Tereno

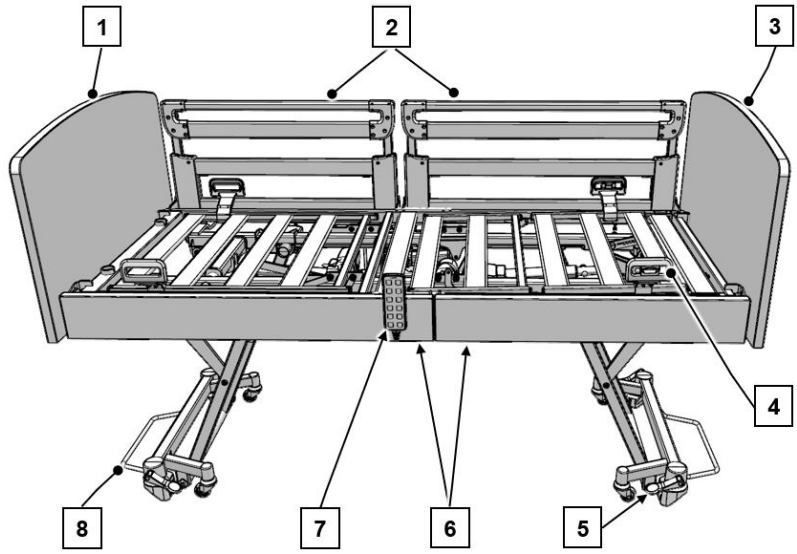
STIEGELMEYER

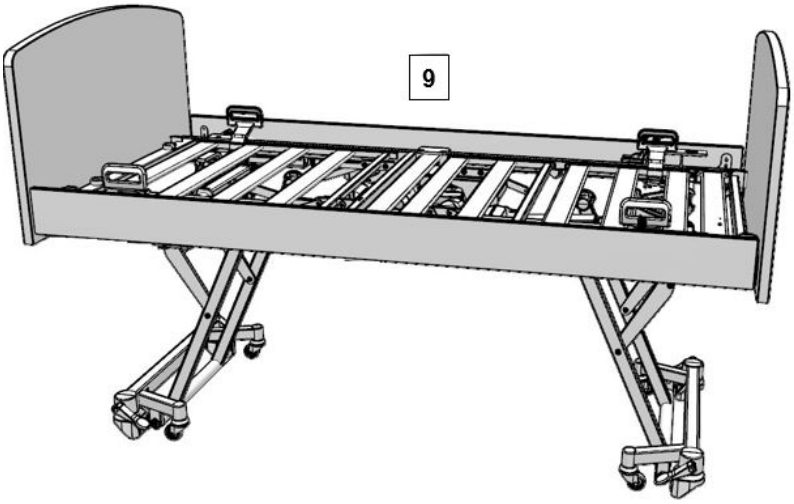
Instruction Manual

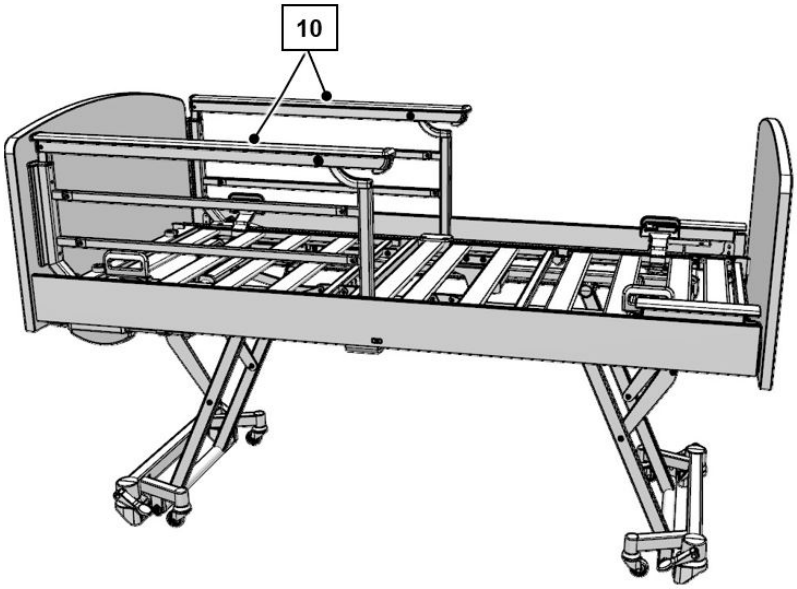
Tereno and model variants

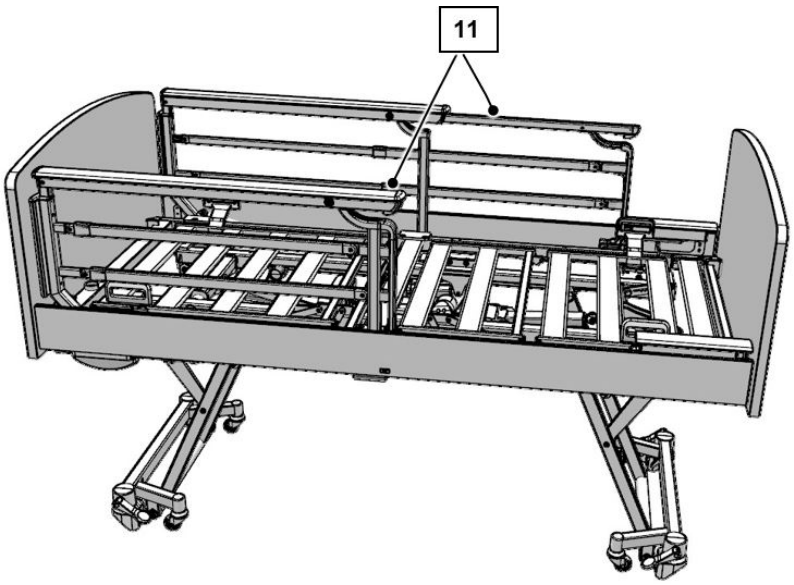
2023-11-22 | Version 01 | 306416

Tereno care bed









[1]	Headboard	[2]	Split safety side Vario Safe system (telescopic on both sides) (optional)
[3]	Footboard	[4]	Mattress retainer bar 4x (foot end with integrated magnetic unlocking key for handsets)
[5]	Brake pedal (axle braking)	[6]	Side panel (optional)
[7]	Handset	[8]	Wall spacer (optional) head end and/or foot end
[9]	Without safety side (standard)	[10]	Safety side, pivoting, with unlocking device (optional)
[11]	Safety side, telescopic, with unlocking device (optional)		

Contents

STIEGELMEYER

1 Address, market information

Manufacturer

Stiegelmeyer GmbH & Co. KG

Ackerstraße 42, 32051 Herford, Germany

Phone:+49 (0) 5221 185 - 0

Fax:+49 (0) 5221 185 - 252

Email:info@stiegelmeyer.com

Internet:www.stiegelmeyer.com

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

Stiegelmeyer GmbH & Co. KG

Ackerstraße 42, 32051 Herford, Germany

Phone:+49 (0) 5221 185 - 777

Fax:+49 (0) 5221 185 - 219

Email:service@stiegelmeyer.com

Internet:www.stiegelmeyer.com

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

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 bed in these markets, including through third parties, is prohibited by the manufacturer.

2 Foreword

Dear Customer,

Stiegelmeyer 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 beds should make patients and residents feel as safe and comfortable as possible during their stay in bed and also 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 it as easy and safe as possible to control and handle this bed, 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 you have purchased a bed, Stiegelmeyer is still on hand to help at any time. Our Service 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 on +49 (0) 5221 185 - 777. Customers outside Germany can contact our distribution companies in their particular country if they have any questions. Contact details can be found on our website: www.stiegelmeyer.com.

We wish you and your users every success and satisfaction with the care of your patients and residents.

Stiegelmeyer GmbH & Co. KG

3 Target groups, qualifications and duties

3.1 For the commercial sector

3.1.1 Operator

An operator (e.g.: nursing home operators) are all natural and legal persons with property rights to the product. The operator is responsible for the safe operation of this medical product. In addition, the operator is responsible for carrying out regular maintenance and regular safety checks.

3.1.2 Responsibilities of the operator

Operators of medical beds in Europe are obliged, in accordance with the new Medical Device Regulation (EU) 2017/745 (MDR) and any existing additional relevant national laws/regulations, e.g. in Germany the Medical Devices Operator Ordinance (Medizinprodukte-Betreiberverordnung, German abbreviation: MPBetreibV), to ensure the long-term safe operation of this medical product with no risk of danger to residents, users or third parties. In other countries outside Europe 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!

- Using this instruction manual, which is provided with this 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 bed is improperly used. This applies in particular to the use of electrical drives and safety sides!
- Make sure that substitute staff are also sufficiently well instructed in the safe operation of the bed!
- Ensure that users know where this instruction manual is kept!

Check to ensure that the safety instructions are adhered to!

If the 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 owner of the bed changes, the instruction manual should 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 anything is unclear, please contact the manufacturer of this equipment, or Stiegelmeyer.

3.1.3 Users

Users (e.g. nursing staff, carers etc.) are persons who, based on their training, experience or briefing, are qualified to operate the bed on their own authority or to perform tasks with this bed for which they have received specific instruction. Furthermore, they are able to recognise and avoid potential hazards and assess the individual requirements of the resident.

3.1.4 Users (technical personnel)

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

3.1.5 Qualification of users

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

- Experience in dealing with residents and care beds
- Instruction, provided by the operator, in how to handle this care bed

For setting up (technician control level of the LCD handset) and maintaining the care bed, the operator must only appoint persons with the following minimum qualifications:

- Technical experience of setting up and maintaining care 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

3.1.6 Duties of users

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

In Europe, before using a care bed, you, as the user, must check each time that the 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 new Medical Device Regulation (EU) 2017/745 (MDR). Only by doing so can operating errors be prevented and correct handling ensured in order to prevent injuries and damage from occurring.

In other countries: The relevant national regulations concerning the duties of the user 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 cabinets, supply rails or chairs could impede adjustments to the bed.

If any additional devices (such as compressors for positioning systems) are attached, ensure that these are securely fastened and are working properly.

If anything is unclear, please contact the manufacturer of this equipment, or Stiegelmeyer.

⚠ CAUTION

Risk of injury

Failure to heed this warning may result in physical injury and material damage!

- 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 bed is “OUT OF ORDER”.
- Report this immediately to the operator responsible.

3.1.7 Residents

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

The operator or user must instruct each new resident in the bed functions that are important for the resident.

3.2 For the private sector

Private purchasers are private users who have purchased this bed themselves for private, non-commercial use and who wish to carry out any assembly work and further operation on their own responsibility.

4 Conventions of this instruction manual

Attention! The safety symbols used are not a substitute for the written safety information. It is important therefore to read the safety information and follow the instructions exactly!

4.1 Safety information

⚠ 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.

⚠ ATTENTION

ATTENTION

- ATTENTION indicates a harmful situation that could result in the following consequences: The device or something around it could be damaged.

4.2 Information through icons

General information, tips and helpful courses of action.

»	Cross-reference or active link: Indicates the location with the chapter title and page number. Example: Safety instructions » 8

5 Safety instructions

5.1 Safety information for operating the bed

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

This 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 bed is properly connected to the mains supply (exception: optional emergency battery operation).

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

5.1.1 Electrical cables and connections

⚠ WARNING

Risk of electric shock

Failure to heed this warning may result in fatal electric shocks due to damaged mains power cables. Take the following measures to prevent hazards due to electric shock and malfunctions.

- Replace damaged mains power cables immediately! If a damaged mains cable continues to be used, this can lead to electric shock, fire and other hazards as well as malfunctions.
- Connect the bed only to a properly earthed mains electrical socket.
- Route the mains cable in such a way that it cannot be pulled, driven over or damaged by moving parts, or in any other way, when the bed is operated. Before moving the bed, always make sure that you have unplugged it from the mains supply.
- Before moving the bedside cabinet, 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 of the mains power cable regularly to ensure that it is securely fixed.
- 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.

⚠ WARNING

Risk of injury

Failure to heed this warning may result in life-threatening injuries due to swallowing small parts.

- If small parts or attachments to the bed become loose or detached, remove these immediately
- Check the bed to ensure it is in a safe condition

5.1.2 Operating time of electric drives

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

If the electric drive is operated for a much longer period, e.g. due to the resident continually “playing” with the handset, the electronic thermal protection device integrated in the control unit will deactivate the drive 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 Handset

ATTENTION

Material damage

Failure to heed this warning may result in collisions between the handset and other items or equipment. This can lead to defects or accidentally trigger adjustment functions which have not been locked.

- When not in use, stow the handset in such a way that it cannot inadvertently fall off (hang it up by the hook).

ATTENTION

Material damage

Failure to heed this warning may result in system faults due to locked adjustment systems.

- When routing the handset cable, ensure that it cannot be crushed, stretched or otherwise damaged by any moving parts of the bed.

ATTENTION

Material damage

Failure to heed this warning may result in damage to property which could adversely impact the loading capacity of the bed or its adjusting functions. Before carrying out any electrical adjustments, make sure that

- No obstacles such as bedside cabinets, supply rails, other equipment, chairs or wall protection rails are in the way,
- There are no objects lying on the chassis,

WARNING

Risk of injury

Failure to heed this warning may result in injury.

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

- the resident is unable to operate the bed safely,
- the resident is unable to free himself or herself from potentially dangerous situations,
- the resident is exposed to an increased risk of entrapment during backrest and thigh rest adjustments when the safety sides are raised,
- the resident could be at risk due to unintentional motor-driven adjustments,
- children are left unsupervised in the room with the bed.
- In these cases, adjustments must only be performed by a person trained by the operator, or in the presence of a trained person!
- The following sticker on the cross tubing at the head end reminds you to lock the handset:

5.1.4 Bed adjustment

⚠ WARNING

Risk of crushing

Failure to heed this warning may result in physical injuries!

- This bed is only intended for use as a single bed. Keep a minimum safety distance of one bedside cabinet width (approximately 60 cm) between one bed and the next.
- When making any adjustments, always ensure that no limbs of persons, and especially of playing children, could become trapped underneath the rests or the mattress base.

⚠ WARNING

Risk of injury

Failure to heed this warning may result in physical injuries!

- Make sure that the mattress base has travelled to its lowest position before leaving the patient unattended. This reduces the risk of the patient injuring himself/herself as a result of falling when getting in or out of bed.

⚠ ATTENTION

Material damage

Failure to heed this warning may result in damage to the bed and/or lifting frame, and this could have an adverse effect on the loading capacity of the bed or the adjustment functions. Check that:

- No obstacles such as bedside cabinets, supply rails, other equipment, chairs or wall protection rails are in the way,
- There are no objects lying on the chassis,
- People are not sitting on slightly raised sections of the backrest or leg rests.

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

5.2 Special hazards

5.2.1 Risk of fire

⚠ WARNING

Risk of fire

Failure to heed this warning may result in physical injury and material damage.

- Use only flame-retardant mattresses and bedding if possible.
- Inform residents that smoking is not allowed in bed.
- Only use additional equipment (e.g. electric blankets) and other electrical devices (e.g. lamps and 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).
- Do not place any flammable materials (e.g. bedding) or any solid, hard objects underneath the mattress base (danger of heat congestion/electrical hazards when in contact with electrical components installed there, especially in the area of the power supply/ battery under the backrest).

5.3 Safety information for attachments and additional equipment

Efficient and safe operation combined with maximum protection of residents can only be guaranteed if original manufacturer 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 for the resident when the bed sections are adjusted. If this cannot be ensured, you must lock those particular adjustment functions! (To do so, activate the locking functions for electric adjustments).

5.3.1 Use of patient lifts

ATTENTION

Material damage

Failure to heed this warning may result in damage to cables and drives due to the use of patient lifts when the mattress base is at its lowest height!

- Do not wheel the patient lift under the bed when the bed is at its lowest level.
- Raise the mattress base until it is about 20 cm higher before wheeling the patient lift under the bed.

5.4 Safety information for accessories

CAUTION

Material damage

Failure to heed this warning may result in damage to property and injury due to the use of incorrect accessories and unsuitable spare parts.

- Efficient and safe operation combined with maximum protection of residents can only be guaranteed if original accessories of the manufacturer are used that are designed for the relevant model of bed.

WARNING

Risk of injury

Failure to heed this warning may result in strangulation due to excessively long cables and hoses

- Position connecting cables and hoses (e.g. from attachments and additional equipment) so as to prevent the danger of strangulation

5.5 Safety information for disposal

⚠ WARNING

Risk of infection

Failure to heed this warning may endanger health!

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

⚠ CAUTION

Environmental risk

Failure to heed this warning may result in environmental damage!

- Do not dispose of batteries with domestic waste.
- Batteries can be disposed of at local collection points in the same way as car batteries.
- Outwardly undamaged, discharged battery sets can also be returned to the manufacturer. In other countries outside Germany or the EU, the relevant national regulations must be complied with.

5.6 Tips on using the bed safely in a domestic setting

Please use the following table to help identify and avoid any unfavourable conditions of use.

Unfavourable conditions of use	Prevention through
Electrical equipment:	
Damage to handsets/connecting cables	Hang handsets up on the hook; do not stretch cables across the bed or run over them with the castors
Electrical adjustment functions not blocked; limbs could be trapped due to unintentional activation	Block the functions on the handset if they could otherwise place the resident or playing children in danger; do not leave children unsupervised in the room with the bed

Unfavourable conditions of use	Prevention through
Potential overheating due to fluff and dust on electrical drive components	If necessary, use a dry cloth to remove dust from the drive components under the mattress base
Pets may chew on electrical cords: This could cause malfunctions and/or electric shocks	Do not allow rodents to run around freely in the same room as the bed
Safety sides	
Possibility of trapping/strangulation when using safety sides	When the occupant is particularly small, emaciated or confused: Use the safety sides only with additional protection measures or not at all
Interfering devices/objects close to the bed	
Fire hazard due to heat generated by a reading lamp, heater etc.	Use only LED reading lamps that do not heat up strongly. Use devices only if they are in good working order and are used in accordance with their operating instructions; keep them at a safe distance from the bed
Risk of collision/damage to property when adjusting the bed	Maintain a safe distance from other objects/ sloping ceilings/windowsills
Crushed connecting cables or hoses from compressed air positioning systems; inhalers etc.	Route and attach cables and hoses so they cannot be trapped when the bed is adjusted
Surfaces Allergic reactions are possible in the event of using unsuitable other-brand accessories (pillows, bed linen, etc.).	Use of high-quality, allergy-tested materials and Stiegelmeyer original accessories.

⚠ WARNING

Risk of injury

Failure to heed this warning may result in physical injury to the bed user due to entrapment or crushing.

- Ask a healthcare professional for advice if you are uncertain about a possible application of safety sides or about the necessity of activating the locking functions of the electrical adjustments.

6 Product description

This bed fulfils all the requirements of the Medical Device REGULATION (EU) 2017/745 (MDR) and is considered a Class I medical device in accordance with the classification rules.

6.1 Intended use

“Medical bed for patient positioning, with optional restraint system to prevent patients from inadvertently falling out. Device intended to assist in the diagnosis, monitoring, prevention, treatment, alleviation of disease or compensation of an injury or impairment.”

6.2 Use for the intended purpose

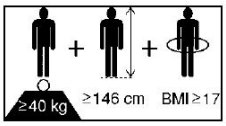
- The bed is intended for indoor use in senior residences and nursing homes and comparable medical institutions with qualified personnel. For detailed instructions for use, see chapter Medical Device Classification » 41.
- All persons who operate the bed must be skilled in handling the beds through being thoroughly conversant with the instruction manual.
- If the owner of the bed changes, the instruction manual must be handed over with the bed.
- The safe working load is 225 kg (resident + accessories).
- This bed is suitable only for accommodating adult residents whose height is at least 146 cm.
- The bed itself is not life sustaining or life supporting.
- This bed has no other medical indication.

  For detailed instructions for use, see chapter Use/routine » 89.
- This bed is suitable for repeated use.
- This bed must only be used as a single bed.
- 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 individual requirements and particular physical build of the resident concerned. Please also refer to the special safety information in chapter Using safety sides » 109.

This bed may only be used under the operating conditions described in this instruction manual. Its use for any other type of application is deemed to be contrary to the intended purpose.

6.3 Contraindications

- If used with safety sides, this bed is only suitable for residents who do not fall below the following minimum body size/weight:
  - Height: 146 cm
  - Weight: 40 kg
  - Body mass index “BMI”: 17



The following symbol can be found on the bed chassis:

Owing to the smaller limbs of residents with a body height/weight that is less than this, there is an increased risk of entrapment between the open spaces of the safety sides when safety side systems are used.

BMI calculation:

BMI = weight of resident (kg) / height of resident $(m)^2$

- **Example a:**

  → 41 kg / (1.5 m x 1.5 m) = 18.2 = ok!

- **Example b:**

  → 35 kg / (1.5 m x 1.5 m) = 15.6 = not ok!

6.4 Side effects

Unless suitable measures are taken, residents who spend prolonged periods in bed may develop decubitus.

6.5 Product variants

The care bed is available in the standard variant. The features of this variant are indicated in the technical data, starting from chapter Dimensions » 38.

6.6 Components of the bed

6.6.1 Headboard and footboard

The bed has a Vario Safe headboard and footboard. Beds with Vario Safe systems have removable headboards and footboards, which allow better access to the resident in certain situations.

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 when the mattress base is horizontal, 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 drive system are accommodated under the mattress base. A bed extension is contained in the standard version. For details concerning use, see Extending/shortening the mattress base » 70.

6.6.3 Bed chassis

The chassis is located underneath the mattress base. The bed has a total of 8 castors. Two castors at the head end and two castors at the foot end can be locked in pairs. The castors are automatically locked when the mattress base is set to its lowest position (approximately 3 cm above the floor).

6.6.4 Electric drive system

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

- Electricity supply via
  - 230 V mains cable connection. In this case, the 230 V mains supply is transformed to 24 V by the control unit.
  - (Optionally) an "external" switch mode power supply. The switch mode power supply consists of a voltage transformer and a low-voltage connection cable. The voltage transformer generates a protective low voltage that is safe for residents and users. The switch mode power supply provides the control unit of all drives (motors) with protective low voltage via a connection cable.
- A drive for the backrest, a drive for the thigh rest and two drives for the mattress base height.
- Central control unit under the seat section of the mattress base. The control unit there generates a 24-volt protective low voltage which is non-hazardous for residents and

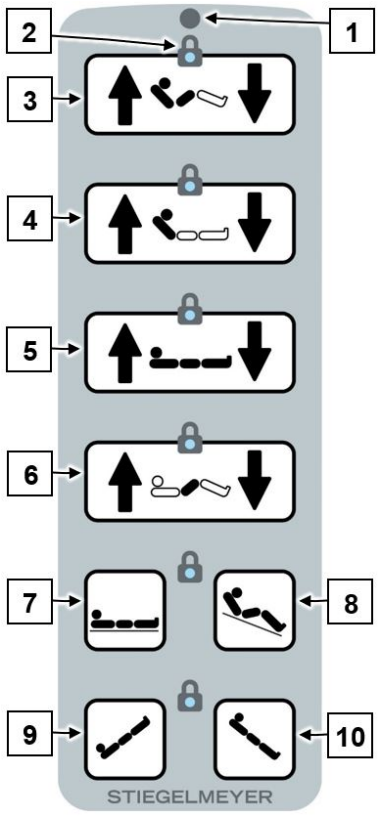
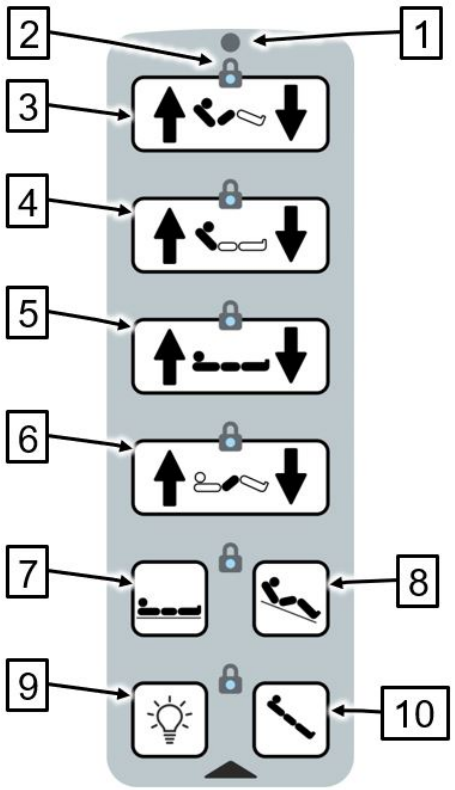
users (in the 230-volt variant). The drives and the handset are connected to the control unit via plug-in connectors. These components operate with the 24-volt protective low voltage.

- A handset with a strong hook. The user can lock the adjustment options on the handset if the poor clinical condition of the resident necessitates this.

6.6.5 Control devices

6.6.5.1 Standard handset

The standard handset is the main control device for making adjustments and settings to the bed and can be used by the resident, the user (care staff) or by private customers. The handset is available in two variants. The two variants differ in the functions of the Trendelenburg position/under bed light, depending on their intended sector of use (commercial/private). The handset for private use has an under bed light instead of the Trendelenburg position.

For use in the commercial sector	For private use
	

The following applies when using the handset:

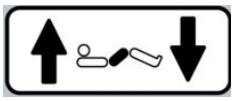
Press the UP button = Raise

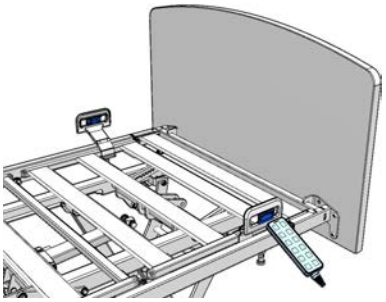
Press the DOWN button = Lower.

- The drives operate as long as the buttons remain pressed.
- Adjustments are possible in both directions.
- If more than one button is pressed at a time, all adjustments stop (= emergency OFF safety function).
- The coiled cable provides ample flexibility and freedom of movement.

[1]	**Magnetic sensor**	**[2]**	**Lock**: lights up orange if the function is locked
[3]	**Auto contour**	**[4]**	**Backrest**
[5]	**Height adjustment**	**[6]**	**Thigh rest**
[7]	**Sleeping position**	**[8]**	**Sitting position** The sitting position is a convenient combination of auto contour + reverse-Trendelenburg position. **1.**The backrest and thigh rest are raised, **2.**Then the bed tilts to a reverse-Trendelenburg position This effectively reduces resident slippage towards the foot end. For more details about the various adjustment functions, see chapter Setting the auto contour position » 94.
[9]	**Trendelenburg position**(in the case of handsets for the commercial sector) or **under bed light**(in the case of handsets for the private sector)	**[10]**	**Reverse-Trendelenburg position**

Operation of the adjustment functions

	**Auto contour** **Raise**: Press the UP button. The backrest and thigh rest are raised at the same time for approximately 9 seconds, after which the movement stops. By pressing the button again, only the backrest continues to be raised. **Lower**: Press the DOWN button. First of all, only the backrest is lowered until it reaches the height of the thigh rest, then the backrest and thigh rest continue to descend simultaneously until the end position is reached. This prevents the resident from sliding towards the foot end of the bed.
	**Backrest** This UP/DOWN button can be used to change the angle of the backrest.
	**Mattress base height** This UP/DOWN button can be used to change the height of the mattress base. During the raising and lowering procedure, there is an automatic intermediate stop at approximately 38 cm – this is the most comfortable height for getting in and out of bed. This height can be individually programmed for each resident (see chapter Setting a sitting or sleep position » 101). A second intermediate stop with an acoustic signal only occurs during lowering at a height of approximately 25 cm, as a warning to the person that their feet could be crushed. From this height onwards, the mattress base is lowered at only a very slow speed.
	**Thigh rest** This UP/DOWN button can be used to change the angle of the thigh rest.
	**Sleeping position:**If the button is kept pressed, the mattress base is adjusted to the lowest position in the following order: 1. The mattress base moves into the horizontal position 2. The backrest and thigh rest are lowered completely 3. The mattress base descends until it reaches the first intermediate stop 4. Press button again 5. The mattress base descends until it reaches the second intermediate stop 6. The mattress base moves to the lowest position
	**Sitting position:**If the button is kept pressed, the mattress base is adjusted to the sitting position in the following order:

	1. “Auto contour raising” for 9 seconds 2. Stop “Auto contour raising” and start “Reverse-Trendelenburg position”. The mattress base can be tilted to a reverse-Trendelenburg position of up to about 12°.	
	**Trendelenburg position:**The mattress base can be tilted into the Trendelenburg position, by up to approx. 12°, by keeping the button pressed.	**Note:**The Trendelenburg and reverse-Trendelenburg positions are locked, as standard, for the resident. These functions can only be used at staff level. To switch to staff level: Briefly hold the top of the handset (with its sensor on the front end) against the magnet integrated in one of the two foot-end mattress retainer bars. A short tone signals that the staff level is now active.  To leave the care staff level and return to resident level, the handset must be held against the unlocking magnet again. Alternatively, wait for 10 seconds: The system will revert to resident level automatically.
	**Reverse-Trendelenburg position:**The mattress base can be tilted into the reverse-Trendelenburg position, by up to approx. 12°, by keeping the button pressed.	
	**Under bed light:**Press the button for one second to switch the light on or off	

When not in use, stow the handset in such a way that it cannot inadvertently fall off (hang it up by the hook). Make sure that the cable cannot be damaged by moving parts of the bed.

6.6.5.2 LCD handset (optional)

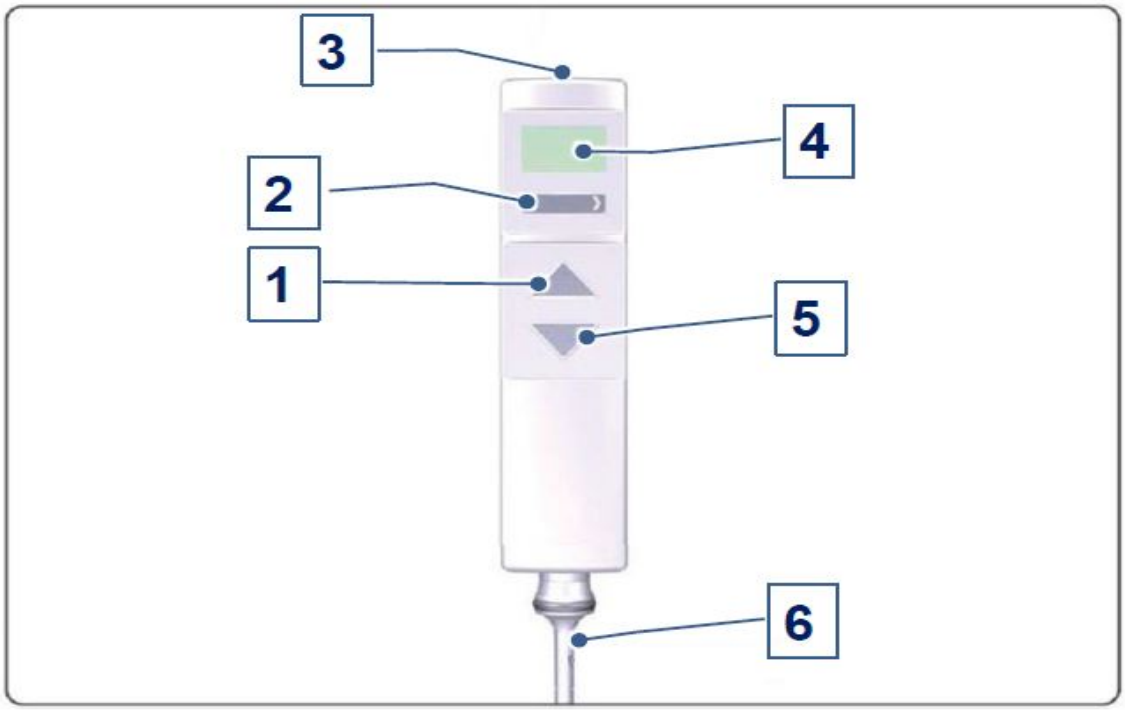
The LCD handset is an optional control device for adjusting the position and settings of the bed, both for the resident and the user (care staff and technical staff).

Operation occurs on four separate control levels, depending on the user group: 1: Resident; 2: Care staff; 3: Technical staff; and 4: “Easy Care” control level.

The adjustment options for the user are defined at different control levels that each need to be activated separately. Switching between control levels on the LCD handset is achieved by holding its magnetic sensor [3] briefly (for about ½ second) against the magnetic unlocking key integrated in the mattress retainer bars at the foot end of the bed; see chapter Magnetic unlocking key » 29.

The control level for care staff includes the locking function and special adjustment functions. On the control level for technical staff (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.



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

The LCD handset has an elastic hook that allows it to be hooked onto the bed at any place. For example:

- On the safety side, for use by the resident (on either side of the bed),

- On the headboard or footboard.

Control level 1: Resident (= default level)

- This level is the default control level and the handset automatically reverts to this level 10 seconds (“Easy Care” level: 2 minutes) after the last button has been pressed at a different control level.
- Switching to a different control level is only ever possible from this default level.
- Adjustment functions are selected by pressing the toggle switch, and then seeing the symbols appear on the display, and then pressing the UP or DOWN buttons.

Adjustment functions can also be locked by the user. The symbols for the locked adjustment functions are then no longer displayed at the resident control level.

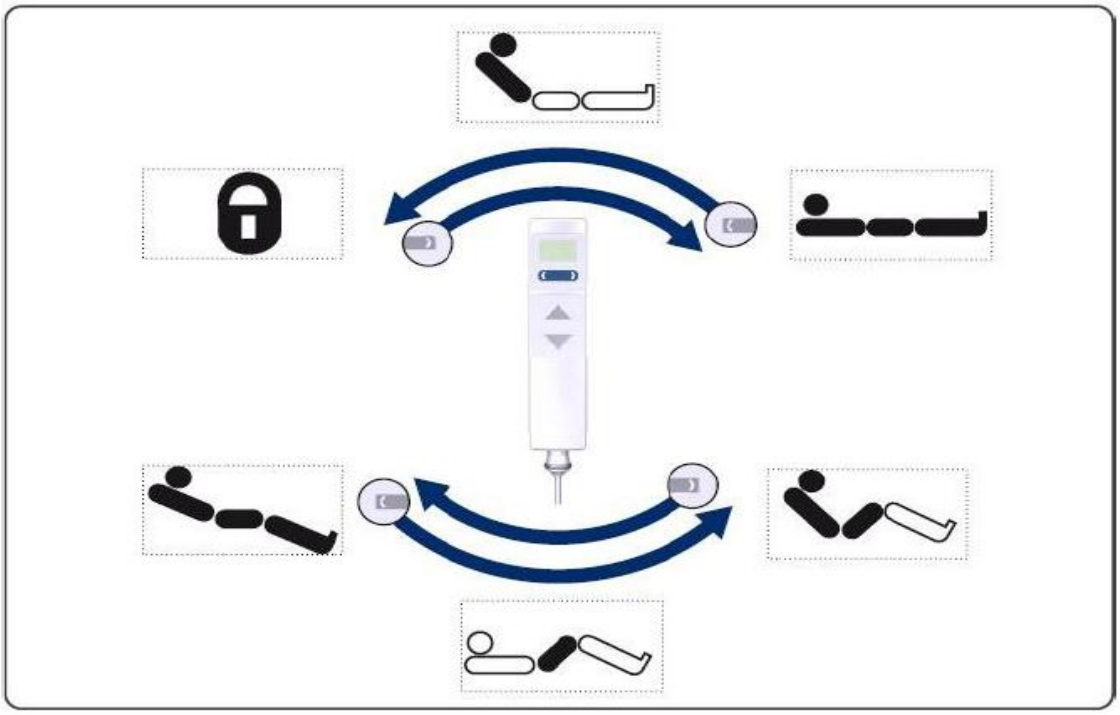
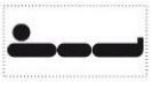


Image1: Resident control level: Toggle switch for function selection

Symbol	Explanation	Symbol	Explanation
	Backrest adjustment function		Mattress base height adjustment function
	Auto contour adjustment function		Thigh rest adjustment function

Symbol	Explanation	Symbol	Explanation
	Sitting position adjustment function		All adjustment functions locked

Control level 2: Care staff

- Switching to control level 2 is achieved by holding the magnetic sensor [3] on the handset briefly (for about ½ second) against the magnetic unlocking key integrated in the mattress retainer bars at the foot end of the bed; see chapter Magnetic unlocking key » 29.
- Adjustment options are selected by pressing the toggle switch, then seeing the symbols appear on the display, and are then carried out by pressing the UP or DOWN buttons.
- 10 seconds after the last key has been pressed, or immediately if the magnetic sensor [3] is held briefly again against the magnetic unlocking key, the handset reverts automatically to control level 1: resident level.

Adjustment functions can be locked using the locking functions and then unlocked again (see Locking/unlocking electric adjustment functions » 91). The symbols for the locked adjustment functions are then no longer displayed at the resident control level.

After changing to staff control level, the CPR symbol appears on the display screen, and the screen background flashes continuously as an indication.

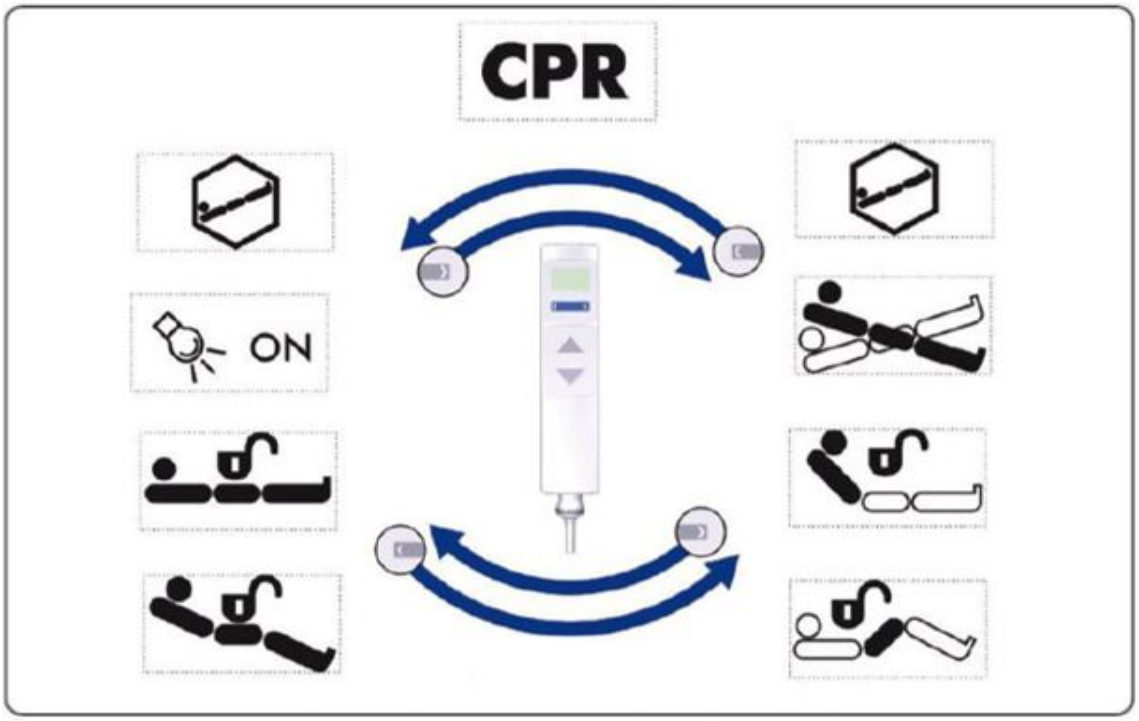


Image2: Care staff control level: Toggle switch for function selection

Symbol	Explanation	Symbol	Explanation
CPR	Resuscitation position adjustment function		Shock position (Trendelenburg position) adjustment function
	Trendelenburg/reverse-Trendelenburg position adjustment function		Backrest locking function
	Thigh rest locking function		Sitting position locking function
	Mattress base height locking function	ON	Switching under bed light ON/OFF (optional)

Control level 3: Technical staff

This provides an overview of the handset functions at the level accessed by technical staff (technician control level). For further details, please refer to chapter Replacement of electrical components » 146 and to chapter Troubleshooting » 162.

The following adjustment options are selected by pressing the toggle switch and are then carried out by pressing the UP or DOWN buttons.

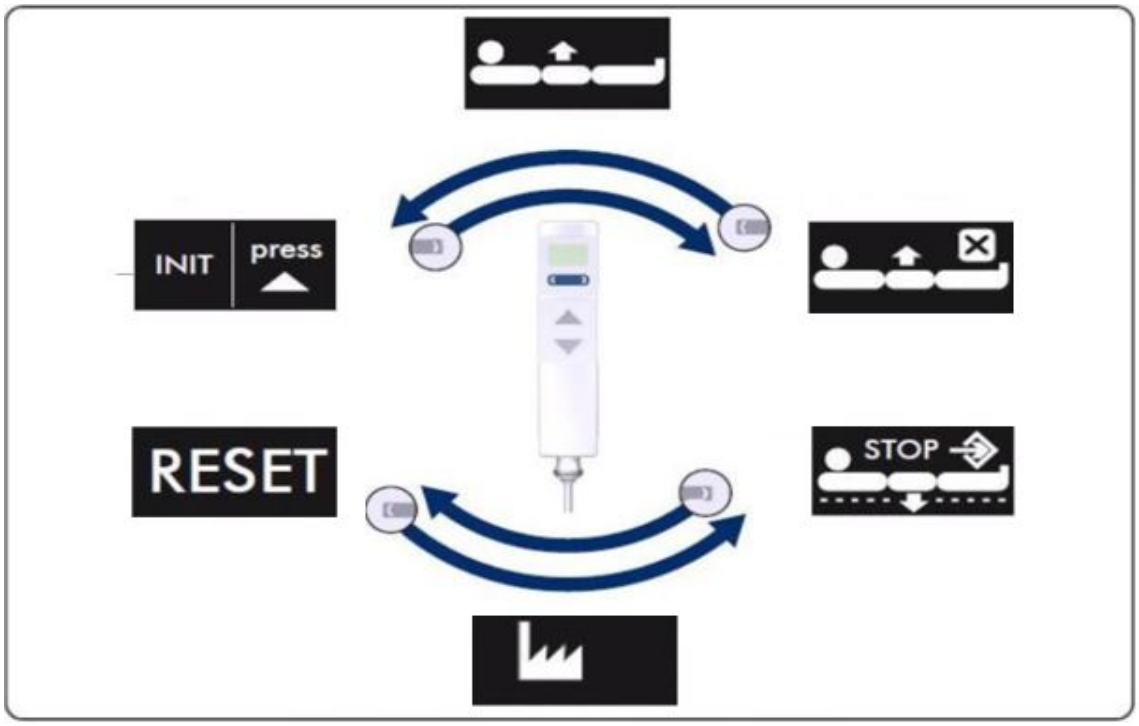


Image3: Technical staff control level: Toggle switch for function selection

Symbol	Explanation	Symbol	Explanation
	Function: Restrict maximum mattress base height		Function: Delete maximum mattress base height
	Function: Setting an intermediate stop position		Function: Restrict factory settings
	Function: RESET		Function: Initialisation

Easy Care control level

This control level is used by care staff and is ideal for carrying out efficient bed adjustments during everyday resident care.

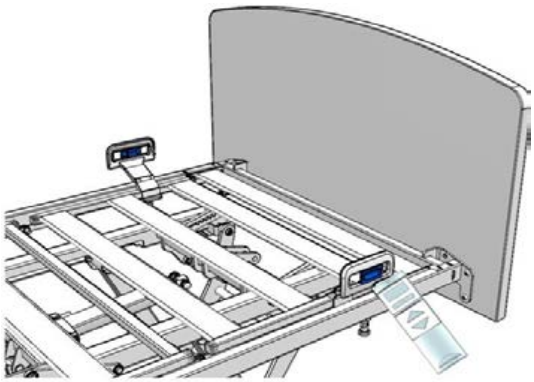
For further information, see chapter EasyCare function » 106.

6.6.5.3 Magnetic unlocking key

A red magnetic unlocking key is integrated in the mattress retainer bars at the foot end of the bed. The magnetic unlocking key is needed in order to:

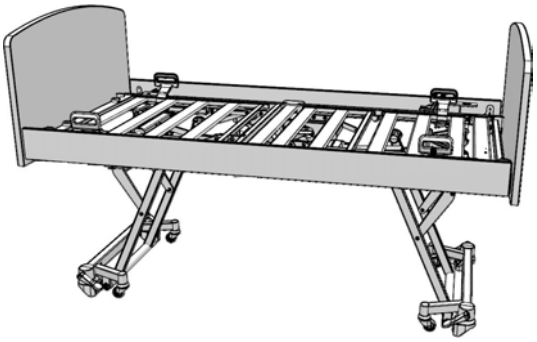
- operate the Trendelenburg and reverse-Trendelenburg positions with the standard handset and LCD handset,
- switch to care staff level or technician level with the LCD handset,
- and to lock/unlock the functions of the standard handset.

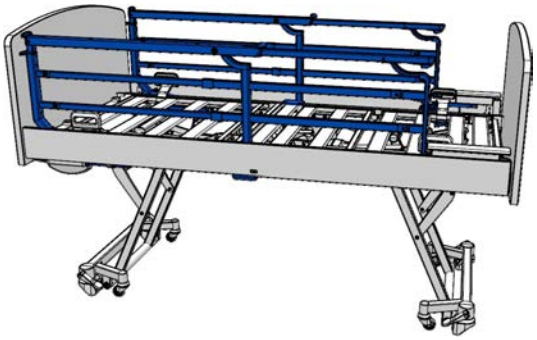
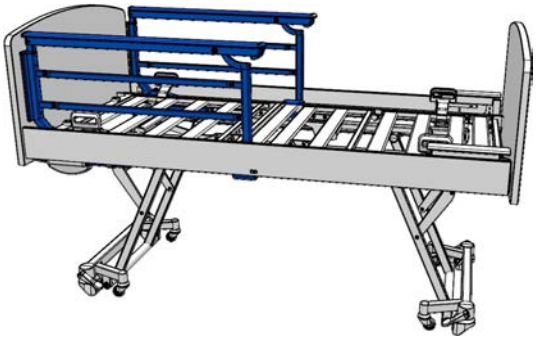
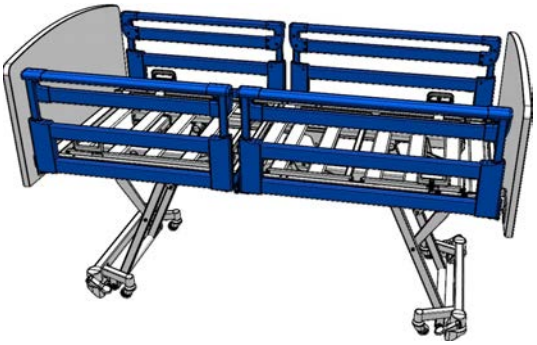
Locking/unlocking and switching between control levels on the standard handset and the LCD handset is achieved by holding the magnetic sensor on the handset briefly (for about ½ second) against the magnetic unlocking key integrated in the mattress retainer bars at the foot end of the bed. For more details, see chapter Control devices » 20.



6.6.6 Safety sides

The bed is delivered as standard without any safety sides. Optionally, however, the bed can be equipped with telescopic and pivoting safety sides (split, 3/4-length to 7/8-length), pivoting safety sides (split, 3/4-length) or Vario Safe safety sides to protect residents from accidentally falling out of bed.

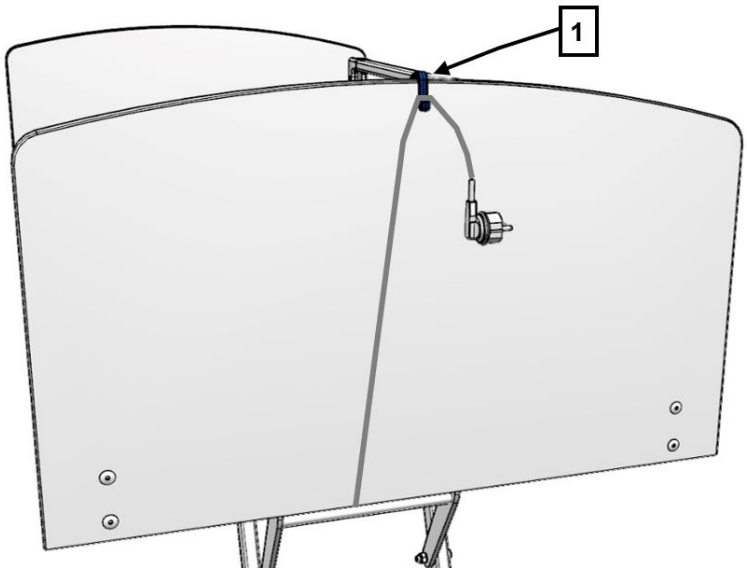
Without safety side (standard)	

Telescopic and pivoting safety side (optional)	
Pivoting safety side (optional)	
Split safety side (Vario Safe system) (optional)	

The bed can also be supplied without safety sides if the customer prefers. Should it later be necessary to use safety sides, the bed can be fitted with the safety sides at a later date. For information on fitting and using split safety sides, see chapter Using safety sides » 109

6.6.7 Mains cable holder

A plastic mains cable holder is located under the headboard.



- Before moving the bed, always hang the mains cable in this holder.
  The mains cable must not touch the floor. Otherwise the mains cable could sustain damage as a result of being torn off, crushed or driven over.

⚠ WARNING

Risk of electric shock

Failure to heed this warning may result in fatal electric shocks due to damaged mains power cables. Take the following measures to prevent hazards due to electric shock and malfunctions.

- Replace damaged mains power cables immediately! If a damaged mains cable continues to be used, this can lead to electric shock, fire and other hazards as well as malfunctions.

6.6.8 Handset holder (optional)

This bed can be equipped with a handset holder which is simply clipped onto the upper bars of the split safety sides (Vario Safe system) in a place that is convenient to reach from inside the bed. By stowing it safely in the holder, the handset is always close at hand.

Please avoid repeatedly sliding the holder along the bar or clipping it on and off at frequent intervals. This will protect the surface of the bar from developing visible signs of wear over time.

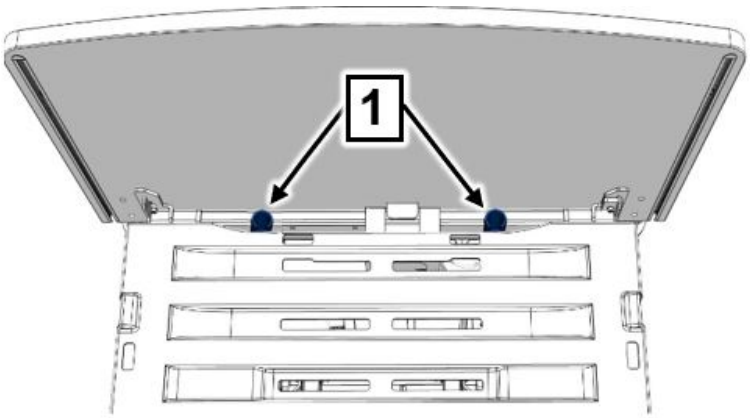
6.6.9 Adapter sleeves for patient lifting pole/infusion stand

On the cross tubing at the head end, two adapter sleeves [1] are fitted on the inside to hold a patient lifting pole/infusion stand.

The patient lifting pole can be inserted directly into one of the adapter sleeves.

To use an infusion stand, a reducing adapter (provided with the bed) must be inserted into one of the adapter sleeves. Before inserting a patient lifting pole, the reducing adapter must be removed.

A grab handle is normally attached to the patient lifting pole (see Available accessories » 174).



6.6.10 Lead-acid battery (optional)

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

Emergency operation

When the bed is occupied by a resident 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 remaining battery capacity is depleted, a signal tone will sound during adjustments.

⚠ ATTENTION

Material damage

Failure to heed this warning may result in property damage due to low battery charge; this can lead to a life-shortening deep discharge of the battery.
In this case, take the following action to optimise the battery life:

- Connect the bed to the mains power supply as soon as possible to recharge the battery.
- Avoid attempting repeated electric adjustments that would discharge the battery even more when the bed is not connected to the mains power.

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 control device.

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

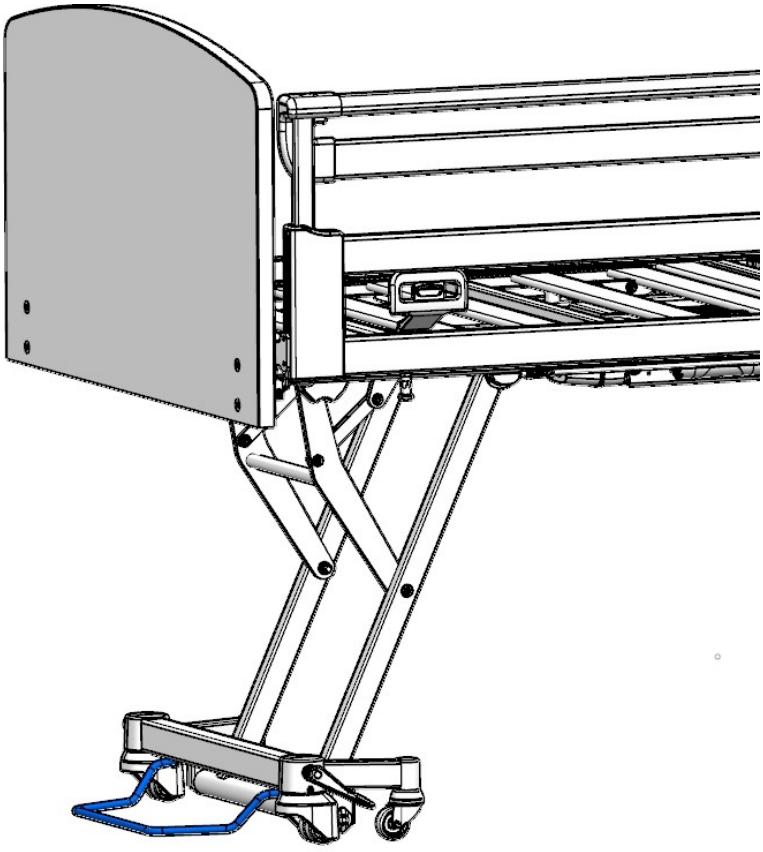
In this case, please contact the manufacturer. We will replace the rechargeable lead-acid batteries and dispose of the old batteries properly.

Display on the screen (LCD handset)	Explanation
No display on the screen	The battery is full, or a fully depleted battery is preparing for charging

Display on the screen (LCD handset)	Explanation
	Yellow LED on, battery charging

6.6.11 Wall spacer (optional)

The sole purpose of the wall spacer is to increase and maintain the distance from the wall. The wall spacer can be attached to the bed chassis at either the head end or the foot end.



6.6.12 Under bed light (optional)

The energy-saving, long-lasting LED under bed light provides safe orientation during the night and can reduce the risk of falls. The light is sufficiently subtle, however, to not disturb the resident of the adjacent bed.

To find out how to switch the under bed light on and off, refer to chapter Switching the under bed light on/off (optional) » 105.

6.6.13 Out-of-Bed (OOB) (optional)

The bed can be equipped with an Out-of-Bed function. This function supports care staff in their work by alerting them in good time if residents have left their bed. This should help them to further enhance the comfort and standard of care of the resident. For more information, refer to the instruction manual for accessories that is supplied with this bed.

6.7 Technical data

6.7.1 Type plate

The type plate is at the head end of the mattress base (inner side) and contains the following information:

For beds with an external switching power supply (SMPS20)

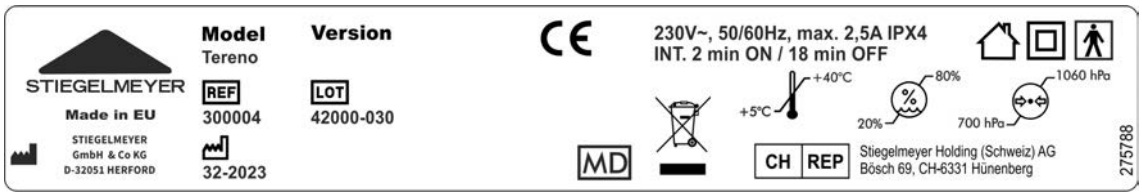


Image4: Type plate (example)

For beds with an internal switching power supply (CO53)

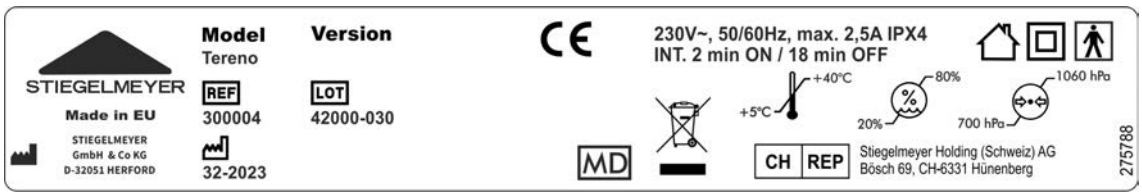


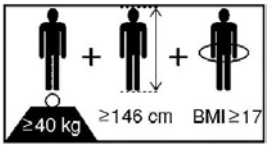
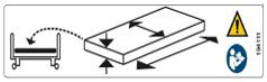
Image5: Type plate (example)

Explanation of the graphical symbols used:	
Model	Bed model
Material	Material variant (if applicable)
Version	Variant (if applicable)
REF	Item number (Kmat)

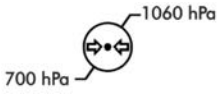
Explanation of the graphical symbols used:	
	Order number
	Date of manufacture (week/year)
	The article is a medical device
	Device with type BF applied part in accordance with IEC 601-1 (special protection against electric shock)
	Protection Class II device, shock-proof
	Only for use in enclosed spaces – do not use outdoors
	Dispose of electrical components in accordance with the WEEE Directive. Do not dispose of as household waste!
IPX4	Protection of electrical equipment from water splashing from any direction
	Conformity mark according to Medical Devices REGULATION (EU) 2017/745 (MDR)

6.7.2 Other labelling on the product

Explanation of the graphical symbols used:	
	Attention! Follow the operating instructions
	Total weight of bed

Explanation of the graphical symbols used:	
	Safe working load
	Permissible weight of patient
	Minimum resident measurements/weight: Height: 146 cm, weight: 40 kg; body mass index “BMI”: 17
	Only use mattresses that are approved by the manufacturer.
	Lock the handset if the resident could be at risk due to inadvertent motorised adjustments.

6.7.3 Other labelling on the packaging

Explanation of the graphical symbols used:	
	Storage temperature / transport temperature
	Humidity
	Air pressure

6.7.4 PID number

Relevant order information is summarised for the manufacturer under the PID number. Have the PID number ready any time you contact your specialist dealer. You can find the PID no. on the bed frame at the head end.

Image6: PID number

6.7.5 Materials used

The bed is made predominantly of steel sections (mattress base and chassis) coated with a polyester powder finish or a zinc or chromium metal finish.

All surfaces that can be touched during normal use have been tested for bio-compatibility and are harmless to humans when in contact with the skin.

6.7.6 Dimensions

All the indicated dimensions and weights in this manual are approximate.

Description	Values (approx.) in cm
External bed dimensions (LxW)	211 x 103
Mattress base (mattress size) (LxW)	200 x 90 210 x 90 (optional) 220 x 90 (optional)
Bed extension	10 / 20
Ground clearance of chassis (not in lowest mattress base position)	15
Backrest length compensation	11
Protective height above the mattress base when safety sides are used	45 (for pivoting and telescopic safety side)

Description	Values (approx.) in cm
	41 (Vario Safe safety side)
Min. mattress dimensions* (LxWxH)	200 x 87 x 12 210 x 87 x 12 (optional) 220 x 87 x 12 (optional)
Max. permissible mattress height	23 cm (for pivoting and telescopic safety side) 19 cm (for Vario Safe safety side)

* More information about the mattress:

- Density: min. 40 kg/m3
- Compression hardness: min. 4.5 KPa (in edge area)

6.7.7 Castor type

Castor type	Outside: 50 mm double castors Inside: 50 mm single castors
Castor locking mechanism	Locked in pairs at the head/foot end

6.7.8 Weight

Description	Values (approx.) in kg
Safe working load	225
Maximum weight of resident*	185 – 210 (depending on the weight of accessories attached)
Total bed weight, maximum	140

6.7.9 Adjustment ranges

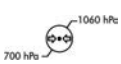
Description	Value
Tilting to Trendelenburg position	12°
Tilting to reverse-Trendelenburg position	12°
Mattress base height	15 - 80 cm
Backrest angle	70°
Thigh rest angle	30°
Extended leg raise angle	9°

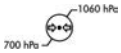
6.7.10 Operating noise

The operating noise of an electrically adjustable bed is not more than 50 dB (A).

6.7.11 Ambient conditions

The following ambient conditions must be maintained:

Ambient operating conditions	Minimum	Maximum
 Ambient temperature	+ 5°C	+ 40°C
 Relative humidity	20%	80 % (non-condensing)
 Air pressure	700 hPa	1060 hPa (at altitude of ≤ 3000 m)

Ambient conditions for storage and transport	Minimum	Maximum
Storage/transport temperature 	- 10°C	+ 50°C
Relative humidity 	20%	80 % (non-condensing)
Air pressure 	700 hPa	1060 hPa (at altitude of ≤ 3000 m)

6.7.12 Medical Device Classification

This bed fulfils all the requirements of the Medical Device REGULATION (EU) 2017/745 (MDR) and is considered a Class I medical device in accordance with the classification rules.

UMDNS code: 10-347; Bed (electrically adjustable)

CDN code: Y181210: SUPPORTS OR TECHNICAL AIDS FOR DISABLED PERSONS: ORTHOPAEDIC BEDS, 2 ARTICULATIONS, ELECTRIC

For use in the following application groups according to IEC 60601-2-52:

Group	Description
3:	Long-term care in a medical facility in which medical supervision is required and monitoring is provided if required. A medical electrical device used in medical procedures can be provided to help maintain or improve the condition of the resident. (e.g. retirement and nursing homes, rehabilitation facilities and geriatric institutions)
4:	Care in the home. A medical electrical device is used to alleviate or compensate for injuries, disabilities or illnesses.

6.7.13 Electrical data

Mains cable (coiled, anti-kink, with strain relief)	
Type	H05 BQ-F 2 x 1 mm^2 (EPR quality)

Mains cable (coiled, anti-kink, with strain relief)	
	2-pole right-angle contour plug CEE 7/XVII (various variants for different countries available on request)

Handset	
Type	HB400
Operating voltage	DC 24 V
Protection category	IPX6

LCD handset (optional)	
Type	SHS003
Operating voltage	DC 24 V
Protection category	IPX6

External switch mode power supply (optional)	
Type	LINAK SMPS20
Input voltage	AC 230 V, -15 % / +10 %, 50/60 Hz
Power plug, mains plug	Different plug types depending on country of use. Example: Type C/CEE 7/16 - Europlug
Current input	AC max. 2.5 A
Output voltage	DC max. 34 V
Output current, electronically limited,	max. 10 A, activated via remote signal
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IPX4
Classification	Protection class II, type B, not for use in explosive atmospheres
Output cable	24-volt output, approx. 2.50 m, with special plug, 4-pole

Control unit with internal switch mode power supply	
Type	LINAK CO53 OpenBus™
Input voltage	AC 230 – 240 V -15 +10 %, 50/60 Hz
Current input	max. 2.5 A
Standby current consumption	< 0.8W
Power pack	Wide range switch mode power supply; highly efficient; power management for optimum speed under every load; compact, lightweight and energy-efficient, for practically worldwide use
Safety systems	Thermal protection; short-circuit protection; hot-plugging protection
Output voltage	DC max. 33 V
Output current	Max. 10 A (electronic monitoring and cut-out)
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Classification	Protection class II, type B, not for use in explosive atmospheres
Protection category	IPX6

Control unit for external switch mode power supply SMPS20	
Type	LINAK CO53 OpenBus™
Input voltage	AC 230V, 50/60 Hz
Output voltage	DC max. 33 V
Output current	Max. 10 A (electronic monitoring and cut-out)
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Classification	Protection class II, type B, not for use in explosive atmospheres
Protection category	IPX6

Lead-acid battery, external (optional)	
Type	LINAK BA18
Type	2 sealed maintenance-free lead-acid batteries in separate plastic housing
Weight	1.6 kg

Lead-acid battery, external (optional)	
Capacity	1.2 Ah
Voltage	DC 24 V
Protection category	IPX5
Lifespan	Up to 5 years under optimum conditions. The rechargeable lead-acid battery's lifespan can be negatively influenced by the following conditions: 1. Increased ambient temperature 2. High number of charging/discharging cycles 3. High depth of discharge 4. Frequently leaving the bed in a discharged state without being connected to the mains

Junction box	
Type	MJBxx
Operating voltage	DC 24 V
Protection category	IPX6

Drive M2+M4: Lift drives	
Type	LINAK KA30
Path feedback	Hall sensor; analogue coding
Force/installation dimension/lift	8000 N/ 390mm/ 180 mm
End position cut-out	Micro-switch, with analogue coding
Input voltage	DC 24 V
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IPX4

Optional equipment: Out-of-Bed lift drives	
Type	LINAK LA40

Optional equipment: Out-of-Bed lift drives	
Path feedback	Hall sensor; analogue coding
Force/installation dimension/lift	8000 N/ 390mm/ 180 mm
End position cut-out	Signal switch, with analogue coding
Input voltage	DC 24 V
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IPX6

Drive M3: (Electric motor) thigh rest	
Type	LINAK KA30
Force/installation dimension/lift	4000 N / 272 mm / 70 mm
End position cut-out	Signal switch, with analogue coding
Input voltage	DC 24 V
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IPX4

Drive M1: (Electric motor) backrest	
Type	LINAK KA30
Force/installation dimension/lift	4000 N / 370 mm / 200 mm
End position cut-out	Signal switch, with analogue coding
Input voltage	DC 24 V
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Protection category	IPX4

6.7.14 Electrical connection diagram

This bed can be delivered with standard equipment and also with optional equipment. In the following chapters you will find the connection diagrams of both equipment variants.

The following figure will help you to localise the electrical components on the bed.

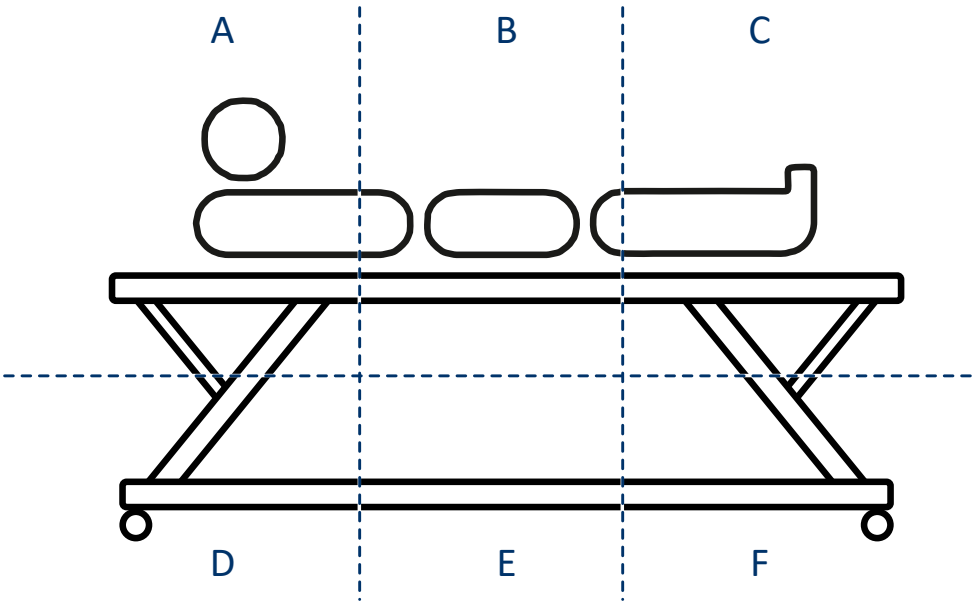
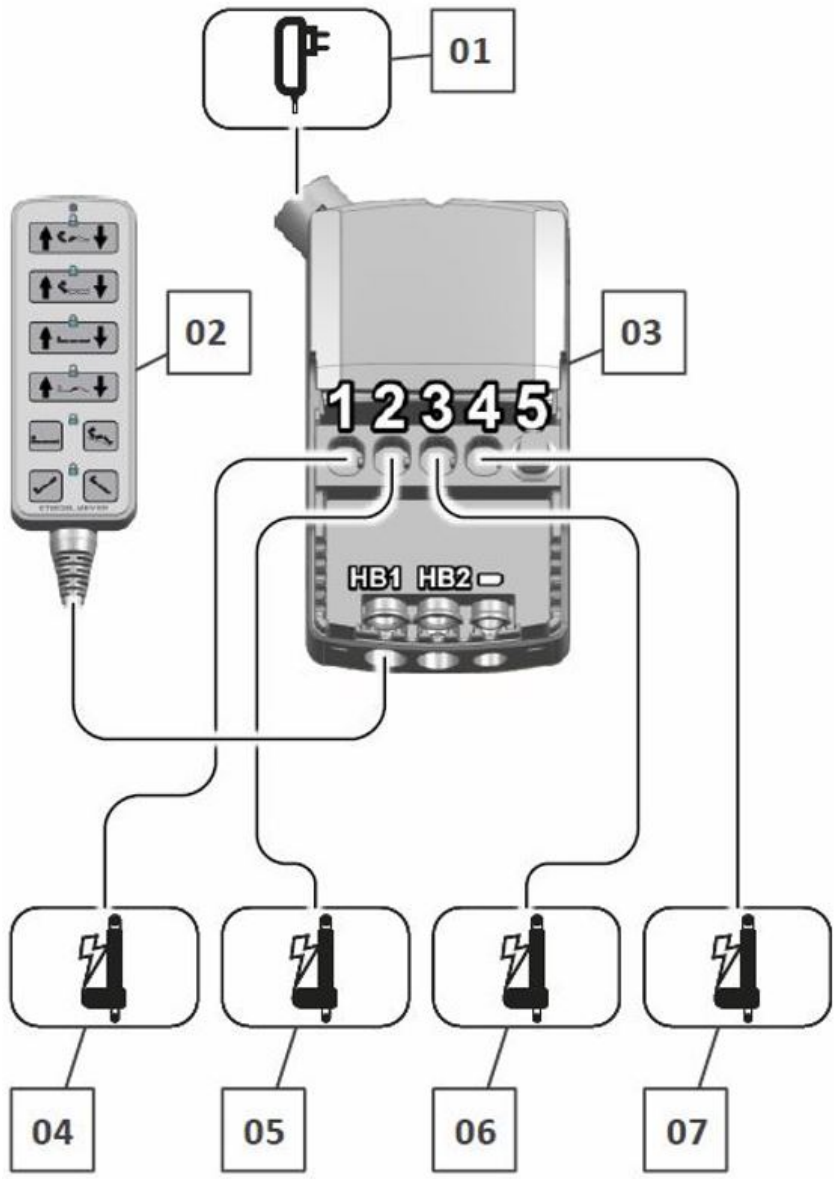


Image7: Location of the electrical components

A: Head end, high up	B: Centre of bed, high up
C: Foot end, high up	D: Head end, low down
E: Centre of bed, low down	F: Foot end, low down

6.7.14.1 Standard features

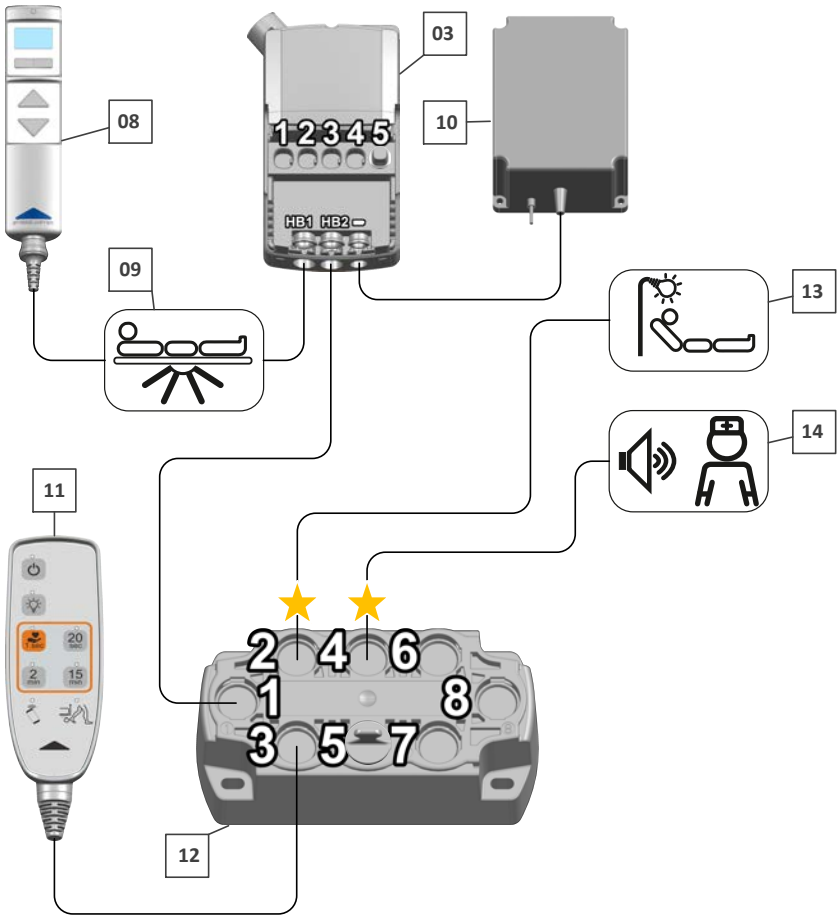
The letters in the following tables refer to the previous picture “Location of the electrical components”. This indicates where the component is located in the bed.



1: Electricity supply → A	2: Conventional handset → B
3: Control unit → B	4: Backrest motor → B
5: Height adjustment motor at head end → E	6: Thigh rest motor → B
7: Height adjustment motor at foot end → E	

6.7.14.2 Optional equipment

Components with an asterisk must be inserted into the correct connection socket only.



8: LCD handset	9: Under bed light → B
10: Rechargeable battery → B	11: Out of Bed handset (Smart) → A
12: Distributor box → B	13: Reading lamp → A
14: Call system → B (a detailed connection diagram of the call system can be found in the supplementary instruction manual)	

7 Attachment/Removal

7.1 “Vario Safe” system

7.1.1 Headboard and footboard

As an optional feature, the headboard and footboard can be quickly fitted/removed without tools to provide easier access to the resident. The headboard and footboard are fitted/ removed by operating a locking lever that is attached to the cross tubing.

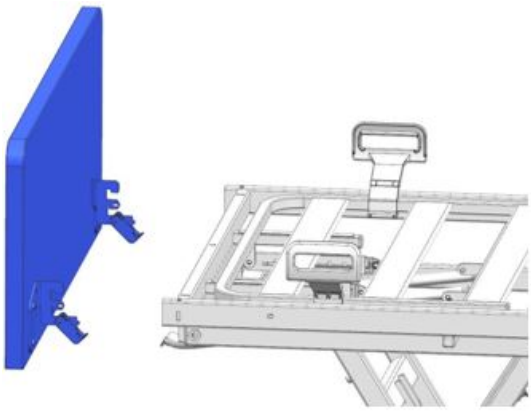
⚠ WARNING

Risk of injury

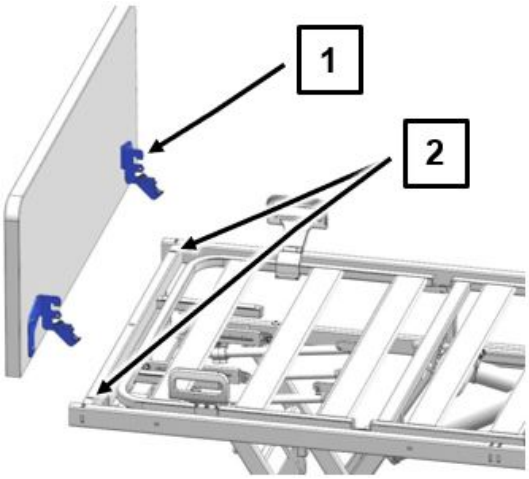
Risk of injury due to incorrect installation or storage of split safety sides, headboards, footboards or side panels with the Vario Safe system!
Failure to observe these instructions can result in insecure fastening and/or material damage and can thus put the resident at risk of falling or becoming trapped.

- Please carefully follow the assembly steps described below.
- After assembly, carry out the mandatory checks to make sure that the fixings are secure.
- To ensure that the plastic locking levers of the Vario Safe system function properly, do not allow them to fall or suffer severe knocks during disassembly or storage.
- Do not use damaged Vario Safe systems.

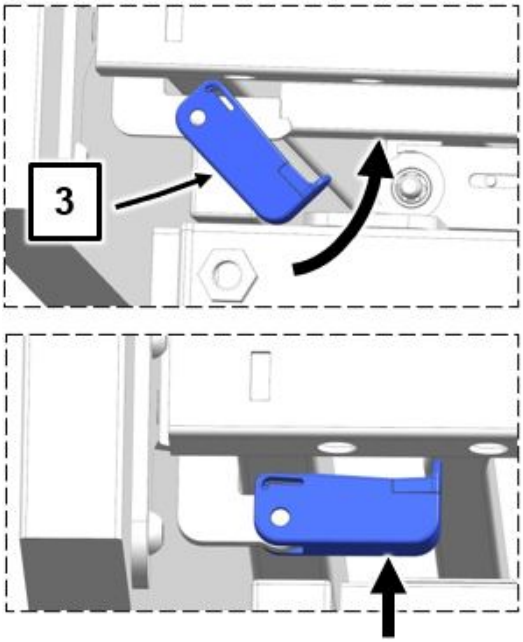
7.1.1.1 Attachment



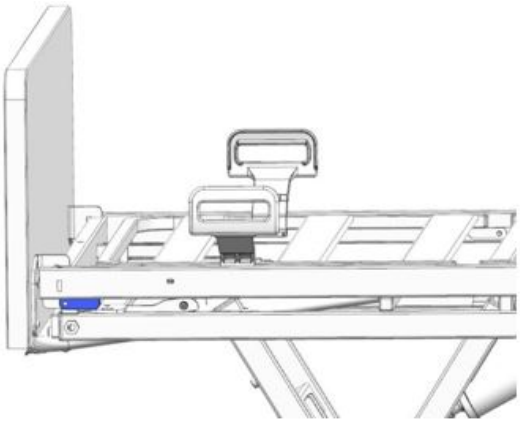
1 Standing behind the headboard/footboard, firmly grip the uppermost corners of the headboard/footboard with both hands.



2 Insert the locking hooks [1] of the adapters as far as they will go into the slits of the cross tube [2] and make sure the headboard/footboard is fitted securely.

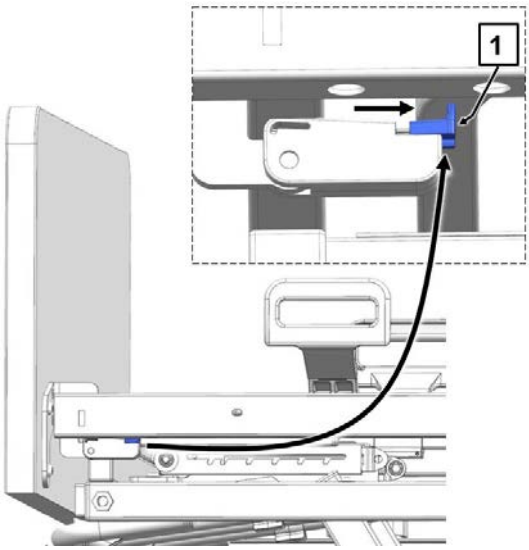


3 Swivel the locking levers [3] (left and right side) upwards and press until they audibly click into place.

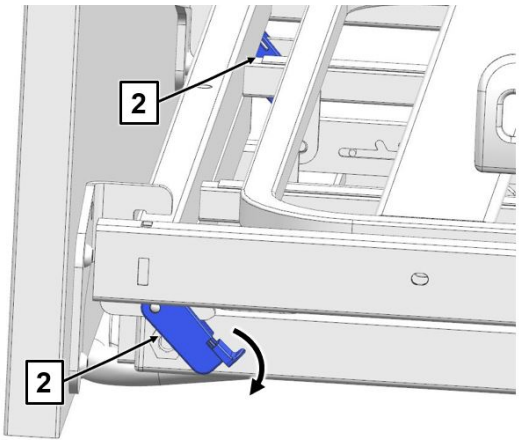


4 Check that the headboard/footboard is firmly in place by pulling the top edge of the board to and fro.

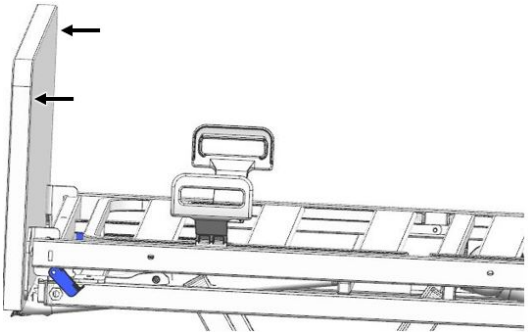
7.1.1.2 Removal



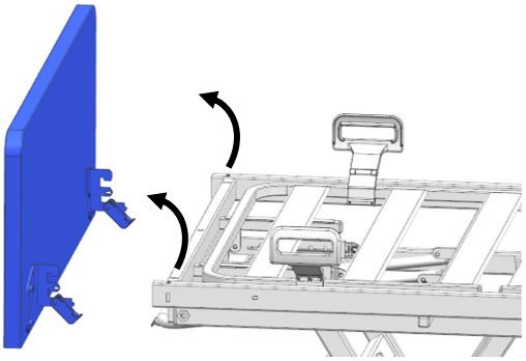
1 Use a finger to pull the orange safety lock [1] towards the centre of the bed and keep holding it in this position.



2 Swivel the locking levers [2] (left and right side) downwards.



3 Standing behind the headboard/footboard, firmly grip the uppermost corners of the headboard/footboard with both hands.



4 First of all, pull the headboard or footboard straight up and then lift it evenly out of the recesses in the cross tubing of the bed frame.

7.1.2 Split safety side

The split safety side (Vario Safe system) consists of four parts. These simply clamp onto the long sides of the bed. A total of 4 safety side sections are required per bed. The safety sides are used in 3 different sizes to suit the length of the mattress base (200 cm/210 cm/220 cm). To find out which size you need, please see the information in chapter Using the split safety sides » 55.

STIEGELMEYER

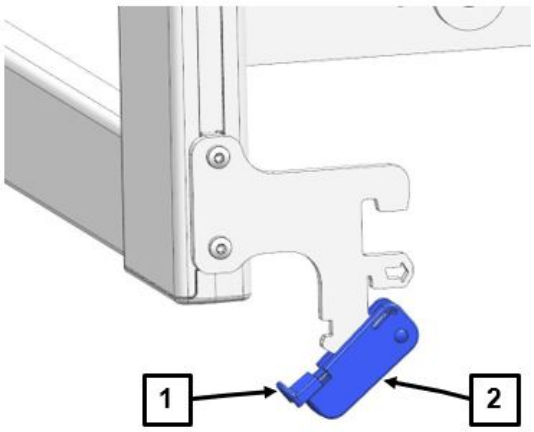
⚠ WARNING

Risk of injury

Risk of injury due to incorrect installation or storage of split safety sides, headboards and footboards or side panels with the Vario Safe system!
Failure to observe these instructions can result in insecure fastening and/or material damage and can thus put the resident at risk of falling or becoming trapped.

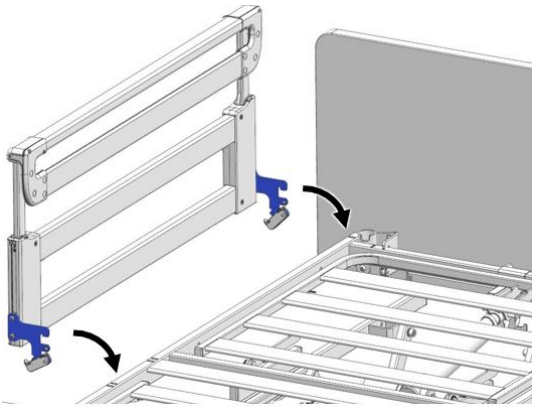
- Please carefully follow the assembly steps described below.
- After assembly, carry out the mandatory checks to make sure that the fixings are secure.
- To ensure that the plastic locking levers of the Vario Safe system function properly, do not allow them to fall or suffer severe knocks during disassembly or storage.
- Do not use damaged Vario Safe systems.

7.1.2.1 Attachment

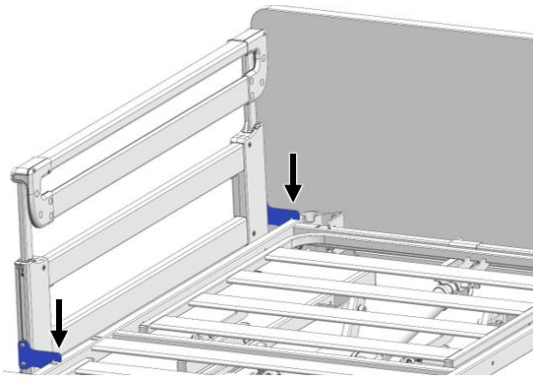


1 First swivel the locking levers (left and right) of the safety sides [2] downwards.

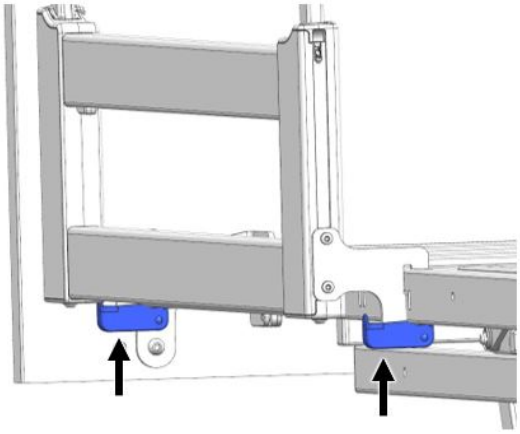
To do so, pull the orange safety lock [1] outwards with your finger and hold it in this position while swivelling the locking lever downwards.



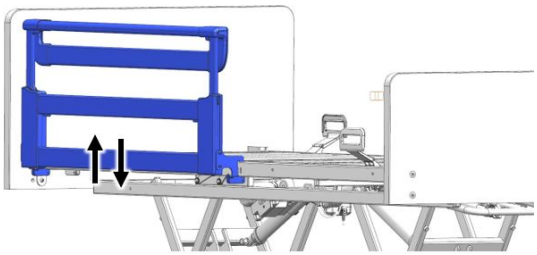
2 Attach the head-end safety side to the tube, as shown.



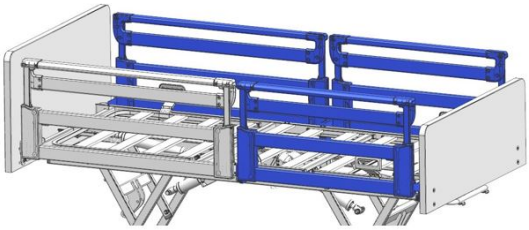
3 Insert the locking hooks of the adapters into the slits of the tube as far as they will go and make sure the safety side is inserted properly.



4 Swivel the locking levers (left and right-hand side) upwards and press them until they audibly click into place.

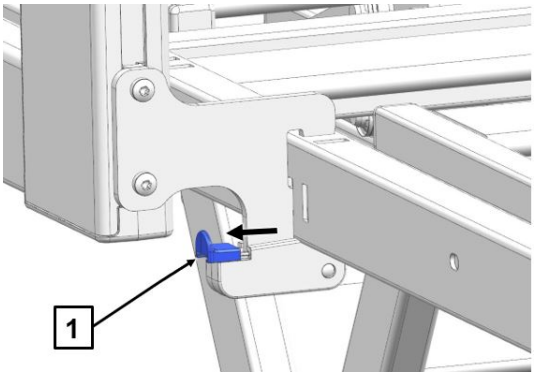


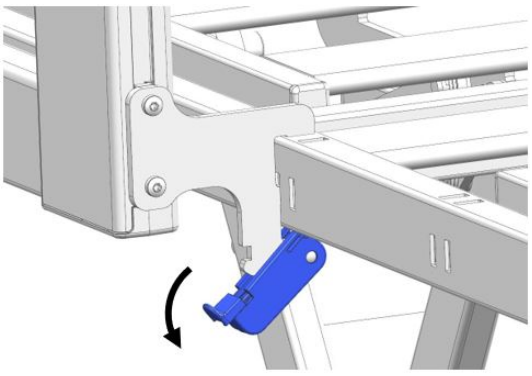
5 Check that the safety side is firmly attached by holding it at the lower edge with both hands and trying to move it up and down.



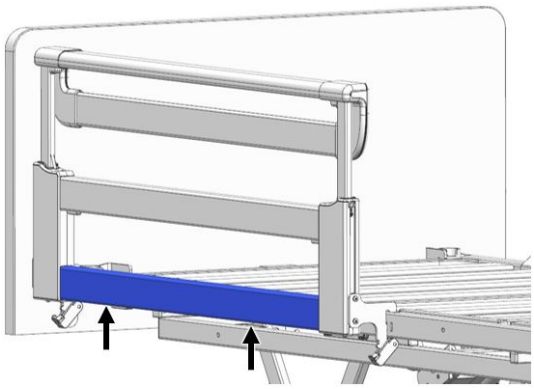
6 Repeat steps 1 to 5 with the remaining three sections of the split safety side.

7.1.2.2 Removal

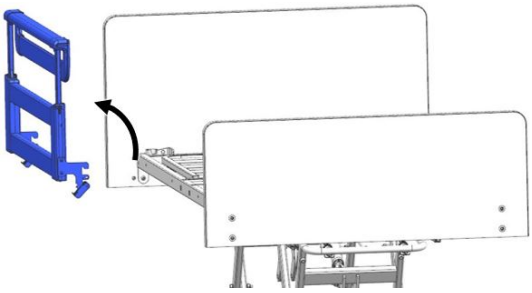




1 Use a finger to pull the orange safety lock [1] of the locking lever outwards and keep holding it in this position.



2 Swivel the locking lever (left and right side) downwards.



3 Hold the safety side by grasping the housing sections at either side with both hands, as shown.

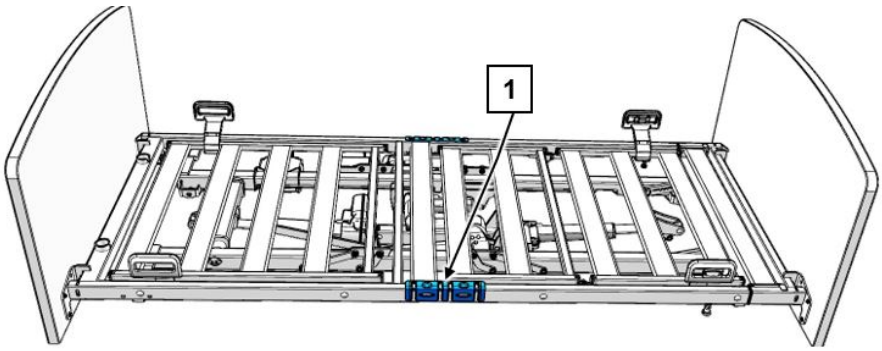
4 First of all, pull the safety side straight up and then lift it evenly out of the recesses in the longitudinal bed frame tubing.

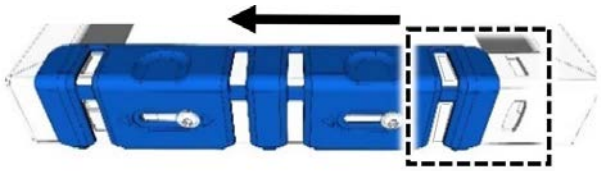
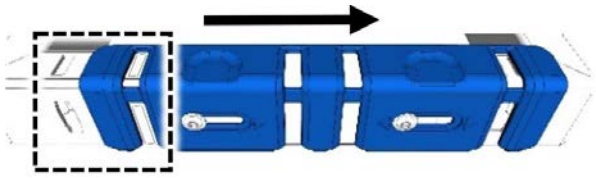
7.1.2.3 Covering cap – split safety side

In mattress base frames designed for the attachment of split safety sides/side panels, the mattress base frame is equipped with recesses, and a covering cap [1] is fitted in the centre. The covering cap is used to cover any recesses in the frame that are not currently in use for securing the side elements. Depending on the length of the mattress base (200 cm/210 cm/ 220 cm) and the size of the safety sides (90 cm/100 cm/110 cm), the covering cap can be pushed towards the head end of the bed [A] or towards the foot end [B]. Only the recesses currently required for the safety side elements used are left uncovered. In this way, incorrect installation of the Vario Safe safety sides/side panels that could result in the resident being injured is prevented.

To find out which size of safety sides/side panels is permitted for each mattress base size, please see the information in chapter Using the split safety sides » 55.

Note: The dashed rectangles shown in the enlarged views (see illustration [A] and [B]) indicate the locations of the opened recesses.



[A]	
[B]	

7.1.2.4 Using the split safety sides

The standard length of the mattress base of the bed is 200 cm, but it can be extended to 210 or 220 cm. For safety reasons, only certain sizes of the split safety side may be used for each of these three variants.

The following table shows which safety sides are required for which mattress base length.

Options per bed side:

Mattress base length	Safety side length		
	90cm	100cm	110cm
200cm	1x*		1x*
210cm		1x*	1x*
220cm			2x
*: The safety side can be fitted at the head end or foot end! However, the safety instructions in chapter Combination of split safety side and side panels » 56 must also be observed.			

Attention: For safety reasons, all other combinations not mentioned in the table are not permitted for safety reasons, since they leave too large a gap between the safety side sections. This gap could result in limbs becoming trapped.

7.1.2.5 Combination of split safety side and side panels

⚠ WARNING

Risk of injury

Failure to observe this warning can result in injury due to the combined installation of the split safety side (90 cm wide) and side panel (110 cm wide)!

- Figure A: Short safety side, 90 cm, at the head end, and 110 cm side panel at the foot end: This combination is only permitted as a mobilisation aid to facilitate the entry and exit of residents who do not require increased protection in the form of safety sides to prevent them from accidentally falling out of bed.
- Figures B, C and D: More extensive, standard-compliant protection against accidentally falling out of bed can only be achieved with these variants shown (B, C, D).

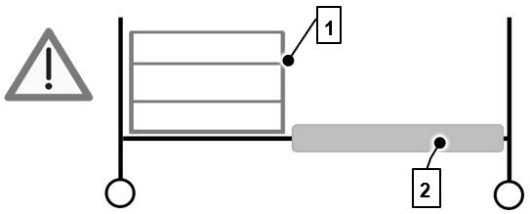
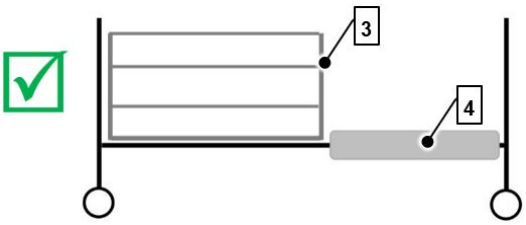
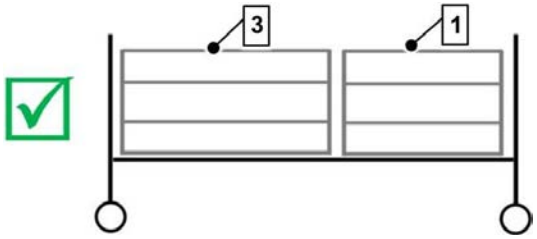
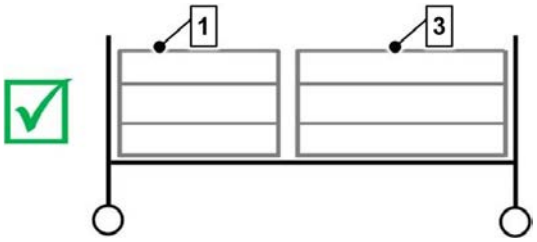
[1]	Split safety side 90 cm wide	[2]	Side panel, 110 cm wide
[3]	Split safety side 110 cm wide	[4]	Side panel, 90 cm wide
Fig. A			
Fig. B			

Fig. C	
Fig. D	

7.1.3 Side panels

The bed can optionally be fitted with side panels. A total of 4 side panels are required per bed. The side panels are used in two different sizes (90 cm/110 cm) depending on the length of the mattress base (200 cm/210 cm/220 cm).

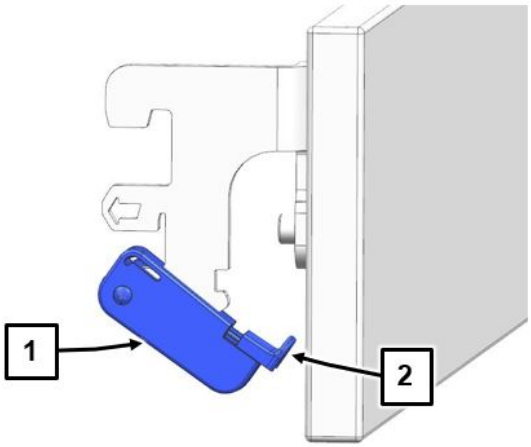
⚠ WARNING

Risk of injury

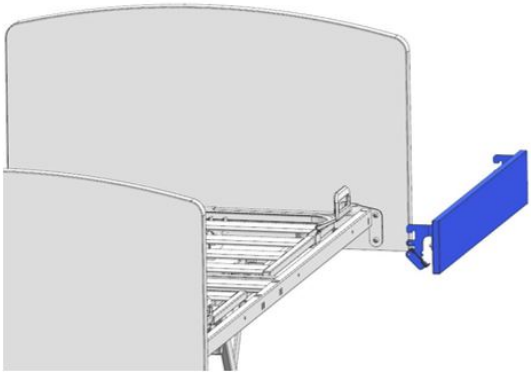
Risk of injury due to incorrect installation or storage of split safety sides, headboards and footboards or side panels with the Vario Safe system!
Failure to observe these instructions can result in insecure fastening and/or material damage and can thus put the resident at risk of falling or becoming trapped.

- Please carefully follow the assembly steps described below.
- After assembly, carry out the mandatory checks to make sure that the fixings are secure.
- To ensure that the plastic locking levers of the Vario Safe system function properly, do not allow them to fall or suffer severe knocks during disassembly or storage.
- Do not use damaged Vario Safe systems.

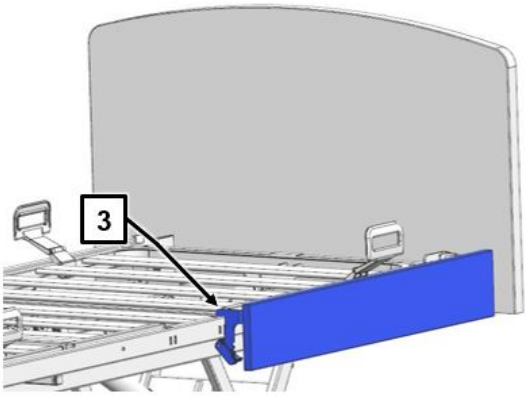
7.1.3.1 Attachment



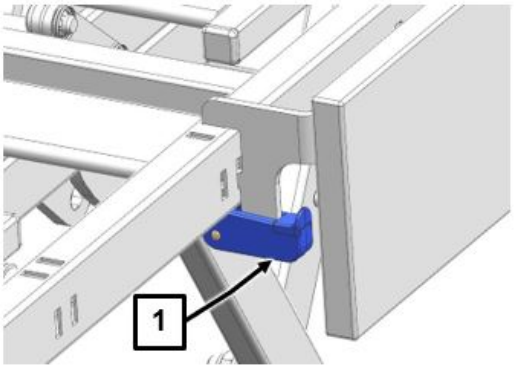
1 First swivel the locking levers (left and right) for the side panel [1] downwards. To do so, pull the orange safety lock [2] outwards with your finger and hold it in this position while swivelling the locking lever downwards.



2 Attach the head-end side panel to the bed (at the head end) as shown.



3 Place the locking hooks of the adapters [3] into the slits in the tube as far as they will go. Make sure that the panel is fitted securely in place (by visual inspection and by shaking it slightly).

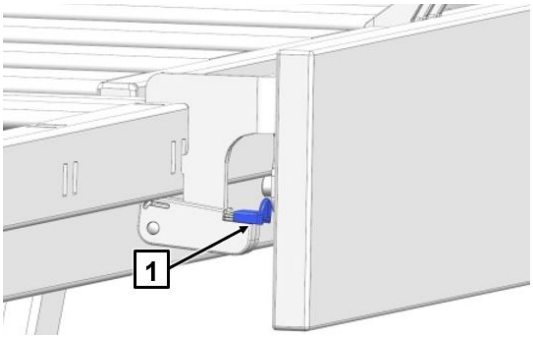


4 Swivel the locking levers [1] (left and right side) upwards and press until they audibly click into place.

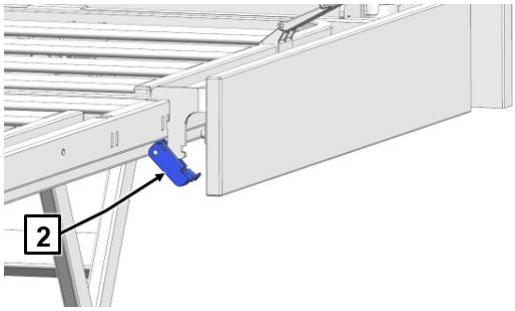
5 Check that the side panel is firmly in place by jiggling the top edge of the panel to and fro.

6 Repeat steps 1 to 5 with the remaining three side panel sections.

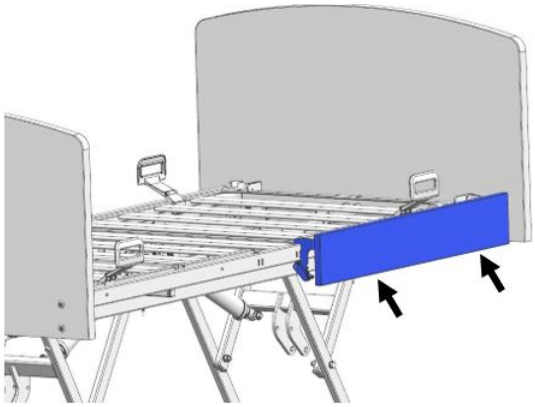
7.1.3.2 Removal



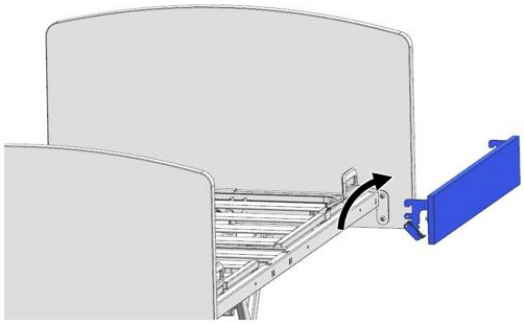
1 Use a finger to pull the orange safety lock [1] towards the centre of the bed and keep holding it in this position.



2 Swivel the locking levers [2] (left and right side) downwards.



3 Grasp the lower edge of the side panel with both hands.



4 First of all, pull the side panel straight up and then lift it evenly out of the recesses in the longitudinal tubing.

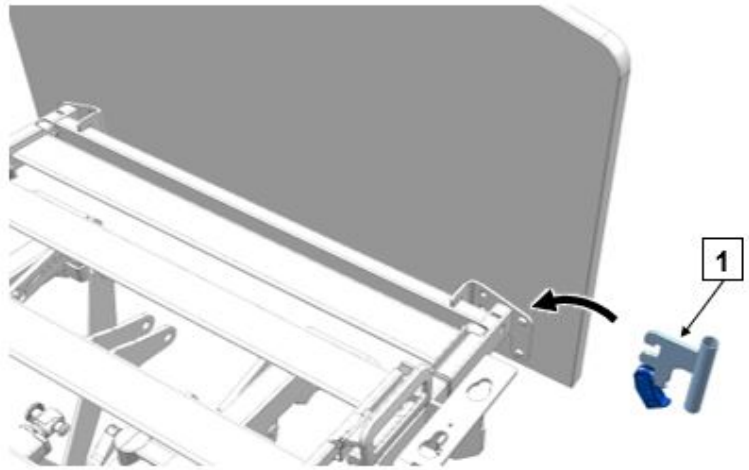
7.2 Attaching the gap closure (optional)

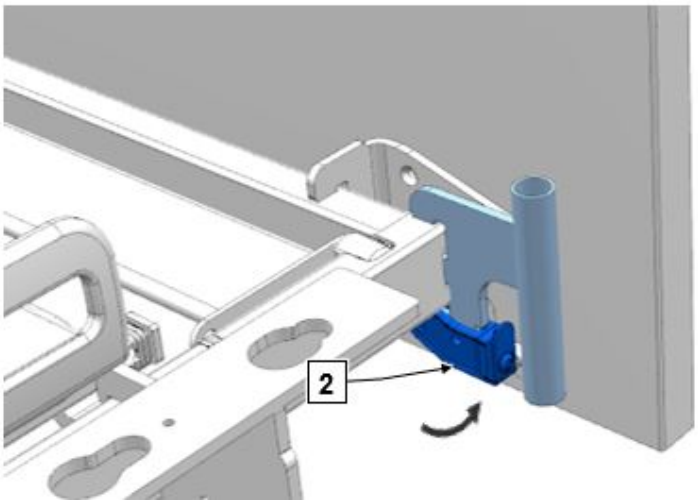
If the bed is equipped with swivelling and telescopic safety sides and the bed extension is extended, an optional gap closure can be fitted at the foot end to close the entire side of the bed with safety sides. The gap closure will close the gap at the foot end.

Attachment

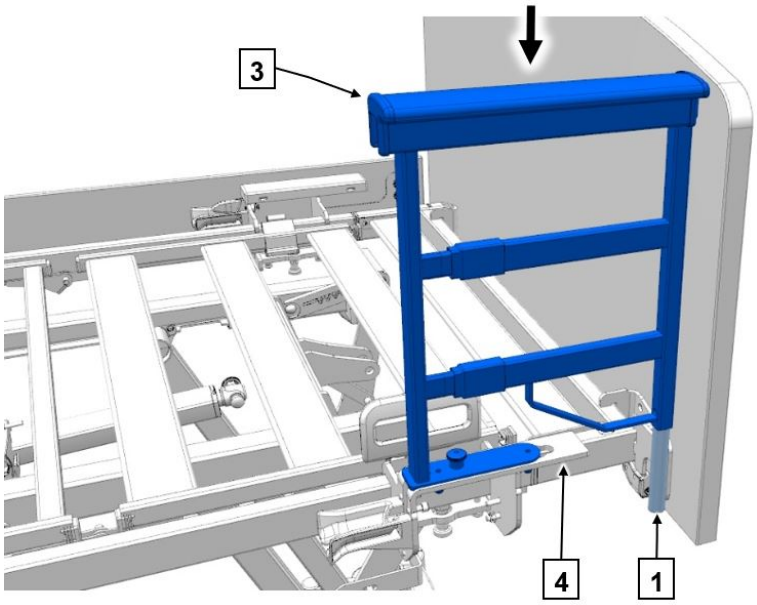
1. Raise the bed to its highest position to make the assembly process easier.
2. If the safety side is extended telescopically, push the telescopic section of the safety side towards the head end right up to the stop.
3. Fit the retaining bracket [1] into the mattress base frame at the foot end.

- Swivel the locking lever [2] upwards and press it until it audibly clicks into place.



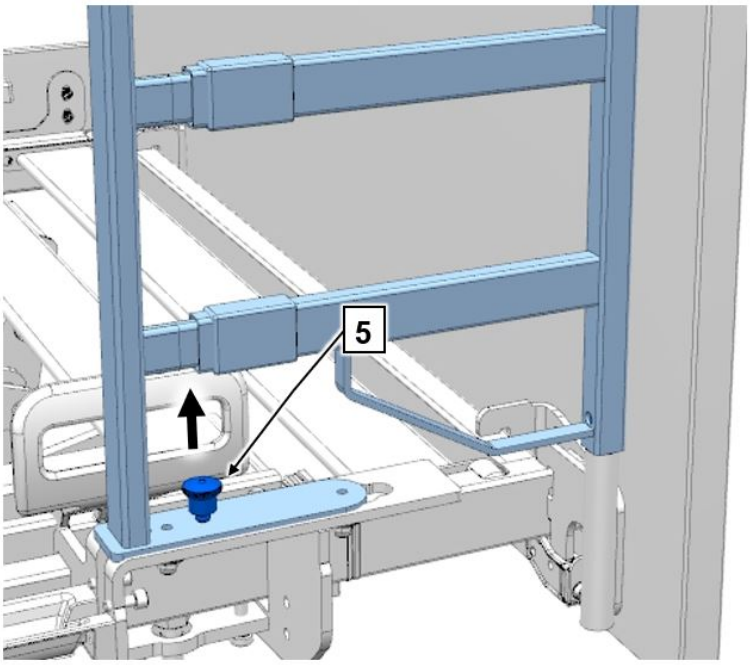


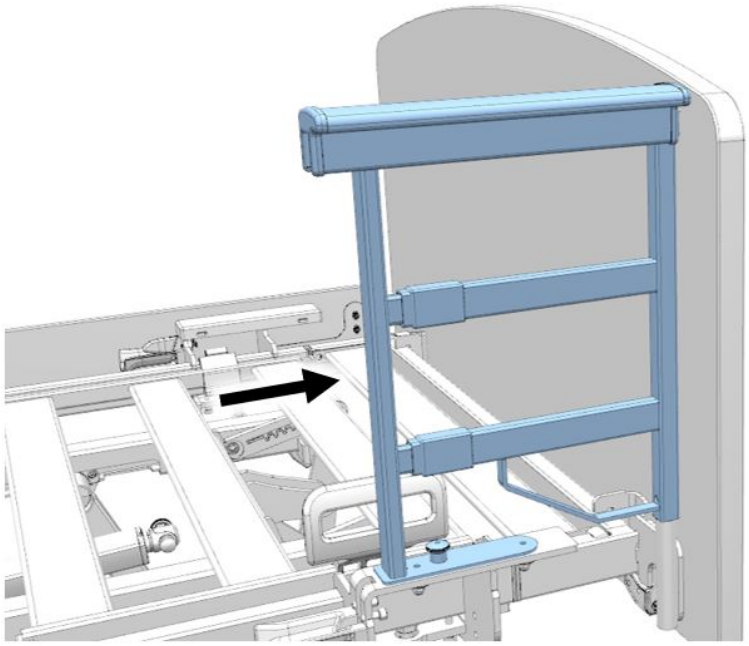
4. Now attach the gap closure:



- First place the adapter sleeve for the gap closure into the retaining bracket [1].
- Next, insert the locking mechanism for the gap closure into the holder [4].

5. Pull the release button [5] up and slide the gap closure as far as it will go towards the foot end until it audibly clicks into place.





6. Check that the gap closure has locked into place.
7. Repeat steps 3 - 6 for the safety side on the other side of the bed.

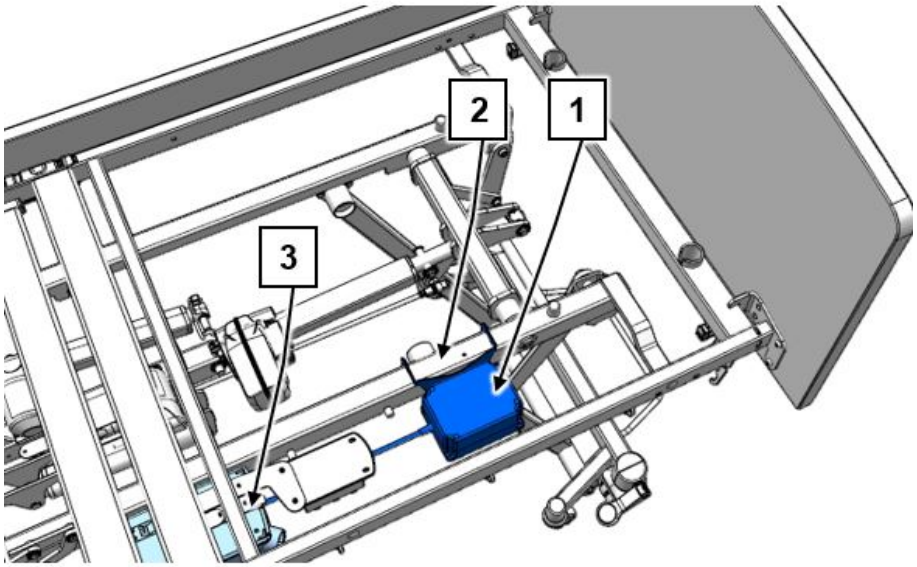
The gap closure is telescopic and extends/retracts automatically when the mattress base is extended or shortened.

Removal

1. Raise the bed to its highest position to make the assembly process easier.
2. If the safety side is extended telescopically, push the telescopic section of the safety side towards the head end right up to the stop.
3. Pull the release button up and slide the gap closure towards the head end as far as it will go.
4. Grasp the gap closure with both hands and pull it upwards.
5. Remove the retaining bracket.

7.3 Connect a battery at a later date (optional)

Note: The battery [1] is supplied with a holder. It is hooked onto the cross tubing [2] at the head end of the bed and then connected to the control unit [3] (see illustration).



Proceed as follows:

1. Hook the battery with its holder [1] onto the cross tubing [2] as shown.
2. Open the cover of the control unit [3] by pressing both securing clips in with a screwdriver and lift the cover flap up until it engages in an upright position; this also unlocks all plug connections.
3. Remove the blind plug from the connection socket of the battery.
4. Plug the battery plug into the connection socket and then close the cover of the control unit. This must engage in place so that it secures all the plug connections.

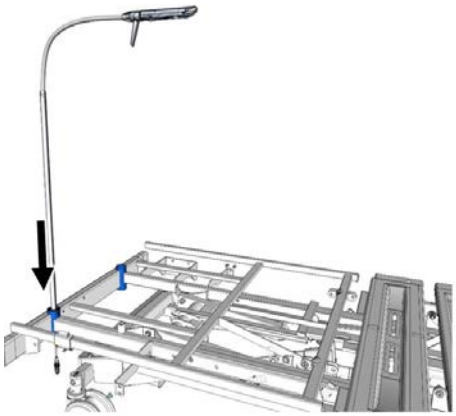
   Note: In order to connect the electrical components correctly, please observe the chapter Electrical connection diagram » 45.

5. Loop any excess cable in such a way that it cannot get caught or be otherwise damaged when the bed is adjusted.
6. Test the electric adjustments to ensure they work correctly!
7. Charge the battery. To do so, connect the bed to the mains power supply for at least 8-10 hours. Only then is the battery ready for emergency use without restriction.

7.4 Connecting a reading lamp at a later date (optional)

The bed can be retrofitted with a reading lamp, if desired. The reading lamp can be connected directly to a 230 volt socket, to the control unit or to the distributor box (in combination with Out-of-Bed).

For further information, refer to the instruction manual for accessories that is supplied with this bed.



7.5 Connecting a wall spacer at a later date

The sole purpose of the wall spacer is to increase and maintain the distance from the wall. The wall spacer can be attached to the bed chassis at either the head end or the foot end.

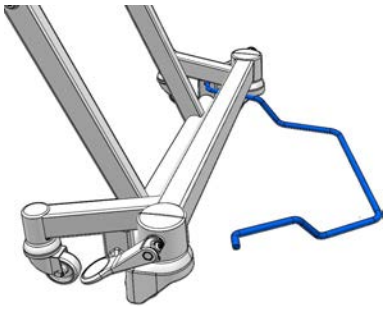
Prior to assembly, the following preparations must be completed:

- Engage the brakes on the bed.
- Adjust the mattress base to its highest position.
- Unplug the mains plug from the electrical socket.

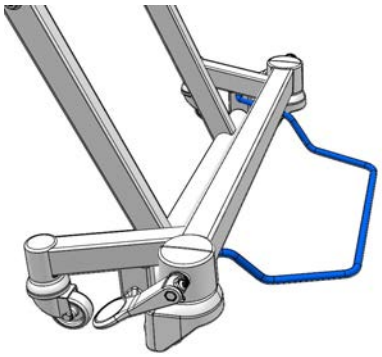
Assembly

Proceed as follows:

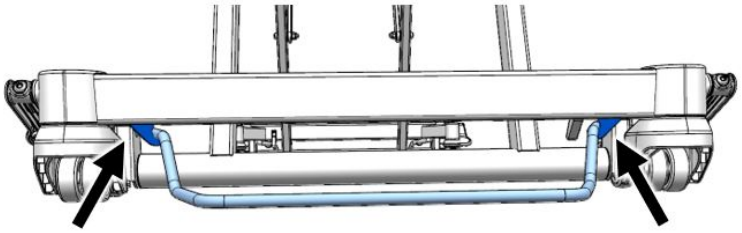
- Hold the wall spacer firmly with both hands and insert one end into the recess on the right-hand side next to the castor.



- Press the wall spacer together slightly and insert the other end into the second recess on the left-hand side next to the castor.



- Two securing hooks are welded from below onto the cross tubing. Ensure that the wall spacer is positioned between the two securing hooks.



Removal

Proceed in reverse order to the attachment process.

8 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.

8.1 Before putting the bed into service for the first time

Remove all transport securing devices (from the brake pedals) and packaging film (from the bed frame).

Clean and disinfect the bed; see Cleaning and disinfection » 122.

8.2 Before putting the bed into service each time

Before putting the bed into service for the first time, and every time thereafter, ensure that:

- the bed has been cleaned and disinfected; see Cleaning and disinfection » 122,
- the castors are braked,
- a visual inspection and functional check have been carried out; see Inspection by the user » 144,
- the steps described in chapter New occupancy after a change of resident » 69 have been carried out,
- the steps described in chapter Maintenance » 130 have been carried out,
- the battery (optional) is fully charged. Connect the bed to the mains power supply for 8 to 10 hours to ensure that the battery has full capacity. During this charging time, you can operate the electrical adjustment functions without restriction using mains electricity,
- the power supply is compatible with the bed, see the information in chapter Type plate » 35,
- the bed is connected to the power supply and the cable is routed in such a way that it cannot be damaged through bed adjustments or by being driven over. Any lengths of cable that are not being used must be stored safely in the cable holder (see chapter 4.4.3).
- the switch mode power supply and the cables of the drives and handset cannot be damaged by the moving parts of the bed,
- this bed is not used in explosive environments caused, for example, by cleaning agents or anaesthetics,
- this bed is not used in combination with high-frequency surgical equipment,

- No obstacles such as bedside cabinets, supply rails or chairs will inhibit adjustments.

The care bed may be put into operation only after all these steps have been followed!

8.3 Location requirements

There must be sufficient room available to accommodate the bed's entire range of adjustments. Furniture and windowsills must not be in the way.

Before using the bed on parquet flooring, check whether the castors will leave stains 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.

Position the bed so as to allow easy access to the power plug at all times, so that the bed can be disconnected from the mains, if necessary.

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.

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

⚠ WARNING

Risk of injury

Failure to heed this warning may result in an electric shock

- Unplug the mains cable from the socket before the start of any repair work
- Unplugging the mains plug offers a safe means of disconnection from the mains power

⚠ ATTENTION

Material damage

Failure to heed this warning may result in damage to the switch mode power supply if it is plugged into a socket under the bed. Otherwise, the moving mattress base frame may rip the switch mode power supply out of the mains socket during horizontal adjustments.

- Do not plug the switch mode power supply into a socket located underneath the bed.
- Hang any cable which is not being used on the cable holder under the headboard.

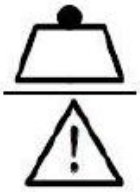
9 Bed reprocessing/bed adaptation

9.1 New occupancy after a change of resident

Follow the instructions in chapter Before putting the bed into service each time » 66.

9.1.1 Information on loading capacity of bed

The safe working load specified for a bed is always calculated from the weight of the resident plus the weight of any accessories attached. The permissible weight of the patient therefore 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 resident 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.

Example:

Bed	Safe working load	Example: with weight of accesso-ries	→ = Permissible weight of resident
Tereno	225 kg	10 kg	215 kg
		40 kg	185 kg

9.2 Removing and inserting headboard and footboard

The headboard and footboard of the Vario Safe system can be removed if required. This may be necessary if the patient has to do rehabilitation exercises in bed, for example. Further information can be found in chapter Headboard and footboard » 19.

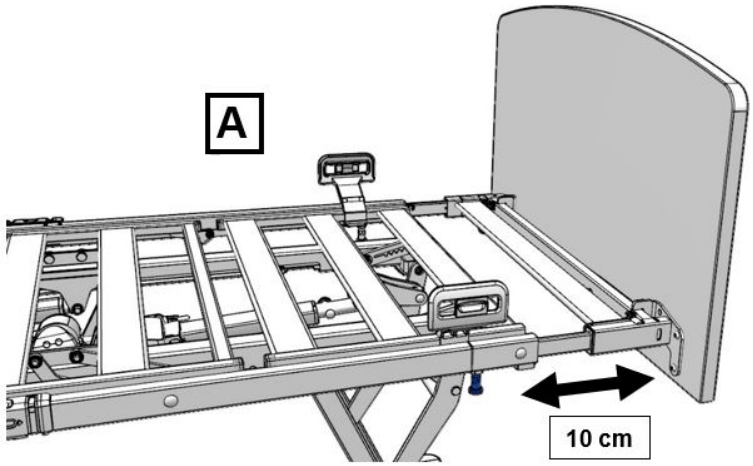
9.3 Extending/shortening the mattress base

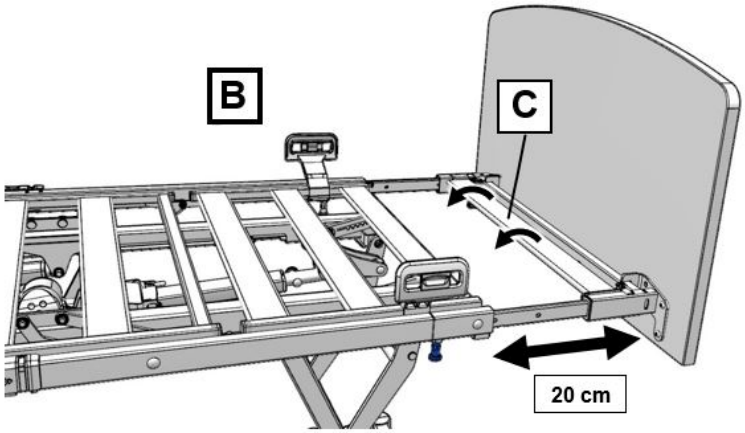
The integrated bed extension at the foot end of the bed makes it possible to extend the mattress base by 10 cm [A] or 20 cm [B] and thus provide comfortable positioning for tall residents.

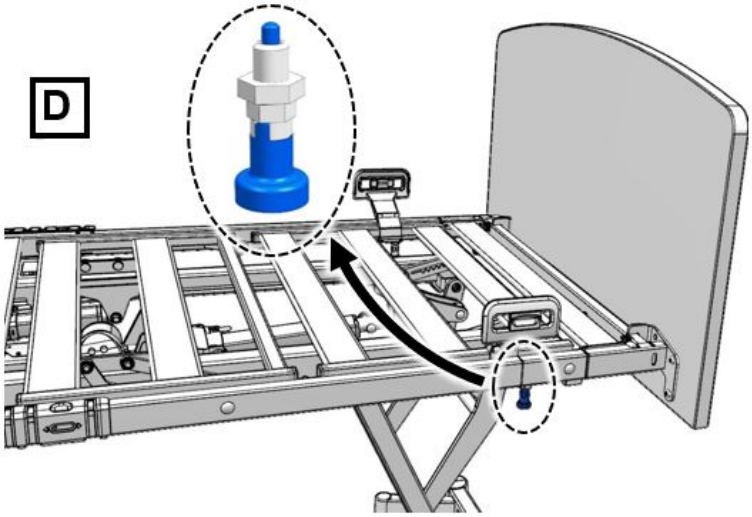
The last slat [C] of the mattress base can be folded over towards the head end to reduce the empty space which is created.

Locking knobs [D] are located on both sides of the bed, at the foot end, underneath the mattress base.

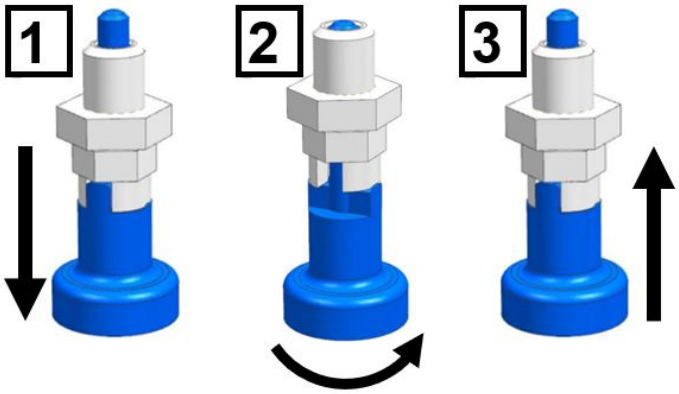
Additional gap closure option: The gap closure is telescopic and extends/ retracts automatically when the mattress base is extended or shortened.







9.3.1 Extending the bed



The bed must be immobilised by applying the brakes.

1. Pull both knobs down [1], one after the other

2. Turn both knobs by a ¼ turn [2]
   → The knobs will lock in place in this position.
3. With both hands, pull the footboard out evenly from under the mattress base.
4. Turn both knobs back by a ¼ turn.
5. Slide the footboard slowly backwards and forwards until both knobs audibly lock into place [3].
6. Check that the knobs have locked into place by trying to pull the footboard to and fro!
   Additional gap closure option: The gap closure extends automatically when the mattress base is extended.
7. Fold the last slat [C] of the mattress base over towards the head end.

9.3.2 Shortening the bed

Proceed in reverse order to the procedure for extending.

Additional gap closure option: The gap closure retracts automatically when the mattress base is shortened.

9.4 Inserting the mattress

Place a suitable mattress on top of the mattress base. Please comply with the permissible dimensions and characteristics of the mattress (for mattress dimensions, see chapter Dimensions » 38).

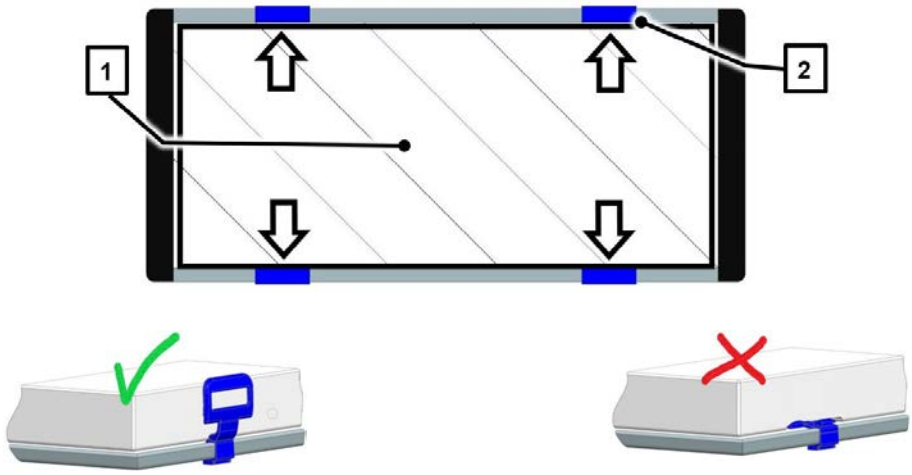
⚠ WARNING

Risk of injury

Failure to heed this warning may risk injury to residents from entrapment or suffocation between the displaced mattress and the raised safety sides.

- Only use mattresses with the specified dimensions and characteristics that are approved by the manufacturer for use with this bed.
- Always lay the mattress [1] on the mattress base between the four lateral mattress retainer bars [2] . This prevents the mattress from moving outwards at the sides of the bed.
- Please also note any other possible position markings on the mattress (such as „Oben/Top“; „Kopf/Head“).
- Always place the mattress onto the mattress base in the way described below.

Top view (shown schematically): Mattress base with properly inserted mattress



Detail (shown schematically): **CORRECT**: Mattress lies between the mattress retainer bars

Detail (shown schematically): **INCORRECT**: Mattress lies outside/above the mattress retainer bars

Mattress retainer bars are supplied as fixed-position or fold down bars, depending on the features of the bed.

9.5 Insert/remove patient lifting pole/infusion stand

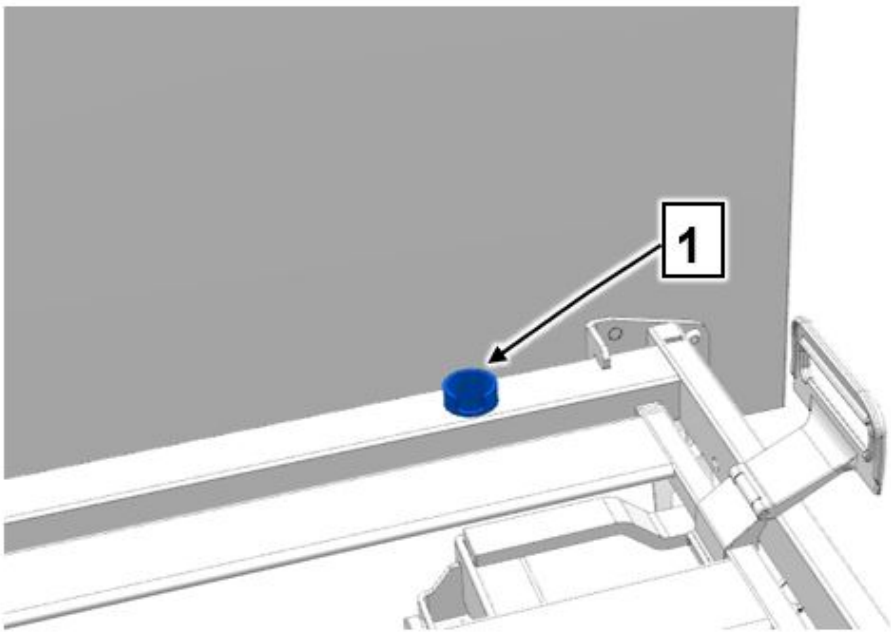
On the cross tubing at the head end, there are two adapter sleeves on the inside for a patient lifting pole.

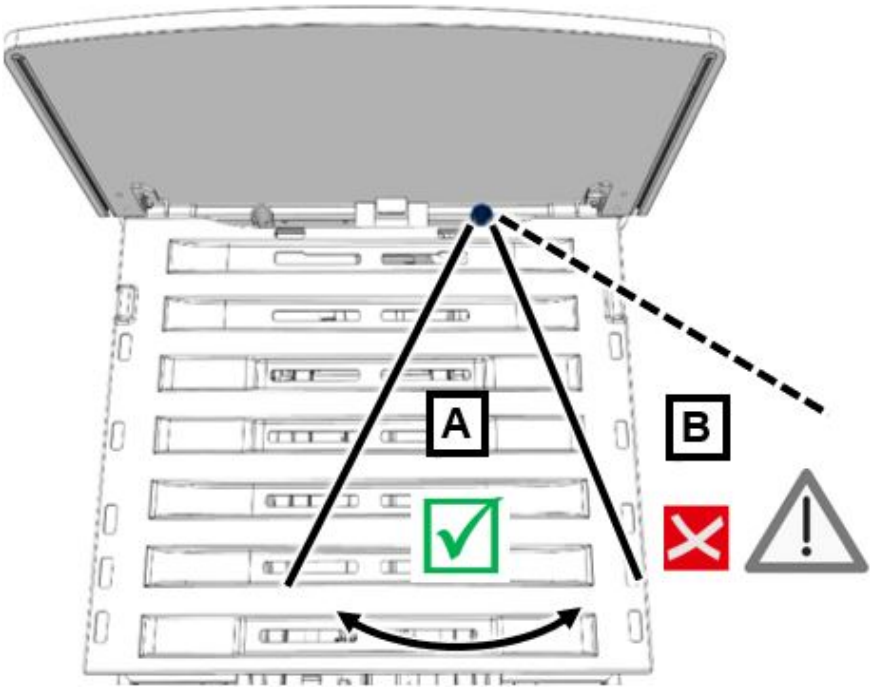
⚠ CAUTION

Health risks and material damage

Failure to heed this warning may result in health risks and damage to property!

- 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.





Insert

- Insert the long, straight end of the patient lifting pole into an adapter sleeve.

  The metal pin on the patient lifting pole must be located in the notch [1] of the adapter sleeve. This restricts the slewing range of the patient lifting pole (see illustration below).

  The patient lifting pole is now facing the centre of the bed and can swing to the side as far as the restriction allows.

Remove

- Pull the patient lifting pole up and out of the adapter sleeve.

Slewing range of patient lifting pole

⚠ WARNING

Risk of injury and tipping over

Failure to heed this warning may result in physical injury and damage to property!
If the patient lifting pole swings beyond the bed area [B] and weight is applied to it there, there is a danger that the bed will tip up.

- Therefore, the metal pin on the patient lifting pole must always sit in the notch [1] in the adapter sleeve! The patient lifting pole may only be loaded within area [A].

.

Infusion stand

To use an infusion stand, a reducing adapter (provided with the bed) must be inserted into an adapter sleeve.

Note: Before inserting a patient lifting pole, the reducing adapter must be removed.

- Place the infusion stand in the adapter sleeve provided for this purpose at the head end of the bed, with the reducing adapter already inserted in the sleeve.

Infusion stands at the head end are fitted in the factory with a rotation locking device (pin). When using it, ensure that the pin engages with the corresponding recesses on the reducing adapter.

⚠ WARNING

Danger of collision and injury

Failure to heed this warning may result in physical injury and damage to property!

- Adjust (reduce/extend) telescopic infusion stands in such a way that they cannot cause injury or damage to property when used on beds.

9.6 Attaching the grab handle

A grab handle can be attached to the patient lifting pole. Residents can use this grab handle to sit up and readjust their position.

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

⚠ CAUTION

Risk of injury

Failure to heed this warning may result in physical injuries!

- Check the grab handle and strap regularly for damage.
- Replace damaged grab handles or straps immediately.
- We recommend that the grab handle is replaced at least every 5 years.
- Please also refer to the detailed instruction manual supplied with every grab handle.

⚠ CAUTION

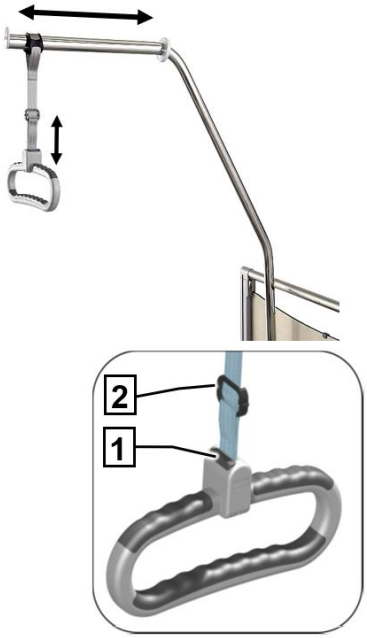
Risk of injury

Failure to heed this warning may result in physical injuries!

- Attach the grab handle between the limit points on the lifting pole to avoid it falling off accidentally.

Similar to illustration!

- Attach the grab handle with the strap to the patient lifting pole.
  The integrated anti-slip fitting must be secured properly between the two limit points of the patient lifting pole.
- **To lengthen:** Keep the button [1] pressed while pulling down on the handle and sliding the strap slider down [2].
- **To shorten:** Keep the button pressed while sliding the strap slider up.



Parking position when not in use

The grab handle can be hung over the patient lifting pole/trapeze bar when not in use. In this case, ensure that the grab handle cannot slip off accidentally.

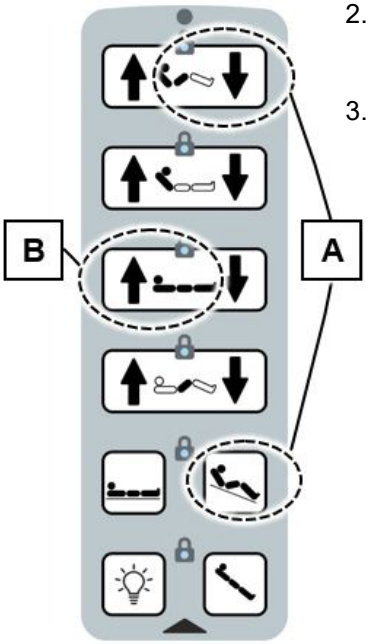
9.7 Set a minimum mattress base height

A pre-set minimum mattress base height cannot be exceeded in the daily care routine or by the resident. When the bed is lowered, it only moves to this position and then stops. A minimum mattress base height can only be defined by technical personnel or care staff who have been trained accordingly by the operator.

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

9.7.1 On the handset

1. Adjust the mattress base to the desired minimum height.

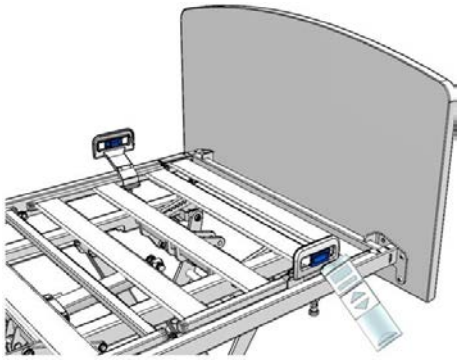


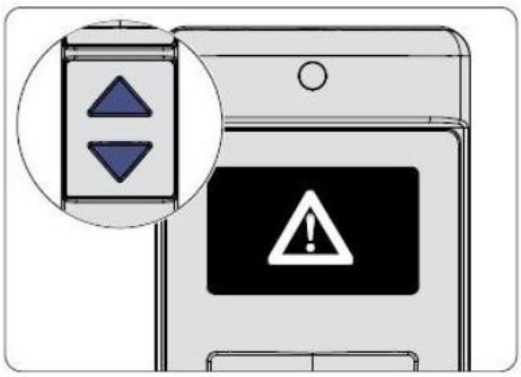
2. Press both the marked buttons [A] simultaneously, three times in a row.
3. Then immediately afterwards press the “mattress base height UP” button [B] once.

As soon as the new position has been saved, a short signal tone sounds to confirm the change.

9.7.2 On the LCD handset

1 Adjust the mattress base to the desired minimum height.

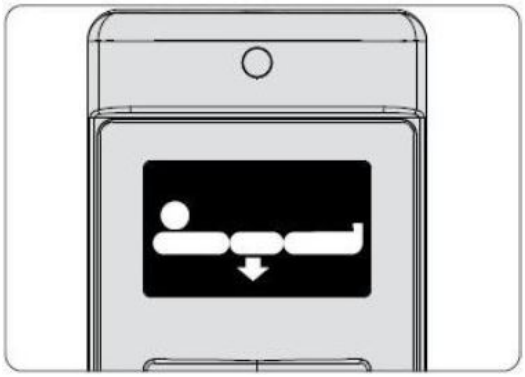




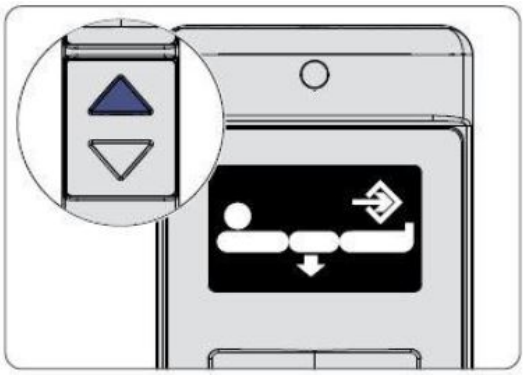
2 Press the UP and DOWN buttons simultaneously, and keep them pressed while you hold the top end of the handset briefly (for about ½ second) against the orange magnetic unlocking key.

3 Next, 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. Let go of the UP and DOWN buttons.



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



6 Press the UP button twice. After pressing the button for the first time, the symbol for the minimum mattress base height appears.

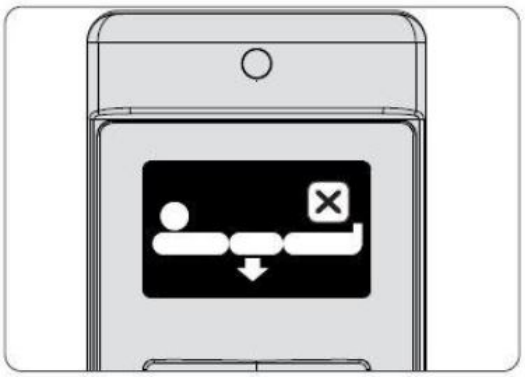
7 After the button has been pressed for the second time, the OK! displayed indicates that the mattress base height restriction has been successfully set. The symbol for the minimum mattress base height is then displayed again.

9.7.3 Deleting the minimum mattress base height setting

9.7.3.1 On the handset

See On the handset » 85

9.7.3.2 On the LCD handset



1 Repeat steps 2-5, see On the LCD handset » 81. The minimum mattress base height symbol will appear on the display. Press the DOWN button. The mattress base height symbol will appear and the status message X will be displayed for delete.

2 Press the DOWN button. After the button has been pressed, the OK! displayed confirms that the mattress base height restriction has been successfully deleted.

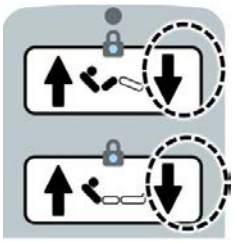
9.8 Set maximum mattress base height

A pre-set maximum mattress base height cannot be exceeded in the daily care routine or by the resident. When the bed is raised, it only moves as far as this position and then stops. A maximum mattress base height can only be defined by technical personnel or care staff who have been trained accordingly by the operator.

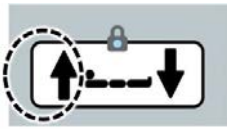
The mattress base must be horizontal before a height restriction can be defined.

9.8.1 On the handset

1. Adjust the mattress base to the desired maximum height.



2. Press both the marked buttons simultaneously, three times in a row.

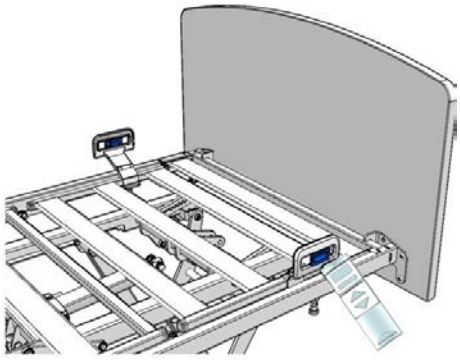


3. Then immediately afterwards press the Mattress Base Height UP button once.

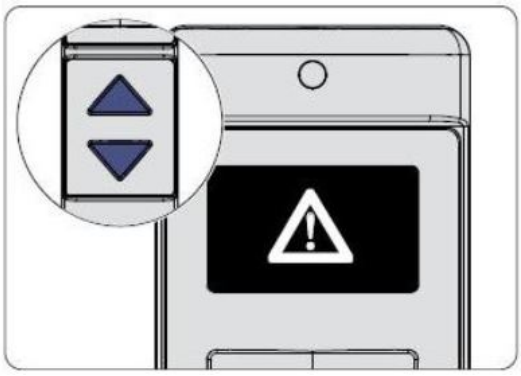
   As soon as the new position has been saved, a short signal tone sounds to confirm the change.

9.8.2 On the LCD handset

1 Adjust the mattress base to the desired maximum height.

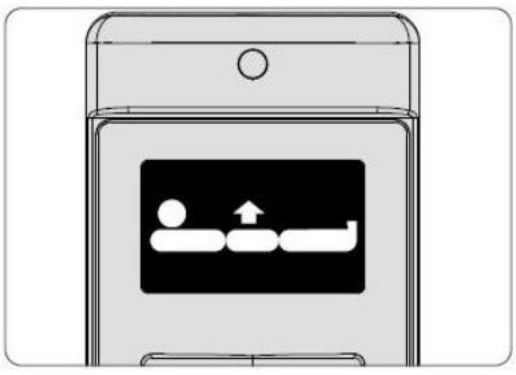


2 Press the UP and DOWN buttons simultaneously, and keep them pressed while you hold the top end of the handset briefly (for about ½ second) against the orange magnetic unlocking key.

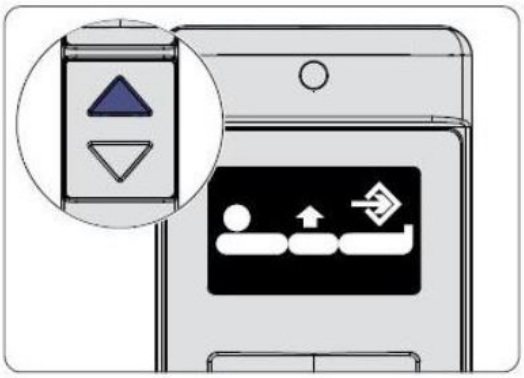


3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.

4 The OK ! shown on the display confirms the change to the “technician” control level. Let go of the UP and DOWN buttons.



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



6 Press the UP button twice. After the button has been pressed for the first time, the symbol for the maximum mattress base height appears together with the “Save” symbol.

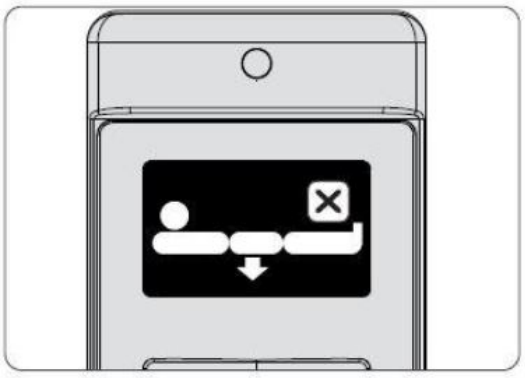
7 After the button has been pressed for the second time, the OK ! displayed indicates that the mattress base height restriction has been successfully set. The symbol for the maximum mattress base height is then displayed again.

9.8.3 Deleting the maximum mattress base height setting

9.8.3.1 On the handset

See On the handset » 85

9.8.3.2 On the LCD handset



1 Repeat steps 2-5, see On the LCD handset » 81. The minimum mattress base height symbol will appear on the display. Press the DOWN but-

2 Press the DOWN button. After the button has been pressed, the OK! dis-

ton. The mattress base height symbol will appear and the status message X will be displayed for delete.

played confirms that the mattress base height restriction has been successfully deleted.

9.9 Setting the intermediate stop position

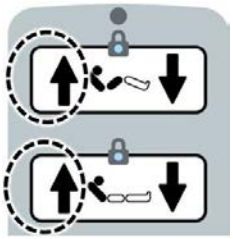
With this function, an intermediate stop is made when the mattress base height is raised and lowered. To continue raising or lowering the mattress base beyond this intermediate stopping position, you then press the UP or DOWN button again.

The intermediate stopping position must be defined only by technicians or care staff who have been trained accordingly by the operator.

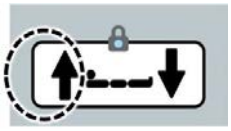
The mattress base must be horizontal before a stopping position can be defined.

9.9.1 On the handset

1. Set the desired intermediate stopping position.



2. Press both the marked buttons together briefly three times in a row.

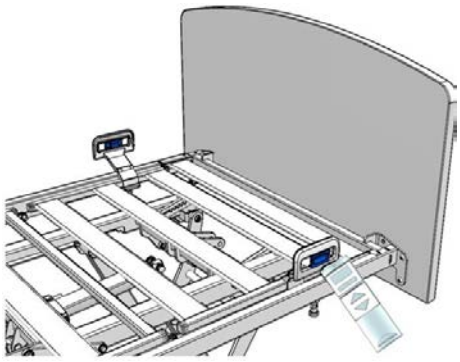


3. Then immediately afterwards press the “mattress base height UP” button once.

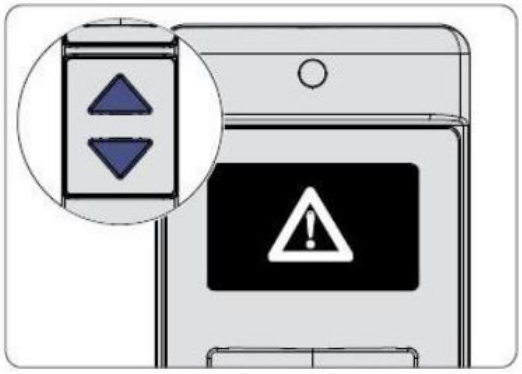
   As soon as the new position has been saved, a short signal tone sounds to confirm the change.

9.9.2 On the LCD handset

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

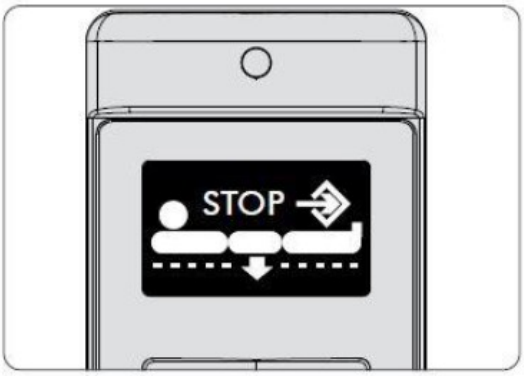


2 Press the UP and DOWN buttons simultaneously, and at the same time hold the top end of the handset briefly (for about ½ second) against the orange magnetic unlocking key at the foot end of the bed.

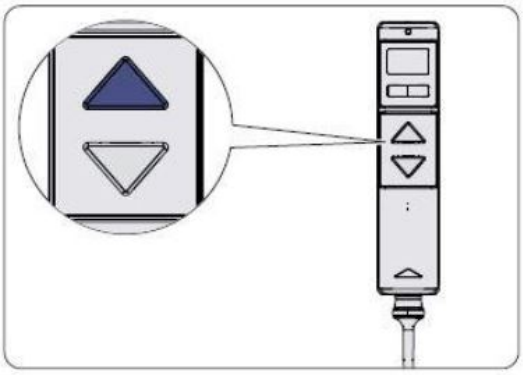


3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.

4 The OK ! shown on the display confirms the change to the “technician” control level. Let go of the UP and DOWN buttons.



5 Select the intermediate stop position function by pressing the toggle switch.



6 Press the UP button.

7 The OK ! displayed indicates that the intermediate stop position has been

successfully set. The symbol for the intermediate stop position is then displayed again.

9.10 Restoring factory settings

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

A reset to factory settings can be carried out using the handset or LCD handset depending on the available equipment.

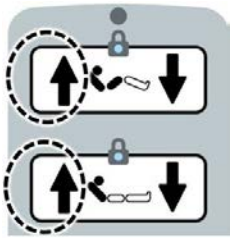
9.10.1 On the handset

The following functions can be restored to the factory setting using the handset:

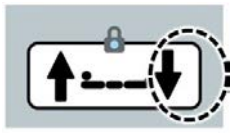
- Intermediate stop position
- Maximum mattress base height position
- Minimum mattress base height position

Intermediate stop position

Restoring factory settings:



1. Press both marked buttons together briefly, three times in a row.

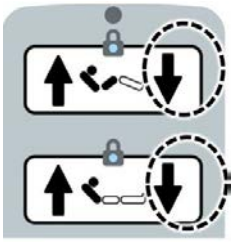


2. Immediately thereafter, press the marked button and hold it for approximately 5 seconds until the pulsating signal tone stops.

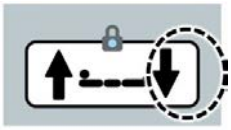
   Let go of the buttons.

Maximum mattress base height position:

Restoring factory settings:



1. Press both marked buttons together briefly, three times in a row.

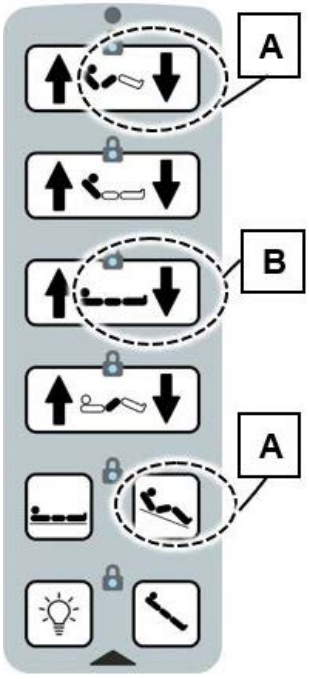


2. Immediately thereafter, press the marked button and hold it for approximately 5 seconds until the pulsating signal tone stops.

   Let go of the buttons.

Minimum mattress base height position:

Restoring factory settings:

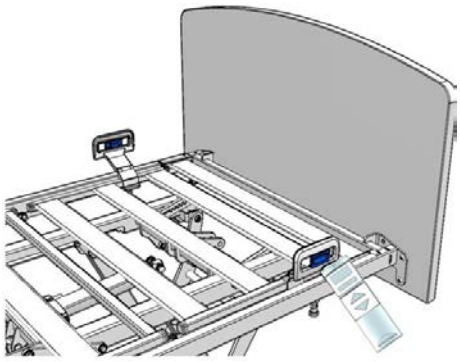


1. Press both marked buttons [A] together briefly, three times in a row.
2. Immediately thereafter, press the marked button [B] for approximately 5 seconds and keep it pressed until the pulsating signal tone stops.

   Let go of the buttons.

9.10.2 On the LCD handset

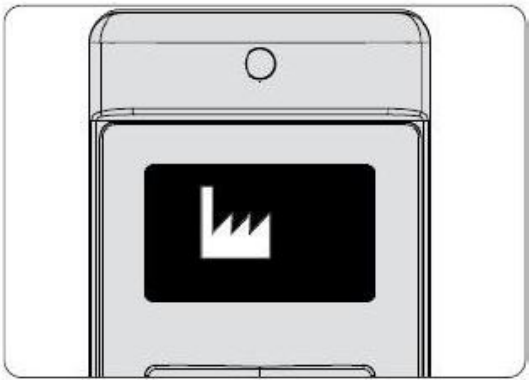
As a result of this procedure, all user-programmed special positions (e.g.: maximum mattress base height, or intermediate stop during height adjustment) will be reset to the factory default settings.



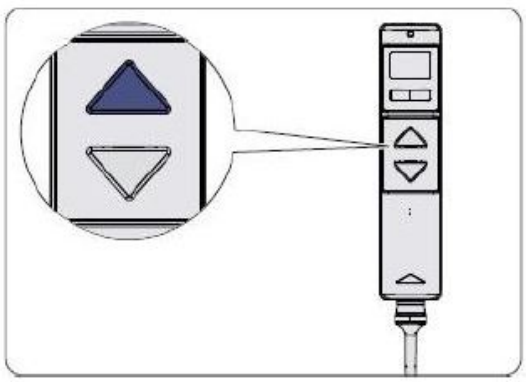
1 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the handset briefly (for approx. ½ second) against the magnetic unlocking key at the foot end of the bed.

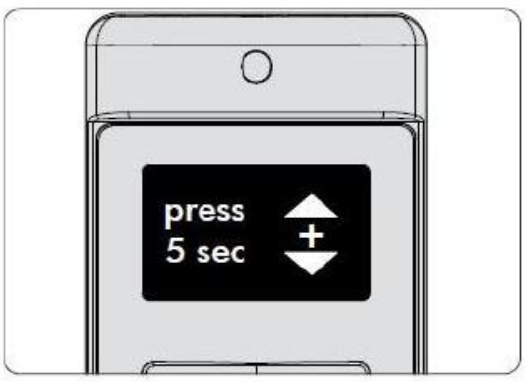
2 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.

3 The OK ! shown on the display confirms the change to the “technician” control level. Let go of the UP and DOWN buttons.



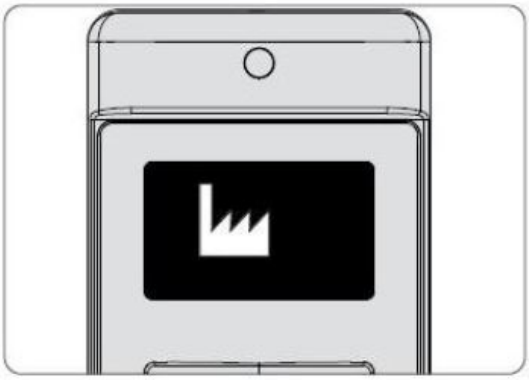
4 Select the factory reset function by pressing the toggle switch. The factory reset symbol will appear on the display.





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

6 Press the UP and DOWN buttons simultaneously for approximately 5 seconds until the pulsating signal tone that is heard stops. Let go of the buttons. The process is now completed.



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

9.11 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:

- To clean and disinfect the bed (see Cleaning and disinfection » 122).
- Adjust the mattress base to a flat home position at its lowest level.
  Immobilising the bed: The bed is automatically braked when the mattress base is at its lowest position.
- Lock the electric adjustment functions to prevent them from being activated accidentally or by unauthorised persons.
- Pay attention to the ambient conditions required for storage (see Ambient conditions » 40)

If equipped with 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.

10 Use/routine

10.1 Moving and immobilising the bed

The bed is equipped with four lockable castors. The castor lock can be activated in castor pairs at the head end or foot end.

⚠ WARNING

Risk of injury

Failure to heed this warning may result in life-threatening injuries due to 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 has been hung up on the bed and is not touching the floor,
- the cables, tubes or leads 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. Such damage could lead to electrical hazards and malfunctions.

⚠ CAUTION

Risk of injury

Failure to heed this warning may result in crushing injuries when transporting residents.

Please note the following: This bed is not suitable for being moved often and over long distances outside the room along corridors, across thresholds, or over very uneven floors. If it becomes necessary, however, to move the bed together with the resident, please observe the following instructions:

- When transporting a resident, ensure that the resident's hands and feet do not protrude over the edge of the bed.
- To move the bed with the resident, adjust the mattress base on the bed to a height of not more than approximately 70 cm.
- As a general rule, always apply the brakes when the bed is not being moved or when a resident is left unattended in the bed.

⚠ CAUTION

Tipping hazard!

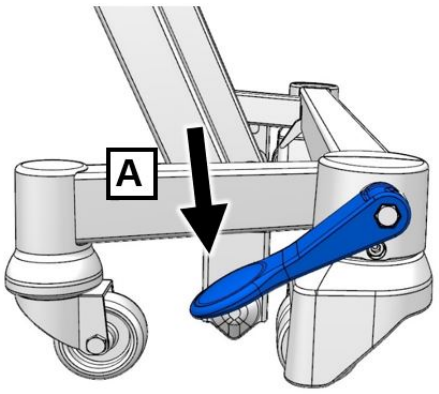
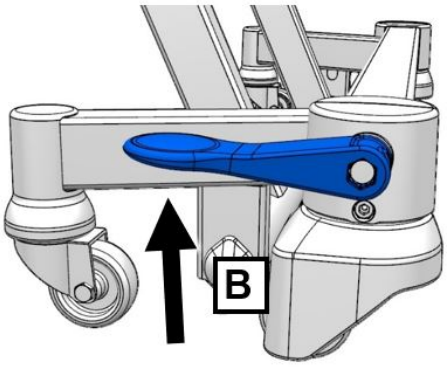
Failure to heed this warning may result in injury and damage to property due to the bed tipping up. If the unoccupied bed, with the bed extension pulled out, is moved over a floor with more than a 5° incline, it is possible that the bed may tip up if a very heavy person sits down on the edge of the mattress base. A warning label on the bed chassis indicates this.

- In such situations, do not sit down on the edge of the mattress base!

Please note: When the mattress base is set to its lowest position (approx. 3 cm above the floor).

- The castors are automatically braked.
- The castor brake pedals cannot be activated because they are covered by the mattress base.

Individual axle braking
Operate the castors, one pair after the other, from either side of the bed, at the head and foot ends. This allows the castors at the particular end of the bed to be operated with one brake pedal.

Individual axle braking	
To brake the bed: Press the brake pedal down with your foot [A].	
To move the bed: Raise the brake pedal with your foot [B]. **Note:** In the case of adjustments that involve a swivelling movement (Trendelenburg position, reverse-Trendelenburg position, sitting position, or from a sitting position to the lying position), the brake at the foot end must always be released to prevent damaging the castors and the floor.	

10.2 Locking/unlocking electric adjustment functions

Only users are authorised to lock adjustment functions!

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

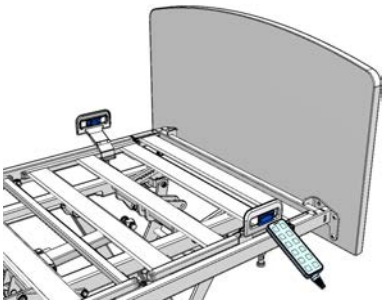
The bed remains in the position it was in at the time it was switched off. A sticker on the transverse side at the head end draws attention to this:

Locked function sticker

10.2.1 On the handset

A magnetic sensor is integrated in the top end of the handset. When the sensor is held close to a magnet integrated in one of the two mattress retainer bars at the foot end of the bed, bed functions can be locked or unlocked and the handset can be switched to the “staff” control level.

In order to lock or unlock adjustment functions on the handset, you must first switch to the “staff” control level:



Briefly hold the top of the handset (with its sensor on the front end) against the magnet integrated in one of the two foot-end mattress retainer bars.

A short beep confirms you have successfully changed to the “staff” control level.

Now press the DOWN button of a function (e.g. backrest) to lock that function. The LED of this function lights up a continuous orange colour.

Now press the UP button of a function (e.g. backrest) to unlock that function. The LED of this function goes out.

Here is an overview of the functions that can be locked and unlocked:

Unlock	Function	Lock
	Auto contour **Note:** Unlocking is only possible if the backrest and thigh rest are unlocked.	
	Backrest	

Unlock	Function	Lock
	Mattress base height	
	Thigh rest	
	Sleep position and sitting position	
Trendelenburg or reverse-Trendelenburg position function: This function is always locked for the resident control level. This function can only be used at staff level.		

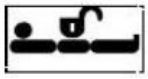
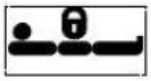
10.2.2 On the LCD handset

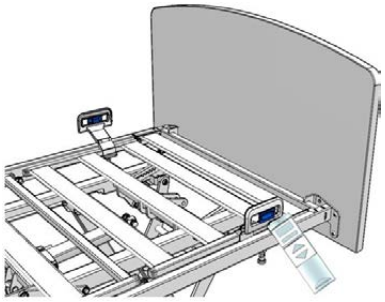
The basic operating concept is described in the chapter LCD handset (optional) » 23.

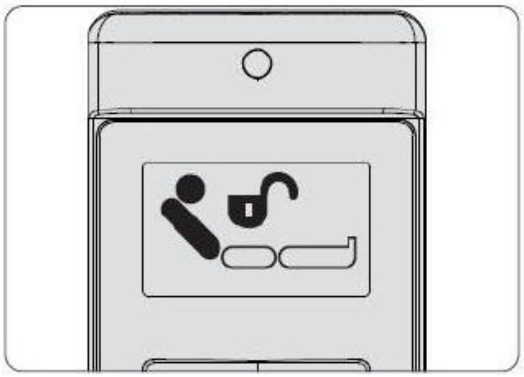
A magnetic sensor is integrated in the top end of the handset. When the sensor is held close to a magnet in one of the two mattress retainer bars at the foot end of the bed, bed functions can be locked or unlocked and the handset can be switched to the “staff”, “technician” or “Easy Care” control levels.

In order to lock or unlock adjustment functions on the LCD handset, you must first switch to the “staff” control level:

Adjustment function	Enabled function symbol	Locked function symbol
Backrest		
Thigh rest		
Sitting position		

Adjustment function	Enabled function symbol	Locked function symbol
Height adjustment		

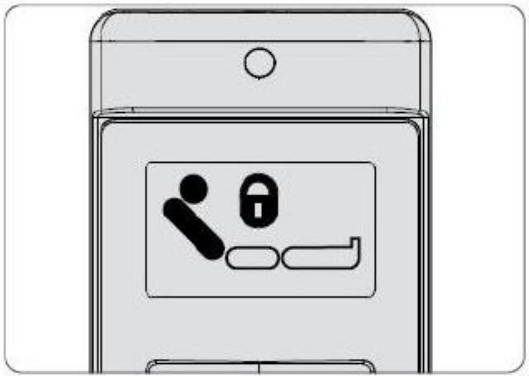




1 Hold the top end of the LCD handset briefly (for about ½ second) against the orange magnetic unlocking key to gain access to the “staff” control level on the LCD handset.

2 Use the toggle switch to select the adjustment function that you wish to lock. On the display, an opened padlock is shown above the symbol for an unlocked adjustment function.

3 Press the UP or DOWN 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.

The auto contour function can only be unlocked if the backrest and thigh rest functions are unlocked.

10.3 Setting the auto contour position

With the “auto contour UP” button command, first the thigh rest and then the backrest are raised.

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

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

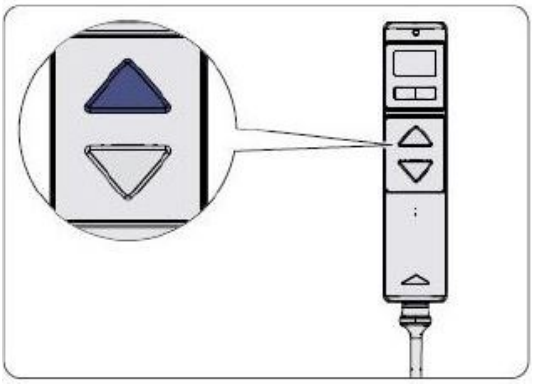
10.3.1 On the handset

1 Press the UP button to set the bed to the auto contour position.

2 Press the DOWN button to set the mattress base to a flat position.

10.3.2 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.

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

10.4 Setting the backrest

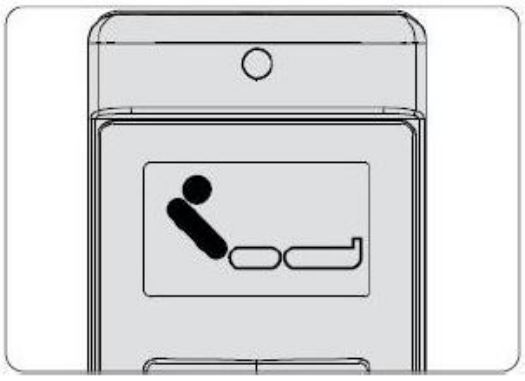
The backrest can be raised infinitely to an angle of approx. 70°.

10.4.1 On the handset

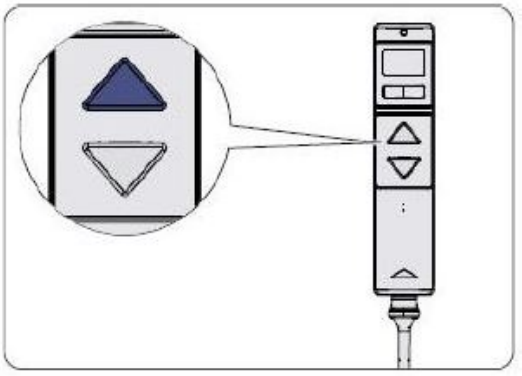
1 Press the UP button to raise the backrest.

2 Press the DOWN button to lower the backrest again.

10.4.2 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 lower the rest to the normal position again.

10.5 Setting the bed height

The mattress base height is continuously adjustable. The adjustment range can be restricted electronically using the handset (see Set maximum mattress base height » 80). If the mattress base is tilted, it moves automatically into a horizontal position when it reaches the highest or lowest height setting.

During the raising and lowering procedure, there is an automatic intermediate stop at approximately 38 cm – this is the most comfortable height for getting in and out of bed. This height can be individually programmed for each resident (see chapter Setting a sitting or sleep position » 101). A second intermediate stop with an acoustic signal only occurs during lowering at a height of approximately 25 cm, as a warning to the person that their feet could be crushed. From this height onwards, the mattress base is lowered at only a very slow speed. The second intermediate stop cannot be reprogrammed to a different setting.

⚠ CAUTION

Risk of crushing

If this warning is not heeded, injury due to crushing may occur when the bed is adjusted to its lowest position (3 cm above the floor):

- During the adjustment procedure, do not place your feet or any objects under the headboard or footboard, under the mattress base or under the safety sides of the bed!

⚠ ATTENTION

Material damage

Failure to heed this warning may result in damage to the bed and to adjacent objects.

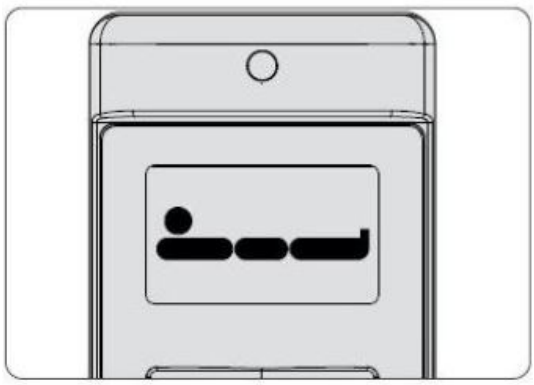
- If safety sides are fitted, ensure that raised safety side centre supports cannot collide with neighbouring objects or become trapped under them when the mattress base height is raised electrically.

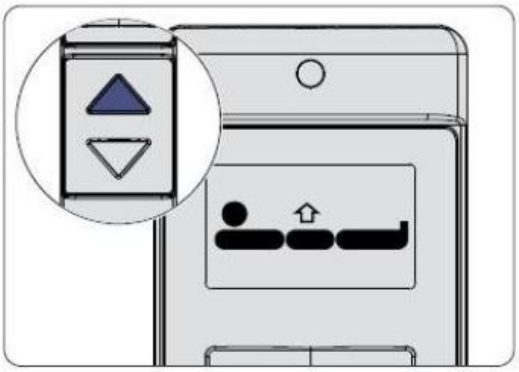
10.5.1 On the handset

1 Press the UP button to raise the bed.

2 Press the DOWN button to lower the bed again.

10.5.2 On the LCD handset

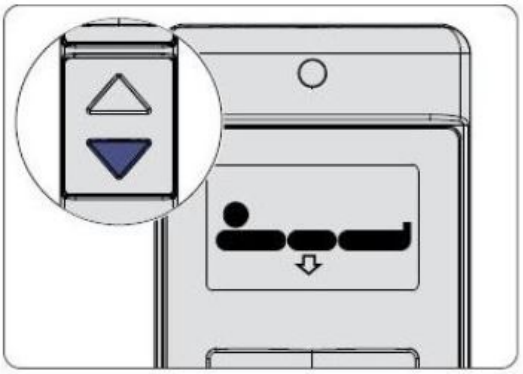




1 Select the bed height adjustment function using the toggle switch.

2 Press the UP button to raise the bed.

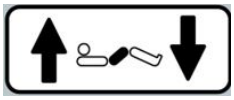
3 Press the DOWN button to lower the bed again.



10.6 Setting the thigh rest

The thigh rest can be raised to approximately 40°.

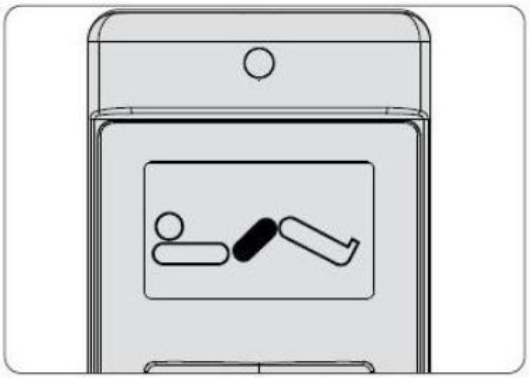
10.6.1 On the handset

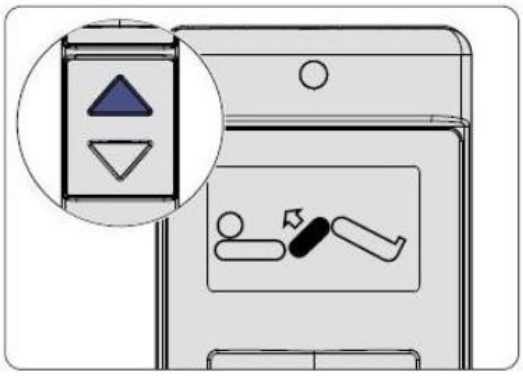


1 Press the UP button to raise the thigh rest.

2 Press the DOWN button to lower the thigh rest again.

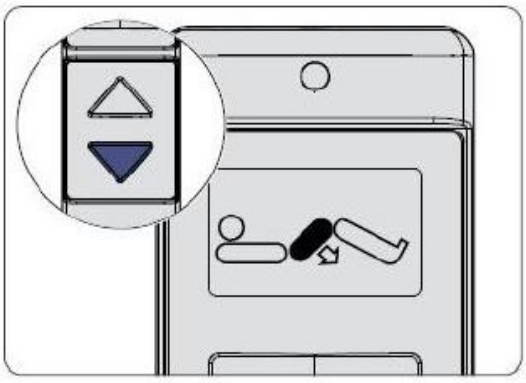
10.6.2 On the LCD handset





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.

10.7 Setting the lower leg rest

The lower leg rest can only be adjusted by hand (mechanically) when the thigh rest is raised.

You can set the mattress base to an orthopaedic position (stepped bed with legs bent and raised), a sloping position of the lower leg rest or a Fowler position.

⚠ WARNING

Risk of injury

Failure to heed this warning may result in injury due to 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!

STIEGELMEYER

⚠ ATTENTION

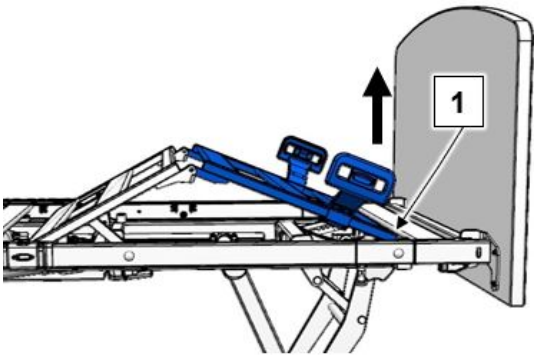
Material damage

Failure to heed this warning may result in damage to property due to an excessive weight being exerted on the foot end of the raised lower leg rest.

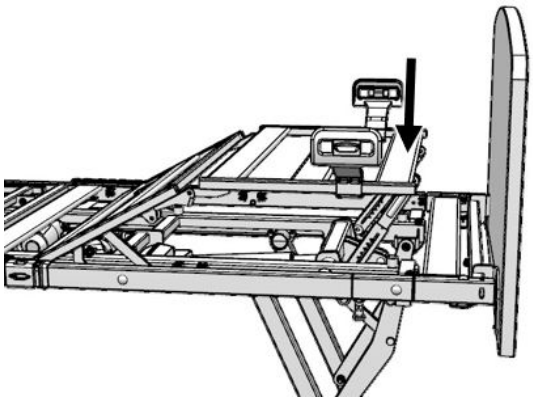
- Avoid damaging the Rastomat mechanism of the lower leg rest due to a heavy person sitting down on it.
- Lower the lower leg rest slowly beforehand.

10.7.1 Raising

- The bed must be immobilised by applying the brakes.
- The thigh rest must be raised (only possible electrically).

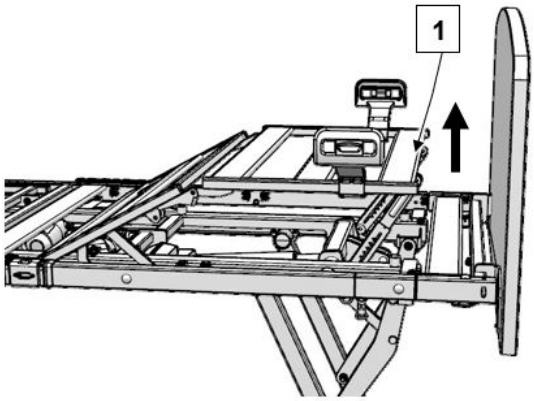


1 Raise the lower leg rest at the outer edge of the foot end [1] until the desired position is reached.

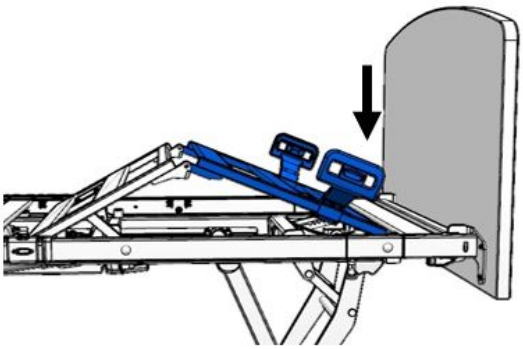


2 Then lower the lower leg rest slowly until it clicks into place.

10.7.2 Lowering



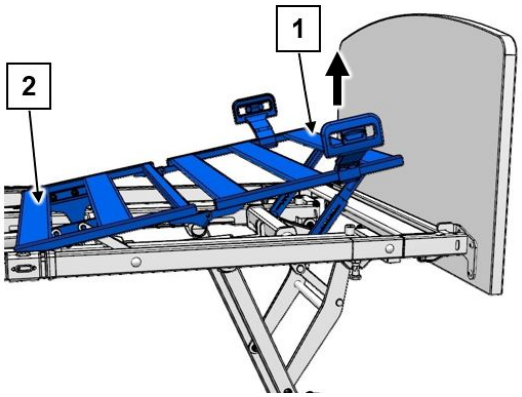
1 Raise the lower leg rest at the outer edge of the foot end [1] as far as it will go.



2 Then lower the lower leg rest.

10.7.3 Fowler position

The thigh rest [2] must not be raised.



1 Raise the lower leg rest at the outer edge of the foot end [1] as far as it will go.

The lower leg rest engages in place and, in combination with the thigh rest [2], forms the Fowler position.

To lower the lower leg rest again, lift it at the outer edge of the foot end as far as it will go and then slowly lower it.

10.8 Setting a sitting or sleep position

This function can only be activated if all individual functions have been enabled. The mattress base can be tilted to a reverse-Trendelenburg position of up to about 12°.

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.

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

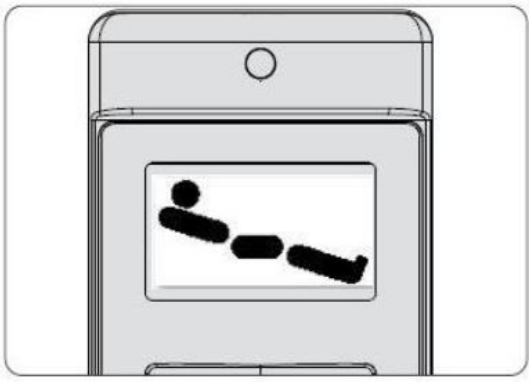
When setting the sitting position, the brake at the foot end must always be released to prevent damaging the castors and the floor.

10.8.1 On the handset

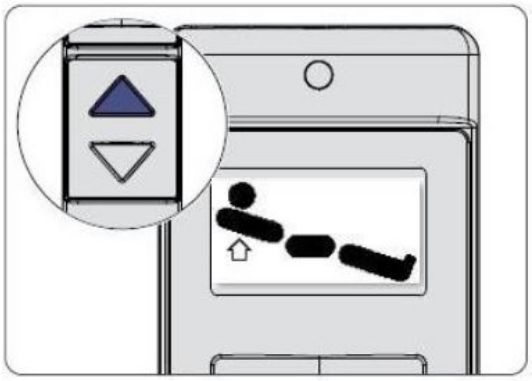
1 Press this button to set the bed to a sitting position.

2 Press this button to set the bed to the sleep position.

10.8.2 On the LCD handset



1 Select the sitting position adjustment function using the toggle switch.



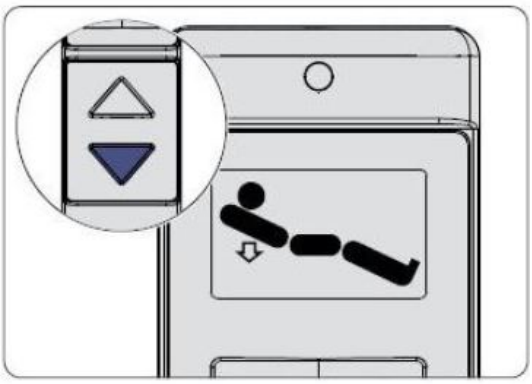
2 Press the UP button until the bed is set to a sitting position.

3 Press the UP button again to adjust the backrest.

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

While the button is kept pressed, the LCD display switches between the

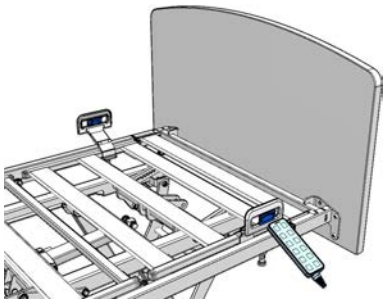
sitting and sleep position



10.9 Setting a Trendelenburg or reverse-Trendelenburg position

When setting the Trendelenburg or reverse-Trendelenburg position, the brake at the foot end must always be released to prevent damaging the castors and the floor.

10.9.1 On the handset



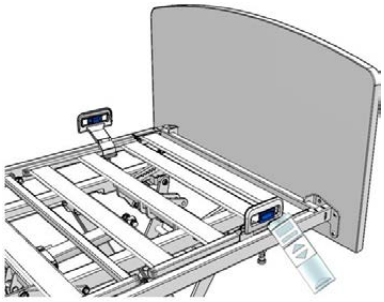
1 Hold the top end of the handset briefly (for approx. ½ second) over the orange magnetic unlocking key at the foot end of the bed to gain access to the “staff” control level on the handset.

2 Press this button to set the bed to a reverse-Trendelenburg position.

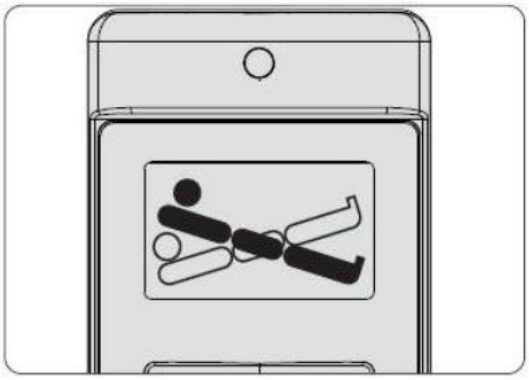
3 Press this button to set the bed to a Trendelenburg position.

Note: To leave the care staff level and return to resident level, the handset must be held against the unlocking magnet again. Alternatively, wait for 10 seconds: The system will revert to resident level automatically.

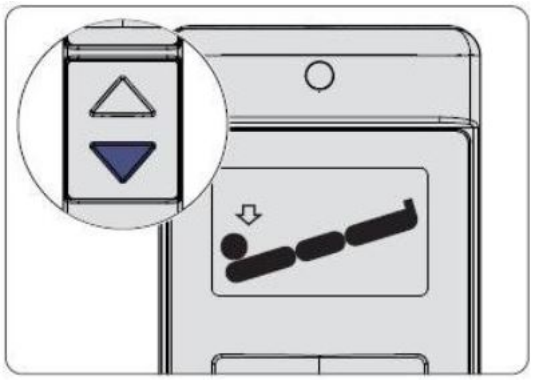
10.9.2 On the LCD handset



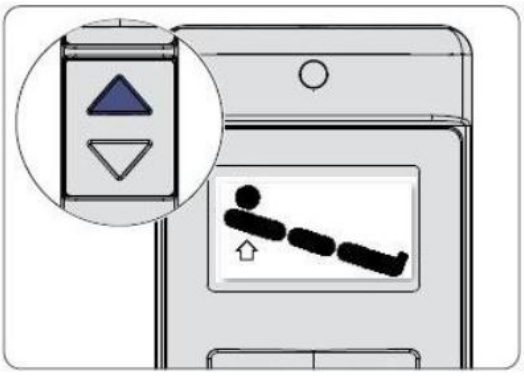
1 Hold the top end of the LCD handset briefly (for approx. ½ second) over the orange magnetic unlocking key at the foot end of the bed to gain access to the staff control level on the LCD handset.



2 Next, 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.

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.

To leave the care staff level and return to resident level, the handset must be held against the unlocking magnet again. Alternatively, wait for 10 seconds: The system will revert to resident level automatically.

10.10 Switching the under bed light on/off (optional)

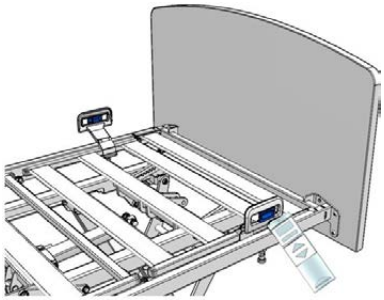
The under bed light is switched on automatically when it is connected to the mains electricity supply (standard setting).

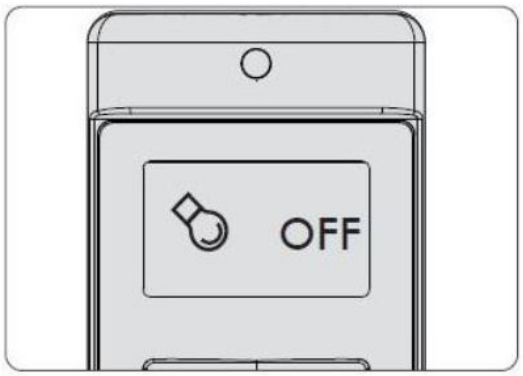
It is possible to use the handset to switch the under bed light on and off by hand.

10.10.1 On the handset

Handset for the commercial sector	Handset for the private sector
	
To manually switch the light on/off: Press and hold the sleeping position and the sitting position buttons at the same time for approx. one second, then release them. → The under bed light will switch on/off.	Press the button with the lamp symbol to turn on the light. Press the button again to turn off the light.

10.10.2 On the LCD handset

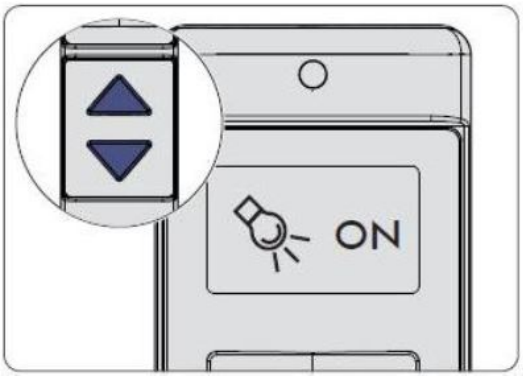




1 Hold the top end of the LCD handset briefly (for about ½ second) against the orange magnetic unlocking key to gain access to the “staff” control level on the LCD handset.

2 Next, 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 to show that the under bed light is switched off.

3 Press the UP or DOWN 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 resident gets out of bed. (Please refer to the separate instruction manual for the Out-of-Bed (OOB) system).

10.11 EasyCare function

This function is ideal for carrying out efficient bed adjustments during everyday resident care. All bed adjustment functions that are useful for resident care are available on a single control level for quick selection – including any functions that may be locked for residents’ use. When care tasks have been completed, the system automatically returns to the first level after 2 minutes. Alternatively, this can be switched back manually. Previously set function locks for individual adjustments are retained.

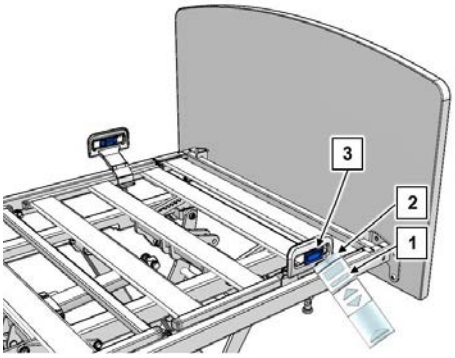
⚠ CAUTION

Risk of injury

Failure to heed this warning may result in injuries to residents due to unintentional activation of bed adjustments that may pose a risk, e.g. the Trendelenburg position.

- Only care staff are authorised to operate the “EasyCare” function!
- Ensure that residents do not have access to the handset while the EasyCare function is activated, as all bed adjustments are unlocked for use.

10.11.1 Activation on LCD handset



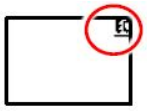
1 Press and hold both toggle switches

[1] at the same time, then hold the top end of the handset [2] briefly (for about ½ second) against the orange magnetic unlocking key [3].

2 To indicate that the control level has been activated:

- a short tone is emitted,
- the backlit LCD display flashes continuously
- and the “Easy Care” logo is briefly displayed

The “ **E**asy **C**are” control level can only be activated from the resident control level!

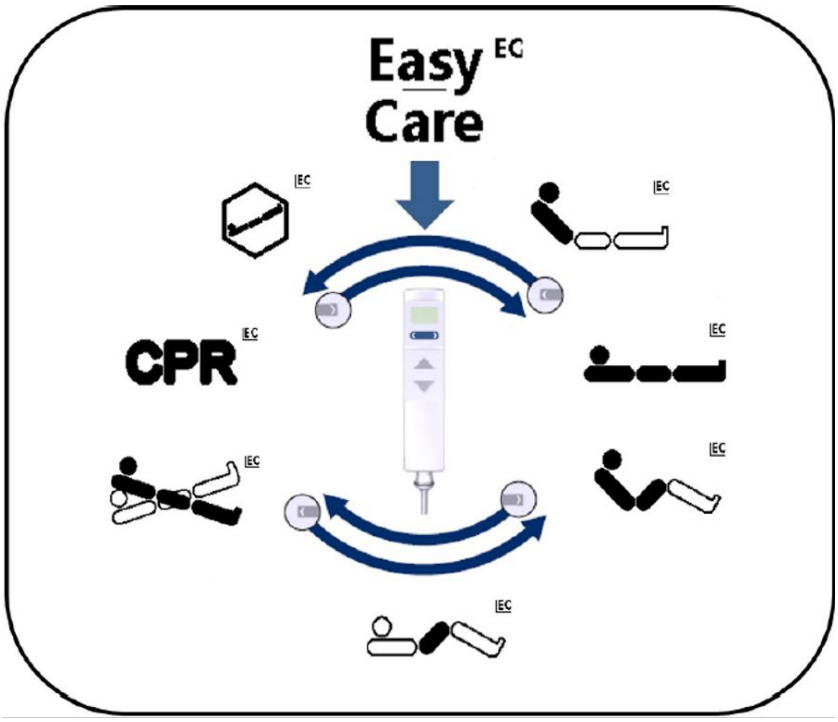


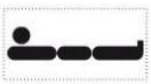
While the “ **E**asy **C**are” control level is activated, the “EC” logo is also always shown in the top right-hand corner of the display

Deactivation

- Automatically: 2 minutes after the last key was pressed or
- Immediately: by briefly holding the handset sensor [2] against the magnet.

The handset reverts to the last active adjustment function in the “resident” control level. The function locks originally set in the “resident” control level are retained.



Symbol	Explanation	Symbol	Explanation
	Backrest adjustment function		Mattress base height adjustment function
	Auto contour adjustment function		Thigh rest adjustment function
	Trendelenburg/reverse-Trendelenburg position adjustment function		Resuscitation position adjustment function
	Shock position (Trendelenburg position) adjustment function		

For detailed descriptions of the individual functions, see Use/routine » 89.

10.12 Using safety sides

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

Depending on the equipment installed, there are two different models:

Type of safety side	Type of mattress base	Height of safety side	Max. mattress height
Split safety side Vario Safe system (optional)	Metal	approx. 41 cm	approx. 19 cm
Pivoting and telescopic safety sides (optional)	Metal	approx. 45 cm	approx. 24 cm

10.12.1 Special safety information for safety sides

⚠ WARNING

Risk of injury

Failure to heed this warning may result in physical injury due to the use of 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 resident concerned:
- For example, if the resident 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.

- For especially small, slim residents, additional protective measures for reducing the space between the bars on the safety sides may be necessary. In these cases, use protective covers (accessory), posey belts, etc. (This is the only way to ensure effective protection and reduce the risk of the resident becoming trapped or slipping through the gaps).

- Use only suitable mattresses (in Germany, compliant with DIN 13014) that are not too soft and with a volume weight of at least 40 kg/m³ and dimensions complying with the specifications in the instruction manual, to prevent endangering residents through trapping or suffocation.

⇨ The maximum permissible mattress height depends on the model and position of the safety side used. An effective safety side height of at least 22 cm above the non-occupied mattress must be ensured.

⚠ CAUTION

Risk of injury

Failure to heed this warning may result in physical injury if thicker special mattresses, such as anti-decubitus mattresses, are used (for prevention or therapy). In this case an effective safety side height of at least 22 cm above the non-occupied mattress must still be ensured. If this height (22 cm) is not ensured, as a medical professional, it is your duty on your own responsibility to take additional measures, or other measures you consider suitable, based on your own risk assessment in view of the clinical condition of the resident, and in view of the characteristics of the special mattress. These measures may include additional safety systems for the resident, regular and more frequent monitoring of the resident, or internal procedures for users.
The resident's risk of falling is less severe:

- the smaller and more settled the resident is,

- the softer the mattress is (the resident sinks deeper into the mattress).

⚠ CAUTION

Risk of crushing

Failure to heed this warning may result in physical injuries!

- When the safety sides are raised, lock the operating functions on the handset for the resident if:

- the resident is unable to operate the bed safely,

- the resident is unable to free himself or herself from potentially dangerous situations,
- the resident 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 resident's limbs being crushed or trapped between the safety sides if the resident 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.

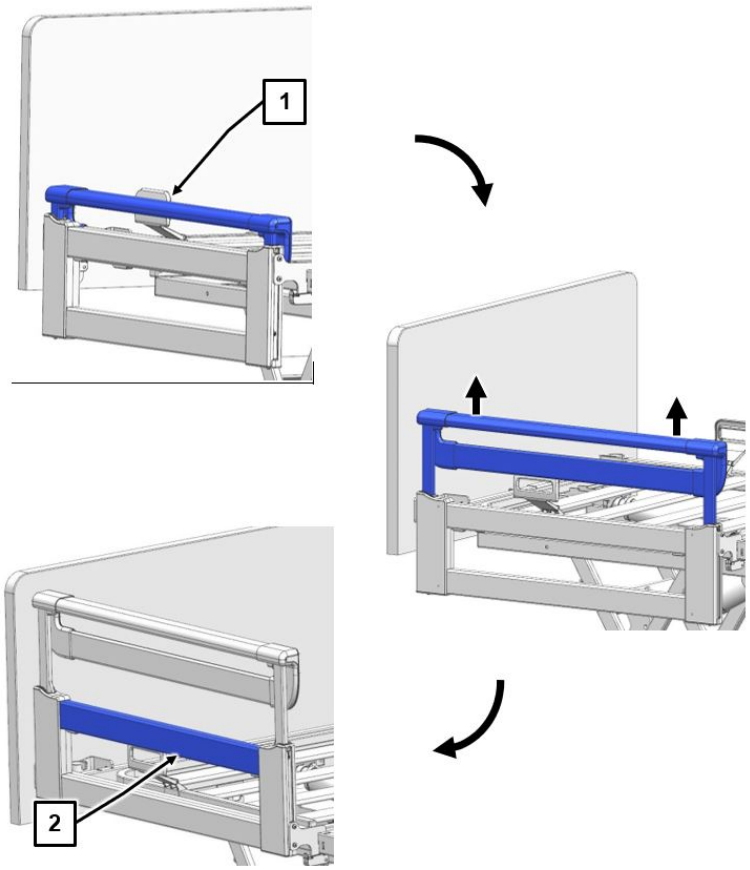
10.12.2 Split safety sides

The split safety side (Vario Safe system) can be easily raised or lowered and can be adjusted to various positions.

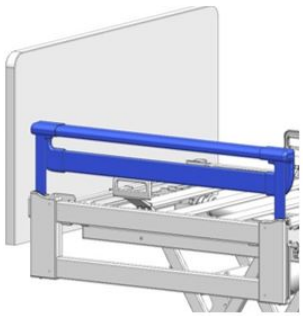
10.12.2.1 Raising

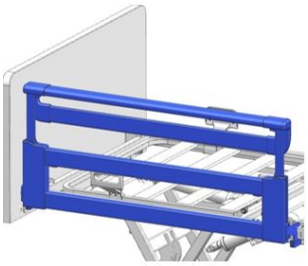
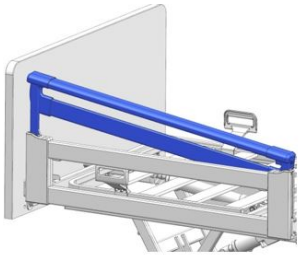
Grasp the top bar [1] with both hands and pull the safety side up as far as it will go.

Repeat this procedure with the middle bar [2].



Various position options

	
Fully-lowered safety side	Top bar raised

	
Fully-raised safety side	Angled position of the top bar

10.12.2.2 Lowering

The split safety side can be lowered in two stages (telescopic).

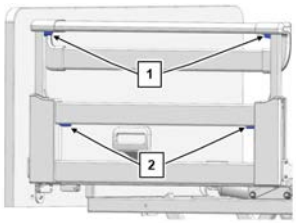
⚠ CAUTION

Risk of entrapment and crushing

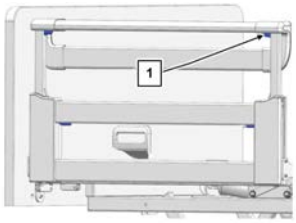
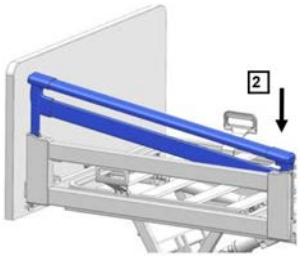
Failure to heed this warning may result in the resident's limbs being entrapped or crushed while the safety sides are being lowered.

- Before lowering the safety side, make sure that the resident's limbs are not located within the area of movement of the bars.

Fully-lowered safety side

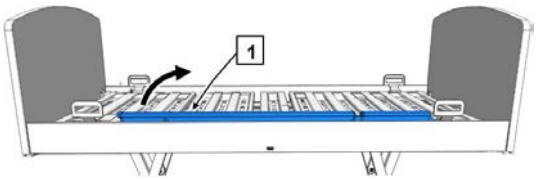
	
First relieve the load on the safety side by lifting it slightly. Then press both release buttons for the upper bar [1] and lower the safety side.	Repeat this procedure for the middle bar (release buttons [2]).

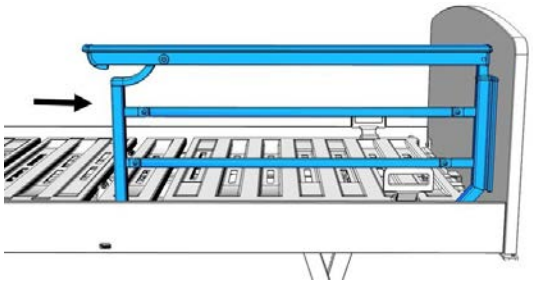
Safety side lowered at an angle

	
First relieve the load on the safety side by lifting it slightly. Next, press the release button for the upper bar [1], and ..	... lower the safety side [2].

10.12.3 Swivelling and telescopic safety sides

10.12.3.1 Raising

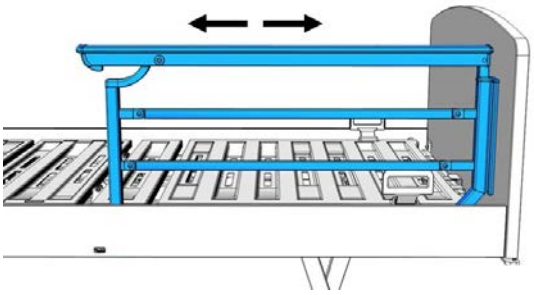




1 Grip the wooden bar of the safety side and pull the safety side upwards with a slight swivelling movement to the stop at the head end.

→ An integrated lifting aid supports this process.

2 The safety side automatically engages with a "click".

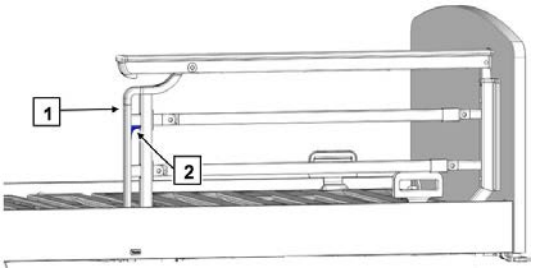


3 Check if the safety side has properly engaged by pushing the upper bar in both longitudinal directions.

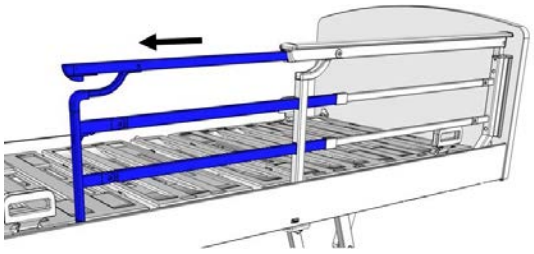
→ The safety side must not swing away again!

4 Repeat steps 1 - 3 for the safety side on the other side of the bed.

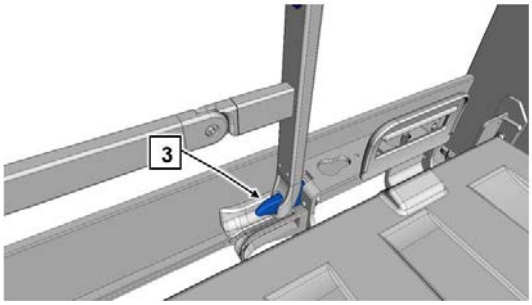
10.12.3.2 Telescopic section (option)



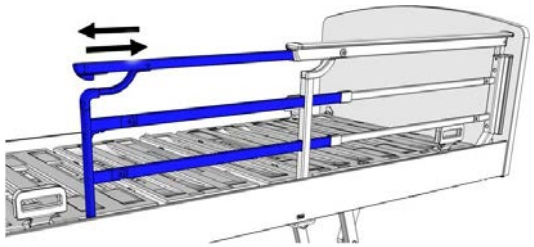
1 Grip the vertical end [1] of the safety side and push the red button [2] upwards to unlock it.



2 Pull the telescopic section of the safety side towards the foot end right up to the stop.



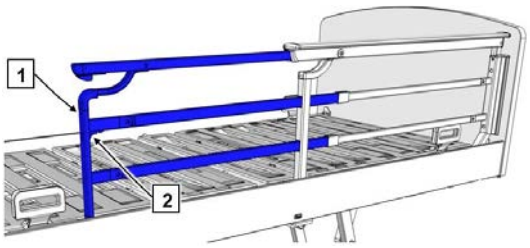
3 The safety side automatically engages with a "click" [3].



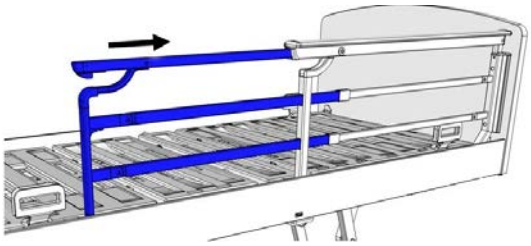
4 Check if the safety side has properly engaged by pushing the upper bar in both longitudinal directions.

→ The safety side must not swing away again.

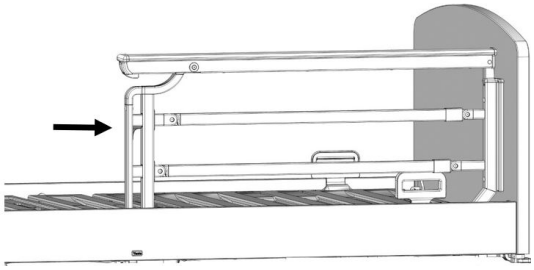
10.12.3.3 Push the telescopic section back in



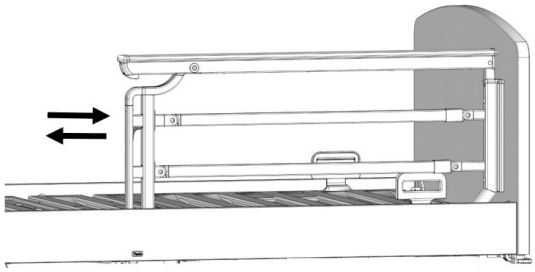
1 Grip the vertical end of the safety side [1] and push the red knob [2] upwards to unlock it.



2 Push the telescopic section of the safety side towards the head end right up to the stop.



3 The safety side automatically engages with a "click".



4 Check if the safety side has properly engaged by pushing the upper bar in both longitudinal directions.

→ The safety side must not swing away again.

10.12.3.4 Lowering

⚠ CAUTION

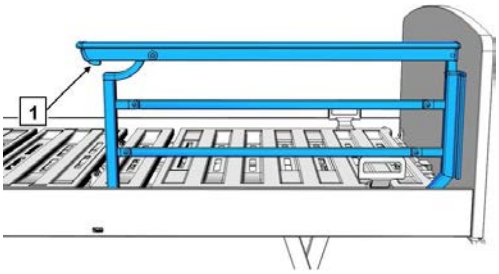
Risk of entrapment and crushing

Failure to heed this warning may result in the resident's limbs being entrapped or crushed while the safety sides are being lowered.

- Before lowering the safety side, make sure that the resident's limbs are not located within the area of movement of the bars.

Only applies to telescopic variant:

→ Push the telescope back in before lowering. Only then is lowering possible!



1 Grip the end of the upper bar and with one finger push the red button [1] forwards to unlock it.

2 Initially swivel the safety side downwards by applying slight pressure against the lifting aid.

→ Approximately from halfway along, it will lower itself fully in a controlled manner.

10.12.4 Variant without safety sides

The bed is delivered as standard without any safety sides. Should it later be necessary to use safety sides, the bed can be fitted with split safety sides (Vario Safe) at a later date.

Please refer to the chapter "Vario Safe" system » 49 and Split safety side » 51 for information on fitting and using the split safety sides.

11 Special functions

11.1 Setting the CPR position

The CPR position, which is only available with the LCD handset, is used to quickly lower all mattress base sections. It is also suitable for moving the bed to a specific low position for the resident to sleep at night (fall prevention).

The adjustment position is preset in the factory:

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

⚠ WARNING

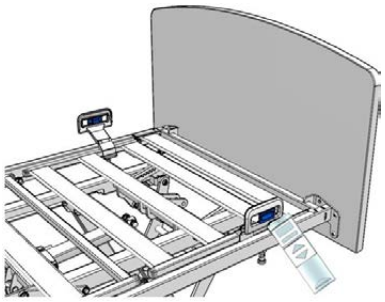
Risk of injury and material damage

Failure to heed this warning may result in residents and other people being exposed to danger and property being damaged.

- The CPR function demands the user's utmost attention, since various adjustments are activated simultaneously.

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

This function requires the bed to be connected to a functioning power socket or a functional charged battery (optional equipment) in the bed.



1 Hold the top end of the LCD handset briefly (for about ½ second) against the orange magnetic unlocking key to gain access to the “staff” control level on the LCD handset.

2 The CPR adjustment function is preset.

3 Press the UP or DOWN button until the bed has reached the desired position.

11.2 Use in an emergency: Lowering the backrest

In an emergency (e.g. power cut), the backrest can be lowered by hand by disconnecting the lifting pipe of the backrest motor.

The adjustment speed for lowering the backrest by hand in an emergency depends on the mattress on the bed and the weight of the resident.

11.2.1 Manual

⚠ WARNING

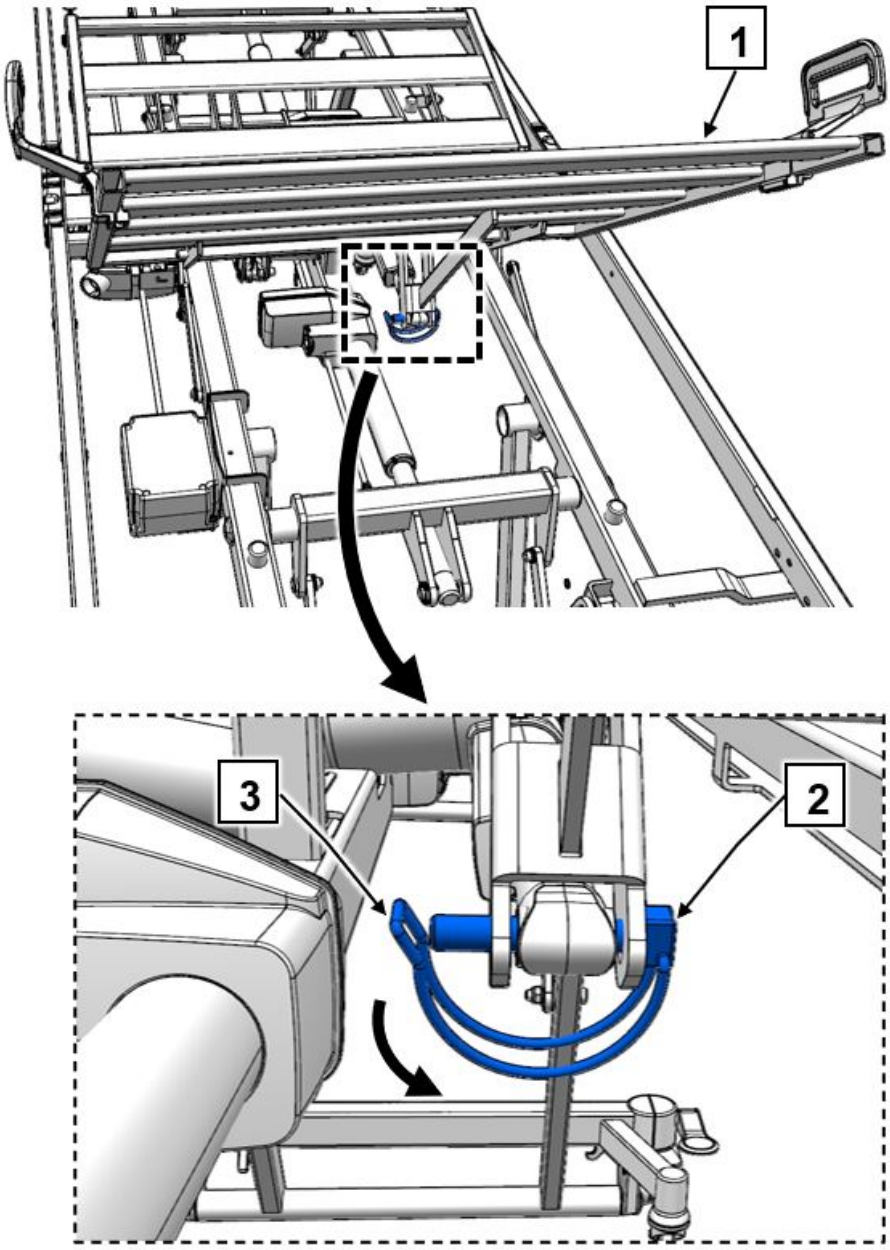
Risk of injury

Failure to heed this safety information and these instructions for use may cause the backrest to fall uncontrollably, which could lead to serious injuries for both the user and the resident!

- The CPR release may only be carried out in the case of extreme emergencies and by users who have a complete command of the procedure described below.
- We strongly advise you to practise CPR release of the backrest several times under normal conditions. In the event of an emergency, you will then be able to react quickly and correctly.

It takes two people to perform the CPR release of the backrest!

Before lowering the backrest, any load exerted on the backrest must be removed.



1. To do this, the first person must raise the backrest slightly by holding onto the outside edge of it at the head end [1], and pulling the backrest towards the foot end as far as it will go. The backrest must then be held in this position.
2. The second person now removes the bolt [2]

    - To do so, open the curved clip [3].
    - Pull the bolt and clip out of the lifting pipe of the backrest motor.

    The lifting pipe of the backrest motor is no longer attached to the motor connector mount.

3. After the second person has left the danger zone, the first person can then lower the backrest carefully.

   Hold the backrest firmly when lowering it, otherwise it could fall uncontrollably!

   The lifting pipe remains in the CPR release position.

Restoring the bed to its original state following CPR release of the backrest:

The bed must be restored to its normal condition for use before it can be used again or reoccupied.

1. The first person lifts the backrest by hand.
2. The second person swivels the lifting pipe for the backrest motor upwards, secures it in place with the bolt and reattaches the curved clip.

12 Cleaning and disinfection

12.1 For private use

⚠ ATTENTION

Material damage

Failure to heed this warning may result in material damage due to penetrating moisture.

- Unplug the power cable and store the power plug so that it does not come into excessive contact with water or other cleaning solutions (place in a plastic bag).
- Make sure that all plugs are properly inserted in the drive motors.
- Ensure that none of the electrical components show any signs of external damage; otherwise water or cleaning agents may penetrate the system. This can result in malfunctions or damage to the electrical components.
- The electrical components must not be cleaned with a water jet, a high pressure cleaner or any other similar device! Clean only with a moist cloth!
- If you suspect that water or any other form of moisture has penetrated into the electrical components, unplug the power pack immediately and do not plug it back into the socket. Label the bed clearly as “Out of Order” and take it out of service. Have it inspected by a qualified electrician.
- Failure to follow these safety instructions could result in considerable damage to the bed and its electrical equipment and lead to subsequent malfunctions!

Observe the following recommendations to ensure the bed remains fit for use for as long as possible:

- We recommend cleaning the bed by wiping it with a (damp) cloth. When selecting a suitable detergent, ensure that it is mild (gentle to skin and surfaces) and environmentally friendly. A standard household cleaner can generally be used.
- For the care and cleaning of coated metal parts, a damp cloth with a mild commercial household detergent is recommended.
- Despite its excellent mechanical durability, scratches, marks, etc. which go through the entire coating layer should be resealed using a suitable repair substance to prevent moisture from getting in. For further information, consult the manufacturer or a specialist dealer of your choice.

- Do not use scouring agents, stainless steel care products, abrasive cleaning products or scouring pads. These products can damage the surface.

12.2 In the commercial sector

12.2.1 Safety information on cleaning and disinfection

This bed is not suitable for machine washing or for cleaning in a decontamination unit. The bed is only suitable for manual cleaning and disinfection. To extend the bed's service life and preserve its operability, always follow the instructions given in this chapter.

Cleaning is the most important measure and requirement for ensuring successful chemical disinfection.

When the bed is occupied by the same resident, routine cleaning of the bed is generally sufficient. Disinfection of the chassis is only necessary if it has been visibly contaminated with infectious or potentially infectious materials (blood, stool, pus etc.) or if the doctor requires this due to the presence of an infectious disease.

Before a new resident occupies the bed, the bed must first be cleaned and disinfected by wiping!

⚠ ATTENTION

Material damage

Failure to heed this warning may result in damage to the device/bed and subsequent faults!
Before cleaning or disinfecting:

- Unplug the switch mode power supply from the mains socket and keep it in a safe place where it cannot come into contact with water or cleaning solutions.
- Ensure that none of the electrical components show any signs of external damage. Failure to comply with this may result in the ingress of water or detergents into the electronic equipment and cause malfunctions or damage.
- Before using the switching power supply again, ensure that there is no residual moisture on the electrical contacts.

- The electrical components must never be cleaned with a water jet, a high pressure cleaner or other similar devices! Clean only with a moist cloth!
- If you suspect that water or any other form of moisture has penetrated the electrical components, unplug the switch mode power supply immediately or, if already unplugged, do not plug it back into the mains socket. Label the bed clearly as “Out of Order” and take the bed out of service. Report this immediately to the operator responsible.

12.2.2 Cleaning and disinfection plan

- Remove the bed linen and have it laundered.
- Clean all surfaces, including the mattress base frame and the mattress base with a mild and environmentally friendly cleaning agent. This also applies for the handset.
- After this, disinfect the bed as follows with a suitable disinfectant for the surface concerned:
  - In Germany: if the bed has been visibly contaminated, with infectious or potentially infectious materials, the bed should be disinfected with one of the disinfectants approved by the DGHM (Deutsche Gesellschaft für Hygiene und Mikrobiologie, German Society for Hygiene and Microbiology) and/or the VAH (Verbund der Angewandte Hygiene, Association for Applied Hygiene). The same applies for all beds of residents who have notifiable diseases according to § 6 of the Infektionsschutzgesetz (IfSG, Protection against Infection Act), bacterial infections, or infections with multiple-resistant pathogens (e.g. MRSA or VRE), as well as all beds in intensive care stations and infectious disease clinics. For all disinfections, the concentrations given in the DGHM/VAH list must be observed.
  - **In other countries:** comply with the relevant regulations applicable for the country concerned.
- Disinfection of the castors is only necessary if they have been visibly contaminated with infectious or potentially infectious materials.

Continuous disinfection is only necessary in hospitals when a resident has a multiple-resistant pathogen (e.g. MRSA).

12.2.3 Instructing users and staff

In order to ensure that cleaning and disinfection are conducted properly, we recommend that users and staff are appropriately instructed. They should be instructed to observe the following points:

- A clean bed must be transported in such a way that it will not become dirty or contaminated during transport.
- Staff should be informed of the special measures required for cleaning and disinfection and should carry out the procedure in a reliable manner (the operator should specify the operational procedures and the individual procedural steps). **In Germany**, care must be taken that only disinfectants approved by the DGHM or VAH (German Society for Hygiene and Microbiology) are used, and that these are used only in the approved concentrations. **In other countries,** the relevant regulations applicable for the country concerned must be complied with.

  The disinfectants must be suitable for use with the surfaces to be disinfected.
- For this activity, staff must be provided with (disposable) aprons and gloves which are impermeable to fluids.
- For cleaning, only fresh, clean cloths may be used which are subsequently laundered.
- When cleaning/disinfecting work has been completed, the staff must disinfect their hands before carrying out other tasks. Staff should be equipped with a suitable pump dispenser containing a disinfectant for hands.
- Cleaning the bed immediately at its usual location has the advantage that no “dirty” beds or bed components come into contact with clean beds. The transfer of potentially infectious germs that may be on the used bed frame is prevented in this way. A transfer of germs in terms of a nosocomial infection can be safely avoided by consistently and thoroughly following these recommendations.
- When the bed is not immediately reused, it should be stored (covered) in such a way that it is protected from dust, inadvertent soiling and contamination.

12.2.4 Cleaning of permanently upholstered components

The headboard, footboard and side panels of the bed can be supplied as upholstered versions, with fabric or faux leather upholstery, according to customer specifications.

Attention! Any soiling of these components must be removed immediately.

12.2.4.1 Fabric upholstery

Soiling caused by intensive use or food residues must be removed using simple means. Water, detergent and a (soft) brush are sufficient to brush even stubborn stains from the upholstery.

1. Wipe the affected area with a cotton cloth to remove surface fluid or food particles.
2. Use warm water to moisten stains that have already dried and then clean the area with a brush.

3. If any residues are still visible, dab the stain with a solution of water and a few drops of a mild detergent (mixing ratio approximately 10:1). Wait a short time and then use a soft brush or the edge of a spoon to work on the area. Then dab the treated area with a clean cloth and dry.
4. Always work on stains from the edge to the centre so as not to increase the size of the stain.
5. Repeat step 3, if necessary.
6. Rinse the treated area with lukewarm water and dry. Completely remove any detergent residues.
7. First let the fabric dry and then brush in the direction of the nap.

12.2.4.2 Faux leather upholstery

Regular cleaning increases the service life. Use a mild soapy water solution and a soft, lint-free cloth or hand brush.

Please remove heavy soiling immediately. The use of special cleaning agents for cleaning plastics is not recommended.

The following cleaning methods are recommended for removing stains from faux leather. Many stubborn stains can be removed if the cleaning methods are used in this order.

Cleaning method 1

Use a mild soapy water solution and a soft, lint-free cloth or hand brush. Rinse the area with clean water and dry with a soft cloth.

Cleaning method 2

Apply a generous amount of solvent-based cleaning agent to the stain with a soft cloth or sponge. Rinse the area with clean water and dry with a soft cloth.

Cleaning method 3

Apply a strong, solvent-based cleaning agent diluted with water (70% water, 30% acetone) with a soft cloth or sponge. The stain should be removed with less than six rubs. If not, the dirt has already settled into the material and can no longer be removed. Rinse the area with clean water and dry with a soft cloth.

The recommended cleaning agents used in cleaning methods 1, 2, and 3 are increasingly aggressive. It is therefore advisable to start with the least aggressive method.

Type of soiling	Method 1	Method 2	Method 3
Spray paint	✔	✔	✔
Ballpoint pen	✔	✔	✔
Felt-tip pen	✔	✔	✔

Type of soiling	Method 1	Method 2	Method 3
Lipstick	✔	✔	✔
Mustard	✔	✔	✔
Nicotine	✔	✔	
Grease	✔	✔	
Crayon	✔	✔	
Eye shadow	✔	✔	
Carotene	✔		
Coffee	✔		
Tea	✔		
Blood	✔		
Urine	✔		
Fruit juice	✔		
Olive oil	✔		
Chocolate	✔		
Ketchup	✔		

12.2.5 Cleaning agents and disinfectants

Observe the following recommendations to ensure the bed remains fit for use for as long as possible:

⚠ ATTENTION

Material damage

Failure to heed this warning may result in damage to the bed.

- Do not use scouring agents, stainless steel care products, abrasive cleaning products or scouring pads. These products can damage the surface.
- Cleaning and decontaminating agents must be used in the specified concentrations.

- We recommend cleaning the bed by wiping it with a (damp) cloth. When selecting cleaning agents, ensure that the agents chosen are mild (gentle to skin and surfaces) and environmentally friendly. A standard household cleaner can generally be used.
- 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.
- If, despite its excellent mechanical resistance, the coated surface is damaged by scratches or marks which permeate the entire coating, the affected areas should be resealed using a suitable repair substance to prevent moisture from penetrating. For further information, consult the manufacturer or a specialist dealer of your choice.
- Disinfectants based on compounds that could potentially release chlorine may be corrosive for metals, synthetics, rubbers and other materials over longer contact periods or when concentrations are too high. Use these agents sparingly and only if expressly required.
- Do not use any type of UV light disinfection. As a result of this, plastic elements such as enclosures of electrical components and other bed parts could become damaged and result in hazards due to electrical faults or a deterioration in strength.
- Do not use any type of ozone disinfection. This could lead to the corrosion of metal surfaces and an unsightly visual appearance or irreparable damage to other components.

- For disinfection by wiping, most cleaning and disinfection agents usually used in hospitals or care facilities can be used, such as cold and hot water, detergents, alkaline solutions and alcohols.
- 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. The manufacturer therefore routinely tests the most commonly used materials for compatibility. The most up-to-date list of tested cleaning agents and disinfectants can be obtained on request.

Our customer service centre in Germany:

Stiegelmeyer GmbH & Co. KG

Ackerstraße 42, 32051 Herford, Germany

Phone:+49 (0) 5221 185 - 777

Fax:+49 (0) 5221 185 - 219

Email:service@stiegelmeyer.com

Internet:www.stiegelmeyer.com

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

12.2.6 Handling cleaning agents and disinfectants

- Make sure to use the exact specified dosage! We recommend the use of automated dosing devices.
- Always prepare solutions with cold water in order to avoid the formation of vapours that are mucous membrane irritants.
- Wear gloves, in order to avoid direct skin contact.
- Do not keep ready prepared surface disinfection solutions in open containers with floating cleaning cloths. Be sure to close all containers!
- Use sealable bottles with pump dispensers for moistening the cleaning cloths.
- Ventilate the room after the disinfection has been completed.
- Disinfect by wiping; do not disinfect by spraying! When spraying, a large portion of the disinfectant is released as a spray mist that could be inhaled.

  Furthermore, the wiping effect itself plays a significant role.
- Do not use alcohol for the disinfection of large surfaces.

13 Maintenance

13.1 Replacement parts

In order to maintain operational safety and the right to claim under warranty, only original manufacturer replacement parts may be used! For quick and easy ordering of replacement parts, we require the following information from you:

- **Customer number**
- **PID bar code**, see chapter Type plate » 35
- as well as the following other details (see table) that are indicated on the type plate at the head end of the bed frame (inner side).

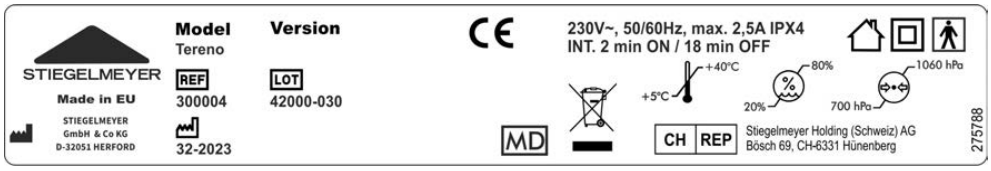


Image8: Type plate (example)

Symbol	Explanation	Symbol	Explanation
Model	Name of product	**Version**	Version name
REF	Item number	LOT	Order number
	Date of manufacture (year/ month/day)		

You will find further details about the type plate in chapter Type plate » 35.

13.2 Service address

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

Stiegelmeyer GmbH & Co. KG

Ackerstraße 42, 32051 Herford, Germany

Phone: +49 (0) 5221 185 - 777

Fax: +49 (0) 5221 185 - 219

Email: service@stiegelmeyer.com

Internet: www.stiegelmeyer.com

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

13.3 For private use

For private users, no regular inspections are specified. However, we recommend that you check all electrical and mechanical components once a year to ensure you will enjoy many years of trouble-free operation. When doing so, please use the following checklist.

If any damage or a malfunction is suspected, the bed must be withdrawn from use immediately and disconnected from the mains electricity supply until the defective parts have been repaired or replaced! Contact your responsible medical device retailer if the faulty parts need to be replaced or repaired.

Check		OK	Not OK	Description of defect
What?	**How?**			
Visual inspection of the electrical components				
Handset, handset cable	Correct cable routing, no damage			
Mains cable connection/ switch mode power supply	Correct cable routing, no damage			
Connecting cable (sync cable)	Correct cable routing, no damage			
Handset	No damage to the foil			
Visual inspection of the mechanical components				
Patient lifting pole, adapter sleeves	No damage/deformation			
Bed frame				
Mattress base frame				
Wooden surround	No damage/splinters			

Check		OK	Not OK	Description of defect
What?	**How?**			
Safety side bars				
Locking levers of TSG (telescopic safety side), headboard, footboard and side panels	Functional clamping function			
Functional check of the electrical components				
Handset	Function test, locking function			
Functional check of the mechanical components				
Castors	Braking, moving			
Screws and bolts	Fixed securely			
Safety sides	Safe locking, unlocking			
Lower leg rest	Engages properly			
Motor bolt	Fixed securely			
Accessories (e.g. patient lifting pole, grab handle)	Fastening, damage			

13.4 In the commercial sector

13.4.1 Safety instructions for maintenance

⚠ WARNING

Health risks and material damage

Failure to heed this warning may result in damage to health and property.

- 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.
- Set the bed to the desired position for maintenance, and unplug the mains cable from the socket before beginning any maintenance work.
- 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 power plug from the mains socket when this maintenance work is finished.
- Only carry out maintenance work on unoccupied beds.
- 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.
- The resident is not permitted to carry out any general or preventive maintenance measures.

13.4.1.1 Legal principles

In Europe: Operators of medical beds in Europe are obliged, in accordance with the new Medical Device Regulation (EU) 2017/745 (MDR) and existing relevant national laws/regulations, e.g. in Germany currently the

- German Medical Devices Operator Ordinance § 7 (Maintenance)
- DGUV 3 (Testing of Mobile Electrical Equipment in Commercial Use) of the German Employers' Liability Insurance Association

to preserve the safe operating condition of medical devices throughout their entire service life. This also includes regularly carrying out expert maintenance and safety checks.

All “serious incidents” * relating to the device must be reported to the manufacturer and the competent authority of the member state in which the user and/or resident is established (in Germany: www.BfArM.de)

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

*: *Incident that had, could have had, or could have one of the following direct or indirect consequences: a) the death of a resident, user or other person, b) the temporary or permanent serious deterioration in the health of a resident, user or other person, c) presented a serious risk for public health, (source: MDR (Medical Device Regulation), Art. 2(65)).*

Information for operators

This bed has been designed and built to work safely over a long period of time if operated correctly and put to proper use.

ATTENTION

Material damage

Failure to heed this warning may result in damage to property and put people at risk! Frequently transporting, assembling and dismantling the bed, improper operation and long-term use may cause damage, defects and wear to the bed over time.

- To prevent damage to property and danger to persons, rectify these defects in good time when they first occur.

To this end, there are legal requirements for conducting regular inspections in order to guarantee the safe condition of this medical product.

According to § 7 of the Medical Devices Operator Ordinance (Medizinprodukte-Betreiberverordnung) it is the responsibility of the operator to maintain this product. For this reason, the regular inspections and functional checks described hereafter must be performed by both the operator and the users.

- Instruct users about the following required inspections (see chapter Maintenance » 130).

13.4.2 Responsibilities of the operator

The operator of this care bed is obliged in accordance with §7 MPBetreibV (Medical Devices Operator Ordinance) to conduct regular inspections after each renewed assembly, after all maintenance, and during regular operation to ensure the safe condition of the care bed!

In Germany, these inspections must be repeated within the regular maintenance activities depending on the conditions of use according to the MPBetreibV (Medical Devices Operator Ordinance) § 7 and the inspections prescribed by the Employers' Liability Insurance Associa-

tions for mobile electrical equipment in commercial use according to DGUV A3 (Testing of Mobile Electrical Equipment in Commercial Use). All servicing and maintenance measures must be carried out when the bed is unoccupied.

In other countries, the relevant regulations applicable for the country concerned must be complied with.

Inspection cycle: For motorised beds we recommend, as a guideline, that an annual DGUV 3 inspection be carried out by our qualified customer service staff, with verification of adherence to the 2% error rate: (see also the DGUV 3 accident prevention regulations: § 5, Table 1B).

⚠ CAUTION

Risk of injury and material damage

Failure to heed this warning may result in injuries and damage to property due to improper inspection.

- In accordance with DIN EN 62353 (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 3) 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.). In other countries outside Germany or the EU, the relevant national regulations must be complied with.

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

1. Visual inspection
2. Electrical measurement
3. Functional test

⚠ CAUTION

Risk of injury and material damage

Failure to heed this warning may result in injuries and damage to property.

- 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.

Visual and functional check

The visual inspection and function testing as well as the assessment and documentation of the test results must be conducted exclusively by competent persons, according to MPBetreibV Section 7 and DIN EN 62353 (VDE 0751), who have the required qualifications and tools for proper inspections and testing.

Electrical measurement

- The electrical measurement must be carried out with suitable measuring instruments in accordance with DIN EN 62353 with an automated measuring procedure. In this case, this measurement may also be performed by a person trained in electrical engineering (as defined by DGUV 3) with additional medical and device-specific knowledge.
- The test results must be evaluated and documented only by a qualified electrician with additional medical and device-specific expertise.
- Preparation:
  - Disconnect the mains plug/switch mode power supply from the mains socket in the wall.
  - Plug the mains plug/switch mode power supply into the test socket on the test device.
- Test procedure:
  - With the measurement device: Select the leakage current test, direct or differential current in accordance with DIN EN 62353
  - Perform a leakage current test in accordance with the instructions provided by the test device manufacturer.
- Limit value:
  - Leakage current Ilc < 0.1 mA.

Test cycles

Visual and functional check:	Yearly
Electrical measurement:	With an external switch mode power supply: Every ten years, providing each annual visual and functional inspection was passed. With internal switch mode power supply: yearly

We recommend the inspection cycles indicated. In the case of verifiable compliance with the 2 % error rate (also see DGUV 3: §5, Table 1B), the inspection cycle can be extended to a maximum of 2 years on the operator's own responsibility.

Inspection of electromedical devices according to DIN EN 62353 (VDE 0751-1): 2015-10

Page 1 of 3		
Customer/med. facility/practice:		
Address:		
Carried out:	[ ] Repeat inspection	[ ] Inspection prior to initial operation (reference value)
[ ] _____	[ ] Inspection following repairs/maintenance	
Equipment type: **[x]** Care bed [ ] Hospital bed		**Protection class:** [ ] I , [x] II
Bed type: Tereno		**Inventory number:**
Location:		
Number of the switch mode power supply:		**Serial number:**
Manufacturer: StiegelmeyerGmbH & Co. KG		**Applied parts:** Mattress base, headboard, footboard, safety sides
Testing equipment used (type/ inventory no.):	1.	
	2.	
Medical Device Regulation classification: Class I		

I. Visual inspection		OK	Not OK	Description of defect
What?	**How?**			
Visual inspection of the electrical components (if installed)				
Stickers and type plates	Present, legible			
Up-to-date instruction manual for the product in question	Present, legible			
Control unit housing, external plug-in power adapter (optional)	Correct position, damage, signs of spilt liquids/contamination that may affect the insulation			
Motor housings and lifting tubes				
Handset: Housing and keypad film				
Motor cables, handset cable, mains cable, connection cable	Correct cable routing, no damage			
Plug and plug cover on control unit	Present, securely fixed			

I. Visual inspection		OK	Not OK	Description of defect
What?	**How?**			
Visual inspection of the mechanical components (if installed)				
Type plates and warning stickers	Present on bed frame, legible			
Patient lifting pole, adapter sleeves, grab handle with strap	No damage or deformation			
Bed construction (mattress base and chassis)	No damage or deformation, no split welded seams			
Castors	No damage			
Mattress base	No damage or cracks			

I. Visual inspection		OK	Not OK	Description of defect
What?	**How?**			
Wooden surround	No damage or splinters			
Welded seams	No split welded seams			
Safety sides	No damage, cracks or deformation			
Connecting elements (screws, bolts, nuts, safety caps)	Secure fixing, no missing parts			
Wearing parts, joints	No damage or severe wear			
Plastic parts, various	Free of sharp-edges, damage/ breakage			

II. Electrical measurement according to DIN EN 62353 (VDE 0751-1)

Use only measuring instruments according to DIN EN 62353 (VDE 0751-1)

Note: To minimise measuring errors, route the test leads as far away as possible from and not parallel to the power cables and handset cables of the bed. Also observe the operating instructions for the measuring instruments used

Insulation resistance (to be carried out only if there are doubts about the electrical insulation, such as:

- If the customer's RCD (residual current circuit breaker) has tripped several times
- If defective electrical housings are found and at the same time there are signs of spilled liquids/ contamination there that could affect the insulation

1. Plug the mains cable/switching power supply into the test socket of the measuring instrument.
2. Connect the measuring instrument probe at the common measuring point of all applied parts: = bare screw of the backrest swivel joint underneath the backrest on the mattress base frame
3. Start the measuring procedure on the measuring instrument; measuring voltage = 500 V DC

	Limit value	Measured value			
Result: Bed prot. class II (type B)	7 MΩ	MΩ			

II. Electrical measurement according to DIN EN 62353 (VDE 0751-1)					
Leakage current (direct or differential current measurement)					
1. Plug the mains cable/switching power supply into the test socket of the measuring instrument 2. Connect the measuring instrument probe at the common measuring point of all applied parts: = bare screw of the backrest swivel joint underneath the backrest on the mattress base frame 3. Operate the motors using the handset for the duration of the measurement 4. Start the measurement procedure on the measuring instrument					
	Limit value	**Measured value**			
	0.1 mA	____ mA (normalised to rated value of mains voltage)			
In case of measured voltage external conductor - earth		___ volt			

III. Functional test:				
What?	**How?**	**O K**	**Not OK**	**Description of defect**
Functional test of the electrical components (if installed)				
Battery powered operation; capacity of battery	Requirements: Battery is charged + bed is disconnected from power supply: Test: Load bed with approx. 80 kg (=1 person); at least 2 cycles height adjustment Up/Down until must be possible before cut-out.			
End of travel cut-out of the motors	Automatic cut-out at both end positions			

III. Functional test:				
What?	**How?**	**O K**	**Not OK**	**Description of defect**
Handset, control devices, locking functions, external power supply	Test according to instruction manual. No ‘rattling’ when shaken			
Motors	No abnormal noise development (rattling, uneven running etc.)			
Installation of cable harness and fixing of plugs and strain relief	Securely attached, firmly fixed as per operating instructions			
Functional test of the mechanical components (if installed)				
Joints and pivots	Smooth operation			
Lower leg rest (ratchet mechanism)	Engages evenly on both sides; test according to instruction manual			
Castors, all	Effective braking, brakes engage securely			
Safety sides	Check that they lock into place and release properly			
Accessories (e.g. patient lifting pole, grab handle, external safety sides)	Fastening, damage, fitness for purpose			
Grab handle with strap	Securely fixed when load tested under approx. 75 kg load (hang from it briefly with two hands)			
Plastic parts, various	No damage, deformation or sharp-edges			

Overall inspection result
Defects/remarks:
[ ] No safety or functional defects were detected
[ ] No direct risk, the defects detected can be rectified quickly

Overall inspection result			
[ ] Device must be taken out of circulation until the defects have been rectified!			
[ ] Device 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: [ ] Enclosure, page 3/3: Dimensional check of safety sides in compliance with statutory regulations [ ]			
Checked:	**Date:**	**Name:**	**Signature:**
Approved	**Date:**	**Name:**	**Signature:**
Address/stamp of responsible company:			

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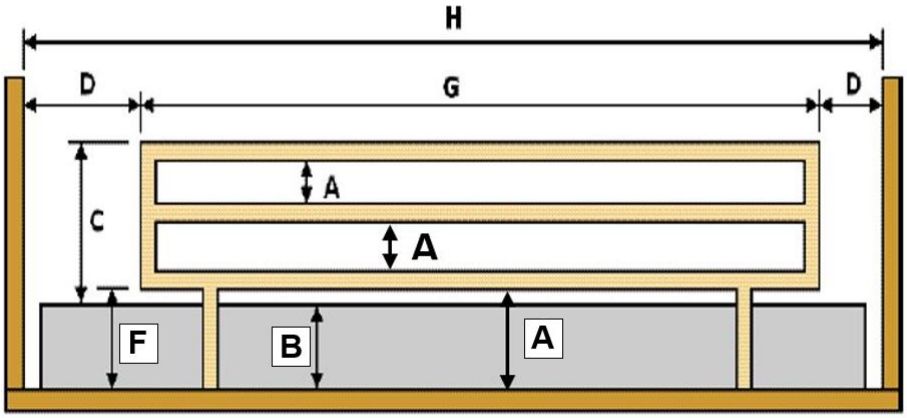
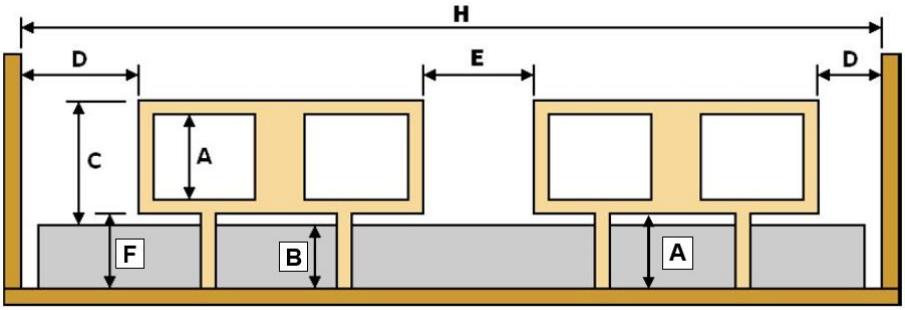
When measuring the distances, the dimensions resulting from likely mechanical loads are decisive!	
Dimensions of a one-piece safety side	
Dimensions of a split safety side	

Dimensional check of safety sides in compliance with statutory regulations:

Item	Description of dimension	Required	Actual	OK	Not OK
A	The greatest dimension in at least one direction between components of the safety side/handle in all normally used positions.	A ≤ 120 mm			
B	Thickness of the normally used uncompressed mattress as indicated by the manufacturer	B ≥ 120 mm**			
C	Height of the upper edge of the safety sides above the uncompressed mattress and the bed base in a level position	C ≥ 220 mm			
D	Distance between the headboard/footboard/accessories and the safety sides/handle with the bed base in a level position. Also applies in the case of an extended foot section/bed extension	D ≤ 60 mm or D ≥ 318 mm *			
E	Distance between split safety sides with the mattress base in a level position	≤ 60 mm or ≥ 318 mm			
F	The greatest dimension in at least one direction of each opening under the safety sides	if D or E ≥ 318 mm* then F ≤ 60 mm, if D or E ≤ 60 then F ≤ 120			
G	Length of the safety sides	G ≥ 50% H	G = H ** G > 50%H***	x	
*Data from manufacturer modified in view of new bed directive IEC 60601-2-52. D ≥ 318 mm is only admissible at foot end of bed.					
** Data from manufacturer supplemented for the existing full-length safety side configuration					
*** Data from manufacturer supplemented for the existing split safety side configuration with at least the safety sides at the head end raised (if completely raised at head end and foot end, this corresponds to a one-piece safety side; see **)					

Item	Description of dimension	Required	Actual	OK	Not OK

Source: Bavarian State Ministry for Health, Nutrition and Consumer Protection, Dept. 5, Schellingstr. 155, 80797 München (Munich); www.stmgev.bayern.de; email: presse@stmgev.bayern.de

13.4.3 Inspection by the user

Besides the regular comprehensive inspections by qualified technical staff, the normal user (care staff, caregiving relatives etc.) must also carry out a minimum of visual inspections and functional checks at short, regular intervals and before use by a new person.

Recommendation: Inspect all electrical and mechanical components once a month. In addition to the above, check the switching power supply and the handset cable every time they have been subjected to mechanical stress and each time after the bed has been moved to a new location.

Contact the operator responsible if defective parts need to be replaced or repaired.

Check				
What?	**How?**	**OK**	**Not OK**	**Description of defect**
Visual inspection of the electrical components (if installed)				
Handset, handset cable	Check for damage, correct cable routing			
Switching power supply	Check for damage, correct cable routing			
Control devices	Check for damage, foil			
Visual inspection of the mechanical components				
Patient lifting pole, adapter sleeves	No damage or deformation			
Grab handle with strap	No damage			
Bed frame	No damage or deformation			
Mattress base, frame, covers; plastic parts	No damage, deformation or sharp-edges			

Check				
What?	**How?**	**OK**	**Not OK**	**Description of defect**
Safety side bars, wooden surround	Check for damage, splinters			
Functional check of the electrical components (if installed)				
Handset	Functional test			
Functional check of the mechanical components (if installed)				
Castors	Secure braking			
Emergency CPR lowering of backrest	Lowers when release lever is activated			
Screws, motor bolt	Fixed securely			
Safety sides	Functional test, safe locking, unlocking			
Lower leg rest	Functional test, safe locking			
Accessories (e.g. patient lifting pole, grab handle)	Securely fixed, check for damage			
Inspector’s signature: Inspection result.				Date:

14 Replacement of electrical components

14.1 Safety information

⚠ WARNING

Risk of injury

Failure to heed this warning may result in injury due to electric shock.

- Any work and/or repairs to the electrical equipment must only be carried out by Stiegelmeyer service engineers, the actuator manufacturer or qualified and authorised electricians in compliance with all relevant local rules and regulations (e.g. VDE regulations in Germany) 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

Risk of injury

Failure to heed this warning may result in physical injury due to crushing.

- The bed must be in the home position (with the mattress base horizontal) in order to remove the control unit and the drives.
- Before removing drives, secure the affected adjustable bed elements from accidentally falling (e.g. using suitable support stands).

⚠ WARNING

Risk of injury

Failure to heed this warning may result in physical injury due to faulty maintenance.

- The components (control unit, drives, LCD handset etc.) of the electrical drive 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 inserted into the control unit as far as they will go. This is the only way to ensure proper sealing and faultless operation.
- Ensure the polarity is correct when inserting plugs and do not apply excessive force if the plug does not fit. The plugs have a groove and therefore only fit into the corresponding connection sockets with one polarity.
- Do not wrongly connect the motor connections on the control unit. This can lead to malfunctions or even result in mechanical damage to the drives due to the system not switching itself off at the end position.
- After replacing the control units and/or the attached drives for adjusting the mattress base height, always initialise the control unit (= re-align the electronic path measurement for these drives). This sets a new reference point in the control unit for correctly measuring the path and avoids faults or damage to the lifting mechanism.

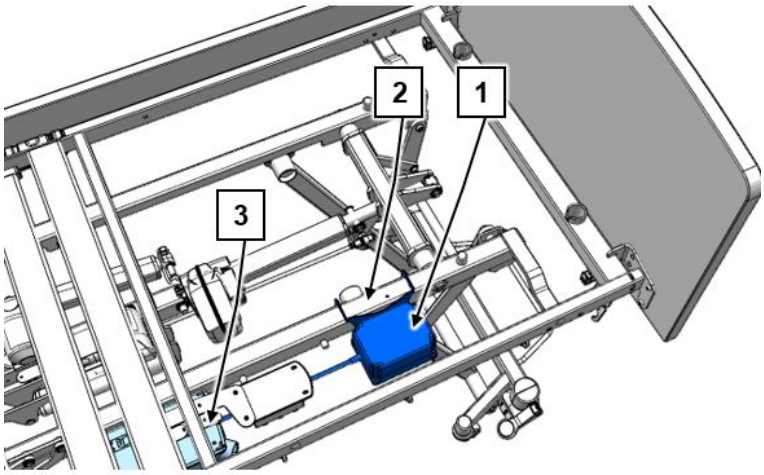
- The plugs for the components are connected to the appropriate control unit. To prevent the plugs from being inadvertently disconnected, they are secured with a locking device. This device can be carefully lifted off using a screwdriver if necessary.
- The control unit sockets should be lightly greased 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 Replace the battery

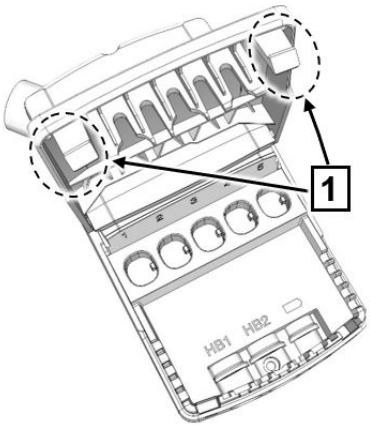
For safety reasons, only the complete battery units can be exchanged. Their housings are permanently welded shut and cannot be opened.

Spare parts can be obtained from Stiegelmeyer.

Note: The battery [1] is supplied with a holder. It is hooked onto the longitudinal tubing under the backrest [2] at the head end of the bed and then connected to the control unit [3] (see illustration).



1. For safe and easy installation, move the mattress base and the backrest to the highest position.
2. Unplug the mains plug from the electrical socket.
3. Open the cover of the control unit by pressing both securing clips [1] in with a screwdriver, and then open up the cover straight downwards until it engages; this also unlocks all plug connections.



4. Disconnect the battery plug from the control unit.
5. Remove the old battery, including its holder, from the longitudinal tubing of the bed.
6. Replace the battery with an identical new battery.
7. Plug the battery plug into the connection socket and then close the cover of the control unit. This must engage in place so that it secures all the plug connections.

Note: In order to connect the electrical components correctly, please observe the chapter Electrical connection diagram » 45.

8. Press the cable into the existing cable holders located under the longitudinal tubing. Doing this will prevent the cable from getting caught or otherwise damaged when the bed is adjusted.
9. Test the electric adjustments to ensure they work correctly!
10. Charge the battery. To do so, connect the bed to the mains power supply for at least 8-10 hours. Only then is the battery ready for emergency use without restriction.

14.3 Mains cable replacement

If an internal switch mode power supply is used

1. For easy installation, move the mattress base and the backrest to the highest position.
2. Unplug the mains plug from the electrical socket.
3. At the head end of the mattress base frame, release the strain relief for the mains cable.
4. Remove the mains cable from the holders.
5. Unplug the IEC connector from the control unit.

   → To do so, press the red securing clip on the IEC connector down through the slot in the plug socket.

6. Plug the new IEC connector into the control unit.

   → The red securing clip must engage properly in the control unit.

7. Replace the mains cable in the holders.
8. Screw the mains cable strain relief back in place.
9. Plug the mains cable into an electrical socket. The control unit LED must light up green.
10. Test the electric adjustments to ensure they work correctly!

If an external switch mode power supply is used

1. For easier installation, adjust the mattress base to its highest position.
2. Unplug the switch mode power supply from the electrical socket.
3. Unplug the cable for the switch mode power supply from the connection socket on the mattress base frame at the head end of the bed

   Please note: The connection socket for the switch mode power supply is equipped with a pull-out prevention device [1].

- Pull the pull-out prevention device [1] towards the left to release the retaining element.
- Unplug the cable for the old switch mode power supply [2] from the connection socket.

4. Plug the cable of the new switch mode power supply into the connection socket on the mattress base frame at the head end of the bed.
5. Plug the switch mode power supply into an electrical socket. The control unit LED must light up green.
6. Test the electric adjustments to ensure they work correctly!

14.4 Replace the handset with a new one

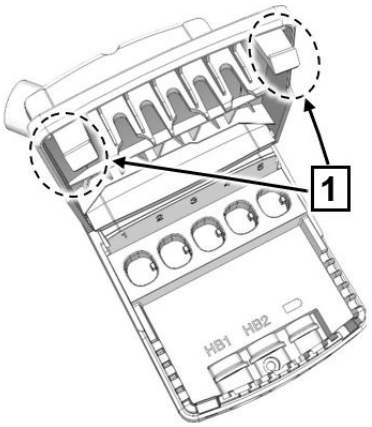
In order to reconnect the electrical components correctly after replacement, it is essential to observe the information in the chapter Electrical connection diagram » 45.

The following description applies to both the standard handset and the (optional) LCD handset.

- If possible, raise the bed to its highest position to make work easier.
- Unplug the mains plug from the electrical socket.
- Track the handset cable to the connecting point on the bed.

The handset is connected to the control unit. If an optional under bed light is fitted, the handset is connected directly to the under bed light.

1. **In the case of the control unit:**Open the cover of the control unit by pressing both securing clips [1] in with a screwdriver, and then open up the cover straight downwards until it engages; this also unlocks all plug connections.



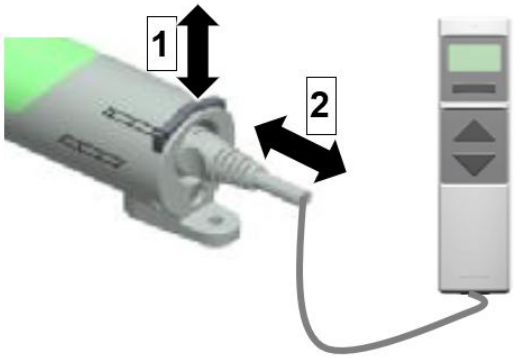
In the case of the under bed light: Carefully pull out the securing clip [1] slightly using a flat-blade screwdriver. The clip will engage and remain in its pulled out position.

2. Unplug the handset [2] and plug in a new handset with the plug groove aligned to the socket.

   Make sure that the O-ring on the plug is not damaged. This O-ring ensures that the plug is tightly sealed.

3. **In the case of the control unit:** close the cover again. Make sure that the cover engages to securely lock the plug connections.

   In the case of the under bed light: Press the securing clip [1] down again.



Additional step when replacing an LCD handset:

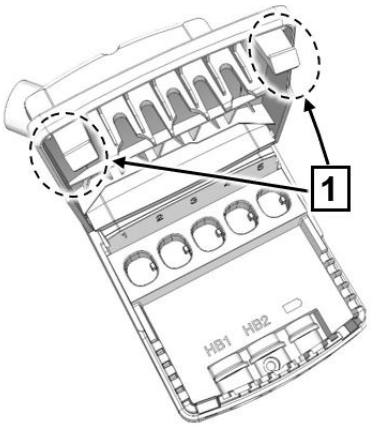
Programme the LCD handset. See Programming the LCD handset » 159.

14.5 Replace the motor

1. Unplug the mains cable from the socket.
2. Remove the faulty motor.

   - Remove the motor including its cable. The cable is a fixed part of the motor. The routing of the cable must therefore be uncovered. **Exception:** In the case of lift motors with an Out-of-Bed function, the cable can be removed directly from the motor once the securing clip has been pulled out. After this, continue with step 5.

3. Open the cover of the control unit by pressing both securing clips [1] in with a screwdriver, and then open up the cover straight downwards until it engages; this also unlocks all plug connections.

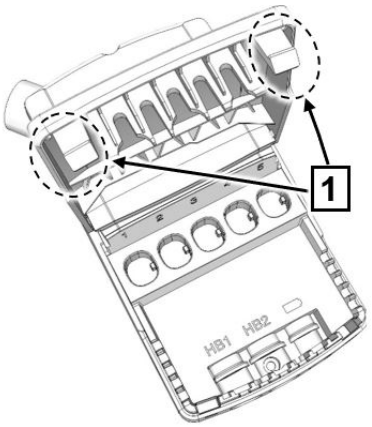


4. Unplug the plug-in cable connection on the control unit.
5. Fit the new motor in the same way.
6. To prevent the motor bolts from working loose, always ensure that you fit new safety washers (“Starlock”; available from Stiegelmeyer’s service department) and do not refit the old washers that you removed.
7. Perform a new initialisation of the control unit; see Initialising the control unit » 153.
8. After this, check the motorised bed adjustment functions; see chapter Use/routine » 89.

14.6 Replace the control unit

In order to reconnect the electrical components correctly after replacement, it is essential to observe the information in the chapter Electrical connection diagram » 45.

1. If possible, raise the bed and backrest to the highest position to make work easier.
2. Unplug the mains plug from the electrical socket.
3. Release the terminals of the control unit from the locking fitting on the bed:
   To do so, use your fingers to press down on the protruding snap-in catch located on the centre front of the housing near to the power input and slide the control unit off.
4. Unplug the IEC cold connector from the control unit. To do this, use a screwdriver to slightly press the red securing hooks together on the IEC connector.
5. Open the cover by pressing both securing clips [1] in with a screwdriver, and then open up the cover straight downwards until it engages; this also unlocks all plug connections.



6. Label all the motor connectors with the corresponding socket numbers shown on the control unit. This will make it easier to connect everything correctly later.
7. Pull all the plugs straight out. A certain amount of force is required due to the integrated O-ring seals.
8. Plug the IEC cold connector into the new control unit. Make sure that the red securing clip of the IEC connector fits and engages correctly. This prevents the connector from being accidentally pulled out.
9. Reconnect the previously disconnected plugs. Take particular care to ensure the groove on the handset plug is in the correct position in relation to its counterpart in the socket.
10. Clip the leads back into the appropriate places in the control unit housing and close the cover again. Make sure that the cover engages to securely lock the plug connections.
11. Mount the control unit back in the holder.
12. Plug the mains cable into an electrical socket. The control unit LED [9] must light up green.
13. Perform a new initialisation of the control unit; see Initialising the control unit » 153.
14. Test the electric adjustments to ensure they work correctly!

14.7 Initialising the control unit

This is necessary after installing a new control unit, or when replacing one or both lifting drives of the mattress base height adjustment, or if height adjustment of the mattress base is not possible or only partly possible.

This involves assigning the path impulses of the lifting drives to a reference point by means of a reference run.

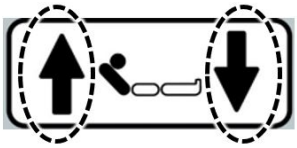
The initialisation procedure must be carried out by technical personnel only.

Any restrictions on lowering the mattress base height which have been saved will be lost.

There must be no pauses longer than 6 seconds between the steps without pressing a key. The system will otherwise switch back to the normal operating mode.

Depending on the control devices available, an initialisation is possible in different ways:

14.7.1 On the handset



1 Press and hold both of the marked buttons simultaneously (a continuous signal sounds) until after approximately 5 seconds an intermittent signal sounds (= RESET/ manual mode).

2 Within 6 seconds: Press the Mattress Base UP button and keep it pressed.

The lifting drives move to the highest horizontal position until both drives switch off automatically at the upper limit. The intermittent signal then stops.

Release the buttons.

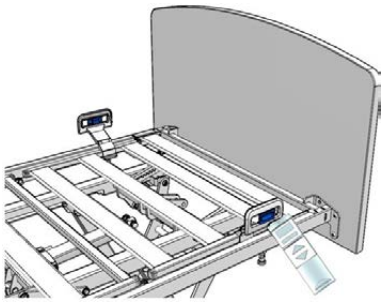
3 You can now unlock the functions you wish to release for the resident; see chapter Locking/ unlocking electric adjustment functions » 91.

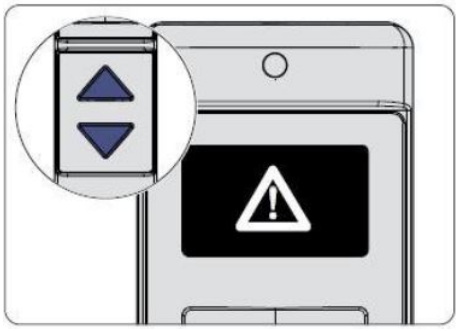
If no adjustment takes place, and intermittent acoustic signals sound instead, this means that the control unit has detected a fault and is locked. In this case, reset the control unit; see Reset the control unit » 156.

14.7.2 On the LCD handset

1

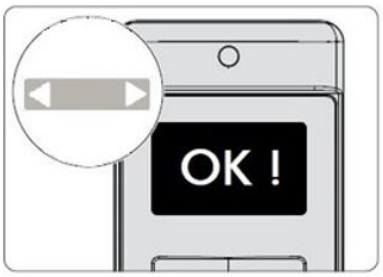
Plug the mains cable from the control unit into the electrical socket. If “INIT” appears immediately, go to step 5. Otherwise continue with step 2.

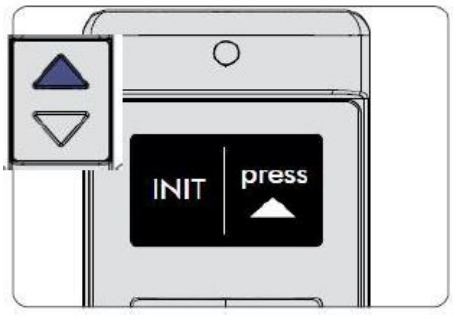




2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly (for about ½ second) against the magnetic unlocking key.

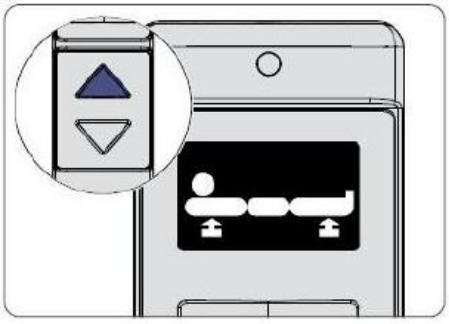
3 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the flashing warning triangle symbol and then OK! is displayed.

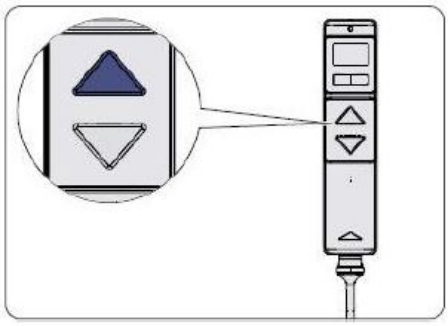




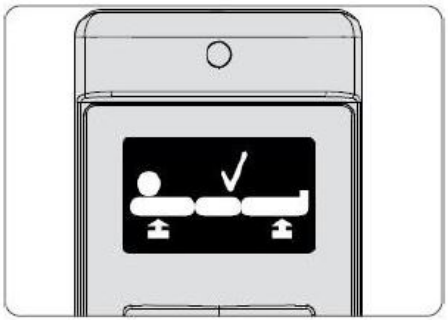
4 Press the toggle left button once to change the display to the next image INIT (step 5).

5 Select the initialisation function by pressing the UP button.

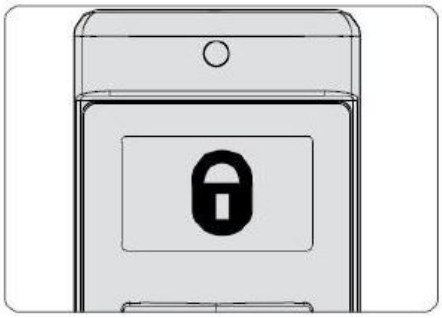




6 Press the UP button on the LCD handset. The height adjustment drive symbol will appear on the display.



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 Lift Drive OK symbol appears. Confirm this by pressing the UP button. (If this symbol does not appear, this means the control unit was already successfully initialised once before).

9 The padlock symbol appears on the display.
You can now unlock the functions you wish to release for the resident; see chapter Locking/unlocking electric adjustment functions » 91.

10 Now, perform these steps on every available control device: Programming the LCD handset » 159.

If no adjustment takes place, and intermittent acoustic signals sound instead, this means that the control unit has detected a fault and is locked. In this case, reset the control unit; see Reset the control unit » 156.

14.8 Reset the control unit

Reset the control unit in the following cases:

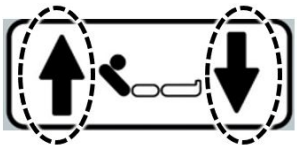
- If a serious error was detected by the control unit and this has now been properly rectified but the control unit has locked out the affected functions for safety reasons. Locking can be caused, for example, by:
  - A fault in the handset (e.g. a short-circuit/interruption in the cable; a jammed button)
  - Fault in the adjustment motors (e.g. a short-circuit/interruption in the cable, or a fault in the position detection/in the end position switch)
  - An internal fault in the control unit
- After replacement of the LCD handset (optional), for programming into the existing control unit, provided that the control unit has already been properly initialised; see chapter Initialising the control unit » 153

- If the module emits regular sound signals when making motorised adjustments, and/or no adjustments are possible or adjustments are only possible on one side

Effect:

- Deletes any existing saved errors (RESET). The last error is retained and can be read out/displayed; see chapter Displaying/deleting last fault on LCD handset » 169.
- Programmes the LCD handset to correspond to the functions of the control unit and the attached accessories.

14.8.1 On the handset



1. Press and hold both of the marked buttons simultaneously (a continuous signal sounds),
2. until slow intermittent signals sound after approximately 5 seconds (= RESET/ manual mode).
3. Release the buttons.

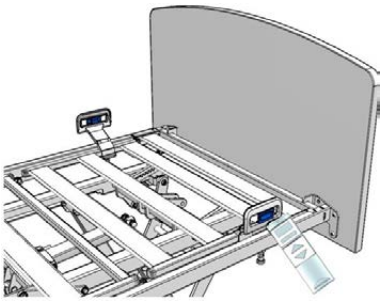
   → The slow intermittent signal tone stops after 5 minutes.

   → The RESET has now been successfully completed.

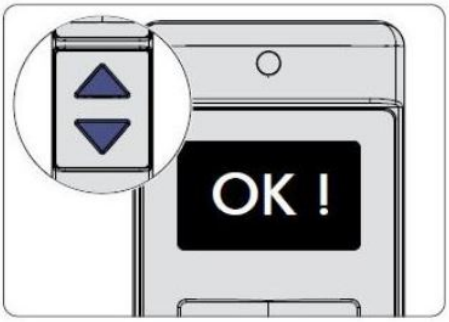
   → All LEDs light up orange and the handset is locked.

4. You can now unlock the functions you wish to release for the resident; see chapter Locking/ unlocking electric adjustment functions » 91.

14.8.2 On the LCD handset

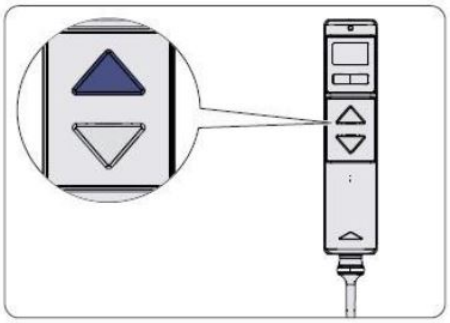


1 The warning triangle symbol is displayed on the LCD handset. All adjustment functions are locked.

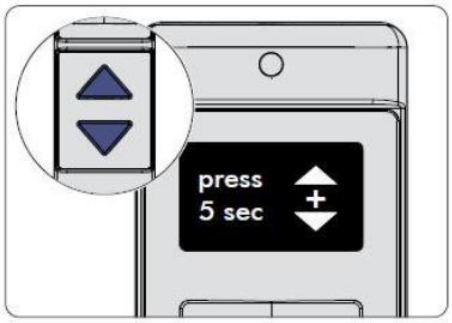


2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly (for about ½ second) against the orange magnetic unlocking key at the foot end of the bed.

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

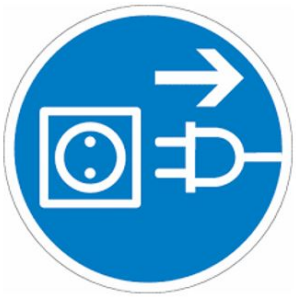


4 Select the RESET function by pressing the toggle switch.



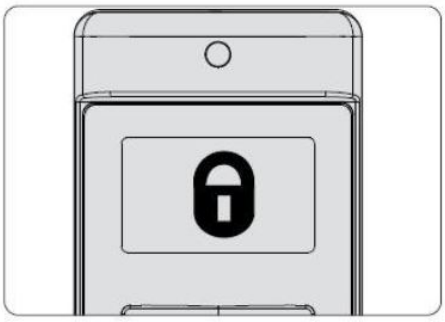
5 Press the UP button to confirm that you wish to select the RESET function and to continue the procedure. The display changes.

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!

8 Unplug the bed from the power socket for about 30 seconds and then plug it in again.



9 The padlock symbol is displayed. **The RESET is now successfully completed**.
You can now unlock the functions you wish to release for the resident; see chapter Locking/ unlocking electric adjustment functions » 91.

14.9 Programming the LCD handset

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

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

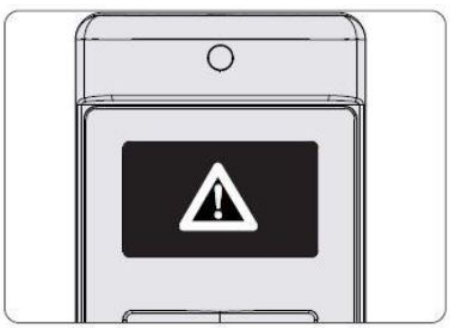
During the programming procedure, the LCD handset recognises the range of functions of the control unit and is adapted accordingly. The LCD handset will not work unless it has been programmed!

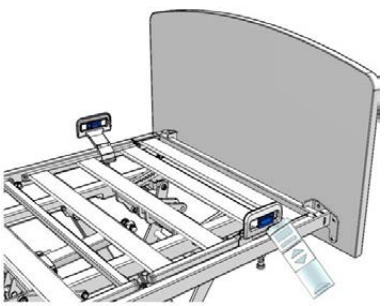
⚠ ATTENTION

Risk of malfunctions

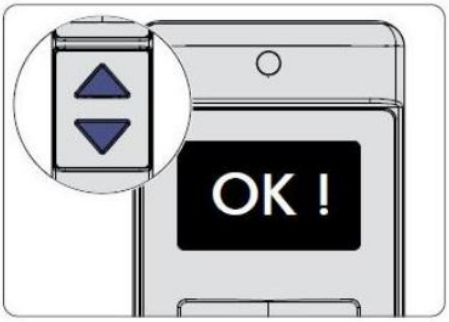
Failure to heed this warning may result in a malfunction.

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



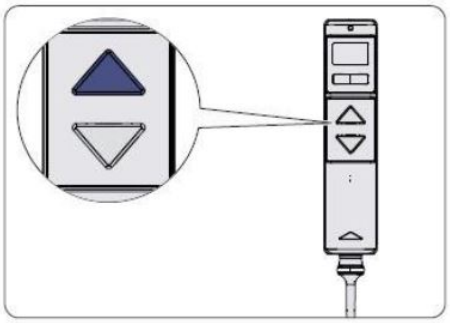


1 The warning triangle symbol is displayed on the LCD handset. All adjustment functions are locked.

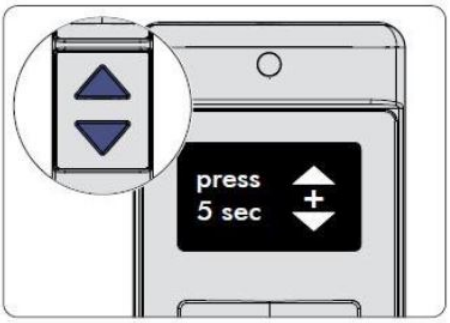


2 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly (for about ½ second) against the orange magnetic unlocking key at the foot end of the bed.

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

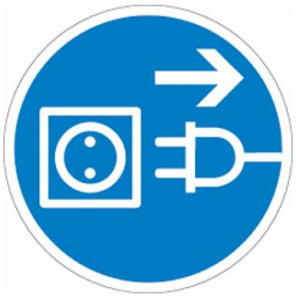


4 Select the RESET function by pressing the toggle switch.



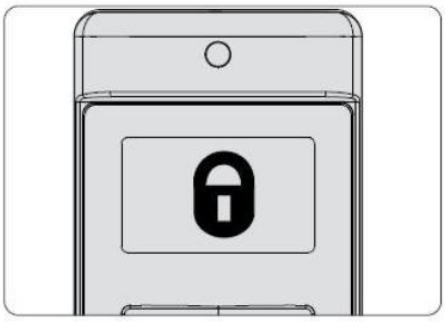
5 Press the UP button to confirm that you wish to select the RESET function and to continue the procedure. The display changes.

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!

8 Unplug the bed from the power socket for about 30 seconds and then plug it in again.



9 The padlock symbol is displayed. **The RESET is now successfully completed**.
You can now unlock the functions you wish to release for the resident; see chapter Locking/ unlocking electric adjustment functions » 91.

15 Troubleshooting

15.1 Faults and their rectification

Optional bed features are indicated by an asterisk (*).

Problem	Possible causes	Rectification
Handset/LCD handset*/drive system not working	Mains cable not plugged in	Plug mains cable in; mains power indicator must light up (green) on the control unit
	No power supply to mains socket	Check socket and fuse box
	Plug not inserted properly	Check plug connections
	Drives are locked	Unlock the functions
	Handset, mains cable or control unit is defective	Inform your operator if repairs are necessary
	No RESET was performed after replacing the LCD handset	Perform RESET (→ Reset the control unit » 156)
	Serious error/motor fault has occurred	Perform RESET (→ Reset the control unit » 156)/replace the motor
Handset/LCD handset* not functioning, adjustments are not locked	Handset faulty	Replace the handset with a new one
Newly connected LCD handset* not working	LCD handset not programmed	Programme the LCD handset (see Programming the LCD handset » 159).
Green LED on external switch mode power supply* does not light up and drive system does not work	Mains plug not properly plugged in/no power supply to mains socket	Plug in the mains plug/ check the mains socket and fuse box
	Switch mode power supply faulty	Replace the switch mode power supply. Inform your operator if repairs are necessary
Battery-powered operation* not possible	Battery discharged	Connect the bed to the mains supply for approx. 10-12 hours

Problem	Possible causes	Rectification
	Battery faulty	Replace the battery
	Battery not inserted properly	Check the plug/cable routing
	There is no rechargeable battery	Fit a battery
Battery-powered operation* only possible for a short time despite sufficiently charged battery	End of battery life reached	Replace the battery. Inform your operator if repairs are necessary
Constant signal tone sounds during adjustment	Battery capacity depleted	Connect bed to the mains supply to recharge the battery as soon as possible
With an external switch mode power supply*: Drives stop suddenly after lengthy period of adjustment	Thermal switch in switch mode power supply was triggered by overload	Do not make continuous bed adjustments for more than 2 minutes! After 2 minutes of continuous operation, a break of at least 18 minutes must be observed To reset the switch mode power supply after an overload: Disconnect the device from the power supply and let it cool down for at least 30 minutes. Then reconnect the device to the power supply. If the device still does not function: Device is faulty – replace the device
Operation is not possible despite proper power supply	Control unit has shut down temporarily due to overheating	Do not make continuous bed adjustments for more than 2 minutes! After 2 minutes of continuous operation, a break of at least 18 minutes must be observed Let control unit cool down for about 20 minutes, then test it again
	The control unit has detected a fault and for safety reasons has locked the adjustment functions	Perform RESET (→ Reset the control unit » 156)

Problem	Possible causes	Rectification
	Control unit defective	Replace the control unit. Inform your operator if repairs are necessary
Mains power indicator in control unit does not light up	No power supply to socket	Use an electric socket that works properly
	Mains cable damaged	Replace the mains cable
	Fuses in control unit defective	Replace the control unit. Inform your operator if repairs are necessary
Drive runs for a brief time only, then stops or can then only be activated in the opposite direction.	Drive overloaded	Remove the overload (briefly operate drive in the opposite direction), then retest
	One or more motors are not connected	Connect all motors
	Structural obstructions in the way of bed adjustment	Remove obstructions; move bed away from obstructions (e.g. windowsills, slanting ceilings)
Control unit is not functioning: Display screen 	There is a problem with the drive system. For safety reasons, all functions are locked.	Find the source of the error and rectify it → Fault display on LCD handset » 166), then: RESET the control unit: Reset the control unit » 156 If problem recurs: Have drive system checked. Inform your operator if repairs are necessary
	One or more motors are not connected properly/ electrical plug connections have come loose	Check electrical connection of all motors/plug connections
Control unit is not functioning: Mains control lamp in control unit is on. No display indications. No LED indications on any control device	OpenBus® power supply short-circuit in the cables on the bed for the control devices/signal switches/sensors:	Disconnect OpenBus® plug connections systematically, one after the other, until a message appears again on the displays/LED: The cable/compo-

Problem	Possible causes	Rectification
	Cable pinched/tightly stretched? Short-circuit in plugs due to highly stretched cables?	nent of the last plug connection to be disconnected is defective → replace it Then check the function of the entire system: in case of further malfunctions/fault messages, continue troubleshooting (→ RESET: Acknowledging faults on LCD handset » 168).
Height adjustment and tilting do not work; signal tone sounds during adjustment	Control unit has “forgotten” the drive positions	To initialise the control unit (→ Initialising the control unit » 153)
Pulsating beeping sound when button pressed, when bed connected to power supply	Motor fault	Replace the motor
	Handset fault	Replace the handset with a new one

15.2 Fault message on handset

LED indicator	Type of fault	Solution
Backrest flashing	Fault in adjustment motor for backrest; end position switch not recognised LED for backrest flashing; control unit beeps when button pressed; all other LEDs are off	Check that cable connections are correct (see Electrical connection diagram » 45) Replace the motor
Thigh rest motor flashing	Fault in adjustment motor for thigh rest; end position switch not recognised LED for thigh rest flashing; control unit beeps when button pressed; all other LEDs are off	
Height adjustment flashing	Height adjustment fault (drive at head end)	

LED indicator	Type of fault	Solution
	LED for height adjustment is flashing; control unit beeps when button pressed; all other LEDs are off	
All LEDs on the handset are flashing	Fatal error in handset	Perform RESET (see Reset the control unit » 156)
LED Trendelenburg and reverse-Trendelenburg position flashing	Height adjustment fault (drive at foot end)	Perform RESET (see Reset the control unit » 156) Replace the motor

15.3 Fault display on LCD handset

Faults in the bed adjustment drives and the control devices are indicated on the display.

Display screen	Type of fault	Solution
	General fault indication on the display. Adjustment drive cannot be activated. A signal tone sounds when a button is pressed.	1. Switch to technician control level. A more detailed fault indication is given there (→ chapter RESET: Acknowledging faults on LCD handset » 168) 2. Resolve the fault according to the troubleshooting guide 3. Conduct the entire RESET process in full and acknowledge the fault (→ chapter RESET: Acknowledging faults on LCD handset » 168)
	Malfunction in external data bus (OpenBus®) of connected control devices/bus junction boxes (MJB). Most likely causes 1. Malfunction of a handset (e.g. jammed button or broken cable/short-circuit) 2. Unintended extended activation of a button (e.g. through sitting/lying on handset)	Systematic troubleshooting: 1. Identify + replace defective LCD handset/control unit (→ chapter Replace the handset with a new one » 150; + perform RESET with the replaced LCD handset (→ chapter RESET: Acknowledging faults on LCD handset » 168). Next, disconnect the bed from the mains power supply for about 30 seconds and then reconnect it.

Display screen	Type of fault	Solution
	3. Loose connection/moisture ingress in an OpenBus® plug connection (MJB; control unit; under bed light)	2. Find and eliminate the cause of the extended activation of button + perform RESET on control unit (→ chapter RESET: Acknowledging faults on LCD handset » 168) 3. Check all internal plug connections/components; replace defective parts: • O-seal ring present/correctly inserted? • Plug fully inserted as far as it will go and secured against loosening with retaining clips engaged? + perform RESET on control unit (→ chapter RESET: Acknowledging faults on LCD handset » 168)
	Internal control unit fault (very rare)	Replace the control unit →
	Height adjustment fault (drive at head end)	1. Check/replace cable/plug + perform RESET on control unit (→ RESET: Acknowledging faults on LCD handset » 168) + perform initialisation (→ Initialising the control unit » 153) 2. If error still persists: Replace motor + perform RESET on control unit (→ RESET: Acknowledging faults on LCD handset » 168) + Perform initialisation (→ Replace the control unit » 152)
	Height adjustment fault (drive at foot end)	
	Height adjustment fault in both drives	
	Backrest drive fault	
	Thigh rest drive fault	

15.4 RESET: Acknowledging faults on LCD handset

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

⚠ WARNING

Risk of injury

Failure to heed this warning may result in injuries due to unintended functions of the control unit!

- Acknowledge the fault as described below.
- If the control unit automatically locks within a short space of time, contact Stiegelmeyer's Customer Service to rectify the cause of the fault.

Depending on the bed fixtures, the locked function is indicated by:

- an appropriate warning symbol  on the display panel of connected control devices
- Control unit beeps if any button is pressed.

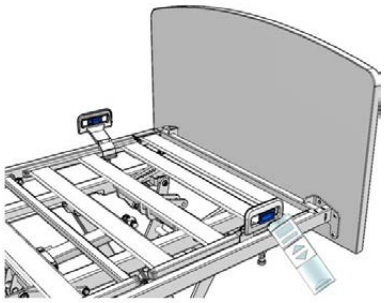
If the resident presses a button, a signal tone indicates a fault. If after a RESET it is still not possible to carry out a mattress base height adjustment, please additionally carry out a new initialisation.

⚠ ATTENTION

Risk of malfunctions

Failure to heed this warning may result in a malfunction.

- Faults must only be rectified by service personnel.
- Rectify faults as instructed in the fault rectification table. Faults must not be acknowledged until they have been rectified.



Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the handset against the orange magnetic unlocking

key until the warning symbol disappears and the current fault appears (see Fault display on LCD handset » 166).

Then perform the following additional steps:

No.	Display	Press buttons	Display	Description
1	Current fault, e.g.: 			Advance to the next view
2				Press both buttons until display shows >RESET<. Keep pressed for 5 s until >OK !< appears. If other faults are present, the next fault is shown instead of >OK< and must be acknowledged by repeating steps 1+2
3	Additional faults, if  present, or	--		5 short signal tones until display  shows > < RESET is complete; all errors are acknowledged; all functions are locked

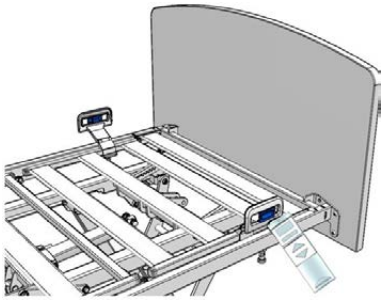
After the acknowledgement procedure has been completed, the padlock symbol appears. You can now unlock the functions you wish to release for the resident (see Locking/unlocking electric adjustment functions » 91).

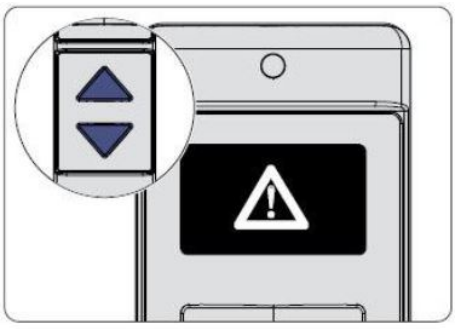
15.5 Displaying/deleting last fault on LCD handset

Displaying the last fault that occurred can be helpful in error analysis.

The fault messages can only be called up and deleted by service personnel.

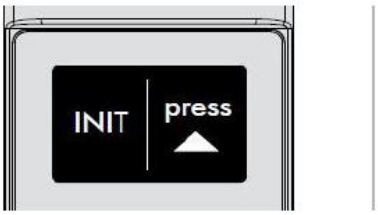
Call up and display the last fault on the LCD handset as follows:

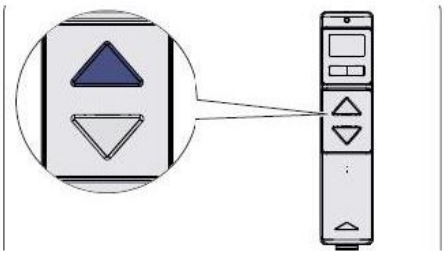




1 Press the UP and DOWN buttons simultaneously and at the same time hold the top end of the LCD handset briefly (for about ½ second) against the magnetic unlocking key.

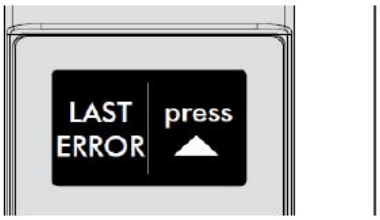
2 Keep both the UP and DOWN buttons pressed for a further 5 seconds while the warning triangle symbol is displayed.

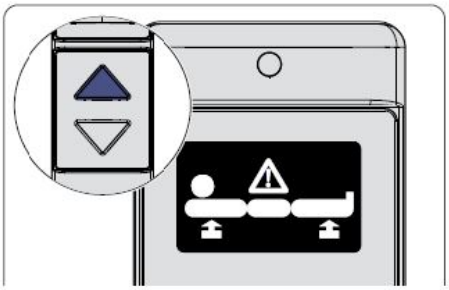




3 Select the initialisation function by pressing the toggle switch.

4 Press the UP button.



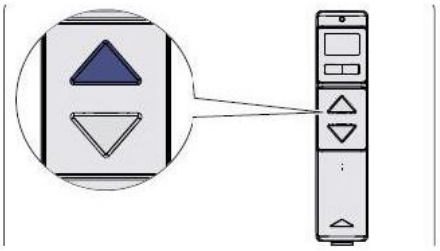


5 The last error function will appear on the display.

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 drive fault).

Press any button to return to the function selector menu.

7 Select the CLEAR function by pressing the toggle switch.



8 Press the UP button to confirm that the fault should be deleted.

9 OK ! confirms the deletion.

16 Disposal

⚠ WARNING

Risk of infection

Failure to heed this warning can result in health risks!

- Please ensure as the operator that all components 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 metal 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 – insofar as it is electrically adjustable – is classified as commercially used electrical equipment (B2B) in accordance with the WEEE Directive 2012/19/EU (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 (drives, 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 department. In other countries outside Germany or the EU, the relevant national regulations must be complied with.

⚠ CAUTION

Environmental risk

Failure to heed this warning may result in environmental damage.

- Do not dispose of batteries in the domestic waste.
- Batteries can be disposed of at local waste collection points in the same way as car batteries.
- Outwardly undamaged, discharged battery sets can also be returned to Stiegelmeyer. In other countries outside Germany or the EU, the relevant national regulations must be complied with.

17 Appendix

17.1 Available accessories

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

⚠ CAUTION

Risk of injury

Failure to heed this warning may result in injury.

- Use only original Stiegelmeyer accessories that match the corresponding bed model. This ensures safe and reliable operation and maximum resident safety.
- Make sure that the accessories do not produce any crush or shearing zones for the resident when the back and leg rests are adjusted. If this cannot be guaranteed, the user must safely prevent the resident from adjusting the backrest and leg rests.

⚠ ATTENTION

Material damage

Failure to heed the following information when choosing and installing accessories can result in damage to property.

- Remove accessories if they are no longer required.
- Only use accessories at the intended positions.
- Avoid causing abrasion, for example, or attaching metal clamps to coated or varnished surfaces without protecting the surfaces.
- Please note when moving the bed that attached accessories 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, avoid applying high lateral forces, such as by pulling on the infusion pole to manoeuvre the bed. Otherwise, the fixing points could be overloaded.

Up-to-date accessories can be obtained from Stiegelmeyer and their sales partners. Please quote the bed model.

The accessories available for this bed include the following:

- Split safety side Vario Safe system
- Mattresses, various (for mattress dimensions, see chapter Dimensions » 38)
- Patient lifting pole (with grab handle)
- LED reading lamp, various
- Wall spacer
- Infusion stand/holder
- Protective covers for safety sides
- Extensions for safety sides

17.2 Information on electromagnetic compatibility (EMC)

⚠ WARNING

Risk of malfunctions

Failure to heed this warning may result in malfunctions.

- Only use accessories approved by the manufacturer. The use of accessories, transducers and cables other than those supplied by the manufacturer of this bed may result in increased electromagnetic emissions or reduced electromagnetic immunity of the bed and may lead to incorrect operation.
- The use of this device next to other stacked devices should be avoided, as this could result in incorrect operation. If such use is nevertheless necessary, this device and the other devices should be monitored to ensure that they are working properly.
- Portable RF communication devices (radio, mobile phones etc.), including their accessories (such as antenna cables and external antennas) should not be used at a distance of less than 30 cm from the electrical parts and cables of this bed. Failure to observe this may result in a reduction in the performance of the device.

To ensure EMC, only use cables and accessories approved by the manufacturer (see Available accessories » 174). Due to the possibility of electrical interference from neighbouring devices, brief interruptions of electric adjustment functions cannot be completely ruled out. For the intended use, no significant performance limitations of this bed are known/expected as a result.

17.2.1 EMC information tables

ATTENTION

Risk of malfunctions

Failure to heed this warning may result in malfunctions of the bed or of surrounding devices.

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

Electromagnetic environment - guidelines
The bed uses HF energy for its internal functions only
The bed is intended for use in all establishments, including residential and typical commercial or hospital environments as well as those connected directly to a public supply network that also serves buildings used for residential purposes
The bed is not intended for connection to other technical equipment
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.
If the person using the bed requires the bed functions to continue despite any interruptions to the energy supply, it is recommended that the bed be connected to an uninterruptible electricity supply or a battery
This bed must not be used in combination with high frequency surgical equipment or in areas where magnetic resonance imaging techniques are conducted

Ambient limit values of the interference emissions	
Phenomenon	**Home healthcare environment**
Conducted and radiated interference emissions	CISPR 11 (Group I, Class B)
Harmonic distortions	see IEC 61000-3-2 (Class A)
Voltage fluctuations and flicker	See IEC 61000-3-3

Sheathing		
Phenomenon	**EMC basic standard or test method**	**Immunity level (test + compliance)**
		Home healthcare environment
Electrostatic discharge (ESD)	IEC 61000-4-2	+/- 8 kV contact
		+/- 2 kV, +/- 4 kV¸ +/- 8 kV, +/- 15 kV air
High-frequency electromagnetic fields	IEC 61000-4-3	10 V/m; (80 MHz up to 2.7 GHz; 80% AM at 1 kHz)
High-frequency electromagnetic fields in the immediate vicinity of wireless communication devices	IEC 61000-4-3	See separate table zz (at the end of this chapter)
Magnetic fields with rated power frequencies	IEC 61000-4-8	30 A/m; 50 Hz or 60 Hz
Magnetic fields at close range	IEC 61000-4-39	8 A/m (30 kHz; CW) 65 A/m (134.2 kHz; 50% PM at 2.1 kHz) 7.5 A/m (13.56 MHz; 50% PM at 50 kHz)

AC port for supply input		
Phenomenon	**EMC basic standard**	**Immunity level (test + compliance)**
		Home healthcare environment
Electrical fast transient disturbances/bursts	IEC 61000-4-4	+/- 2 kV; 100 kHz repetition frequency
Electrical surges: conductor to earth	IEC 61000-4-5	+/- 0.5 kV; +/- 1kV
Conducted interference induced by high-frequency fields	IEC 61000-4-6	3 V; 0.15 MHz to 80 MHz; 6V in ISM and amateur radio frequency bands between 0.15 MHz and 80MHz 80% AM at 1 kHz
Voltage dips	IEC 61000-4-11	0% UT; ½ period; at 0, 45, 90, 135, 180, 225, 270 and 315 degrees

AC port for supply input		
Phenomenon	**EMC basic standard**	**Immunity level (test + compliance)**
		Home healthcare environment
		0% UT ; 1 period; and 70% UT; 25 periods; single-phase at 0 degrees
Voltage interruptions	IEC 61000-4-11	0% UT; 250 periods

Ports for signal input/signal output parts		
Phenomenon	**EMC basic standard**	**Immunity level (test + compliance)**
		Home healthcare environment
Electrostatic discharge (ESD)	IEC 61000-4-2	+/- 8 kV; contact +/- 2 kV, +/- 4 kV¸ +/- 8 kV, +/- 15 kV air
Electrical fast transient disturbances/bursts	IEC 61000-4-4	+/- 1 kV; 100 kHz repetition frequency
Conducted interference induced by high-frequency fields	IEC 61000-4-6	3 V; 0.15 MHz to 80 MHz; 6V in ISM and amateur radio frequency bands between 0.15 MHz and 80MHz 80% AM at 1 kHz

Table zz: Test specifications for the immunity of sheathings to high-frequency wireless communication equipment						
Test frequency MHz	**Frequency band**	**Radio service**	**Modulation**	**Max. power W**	**Distance m**	**Immunity test level v/m**
385	380 to 390	TETRA 400	Pulse modulation 18 Hz	1.8	0.3	27
450	430 to 470	GMRS 460 FRS 460	FM +/- 5% deviation, 1kHz sine wave	2	0.3	28
710	704 to 787	LTE band 13, 17	Pulse modulation 217 Hz	0.2	0.3	28
745						

Table zz: Test specifications for the immunity of sheathings to high-frequency wireless communication equipment						
Test frequency MHz	**Frequency band**	**Radio service**	**Modulation**	**Max. power W**	**Distance m**	**Immunity test level v/m**
780						
810	800 to 960	GSM 800/900 TETRA 800 iDEN820, CDMA 850, LTE band 5	Pulse modulation 18 Hz	2	0.3	28
870						
930						
1720	1700 to 1990	GSM 1800 CDMA 1900, GSM 1900, DECT, LTE band 1; 3; 4; 25; UMTS	Pulse modulation 217 Hz	2	0.3	28
1845						
1970						
2450	2400 to 2570	Bluetooth, WLAN 802.11 b/g/n, RFID 2450, LTE band 7	Pulse modulation 217 Hz	2	0.3	28
5240	5100 to 5800	WLAN 802.11 a/n	Pulse modulation 217 Hz	0.2	0.3	9

17.3 Translation of EC Declaration of Conformity

We, Stiegelmeyer GmbH & CO. KG, in our sole responsibility as the manufacturer, hereby declare that this product complies with the provisions of REGULATION (EU) 2017/745 OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of 5 April 2017 (MDR). The latest full version of the declaration of conformity is available on request from our customer centre (for contact details please refer to the chapter Address, market information » 1).

STIEGELMEYER

Stiegelmeyer GmbH & Co. KG

Ackerstraße 42 / 32051 Herford, Germany

Telephone: +49 (0) 5221 185 - 0 / Fax: +49 (0) 5221 185 - 252

E-mail: info@stiegelmeyer.de

www.stiegelmeyer.com

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