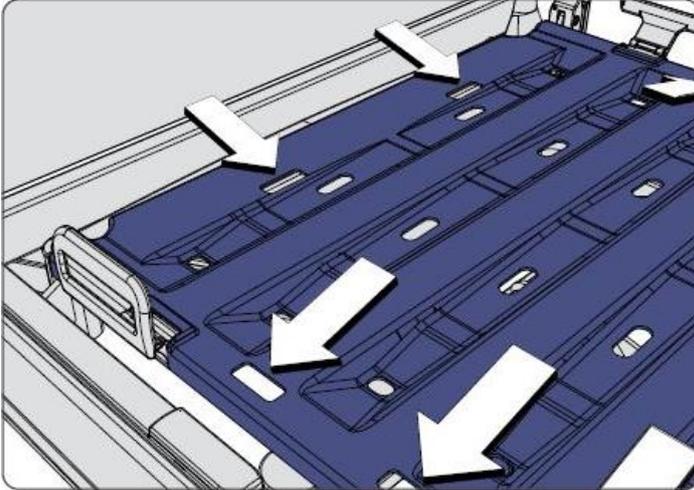


Fig. 17: Slots for posey belts

6.6.13 Backrest Angle Indicator

An optional angle indicator is attached under both sides of the backrest. It shows the angle to which the backrest is set within a range of 0 to 60°.

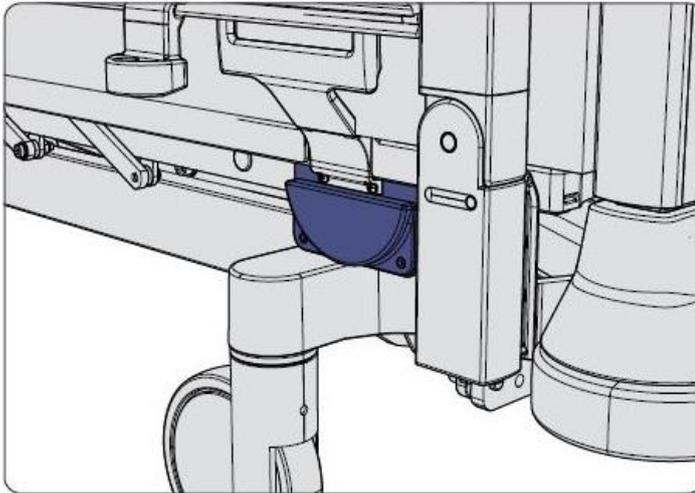


Fig. 18: Angle indicator on backrest

If the backrest is horizontal or only slightly raised, the safety sides must be raised as otherwise the angle indicator would not be visible.

A red dot under the measuring scale shows the current angle to which the backrest is set (referred to a horizontal position).

If the backrest is horizontal, the angle indicator can also show the tilting angle of the mattress base (from a 17° reverse-Trendelenburg position to a 17° Trendelenburg position).

Please note therefore that if the mattress base is not horizontal, the angle shown for a backrest setting will differ accordingly. (For example, a 10° reverse-Trendelenburg position + a 30° backrest angle will result in an angle reading of 40°).

6.6.14 Li-Ion Battery (Optional)

A modern high-capacity lithium ion battery can be used for temporary emergency operation of the electrical actuator system. This guarantees that all motorised adjustments can be carried out even during a power cut.

Emergency Operation

When the bed is occupied by a patient of normal weight (approx. 80 kg), up to 30 full UP/DOWN adjustments can be made if the battery is new and fully charged.

Under emergency conditions, if the battery capacity is depleted, a signal tone will sound and all adjustments will be stopped.

Recharging/Battery Charge Indicator

The batteries are fully charged when the bed has been connected to the mains supply for at least 8-10 hours.

It is impossible to overcharge the battery.

During the charging process, the bed can be adjusted using the LCD handset, the control box or the locking box.

Lithium ion batteries have a considerably longer lifetime than conventional lead-acid batteries. In normal use, this service life is up to eight years.

Batteries need to be replaced when operation cycles become very short. For safety reasons, at least one more height adjustment (up + down) should always be possible. Otherwise, the batteries must be replaced. In this case, contact Stiegelmeyer's Service Centre. We will replace rechargeable batteries and dispose of the old batteries correctly.

A multi-stage charge indicator on the LCD handset/control box display keeps you informed about the current charge status.

Bed is in Battery Operation (Li-Ion Battery):

Display	Explanation
	Battery fully charged
	Battery approx. 2/3 charged
	Battery approx. 1/3 charged - connect bed to power supply as soon as possible
	Battery empty - connect bed to power supply immediately

Bed Connected to Power Supply:

Control Box/Locking Box Indication	Indication on the Display	Explanation
	No indication on display	Battery fully charged
		Yellow LED on Battery charging

6.6.15 Lead-Acid Batteries

A conventional high-capacity lead-acid battery can be used for temporary emergency operation of the electrical actuator system. This guarantees that all motorised adjustments can be carried out even during a power cut.

Emergency Operation

When the bed is occupied by a patient of normal weight (approx. 80 kg), up to 8 full UP/DOWN adjustments can be made if the battery is new and fully charged.

Under emergency conditions, if the battery capacity is depleted, a signal tone will sound during adjustments.

IMPORTANT

If the battery charge is <10%, all adjustment functions are locked in order to prevent the batteries from discharging their entire charge.

In this case, take the following action to optimise the battery life:

- Plug the bed into the mains power supply as soon as possible to recharge the battery
- Avoid attempting repeated motorised adjustments that would discharge the battery even more

Recharging/Battery Charge Indicator

The lead-acid batteries are fully charged when the bed has been connected to the mains supply for at least 8-10 hours.

It is impossible to overcharge the lead-acid batteries.

During the charging process, the bed can be adjusted using the LCD handset, the control box or the locking box.

The lead-acid batteries have a limited service life. In normal use, this service life is up to five years. Batteries need to be replaced when operation cycles become very short. For safety reasons, at least one more height adjustment (up + down) should always be possible under normal load. Otherwise, the lead-acid batteries must be replaced.

In this case, contact Stieglmeyer's Service Centre. We will replace the rechargeable lead-acid batteries and dispose of the old batteries properly.

When the bed is connected to the mains electricity supply, a yellow LED on the control box or locking box indicates that the battery is charging.

Control Box/Locking Box Indication	Indication on the Display	Explanation
	No indication on display	Battery fully charged
		Yellow LED on: Battery charging

6.7 Technical Data

6.7.1 Type Plate

The type plate is located at the head end (inside) of the mattress base, and a separate PID bar code also can be found there on the hospital bed.

The type plate contains the following information:

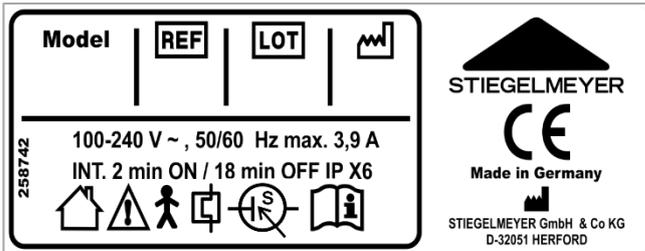


Fig. 19: Type plate

Model	Name of product	REF	Item number
LOT	Order number		Date of manufacture (week/year)
	Only for use in enclosed spaces. Do not use outdoors!		Follow the safety information given!
	Device with Type B applied part in accordance with EN 606011 (special protection against electric shock)		Device with thermal fuse
	Device with VDE 61558-compliant switching power supply unit.		Pay attention to the instruction manual

The additional PID bar code on the bed includes the serial number.

6.7.2 Materials Used

The bed is made predominantly of steel sections coated with a polyester powder finish or a zinc or chromium metal finish.

Depending on the bed model, the mattress base is made of high-quality, PVC-free plastics, or HPL laminated particle boards.

The chassis consists of steel profiles.

The headboards and footboards consist of HPL laminated particle boards.

All surfaces are safe for contact with the skin.

6.7.3 Dimensions

Description	Mattress Base Size (Width x Length)			
	Puro Standard (cm)	lino (cm)	Puro brevo Standard (cm)	lino (cm)
External dimensions	103.8 x 218.5	99.8 x 214.5	103.8 x 218.5	99.8 x 214.5
Mattress base (mattress dimensions)	90 x 200	87 x 200	90 x 200	87 x 200
Bed extension in cm	28		28	
Mattress base division	83-15-33-53		83-15-33-53	
Backrest length compensation	10		10	
Ground clearance of chassis	17		17	
Protective height above mattress base with MultiFlex ⁺ safety sides	42		42	
Protective height above mattress base with full-length safety sides	42		42	
Min. mattress dimensions * (LxWxH)	90 x 200 x 12	87 x 200 x 12	90 x 200 x 12	87 x 200 x 12
Max. mattress dimensions * (LxWxH)	90 x 200 x 20	87 x 200 x 20	90 x 200 x 20	87 x 200 x 20
* More information about mattress:	- Volume weight: min. 40 kg/m ³ - Compression hardness: min 4.5 KPa (in edge area)			

6.7.4 Weight

Description	Puro	Puro brevo
Safe working load	260 kg	260 kg
Total weight	155 kg	155 kg
Maximum weight of patient *	220 250 kg*	220 250 kg*

* For more information, see Chapter 8.1.1 » 53

6.7.5 Adjustment Options

Description	Puro Standard	Puro brevo Standard
Tilting to Trendelenburg position	17°	17°
Tilting to reverse-Trendelenburg position	17°	16°
Mattress base height	35-91 cm (depending on type of castors)	28-84 cm (depending on type of castors)
Backrest angle	70°	70°
Thigh rest angle	40°	40°
Raised straight leg position angle	16°	16°

6.7.6 Operating Noise

The operating noise of an electrically adjustable bed is not more than 47 dB (A).

6.7.7 Ambient Conditions

The following ambient conditions must be maintained:

Ambient Conditions for Storage	Minimum	Maximum
Storage temperature	- 10°C	+ 50°C
Relative humidity	20 %	90% (at 30°C; non-condensing. At altitude ≤ 2000m)
Air pressure	800 hPa	1060 hPa

Ambient Conditions operation	Minimum	Maximum
Ambient temperature	+ 5°C	+ 40°C
Relative humidity	20 %	90% (at 30°C; non-condensing. At altitude ≤ 2000m)
Air pressure	800 hPa	1060 hPa

6.7.8 Electrical Data

Mains Cable: (Coiled, Anti-Kink, with Strain Relief)	
Type	H05 BQ-F 3 x 1 mm ² (EPR quality)
LCD Handset	
Type	SHS003, not suitable for automatic washing systems SHS004, suitable for automatic washing systems
Operating voltage	24 V DC
Protection category	SHS003: IPX6, not suitable for automatic washing systems SHS004: IPX6, suitable for automatic washing systems
Control Box (Optional)	
Type	LINAK ACO Openbus™
Operating voltage	24 V DC
Protection category	IP 66, suitable for automatic washing systems
Locking Box (Optional)	
Type	LINAK ACC Openbus™
Operating voltage	24 V DC
Protection category	IP 66, suitable for automatic washing systems

Control Unit	
Type	LINAK CO16xxx Openbus™
Input voltage	AC 100 – 240V ± 10 %, 50/60 Hz
Current input	max. 3.9 A
Standby current consumption	< 0.5 W
Power pack	Wide range power pack; powerful, power management for optimum speed under every load; compact, light-weight, energy-efficient, for global use
Safety systems	Thermal protection; short-circuit protection; hot-plugging protection
Output voltage	24 V DC
Output current	Max. 10 A (electronic monitoring and cut-out)
Settings button	Intermittent duty: 2 min ON / 18 min OFF
Classification	Protection class I, EN60601-1-compliant type B device with internal power supply (if fitted with batteries), not for use in explosive atmospheres
Protection category	IP X6, suitable for automatic washing systems
Lead-Acid, External	
Type	LINAK BA19xxx
Type	2 sealed, maintenance-free lead-acid rechargeable battery with integrated electronic charger unit; in separate plastic housing, clip-on - maintenance-friendly
Weight	1.4 kg
Capacity	1.2 Ah
Voltage	24 V DC
Protection category	IP X6, suitable for automatic washing systems
Lifespan	Up to 5 years under optimum conditions. The rechargeable lead-acid battery's lifespan can be negatively influenced by the following conditions: <ol style="list-style-type: none"> 1. Increased ambient temperature 2. High number of charging/discharging cycles 3. High discharge depth 4. Frequently leaving the bed in a discharged state without being connected to the mains

Li-Ion Battery, External (Optional)	
Type	LINAK BA21xxx
Type	Lithium ion technology: Nickel manganese cobalt oxide (NMC); environmentally-friendly without heavy metals; integrated electronic charger unit with balancer and extended battery monitoring;
Weight	0.7 kg
Capacity	2.25 Ah/ 58.28 Wh
Charging time	Approx. 10 sec.
Voltage	25.9 V DC
Protection category	IP X6, suitable for automatic washing systems
Classification	IEC 60601-1, 3 rd Ed.; IEC 62133, 2. Ed.; UL2054; UN38.3
Classification for transport	UN3480: Shipping name: "Lithium ion batteries"
Lifespan	Up to 8 years under optimum conditions
Junction Box	
Type	MJBxx
Operating voltage	24 V DC
Protection category	IP X6, suitable for automatic washing systems

Drive M1+3: (Electric) Actuators (Depending on Model)

Type	LINAK LA 40
Path feedback	2 Hall sensors; analogue coding
Force/installation dimension/lift	8000 N/ 410 mm/ 215 mm
End position cut-out	Micro-switch, analogue coding
Input voltage	24 V DC
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IP X6, suitable for automatic washing systems (optional)

Actuator M2: (Electric) Thigh Rest Actuator (Depending on Model)

Type	LINAK LA40, suitable for automatic washing systems
Force/installation dimension/lift	3000 N / 272 mm / 70 mm
End position cut-out	Micro-switch, analogue coding
Input voltage	24 V DC
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IP X6, LA31, suitable for automatic washing systems (optional)

Actuator M5: (Electric) Backrest Actuator (Depending on Model)

Type	LINAK LA 40Q
Force/installation dimension/lift	4000 N / 433 mm / 205 mm
End position cut-out	Micro-switch, analogue coding
Input voltage	24 V DC
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IP X6, suitable for automatic washing systems (optional)

7 Putting into Service

No electrical measurements are necessary prior to putting this bed into service for the first time, since the bed was tested by the manufacturer for electrical safety and functionality and left our factory in perfect condition.

Remove all transport securing devices (from the foot levers) and packaging film (from the bed frame). Clean and disinfect the bed.

Additional information on cleaning and disinfecting is given in Chapter Cleaning and Disinfection » 105.

Use only authorised accessories (e.g. mattresses), to minimise endangering patients through entrapment or falling out of bed.

When putting into service for the first time, carry out all measures described in the Chapter New Occupancy after a Change of Patient » 53.

7.1 Safety Information for Putting Into Service

This hospital bed is designed for multiple re-use. Ensure that the essential conditions specified in the following chapters are met:

- New Occupancy after a Change of Patient » 53
- Cleaning and Disinfection » 105
- Maintenance » 112 (in particular the section entitled Periodic Inspection » 117)

7.2 Safety Information Concerning the Place of Use

Before using the bed on parquet flooring, check whether the castors will leave marks on the parquet varnish. The manufacturer accepts no liability for such wear. The bed can be used on tiles, carpet, linoleum or laminate flooring without causing any damage.

A properly installed and earthed mains socket must be available close to the bed, at the head end.

Place the bed in a position where it is easy to unplug the mains cable from the socket.

The mains voltage from the socket must be the same as the rating shown on the type plate on the bed.

If other equipment (e.g. compressors for positioning systems, etc.) is attached, ensure that all items of equipment are fixed securely and function properly. Pay particular attention here to the safe routing of all loose connector cables, tubing, etc.

If you have any queries or concerns, consult the manufacturer of the equipment or Stiegemeyer.

7.3 Safety Information for Electric Hospital Beds

In Germany (In other countries, the relevant national regulations must be complied with!):

- When the bed is connected to the mains electricity supply, it must always be connected to the hospital's potential equalisation system when intravascular and intracardial applications are involved.
- When this bed is connected to the mains electricity supply, it must only be used in medical rooms which meet the electrical requirements of the VDE 0100 Part 710 standard.

This hospital bed must not be used in explosive environments caused, for example, by cleaning agents or anaesthetics.

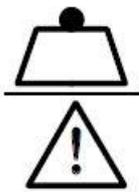
This hospital bed must not be used in combination with high frequency surgical equipment.

8 Bed Reprocessing / Bed Adaptation

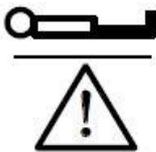
8.1 New Occupancy after a Change of Patient

8.1.1 Information on Loading Capacity of Bed

The safe working load specified for a bed is always calculated from the weight of the patient plus the weight of any accessories attached. The permitted weight of the patient depends on the total weight of the accessories attached at the same time (e.g. respirators or infusions).



Symbol for safe working load



Symbol for permissible patient weight

The information applicable for your bed is given on a sticker with the above symbols which is located on the chassis of the bed.

Bed Variants	Safe Working Load	Example: With Weight of Accessories	→ = Permissible Weight of Patient
Puro, Puro brevo	260 kg	10 kg	250 kg
		40 kg	220 kg

8.1.2 Requirements

Before putting the bed into service or the bed is occupied by a new patient, the user must check that:

- The bed has been cleaned and disinfected
- The castor brakes are applied
- No obstacles such as bedside lockers, supply rails or chairs will impede bed adjustments
- All adjustments work correctly and have been properly tested
- To carry out the visual inspection and functional checks, use the checklist Inspection by the User » 150 in the appendix

8.1.2.1 Electric Beds

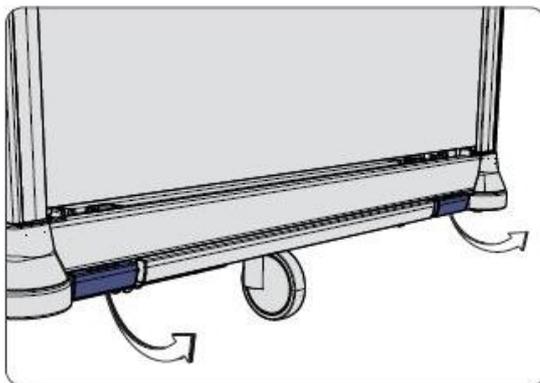
A hospital bed incorporating electric displacement drives can only be taken into service if the following conditions are met:

- The mains voltage from the socket must be the same as the rating shown on the type-plate on the bed
- The mains cable is connected and routed in such a way that it cannot be damaged
- The mains cable, actuator cables and LCD handset cable cannot be damaged by moving parts of the bed
- If the bed is equipped with rechargeable batteries, it is constantly connected to the mains supply. This is the only way to ensure that the batteries are fully charged and are available in case of an emergency

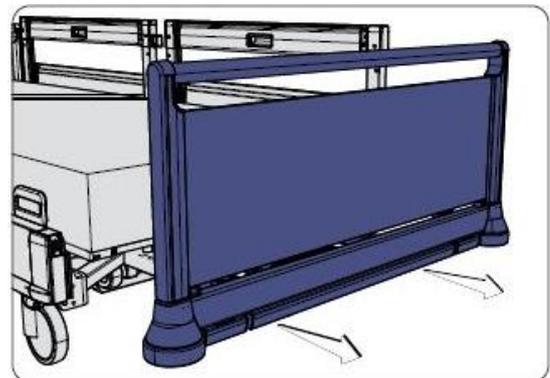
8.2 Extending / Shortening the Mattress Base

8.2.1 Extending the Mattress Base and Inserting the Mattress Insert

- 1 Stand at the foot end of the bed.



- 2 Pull on both release handles at the same time to draw the mattress base out until it audibly clicks into place. Let go of both release handles.



- 3 Check that the mattress base is firmly locked by sliding the footboard backwards and forwards!

CAUTION

Risk of Crushing

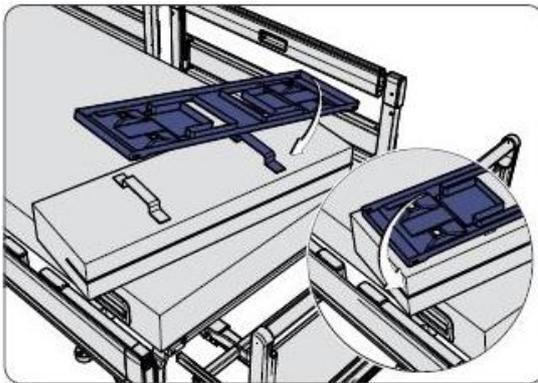
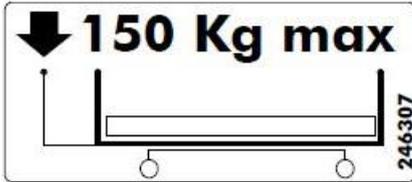
Beware of the risk of crushing feet and objects under the end of the bed due to the limited clearance of only a few centimetres between the floor and the end of the bed when the mattress base is adjusted to a full reverse-Trendelenburg position and the bed extension is also pulled out.

- Make sure that there are no feet or objects under the end of the bed while the adjustment is carried out!

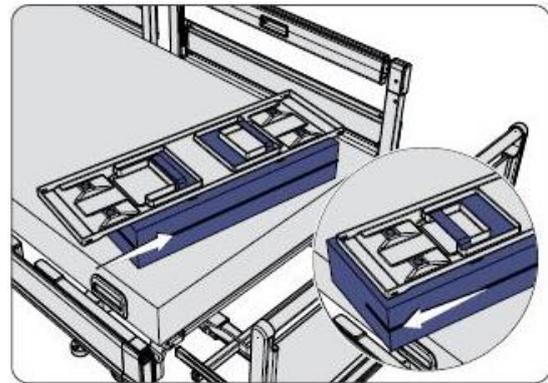
⚠ CAUTION

Risk of Injury Due to Bed Tipping Up

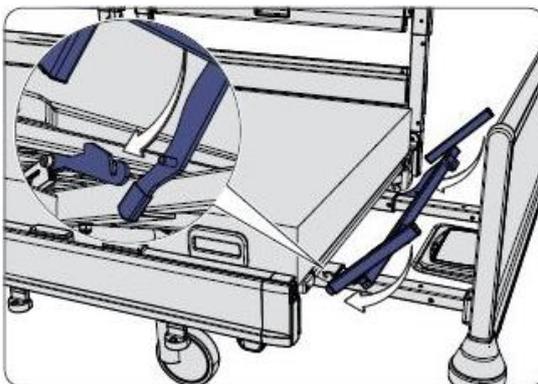
The maximum weight on the foot end of the unoccupied bed when the bed is extended (e.g. by a person on the bed) must not exceed 150 kg, as otherwise there is a danger that the bed will tip up. The following label with information on this is located on one of the pull-out rails:



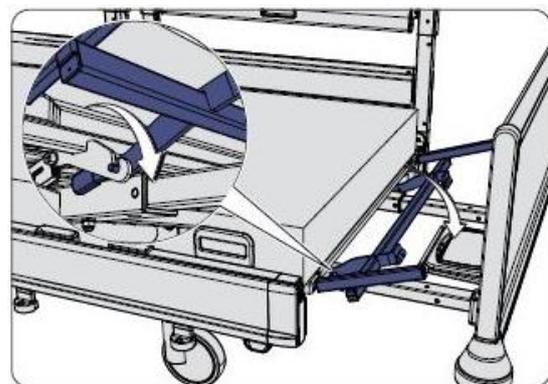
- 4 Place the (plastic) support plate on the underside of the mattress insert and thread the first strap in.



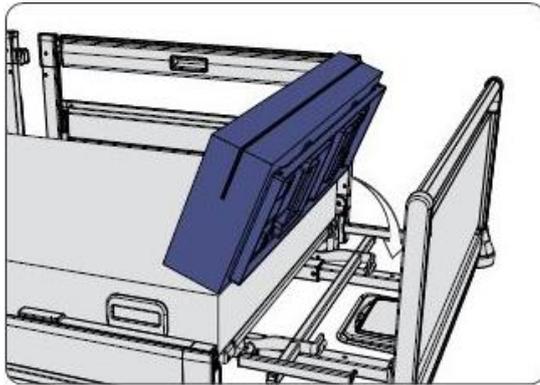
- 5 Fix the mattress insert in place by threading in the second strap on the support plate.



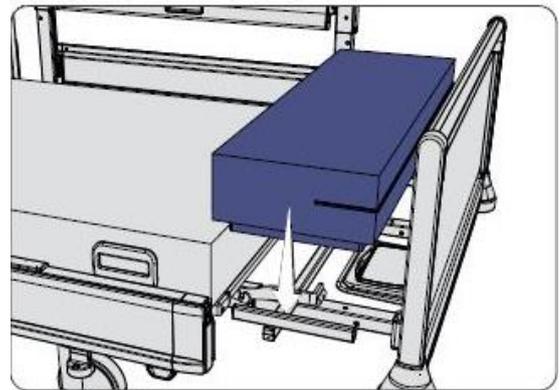
- 6 Hold the support base in position from above ready for inserting it and hang the support base into the two brackets on the lower leg support.



- 7 Fold the support base down until it is lying flat.



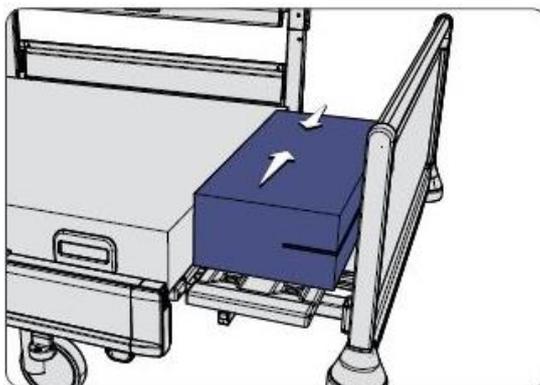
- 8 Position the support plate and mattress insert so that it is ready to insert.



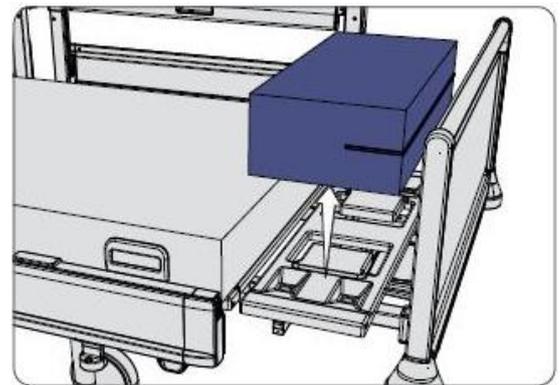
- 9 Place the support plate with the mattress insert on the support base.

8.2.2 Shortening the Mattress Base

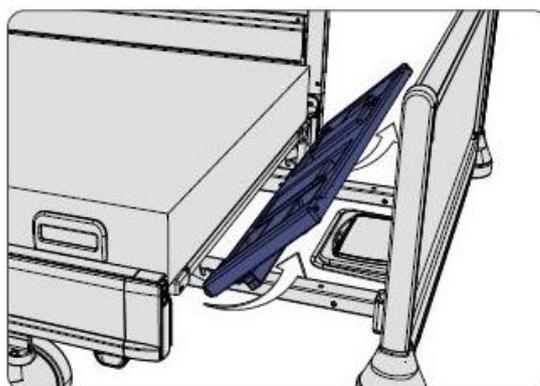
- 1 Stand at the foot end of the bed.



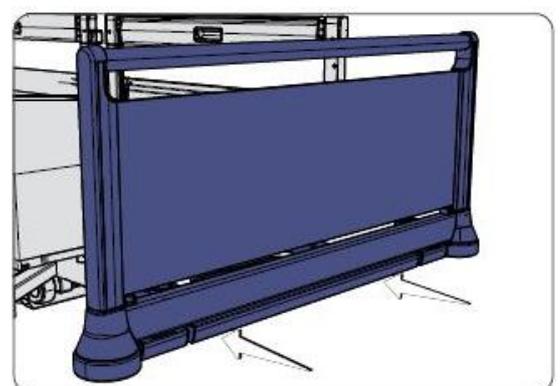
- 2 Remove the mattress insert by pressing the sides together.



- 3 Lift the mattress insert out from above.



- 4 Lift out the support base and mattress insert.



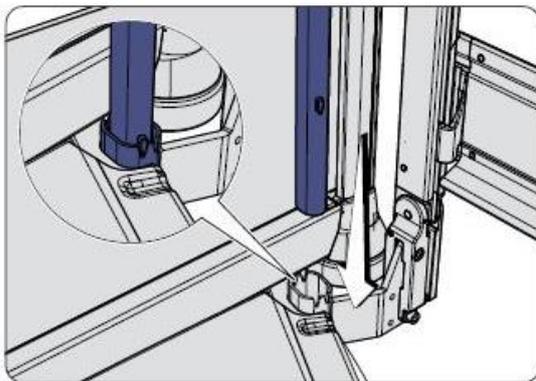
- 5 Slide the footboard as far as possible towards the mattress base.

8.3 Inserting / Removing Patient Lifting Pole

CAUTION

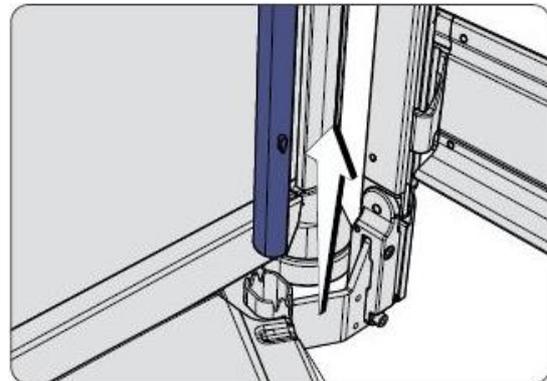
Risk of Injury

- The maximum loading capacity at the front end of the patient lifting pole is 75 kg.
- The patient lifting pole is not suitable for rehabilitation exercises.
- Pay attention to door clearances when moving beds with patient lifting poles or infusion stands attached.



- 1 Insert the long, straight end of the patient lifting pole into a sleeve without the reducing adapter.

The pins on the patient lifting pole must slot into the sleeve recesses and engage.



- 2 To remove the patient lifting pole, lift it out of the sleeve from above.

8.4 Attaching the Grab Handle

CAUTION

Risk of Injury

- Check the grab handle and belt regularly for damage. Replace damaged grab handles or belts immediately.
- We recommend that the triangular grab handle is replaced after a maximum of five years.
- Please also refer to the detailed instruction manual supplied with every grab handle.

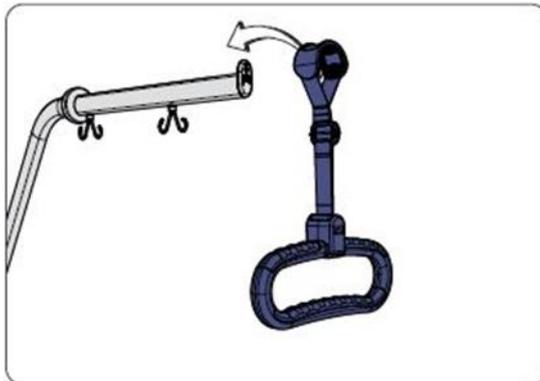
A grab handle can be attached to the patient lifting pole. The patient can use this grab handle to sit up and readjust his/her position.

The grab handle can be hooked over the trapeze bars or patient lifting pole when not in use.

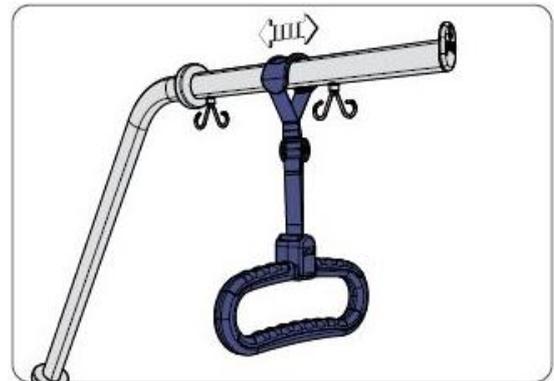
⚠ CAUTION

Risk of Injury

Always ensure that when the grab handle is hung over the end of the patient lifting pole, the grab handle cannot accidentally fall off.

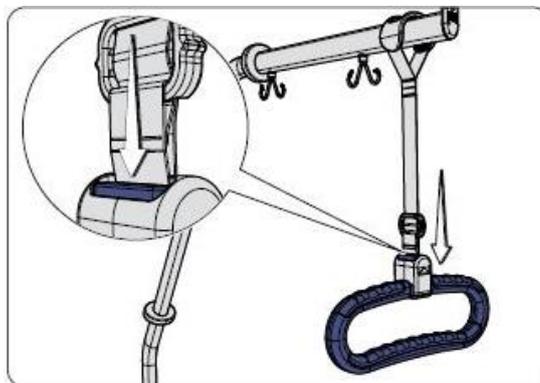


1 Attach the grab handle with the hand loop to the patient lifting pole.

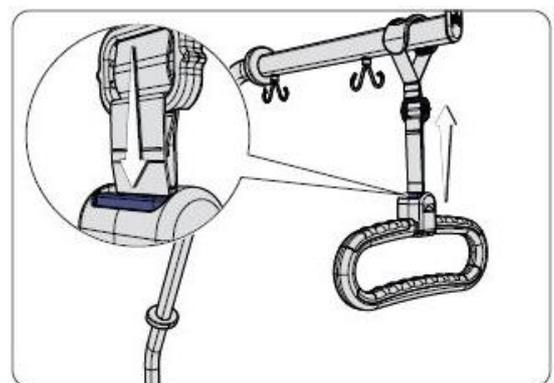


2 The integrated anti-slip fitting must be secured properly between the two limit points of the patient lifting pole.

8.4.1 Adjusting the Height

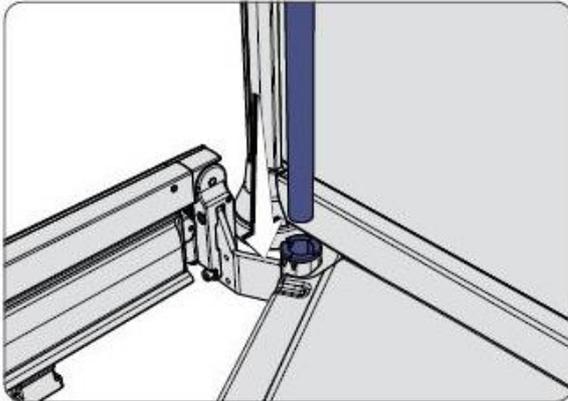


1 To adjust the grab handle so that it hangs lower, press the button and continue to press it while you pull the handle downwards.



2 To adjust the grab handle so that it hangs higher up, keep the button pressed while you move the belt slider up.

8.5 Attaching an Infusion Stand



- 1 The infusion stand can be placed in the adaptor sleeves provided on the left and right side at the head end, with the reducing adapter inserted in the adaptor sleeve.

8.6 Using Universal Holders



CAUTION

Risk of Crushing

- Ensure that patients or other people are not exposed to hazards due to universal holders, such as when moving the bed.

IMPORTANT

When the bed is moved, ensure that objects hanging in the universal holders do not cause any damage (e.g. to door frames).

Ensure that the accessories attached do not collide with the foot lever area. Slide the universal holders away accordingly.

Observe the following weight limits: The universal holders must not hold a weight of more than 5 kg (vertically acting).

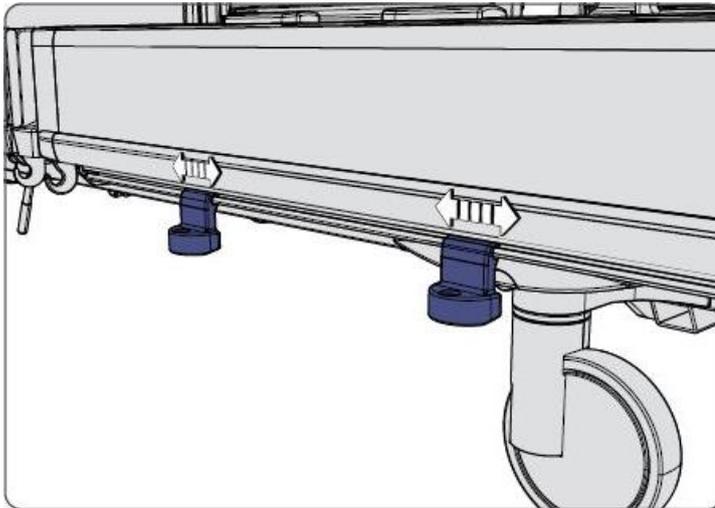


Fig. 20: Universal holders

The sliding universal holders are attached to the lower safety side. A variety of accessories such as urine bottle holders, universal brackets and a sliding rail can be attached to universal holders.

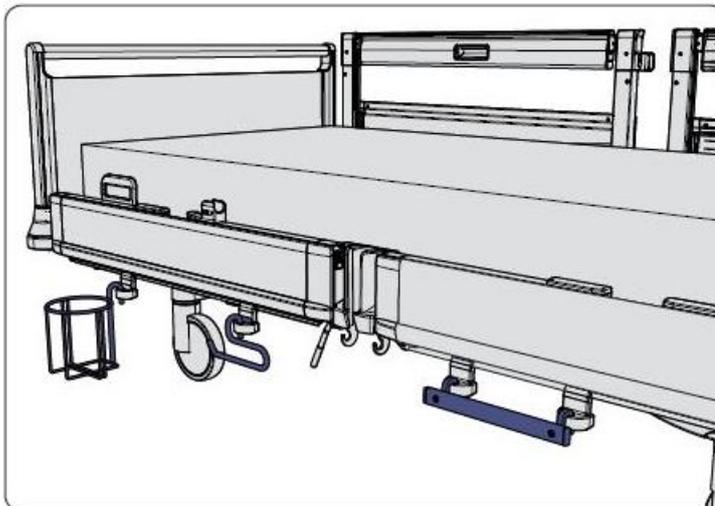


Fig. 21: Urine bottle holder and universal bracket

8.7 Attaching and Using Sliding Rails

CAUTION

Risk of Crushing

- Ensure that objects hanging from the standard sliding rails do not present a hazard to patients or other persons (e.g. by trapping fingers, and infusion or drainage bottles, etc.) such as when adjusting the bed. If necessary, lock the particular electric adjustments.

IMPORTANT

Ensure that objects attached to or hanging from the standard sliding rails do not cause damage (e.g. to door frames) when moving the bed.

Do not use any long infusion stands etc. attached to push the bed along.

The maximum load which a standard sliding rail can bear is 20 kg (acting vertically). The maximum overhang is 25 cm.

The maximum weight that can be attached to sliding rails in universal holders on the long sides of the bed is 15 kg (acting vertically).

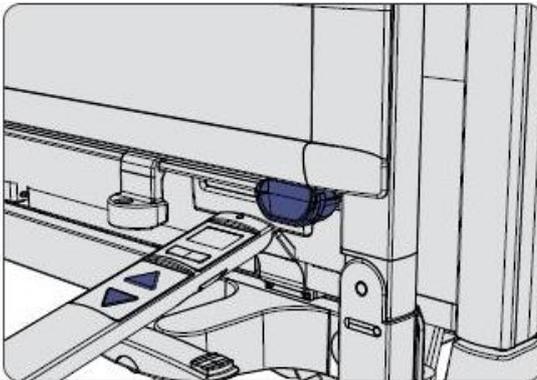
Do not attach any long infusion stands or other projecting objects to standard sliding rails. In addition, do not apply any lateral loads to the sliding rails.

8.8 Restore Factory Settings

A reset to factory settings must only be carried out by technicians or qualified medical staff who have been trained by the operator to do so.

Through this procedure, all individually programmed special reverse-Trendelenburg positions, normal position, washing position, intermediate mattress base height (only Puro brevo bed variant) and mattress base height restrictions will be reset to the factory default settings.

Carry out a reset to factory settings as follows:



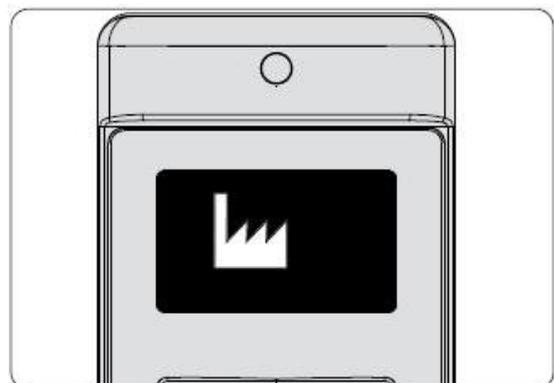
- 1 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the handset briefly against the magnetic unlocking key at the foot end of the bed.



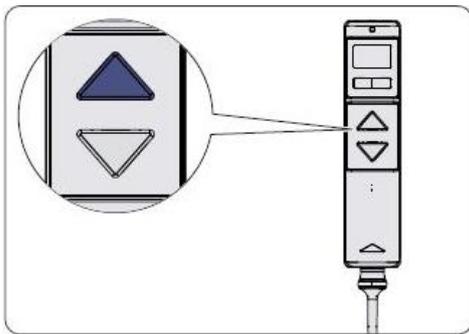
- 2 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



- 3 The OK! shown on the display acknowledges the changeover to the technician control level.

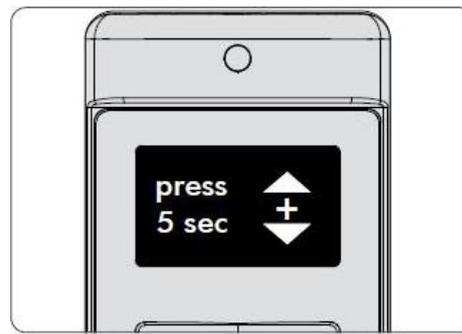


- 4 Select the factory reset function by pressing the toggle switch. The factory reset symbol will appear on the display.

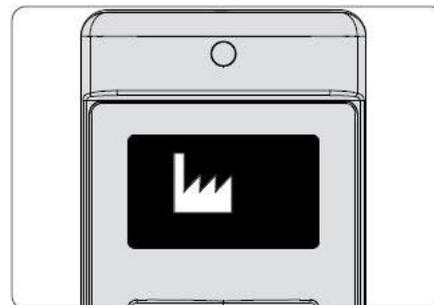


5 Press the UP button to confirm that you wish to select the factory setting function and to continue the procedure. The display changes.

7 The display changes again to the factory setting symbol which now indicates the successful completion of the reset to factory settings.



6 Press the UP and DOWN buttons together for 5 seconds. A pulsating signal will sound. The procedure is completed when the signal stops.



8.9 Decommissioning

If the bed is not used for an extended period, please follow the instructions below for taking the bed out of service safely and ensuring ideal conditions for its re-use:

- Clean and disinfect the bed (see [Cleaning and Disinfection » 105](#))
- Adjust the mattress base to a flat home position at its lowest level.
- Lock the electric adjustment functions to prevent them from being activated accidentally or by unauthorised persons
- Engage the brakes on the bed
- Pay attention to the ambient conditions required for storage (see [Ambient Conditions » 47](#))

If Equipped with Lead-Acid Batteries (Optional):

- Charge the integrated rechargeable battery by connecting the bed to the mains electricity supply for about 8-10 hours, and then unplug the mains cable from the socket and hang it on the headboard with the fixing clip.
- Repeat this procedure **every 3 months** to maintain battery performance.

If Equipped with Lithium-Ion Batteries (Optional):

- Charge the integrated rechargeable battery by connecting the bed to the mains electricity supply for about 8 hours, and then unplug the mains cable from the socket and hang it on the headboard with the fixing clip.
- Repeat this procedure every 3 months to maintain the battery capacity

9 Usage / Routine

9.1 Moving and Immobilising the Bed

The bed is equipped with four lockable castors which can be centrally operated using a foot lever at the foot end of the bed.

A steering lock can be activated for one castor at the head end of the bed, which makes it easier to move the bed in a straight line.

 Optionally, the position of the steering lock can be defined as the customer requires.

 Fifth castor (optional)
The bed can be fitted with an optional fifth castor which is located in the centre of the chassis. In this case, the fifth castor takes over the function of the steering lock.

IMPORTANT

Brake Signal (Optional)

If the brake is released without unplugging the mains cable from the socket, a signal tone will sound. This signal tone alerts you to the possibility that the mains cable, the plug and the socket could be damaged. The signal tone goes off automatically after 5 minutes.

9.1.1 Safety Information on Moving, Braking and Locking the Bed

WARNING

Electric Shock

Each time before moving the bed, ensure that:

- The mains cable cannot be stretched, driven over or damaged in any other way.
- The mains cable for the bed has been hung up and is not touching the floor.
- The cables, tubes or wires of any attached equipment are adequately secured and cannot be damaged.

↳ Otherwise, the mains cable could sustain damage as a result of being torn off, crushed or driven over. This damage could lead to electrical hazards and malfunctions.


CAUTION
Entrapment Hazard!

When transporting a patient, ensure that the patient's hands and feet do not protrude over the edge of the bed and that they cannot get in the way of the wall buffer wheels.

- As a general rule, always apply the brakes when the bed is not being moved or when a patient is left unattended in the bed.
- Make sure that the mattress base has travelled to its lowest position before leaving the patient unattended. In this way, you greatly reduce the risk of the patient injuring himself/herself as a result of falling when getting in or out of bed.

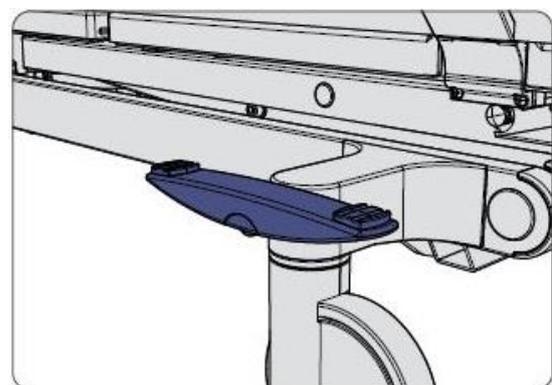
IMPORTANT

When the bed is moved, ensure that objects hanging in the universal holders do not cause any damage (e.g. to door frames).

Only applicable for the 5th castor (optional): While moving the bed with a patient, be sure that the mattress base is not in its lowest position, but at least 5 cm higher. In this way, you enable flexible adjustment of the 5th castor when passing over uneven ground while also preventing over-strain.

9.1.2 Moving the Bed

- 1** The foot lever is located at the foot end of the bed.

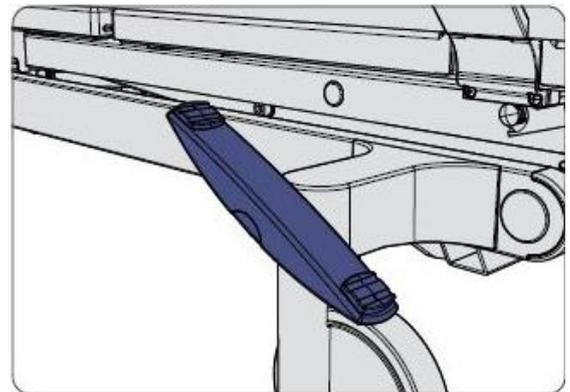


- 2** Set the foot lever to a horizontal middle position. All castors are now released. You can now move the bed.

9.1.3 Immobilising the Bed



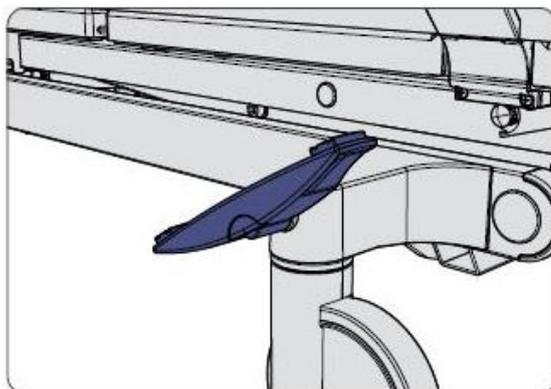
1 The foot lever is located at the foot end of the bed.



2 Press the foot lever down on the side facing the footboard (if colour coded, the red side of the lever). All castors are operated with a pedal.

9.1.4 Moving with the Steering Lock

One of the castors of the bed can be fitted with a steering lock to make it easier to move the bed in a straight line and negotiate curves.



- 1 The foot lever is located at the foot end of the bed.
- 2 Set the foot lever to a horizontal middle position.
- 3 Set the castors to the direction in which you wish to move the bed. Lower the foot lever on the castor.
- 4 Move the bed from the opposite end to which the steering lock is located. This makes it easier to control.

i A castor with a steering lock always points forwards. Castors without a steering lock are rotatable by 360°.

i Raise the foot lever again to release the steering lock.

9.2 Locking / Releasing Electric Adjustment Functions

Only users are authorised to lock adjustment functions! Qualified medical staff must decide which functions, if any, should be locked.

If the clinical condition of the patient is so critical that adjustments using the LCD handset might be dangerous for her/him, the user must immediately lock the respective functions.

The bed remains in the position that it was in at the moment when the functions were switched off. A sticker on the linen holder draws attention to the fact that:



Locked function sticker

CAUTION

Risk of Crushing

Lock the operating functions for the patient on the handset if:

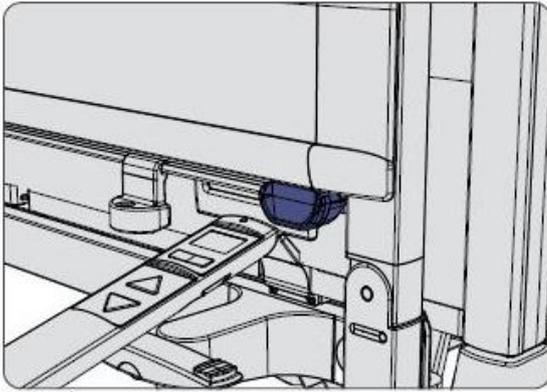
- The patient is unable to operate the bed safely,
- The patient is unable to free himself or herself from potentially dangerous situations,
- The patient is exposed to an increased risk of entrapment during backrest and thigh rest adjustments when the safety sides are raised,
- Accessories or other devices are attached that could restrict the adjustment range of the bed, and put the patient at risk or cause damage to equipment,
- Or children are left unattended in a room with the bed.

↳ Otherwise, there is a potential risk of crushing due to unintended operation of the handset.

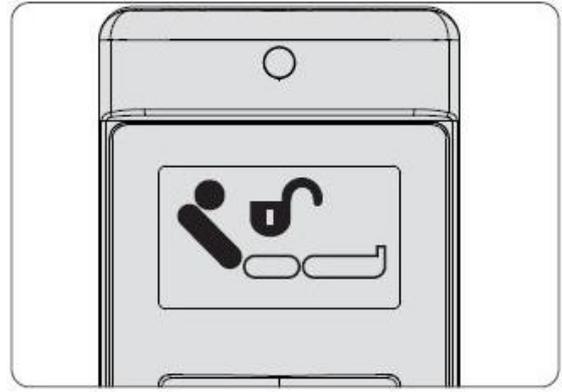
9.2.1 On the LCD Handset

Adjustment Function	Enabled Function Symbol	Locked Function Symbol
Backrest		
Thigh rest		
Sitting position		
Height adjustment		

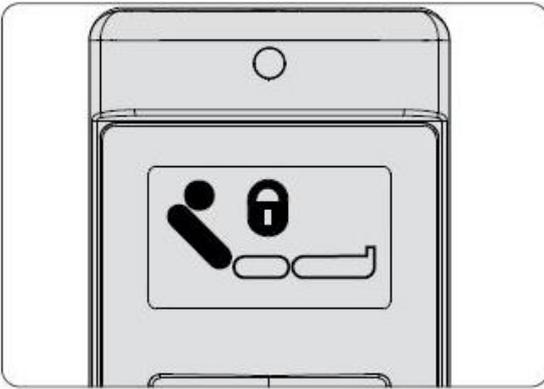
Tab. 1: Adjustment functions that can be locked on the LCD handset



- 1 Hold the top end of the LCD handset briefly over the magnetic unlocking key at the foot end of the bed to gain access to the staff control level on the LCD handset.



- 2 Use the toggle switch to select the function and status that you wish to lock. On the display, an opened padlock will appear above the symbol for the released adjustment function.



- 1 Press the DOWN or UP button. A closed padlock will appear above the symbol for the adjustment function. This adjustment function is now locked.

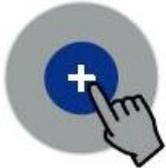


To unlock the adjustment function, press the UP or DOWN button again.

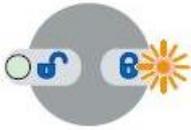
9.2.2 On the Control Box

The control box is used to lock the actuators for the backrest, thigh rest, reverse-Trendelenburg and mattress base height. The orange LED in the unlock button concerned is on if the function is locked. The green LED is on if the function is released.

- 1 Remove the control box from the linen holder.



- 2 Keep one of the two unlock buttons pressed.



- 3 In addition, press the locking button concerned for a released function (green LED on) to lock the adjustment function. The status can be changed from locked to released and vice versa by alternating between these buttons.
- 4 Place the control box back in the linen holder.

9.2.3 On the Locking Box

On the locking box, the user can lock the actuators of the backrest and the other actuators (for thigh rest, reverse-Trendelenburg position and mattress base height) by pressing the relevant unlock button. The orange LED in the unlock button concerned is on if the function is locked. The green LED is on if the function is released.



- 1 Keep the unlock button pressed.



- 2 In addition, press the locking button concerned for a released function (green LED on) to lock the adjustment function. The status can be changed from locked to released and vice versa by alternating between these buttons.

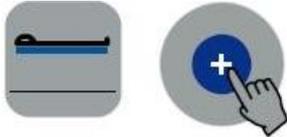
9.3 Setting the Normal Position

In the normal position, the mattress base, backrest and thigh rest are horizontal, and the mattress base height is approximately 60 cm.

-  The height and the angle of tilt into a reverse-Trendelenburg position from the normal position can be individually set.

9.3.1 On the Control Box and the Locking Box

This function can only be activated on the control box and the locking box when all other functions have been released.



- 1 Press the normal position button and the unlock button at the same time to set the mattress base, backrest and thigh rest to this position.

9.4 Setting the Auto Contour Position

In the auto contour UP position, first the thigh rest and directly following, the backrest, are raised.

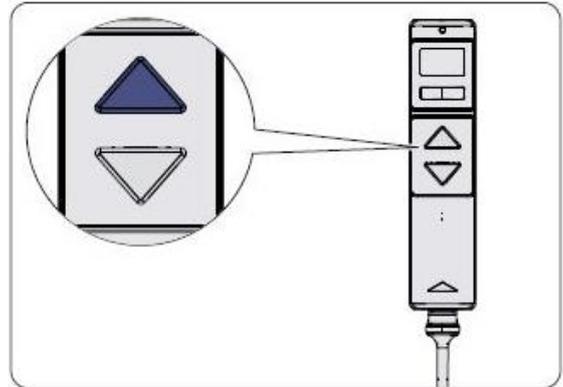
When auto contour DOWN is set, the backrest, and then the thigh rest, are lowered. This prevents the patient from sliding towards the foot end of the bed.

- i** If the thigh rest or backrest is locked, this function cannot be selected.

9.4.1 On the LCD Handset



- 1 Select auto contour using the toggle switch.



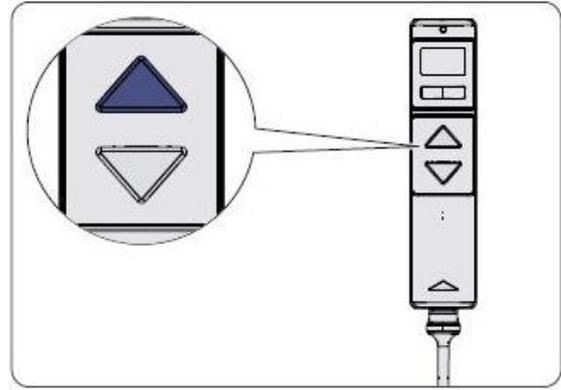
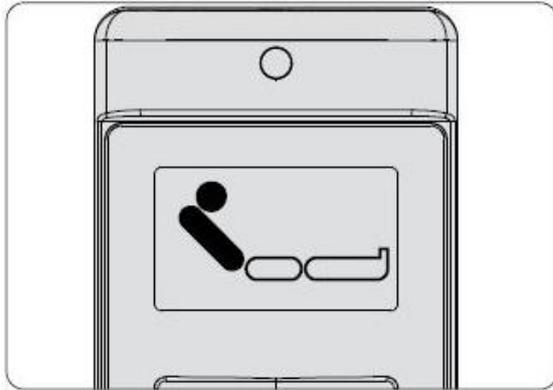
- 2 Press the UP button to set the bed to the auto contour position.

- i** Press the DOWN button to move the actuators back to the normal position.

9.5 Setting the Backrest

The backrest may be set at any angle between 0° and approx. 70°.

9.5.1 On the LCD Handset



1 Select the backrest adjustment function using the toggle switch.

2 Press the UP button to raise the backrest.



Press the DOWN button to move the backrest back to the normal position.

Option: Multi-stage Display of Angle with Setting Facility for Automatic Intermediate Stop



The angle is shown in 15° - 30° - 45° - 60° - max. increments.

The angle is only indicated when running through and stopping at these increments; for better readability, other intermediate angles are not indicated.

All figures given are approximate values.



Example: Display 45°

Switching Intermediate Stop ON/OFF and Reprogramming It



This function is factory programmed to, and switches off at, an angle of 30°.

If necessary, this function can be activated on the handset and the intermediate stop angle reprogrammed as required.

Switching ON/OFF:

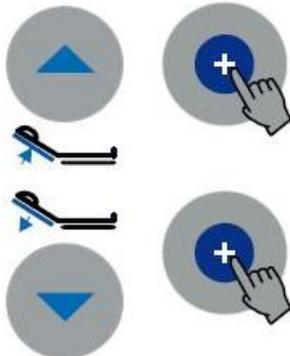
1. Switch to the "medical staff" control level. For this, hold the end of the handset briefly against the magnetic unlocking key.
2. Select the icon  or  use the toggle switch to make a selection, and confirm your selection with the UP button

Re-Programming the Intermediate Stop Angle

1. Set the intermediate backrest stop to the desired position.
2. Switch to the “technician control level”
Refer to steps 1-3 of Chapter 8.8 for instructions on how to switch to the technician control level.
3. Select the icon  with the toggle switch, and confirm your selection with the UP button
 - ↳ A confirmation beep sounds for one second
 - ↳ The original position is overwritten

i When the intermediate stop function is activated, the backrest stops in the intermediate stop position that has been set. To continue, release the UP/DOWN adjustment button and then press this same button again.

9.5.2 On the Control Box



- 1 Press the backrest UP button and the unlock button at the same time to raise the backrest.
- 2 Press the backrest DOWN button at the same time as the unlock button to move the backrest back to the normal position.

9.6 Setting the Bed Height

The mattress base height is continuously adjustable.

The adjustment range can be restricted electronically on the LCD handset and the control box (see Special Bed Adaptations » 95). If the mattress base is tilted, it moves automatically into a horizontal position when it reaches the highest or lowest setting

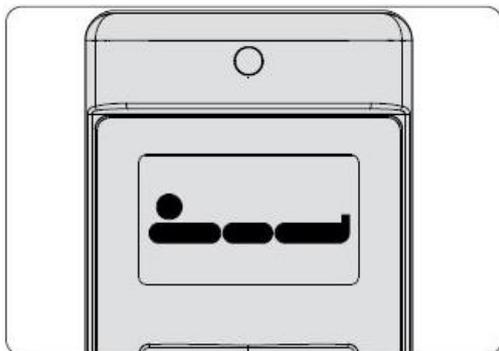


In the Puro brevo bed variant, when the mattress base height is adjusted, an additional intermediate stop is made automatically at a comfortable height for getting in or out of bed of about 41 cm. To continue with the height adjustment, let go of the adjustment button and then press it again. (To define the position at which the intermediate stop is made, see Setting an Intermediate Stopping Position (Puro brevo Variant) » 103.)

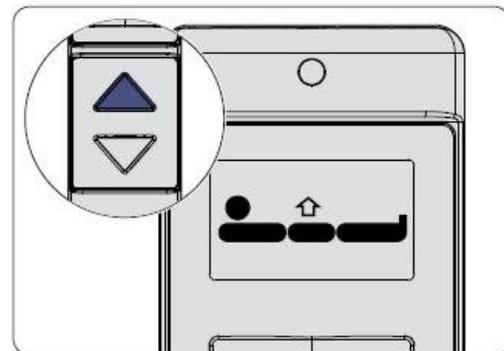
IMPORTANT

When MultiFlex⁺ safety sides are fitted: Ensure that raised guide bars cannot collide with adjacent objects or become trapped under them when the mattress base height is raised electrically. This prevents the guide bars and other objects from becoming damaged.

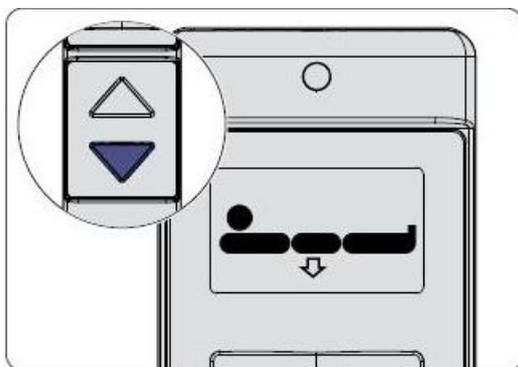
9.6.1 On the LCD Handset



- 1 Select the bed height adjustment function using the toggle switch.



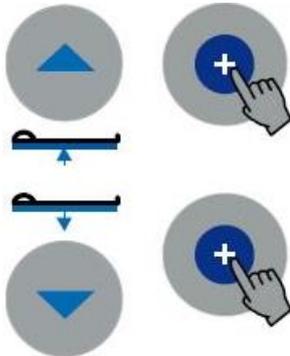
- 2 Press the UP button to raise the bed.



- 3 Press the DOWN button to lower the bed again.

9.6.2 On the Control Box

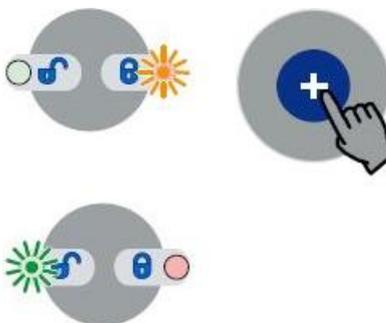
This function can only be activated when all adjustment functions have been released. To move the mattress base height to a certain height, proceed as follows:

- 
- 1 To raise the mattress base, press the height adjustment UP button at the same time as the unlock button.
 - 2 To lower the mattress base, press the height adjustment DOWN button at the same time as the unlock button.

9.6.3 Height Adjustment Using the Foot Pedal (Optional)

- i** For safety reasons, foot pedals are always locked to begin with – even if the height adjustment function is released.

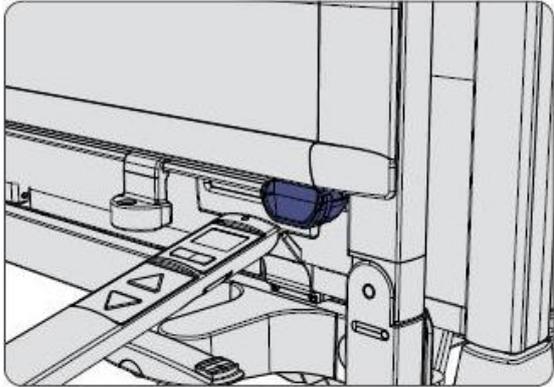
9.6.3.1 Unlocking on Control Box and Locking Box

- 
- 1 Press the unlock button at the same time as the relevant height adjustment locking button, when alternating between locked (orange LED) and free (green LED), until the green LED starts flashing. Only then is the foot pedal released.

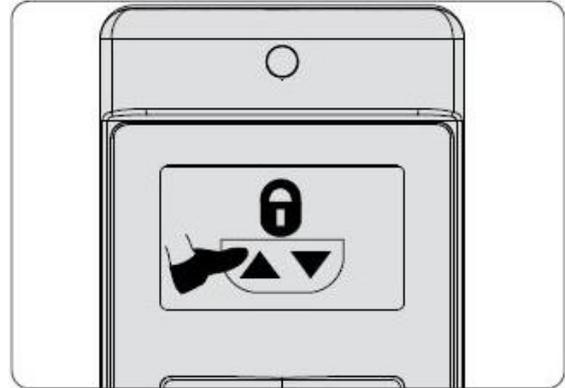
- i** If the height adjustment is locked again, the foot pedal will also be locked again.

9.6.3.2 Unlocking on LCD Handset

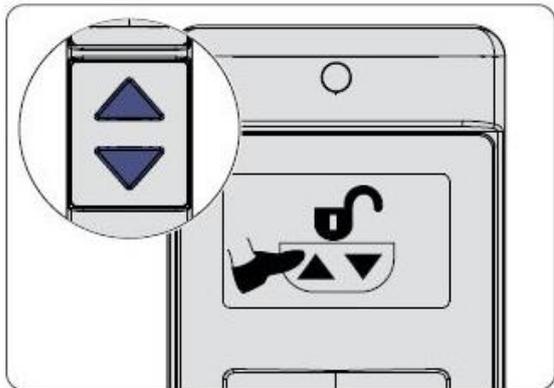
This function can only be activated when all adjustment functions for the bed height have been enabled.



- 1 Hold the top end of the LCD handset briefly over the magnetic unlocking key at the foot end of the bed to gain access to the staff control level on the LCD handset.



- 2 Select the foot pedal symbol using the toggle switch. A closed padlock above the symbol indicates that the foot pedal is locked.



- 3 Press the DOWN or UP button. An opened padlock will appear above the symbol. The foot pedal is now released.

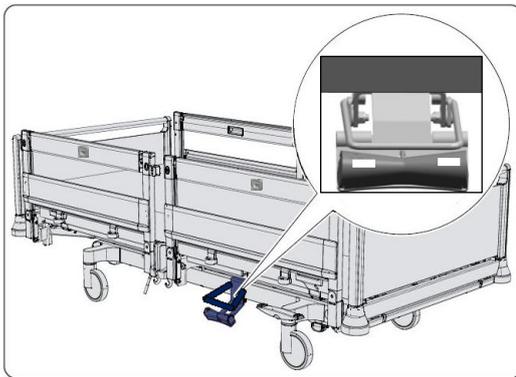


To lock the adjustment function again, press the DOWN or UP button again.

9.6.3.3 Using the Foot Pedal

i The foot pedal is safeguarded with a pedal guard to prevent accidental use. To activate the tread surfaces, the pedal guard must first of all be pushed up with your foot.

- 1 Lift up the pedal guard with your foot.
- 2 Tread on the desired end of the foot pedal until the mattress base has reached the required height.
- 3 Take your foot from the tread on the pedal to stop adjustment.
- 4 Lower the pedal guard with your foot.

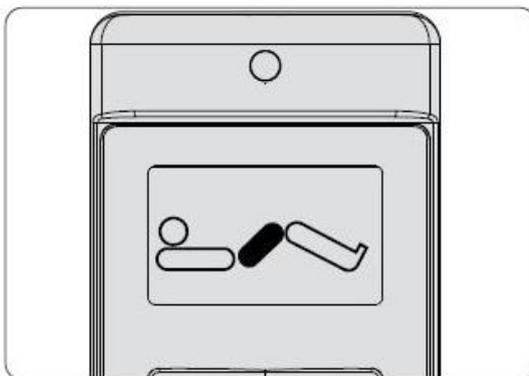


- + Raise the mattress base
- Lower the mattress base

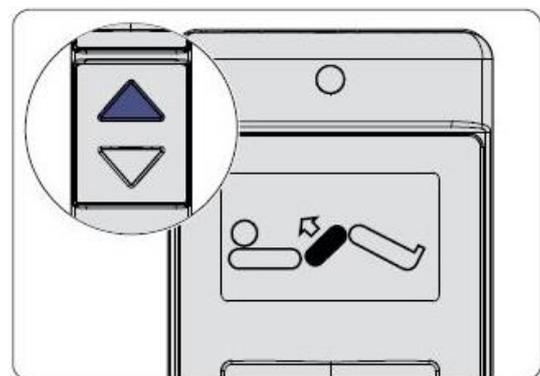
9.7 Setting the Thigh Rest

The thigh rest can be raised to approx. 40°.

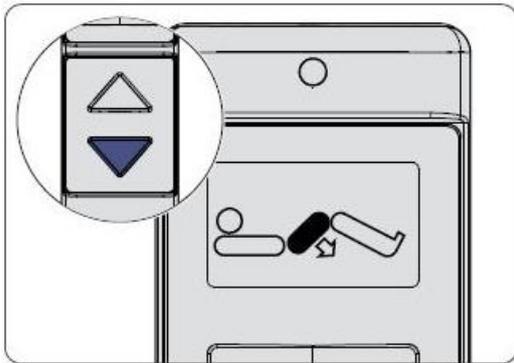
9.7.1 On the LCD Handset



- 1 Select the thigh rest adjustment function using the toggle switch.

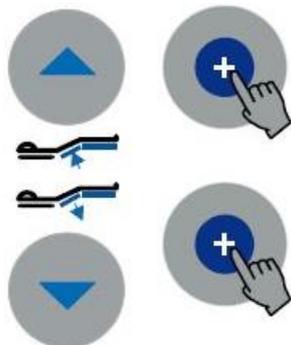


- 2 Press the UP button to raise the thigh rest.



- 3 Press the DOWN button to lower the thigh rest to the normal position again.

9.7.2 On the Control Box



- 1 Press the thigh rest UP button and the unlock button at the same time to raise the thigh rest.
- 2 Press the thigh rest DOWN button at the same time as the unlock button to move the thigh rest back to the normal position.

9.8 Setting the Lower Leg Rest

9.8.1 Mechanically

The lower leg rest can be raised and lowered by hand if the thigh rest is raised.

It is possible to adjust the bed to an orthopaedic (stepped bed) position or so that the lower leg rest is sloping downwards.

WARNING

Risk of Injury

Risk of injury through abrupt movement of the lower leg rest

- The lower leg rest must lock into place on both sides once released!
- To raise and lower the lower leg rest, proceed in the order specified in the operating instructions!

IMPORTANT

Avoid Damaging the Rastomat Mechanism on the Lower Leg Rest

Avoid placing excessive loads on the foot end of the raised lower leg rest caused, for example, by a heavy person sitting down on it.

- Lower the lower leg rest slowly beforehand.

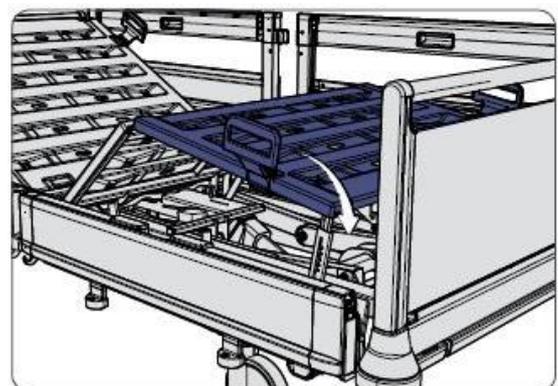
9.8.1.1 Raising / Lowering

- The bed should be immobilised (castors locked).
- The thigh rest must be raised (only possible electrically).

To Raise



- 1 Raise the lower leg rest by lifting the mattress restraint rail until the desired position is reached.

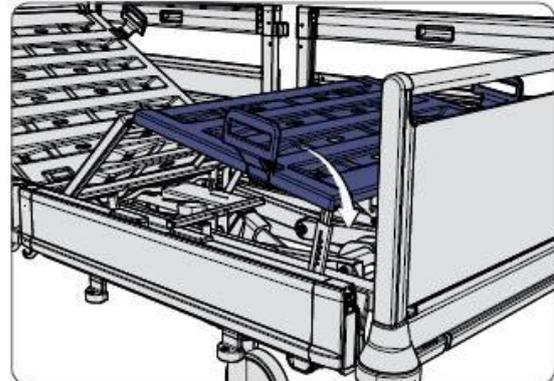


- 2 Then lower the lower leg rest slowly until it clicks into place

To Lower



3 Raise the lower leg rest to its full extent by lifting the mattress restraint rail.



4 Then lower the lower leg rest.

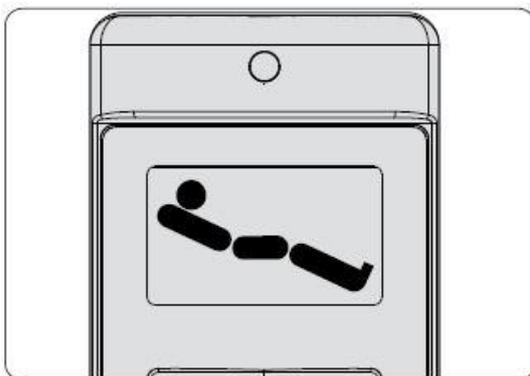
9.9 Setting a Sitting Position

This function can only be activated when all individual functions have been released. The mattress base can be tilted to a reverse-Trendelenburg position of up to about 14°.

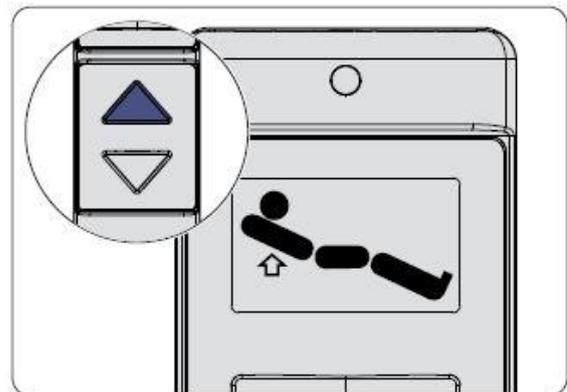
When this adjustment is carried out, the backrest and thigh rest are initially raised (as in auto contour). The mattress base is then tilted to a reverse-Trendelenburg position.

i If the height adjustment range is restricted electronically, this also limits the adjustment range for setting the reverse-Trendelenburg position.

9.9.1 On the LCD Handset

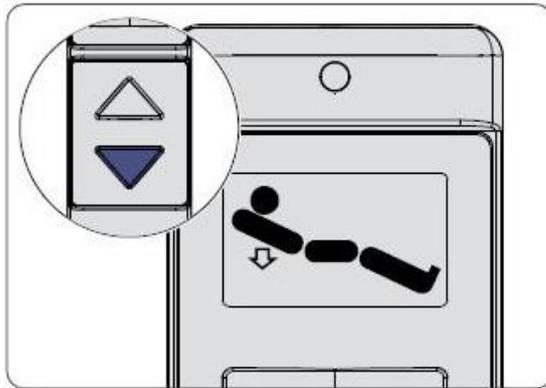


1 Select the reverse-Trendelenburg position using the toggle switch.



2 Press the UP button until the bed is set to a sitting position.

3 Press the UP button again to adjust the bed to the reverse-Trendelenburg position.



- 4 Press the DOWN button to initially move the bed back to the lowest mattress base level. After this, the backrest and thigh rest are then lowered.

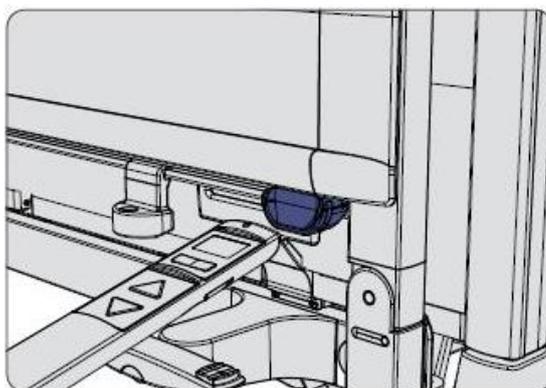
9.9.2 On the Control Box



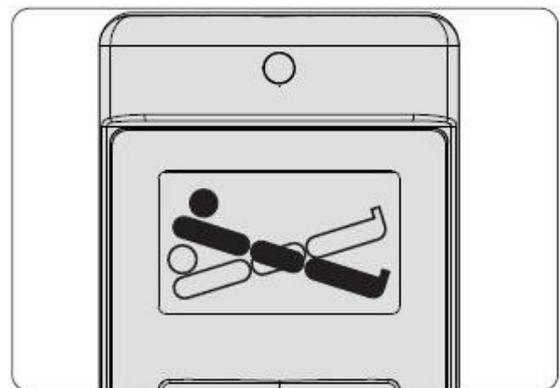
- 1 Press the sitting position button and the unlock button at the same time to obtain a sitting position.

9.10 Setting a Trendelenburg or Reverse-Trendelenburg Position

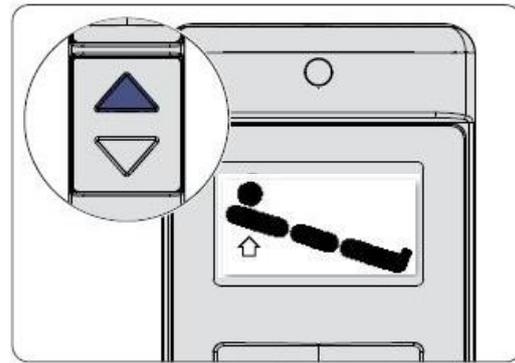
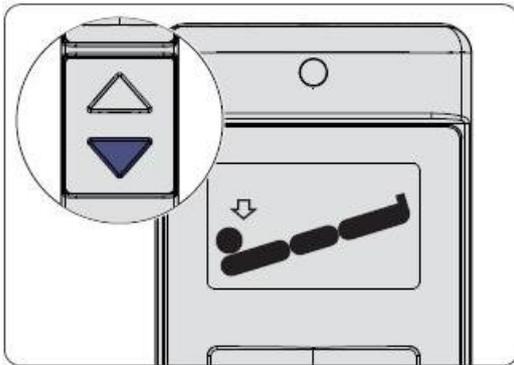
9.10.1 On the LCD Handset



- 1 Hold the top end of the LCD handset briefly over the magnetic unlocking key at the foot end of the bed to access the staff control level on the LCD handset.



- 2 Select the Trendelenburg position using the toggle switch.



3 Press the DOWN button until the bed is set to the Trendelenburg position.

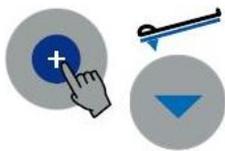
4 To obtain a reverse-Trendelenburg position, press the UP button.

i Once the mattress base has reached a horizontal position, an automatic stop is made. Release the button and then press the button again to continue adjustment to a Trendelenburg or reverse-Trendelenburg position.

i The display indicates the angles 6° - 12° and max.

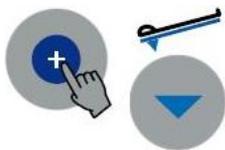
9.10.2 Trendelenburg Position on the Control Box

- This position can be set from any mattress base height.
- The maximum angle of tilt is up to 17° in every direction.
- If necessary, the height will be automatically adjusted.



1 Press the unlock button and the Trendelenburg position button to the full extent or the desired position is reached.

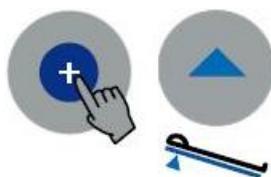
9.10.2.1 Reverting to Horizontal Bed Position



1 Press the unlock button and the reverse-Trendelenburg button at the same time.
The mattress base automatically moves to the horizontal position, and stops there.

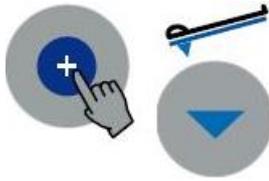
9.10.3 Reverse-Trendelenburg Position on the Control Box

- This position can be set from any mattress base height.
- If necessary, the height will be automatically adjusted.



1 Press the unlock button and the reverse-Trendelenburg position button to the full extent or the desired position is reached.

9.10.3.1 Reverting to Horizontal Bed Position

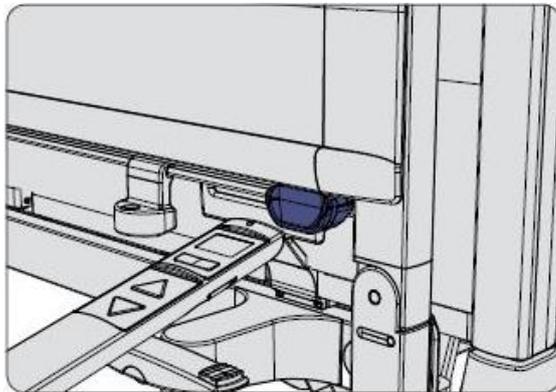


- 1 Press the unlock button and the Trendelenburg button at the same time.
The mattress base automatically moves to the horizontal position, and stops there.

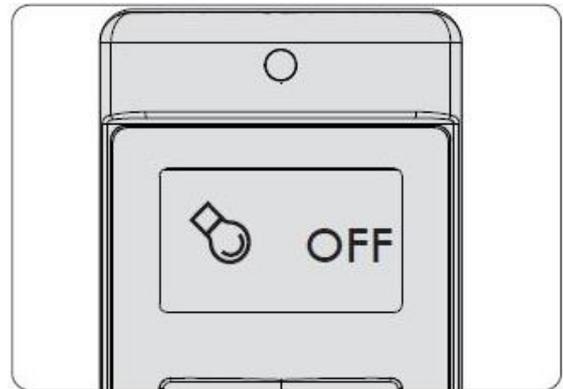
9.11 Switching Under Bed Light On / Off (Optional)

The under bed light is switched on automatically when plugged into the mains electricity supply once the bed reaches its lowest height (variant brevo: once the intermediate stop is reached). The light is switched off automatically once the bed is raised or the mains cable is unplugged.

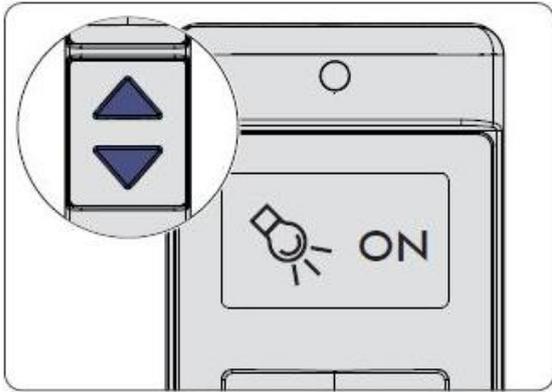
It is also possible to switch the light on or off by hand, as described below:



- 1 Activate the staff control level on the LCD handset by holding the top end of the LCD handset directly over the magnetic unlocking key at the foot end of the bed.



- 2 Select the under bed light adjustment function using the toggle switch. The under bed light symbol will appear on the display and an OFF status will be displayed for the turned off under bed light.



- 3 Press the DOWN or UP button. The under bed light is now switched on and an ON status is displayed.

 To switch the under bed light off, press the DOWN or UP button again (OFF status displayed).

If an OOB system is installed, the OOB system can be set so that the under bed light goes on automatically whenever the patient gets out of bed. (Please refer to the separate instruction manual for the Out-of-Bed (OOB) system).

9.12 Using Safety Sides

Safety sides provide suitable protection for patients against falling out of bed. They are not intended as a device to prevent the occupant from intentionally leaving the bed.

WARNING

Potential Hazard for Patients when Using Safety Sides

Only use technically perfect, undamaged safety sides which engage securely!

Before using the safety sides, assess and take into consideration the clinical condition and particular physical build of the patient:

- For example, if the patient is extremely confused or very restless, avoid using safety sides as far as possible and make use of alternative or additional safety measures such as restraint sheets, fall protection mats, setting the mattress base to the lowest position, etc.
 - In the case of particularly small, slightly built patients it may be necessary to use an additional form of protection to reduce the size of the gaps between the safety sides. In this case, use protective covers (accessories), posey belts, etc. (This is the only way to ensure effective protection and reduce the risk of the patient getting trapped or slipping through the gaps).
 - Only use suitable mattresses (not too soft) complying with DIN 13014 with a volume weight of at least 40 kg/m³ and dimensions complying with the specifications in the instruction manual, to prevent endangering patients through trapping or suffocation.
- ↳ The maximum mattress height depends on the model and the position of the safety sides used. An effective safety side height of at least 22 cm above the non-occupied mattress must be guaranteed.

CAUTION

Risk of Injury

If elevated special mattresses are used (for prevention or therapy), e.g. mattresses to prevent pressure sores, then an effective safety side height of at least 22 cm above the non-occupied mattress must be guaranteed.

If this requirement is not met, the operator is responsible for taking any additional measures, or other measures he considers suitable, based on his own risk assessment in view of the clinical condition of the patient, and in view of the characteristics of the special mattress, such as additional safety systems for the patient, regular and more frequent monitoring of the patient or internal instructions for the users.

The patient's risk of falling can be reduced:

- The smaller and more settled the patient is
- The softer the mattress is (the patient sinks deeper into the mattress)

 **CAUTION**

Risk of Crushing

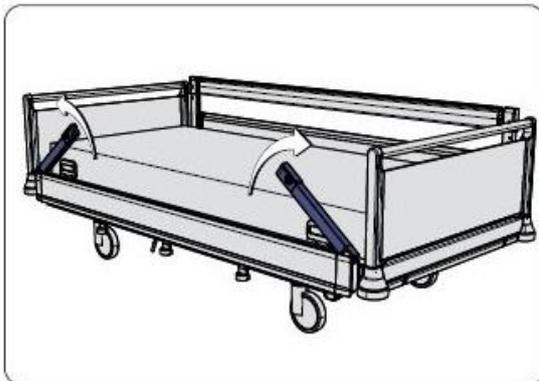
Lock the operating functions on the handset for the patient if the safety sides are raised and:

- ↳ The patient is unable to operate the bed safely,
- ↳ The patient is unable to free himself or herself from potentially dangerous situations,
- ↳ The patient is exposed to an increased risk of entrapment during backrest and thigh rest adjustments when the safety sides are raised,
- ↳ Otherwise there is a danger of the patient's limbs being crushed or trapped between the safety sides if the patient inadvertently activates the LCD handset. The effectiveness of the safety sides can also be reduced if any mattress base sections are raised to a high level.

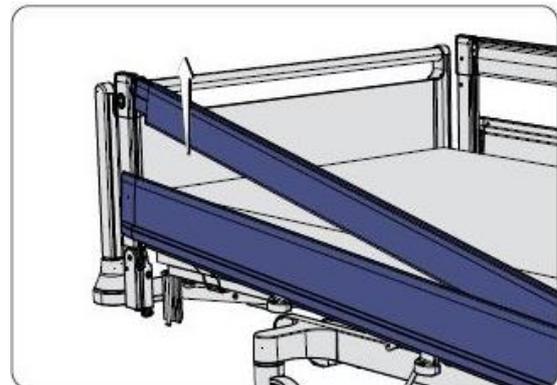
9.12.1 Full-Length Safety Sides

9.12.1.1 Raising

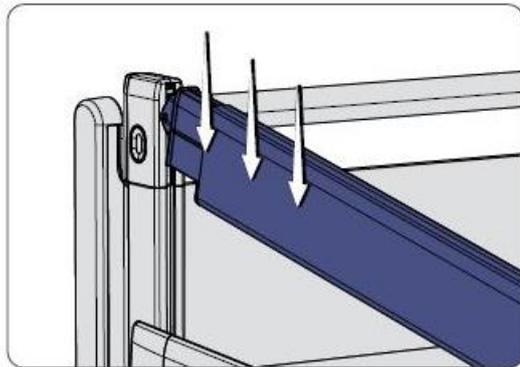
The following section describes how to raise one of the safety sides. The safety sides on the other side of the bed are raised in exactly the same way.



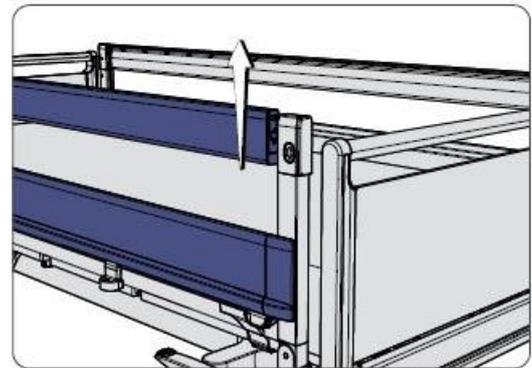
1 Raise the two safety side posts until they are standing upright.



2 At one end of the bed, raise the upper bar of the safety side as far as it will go. The bar engages with an audible click when it is fully raised.



- 3 Check that the safety side is securely and firmly positioned by pressing down on the top bar.



- 4 Repeat this procedure at the other end of the bed.

9.12.1.2 Lowering

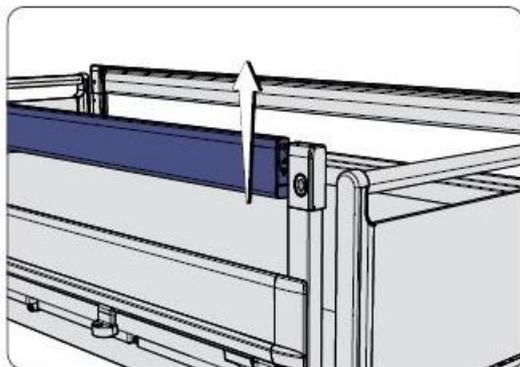
The following section describes how to lower one of the safety sides. The safety sides on the other side of the bed are lowered in exactly the same way.

CAUTION

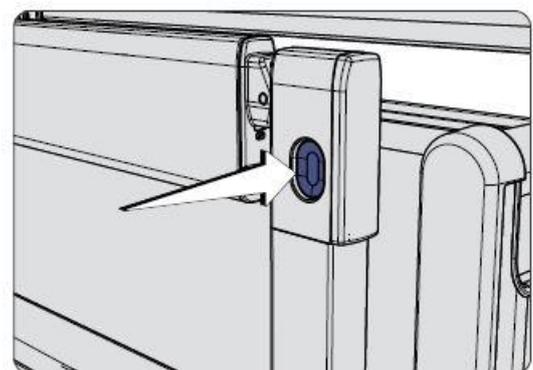
Risk of Entrapment and Crushing

There is a risk of the patient's limbs being trapped or crushed when lowering the safety sides.

- Before lowering the safety sides, ensure that the patient's limbs are not in the path of the safety side rails.

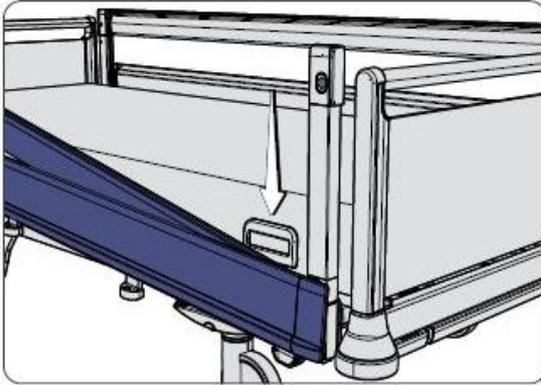


- 3 Grip the top bar near to a post and raise it as far as it will go and then keep hold of it.

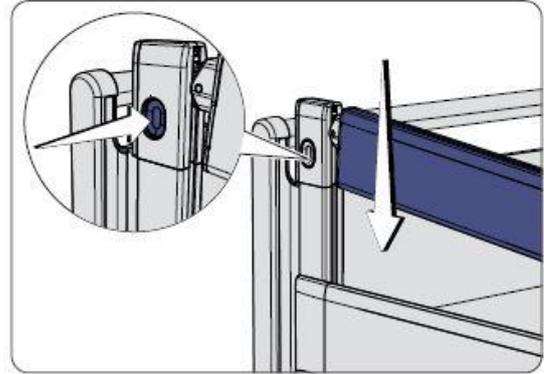


- 2 Press the unlock button on the post.

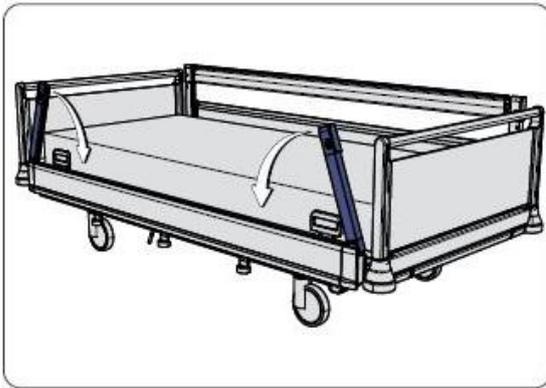
Usage / Routine
Using Safety Sides



- 3** Lower the safety side slowly. Do not let it drop!



- 4** Repeat this procedure at the other end of the bed.



- 5** Fold the post down by pressing the unlock button on the post.

9.12.2 Split Safety Sides

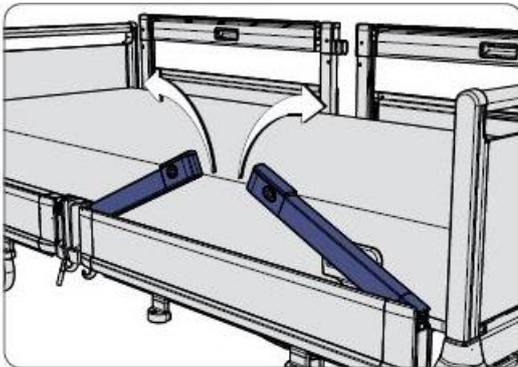
The safety sides consist of two identical sections on each long side of the bed, which can be adjusted individually as required (MultiFlex⁺ safety sides). When the safety sides are lowered, the posts can be used on their own as mobilisation aids.



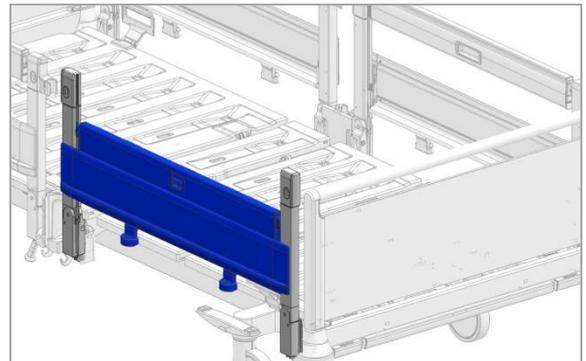
Fig. 22: MultiFlex⁺ safety sides

9.12.2.1 Raising

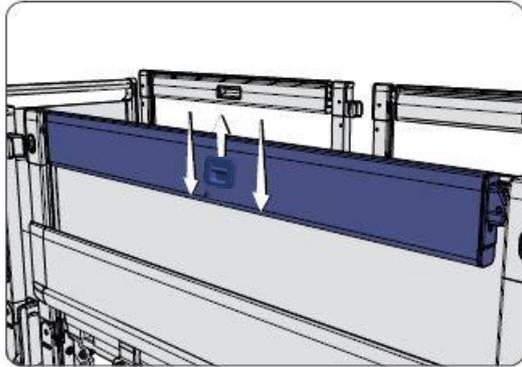
The following section describes how to raise one of the safety sides. The other safety sides are raised in exactly the same way.



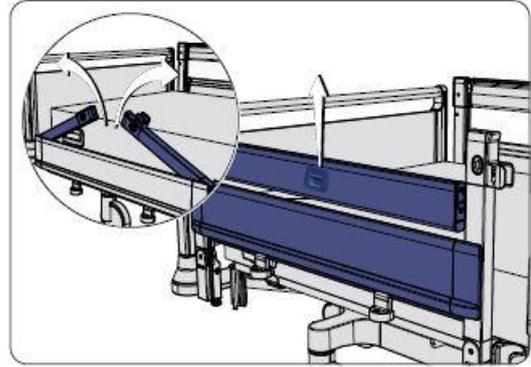
- 1 Hold on to the plastic section of the left-hand post with your left hand and, at the same time, the right-hand post with your right hand. Pull both posts upwards at the same time. Both posts must click into place audibly!



- 2 Grip the safety side with both hands and raise it as far as it will go. The safety side must lock into place at both posts with an audible click!



3 Check that the safety side is securely fixed by pressing down on it and shaking it!



4 Repeat the procedure for the other posts/safety sides.

9.12.2.2 Lowering

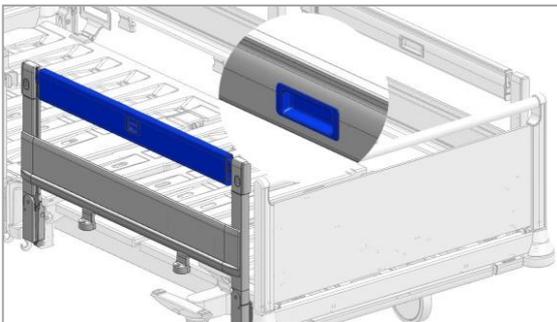
The following section describes how to lower one of the safety sides. The other safety sides are raised in exactly the same way.

CAUTION

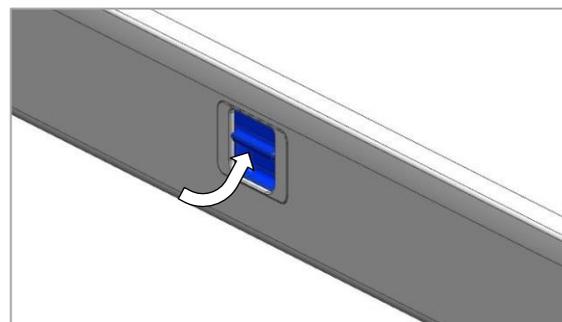
Risk of Entrapment and Crushing

There is a risk of the patient's limbs being trapped or crushed when lowering the safety sides.

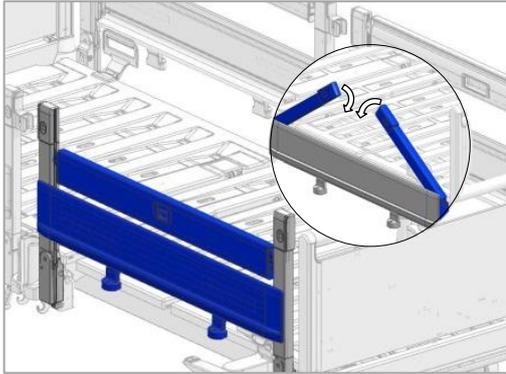
- Before lowering the safety sides, ensure that the patient's limbs are not in the path of the safety side rails.



1 Hold on to the grip that runs along the top of the safety side and pull it upwards as far as it will go. Hold the safety side in this position.



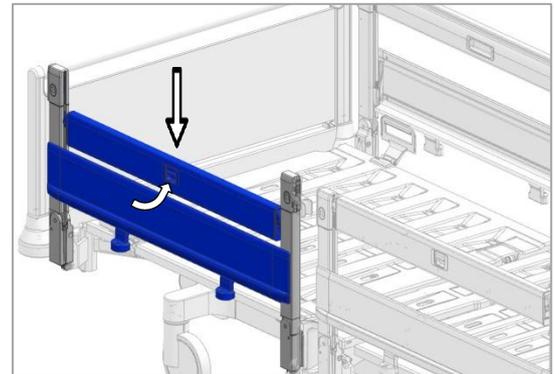
2 Then pull the release mechanism in the handle upwards. This will release the lock. (Alternatively, also possible: Proceed as for full-length safety sides: Lower them by pressing the unlock button on the post).



- 3 Lower the safety sides slowly. Make sure the safety sides do not drop suddenly.

Risk of Crushing: Be careful not to trap your thumbs/fingers in the shearing zone of the two safety side bars. Let go of the bar when it has reached the top of the mattress.

The posts are lowered automatically at the same time.



- 4 Repeat the procedure for the other posts/safety sides.



If the posts do not fold down automatically, press the unlock button on the post.



If the safety sides are incorrectly operated, the release mechanism may jam. In this case, press the release mechanism in the direction of the arrow to free the mechanism.

10 Use in an Emergency

10.1 Emergency: Setting Shock Recovery Position

In a medical emergency, the mattress base can be tilted to a shock position.

The bed is moved at maximum speed into the shock recovery position. The backrest and thigh rest are moved simultaneously into the standard horizontal position.

WARNING

Risk of Injury

This function is only intended for medical emergencies and not for everyday use!

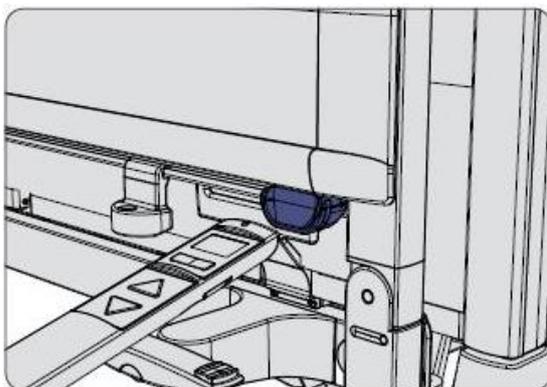
This function demands the user's utmost attention since several adjustments are activated simultaneously.

- If this warning is disregarded, patients and other people could be exposed to danger and objects could be damaged!

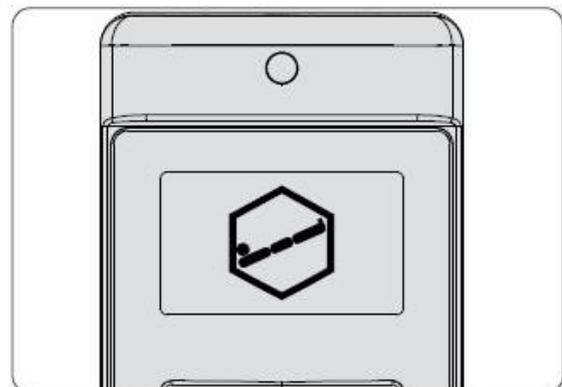
-  This emergency function can always be used, even when normal bed adjustment functions have been locked or the height adjustment has been electronically restricted.

10.1.1 On the LCD Handset

-  The shock position can also be activated even if the corresponding adjustment functions are locked.

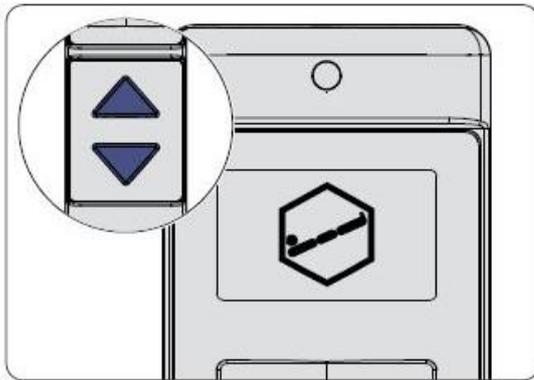


- 1 Hold the top end of the LCD handset briefly over the magnetic unlocking key at the foot end of the bed to access the staff control level on the LCD handset.

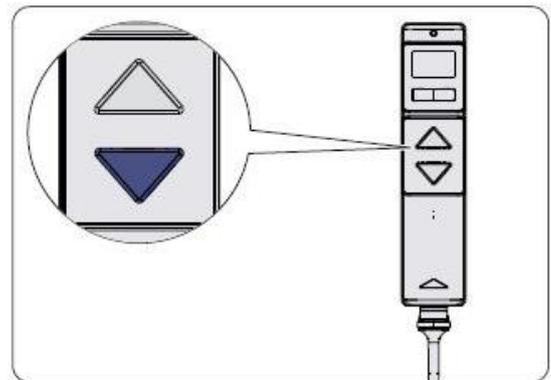


- 2 Select the shock position adjustment function using the toggle switch.

Emergency: Setting Shock Recovery Position



3 Press the UP button until the bed is set to the shock position (Trendelenburg position).



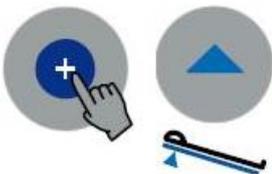
4 To revert the bed to a horizontal position, press the DOWN button until the bed has reached the horizontal position.

10.1.2 On the Control Box



1 Press the unlock button and the shock position button at the same time.

10.1.2.1 Reverting to Horizontal Bed Position



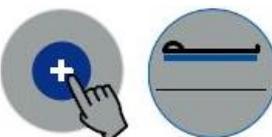
1 Press the unlock button at the same time as the reverse-Trendelenburg UP button.
The mattress base automatically moves to the horizontal position at mid-height.

10.1.3 On the Locking Box



1 Press the unlock button and the shock position button at the same time.

10.1.3.1 Reverting to Horizontal Bed Position



1 Press the unlock button and the normal position UP button at the same time.
The mattress base automatically moves to the horizontal position at mid-height.

10.2 Emergency: Setting CPR Position

The CPR position allows all parts of the mattress base to be lowered quickly, particularly for resuscitation purposes. It is also suitable for moving the bed to a specific low position for the patient to sleep at night (fall prevention).

The adjustment position is pre-set in the factory:

- Backrest and thigh rest horizontal, simultaneously
- Mattress base horizontal and into the lowest position

WARNING

Risk of Injury

This function is only intended for medical emergencies and not for everyday use!

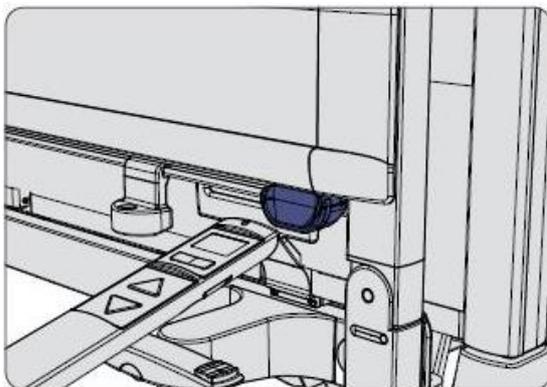
This function demands the user's utmost attention since several adjustments are activated simultaneously.

- If this warning is disregarded, patients and other people could be exposed to danger and property could be damaged.

-  The CPR position can also be activated even if the corresponding adjustment functions are locked.

10.2.1 On the LCD Handset

-  The resuscitation position can also be activated even if the corresponding adjustment functions are locked.



- 1 Activate the staff control level on the LCD handset by holding the top end of the LCD handset directly over the magnetic unlocking key at the foot end of the bed.
- 2 The (CPR) resuscitation position adjustment function is pre-set.
- 3 Press the UP or DOWN button until the bed has reached the resuscitation position.

10.2.2 On the Control Box



- 1 Press the unlock button and the CPR button at the same time. The bed moves at maximum speed into the resuscitation position.

10.3 Lowering the Backrest in an Emergency

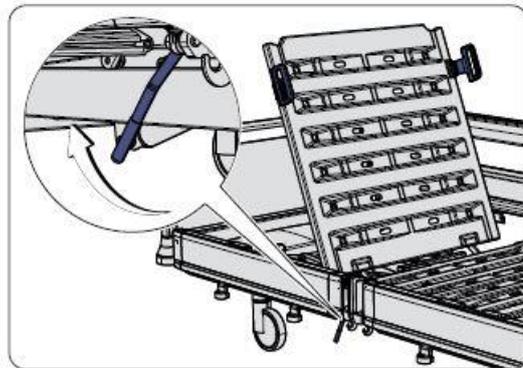
In an emergency, the backrest can be lowered by hand. The operating lever for emergency lowering is used for this purpose. The adjustment speed for lowering the backrest in an emergency depends on the mattress on the bed and the weight of the patient.

⚠ WARNING

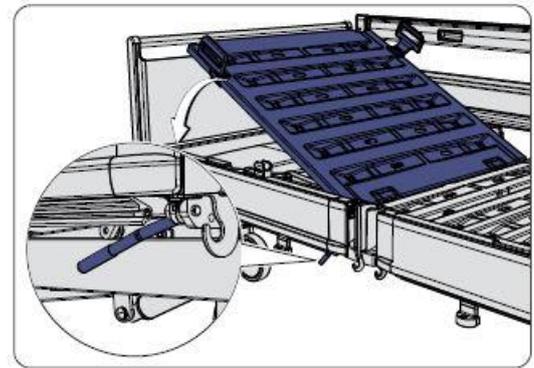
Risk of Injury

A heavy patient can cause the backrest to drop suddenly when the red operating lever is used.

- Always keep hold of the backrest handle with one hand so as to “control” the adjustment.



- 1 Hold the backrest handle with one hand and pull the operating lever upwards with the other hand.



- 2 Keep hold of the handle on the backrest and carefully let the backrest down. The backrest will not be held in position until the operating lever has been released.

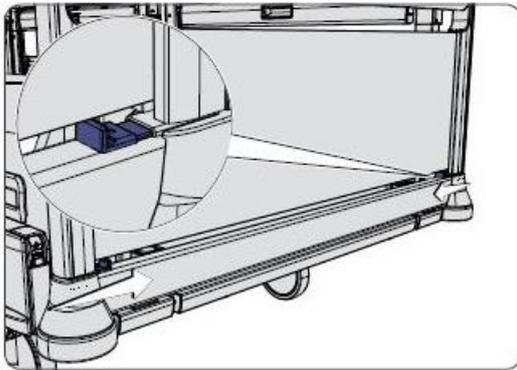
11 Special Bed Adaptations

11.1 Removing and Inserting Headboard and Footboard

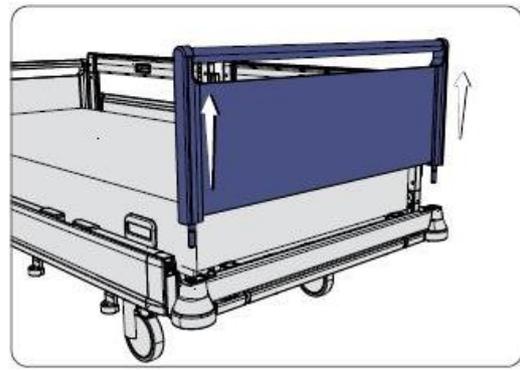
The infill panel in the headboard and footboard can be removed if required. This may be necessary if the patient has to do rehabilitation exercises in bed, for example.

11.1.1 To Remove

- 1 Stand behind the headboard/footboard.



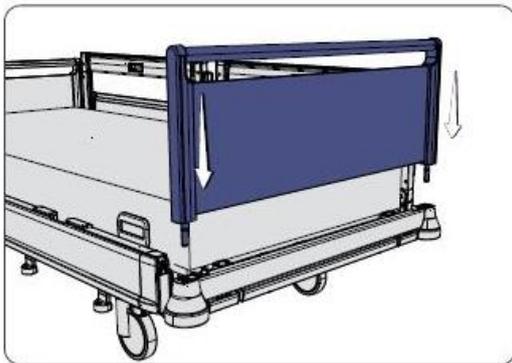
- 2 Slide the two locking levers towards the centre of the headboard or footboard.



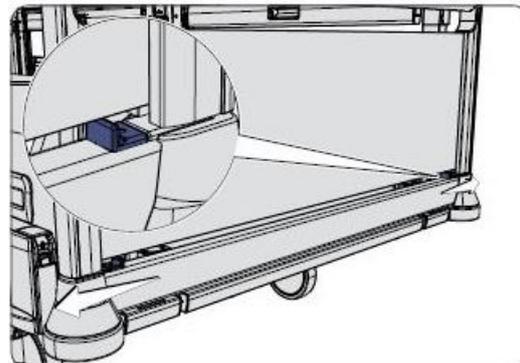
- 3 Hold the headboard or footboard with both hands and pull it upwards and out of the brackets.

11.1.2 To Insert

- 1 Stand behind the headboard/footboard.



- 2 Hold the headboard or footboard with both hands and carefully pull it upwards and out of the brackets.



- 3 Slide the two locking levers towards the edges of the headboard or footboard in order to fix the headboard or footboard in place.

11.2 Attaching Posey Belts

WARNING

Risk of Injury

- Please observe the instruction manual and safety information provided by the manufacturer of the restraint systems when restraining a patient in order to prevent the risk of serious injuries to the patient!
- Always thread belts round the outer metal frame of the mattress base and not round the plastic handles attached to it.
- Attach the restraint system only to the locations on the hospital bed shown in the following illustration. This will ensure that the patient is restrained safely and is not exposed to danger.

The arrows in the following illustration show slots in the plastic mattress base (optional equipment) through which restraint system belts can be threaded.

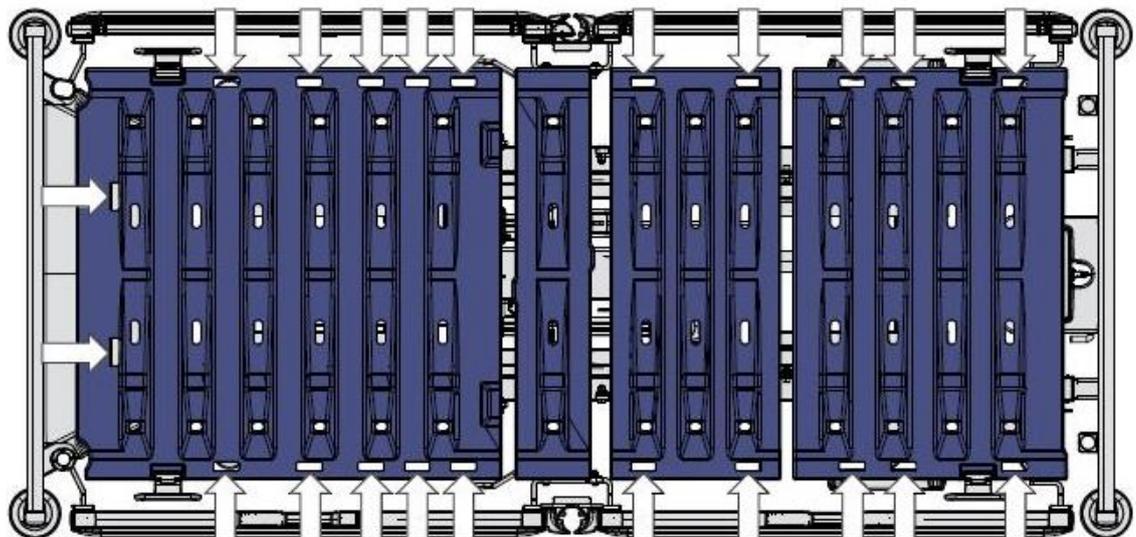


Fig. 23: Attachment points for posey belts

11.3 Restricting Maximum Mattress Base Height

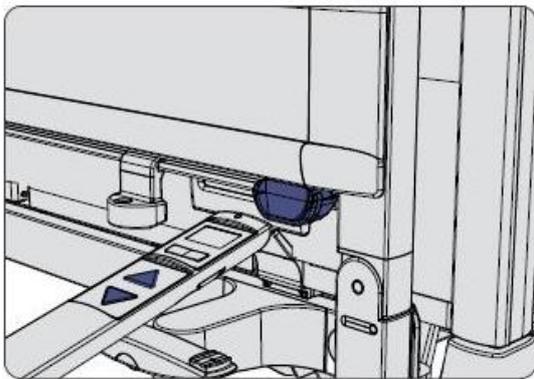
A pre-set maximum mattress base height cannot be exceeded in the daily care routine or by the patient. When the bed is raised, it only moves to this position and then stops.

A maximum mattress base height can only be defined by service personnel or qualified medical staff who have been trained by the operator to do so.

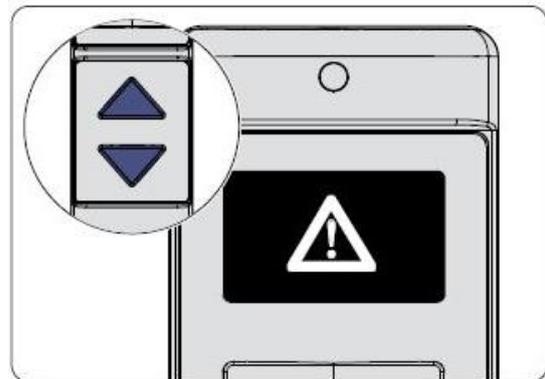
11.3.1 On the LCD Handset

 The mattress base must be horizontal before a restriction can be defined.

- 1 Set the bed to the position that you wish to define as the maximum mattress base height.



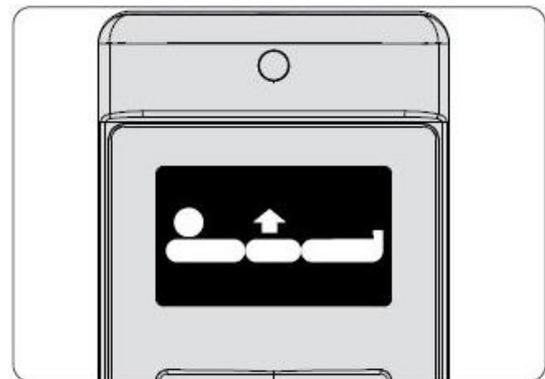
- 2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the handset briefly against the magnetic unlocking key at the foot end of the bed.



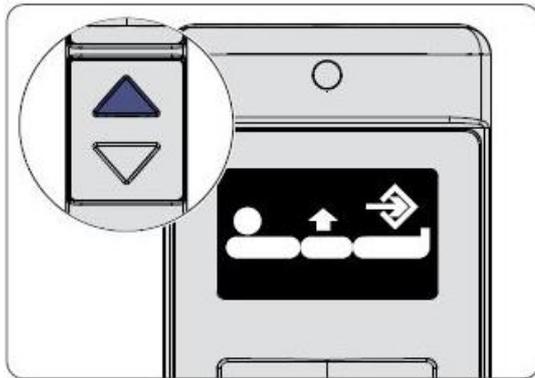
- 3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



- 4 The OK! shown on the display confirms the change to the technician control level.



- 5 Select the maximum mattress base height function by pressing the toggle switch.



- 6** Press the UP button three times. After pressing the button for the first time, the symbol for the maximum mattress base height is switched on.



- 7** After pressing the button for the third time, the OK ! displayed indicates the successful pre-setting of the mattress base height restriction. The symbol for the maximum mattress base height is then displayed again.

11.3.2 Deleting the Maximum Mattress Base Height Setting (on the LCD Handset)



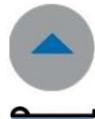
- 1** Repeat steps 2 - 5 in Chapter Restricting Maximum Mattress Base Height » 97. The maximum mattress base height symbol will appear on the display and the status message X will be displayed for the deleted function.



- 2** Press the DOWN button three times. After pressing the button for the third time, the OK ! displayed indicates the successful deletion of the mattress base height restriction.

11.3.3 On the Control Box

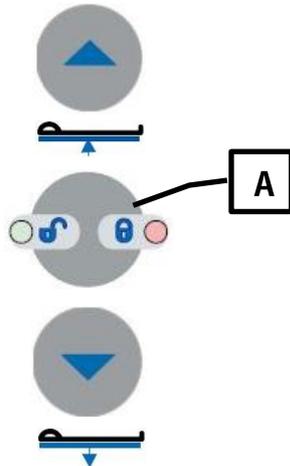
 The mattress base must be horizontal before a restriction can be defined.

   1 Set the mattress base to the desired maximum height. To do so, simultaneously press the unlock button and the button to raise the mattress base in order to raise the mattress base.

   2 Briefly press the memory button three times in succession and immediately afterwards, press the button to raise the mattress base. The control unit will emit a signal tone for confirmation as soon as the new position has been saved.

11.3.4 Deleting the Maximum Mattress Base Height Setting (on the Control Box)

 1 Briefly press the save button three times in succession and press the lock/unlock button A immediately afterwards.



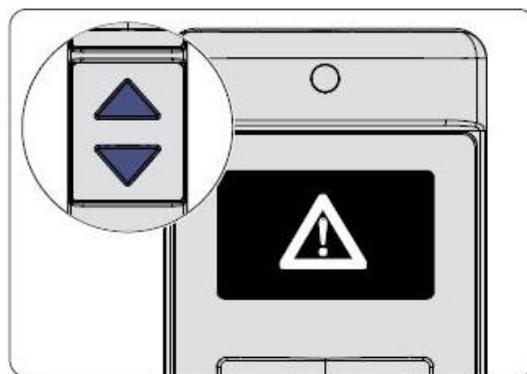
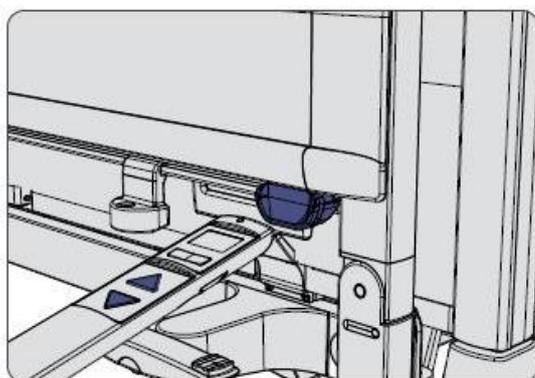
11.4 Restricting Minimum Mattress Base Height

A pre-set minimum mattress base height cannot be exceeded in the daily care routine or by the patient. When the bed is lowered, it only moves to this position and then stops. The minimum mattress base height must only be defined by technicians or qualified medical staff who have been trained by the operator to do so.

11.4.1 Setting the Minimum Mattress Base Height (on the LCD Handset)

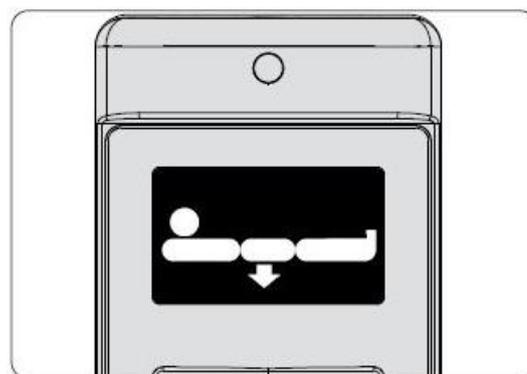
 The mattress base must be horizontal before a restriction can be defined.

- 1 Set the bed to the position that you wish to define as the minimum mattress base height.



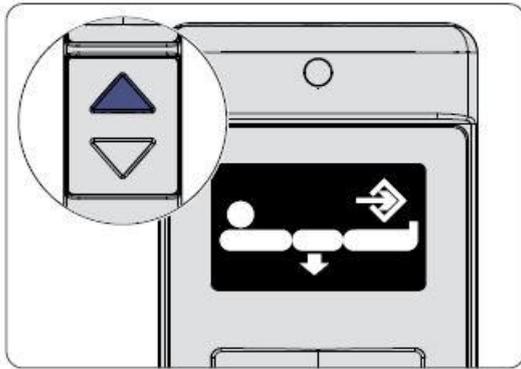
- 2 Press the UP and DOWN buttons simultaneously, and at the same time hold the top end of the handset briefly against the magnetic unlocking key at the foot end of the bed.

- 3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



- 4 The OK! shown on the display confirms the change to the technician control level.

- 5 Select the minimum mattress height function by pressing the toggle switch.

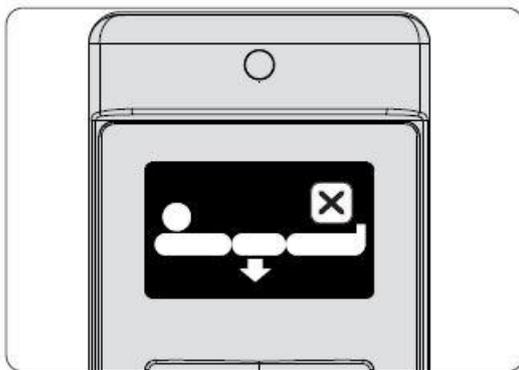


- 6 Press the UP button three times. After pressing the button for the first time, the symbol for the minimum mattress base height is switched on.



- 7 After pressing the button for the third time, the OK ! displayed indicates the successful pre-setting of the mattress base height restriction. The symbol for the minimum mattress base height is then displayed again.

11.4.2 Deleting the Minimum Mattress Base Height Setting (on the LCD Handset)



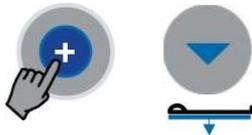
- 1 Repeat steps 2 - 5 in Chapter Restricting Minimum Mattress Base Height » 100. The minimum mattress base height symbol will appear on the display and the status message X will be displayed for the deleted function.



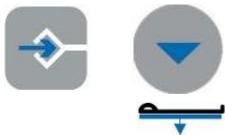
- 2 Press the DOWN button three times. After pressing the button for the third time, the OK ! displayed indicates the successful deletion of the mattress base height restriction.

11.4.3 Setting the Minimum Mattress Base Height (on the Control Box)

 The mattress base must be horizontal before a restriction can be defined.



1 Set the mattress base to the desired minimum height. To do so, simultaneously press the unlock button and the button to lower the mattress base in order to lower the mattress base.

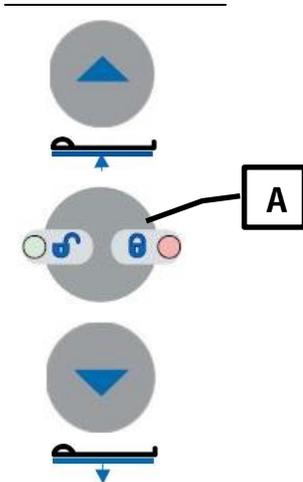


2 Briefly press the save button three times in succession and immediately afterwards, press the button to lower the mattress base. The control unit will emit a signal tone for confirmation as soon as the new position has been saved.

11.4.4 Deleting the Minimum Mattress Base Height Setting (on the Control Box)



1 Briefly press the save button three times in succession and press the lock/unlock button A immediately afterwards. The control unit will emit a signal tone for confirmation as soon as the new position has been saved.



11.5 Setting an Intermediate Stopping Position (Puro brevo Variant)

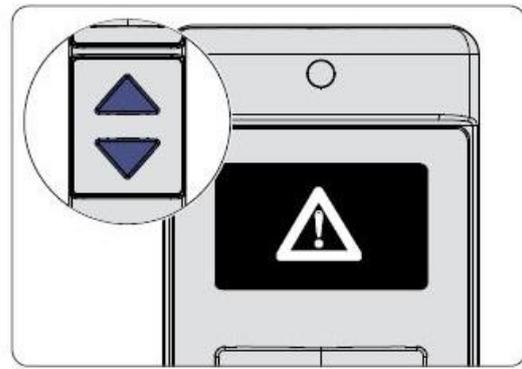
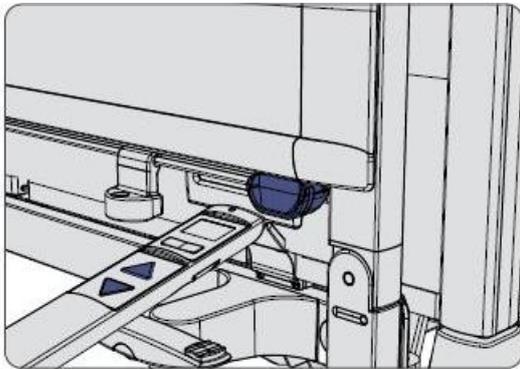
In the Puro brevo variant, an intermediate stop is made when the mattress base height is adjusted. Press the UP or DOWN button again to continue beyond this intermediate position.

Furthermore, you can also switch this special function off when not in use without deleting the intermediate stopping position which is saved (for more information, see [Setting the Backrest » 71](#)).

Defining a minimum mattress base height must only be done by technicians or qualified medical staff who have been trained by the operator to do so.

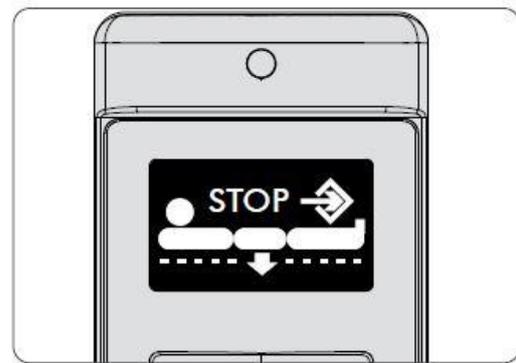
 The mattress base must be horizontal before a restriction can be defined.

- 1 Set the bed to the position that you wish to define as the intermediate position.



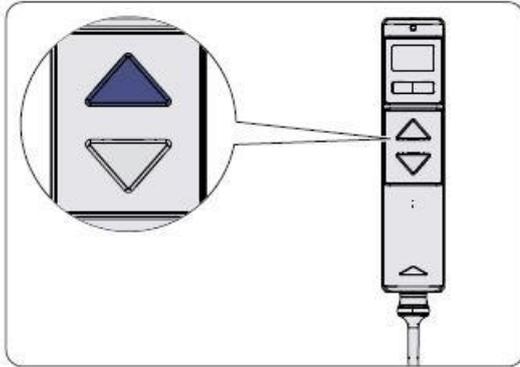
- 2 Press the UP and DOWN buttons simultaneously, and at the same time hold the top end of the handset briefly against the magnetic unlocking key at the foot end of the bed.

- 3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



- 4 The OK! shown on the display confirms the change to the technician control level.

- 5 Select the intermediate stopping position function by pressing the toggle switch.



6 Press the UP button.



7 The OK ! displayed indicates the successful pre-setting of the intermediate stopping position. The symbol for the intermediate stopping position is then displayed again.

12 Cleaning and Disinfection

12.1 Safety Information on Cleaning and Disinfection

Failure to follow this safety advice could result in considerable damage to the bed and the electrical components and lead to subsequent malfunctions!

12.1.1 Before Starting Cleaning

- Ensure that all plugs for the actuator system are connected as prescribed.
- Lock the actuators using the LCD handset, the control box or the locking box.
- Unplug the mains cable.
- Store the mains plug so that it does not come into excessive contact with cleaning solutions.
- Ensure that none of the electrical components show any signs of external damage.
- If these instructions are disregarded, water or cleaning agents may penetrate the system resulting in malfunctions or damage.

12.1.2 After Cleaning

- Before operating the bed again, ensure that there is no residual moisture on the electrical contacts by drying or blowing on the mains plug.
- If you suspect that water or any other form of moisture has penetrated the electrical components, unplug the mains cable immediately. If already disconnected from the mains supply, make sure it is not plugged in again. Clearly mark the bed as “Out of Order” and take it out of service immediately. Report this incident immediately to the operator!

12.2 Manual Cleaning

IMPORTANT

- Do not use scouring agents, abrasive cleaning agents or scouring pads. These substances can damage the surfaces.
- Do not use organic solvents such as halogenated/aromatic hydrocarbons and ketones.
- Do not use acidic cleaning solvents.
- It is essential that the manufacturer's dosage advice is followed to prevent damaging the plastic and metal surfaces!
- It is not permitted to clean the bed using a manually operated steel jet nozzle which is, for example, connected to a steam cleaner/ high pressure cleaner. A minimum distance of 30 cm from the electrical components cannot be guaranteed in this case.
- For non-washable beds: Avoid direct contact of the bed with splash-water. Do not use a water hose or similar appliance to clean the bed.
- Ensure that no liquid residues remain on any parts of the bed after cleaning or disinfection. Otherwise the surfaces in these areas may become damaged in the long term.
- Despite its excellent mechanical resistance, scratches, markings, etc., which permeate the entire coating should be resealed using a suitable repair substance to prevent moisture from penetrating.

Cleaning and Disinfection Agents

For disinfection by wiping, most cleaning and disinfection agents commonly used in hospitals and the care sector, such as cold and hot water, detergents, alkaline solutions and alcohols, can be used.

These agents must not contain any substances that could change the surface structure or the adhesive properties of the plastic materials.

The choice of cleaning agents and disinfectants available on the market may change from time to time. Stieglmeyer therefore routinely tests the most commonly used materials for compatibility.

The most up-to-date list of cleaning agents and disinfectants can be obtained from our service centre on request.

Our German service centre:

Stieglmeyer GmbH & Co. KG
Ackerstraße 42, 32051 Herford, Germany
Tel.: +49 (0) 5221 185-0
Fax: +49 (0) 5221 185-219
Email: servicezentrum@stieglmeyer.com; www.stieglmeyer.com

Customers outside Germany can contact our sales distributors in their particular country if they have any questions. Contact details can be found on our website.

12.3 Machine Cleaning

If this bed is suitable for machine washing in a decontamination facility, the chassis carries this sticker.



Sticker for machine washability

- To maintain the life expectancy and good working order of the bed for as long as possible, the directives issued by the Bed Frame and Chassis Decontamination Systems Working Group (AK-BWA) and the instructions given in this instruction manual must be followed.
- These instructions may be obtained from the manufacturers of decontamination facilities, cleaning agents and disinfectants, and from Stiegemeyer.
- Failure to observe these specifications can result in forfeiture of any right to claims under the warranty in the event of consequential damage!

IMPORTANT

Failure to Follow this Safety Advice Could Result in Considerable Damage to the Bed and the Electrical Components and Lead to Subsequent Malfunctions!

- Adjust the bed settings to the washing position specified: Mattress base elements flat; mattress base set to at least 10° reverse-Trendelenburg position (see also Chapter 12.3.1).
- Before washing the bed, remove any accessories that are attached, unless they are suitable for machine washing.
- The cleaning agent used for the decontamination process must have a pH value of between 5 and 8. The hardness of the washing water must not exceed 5°dH. The total salt content should not exceed 100 mg/litre. Demineralised water may only be used with the consent of the manufacturers of the decontamination system and the items to be cleaned.
- The cleaning agent must not contain substances that change the surface structure or the adhesive characteristics of the plastic materials.
- **Cleaning Agents Tested and Approved by Stiegemeyer:**
 - Neodisher BP and Neodisher Dekonta (manufacturer: Dr. Weigert),
 - Sekumatic FDR and Sekumatic FKN (manufacturer: Ecolab).
- Do not exceed the dosage advice given by the manufacturer! Lasting and steadily worsening pre-damage, particularly to plastic parts, may result! Please consult Stiegemeyer before using any other cleaning agents, to prevent potential damage to the bed as a result of their use.
- The cleaning and disinfection cycle (including the rinsing process) in a decontamination facility must comply with the directives issued by the Bed Frame and Chassis Decontamination Systems Working Group (AKBWA).
- The pressure of the jet sprays inside the bed decontamination system must not exceed 5 to 8 bar.

More on the next page...

IMPORTANT

- A distance of 30 cm between the spray valves and electrical components must be ensured. The only spray nozzles which are permissible are flat jets.
- During the washing and disinfection procedure (including rinsing), the temperature of the bed must not exceed 70°C. Washing temperatures that are too low must also be avoided as this will result in poor drying. The maximum washing water temperature is 65°C. The maximum rinsing temperature is 80°C.
- Do not cool suddenly using cold water.
- After completing the washing procedure, the bed must cool down for an appropriate period of time (10 to 20 minutes) before it may be put into service again.
- In addition to the prescriptions of the AKBWA, we recommend a waiting period of approximately 10 minutes.



Depending on the type and frequency of the washing procedure and the washing water and chemicals used, in isolated cases chemical reactions and, as a result, discolouration of galvanised metal parts of the bed can occur. This does not constitute a technical defect and has no influence on the strength and functioning of the bed.

12.3.1 Setting the Washing Position

IMPORTANT

To Ensure that Cleaning Fluids Can Drain Off Unhindered, the Bed Must Not be Washed in a Horizontal or Reverse-Trendelenburg Position.

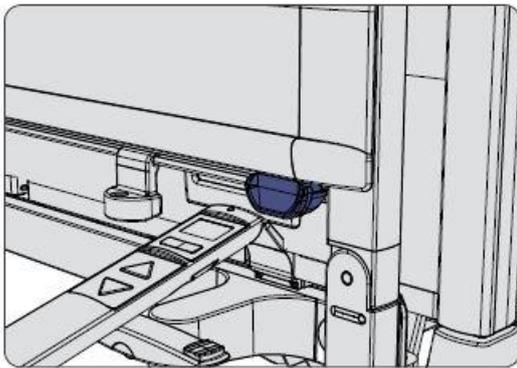
The bed settings to be established as the washing position in the washing machine are:

- Trendelenburg position (angle of tilt at least 10°),
- All rests set to the lowest position,
- All safety sides manually raised.

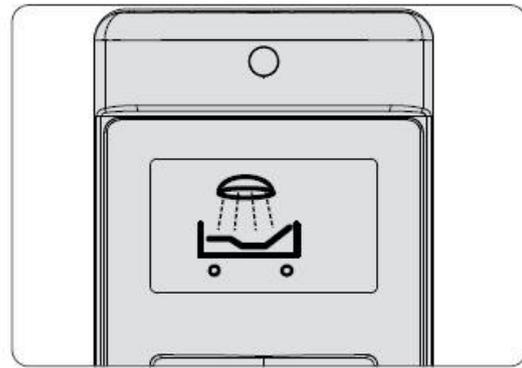
12.3.1.1 On the LCD Handset

The factory default washing position can be set at the touch of a button:

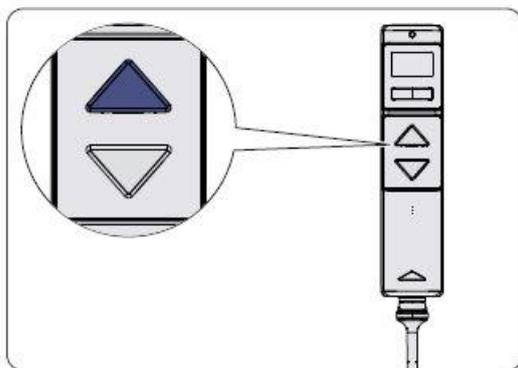
- Mattress base in Trendelenburg position (10°)
- Backrest and thigh rest horizontal



- 1 Activate the staff control level on the LCD handset by holding the top end of the LCD handset directly over the magnetic unlocking key at the foot end of the bed.



- 2 Select the washing position adjustment function using the toggle switch.



- 3 Press the DOWN or UP button. The bed moves into the washing position.

12.3.1.2 Defining an Alternative Washing Position

The height and angle of tilt of the bed in the factory default washing position can be adapted to the particular washing system used. The backrest and thigh rest always move into the lowest position.

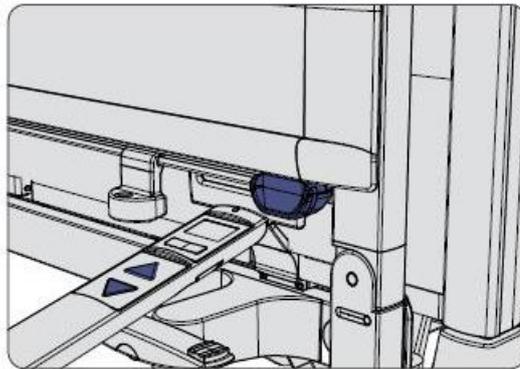
IMPORTANT

To Ensure that Cleaning Fluids Can Drain Off Unhindered, the Bed Must Not be Washed in a Horizontal or Reverse-Trendelenburg Position.

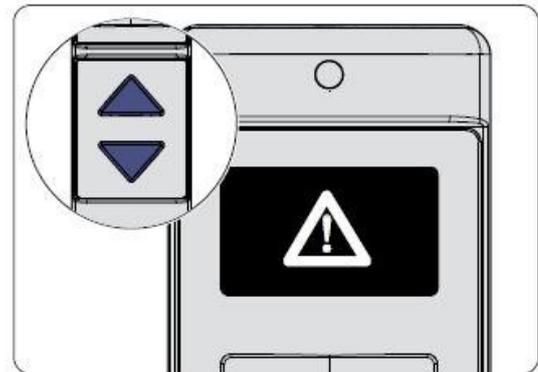
The bed settings to be established as the washing position in the washing machine are:

- Trendelenburg position (angle of tilt at least 10°),
- All rests set to the lowest position,
- All safety sides manually raised.

- 1 Set the bed to the position that you wish to define as the maximum mattress base height.



- 2 Press the UP and DOWN buttons simultaneously, and at the same time hold the top end of the handset briefly against the magnetic unlocking key at the foot end of the bed.



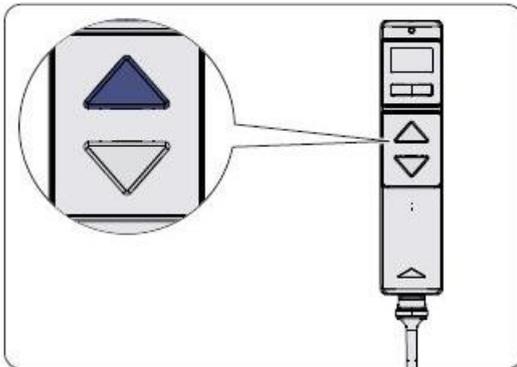
- 3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



- 4 The OK! shown on the display confirms the change to the technician control level.



- 5 Select the washing position function by pressing the toggle switch. The washing position symbol will appear on the display.

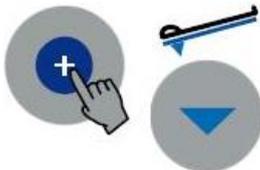


- 6 Press either the DOWN or UP button. An acoustic signal confirms that: The position set is now saved as the washing position.

- i** If you wish to define a different washing position, set the bed to the new washing position and then carry out the steps described. If you wish to delete the washing position, you can reset the control unit to the factory settings (see Restore Factory Settings » 62), but note that by doing so, all settings will be reset to the factory default settings.

12.3.1.3 On the Control Box

If an LCD handset is not available, set the washing position here (see Trendelenburg Position on the Control Box » 81)



- 1 Press the unlock button and the Trendelenburg position button until the full extent or the desired position is reached.

13 Maintenance

As a guideline, we recommend that annual maintenance is carried out by our qualified service engineers. Please consult our service centre.

If the bed is cleaned in an automatic washing system, it may be necessary to carry out inspections and servicing more frequently, depending on the intensity and number of washing procedures. We recommend in any case that the bed is serviced once a year. If cleaning is carried out frequently in an automatic washing system, servicing must be carried out at more frequent intervals and inspections and maintenance after every 25 cleaning cycles.

13.1 Service Address

To order replacement parts in Germany, and for any servicing requirements or other questions, please contact our service centre:

Stieglmeyer GmbH & Co. KG

Ackerstraße 42, 32051 Herford, Germany

Tel.: +49 (0) 5221 185-777

Fax: +49 (0) 5221 185-219

Email: servicezentrum@stieglmeyer.de

Internet: www.stieglmeyer.com

Customers outside Germany can contact our sales distributors in their particular country if they have any questions. Contact details can be found on our website.

13.2 Safety Information on Maintenance



WARNING

- Damage, defects and wear resulting from improper operation and after long-term use cannot be ruled out. These deficiencies can cause hazards if they are not recognised and corrected immediately.
- Before carrying out any maintenance work, please bear in mind that, in order to make any adjustments, the bed must be connected to the mains supply. Remember to disconnect the mains plug from the mains socket when maintenance work is finished. In addition, switch off all the actuators using the control box or locking box.
- Set the bed to the desired position for maintenance, and unplug the mains cable from the socket before beginning any maintenance work.
- If any damage or malfunction is suspected, take the bed out of service at once until it has been repaired or the damaged component has been replaced!
- This bed must not be modified without authorisation by the manufacturer.

13.2.1 Legal Principles

In accordance with EC Medical Device Directive 93/42 EEC and the relevant national laws/regulations which result from this (e.g. in Germany the German Medical Devices Operator Ordinance § 4 (Maintenance) and regulation DGUV A3 (Testing of mobile electrical equipment in industrial use), of the German Statutory Accident Insurance Association), operators of hospital beds are obliged to preserve the safe operating condition of medical products throughout their entire service life. This also includes regularly carrying out expert maintenance as well as safety checks.

In other countries outside Germany or the EU, the relevant national regulations must be complied with!

13.3 Recommended Lubricants

Designation in Table Lubrication Instructions	Manufacturer / Product	Stiegemeyer Order Number
A	Weicon: Allround Lubricant AL-W	190507 (400 ml spray can) 193231 (1000 ml spray can)
B	Klüber: Polylub Gly 801020199	203807 (400 ml cartridge)
C	InnoSelf: Mega Öl with PTFE	212871 (300 ml spray can)
D	Weicon: Biofluid	111926 (500 ml spray can)

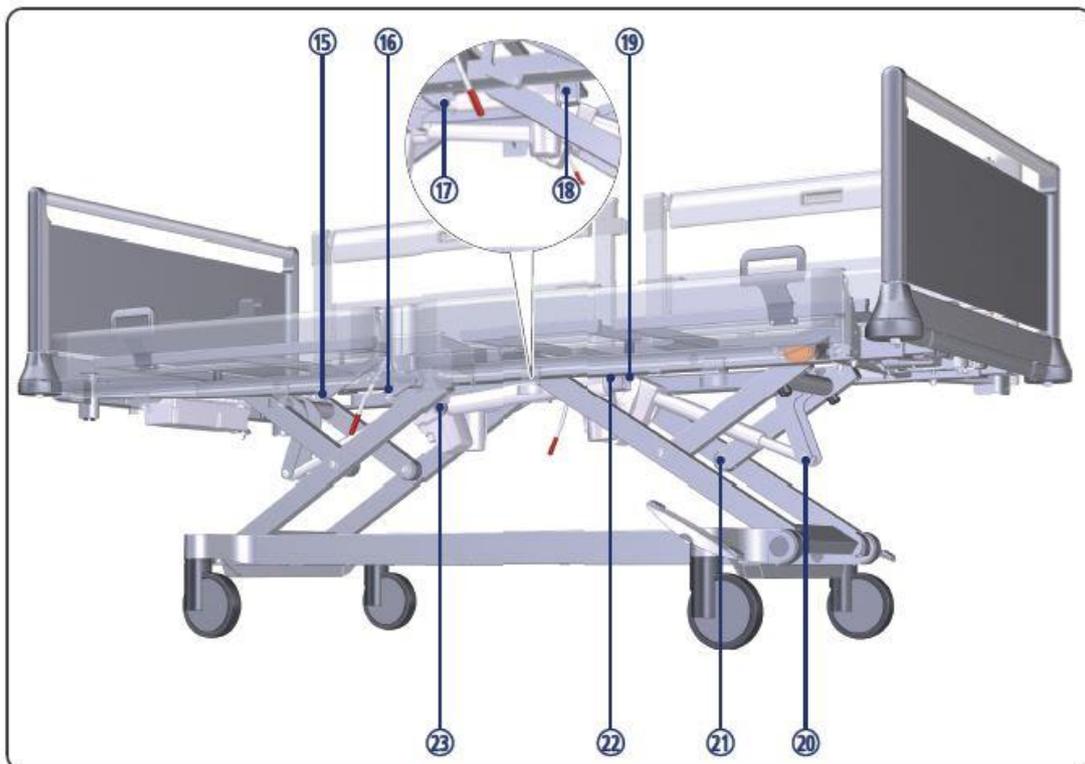
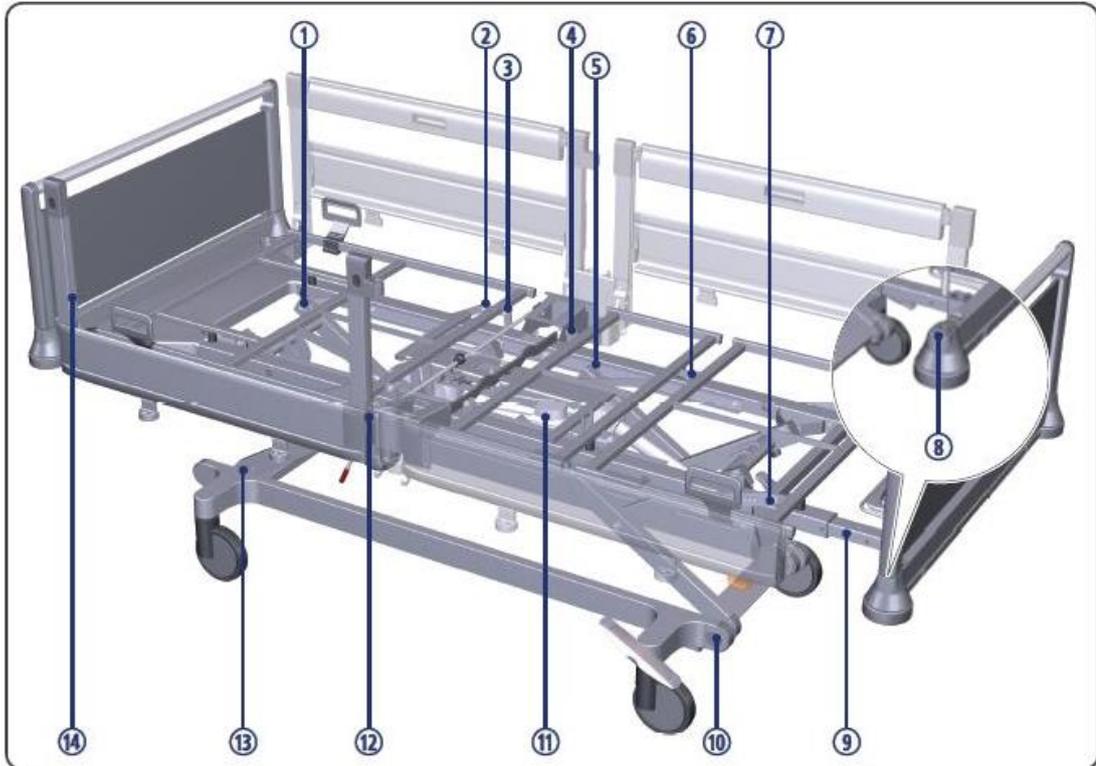
Tab. 2: Lubricants

13.4 Recommended Special Varnishes

Colour	Designation	Stiegemeyer Order Number
silver	Varnish (500g tin)	203803
	Accelerator (100g tin)	203805
white	Varnish (500g tin)	203804

Tab. 3: Special varnishes

13.5 Servicing Points



i This overview applies only for the lubrication that is necessary if the bed is cleaned in an automatic washing system.

Location	Designation	Lubrication Spots	Lubricant
1	Mattress base frame crank	4	C
2	Pivot between backrest and mattress base frame handlebar strap	2	C
3	Pivot between backrest and mattress base frame handlebar strap	2	C
4	Pivot between mattress base frame and thigh rest	2	C
5	Ball-bearings, mattress base frame (check bearings and/or screw for play)	4	A
6	Pivot between thigh rest and lower leg rest	2	C
7	Pivot between lower leg rest and Rastomat	(1)	C
8	Sleeves on headboard/footboard	4	D
9	Bed extension guide (lubrication from inside through a hole in the bottom of the long side)	2	D
10	Chassis pivot, foot end	2	C
11	Lubricate the lifting pipes of the electric adjustment motors and take them once through their entire adjustment travel	4	B
12	Engagement of MultiFlex ⁺ safety side posts	8	C
13	Ball-bearings, chassis at head end, (check bearings and/or screw for play)	2	C
14	Safety side guide (check screw for play)	8	D
15	Pivot between mattress frame and backrest handlebar strap	2	C
16	Pivot between mattress frame and backrest handlebar strap	2	C
17	Lifting pipe take-up, thigh rest motor	1	C
18	Motor eye take-up, thigh rest motor	1	C
19	Motor eye take-up, height adjustment motor	2	C
20	Lifting pipe take-up, height adjustment motor	2	C
21	Chassis support and mattress base frame crank	4	C
22	Lifting pipe take-up, height adjustment motor	2	C
23	Lifting pipe take-up, height adjustment motor	2	C

13.6 Servicing Plan

Components	Action	Interval	Information
All screw connections and/or metal safety caps	Check that they are firmly positioned; tighten and/or replace if necessary.	At least once a year	Use suitable tools.
Connecting bolts on the removable headboard and footboard	Clean and slightly grease, if necessary.	At least once a year If machine washed, at least after every 25 washes. Cleaning	Use resin-free and acid-free grease (e.g. grease C).
Pivot and friction bearings	Clean and lightly spray.	As necessary	Use resin-free and acid-free oil spray (e.g. lubricant A).
Bowden cable for CPR release of backrest	Check that they are correctly adjusted and routed.	At least once a year	There must be no sharp bends or kinks!
Lead-acid batteries	Check whether charged and ready for use.	We recommend that lead-acid batteries are replaced after 5 years at the latest (wear and tear part)	Connect bed to mains supply.
Li-ion batteries	Check whether charged and ready for use.	We recommend that rechargeable batteries be replaced after 8 years (wear and tear part)	Connect bed to mains supply.
Earth wires	Check for tears and tightness of screws.	At least once a year	Replace torn or damaged earth wires.
Damaged coating	Touch up any damaged areas of the coating:	As necessary	Special-purpose paint (mechanically stable anti-corrosive protection) in a suitable colour.
O-rings ("sealing rings") on the electric plugs	Always check whether they are present and/or damaged.	Whenever plugs have been disconnected (e.g. after replacing actuators or during troubleshooting)	The plugs of new components are always fitted with a new O-ring.



Replace O-rings with original LINAK O-rings only. Check the corresponding recesses in the plug for dirt or damage, and lubricate with Vaseline, before reinserting the plugs.

We recommend supplementing the specified maintenance work with appropriate preventive measures to further enhance trouble-free and fail-safe operation of the bed. A guide to preventive replacement of potentially relevant components can be obtained from our service centre:

Contact info: » [13.1](#)

13.6.1 Periodic Inspection

For motorised beds we recommend, as a guideline, that an annual DGUV A3 inspection be carried out by our qualified Service Centre staff, with a certificate of adherence to the 2% error rate (see also the DGUV A3 accident prevention regulations: § 5, Table 1B).

IMPORTANT

Qualification of Inspectors

In accordance with EN 62353:2008 (VDE 0751-1) (Association of German Electrical Engineers – Regulation 0751-1), the inspection results may only be evaluated and documented by experts (a qualified electrician or, with the use of suitable measuring devices, a person instructed in electrical matters as defined by DGUV A3) with the corresponding knowledge, training and experience. Such persons must also attest that they have knowledge of the beds that are to be inspected and of the relevant regulations (medical products act, operator ordinance, safety regulations, instruction manuals, etc.).

Proceed in the following order when testing according to EN 62353 (VDE 0751-1):

- 1 Visual inspection
- 2 Electrical measurement
- 3 Performance inspection

CAUTION

Risk of Injury

If any safety-relevant damage or malfunction is suspected during testing in accordance with DIN EN 62353 (VDE 0751-1), take the bed out of service at once until it has been repaired or the damaged components have been replaced!

A repeat inspection must be carried out in accordance with the test sheet to determine whether the damage or malfunction has been rectified.

Only then have the requirements for continued operation been met.

An inspection sheet template for testing in accordance with DIN EN 62353 (VDE 0751-1) is given in the appendix: Inspection Report » [146](#).

14 Replacement of Electrical Components

14.1 Safety Information



WARNING

Danger of Death Due to Electric Shock!

- Any work and/or repairs to the electrical equipment may only be carried out by Stieglmeyer service engineers, the actuator manufacturer or qualified and authorised electricians in compliance with all relevant VDE and safety regulations!
- On no account should the user attempt to rectify malfunctions in the electrical system!
- Before commencing any work on electrical equipment, always unplug the mains cable from the electrical socket!



WARNING

Crushing Hazard Due to Falling Mattress Base Parts

The bed must be in the home position (with the mattress base horizontal) in order to remove the control unit and the actuators.



WARNING

Risk of Injury Due to Faulty Maintenance

- The components (control unit, actuators, LCD handset, control box, locking box) of the electrical actuator system are maintenance-free and must not be opened. If a malfunction occurs, the relevant component must be replaced in its entirety!
- When replacing individual components, make sure that the plugs have undamaged O-rings (for sealing) and are pushed into the control unit as far as they will go. This is the only way to ensure proper sealing and faultless operation.
- Do not wrongly connect the motor connections at the control unit. This can lead to malfunctions or even result in mechanical damage to the actuators due to the system not switching off at the end position.
- After replacing the control units and/or the attached actuators for adjusting the mattress base height, always initialise the control unit (= re-align the electronic path measurement for these actuators). This sets a new reference point in the control unit for correctly measuring the path and avoids faults or damage to the lifting mechanism.

-  The component plugs are connected to the corresponding control unit. To prevent the plugs from being inadvertently disconnected, they are secured with a locking device. This device can be carefully lifted off using a screwdriver if necessary.
-  The control unit sockets should be lightly greased inside with Vaseline. The plugs can then be inserted more easily and the O-rings provide a better seal.
-  The locking device must always be properly refastened.

14.2 Replacing the Battery (Lead-Acid/Li-Ion)

- For safety reasons, only the complete battery units can be exchanged.
- Their housings are fully welded and cannot be opened.
- When the battery is exchanged, the type of battery can be changed without any problem - this enables you to change over to modern lithium ion technology at a later date.
- Spare parts can be obtained from Stieglmeyer.

CAUTION

Risk of Crushing

For safe and easy installation, move the mattress base and the backrest to the highest position.

- 1 Unplug the mains cable.
 - The battery is attached to the CO61 control unit from below with a snap system.
- 2 Press the clip upwards and take the battery out toward the side.
Unfasten the lock on the battery lid (use a fine flat-head screwdriver to do so).
- 3 Disconnect the plug from the battery.
- 4 Replace the lithium-ion/lead-acid battery with an identical one.
- 5 Attach the battery (carry out installation in reverse order)
- 6 Test the function of the power adjustments!
- 7 Charge the batteries. To do so, connect the bed to the mains supply for at least 8 -10 hours. Only then is the battery ready for emergency use without restriction.

14.3 Connecting the Protective Earth Wire (Earth Terminal)

The control unit has a 3-pole mains cable with an earth wire. The earth wire is connected to the mattress base frame. After replacing the control unit, this connection must be re-established.

i Please note the following: The mattress frame is also earthed through connection to the mattress base frame (A and B). The earth wire for the mattress frame must be detached whenever the mains power cable is replaced, and must therefore be reconnected afterwards.

Proceed as follows:

- 1 Insert the earth wire, serrated washers (serrations towards the mattress base frame) and plain washer onto the threaded potential equalisation pin in the order shown.
- 2 Tighten the pin in the threaded sleeve (C) on the mattress base frame (torque: 1.5 Nm).

i Similar to illustration!

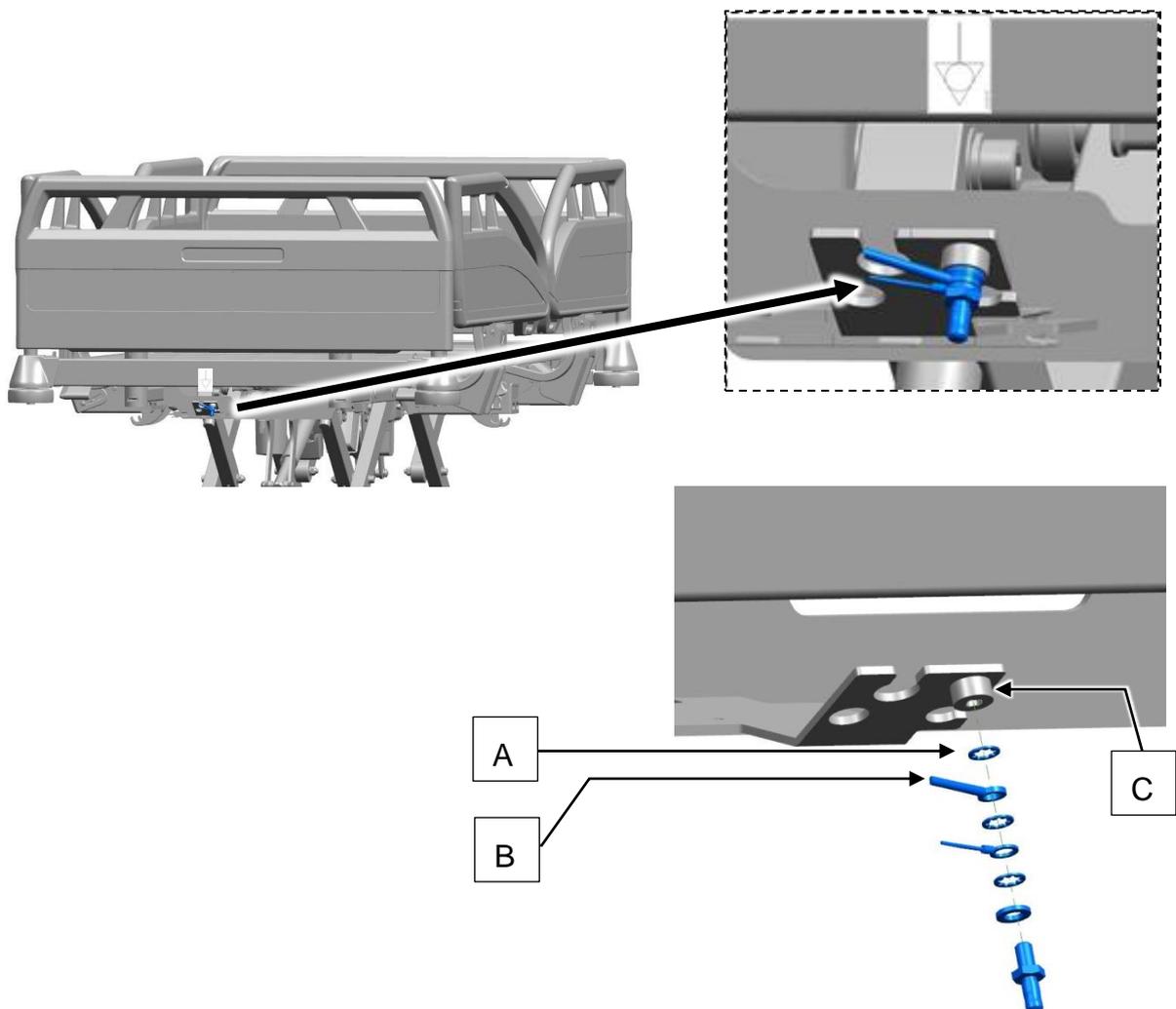


Fig. 24: Earth wire

14.4 Replace LCD Handset

- 1 If possible, adjust the bed to its highest position to make work easier.
- 2 Unplug the mains cable.
- 3 Take the retaining lever directly out of the handset socket (or from the securing clip in the interconnected under bed light (optional) under the centre of the mattress base).
- 4 Pull the LCD handset plug out of the handset socket/out of the under bed light.
- 5 Insert the new LCD handset plug into the open socket/under bed light as far as it will go. Make sure that the plug is correctly aligned (plug groove aligned with the protrusion in the socket).
- 6 Make sure that the O-ring on the plug is not damaged. This ring ensures that the plug is tightly sealed.
- 7 Fit the retaining lever (handset-socket) or clip (under bed light) back into place.
- 8 When routing the LCD handset cable, ensure that it cannot be damaged by any moving parts of the bed.
- 9 Programme the LCD handset (see Programming the LCD Handset» [123](#))
- 10 Test the function of the power adjustments!

14.5 Replace Mains Cable

- 1 For easy installation, move the mattress base to the highest position.
- 2 Unplug the mains cable.
- 3 At the head end of the chassis, release the strain relief for the mains cable.
- 4 Remove the mains cable from the holders.
Disconnect the earth wire connection (see Chapter Connecting the Protective Earth Wire (Earth Terminal) » [120](#)).
- 5 Draw the IEC connector out of the control unit. To do this, use a screwdriver to slightly press the red security hooks together on the IEC connector.
- 6 Plug the new IEC connector into the control unit.
- 7 The red securing clips must prevent the plug from being disconnected unintentionally from the control unit!
Disconnect the earth wire connection (see Chapter Connecting the Protective Earth Wire (Earth Terminal) » [120](#)).
- 8 Replace the mains cable in the holders.
- 9 Screw the mains cable strain relief back in place.
- 10 Insert the mains plug into an electrical socket. The control unit LED must light up green.
- 11 Carry out an electrical measurement!
- 12 Test the function of the power adjustments!

14.6 Assignment of Control Terminals

The terminals of the control (LINAK CB16 control unit) for the Puro hospital bed are assigned as follows.

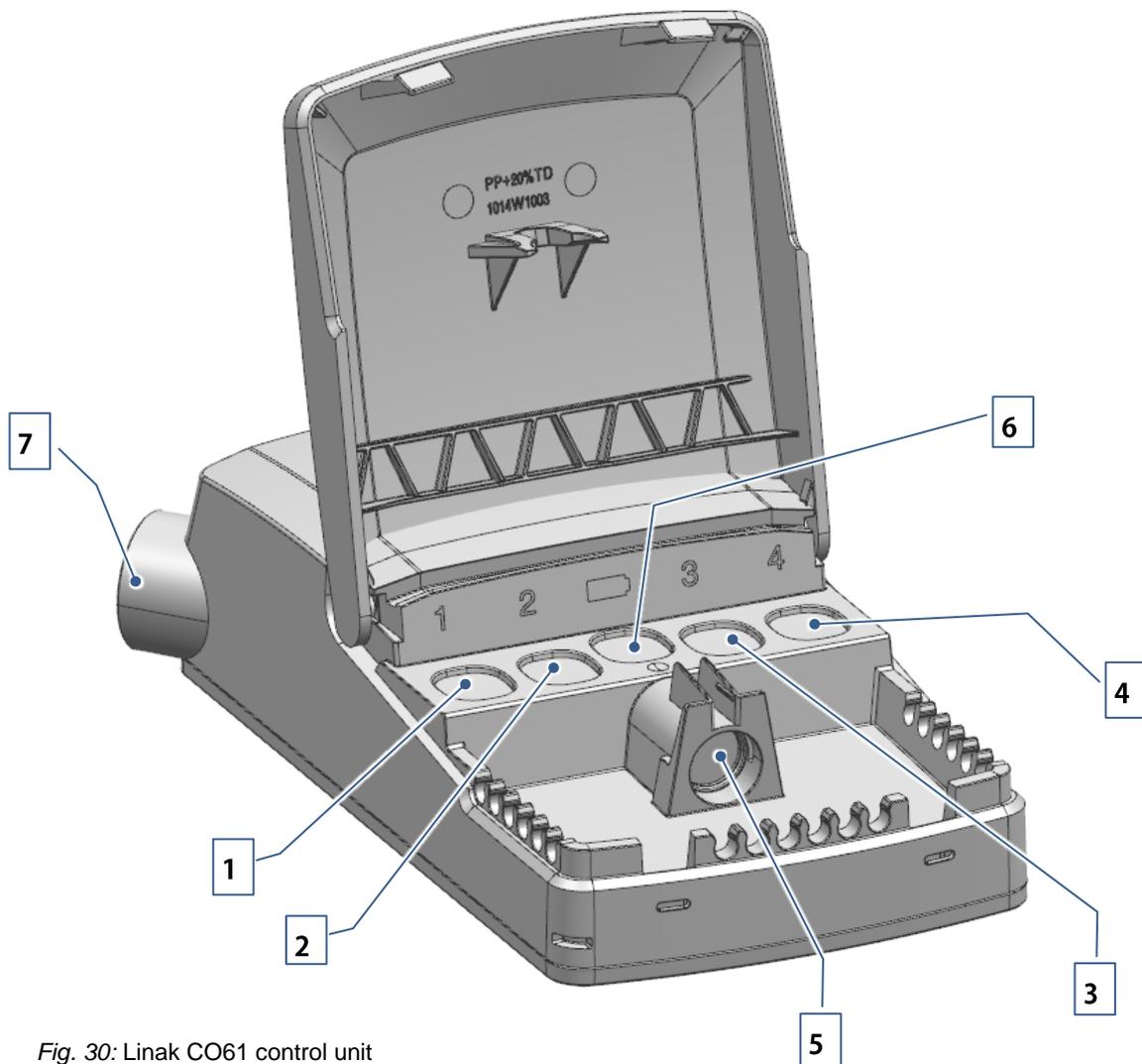


Fig. 30: Linak CO61 control unit

1	Mattress base height, foot end	2	Thigh rest
3	Mattress base height, head end	4	Backrest
5	Handset	6	Battery
7	Power plug		

14.7 Programming the LCD Handset

It is necessary to programme the LCD handset in the following cases:

- If you are connecting a different handset to the existing control,
- If a new control unit is connected.

i During programming, the LCD handset recognises the range of functions of the control unit and is adapted accordingly. The LCD handset will not work unless it has been programmed.

IMPORTANT

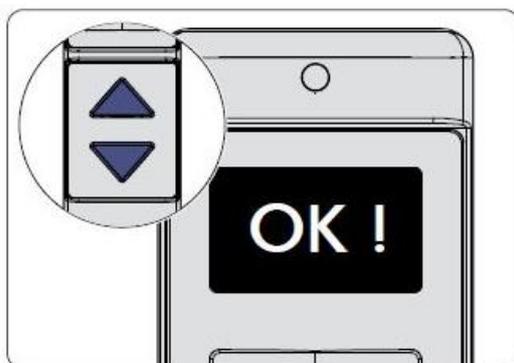
The LCD handset must only be programmed by technical staff or qualified medical staff who have been trained by the operator to do so.



1 The warning triangle symbol is displayed on the LCD handset. All adjustment options are locked.



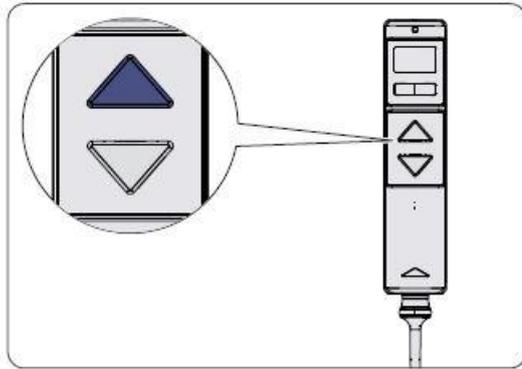
2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly against the magnetic unlocking key at the foot end of the bed.



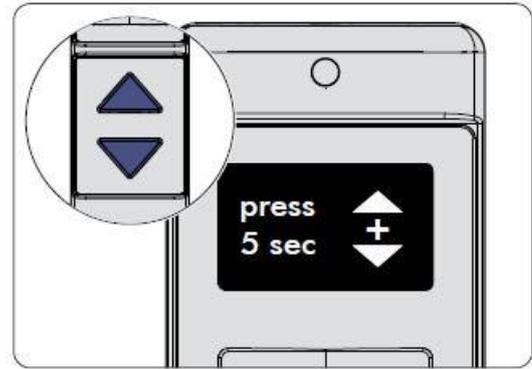
3 Keep both the UP and DOWN buttons pressed for a further 5 seconds until OK ! is displayed.



4 Select the RESET function by pressing the toggle switch.



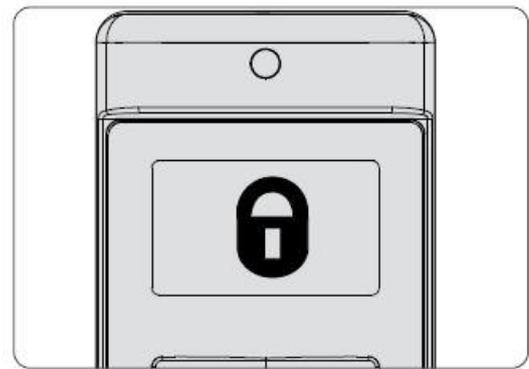
- 5 Press the UP button to confirm that you wish to select the RESET function and to continue the procedure. The display changes.



- 6 Press the UP and DOWN buttons at the same time for 5 seconds.



- 7 The display changes again to the RESET symbol. Keep both buttons pressed until the display changes from RESET to OK! The RESET has now been successfully completed.



- 8 The padlock symbol is displayed. You can now enable the functions you wish to unlock for the patient.

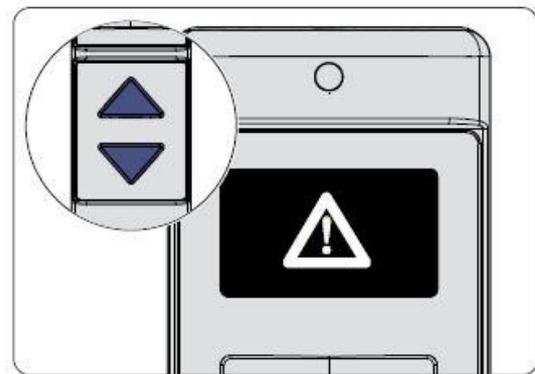
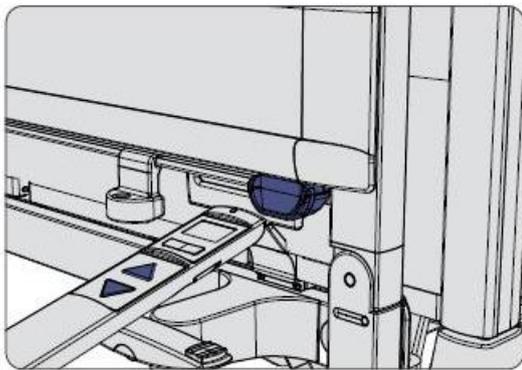
14.8 Initialising the Control

If a new control unit is fitted or if one or both lifting actuators are replaced, a reference run must be carried out to initialise the control unit!

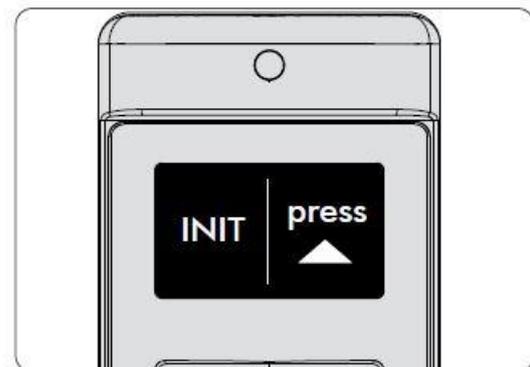
IMPORTANT

The initialisation procedure must only be carried out by technical personnel (technician control level on the LCD handset).

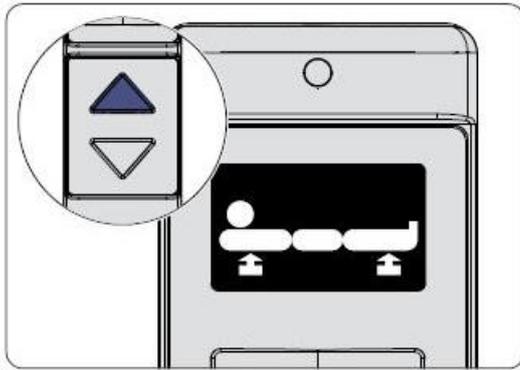
- 1 Plug the mains cable from the control into the electric socket.



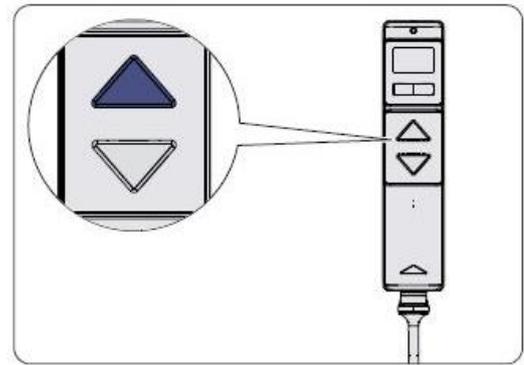
- 2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly against the magnetic unlocking key at the foot end of the bed.
- 3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



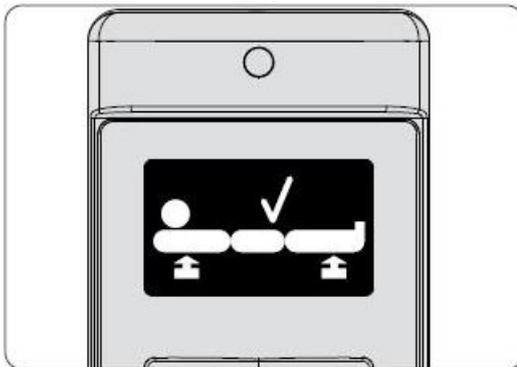
- 4 The OK! shown on the display confirms the change to the technician control level.
- 5 Select the initialisation function by pressing the toggle switch.



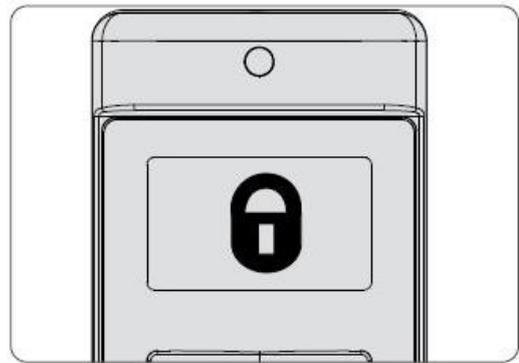
- 6** Press the UP button on the LCD handset. The height adjustment actuator symbol will appear on the display.



- 7** Press the UP button until the bed is raised to its full extent. During the adjustment procedure, a signal tone indicates that a reference run is being carried out.



- 8** After the reference run has been completed, the lifting actuator OK symbol appears. Confirm this by pressing the UP button.



- 9** The padlock symbol appears on the display. You can now unlock the functions you wish to enable for the patient (see On the LCD Handset » 67).

15 Rectifying Faults

15.1 Faults and their Rectification

Problem	Possible Causes	Rectification
LCD handset/actuator system not working	Mains cable not plugged in	Plug mains cable in; mains power LED must light up (green) on the control unit
	No power supply to socket	Check socket and fuse box
	Plug not inserted properly	Check connector plugs
	Actuators locked out	Enable functions
	LCD handset, mains cable or control unit is defective	Inform your operator about any necessary repairs
LCD handset / foot pedal not functioning, adjustments are enabled	LCD handset faulty	Replace LCD handset
	Foot pedal has not been separately enabled	Enable foot pedal Inform your operator about any necessary repairs
Newly connected LCD handset not in use	LCD handset not programmed	Programme LCD handset (see Chapter 14.7 » 123).
Operation using battery not possible	Battery discharged	Connect the bed to the mains supply for approx. 8 hours
	Battery not inserted properly	Check the plug/cable routing
	There is no rechargeable battery	Retrofit a battery
Constant signal tone sounds during adjustment	Battery capacity depleted	Connect bed to the mains supply to recharge the battery as soon as possible
Operation with sufficiently charged battery only possible for a short time	End of battery life reached	Exchange the control unit; inform your operator about any necessary repairs
Operation is not possible despite proper power supply	Control unit has shut down due to overheating	Let control cool down for about 20 minutes, then test it again (see Chapter 5.1.2 » 16)
	Control unit defective	Exchange the control unit; inform your operator about any necessary repairs

Problem	Possible Causes	Rectification
Manual CPR release of backrest is not possible	Bowden cables are too loose or not attached	Readjust at the release lever or secure them
	Bowden cable is kinked	Insert new Bowden cables; inform your operator about any necessary repairs
Mains control lamp in control unit does not light up	No power supply to socket	Use an electric socket that is working properly
	Mains cable damaged	Replace the mains cable
	Fuses in control unit defective	Exchange the control unit; inform your operator about any necessary repairs
Actuator runs for a brief time only, then stops; can then only be activated in the opposite direction.	Actuator overloaded	Remove the overload (briefly operate actuator in the opposite direction), then retest
	One or more motors are not connected	Connect all motors
 Control unit is not functioning; locking LEDs flashing on locking box/ control box (for detailed fault indication, see Chapter 15.4 » 132)	There is a problem with the control unit. For safety reasons, all functions are locked.	Unlock the control unit; if fault occurs again: Have actuator system checked. Inform your operator about any necessary repairs
Height adjustment and tilting not functioning; signal tone sounds during adjustment	Control unit has “forgotten” the actuator positions	Align the control unit

Tab. 5: Faults and their rectification

15.2 Fault Display on LCD Handset

Faults in the actuators and the LCD handset are indicated on the handset display. An overview of the indications displayed is given in the table below.

Indication on LCD Handset	Type of Fault	Solution
	General fault indication on LCD handset. Adjustment actuator cannot be activated. A signal tone sounds when a button is pressed.	Open the technician control level on the handset. A more detailed fault indication is given there (see Acknowledging Faults on LCD Handset »_130).
	LCD handset faulty	Replace LCD handset
	Internal control fault (very rare)	Replace control unit
	Height adjustment fault (actuator at head end)	Check cable + plug Replace motor
	Height adjustment fault (actuator at foot end)	Check cable + plug Replace motor
	Height adjustment fault in both actuators	Check cable + plug Replace motor
	Backrest actuator fault	Check cable + plug Replace motor
	Thigh rest actuator fault	Check cable + plug Replace motor

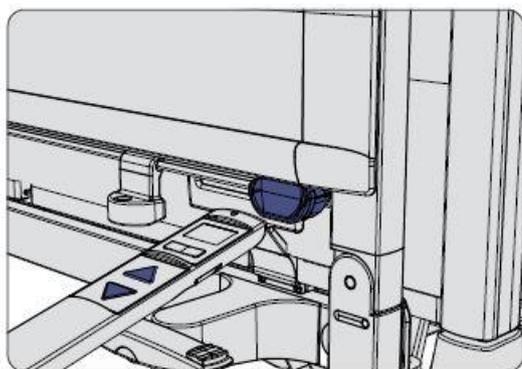
15.3 Acknowledging Faults on LCD Handset

IMPORTANT

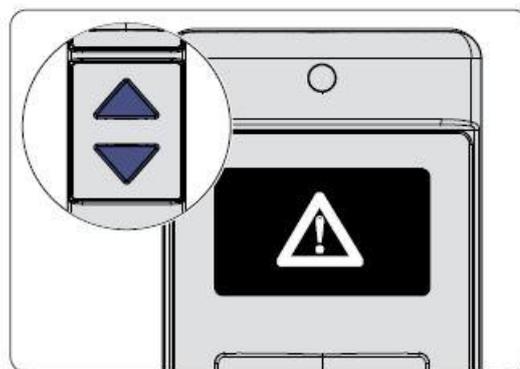
Faults must only be rectified by service personnel.

- Rectify faults as instructed in the fault rectification table. Faults must not be acknowledged until this has been done.

A fault is indicated on the handset by a warning symbol. All adjustment functions on the handset are locked until the fault has been rectified and acknowledged on the handset. If the patient presses a button, a signal tone indicates a fault.



- 1 Press the UP and DOWN buttons simultaneously, and at the same time hold the top end of the handset briefly against the magnetic unlocking key at the foot end of the bed.



- 2 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



- 3 By switching to fault mode, the first fault indication is displayed immediately (example: symbol for height adjustment actuator fault).

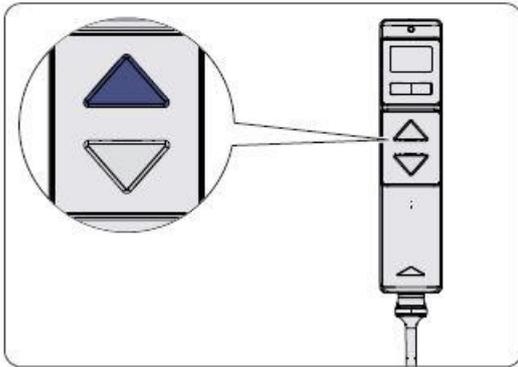
Rectify the fault that has occurred.



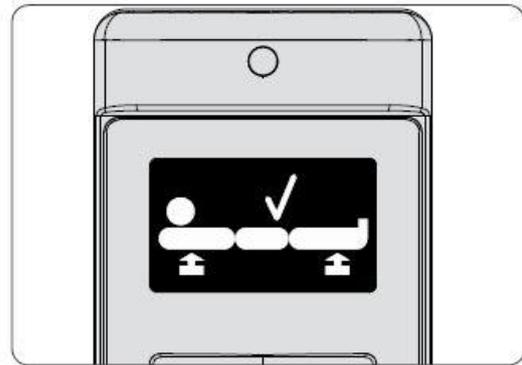
- 4 Select the CLEAR function by pressing the toggle switch.

Rectifying Faults

Acknowledging Faults on LCD Handset



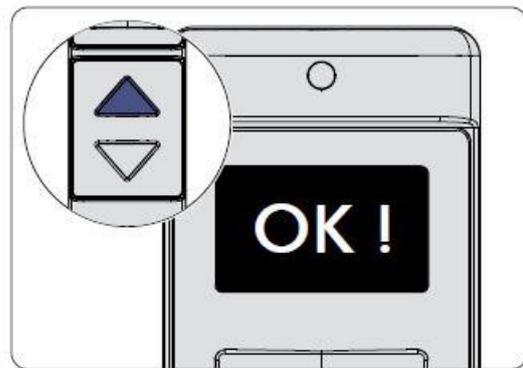
- 5** Press the UP button to confirm that the fault has been rectified.



- 6** The fault is acknowledged and a corresponding symbol appears on the display. If there are additional faults, the next fault will be shown on the display.



- 7** When all faults have been rectified, the indication OK ! will be displayed.



- 8** Confirm the OK indication by pressing the UP button. The control then carries out all the new settings required for acknowledging the faults (e.g. any necessary re-initialisation through a reference run).

After the acknowledgement procedure has been completed, the padlock symbol appears. You can now enable the functions you wish to unlock for the patient.

15.4 Fault Indication on the Control Box and Locking Box

For safety reasons, if a serious error is detected, the functions concerned are electronically locked.

The various faults below are displayed by the locking LEDs flashing on the control box/locking box and this makes it easier to rectify the fault.

The table below shows the fault indications on the control box and the locking box as well as possible solutions

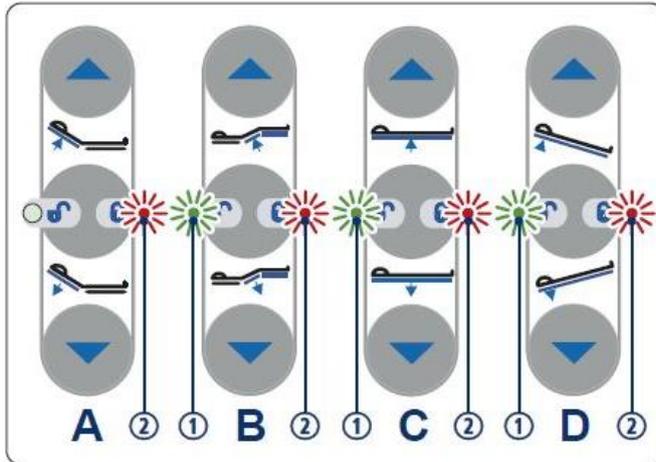


Fig. 26: Fault indications on locking box

A2	B1	B2	C1	C2	D1	D2	Signal Tone When Button Pressed	Error	Solution
	X	X						Thigh rest motor (socket 2) limit switch	Check cable + plug, replace motor
			X	X				Mattress base height motor limit switch, head end (socket 1)	
			X	X			X	Position sensor for mattress base height motor, head end (socket 1)	
					X	X		Mattress base height motor limit switch, foot end (socket 3)	
					X	X	X	Position sensor for mattress base height motor, foot end (socket 3)	
X		X		X		X		LCD handset fault, internal control unit fault	Replace LCD handset, replace control unit

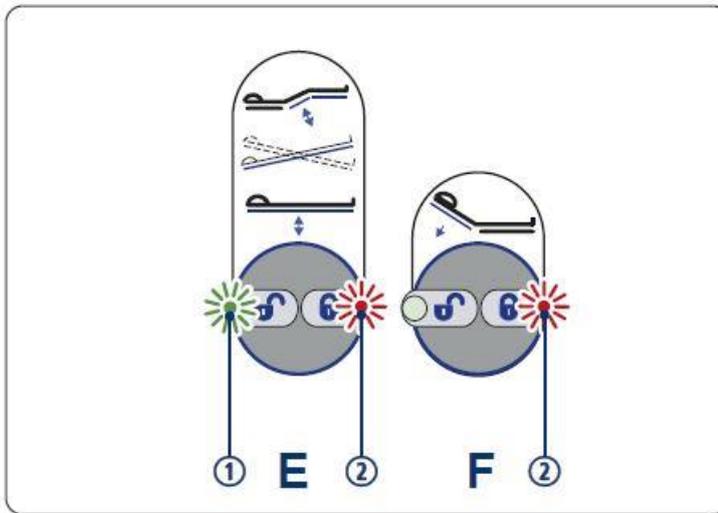


Fig. 27: Fault indications on locking box

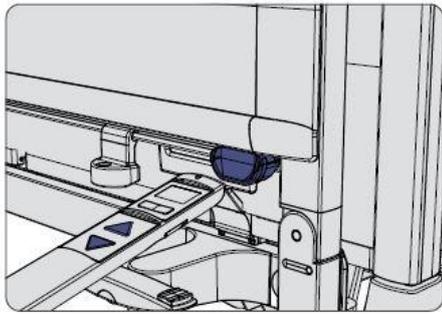
E1	E2	F2	Signal Tone When Button Pressed	Error	Solution
X	X			Motor limit switches (sockets 1;2 or 3)	Check cable + plug, replace motor
X	X		X	Motor position sensors (sockets 1;2 or 3)	
	X	X		LCD handset error, An internal fault in the control unit	Replace LCD handset, replace control unit

i Acknowledge the fault indication on the LCD handset after the fault has been rectified (see Acknowledging Faults on LCD Handset » 130). This will normally be followed by the necessary control RESET and, in the case of faults in the position sensors of the actuators, additionally the reprogramming of the LCD handset in a guided step-by-step procedure.

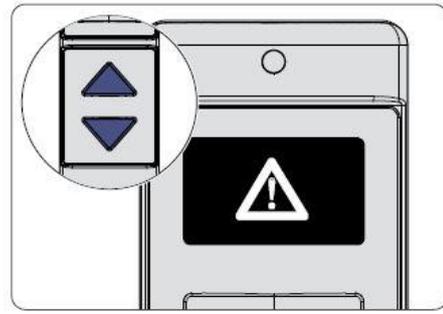
15.5 Displaying Last Fault on LCD Handset

The fault indications can only be called up and deleted by service personnel (technician control level on the LCD handset).

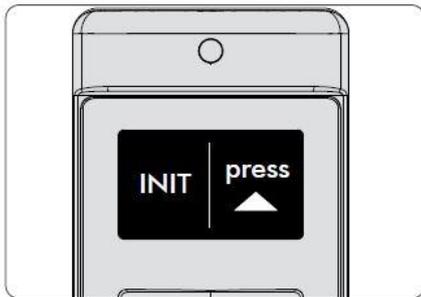
Call up and display the last fault on the LCD handset as follows:



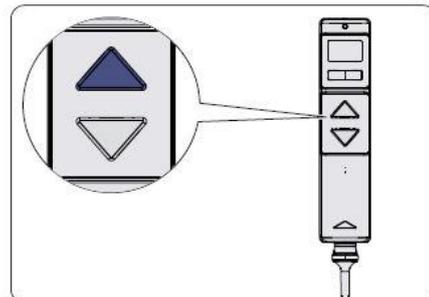
- 1 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly against the magnetic unlocking key at the foot end of the bed.



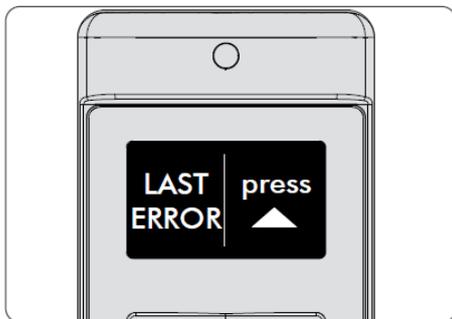
- 2 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.



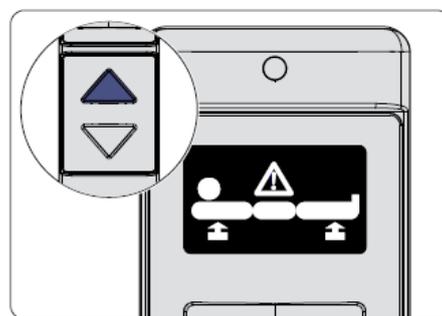
- 3 Select the initialisation function by pressing the toggle switch.



- 4 Press the UP button.



- 5 The last error function will appear on the display.



- 6 Press the UP button again to display the last fault. The symbol for the last fault that occurred will be displayed (example: symbol for height adjustment actuator fault).

Press any button to return to the function selector menu.

15.6 Unlocking the Control Unit

For safety reasons, if a serious error is detected by the control unit the functions concerned are electronically locked.

WARNING

Risk of Injury

- If the control unit automatically locks again within a short space of time, contact Stieglmeyer's Customer Service to rectify the cause of the fault.
- ↳ Ignoring this safety cut-out function, for instance, by repeatedly resetting the control unit without rectifying the cause of the fault, may result in endangering the patient due to inadvertent actuation of the control unit.

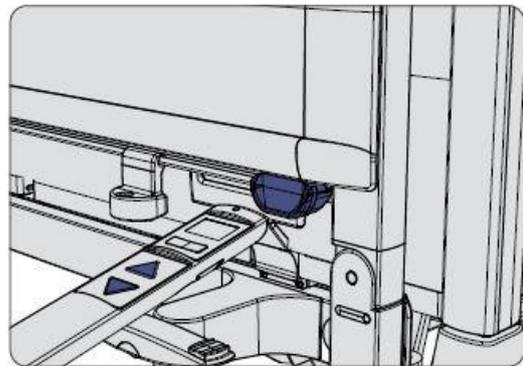
If functions have been locked in this way, the locking buttons concerned on the locking box/control box will alternately flash green and orange.

If after a RESET, it is still not possible to carry out a mattress base height adjustment, please additionally carry out an alignment.

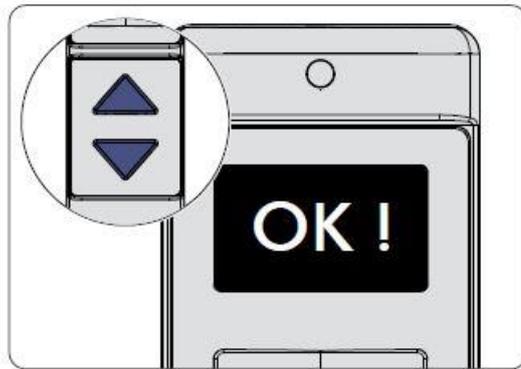
15.6.1 On the LCD Handset



- 1 The padlock symbol is displayed on the LCD handset. All adjustment options are locked.



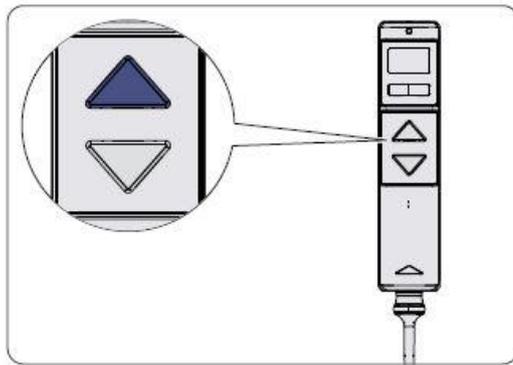
- 2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly against the magnetic unlocking key at the foot end of the bed.



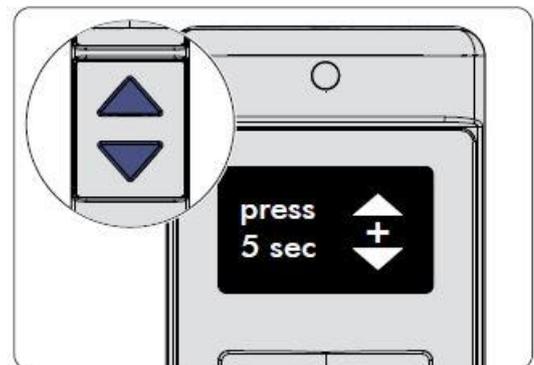
- 3** Keep both the UP and DOWN buttons pressed for a further 5 seconds until OK ! is displayed.



- 4** Select the RESET function by pressing the toggle switch.



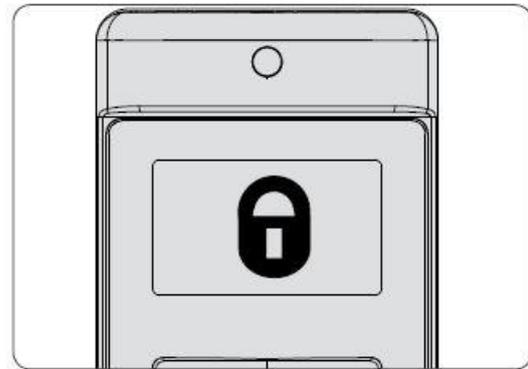
- 5** Press the UP button to confirm that you wish to select the RESET function and to continue the procedure. The display changes.



- 6** Press the UP and DOWN buttons at the same time for 5 seconds.

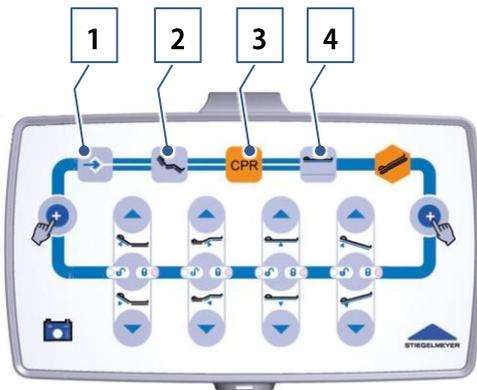


- 7 The display changes again to the RESET symbol. Keep both buttons pressed until the display changes from RESET to OK! The RESET has now been successfully completed.



- 8 The padlock symbol is displayed. You can now enable the functions you wish to unlock for the patient.

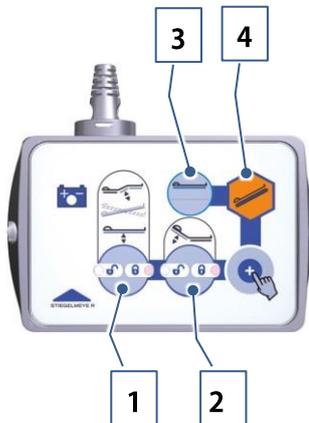
15.6.2 On the Control Box



- 1 Press buttons 1 - 4 one after the other in the order 1+2+3+4 and keep them pressed. A signal tone will sound. Unlocking is successfully completed once the signal tone has stopped.
- 2 Let go of the buttons.

i After the reset has been successfully completed, all the functions will initially be locked again: All symbols on the control box will light up orange

15.6.3 On the Locking Box



- 1 Press buttons 1 - 4 one after the other in the order 1+2+3+4 and keep them pressed.
A signal tone will sound. The reset is successfully completed once the signal tone has stopped.
- 2 Let go of the buttons.

i After the reset has been successfully completed, all the functions will initially be locked again: All of the symbols on the locking box will light up orange

16 Disposal

WARNING

Risk of Infection

The operator must ensure that all components of the bed that are to be disposed of are not infectious or contaminated.

16.1 Disposal of the Bed

If the bed is to be disposed of, the plastic and metallic parts must be separated and disposed of properly in accordance with relevant local and national environmental regulations and legislation of the town or country concerned. If you have any queries, you can contact your local municipal waste company or our service department.

16.2 Disposal of Packaging

Packaging must be sorted according to recyclable and other types of waste and recycled and disposed of in line with the environmental regulations and legislation of the country concerned. Recycling and disposal are governed in the European Union by the EU Waste Framework Directive 2008/98/EC.

16.3 Disposal of Components

16.3.1 Electrical Components

This bed – since it is electrically adjustable – is classified as (type b2b) industrial electrical equipment in accordance with the WEEE Directive 2012/19/EC (implemented in Germany in the law governing electrical equipment).

The electrical components used are free from prohibited hazardous substances in compliance with the RoHS-II Directive 2011/65/EU.

Replaced electrical components (actuators, control units, LCD handsets, etc.) must be treated as electric scrap in accordance with the WEEE Directive 2012/19/EU and disposed of accordingly.

The operator of this bed is legally obliged to return the electrical components directly to the manufacturer and not to dispose of them at municipal waste collection points. STIEGELMEYER and its service and sales partners will take these components back. The return of these components is covered by our General Terms and Conditions.

16.3.2 Batteries

Rechargeable batteries that are no longer of use must be properly disposed of in accordance with the EU Battery Directive 2006/66/EC and do not belong in household waste.

If you have any queries, you can contact your local municipal waste company or our service centre.

In other countries outside Germany or the EU, the relevant national regulations must be complied with.



CAUTION

Environmental Risk

Batteries must not be disposed of as household waste.

- Batteries can be returned to Stiegemeyer or disposed of at local waste collection points.



Please also observe the special safety information in the Chapter "Safety Instructions for Putting into Service" » 21.

17 Appendix

17.1 Available Accessories

A wide range of accessories is available for the Puro hospital bed, and we are continually extending this range.



CAUTION

Risk of Injury

Efficient and safe operation combined with maximum protection of patients can only be guaranteed if original Stiegemeyer accessories are used which are designed for the relevant model of bed.

IMPORTANT

Preventing Damage to Property

In order to minimise any potential damage to property, please read and refer to the following general information on selecting and attaching accessories.

- Attach accessories only while these are required and only at the positions intended for them in such a way as to avoid damaging the surfaces of the bed and accessories. Avoid, for example, chafing or the unprotected attachment of metal clamps to coated or varnished surfaces.
- Please note when moving the bed that accessories attached may extend beyond the height, width or length of the bed and so may collide more easily with door frames, corners of walls and other obstructions.
- In the case of very long accessories such as patient lifting poles, infusion poles, extensions, mobilisation aids, etc., avoid applying high lateral forces, such as are possible with this bed design, such as by manoeuvring the bed using the infusion pole. This will prevent any overloading of the fixing points.

Lists of accessories can be obtained from Stiegemeyer and their sales partners, quoting the bed model.

The following accessories are available for the Puro hospital bed:

- Patient lifting pole with grab handle
- Mattresses, various
- Bed extension mattress sections, various
- Holders for crutches, towels etc., various
- Handles, various
- Infusion holders, for attachment to patient lifting pole, various
- Infusion stands for attachment to the bed, various
- Sliding rails, various, for fitting at any time
- Urine bottle holders, various

17.2 EMC Info Tables

To ensure EMC, only use cables and accessories approved by the manufacturer (see Available Accessories » 141)

IMPORTANT

- The use of accessories, sensors or cables other than those approved, with the exception of sensors and cables sold by the equipment manufacturer as replacement parts for internal components, can result in an increase in the transmission level or a reduction in the immunity level of the equipment.
- The equipment may not be used directly next to or on top of other equipment.
- If it is necessary to use the equipment in this way, you must check to ensure that it functions properly in the required configuration.

17.2.1 Guidelines and Manufacturer's Declaration

IMPORTANT

The bed is intended for use in the electromagnetic environment described below. The operator or user of the bed should ensure that it is used in such an environment.

17.2.1.1 Electromagnetic Emissions

Interference Emission Measurements	Compliance	Electromagnetic Environment Guidelines
HF emissions to CISPR 11	Group 1	The bed uses HF energy for its internal functions only.
HF emissions to CISPR 11	Class B	The bed is intended for use in all types of establishment including residential and similar uses that are directly connected to a public supply network that also serves buildings used for residential purposes.
Harmonics according to IEC 61000-3-2	Class D	
Voltage fluctuations/ flicker acc. to IEC 61000-3-3	Complies	
HF emissions to CISPR 14-1	Complies	The bed is not intended for connection to other technical equipment.

17.2.1.2 Electromagnetic Immunity

Interference Immunity Tests	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidelines
Electrostatic discharge (ESD) according to IEC 61000-4-2	+/- 6 kV contact discharge	+/- 20 kV contact discharge	Floors should be made of wood and concrete or be tiled with ceramic tiles. If the floor is covered with synthetic flooring material, the relative air humidity must be at least 30%. Can be used when higher ESD levels are present.
	+/- 8 kV air discharge	+/- 20 kV air discharge	
Short, transient electrical disturbances / bursts according to IEC 61000-4-4	+/- 2 kV for mains cables	+/- 2 kV for mains cables	The quality of the supply voltage should be equivalent to that of a typical business or hospital environment.
	+/- 1 kV for input and output cables	Not applicable	
Surges according to IEC 61000-4-5	+/- 1 kV transversal voltage	+/- 1 kV transversal voltage	The quality of the supply voltage should be equivalent to that of a typical business or hospital environment.
	+/- 2 kV longitudinal voltage	+/- 2 kV longitudinal voltage	
Voltage dips, short interruptions and fluctuations in the supply voltage according to IEC 610004-1-1	<5% U_T (>95% dip in U_T) for half a period	<5% U_T (>95% dip in U_T) for half a period	The quality of the supply voltage should be equivalent to that of a typical business or hospital environment. If the person using the bed requires that the bed functions must continue despite any interruptions in the energy supply, it is recommended that the bed be connected to an uninterruptible electricity supply or a battery.
	40% U_T (60% dip in U_T) for 5 periods	40% U_T (60% dip in U_T) for 5 periods	
	70% U_T (30% dip in U_T) for 25 periods	70% U_T (30% dip in U_T) for 25 periods	
	<5% U_T (>95% dip in U_T) for 5 periods	<5% U_T (>95% dip in U_T) for 5 periods	
Supply frequency magnetic fields (50/60Hz) according to IEC 61000-4-8	3 A/m	3 A/m	Magnetic fields with a network frequency should be equivalent to those to be found in a typical business or hospital environment.
Note:	U_T is the AC network voltage before the test level is applied		

Interference Immunity Tests	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidelines	
			Portable and mobile radio devices should not be used in closer proximity to the BED, including the cables, than the recommended protection distance calculated using the equation for the appropriate transmission frequency. Recommended protection distance:	
Conducted HF interference according to IEC 61000-4-6	3 V _{eff} 150 kHz to 80 MHz	3 V _{eff} 150 kHz to 80 MHz	d = 1.2 √P	
Radiated HF interference according to IEC 61000-4-3	3 V/m 80 MHz to 2500 MHz	3 V/m 80 MHz to 2500 MHz	d = 1.2 √P	for 80 MHz to 800 MHz
			d = 2.3 √P f	for 800 MHz to 2.5 GHz
			with P as the maximum rated power of the transmitter in watts (W) according to the manufacturer of the transmitter and d as the recommended protection distance in metres (m). According to an in-situ test ^a , the field strength of stationary radio transmitters should be lower, for all frequencies, than the compliance level ^b Interference is possible when in the vicinity of equipment bearing the following sign.	
				
Note 1:	The higher frequency range applies for 80 MHz and 800 MHz.			
Note 2:	These guidelines may not be applicable in all circumstances. The propagation of electromagnetic interference is affected by buildings, objects and people due to absorption and reflection.			
a	The field strength of stationary transmitters, such as base stations for cordless telephones and for public mobile radio devices, amateur radio stations, and AM and FM radio and television transmitters cannot be predicted exactly by theoretical means. In order to determine the electromagnetic environment with regard to the transmitter, a study of the location should be considered. If the field strength measured at the location where the BED is to be used exceeds the upper compliance limit, the BED should be observed to check that it functions properly. Should any unusual performance characteristics be observed, additional measures could be necessary, such as turning the bed or moving it to a different location.			
b	Across the frequency range of 150 kHz to 80 MHz, the field strength should be less than 3 V/m.			

Recommended Protection Distances Between Portable or Mobile HF Communication Devices and the Bed

IMPORTANT

The bed is intended for use in an electromagnetic environment in which radiated HF interference is controlled. The operator or user of the bed can help to avoid electromagnetic interference by keeping a minimum distance between the bed and any portable or mobile communications devices (transmitters) – depending on the output rating of the communications device, as described below.

Power Rating of the Transmitter [W]	Protection Distance (d) Dependent on the Transmission Frequency [m]		
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 2.3 \sqrt{P}$
0.01	0.2	0.2	0.3
0.1	0.4	0.4	0.8
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters whose maximum power rating is not listed in the above table, the distance can be determined using the equation given in the relevant column, where P is the maximum power rating of the transmitter in watts (W) as stated by the manufacturer of the transmitter.			
Note 1:	The higher frequency range applies for 80 MHz and 800 MHz.		
Note 2:	These guidelines may not be applicable in all circumstances. The propagation of electromagnetic interference is affected by buildings, objects and people due to absorption and reflection.		

17.3 Inspection Report

Inspection Report following an Inspection of Electromedical Equipment according to DIN EN 62353 (VDE 0751-1): 2015-10			
Customer / med. facility / practice:			
Address:			
Carried out:	<input type="checkbox"/> Repeat inspection	<input type="checkbox"/> Inspection prior to initial operation (reference value)	
	<input type="checkbox"/> Inspection following repairs/servicing		
Equipment type: <input checked="" type="checkbox"/> Hospital bed	<input type="checkbox"/> Care bed	Protection class: <input checked="" type="checkbox"/> I	<input type="checkbox"/> II
Bed type: Puro	Inventory number:		
Location:	Serial number:		
Manufacturer: Stiegemeyer GmbH & Co.	User-specific parts: none		
Testing equipment used (type/inventory no.):	1. _____		
	2. _____		
MP-RL 93/42 Classification: Class I type B			

I. Visual Inspection		Ok	Not Ok	Description of Defect
What to Check...	Check for...			
Visual Inspection of the Electrical Components (if Installed)				
Control unit / power pack:	Type plate: Available, legible			
	Housing: Securely fixed, No cracks / damage All plugs inserted and locked in securely?			
Motors:	Housing and lifting tubes: No cracks / damage / deformation?			
Handset/foot pedal	Housing + keypad + display: No damage?			
Internal cabling: Motor cable, handset cable, mains cable, additional component cables	No damage, securely fixed, safe routing of cable without risk of it being crushed when bed is moved, mains cable holder available			

I. Visual Inspection		Ok	Not Ok	Description of Defect
What to Check...	Check for...			
Visual Inspection of the Mechanical Components (if Installed)				
Type plate + warning labels on bed	Available on bed frame, legible			
Patient lifting pole, adaptor sleeves Grab handle with strap	No damage or deformation			
Manufacturer's recommendation: Replace grab handle after 5 years				
Bed frame: Mattress base, chassis	No damage, deformation, no split welded seams			
Castors	No damage			
Mattress Base	No damage or deformation			
Safety sides	No damage, cracks or deformation			
Connecting elements (screws, bolts, nuts, safety caps)	Fixed position, completeness			
Wearing parts, Movable joints	No damage or severe wear			
II. Electrical Measurement				
	Limit value	Measured value		
Resistance of earth wire Measuring point: PE pin on the bed, head end. Measuring current ≥ 2 A	0.3 Ω	Ω		
Leakage current of device, direct/ difference (place bed with conductive castors in a way that it is insulated).	0.5 mA			
1 Plug the bed mains cable in the test socket on the measuring instrument.				
2 Connect the measuring instrument probe to the PE connector (mattress base, head end).				
3 For the duration of the measurements, activate the motors using the handset.		mA		

III. Performance Check:		Ok	Not Ok	Description of Defect
What to Check...	Check for...			
Performance Inspection of the Electrical Components (if Installed)				
Battery powered; capacity of battery (optional equipment)	Requirements: Battery is charged + bed is disconnected from power supply: Test: Load bed with approx. 80 kg (=1 person); min. 2 cycles height adjustment Up/Down until cut-out must be possible			
End of travel cut-out for motors	Automatic cut-out in both end positions			
Handset, foot pedal; control units, locking functions	Test according to instruction manual. No 'rattling' when shaken			
Motors	No abnormal noise level, no uneven running			
	Backrest motor and manual CPR release			
Control unit / Power pack and motors	Test according to instruction manual			
Strain relief of mains cable	Mains cable firmly fastened			
Performance Inspection of the Mechanical Components (if Installed)				
Joints and pivots	Smooth operation			
Lower leg rest (Rastomat)	Engaged, evenly on both sides Test according to instruction manual			
Grab handle with strap	Securely fixed when load tested under approx. 75 kg load (hang from it briefly with two hands)			
Castors, all	Effective brakes, securely engaged brake			
Safety sides	Locking in place, release			
Accessories (e.g. patient lifting pole, grab handle, external safety sides)	Fixing, damage, suitability			

Overall Inspection Result

Defects/Remarks:

-
- No safety or functional defects were detected
 - No direct risk, the defects detected can be rectified quickly
 - Appliance must be taken out of circulation until the defects have been rectified!
 - Appliance does not conform to requirements – modification/replacement of components/ decommissioning recommended.

Test approval sticker applied: Yes No Next inspection date:

Documents that form part of this inspection report:

Checked:	Date:	Name:	Signature:
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Test approval sticker applied:	Date:	Name:	Signature:
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Address/stamp of responsible company:

17.4 Inspection by the User

Inspection		Ok	Not Ok	Description of Defect
What to Check...	Check for...			
Visual Inspection of the Electrical Components (if Installed)				
Handset: Housing + keypad + display + cable:	No damage			
Handset: Cable + cable suspension	Securely suspended + routed without risk of being crushed in the bed frame			
Mains cable	No damage, safe routing			
Control box / locking box: Housing + keypad + cable	No damage, routed without risk of being crushed in the bed frame			
Visual Inspection of the Mechanical Components				
Patient lifting pole, adaptor sleeves	No damage, deformation			
Grab handle with strap	No damage			
Chassis	No damage, deformation			
Mattress base, covers	No damage, deformation			
Performance Check of the Electrical Components (if Installed)				
Handset / control box / locking box / foot pedal	Performance check according to Control Units » 24			
Performance Check of the Mechanical Components (if Installed)				
Castors	Safe braking according to Immobilising the Bed » 66			
Emergency lowering of backrest (CPR)	Lowers when release lever is activated in accordance with Lowering the Backrest in an Emergency » 94			
Side rails, safety sides	Functional test, securely engaged in accordance with Using Safety Sides » 84			
Accessories (e.g. patient lifting pole, grab handle with strap, side rails)	Securely fixed, undamaged; suitability according to Bed Reprocessing / Bed Adaptation » 53			
Inspector's Signature: Inspection Result:		Date:		

17.5 EC Declaration of Conformity

	EC – Declaration of Conformity	 STIEGELMEYER																
<p>We,</p> <p>Stieglmeyer GmbH & Co. KG Ackerstraße 42 D - 32051 Herford, Germany</p> <p>hereby declare under sole responsibility as the manufacturer that the product model named below:</p> <p style="text-align: center;">Hospital Bed Series Puro; Puro brevo</p> <p>in the version submitted complies with the regulations of the EC Directive 93/42/EEC Annex VII for Medical Devices, last amended by Directive 2007/47/EC dated 5 September 2007. It is categorised as a Class I active medical device.</p> <p>The relevant technical documentation is kept by the manufacturer's safety representative.</p> <p>To evaluate the conformity to the directives, all applicable parts of the following standards were referred to:</p> <p>Harmonised Standards:</p> <table border="0"> <tr> <td>EN 14971: 2013-04</td> <td>Application of Risk Management for Medical Devices</td> </tr> <tr> <td>EN 60601-1: 2007-07</td> <td>Medical Electrical Equipment, Safety</td> </tr> <tr> <td>EN 60601-1-2: 2007-12</td> <td>Electromagnetic Compatibility</td> </tr> <tr> <td>DIN EN 60601-1-6: 2010-10</td> <td>Medical Electrical Equipment - Suitability for intended use</td> </tr> <tr> <td>DIN EN 60601-2-52: 2016-04</td> <td>Particular requirements for the safety and essential performance of medical beds</td> </tr> </table> <p>International Standards:</p> <table border="0"> <tr> <td>IEC 60601-2-52: 2009-12</td> <td>Medical Electrical Equipment:</td> </tr> <tr> <td>+AMD 1: 2015-03</td> <td>Particular requirements for the basic safety and essential performance of medical beds</td> </tr> <tr> <td>IEC 62366:2007</td> <td>Medical equipment: Usability</td> </tr> </table> <p>Herford, 22/11/2016</p> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Georgios Kampisiulis Kemmler: (Management)</p> </div> <div style="text-align: center;">  <p>Hans-Peter Löw (Management)</p> </div> </div>			EN 14971: 2013-04	Application of Risk Management for Medical Devices	EN 60601-1: 2007-07	Medical Electrical Equipment, Safety	EN 60601-1-2: 2007-12	Electromagnetic Compatibility	DIN EN 60601-1-6: 2010-10	Medical Electrical Equipment - Suitability for intended use	DIN EN 60601-2-52: 2016-04	Particular requirements for the safety and essential performance of medical beds	IEC 60601-2-52: 2009-12	Medical Electrical Equipment:	+AMD 1: 2015-03	Particular requirements for the basic safety and essential performance of medical beds	IEC 62366:2007	Medical equipment: Usability
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Appendix

EC Declaration of Conformity



Notes:



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